The Textile Mercury:

A Representative Weekly Journal for

Spinners, Manufacturers, Machinists, Bleachers, Colourists, and Merchants,

in all Branches of the Textile Industries.

VOL. I.

APRIL—DECEMBER, 1889.

MANCHESTER:

MARSDEN & CO., *The Textile Mercury* OFFICE, 23, STRUTT STREET.

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Vol. 1.—No. 1. SATURDAY, 27TH APRIL, 1889. PRICE THREEPENCE. Annual Subscription, 12/6 Six Months' ,, 6/6; Three ,, ,, 3/6, Post free.

The Textile Mercury.

OFFICES: 23, STRUTT STREET, MANCHESTER: MARSDEN & Co., Publishers.

LONDON OFFICE—121, NEWGATE STREET, E.C.: Mr. C. VERNON, Representative.

NEW YORK (U.S.A.) OFFICE—95, DUANE STREET, NEW YORK CITY: Mr. BYRON ROSE, Representative,

to whom subscriptions from readers in the United States and Canada may be forwarded.

Editorial Notices.

Articles, Correspondence, Reports, Items of News, etc., on all matters of novelty and interest bearing upon the Textile Industries, home or foreign, are solicited. Correspondents should write as briefly as possible, on one side only of the paper, and in all cases give their names and addresses, not necessarily for publication, but as a guarantee of good faith. When payment is expected, an intimation to that effect should be sent with the contribution. The Editor will do his best to return ineligible MSS., if accompanied by the requisite postage stamps, but will not guarantee their safe return.

*** Readers at home and abroad are invited to avail themselves (gratis) of our columns, for the purpose of entering into communication with machine makers, or others able to supply their wants, and for obtaining any other information on textile matters which they may desire. Their names will not be published unless requested.

All communications to the Editorial department should reach the offices, 23, Strutt Street, Manchester, early in the week in order to receive attention in the next issue.

Publishers' Notices.

All remittances to be made payable to Marsden & Co., 23, Strutt Street, Manchester.

SUBSCRIBERS' COPIES.—THE TEXTILE MERCURY will be forwarded to any part of the United Kingdom, from any date, post free, for 12/6 per annum; 6/6 for Six Months; 3/6 for Three Months.

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Scale of Charges for displayed advertisements will be forwarded on application to the publishers.

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All communications to be addressed to the Offices of THE TEXTILE MERCURY, 23, Strutt Street, Manchester.

Prospectus.

One of the most notable features of the past few years is the development of trade journalism. The many signs of appreciation that have been accorded to this branch of enterprise prove that it has met an urgent and widespread want—a want that became a demand, which has grown and strengthened correspondingly with the extension and the increasing importance of the British industrial and commercial systems. The most conspicuous examples are the great weekly journals representing the agricultural, engineering, hardware, and building trades, all of which ably cater for, and advocate the interests of their respective industries.

It is, however, a remarkable fact that the textile industries of the United Kingdom—which, in the volume of their business, the amount of capital invested therein, and the number of people they employ, rank next after agriculture, and a long way ahead of any other British industry—have, up to the present, been without any adequate representation in journalism. In saying this it is not sought to ignore the several monthly journals that have endeavoured to perform this work; but it need hardly be pointed out that matters are constantly arising on which the various trades require information, and which need to be discussed at much briefer intervals than are afforded by monthly issues of any journal, however ably conducted. The experience gained in connection with such journals has demonstrated to the projector of THE TEXTILE MERCURY the impossibility, under such conditions, of adequately dealing with the enormous interests of the textile industries.

In the belief, therefore, that a weekly textile journal, properly conducted, will meet with due appreciation, THE TEXTILE MERCURY is now submitted for approval to all the spinners, manufacturers, machinists, bleachers, colourists, and merchants, connected with the cotton, woollen, worsted, silk, flax, and jute manufactures throughout the world. In the United Kingdom alone, these, with their allied and subordinate industries, aggregate a constituency of about 25,000, and there is probably an equal number abroad. To these we strongly appeal for support, and trust to deserve and win it. We shall endeavour, by the quick procuration and early presentation of news, to keep the readers of THE TEXTILE MERCURY promptly and accurately informed on every matter affecting or relating to the scientific, industrial, and commercial interests of the textile trades.

THE TEXTILE MERCURY has already secured for its staff of contributors many of the best known writers upon textile subjects, and negociations are in progress with others. The best descriptions of New Inventions and Improvements in Machinery will be given by writers of established reputation and ability. Machinists and others will find it greatly to their interest to communicate promptly with the Editor, when desiring notices of such matters. The fullest attention will be given to the Raw Materials of the textile trades, their sources of production, prospects of supplies, and matters affecting their values: damp, adulteration, etc. The newest discoveries in Tinctorial Science, and in matters relating to the Bleaching, Dyeing, and Finishing trades, will be promptly brought under the notice of its readers. Politico-economical matters, such as Tariffs, Treaties, of Commerce, etc., the opening of new markets, and the closing of old ones, will be carefully watched, and commented on, and notes made of important legal decisions upon tariff matters. A higher Technical and Commercial education will be advocated, the former teaching how best to make, and the latter how best to distribute our productions, by which means only can we hope to maintain our leading position in the industrial and commercial worlds.

Of late years, political movements have often proved of vital importance to industrial and commercial undertakings, and while in general politics THE TEXTILE MERCURY will occupy a neutral position, proposed legislation affecting in any degree the industrial or commercial interests of the textile trades will always be freely discussed in its columns. On the great importance of political matters of this class it is unnecessary to dilate. It may, however, be observed that the ordinary newspapers of the country in no sense take adequate cognisance of such matters, or discuss them from the stand-point of those most affected thereby. This THE TEXTILE MERCURY will endeavour to do.

In view, therefore, of the foregoing, and also of the fact that the operatives of the cotton trade have been able to establish an organ to advocate and defend their interests, we trust that the cotton manufacturers, conjointly with those of other branches, will cordially support a journal specially devoted to the advocacy and defence of the important and widely extended interests of the textile industries. Within the limits of a prospectus it is impossible to enumerate all the features of interest which will from time to time be found in the pages of THE TEXTILE MERCURY, and were it possible, it would be imprudent. They will be revealed in early issues of the journal—a course which it is anticipated will preclude the unscrupulous appropriation and forestalling of our ideas and designs.

It will be obvious that if the intentions here roughly outlined are realised, THE TEXTILE MERCURY will commend itself to the industries it aspires to represent, in such a manner as can hardly fail to achieve a brilliant success, such a success as will stamp it at once as the chief advocate and exponent of the interests of the British and Irish textile industries. ED. *T.M*

Current Topics.

THE TEXTILE MERCURY

May be ordered of any newsagent. Wholesale, of Messrs. W. H. Smith & Sons, Manchester.

THE VICTORIA JUBILEE TECHNICAL INSTITUTE, BOMBAY.

The official opening of this important institute was fixed to take place on the 10th inst. by His Excellency the Governor, and at which the Duke and Duchess of Connaught were expected to assist. There is every prospect of the Institute proving a brilliant success. Already there are over 200 students entered in the Engineering classes, and about 50 in the cotton classes. All are expected to increase after the opening. For the Cotton Classes Mr. Richard Marsden's "Development, Principles and Practice of Cotton Spinning" has been adopted as a class book. Shortly after the official opening the recess will take place, and last seven weeks. These facts should stimulate the technical education movement at home.

ENGLISH *versus* AMERICAN SHEETINGS IN CHINA.

United States Consul-General Kennedy, in a report on the foreign trade of Shanghai for the year 1888, candidly admits that a change has been made in the relative estimation by the Celestials of these articles. He says: "Our own trade with China has suffered a decline as regards the two commodities, American sheetings and kerosene oil. In the absence of the annual returns, it is impossible to state what the falling off has been in these two lines, but it has doubtless been considerable. The reasons for this are easy to trace. Our sheetings have for several years been in steady demand, on account of the high standard of their quality, and from year to year have found increasing sales, while the English sheetings have been neglected. The consular representatives of Great Britain, and, of course, the dealers, have from time to time pointed out to the manufacturers the necessity of improving the quality of sheetings in order to compete with the American brands. Notwithstanding all that has been said and written on this subject, it was not until last year that the English manufacturers brought up their grade of sheetings to the American standard. Now that it has been done, or sufficiently so to attract the Chinese buyer, *the result has been disastrous to the American goods.* It is a competition we can meet fairly, however, with the probable result of developing a business for the improved grades of cotton." We thank Consul-General Kennedy for his candour. It is refreshing when compared with the general run of such reports.

THE BLACKBURN TECHNICAL SCHOOL.

We are glad to see that the Blackburn Technical School project is likely soon to be under way. A meeting of the General Committee has just been held, at which the transference of the property and funds from the temporary to permanent trustees, and of all the legal matters pertaining to the institution, its incorporation, use and permanent security of its properties was discussed. The constitution of the Council, membership, meetings, methods of voting, and duties of Council, were also brought under consideration. These matters are all incorporated in the proposed deed, which the Town Clerk explained was founded on that of the Bradford Technical School, which was, in his judgment, the safest of the many he had considered. Some objection was taken to the proposed scheme of government of the school on the ground of its not being sufficiently democratic, and of leaving too much power in the hands of the perpetual and life members. The perpetual members represent donors of £1,000 and upwards, with ten votes, who can devolve their power upon their successors. Life members are donors of £500 with five votes each. The nominated members are proposed to be twelve, half of whom are to be nominated by the Town Council, and half are proposed to be nominated by the Blackburn Chamber of Commerce. Six co-optative members elected by the Council of the school, to hold office for a term of three years, should complete the governing council. It was objected that this was an exceedingly illiberal constitution, and Mr. Fenton, a representative of the Spinners, said the collective votes of the permanent and life members with a few others would swamp the whole of the remainder. Alderman Appleby, the chairman, and a perpetual member of the Council by virtue of his donation of £1,000, defended the constitution against the charges that had been made, but expressed his willingness to see the members of the Council proposed to be allotted to the Chamber of Commerce transferred to the operative classes, four to those of the textile trades and one each to the joiners and mechanics. Unfortunately neither the builders nor mechanics as operatives had given one cent to the school, whilst the whole contributions of the operatives only a little exceeded £600. These statements of the Chairman represent indisputable facts, which we deeply regret to see. They show that the working classes of the town and district only very imperfectly appreciate the advantages offered to them, or they would support the scheme in a much more efficient manner. Though perhaps it may not greatly advantage the elder portion of the present generation of workers, it is fraught with innumerable benefits for their children. The contributions they have made do not exceed the sum subscribed in a single week, and continued for many months together, to the Preston Strike in 1854, and that was done when the town was not more than half its present size. It is quite safe to say also that the gate money of a couple of leading football matches would yield as much as has been subscribed by them to this institution. If the operatives wish to control the government of the School let them support it generously, and we are sure none of the other donors will object, as its prosperity is for the benefit of all.

CONSUMPTION OF WOOL IN THE LEADING MANUFACTURING CENTRES OF THE WORLD IN 1887.

The following table has been compiled to show the comparative consumption of the leading manufacturing countries of the world in 1887, Spain alone being omitted, as no data of that country could be procured :—

	Kilogrammes.
France	190,000,000
England	180,000,000
United States	170,000,000
Germany	140,000,000
Russia	80,000,000
Austria-Hungary	40,000,000
Belgium	40,000,000
Italy	32,000,000
Total, less Spain	872,000,000

The above figures have been forwarded to the United States Government by Consul Williams, of Rouen, but he gives no clue to the authorities he has employed, or the sources of his information. Still the figures, if not literally correct, which we hardly think they are, may be accepted as approximately so.

PROJECTED SPINNING COMPANY IN BLACKBURN.

It has, for a long time, been a marvel that Blackburn should so utterly have neglected the spinning branch of the cotton trade. Once upon a time, before 1850, it had its fair proportion of spindles as well as looms, but after that date it seemed to lose this position so far as spinning goes. People who don't know the circumstances which brought this about often attribute it to a want of enterprise. This, however, cannot be accepted as a correct version when the fact is considered that the quality charged as being deficient is the one which has made it the first weaving district in the world. The real case is that after the Irish Famine of 1847-8 this district was invaded by large numbers of Irish, whose cheap labour was utilized by the employers, especially in the spinning department of the trade. The habits and manners of the new comers not being congenial to the natives, in three or four years the labour of the scutching, card and spinning rooms was abandoned to them. Ever since they have largely held possession, with the effect that the Blackburn spinning trade has not been able to compete with the superior labour retained by the spinning trade of Oldham and South Lancashire. Evidently the belief has arisen that time, place, and circumstance are favourable for infusing some new vitality into this branch. This to a great extent may be true, but unless the promoters of the new company make provision for securing the same class and quality of labour that has given South Lancashire its pre-eminence in spinning we shall distrust the probability of achieving equally good results—until we see them. Notwithstanding this the project has our best wishes.

ROBERT OWEN, SOCIALIST AND COTTON MANUFACTURER.

A recent announcement states that the "Life, Time, and Labours of Robert Owen," by the late Mr. Lloyd Jones, is shortly to be published. It will be in two volumes, and will include the rise and fall of the Socialist movement in the past generation. In view of the self-seeking socialism current to-day it will be quite refreshing to contemplate the character of this grand old cotton manufacturer of the early part of the century. He worked with genuine, honest self-sacrificing, though perhaps mistaken zeal, to lift mankind to a higher plane of life. The socialism preached at present is more akin to that which animated Artemus Ward during the American Civil War, when, in the exuberance of his patriotism, he avowed his readiness to sacrifice his father, mother, sister, brother, and greatest sacrifice of all, all his wife's relations. These were not Robert Owen's sentiments.

THE CROOKBOTTOM MANUFACTURING CO.

The resolution of the shareholders in this unfortunate company to close their works for three months, which was adopted last week on account of a loss during the past quarter of £1,800 and the hopelessness of continuing work with any better prospect for the future, is sufficient to provoke some comment. The directors assert that it is owing to the advance in yarns and the continued depression of the market for cloth that their condition and prospects are so unsatisfactory. There is, no doubt, some force in this statement, but the same causes unquestionably affect other firms in a similar degree, and yet have not produced a similar unfortunate result. Is it not pertinent to ask in the interests of the unfortunate shareholders whether other potent influences have not had much to do with bringing about a state of affairs that can only be regarded as disastrous? In these days of severe competition there must be harmonious effort amongst directors, manager, foremen, and operatives, if an establishment has to be made to pay. Has this been the case? We fear not. From its commencement the company, we believe, has been unfortunate, and its run of ill luck does not yet seem to have come to an end. Established in a district in which the weaving branch of the cotton trade may be said to be decaying, it has had to encounter the fierce competition of East Lancashire, rendered necessary by the resolution adopted of making the same classes of fabrics as were made in that district. This was a mistake; the company ought to have made the cloths for which South Lancashire had a reputation and for which the habits and training of the workpeople best fitted them. If there was not room for this there was no room for the company's existence. Having, however, determined to try East Lancashire fabrics, it should have been recognised as necessary to submit to East Lancashire discipline and habits of hard work, both on the part of overlookers and weavers. Instead of this, what has been the case? Non-discipline amongst overlookers, strikes, and consequent demoralization throughout the mill. Is it any wonder profits are not made under such circumstances? We should be amazed if any other result than that which has occurred had been arrived at. An average of about 4s. per loom per week is simply wretched, when in the Blackburn district it is nearer 5s. 6d. to 6s. Mr. Sidebottom was justified in saying there was something radically wrong, beyond the condition of trade and it behoves the directors to find out what this something is, and should it prove past remedy, then boldly to face the matter, tell the shareholders, and let them take such steps as will best conserve their interests, whatever those may be. We thoroughly sympathise with them, but, unfortunately, that will do them little good.

QUOTATION BEGGING.

There is one portion of the cotton trade that has just ground of strong complaint against cloth agents and salesmen. This is the section engaged in the "general" trade, who make, or are ready to make, almost any description of fabric to order. Manufacturers engaged in this branch are constantly being pestered for "quotations" for every imaginable kind of article, and week in week out spend the greatest portion of their time in the little boxes on Change doing arithmetical sums for imaginary buyers, who, having really no business to offer salesmen calling upon them, do a little make-believe business in order to keep said salesmen dancing attendance upon them. It goes without saying that out of one hundred quotations so asked for and given by manufacturers not more than five are ever heard of again, and indeed were never meant to be. Far too often it is sheer trifling, though it involves an enormous waste of time and labour to the manufacturers. Really the latter should devise some means of ridding themselves of this unnecessary nuisance, and if not otherwise feasible let them offer a reward for some calculating machine that should, by turning a handle, yield the wished for answer. Here would be a grand opportunity for some mechanically-minded statistician, or some statistically-minded mechanic achieving fame as a second Babbage.

TEXTILE MANUFACTURING ENTERPRISE IN BRAZIL.

We learn from the American *Textile Record* that the "spinning and weaving factory at Caxias, a town in the interior of Brazil, which was officially inaugurated on the first of January, 1888, proves to be a most successful undertaking, its shares of 100,000 dols. reis paid up having been sold as high as 180,000 dols. reis, and the last dividend for six months was 6,000 dols. per share. The success of this enterprise has stimulated the formation of other undertakings in this capital—one for spinning and weaving, with a capital of £45,000, in shares of £10 each. The erection of the building is being proceeded with, and it is expected to be ready for working by the end of the present year." The fact of such a country as Brazil being able to project and carry out successfully a number of undertakings of this description, forms a striking indication of the world-wide competition against which our manufacturers have to contend.

THE PROPOSED EXTENSION OF THE ENGLISH FACTORY ACTS TO INDIA.

Without question there is a good deal of justifiable irritability existing in the minds of a large portion of the trade at the inequitable conditions under which competition with the rising cotton trade of India is carried on. The subject was again brought under the consideration of the Manchester Chamber of Commerce, at the monthly meeting of the Board of Directors on Wednesday last, by a request of the Blackburn and District Incorporated Chambers of Commerce that the Manchester Chamber should join with other Lancashire Chambers in a deputation to Lord Cross for the purpose of urging upon him the extension of the English Factory Acts to India. In reply, the secretary was instructed to forward a copy of a resolution upon this subject passed at the quarterly meeting of this Chamber held last November. The following is a copy of the resolution, which was carried upon a division by 38 votes to 28 :—"That in view of the excessive hours of labour now worked in the cotton mills of British India, this Chamber recommends that the provisions of the British Factory Acts, so far as they relate to the employment of women, young persons, and children, should be at once extended so as to apply to and include the textile factories of British India." After the above action, the Board did not feel justified in acceding to the proposal to join the contemplated deputation. Something, however, beyond this will require to be done, and it would be well if the subject were carefully considered and some plan devised by which the existing injustice could be removed before the evil grows so large as to give rise to complications and bitter feelings that do not now exist.

Articles.

STEAMING IN WEAVING SHEDS.

Public opinion in the East Lancashire weaving districts, especially amongst the operatives, has of late been greatly exercised on the subject of steaming in weaving sheds. This is a subordinate and later development of one of the evil legacies of the American Civil War. The cotton famine which that war entailed upon Lancashire begot the practice of abstracting as much cotton from the fabric as possible, and making up the loss by means of size. Pure flour or starch size would not admit of much of this being done, consequently the composition of size and the process of sizing were closely studied, with the object of rendering the latter a means of obtaining the stipulated weight of fabrics with a much less proportion of cotton, which had become enormously enhanced in value. The aid of the chemist was called in, and after much experimentation, in the course of a dozen years the art of sizing was elevated nearly to the dignity of a science. By the concoctions of size which can now be made, almost any desired percentage of weight can be put into the warp. And under the fierce competition existing no wonder need be expressed or felt that resort has been had to this capability, and that heavy sizing has been extensively resorted to now for a long time past. But heavy sizing is attended by some serious drawbacks, which may briefly engage our attention.

The chief component materials of chemical sizes are flour, farina, china clay, and dilequescent salts. These it is easy to put upon the yarn to a very large amount, but it was not for a while so easy to make the yarn carry the added weight through the process of weaving. A large quantity was thrown off by the friction of the yarn, both against itself and the healds and reeds during working. Much of this fell to the floor and upon the looms, whilst a large proportion was first thrown into the atmosphere of the weaving shed, and was consequently inhaled by the weavers at work, greatly to the detriment of their health, besides being a loss to the manufacturer of its cost. To obviate this disadvantage various schemes were resorted to, such as watering the floor of the shed, putting wet cloths upon the warp, and other similar tentative efforts. Not much beneficial effect, however, was produced by these means. About ten years ago the plan of inserting a few gas-pipe jets into the steam pipes universally used for the purpose of warming the sheds in the winter season was introduced, we believe, from the United States. These jets allowed the steam to escape into the atmosphere of the shed and so to soften and moisten it, which had a beneficial effect upon the yarn in process of weaving, whilst it diminished the amount of clay and other matters thrown from the warp into the atmosphere. This plan being found to greatly ameliorate the disadvantages referred to above was quickly adopted throughout East Lancashire, especially in those districts in which goods not intended for printing, bleaching, or finishing were made.

Into the morality of heavy sizing it is not our intention to enter. Suffice it to say that heavily sized goods, coming in with the cotton famine, did not disappear on the return of times of abundance. A demand was developed for them which has continued unabated, if it has not increased, to the present day. The true character of these goods has long been known, and, no doubt, they now supply a previously ungratified want. In passing we may observe that there is no reason to suppose that the statements that they are extensively used for burial purposes, garment linings, &c., are in any sense incorrect. When regard is had to the fact that there are in eastern countries 500 millions to 600 millions of a population, amongst whom there must be an enormous annual mortality, and whose wants for the above purpose require to be met, no surprise need be felt at the permanence of the demand, or apprehensions regarding its future continuance.

Heavily sized cloths being now established as an article of legitimate trade the only question that remains is to see that their manufacture shall not be detrimental to the weavers who make them. To the process of steaming very strong objections have been raised by the operatives and a considerable amount of feeling has been developed. Seven years ago the outcry was so loud that a Royal Commission was appointed to inquire into the subject. This Commission visited over fifty mills in Blackburn, Bacup, Todmorden, Rossendale, and other places, in each place being received with courtesy and having accorded to them by the employers every facility to aid their purpose. During the inquiry they directed special attention to the following points :—The composition of the size; the percentage put upon the warps; the injection of steam into the sheds; their temperature; the hygrometric condition, or amount of moisture in the atmosphere and ventilation. Much difference of opinion was the outcome of this inquiry amongst those who gave evidence, especially the medical men. The operatives, of course, were plaintiffs, and were pretty unanimous. It was also charged by the officials of the Weavers' Union that the employers having notice of the coming visits of the Commission moderated the worst features of the practice and thus gave an incorrect impression of the real magnitude of the evil. Eventually, nothing came of the inquiry, and the practice has continued ever since, and is alleged to have grown much worse. A renewal of the agitation has commenced, and has become exceedingly strong. It appears to have begun in Blackburn where it had a semi-political origin. An attack was made by the Liberal party upon the Conservatives, who, for thirty years have controlled the local affairs, having a majority in the Town Council. They were accused of gross incompetence in looking after the health of the town, and in proof of this, the high rate of mortality was pointed to, the borough of Blackburn, along with Preston and one or two other places, always standing highest in the weekly returns of mortality in large towns, issued by the Registrar-General. The Health Committee of the Corporation could not stand this charge quietly, and instructed their health officer, Dr. Stephenson, to prepare a reply. This was done and issued, Dr. Stephenson carrying the war into the enemies' quarters by charging the heavy mortality upon the pernicious practice prevailing in the town, of injecting steam to an excessive extent into the weaving sheds. In this proceeding the Doctor was quickly supported by the operatives whose representatives demanded and obtained an official inquiry into the matter by the Council. The report of the committee appointed to conduct it has been published, and the evidence, if not exaggerated, reveals a state of matters which certainly calls for the application of a drastic remedy. But what this remedy has to be does not appear clear to the manufacturers though on the other hand the operatives are formulating a very clear opinion as to what they desire it to be, that is, for the practice to be prohibited by law. Meetings have been held, and petitions promoted to Parliament, having this object in view, and these have been successful to such an extent that there is little doubt entertained by their promoters that success will not reward their efforts if the movement continues to be pressed forward as it has been hitherto. The outlook therefore is not a pleasant one for manufacturers engaged in this branch of the trade, as the movement emphatically means the suppression of this branch of the trade, and it is by no means certain that a pure cloth trade would take its place. There is far more danger that the demand would continue and its supply pass into the hands of foreign competitors. At this point, therefore, the question arises—Can English cotton manufacturers, or the operatives employed by them, afford to sacrifice this portion of the trade and the employment that it offers? In our opinion they cannot, and this conclusion we think they will, on reflection, agree with.

We are now brought to the point of inquiring whether these alleged evils can be removed without destroying the trade. It is quite useless for manufacturers—ostrich like—to hide their heads in the sand, which, metaphorically speaking, is what is done when they deny the existence of this evil. Neither will it be of service to affirm, which they might truly do, that the

evil, if it exists, is no worse than what may be found in other sections of the textile industries; say, for instance, in the flax scutching and spinning of Ulster. There is an important difference in the two cases—in the latter the workpeople are contented with them; in the cotton trade they are not. The latter in addition have powerful trade organisations, that wield an immense political power, which can be used to enforce their reasonable, and perhaps unreasonable demands, and which it may be assumed will be so used should the necessity arise. On this point, therefore, it may be concluded that the evils complained of will be assailed with all the power which the workpeople can bring to bear, as is strongly evidenced by the action that has already been taken with the concurrence of the Government towards introducing a Bill this session having for its object the regulation if not the prohibition of heavy sizing and steaming. We have no hesitation, however, in saying that all such action is quite unnecessary as the evils complained of can, we believe, be perfectly remedied by other means, simple, easy, cheap, and thoroughly efficient; means economical to the employers and beneficial to the workpeople, and which will preserve this trade to Lancashire. The plan of which we speak, should it prove to be what is anticipated, will restore the condition of things that prevailed before "steaming" became known. These may appear bold statements, but we trust at an early date to be able to lay the details before our readers, and satisfy them that we do not speak without knowledge and consideration.

LANCASHIRE AND BOMBAY.

The discussion between Lancashire and Bombay regarding the equity of the conditions under which they compete with one another proceeds apace. At the rate at which progress has been made during the past year or two, the contributions to the public knowledge will be such as will do much towards enabling a sound conclusion to be reached and an equitable arrangement of conditions to be made. The reports just rendered home, of which we print an extract in this issue, are instructive on many points and will well repay reading. For the present we defer comment. The following is the report of Mr. W. W. Drew, Factory Inspector, Bombay, and made to the Under Secretary to the Government, Bombay:—

Bombay, 10th July, 1888.

Sir,—In reply to your memorandum of the 4th inst., I have the honour to report as follows:—

As to the long hours of work, the practice in Bombay is to work from daylight to dark, a period which varies from 11½ to 14 hours, with a very short interval, often nearer a quarter than half an hour. Exclusive of this stoppage, 12½ hours may be taken as the average. All males and girls over 12 work these hours. Women have about half-an-hour less at each end. In England the legal full time is six to six or seven to seven, with intervals aggregating two hours, adult males over 18 alone being allowed to work overtime. But as the mill cannot run with them only, the result is that that they work only 10 hours too. Children between 10 and 14 may work half the legal full time, i.e., five hours. The following table shows the hours of work of persons of different ages:—

	England.	Bombay.
Male over 18	10	12½
Female over 18	10*	11½
Persons between 14 and 18..	10*	12½
Persons between 12 and 14..	5*	12½
Persons between 10 and 12..	5*	9*
Persons between 7 and 12....not at all*		9*

Those marked with an asterisk are regulated by law.

I have no practical experience of English factories, but from the evidence taken by the Factory Commission of 1884-5, and from the statements of many European employees, I have no doubt at all that during the working hours hands in England, whether males or females, children or adults, work far harder than in Bombay. For a mill with the same number of spindles, quite twice as many hands are employed in Bombay as in England, so that not only is the work much lighter, but they can all get intervals for food and rest without the work of the mill being stopped. On an average, about 9 per cent. at a time are taking their meals and resting. This gives an hour's interval at different times to each hand in addition to the regular stopping time. The Government (Bombay), in their resolution of 4th February, 1885, agreed with the recommendation of the Factory Commission that the hours of adult labour should not be limited by law, as it would be contrary to the spirit of English policy, and I presume that it is never likely to be done; though it might follow as a consequence of children's and women's work being further reduced. As to children, I certainly think they want more protection. The present law fixing 7 and 12 as the limits of age and nine hours as the limit of work has resulted in the complete discontinuance of their employment. The reason is that the mill must have the same number of hands during the whole working time, or one part of the manufacture must get ahead of another. If children work for nine hours, it is impossible to get people to supply their place for the other four. And so, though it is very difficult indeed to get enough small boys and girls, who, on account of their size, are the best as well as the cheapest workers for throstles (especially for the ring throstles which are now all the rage), over 12, yet managers will not employ them under 12. If the age were raised to 14, and the limit of time reduced to 5½ or 6 hours, so as to enable them to work in two sets, I think the mills would not be able to dispense with them, and not only would continue employing as half-timers those between 12 and 14 whom they are now employing as full-timers, but would have to take on children between 7 and 12 who are now thrown altogether out of employment. There would be practical difficulties in preventing children working at more than one mill the same day, but there is no reason why they should prove insuperable here any more than in England.

If this were done it would probably result in the factories working for only double the time fixed for the employment of children. Thus, if a child's time was fixed at six hours, the mill would probably work a maximum of 12 hours, exclusive of the midday interval. If this should come to pass, the hands could if they chose get through quite as much work as they do now in the longer hours; but I do not think they would choose, as natives of India prefer long hours and dawdling to short hours and hard work. Still, as they are almost all paid by piecework, there would be an inducement to them to try to do work harder so that their earnings might not be diminished. And children, by beginning at short hours and hard work during that time, might learn better habits of work. Women are employed only at reeling, which is very easy work, and I do not think any restrictions on their work are necessary at present.

2. As to the few holidays, the mills ordinarily stop for only two days a month, on alternate Sundays, unless there are native holidays; but on all these days, except on four or five native holidays on which the mill is closed completely, they have to work from two to four hours in the morning at cleaning the machinery. All the hands, however, take holidays on their own account when it suits them. On an average a hand does not work more than 300 days in the year, and can get leave pretty much as he likes. I do not think that compulsory stopping days would be popular with the native hands, though doubtless they would be with the Europeans, who cannot be spared so easily on working days.

3. Mr. Jones's remarks on the occasional withholding of wages from hands were made with reference to one mill in Gujarat only. I have never heard complaints of wages being unjustly withheld, and this would seem to be a matter to be settled by the civil courts. I do not think legislation on the subject would ever be of use. That was the opinion of the Commission, and was endorsed by the Government. Wages are not paid so punctually as in England, but neither are they in other branches of industry in India.

4. The incompetency of a mill manager is a subject that concerns the shareholders or owner more than the Government inspector. I have only noticed one incompetent man myself—a High Court pleader,—who shall be nameless, but who was, I expect, the person alluded to by Mr. Jones in his remarks on page 115. This mill went into liquidation about a month after I became inspector.

5. In his remarks on the dangerous character of many mills Mr. Jones alludes only to ginning mills, of which there are none in Bombay. I have not been able to find on the records any remark as to any mill here being dangerous, and I do not think myself that any of them are so.

6. As to the inadequate fencing of machinery, the Act gives full power to the inspector to remedy that, for besides providing that certain parts of it must invariably be fenced, it enables the inspector to order the owner to fence any other part that he considers dangerous.

7. As to the ill-ventilated and filthy state of many workrooms, Mr. Jones is alluding to the Gujarat ginning and pressing mills. Most of the mills in Bombay, especially the new ones, are well supplied with windows, but they are almost always kept closed, because a draught interferes with the spinning and the hands object to it. Artificial ventilation, which exists in very few mills, would certainly appear to be necessary, and it would be very advisable to add sections 3, 4, and 36 of the English Factory Act to the present Indian Act. I append a copy of these sections.

8. It is hardly for me to give an opinion how the plan of placing the duty of inspecting factories in the hands of magistrates (among whom I suppose the Secretary of State would include the Assistant Collector of Bombay) has worked; but with regard to Mr. Jones's assertion that their appointment can only be temporary, I would venture to remark:—(1) With the small powers and light duties of the present Act the assistant collector here can spare time for quite as much inspection as is necessary. The list of the numbers of inspections made quarterly, which I append, will show that there has been no diminution in their number since the special inspector's place was abolished. (2) Very little technical knowledge is required for directing the fencing of mill gearing and machinery. The English and Indian Acts are practically the same in this respect, and the requisite guards are always made and sent out with the machinery. As to the mill gearing in doubtful cases, the inspector can always call in any person to assist him under section 4 (*a*) of the Act. All the inspectors who have held office have passed many orders as to fencing, and as not one has been appealed against it, may be presumed that they were reasonable. (3) For enforcing the provisions regarding children, the magistrate or assistant collector is in a much better position than an English inspector of factories, and it is certainly better to have one for each district. Everyone knew when the inspector from Bombay was going to inspect an up-country mill long before he appeared. (4) The only way in which the Act is likely to be made more stringent is either in the direction of sanitation, ventilation, &c., or in hours of work. In this case it would probably be found best to continue the district magistrate, collector, or assistant collector as inspector, and either give him special assistant inspectors or appoint some of his subordinates as such.

As I have had so few days in which to make this report, I have not been able to support my statements by statistics, but if they are collected, I am sure that they will bear them out.

Foreign Correspondence.

TEXTILE MATTERS IN GERMANY.

(From our own Correspondent.)

Elberfeld, April 22nd, 1889.

Germany seems to have entered upon an era of strikes. We have had first the strike of lace and trimming makers at Barmen. They got what they wanted, viz., 18 marks wages and 12 hours' work. Then the strike of the dyers and finishers at Elberfeld, Barmen, and Crefeld. They wanted 21 marks wages, but seem to have chosen a rather unfavourable time. After that, the strike of the workmen of the dye-stuffs factories at Elberfeld. But after enduring a week or two they have all come to an end, the workmen getting tired, and resuming for the most part work at former wages. Only the lace makers got the upper hand and got the wages they claimed. A small strike in a weaving establishment at Kempen came to an end by the employers granting increased wages for certain goods.

Woollen and Worsted Goods Trades in this district are on the whole not unsatisfactory, although all the branches do not partake of the benefits in the same degree; only a small number of looms are standing idle. The largest number have worsted goods in them, for which there is generally a good demand; the orders for Spring, home and foreign, having been greatly in excess of those of any past season. Manufacturers of zanellas for linings and umbrellas are well engaged, especially for the home market, whereas export orders are generally wanting. Some large repeat orders have been received for broche dress goods. The demand for mantle and raincloak goods still keeps good.

Silks and Velvets (Crefeld.)—The wholesale trade is, on the whole, a little improved. Coloured ladies' dress goods are in well sustained demand, and prices are satisfactory. The same is the case with lining goods and goods for cravats, whereas only a little is doing in umbrella goods. For velvets and shags the situation remains the same; only sealskins of better descriptions are a little more in request. Light coloured plushes are only required for exportation. The strike of dyers takes larger

dimensions, but masters seem not to be willing to yield.

COTTONS.—Spinners are well provided with orders and continue firm in their quotations. Prices of cotton goods, as well for delivery as on the spot, are generally firm. The exertions of Hausse speculators for a further advance of prices have, however, been unsuccessful. The cotton spinning mills of Saxony are well employed, with tolerable prices; likewise the worsted yarn spinning mills at good prices. Prices are, however, depressed in the Vigogne branch, and in spite of good employment there is much complaint on this head. The weaving industry is also in tolerably good circumstances. In consequence of this state of things our machine factories for the textile branch are pretty busy again. Especially worsted yarn spinning machines are being ordered, as also machines for twisting mills, which are working well at remunerative prices.

For nearly 18 months the German cotton spinning industry has on the whole been in a favourable state, both as to the amount of business done and prices obtained. A large number of spinners have turned to coarse yarns, and thereby considerably increased their production. The cotton *weaving* industry is not quite so well off. Weavers have, on the whole, work enough, but profits are much reduced, and in this respect there is much to be desired in the way of improvement. In the great centres of the German textile industries there prevails now, generally speaking, great activity, without any signs of falling off. The transition period of the spring to the autumn business, which is generally characterised by quietness in trade has nearly passed over, and most branches are now in full work again for the next season. The wholesale houses are busily examining the autumn samples and giving orders for the completion of their own collections.

Travellers are about to set out on their journeys and some are already taking orders for next winter. Regarding travellers, we may say that with the last North German Lloyd steamer "Munchen" the Export Union of the kingdom of Saxony sent out to South America a "collective" traveller, as the Germans call them, with sample collections of Saxon and Thuringian export manufactures. The first traveller of this year was sent by the same Corporation to Canada on the 26th January. The one is to visit the east coasts of America and the other the west coasts. It is announced in the official *Gewerbeblatt* that, in order to open new markets for German manufacturers, it has been determined to create a permanent travelling floating "Muster lager," or display of goods. A gigantic steamer is to be built for the purpose of a floating exhibition palace, and is to visit at regular periods all the great harbours of the world, the rotation lasting about two years. It is expected to attract purchasers and visitors in great numbers, not only by its size and novelty, but by concerts and refreshments. This vessel is to sail from Hamburg in the spring of 1890, and thence round the world by North and South America, California, Japan, China, Australia, India, and the Mediterranean Sea. The capital required is estimated at 5,000,000 marks (£250,000.)

NEW ESTABLISHMENTS. — A large worsted yarn spinning mill is being established at Eupen (Rhenish Prussia) by Mr. Gülicher, of Eupen, and Mr. A. Grand Ry, of London.—A new cotton spinning mill is about to be established at Adorf (Saxony), with a capital of 5 mill. marks.—A new joint stock worsted yarn spinning mill will be established at Langensalza (Prussia).—A new cotton spinning mill is being established at Rocholt (Province Westphalia), with 36,000 spindles and 600 workmen.—A very large spinning mill has just been erected by Messrs. Kühne and Co., of Görkan (Bohemia).—At Aussig (Bohemia), a large wool factory is being established by the firm Welfrum. In Bohemia more than 20 new factories are projected, for the most part in the textile line. —The Leipzig Woll Rämmerei is about to erect a branch establishment at Wilhelmsburg, near Harburg, which will be ready in October-November next.—Messrs. Geyer and Krumbholz will erect a new power weaving establishment at Nylau (Saxony.)

DIVIDENDS:—Erdmannsdorfer Actien, Gesell,—schaft für Flachsgarnspinner und Weberei, 6 per cent.; Spinnerei und Weberei Hüttenheim, Benfeld, 6 per cent.; Viersener Flachspinnerei, 10 per cent.; Ettlinger Spinnerei und Weberei, 100 M., resp. 50 M.; Gladbacher Spinnerei und Weberei, 10 per cent.

Obituary.

SIR JACOB BEHRENS.

A prince amongst textile merchants has just passed away. At the ripe old age of eighty-two years, Sir Jacob Behrens, of the firm of Sir Jacob Behrens & Sons, stuff merchants, Bradford, died on Easter Monday morning at Torquay, Devonshire. He had been slowly failing in health for a few months past, and according to his usual custom in spring had gone to spend a short time in the congenial surroundings of the Devonshire watering place. On Sunday he became seriously ill, went rapidly worse, and as stated, died on Monday morning last, thus bringing to a close the record of a life long and intimately bound up with the material prosperity of Bradford.

What that life has been may be very briefly sketched. Sir Jacob Behrens was a native of Pyrmont, in Germany, where he was born in November, 1806. His father, Mr. Nathan Behrens, removed to Hamburg in 1815, and became a successful merchant in that city. After his son Jacob had completed a practical education in the schools of that city, he entered his father's counting-house, and made himself thoroughly conversant with the nature of his business. At that period the commercial relations of the Continent and the manufacturing industries of this country were entering upon an active phase. The goods made in this district, as well as the cotton goods of Lancashire, were in request in Rhineland, and young Behrens was not slow in arriving at the conviction that a principal resident at the seat of manufacture would be of immense advantage. Accordingly in the year 1834, Mr. Jacob Behrens, then in his twenty-eight year, journeyed to Yorkshire, and took up his residence at Leeds. Here he entered into business as merchant, partly on his own account, and partly as agent for his father. In course of time the success of his Leeds venture induced Mr. Behrens to extend his operations to Manchester, where he also established a house. At Manchester, he was joined by two of his brothers, under the style of "Jacob Behrens." This branch also continued to prosper, but after the decease of Mr. Behrens' brothers in 1870, the business was transferred to Mr. Behrens, and is still carried on.

Meanwhile Mr. Jacob Behrens had, in the year 1838, determined to make Bradford his headquarters. There were only a dozen foreign merchants in Bradford at that period, and although the business done in the town had largely increased upon that of 1834, it was still comparatively insignificant. One reason for the increase was the great revolution in the worsted trade caused by the introduction of cotton warps, about the year 1836. Prior to that date the worsted manufacture was a pure manufacture—the fabrics were alike in warp and weft. The consumption of dross stuffs was restricted because of the dearness of the material employed. The introduction of cotton warps, however, which gave a good wearing material at less cost than all-wool, supplied a stimulus to the worsted trade of this district which was quickly manifest in the rapid prosperity and growth of Bradford, and in its importance as a commercial centre. In sympathy with the growth of the worsted industry generally came a great expansion of the foreign trade, and Mr. Behrens, in common with other German merchants resident in Bradford, was not slow to take advantage of the opportunity thus afforded of cultivating the Continental markets. As a commercial man he displayed rare aptitude and foresight, and as a result succeeded in establishing a business of considerable importance, which indeed he practically supervised until within a short period of his death.

Whilst pushing his private business, Sir Jacob Behrens was ever alive to advancing the commercial and manufacturing interests of the town and county of his adoption. He made himself such a thorough master of the conditions under which commerce was carried on with foreign countries that he became an authority upon whom the permanent officials and the government could rely; and it was for his services in connection with the negociations regarding the French Tariff that he received the honour of knighthood. He may be called the founder of the Bradford Chamber of Commerce, of which he was several times president. In educational, social and benevolent movements he was always a leader. The Bradford Technical College, in its origin, was largely indebted to him. He had long been naturalized as an Englishman, and associated himself with the Liberal party as a politician; but it was only commercial and economical matters that brought him into front positions in times of political activity or excitement.

Sir Jacob Behrens was personally kind, unostentatious and generous, and, as an employer, exceedingly considerate. A wide circle of friends will acknowledge his loss, and Bradford will long regret a most eminent townsman, one who always entertained the most advanced ideas regarding its prosperous future. The funeral was fixed for yesterday at Undercliffe cemetery. For many of the above particulars we beg to acknowledge our indebtness to our contemporary, the *Bradford Observer*.

MR. WILLIAM PEARSON, YEADON.—Mr. William Pearson, senior partner of the firm of Messrs. Pearsons, Teale and Parsons, cloth finishers, Manor Mills, Yeadon, died at his residence in Moorlane, on Saturday night last suddenly of apoplexy. He had been in apparently good health, and was assisting with the decorations for the Band of Hope demonstration which was taking place on Easter Monday. He left shortly before ten, and died soon after reaching home. Mr. Pearson was life President of the Band of Hope and Temperance Society; his loss will be greatly felt as he was widely known and much respected. He was in his 72nd year.

MR. JAMES HINDLE, SABDEN.—We have to announce the death of Mr. James Hindle, J.P., which took place at his residence, The Whins, Sabden, after an attack of apoplexy. More than ordinary interest attaches to the life of the deceased gentleman from the fact that for some time he was in partnership with Richard Cobden, of corn-law fame. Early in life he was apprenticed to a firm or calico printers, and before his apprenticeship had expired, was made a partner in the firm of the late Mr. Foster, of Sabden—a connection extending over 60 years, which was continued till the business was given up last Christmas. Mr. Hindle was the head of the firm, owning the Victoria and Albert Cotton Spinning Mills at Clayton-le-Moors, and had an interest in the colliery at Little Harwood. In politics he was formerly a Liberal, but on the Irish question springing up he took the cause of the Union. The deceased was in his 80th year. Being also a bachelor, he is supposed to have left a large fortune. To the poor he was a man of generous disposition; and his loss will be a local calamity, for throughout the district he was respected by everyone.

FINES IN FACTORIES.—Evidence was lately taken at Jedburgh in an action at the instance of William Oliver Hogg, apprentice tweed finisher, Hawick, against Messrs. Blenkhorn, Richardson and Co., to have the defenders ordained to implement the indenture of the pursuer as apprentice finisher with them. The apprentice was found frolicking in another apartment than that in which he worked. He was fined sixpence, and after disputing the right of defenders to deduct the fine from his wages, he left their service. Sheriff Spiers has decided the case in favour of the apprentice. The Sheriff finds that the lad gave up his place at the suggestion of Mr. Richardson, who accepted it without communication with the father; that the pursuer returned with his father and requested to be taken back, but that Mr. Richardson refused to allow him to return; that although a general allegation of idleness had been brought against pursuer, there was no averment of any specific case. In point of law he finds that defenders were not entitled to deduct the fine from pursuer's wages; that they were bound to communicate with his father before accepting his resignation; that they were bound to reinstate pursuer, who applied to be taken back "within a reasonable time." He therefore ordains defenders to receive back pursuer to their factory and to perform the obligations undertaken in the indenture, or to deliver up to pursuer the indenture, and to pay him £25. The Sheriff says that the Employers and Workmen Act, part III., section II., distinctly states that any forfeiture on ground of absence or leaving work shall not be deducted from, or set against, a claim for wages, &c., except for actual damage done. He is therefore of opinion that the way in which the fine was exacted was illegal. He adds that fining seems very common in factories, and he cannot see how discipline is to be kept otherwise. As long as masters publicly notify that fines will be exacted for breaches of discipline by hanging up their rules and regulations in conspicuous parts of the factories (which was not done by the defenders), and as long as they levy their fines in a manner within the requirements of the Act, no one can find fault. In regard to the refusal by the defenders to reinstate the apprentice, the Sheriff says that while pursuer was wrong to frolic when he should have been at work, his having done so once would not justify the master in dismissing him. He further says that before dismissing an apprentice or accepting his resignation, the master ought to communicate with the father or guardian.

Bleaching, Dyeing, and Printing.

NEW COLOURING MATTERS.

The discovery and introduction of new coal tar colouring matters shows no signs of abatement, as colour makers and colour chemists continue fully engaged in the research for new colours. It will be of interest to note the advance that has been made in what is demanded from a coal tar colour to-day, compared to what was required in the early days of the industry. Then, brilliancy was most sought after; to-day, it is fastness. A new colour, to command a sale, must be fast in every respect. Great brilliancy is not so much insisted upon as fastness.

The group of direct cotton colours has been enriched by the addition of five new products. The first of these is

BENZOAZURINE 3G,

A blue dye made by Messrs. F. Bayer and Co. This dyes a brighter blue than the well known benzoazurine R. It is comparatively strong; 2 per cent. will impart a deep tint to unmordanted cotton when dyed in a boiling bath containing 10 per cent. of salt or Glauber's salt, and the bath is more completely exhausted than is the case with the other benzidine blues. We find the blue to resist soaping and dilute acids and alkalis. Strong nitric turns it a bright red, while caustic soda changes it to a bright purple. The original colour is in each case restored by treatment with alkali or acid as the case requires. So far as regards fastness to light and air, it is quite equal to the other benzoazurines in this respect.

ERIKA

Is a new pink dye belonging to this class of colours sent out by the Actien-Gessellschaft für Anilin Fabrikation of Berlin. It is dyed with salt or sulphate of soda, and 3 per cent. gives a pale bluish red shade of pink, much resembling that obtained from a blue shade safranine. The colour is thoroughly fast to soaping, and dilute acids; and in this respect it differs from all other reds of this group of colours, and so far as our experiments go it is fairly fast to light. Strong hydrochloric acid slightly reddens it, while nitric acid decolourizes it, and caustic soda darkens it slightly. This colour should meet with a large sale.

HESSIAN BRILLIANT PURPLE

Is made by Messrs. A. Leonhardt and Co., of Muhlheim. It dyes a fiery red on unmordanted cotton from a strong salt bath, and gives a shade more nearly resembling Turkey Red than the other Hessian Purples sent out by the same firm. It is faster to dilute acids than other direct reds and is by them turned a brownish purple. The original colour is restored on washing or by alkalies, strong nitric acid turns it greenish. It is only moderately fast when exposed to light and air, being about equal to benzopurpurine in this respect.

MIKADO ORANGE 4R

Is a new shade of the Mikado Oranges somewhat redder than those hitherto sent out by the makers.

MIKADO BROWN M

Is a new shade of the Mikado Browns, and dyes a better brown than the coal tar browns hitherto sent out, and by dyeing in two baths, first with the colour, tannic acid, and salt, and then in a cold bath of copperas, a very dark shade of brown is obtained which resists soaping.

Messrs. Read, Holliday and Sons, of Huddersfield, have placed on the market a new

WOOL SCARLET

in four shades 0,00,000,0000, ranging from a yellow to red shade of scarlet. These are produced from a napthylaninal sulphoacid, the preparation of which is the subject of a patent taken out by Messrs. Holliday. These scarlets are very strong, 2 per cent giving full shades on wool, which are very bright and pure. These scarlets are the brightest we have seen. They are fast to dilute acids and resist soaping, and so far as it has been possible for us to test them at this time of the year, fast to light and air. These new scarlets are worth the attention of woollen dyers. The same firm also send out a new

CRYSTAL BLUE

for wool in two shades R and B, which yield very bright and pure shades of blue using half per cent. of dyestuff, they are very strong colours, and easily soluble in water. The colour resists washing and strong soaping dilute acids and alkalies, and is faster to light than the general make of blues.

AZO-CARMINE

Is a new dye recently put on the market by the Badische Anilin and Soda Fabrik. It is sold in the form of a paste of a red colour and having a peculiar brilliant golden fluorescence. On standing the colour settles out. Although the colouring matter is insoluble in cold water, it dissolves freely in boiling water, forming a red solution from which, on cooling, the colouring matter again separates. Strong sulphuric acid changes the colour to green, but on diluting with water the original colour is restored. The other mineral acids and alkalies are without action, It is a very strong colour; 3 per cent. is sufficient to give a deep safranine shade to wool, and 5 per cent. a full crimson. It is dyed as usual with Glauber's salts and sulphuric acid. The colour is perfectly fast to acids, alkalies, and washing, and hence should be found useful to the woollen dyer. It can be combined with indigo extract to form very useful compound shades. Thus a good black can be got by using 4 per cent. indigo carmine D, 3 per cent. azocarmine, 1·5 per cent. orange N. A fawn can be got with 0·2 per cent. azocarmine, 0·1 per cent. fast yellow, and 0·1 per cent. indigo carmine; a drab with 0·2 per cent. of each of the colours used in the last, while using 2 per cent. chrinoline yellow, 0·02 per cent. light green S yellow shade and 0·2 per cent. azocarmine will give a pea green; and sage green can be got with 1 per cent. each of azocarmine, fast yellow, and indigo carmine.

JET BLACK

Is the name given to a new colouring matter for wool, made in two shades R and G. It is dyed in a neutral bath containing salt or Glauber's salts and 5 per cent. gives a deep jet black which is quite fast to soaping, acids, and alkalies, and is said to be fast to light and air. It is made by the Farbenfabriken vom Fr. Bayer and Co., of Elberfeld.

CARNOTINE

Is the name which the Clayton Aniline Co., of Clayton, near Manchester, have given to a yellow colouring matter which they have just brought out.

The Clayton Aniline Co. have hitherto mostly confined their operations to the production of the raw materials such as benzol, aniline, nitro benzol, used in the manufacture of coal tar colours, but recently they decided to extend their works in the direction of manufacturing coal tar colours. With this object in view they have practically built a new works solely for the production of colouring matters, and carnotine is the first they have, under the new regime, placed on the market.

This colouring matter dyes unmordanted cotton in a boiling bath containing 3 per cent. of colour and 10 per cent. of salt, a full primrose yellow; which is fast to light, although not so fast to alkalies and soaping. The principal value of carnotine, however, lies in the fact that dyeing with it is only the first stage in the production of a bright red colour, carnotine red, which is fast to acids and soaping although not perfectly fast to light. To produce this red the cotton is first dyed yellow with carnotine, then it is passed into a cold bath of sodium nitrite containing sulphuric acid, and then into a bath of carnotine red developer, when the red is immediately produced. In a similar way using carnotine orange developer, a fast orange can be produced on cotton.

THE BORDEAUX S, of the Actien Gessellschaft für Anilin fabrikation of Berlin, which is the sodium salt of the sulphonic acid of a napthylamine azo B naptholdisulphonic acid, is one of the fastest dyes we possess. Even the most delicate pink dyed on wool with this colour may be exposed to light for a considerable time without fading.

WOOL SCOURING.

Wool should always be carefully scoured before dyeing, since neither mordant nor dye can be properly fixed on the fibre if the scouring has been imperfectly performed. If the wool is insufficiently scoured, the colour ultimately obtained will not only be irregular and uneven, but it will rub off and the lustre of the fibre be seriously impaired. We purpose here to give details of recent processes for scouring wool which have proved successful.

I.—LOOSE WOOL SCOURING.

To scour 100lbs. of loose wool, dissolve in a suitable tank or washing vat, in 300 gallons of water, 12lbs. soda ash and 3lbs. carbonate of ammonia; or, instead of this, 10 gallons of lant or stale urine may be used, but the ammonia product is preferable. The wool is entered into this vat and worked for 20-30 minutes at 95°-100°F., being well raked about while in the vat. Care must be taken that the temperature should not exceed 100°F., as at higher temperatures than this the wool is deteriorated. After the operation is over, it is taken out, passed through a pair of wooden squeezing rollers, and into another vat containing 10lbs. soda ash in 300 gallons of water; in this the wool is worked for 15-20 minutes at 95°-100°F., and then, after passing through squeezing rollers, it is washed in clean cold or tepid water.

The scouring liquor in the first tank must be replaced by fresh liquor after four or five lots of wool have been passed through, since it becomes soiled by the impurities which it removes from the wool, and its efficiency decreases with each lot entered in it. It is, therefore, false economy to continue the use of the same scouring liquor too long.

II.—SCOURING OF YARN.

Woollen yarn is scoured to remove the size, oil, etc., which has been added to the scoured loose wool to facilitate the spinning process.

It is most essential that the loose wool should be thoroughly scoured before it is spun, since it is almost impossible to remove the yolk from yarn, and if any of this should be left in it invariably leads to imperfect dyeing of the yarns or piece goods into which the wool is spun and woven. To enable the loose wool to spin easily it requires to be oiled; this oiling should be done only with gallipoli oil, oleic acid or other saponifiable oil; mineral oils or mixtures of fat and mineral oils ought to be rigidly excluded.

Yarn is scoured in suitable tanks, it will be found best to have these of about 90 gallons capacity and which will hold 60lbs. of yarn. For this quantity use 4lbs. ammonia and 80 gallons of water. The yarn is worked in one tank for 20 minutes at 100°F., then it is passed through squeezing rollers into a second tank where it is again worked for 15 minutes; finally, it is washed well. The liquor in the first tank should be run off and the grease recovered from it; that in the second tank, after freshening up by addition of 2lbs. of ammonia, can be used as the first tank of a new lot of yarn.

III.—SCOURING OF PIECE GOODS.

For scouring piece goods for 100lbs. of cloth prepare a tank or vat containing 5lbs. soda ash and 2½lbs. carbonate of ammonia with sufficient water; this alkaline liquor is kept at 100° F. and the goods should be run through at such a rate that they will remain in about 20 minutes; they can then pass into another vat containing fresh liquor for ten minutes, and finally through wash waters.

ALIZARIN BLACK is a valuable dye, which was first described by Roussin under the name of Napthazarin, and lately the Badische Aniline and Soda Fabrik have placed on the market a soluble product for wool dyeing. Alizarin black is dyed on cleansed wool with the following process:—100lbs. of the wool is mordanted by boiling for one hour in a bath of 3 per cent. of bichromate of potash and 1 per cent. of cream of tartar; the dyeing is done in a boiling bath containing 15-20 per cent. alizarine black paste. By using 5-10 per cent. fast greys are obtained.

INDOPHENOL AND INDIGO.

Indophenol is a blue colouring matter discovered in 1881 by Horace Koechlin and O.N. Witt, and it is prepared by the action of nitrosodimethylanilin on *a*-napthol.

When first sent out it was hoped that it would form an efficient substitute for indigo, but it was found that it did not possess that fastness to light and washing so characteristic of indigo, and so of late years it has gone out of use among dyers, although a limited application has been found for it among calico printers. Like indigo, indophenol is capable of forming a white soluble reduction product, and hence was used chiefly as a vat dye the same as indigo.

Recently, the Koechlins have taken out a patent for the combined use, as a vat dye, of indigo and indophenol. For this purpose they take 44lbs. of indigo and 14lbs. 9oz. indophenol, and grind the two most thoroughly together into a paste with water, so that there will be 16 gallons of paste produced; this is then mixed with 212lbs. bisulphite of soda, 70°Tw.; 29lbs. 2oz. tin crystals, 35lbs. 7oz. zinc dust, and 146 gallons of water; these are all mixed and thoroughly agitated together for one hour, and then 11¼ gallons of caustic soda, 67°Tw. are added, and after mixing, the whole is allowed to stand for one day. This constitutes what is called the mother vat A; after standing, the clear liquor is mixed with 1,210 gallons of water and 74 gallons of a hydrosulphite liquor, made by mixing 110 gallons of water, 44lbs. of zinc dust, 27½ gallons bisulphite of soda at 70°Tw., and 55lbs. tin crystals; when these are all dissolved, 17½ gallons caustic soda at 67°Tw. are added. The dye vat thus made is stirred and the goods dyed in the same manner as with indigo.

As indophenol is a much stronger colouring matter than indigo fewer dips are necessary to produce the same depth of colour on the yarns or cloth dyed in the vat.

The shades obtained are rather redder, but on first washing they bleed and the shade becomes more indigo blue, and they stand further washings. It resists dilute acids and alkalies. Strong nitric acid gives the characteristic yellow stain of indigo. It is said that the combined blue is as fast to light and air as indigo blue, but whether such is really the case time only can tell; if so then the combination of indophenol with indigo must alter in some way the properties of the former colour. The combined shade can be produced at a much cheaper rate than pure indigo shades of the same depth.

Messrs. Durand and Huguenin, of Basle, hold the patent rights in connection with this colour.

RECIPES FOR DYERS.

The following are mostly translations from foreign sources. We do not guarantee the results from these recipes, but give them for the purpose of showing our readers what their foreign competitors are doing :—

GOBELIN BLUE ON WORSTED.

For 100lbs. of worsted prepare a bath with 1lb. Blue Black of Meister, Lucius, and Bruning, 1lb. Tartar. Raise to boil, enter yarn and work for one hour, take out and drain. This bath is kept and used again, only half a pound of black being added for each future lot. Prepare a second bath with 6ozs. Acid Green, Meister, Lucius, and Bruning, 3lbs. sulphuric acid. Heat to 160-170 degrees F., enter yarn and work, then heat to boil and work to shade; lift and wash.

SAGE ON CARPET YARN.

For 100lbs. yarn, prepare a bath with 10lbs. Glaubersalt, 3½oz. Yellow SSS., 7oz extract of Indigo, 9oz. Archil Substitute, 3lbs Sulphuric Acid. Heat to 170 degrees F., enter yarn, work for short time, then raise to boil and dye boiling for one hour; lift and wash.

SCARLET ON MIXED FLANNEL (70 per cent Cotton.)

For 340lbs. dissolve separately, 6lbs Benzopurpurine, 12lbs. Sodium Phosphate, 12lbs Potassium Carbonate, mix the solutions, heat the bath to 70 degrees C, enter the goods and work at the boil for 1½ to 2 hours when the wool and cotton will be of the same shade. For subsequent lots of 340lbs. use only half the above quantities in the same dye-bath.

BROWN ON VELVETEEN.

For 12½ kilos., prepare a bath with with 6½ kilos, catechu dissolved in boiling water, add 1 kilo. alum. Work the velveteen in this for two hours at the boil; take out, drain, and enter into a fresh bath of 3-4 kilos. bichromate of potash; work in this at the boil till the shade is developed.

DARK MAROON ON WORSTED.

For 100lbs, prepare a bath containing 10lb. Glauber's salts, 1lb. orange R., 1lb. acid magenta, 4lb. indigo extract.—Read Holliday and Sons. Enter the yarn at 170°F., work well while heating to the boil, work to shade. Take out, rinse a nd dry.

BROWN ON WORSTED.

For 100lbs., prepare a bath containing 10lbs. Glauber salts, 6ozs. fast yellow, 5ozs. orange Y., 2ozs. fast red, 5ozs. indigotine, 4lbs. sulphuric acid. Enter the yarn at 160° F., work while raising to boil, and then boil till shade is developed. Take out, rinse, and dry.

The Berlin Aniline Co. have taken out a patent for new blue colours of the direct cotton dyeing class, which will dye unmordanted cotton simply by boiling in a bath containing Glauber's salts. These blue colours will dye shades varying from violet blue to a green blue, greener than either azoblue or benzoazurine, which latter is a shade that is wanted. The dyes are produced by combining a new napthol disulphonic acid, patented by the oompany, with Benzidine Slilbene and similar bodies, including diphenitiine. This is the first time we have seen this compound mentioned as being used in the production of coal tar colours.

A NOVELTY IN FINISHING COTTON GOODS and other fabrics has been patented by Mr. Hargraves, of Salford, the object of whose invention is to improve the appearance and feel of fabrics. This he does by making use of "pulp" or "flock" made from cotton, flax, wood, paper pulp, and similar materials, which he reduces to the required pulp form by any suitable means. The pulp is then incorporated with farina, flour, or other binding material and applied to the fabric by the finishing machines now in use. The application of pulp to the cloths will impart a peculiar appearance and feel to them, not obtainable by other means.

L. GRAVE has patented more than, we think, he can possibly claim, viz.: the use of the bark of the Quillai, or any tree of the same species, as a substitute for soap, soda, etc., for cleansing purposes. It has long been known that a very small quantity of Quillai bark will impart a strong lather to water, and most persons, L. Grave among them, it seems, imagine that lather means cleansing power, which it really does not. The patentee uses a decoction of the bark in water, or prepares the bark by grinding and forming the powder into bricks.

A NEW MORDANT FOR COTTON has recently been patented under the name of "Fankhausine" by a Swiss manufacturer, for which many (?) advantages are claimed. It will do away with the boiling of the cotton before mordanting, and so save fuel; it will save the labour involved by reducing the preliminary operations of dyeing; the yarns are more easily worked, and are fine and soft, and lastly, by causing a more complete exhaustion of the dye-bath, less dye-stuffs will be required and more intensive tints obtained. Whether "Fankhausine," which is a mixture of sulphated castor oil, extract of sumac, and soap, will do all that is claimed is we think a matter of doubt; cotton will have to be boiled before dyeing whether "Fankhausine" be used or not, and further its use is limited to stark colours only, it will be useless for pale tints.

DR. LANGE contributes to the *Leipziger Farber Zeitung*, a paper on the comparative use of tartar emetic and De Haen's antimony salt, which is a mixture of fluoride of antimony and ammonium sulphate. He says that cloth prepared with the latter is brighter and clearer and dyes up livelier shades than when tartar emetic is used. Magenta dyes somewhat brighter, methyl violet has a slightly redder shade; methylene blue is darker and redder; saffranine comes up a little more blue, auramine darker, bismarck brown brighter, and brilliant green more yellow. The trials were made on cotton mordanted with 4½ per cent. of tannic acid, one part being fixed with tartar emetic, the other with Dr. Haen's, the strengths of the baths beings so arranged that the amount of metallic antimony was equal in both cases.

DR. L. T. THORNE, the Chemist to the Brin's Oxygen Co., in a paper recently read before the London section of the Society of Chemical Industry described the application of Oxygen gas with chlorine to the bleaching of paper pulps. He incidentally mentioned that experiments had been made with the same process in the bleaching of cotton and other fibres in the form of yarns and cloth with some success; as he pointed out, oxygen is the real bleaching agent in almost all cases, but the application of pure oxygen gas in the free condition has not hitherto proved a success and it seems curious that admixture with chlorine should impart to it bleaching properties. If the process is such a success when applied to paper pulps of all kinds, it would seem to be worth while to try it on the large scale for the bleaching of cotton yarns and cloths.

ARTIFICIAL GUMS is the subject of a report of M. Kopp to the Chemical Section of the Mulhouse Society. Among the products he mentions are "soluble starches," which are prepared by treating starch under high pressure and at a high temperature with sulphurous acid and afterwards evaporating in a vacuum. They give a blue with iodine, but are only imperfectly soluble in cold water; hot water dissolves them completely, forming thick and gummy liquids which can be used in calico printing as thickeners for colours for the finest designs; they can also be used for finishing, printing on paper, etc. Universal gums are peculiar varieties of dextrine soluble in cold, but more freely in hot, water to viscid liquids, having great adhesive properties. "British Gum" is the name given to a good quality of artificial gum, and M. Kopp speaks also of other products, such as dextrine, calcined farina, leiogomme, etc.

BURMESE CUTCH.

The *Rangoon Gazette*, discussing the manufacture and trade in cutch in Burmah, says the export of cutch is the next most important to that of rice, and it has been steadily increasing during the past twenty years. The acacia catecue, or cutch tree, is found in large forests throughout the whole country; the core of the tree is a dark red wood, mahogany; the wood is chipped, boiled, and the cutch thus extracted. It is an industry that can be carried on by anybody with a pair of hands, a knife, and a cooking pan, and accordingly it is very generally followed by poor persons. In October the cutch-boilers form themselves into small companies and select a spot where there are good robust trees. The boiling pans are firmly fixed in holes in the ground, the trees are felled, the branches lopped, the bark and outer wood removed, and the core reached. The children chip the dark red wood, which is placed in the pans with a little water, care being taken that it does not get overheated or burnt. When of the required consistency the contents of the pans are removed and spread out on mats to evaporate, the woody refuse being thrown away, and the sap alone retained. In a short time the mats can be manipulated into small blocks of a regular size. The colours are red, dark red or black, the shades depending principally on the quality of the chips and the time taken in boiling. The light red and red cutch is considered the best, and with betel nut and other ingredients is chewed by the Burmese and is exported to India for the same purpose. The dark red and black are prepared largely for the markets of Europe and America. The characteristics of unadulterated cutch are uniformity of appearance, bitter, acrid, or pungent taste, smell like opium, and friability. Formerly the quality could be relied on, but of late years greater liberties have been taken with the mixing and adulterating, consequently a spurious cutch is used, fibrous matter, sand, or earth being sometimes added to increase the weight, and the Chinese dealers have a habit of putting good, bad and indifferent into one consignment, which is then passed off as a good sample.

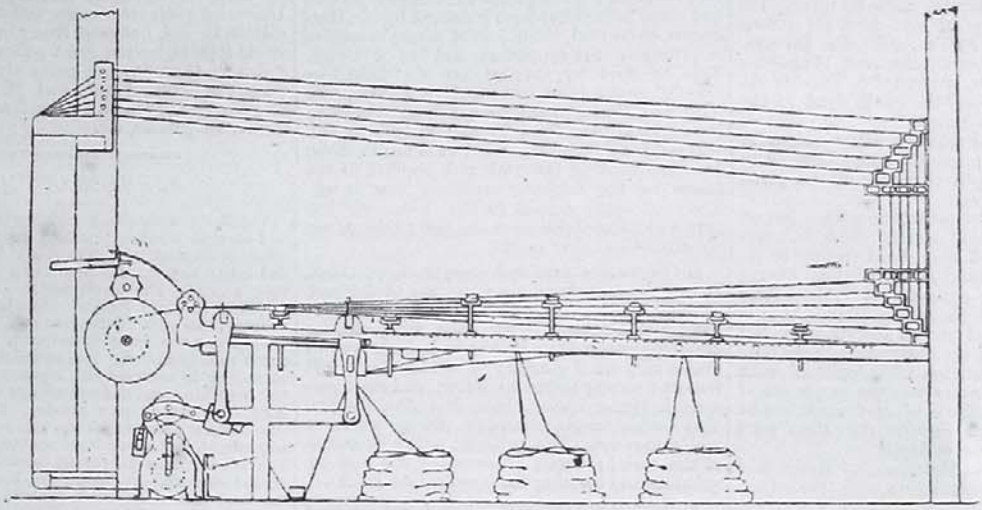
Machinery and Appliances.

NEW COLOURED WARP DRESSING MACHINE.

MESSRS. J. BANCROFT AND CO. LD., TODMORDEN.

The ordinary coloured warp dressing frame or machine is, no doubt, well known to those of our readers connected with the coloured branch of the cotton trade. In its use the worker is assisted only to a limited extent by steam power or other motors, and sometimes not at all. In the former case it is often only to the extent of simply winding the yarn upon the beam. The dresser, as the workman is called, does all the other work, which is light, of course, on the manual principle. The warp is placed beneath the frame whence it is drawn through a set of tension rollers, thence over the "stangs" or winding-on poles. Between these poles and the beam is a distance of about 12 to 14 feet, and in this space the workman conducts his operations. The warp having been separated into sections on the poles the dresser commences his operations by brushing it backwards with a hand-brush, the length of which extends across the width of which is suspended from cords. This substitutes the dressing reed of the older frame. The worker moves it backward and forward to open the warp into half "beers" or "bears"—we give our readers the option of selecting their own spelling of this word. In this state it passes over the dressing brush. At this point we come to the principal part of the improvement, which consists of the introduction of an expanding reed, of which the inventor also avails himself to form an automatic stop-motion. This is accomplished by mounting the reed vertically upon two short standards pivoted in brackets, and kept in the vertical position by a number of spiral springs attached to a crossrail in the frame, and to another upon the standards carrying the reed. When the warp, through entanglement or any other cause, sticks in this reed, the obstruction carries the latter forward towards the beam, and by means of a connecting rod attached to it brings into action a catch which, through a wheel, instantly stops the machine before any of the warp threads can be broken.

We were greatly pleased, after a long inspection, with the simplicity and effectiveness of the machine in obviating the difficulties which Mr. Garstang had set himself to remove. Each of the improved machines will do twice the amount of work that can be obtained from the old form of the dressing frame, and one man and a boy



NEW COLOURED WARP DRESSING MACHINE.—MESSRS. J. BANCROFT AND CO., TODMORDEN.

the warp. This brushing partially opens the warp and removes the impurities acquired in the dyeing process. The warp is next further opened in a dressing reed, and the threads are again more perfectly separated by the lease rods. After this it passes upon the beam.

The process of dressing by hand as thus described is a slow and expensive one, the workers earning from 36s. to 40s. per week. The workmen have hitherto kept this occupation a very close monopoly amongst the families and friends of those already engaged in it, and so exclusive are they that even yet in some cases they stipulate that they shall leave work several minutes in advance of the other workpeople, so that they shall not be compelled to mingle with the plebians of the industry. Naturally enough, where such pretensions are put forward, those who hold them may be expected to have made themselves troublesome in other directions.

It was experience of this kind which led Mr. Garstang, one of the partners in firm named above, to endeavour to obviate the difficulties arising from this source. This he has accomplished in the manner we are about to describe. Into the ordinary frame he introduces two parallel bars or side rails into which he places standards to carry the dressing brushes which are thus as it were fixed, and over which the warp runs to the beam. Before coming to the brush a raddle or wraithe is introduced, can superintend two, whilst the work produced is better than before. Parties wanting any further information may address the firm as above, who, we have no doubt, will be pleased to give it, and afford every facility for an inspection of the machine.

IMPROVED COP TUBING APPARATUS.

MAKERS: MESSRS. E. JAGGER & CO., OLDHAM.

Economy in all its aspects is the order of the day in each of our varied industries and perhaps most of all in the textile trades. It is indisputably so in the cotton trade. In this now colossal business the energy of inventors during many years past has been devoted to making improvements in details, and probably one-half of these have had for their object the effecting of economy in the time or material of production, or the prevention of waste. In two of these aspects the invention under notice claims the attention of cotton spinners. It is well known that under the old system of spinning yarn upon the bare spindles, in many cases the waste resulting from large and badly formed cop bottoms, especially in those of weft yarns formed a large percentage of the yarn consumed. In weft, owing to the further injury received in shuttling, this was rarely less than from 2½ to 5 per cent. The serious loss thus resulting led to the invention of various means and the adoption of various methods of obviating it. Amongst the devices brought out was one which had the germ of something good in it. This was the plan of spinning the bottoms of the cops upon small paper tubes. This system proved a great improvement, but its general adoption was prevented by the time or labour required to place 1,000 or 1,200 tubes upon the spindles of a mule, so that only in the spinning of fine or expensive yarns was it received with favour. The progress of invention, however, has brought it within the reach of almost every spinner and rendered its use advisable for nearly all counts of yarn. This has been accomplished by the cop tubing apparatus invented by Mr. E. Jagger, of Oldham, and which has just recently been considerably further improved.

This apparatus, contrary to most others is a portable one, which, when not in use is placed aside, thus being no impediment in the way of minders or piecers. The accompanying illustrations show the apparatus as it appears when being charged with tubes (fig. 1.); when in use (fig. 2.), and when hung up not in use (fig. 3.) A brief description of its parts may be given. It consists of a cylindrical outer casing to each extremity of which is a handle by which it is carried when in use. On the under surface of this cylinder is fitted a row of shoots as shown at B in fig. 2; of the same guage as the spindles to be served and at each extremity of the row is a guide E These being placed upon corresponding spindles bring the shoots through which the tubes have to be served each over its own spindle. On the top of the case at the right hand side is a small slide G, which is operated by the finger or thumb of the workman, and when not in use is locked by a small clasp F. The attachment containing the shoots forms a door which is held securely in position by sliding bolts; and is opened for the purpose of replenishing the tube cylinder with tubes when exhausted. Inside this casing is the revolving cylinder, the periphery of which is full of holes for the reception of tubes. These holes are arranged in zigzag order which greatly increases the capacity of the cylinder. At the right hand extremity of the cylinder is a cam, formed of two discs, each having a circle of ratchet teeth projecting horizontally towards each other, but arranged with space sufficient between them to receive a stud or pin fixed in the slide on the case and passing down between the teeth. The cylinder is revolved in an intermittent manner, by means of the movement backward and forward of this pin, each movement bringing over the line of shoots a line of tubes, which are thus discharged upon the spindles.

Our illustration, Fig. 2, shows a boy of 12, a half-timer, using a tuber containing 500 tube chambers, 1¼in. guage, and length of cop tube

1¼in. Commencing at one end of the mule, he brings the tuber over the spindles, resting it upon the guides at each end, discharges the contents, moves rapidly on another length, and again discharges, &c., to the end of his section of the mule By this time his tuber will be exhausted, and if a colleague has not been engaged on the second portion of the mule in the same duty, he takes another full tuber and supplies the spindles of the second half in the same way. The time required for supplying 1,000 or 1,200 spindles with tubes in this manner is from one to two minutes, according to the varying expertness of the operators. It will thus be seen that the time thus spent is hardly appreciable compared with that occupied in placing the tubes on by hand, a practice which can hardly be continued by any spinner having a knowledge of this invention and a due regard for his own interest.

The minders and piecers re-fill the tubers in the interval of the spinning of the next "set." If, however, it be found desirable, this can be done by the youngest children employed in a mill, and whose labour is of the very cheapest description. The filling process is shown in fig. 1. The plate B forming the door revealing the cylinder, and giving space to put the tubes into the pockets with facility. When the first row of holes has been filled, the cylinder is revolved as in discharging, which brings another row uppermost, which is filled, and the process repeated until the whole are charged. The door is then closed and fastened, and the apparatus is again ready for use. The apparatus is so constructed that its use is in no way interfered with by the sickles of the fallers, ample provision having been made to avoid any difficulty on that score.

There is another, the segmental type of this useful invention, but notice of which must be deferred to another opportunity.

The inventors and makers, Messrs. Jagger and Co., may be communicated with by addressing them to the Werneth Metal Factory, Manchester-street, Oldham.

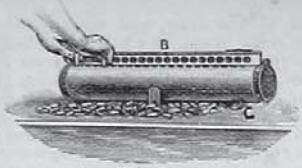


FIG. 1.

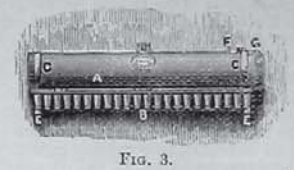
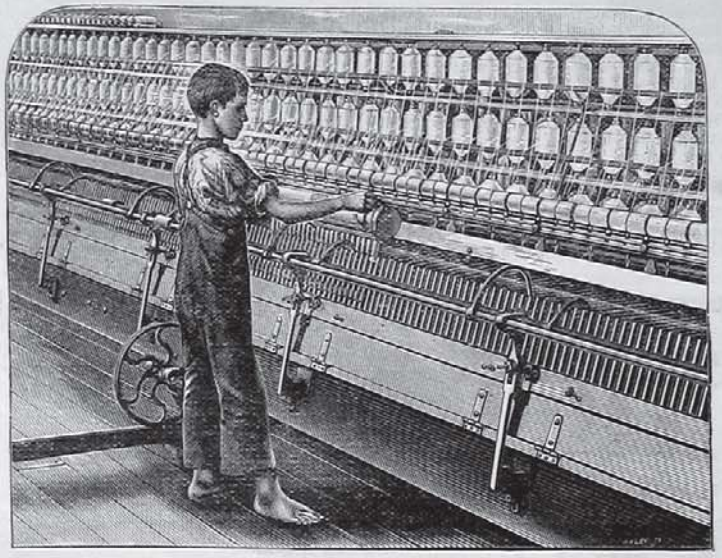


FIG. 3.



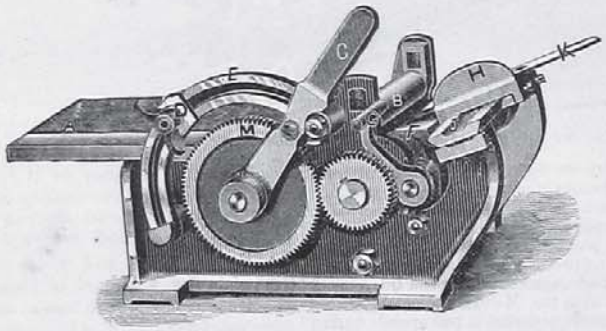
MESSRS. JAGGER AND CO.'S IMPROVED COP TUBING APPARATUS.—FIG. 2.

PATENT ROLLER LEATHER SPLICING MACHINE.

MAKERS:—MESSRS. DRONSFIELD BROS., ATLAS WORKS, OLDHAM.

To the excellent and well-known series of machines invented and placed upon the market by this firm, the purpose of which is to perfect the covering of the various sorts of drawing rollers found in cotton machines, another has just been added. This is a splicing machine for roller leathers. The cutting of true bevelled edges upon the leathers intended for covering the bosses of drawing rollers is essential to good work. Where this is defective either a ridge, a hollow, or an irregularity will be formed, which will detrimentally affect the work done by the roller. In the old days of hand-work, when all the details of the work were performed by the "roller coverer," as he was called, and the perfection of which depended upon his skill and care, a good man was a prize in a cotton spinning establishment, and high wages were paid to secure them. The demand, however, was always in advance of the supply, and it was this ungratified requirement of the trade that led Messrs. Dronsfield Brothers to consider whether it was possible or otherwise to facilitate and improve the process of roller covering and re-covering by the introduction of mechanical aids. The success which has attended their efforts is well known; and this machine, the latest of the series, will increase the credit to which they are entitled.

Our illustration shows the machine, which is of a size that can be placed upon a bench or table. The leathers from which the cuttings are to be made are placed upon the table A with their face side upwards. The front of the leather is then passed between the feed rollers B, which are actuated and caused to deliver the proper proportion of leather required by the handle C. This handle is constructed in two parts, passing on each side of the wheel M to its stud, which also forms the pivot of the handle; by pressing the handle together the wheel M is held, and compelled to move with the handle, giving motion through the gearing to the feed rollers. The extent of this movement is governed by the stop D, adjustible on the arc E, which is figured to scale for measuring purposes. The front of the leather on emerging from the rollers enters the jaws F, the lower of which closes upon it by a movement of the lever G, so that the leather is firmly held whilst being cut. The knife K is then drawn across the slide J by the hand placed at H, cutting the leather close to the jaws, and giving a clean bevel edge to each side of the cut.



PATENT ROLLER LEATHER SPLICING MACHINE.—MESSRS. DRONSFIELD BROS., OLDHAM.

It will be seen from this description that absolute uniformity of length of the leather, and a similar regularity in the bevels, can be obtained by the use of this machine, so that a better fit and more accurate joint can be made than it is possible to obtain from the most skilful hand in the ordinary way. The value of this will be fully appreciated by our practical readers interested in the subject. All such may obtain any further information by applying to the makers as above.

IMPROVED SELF-ACTING MULE.

MAKERS: MESSRS. TAYLOR, LANG, AND CO., LIMITED, STALYBRIDGE.

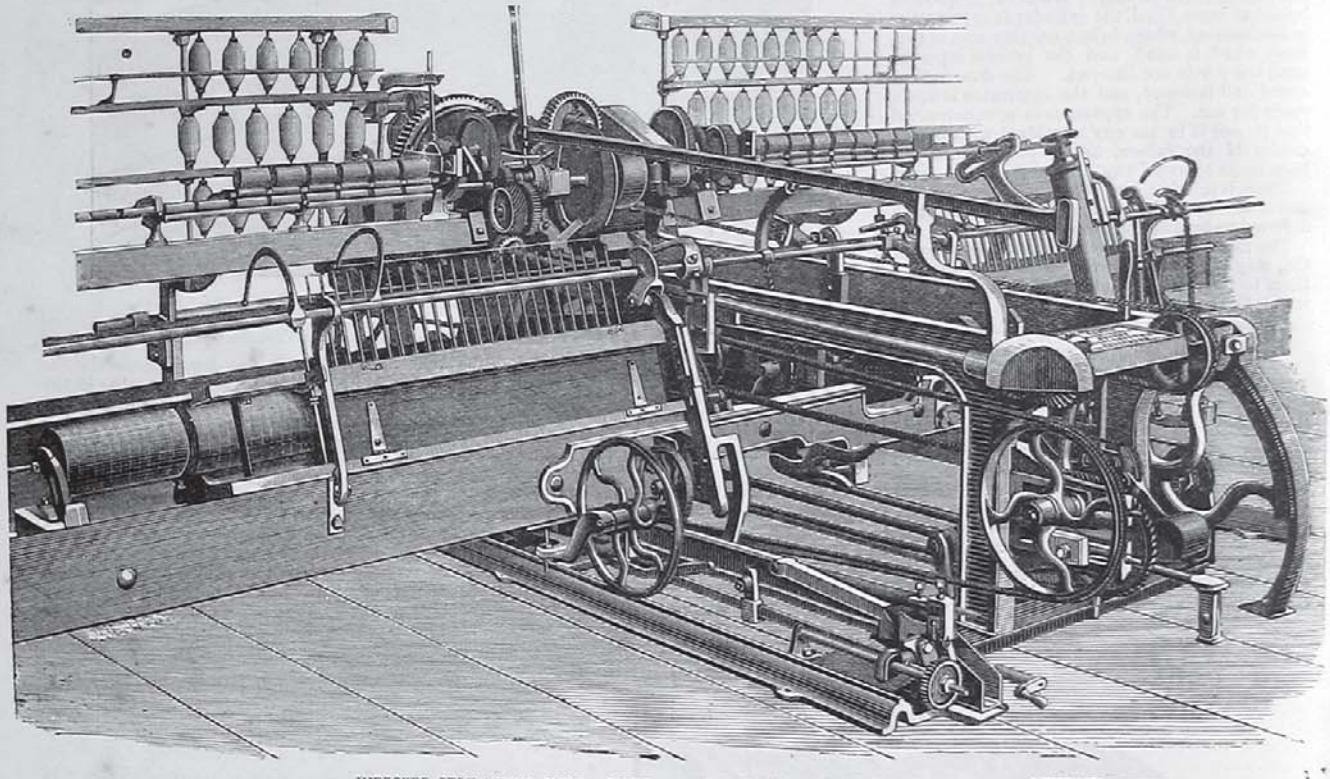
The well-known mule of this firm's make has just undergone further improvement in several important details. Many of our readers will remember seeing an example of it in the late Manchester Exhibition. The mule there on view, owing to the exigencies of space, was restricted to a short length of only 264 spindles, or just sufficient to show its salient features to advantage.

This mule is constructed to contain from 1,000 to 1,200 spindles or somewhat over according to requirement, of 1⅜in. guage, with 17in. spindles, carrying ⅜in. warves. The rollers have 3-thread bosses, the approved boss for counts ranging about 32s. The length of draw is arranged for 64in., whilst a roller motion delivers about 3½in. more during the inward run of the carriage. These are what may be termed its general features. The more particular ones are the arrangement by which the spindles at top are carried by a plate bolster which is sunk level with the timber at the top of the rail, but protrudes underneath about ⅜in., constituting a long, strong and clean bearing. The spindle steps are single, and provision is made for the

reception of a considerable quantity of oil by the introduction of deep countersunk cups. These are covered by a loose turn-over plate having a ribbed back edge and countersunk depressions which enter the step cups. Their efficiency for keeping out dirt without being in the way of oiling and cleaning has been abundantly proved.

The baywood spindle ribs have been furnished with an improved stop coming nearly to the top of the warve which holds the rib more securely in its place and prevents stoppage of the spindles by pressure on the front door. The tin rollers have all loose or knuckle bearings, these being made much longer than those in general use. They can be lubricated from the front of the spindle rail by means of a neat tin tube which can be handled with facility. Further provision is made for the same purpose by the retention of the receptacle for tallow for those who prefer this method of lubrication. The loose steps are held in firm fixings, and have adjusting screws for setting them at correct distances from the spindles. These are also highly useful in facilitating the taking out and replacement of the tin cylinders when occasion requires. The winding click wheel is constructed in two parts and can at the end of the draw, and again when it reaches the roller beam, by a patented arrangement of levers, worked automatically from the copping motion. The motion for actuating the strap at the end of the draw can be easily disconnected if rendered desirable through the slowness of the steam engine, heavy running of the mule, or other causes of a temporary nature, without stopping the mule, whilst the connexion can be again effected without the slightest trouble in altering the setting. The whole arrangement for actuating the strap is easily worked and the strap is moved with facility in both directions, thus diminishing the friction upon its edges and consequently increasing its durability. The driving wheel and backing off have been considerably enlarged—an important improvement.

A modern mule would be incomplete without an automatic nosing motion. The one introduced into this mule consists of a ratchet-lever which swings at the top of the quadrant arm, and by means of a bent lever and a light chain is connected with the copping arrangement which as it moves forward in building up the cop gradually brings down the ratchet-lever.



IMPROVED SELF-ACTING MULE.—MESSRS. TAYLOR, LANG, AND CO., STALYBRIDGE.

easily be changed without disturbing any other parts. This click is an instantaneous one, and one which cannot get into gear until the backing-off has been completed. If preferred by purchasers, however, a click-locking motion of another type can be substituted. The backing-off click has also been improved by the introduction of a loose bracket upon the plate and which dispenses with the bending of springs; the backing-off chain is automatically tightened as the cop builds from the copping arrangement. The tin-roller pulley is also constructed in halves and can be supplied with two, three, or four grooves, according to requirement. The top carrier pulley behind the headstock, if desired, can be arranged to swing, by which means it will take up the slack in the band occurring when the spindles are being started and thus lessen the liability of its being thrown off. If desired, the bottom carrier pulley and the union pulley in the carriage can be provided with a spring arrangement so desirable for effecting the perfect lubrication of their bearings.

The down strap is moved to and fro by the cam shaft in the ordinary manner, and in addition by the fallers when the carriage arrives

Connected with the light chain just mentioned is an arrangement for stopping the carriage when the cops have attained their proper size. This is accomplished and the carriage stopped at the proper point of its traverse for commencing the doffing process by lifting the cops.

A patented arrangement has been introduced in connexion with the Mendoza lever, by which considerably more pressure is put upon it during the time the carriage is near the roller beam. This secures a better start of the carriage without interfering with the lifting of the lever in the event of any obstruction occurring to the movement of the carriage.

The vertical taking-in shaft is of great strength, and is well arranged for carrying its own weight and that of its wheels, &c., and is fitted with adjustable footstep by which any wear may be taken up. In most mules the drag change wheel ordinarily has about 100 teeth, but where desirable or necessary this mule can be fitted with various sizes up to 150 teeth. By this means the difference caused in changing a wheel is reduced to the smallest. The arrangement of the speed or twist wheels is a compound one by which a coarse or a fine change can be had as desired by a wheel of say 26 teeth or one of 120 teeth.

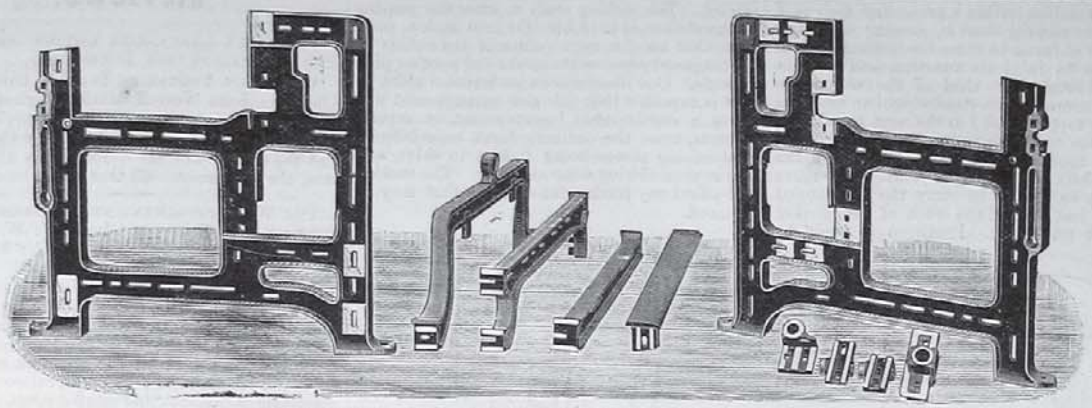
The accompanying illustration shows a front view of this mule. For simplicity of construction, excellence in its details, strength, durability and facility of access to its separate parts a close examination enables us to say with confidence that it is all that can be desired. We may mention in conclusion that the makers have just entered into a contract to furnish the new mill of the Standard Spinning Co., Rochdale, with over 100,000 spindles, a fact which may be left to speak for itself.

IMPROVEMENT IN THE CONSTRUCTION OF LOOMS.

MAKERS: MESSRS. HENRY LIVESEY, LIMITED, BLACKBURN.

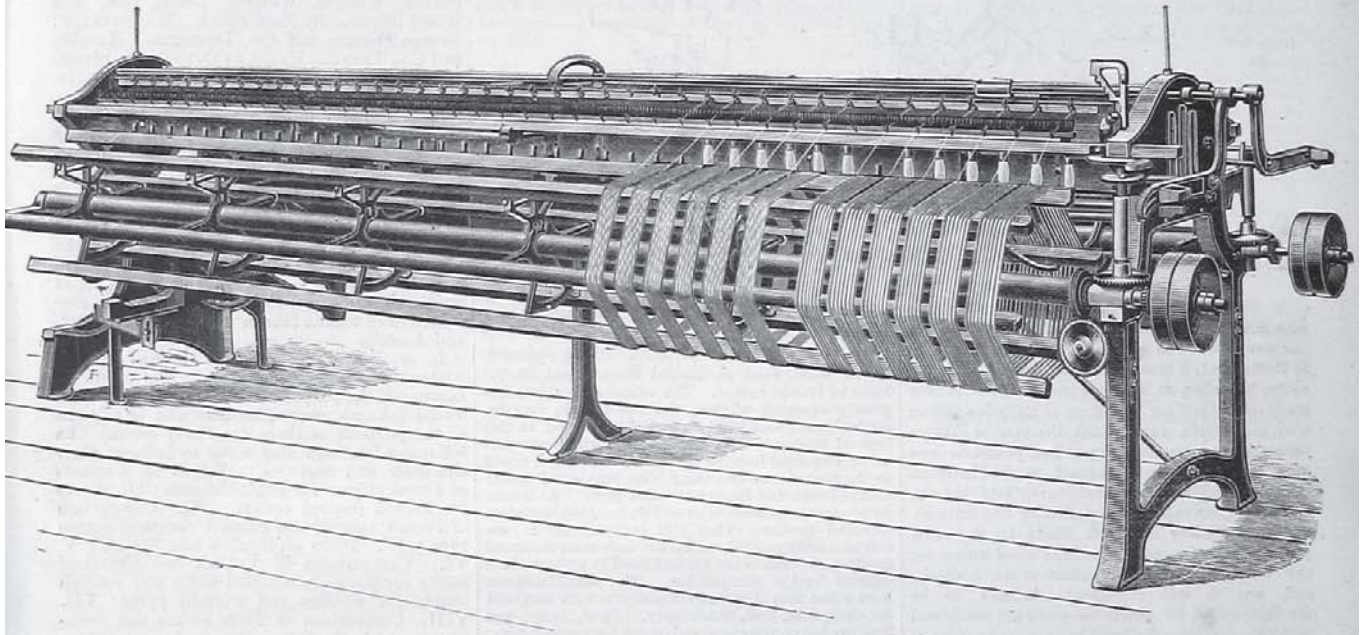
Those who remember the power loom of thirty years ago, the coarse finish bestowed upon it, and the rough manner in which it was pitch-forked together, if they could have the opportunity of inspecting this machine as it is now turned out of our leading loom-making establishments, would be apt to express surprise and pleasure at the care and finish bestowed upon every detail of the work and which constitutes the loom of to-day a marvel of cheapness and excellence compared to those made thirty to forty years ago.

We are led to make these remarks from a recent inspection of some new plant just laid down by the firm named above for planing the crank, tappet, and picking shaft bushes, and their respective seatings on the loom sides. This we understand is an advance upon what has hitherto been attempted. All the various parts such as beams, cross rails, bushes, footsteps, and their seatings, as seen in the accompanying illustration, are now planed as shown in the white parts in the drawings, and rendered capable of perfect adjustment each to each, the result being much more satisfactory performance on the part of the loom, diminished wear and tear, and increased durability. In all the working and frictional parts where possible



IMPROVEMENTS IN LOOMS.—MESSRS. HENRY LIVESEY, LIMITED, BLACKBURN.

cast iron has been introduced, its well known resistance to wear rendering it the most suitable material for the purpose. All the other parts of the loom have had a correspondingly increased amount of care and labour bestowed upon them, all contributing to the excellence of the aggregate result. Verily the lot of the modern time weaver as compared with that of his predecessors in the days referred to above, so far at least as his machinery goes, is a happy one.



IMPROVED RING BOBBIN REEL.—MR. JOSEPH STUBBS, MANCHESTER.

IMPROVED RING BOBBIN REEL.

MAKER : MR. JOSEPH STUBBS, MILL STREET WORKS, MANCHESTER.

The introduction of the Ring frame and the various changes made in the methods of spinning during the past few years, have had considerable influence upon the subsidiary processes of winding and reeling. The machinery for these whilst undergoing the natural course of improvement has also been modified to meet the requirements of the alterations in the spinning departments.

The machine illustrated herewith is an improved ring bobbin reel recast in its general structure so as to be more convenient and better adapted for yielding a greater quantity and a better quality of work than in its previous form. The frame is constructed for double 40 hanks 3¼ in. guage. As shown in our illustration one of the new features is that the bobbins are placed in a vertical position in a creel fitted with split wood bushes. These bushes hold the bobbins firmly in their place. The thread passes from them upwards to a perfectly novel tension wire or snarl preventer, another new and important addition, and which is shown inserted in the bar behind the brush. This wire is bent into a peculiar form, and the yarn is conducted through it in a tortuous line, which when seen in plan from above almost describes the form of the letter S. This gives sufficient tension to prevent the formation of snarls in all ordinary twist yarns. As the wires are placed over the tops of the bobbins the yarn is drawn off from the top, a method experience has shown to be the best. The yarn leaving the tension wires passes through the cleansing brush and the guide wires, and upon the reel.

The reel is fitted with drop section and patent gate doffing arrangements, as may be seen from our illustration. It is also adapted for seven lea or cross reeling according to requirement, and the change can be made in an instant, by the operative, without the aid of a screw-key, or troubling anyone to assist. Since its introduction the improved reel has met with great favour in the trade. All parts are upon the latest and most improved patterns.

We are pleased to compliment this enterprising firm upon the success which has attended them since they opened their new premises in 1883. From that time to the present they have been steadily making additions, and are at present engaged upon an important enlargement which with the previous ones more than doubles the space originally at their service.

AN IMPROVED UNDERPICK.

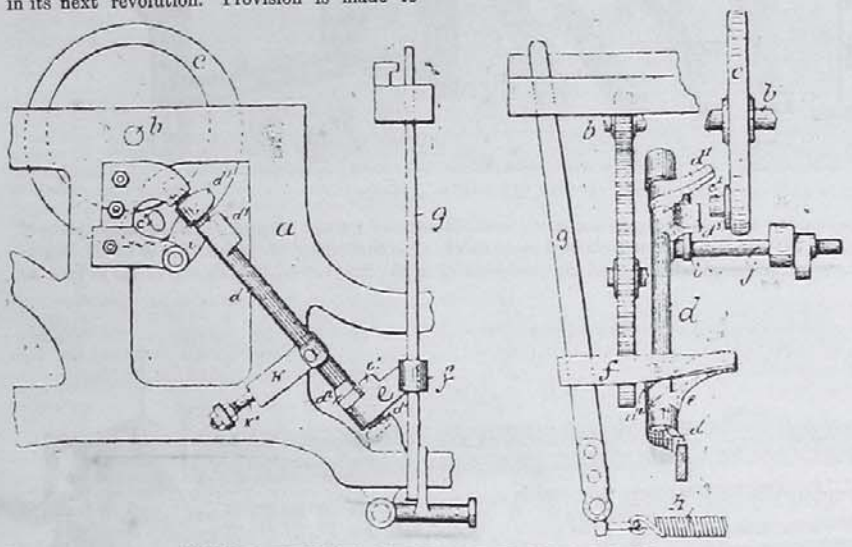
MAKERS : ROBERT HALL AND SONS LIMITED, BURY.

For the production of strong fabrics in cotton goods, unions, and linens, the underpick loom remains the favourite. Its advantages for such purposes have long been known, and one may be stated in the fact that it is usually conjoined with a strong framework, and generally speaking a loom stronger in all its details than the over or sidepick loom which is almost universally accepted as the most suitable for other goods. Yet in an ordinary way the underpick loom impresses one as being unnecessarily heavy and complicated for its requirements, and this conviction has led to numerous attempts to improve it. One of these, the invention of Messrs. E. and W. A. Rothwell, of Walkden, near Bolton, has just been put upon the market by Messrs. Robert Hall and Sons, the well-known loom makers of Bury.

In this improvement the inventors have endeavoured to simplify the picking arrangement, and have accomplished their purpose by dispensing with the scroll tumbler staple and the half circle. This has been substituted, as will be seen from our illustrations, by a striker

c' mounted on the fly wheel C, which every second revolution strikes a projecting tongue *d'* fixed on the picking shaft D, moving the latter on its axis so far as to cause the picking stick in connection to fulfil its function and send the shuttle through the shed of the warp. An ingenious arrangement, consisting of an eccentric I upon the tappet shaft J in the next revolution, precedes the movement of the striker, and by its impact upon a second projection D3 on the picking shaft D causes the latter to move sufficiently on its axis to carry the first-named tongue D1 just beyond the reach of the striker in its next revolution. Provision is made to prevent this movement affecting the picking stick G. The picking shaft D, after the passing of the striker, is then brought into such a position that on the next return of the striker C1 the tongue D1 receives its stroke and another pick is made. Our illustrations are lettered alike.

It is expected that this new arrangement will prove a considerable improvement in several respects, upon the ordinary form, especially in economising power being lighter to drive, and also in diminishing wear and tear. The makers will afford any further information that may be required.



IMPROVED UNDERPICK.—MESSRS. R. HALL AND SONS, BURY.

PROGRESS OF MANUFACTURING IN INDIA.

In the "Statement of the trade of British India with British possessions and foreign countries for the five years 1883-84 to 1887-88," just presented to Parliament, it is said that the level of price for cotton has fallen so low that many use cloth now made from the finer American or Egyptian cotton who used cloth made from the coarser Indian cotton ten or fifteen years ago. Our cotton is now most largely used in India itself, on the European Continent, where it is manufactured into blouses and other garments for the peasantry and artisans, and to a smaller extent in China for the same purpose and for wadding. The chief outlet for the woven goods of the mills is in India itself, and it will no doubt continue to be the chief outlet, for mill-woven goods are surely and rapidly superseding the hand-loom manufactures of the country. For yarns, on the other hand, the markets of China and Japan offer an extensive field for the Indian spinner, though he may presently find Japan closed against him, for that enterprising people have already about 300,000 spindles at work, and the industry will be greatly developed within a few years. But the Bombay spinner will probably continue to hold the field in China, and he will also presently acquire other extensive markets in the other countries of Southern Asia and Eastern Africa. The following table shows the progress of the cotton spinning and weaving industry in India since 1876:—

Year.	Number of Mills.	Number of Spindles.	Number of Looms.
1876	47	1,100,112	9,139
1877-78	53	1,289,706	10,533
1878-79	58	1,436,464	12,983
1879-80	58	1,470,830	13,307
1880-81	58	1,471,730	13,283
1881-82	62	1,550,944	14,386
1882-83	62	1,654,108	15,116
1883-84	74	1,895,284	16,251
1884-85	81	2,037,055	16,455
1885-86	86	2,110,847	16,455
1886-87	94	2,261,561	17,455
1887-88	95	2,302,982	18,415

In regard to Bombay versus Lancashire yarn the official report observes: "It appears that yarn from Bombay is gradually taking the place of that from Manchester, being found to be a better wearing article when woven into cloth."

THE COTTON INDUSTRIES OF HAVRE AND ROUEN.

The Consular reports just issued state that the imports of cotton into Havre fell off last year 172,000 bales, or over 25 per cent. Of the decrease, 73,000 bales were in United States, and 89,000 bales in Indian cotton. The course of business has greatly changed of late, the middleman or merchant having to a large extent disappeared in this line of business, and much cotton which was formerly imported here on private account and resold to the manufacturers being now purchased direct by the latter and landed at other ports. At Rouen cotton spinners have been active, but they complain of small profits. They still look to their new colonies as important outlets for their manufactured goods, and trust to the general tariff to protect them against foreign competition. The manufacturers here allow that they cannot compete with England for cheapness, coal, machinery, labour, taxes, and freights being, they contend, much higher over here; and in addition to these there is the compulsory military service. They have caused their stuffs to be manufactured, both in material and size, according to patterns to which the English have accustomed the natives, and they consider these stuffs much superior to ours, a fact which must in the long run be appreciated by buyers.

SYNDICATES.—A Dresden firm engaged in the chemical trade has made an attack on the combination or syndicate system, and urges that the experience of the trade has shown that "rings" inevitably tend to bring about excessive advances of prices, based on an over-estimate of the strength of the position, which either result in retaliatory action on the part of consumers, the development of fresh competition, or in some other way in a break-up of the combination. The quinine syndicate is referred to as an illustration, the effect having been diminished imports with, nevertheless, increased stocks. As regards the alkali trade, new manufactories are already in prospect. The opening of direct steam communication between Germany and India promises an increased supply of dye stuffs. Meanwhile the price of alizarine has been forced up by the higher cost of the raw material. As regards aniline dyes, while the demand increases, prices continue to decline. Keen competition reduces profits to a minimum, and compels producers to be constantly on the look out for novelties and improved processes of manufacture.

Reviews.

WORRALL'S LANCASHIRE COTTON SPINNERS' AND MANUFACTURERS' DIRECTORY.

WORRALL'S YORKSHIRE TEXTILE DIRECTORY. Oldham: John Worrall, Marlborough-street.

It is impossible to speak too highly of these admirable annuals. Judged both by the extent and the accuracy of the information they contain, the volumes are all that could be desired.

THE WAREHOUSEMEN AND DRAPERS' DIRECTORY: 2 vols., Price 14s. London: W. H. & L. Collingridge, Aldersgate-street, E.C.; Manchester: Marsden & Co., 23, Strutt-street.

This valuable compilation is not, as might be inferred from its title, a directory of warehousemen and drapers only. Comprised within these two volumes are the names and addresses, admirably arranged, of all the spinners, manufacturers, finishers, bleachers, dyers, calico-printers, wholesale merchants, and retail dealers, carrying on the varied branches of textile industry in Great Britain and Ireland. Such a work as this, recently and carefully compiled, will prove invaluable to a large number of those who require the aid of a reliable textile directory.

THE TEXTILE READY RECKONER, or Universal tables for calculating the structures of Cotton, Woollen, Worsted, Linen, Silk, and mixed fabrics. By Emil Staub. MANCHESTER: George Thomas and Co., Deansgate; Marsden and Co., TEXTILE MERCURY OFFICES, 23, Strutt-street. Small octavo, cloth, pp. XVI., 176. Post free, 6s. 6d.

This is one of those useful compilations designed to facilitate the solution of the growingly complex problems that are daily encountered by textile manufacturers in the course of their business and by the crowds of students who in our technical schools have taken up textile matters as a study. It will be found specially useful by the student or manufacturer dealing with the Continent, and whose operations require them to make comparisons between the standards of weights, counts, and measures used in the construction of textile fabrics in France, Germany, and Austria.

It is difficult to explain tabular matter without adducing illustrations, and even to enumerate the purposes of each table in this work would take up more space than can be allotted to the purpose, as there are thirty-seven. The following headings may serve to indicate their character and uses:—I. Weight in grammes of a hank of yarn for English counts; II. Ditto for French (metre) counts; III. Comparison of French (metre) and English counts of cotton yarn; IV. Ditto of English and French; V. VI. Comparisons of English and Standard metre counts, and Standard metre and English counts for woollen and worsted yarns; VII. VIII. Comparison of Paris inches and centimeters, and English inches and centimeters. The foregoing and following tables up to XVIII. are intended for the comparison of the various counts and setts in different measures; tables XXI. to XXVI. refer to weight calculation, and tables XXVII. to XXX. deal with shrinkage calculations in connexion with which XIX. and XX. may also be consulted. The last groups of tables are subdivided to suit the various textile fibres and their respective counts of yarns. The details are copiously illustrated in the second section of the work by numerous examples which amply illustrate the methods of making the various calculations. In addition, there is much curious and interesting matter that the student will find useful in making comparisons and calculations between cloths constructed on bases different from the English one. The work also contains a description of the author's patent universal yarn assorting balance, one of the most useful little instruments in connection with yarn weighing and the analysis of cloth that has ever come under our notice. Both the work and balance may be ordered through the offices of this journal.

In consequence of his appointment as secretary to the Manchester Chamber of Commerce Mr. E. Helm has tendered his resignation of the office of director, which was accepted.

News in Brief,

FROM LOCAL CORRESPONDENTS AND CONTEMPORARIES.

ENGLAND.

Accrington.

On Saturday last, the workpeople employed at the Perseverance Mill, Grange-lane, were provided with free tickets to Liverpool, by their employer, John Anderton, Esq., in celebration of his golden wedding day. He is one of the oldest and most successful manufacturers in the district, having been in the weaving trade for upwards of forty years. The trip was thoroughly appreciated by the hands, who, as a token of respect, presented him with a set of silver salts.

Altham.

It is proposed to erect a weaving shed at Altham, which is to be supplied with running power, fitted up with looms and let.

Barnoldswick.

On Monday, the 15th inst., a very serious breakdown occurred in the engine house at Clough Mills, by which over 200 workpeople have been out of employment for over a week. The cause of the breakdown was that more than twelve months ago two teeth broke in the pinion wheel, and since then the same wheel has been running with the teeth bolted to the wheel.

Blackburn.

In the case of Mr. Henry Taylor, weaving manager at Park Bridge Mill, who was killed by a rack of roller temples falling upon him on Thursday week, the coroner's jury has returned a verdict of accidental death.

A verdict similar to the above has been given in the case of Jonathan Matthews, engine tenter at Ellenshaw Mill, Darwen. The clothes of the deceased were caught in some shafting, and he was carried round, receiving such injuries that he died.

Bolton.

Mr. Charles Sundell, manager for Messrs. Greenhalgh and Shaw, of Halliwell and Sharples Mills, has accepted a situation in Finland, his native country, and will shortly sever his connection with the above firm.

The spinners employed by Messrs. Joseph Crook and Son, Limited, John-street, have given notice to leave work, on account of the firm (as they allege), not allowing for difference in speed from the ordinary standard of the mill. Nearly 200 operatives will be affected.

The firm of Messrs. John Knowles and Sons, Horsfield and Egyptian Mills, has been registered under the Companies Acts. Mr. Arthur Knowles has retired, and the firm will in future be known as John Knowles and Sons, Limited. Mr. Norman Knowles is the managing director. The registered offices are Horsfield Mill.

The Rothwell Hosiery Co. have taken the Victoria Mills, Bridgeman-street, for the extension of their businesss, and expect to find employment for nearly three thousand hands, when in full working order. The mills were originally used for cotton spinning by the owners (Messrs. Hargreaves), but have been closed for about 15 years.

Messrs. Barlow and Jones, Limited, of Albert and Prospect Mills, are at present replacing their self actor mules at No. 1 Prospect Mill, by new ones of Messrs. Platt Bros. and Co.'s make. This firm will shortly commence the erection of a large mill, to hold about 80,000 spindles, in land adjacent to No. 2 Prospect Mill, off Halliwell-road.

A number of looms have been lately started at the new-weaving shed erected by Messrs. John Musgrave and Sons, Limited, and known as the No. 7 Atlas Mill. This firm is also rapidly filling their No. 6 mill, which, when completed, will contain 86,000 spindles, and will bring the total of spindles contained in their six spinning mills to considerably over 300,000.

In consequence of a little pressure brought to bear on them, by their Association, the spinners in the employ of Messrs. Joseph Crook and Co., cotton spinners, have tendered 14 days' notice to leave work in consequence of a dispute over Clause VI. of the standard list. This clause, by the arrangement arrived at on the termination of the late dispute at the Robin Hood Mills, was referred to the joint committee of the two Associations to consider and agree if possible on a clear definition.

Bradford.

In regard to a report that the Americans are going to tax worsted coatings at the same rate as woollen, it is thought it will injure the Bradford trade in the cheaper makes, but there are so many different qualities in both sorts that it is impossible always to distinguish which is which.

The students of the Bradford Technical College weaving department, have presented a handsome gold watch to Mr. Ellis Atkinson, chief assistant to Mr. Ashenhurst for over five years past. Mr. Atkinson has accepted an important engagement with a large firm at Rochdale.

Brighouse and District.

In this district nearly all the mills worked the whole of Good Friday, and stopped for the holidays from Saturday noon till Wednesday morning, many of the operatives going to the sea side for the three days. At several mills, repairs were executed during the stoppage.

Burnley.

Woodfield Mill, built by Mr. George Keighley, is partially completed. It is designed for about 1,100 looms, and is now ready for 700.

A serious breakdown has occurred at the extensive cotton works of Messrs. Dugdale's, Lower House Mills, through the breaking of the main shaft.

Healey Royd Self-Help Manufacturing Co. are about to appoint a new manager, the former manager having resigned. The working of the past six months has been unprofitable, the balance sheet showing a loss of £900.

Clayton-le-Moors.

Extensive repairs are going on at present at Victoria Mill, and considerable time will elapse before the mill is run again.

It is rumoured that the Albert Mill, which has been closed for a considerable time, has been purchased by Messrs. Stuttards, of Pendle Forest. The mill is capable of holding nearly 500 looms, and the corresponding number of spindles to spin the yarn required.

Dewsbury.

Mr. R. F. Machell, shoddy manufacturer, Mr. John Walmsley, woollen printer, and Mr. Robert Swire, yarn manufacturer, have been elected members of the Dewsbury Board of Guardians.

The governors of the Dewsbury Technical School are arranging for the students of the new Wheelwright (Charity) Grammar Schools to have the use of the laboratories and workshops during the daytime. The new schools will not be finished before the end of the year. The number of students attending the technical classes are respectively, 30 in cloth manufacture and 13 in wool dyeing. Mr. H. Hey, teacher of the chemistry and dyeing classes, has been elected a member of the Corporation Free Library Committee.

Farnworth.

The usual Easter holidays from Thursday night to Tuesday morning have been generally adopted in the neighbourhood.

Messrs. John Hindley and Sons, spinners and fustian manufacturers, have this week closed the weaving department of their Egerton Mill for an indefinite period. About 30 weavers are affected.

Messrs. Job Irlam and Co., manufacturers, who, six months ago, removed from Hope Mill, Walkden, to Lark Street Mill, Farnworth, which had previously been standing for some eight years or more, have this week commenced brick-making operations on the spare land adjoining, with a view to extending their premises.

Halifax.

The students attending the Halifax Mechanics' Institution Cotton Spinning Class will compete for an annual prize of £3, to be decided by a test examination to be held on Saturday, May 4th.

The extensive card manufacturing establishment of Messrs. Walton's, of Denton, near Manchester, has now been transferred to the Halifax firm of Messrs. C. Cain, Son, and Greenwood, all arrangements having been completed. It will in future be worked as a "Private Limited" by Mr. C. Cain, and Mr. J. Greenwood, who are the managing directors.

Heywood.

Trade in Heywood is not very brisk, several mills are stopped entirely, and others are working short time, whilst some few are running full time. Messrs. Richard Kay and Brothers' large and extensive mills are working short time, as also are the mills of Messrs. Norris Brothers. — Mr. J. P. Bury's weaving shed in John-street stopped on Friday night till Tuesday morning for the holidays. There are 300 looms at this shed engaged in weaving fustian, but owing to slack trade a good number are at present stopped.—It is reported that a firm of manufacturers in the town are about to enlarge one of their weaving sheds which at present contains 600 looms.—The majority of the looms at Springfield and Derby mills are still idle.—Roe Acre Mills Company, Limited, has been formed for the purpose of acquiring the two mills of Messrs. William Hartley and Sons, Limited, known as the New Mill and Little Mill. The company have acquired them at an unprecedently low price: £11,000 for the two mills, the large one containing 30,000 spindles and preparation for same, with the freehold land, buildings, trade mark, and all appurtenances thereto belonging. The company is registered with a share capital of £25,000 in 5,000 shares of £5 each, of which 2,000 shares are allotted. At a meeting of the directors held on Saturday morning last, Mr. Joseph Lord was appointed manager. He is at present the manager of the Wham Bar Spinning Company in this town. New economisers are being put in, after which the mills will commence running.

Lostock Hall, Preston.

The weavers of Messrs. Walker, Moss and Co., of this place, waited upon the masters on Thursday week in reference to the alleged heavy abatements and bad material, against which they had been on strike a few days previously. An amicable understanding appears to have been arrived at, and all hands are again at work.

Macclesfield.

A new silk manufacturing society is just starting up in Macclesfield on the co-operative system of production which gives bonuses to the workpeople. About £3,000 has been raised in shares, an efficient manager has been engaged, and the directors expect to create a large business with retail co-operative societies.

Oldham and District.

The people of Oldham show no signs of diminishing energy. Mill building is proceeding rapidly on every hand. Mr. Robert Stott is re-erecting Alexandra, burnt down a short time since. The mill has to be non-fireproof, and Mr. Stott will rely upon sprinklers for protection.—The Woodstock Company, who also suffered a disaster by fire about last Christmas time, are reconstructing their premises, but are going in for incombustible materials; it is to be "fireproof." — Mr. George Buckley, Featherstall-road, Oldham, is erecting a new mill on land in Rochdale-road. The mill will be fireproof, 12 windows square, and at present three storeys high, but arrangements are being made so that at any time an additional storey can be erected if found necessary. The mill will contain about 45,000 spindles, the turning by rope driving. It is nearly ready for roofing.—The Lion Spinning Company, at Luzley Brook, are pushing on their new mill, which is to be rope driven. The Company are determined to be at work early next year.—The mills of the unfortunate Lancashire Spinning Company, which have been acquired by the Empire Company, are being got to work as quickly as possible. The outlook for this Company is regarded as very satisfactory. — On Easter Sunday night several men who were working on repairs at Horsedge Mill were seriously injured by the fall of a floor.

Oswaldtwistle.

The dispute which has been pending for over five weeks at Hippings Vale Mill was amicably arranged last week between the representatives of the firm and Mr. J. Watson, masters' secretary, and Messrs. Mullin and Eidsforth, representing the workpeople. The dispute arose through the firm insisting on the grinders doing extra work; for this extra work the men consider that they were entitled to an extra man. It is now at an end by the firm agreeing to engage another grinder.

Preston.

The Preston Cotton Spinning and Manufacturing Company has just declared a dividend of 6d. per share. The company is seriously considering the desirability of altering or changing its ring frames so as to cheapen the cost of production.

Radcliffe.

Most of the mills stopped work on Friday night week until Tuesday morning.

At Holly Bank Mill some alterations have been made in the engines. They started all right on work being resumed.

In consequence of the unprofitable state of trade the New Road Mill Company, Radcliffe, have decided to cease working their mill, and have advertised it to be let as a going concern. The spinning portion has been taken by Mr. T. Greenhalgh, late manager of the Central Mill Co., Oldham. The weaving portion has not been let. The warps are coming down very fast. Short warps have been made so that they all would come empty at one and the same time.

Stacksteads.

Messrs. Sutcliffe and Smith, Britannia Mill, are taking out some of their old looms, and replacing them with others to weave sail cloth.

Mr. E. Whittaker, of New Lime Shed, has sublet part of his weaving shed to Messrs. Nuttall, who are filling their portion with new looms made by Harling and Todd, Burnley.

Stalybridge.

In accordance with the resolution of the shareholders of the Crookbottom Manufacturing Co. to stop the concern until the margin between cloths and yarn will afford a chance of making a profit,

the looms are being stopped as the warps are woven down. Already about one half of them are stopped, and the others will stop as the warps run out.

Sowerby Bridge.

Mr. Adam Hardman, late with Messrs. Reuben Hirst and Sons, of Firth Street Mills, Huddersfield, who has been appointed manager to Messrs Shepherd and Blackburn, Limited, Perseverance Mills, Sowerby Bridge, is a teacher of cotton spinning under the City and Guilds of London Institute.

Todmorden.

At Robinwood Mill, Messrs. Fielden Bros. are enlarging the warehouses and replacing the whole of the cardroom machinery with new. Messrs. S. and J. W. Sutcliffe, of Hope and Sandholme Mills, have taken Anchor Mill, which has been stopped for many years, and are preparing to fill it with looms and preparatory machinery.

Yeadon.

Messrs. Ibbotsons, of Leeds, the late purchasers of the Albert Mills, have re-started the machinery, which has been standing idle since Christmas, and have also added stockinette machinery, an entirely new industry in the district. It is hoped that success will attend the efforts of this firm so as to find full employment for the workpeople who have been thrown idle for some time past.

SCOTLAND.

Hawick.

Wm. Leithead, assistant carder at Teviot Crescent Mills, has received an appointment as first carder at Messrs. Reid and Taylor's, Langholm. Mr. Leithead is an industrious Science and Technical student, having attended the Science and Technical Institute here for several sessions.

Trade here is fairly good. Messrs. Greenwood and Co. are building a large addition to Howlands Mill. They have sold Teviotdale Mills to Messrs. Scoon and Barrie, who will start in their new factory in the autumn. A new firm, consisting of the two Messrs. Syme, of Galashiels, and Mr. Williamson, designer with Blenkhorn, Richardson and Co., have taken a lease of the looms at present running for Messrs. Scoon and Barrie, from the Weensland Spinning Co.

Galashiels.

The School Boards of Galashiels and Melrose purpose adopting the "Technical Schools Act." If the Boards come to an agreement, the present Science and Technical Classes will be transferred from the "Manufacturers Corporation," who are the present managers, to the School Board.

IRELAND.

Lisburn.

The well-known firm of Messrs. William Barbour and Sons, Limited, Hilden Mills, are about to make several additions to their extensive premises at Lisburn. A noteworthy feature of the alterations will be the erection of a new engine house and engines on a scale not hitherto known in this neighbourhood.

Lurgan.

Messrs. Allen and Johnston have just added an extensive power-loom factory to their extensive manufacturing concern. The new factory—in which work has been commenced—is a handsome and costly structure of the modern type, the machinery being of the most modern description. It is expected when completed to afford constant employment to 700 or 800 persons.

Portadown.

Mr. Turtle, Tandragee, is building a new weaving factory.

Messrs. J. and J. Acheson have enlarged their extensive weaving factory here. The new department was opened on Friday evening, last week, by a most successful social entertainment to the employés, when a very attractive programme was gone through. Excellent relations exist between employers and employed.

How happy is the lot of manufacturers in a country where the state has taken them so kindly under its wings as in the United States! An item in an American contemporary just to hand tells us that the city council of Manchester, N.H., has passed a resolution exempting the property of the Leighton Manufacturing Company from taxation for a period of ten years. Similar occurrences are by no means unusual. Often the land is given by the corporations as well as exemptions from taxes, and sometimes even money bonuses are forthcoming as well. Who would not be a manufacturer under "the star-spangled banner."

AMERICAN JOTTINGS.

A bagging factory is projected at Jackson, Miss.

Messrs. J. G. Leinbach & Co., Reading, Pa., are about putting up an addition to their mill.

A new and improved carpet loom is to be tried in the new carpet mill of Burt Bros., at Warren, Mass.

It is proposed, at Lumberton, N. C., to organize a company for the construction of a cotton mill.

A cotton mill, to cost 100,000 dollars, will, it is said, be constructed at Meridian, Miss.

An effort is making at Greenwood, S. C., to start a cotton mill enterprise on the co-operative plan.

At Union Springs, Ala., one hundred thousand dollars have already been subscribed for a cotton factory.

The new cotton mill, to be erected at once by the Laconia Company at Biddeford, Me., will run 90,000 spindles.

An effort is to be made to rebuild the Dean Woollen Mills, Newark, Del. They were burned down more than two years ago.

The woollen mill at Gaysville, Vt., is to be rebuilt and started up with new capital and improved machinery.

At Kezar Falls, Me., it is proposed to put up a woollen mill, and it is believed that it will be exempted from taxation.

The Arlington Manufacturing Company, Lawrence, Mass., are about to add to the capacity of their weave room 300 plain looms.

It is intended to re-build at once the Knowles Knitting Mills, Sheffield, Ala., burned during March.

It is proposed to start a knitting mill at Kinston, N.C. L. Harry and John T. Newborn have the matter in hand.

Work on the Edwards Manufacturing Co.'s new cotton mill at Augusta, Me., is being pushed, and it is expected the mill will be in operation by fall.

The excavations for the new 900 feet long mill on the Amoskeag corporation, Manchester, N. H., are being pushed rapidly.

The Columbus Knitting Mill, Columbus, Ga., has been organized with a capital of 10,000 dollars, the full amount being paid in. The company will manufacture the cheaper grades of hosiery.

Mr. George Woolford, the tank and vat manufacturer, at 2240, North 9th street, Philadelphia, has just erected another 100,000 gallon cedar tank, 28 feet in diameter and 25 feet high.

The Wahoo Manufacturing Company has been organised to operate the cotton mill of the Wilcoxen Manufacturing Company at Newman, Ga. New machinery will be put in.

It is stated that subscriptions to the amount of 100,000 dollars for the new cotton mill to be erected by Brownell, Markland and Co., at New Bedford, Mass., have been received.

The Union Shuttle Company, Lawrence, Mass., make a hand-threading shuttle and a corrugated cop-shuttle which are having enormous success among American textile mills.

The Merrimack Manufacturing Company, Lowell, Mass., is making extensive changes in its ring spinning frames, taking out the Sawyer and putting in the Rabbeth.

The Boott mills, Lowell, have contracted for the erection of an addition to their No. 5 mill, to be 255 by 25 feet, four stories. It is to be built on the east of the present wall of No. 5 mill, on land reclaimed from the river some three years ago.

The foundation for the new building of Belding Brothers and Co., silk manufacturers, Rockville, N.H., is being rapidly laid. The building is to be 70-40 feet, 3½ stories, with a 12-foot square tower, and will be used for storage and packing.

The Savannah, Ga., cotton mills have been incorporated by Louis M. Warfield, John Flannery, Frederick L. Moore and E. F. Coe. The capital stock is 50,000 dollars with the privilege of increasing to 200,000 dollars.

At South Windham, Maine, the new mill of the Robinson Woollen Company is nearly completed. The building is four stories high, 120 feet by 53 feet, and it will be filled with the latest improvements in machinery.

In Spartanburg county, South Carolina, there are eight cotton mills in operation or under construction with a total of 122,000 spindles, Clifton leading with 50,000 spindles, which is the largest number of any cotton mill in the South.

The looms and other machinery of J. P. Jones' Calcutta Mills, of Frankford, Philadelphia, are being removed as fast as they can be made ready for shipment to Birmingham, Alabama. Charles Fitzpatrick, a millwright, has gone South to put up the machinery.

E. E. Bradley has left for a trip on the continent in the interest of Messrs. Atwood and Son, manufacturers of silk machinery, Stonington, Conn. Mr. Bradley will visit England, Italy, Switzerland and France, at all of which places the firm have contracts.

The Pacific Company, Lawrence, will, this season, extend its weave shed toward the east, an addition large enough to contain 900 looms. This will make 2,000 looms in the weave shed and 1,700 in the old mill, besides nearly 3,000 in their worsted mill.

The Russian government is offering lucrative employment to men in the cotton growing districts of the United States. Mr. John S. Scott, a successful cotton planter of South Carolina, has been engaged to be the superintendent of a large cotton plantation owned by Russia, and situated in one of the southern provinces.

The Savannah, Ga., Cotton Mill was burned, April 9th. The fire started in the "mule"-room a little after three o'clock from a heated spindle, and in an hour nothing but the walls of the building were left. The total loss on the building, machinery, and stock was 100,000 dollars; insurance, 49,000 dollars.

The new yarn mill to be built at Atherton, near Lowell, by Thompson and Coburn, is to be organised for fine yarns, principally 20-2 and 26-2. The mill will be managed by R. B. Adams, late superintendent Charleston cotton mills, Charleston, S. C. Plans for this mill are being made by a mill engineer expert, J. H. Wilson, now on the staff of the Atherton Machine Company, which is sufficient guarantee for a well arranged mill.

How the Portuguese Puzzle "Interlopers."—A correspondent says that the ivory merchants in the Portuguese settlements on the Congo have devised a complicated system of settling their accounts with the natives, which is calculated to puzzle any interlopers in the trade. For instance, if it were a question of purchasing 50 kilos. of ivory, which might be worth about 3,000f., the leader of the caravan agrees to sell this quantity in exchange for 325 guns, but the real price of the latter has to be calculated according to the following formula: $325 \times 2 = 650 \times 2 = 1{,}300 + 325 = 1{,}625$; or, in other words, the value of 1,625 guns instead of 325, will have to be paid. The first payment consists of 30, not 325, guns, 30 ramrods, one piece of red and 24 pieces of blue cloth, amounting to 325f.; the second, of 60 small barrels of gunpowder, two pieces of red cloth, 23 hankerchiefs, and 22 pieces of printed calico, valued at 650f.; and the third payment, of 27 pieces of printed calico, 10 of striped calico, 48 knives 12 inches long, and three of six inches, two packets of small beads, and six empty bottles, which may be put down also at 650f., making altogether 1,625f. The extras have then to be considered, and consist of various donations to the natives of gin, looking glasses, cheap trinkets and clothing, which eventually bring up the purchase price to very nearly 3,000f., but the Portuguese handle the accounts skilfully and rapidly, and, it is said, mistakes frequently occur in the calculations, which are never to the detriment of the Portuguese trader.

El propietario del "Textile Mercury" suplica respetuosamente á aquellos de sus lectores que se valgan de las columnas de anuncios, se sirvan consignar, al escribirles á los avisadores, el nombre de este periodico.

Textile Markets.

[NOTE.—The present being the first issue of "THE TEXTILE MERCURY," we have been obliged to go to press exceptionally early. On this account much late news is unavoidably omitted. We ask the indulgence of our readers for this and other shortcomings, which will be remedied during the next few weeks.—ED. *T. M.*]

COTTON.

MANCHESTER, April 25th.—The course of the cotton trade during the past three months has been, to some extent, a surprise to many deeply interested in its movements. At the close of last year, and during the early part of this, a heated discussion between the bulls and the bears took place upon its prospects. These potent animals (whose encounters are the cause of more anxiety than amusement to spinners and manufacturers), hotly debated whether the current crop would be above or below 7,000,000 bales. The bulls affirmed that it would fall considerably below; the bears, sustained by an eminent cotton firm, contended that it would attain, if not exceed, 7,300,000 bales. As usual, a certain portion of the trade and those interested preferred to adopt middle views, looking upon them as being most probably the safest. The bears contended that if the crop reached their estimate, there would be sufficient and to spare for the world's requirements, especially when considered in connection with the fact that the Indian cotton crop is an exceedingly large one, passing recent out-turns by three or four hundred thousand bales. The bulls, on the other hand, maintained that cotton prices were bound to advance on account of the scarcity; if their views should prove correct. It is curious to find to-day that both have been right and both have been wrong. In the first place the estimate of the bulls is likely to be realised, and though the crop just gathered will surpass all precedent, yet in spite of this prices have rapidly gone up and thus justify the conclusions of the bulls, though the cause they alleged has not been the impelling force. The facts are that the assumption of cotton goods is rapidly extending all over the world, and that to meet the demand thus growing the production of machinery, especially in England, has been greatly increased, speeds of both mules and ring frames having been accelerated until eleven or twelve thousand revolutions per minute in the former and nine or ten thousand in the latter is no unusual rate. Thus though the actual increase of spindles has not been extraordinarily large, the assumption of cotton has undergone great development; this is the stimulus which has been latterly felt and which has given the impetus upward to prices. In the future we shall need to look forward to a crop of seven million bales of American and a proportionate increase in the supplies from other sources if prices have to be kept reasonably low.

LIVERPOOL.—The cotton market opened on Wednesday with a good tone after the holiday period. Since the market closed on Thursday week New York prices have moved upward. Last week's plantation deliveries were 15,000 bales, or 5,000 more than in the corresponding week last year. The receipts at the American ports advised to-day are 3,000 bales, or 1,000 less than at the corresponding date last year. The requirements of spinners to-day have been on a good scale, and the consequent spot business has been transacted at fairly maintained prices. In the future department also there was a fair degree of activity, and the mid-day report was:—"Firm, and fully two points higher;" but the tone was not fully maintained till the finish. The tenders were 600 bales new and 400 bales letter dockets. American cotton on the spot in good request, and prices firmly maintained. Brazilian quiet and Egyptian in fair demand, with firm rates in each case. East Indian active, and prices steady. To-day's sales are estimated at 12,000 bales, of which 900 American and 600 East Indian were on speculation and for export. The sales comprised 9,650 bales American, at 5½d. to 7⅞d.; 150 Peruvian, &c., at 6 3-16d.; 50 Ceara and Aracaty, at 6⅞d.; 800 Egyptian, at 6⅛d. to 11¼d.; 150 Peruvian, &c., at 7d. to 7¼d.; and 1,200 Surat, at 4d. to 5⅛d. per lb. On Thursday there continued to be a good business, and prices of American had a hardening tendency. Sales, 12,000 bales, including 1,000 on speculation and for export. Futures are steady. Delivery April-May and July-August, 6d.; May-June, 61-64d.; August-December, 5 60-64d. to 5 61-6d. September-October, 5 43-64d. The following are the current prices for spot cotton:—Middling American, 6d.; fair Egyptian, 7d.; fair Dhollerah, 43-16d.

YARNS.—The market re-opened on Tuesday last, after the holidays, with prices unchanged. In the absence, however, of advices from Liverpool, not much confidence was felt on the side of either buyers or sellers, and what with the holiday feeling that still lingered upon most people, business almost as a matter of common consent was deferred. On the day following Liverpool resumed with much the same feelings with which it left off, giving Manchester a basis upon which to work. Sellers of American yarns, however, found only a retail inquiry at current rates. In Egyptian yarns no new feature showed itself, prices remaining firm with a quiet business. This feeling has remained unchanged at the time of writing.

CLOTH.—Manufacturers have been placed in an awkward dilemma by the rapid advances that have taken place of late in the prices of yarns. As it has been quite impossible to secure any adequate improvement in cloth values, makers have had to content themselves with asking figures that would adequately protect them against surprises. These, of course, have almost precluded the transaction of business, hence the turnover, and especially just preceding and subsequent to the holidays, has been of a very meagre character.

SCOTCH PRINTS.—During the present Spring season a very large number of Scotch prints have been sold to drapers by the wholesale houses in Manchester and other important distributing centres. Those whose business it is to study these goods, say that some of the Glasgow printers are now turning out work which, as regards exquisite beauty of colouring and choiceness of design, bear comparison with the best specimens produced elsewhere. For printed handkerchiefs the Scotch houses have long enjoyed the highest reputation and notwithstanding the efforts that have been made by Lancashire firms to secure a portion of this trade, we believe that the Clydeside folk still control it themselves.

WOOL AND WOOLLEN GOODS.

BRADFORD, April 22nd.—Though this is the first market in the week, there is not, as is usual on a Bank holiday, any earnest attempt to do business in any department of the worsted trade. The day is regarded as almost a general holiday. The Exchange and some warehouses were open until noon, but after the hour of 12 o'clock the former was deserted and the latter were all closed. Prices were hardly anywhere tested in any department and must be reported as unchanged.

APRIL 25TH.—The holidays have naturally interfered with business. To-day prices are, however, even firmer than before, owing to the difficulty of replacing stocks from the country to advantage. The demand is steady, but speculation is still rigidly avoided. Botany tops are firm at late advances. No change in the price of mohair, with rather a slow demand. Noils steady at late rates. Yarn spinners are hopeful as to upholding prices.

LEEDS, April 24th.—There was an active business in almost all branches of the woollen trade, until the closing of the mills and warehouses for the Easter holidays, which in some cases were prolonged until Wednesday morning, and in others until Tuesday. A quiet week to follow, however, is anticipated, as in other parts of the country the holidays last for a whole week, so that many buyers from a distance will not put in an appearance. Prospects for the immediate future are exceedingly cheering, as retail dealers have been well cleared out of the heavy stocks which they had provided for the holiday sales, and will soon again be in the market; while stocks in the hands of manufacturers and merchants are lighter than usual, and prices steadily improving, so that in a short time they will leave a fair margin of profit. Shippers have still large orders in hand, as have also most mills and makers of Army cloths, rugs, and blankets. The holidays are interfering with trade in the Halifax, Huddersfield, Bradford, Dewsbury, Batley, Morley, and the remainder of the woollen districts, and little business will be done next week. Prospects good, both as regards the demand and prices, which are likely to harden in the face of the increasing rise in the values of wool.

GLASGOW WOOL MARKET.—Messrs. Robert Ramsey and Co., wool brokers, Glasgow, in their report of the 23rd inst., say—Wool: The Easter holidays have interfered with business in the wool market this week. Transactions have not been so numerous, but the tone of the market continues firm, and it is expected when machinery gets into motion again that more activity may be experienced. The supply of sheep skins continues quite up to the average, and although qualities are somewhat varied, all meet a good competition at fully better prices.

LEICESTER, April 24th.—The market continues to have a buoyant and encouraging tone. The consumption which has been very heavy for a long period, is well maintained, and as the supplies offering are of very moderate extent there is no attempt to force sales even at the higher range of values which has been established. Best lots of farmers' unassorted wools make 24s. 6d. to 26s.; medium qualities of half hog and ewe wool, 23s. to 24s. per tod; and tender and faulty lots, 20s. 6d. to 22s. per tod. Assorted wools of fine, soft texture range from 25s. to 26s. 6d. per tod; medium lots of deep staple, 23s. 6d. to 24s. 6d. per tod; and inferior lots, 21s. to 22s. 6d. per tod. The yarn market is brisker, with more business offering both for home and export at slightly advanced rates. The hosiery trade is steady, while the boot and shoe trade is much brisker, with very small supplies in hand. Elastic web fabrics sell more freely for home and Continental markets.—*Times.*

LONDON, 24th April.—The auctions were re-opened to-day by Messrs, Jacomb, Son, and Co., who offered a fine assortment of greasy, merino, and cross-bred wools, these being in good demand at previous values, while fine quality scoureds of Tasmanian produce show a slight advance over late rates. The attendance continues very good, and all classes of buyers still bid actively. With the exception of Tasmanian there is no change to report from last sale. Quantity catalogued to date, 187,409 bales; withdrawals, 5,800; yet to pass the hammer, 121,000. It has been decided to terminate the series on Saturday, May 4th.

Details of sale:—	Scoured.		Locks and pieces.		Greasy.		Locks & pcs.	
Bales.	s. d.	s. d.	s. d.	s. d.	d.	s. d.	d.	d.
2321..Victorian	0 11	1 7½	0 10	1 5	8	1 0¼	6¼	9¼
7582..N.S. Wales...	0 9¼	1 9½	0 9¼	1 5½	6¾	1 0	4½	9½
166..Queensland...	1 4½	1 5½	0 10	1 5	7½	0 10¼	7	0
1629..S. Australian.	0 11	1 5¾	0 6	1 3	5	0 11	5½	7¼
1510..Tasmanian..	1 2½	1 3	0 0	0 0	9	1 8	5	11
863..New Zealand	0 0	0 0	0 0	0 0	7½	1 0¾	4½	9

FLAX and JUTE.

BELFAST, April 20th.—Quietness has been the ruling characteristic of our market during the past week, partly attributable to the holidays. Manufacturers and spinners are still, however, well supplied with forward orders, so that no anxiety to press sales was shown. Flax.—Nothing worth reporting about our flax centres, markets with one or two exceptions being now closed. Continental flaxes of the better qualities continue in steady demand at firm prices, but these sorts are dropping considerably in quantity. Coarse end is neglected. Yarns.—Fair consumptive demand kept up for sorting purposes. Line wefts are in very moderate compass. Tow yarns are slightly weaker in price, and a reduction of ¾d. a bundle was made in one instance during the week. Linens.—Brown power loom manufacturers continue to be well employed and hold firmly for late full rates. A larger business could be easily carried through at a slight concession on current values, but producers will not give way in the least. Hand loom cloth is in limited supply just now owing to outdoor labour. Prices very firm. Bleached and finished goods for home and export account are moving quietly at late rates.

MANCHESTER.—During the last few days the tone of the Manchester linen market has decidedly weakened, and sellers find it extremely difficult to obtain orders, unless at a reduction upon previous rates. Buyers profess to believe that there will be a still further fall before long, and are holding off accordingly. Scotch linens are much less firm than Irish descriptions, the downward movement in jute appearing to have principally affected the former. In fact there is a marked difference between the position of Belfast, on the one hand, and of such centres as Dundee, Dunfermline, and Kirkcaldy, on the other. Irish linens, although not quotably dearer, are firm, and we hear of several large orders having been booked recently at prices satisfactory to manufacturers. Cambrics and other classes of goods made from the finer qualities of flax are moving in an upward direction, and buyers appear to pay the prices asked by agents without much hesitation. Sheetings sell well, as also do crashes, towellings, and other coarse goods, for which Manchester has long enjoyed the reputation of being the best customer. The shipping trade,

after a long period of inactivity, now is briskening up slightly, the West Indies and South America being the principal buyers. From Egypt, however, the demand for both linen yarns and linens has been quiet for some time, and there seems to be no signs at present of a revival.

JUTE.—Jute is in a depressed condition, neither yarns nor cloth being in request. The fall last week in prices appears to have completely demoralised business. Buyers are holding off in expectation of a further decline.

DUNDEE TRADE REPORT.

(FROM OUR OWN CORRESPONDENT.)

TUESDAY, 23RD APRIL, 1889.

Some time ago the jute spinners and manufacturers resolved to run their works short time. This was done for six months, by stopping on the Saturdays. Thereupon stocks were reduced, prices rose, and full time was again commenced.

Prices continued to advance until the ordinary standard—Dundee 10½oz., 40in. hessian—rose from 1¼d. to over 2¼d. per yard, and other goods in proportion. This sharp advance, as well as a brisk enquiry from all the leading markets, led to the starting of works which had been long silent. Not only so, several considerable extensions are in progress, and it would appear that the demand for jute goods, large as it is, has been more than met by the increased production. Prices have, during all March, been drooping, and to-day, Hessians, which were over 2¼d., are down a shade under 2d. It is necessary to bear in mind, however, that while this is a leading Dundee quotation, the real price of the best goods is quite ⅛ to $\frac{3}{16}$d. more. The best goods indeed to-day command even a greater difference than this, which English buyers will do well to note.

Jute is a large crop, and for all common and medium qualities prices are weak.

Jute yarns are also easier to buy; common 8-lb. cops are done at 1s. 6¼d. to 1s. 6¾d. These yarns were sold a few weeks ago at 1s. 8d. to 1s. 8¼d. It is well to note that for yarns of superior quality the difference is to-day rather more than usual; but the changes of the market are indicated by the difference in the value of common 8-lb. cop.

Jute goods are all quiet. South America, which has been an excellent market, seems for the moment overstocked.

Calcutta Hessians have broken the New York market. To-day, therefore, common 10½ oz. 40in. Hessians are done at 2d. with sellers over.

Jute fancy goods are in fair demand. Carpets and rugs are wanted for the Spring trade, while twines and cords, now an important branch of the Dundee trade, are in excellent demand. Flax continues to be offered at from £20 to £21 for Riga K, according to quality.

Flax yarns are quiet, bleachers are holding off, expecting rather lower prices.

Tow yarns are also weak and to effect sales spinners are willing to concede a little in price.

Linens are still wanted. Fifeshire is busy in the manufacture of towels, table cloths, and the finer goods. Brechin is well engaged and all the looms are working. Forfar also is fairly well employed in the Spring trade.

Arbroath is fairly busy in canvas, and some recent Spring contracts have enabled manufacturers to fill their order books.

LACE.

NOTTINGHAM, April 24th.—The holidays have, of course, materially interrupted the ordinary routine of business this week. In the lace warehouses business is only now being resumed, and many of the factories are still closed. No fresh orders of importance have been received since last week, and there is little that is new to be said with regard to the details of the trade. Silk Chantilly laces, nets, and flouncings are inquired for, and there is a fairly sustained demand for silk Mechlin and Cambray nets. Silk Spanish laces are quiet, but silk goods generally appear likely to sell with some freedom during the summer. The plain cotton net trade is without much animation, and there is no new feature in the curtain department. Some fair orders are on hand for hosiery, but the trade cannot be described as healthy.—*Times*.

Miscellaneous.

A China clay syndicate is being formed in Cornwall and Derbyshire. The production of China clay is said to be 400,000 tons annually.

The Mercers' Company have made a grant of 100 guineas to the funds of the Irish Defence Union. This guild is one of those owning estates in Ireland.

Advices from New Orleans, April 15th, say: Planting makes good progress. It is two weeks earlier than last year, and in the southern districts much cotton is already above ground.

The Board of the Manchester Chamber of Commerce have unanimously elected Mr. Jeremiah Garnett to a seat at the Board in place of Mr. Alderman Goldschmidt, deceased.

The German "Ascania" Chemical Manufacturing Company has declared a dividend at the rate of 16 per cent. for the past financial year, following a similar declaration for 1887-8.

The Bayer and Co. Colour Manufacturing Company of Elberfeld has declared a dividend for the past financial year at the rate of 12 per cent., against 7 per cent. for 1887.

The Nile continues to be very much below the previous records, and during June a scarcity of water is expected, but it is estimated that the next cotton crop will equal the last, the deficiency in the yield being made up by the increase in the area under cultivation and the absence of worms.

It is almost a wonder, when so much attention is devoted to South Africa, that no capitalist should have thought of systematising the wool industry and making it more productive. A Natal paper compares the gold export of last year of £517,821 with the wool export of £2,181,510, and suggests that by proper fencing of the sheep runs the product of wool might be doubled. Capitalists, with a liking for South African enterprises of a safe sort, might note this.

NEW IRON FIELDS IN CARTMEL.—Arrangements are in rapid progress for boring for iron ore on the estate of Ellerhow, Cartmel. There is every indication of the mineral being present in large quantities, and there are great hopes entertained that it will prove a highly profitable speculation. The proposed operations are in the heart of the Cartmel district, and near to the railways. Holker Hall, the baronial residence of the Duke of Devonshire, is only a few miles away.

A GATHERING OF OLD HAND-LOOM WEAVERS.—At the Failsworth Liberal Club on Saturday last, by the invitation of Mr. Lot Hilton, chairman of the Local Board, the old hand-loom weavers of the neighbourhood met at tea in the large room of the club. Of the guests twelve were under 60 years of age, thirty-three between 60 and 70, fourteen between 70 and 80, and seven over 80 years of age. The oldest man present was Jonathan Dawson, a Peterloo veteran, who had attained the age of 87 years, and the two oldest women were Mally Ogden and Hannah Taylor, both 83 years of age. After tea the Chairman said he could remember the time when hand-loom weaving was the staple trade in the district, and when the larger the family the better it was for them. All those things, however, were now changed.—Mr. Ben Brierley said that a gathering such as that carried their minds back to an early period of the present century, when no prettier place could be found than that existing in Failsworth before the Vandals transformed a grand avenue of trees into heaps of bricks and a cricket ground. Sixty or seventy years ago every house was a training school in which more than one handicraft was taught. It could be said that the hand-loom weavers of Failsworth were the pioneers of Lancashire industry. A small remnant was left now. The rattle of the shuttle, if by chance they heard one, sounded as if it were struggling for existence, and the weaver's song was never heard. Times had changed. The youth and beauty of Failsworth, as he had known it, was now represented by old age.—Mr. Councillor William Trevor said that was a gathering which in all probability would never occur again because of the peculiar handicraft that had been pursued by the people whom he saw round about him. No craft had been more poorly paid which had so much ingenuity about it as hand-loom weaving. Working as he did amongst machinery he had been astonished at the amount of work and patience that the hand-loom weavers put into their work in comparison to the amount that they were paid for it. During the evening readings were given by Mr. Brierley, and songs were sung by some of the old weavers and others. The hand-loom weaving referred to in the above was mainly that of silk, though coloured cotton goods were also extensively made.

Two leading Scotch cotton-thread manufacturers have amalgamated their Manchester agency under the name of the "Sewing Thread Agency."

INTO THE CONGO TERRITORY nearly all goods can be imported free of duty, the most saleable being various light cotton tissues, such as guineas, Listado checks, gingham checks, and satin stripes, which are all mostly imported from Great Britain; spirits of various kinds, glass, bottles, cheap cutlery, firearms, common jewellery, straw and felt hats, fans, ordinary flannel shirts, gunpowder, old military uniforms, beads, salt, hardware, and small mirrors.

OLDHAM SHARE SALES.—A sale of shares took place on Tuesday night at the Black Swan Hotel, Oldham. Fifty Moss lane were sold at £5 11s. 6d. each; ten Parkside, £3 8s. each; 105 Parkside, £3 7s. each; 130 Guide Bridge, £2 4s. 6d. each; 25 Cavendish, £2 10s. each; 20 Whitelands Twist, £2 10s. 6d. each; 146 ditto, £2 10s. each; 20 Bradbury Sewing A, £5 6s. each; 45 Borough, £1 10s.; 20 Oak, £2 4s. each; 117 Albert New Mill bought in at £2 5s. each; five North Moor, £2 11s. 6d. each; ten United, £2 5s. 9d. each; 20 Werneth, £2 4s. 6d. each; ten Higginshaw, 17s. 3d. each; 20 Shaw, £3 3s. each; 30 Ivy, 32s. 6d. each; 40 Hurst Mills withdrawn; six Oldham Twist A, £17 10s. each.

O proprietario do "TEXTILE MERCURY" roga respeitosamente aos seus leitores que usem as columnas de avisos que tiverem a bondade de mencionar, quando escreverem aos avisadores, o nome d'este jornal.

Il proprietario di "THE TEXTILE MERCURY" prega quegli dei suoi lettori che rispondano agli annunzi nelle sue colonne d'avere la bontà di menzionare nelle loro risposte il nome di questo giornale.

Board of Trade News.

FOREIGN IMPORT DUTIES ON COTTON YARNS.

The following important statement, which shows the rates of customs duty levied in each of the undermentioned countries upon the importation of cotton yarns and thread from the United Kingdom, appears in the new issue of the *Board of Trade Journal*. Note.—Since the publication of the return relating to foreign import duties (178/85) numerous modifications have been effected in the customs tariffs of various foreign countries; these modifications, in so far as regards cotton yarns and thread, have been embodied in the following statement:—

Tariff Classification.	Rates of Duty.	English Equivalents
RUSSIA.	Poud.	Cwt.
No. 45, English, and below:	Rbls. Cop.	£ s. d.
Unbleached	3·60	1 15 6
Bleached and dyed (except Turkey-red)	4·70	2 6 4
Dyed Turkey-red	5·01	2 9 3
Above No. 45:		
Unbleached	5·00	2 9 3
Bleached and dyed	6·00	2 19 1
Sewing and knitting threads of all sorts, prepared for retail sale	6·00	2 19 1
Twisted yarns, of two or more threads	7·00	3 9 0
SWEDEN.	Kilog.	Kron. Ore.
Single or double, undyed	0 20	0 11 3½
,, dyed or printed, of all kinds	0 35	0 19 9
Sewing thread	0·40	1 2 7
NORWAY.		
Undyed, not twisted	0·07	0 3 11½
,, twisted	0·14	0 7 11
Other Kinds	0·20	0 11 4
DENMARK.	Pund.	Kron. Ore.
Undyed	0·16½	0 7 1
Dyed or mixed with metal threads	0·16¾	0 18 10
GERMANY.		
Pure or mixed with flax, wool, silk, or hair:	100 kilos.	
Single, unbleached:	Mks. Pf.	
Up to No. 17, English	12·00	0 6 1
From No. 17 to No. 45	18·00	0 9 2

„ No. 45 to No. 60..	24·00	.. 0 12	2
„ No. 60 to No 79..	30·00	.. 0 15	3
Above No. 79.....	36·00	.. 0 18	4
Double, unbleached :			
Up to No. 17, English....	15·00	.. 0 7	7
From No. 17 to No. 45..	21·00	.. 0 10	8
„ No. 45 to No. 60..	27·00	.. 0 13	9
„ No. 60 to No. 79..	33·00	.. 0 16	9
Above No. 79.....	39·00	.. 0 19	10
Single or double, bleached or dyed :			
Up to No. 17, English....	24·00	.. 0 12	2
From No. 17 to No. 45..	30·00	.. 0 15	3
„ No. 45 to No. 60..	36·00	.. 0 18	4
„ No. 60 to No. 79....	42·00	.. 1 1	4
Above No 79.....	48·00	.. 1 4	5
Three or more threads, unbleached, bleached or dyed	48·00	.. 1 4	5
Cable twist, unbleached, bleached, or dyed ; also sewing thread of all kinds prepared for retail sale..	70·00	.. 1 15	7

HOLLAND.

All kinds.....	Free	..	Free

BELGIUM.

	100 kilos. Frs. Cts.		
Unbleached or bleached : Single or twisted :			
Of 20,000 metres or less to the half-kilogramme	15 00	.. 0 6	1
From 20,000 to 30,000 mts. do.	20 00	.. 0 8	2
„ 30,000 to 40,000 mts. do.	30·00	.. 0 12	2
„ 40,000 to 65,000 mts. do.	40 00	.. 0 16	3
Above 65,000 metres do.	10·00	.. 0 4	0½
Dyed or warped : Single or twisted :			
Of 20,000 metres or less to the half-kilogramme	25·00	.. 0 10	2
From 20,000 to 30,000 mts. do.	30·00	.. 0 12	2
„ 30,000 to 40,000 mts. do.	40·00	.. 0 16	3
„ 40,000 to 5,000 mts. do.	650 00	.. 1 0	4
Above 65,000 metres do.	10·00	.. 0 4	0½

Note.—Cotton yarns mixed with other materials will pay as cotton yarns, provided the cotton predominates in weight.

FRANCE.

Single, unbleached :			
Of 20,500 metres or less to the half-kilogramme.....	15 00	.. 0 6	1
Fm. 20,500 to 30,500 mts. do.	20·00	.. 0 8	2
„ 30,500 to 40,500 mts. do.	30 00	.. 0 12	2
„ 40,500 to 50,500 mts. do.	40 00	.. 0 16	3
„ 50,500 to 60,500 mts. do.	50·00	.. 1 0	4
„ 60,500 to 70,500 mts. do.	60·00	.. 1 4	5
„ 70,500 to 80,500 mts. do.	70·00	.. 1 8	5
„ 80,500 to 90,500 mts. do.	90·00	.. 1 16	7
„ 90,500 to 100,500 mts. do.	100 00	.. 2 0	8
„ 100,500 to 110,500 mts. do.	120·00	.. 2 8	9
„ 110,500 to 120,500 mts. do.	140 00	.. 2 16	11
„ 120,500 to 130,500 mts. do.	160·00	.. 3 5	0
„ 130,500 to 140,500 mts. do.	200 00	.. 4 1	3
„ 140,500 to 170,500 mts. do.	250·00	.. 5 1	7
Above 170,500 metres do.	300 00	.. 6 1	11
Ditto, bleached	15 per cent. above the duty on single, unbleached, according to class.		
Ditto, dyed or clouded	25 centimes per kilog. (10s. 2d. per cwt.) above the duty on single, unbleached, according to class.		
Twisted, in two or three strands, unbleached :			
Of 20,500 metres or less to the half kilogramme	18·00	.. 0 7	4
Fm. 20,500 to 30,500 mts. do.	24·00	.. 0 9	9
„ 30,500 to 40,500 mts. do.	36·00	.. 0 14	8
„ 40,500 to 50,500 mts. do.	48·00	.. 0 19	6
„ 50,500 to 60,500 mts. do.	60·00	.. 1 4	5
„ 60,500 to 70,500 mts. do.	72 00	.. 1 9	3
„ 70,500 to 80,500 mts. do.	84·00	.. 1 14	2
„ 80,500 to 90,500 mts. do.	108·00	.. 2 3	11
„ 90,500 to 100,500 mts. do.	120,00	.. 2 8	9
„ 100,500 to 110,500 mts. do.	134·00	.. 2 18	6
„ 110,500 to 120,500 mts. do.	158·00	.. 3 8	3
„ 120,500 to 130,500 mts. do.	192 00	.. 3 18	0
„ 130,500 to 140,500 mts. do.	240·00	.. 4 17	6
„ 140,500 to 170,500 mts. do.	300 00	.. 6 1	11
Above 170,500 metres do.....	369·00	.. 7 6	4
Do. bleached	15 per cent. above the duty on twisted, unbleached, according to class.		
Do. dyed or clouded	25 centimes per kilog. (10s. 2d. per cwt.) above the duty on twisted unbleached according to class.		
Warped yarns, unbleached	30 per cent. above the duty on yarns of which composed.		
Do. bleached	15 per cent. above the duty on warped, unbleached.		
Do. dyed	25 centimes per kilog. (10s. 2d. per cwt.) above the duty on warped, unbleached.		

	1,000 mtrs. of single yarn. Frs. Cts.		1,000 yds. of single yarn. £ s. d.
Yarns of four or more threads, unbleached, bleached, or dyed :—			
Single twist	0·015	..	0·13
Double or cable twist....	0·02	..	0·18
Thread in balls or on reels, cards, &c., of all kinds, unbleached, bleached, or dyed :			
Single twist	0·02	..	0 0 0·18
Double or cable twist ..	0·025	..	0 0 0·22

PORTUGAL.

	Kilog. Reis.		Cwt. £ s. d.
Single, unbleached, dyed flesh colour, or stamped with more than one colour....	*135·00	..	1 10 10
Do. bleached	255·00	..	2 13 9
Do. dyed, not otherwise specified.....	270·00	..	3 1 9
Twisted, unbleached, bleached, or dyed	370·00	..	4 4 7

SPAIN.

	Kilog. Pes. Cts.		
Single or double ; unbleached, bleached, or dyed :			
Up to No. 35, English, inclusive	0·76	.. 1 10	11
No. 36, English, and above	1·00	.. 2 0	8
Twisted, of three or more threads, unbleached, bleached, or dyed	1·75	.. 3 11	2

* In addition to this rate a tax of 3 per cent. upon the duty is payable for Custom House fees, and a further 2 per cent. *ad valorem* for harbour works, which would raise the total duty payable to about 150 reis per kilogramme.

ITALY.

	100 kilos. Lire Cts.		
Single, unbleached :			
Of not more than 10,000 metres to the half kilogramme.....	18·00	.. 0 7	4
From 10,000 to 20,000 metres do.	24·00	.. 0 9	9
„ 20,000 to 30,000 metres do.	30·00	.. 0 12	2
„ 30,000 to 40,000 metres do.	36 00	.. 0 14	8
„ 40,000 to 50,000 metres do.	45·00	.. 0 18	3
„ 50,000 to 60,000 metres do.	52·00	.. 1 1	2
Above 60,000 metres do.....	69·00	.. 1 4	5
Do. bleached	20 per cent. above the duty on single, unbleached, according to class.		
Do. dyed	25 lire 00 c. per 100 kilos. above the duty on single, unbleached, according to class.		
Twisted, unbleached, bleached, or dyed. (Note.—The classification of twisted yarns is determined by multiplying the length by the number of threads twisted)	As the single yarns of which composed unbleached, bleached, or dyed, with 17 lire 00 c. per 100 kilos, additional.		
Warped yarns.....	15 per cent. above the duty on the yarns of which composed.		

	100 kilos. Lire Cts.		Cwt. £ s. d.
Sewing thread wound on reels, in balls and the like prepared for retail sale.....	110·00	.. 2	4 8

AUSTRIA.

	100 kilos. Fls. Kr.		
Single unbleached :			
Up to No. 12, English	6·00	.. 0	6 1
From No. 12 to No. 29, English	8·00	.. 0	8 2
„ No. 29 to No. 60, English	14·00	.. 0	14 3
Above No. 60, English.....	12·00	.. 0	12 2
Double, unbleached :			
Up to No. 12, English.....	8·00	.. 0	8 2
From No. 12 to No. 29, English	10·00	.. 0	10 2
„ No. 29 to No. 60, English	16·00	.. 0	16 3
Above No. 60, English.....	12·00	.. 0	12 2
Single or double, bleached or dyed:			
Up to No. 12, English.....	12·00	.. 0	12 2
From No. 12 to No. 29, English	14·00	.. 0	14 3
„ No. 29 to No. 50, English	18·00	.. 0	18 4
Above No. 50, English.....	20·00	.. 1	0 4
Twisted, of three or more threads, unbleach'd, bleach'd or dyed	24·00	.. 1	4 5
Yarns prepared for retail sale	35·00	.. 1	15 7

Note.—Yarns of cotton mixed with linen pay as cotton yarns.

SWITZERLAND.

	100 kilos. Frs. Cts.		
Single, unbleached	6·00	.. 0 2	5½
„ bleached.....	8·00	.. 0 3	3
Twisted, unbleached or bleached	8·00	.. 0 3	3
Dyed yarns, single or double ..	11·00	.. 0 4	5½
„ of three or more threads.....	35·00	.. 0 14	3
In spools, balls, or skeins, prepared for retail sale	35·00	.. 0 14	3

GREECE.

	Oke. Drs. Lep.		
Single, unbleached :			
Up to No. 24, English	0·60	.. 0 19	2
Above No. 24	0·80	.. 1 5	7
Single, bleached :			
Up to No. 24, English	0·66	.. 1 1	1
Above No. 24	0·88	.. 1 8	2
Single, water-dyed :			
Up to No. 24, English	0 80	.. 1 5	7
Above No. 24..	1·04	.. 1 13	3
Single, oil dyed, irrespective of number	1·50	.. 2 8	0
Twisted yarns and cable twist..	20 per cent. above the duty on single yarns according to class.		
Sewing thread, white or col. ..	1·50	.. 2 8	0

TURKEY.

All Kinds.....	8 per cent ad val.		8 per cent ad val.

ROUMANIA.

	100 kilos. Lei B.	£	Cwt. s. d.
Single, carded, unbleached or bleached	15·00	.. 0	6 1
Twisted in two or more threads, unbleached or bleached.....	20·00	.. 0	8 2
Dyed yarns, single or twisted..	45·00	.. 0	18 3
Sewing thread.....	60 00	.. 1	4 5

UNITED STATES.

	Lb. Dols. Cts.		
Thread or yarn not on spools, or twisted :			
Value not exceg. 25 cents per lb.	0·10	.. 2	6 8
„ from 25 to 40 cents „	0·15	.. 3	10 0
„ from 40 to 50 cents „	0·20	.. 4	13 4
„ from 50 to 60 cents „	0·25	.. 5	16 8
„ from 60 to 70 cents „	0·33	.. 7	14 0
„ from 70 to 80 cents „	0 38	.. 8	17 4
„ from 80 cts. to 1 dlr. „	0·48	.. 11	4 0
„ exceeding 1 dollar „	50 per cent. ad val.		
	50 per cent. ad val.		

	Doz. spools.		Doz. spools. s. d.
Yarn on spools containing on each spool not more than 100 yards of thread.....	0·07	..	0 3½
Do., if exceeding 100 yards of thread for every additional 100 yards or fraction thereof.	0·07	..	0 3½

Financial News.

COTTON COMPANIES' DIVIDENDS.

The Oldham Cotton Buying Company, Limited, having places of business in Liverpool and Manchester, has had another successful quarter's business. The company has bought on account of spinners 45,500 bales during the past three months. This is a moderate proportion of the total business done in Liverpool by the brokers as a whole. The net profit is £2,170. After allowing to spinners (members) 8s. per £100 of the cotton purchases, 7½ per cent. per annum will be allowed on share capital.

The Crompton Spinning Company, Shaw, near Oldham, declares a profit of £1,471 15s. 5d. for the past three months, which, with £54 13s. 9d. brought forward, will give available for dividend £1,532 9s. 2d. The dividend will be after the rate of 10½ per cent. per annum, which will absorb £1,250. £280 is placed to the reserve fund, which now amounts to £5,044. Share capital, £46,250; loans, £10,349. Spindles 63,600 (18,900 T. and 44,700 W.) Plant three months ago, £52,558. Company formed 1874.

The Fylde Manufacturing Company, Kirkham, near Preston, has declared a loss of £407 8s. 5d. for the past three months. Depreciation allowed, £133 8s. Looms about 500, and no spinning. This is an indication of the state of the weaving department.

The Henley-road Self-Help Society, Burnley, has declared a loss of £947 for the past half-year. The company has 440 looms, and no spinning. During the quarter there has been reduced from the wages a small amount weekly to make up any loss that might arise. The fund now amounts to £651 13s. 6d. The balance loss to the company is therefore only £296 2s. 6d.

Preston Cotton Spinning and Manufacturing Company.—In their report for the quarter ended March 31st, the directors of this company announce a profit on the trade account of £830 4s. 2d., and that, after deducting the usual percentage for depreciation, there is a net gain of £350 4s. 2d. With

the amount brought forward, this will give a disposable balance of £514 2s. 2d., from which they recommend the payment of a dividend of 6d. per share. Last quarter's dividend was 4½d. per share.

THE TENNYSON-ROAD MANUFACTURING COMPANY, Preston.—The directors of this company state that on the quarter's working they have a disposable balance of £207 2s. 2d., and recommend a dividend of 4½d. per paid-up share.

COTTON MILLS IN INDIA.

VICTORIA COTTON MILLS COMPANY.—The accounts for the year 1888 show an available balance of Rs.2,292, which it is proposed to appropriate towards the purchase of another pair of mules. The directors announce that the yarn and cloth are in good demand in the local market, and that prices are being fully maintained. The preliminary expenses—Rs.23,576 on a capital of Rs.292,644—seem high. The number of spindles is to be raised to 12,000.

BOWREAH COTTON MILLS.—The debentures have all been paid off, amounting to Rs.339,500, and the concern is free from debt. The net profit for the six months is Rs.112,956, and, adding Rs.732 brought forward, the amount at credit of profit and loss is Rs.113,688. A dividend at the rate of 4 per cent. will exhaust Rs.72,000. Depreciation account is credited with Rs.30,000. The commission of the secretaries exhausts Rs.10,174, leaving Rs.1,514 to be carried forward.

LOANS TO COTTON COMPANIES.

A matter of great importance to limited companies has (says the *Manchester Weekly Times*) been recently settled in Leeds before Mr. Justice Denman. Some time ago the Parkside Company (Royton) intimated to the loanholders that on and after a certain date named the loans would only bear a reduced rate of interest. One at least of this class disregarded the notice, and allowed the money to remain and the interest to accumulate. Having applied for repayment of the money lent, and interest after the rate agreed upon when the deposit was made, and been refused, proceedings were taken against the company, and eminent counsel were engaged for both sides. A verdict was given for the plaintiff, on the ground that as the lender did not write to the company, in answer to their notice to reduce, accepting the new terms, the company ought to have forwarded to him his money, and as this was not done Mr. Justice Denman held that the original agreement as to interest had not been broken, and, therefore, must be adhered to. If the loanholder, after receiving the company's notice, had drawn any interest or transacted any business in connection with the investment, then he would have been a consenting party to the change. It is evident that the plaintiff in this case understood his whereabouts legally, and the Parkside directors must feel that for once they had been bitten by a Yorkshireman, though not seriously. Their loss will enlighten quite a host of Oldham directors, and will show them that they also have acted illegally. Already some companies have moved in order to place themselves in a correct position.

NEW COMPANIES.

THE WOOL AND COTTON WASTE SCOURING COMPANY, LIMITED.

Registered by John G. Crosse, Carlton Chambers, 8, Regent-street, W., with a capital of £5,000 in £50 shares. Object, to acquire the invention, the subject of certain provisional protection, granted January 26, 1889, to Joachim Portella, for an improved method of extracting the grease from, and cleaning wool and cotton waste. The number of directors shall not be less than two nor more than three. The first are Sir William Call, Bart., and C. J. Etherington. Qualification, one share.

BUTTERWORTH BROTHERS (NEW ZEALAND) LIMITED.

Registered by Trinders and Co., 47, Cornhill, E.C., with a capital of £33,000 in £100 shares. Object, to acquire the premises and business of Butterworth Brothers, in New Zealand, as soft goods merchants and warehousemen, with the stock-in-trade, goodwill and assets of such business, and certain real estate used in connection with the same. The first subscribers are :—

	Ord. Shares.
T. Leach, 68, Wood-street, E.C.	1
D. Methven, 134, Harley-street, W.	1
Miss Butterworth, 4, Russell-road, S.W.	1
Miss M. Butterworth, 48, Addison Mansions, S.W.	1
J. Ridley, 31, Marlborough-road, Gunnersbury..	1
	Def. Shares.
J. L. Butterworth, 12, Coleman-street, E.C.	1
C. P. Butterworth, 12, Coleman-street, E.C.	1

The number of managing directors shall not be less than one nor more than three. The first are J. L. and C. P. Butterworth. Qualification, £500 stock. Remuneration, J. L. Butterworth £500, and C. P. Butterworth £250 per annum.

THE NEW FLAX SPINNING COMPANY, LIMITED.

Registered by Phelps, Sidwick and Biddle, 18, Gresham-street, E.C., with a capital of £10,000 in £1 shares. Object, to acquire an invention for "Improvements in means of, and apparatus for, the treatment of textile fibres for spinning," in respect of which application for a grant of letters patent was made on February 27th, and to acquire such patent when granted. Registered without special articles of association, and consequently the regulations of Table A in the first schedule of the Companies Act, 1862, apply.

ROE ACRE MILLS COMPANY, LIMITED.

Registered by Waterlow Brothers and Layton, Birchin-lane, E.C. with a capital of £25,000 in shares of £5 each. Object, the purchasing, acquiring, and working of two cotton-spinning mills, situate in Heywood, in the county of Lancaster. The business of the company shall be conducted by not less than five nor more than nine directors, and the first shall be elected at the first general meeting of shareholders, when their remuneration will be determined.

KINNEARS AND COMPANY, LIMITED.

Registered by J. W. Miles, 27, King-street, Cheapside, E.C., with a capital of £25,000 in £10 shares. Object, to acquire and take over as a going concern the business of a hemp, flax, jute, line, and tow, yarn, and twine merchant, and shipper, canvas, and linen agent, and paper merchant, now carried on at 19, Camomile-street, E.C., under the firm or style of Kinnears and Company, and all or any of the assets and liabilities of the proprietor of that business in connection therewith. The first subscribers are :—

	Shares.
A. Kinnear, 19, Camomile-street, E.C.	1
J. K. Rowbotham, 8, Union-court, London, E.C.	1
W. H. Harton, 4, Huddleston-road, N.	1
C. Yeomans, 35, Southwark-bridge-road, S.E.	1
A. Blow, 28, King-street, Cheapside	1
F. W. Jacobs, 288, St. Paul's-road	1
S. Burnay, 33, Clayton-street, N.	1

The first directors shall be W. H. Harton, Alfred Kinnear, Herbert Thomas North Kinnear, and John Knowles Rowbotham. If all charges for debenture interest and mortgage charges are not paid, and the shareholders do not receive a dividend of 5 per cent. per annum, then the directors shall receive no remuneration. Their qualification shall be £500, and remuneration is to be voted in general meeting.

Gazette News.

ADJUDICATIONS.

Joseph Horrocks, Newall-street, Bradford, power-loom picker maker.

Abraham Stancliffe, Shaw-street, Halifax, cloth fuller.

Walter Brown and Benjamin Burnley, Henry-street, Batley Carr, Batley, shuttle makers.

Simon Yules, Waterloo-road, Hunslet, Leeds, wholesale clothier.

RECEIVING ORDERS.

Joseph Horrocks, Newall-street, Bradford, power-loom picker maker ; Bradford.

Abraham Stancliffe, Shaw-street, Halifax, cloth fuller ; Halifax.

James Clegg, Rhodes-street, Halifax, flannel merchant ; Halifax.

PARTNERSHIPS DISSOLVED.

Mayall and Co., Berey's Buildings, George-street, Liverpool, cotton brokers.

Kendall and Gill, Neal-street, Bradford, dry-salters.

Barraclough, Waddington, and Co., Wibsey, near Bradford, worsted coating manufacturers.

Bradley and Rooke, New Cannon-street, Manchester, grey cloth manufacturers.

NOTICES OF DIVIDENDS.

Joseph Andrew Ainsworth, residing at Wesley-place, Oswaldtwistle, Lancashire, and trading at Stanhill Mill, Oswaldtwistle, cotton manufacturer ; Blackburn, 2s. 7d., first and final.

Thomas Oates, 10, Springfield Mount, Leeds, Yorkshire, cloth salesman ; Leeds, 2s. 6d., first.

Patents.

APPLICATIONS FOR PATENTS.

The names in *italics* within parentheses are those of Communicators of Inventions.

Where Complete Specification accompanies Application an asterisk is suffixed.

1ST APRIL.

5538. WILLIAM HENRY DORMAN, The Hawthorns, Newport-road, Stafford. Improvements in sole sewing machines.

5540. EDMUND TWEEDALE, Town Hall Buildings, Halifax. Improvements in mountings and fasteners for securing card clothing to the bars of flats of flat carding engines.

5541. BENJAMIN CLIFFORD SYKES and GEORGE BLAMIRES, Town Hall Buildings, Halifax. Improvements in shuttle guards of looms for weaving.

5549. OLIVER IMRAY, 28, Southampton Buildings, Chancery Lane, London. Improved manufacture of green and bluish-green colouring matters. (*The Farbwerke vormals, Meister, Lucius,* and *Bruning,* Germany.)

5560. REINHART, BARON VON SEYDLITZ, 18, Buckingham-street, Strand, London. Improvements in or relating to the weaving of Turkey carpets and the like, and the mechanism suitable therefor.

2ND APRIL.

5569. HENRY HARTLEY, 8, Quality Court, London. An improved picking bowl and stud for looms.

5582. ALPHEUS WOOD MONTGOMERY, 15, Water-street, Liverpool. Improvements in treatment of sisal hemp.*

5585. JEAN BAPTISTE PARRIE and JAMES HENRY CONNOR, P.O. Box 1071, Ottawa, Canada. Belt fasteners.*

5590. ERNEST BENTZ, CHARLES EDMESTON, ALFRED EDMESTON, and ERNEST GRETHER, 45, Southampton Buildings, London. Improvements in scouring or cleansing and bleaching textile fabrics, warps, and yarns formed of cotton or other vegetable fibres and in apparatus to be used for the purpose.

5591. WILLIAM HENRY WILLATT, 45, Southampton Buildings, London. An improved twist lace fabric.

5599. RICHARD LONGDEN HATTERSLEY and JAMES HILL, Keighley, Yorkshire. Improvements in heald and shuttle-box operating mechanisms, and in the construction of shuttle-boxes applicable for looms for weaving.

5600. HENRY WILLIAM KNIGHT, 97, Harbut-road, London. Automatic means of operating sprinklers.

5603. EDWIN DOUGHTY, Foxhall-road, Nottingham. Improvements in the manufacture of curtains and other goods made on the curtain machine.

5604. GUSTAVUS ADOLPHUS JOHN SCHOTT, 1, St. James'-square, Manchester. Improvements in the manufacture of cut pile fabrics and in apparatus employed therein.

5607. JOHN HOWARD STOTT, 18, St. Ann's-street, Manchester. Improvements in forming and packing warps and portions of warps.

5629. CHARLES HOYLE and JAMES RAMSDEN HOYLE, Sunbridge Chambers, Bradford, Yorkshire. Improvements connected with mounting the circles of "Noble's" and other combing machines.

5642. ALFRED JULIUS BOULT, 323, High Holborn, Middlesex. Improvements in machines for cutting cloth and the like. (*Richard Schofield,* Canada.)

3RD APRIL.

5675. WILLIAM JOHN BURRILL, 54, Mawson-street, Ardwick, Manchester. A reversible washing scarf.

5680. GREEN ROBERT BISHOP KEMPTON, trading as R. BISHOP and Co., Abbey Lodge, Abbey-road, West Ham. Blue soap for laundry washing.

5687. GEORGE HENRY HOLDEN and JOHN ASHWORTH, 18, St. Ann's-street, Manchester. Improvements in machinery or apparatus for doubling and twisting yarns or threads,

5695. ERNEST DE PASS, 68, Fleet-street, London. Improvement in the manufacture of azo colours. (*Messieurs Ewer and Pick,* Prussia.)

5702. LEONARD LINDLEY, 23, Southampton-buildings, Middlesex. Improvements in machinery or apparatus employed in stretching, dressing, and finishing lace and other like fabrics.

5722. EDUARD KORNICK, 142, Fleet-street, London. Improvements in the manufacture of woven fringed borders for furniture.

5734. WILLIAM SEWARD ARCHER, 45, Southampton-buildings, London. Improvements relating to machinery for opening, separating, and cleaning cotton and other fibrous materials.

4TH APRIL.

5741. GEORGE SMITH, Town Hall Chambers, Bradford. Improvements in machines for combing wool and other fibrous substances.*

5747. GEORGE HUTCHINSON MANN, 7, Studley-terrace, New Leeds, Leeds. Improved machinery

for pressing woollen, cotton, linen, or other woven or felted fabrics.

5757. WILLIAM EDWARD HEYS, 70, Market-street, Manchester. Improvements in looms. (*Messrs. Pinon et Guerin*, France.)

5763. MICHAEL CAUGL and JOSEF MOSSNER, 41, Eastcheap. An improved solution for rendering cloth, felt, paper, and the like waterproof.*

5773. LARS JORGEN ANDERSEN, 5, Beaconsfield-road, Grove Hill-road, Woodford, Essex. Sewing canvas.

5776. THOMAS TAYLOR, of the firm of BARLOW & JONES (Limited), and JACOB WARBURTON, 17, St. Ann's Square, Manchester. Improvements in the manufacture of figured fabrics.

5791. MARTIN VAN LOOK, 53, Chancery-lane, London. A process of manufacturing a new substance for removing incrustation and other sedimentary deposits, particularly from steam-boilers, and for cleaning other vessels.

5793. DANIEL FRANCIS HARROP, 46, Lincoln's Inn Fields, London. Improvements in machinery or apparatus employed for dyeing, scouring, or cleansing hanks of textile materials, such as yarns or the like.

5TH APRIL.

5801. MAX KOHL, 142, Fleet-street, London. A new or improved counting device, especially applicable for weaving purposes.

5810. ERNEST BENTZ and ALEXANDER AIRD, Ryland-street, Broughton-road, Salford. Improvements in the construction and arrangement of rollers in machines used for open soaping, dunging, dyeing, and other purposes.

5813. JOHN FARRAN and FREDERICK CHARLES CRAWFORD, 18, St. Ann's-street, Manchester. Improvements in looms for weaving the "cloths" or woven fabrics known as "terries" or "pile-woven fabrics," parts of which improvements are applicable to certain other looms.

5814. JOHN FARRAN and FREDERICK CHARLES CRAWFORD, 18, St. Ann's-street, Manchester. Improvements in machinery or apparatus for "cutting," "shearing," or "cropping" the "pile" or "face" of "pile fabrics" and other fabrics or "cloths."

5820. JAMES DOWLING, 35, Jewin-street, London. Fibre decorticating or stripping machine.

5821. JAMES DOWLING, 35, Jewin-street, London. Disintegrating and cleaning fibre "Disintegrator and cleaning machine."

5824. JAMES BUTTERWORTH and JOHN SIDNEY BUTTERWORTH, 8, Quality-court, London. Improvements in or applicable to tentering and hot air drying-machines for textile fabrics.

5829. WILLIAM HARWOOD and GEORGE HIGSON, Town Hall-buildings, Halifax. Improvements in split or selvage motions of looms for weaving.

5830. JOHN WALSH HOWARD, Halifax. Improvements in shuttle checking appliances of looms for weaving.

5842. EPHRAIM TAYLOR, 74, Blakey Moor, Blackburn, Lancashire. Improvements in looms for weaving.

5854. JAMES PATON, 96, Buchanan-street, Glasgow. Improvements in and relating to curtains.

5865. THOMAS WATSON, 47, Lincoln's Inn Fields, London. Improvements in or applicable to drawing and roving frames employed in preparing flax and other fibrous materials.*

5866. CHARLES EDWARD KEATOR, 47, Lincoln's Inn Fields, London. Improvements in apparatus for shaping hat-brims.*

6TH APRIL.

5884. FREDERICK WILKINSON, 17, St. Ann's Square, Manchester. Improvements in the manufacture of carding engine flats, card filletting and card clothing.

5885. JOHN PLATT, 17, St. Ann's-square, Manchester. Improvements in apparatus used for cutting the pile of fabrics.*

5892. PAUL STEINMANN, 9 and 10, Southampton-buildings, Holborn. Improved method of reproducing patterns of lace embroidery, crotchet-work, and knitting, applicable also to the reproduction of designs or patterns of jewellery and other articles.

5902. WILLIAM ERNEST BURNELL, WILLIAM BURNELL, and WILLIAM EVANS, 323, High Holborn, Middlesex. Improvements in or relating to sewing-machines.

5903. ROBERT CRAVEN, 6, Bank-street, Manchester. Improvements in or relating to the connecting of the picker to the picker-arm in looms for weaving.

5905. CHARLES STILES, 3, Poets' Corner, Westminster. Improvements in lubricators.

5908. MARY MATTHEWS, 3, Poets' Corner, Westminster. Improvements in the manufacture of soap.

5923. ARTHUR WHITTALL and GEORGE MATTHIAS WHITTALL, 321, High Holborn. Improvements in or applicable to bobbin frames for looms used in weaving carpets and other fabrics.

5926. ROBERT JOYES NEWTON, 54, Fleet-street, London. Improvements in frames for holding pile or other fabrics.

5931. JOHN WALMSLEY, 2, New-street, Huddersfield. Improvements in carding engines for cotton and other fibrous substances.

5934. THOMAS HALL and FRANCIS A. HALL, 151, Strand, London. An improved whirl for spinning spindles.*

5939. THOMAS HAND and WILLIAM TIMMINS SKELDING, 7, Staple Inn, Middlesex. A new or improved water heater for heating the feed water of steam-boilers and for other purposes.

5946. ELLEN TAYLOR, 64, Peveril-street, Alfreton-road, Nottingham. Fabric protection.

8TH APRIL.

5949. ARTHUR HISCOE, 9, Camberley-street, Dewsbury-road, Leeds, Yorkshire. An improved winder for measuring tapes.

5950. WILLIAM TURNER, 8, Quality-court, London. Improvements in the locking mechanism of loose reed looms.

5954. GERARD HUCK, 72, St. James'-street, Burnley, Lancashire. Method of damping warps during the process of weaving.

5960. ARTHUR SOWDEN, Town Hall Buildings, Halifax. Improvements in looms for the weaving of towels, shawls, and other fringed fabrics.

5987. JOHN FREDERIC ROUSE, Sunbridge Chambers, Bradford, Yorkshire. Improvements in the manufacture of fabrics known as "Naps."

5995. DESMOND GERALD FITZ-GERALD, 6, Akerman-road, Brixton, Surrey. Improvements in bleaching by the agency of chlorine and certain of its compounds.

6022. CHARLES GREY HILL, 24, Southampton Buildings, Chancery-lane. Improvements in apparatus for the manufacture of frilling.

9TH APRIL.

6039. JOHN GRIFFIN, 9, Westland-row, Dublin. Manufacture of flat gut belting.

6040. WILLIAM HEIVRY CROMPTON and WILLIAM HORROCKS, 4, St. Ann's-square, Manchester. Improvements in or applicable to the drop-box motion of looms for weaving.

6046. ROBERT BELSHAW, 8, Quality-court, London. Improvements in slubbing intermediate and roving frames.

6055. ALEXANDER ANDERSON, 62, St. Vincent street, Glasgow. Improvements in tuck creasers or markers for sewing machines. (*The Singer Manufacuring Co.*, United States.)*

6097. CHARLES BRADBURY, 41, Eastcheap, London. Improvements in the method of and apparatus for purifying the feed-water and preventing incrustation in steam generators. (*Grimme, Natalis, & Co., Ld.*, Germany.)*

6106. HENRY BURLING MORRIS, 24, Southampton Buildings, London. Machine for inserting diagonal strips into woven fabrics.*

6109. PATRICK LAWRENCE KENNEY, 226, High Holborn, London. Improvements in tension regulators for spinning machine spindle driving bands.*

10TH APRIL.

6127. JOHN HENRY WHITLEY, Town Hall Buildings, Halifax. Improvements in expanding leasing combs of warping or beaming machines.

11TH APRIL.

6194. JOSEPH BASTABLE, 120, Compton-road, Handsworth, Staffordshire. Improvements in the construction of metal or glass lubricators for lubricating shafting and machinery.

6200. GEORGE OPENSHAW HUNSTONE, 4, St. Ann's-square, Manchester. Improvements in finishing or "beetling" woven fabrics, and in apparatus employed therefor.

6232. JAMES BENTLEY HOWARTH and FREDERICK CHARLES HOWARTH, New Bridge-street, Manchester. Improvements in and connected with ventilating fans.*

6233. THOMAS MARSDEN and ISAAC THOMPSON, 8, Quality Court, London. Improved means or apparatus for governing the action of the pattern surfaces, and for putting in and out of action, the pulley or lifting catches of circular boxes in looms for weaving.

12TH APRIL.

6238. WILLIAM DEAN, 4, St. Ann's-square, Manchester. Improvements in reeling machines.

6239. THOMAS GILL, 58, Low-street, Keighley, Yorkshire. Improvements in jacquard machines used for operating the warps in looms, lace-making or other machines.

6240. THOMAS SMITH, Town Hall Chambers, Bradford. Improvements in skeps or baskets.*

6243. THOMAS RADCLIFFE, 8, Quality-court, London. Improvements in pickers employed in looms for weaving.

6254. CHARLES WELSH, 19, Southampton Buildings, Chancery-lane. Improvements in or applicable to sewing-machines, more especially relating to the stitch-regulating devices thereof.

6258. ELMA LINCOLN LANG, 3, Station-street, Leicester. Improvements in circular knitting-frames.

6289. THOMAS KIDDIER, JAMES KIDDIER, and JOHN WILLIAM KIDDIER, 24, Southampton Buildings, Chancery-lane, London. Improvements in running on machines, used in the manufacture of knitted fabrics.

6290. THOMAS KIDDIER, JAMES KIDDIER, and JOHN WILLIAM KIDDIER, 24, Southampton Buildings, Chancery-lane, London. Improvements in rotary knitting machines, used for knitting ribbed fabrics.

13TH APRIL.

6304. CARADOC OWENS and THOMAS HOUGHTON, 4, St. Ann's-square, Manchester. An improvement in or applicable to machines used for spinning, doubling, and winding yarn.*

6321. RALPH DOWSON and JOHN TAYLOR, 8, Quality-court, Chancery-lane. Improvements in automatic fire extinguishing apparatus.

6327. WILLIAM HURST, 18, St. Ann's-street, Manchester. Improvements in the machines known as scutchers or lap machines, and used in the preparation of cotton and other fibrous materials.

6335. JOHN BULLOUGH, Town Hall Buildings, Halifax. Improvements in the bars or flats, card foundations, and in the means of fastening card clothing to carding engine flats.

6352. ERNEST DE PASS, 68, Fleet-street, London. An improved covering for spinning rollers. (*Georges Carbonnier*. France.)

6357. HAROLD STEAD BALL, 28, Southampton Buildings, Chancery-lane. An improvement in reeds for loom and warp-frames.

6361. SUZANNE METELER, 18, Buckingham-street, Strand. Improvements in the construction of pickers for looms.

6365. PETER VOM STEIN, 77, Colmore-row, Birmingham. Improvements in ribbon looms.

6366. SAMUEL OGDEN and WILLIAM TOPLIS, 70, Market-street, Manchester. Improvements in and connected with shuttles for sewing machines.

6383. JOHN EDWARD HEPPENSTALL, 2, New-street, Huddersfield. Improvements in the tongues or pegs of shuttles for weaving.*

SPECIFICATIONS PUBLISHED.

1st to 13th April (inclusive), 1888.

9638. **HIGHAM.** Knitting machines. 11d.
5505. **HELM & BRIDGE.** Looms. 8d.
5577. **THOMPSON** (*Rave.*) Floor-cloths. 6d.
7058. **HOLDEN & ASHWORTH.** Doubling and twisting yarns. 8d.
7155. **CRAIG.** Treating flax. 8d.
7326. **DIXON & CLAYTON.** Looms. 8d.
15,449 **LIEBMAN.** Quilts, &c. 8d.
2440 **FISHER** (*Dolge*). Fulling apparatus. 6d.
2441 **FISHER** (*Dolge*). Fulling machines. 6d.
2459 **FELL** (*Tucker*). Looms. 8d.
2503 **BROADBENT.** Sewing machines. 8d.
4576 **SOWDEN.** Looms. 6d.
6679 **BRASIER.** Decorticating &c., fibrous materials. [8d.
7220 **HENDERSON** (*Bénaset*). Wire-healds. 8d.
7424 **DRONSFIELD.** Ring spinning and doubling [frames. 8d.
7425 **ASHWORTH.** Carding engines. 8d.
7464 **RICHARDSON & GREAVES.** Carding-engines. [8d.
7552 **WILLCOX** (*Willcox & Gibbs Sewing Machine Co.*) Sewing straw braid, &c. 11d.
10,250 **DRAPER & DRAPER.** Spindles in spinning [machinery. 8d.
2945 **TRIPP.** Sewing machines. 8d.
2947 **LAKE** (*Pratt & anr.*). Spools for thread. 8d.
3067 **AINLEY.** Cloth. 6d,
3092 **ROUSE.** Pile fabrics. 4d.
3151 **SMITH.** Tubes for spinning, &c. 6d.
3159 **HANNAN.** Sanitary materials for fabrics. 4d.

ABSTRACTS OF SPECIFICATIONS

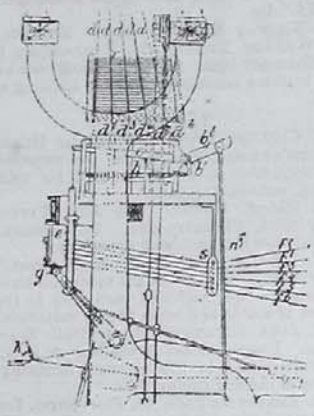
(Selected from the Official Patents Journal).

16,321. November 28, 1887. **Wet Spinning frames.** J. V. EVES, Brooklands, Knock, co. Down.

The drag is regulated according to the diameter of the cop or pirn on which the wet spun flax, etc., is being wound. The drag cords are held by notches on the outer edge of a strip, which is moved from side to side, as the builder rail rises and falls, by means of a system of levers connecting it with the heart-shaped cam of the building motion. [8½d.)

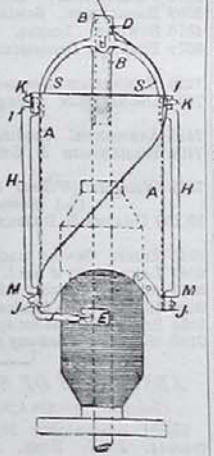
16,367. November 29, 1887. **Spinning, &c. yarn.** A. AMBLER and H. K. WHITE, both of Prospect Mills, Wilsden, Yorkshire. The ballooning plates are hinged to be turned away to allow free access to the spindle, ring and traveller, etc. The plates may be hinged to the ring rail as shown or to other suitable parts of the ring or other frame. A slitted plate placed to support the loose ends on breakage is described in the Provisional Specification. [8½d.]

16,400. November 29, 1887. **Looms for tufted fabrics.** S. Z. Lloyd and G. W. Naylor, 35, Mill-street, Kidderminster.



Relates to looms for "Wilton" and "Axminster" carpets and the like. The tuft yarns f^1 to f^6 are taken as usual from separate bobbins, and are passed through guides s to a series of carriages c arranged across the loom. The yarns from each of the five or more bobbin frames are passed through the same carriage at different levels, and the carriages are raised or lowered to bring the yarns of the colours required into one horizontal plane. To effect this the carriages are hung from a series of levers c which may be operated from a jacquard by sets of lifting cords d passing through guides r and connected to the levers at different distances from their common fulcrum b^1. The figure, however, shows an arrangement in which are employed a series of stop strips d^2 to d^6 formed with projections engaging with the levers c at different distances from their fulcrum. A plate b^3 operated by a lever b^6 and rod n^2 from a cam, engages with one or two notches in each stop strip to lock the same in position. The threads presented by the carriages c are seized and pulled out by a gripper g attached to a rocking-lever. A knife (not shown) then severs the threads. The gripper then turns over as at k, and presents the tufts in a suitable manner to be secured in the fabric by the weft. [11½d.]

16,466. November 30, 1887. **Flyer spindles for roving, &c. machines.** J. Shorrocks, Bridgewater Street Spindle Works, Farnworth, near Bolton, Lancashire.



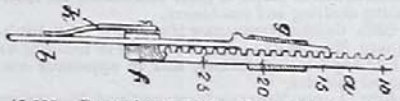
The flyer consists of a cylinder A, of any suitable material, which is mounted upon the spindle in the usual manner by means of a socket B carried by the bridge piece S. The roving is passed through an opening D in the socket and then round suitable guide hooks K, M to the presser E. The presser is carried by a rod H kept in place by the spring J and socket I. Preferably two pressers are used balancing each other; if one only be used the other may be balanced in any convenient manner. In the Provisional Specification a flyer is described in which the legs are solid. [8½d.]

16,484. November 30, 1887. **Azo dyes.** J. Y. Johnson, 47, Lincoln's Inn Fields, London.—(*Farbenfabriken vorm. F. Bayer and Co.; Elberfeld, Germany.*) Relates to the preparation of dye stuffs from light to dark blue-black in colour capable of dyeing cotton goods in an alkaline bath without a mordant. Consists in combining the tetrazo compounds of certain diamines or their sulpho or carbo acids with *a*-naphthylamine, then diazotising the amidoazo compounds produced and combining the diazo bodies with amines, phenols, or their sulpho or carbo acids. Intermediate compounds with one amine, phenol, etc., may be first formed and then combined with another amine, phenol, etc. Or instead of employing the tetrazo compounds of the diamines, the diazo derivative of the mono-acetyl compound of a diamine may be used as a starting point, the acetyl group being subsequently removed by treatment with caustic soda, and the free amido group is then diazotized and combined with an amine, phenol, etc. Examples:—Dye stuffs are obtained (1) from benzidine, one molecule of *a*-naphthylamine, and two molecules of *a*-naphthol monosulpho acid; (2) from benzidine, one molecule of *a*-napthylamine, one molecule of *a*-naphthylamine monosulpho, and one molecule of *a*-naphthol sulpho acid; (3) from benzidine, two molecules of *a*-naphthylamine, and two molecules of *a*-naphthol sulpho acid; (4) from benzidine and two molecules of *a*-naphthylamine, the product being rendered soluble by sulphurising, and then diazotised and combined with two molecules of *a*-naphthol sulpho acid; (5) from mono-acetyl-paraphenylenediamine and monoacetyldiamido-azo-benzol are prepared the dye stuff, *a*-naphthol-sulpho-acid-azo-benzene-azo-naphthalene-azo-naphthol-sulpho-acid; and (6) the dye stuff, *a*-naphthol-monosulpho-acid-azo-benzene-azo-benzene-azo-naphthalene-azo-*a*naphthol-monosulpho-acid. Analogous dyes are prepared from amido-benzene-azo-benzene-azo-amido-benzene, naphthalene diamine, benzidine-sulphone, tolidine, tolidine sulphone, diamidodiphenol ether, diamidostilbene, diamido-fluorene, diamido-azo-benzene, diamidoazoxylene, diamido-azo-toluene, or the sulphones, sulpho acids, or carbo acids thereof, by combining their diazo derivatives with amines, phenols, or the sulpho or carbo acids. [8½d. *No Drawings.*]

16,493. November 30, 1887. **Azo dyes.** J. Y. Johnson, 47, Lincoln's Inn Fields, London.—(*Farbenfabriken vorm. F. Bayer and Co., Elberfeld, Germany.*) Relates to the preparation of dyes by combining the dye-stuffs known as chrysoidine and Bismarck brown, vesuvine or phenylene brown (triamido-azo-benzene), with certain diazo and tetrazo bodies. Consists in combining the diazo-compounds of aniline, toluidine, xylidine, cumidine or their nitro derivatives, amido-azo-benzene, amido-azo-toluene, amido-azo-xylene, *a*- or *b*-naphthylamine, or their sulpho or carbo acids, or the amines obtained by combining *a*-naphthylamine with the above-mentioned diazo bodies, with Bismarck brown (triamido-azo-benzene). Also in combining the tetrazo compounds of benzidine, benzidine sulphone, tolidine, tolidine sulphone, diamidostilbene, diamidofluorene, diamidodiphenol ether, diamido-azobenzene, paraphenylenediamine, naphthalene-diamine or the sulpho or carbo acids thereof, with chrysoidine or with Bismarck brown. Mixed azo dyes are obtained by combining one molecule of the tetrazo body with one molecule of chrysoidine or of Bismarck brown, and with one molecule of another aromatic amine or phenol, or the sulpho or carbo acids thereof. These dyes possess the property of dyeing unmordanted cotton directly in an alkaline bath and of dyeing wool in an alkaline or neutral bath as well as in an acid bath. [6½d. *No Drawings.*]

16,496. November 30, 1887. **Adjusting loom harness.** C. Schulder, Wald, Prussia, Germany.

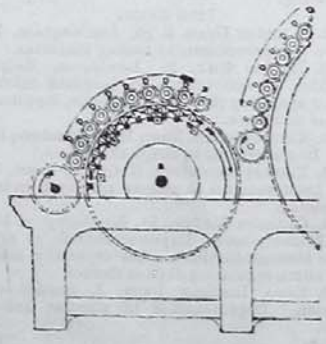
Devices consisting of two toothed bars *a*, *b*, adjustable one on the other and kept together by a sliding socket *g*, ring *f*, and spring *k*, are situated between the healds and the lifting cords. The bar *a* may be numbered, as shown, to assist adjustment. [8½d.]



16,585. December 2, 1887. **Beating or raising pile fabrics.** C. Longbottom, 27, Kirkgate, Bradford, Yorkshire.

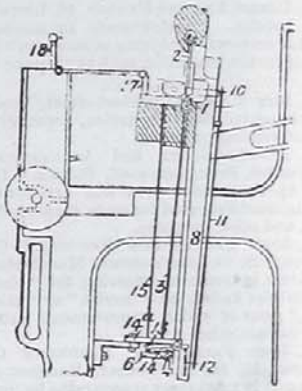
The hooks for holding the fabrics during the batting process are formed with, or secured to, helical or other springs. [8½d.]

16,589. December 2, 1887. **Carding-machines.** J. Eadie, Lisbellaw, Fermanagh, Ireland.



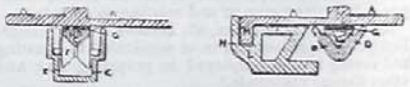
Instead of the usual workers and strippers the breast and cylinders are provided with a series of rollers C, D, E of equal diameter and rotating uniformly in the same direction. The first (C) acts only as a worker, the others (D) act both as workers and strippers. If the material is to be passed once only through the machine, the last roller E of the breast and cylinders is reversed, or otherwise the fleece will be returned over the rollers D to the taker-in, and may be passed several times through any portion of the machine. The rollers are supported by guides N carried by a semicircular screw M and secured by nuts, by which the rollers are adjusted towards or from each other. [8½d.]

16,627. December 3, 1887. **Loose reed motion for looms.** T. Grimshaw, 196, Redlam, Blackburn, Lancashire.



The reed 2 rests on T-headed rods 3 carried by brackets 6 on a rod 7 secured to the lay swords 8. A pawl 13 carried by a bracket 14^a secured to the loom frame is, by the action of a cranked rod 11, controlled by the swell 10, ordinarily held clear of a finger 14 on the rod 7. If, however, the shuttle fails to box the pawl catches in the finger 14 and, on the beat-up, the rods 3 rise and lift the reed out of its fast case 1 so that it swings in its cap. A rod 15 at the same time rises in the lay beam and presses against a finger 17 on the weft fork lever and pushes the knocking-off handle 18 out of its holding catch to stop the loom. A modification is described. [1s. 2d.]

16,708. December 5, 1887. **Combing machines.** J. C. Walker, Shipley Fields Mill, Shipley, Yorkshire.



In order that the comb circles A may rotate with greater steadiness and at a higher speed than is usual they are provided with sliding pieces C of V or other section, which take into corresponding guides B carried by adjustable brackets on the framing, suitable packing G of non-conducting material being inserted between the circle and the sliding piece C. At intervals in the guide or ring B pockets or recesses E are formed containing oil, which is supplied to the sliding parts by means of runners F; or other suitable lubricating arrangements may be used. To prevent the radiation of heat from the rack M, it is partially enclosed by an extension N of the steam-chest L. [8½d.]

16,752. December 6, 1887. **Trap twisting frames.** J. Farrar, Globe Works, Halifax, Yorkshire.

The bevel driving wheel is mounted at the lower end of a short vertical shaft, upon which a flanged boss rides loosely and engages with the trap roller by means of a clutch arrangement. Upon the boss is pivoted a bell crank lever or catch which normally engages with projections upon the side of the bevel wheel. On the breakage of a thread the end of the trap lever is caught by the upper arm of the bell crank catch, and the latter is disengaged from the bevel wheel. The end of the trap lever is forked so that the trap roller will be stopped before it has made half a revolution. [8½d.]

Printed by Percy Bros., East Street, Manchester, and Published by Marsden & Co., at the Offices, 23, Strutt Street, Manchester, Saturday, 27th April, 1889. London Office, 121, Newgate Street, E.C.