

The Textile Mercury:

A Representative Weekly Journal for

Spinners, Manufacturers, Machinists, Bleachers, Colourists, and Merchants,
In all Branches of the Textile Industries.

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Current Topics.

"SWEATING IN INDIAN FACTORIES."

In another column will be found a full report of the address of Mr. Henry Harrison, president, of the Blackburn and District Chamber of Commerce, delivered in Blackburn last week and of which we gave a brief abstract in our last issue. It is not necessary to state to most of our readers that Mr. Harrison is one of the leading spinners and manufacturers in the Lancashire trade, and that he is thoroughly conversant with his subject. Mr. Harrison's address, to which we refer our readers, so thoroughly deals with the subject that it leaves no room for comment. It constitutes a strong impeachment of the conduct of the Indian Government in relation to the Factory Acts, while to our own Government it ought to be a warning to exercise strict supervision over that of our dependency, and an incentive to see that the scales of justice are evenly held as between the capitalists and the workpeople of other countries. Lancashire constitutes the foundation course of the fabric of English industrial, commercial, and political greatness, and its stability must not be undermined by men whose training and education has left them in ignorance of this fact. It asks for justice, and justice it must have. "Either the English Factory and Workshops Act must be enacted in India, or the India Factory Act, as amended, must be passed in England." This is the kernel of the situation, and it rests with the English Government to decide which it shall be. The Lancashire constituencies can do a great deal in saying which it shall be.

THE UNIFORM WEAVING WAGES LIST.

We regret to observe the narrow spirit in which several local weavers' associations are discussing the new uniform list, which was agreed upon jointly by their own most trusted and experienced officials in conjunction with those of the employers, who together, in our estimation, have most carefully conserved the interests of each without attempting to gain that which under the negotiations they had no right to expect. Under a new and uniform list it was inevitable that some districts would apparently suffer whilst others would reap advantages. When we first pointed out the disastrous consequences that had resulted and were flowing from the then existing conditions of the wages system, and how one particular district was flourishing at the expense of all the rest, we stated that it was absurd to think of incorporating in a new list the obsolete figures of either the Blackburn or the Burnley lists, and that the only thing which could properly be done was to take the living parts of both, and, incorporating them in one, make that the foundation of a new list that should apply to the whole of the cotton

trade. Any of the local officials who oppose the acceptance of the new list are not wise, and are not adopting a course of action that can be of benefit to those in whose interests they may claim to be acting. It is simply impossible to conceive that the experts who represented them, and who certainly are as well acquainted with the rules and methods of procedure in making weaving calculations as their critics, can have made such errors as are alleged, or allowed such reductions to be made unless they resulted from the excision of the obsolete parts of the old lists. We would once again ask them to take a broader view of the interests of their industry than they appear inclined to do at present, and to remember that there are at the present moment many envious communities hungry and ready to take from them the trade by which they live, if they only afford the former the slightest opportunity, which we trust they will not.

BLACKBURN SPINNERS AND THEIR SECRETARY.

Circumstances have soon called upon Mr. Ball, the newly-elected secretary of the Blackburn Spinners' Association, to take an important step in the interests of his clients. In this office Mr. Ball is the successor of Mr. Thomas Fenton, who, in the earlier years of his officiate guided and controlled the doings of the Association with intelligence and discretion. Mr. Ball will do well in the interests of his clients to emulate the best days of Mr. Fenton, and to maintain that level throughout his term of office. The step referred to above is the making of an application for an advance of wages to the employers, thus joining in the step which has been taken in the leading spinning centres of South Lancashire. We have already expressed our opinion of the grounds upon which this application is based, and therefore need not go over it again. Our principal purpose is to point out the fact both to Mr. Ball and his clients that such requests need to be put with care, prudence, and discretion, and that the resulting negotiations should be conducted upon the lines of mutual consideration and respect for each other's interests and rights, because if such be not done misunderstanding, irritation, and disastrous conflicts are liable to arise. Mr. Ball may possess the requisite qualifications necessary to safeguard the interests of his clients, but we have serious doubts upon the point. These are based upon the manner in which he has permitted and conducted the dispute at Daisyfield Mill, belonging to Messrs. John Dugdale and Sons—a dispute that has led to the closing of the mill for several weeks, on grounds the most foolish that could be conceived. The mill in question is a small old mill, built about sixty years ago, but which has been modified and considerably altered at various times in order to keep it in

line with modern requirements. As might be expected, however, it has been impossible to make the structure as good as the newest mills of the best and most approved modern design, and the wages that could be earned may have fallen a little short of what can be earned in the best first-class mills to-day. It is, however, a fact which can be easily demonstrated that owing to the praiseworthy manner in which Messrs. Dugdale have kept up with the introduction of improvements, the spinners who were working at the mill when the dispute arose were earning more money per week than had ever been earned since the first erection of the mill and through all its changes of proprietorship, from its original builder, John Sharples, down to the immediate predecessor of its present owners. Where then could there be any justification for the action which has thus closed the mill? This is a pertinent enquiry, which, were it desirable, could be pushed much further. There were several restless spirits employed in the mill, who would neither work themselves nor let others, and when told that it was simply impossible to reconstruct the mill in order to comply with their conditions and that they were at liberty to leave their employment any moment they liked, they declined, on the ground as they said that "somebody else would have to work it." The actual fact was that these men thought there was a good pretext for a dispute and a chance of getting upon the strike fund, and this they were not disposed to forego. And they have succeeded in their object. They would rather 'play' upon fifteen shillings a week contributed by their fellow members than work for double. Our doubts about Mr. Ball's suitability for conducting the delicate negotiations that are sure to spring up at present are based upon the fact that he and his committee have permitted the flagrant piece of imposition upon the members of his association that we have just described. He and his committee should remember that it is quite as much their duty to prevent idle worthless fellows of this kind foisting themselves upon their fellow workmen, as it is to extort the last fraction of what they conceive to be their rights from their employers. We shall watch Mr. Ball carefully and hope for better things.

SILK REELING AND THROWING IN FRANCE.

Supplementary to a note that appeared in these columns on the 1st inst., we extract some further details from the *Revue des Deux Mondes* regarding the silk industries in France. The simple but delicate operations connected with the reeling of silk are conducted by women and girls, who are very poorly paid, and whose numbers therefore are recruited with more and more difficulty as time goes on. It is estimated that there are 8,000 to 10,000 persons employed in the French reeling mills, the most important of which are situated in the departments of Ardèche, Drôme, Gard, and Vaucluse. Their average wages vary from 1 franc to 1 franc 25 centimes. The total production of reeled silk in France does not exceed at the present time 800,000 kilos. Forty years ago its production found employment for nearly 40,000 persons, and amounted to 2,000,000 kilos. This decline in silk reeling is, of course, consequent upon that of sericulture. The French reelers find fault with the introduction of Asiatic and Italian silks, reproaching the dealers of Lyons with having created competing establishments in Italy, Asia Minor, Bengal, and Japan. The fact is beyond dispute, but the point to be determined is whether it is the effect of more or less

laudable speculation, or of an economic disaster, such as happens frequently in all industries. M. Millaud, in discussing the question before the Senate, very justly pointed out that the manufacturers of Lyons, when fifteen years ago they could not find the raw material in their neighbourhood, were obliged to seek it where it could be found. He added that if the French had not acted in this way the Italians, English, and Austrians would have taken their places. The reelers may also address the same reproaches to the silk-worm breeders of Var, Basses Alpes, and Pyrénées Orientales, who sell their eggs in Italy and Syria, and have thus originated formidable competition for the French producers of the raw material. Silk throwing exists under more favourable conditions than reeling, and therefore has been able to resist the trials through which it has passed with relative success. The silk throwing establishments still produce more than 3,000,000 kilos of silk; the general syndicate of throwers speaks indeed of 4,000,000 kilos. The production would increase still more if the weaving establishments did not utilise the raw silk directly in a number of stuffs in which its use was formerly unknown. It cannot be said that this branch is declining, since from 1849 to 1854 it produced only 2,600,000 kilos of silk, whereas in 1890 the syndicate of the industry, as stated above, reckons the production at more than 4,000,000 kilos. Nevertheless the throwers complain of the competition of the Italian works, and as evidence thereof, in the parliamentary debate which took place in 1889 on treaties of commerce, the deputies from Ardèche and Drôme alleged that the number of workers had diminished. The fact is that there, as elsewhere, the progress of machinery has made it possible to produce more even with a smaller amount of human labour. Thus from 1885 to 1888 silk throwing is said to have lost almost 100,000 *tavelles*, and yet its production has increased, each *tavelle* yielding almost twice as much, either through acceleration of speed or the greater perfection of raw silk.

AN OLDHAM EMPLOYER AND THE WAGES QUESTION.

Mr. Alfred Butterworth, head of the firm of Messrs. Butterworth and Son, spinners and manufacturers, Glebe Mills, Hollinwood, in a letter to an Oldham contemporary, frankly states his views on the wages question as affecting cotton mill workers. He says:—"I hope that next week, when the two associations meet (the employers' and operatives'), they will decide upon giving an advance of 5 per cent." As is natural this straightforward speaking on the part of a large employer of labour has been largely commented upon. Of course amongst the operatives it is regarded with great favour, and as a declaration which will materially aid in gaining them the advance. On the other hand, Mr. Butterworth's action has been condemned by those interested in the trade from an employer's point of view, it being felt that the question ought to be left entirely to the Employers' Committee for discussion with the operatives' representatives. If subsequently a meeting of the trade should be called on the question, then it is pointed out that Mr. Butterworth could have his say, but to have declared in so public a manner his opinion in favour of an advance, before the two bodies had met to discuss the position of affairs, is regarded as most inopportune, and calculated to impede the committee of the Oldham Employers' Association in their deliberations. Some have gone so far as to say that the opinion referred to does

more credit to his heart than his head. At any rate, Mr. Butterworth would have been well advised to have communicated his opinion privately to the Employers' Committee, and waited the result of the conference of the two committees before placing the public in possession of his willingness to concede the advance of 5 per cent.—an advance which there is nothing to prevent him from conceding himself, if he so wills, without the other employers in the town taking cognisance of it. This is always a course open to any employer who desires his workpeople to participate in the profits of his firm. But when negotiations are pending, as in the case referred to, any such declaration by one employer who happens to be in perhaps an unusually good position, is liable to do an injustice to his less fortunate brethren.

THE FRENCH IN MOSCOW AGAIN.

According to the correspondent of a German paper, the partiality of the Russians for the French is not sufficient to prevent some of the former treating the latter with extreme shabbiness. Although the Russians were very kindly received at the Paris Exhibition, the tradespeople of Moscow regard the French Exhibition, which is to be held in that city next year, with considerable jealousy, "fearing lest it should interfere with their present methods of earning a good deal of money with a very small amount of exertion." Accordingly (if report speaks true) a considerable number of them have agreed to buy up all the goods that the French exhibit, in order that it may not be possible for the Russian public to get any article directly from French dealers. Further, they are dissatisfied with the very reasonable arrangement that goods exhibited by the French shall only be liable to duty if they find purchasers. The good people of Moscow would like the wares to be burdened with duty before they are exhibited.

MAHOMETAN LEGEND OF THE ORIGIN OF SERICULTURE.

A French traveller and author, M. G. Marmier, in a recently issued work entitled, "Du Danube au Caucase," records a curious legend current among the Mahometans, which is supposed to explain the origin of silk culture. As it will doubtless be of interest to many readers of *The Textile Mercury*, we translate M. Marmier's version of the legend, which is as follows:—"Solomon is said to have written a letter to Balkis, Queen of Sheba, the most beautiful woman in the world, in which he sought to persuade her to embrace the true faith. After having read it the queen called her counsellors together and requested their advice. They replied with one consent that as she had no equal in wisdom no one could presume to advise her on so important a matter. 'Very well,' cried the queen, 'I will see what there is in this man, who calls himself a prophet. I will send him the most splendid presents: if he is dazzled by them he will shew that he is not superior to other people. I will propound some difficult problems: if he cannot solve them I shall know that he is only a false prophet.' Her ambassadors, therefore, set out for Jerusalem, taking with them as gifts a thousand carpets embroidered with gold and silver, a crown of fine pearls, and a cargo of amber, musk, aloes, and other precious products of Southern Arabia. They were also entrusted with a casket containing an unpriced pearl, a diamond traversed by a tortuous hole, and a crystal cup. They were ordered to request Solomon to pierce the pearl, to pass a thread through the hole, and to fill the cup with water derived

neither from heaven nor earth. Solomon got the Djinn (a genius) to weave him the most wonderful carpet ever made, covering when unrolled nine parasangs. He also had a wall of gold built in the East, and a wall of silver in the West. At the sight of this magnificence the ambassadors did not venture to offer the presents of their queen, and could hardly muster courage enough to give him the casket. 'I know,' said Solomon, 'what that casket contains: I know also what you require as proof of my wisdom, and I am going to gratify your wishes in your presence.' Immediately he pierced the pearl with a powder, the secret of which had been revealed to him by the Djinn. He ordered a slave to drive a fiery horse at full gallop, and with the perspiration streaming from its sides, water which came neither from heaven nor earth, he filled the crystal cup. The most difficult task was the remaining one, the insertion of a thread through the tortuous hole of the diamond. Even this however was accomplished. A worm wound itself into the orifice, drawing after it a needleful of silk. As a reward Solomon gave it the leaves of the mulberry tree for food. According to this curious legend silk was already known, but not until then silk-worms were fed with mulberry leaves."

THE OLDHAM COTTON TRADE.

Our Oldham correspondent, writing on Thursday night, says:—"It is now known that Bolton's demand for an increase of wages for those engaged in the cotton trade was the forerunner of the claims which would be put forth by the representatives of the Oldham operatives. The latter asked for a conference with the committee of the Employers' Association, which came off on Tuesday night. The spinners' representatives were favoured with the first interview, and had three-quarters of an hour's conference on the wages question and as to whether the margin warranted the concession of an advance. The spinners asked for an increase of five per cent., which would place their rate of payment 5 per cent. below that of 1876. The card-room and blowing-room delegates had next the hearing of the committee, and they required concessions similar to what were made in 1888, namely, 5 per cent. for all piece hands employed in the card-room, 5 per cent. for the female datal hands employed in the card-room, and 10 per cent. for the male datal hands in the card-room and blowing-room, and also for the female hands employed in the blowing-room. It was pointed out to the committee that work in card-rooms had undergone a great revolution since 1876, when wages were at the highest point. On the other hand it was stated on behalf of the employers that the men had been exempted from a reduction when 5 per cent. of a decrease was enforced in the other departments, and that in 1888 an advance of 10 per cent. was given, whilst the tenters and spinners received only 5 per cent. It was admitted by the employers that the class of men now working in the departments was superior to those previously engaged. The employers, however, were of opinion that the application would come with a better grace if they asked for only the same increase as was desired by the spinners, and as the Card-room Association asked for the tenters. Altogether the interviews, I am informed, were of a pleasant character, and the best of feeling was displayed on either side, but the employers informed both departments that they would have to lay the facts before their members, who would consider whether or not the advance should be conceded. From the tone of the

remarks made by the Employers' Committee, the operatives are sanguine that their 'askings' will be complied with, except it may be the case of the 10 per cent. for a portion of the card-room workers. However, both the operatives' associations are making preparations, should the meeting of employers, to be held on the 28th inst., refuse the applications, to enforce their demands. In the interview by the spinners, the representatives on their behalf clearly shewed their hand on the matter as to shifting the battle-ground from Oldham to Manchester. A remark was made as to the United Cotton Spinners' Association dealing with the wages question, together with the operatives' amalgamation, but this was quickly nipped in the bud by the deputation stating that they had nothing to do with the United Cotton Spinners' Association, and that Oldham would deal with its own wages question, adding that there was a tendency in the other cotton spinning districts to follow the lead of Oldham in questions of that kind. I might state that in the town the question has been very much discussed, and it is felt that employers will have to give way. Still there is a strong feeling that if a sliding scale could be adopted in regard to advances and reductions of wages, much uneasiness and tendency to friction would be done away with."

Articles.

THE FINANCIAL CRISIS AND ITS PROBABLE EFFECT UPON THE COURSE OF THE COTTON MARKET.

When on the 1st instant we wrote our views of the cotton market we were, like many others, entirely unaware, save and except what could be gleaned by some vague notes of warning from financial sources, of the vast extent of the monetary difficulties that were so soon to shake to their very foundations the commercial fabrics of England, America, and the Continent. Rumours were rife respecting the stability of firms of high standing, but these were by comparison insignificant with the honoured house which has by the opportune action of the Bank of England and other great institutions been enabled to avoid a collapse that would have thrown into confusion the entire commercial world.

While it is a matter for congratulation that the worst has been avoided, we cannot shut our eyes to the fact that a considerable time must elapse before we shall have recovered from the shock. Possibly it will be several years before this event will become entirely a matter of history. The great house, with its vast ramifications, cannot so soon recover its equanimity and the even tenour of its course without trade in the meantime being adversely affected thereby. The subject, however, with which we are more immediately concerned is its probable effect upon the cotton market. It will be remembered that we prognosticated 5½d. as the price "Middling" American would touch, and that for a time at least cotton would range near that figure. Our opinion, amounting almost to a conviction, was formed by the consideration of natural conditions. The decline has, however, been accelerated and accentuated by abnormal circumstances. We should have expected the market to steady at 5½d. for spot cotton, with a possible fluctuation in futures, for the weaker positions, of a few points below 5-16d. had it not been for this untoward event which

has at the moment of writing carried spots to 5½d. lb. for Middling, and the winter positions, after a temporary fall to 53 to 55-11d.

It will be well to take a fresh survey of the situation and consider what effect the new conditions will have upon prices. The chief of these are dearth of money and a partial loss of confidence. The immediate result upon securities outside commodities has been a rapid and most prejudicial decline in values and the consequent bankruptcy of many interested therein. The withdrawal by the Russian Government of £5,000,000 sterling from the house already referred to, and the withholding of money by those who in ordinary circumstances would leave it in circulation—all these things combined must tend to keep money dear, and we opine it will continue to harden. This can only have one effect upon values: they will continue to decline, or at least they cannot immediately recover. The Liverpool banks are reported to have refused to advance upon some of the best railway securities, not wishing to lock up their moneys unduly. The position of importers can therefore readily be imagined: with the weight of recent imports pressing upon them and the prospect of still larger ones in the immediate future, the difficulty of financing these cottons and the high rate of interest being charged upon that already banked against, it is not to be wondered at that there is a semi-scramble to get out.

The question as to whether the recent Agricultural Bureau report is to be taken to mean 187 lb. "net" or "gross" lint per acre has no immediate influence of moment, whether the *Liverpool Daily Post* or Messrs. Neill Bros. prove to be correct, though the position of the latter seems established; or whether the crop eventually turns out to be 7,500,000 or 7,750,000 or even 8,000,000 bales, is a matter time alone can determine. The question of the hour is one of finance. Apart from this, we think the prospect of at least 7,500,000 has been anticipated by the fall of cotton to 5½d., which many look upon as a reasonable price with a crop of that extent; a recovery from the further fall can only be expected when cotton has been distributed more evenly and some considerable quantity has been consumed, and chiefly when the financial difficulties have become more settled. We have had the gratification of learning that not a few of our leading men not only in the spinning trade, but also in the market, were led to endorse our views, already given in our previous issues, and to a considerable extent they kept out of cotton; others, again, not feeling inclined to be negative, beared the market and have reaped the benefit of the predicted fall. Though our interests lie chiefly with the consumer, our influence has in this instance extended beyond them; we have, however, no objection to any branch of the trade gathering profits from our pages. It is our great desire to place before our readers only the most carefully considered views, and having been forced to the conclusions expressed above by the strength and active influence of present circumstances we would say that it appears to us advisable for spinners to buy only from hand to mouth, and for immediate requirement, buying good cotton only, avoiding all growths indicating damp, and not to be tempted by the apparent cheapness of storm cotton and other damp lots. Also to buy gradual deliveries for part of their consumption and preferably for the most distant positions, making contracts for the higher grades when sellers are willing to sell them. Some merchants decline to make distant contracts for

good grades, whilst others ask a stiff premium; there are, however, fairly reasonable sellers to be met with who will entertain this business. Most of the foregoing advice we have given before, but we cannot do better than repeat and emphasise it.

We congratulate Lancashire upon the soundness of trade generally, and of the cotton trade particularly. Had it not been sound there would have been a commercial panic very far-reaching and disastrous in its consequences. It will not do, however, to cry before the trade is out of the wood, although we sincerely trust it is now not far from clear ground.

TEXTILE MACHINE-MAKING ESTABLISHMENTS.

INTRODUCTORY. (Continued from Page 319).

We have claimed for Lancashire the honour of being the birth-place of the great revolution in our industrial systems—the change from manual to mechanical methods, which has done more to ameliorate the domestic condition, improve the social relationships, and increase the political liberties of the human race than any movement since the advent of Christianity. It is a great honour that has fallen to Lancashire, and when the facts are carefully considered it cannot be regarded as accidental. The fathers of this great revolution, Kay, Hargreaves, Arkwright, and Crompton, were all born, reared, and worked out their greatest inventions within a very short distance of each other in the heart of East Lancashire. Kay, the inventor of the fly shuttle, was born at Bury; Hargreaves, the inventor of the spinning jenny, at Blackburn; Arkwright, of the mule, at Preston; and Crompton, who combined the principles of the two last-named, at Bolton. If a line was drawn between each of these towns it would describe an irregular oblong quadrangle, which may be fitly described as the heart of Lancashire. That these great inventions should all have been conceived and developed within such a limited area implies the existence of something special in the people dwelling there, or special physical circumstances in the locality. A tempting enquiry presents itself here, but restraint must be exercised and the quest declined. We must be content with stating our opinion that both these sides of the subject have contributed a goodly portion of the influence out of which the modern industrial revolution has grown.

Very briefly, however, we may indicate those things that we think have conduced to these important results, otherwise the reader may spend time and thought in an unsuccessful endeavour to solve the problem—by what means has Lancashire attained the distinguished eminence we have pointed out? Our reply is that it owes much if not most of this to a natural condition—its geographical location on the middle of the Western coast of the island of Great Britain. Through the sea channel dividing it from Ireland flows the almost tepid waters of the great oceanic river known as the Gulf Stream. The evaporation from this stream being driven over the area of Lancashire by the prevalence of westerly and south-westerly winds and impinging against the Western slopes of the Pennine Chain, is condensed, and falls in rain, securing an abundant water supply, an essential of the county's prosperity. The atmosphere too has strong claims to great credit in the creation of Lancashire's industrial and commercial eminence. Comparatively speaking this district of England has always a humid atmosphere in its driest periods, the haze being nearly always visible to

persons who have come from other districts possessing different superficial conditions and especially different geological developments. The hills of Lancashire are very characteristic, and we don't know where their like are elsewhere to be found. They are composed of the western half of the Pennine Chain, which extends north and south through the northern half of the English division of the island. From this chain numerous lateral spurs have been thrown up and run at right angles thereto in a westerly direction. These spurs strike an observer by the regularity of their occurrence, and the uniformity of their attitude, especially in the northern half of the county. They mostly belong to the coal measures and mainly to the millstone grit series. Seen from some positions they look like rolling billows in a great earth sea that had suddenly solidified and thus remained as a standing testimony of a condition for ever passed away. But this, of course, is a pure fancy and bears no analogy to the facts. The hills when first thrown up were considerably higher and the intervening valleys deeper than they are now. In the ice age in the mountain district of Westmorland and Cumberland great glaciers were formed, and these, flowing down the mountain sides precisely as they do in Switzerland to-day, entered the sea, which then covered the highest summits of the Lancashire hills. These bergs, borne southwards upon the sea currents, ground down the summits of the hills to their present elevation, forming the great table-lands that now characterise them. The heavier portion of the *dibris* was tilted on the southern side into the valleys, thus forming a comparatively gentle slope, the northern sides remaining much sharper. The finer material was carried away by the sea and deposited as beds of fine clay in the lower lands and valleys. Covered with a thin deposit of vegetable soil these impervious beds of clay form the great natural reservoir of the fallen rains, and in the driest seasons afford a plentiful supply of moisture by their evaporation into the atmosphere. It is the extraordinary humidity of the Lancashire atmosphere that constitutes Lancashire's special superiority as a manufacturing district over other districts not possessing this feature. Abundance of water and a moist atmosphere, however, do not exhaust the list of Nature's benefactions to Lancashire. Its mineral deposits of coal, stone, and clay, especially the first-named, have all contributed largely to make the Lancashire of to-day. In spite of the advantages already named, had coal not been found over large areas of its surface it could never have attained its preëminent position in this age of steam. The truth of these statements needs no demonstration.

A few remarks may be permitted on the inventive and mechanical genius of the people, which we hold to be their principal characteristic. We have termed this a newly developed capacity of the human race, equivalent to the acquisition of a new sense. Whence was it derived? We claim that it made its first appearance in any strength in Lancashire, in the persons whose names have so often been mentioned as the fathers of invention, and who have shed so much lustre upon mid-Lancashire. The inventive faculty, appearing here first, has not yet spread much beyond what we are accustomed to term the Anglo-Saxon people, the other great races having contributed comparatively little to the mechanical developments of the age. The earliest races of men of whom any knowledge has come down to us as dwelling in Lancashire were the ancient Britons. During the three hundred years of Roman dominion

there would no doubt be a slight admixture of the Latin and other foreign races who formed the garrisons and governing classes of the country. The various Germanic tribes, mainly Saxons and Danes, afterwards overran Lancashire, though this was one of the last parts of the island to submit to their sway. There is good reason to assume that the bulk of the natives would retreat to the hill districts until intercourse was established, and in course of time racial amalgamation would take place. The later invasion of the Normans would produce practically no impression upon the body of the people, and such as the blending we have spoken of left them, were the people of Lancashire in the early days of the last century when the new faculty of inventiveness first manifested its existence. This will be evident when we state that its population in 1700 was estimated at only 166,200, and in 1750 at 297,400. Thus in half a century the smaller figure was far from being doubled. In the next half century, when the influence of the mechanical inventions to which we have referred had begun to exercise their influence, the population was shewn to have increased to 695,100. Since then, besides a large natural increase of the population arising from the prosperity of the district, there has been a steady influx of immigrants from the other parts of England, and from Scotland, Wales, and Ireland. Still though the process of blending can be seen at work it has not as yet materially changed matters. It is mainly from what we may properly term the native race that the stream of mechanical inventions still proceeds, and which, running upon the lines of the original foundation, has so far perfected the superstructure that it is difficult to conceive how it can be much further embellished.

From the dawn of civilisation in this country, nature has dictated the pursuits of the dwellers in Lancashire. On the western plains they naturally principally devoted their attention to corn growing, with, to some little extent, that of flax, for both of which the soil was suitable. On the slopes and uplands of the Pennine Chain pastoral pursuits quite as naturally engrossed their attention; sheep and cattle-raising occupied most of their time. In both divisions there grew up a domestic textile industry: on the plains they spun and wove flax; in the hill districts they fabricated wool. So far, therefore, the ground was excellently prepared by nature, and the industrial training of the people originating in the same influence was highly adapted to the purpose, and admirably fitted them to receive the inspiration and develop the forces that have already done more to assure the progress of mankind than any material power recorded in history. Out of such a soil and from the brains of the illiterate people so often named, Kay, Hargreaves, Arkwright, and Crompton, nature evolved these mighty forces; a wonder only exceeded by the results attending the labours of the Galilean fishermen.

We have received a copy of the first issue of *The Indian Textile Journal*, a publication devoted to the textile and engineering industries of India, brought out under the auspices of Mr. Hugh Monie, junr., late of Belfast. For a first number it is a very creditable production. The mere fact of an attempt being made to establish a textile journal in India is very significant of the progress made by our great dependency in the mechanical production of textiles, and indicates that Lancashire spinners and manufacturers must put forward their best endeavours if they are to retain their present preëminent position. The journal under review contains an article urging Indian spinners to take up the spinning of fine yarns, and commenting on some recent remarks on the subject which appeared in *The Textile Mercury*; also an interesting sketch of the life of Sir Dinshaw Manockjee Petit, Bart., accompanied by a portrait of that eminent Parsee cotton spinner and philanthropist.

Bleaching, Dyeing, Printing, etc.

THE DYEING OF HALF-SILK (SATIN) RIBBONS.

(Continued from page 324.)

The third method of dyeing these goods consists in using dye-stuffs that dye both fibres in one bath. The only natural dye-stuff that will do this is turmeric, which can be used for all shades from cream to yellow, and only requires working in a bath of same at from 50 to 60° C. The shades obtained are not fast.

The benzidine colours are the only artificial colours that dye half-silk goods.

RED

Can be got with diamine scarlet B, brilliant Congo R, and Hessian purple B, working at the boil from a bath containing salt.

YELLOW

Can be got with chrysophenine, and thioflavine S, with good results.

PINKS,

With roseazurine and erika.

BROWNS

With Hessian brown or benzo brown.

The other colours of this group do not give satisfactory results on mixed fabrics.

When required to be finished these goods are passed through a finishing composition made of gum, gelatine, and starch, and are dried, damped slightly, and then calendered, with metal and paper bowls, the metal bowls being heated.

THE COAL-TAR COLOURING MATTERS.

(Continued from page 342.)

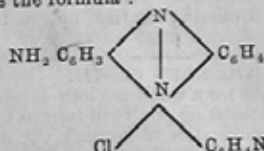
BASIC COLOURING MATTERS (continued).

INDULINES.

These are a group of dyes varying from grey (nigrosine) to blue (induline 3B) and to black colouring matters. They are obtained by heating aniline with iron and nitro benzene; by varying the proportions the various shades are obtained. Each of these dyes is a mixture in various proportions of several simple dye-stuffs, none of which have been definitely studied. The chemistry of the indulines is therefore somewhat obscure; probably they contain a colouring matter known as violaniline, to which the formula $C_{12}H_{15}N_3$ has been given. There are two varieties of these dye-stuffs, viz.: spirit-soluble and water-soluble. The former is the product as it is yielded first in the process of manufacture, and the second is obtained from the first by sulphonating them. The spirit-soluble nigrosines, indulines, and blacks are used for colouring lacquers and varnishes; the water-soluble compounds are used in dyeing. They are applied in the same way as the rosaniline colours previously described. They are very fast dyes, resisting light, acids and alkalis remarkably well; and are greatly valued by dyers.

SAFRANINES.

These are a small group of dyes which are somewhat peculiar in their composition. They belong to a group of bodies named azines by Witt, and are supposed to be derivatives of a basic body termed azonium, which has not yet been obtained in the free condition. Phenosafranine is the simplest member of the series. It is known to scientific chemists as para-amidophenyl para-amidophenazonium chloride, and has the formula:



Safranines are obtained by oxidising amidazotoluene or amidazobenzene and toluidine or aniline with bichromate of potash. They dye reds resembling safflower (hence their names) by the same process as the rosaniline colours; they have a slight affinity for the cotton fibre

so that pale shades can be dyed without a mordant. The colours are not fast to light or washing, and dilute acids have no action. Belonging to this group are the safranines proper, Magdala red, neutral blue, neutral violet, indazine, and Basle blue.

THE OXAZINES

Are a small group of dye-stuffs, the principal member of which is Meldola's blue, obtained by acting with nitroso dimethylaniline on beta-naphthol. Like the indulines, these colouring matters are not sent out in the pure condition, but they are admixtures to a greater or less extent of several colouring matters, few if any of which have been properly isolated; only one is known—naphthol violet—that is in any way pure. The compound nature of these dyes is proved by the great variety of shades produced. They are made and sold by many makers under a variety of names. New blues, naphthylene blue, fast blue, cotton blue, indamine, Meldola's blue, etc. Muscarin and Nile blue also belong to this group. They dye cotton mordanted with tannin and tartar emetic various shades of blue, some of which closely approximate to indigo in tone; these blues are quite fast to light, acids, soaping, etc., and are very useful products and well worth the attention of dyers. (To be continued.)

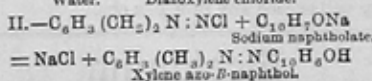
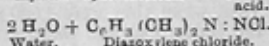
PRINTING AZO COLOURS ON COTTON.

At a recent meeting of the Rouen Industrial Society a sealed paper by M. Henri Schmid on this subject was read, as follows:—

The most important of the azo colours have no affinity for the vegetable fibre. They do not combine with it directly nor by the aid of the usual mordants. The xylidine scarlet and its allies are not therefore applied to cotton; when not sulphonated they are insoluble in water and are not used in this form; their sulphonated compounds are soluble in water and are used in dyeing silk and wool direct.

There is a method of producing these products on the cotton from their soluble constituents, a principle which has been patented in England and used in dyeing. The delicate nature of the operation causes many difficulties in the practical application. One solution of the problem is offered in the following process:—

To illustrate the principle of the process, the production of xylidine scarlet is selected as a type. This is formed by diazotising xylidine and then combining with beta-naphthol. This takes place in two stages, shown in the following equations:—



The tissue is prepared by impregnating it with nitrite of soda, after which there is printed on a mixture of xylidine hydrochlorate, beta naphthol, and acid. Theoretically the colour is composed of one molecule of xylidine, two molecules of a monobasic acid (hydrochloric acid), one molecule of beta naphthol, and one molecule of sodium nitrite; this last is always used to prepare the cotton cloth.

The printing colour is made as follows:—

25	parts xylidine,
46	" hydrochloric acid, 20° B.,
30	" beta naphthol,
80	" alcohol,
50	" water,
250	" gum senegal liquor, 10 lb. to the gallon.

This is printed on cotton prepared as stated above, with a solution of nitrate of soda, containing 35 grammes per litre, dried, and the colour developed by passing through vapours of ammonia, which, determining the reaction between the diazoxylene and beta naphthol, is indispensable. By replacing one molecule of hydrochloric acid by a feeble organic acid which can be volatilised on steaming, the conditions are present for developing the colour direct.

The following colour can be printed on the prepared cloth:—

33	parts xylidine chlorhydrate,
35	" acetic acid 7° B.,
30	" beta naphthol,
50	" water,
80	" alcohol,
250	" gum water 1 in 1.

This cloth develops by simple ageing. The expulsion of the acetic acid is favoured by passing through a steaming apparatus. Afterwards the pieces are washed and soaped. All these operations follow one another rapidly. By the above process a fine scarlet is produced, rather yellower than the scarlet R.

By replacing the xylidine with other analogous amido bodies a variety of shades can be produced, all of which are very solid. The results are generally good and not difficult to obtain.

The following colour gives a Bordeaux shade of red:—

84	parts naphthylamine,
87	" beta naphthol,
500	" nitric acid 36° B.,
100	" water,
500	" alcohol 95%,
1,700	" gum water 1 in 1.

Print, as before, on cloth prepared with nitrate of soda, 5 in 100, dry, treat with ammonia, wash, and soap.

CYANAMIDES.

Witt, in the *Berichte*, describes a new class of dyes under the above name. Meldola obtained in 1879 by the action of beta-naphthol on nitrosodimethyl aniline a bluish violet colouring matter that has been placed on the market under various names—new blue, cotton blue, Meldola's blue, etc. Nietzki prepared a magenta red dye from beta-naphthol and quinine dichlorimide, which appears to resemble Meldola's blue in composition. The new blues on the market differ considerably in their solubility and the shade with which they dye, which are from bluish violet to violet red, and hence they must be mixtures of several dye-stuffs. Nietzki's dye appears, however, to be a uniform product. New blues are essentially day blues, bluish by daylight, reddish by gaslight. Treated with alkalis these dyes are gradually altered: the alkali first precipitates the base and then it alters this into a new colour base, which on redissolving in acids forms dyes of a pure greenish blue shade resembling methylene blue. They are night blues, that is they retain their blue colour by gas light. Both Meldola's blue and Nietzki's red appear to yield the same product. These new dyes are called cyanamides.

O. MUELLER gives in the *Oest Woll. und Leinen Ind.* the results of a series of experiments on the fastness to light of the substantive colouring matters. After 14 days' exposure to light the following remained unaltered:—Benzoazurine 3 G (treated after dyeing with copper sulphate), chrysamine G and R, brilliant yellow, chrysophenine, Hessian yellow, curcumine S, Mikado orange G R and R R, Brahma orange, and diamine yellow N. The following were slightly altered:—Congo Cornith G and B, Benzoazurine 3 G and S (after treating with copper sulphate), azo violet, Congo brown G, benzo brown G, B and N B, benzo-black-blue, Mikado brown G and B, salmon red, diamine red N O and N, diamine blue 3 R, fast pink B and G. The following were destroyed:—Congo red, all shades; brilliant Congo; Hessian purple N G, B and N B; benzopurpurine 1 B, 4 B, 6 B, and 10 B; delpurpurine 5 B and G; benzoazurine 3 G, and G; azo blue, roseazurine B and G; heliotrope; Hessian violet; thiazol yellow; sulphoazurine; diamine blue B; St. Denis red, Brahma red, and violet black. The effect of the treatment with a boiling solution of copper sulphate of cotton goods dyed with benzoazurine varies according as the goods have been washed or not after dyeing. Repeated rinsing of the dyed cloth before being treated with the sulphate of copper renders the action of the latter useless, the colours then being no faster than when untreated.

AND so the investing public are to be excluded from participation in the Chemical Union. The promoters of that wonderful concern have decided to subscribe all the capital—or, to be rather more precise, they have concluded that the amount subscribed among themselves is amply sufficient for all purposes. There is, of course, a certain distinction here. Anyhow, there is to be no appeal for outside capital, which is, perhaps, as well for all parties.—*Financial News.*

Foreign Correspondence.

TEXTILE MATTERS IN THE UNITED STATES.

NEW YORK, OCT. 8TH.

Mr. Blaine's remarks during the Pennsylvania campaign are receiving as much attention now as at the time when they were first uttered. "If Pennsylvania under a pretext," he said, "can at this time be drifted from her life-long allegiance to the doctrine of Protection, and shall elect a gentleman of whom I know nothing politically, except that he is ranked with the free traders; if they can to-day elect as Governor of Pennsylvania as ardent a free trader as President Cleveland himself, there may be no balm in Gilead that can heal that wound."

He concluded on one occasion with this prophetic warning:—

It is in your hands. I have come here, not with the purpose of eulogising the Administration, but to bear my testimony and to give you a warning that AS PENNSYLVANIA VOTES ON NEXT TUESDAY THE NATION VOTES TWO YEARS HENCE.

While the above remarks are again being brought forward, details of a little scene that took place some time ago at a meeting of the Senate Appropriation Committee have been made public. Mr. Blaine was the principal actor, and there were present Senators Allison, Hale, and Blackburn. When the Secretary of State appeared, in reference to some consular appointments Senator Blackburn casually asked him what he thought of the McKinley Bill. Turning to Hale and Allison, the Secretary launched forth in a torrent of abuse against the bill, saying,

"This bill is an infamy, and an outrage! It is the most shameful measure ever proposed to a civilised people. Go on with it, and it will carry our party to perdition!"

Mr. Blaine said that he wished he was in the Senate, for then he would stamp it under his foot and spit upon it. Continuing, he said, with angry emphasis:—

"Go on with your drivelling idiocy, and see to what destruction it will lead the Republican party. Pass this bill, and in 1892 there will not be a man in all the party so beggared as to accept your nomination for the Presidency."

While this torrent of abuse was at its height, Mr. Blaine emphasised his remarks by bringing his clenched fist down with such force on his glossy silk hat, that the tile collapsed like an accordion.

It is apparent from this that the split in the ranks of the Republicans was greater than was at first imagined, and there can be no doubt that Mr. Blaine carried a large section of the party with him.

During the years 1888-89 the domestic production of gentlemen's silk handkerchiefs was largely increased, but fashion had changed to linen handkerchiefs and the silk goods accumulated and finally had to be closed out in large quantities through auction at very low figures. The high price for silk and the low price for goods restricted their use very sensibly, and this year no goods of this class have been put into the auction mart. At private sale the market is well supplied with one of the most elegant assortments of brocaded silk handkerchiefs ever shewn to the trade, and at relatively low prices, too. The Phoenix Manufacturing Co. offer these goods at prices surprisingly low, viz., 2 dols. 25 cents at 12 dols. a dozen. They have also produced a magnificent assortment of mufflers in all grades

of blacks and creams at prices varying from 7 dols. 50 cents to 30 dols. a dozen.

An amusing example of the exaggerated accounts sent to England as to the effect of the new tariff has attracted attention here. The writer states that:—

Corduroy trousers, almost universally worn by working men in the winter, and formerly sold retail at 8s. a pair, have with the increase of duty from 35 to 75 per cent. risen in price to 10s. 5d. a pair. There are only three manufacturers of these goods in America, and they cannot possibly supply the demand.

A worsted woollen suit of clothes which labourers have been able in the past to buy for £2 now costs £2. 14s., the tariff on this suit having risen from 80 to 110 per cent.

In female clothing, plush sacques and imitation seal, which are popular among a certain class, and which have heretofore been sold at from £4 to £5, cost now from £25 5s. to £50.

The same alpaca which formerly cost from 2s. 5d. to 3s. per yard, now costs from 4s. to 4s. 5d.

As an indication of the discrimination exercised in the adjustment of taxes it will be well to call attention to the decrease in price of real sealskin sacques. The same sacque which last winter sold for £40 can now be bought for £38, and a £100 sealskin sacque can now be purchased for £95. This has been accomplished owing to the reduction of the tariff on sealskin 10 per cent.

An evening suit of broadcloth of the finest material, which has hitherto cost £20, has been increased in price by 20 per cent., owing to the rise in the tariff of 10 per cent.

A general canvass of the dealers in woollen goods shows that the material which in the piece is sold at 10d. a yard, now costs 1s. 8d., with a diminishing proportionate advance as the price increases. But this only refers to the cheapest qualities, of which the most is sold. Therefore the effect of the bill becomes more onerous, according to the cheapness of the various classes of goods.

As far as the paragraph concerning plushes is concerned, the statements made are grossly inaccurate, as is that regarding real seals, prices of which, owing to the short catch, have been raised more than 60 per cent. The public, always impulsive, do not yet see through the move of the anti-Republicans, who bring forward such statements as these for party purposes, but they will have a clearer idea of the real position in the course of a few more campaigns.

Native cotton goods for the Eastern markets have not been in brisk request. Stocks at Shanghai, however, are said to be small and as after the Chinese New Year there will be a brisker consumption on the other side of the Pacific, further accumulation is unlikely for some time to come. The total exports of cotton goods from the United States to foreign ports from January 1, to October 31, have been 194,267 packages, a larger quantity than for the same time in any previous year, with the exception of 1886, when they were 4,500 packages more, and the indications are that for this year they will exceed any previous one.

Designing.

NEW DESIGNS.

WORSTED COATINGS.

In order to demonstrate more fully the effect of *Design 198*, given in last week's issue, *Fig. A* has been prepared, representing the effect of warping 8 threads dark, 16 threads light, and warping the same. Though the structure effect of the weave is hardly ascertainable by means of such sketches as these, still it is possible by such means to obtain some idea as to the effect of the weaves combined. In this case (*Fig. A*) there is quite the effect that was mentioned last week pervading the sketch, viz., the fine hopsack centre and the more pronounced checking effect.

In *Design 201* is supplied a modification of the design mentioned above. Our idea has here been to produce a large indistinct stripe effect, which may be checked as required, and to use this in combination with weave colouring, employing large effects subdued in tone. Parts of the effect given are most suitable to use with, say, a drab warp and light weft, or vice versa, in which case mixture yarns of bright hue alone or combined with solid colours will prove useful. It should be observed that the two centre portions

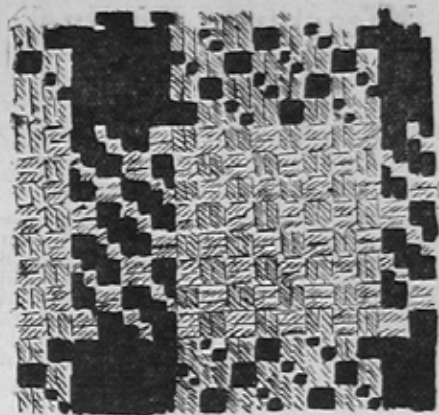


FIGURE A.

of the design are simply the reverse of one another, and the hairline modification producible by means of the hopsack and warping 2 and 2 should not be lost sight of. About the same sett as for the 2 and 2 twill should be used, and a warp back applied.

FANCY WORSTED CLOTH.

Design 202 is an effect suitable for a fancy waistcoating or mantling. It practically consists of horizontal, vertical, and ordinary twill, a small figure being formed by the two latter, in five-end sateen order upon the horizontally twilled ground. The following sett will be found useful:—

Warp.

All 2/30's worsted.
13's reed 4's.

Weft..

All 15's worsted.
50-56 picks per inch.

Some useful woollen cloths may also be produced on the same principle, using 30—40 sk. yarn.

ITALIAN TOILET COVER

In cotton and silk embroidery; several are made in Madras of linen and gold silk figure. This example is 14 inches in breadth and 36 inches in length; the selvage, and about one-half inch is all white bleached cotton; the side borders as well as the cross borders are composed of alternate squares of crimson and white, the centre all white on a damask ground; the figure, a small sprig, is most beautifully embroidered with gold metal and dark blue silk loosely twisted together. It is almost impossible for want of space to convey anything like the full details in the design. We have given one-third of the border at the side, and a portion of the cross border. All the warp and weft threads are upwoven for two inches at the sides, the beginning, and end of each cover, thus forming an unknotted fringe all round. It will be seen by the design that the spray or sprig forming the figure drops from each corner of the border into the centre of the cloth, where all four points mingle together in a most artistic manner, forming a felicitous combination out of an apparently inextricable mass of stems and leaves. We give in the design two of the four points; the other two are merely a reproduction. There is little doubt that the figure could easily be woven with coloured warp and weft threads, and a very close and successful imitation of the native embroidery would be effected by using twisted silk threads of different counts and shades. One very noticeable feature in connection with Hindu designs is the almost total absence of realistic treatment of flowers, etc., all being purely conventional or made to tend in that direction, and offering charms not to be forgotten.

WOOLLEN CLOTH.

A good effect for a woollen cloth is given in *Design 203*, consisting of a twill formed by hopsack and a modification of hopsack. A decided yet subdued twill will be produced, which, figured by means of colour and weave in unison, will prove very effective.

Warp.

2 threads 20 sk. dark yellow olive,
2 " " " dark red and black mixture.
12's reed 3's.

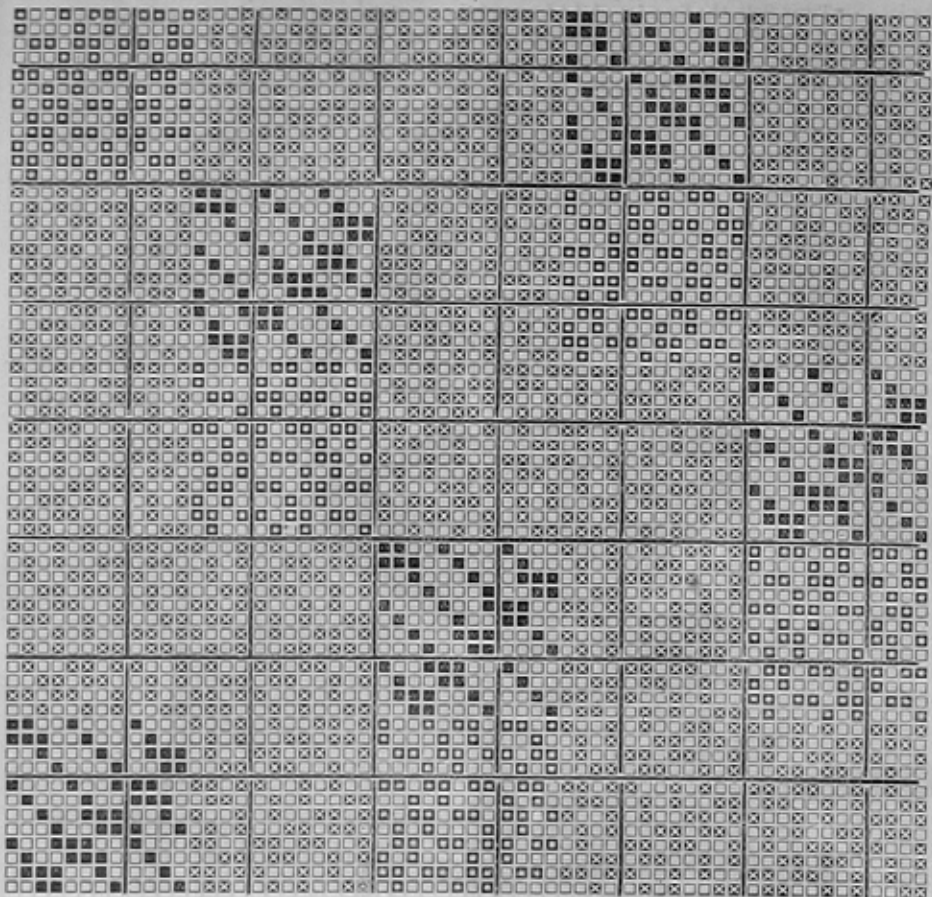
Weft.

Same as warp; 36 picks per inch.

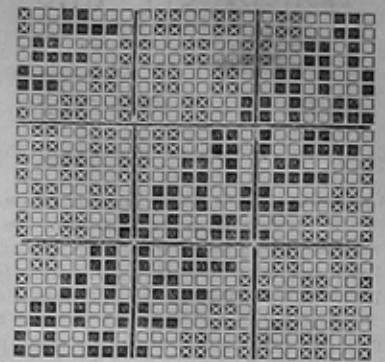
A good effect would also result from developing the hopsack 2 threads black, 2 threads white, at the same time replacing the white in both warp and weft with grey to form a large but indistinct check.

FIGURED CASHMERE.

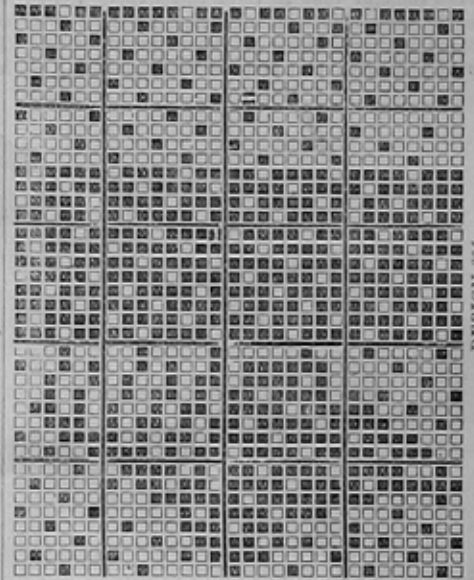
Design 204 is a suggestion for a striped dress fabric. This effect is only intended to form the edge of a broad stripe which may be otherwise ornamented with floral designs.



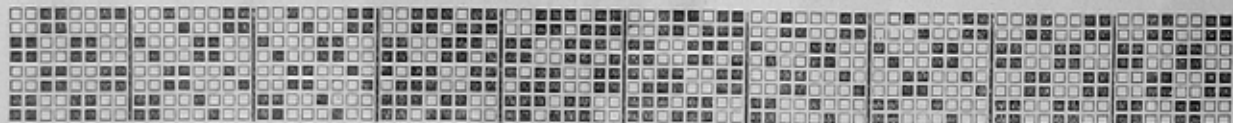
DESIGN 202.



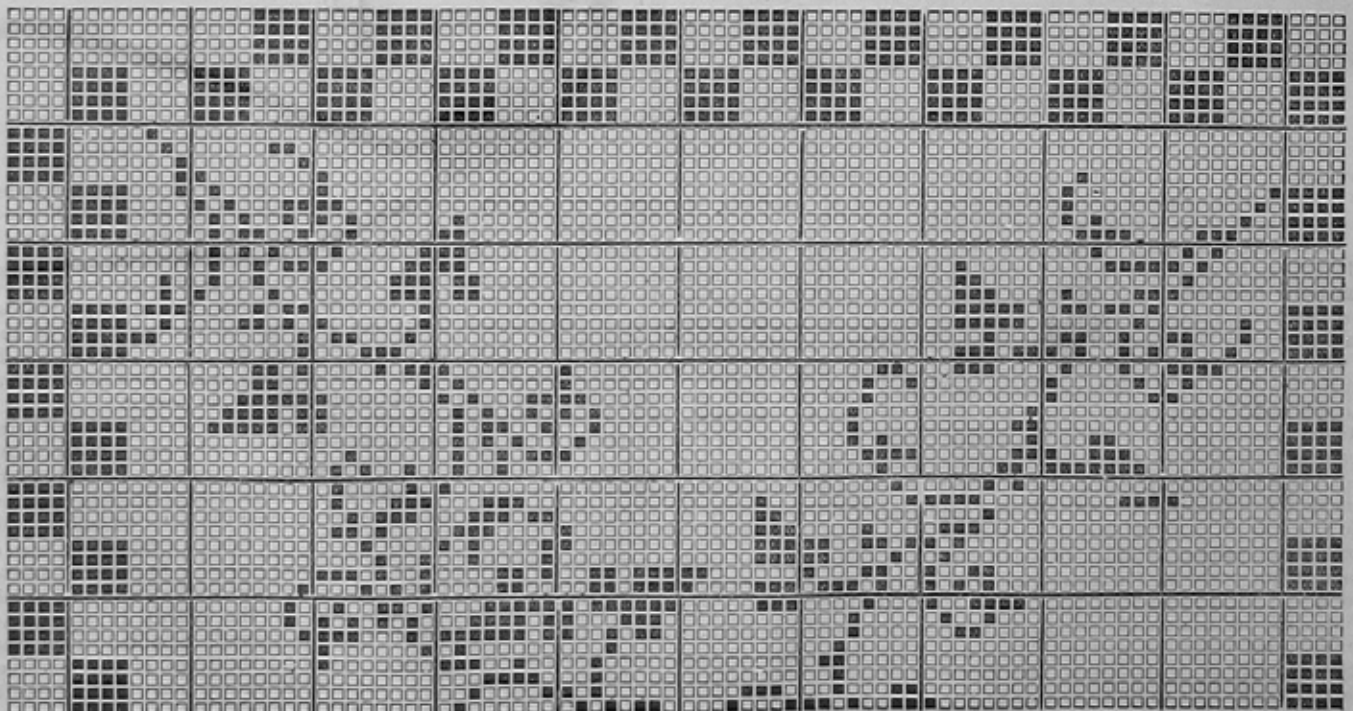
DESIGN 203.



DESIGN 204.



DESIGN 201.



INDIAN TOILET COVER.—1, 2, to be repeated thus: 1, 2, 1, 2.

Machinery and Appliances.

WASTE SILK MACHINERY.

MR. ALFRED ROBINSON, BRIGHOUSE, YORKSHIRE.

Waste silk—that is, pierced cocoons, floss and the waste arising from various processes of the manufacture of net silk, from the cocoon to the tram and organzine—was for a long time the puzzle of economists in the silk trade. From the most costly of textile fibres—we use this word in its conventional sense—the waste produced was the most useless and valueless—a remarkably incongruous fact. It might have been thought that in these times there would have been sufficient ingenuity amongst silk manufacturers, either at home or abroad, to have converted this material into something of

quality him for the task. He would also be well aware that the hard-headed men of Yorkshire had just endowed the country with two new textile industries—those of alpaca and jute. He would also be personally acquainted with the late Sir Titus Salt, the founder of the former industry, and would no doubt be stimulated by a desire to emulate the success of his townsman and friend. There was a remarkable similarity in the manner in which the attentions of both were directed to or attracted by the material that was afterwards to engross so much of their life's labours and yield them such handsome rewards. These stories are well known, having been told many times over, and therefore need not occupy our space here.

There can be little doubt that when Mr. Lister's attention was attracted to waste silk he would be struck with its likeness to the long or combing wools with which he was so familiar. The chief difference was in the much greater length of the silk fibre. This however was a

endless sheets set with strong card wire and adjusted upon rollers. The material is taken between these sheets, from which it is slowly delivered to the combing roller, the large roller upon the top of the cylinder. To and across the periphery of the latter are attached a number of strips fitted with coarse carding teeth, which lay hold of the material and draw it as much as it will permit into a parallel order. It must not for a moment be supposed that the cylinder of a silk-filling engine revolves as rapidly as that of a cotton card: it has relatively only a very slow movement indeed. This, however, is greater than that of the parts that feed it, and consequently it is soon covered by a coating of the material. Unlike a cotton card it has neither doffer comb nor any other automatic arrangement. It is doffed by hand, the attendant taking up his stand in front of the machine, and with a pair of shears cutting the material across the face of the cylinder close up to the teeth of each strip of card.

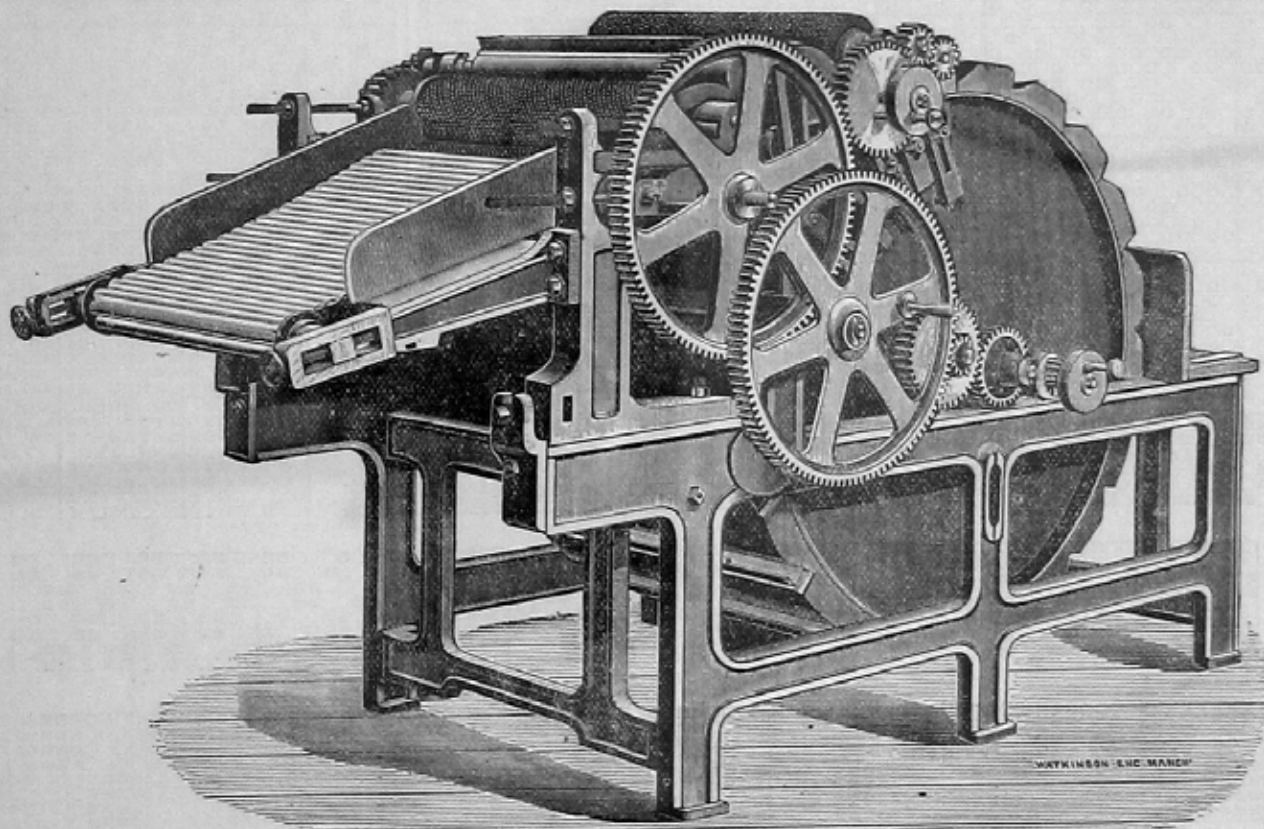


FIG. 1.—SILK FILLING ENGINE.—MR. A. ROBINSON, VICTORIA IRON WORKS, BRIGHOUSE.

value, but if so the anticipation would have been disappointed. Indeed in connection with the silk industry there has never been found any inventive ingenuity to achieve any result that can be termed important. Possibly the material itself may to some extent be responsible for this, for the processes of its manufacture up to the loom consist merely in reeling, winding, and twisting, than which hardly anything can be simpler. The machinery and appliances used in this country and upon the Continent have only been improved in the most insignificant details since the days of Lombe's foundation of the Old Silk Mill at Derby. And yet in the invention of means of utilising the waste products of their industry there was an opportunity of realising a fortune, but not a man amongst them could be found to avail himself of it.

It was left for a worsted manufacturer to solve this great industrial problem. This was Mr. S. C. Lister, of Manningham. Mr. Lister had been brought up in suitable surroundings to

difficulty easily overcome by the destructive process of breaking or cutting it into the requisite lengths to make it useful. In the secrecy of his establishment there is not much doubt that various methods of accomplishing this would be tried before the very natural and obvious one almost ready to hand was resorted to. This was a modification and adaptation of the cotton carding engine in its simple state. In its most improved form as now constructed and used it is here illustrated, Fig. 1. We need hardly trace the stages of improvement through which it has passed: they cannot be many, or important, and probably they never needed the protection of a patent. A brief description will suffice. The machine is termed the "filling engine," and as seen consists of the framework, in which is mounted a large cylinder. At the back is a feed lattice on which a charge of the washed or disgummed material is placed. This lattice has a very slow traverse, and delivers its material to the porcupine shewn immediately beyond it. This consists of two

When the lengths are cut they are removed by means of a stripping board—two pieces of wood attached together, by which the material of each strip across the whole width of the cylinder is lifted. Two strips are taken in this manner and laid together, between two similar boards. There are 20 strips on the periphery of the cylinder, and these are doffed into 10 boards ready for the dressing frame, to which we now direct the attention of our readers.

In the silk dressing frame, illustrated herewith in Fig. 2, the second process in the treatment of silk waste is conducted. This consists of a long frame, at each end of which is mounted a large roller; around the latter an endless web is passed, and upon this is arranged as seen a series of dressing cards. In their traverse these cards come into contact with and comb the silk held in the boards in the frame called the "in-frame," mounted upon the carriage shewn in the front of the machine. This carriage is drawn out from beneath the machine to receive its charge of silk in

the boards, the ends of which are seen between the blocks separating them from each other. When the frame is thus charged with a set of boards containing the material they are screwed up from the ends so as to be tightly held. The carriage is then run into the position shewn in the illustration, when it is ready for the action of the machine. The dressing cards on the web in their passage comb the ends of the web thoroughly, the waste material being stripped from them by a boy who stands at the end of the machine. When sufficiently dressed the carriage is withdrawn, and the boards are taken out and stripped of their contents. Here ends all that it is necessary to give of the processes of the manufacture.

We only need add that the machines are provided with means of adjusting the different parts according to any special requirement, the strength being well distributed over the parts upon which the chief strains fall. The maker (Mr. Alfred Robinson, of Brighouse) will supply any further information that may be desired.

were now dissatisfied with it. Mr. Henry Heap, the secretary, compared the proposed list with the prices at present paid, and said they had discovered that under the new list they would not receive £1 where they got £1 previously. The adoption of the new list would mean putting hundreds of pounds per week into the hands of the employers. Replying to questions, the Chairman stated that the report given to the Accrington committee was that the proposed list would cause a reduction of 2½ per cent. taken all round in Accrington. They thought that three out of every four looms would lose in the loom clause. After a long discussion a resolution was carried endorsing the action of the Committee in opposing the proposed list, and hoping that they would continue their opposition until more concessions were granted by the employers.

Bacup.

On Saturday morning a breakdown of the engine occurred at Messrs. Barrowlough and Sons, Water-side Mill, which caused a stoppage until Thursday morning.

Part of the foundation of the recently erected size-house of Messrs. J. and J. Hoyle, Meadows Mill, having given way, has necessitated the partial unroofing of the building and the pulling down of part of the walls.

On Saturday last the hands engaged at Messrs. Sutcliffe and Smith's Britannia Mill had tea to-

Notice was given to Mr. Joseph Watson, the masters' secretary, on Thursday, for an advance of 10 per cent. on all blowing-room and female card-room labour, and 5 per cent. on all female labour in the card-room. The application affects 1,200 persons, scattered over North-East Lancashire. A similar application will be made at Burnley.

Mr. Watson, secretary to the Masters' Association of Blackburn, on Monday received a letter from the operative spinners asking him to call a meeting to take into consideration a request for a 5 per cent. advance in spinners' wages. The letter also suggested that an agreement should be made to abide in future by the rise and fall in Oldham wages. In Blackburn spinners are paid both by length and weight, and the request for an advance covers both. There are 2,500,000 spindles and about 2,000 spinners and assistants in Blackburn. From 1878 to 1881 reductions in wages were made to the amount of 15 per cent., but advances of 5 per cent. were made in 1881 and 1888, and now the remainder of the 15 per cent. is asked for.

Burnley.

The annual distribution of prizes in connection with the Burnley Mechanics' Institution took place on Tuesday evening. Mr. J. O. S. Thursby, J.P., presided. The report stated that the subject of technical instruction continues to receive the

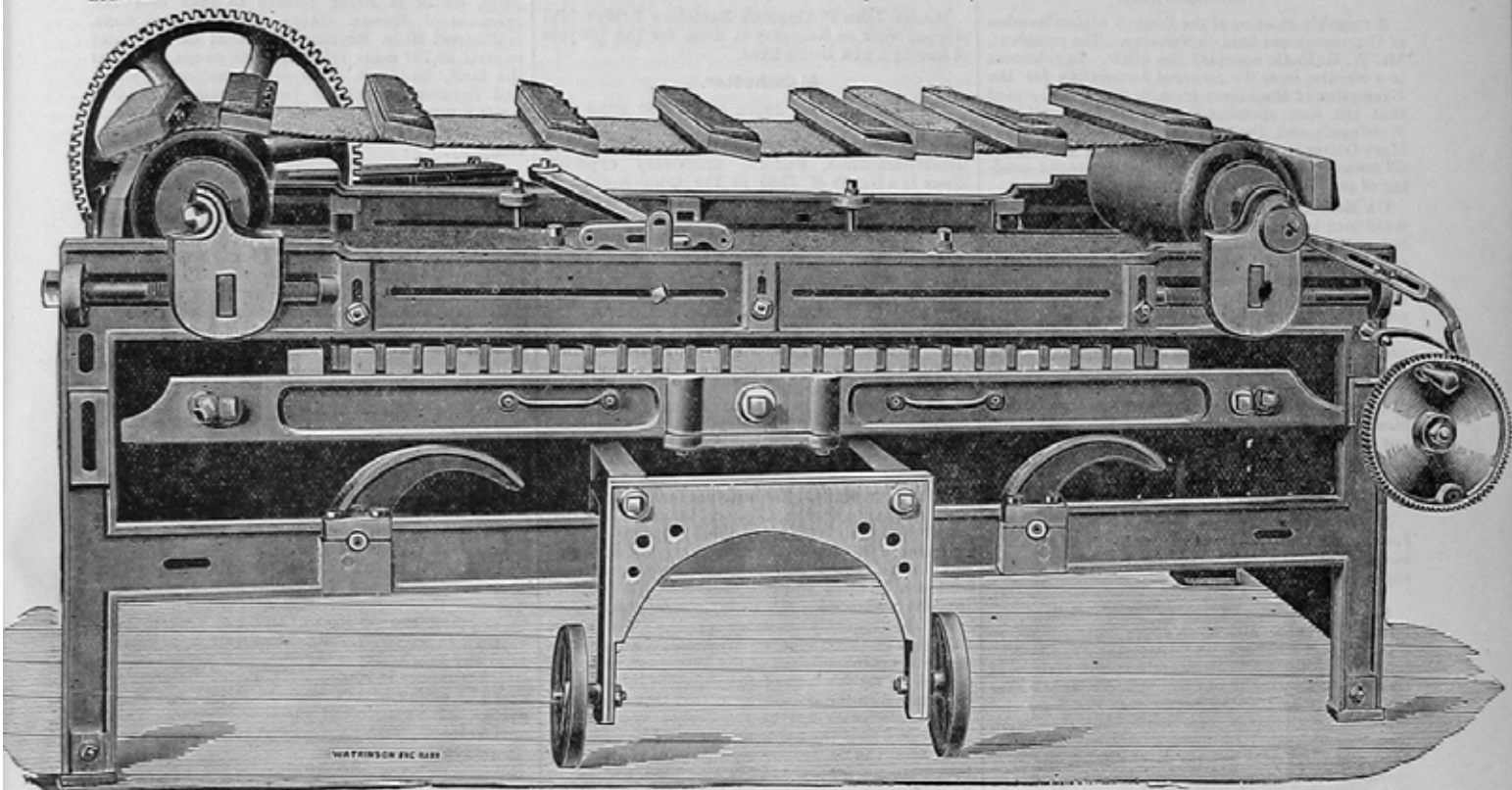


FIG. 2.—SILK DRESSING FRAME.—MR. A. ROBINSON, BRIGHOUSE.

News in Brief,

FROM LOCAL CORRESPONDENTS AND CONTEMPORARIES.

ENGLAND AND WALES.

Accrington.

On Monday evening a meeting of weavers was held here to consider the new uniform list. There was a large attendance, and Mr. D. J. Shackleton, president of the local association, occupied the chair. The Chairman stated that three-fourths of the districts in the Northern Counties Association had reported that there would be a reduction of from 1 to 4½ per cent. by the proposed list. The employers had informed them that they could not see their way to vary their present proposals. They considered that the list as proposed was an advance in wages, but of course the weavers had a right to say the opposite if they thought so. The Accrington representatives had fought hard against the adoption of the list as it stood, and had got every point they could; they had never given a vote for the list, and did not intend to do so as it stood. Many districts which previously voted for the list

together in the Co-operative Hall, and afterwards presented a marble timepiece to their late manager, Mr. Joseph Andrews, who has taken a similar position at Acre Mill, Haslingden. He is succeeded at the mill by Mr. J. H. Rothwell.

The balance sheet of the New Bacup and Wardle Commercial Company for the quarter ending Oct. 31st last, shews a loss in trade at Far Holme Mill of £776 10s. 6½d., and at Kiln Holm Mill of £18 8s. 5½d., making in the profit and loss account a deficiency for the period of £988 8s. There has been expended on plant at Far Holm Mill £427 4s. 4d., and at Kiln Holm Mill for machinery £281 12s. 6d.

Barrowford.

The new weaving shed at Barrowford is nearing completion, and Messrs. C. Atkinson and Co. are stated to have taken space for about 700 or 800 looms, and will in a short time remove their looms here from Victoria Mills, Nelson.

Blackburn.

Probate of the will, dated the 25th March, 1890, of the late Mr. John Fish, of 40, Park Avenue, Southport, retired cotton spinner, who died on the 6th October last, leaving personal estate valued at £90,447 19s. 2d., has been granted to the executors, his sons Mr. Solomon Fish, Mr. Wm. Henry Fish, and Mr. Wm. Sandeman.

attention of the directors. Classes are held in spinning, weaving, and pattern designing, and the results (considering the want of machinery) are most creditable, and compare very favourably with other and better equipped technical classes in the counties of Lancashire and Yorkshire. It is hoped that before long the Corporation will see their way to put into force the Technical Instruction Act Colne.

It is stated that Mr. Walter Bracewell, of the firm of Messrs. Bracewell Bros., manufacturers, Foulridge, near Colne (whose works have been standing some time) is about to restart the Foulridge Weaving Shed. There is room for about 500 looms.

A well-attended meeting of Colne weavers was held on Thursday in the Cloth Hall for the purpose of ascertaining what firms had not complied with the coloured goods list, and what steps should be taken to enforce compliance. Mr. Holmes, chairman of the Northern Counties Association of Weavers, spoke at some length on the question. A resolution was unanimously passed that every firm in the district should comply with the list, or that strikes should take place.

Darwen.

The spinners' strike at Darwen has fortunately been amicably settled, the masters having made a concession to the operatives, which will mean an

advance in the rate of wages. About 20,000 spindles were affected. All the spinners have returned to their work.

Farnworth.

Owing to some defect in the fire alarm arrangement in connection with the sprinklers of Messrs. Thomas Nuttall and Sons' Mill, Long Causeway, the alarm was on Friday night of last week kept sounding for a considerable time longer than the recognised limit for testing purposes. As a consequence our local brigade turned out fully equipped for action, and the town was in a state of excitement for some time. Happily the alarm was false. The above firm are engaged in active negotiations respecting the purchase of Lakefield Mills (late Messrs. S. Hurst and Co.).

Huddersfield.

Messrs. Schofield and Kirk, loom makers and machinists, lost by death a few years ago the only surviving partner. The premises are now advertised for sale.

Harwood.

We are informed on good authority that a new mill will shortly be erected at Great Harwood, the site being near the Pike-road, Lomax-square. A limited company has been formed.—*Lancashire Evening Express.*

Heckmondwike.

A monthly meeting of the Council of the Chamber of Commerce was held on Tuesday. The president, Mr. W. E. Firth, occupied the chair. In reference to a circular from the National Association for the Exemption of Machinery from Rating, it was stated that the hon. member for the Division (Mr. J. Woodhead) and the member for Dewsbury (Mr. Mark Oldroyd) were ready and willing to support all measures taken for furthering the second reading of the bill at as early a date as possible.

On Monday, about thirty operative dyers and logwood men in the employ of Mr. J. H. Spivey, came out on strike. The origin of the dispute was the summary dismissal last week of three men, and, now that the operatives are receiving the assistance of the Unskilled Labourers' Union, a notice has been served upon Mr. Spivey for the reduction of their hours from sixty to fifty-six per week, and an increase of wages of 2s. per week for those in receipt of under £1, and 1s. per week for those paid £1 and over. Mr. Spivey declines to acknowledge the right of the association to dictate as to the men he should dismiss or employ. Thirty-six men have come out, but the works are in operation, twenty-four hands being now employed. The men have posted pickets in the vicinity of the works.

Leeds.

A number of workpeople employed by Mr. Jabez Johnson at Bank Bottom Mills, Bagley, Farsley, have been thrown idle through a breakdown in the engine.

Leicester.

At the Leicester Working Men's College, on Saturday evening, Mr. W. G. Jones lectured, before a fairly large audience, on "Leicester Framework-knitters, 1680-1890." In sketching the history of framework-knitting in our borough, Mr. Jones said that as early as 1560 Leicester was noted as the place where stockings were made, but they were then manufactured by hand, and it was not until 1680 that there was set up in the town the first stocking frame, the well-known invention of the Rev. William Lee, of Calverton, near Nottingham. The trade then greatly increased, and the town soon became known all over the world for its woollen products, thus giving rise to the nickname of its inhabitants of "woollybacks," while early in the 18th century the term "stockingers" was given indiscriminately to all persons engaged in the trade. The family of Pougher was the first to make any great progress in the trade. It was not until about 1800 that the manufacture of fancy hosiery was introduced into the town, although that part of the woollen trade had been carried on for many years in Germany. Mr. Jones referred at length to the hard times experienced by the framework-knitters in 1840, and went on to show that the proposal to introduce steam and improved machinery into the stocking trade, together with new methods of manufacture, was viewed by the old stockingers with great distrust, and that, as a consequence, they combined together to protect their interest. Chartism, which was rampant at that time, appealed very strongly to their sympathies, and they flocked to its standard in great numbers. As an instance of the remarkable growth of the business the lecturer mentioned that in 1844, with a population of just over 50,000, there were 4,000 stocking frames in the borough. At this time so great was the poverty and distress of the operatives in the trade that the Government of the day thought all to send down an inspector to inquire into the

state of affairs, and this had the effect of somewhat remedying matters. Unfortunately, however, a great number of the old stockingers did not take at all kindly to the new invention, and allowed themselves to be entirely pushed out by younger persons. Coming to the trade of to-day, Mr. Jones said any man would be a rash one who predicted a bright future for the framework-knitters. Trouble, poverty, and misery seemed to have been their inheritance, and considering the great difficulties under which they had laboured, it was a wonder they had lived so long. Their present condition was painfully manifest at the tercentenary held last year at the Rutland Rink, when no less than 521 stockingers, all over 60 years of age, were invited to a banquet, and it seemed sad to reflect that at the present time over 50 framework-knitters over the age of 60 were now inmates of the Leicester Workhouse, while many more were employed in winding yarn, which was their occupation when they were children, too young to be entrusted with a frame. An old stocking frame might now be bought for the price of an old song, for one was sold within a stone's throw of that building the other day for sixpence, while another was bought as a curiosity for half-a-crown. He sincerely hoped that some scheme might be found whereby the present hopeless condition of the old veterans might be greatly ameliorated.

Leyland.

Messrs. John Pilkington's Earnshaw Bridge Mill stopped work on Saturday at noon for the purpose of having a new boiler fixed.

Manchester.

The value has been sworn at £55,750 gross and £53,323 net of the personal estate of the late Mr. Ernest Grether, of Mossfield Cottage, Flixton, and Blackfriars-street, Salford, machinery exporter. There is a legacy of £300 to the town council of Schopfheim, Baden, for the advancement of education in technical and chemical branches.

It is with much regret that we have to record the death of Mr. Herbert Birley, which occurred at his residence, Spring Bank, Pendleton, on Thursday night. With the exception of a brief interval Mr. Birley has officiated as chairman of both the Manchester and the Salford School Boards for the past twenty years, in which capacities he has rendered extremely valuable services to the cause of elementary education. The Manchester branch of the Birley family were originally very largely interested in cotton manufactures, and the huge mills in Cambridge-street are still a standing monument to the extent of their undertakings, although the manufacture of cotton goods has long ceased within their walls. The original makers of waterproof garments, Messrs. Charles Macintosh and Co., transferred their business to the Birleys many years ago, and to the development and carrying on of this large undertaking Mr. Herbert Birley, with his brothers, devoted himself, so far as his business life was concerned. Mr. Birley was 69 years old.

At the monthly meeting of the Manchester Chamber of Commerce, on Wednesday, an application was made on behalf of the Manchester Technical School for the loan of the valuable volumes (33 in number) in the possession of the Chamber, prepared many years ago by Dr. Forbes Watson. It was agreed that the application should be complied with upon the understanding that the volumes are to remain the property of the Chamber, and are to be returned whenever required.—It was announced that the "Home-trade Sectional Committee," comprising nearly all the leading home-trade houses in Manchester, had been constituted, and that Mr. Reuben Spencer (Messrs. Rylands and Sons, Limited) had been elected chairman of the committee. The President stated that in accordance with article 14 of the Chamber, Mr. Spencer became, *ex-officio*, a director of the Chamber, and he offered a cordial welcome to that gentleman, who took his seat for the first time.—The following were elected members of the Chamber, *viz.*:—Messrs. Thomas Sykes, James Lamb, John Binns, A. Smith (Clayton), William Marsden (Clayton), Walter Laverton, James Dyson, F. H. Carter, J. H. Whitaker, Albert Kuenemann, N. Z. Giotaoki, Zervudachi Brothers, James Ross, W. B. Adams, and Francis Fletcher.

Nottingham.

The Basford and Nottingham bleachers have submitted a new list of prices to their employers, to come into force on the first of January.

Oldham.

The contract for the building of the Pearl Mill has been let to Mr. Whitworth Whittaker, of Oldham.

The new secretary of the Hathershaw Spinning Company is Mr. Taylor, who is at present acting as under secretary at the Tonge Vale Mill Company.

The directors of the Pine Mill Company have placed an order for six boilers with the Oldham Boiler Works Company, and for economisers with Messrs. Green, of Wakefield.

The Werneth Spinning Company have instructed Messrs. Binns and Company to fix their appliance for the abatement of smoke on their premises.

Messrs. Pollitt and Wigzell, of Sowerby Bridge, have obtained the order for the horizontal tandem steam engines, about 1,400 horse power, required by the Holly Mill Company.

Mr. George Etchells, manager of the Commercial Mills Company, has been appointed manager of the Sun Mill Company, in the vacancy caused by the resignation of Mr. R. Kingert. The Commercial has 62,894 spindles (23,550 T. and 39,344 W.), and the Sun Mill 145,898 spindles (82,062 T. and 63,836 W.)

The directors of the Pearl Mill Company have given out the following contracts in connection with the mill being erected at Glodwick:—Mill gearing and shafting, Messrs. Buckley and Taylor, Castle Ironworks, Oldham; rolled iron, Messrs. Henderson and Glass, Liverpool; cast iron work, Messrs. Joseph Cliffe and Company, Bradford; and wrought iron bolts, etc., Mr. J. W. Brierley, Horsedge-street, Oldham.

The prospectuses of the Hall-street Mills Company, which is being formed to take over the premises of Messrs. Henry Whitaker and Sons, Hall-street Mills, Royton, state that the premises contain 49,722 mule spindles, welt gauge, and that the land, buildings, reservoirs, machinery, plant, and fixtures are offered for the sum of £17,000, while a mortgage of £8,000 to £10,000 at a reasonable rate of interest has been promised to the company.

Preston.

Yesterday week the whole of the hands employed by Messrs. Walker, Moss, and Co., Lostock Hall, came out on strike, but returned to work on Tuesday. Messrs. Walker, Moss, and Co. had notified their intention of stopping 51 looms, and this did not meet with the approval of the hands. The employers state they had been employing a number of tenters, consequent upon not being able to obtain a sufficient number of weavers. The four-loom weavers had therefore been without the assistance of the former, and had not been able to reach the necessary average. This was the reason why they had decided to stop 50 looms, with the intention of making a re-arrangement, and sending the tenters back to the weavers. They did not propose to discharge anyone, but simply to employ the same number of hands on a similar number of looms, and thus increase the average. Mr. Birtwistle, of the Blackburn Weavers' Association, together with the secretary of the Masters' Association, Mr. Rawlinson, had a conference with Mr. Moss on Monday, and the understanding arrived at was that the employers were at fault with regard to stopping the 50 looms, and had broken their contract in so doing. Mr. Moss waived any point as to the machinery being idle, and agreed not to stop any money in future. Mr. Birtwistle promised that the action of the weavers should not be repeated, and a settlement was thus effected. There are 950 looms, with employment for between 300 to 400 persons.

Rochdale.

On Wednesday night the second annual dinner in commemoration of the late Mr. Bright took place in the Town Hall. The Mayor, Councillor W. J. Heap, presided, and was supported by gentlemen representing each political party in the borough. "The Memory of the late Right Hon. John Bright" was drunk in solemn silence.

Yeadon.

The committee of the Yeadon Mechanics' Institute have made application to the West Riding County Council for assistance in the prosecution of their educational work. The committee hope to get such help from the County Council as will enable them to build additional rooms for cloth weaving and designing, and the chemical laboratory.

The monthly meeting of the Yeadon Chamber of Commerce was held on Monday night, under the presidency of Mr. Jonathan Peate. The chairman stated that at the meeting of the West Riding Chambers one obstacle in the way of making a favourable commercial treaty with France was found to be the favoured-nation clauses of the Frankfort Treaty between France and Germany. France was bound to give to Germany whatever favours it gave to any other nation. Messrs. Peate, Murgatroyd, and Brown were selected to act on a Board of Conciliation for the district, and it was agreed to ask the Power-loom Weavers' Association to nominate a similar number.

SCOTLAND.

Barrhead.

Since chronicling in our last issue the stoppage of the Fereneze Printworks, the firm of the Gateside Mill Calico Printworks have likewise resolved upon stopping their works. For the sake of the district, it is to be hoped that the works will not be allowed to stand long.

Paisley.

On Monday afternoon a fire broke out in a two-storey brick building forming part of the works of Messrs. Gibson and Reid, Dyers, Marshall's Lane. The place was used as a boiler-shed on the ground flat and a stove-room for drying dyed garments in the upper flat, the latter being heated by steam pipes. The building was gutted, and the total damage is estimated at about £200.

IRELAND.

Belfast.

On Monday a joint deputation from the Technical School, the Government School of Art, and the Chamber of Commerce waited upon the Finance Committee of the Corporation, for the purpose of suggesting the advisability of placing Belfast under the provisions of the Technical Instruction Act, 1888, with the view of levying a rate for the furtherance of technical and art education in Belfast. The deputation discussed the matter at length, and we understand expressed their readiness that the rate levied should be only a farthing in the £1. This would realise something like £700. The committee promised to give the matter consideration.

Lisburn.

The employés of Messrs. Wm. Barbour and Sons Thread Works, Hilden, have made the treasurer of the County Antrim Infirmary the recipient of the handsome sum of £22 13s. 9d.

Miscellaneous.

SWEATING IN INDIAN FACTORIES.

ADDRESS OF MR. ALDERMAN HENRY HARRISON, J.P.,
PRESIDENT OF THE BLACKBURN AND DISTRICT
CHAMBER OF COMMERCE.

The following is the full text of the address on this subject delivered by Mr. Henry Harrison at the Grimshaw Park Conservative Club, Blackburn, and briefly reported in last week's *Textile Mercury* :—

The necessity for the application of the factory and workshop legislation of the United Kingdom to our Indian Empire has two aspects: 1st, that of humanity towards the working classes of that country; 2nd, that of fairness to British manufacturers and workers, who feel deeply the wrong done to them by the Government of India in maintaining the right of forcing cheap production in that country by the abusive use of the labour of women and children, and by refusing to sanction a weekly rest-day for the working classes.

The principles embodied in the workshop and factory legislation of this kingdom have been recognised as sound, not only by our manufacturing colonies, but, as can be seen by the resolutions passed at the Berlin Labour Conference, also by our Continental rivals. All have either followed or have acknowledged the necessity of following our example and our lines in legislating for the protection of the working classes. If the principles embodied in our factory and workshop legislation are acknowledged to be sound by the remaining civilised Powers in the world, can there be any reason to presume that such legislation is not required for India? Are Indian employers of labour more beneficently inclined and more self-denying than those in other countries where factory legislation has been and is being imposed for the protection of the working classes? When gains are to be made over and above the natural returns of capital and labour by brooking in upon the health of the population, will native-of-India capitalists resist the temptation? The climate of India is far more enervating than that of Europe, the people cannot compare in physique with our Lancashire operatives. They are wretchedly and unwholesomely housed, and poorly fed; can they be expected to work, without harm to their frame, injury to their health, and deterioration to their race, for longer hours than the more able-bodied, better fed, and better housed operative and artisans of this kingdom? If not, what plea can be found for allowing harmful and sinful sweating to continue in the factories and workshops of India, and what plea can be urged against apply-

ing the English Factory and Workshop Act to that country?

Listen to what Mr. Meade-King has to say on this subject. Mr. Meade-King is one of Her Majesty's inspectors of factories. He was sent to India to inspect for six months and report upon the Bombay factories. In his report to the Bombay Government he stated that: "So far as labour is concerned, the India Factory Act protects children under 12 years of age only; a stranger is naturally surprised to find that women and all others over twelve years of age are allowed to work from sunrise to sunset, every day in the week, including Sundays. This means in the winter time about eleven and a half hours, and in the summer nearly fourteen hours' daily labour. One naturally asks whether wives and mothers (supposing their constitutions and minds are capable of bearing this continuous work of a monotonous character) have no home or domestic duties that require attention, or whether the young people should not be allowed some time for recreation or some opportunity of enlarging their ideas by learning something in addition to the one branch of trade in which they are engaged from day to day! The only answer I hear from dissentients is that the workpeople do not want any relaxation, therefore why force it upon them and needlessly strangle the manufacturing industry still in its infancy? The first part of the answer is possibly true. Many of the factory operatives have experienced the horrors of famine, and being now in a position to earn more than ordinary wages, hesitate to run the risk of sacrificing a few annas for a gain of which they know not the value. But it is questionable whether this fear, apathy, or indifference on the part of the Indian factory operatives does not demonstrate more than anything else the necessity of doing something to improve their condition, to elevate them from the degrading effects of excessive monotonous labour to a higher view of their family and industrial life."

In another part of his report Mr. Meade-King laid stress upon the necessity for legally fixing the period in which work was to be taken and the periods for intervals of rest. The Indian Factory Act mentions no time for the commencement and conclusion of even child's labour.

As is well known, it was the omission of such a clause in the English Factory Acts passed previous to 1844 which rendered those Acts utterly useless, and it was the omission of such a clause from the Indian Factory Act that still enables manufacturers in that country to work little children between seven and twelve years of age for fourteen hours a day in close, badly-ventilated factories, in the sweltering heat of the Indian summer. That this omission of fixed work hours from the Indian Act is generally taken advantage of by Bombay manufacturers is laid stress upon by the factory inspectors in India, and is evidenced by the Report of the Bombay Factory Commission of 1884. This Commission, which was largely formed of members of the Bombay Millowners' Association, reported that:—

"The only way to enforce the statutory limitation of nine hours for child's labour not being exceeded is to fix a period of employment for such. It is quite evident that on visiting a mill, say at six o'clock in the evening, it would be impossible for an inspector to say with certainty whether a child, then working, had been employed only the prescribed nine hours in the twelve or thirteen hours that the mill had been running. If the law has hitherto been obeyed, such is ascribable more to the willingness on the part of the owners and managers than to the effect of supervision. We may, however, conscientiously say that we fear children may have worked full time."

It is hardly credible, gentlemen, but it is a fact that, in face of this Report, the Legislative Council of the Viceroy of India in the projected Amendment of the Indian Factory Act, which was under the consideration of the Council early this year, omitted this clause for fixing the period for work and intervals for rest altogether from the Bill. The Act without this clause must have proved as unworkable and useless for the protection of the operatives as the present Act. The Medical Commission appointed by the Government of Bombay to report on the condition of the operatives in 1884 gave their opinion very clearly as to the necessity of fixing the period for work. They stated in their report as follows:—

"We think it very desirable that the daily working hours of these mills should, both in the interest of the general health of the operatives, and with the view of preventing accidents from working in rooms insufficiently lighted, be defined by law; and further, in the interest of the general health of the operatives, it should be compulsory to allow certain periods of rest in the day, and a certain fixed number of holidays, say four per month. Lastly, we have to state that we are of opinion that the present limit of age for children, seven to twelve, is

too low. We think that the lower limit should be raised, as in England, to ten. The upper limit, we think, ought also to be raised, say, to fourteen."

Factory work is not so easy for women and children as Indian manufacturers say it is. It strains both body and mind. Ten hours a day is as much as the most vigorous women can endure, and five hours a day is quite enough for young persons of from ten to fourteen years of age. If they have to work longer time than this their powers of endurance are over-taxed, their health is undermined, and the proper development of their physique is prevented. This fact is well known to all who have any acquaintance with factory operatives in England. Will any one be induced to believe that hours of labour which are too long for women and young persons in Lancashire and Cheshire can be endured without serious and permanent injury to their health and strength by the women and children in India?

The evidence collected by the various Select Committees in this country, and by Factory Commissions which have sat in India and England to consider the hours that should be worked by women, young persons, and children in a factory, is simply overwhelming and conclusive in favour of all the provisions which are contained in the English Factory and Workshop Act. No further evidence can possibly be required. Yet, so darkened and perverse are the minds of the Legislative Council of the Viceroy of India, that they prefer to shut their eyes to all this testimony, and to similar testimony given by Government of India Factory Inspectors, Medical Commissions, and Sanitary Officers, and hope, in order to force cheap manufacture in India, to shake the confidence of intelligent men in the laws of nature, and to over-rule the force of the highest authorities by asserting as gospel a lot of palpable untruths which have been foisted upon them by Indian mill-owners and mill-agents, whose interest it is to wring all the work they possibly can out of the Indian mill-hands.

In their letter to Lord Cross, dated Calcutta, March 5th, 1889, the Government of India assert that "the English Factory Acts are inapplicable to the present conditions of labour in Indian factories;" and they give their reasons for this assertion as follows:—

Firstly. "It is a well-attested fact that the employés in Indian factories reach a standard of comfort and content which is not attained by persons in their own rank of life who are engaged in pursuits of a different nature."

Let us see what Mr. Meade-King has to say on this subject. In his report, referring to women, he says:—

"If the women seen working in the mills are compared with those of the same race and class working outside the mills, a very marked difference in favour of the latter cannot fail to be observed."

Referring to children he says:—

"Nothing has impressed me more in the course of my inspection of the Bombay mills than the unhealthy, stunted, and puny appearance of a great number of the children whom I have seen at work."

It may be true that the operatives in India are better clothed and better fed than non-factory workers of the same race. Better clothing is certainly required for Indian factory children, if what Mr. Meade-King says of their having to lie about for an hour and more in the chilly night air waiting for the doors to be opened at dawn is true. But this in no way proves that overwork in the factories is not a serious evil and highly detrimental to the operatives. Take what Mr. Robert Owen, formerly of the Chorlton Mills, Manchester, had to say upon the effect produced upon his factory apprentices at the Lanark Mills, near Glasgow, by eleven and a half hours a day work. He stated before a Select Committee of the House of Commons in 1816 that:—

"The hours of work at that time were thirteen, inclusive of meal times, and an hour and a half was allowed for meals. I very soon discovered that, although those children were extremely well fed, well clothed, well lodged, and very great care taken of them when out of the mills, their growth and their minds were materially injured by being employed at those ages within the cotton mills for eleven and a half hours a day. It is true that those children, in consequence of being so well fed and clothed and lodged, looked fresh, and to a superficial observer, healthy in their countenances; yet their limbs were very generally deformed, their growth was stunted. . . . I adopted regulations to put an end to a system which appeared to me to be so injurious." Mr. Owen strongly urged before the same committee that children between ten and twelve years should only be employed half time, and he recommended that ten hours should be fixed as the full time for actual employment of all persons over twelve years of age. Would it not be well for the Government of India to appoint a surgical com-

mission to inquire into the effect of factory work on the frame of the operatives who are working in the Bombay mills? Some horrible disclosures would certainly be made.

Secondly. The Government of India stated that: "Machinery, moreover, is, owing to the comparative absence of competition, driven in the factories of India at a pace so slow that it would not be tolerated in England."

This statement is dead against the evidence given before the Bombay and Lancashire Cotton Spinning Inquiry. Before that Inquiry Mr. Greaves stated that in his Bombay mills spindles spinning 20's each turned out 5.49 ounces in a day of eleven and a half hours, or about .6 hank an hour, against .55 hank turned out by a spindle spinning the same count at Oldham. Mr. Miller's evidence before the same Inquiry likewise proved beyond doubt that in Bombay spindles run at least as quickly as they are run in England. This statement of the Government of India is therefore contrary to the facts of the case.

Thirdly. The Government of India stated that:—"In many of the mills in India about twice as many operatives are employed as would be employed in mills of the same capacity in England. It follows, therefore, that the work of an operative in an Indian factory is far more desultory and less exhausting than that of an operative working in England, and that provisions which are rendered necessary by the exacting nature of the labour in English mills are not demanded in the interest of the Indian operatives, who would indeed be prejudicially affected by them, while they would impose a needless and uncalled-for obstacle to the development of the industries of India."

The reason why double the number of operatives are required in India than are required in England to attend to the same number of spindles and looms must be evident to anyone who is aware of the long hours which are worked by Indian operatives. An operative fatigued in mind and body by long hours and insufficient rest cannot be expected to be so active in movement or as quick in tenting as one who has not had his powers deteriorated by overwork. India is not the only place where more operatives are necessary than are needed in England for turning out the same amount of work in the same time. The rule applies everywhere, and examples in proof of it can be found in any factory where the operatives are overworked on the Continent.

The statement of the Government of India is, moreover, absurd on the face of it. Nothing can be more certain than the fact that Indian manufacturers, who care so little for the operatives as to illegally work little children of seven years of age for fourteen hours a day, will get all the work they possibly can out of every mill-hand in their establishment; and it is equally certain that they would dismiss any overseer who so far neglected his duty as to allow the operatives to neglect their work or to idle about the premises. These sordid and unfeeling manufacturers would certainly never, out of kindness to their own hands, employ a single hand upon their establishment who was not absolutely required. This plea of the Indian operative's work being far more desultory and less exhausting than the work of his fellow operative in England will not hold water for a second. It has not a semblance to truth in it. The whole of the contentions raised by the Government of India are, therefore, proved to be baseless. They are in fact simply fabrications of the mill-owners, bolstered up by the Indian Government, in order to deter the Secretary of State for India from insisting upon the provisions of the English Factory and Workshop Act being applied to India for the protection of the working classes in that country. There is not a ghost of a reason why the English Factory and Workshop Act should not be applied with all its provisions to our Indian Empire. If justice to England and humanity to India are rightly considered, there is every reason in the world that it should be so applied.

We will now see what provisions were entered by the Government of India in their Amendment to the India Factory Act, and compare them one by one with those of the English Factory and Workshop Act. In doing this we must, however, remember that the limit of age for the first employment of children has been fixed by our delegates to the Berlin Labour Conference at twelve years.

At the Conference, speaking in the name of that Delegation of Great Britain, Sir John Gorst, the Under Secretary of State for India, said:—"The delegates of Great Britain are of opinion that the Conference should not take on itself the responsibility of admitting that the limit of age, for the work of children in southern countries, be fixed at ten years. The limit of twelve years has been generally adopted by the Conference in consideration of the demands of

the physical, moral, and intellectual development of children."

The Government of India in their Amendment to the India Factory Act proposed to admit children to work at nine years of age, or three years earlier than was allowed by our delegates at the Berlin Conference. In England no child under thirteen years of age who has passed the fourth standard, and no child under fourteen who has not passed that standard of education, is allowed to work more than five hours a day, during five days in the week, and for more than three and a quarter hours on Saturdays, making twenty-eight and a quarter hours a week in all.

The Government of India proposed that children from nine to twelve years of age, whom our delegates at Berlin considered should not be allowed to work at all, shall be allowed to work for nine hours a day, and be allowed only four days' holiday in the month. If two of these holidays were taken together, these children would be liable to work sixty-three hours a week. That is, the Government has proposed that children of nine years of age in Indian factories shall be allowed to work six and a half hours longer than full-grown men work in England, and for six and a half hours more than double the time children up to thirteen or fourteen years of age are allowed to work in England.

In England young persons of both sexes between the ages of thirteen or fourteen and eighteen are restricted to working ten hours a day for five days in the week, and to six and a half hours on Saturday, in all to fifty-six and a half hours.

The Government of India proposed that lads from twelve years of age upwards should be left without any protection. Lads from twelve to fourteen would therefore be compelled to work for ninety-eight hours a week during the hottest time of the year, or for nearly four times the number of hours which lads of that age are allowed to work in England. Girls from twelve to fourteen were to be allowed to work for eleven hours a day, or, if a holiday did not intervene, for seventy-seven hours a week, whereas girls in England up to thirteen or fourteen years of age are restricted to twenty-eight and a quarter hours a week.

In England women are restricted, in the same way as youths, to fifty-six and a half hours a week; whereas in India they were to be allowed to work for eleven hours a day, or, if a holiday did not intervene, for seventy-seven hours a week—more than twenty hours longer than women are allowed to work in England.

In England the period of work for women and young persons must be taken either between six a.m. and six p.m. or between seven a.m. and seven p.m., and at least two full hours must be allowed in that time for meals; and no woman and no young person under the age of eighteen may be employed continuously for more than four and a half hours without an interval of at least half-an-hour for rest. The Government of India proposed no period in which the work was to be taken, and merely allowed one hour's rest, and that only for women and for children under twelve years of age. Working fifty-six and a half hours a week, men, women, and young persons in English factories are allowed ten and a half hours for intervals of rest; working ninety-eight hours a week in India, lads over twelve years of age were to be allowed to continue working as at present, with barely a quarter of an hour's rest a day, or with only one and three-quarter hour's interval for rest in the whole ninety-eight hours. In the seventy-seven hours women and girls were to work, intervals amounting to only seven hours in all were to be allowed; and little children between nine and twelve years of age were only to have the same period of rest in their sixty-three hours' labour.

The Act as proposed by the Government of India was altogether atrocious. It was not only framed so as to make its provisions palpably unworkable, but it afforded no protection whatever to men, women, and children now being sweated to death in the filthy dens called workshops, which have been so vividly described by the factory inspectors in India, and which are more horrible and unwholesome than the mouth of man can express. Ample evidence was given before the Bombay Factory Commission of 1884 to enable the Government to be aware of the necessity of protecting their inmates. Yet no protection was to be granted to them by the Amendment to the Act. The minor factories working less than four months in the year, where women and children are being worked for eight and ten days, day and night together, until they drop with fatigue, and have to be replaced with fresh hands, are likewise left without protection, notwithstanding that the Bombay Factory Commission of 1884 strongly urged that they might be included in the Act.

I was simply horror-stricken when Mr. Holt Hallett brought the facts of the case before the

Blackburn and District Chamber of Commerce at its last annual meeting. My Chamber was equally moved, and agreed with me that we should take immediate action by pointing out the iniquity of the intended amendment to the India Factory Act to the Secretary of State for India. We accordingly did so, and entreated him that the provisions in this wicked Bill should be further considered, and that the humanity which has been meted out to the operatives and other working people of England might not be refused to their fellow-subjects in India. Lord Cross, I am glad to say, took immediate action in the matter. The passage of the Amendment was stopped, and the resolutions of the Labour Conference at Berlin were forwarded to the Government of India as a guide in framing their new Act.

The Government of India is still tinkering with the Amendment of the Act, and is endeavouring to manufacture a case against imposing upon Indian manufacturers the provisions sanctioned by the Berlin Labour Conference. The mill-owners have been striving their utmost to instil into their ignorant operatives the belief that all restrictions must necessarily be harmful to the operatives as well as to the manufacturers. They have been doing this for months. Now the Government of India has appointed a Commission of native gentlemen with provincial delegates to enquire into the views and requirements of Indian operatives with reference to the restriction of labour in factories.

The value of the evidence of a native as to how long he should be allowed to work his wife and children in factories and workshops must be simply nil. If he had his own way, as he has in the cotton gins and presses, he will work them until they can work no longer, until they are so wearied and jaded that no amount of beating could keep them at work for a moment longer. Even the evidence of the men about themselves, as has been pointed out by Mr. Meade-King, will in all probability be valueless. They require to learn by experience before they can know the value of better things than money. Already they have learned that a weekly day of rest is highly desirable for themselves, and they clamour for it, and ask that the time for commencing and concluding their work may be fixed by law. They say that no Indian mill should be allowed to commence work before half-past six in the morning, nor remain working after sunset. They beg that their wages may be paid regularly and not, as is frequently the case, a month and a half and two months after the week in which they have been earned. None of these matters have been attended to in the Amendment to the India Factory Act. All of them form great grievances. What would the people in our manufacturing districts think if they were paid by the month and then a month in arrears? Such a mode of payment forces the operatives into the clutches of the money-lenders. The only benefit that such a practice can give to the manufacturers is that it enables them to draw the interest of the money that is owing to the operatives. The proceeding is simply infamous. It is only defended as the custom of the country. If the operatives are not strong enough to combine together to resist such an unreasonable custom the Government ought to come to their aid with legislation.

All the evidence that common sense can desire as to the necessity of applying the provisions of the English Factory and Workshop Act to India has long since been accumulated. Any further frittering away of time is senseless. Any further delay is absolutely criminal. Lord Cross is leaving the choice of the provisions to be entered in the Amended Indian Act entirely to the Government of India. He has refused to lay the Amended Act before our Houses of Parliament previous to its being passed. Any negligence through the omission of necessary provisions from the Amended Act, any miscarriage of justice to Lancashire operatives, must, therefore, be laid to the charge of the Government of this country, and as far as such neglect affects the interests of our manufacturing districts by giving Indian manufacturers an unfair field for competition with our home industries, our Government must be held accountable for it. Either the English Factory and Workshop Act must be enacted in India, or the India Factory Act, as amended, must be passed in England.

No subject can be more important than this is for the manufacturers and working-classes of Lancashire. We ask our Government for a fair field and no favour. We have already lost our coarse yarn and coarse piece-goods manufacture to India. The mills in the Rossendale Valley and elsewhere have been closed and thousands of operatives have been thrown out of work owing to the wicked system of sweating the operatives being allowed to grow and continue in India. I ask you all to aid me to the utmost of your power, by educating your comrades and petitioning the Government, to put a stop to a

system which is not only highly detrimental to the people of India, but most unfair and injurious to our Lancashire textile industries.

DISCUSSION ON DAMP IN COTTON AT OLDHAM.

At the monthly meeting of the Oldham Chamber of Commerce on Monday evening (Mr. J. Lees presiding), Mr. A. Emmott, J.P. (of the firm of Messrs. Emmott and Sons, Limited, spinners and manufacturers), introduced the question of the dampness in cotton, about which he said they knew there was a great deal of discussion this year.

He was perfectly convinced that if the spinners stuck together and were determined to do something, they could do something. The Liverpool people were strongly under the impression that, independent of the large supply of cotton and the financial difficulties, the trade was further depressed by the fact that the spinners were reluctant to take up the cotton they were going to spin until the very last minute. He had had a very good chance of seeing how arbitration on this question was dealt with at Liverpool, and it was most unsatisfactory to the spinners. He believed from his experience of the directors of the Liverpool Cotton Association that they were men anxious to do their duty and trying to be as fair as possible. They could not get over the fact, however, that there was a large amount of damp in cotton, and by the putting of their hands in the bales, as was the custom, he contended they could not ascertain anything like a correct idea of the amount of moisture. Until they got scientific tests they would never do any good in the matter. There was no doubt there were great difficulties in the way. The difference in the damp in cotton between this season and last was 5 per cent., and no merchant could afford to pay the 5 per cent. out of his own pocket. He did not believe the talk about the Americans pouring water into the cotton, and he thought the damp was more due to the wet seasons and inadequate shelter for the cotton after it was picked. At a meeting that day of the directors of the Liverpool Cotton Association a letter was read from the United Spinners' Association and another from the merchants, representing the two opposing poles of thought, asking for a committee to be appointed, representing both parties, to consider the question. They selected four merchants, two buying brokers, two selling brokers, four spinners, the president and vice-president of the association, and they were to meet and try to discover some way to come to a more satisfactory settlement of the question. He directed the attention of the Chamber more particularly to arbitrations, and pointed out the advisability of spinners appointing spinners as their arbitrators. He said that $8\frac{1}{2}$ per cent. was generally the loss, but he thought that this year the average would be much more like 12 or 13. Anything beyond $8\frac{1}{2}$ per cent., was considered excessive damp. It was important that they should have some rule, as he thought some difficulty would arise as to whether the maximum of damp to be allowed was to be fixed on the average of seasons or each season was to be taken by itself. For instance, this year they might have it fixed at 12 per cent., whilst last year they might have had it fixed at from $8\frac{1}{2}$ to $9\frac{1}{2}$. If cotton had 10lb. of dampness per bale they could reject it, but very few arbitrators would admit the 10lb.—The Chairman: It is a very important question, and a very difficult question.—Mr. Henthorn (chairman of the Cotton Buying Company) said they knew that a great number of the cotton spinners had not an opportunity of examining the cotton until it got to the mills, but those who bought cotton in America had every chance of ascertaining the amount of moisture. No spinner in Oldham, he thought, would dream of buying cotton and getting $\frac{1}{4}$ d. or $\frac{3}{4}$ d. less than the real value on account of the damp. Immediately he found there was damp in it he would pass it by.—Mr. Emmott said that spinners who bought cotton at the present time and meant to get it dry had to pay a premium on it above the present price of futures.—Mr. G. B. Taylor said that no doubt the dampness of the present cotton was regulating the price of futures.—Mr. J. Prestwich asked, Why should they have the right to tender damp cotton when the purchase was made for *bona fide* proper conditioned cotton.—Mr. Emmott said that if people bought futures last August he thought they would have a good claim, but if people bought now they did so more or less with their eyes open.—Mr. J. R. Marland thought Mr. Emmott had done a good thing in the mentioning damp in cotton. His opinion was that if the Manchester Association had

of it. Up to now Liverpool had had all their own way in the arranging of contracts, and it was difficult to make a contract and get all they contracted for. His idea was that the Chamber ought to take an interest in getting up a contract for the trade to buy in accordance with, and until something of that sort was done he thought there would be a great deal of trouble.—The Chairman thought that Mr. Emmott's idea that spinners should form part of the arbitration board on the question of damp in cotton was a very good and fair one. On the motion of Mr. Henthorn, the question was referred to the Home Trade Committee.

We give this rather lengthy abstract of the meeting of the Oldham Chamber because therein the discussion is placed in a fair light and speaks for itself. We only wish to make one observation on Mr. Marland's suggestion re cotton contracts. It is that the whole subject of commercial contracts requires reformation. They are generally drawn up by one of the parties to them, who takes good care that they shall be drawn in his interest, and blindly and unthinkingly they are accepted by the other, who generally cries out without avail when the shoe begins to pinch. For the sake of all parties there ought to be drawn up the most carefully worded and equitable contracts not only cotton, but for yarn and cloth, all understandings relating to which are very loose. What are our Spinners and Manufacturers' Associations doing that this has not been seen to long ago?

SHIPLEY TECHNICAL SCHOOL.

The inauguration of a new society in connection with the Shipley Technical School, to be called a "Textile Society," took place on Tuesday evening at the schools. The society has been established for the banding together of the members of the textile department of the schools and others engaged in textile processes, for the reading of essays and discussion of matters relating to textile fabrics, processes, and materials. The society will also provide journals and books of reference for the members. Mr. M. Sowden has been appointed president, Mr. H. Mason and Mr. K. Fletcher have accepted the position of patrons, Mr. Wm. Dobson is treasurer, and Mr. F. Bradbury has been appointed secretary. The society already numbers nearly seventy members.

The inauguration on Tuesday evening took the shape of a conversation. One of the textile rooms had been converted into a museum, another was set apart as a coffee-room, and a third was devoted to the purposes of a lecture and concert room. Each apartment was very tastefully decorated. The museum contained a very interesting collection of fabrics, pictures, drawings, designs, and other things illustrative of the textile industries. Amongst the most noticeable things in the room were Descomps' excellent painting of an old loom (the picture being kindly lent by Mr. John Mađoocks, of Bradford); Mr. E. Renard's paintings of an old loom and of the process of hand-combing as illustrated in the Saltire Exhibition of 1887, (these being lent by Mr. W. E. B. Priestley); and a series of twenty-six beautiful photographs illustrating the various processes of spinning, kindly presented to the schools by Messrs. Prince Smith and Sons, of Keighley. There were also a number of choice examples of art needlework, lent by Messrs. R. N. Havers and Co., of Bradford; samples of woollen broadcloth woven for the exhibition of 1862, and pretty designs of cloths prepared by Mr. Wm. Bottomley for the great exhibition of 1851. These obtained a gold medal at that exhibition, and it was stated that they were the first flounces made in the Bradford trade. Specimens of silk and wool fibres were shewn under the microscope, and there were innumerable designs and manufactured goods, chiefly borrowed from the Yorkshire College at Leeds. Amongst the things which attracted the close attention of the visitors were the patterns woven by the students of the school for the City and Guilds of London Institute examinations, and the designs for needlework shewn by Mr. Hart, one of the past students of the school. Much interest was centred in the machine-room, where the machines were shewn in motion. Among them were two of Mr. George Hodgson's exhibition looms; a jacquard loom specially adapted to the purposes of the school by Messrs. Sowden; a second jacquard loom by Mr. Flather, of Bradford; and a third loom by Messrs. Leeming; and hand-looms by Messrs. J. and J. Oldfield. Samples were shewn of the work done in a new process of experimental weaving now in use by the classes.

temporary concert-room. Several members of the Board of Governors of the Salt Schools were present. Mr. E. Renard, art master, introduced the president of the society (Mr. M. Sowden), and in doing so paid a tribute to the ability of the teacher of the textile classes (Mr. Aldred F. Barker), whose credentials, he said, from the Yorkshire College were sufficient to assure the success of the textile department of those schools. He was satisfied that this new movement would tend to promote the welfare of the town and trade of Shipley. (Hear, hear.) That institution seemed of late years to have been under a cloud, but now the cloud seemed to be lifting, and there were signs that the Technical Schools of Shipley would become an institution worthy of the founders of Saltire. (Applause.) Mr. Sowden then addressed the assemblage, assuring the students of his sympathy and support. He believed this new society would be of benefit to the town. (Hear, hear.) A long programme of music, etc., was afterwards gone through in good style. Mr. A. F. Barker cast upon a screen a number of lantern views, lent by Professor Beaumont, showing textiles exhibited at the Paris Exhibition. The proceedings appeared to give much satisfaction to the large number of people who attended the inauguration.

STARVATION WAGES IN THE UNITED STATES.

In a recent issue of *The Textile Mercury*, we had occasion to deal with a disingenuous attempt on the part of a New York newspaper reporter to represent that Messrs. Reixach and Watson, directors of the great Manningham firm of Lister and Co., Limited, had stigmatised the earnings of English textile workers as "starvation wages." This constant harping in America on European "pauper labour" and "starvation wages" comes with an ill grace from a country about which such facts as those given below can be told. They are extracted from a memorial presented in the Washington Senate, on September 3rd, 1890, by Senator Plumb, of Kansas, for the protection of women and children employed in the mills and factories throughout the United States:—

In the cotton and woollen mills of Pennsylvania, New York, and the New England States women and children work at from 35c. (1s. 5½d.) to 75c. (3s. 1½d.) a day; their day's work consists of ten hours; hence at 8½c. (1½d.) to 7½c. (3¼d.) an hour. According to the census of Massachusetts of 1885, 23 per cent. of all persons employed in the cotton and woollen mills receive only 2 dols. 10c. (10s.) to 4 dols. 50c. (18s.) per week even when attending to from two to three looms each. Families in these afore-mentioned States falsify the entries in their family Bibles, so as to enable them to put their children earlier to work than the law permits, being unfortunately forced to resort to these means in order to be able to meet current living expenses. The President of the Women's National Industrial League was appointed by the Chairman of the Senate Committee on Education and Labour to investigate the status of the working women in this country, and she has also for years past carefully watched the abuses of these corporations, and from actual facts and statistics gathered appeals to your honourable body to protect these unfortunate women and children. Immediately after the passage of the Tariff Bill in the House on May 21 last, when a bountiful provision of an advance of 50 per cent. on the *ad valorem* duty was granted to the cloak manufacturers, they, on the 5th day of June, notified their women workers that their wages would be reduced 25 per cent. Receiving themselves an advance of 50 per cent. *ad valorem* on existing rates, decreasing in turn their women wage-workers' pittance to a further reduction of 25 per cent. seems like grinning mockery and wanton cruelty. The silk weavers of Bethlehem, Pa., have been notified by their employers that a reduction of 40 per cent. of their wages has been decided upon; they for self-preservation were obliged to strike. These silk ribbon manufacturers have also been liberally provided for with an advance of 20 per cent. by the House and Senate on their goods; receiving a bounty of 20 per cent. extra and asking these white slaves by this reduction of their wages virtually to contribute to their employers 40 per cent. from their already scant wages seems almost inhuman. Your memorialists also respectfully submit to you the fact that women in New York city are making a boy's jacket for 15c. (7½d.), in fact a whole jacket for the price of two loaves of bread, and a pair of pants for 12c. (6d.) Women finishers in the woollen mills in Pennsylvania, according to the Pennsylvania annual report of the Secretary of Internal Affairs for 1888,

grown women—women spinners 71c. (2s. 11½d.) a day, women spoolers from 42c. (1s. 9d.) to 64c. (2s. 8d.) a day, women weavers 40c. (1s. 8d.) to 90c. (3s. 9d.) a day, the latter sum being paid to experts only. In the knit goods factories women, not girls, receive only 55c. (2s. 3½d.) a day for winding spools; women spinners 50c. (2s. 1d.) a day, yarn twisters 63c. (2s. 7½d.) a day. Girls at work in Pennsylvania in the shoe and boot factories receive 50c. (2s. 1d.) a day. In the textile fabric factories the women spinners and spoolers receive from 47c. (1s. 11½d.) to 55c. (2s. 3½d.) per day, and the winders 66c. (2s. 9d.) a day, while the dressers of woven textiles receive only 43c. (1s. 9½d.) a day. The chief of the Bureau of Statistics of Labour of Massachusetts in his 20th annual report, 1890, on page 570, states that 391 female children from 10 to 13 years of age are employed in the factories of that State, and that 69,807 girls of ages from 14 to 19 years are doing factory work. Considering that out of the 114,223 girls of ages between 14 and 19 years in the whole State of Massachusetts 69,807 girls are factory girls, or over 61 per cent. of the whole girl population of that age, it seems almost incredible, but the facts presented are official. In volume 2, page 215, of the Massachusetts census for 1885 the following startling confession is recorded: "During the year ending June 30, 1885, 15,538 women were furnished with work home, and the amount paid to these women for the whole year was 514,662 dols., or at the average of 33-10 dols. a year of 312 working days, equal to 10½ cents. a day."

JAPANESE TEXTILE IMPORTS.

From a report just sent home by our consul at Tokio, we learn that the import of cotton yarn into Japan declined, during the year 1889, to the extent of £244,065 in value. This large decrease took place chiefly in the import of cotton yarn from Bombay. The comparative figures, showing the consumption of Bombay and English yarns during the years 1889-88, as follows:—

Articles.	1889.	1888.
Bombay Yarns	26,504,800lb.	26,564,000lb.
Bombay "	25,489,200	31,888,000

An increase has taken place under the following heads:—

Turkey reds	£23,966
Velvet	17,171
T-cloths	7,229

While a decrease is observable in shirtings to the large amount of £117,510; in chintzes to the amount of £8,011; and in the sundries to that of £93,372. The chief items under this general heading, with the exception of flannel and blankets, shew a considerable falling-off, the decrease being in the case of

Mousseline de laine ..	£117,617
Italian cloth	49,475
Woolen	72,659
Sundries	39,323

An increase has taken place in the import of flannel to the value of £61,930, and in that of blankets to the value of £17,455.

THE cotton spinners of Japan are again complaining that the import duty on the raw material makes it very difficult for them to work profitably, and another petition to the Ministry of Agriculture and Commerce for the abolition of the duty has been presented. The duty is 39-8 sen per picul on ginned and 35 sen on unginned cotton. Commenting on the movement, the *Japan Herald* observes:—"Considering the question from the basis of the import duty received last year—yen 203,000,—the repeal of this duty will, of course, tend to cheapen imported cotton, which would be of great advantage to spinners, but then this will affect the price of the home product. Assuming that Japanese cotton has a falling off of 40 sen per picul in price on account of the repeal of the duty, it will make the total loss yen 370,000, gauged by the produce of last year—932,857 piculs. Therefore, should their petition be allowed, the producers of cotton will lose something like yen 370,000, while spinners will gain yen 200,000. It may be and is no doubt true that their lot is a hard one, yet, comparing the rate of profit obtained by them and by producers, theirs will be found the better of the two. For the last two years they have declared dividends ranging from 5 to 17 per cent., besides putting away a stipulated quantity as a reserve. But in Osaka, one of the chief cotton producing districts, where the profits are larger than elsewhere, it only amounts to 4-59 per cent., hence an idea can be obtained of what it must be in other localities. For these and other similar reasons the petitions have been refused." The *Herald* is in error as regards the saving to the spinners in the event of the duty being

abolished. They would not only save the duty on the imported cotton, but the amount of the fall in the price of such proportion of the home-grown cotton as they consume.

THE PROPOSED NEW SPANISH TARIFF.—The report of the Tariff Committee has now been made public. The changes proposed are numerous and sweeping, and are of a strongly prohibitionist character throughout—in some cases the increased rates proposed reach 200 per cent.

"FIRST PRINCIPLES" IN CHINA.—The Hankow correspondent of the *North China Herald*, writing on September 15 says: I was chatting one day with my boatman in crossing the river. "I hear," said he, "they're going to build a railway to Peking, and a bridge across the Yangtze." "What would you think of that?" I inquired. "It would be bad," said he, "all the carters and the boatmen would be thrown out of employment." I told him something of the effect of railways in other lands in stimulating general business, and spoke of the general weal of the country. "Oh," said he, "the country is the country, but I am I, and it would take away my bread." I asked him his ideas about the cloth factory. "Ah, that is good," said he, "I'll get my cloth some cash a foot cheaper." "Well, but the cloth spinners out here will be thrown out of employment." "True," said my honest friend, "but they are they, and I am I!"

QUERIES.

WORSTED DYEING ABOUT MANCHESTER.—I should be glad if you would kindly inform me, through the medium of your valuable paper, if there are any worsted dye-houses in or near Manchester, and where situated.—YORKSHIRE.

ANSWERS TO CORRESPONDENTS.

YORKSHIRE (Halifax).—We do not know of any worsted dye-houses about Manchester. If our readers know of any, we should be glad of the information.

T. L. (Pandleton).—The red dye of the pattern enclosed is not Turkey red. Try the following firms as very likely to do the work: Mr. Isaac Bury, Adelphi, Salford; Mr. John Walton, Collyhurst; Messrs. Kerr and Hoegger, Miles Platting.

Textile Markets.

COTTON.

MANCHESTER, FRIDAY.

The movement for an advance of wages, as might be expected, is spreading throughout all the spinning districts. The Operatives' Associations of Bolton and Blackburn have followed that of Oldham in making this demand. As all the others are governed by one or other of these towns, the demand may be regarded as practically general. It is based on the large and alleged profitable margin between cost of production and current selling prices. This margin, however, is entirely obtained by the recent rapid fall in the prices of cotton, and spinners having been able, owing to their heavy engagements, to resist all attempts to obtain reductions in their rates, have what appears to be a very profitable trade. This, however, is not yet realised, as they are working off old contracts with cotton purchased at old prices to cover them. Sales on their current quotations, which would yield the alleged great margin, are few in number and amount, and hence the alleged profit is at the moment little better than an intangible quantity. It is certain that before much business is done spinners will have to make large concessions. Whether, however, these will be so great as to preclude them from complying with the demands of their workers, necessarily remains to be seen. The continued decline in prices has probably been largely promoted by the appearance of another important factor, namely, the financial crisis, which has and probably will continue to affect cotton prices for some time to come. This matter is treated at length in our leader columns.

COTTON.—There has again been a small demand for cotton throughout the week, some of the abstinence exercised by spinners having no doubt been induced by the unsettled state of the money market. Futures, of course, are the best barometer of the market, and these shewed on Friday and Saturday a quiet, yet moderately steady state. The revelation on Monday of the great danger the country had just passed through created a temporary scare, futures declining 3½ to 5 points, and spots losing ½d. On Tuesday some tone was recovered but this was sub-

sequently lost, 1 to 2 being yielded on near positions. Spots were in little request, at unchanged rates. The restraining influences of the financial troubles was still strongly evident and has continued to operate since. On Wednesday a great decline in futures took place, near positions yielding 5 to 7 points, and distant ones 4 to 5; but as the day wore on a slight reaction took place, 1 to 2 points from the lowest being regained. Spots declined ½d., and Egyptians ½d. to ¾d. On the week the result shews a decline in spots of ¾d., with the exception of middling fair, on which the movement is only ½d. down; futures record a loss of 6½ to 8½ points for November to January-February, and 4½ to 5½ for the more distant positions. Texas cottons have continued in possession of the favour of the market. In Brazilian a reduction of ½d. has occurred; the sales for gradual delivery in this class have been considerable. Fair and good fair Egyptian have declined ½d., and fully good fair ¾d. Peruvians, rough and smooth, are reduced ½d. Surats are down from ½d. to ¾d. The market closes in a very sensitive mood, and any little alarm may precipitate another decline. The following particulars of the business of the week are from the official report issued by the Liverpool Cotton Association:—

	Import.	Forwarded.	Sales.	Stock.	Actual Export.
American	98,899	65,583	41,170	422,060	2,370
Brazilian	4,000	1,189	930	17,900	—
Egyptian	8,401	7,672	3,740	58,870	760
W. Indian	54	1,250	2,010	15,180	422
E. Indian	1,658	2,466	3,360	183,570	1,344

Total .. 113,012 78,160 51,210 697,580 5,496
The following are the official quotations from the same source:—

	G.O.	L.M.	Mid.	G.M.	M.F.
American	4½	.5	.5	5½	5½
				M.F.	Fair. G.F.
Pernam	5½		5½	6	
Ceara			5½	6	
Paraiba			5½	6½	
Maranhm			5½	6½	
			Fair. G.F.	F.G.F.	Gd.
Egyptian	5½	.6	6	6½	
Ditto, white	6½	.6	6	6	
	Fr.	F.F.	G.F.	F.G.F.	Gd.
M.G. Broach	—	—	—	4½	4½
Dhollerah	3½	3½	3½	4½	4½
Oomra	3½	3½	4½	4½	4½
Bengal	—	3½	3½	4	4½
Tinnivelly	4½	—	4½	5½	—

* Nominal.

YARNS.—Yarns have been decidedly bad to sell during the week, and there is more disposition on the part of sellers to meet the demand, and to accept offers at rates previously declined. Some forward selling has taken place at considerable reductions below current rates for early delivery. The bundle trade has been very quiet, and sellers if tried by offers would probably accept a slight reduction. Bolton spinners also are easing off, but are not meeting with much enquiry. Still, in view of the little trade passing the steadiness of the market is surprising. Manufacturers, however, are resorting more and more to the stoppages of looms rather than they will make purchases of yarns at present rates to put into cloth for which they have no orders.

CLOTH.—In cloth Eastern fabrics are in very small request at practicable rates. Printing goods are unchanged, and producers are endeavouring to resist the accumulation of stocks by stopping looms. Home-trade goods are steady and quiet. From a manufacturer's point of view the market is in a very unsatisfactory state.

WOOLLENS AND WORSTEDS.

BRADFORD.

The wool trade is quiet, the financial crisis having undoubtedly had a deterrent effect upon business. Staplers, however, are unwilling to tempt buyers by making any concessions whatever, as they look forward to a better state of things before long. Quotations are, it is true, fractionally weaker, but the effect of this circumstance has not been to change the attitude of holders. The tendency towards lower rates can scarcely be said to exist, so small has it been, and stocks being low, both in staplers' and spinners' hands, a further element of strength is imparted to the situation. In addition to this must be added the circumstance that holders in the country obstinately adhere to old lists and refuse to budge at the solicitations of buyers from this market. Altogether then it is difficult to see how staplers can act otherwise than they are doing at the present time. The business passing, it may be noted, has been chiefly for demi wools. Deep grown descriptions are not in such active request.

Botanics are, in view of the forth coming sales, very little dealt, as both buyers and sellers wish to await the outcome of the auctions next week. Nolls are about the same. There is no change in the yarn department. The orders received for export are only for small quantities, and business is strictly confined to present requirements. Both in regard to mohair and Botany spinners find it difficult to keep their machinery going, and prices are with difficulty maintained. Trade is generally unsatisfactory in this department, and there is no very cheering outlook for the future. Business in the piece branch is not marked by any great amount of orders; still there is no depression. Orders still come from America, but not for any great amount. The demand for the East is quiet, and poor prices are generally a cause of complaint. Worsteds coatings continue extremely dull, and a large amount of machinery is lying idle.

HUDDERSFIELD.

The attendance of buyers on Tuesday was rather small and for that reason any improvement has been checked. The demand has been a dragging one, both home trade and shipping houses having only purchased in small quantities. Machinery on fancy worsteds is idle, to a greater extent than could be wished, and it is becoming evident that producers will have to pay attention to other goods, as those in question have evidently receded in popularity. The ready-made trade is absorbing large quantities of low tweeds, and serges as well as Vicunas continue to move more freely. It is strange that while certain departments are extremely dull here, in other Yorkshire centres they are busy. This is a matter which has been noted by local manufacturers who are well aware of the causes that make such a state of things possible.

GLASGOW.

Messrs. Ramsey and Co., in their report dated 18th November, say:—

WOOL.—The wool market has been rather quieter this week, but this was to be expected, after the large business that has been doing for the last month or so. Consumers are for the moment well stocked. Prices are firm. The next series of public auctions have been fixed for 4th December.

SHEEP SKINS.—The supply has been fairly liberal for the season and mostly of good sorts. Trade is a shade quieter, and prices barely maintain former values.

FLAX AND JUTE.

DUNDEE TRADE REPORT.

WEDNESDAY, 19th Nov., 1890.

This market is slightly stronger. The troubles in the London money market have undoubtedly affected Dundee more than most merchants were aware. To-day the feeling is hopeful that the worst is past, and that after all the business of the country is not only sound but is increasing.

Jute is no dearer, and a good deal is being done at last week's rates—in some cases a shade under.

In flax there is very little passing yet, but offers are being freely made by sellers at about the last week's quotations.

Jute yarn is in better demand, and the turn of the market is against the buyers. Jute Hessians are in better demand, and to-day there are no sellers under the list prices. For fine wide goods the best makers are now engaged into the New Year, and prices for such qualities are very strong.

Linens are in excellent request. Both Forfar and Brechin are well engaged, and Fife in all fancy linen goods is busy at full prices.

Arbroath is well engaged in canvas, and in the heavier branches of the linen trade there are orders for all the looms.

Dundee twines and cords are wanted, and the Dundee fancy jute trade, which is now a very important department, is well employed.

SILK.

LONDON.

THURSDAY.—London Produce Clearing House quotations of 5 $\frac{1}{2}$ Testlee: November 11s. 5d., December 11s. 5d., January 11s. 6d., February 11s. 7d., March 11s. 8d., April 11s. 9d., May 11s. 10d., June 11s. 11d. per lb. Sales registered, 20 bales.

DRY GOODS.

MANCHESTER.

The demand this week in most departments was a dragging one, but at this period such a condition of affairs is to be looked for. The fancy branches have shewn some life, however, in anticipa-

tion of wants for the Christmas trade. Heavy goods such as linens have not been in marked request, and jute goods are slow. Distributors are obtaining Hessians on a reduction of about $\frac{1}{2}$ d. on the rates current a month or two back, but the difference is so slight and previous fluctuations have been so frequent that merchants are unable to alter their own lists. Competition in these low-priced goods is extremely keen, and Hessians, with the lower number of roughs, are frequently sold at a loss. In the woollen department there is no change of moment. The woollen craze that has been out for some years has proved a competitor to some extent with silk material, but as yet the results have not been felt appreciably, if, indeed, at all, by the leading silk crape manufacturers in the eastern counties. German makes of printed cotton table-covers have been sold in this market of late. Nothing printed in England as yet can compete with them in either quality or price, and the goods have sold well already. German tapestry and plush centre table-covers are also slower, and here again Continental manufacturers lead the way. The American trade is fair. Arrivals of buyers have been up to the average, and purchases, with the exception of some Yorkshire bids, have been about as usual. This is noticeably the case with handkerchiefs, both hem-stitched and printed borders. The goods are not manufactured in the United States. The tariff, however, must be kept up. The consumer therefore pays the duty. The train of facts with their consequences is simple enough, and the result is what might have been expected.

HOSIERY AND LACE.

NOTTINGHAM.

There is nothing of interest to report regarding the local trade, which remains in the stagnant condition previously described. Valenciennes, point de Paris, fine torchon and Maltese, macramé, and guipure are among the varieties of fancy lace for which there is a demand. Curtain manufacturers continue to be fairly well employed. A moderate business is being done in plain cotton nets. There is not much improvement in the hosiery trade, and manufactures are not very busily employed. The forwarding to the Queen of a set of Spanish laces this week has created some attention. Manufacturers cling to the hope that this small act of patronage will create greater interest in fashionable circles, and lend a much-needed impetus to the trade. All this is, however, of course, mere speculation.

LEICESTER.

Consumption of wool is not quite so heavy, and although the weak feeling noticeable last week is not perhaps so pronounced, the position is far from being a strong one. Deep-stapled fleeces of good quality make 23s. to 24s. per tod; superior descriptions, 25s. to 26s. per tod; choice lots, including a large proportion of Shropshire fleeces, 26s. 6d. to 27s. 6d. per tod; and inferior qualities, including Scotch fleeces, 21s. to 22s. per tod. The yarn market is steady, but new contracts are for small quantities. The hosiery trade is not so brisk. The demand for hosiery is the most brisk in some of the fancy goods.

THE KIDDERMINSTER CARPET TRADE.

Exceptional quietude still prevails in the Brussels branch of this trade, and it may safely be said that it is a good many years since manufacturers found things so slow at this particular period. It is not intended to infer by this that business has undergone no improvement since the opening of the autumn season in October, as, of course, during the last six weeks the position of manufacturers has been gradually improving, and almost daily additions have been made to order books, but that the season has not opened out so freely or rapidly as it generally does. There is no gainsaying the fact that manufacturers all round are somewhat disappointed, and are awaiting a turn, but confidence was never stronger than when the turn does come a long spell of briskness will be experienced. During the past week several of the firms' travellers have reached home, and their reports are decidedly assuring. Stocks in the hands of warehousemen are said to be low, and these they are working off and must soon be obliged to consider the question of replenishing them.

The tapestry branch of the industry is in much the same condition as the Brussels; manufacturers of these goods seem to think that the future is brighter than for some time past.

In Axminster's good business continues to be done, and in one or two instances manufacturers are said to have sufficient orders in hand to carry them well

into next year. Extensions at several of the works are still going on, and some firms intend doubling their production.

Rug makers are busy, the production of these goods being heavier than for some months past. In the raw material market little alteration can be reported. In wools transactions are carried on with caution, and values are not so strong as they were a fortnight ago; still no very serious giving way has taken place, and it is felt that with a quickened consumption an improvement would take place. Yarns are moving slowly in sympathy with the carpet trade. There is little disposition yet on the part of manufacturers to book their season's contracts, although they are constantly being pressed with tempting offers to do so. Linen yarns are still low in price. Cottons are firm, and at present without signs of falling. Jute yarns are firm, but lower in price at present than for some time past.

Tariff News.

THE NEW FRENCH TARIFF.

(Continued from page 348.)

[SPECIALLY COMPILED FOR THE Textile Mercury.]

COTTON GOODS.

PLAINS, TWILLS, AND TICKS.

	Present Conventional Tariff		Gen. Tariff per 100 kilos.		Min. Tariff per 100 kilos.	
	f. c.	f. c.	f. c.	f. c.	f. c.	f. c.
GREYS, containing in warp and weft,* in a space five millimetres square, 27 threads and less (weighing 13 kil. or more per 100 square metres)						
per 100 kil. -			80	60	62	0
Do., 28 to 35 threads -			104	0	80	0
Do., 36 to 43 " -			117	0	90	0
Do., 44 and more -			143	0	110	0
Do., weighing over 11 kil. per 100 sq. metres, and less than 13 kil.						
27 threads and less -	50	0	91	0	70	0
Do., 28 to 35 -	72	0	110	50	85	0
Do., 36 to 43 -	72	0	130	0	100	0
Do., 44 and over -	72	0	175	0	135	0
Do., weighing from 9 kil. to 11 kil. (not inclusive)—						
27 threads and less -	60	0	110	50	85	0
Do., 28 to 35 -	60	0	123	50	95	0
Do., 36 to 43 -	100	0	162	50	125	0
Do., 44 and over -	180	0	260	0	200	0
Do., weighing from 7 kil. to 9 kil. (not inclusive)—						
27 threads or less -	60	0	117	0	90	0
Do., 28 to 35 -	60	0	130	0	100	0
Do., 36 to 43 -	100	0	162	50	125	0
Do., 44 and over -	180	0	299	0	230	0
Do., weighing from 6 to 7 kil., not inclusive—						
27 threads and less -	80	0	130	0	100	0
Do., 28 to 35 -	117	0	188	50	145	0
Do., 36 to 43 -	190	0	305	50	235	0
Do., 44 and over -	242	0	390	0	300	0
Do., from 3 kil. to 5 kil., (not inclusive)—						
27 threads and less -	148	fr. if over 20 threads, 110 fr. if 20 threads or less.	299	0	230	0
Do., 28 to 35 -	193	0	348	0	260	0
Do., 36 to 43 -	270	0	468	0	360	0
Do., 44 and more -	403	0	715	0	550	0
Do., weighing less than 3 kil., per 100 square metres -	540	0	806	0	620	0
BLEACHED -	15 p.c. more than grey.	26 p.c. more than grey.	20 p.c. more than grey.			
DYED—						
Turkey Red dye -	25 fr. per 100 kil. more than grey.	58 fr. per 100 kil. more than grey.	45 fr. per 100 kil. more than grey.			
Other dye -	Do.	39 fr. do.	30 fr. do.			

PRINTED IN OTHER THAN TURKEY RED. Per piece of 100 metres in length, and not exceeding 1 metre in width—

* In counting the threads in warp and weft fractions of threads are not included.

	Present Conventional Tariff per 100 kilos.		Proposed Min. Tariff per 100 kilos.	
	f. c.	f. a.	f. c.	f. a.
Linings		Duty on grey if same class, plus 3fr. 25c. per 100 metres.	Duty on grey, plus 2fr. 50c. per 100 metres.	
Other impressions, 1 to 2 colours	2fr. 50c.	Do., plus 4fr. 50c. per 100 metres.	Do., plus 3fr. 75c. per 100 metres.	
Other impressions, 3 to 6 colours	4fr. do.	Do., plus 8fr. 10c.	Do., plus 6fr. 25c.	
Other impressions, 7 colours and over	7fr. 50c. do.	Do., plus 13fr. per 100 metres.	Do., plus 10fr. per 100 metres.	
Do., on ground dyed in Turkey red		Duty on grey plus: (1) 5fr. 50c. per 100 kil. (2) The surtax applicable to other prints.	Duty on grey plus: (1) 4fr. 50c. per 100 kil. (2) The surtax applicable to other prints.	
GLAZED PERCALINES FOR BOOK-BINDING OR MOBOCCO WORK, dyed or printed, unfigured, per 100 kilos.		45 50	35 0	
Do., figured		52 0	40 0	
UNBLEACHED "VELVETS," ribbed, plain, or twilled, and Moleskins, measuring in the warp per centimetre—				
26 threads or less		150 80	116 0	
Do., dyed or printed		214 50	165 0	
Do., unbleached over 26 threads, and velvets with silk finish, whatever may be the number of warp threads				
Do., dyed or printed	c	234 0	180 0	
ALL CLOTHS, either pure cotton or unions, woven wholly or partially from dyed yarns. (Cloth containing blue stripes less than a metre apart to be re-entered in the above category.)	Duty on grey, plus 40 fr. per 100 kil.	Duty on grey augmented by 65 p.c., plus the duty on dyed goods.	Duty on grey augmented by 50 p.c., plus the duty on dyed goods.	
Do., unbleached figured, brilliant	10 p.c. more than grey.	Duty on plain cloths, plus 39 p.c.	Duty on plains, plus 30 p.c.	
UNBLEACHED PIQUES; COUNTERPANES, AND COVERLETS IN PIQUE AND REPS—				
Weighing over 18 kil. per 100 square metres	100 0	160 0	130 0	
Do., 18 kil. or less	145 0	234 0	180 0	
UNBLEACHED DIMITY (DAMASKED) AND TABLE LINEN—				
Weighing 14 kil. and more per 100 square metres	82 0	156 0	120 0	
UNBLEACHED GUIPURES FOR FURNISHING PURPOSES—				
Up to 8 threads inclusive per 25 sq. millimetres	120 0	156 0	120 0	
8 to 10 threads Do.		221 0	170 0	
10 to 12 threads Do.	120 0	286 0	220 0	
Do., over 12 threads		338 0	260 0	
GUIPURES OTHER THAN ABOVE.		39 p.c. more than Duty on corresponding Class.	30 p.c. more than Duty on corresponding Class.	
Do., ENCADRE		20 p.c. more than Do.	15 p.c. more than Do.	

a When a width exceeds 1 metre the duty is raised in proportion.
 b Under the existing treaties this duty is the same as that on ordinary prints.
 c Owing to the different classification at present no comparison can be given in this column. The present duties and classification are:—
 Grey velvets, 115 francs.
 Dyed or printed velvets, 140 francs.
 Cords, moles, etc., grey, 89 fr.
 Do., printed or dyed, 106 fr.

(Figured goods *brillants*, piques, dimities and guipures, bleached or dyed, will pay the duty on grey, augmented by the extra charges for dyed and bleached goods).
 COUNTERPANES, Do. - 55 0 88 40 68 0

Joint Stock and Financial News.

NEW COMPANIES.

FLOUNDER-LANE MILL COMPANY, LIMITED, BOLTON.
 This company is being floated with a capital of £100,000, divided into 10,000 ordinary shares of £10 each, a considerable portion of which have already been applied for, the subscription list opening on Wednesday. The object of the company, which is being incorporated under the Companies' Act, 1862 to 1890, whereby the liability of each shareholder is limited to the amount of his shares, is to carry on the business of cotton spinners, etc., and for this purpose to purchase a plot of land at New Bury, the site of two cotton mills formerly owned by Messrs. Joseph Whittam and Sons. It is proposed to erect a first-class modern cotton mill and fill it with new machinery. Mr. F. S. Marsh, of Bowker's-row, Bolton, is secretary (*pro tem.*), Mr. Percy Marsh, solicitor, the Bank of Bolton are bankers, and the following are directors:—Messrs. James Scholfield, of Oldham, Wm. Pass, of Pendlebury, John Chatton, of Bolton, S. S. Newton, of Blackburn, A. Wood, of Pendleton, and H. Scholfield, of Middleton.

BRITISH WOOLLEN WAREHOUSE CORPORATION, LIMITED.
 Registered by Lewis Davies, 19, Moorgate-street, E.C., with a capital of £20,000 in £5 shares. Object, to carry on the business of a woollen warehouseman and every branch thereof. The first subscribers are:—
 Shares.
 Mrs. Franks, 2, Dalsburg-road, Upper Tooting 1
 Mrs. Pitt, High-road, Chiswick 1
 Miss Franks, Dalsburg-road, Balham 1
 W. A. Pitt, Chiswick 1
 C. Miller, 126, Villiers-road, Willesden Green 1
 J. M. Fedries, 2, Candover-street, Great Portland Place 1
 F. H. Roberts, 14, Pepys-road, Brockley .. 1
 The regulations of Table A, with slight alterations, apply.

ESHER LINOLEUM COMPANY, LIMITED.
 Registered by Wilson and Son, 20, Basinghall-street, E.C., with a capital of £18,000 in £10 shares. Object, to purchase from William Albert le Mottee, B. G. Haines, and Alice M. M. Haines (trading as the Esher Linoleum Company) the lands, buildings and effects belonging to the said partnership. Most of the regulations of Table A apply.

PAUL SCHULZE AND CO., LIMITED.
 Registered by Boote and Edgar, Manchester, with a capital of £9,000 in £6 shares. Object, to acquire the business established by Paul Schulze in 1864, and carried on at 19, Greenwood-street, Manchester, under the style of F. H. Kolligs and Co., yarn department. There shall not be less than three nor more than five directors. The first are P. Schulze and Jas. Fernley, of Stockport; and Nelson Oldroyd, of Bradford. Qualification not specified. Remuneration to be determined in general meeting.

Gazette News.

ADJUDICATIONS.
 Augustus Northcote, St. Paul's Churchyard, London, lace and sewed muslin and general warehouseman.
RECEIVING ORDERS.
 Mary Mason, Mixender, near Halifax, worsted spinner, Halifax.
 Petros London, Falcon Square, London, silk importer, London.
NOTICES OF DIVIDENDS.
 R. Goldseller (trading as the Star Rubber and Brattice Cloth Co.), Bridge Mills, Rochdale-road, Manchester, and residing at 63, Bury New-road, Higher Broughton, near Manchester, india-rubber and brattice cloth manufacturer; 3s. first.

PARTNERSHIPS DISSOLVED.
 W. Williams and Son, Bread-street and Watling-street, London, trimming manufacturers.
 George Totley and William F. Moor, Commercial Salerooms, Mincing Lane, London, cotton and colonial brokers.
 Young Howarth and Brothers, the Square, Halifax, wool-staplers.

Patents.

ABSTRACTS OF SPECIFICATIONS.

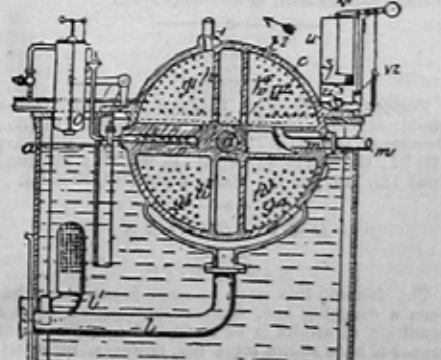
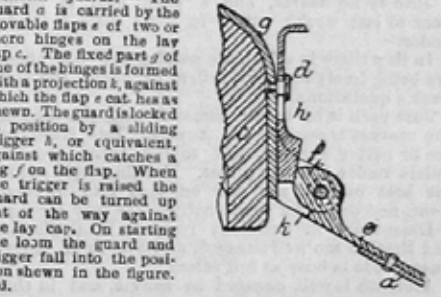
9.637. June 11, 1890. **Twine and cord.** J. CHEYNE Paterson, New Jersey, U.S.A.
 Refers to a machine for manufacturing twine and cord by a continuous operation. The rove which is wound upon bobbins is conducted by rollers through a bath containing size. It is then passed between rollers, the pressure of the upper one of which is adjusted by a weight, to squeeze out any superfluous size which falls back again into the bath. The rove is then passed round a roller covered with flannel or other absorbent, and reaks frictionally upon two heated rollers. From these the hot and dried rove passes to forming tubes in which it is glazed and twisted in the usual way, being afterwards wound upon a spool by the flyer. The mechanism for operating the flyer and spool is not shown in the figure. 8/3. Drawings.

9.642. June 11, 1889. **Sulphonic acids; dyes.** O. IMRAY, 28, Southampton Buildings, Chancery-lane, London.—(Farbwerke vorm. Meister, Lucius and Breuning, Höchst-am-Main, Germany.)
 Sulphonic acids.—Relates to the production of oxynaphthalene-sulphonic acids from beta-naphtholdisulphonic acids R and Y, described in Specification No. 1,715, A.D. 1878, and from the beta-naphtholtrisulphonic acid described in Specification No. 2,544, A.D. 1882. The salts of the R and Y acids are heated with caustic alkalis at 20°–80° C until a sample dissolves in water without fluorescence. The mixture is then poured into water and strongly acidulated, and on cooling the sodium salt of dioxynaphthalenedisulphonic acid crystallises out. The trisulphonic acid treated in a similar manner yields a dioxynaphthalenedisulphonic acid which differs from that described in the German Patent No. 40,898, by producing pure red colouring matters with diazoyl and diazoacetyl. If the trisulphonic acid is heated with a larger quantity of alkali and to a temperature as high as 250°–320° C, trioxynaphthalene monosulphonic acid is obtained.
 Dyes.—The oxynaphthalenedisulphonates after expulsion of the sulphurous acid can be used directly in the production of azo colouring matters, by mixing with soda, cooling and combining with a diazo compound. With a diazo compound of a-naphthylamine a deep violet red colouring matter is obtained; with that of beta-naphthylamine, aniline, toluidine, xylidine, or cumidine or their sulpho acids, colouring matters, with a more yellow tint are obtained. 6/4. Patent opposed. Case not yet decided.

9.643. June 11, 1889. **Dyes.** O. IMRAY, 28, Southampton Buildings, Chancery-lane, London.—(Farbwerke vorm. Meister, Lucius and Breuning, Höchst-am-Main, Germany.)
 Azo dyes.—Consists in the production of new colouring matters, dyeing wool blue black, by combining dioxynaphthalene-disulphonic acid, produced as described in Specification No. 9,642, A.D. 1889, with the diazo-azo-compounds obtained by coupling amido-sulphonic acids with a-naphthylamine and subsequently diazotising the products. For example, o-toluidine-sulphonate of sodium in aqueous solution is diazotised by means of hydrochloric acid and sodium nitrite, and then agitated with a solution of a-naphthylamine-hydrochlorate; the product after standing is cooled and agitated with sodium nitrite, and the diazo-azo-compound produced is mixed with a solution of dioxynaphthalene-disulphonic acids the mixture being kept alkaline or mixed with acetate of sodium. 4/4.

9.677. June 12, 1889. **Looms.** F. H. MARRIOTT, 29, Portland-street, Manchester.
 Shuttle guards.—The guard is carried by the movable flaps of two or more hinges on the lay cap c. The fixed part g of one of the hinges is formed with a projection k, against which the flap e, cat. has as shown. The guard is locked in position by a sliding trigger l, or equivalent, against which catches a lug f on the flap. When the trigger is raised the guard can be turned up out of the way against the lay cap. On starting the loom the guard and trigger fall into the position shown in the figure. 6/3.

9.692. June 12, 1889. **Dyeing, etc.** A. GRAMMER, Bent-street, Cheetam, Manchester, W. T. WHITEHEAD, 42, Sprig-lane, Huddersfield, S. MASON JENK., 2, St. Ann's-place, and E. A. LEIGH, 37, Cross-street, both in Manchester.



Relates to machines for dyeing, bleaching, and otherwise treating yarn in cops or other compact form. Consists in improvements on the machine described in Specification No. 11,497, A.D. 1887. Two discs are mounted on a shaft *d* in a tank *a*, so as to be simultaneously and intermittently rotated in close contact with a fixed body *c*. The discs are each provided with four groups of holes *g₁, g₂, g₃, g₄*, and nipples carrying cop tubes. The body is divided into four main compartments *h₁, h₂, h₃, h₄*, the lower pair *h₂, h₃*, being connected by a pipe *i* with a circulating pump which returns the liquor by the pipe *l*. The chamber *h₁* is connected by a pipe *k* with an exhaust, which serves as a primary extractor of liquid remaining in the cops from boiling or mordanting processes. A supplementary chamber *h* is connected with an air pump through a vessel *o*, provided with a chamber *q* for separating air from the air extracted liquid, and prevent the latter from entering the air pump, and with automatically operated valves to return the liquid to the tank *a*. On arriving over the compartments *h₂, h₃*, the groups of cops are immersed in the liquid, and by the action of the circulating pumps are saturated and impregnated. On arriving over the compartment *h₄* the groups of cops are subjected to a liquor extraction process by means of a pump connected with the port *m*. Mounted on the tank *a* is a cylinder *r* for automatically measuring in fresh liquid. It is connected with a reservoir by a pipe *u*, controlled by a valve *v*, which is closed and opened by the rising and falling of the float *s*. The cylinder is automatically discharged at intervals by a valve *w* opened by the lever *x* operated by the cam on the shaft *d*. A modification of this device is also described. Another form of the machine is described, in which the cylindrical tank *a* rotates closely against a flat fixed body. The joints between the carriers and the body are made tight by grinding them together, or by fitting them with rubber rings. 81d.

9716. June 19, 1889. **Circular knitting machines.** J. W. WATTS, Countesthorpe, Leicestershire.

Cylinders, cam.—The cylinder is in two parts, which are connected by a ring or nut with right and left handed screw threads, to engage with the two parts respectively for the purpose of adjusting their distance apart. For more delicate adjustments the ring is connected to one part only by a screw thread, and to the other by grooves and pins or sliding rings. The upper part has an inner flange at the top to arrest the needle butts, which are raised out of action for forming heads of stockings, etc.

Latch guards.—For preventing the frame and ribbing needle latches from closing when their loops pass off their latches to their stems, a ring is attached to each moving part of the machine, preferably to the cam cylinder.

Cams.—The depressing cam, which may be in one or two parts, has its top edge undercut, and is preferably arranged close to the inner flange above-mentioned, in which there are recesses or openings to allow the passage of the needle butts. The depressing cam may be attached to a sliding plate, or one cam may be used in combination with double-butted needles for both elevating and depressing. For rapidly putting certain needles out of action they are made with longer butts, and are pivoted by two vertically-sliding cams brought into action by rotated cams on the driving ring.

Needles.—The needles are made with a shorter heel or tail than usual, and the butts are not pointed or bevelled. Double butts may be provided in front of the needles or jacks, and in some cases a rear butt may also be employed. When in a raised position the needles are supported at the back by a ring, but when a ribbing dial is used this may be dispensed with.

Ribbing dial or cop.—A special arrangement of cams for operating the double-butted needles is described. The camplate is driven by a bolt passing through the ribber arm, and engaging with one side of an eccentrically-mounted block. If a conical ribbing attachment is used, it is made much flatter than usual, and the upper edge of the vertical needle cylinder is also made conical. The needle grooves are wedge-shaped, and each is of two different depths, so that the needles may work either over the grooves or the posts of the vertical needle cylinder.

Needle posts.—Vertical slots are cut in the upper edge of the needle cylinder alternating with the needle grooves. In each third slot is a fixed post, and in the others are movable posts attached together in pairs, and moved vertically for fashioning by a slotted ring or pins, or by other means. By the addition of the fashioning apparatus described in Specification No. 1,886, A.D. 1884, fully fashioned stockings can be made on a circular machine. Instead of cutting the slots between the needle grooves, the top of the cylinder may be displaceable in sections.

Cylinders, needle.—At the part of the cylinder where the fashioning needles work the grooves are made further apart than usual, and when the fashioning needles are removed long needles are used, or the needle posts are lowered at that part of the cylinder to make the loops of uniform size.

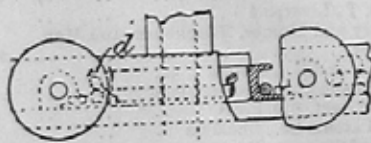
Fashioning.—For putting the needles in and out of action automatically they are raised as previously described, and are lowered by connecting the radial levers, described in Specification No. 6,835, A.D. 1887, to the rear butts of the needles. Means are described for operating the two superposed cam rings, described in that Specification, for actuating the radial levers.

Driving mechanisms.—Three forms are described. 1s. 4d. Drawings.

9660. June 12, 1889. **Looms.** G. WRIGHT, 144, Newcross-street, Bradford.

Jacquard comb boards are made of interlaced or interwoven wires mounted in a suitable frame. 8jd. Drawings.

9671. June 12, 1889. **Spinning.** J. CLAY, 23, Howden-terrace, Leeds.



Spindles and their apparatus.—The drag cord *c* takes round a split ring *d*, secured to the lifter rail, and takes against a conical part of the lower end of the bobbin. The tension of the cord may be regulated by means of weights, screws, etc. 8jd.

9763. June 18, 1889. **Bleaching.** G. BROWSEN, 15, Althorp-road, Upper Tooting, Surrey, and J. GAMGE, 6, Lingfield-road, Wimbledon.

Consists in bleaching, etc., substances by treating them with a mixture of sulphurous acid and carbonic acid produced by burning carbon bisulphide. The carbon bisulphide is burnt in a lamp supplied from a reservoir fitted with a non-return valve for admitting air or water as the liquid is discharged. The products of combustion pass into a chamber provided

placed. The waste gases pass through an outlet provided with a baffle plate, into a chamber packed with charcoal, or the like, and thence into the atmosphere. The bleaching chamber is fitted with transparent panes. 8jd. Drawings.

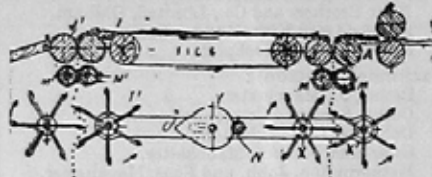
9805. June 14, 1889. **Looms.** H. WEISSBERGER and J. KUSSA, Constanz, Germany.

Shuttles are made of raw unshaired buffalo or other hide, which is first suitably treated to deprive it of moisture. The intermediate head pieces are connected with the points and sides by rivets passing from each to the other. Shuttles of L-section are pressed from one piece; and bottomless shuttles are provided with steel rails of L-section riveted to the inside. 64d. Drawings.

9836. June 15, 1889. **Dyeing, etc.** C. VANDERMEIRSCHE, 40, Rue Pascal, Paris.

Relates to a method of and apparatus for dyeing, scouring, mordanting, washing, and carbonizing woollen and other textile yarns and materials in all stages of preparation. Consists in treating the materials in intermittently-rotating vessels perforated at top and bottom in a dye bath, and in the intervals injecting dye liquor through the material. 8jd. Drawings.

9855. June 15, 1889. **Spinning.** E. EDWARDS, 35, Southampton Buildings, Middlesex. (P. Jansz, Brussels).



Breaking and scutching flax, etc.—The root ends of the stalks are fed into a series of fluted breaking rollers of gradually decreasing diameter, but rotating at same angular velocity. They then take between a pair of fluted rollers *J*, arranged side by side, and a pair of presser rollers *M* beneath, by which the stalks are held whilst being scutched by the rotary beaters *X, X₁*, the rollers *J, M* being rotated first in one direction and then in the other, in order to pass the stalks downwards between the beaters and withdraw them again. When the stalks are withdrawn from the beaters *X, X₁* they are passed along the apron *I* to another set of rollers *J₁, M₁* and scutchers *T, T₁*, whereby the opposite ends of the stalks are cleaned. The scutchers *X, X₁* and *T, T₁* may be rotated at different velocities if desired. To facilitate the passage of the stalks on to the apron *I*, their ends are guided by a shaft *A*, which is moved by means of a lever arrangement and springs to the opposite side of the rollers *J*. The bundles of flax, etc., are fed into the machine at such a rate that the heads of one bundle are released by the last pair of rollers as the root ends of the bundle immediately following enter the first pair. To facilitate the insertion of the stalks between the rotary beaters, one beater of each pair is mounted upon a bar *O₁*, which is moved at the proper times longitudinally against a spring by means of a rotary cam and roller arrangement *Y, N*, the beaters being driven by bevel gearing suitably arranged to allow of this movement. The feeding board is moved automatically towards and from the breaking rollers in such a manner that the movement towards the rollers is quick and short, whilst the table remains a longer time in its outward position, so as to allow the attendant time to arrange the raw material *u*; on it. 1s. 2d.

9863. June 15, 1889. **Cutting pile fabrics.** L. HOUGHTON, 12, Birch-lane, Longsight, Manchester, A. GODDARD, Sweborg Terrace, Stepping Hill, Stockport, J. H. SMITH, 1, Healey Terrace, Peckfield, Manchester, and T. MANNOCK, Derwent House, Heston Moor, near Stockport.

The carriage described in Specification No. 16,596, A.D. 1887, for moving the fabric to and fro under the knife, is reciprocated by a link connecting it to an endless belt, cord, or chain, and comes in contact at the end of its traverse with sliding buffers, operated by levers and cams. 1s. Drawing.

9879. June 15, 1889. **Treating fabrics, threads, etc.** W. GREEN, Ramsate.

The object is to employ nitro-cellulose which has been deprived of its explosive properties by passing through water or dilute nitric acid, or like material, for coating or ornamenting and producing a silk-like surface upon the material. Fabrics, paper, papier-mache, lace, fringe, trimmings, ribbons, advertising and other cards, buttons, flowers, dress and other ornaments, articles and other articles, vases, scent bottles, jewelry, etc. Threads may be coated by passing them through the nitro-cellulose and then through water to the receiving bobbin; or they may be brought into contact with the nitro-cellulose as it is forced through a capillary tube; or they may be spun, braided, or twisted round a core thread a suitable adhesive material, such as gutta-percha, india-rubber, etc., being employed for holding the threads together. The nitro-cellulose may be squirted on to fabrics, adhesive materials, such as glair, being employed if necessary. The material may be first rendered waterproof by a coating of india-rubber, or of paper or paper pulp, and sizing with glair, etc. Fabrics or papier-mache thus coated may be used for many purposes in lieu of goods made of silk, such as articles of dress, furniture, and other coverings, carriage linings, book covers, curtains and table covers, lace, ribbons, braid, trimmings, fringe, etc. Methods are described of coating or treating different classes of articles, also, for the purposes of this invention, of producing buttons from paper pulp. Studs, brooches, handles for parasols, etc., may also be moulded from paper pulp, strengthened by a core if necessary. Paper articles of this class may be applied to book covers, picture etc. Metal, glass, ornaments, trimmings, fringes, tassels, flowers, dress etc., ornaments, trimmings, fringes, tassels, articles of dress, earthenware etc. articles may be covered with paper or pulp and coated with nitro-cellulose or with threads of ribbons thereof. Fabrics may also be partially coated by pressing them against an engraved roller rotating in cellulose, suitable arrangements being made in all the apparatus employed for preventing the escape and loss of ether and alcohol present in the cellulose. All the articles are, when practicable, dyed, stamped, embossed, etc., to produce a silk-like surface. 64d.

9889. June 17, 1889. **Warp balling machine.** J. SUNDERLAND, J. P. SUNDERLAND, and J. SUNDERLAND, Brook-street Mills, Nelson, Lancashire.

The warp from the beam or beams, or from a creel, passes over rollers, and beneath a tension roller. Thence it passes around guide rollers and a driven drum, and up over an elevated revolving flanged pulley, by which it is contracted to prepare it for the balling. The warp then passes down around a roller, and through the eye of a traversing swinging frame to the spindle tube on which the ball is wound. A frame, consisting of side pieces connected by a tie-bolt, bears upon the ends of the spindle and keeps the ball in frictional con-

tact with a driving drum. The details of the driving mechanism, etc., are described. 8jd. Drawings.

9904. June 17, 1889. **Treating fibres.** R. S. BURN, Oak Lea, Edgeley-road, near Stockport, Cheshire.

Cott and other fibres are opened, bleached, etc., by treating with currents of air, bleaching gases, etc. The material is admitted by hoppers to the lower part of a conical chamber, having a dome-shaped roof and exit pipe leading therefrom. Nozzles, for admitting air, etc., under pressure, are arranged around the lower part of the chamber, preferably at opposite ends of diameters. There is a pipe through which a current of air, etc., may be forced to assist the material in its passage from the chamber. The air, etc., may be heated or not, as desired. The chamber may be of various forms. Its walls and sides may be corrugated and lined with india-rubber or other elastic material, and its bottom may be domed-shaped or inclined. Several arrangements of hopper are described. Doors are provided for clearing away the refuse. 1s. Drawings.

9928. June 17th, 1889. **Looms.** J. INGRAM, 79, Garden-street, Lawrence, Massachusetts, U.S.A.

Picking stick, checking.—The stick *B* on its return stroke strikes against a cushion composed of layers of leather carried by the head of the buffer proper, the body of the latter sliding in a tube on a fixed plate. A spring bolt enters the end of the body, and slides in a lag. A modification for use with horizontal sticks is described. 64d. Drawings.

9957. June 18, 1889. **Looms.** W. H. HACKING, California Iron Works, Barry.

Change-over motions.—Relates partly to improvements in the apparatus described in Specification No. 1,419, A.D. 1878. The sliding paw wheels, by which the toothed wheels and locking plates of the eccentrics, *m, n*, are turned, are mounted on a sleeve on a stud *h*, such as *h₁*, and are carried by a toothed wheel *g* driven from a pinion *b* on the crank shaft *a*. The chain barrel *i* is carried by a swinging frame *H* worked by a cam *r* and a spring *u*, and is turned by a spur wheel *v* engaged by a few broad teeth of the wheel *g*. The studs *g* are carried by a bracket *M* to which is removably secured the bracket *Y* of the pattern needles. When the chain barrel is turned by a single or double catch, which is controlled by an auxiliary chain or equivalent for reversing or stopping the motion, such auxiliary chain is driven from the wheel *g* by pin and star-wheel and spur gearing, the star-wheel being shifed into and out of gear by a special bell-crank lever operated from an extra pattern needle; the star-wheel is locked by a circular rim on the wheel *g*. The rod *E* is connected with the bottom lever by a coupling which yields, to prevent breakage, when the box jams etc.; one part of the coupling interlocks with the other, and is fitted to slide out of connection against the action of a spring which ordinarily withstands the working strain. The disconnection may be made by a hand-worked rod on the drop-box link when it is required to operate the box by hand. 1s.

9963. June 18, 1889. **Looms.** W. SMITH, Park View House, Heywood.

Change-over motions.—Improvements in the apparatus described in Specification No. 8,857, A.D. 1888. The vertically-reciprocating card barrel carries a pin wheel *J*, the pins of which are caught as the barrel falls by one of two catches *M, M₁*. These catches are loose on the cam-shaft *C*, and are put in position as required by the action, on a lever *M₂* connected with them, of a cam *N₅*, which is turned by a ratchet operated through a link *N₄* from a setting lever *N* controlled by the card. The barrel is thus turned either way as required. This mechanism may be modified. The toothed crank wheels *d, d₁* on the "cock heel" or setting levers *a, b*, are operated by a single pinion *m* driven from the crank shaft *A*, the wheels being locked into position by spring bolts *h* carried by the levers, and entering notches in discs *e* on the wheels. A cross-bar carried by brackets *s* prevents the levers *a, b* and *N* from falling too low. 8jd.

9966. June 18, 1889. **Parallel knitting machines.** P. M. JUSTICE, 65, Chancery-lane, Middlesex. (Wiltons Knitting Machine Co., Jersey City, New Jersey, U.S.A.)

Improvements in Specification No. 13,013, A.D. 1886, are described. These include carriages, thread-carriers, fashioning, etc. 1s. 114d. Drawings.

10024. June 19, 1889. **Spinning, etc.** W. F. RYNDOLDS, Linfield Foundry, Grosvenor-street, Belfast.

Spindles and their apparatus.—To prevent waste of lubricant from the cups of footstep bearings, due to centrifugal force, etc., a tube or ring, perforated or notched below for the passage of the lubricant, is fitted within the cup. 64d. Drawings.

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