

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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The Textile Mercury.

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Current Topics.

PRINTING OF CARPETS: AN IMPORTANT IN- VENTION.

The carpet trade of late years seems to have
displayed more activity, as far as the invention
of new appliances is concerned, than at any
former period in its history. The most recent
novelty in the trade is a machine for printing
carpets already woven. We are unable to give
details this week, but may briefly state in this
preliminary announcement that if the machinery
comes up to the expectations one is led to form
from what has been said as to the work it has
already done, an important addition will have
been made to the mechanical appliances neces-
sary for the rapid and economical production
of carpets. The advance from printing on the
warp, as is now done in tapestries, to printing
the whole fabric after being woven is manifestly
great. Like most other inventions in connec-
tion with carpets, the one under notice is
American.

WHAT SHOULD BE THE STANDARD SPEED OF MULES.

It is well known to everybody connected with
the cotton industry that for years past there has
been a steady acceleration of the speed of
machinery. This has taken place in every de-
partment of the mill and in almost every section
of the trade. Of course the newest machinery
stands in front of all for speed and excellence,
and consequently for quantity of production to
the employer and increased earnings to the
worker. We may note here that the advantage
to the latter does not in any sense spring from
the Minders' Association, or the activity, skill,
or genius of their leaders. It is purely the
fruit of the inventor's labour and the mechanical
skill of the machine maker, and it is owing
entirely to the employer's expenditure of capital
that the new plant is purchased and introduced,
with the object, in the first place, of enabling
the capitalist to maintain a position in the front
rank of those engaged in the trade, and so bene-
fit himself. In the second he knows that it will
benefit his employes, firstly by diminishing their
labour of superintendence, and secondly by in-
creasing their earnings. In the third place he
hopes to contribute his quota to the task of
maintaining the preëminence of his country in
the markets of the world, on which depends his
own, his workpeople's, and the nation's welfare.
On the advent of improvements such as these,
the spinner or manufacturer whose machines
are not above one-third worn through, carefully
considers whether they can be adapted to his
plant or not, and finding that the whole or a
portion of them can, he has them so applied at
considerable expense, gaining perhaps 60 per
cent. of the advantage that accrues to the person

who has put in new machinery. And yet another
class, whose machinery we may suppose to be
three-quarters worn out and not worth the cost
of the transformation, declines to make the ex-
penditure and endeavours to work it down to
the breaking-up point. Now, here are three
degrees of excellence supposed in the plant of a
spinning mill, and probably represented by
three different speeds or rates of production,
and consequently three different capacities of
earning wages upon them for the workers.
It must be observed that the lowest is so, not
because of any falling-away from its original
capability of turning of work, but simply that
the improved machines have passed their record
considerably. The second by every capable
effort has been brought as nearly as possible in
line with the first. Now which of these
systems of plant has to be accepted as the
standard speed on which earnings have to be
considered? Is it the highest? If so, are all
employers occupying the second place to be
muled in being compelled to pay higher per-
centages of wages, until the level of the first is
attained? Or are those in the third position, to
whom such compulsion would be ruin, to be
compelled to waste one-third or one-quarter of
their capital by taking out and throwing all
their machinery upon the scrap heap, whilst it
is possible to work it to advantage, and for their
workpeople to earn as high wages as ever they
did upon it for another five or six years? We
ask again—have sacrifices like these to be made
to meet the arbitrary and insane demands of
the modern trades-unionist? In the case of a
mill originally built and furnished at say an
outlay of £80,000, this would mean, roughly
speaking, the imposition upon the capitalist of
a loss of £20,000 to £25,000. This is really
what the claims of the new trades-unionism
which is permeating the minds of the leaders of
the operatives in the cotton districts really
mean, as expressed in the demands the
latter, without any express sanction of those
they represent, are making upon the employers.
We appeal to the intelligent section of the
working classes to consider whether this is the
way to attract capital into the trade, or to re-
tain that which is already therein. We our-
selves should deem a capitalist proposing to put
his fortune into any of the textile industries
with such a contingency before him, as a long
way on towards a lunatic asylum.

THREATENED STRIKE AT FARNWORTH.

The remarks in the above note have been in-
duced by a threatened strike at Messrs J. and
J. Hardman's Egyptian Mill, Farnworth, where-
in the principles upon which our comments are
based seem to be applicable. We would, however,
guard against this conclusion being accepted
too strongly or fully, because a full statement of
the facts is not at the moment before us. We

have only the *ex parte* statement of "DEMOS," a writer in the *Bolton Guardian*, for our authority. It is well known in the Bolton district that "DEMOS" is the *nom de plume* affected by Mr. J. T. Fielding, the Secretary of the Operatives' Spinners' Association, and the working-man J.P. In order that our readers may see that we do not misrepresent the worthy magistrate, we will place his own words before them. In last Saturday's issue of our Bolton contemporary "DEMOS" says:—

Another strike of spinners is threatened; in this instance the offending employers are Messrs. J. and J. Hardman, Egyptian Mill, Farnworth. It would appear that the men have complained of their inability to earn decent wages owing to the slow speed at which Messrs. Hardman work their machinery. The dispute has been receiving the attention of the Employers' and Operatives' Committees for some weeks past; and the representatives of the two associations, having paid a couple of visits to the mill, have jointly agreed to recommend the firm to increase their piecework prices 3½ per cent., until the mules are made to run three stretches of 66 inches in 60 seconds. So far Messrs. Hardman have refused to adopt this recommendation, urging that they will do what they can in the course of a couple of months to attain the desired speed.

There is a pretty little bit of assumption in the opening sentence, in that the offence lies with the employers, and not with the leaders of the Union or the workmen of the mill. We are afraid their supersensitive nostrils smell an offence in every refusal to concede their demands, however extravagant. What are "decent" wages, and how much have the wages of these men who have complained fallen below their ideal standard? Before a proper judgment can be formed as to whether Messrs. Hardman have really given just cause of offence or not, it is necessary that these questions be fully and fairly answered. It is equally desirable also that information should be given as to whether "the slow speed" at which Messrs. Hardman work their machinery is the speed at which the machinery was originally constructed to run. If it was, then the intervention and dictation of the Union is an impertinent one, and has been very properly resented by Messrs. Hardman. On the other hand, if Messrs. Hardman have put upon the machinery a class of work which it was never constructed to perform, and in consequence have had to reduce its speed, then we hold that the workpeople would have a fair claim to have the speed restored or compensation for it. It is really a pity that Mr. Fielding, whilst commenting upon this dispute, could not give the details fully and clearly, in order that the public might have been enabled to form an independent and accurate opinion upon it; but in stating half the facts, and with the bias of the immaculate virtue which distinguishes him, he is only following what appears to be the *voie* laid down for the guidance of the leaders of all the unions in the districts. Continuing his remarks Mr. Fielding goes on to say:—

Naturally enough the men decline to go on losing wages for perhaps an indefinite period, and they have tendered 14 days' notice to leave work, and a similar notice is to be given by the cardroom hands.

What wages have the men lost? Before we can judge the queries put above must be answered. They are, however, quite justified in leaving any work with which they are not satisfied, and therefore there is no impropriety or wrong in giving in their notices to do so. But we wish our readers to notice the concluding clause of the sentence: "And a similar notice is to be given by the cardroom hands." Here the cloven foot of trades-unionism is shewn. What has the speed of the mules to do with the cardroom hands or the converse? This is brandishing the weapon of terrorism over the employer. If they

decline to accede to the demands of the Union, the latter will draw out the spinners, and to circumvent any endeavour to obtain others they will stop the cardroom department as well. Here comes in the gross moral wrongfulness of their action, which we hold to be also an infraction of the law that would entail punishment if brought before a judge. Mr. Fielding proceeds to lecture the employers and criticise the Association because there exist no means of compelling a member to adopt the policy dictated to him. It is perhaps because the members are not so ready to depute the control of their personal interests to other hands, as are the deluded followers of the leaders of modern trades-unionism.

THE FIRST WOOLLEN MILL IN JAPAN.

Letters from Japan announce the opening of the first woollen mill in the England of the East, which has been erected at Ogi, a suburb of Tokyo. The ceremony was performed by the Governor of the district on the 6th July. The project of which the initial stage has thus been accomplished had its origin in a small weaving shed, established in 1886 near Tokio, for the manufacture of rough fabrics on hand looms. This enterprise proving very successful, it was determined to undertake the weaving of textile fabrics suitable for the European style of clothing now so much affected by the Japanese. A company was therefore formed, to erect a larger shed for manufacturing cloths and flannels. This development also proving successful, the Tokyo Woollen Manufacturing Co., Limited, was next floated, with a capital of \$350,000, of which one-half was offered for subscription to the public, who readily responded. All the capital was ready by September, 1887, and Messrs. Abe Kosuke and Miyabe Toshikoto (the founders of the first weaving-shed) were appointed managing directors. The first named, accompanied by two other native gentlemen, came to England in May, 1888, and placed the matter in the hands of Messrs. Taylor and Woodhead, two practical engineers (the latter representing Messrs. William Whiteley and Sons, of Huddersfield.) The erection of machinery was commenced in October last, and all the time from that date until the opening has been occupied in perfecting the arrangements. The capacity of the plant is estimated at 800 yards of finished material per day, and those present at the opening had the opportunity of examining some admirably-finished pieces of woollen cloth and flannel manufactured in the establishment, and considered that the results so far reflect great credit upon all concerned. The machinery was nearly all supplied from Lancashire and Yorkshire and district, as will be seen from the following list of well-known firms: The power is furnished by a compound horizontal tandem steam engine of 175 i.h.p., with rope gearing, by Messrs. J. and E. Wood, of Bolton. The driving is by ropes. The same firm have also supplied all the shafting and pipes on the premises. The boiler (made by Mr. Thomas Beeley, of Hyde), is furnished with one of Messrs. Edward Green and Son's economisers. Messrs. John Haigh and Sons, of Huddersfield, have supplied the following machinery:—One 48 inch waste opening machine; improved "Fearnought" or tenter-hook wiley, with oiling machine and delivery apparatus; three complete sets of 60-inch wide scribbling, carding, and condensing machines, with automatic feeds and patent sliver apparatus for fine cloths; two sets 60-inch wide as above for coarse cloths; one patent self-acting teaser; and all condenser bobbins, and all tackle and tools for nailing

on card clothing. Messrs. William Whiteley and Sons, of Lockwood, Huddersfield, have supplied the following machinery:—One Moore and Whiteley's patent wool and cotton drying machine, particularly adapted for drying pickled or extract wool; and five improved self-acting mules, of 416 spindles each. (This mule is designed so as to allow every motion to be worked in the simplest manner possible, at the same time with accuracy and certainty. The change wheels for both draw and twist are so arranged that the spinner can change any wheel without having to disturb any other casting.) Messrs. Whiteley and Sons have further supplied two Scotch warping mills, with patent sectional dividing heads for placing each section of warp on the cylinder of mill in a uniform and complete manner, thereby keeping the threads of warp at an equal tension (thus avoiding a frequent cause of streaky and damaged pieces); one warping, cool air drying and beaming machine, designed for the purpose of sizing and drying at a low temperature a warp in its full width; one improved pirn or bobbin winding machine of 80 spindles, fitted with a varying speed motion, which causes the yarn from the hanks or cops to be drawn at an even tension instead of an irregular one; one improved drum winding machine of 80 bobbins, for winding on to double-headed bobbins, from cops or hanks fitted with reels or racers; and one cloth tentering and drying machine to hold 90 yards of cloth, fitted with steam tubes and patent exhaust fan for drying at a low temperature. The remainder of the machinery includes a patent grinding apparatus from Messrs. Dronsfield Bros., of Oldham; forty Hollingworth and Knowles' patent open shed fast-running looms by Messrs. Hutchinson, Hollingworth, and Co., of Dobcross Works, near Oldham; hydro-extractors by Messrs. Thomas Broadbent and Sons, of Huddersfield; milling and finishing machinery by Messrs. Kenworthy, Royston, and Crossley, of Huddersfield; and Grinnell sprinklers by Messrs. Dowson, Taylor, and Co., of Manchester and London. All the plant is of the latest and most improved description, capable of manufacturing all kinds of woollen cloth, serges, flannels, and shawls. About 200 hands are employed, the majority of whom were formerly hand-loom weavers at their own homes. They are said to have displayed a wonderful aptitude for power-loom weaving, and are expected soon to be quite proficient. This Japanese concern certainly is not a large one as yet, but the mere fact that such a well-organized attempt at woollen manufacturing is now an accomplished fact in Japan, should claim the serious attention of our Yorkshire readers—and of their employes.

A UNIQUE TOMBSTONE.

Amongst curiosities in graveyard or cemetery monuments that of a Fall River mill-man will surely be unique. "There is no accounting for taste," says an old and well-worn phrase, and the wanderer through our modern burial places has the truth of the reflection forced upon him at every step. But quite a novelty, which will perhaps prove suggestive on this side, comes from the land of novelties, the United States. The correspondent of a contemporary says that one of the oldest mill-men at Fall River, which, as far as the cotton manufacture is concerned, may be described as the Manchester of America, has just completed the monument under which he proposes that his body shall repose after death. It has already been erected over the grave which he intends to occupy, and is certainly the most unique and peculiar memorial ever seen in any cemetery. It is carved out of

granite, and represents a three-storey cotton mill. The windows and immense chimney are all there, and nobody who has ever seen a cotton mill could mistake it for anything else. On the front is carved the name.

THE COTTON SPECULATORS' SEDAN.

This year's campaign in the war between cotton spinners and speculators has been short and sharp, and apparently decisive. The annual attacks made by speculators upon the interests of the cotton industry have become quite wearisome in their sameness, and unendurable from the mischiefs they have inflicted. Almost every year, about the season when they were being first launched, the trade has been advised by large numbers of more or less interested persons to stand aloof and not, by buying when the opportunity offered, assist the operations of their natural enemies the 'bulls.' It is astonishing when one reflects upon the facts to what an extent this disinterested advice was adopted. This arose mainly from the fact that the spinner wanted to conduct his business in peace and quietness, going down to Liverpool about once a week to purchase his supplies as he required them. He was no speculator—not he! He left speculation to those who made it a business, and as long as they let him have a good supply at natural rates and did not obstruct his access to it and bolster up the prices, he had no desire to interfere with their proceedings. But this was precisely what he found they would not do. These gentry discovered that the natural fluctuation in the supply of and demand for the raw material afforded them too scant a pasturage on which to graze, and therefore they began some few years ago to cultivate the ground. This answered much better. They invented or discovered methods of inducing abundance and scarcity in season and out of season, which puzzled the simple wits of the children of Oldham. The latter found their profits diminishing and their 'divis' disappearing. They protested and reiterated their protests for a number of years, during which spinning became a very lean business. Their enemies, however, put their fingers in their ears and went on their way, all the time protesting they were the best friends of both spinners and manufacturers, as by raising prices every season they induced cotton growers to plant another crop, without which what would the spindles of Oldham and the looms of Blackburn and Burnley do? The spindles would cease to whirl, the looms to clatter, and the mill chimneys to emit smoke, in which condition the redstart might elect to pour its melodious notes from off their summits. The innocents from the "Edge" were puzzled but not convinced. Somehow they preferred 'divis' to the music of the redstart, and bank notes to bird notes, and annually growled louder. Last year they vowed vengeance upon the speculators, for they had once more heeded them in their beguilings, and found their lot harder than ever in consequence. In revenge they stopped their mills, and told the speculators to eat the cotton they had purchased, whilst they, the spinners, would await the arrival of the new crops. This alarmed the speculators, who began to dribble out their holdings, knowing that if they were compelled to eat it that the down of the *gossypium* is apt to induce dyspepsia. So they got rid of it at lower prices than they had estimated, but withal at such a left them some profit upon their labours. Spinners, however, found this resource a most costly one, and so did their backers and seconds, the workpeople. This plan would not do; a better must be devised if any good was to be done. This was

devised, and we take credit for having made it extensively known in these columns very early on in the season. It was most widely acted upon, and from knowledge gathered from the most authoritative sources we have been enabled all along since the opening of the year to declare that this season at least, if there were any 'cornering,' it would be found that the trade had cornered the speculators. The past fortnight's battle and the route of the speculators proves our prediction true up to the hilt; in fact it is a veritable speculators' Sedan. The forces of nature, of steam, and of prudent commercial operations, have all been brought to bear upon them. The first has given the trade an early cotton harvest; the second is moving it hither at a rapid rate; whilst the third has enabled the spinner to avoid the market at a critical time. This combination of forces has hardly given the speculators the disastrous choice of "the devil or the deep sea." There has only been a Sedan before them, into which head over heels they have tumbled. From the heights around the trade have poured in shot and shell until every vestige of concerted action amongst them has been destroyed, and their leader slain. In the words of the "Iron Chancellor" on a similar memorable occasion, there "let them stew in their own gravy."

THE FALL IN COTTON AND ITS RISKS FOR THE TRADE.

The demoralisation of cotton prices arising from the collapse of the speculative movement in Liverpool induces a condition of things in Manchester fraught with great danger to the trade, especially to the manufacturing branch. It is not yet certain that prices have touched the bottom, but they have fallen far enough to be made the occasion of inflicting great mischief upon manufacturers. It is almost superfluous to say that cotton goods as a rule are now made almost entirely to order, with some speciality in the particulars or headings for nearly every merchant. On all business contracted for upon a higher level of prices than that to which we have just descended, or may soon fall, great risks will hang. It is regrettable to have to say it, but there are many mercantile houses in Manchester, and their clients abroad, that do not scruple to repudiate their contracts upon the most frivolous pretexts when the fluctuations of the market offer them an opportunity of reducing the price. The present is one of these, and we expect to hear of repudiations of orders on some considerable scale, especially if the fall in cotton should proceed a little farther. It has always been the case in the past for a long time, and we are not aware of any change that will prevent in the present instance. It is a matter, however, to which the attention of the United Cotton Manufacturers' Association should be immediately drawn. In every case where there is reason to suppose improper advantage is being taken of present circumstances the case should be thoroughly investigated, and if persisted in the victimised manufacturer should receive the support of the Association. It would be idle to reply that manufacturers do not all know to whom their goods are sold. They ought to know, and in a case of this kind no agent ought to withhold the knowledge from them. Persisting in doing this, the responsibilities should be visited upon them. We have been made acquainted with many cases of injustice of this kind in like circumstances during the past twenty-five or thirty years, owing to its want of organisation, and we do not know that any one has yet devised a practicable plan of defending the trade from such attacks, which it is highly desirable should be done.

THE CALICO PRINTERS' ASSOCIATION.

A few weeks ago we made some comments upon the present condition of the calico printing trade, and pointed out that as a remedy for the evils which it is generally admitted the trade suffer from, there were two courses open—the formation of a Union on the same lines as the Salt Union, or an Association of Calico Printers, which, while it would not affect the particular position of any works, yet might regulate such matters as the method of quoting prices for printing, payment of allowances for bad shades, etc. Almost at the time of writing these ideas were being brought to a practical issue. We pointed out, however, that a working Union was scarcely possible. To the larger calico printers, who can obtain practically their own prices, the Union would be no benefit and there would be no inducement for them to join. On the other hand, by many others who could hardly make ends meet the Union was looked on as a good thing, as a means of getting a big price for their works. Naturally this would not do; for the Union to be saddled with a watered capital would be one step to financial loss. Hence the formation of such a Union has not been found possible at present; but the Association has been found possible and one has accordingly been formed to which many calico printers are giving in their adhesion. The result was the issue of the circular already published announcing that printing would after the 1st September be done by the yard and not by the lump as hitherto. The object of the circular is a good one, and no buyer of prints could object or say that to pay by the yard was anything but fair, but we think that the notice of so great a change in methods of charging was too short. It must be remembered that many of the printers' customers here are really only agents for foreign buyers, and it would take more than the two or three weeks allowed by the printers to communicate with their foreign principals; a longer time—say to the 1st of November—ought, therefore, to have been given. But the effect caused by the issuing of this circular was unfortunately somewhat marred by the issue by some printers who had not joined the association of another circular, to the effect that they will not at present make any change. It is evident to the simplest way-faring man that the issuing of this second circular was very bad policy, shewing, as it does, to the buyers of calico prints that printers are not agreed among themselves—a fact which was also evidenced by the first circular being sent out by the calico printers individually and not collectively as it ought to have been. The recipients would naturally hardly notice the first circular, the second being evidence that they can still get their printing done on the terms to which they have hitherto been accustomed. However, since then these matters are being smoothed over; the Calico Printers' Association is gaining ground, and a later circular collectively issued shews that some 43 of the largest printing firms in Lancashire have agreed to charge by the yard, and if they will only stick to the agreement a very desirable reform will be carried out. The non-contents may be disregarded, as practically they will have no power. The only competition that may arise would be from the Scotch printers, but these gentlemen are too shrewd business-men not to follow the lead of their Lancashire colleagues, and we trust that they will at once announce their adhesion to the movement, whereupon the question will be settled once for all. It is to be hoped that the agreement will be faithfully carried out, as union and unanimity must be the order of the day if any good is

to arise through the formation of the Association of Calico Printers.

SUPERFICIAL OBSERVERS ON THE M'KINLEY BILL.

London dailies are seen at their best when discussing a "function" at the West End or some other local affair, which in their wisdom they consider of sufficient importance to attract the attention of the country at large. When such a subject as the McKinley Bill comes forward, these same local affairs are still to the front, while a matter of such national moment as the tariff question, now agitating the minds of merchants and manufacturers in the United States, and in the North and Midland districts of this country, as well as in Ulster, receives but scant notice. By-and-bye, however, after the subject has been thoroughly thrashed out in these districts, the "pretty polls" of the London press commence in parrot fashion to take it up, and to inform their unenlightened readers of the bearings of the whole affair. As often as not the information thus furnished is wholly misleading. The latest example of this kind of thing has been set by the *Daily News*, which in all the prominence of leaded type announced the other day that "protection's death knell" (fine 'orts these) had been sounded by the McKinley Bill. This is all nonsense, as our contemporary would have known had it been in touch with the industrial pulse of the nation—which does not beat in London. If the statement referred to had rested in the columns of the *Daily News*, little further would need to be said. But unfortunately it has had wider circulation than that afforded by the organ of Bonverie-street, various metropolitan and provincial journals having quoted it. In Sheffield, for instance, we observed that the *Independent* on Monday had its placards almost filled with a headline drawing attention to the matter. This kind of thing is calculated to work much harm, for there exist no solid grounds why Englishmen, Scotchmen, or Ulstermen should delude themselves with the belief that the *Daily News* view is correct. Protection is too strong in the States yet for the sounding of its death knell to be talked about. London journals have done more to strengthen the position of the protectionist party in the States by talk of this kind than anything else. The foolish prognostications of the *Daily News* have been cabled to the States, and have by this time furnished political capital to the Republican organs from Sandy Hook to the Golden Gate. Professor Goldwin Smith says with truth in the current number of *Macmillan* that every protectionist in the States is Anti-British. Railers at England across the Atlantic, assisted by our deadly enemies the Irish citizens of the Republic, will see in the language of the London press further strong arguments in favour of the fiscal policy of which Major McKinley is a representative exponent. Manufacturers of these districts may safely ignore the London press as an authority upon subjects touching their commercial welfare. Another instance of their ability was displayed on Wednesday, when a metropolitan evening paper of the highest rank tried to enlighten its readers regarding the collapse at Liverpool, and gave the recent movement in the price of cotton as 3s. 4d. and 7s. 8d. per lb. (!)

The fair at Nishni-Novgorod began officially on August 22nd. Business is tolerably brisk. Prices are becoming firm. The turnover in Lódz goods is still slight, as in woollen goods. The getting in of cash is going on smoothly. The banks discount six months' and nine months' bills at 6 per cent.

Articles.

THE TRADES-UNION CONGRESS.

The event of the week, from an industrial and commercial point of view, is the annual meeting of the Trades-Union Congress at Liverpool, to which, in our last issue, we directed the attention of our readers. This is the 23rd year since its formation, and it may be remarked that its progress has been uninterrupted each year showing an advance in one direction or another. We are not aware whether, in its origin, the Congress owes anything or not, in the way of suggestion, to the Labour Parliament instituted by the late Ernest Jones, and which, in the fifties, held two or three meetings, if we remember rightly. But be that as it may, it is largely constructed on the same lines. Its members are appointed by the various local trades-unions and, in the main, receive their instructions beforehand on matters directly concerning the societies they represent. On all others they possess more of a representative character. Each member is furnished with credentials by the society sending him, and these are verified by an examining committee before he is allowed to take his seat. A president is elected, whose function it is to give an address to the members, and afterwards to preside over the deliberations of the assembly. To the whole of the business the Congress devotes a week, and is then dissolved. It, however, elects a permanent Parliamentary Committee, whose duty it is to take charge of the measures the Congress may desire to initiate, and otherwise watch all the proposed enactments that may directly or indirectly affect the interests of labour as seen from the trades-union standpoint. This Committee is a most important body and naturally a seat upon it is coveted by active and aspiring members of the various organisations. Almost necessarily its sittings are held in London, in order that touch may be kept with the Parliamentary representatives of the party, most of whom are also members of it. After a year's service this Committee presents a report of its labours to the Congress, and this is perhaps the most important document brought before it, as it shews what the Committee has done or left undone in the way of promoting or opposing legislation affecting industry, especially in the relationships between capital and labour. It also, to a more or less extent, outlines the desires and intentions of those who naturally guide and control, or at least to a great extent have hitherto done so, the deliberations and decisions of the Congress. This year, however, an element of discordance, Socialism, which first raised its head last year at the Dundee meeting, is threatening to interfere somewhat seriously with both the precedents and harmony of the meeting, by attacking, and if possible supplanting, the leading officials, to whose higher intelligence, caution, and experience rational trades-unionism owes much of the progress it has made in the esteem of the public.

It will be an unmitigated misfortune for both the industry and commerce of the country, and especially for the working classes themselves, if the present Congress should transfer its allegiance from the men whose labours in the movement have made them acquainted with the fact that there are interests in the world besides those of labour, and interests with which the latter are inseparably bound up, and between which no division can be made without mutual destruction. The new element in the present congress,

the socialistic one, which aspires to do this is, we regret to say, entirely destitute of both the intelligence and the experience necessary to safeguard and advance the true interests of the trades-union movement. This is amply proved by the utterances of its most prominent member, Mr. John Burns. His notions of capital, labour, and the principles that govern their relationship are as crude and vague as it is possible to conceive, and if permitted to control the course of action of the organized industries of the country will inevitably lead them to swift shipwreck and destruction. His labour and that of those who work with him has been spent upon the most ignorant mass of workers in the kingdom, the flotsam, jetsam, and the residuum of a nation, the unskilled labour of the East End of London, and corresponding classes and localities in our other large towns and cities. Upon such material a little volubility will go a long way, and be liable to be mistaken for double-distilled essence of wisdom. All the movements these men have made have been disastrous fiascos, with the notable exception of the Dockers' strike, engineered by Messrs. Burns and Mann. And this was won not through any skill or merit of theirs, but was entirely due to a spasmodic ebullition of unreasoning and mistaken philanthropic sentiment on the part of the London public, and to a less extent of the public outside the metropolis. This weakness turned the heads of the socialistic demagogues of the metropolis, who at once jumped to the conclusion that the country was ripe for the socialistic harvest and only awaiting the advent of the reapers, of whom they were the chiefs. They forthwith initiated a series of strikes in Manchester, Salford, London, and Liverpool, and other places, but save and except where there was a real grievance, as there was in a few places, these efforts have simply led to disastrous failures. The public did not again open its purse and pour forth a stream of gold for their support; the blunder of so acting in the Dockers' strike had been seen and repented of, and was not repeated. It is now, we venture to say, doubly regretted, since Mr. Burns has made it apparent that the humblest class of work to be found in the country is to be closed, if his advice be followed, against those who, under stress of misfortune, might find a refuge therein from starvation or pauperism, though requiring it, perhaps, only for a temporary period. We regret to see that even in the cotton trade there are leaders of the unionists—Mr. Ashton, of Oldham, to wit—who have not been able to preserve themselves from the delusion of thinking that a gigantic industry like that of cotton can be closed against all but those who choose to enlist under their banners. In the interests of labour, and in the still greater interests of the nation, the freedom of labour and the freedom of freemen must be maintained against all who either knowingly or ignorantly conspire against it. We are quite willing to believe that the men to whom we allude can only be properly classed under the second of these heads. But notwithstanding this they may do an infinity of mischief before their action can be arrested if care be not exercised, for

More wrong is wrought
From want of thought
Than any ill intent.

We trust, however, that this arrest will quickly be made by capitalists of every kind awaking to the perils of the situation immediately, for the longer this is deferred the ruder will be the shock when it comes.

After the hurly-burly made in the ranks of unskilled labour during the past few months,

and the organization amidst them of a large number of new unions, it was confidently expected that the present congress would surpass all preceding ones in the point of the attendance of delegates. When it assembled on Monday this anticipation was not only realised but exceeded. The session is being held in Hope Hall, Liverpool, a building fairly well adapted for the purpose, the area being covered with tables, supplied with writing materials. A certain amount of clannishness pervaded the assembly, as the groups representing the same or allied industries generally got well together. The Socialists had evidently prospected the room beforehand, or at any rate in good time, for they had secured what was evidently a very commanding position from which to enunciate their views. They did not mean to appear as an incorporeal voice crying in the wilderness, but as a very corporeal entity indeed, so as to accord perfectly with the aggressive nature of their policy. Perhaps the most notable men present were the labour representatives in Parliament, Messrs. Broadhurst, Fenwick, Wilson, Burt, and Abraham. Amongst other well-known names distinguished in the ranks of the workers in labour movements was Mr. Joseph

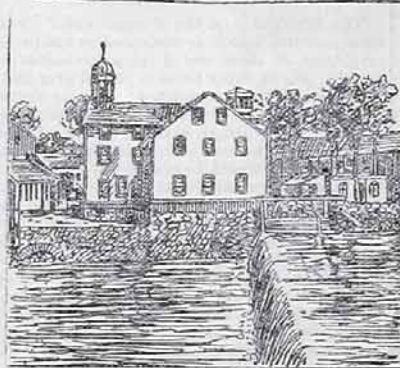


SAMUEL SLATER.

Arch, wellknown as the leader of the agricultural labourers, a man of sound intelligence, high morals, and of skill in speech. Also noticeable were the Socialist contingent, of which the leaders who made themselves conspicuous were Messrs. Burns, Mann, and Tillet. The cotton trade was represented by most of the leading officials of the various associations of operatives. The chairman, Mr. Swift (Manchester), opened the proceedings in a speech reviewing trades-union matters for the past 15 years, after which Mr. William Matkin (Liverpool Carpenters and Joiners' Society), was elected president. The remaining offices were then severally filled, and the Congress settled down to business. The first act was the passage of a resolution according sympathy to the Australian strikers, on the initiative of the London Socialist delegates; the next was the reading of the report of the Parliamentary Committee by Mr. Broadhurst. This was an important document, but comment upon the points to which it may be desirable to refer can be usefully reserved. After some discussion, the Congress accepted the invitation of the Mayor of the city to a trip upon the river, and a tea at the Town Hall. This concluded the first day's proceedings. Space will not permit us to follow in detail the discussions of the week, and perhaps it will be better that they should be reviewed when the full tale of what has been done has come to hand, so far as it may call for comment from us.

ANOTHER COTTON CENTENARY.

Our American cousins are about to "centenariate" at the end of this month the introduction of cotton machinery into the States, and the establishment of the factory system, by holding a high festival for a week at Pawtucket, Rhode Island. There are to be horse races, a rowing regatta, and a great gathering of Sunday school children, a military pageant and a firemen's day; all of them proceedings peculiarly appropriate, of course, to manufacturing industry. What is much more to the purpose, there will be an Industrial Exhibition, to be opened by President Harrison, at which all the processes by which cotton is converted into cloth will be fully illustrated, and which will include, by way of contrast, the original cards and spinning frames made and used by Samuel Slater, whose immigration is especially to be celebrated. These historic memorials will be on loan from the National Museum at Washington, and will be as interesting and suggestive as Arkwright's old frame was to us when it was included in our Jubilee show. But whether these Pawtucket festivities are intended to commemorate factories, or cotton machinery, or Samuel Slater, the time selected does not seem to be suitable for either. There was a factory erected at Beverley, in Massachusetts, in 1787, towards which the State legislature made a grant of £500, followed by another £1,000



OLD SLATER MILL.

in 1790, and this factory was visited by General Washington in 1789. It was built of brick, and the machinery, which was driven by horse-power, was modelled after the designs of two brothers named Barr, mechanics, who had come from Scotland at the invitation of a Mr. Orr, who was himself a native of Lochwinnoch. The Barrs were "encouraged" by the Massachusetts legislature to the amount of £200 in 1786, by giving them six tickets to that value in the State lottery, in which there were no blanks, and the machinery they made is considered by Mr. Donnell to have been, beyond doubt, "the first built or introduced into the States for the manufacture of cotton, which included Arkwright's roller spinning and other patent improvements." For a time at least, they appear to have been employed rather in making specimen machines and in demonstrating the use of them than in any direct enterprise, although several attempts to deal with cotton can be traced to their models and instructions. At Providence especially, a modest company, formed in 1788, of three persons, who at first intended to make up hand-spun cotton with linen warps into jeans, concluded to follow instead the Barr plans, and built a jenny with twenty-eight spindles, "which was first set up in a private house and afterwards removed to the market house chamber at Providence," while another Providence speculation of the same date took the shape of a "spinning-frame having

eight heads of four spindles each." There were two more weavers brought from Scotland in the same year, men who understood the use of the fly-shuttle, and could weave corduroy, and one of them also settled at Providence to build and start a loom with the first fly-shuttle ever seen in the town, or probably in America. But leaving this work, and keeping that spinning-frame in view, we find it sold to Moses Brown, of Providence, who removed it to Pawtucket, where, with his support and other machinery, William Henry and Smith Brown commenced business in 1789, and now we begin to know why Pawtucket should "enthuse" over Samuel Slater. Between June and the end of the year Messrs. Almy and Brown made of corduroys, royal ribs, denims, cottonets, jeans, fustians, and other stuffs, 189 pieces, containing 4,566 yards, which sold at from 1s. 9d. to 4s. per yard; but still, according to a writer in a Census report on the *Social Statistics of Cities*, they found all this good business unprofitable, owing to the clumsiness of the machinery.

But in September of this year, 1789, when steam power had just been applied to cotton machinery in Manchester, a young man left London for New York, where he landed in



JOHN SLATER.

November, after a longer voyage than we are now accustomed to in crossing the Atlantic. This was Samuel Slater, a native of Belper in Derbyshire, not long out of his time, in the old phrase, as an apprentice with Jedidiah Strutt, one of Arkwright's associates. Mr. Carroll D. Wright says that for the last four or five years of his indentures, Slater was general overseer of the Strutt factory, not only in making machinery, but in the manufacturing department, and if this seems an almost incredible position for a youth to hold, we must remember the wonderful expansion and unprepared condition of the trade at that time, and find a similar example in the career of Robert Owen, who, before he was twenty years of age, became manager of one of the largest mills then known, and in a few months partner in the concern. Young Slater threw up all his prospects of advancement at home on the strength of a newspaper paragraph, that had accidentally come under his notice, which stated what bounties were being offered in the States for the production of cotton machinery, and to acquire all the knowledge that could be gained he stayed with Mr. Strutt for some time after his apprenticeship had run out to superintend some new works which were being erected. There was nothing in New York to give him an opportunity, only one carding engine and two spinning jennies, although he had some engagement there, but in January, 1790, he entered the

service of Almy and Brown, and before the year was out, he put up three cards, roving and drawing, and a seventy-two spindle frame, worked by a water wheel, the first Arkwright machinery in America. From a description of the operations it appears that "the cotton was laid on by hand, taking up a handful and pulling it apart with both hands, and shifting it all into the right hand, to get the staple of the cotton straight, and fix the handful so as to hold it firm, and then applying it to the surface of the breaker, moving the hand horizontally across the card, to and fro, until the cotton was fully prepared." This does not inspire us with a great deal of respect for such appliances, but they were good enough then to make a radical change in the manufacturing prospects of the States. Whether the Pawtucket people will be justified in regarding their old mill, in which cotton is still manufactured, as the veritable cradle of their cotton trade, unless they are content to acknowledge that 1890 is certainly not the centenary of its erection by Samuel Slater, is, after all, not a matter of very much importance. If we are to accept what appears to be reliable testimony, the "Old Mill" of Pawtucket was not put up till 1793, when Slater appears as a partner with Almy and Brown, but the central fact remains that he was prime mover in several other successful ventures, and that he is thoroughly entitled to the designation of "The Father of American manufactures," which President Jackson gave him. It is especially interesting to remember that he practically escaped from England when we were in a state of industrial siege. Around our manufactures there were put Acts of Parliament in defence, with heavy penalties and imprisonment as the punishment of detection in exporting models, drawings, or plans of machinery, and, of course, in case the machinery was found in transit. Artisans were not allowed to emigrate, and if young Slater's errand had been known he would have been much longer than two months in getting to New York. But in spite of some convictions, and more seizures, the rewards of cotton manufacturing were then too great to become a national monopoly. Fines of £500 were not prohibitive when great fortunes might be won by evading them. The secrets of cotton manufacture were assailed on all sides. People came over on all kinds of plausible errands, but really to find out some detail of machinery, or to coax away some skilled operatives, and if sets of working models were sometimes discovered, hidden in bales of common goods, that could not prevent some attempts being more successful. There was even a State negotiation set on foot to induce Boulton and Watt to go to France, and who can tell what might have happened if that had been successful. That Samuel Slater broke through such barriers and overcame such obstacles as these is not by any means the least remarkable of the many recollections revived by this Pawtucket anniversary.

The portraits herewith represent Samuel Slater and his brother John. The latter had an interest in a mill built in 1799 in the town of Smithfield. The place where the mill is located is now known as Slatersville, and is the property of the heirs of John Slater.

Designing.

NEW DESIGNS.

FANCY DIAGONALS FOR DRESS MATERIAL.

This design is very bold and striking, the draft is straight over on 16 shafts, 24 to the reed; the figures at the side and foot of the design indicate

the pegging plan, all the other portion being repeats to show the run of the diagonal. A very good cloth for fancy vestings could be produced with 60 ends per inch, two in a heald of 24's spun silk, or 40's two fold cotton weft, single 20's, with 60 picks per inch. As this figure is really made by warp, the weft may be said to play a neutral part, at least so far as colour ornamentation is concerned, hence the necessity for vivid and determined contrasts for the warp threads. We give a few colourings for warp and weft, the preference being given for silk in warp. Crimson warp, pale turquoise blue for weft; white warp, light myrtle green for weft; light violet warp, white, cream, or grey weft; light lilac warp, dark terra cotta brown weft; Napoleon blue warp, dark orange or dark buff weft; light strawberry warp, dark dahlia weft; cream, dark cream warp, dark olive drab weft. These shades in warp and weft will be found serviceable and effective. If used for a dress material or shirting, 72 ends per inch of 24's warp with 60 picks of 12 soft cop weft will give a very satisfactory result.

FANCY DIAGONALS FOR VESTINGS.

This design is suitable for a variety of fabrics. The best effects would be given if weft and warp are equal. If there is any difference let weft be a little coarser than the warp, or a few more picks per inch than ends per inch in warp. A good cloth may be made with 2/16's cotton, two in a dent, in a 60 reed, 10's weft, 60 picks per inch. These details would make a good trousering cloth. For vestings, 40's warp in an 80 reed or 80 ends per inch, 30's weft, 80 picks per inch. Weft and warp grey; piece dyed in any shade, or bleached. The weft may be a different colour from warp, and vice versa. Straight over draft, 15 shafts.

FANCY SATIN DIAGONAL.

This diagonal is on the 16 shaft, and 7 for the satin ground, which is indicated in the design on a basis of three out of the seven points; or in other words, every three is passed over and a point made until completed. A very elegant and stylish dress material could be produced either in silk, worsted, woollen, cotton, or linen. The weft, if the reed is close set, might be any material, as it would be completely obscured in the face of the cloth, being thrown to the back out of sight. Two contrasts, or end and end, one for satin ground and one for figure, would be required to give full effect to this design; the reed might be a 60, three in a dent, or 80, two in a dent. Warp, 24's twist; weft, 30's; one shuttle, 48 picks per inch. The following colours and shadings are given as suitable, and in accordance with the prevailing taste:—Grey, pink, blue, mauve, cream, gold, and brown. In white cream ground, and sapphire blue for figure, a really pretty effect would result. For an out-door garment it would also look extremely pretty in cambrics, art and pongee silks, with greenish grey, venetian, or old rose pink, lightish browns, and pearl greys. It is exceedingly difficult to produce novelties in weaves, as almost every possible combination appears to be exhausted. Not so, however, with the embellishment of textiles by fancy colourings, where the utmost liberty is permissible if the arrangement be in accord with the vagaries of fashion. Many years ago we were engaged on a range of patterns for a very extensive London drapery firm, when their agent pointed out that an orange stripe would be desirable next to a glaring red. "Let us put a blue between," we suggested, "so as to minimise the discord." "Oh! bother the discord, do as I tell you; I know best what is wanted," was the reply. So much for taste. The ingenuity of the designer may be strained and bent in every direction to produce a really good article in good taste and style, but he is made subservient to the dictates and caprices of an unknown quantity that mysteriously rules with despotic hand in the World of Fashion.

MANTLE CLOTHS.

Design 176 demonstrates a principle of figuring mantle cloths similar to but more varied than that furnished in our last issue. The effect of this particular design is to give a shaded stripe, which will prove very effective if suitable colourings be introduced. Browns with red as the luminous and brightening colour; drabs and slates in conjunction with white; for lighter and brighter cloths French grey with

yellow, orange, and white, will also prove effective. These colours may be introduced either in the warp or in the weft but care should be taken to retain the shaded effect.

The design as given here cannot be reduced with drafting, so that it is not possible to produce such an effect with the dobby except in special cases, but as a ground for jacquard figures this system is very useful.

GALATEA STRIPED LINEN.

This is the most useful of all materials for women's and children's wear in every rank of society, and whether made in linen or cotton is always in season. It is very extensively used as a trimming for flounces and lately as a very becoming and durable cloth for bathing suits. We give the following new arrangement in anticipation of early enquiries for this make of goods:—All fast colour warp and weft, three shafts for ground, six for coloured stripe (see pegging plan), 60's linen warp, 60 reed, three in a dent, or 90 ends on one inch; 60's linen weft, 56 picks per inch, all one shuttle. Pattern of warp and draft as follows: 60 of very light fawn, on shafts marked on the side of the pegging plan 1, 2, 3; 6 of royal blue on shafts 4, 5, 6, 7, 8, 9; then 18 of light fawn on 1, 2, 3, a double end or two in a heald of royal blue, and four of light fawn on 1, 2, 3 shafts; 6 of royal blue on 4, 5, 6, 7, 8, 9 shafts; 18 light fawn, 2 of royal blue, 2 in a heald, 4 of light fawn, all on 1, 2, 3 shafts; 6 of royal blue on 4, 5, 6, 7, 8, 9, making a total of 126 for full pattern. Weft all fawn. If made in cotton, let dark blue take the place of fawn, both in warp and weft, the royal blue to become the lightest of cream or white; reed and picks the same, but warp 24's twist and weft 20's.

SHIRTINGS.

Patterns of this kind are extremely useful as they may be varied to an almost unlimited extent; the stripes may be increased at pleasure by adding more ends in the draft of each style of working.

A 72 reed, two in a dent, 20's warp, 14's weft, 56 picks per inch. Warp pattern and draft:—16 ends of white, 2 dark blue, 2 white, 2 dark blue, 2 white, 2 dark blue, 16 white; all on the first four shafts, as seen in the design marked as a 4-end or cashmere twill; 8 ends light blue, 8 dark blue, on the 8-end twill, four up and four down, 16 white, 2 red, 2 white, 2 red, 2 white, 2 red, 16 white on the first four shafts; 8 dark blue, 8 orange on the 8 shafts marked in the design as the 8-end twill. The whole pattern will amount to 100 ends, weft soft spun cop.

A second pattern.—Same reed, etc., 16 dark blue on the 8-end twill; 2 white, 2 red, 2 white, 2 red, 2 white, on the 4-end or cashmere twill.

A third pattern.—8 dark blue, 2 white, 2 red, 2 white, 2 dark blue, 2 white, 2 red, 2 white, 8 dark blue, on the four shafts or cashmere twill; 2 white, 5 dark blue, 2 white, 5 dark blue, 2 white on the 8-end twill.

These three patterns will be found very effective for shirtings, wrappers, etc. As we find this class of cloth is in great demand, we intend to furnish a few more really useful patterns in our next issue.

THE ARRANGEMENT OF FIGURES.

Figure 24 illustrates very effectively the "Sateen distribution of figures." It consists practically of a spray of gorsegrass, so common in country lanes, of course conventionalised to a certain extent. There are several noteworthy points in this design which will well repay attention. In the first place it should be observed that the spray is drawn in three positions; in the bottom portion of the spray the upper surface of the leaves are seen; in the middle portion of the spray the under sides of the leaves are seen, and in the upper portions the balls turn round sideways. We need scarcely remark the realisation of conditions such as these is at the root of all good designs.

Again, attention should be given to the breaking of one spray by its neighbour. Such interlacing, if such it may be termed, will very often be found useful, since it supplies a means for

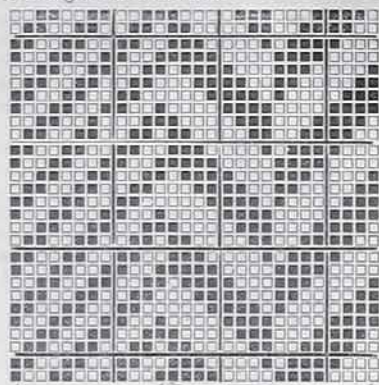
breaking through stiffness and giving the idea of ease and grace.

Attention should also be given to the construction of the design, since it hardly gives a comprehensive idea to say simply that it is spray arranged in fine sateen order, for it needs little study to see that there are limits to the form of the spray. In Figure 24, the first figure dealt with was that formed by the largest leaves at the bottom of the spray, this being distributed on the sateen principle. On this being accomplished there was found to be a space into which a similar figure rather smaller than the first was introduced, upon the completion of which the idea immediately presented itself of making a continuous spray; this was acted on and resulted in the design as here given.

Further reference will be made to this system of arrangement in our next.

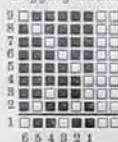


FIGURE 24.



4 END TWILL. 8 END TWILL. SHIRTING.

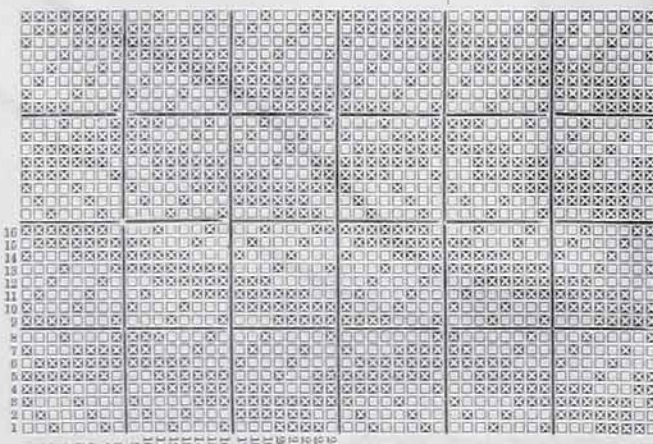
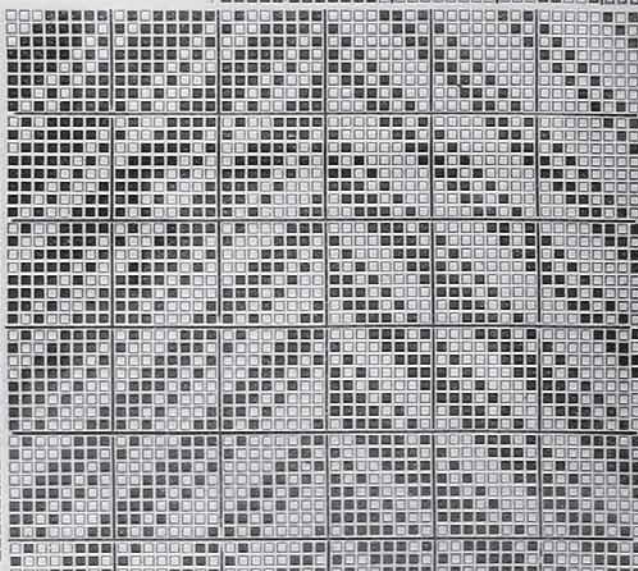
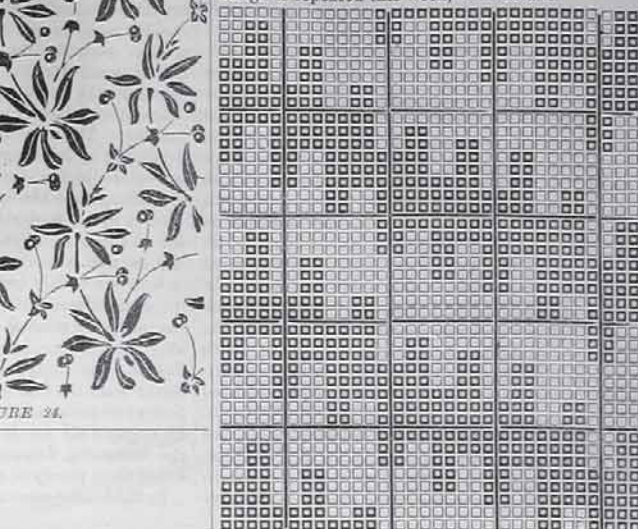
Pegging Plan.



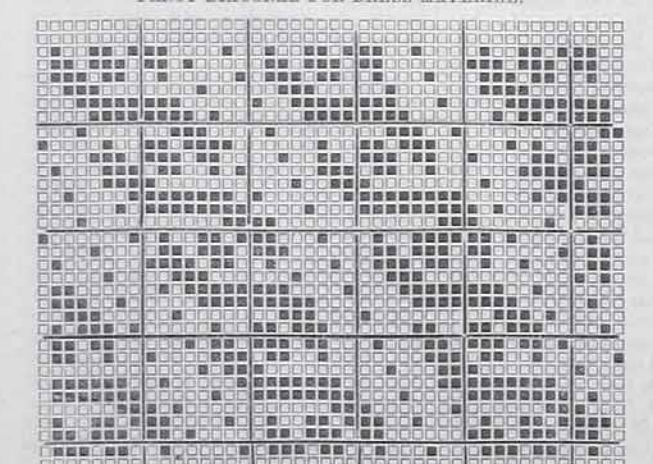
GALATEA LINEN STRIPE.

ERRATUM.—The first design figure given in last week's issue was, as practical readers would discover, erroneously described as "A Clan Tartan," instead of "Fancy Diagonal for Dress Material." The Clan Tartan instructions were complete without a design. The Diagonal design is repeated this week, with details.

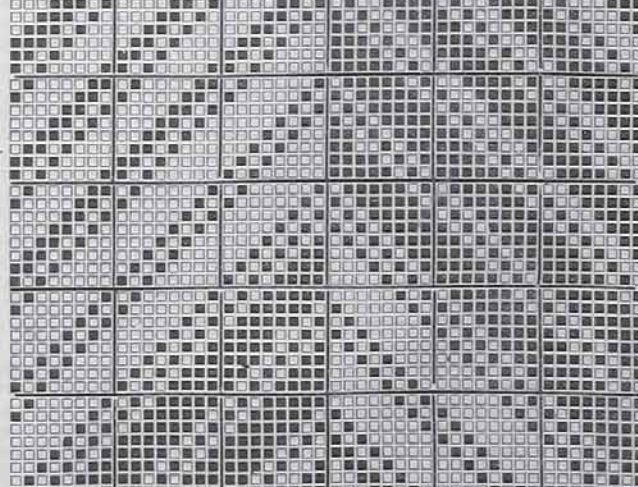
No. 1. FANCY DIAGONAL.



FANCY DIAGONAL FOR DRESS MATERIAL.



FANCY SATIN DIAGONAL.



DESIGN 176.

Machinery and Appliances.

A CARD CLOTHING MANUFACTORY.

MESSESS JOHN WHITELEY AND SONS, HALIFAX.

Every person having a slight acquaintance with the textile industries, knows that in more than one of them carding is one of the most important processes, and that especially is it so in the cotton trade. Carding is the first passage of the raw material in which it is attempted to arrange the fibres in parallel order, and in its essence it is simply combing, and probably in the earliest days of the art an ordinary comb would be the instrument used. As time went on a series of such combs would be found to be more efficient, and in these arranged in a stock we should probably discover the origin of the hand cards that were so generally in use up to the beginning of the present century. Naturally the material of which they were composed would change from wood to bone or horn, then to the metals, brass, iron, and last of all steel, the most recent introduction. This simply shows that progress has taken place in this branch in much the same manner as in others. This very

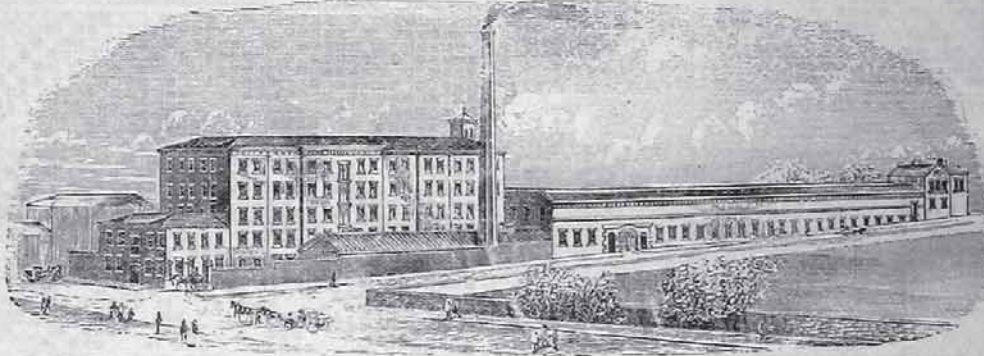
It was just after the patents of Sir Richard Arkwright had expired, or been set aside as invalid, that the infant cotton trade of England began to feel its strength. Crompton's mule, the adoption of which had been held in check on account of its infringing the patents just named, rapidly came to the front, and the excellence of the yarn it produced greatly increased the demand for it. This was accompanied necessarily by an extension of the demand for preparatory machines, including the means of carding. The old stationary flat cylinder card, developed by Arkwright from a section card in use before, took a considerably greater amount of clothing than the style of card it superseded. Thence arose a good demand for cards, and it was in the midst of this that Mr. John Whiteley laid the foundation of the existing business, now so well and widely known for the excellence of its productions. All the processes of making the card were manual, and continued so for a long time after. As was the custom in those days in every occupation, the members of a man's family were the first to be called into requisition when assistance was required. John Whiteley engaged all his family in this manner, and the increasing demand for their productions found them plenty of occupation.

In the development of the business the founder

ascended to Mr. F. W. Thomson, nephew of Messrs. Whitley, and to Mr. A. W. Whitley, son of the late Mr. Nathan Whitley. It is rare, indeed, for a business to thus pass through three generations into the hands of a fourth, and to be still developing. Generally speaking, manufacturing and business firms exhibit a wonderful likeness in their birth, development, and decay to that of human life, in its infancy, youth, manhood, old age, and extinction. In this case, however, there is, apparently, an exception to the rule, there being as yet no visible reason why the firm should not attain its second century, if not more.

All the past proprietors of the firm of John Whiteley and Sons have been prominent men in the town and district, and have taken an active part in all social, municipal, and local public movements. Most of them have been magistrates, and Mr. Nathan Whitley occupied the mayoral chair of the town on three different occasions.

Brunswick Mills, of which we give an illustration, were erected in 1851, to afford increased scope for the conduct of the expanding trade of the firm. They are situated in one of the pleasantest parts of the town and at a considerable altitude above the valley bottom. The approach thereto shows the visitor a brighter aspect of a



MESSESS JOHN WHITELEY AND SONS' BRUNSWICK MILLS, HALIFAX.

brief glance at the development of the carding process reveals the fact that, strictly speaking, "a card" is not the machine so called in common parlance to-day, but is the comb formed by the arrangement of the wire in its foundation, and which we now familiarly call card clothing.

If machine makers have found it necessary to devote the time, skill, and money that have been spent during the last fifteen or twenty years to perfecting the details of the machine which carries the clothing, it will be obvious that there can hardly be less call made upon the card clothing manufacturer to spend money, time, and skill upon attaining the highest perfection in the production of the clothing, which has to come into direct contact with the raw material, and upon which the efficiency of its treatment so much depends. That the card maker has done his best is also amply demonstrated upon investigation. Such at least was our conclusion after a walk through the establishment of Messrs. John Whiteley and Sons, card clothing manufacturers, Brunswick Mills, Halifax, upon a recent visit to that enterprising town, and a few notes of which we propose to lay before our readers.

The firm of Messrs. John Whiteley and Sons having been founded in 1791, and been thus one of the oldest now existing in the card clothing trade, deserves at least a brief historical notice.

was ably assisted by his two sons, Joseph and George, who, we believe, were taken into partnership therein by their father, and upon whom the business ultimately devolved at his death. In their hands it steadily expanded with the growing cotton trade, the excellence of the work turned out ensuring an increasing connection. But the time came when they, too, were to be gathered to their fathers, and the now considerable business passed to two nephews, Mr. John and Mr. Nathan Whitley, sons of a sister who had married a Mr. Whitley—Whiteley without its first e. Thus it came about that the Messrs. Whitley became proprietors of the firm of John Whiteley and Sons. These formed the third generation, and in their hands the firm still further prospered, becoming one of the leading establishments in the trade. The present Brunswick Mills were commenced by them during their partnership with their uncle Mr. George Whitley, and the buildings were increased to their present magnitude by the Messrs. Whitley, to meet the requirements of further necessities. During their régime many improvements in machinery were introduced, and the business generally expanded in every direction. In due time the period came round when they, too, had to give place to their successors. Mr. John Whitley retired from the business in 1887, and Mr. Nathan Whitley died during the course of last year. The business has now de-

veloped into a manufacturing town than probably he would anticipate finding.

In days well within the memory of the older generation of both employers and employed in the cotton trade, the manual card grinder was an important member of the staff of workers in a cotton mill. That time has, however, gone by, the progress of improvement having abolished him. There is nothing to be regretted in this, as the occupation was by far away the most unhealthy in connection with the industry. Mechanical grinders have now entirely taken his place.

Owing to the various improvements in card clothing there is very much less waste of wire in grinding than was formerly the case, a fact which has almost transformed the atmosphere of the cardroom in the cotton mill, from one of the most deleterious kinds that could well be conceived to one of comparative purity. The improvements in carding engines of all types, and especially the wide adoption of the revolving flat card, have done much to bring about this beneficial change. The most important contribution, however, has been the introduction of the hardened and tempered steel wire clothing. This needs much less grinding than the old description of wire. Amongst firms whose labours have done much to popularise this class of card clothing with the trade is that of Messrs. John Whiteley and Sons, who

have devoted special attention to making as perfect an article as it is possible to manufacture. In order to be able to give personal supervision to the manufacture in all its details, they conduct every process upon their own premises, from the drawing of the wire to the final grinding of the clothing. Many of these are performed by the aid of specially designed and constructed machines of their own invention, all of which, including the card setting machines, are made upon their own premises.

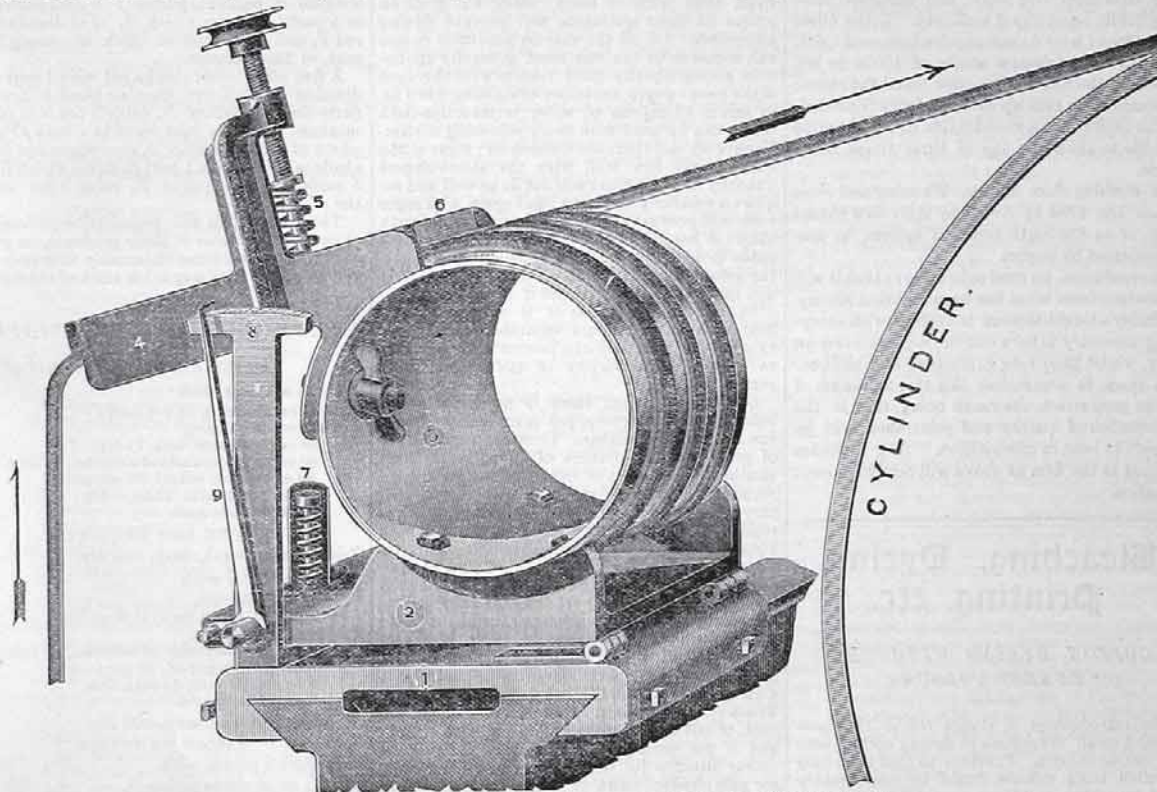
The greatest care is exercised to select metal of uniform quality from which to manufacture the wire, which is then drawn and tempered by machinery specially constructed in all its details with a view to secure the most reliable results. In the annealing, hardening, and tempering processes every detail is carefully adjusted and regulated, so that the product may be a hard, tough, bright, and even-tempered wire, free

quality or reduce its durability. In the treatment of the rubber, which is the best Para, it is carefully cleansed from earthy matter and every impurity, so as to make it perfectly uniform in consistency. Foundations composed of the purest and best materials, and prepared with the skill derived from long and extensive experience are, as might be expected, thoroughly reliable.

We have not space to describe the setting process, nor is it necessary, being fairly well known. We need only observe that the card setting machine is one of the most ingenious machines to be found in connection with the textile industries. The filleting, as the narrow band of the foundation is technically termed, having been filled with the teeth of the strength and counts or gauge required, presents a surface of pin points, each point being of the dimension of a cross section of the wire that has been used. Formerly, the card was finished here excepting

of stronger wire than before and its closer setting with increased firmness of the foundation. The result is a greater number of carding points in a given surface, and consequently more work from the carding engine. The point thus made is termed the "plough-ground needle point" to distinguish it from points produced without the plough, known as "the patent needle point." It will be obvious that the clothing on the former principle can be used a considerably longer period than the latter, and though costing rather more in the first instance, it is the most economical in the end.

In order to insure the highest excellence in their clothing and to reduce the grinding at the mill to a minimum, Messrs. Whiteley grind it level before delivery. Thus if the surfaces of the flats, cylinders, and rollers are properly prepared and the clothing applied with skill there will remain very little to do before carding is commenced



WHITELEY'S PATENT CARD FILLET MOUNTING AND TENSION REGISTERING APPARATUS.

from scale. These are all points of the highest importance to spinners, as upon their attainment and combination depends the efficiency and durability of the clothing.

Having thus got the first essential of good clothing, the highest quality of wire, the next requisite is a good foundation in which to insert it. Foundations vary according to requirement in both the materials and the strength of the structure. It will suffice here to say that they are made of a number of layers of cotton, linen, or woollen cloth, with, in some cases, a layer of india-rubber on the surface, practically unchanged from its native state, though it has undergone such treatment as enables it to be cut into thin even sheets for composing the foundation. The cloth, whether of a union of linen and cotton, or of whole cotton, is woven upon the premises in order to ensure that it shall be absolutely free from sizing, or any materials that might detract from its

for the necessary grinding to bring the points to a uniform level. It was found however, that in this condition the face of the clothing approximated too nearly to a solid to permit of the greatest efficiency of work. A needle point was desired, but it was long before means of obtaining it were devised. This was ultimately obtained by small revolving discs which ground away the sides of the teeth. But the greatest improvement was the introduction of the revolving emery wheel in combination with a plough opening the furrows of the card clothing for the passage of the grinding wheel, which can thus grind away the sides of the teeth to a greater depth and with more accuracy than before. This great improvement was introduced by Messrs. Ashworth Bros., of Manchester, and we believe Messrs. Whiteley are the largest producers of plough-ground wire under the licence of Messrs. Ashworth Bros.' patent. The plough grinding admits of the employment

Carding is so important a process that it is impossible to admit of careless or imperfect work in anything connected with it. The engine itself in all its details may be as perfect as possible, and so may the card fillet, but if the cylinders, doffers, or flats be badly clothed such merits will go for little until the defects are remedied. These arise mainly from the clothing being put on slack, when in working it "rises" or "blisters," and so damages the material that is passing through. To ensure the clothing of the various parts being of a uniform tension, Messrs. Whiteley and Sons have improved the apparatus usually employed, as will be seen from the accompanying illustration of the machine they provide for the purpose. It was designed to take the place of the cones and shunt plates commonly used. A brief description will suffice to shew its merits to the practical reader. The bottom of the illustration shews a planed bed on which the carriage (1)

is traversed; above is the cradle (2) hinged to the carriage, and upon this is the barrel (3), the periphery of which is quite smooth, to prevent any injury to the clothing; on the left is the trough for receiving and conducting the fillet to the barrel; on the top of the trough, and carried in a bracket cast upon it, is the hand-screw and regulating spring by which the pressure of the presser plate (6) is adjusted to the degree required. The amount of pressure applied is indicated through the agency of the tension spring (7), the index (8), and the index finger (9).

By the use of this mounting apparatus the covering of a carding engine can be properly and expeditiously performed. The tension at which the cylinders and doffers should be clothed differs according to the clothing used. Cylinder fillets of mild steel wire should be clothed at a tension of about 230lb., and of hardened steel wire at about 270lb. The doffer requires less; with mild steel wire 160lb., and hardened steel wire 170lb. being about sufficient. Roller fillets of hardened wire do not require to exceed 120lb. In using the machine a strain of 150lb. is obtained by the fillets going once round the barrel; to obtain from that up to 300lb. twice is needed; whilst above that a modification of the machine is made to allow of a lap of three times being made.

In clothing flats Messrs. Whiteley and Sons attach the fillet by rivets, by their own patent clasp, or on Ashworth Brothers' system, as may be preferred by buyers.

In conclusion, we need only observe that it will be obvious from what has been said that Messrs. Whiteley's establishment is replete with everything necessary to turn out the highest class of work, whilst their long experience and skill enable them to accomplish this at a minimum of cost in production, the result being that in the combination of quality and price they will be difficult to beat in competition. Any inquiries directed to the firm as above will receive prompt attention.

Bleaching, Dyeing, Printing, etc.

COTTON DYEING WITH THE "BENZO" COLOURS.

The introduction of Congo red in 1885 produced a small revolution in dyeing cotton with the aniline colours. Previous to that time only so-called basic colours could be satisfactorily dyed on cotton, and these required three operations to get anything like good results:—1st, treating the cotton with tannin; then 2nd, with tartar emetic; and 3rd, the actual dyeing process. The brilliant azo scarlets and yellows were not available for cotton dyeing, as they cannot be satisfactorily fixed on that fibre. Then came Congo, which could be dyed without any mordant, simply by boiling the cotton in an alkaline bath of that colour. Soon after Congo came the blues, azo blue and benzoazurine, and then the yellow chrysamine, followed in quick succession by other colours until there are now some seventy odd of these colours, covering many shades, although a few, such as greens and good violets, are wanting. Large quantities of these colours are now being used with more or less success. They are essentially one dip or one bath dyes, and may be used either alone or in combination, one with another, to any extent. Although in the main one process is applicable to all of them, yet they do not all dye equally well by one process—that is to say, the method which will give best results with benzopurpurine does not give the best results with benzoazurine, or Titan yellow. The former will dye in a strongly alkaline bath, while the last requires a

strictly neutral bath, and the blue a neutral or very weak acetic acid bath. The reason for this is not far to seek: the reds, as a rule, are much affected by acids, and they only assume their characteristic brilliant tints in alkaline solutions; therefore an alkaline or a neutral bath is the best for them; while, on the other hand, the blues are affected by alkalies, and need to be dyed either in a neutral or weakly acid bath. The yellows are somewhat intermediate in their properties, and a neutral bath gives the best results with them. They will dye better in an acid than an alkaline bath. The affinity of these dyes for the fibre is great, and without an addition to the dye-bath they would dye up somewhat uneven. The object of adding the "assistants," as they might be called, is to prevent the dye going on too quickly, and, therefore, promoting evenness in dyeing. In what manner they do this is somewhat uncertain, and not easily explainable; it is probable that they act somewhat differently on the different dyes. One thing is certain—fuller and more brilliant shades can be got with them than without them, while too great an excess of these assistants will prevent dyeing altogether. Of all the various assistants in use salt seems to be the one most generally applicable, giving equally good results with the dyes of the benzo group; a solution containing 4 to 5 lb. of salt in 10 gallons of water forms a dye-bath which can be used with every colouring matter. Even with salt there are differences; some of the colours will dye well with the above-named quantity of salt, others will not do as well and require a smaller proportion; and again, a stronger bath will prevent some from dyeing, while with others it has no effect. It would take too much space to deal with each in particular and show the amount of salt which is best adapted for it and that which will prevent it from dyeing.

In the present article it is not intended to deal with benzo colours separately, but rather to point out how they can be combined together to form a wide variety of useful shades on cotton.

Greens.—Although there is no direct green belonging to this group, yet many useful shades can be got by admixture. Thus for a nice shade of grass green a mixture of 95 parts of chrysamine and 5 parts of benzoazurine gives good results; while for a deep blue green, 75 parts of chrysamine and 25 parts of benzoazurine G is really good. An olive green can be got with equal parts of chrysamine and azo blue; a myrtle green with 2 parts chrysamine, 2 parts benzoazurine G and $\frac{1}{2}$ part of benzopurpurine; a bronze green with 1 part each of chrysamine, benzoazurine G, and benzopurpurine; a slate green with 2 parts chrysamine, 1 of benzoazurine G and 1 of delpurpurine 5 B; and a sage green with 8 parts chrysamine and 1 part each of benzoazurine G and delpurpurine 5 B. These shades are best dyed either with 20 per cent. of salt or 10 per cent. of phosphate of soda and 3 per cent. of soap, using 3 per cent. of colour mixture for dark shades, and 1 per cent. for pale shades, some of which are well worth using.

A Peacock Blue of a nice tone can be got with either 2 parts of chrysamine and 8 parts of benzoazurine G, or with 1 part of diamine black RO and $\frac{1}{2}$ part of diamine yellow N.

Fawn can be got with 1 part each of chrysamine and delpurpurine 5 B, or by 1 of chrysamine to 3 of delpurpurine, the former giving a yellow, the latter a red shade of fawn; only about 1 per cent. of the mixed colour being required.

Olive Yellows can be got with 1 part benzoazurine G, 3 of delpurpurine 5 B, and 16 of chrysamine, using 1 per cent. of the combined colour, or with 1 part of diamine violet N, 1 of diamine black RO, and 12 of diamine yellow N, using $\frac{1}{2}$ of a per cent. of the combined colour, which gives even better results than the last mixture, using 15 per cent. of phosphate of soda, and 5 per cent. of soap in the dye-bath in each case.

Slates of various shades are readily obtainable. A few are mentioned here, but the colourist will have no difficulty in combining these colours in other ways. A green slate can be obtained with a mixture of 1 part of diamine black RO and 4 parts of diamine yellow N, using from $\frac{1}{4}$ to $\frac{1}{2}$

per cent. of the colour; or a mixture of 1 part each benzoazurine G, chrysamine and delpurpurine 5 B, and using 1 per cent. of the mixture will give a good result. A blue slate can be got with 2 parts of benzoazurine and 1 part each chrysamine and delpurpurine 5 B, using about 1 per cent. of the mixture, or 4 parts of diamine black RO, 1 part diamine red NO, and 2 parts thioflavine S, using about $\frac{1}{2}$ of 1 per cent. of the mixture. Another good slate can be got with a mixture of 1 part each diamine violet N and diamine yellow N, with 5 parts of diamine black RO, using about $\frac{1}{4}$ per cent. of the mixture.

Lavender shades can be got with 1 part of diamine violet N, and 2 parts of diamine black RO, using $\frac{1}{2}$ per cent. of colour. **Lilac** with 1 part of benzopurpurine 4 B, and 4 parts of azo violet or 4 parts diamine violet N and 1 of diamine black RO, using about $\frac{1}{2}$ to $\frac{1}{4}$ per cent. of either of these mixtures. By using $\frac{1}{2}$ per cent. **dark plum** shades can be got with either of these mixtures.

Grenat shades are given by a mixture of equal weights of benzopurpurine 4 B and azo violet, or 5 parts diamine violet N, 1 of diamine fast red F, and 1 of diamine black RO, using 3 per cent. of the mixture.

A fine **olive brown** can be got with 1 part each diamine violet N and diamine black RO, with 4 parts diamine yellow N, using 3 per cent. of the mixture. This is best dyed in a bath of phosphate of soda and soap. A nice warm **nut brown** shade is given with 1 part diamine violet N and 5 parts diamine yellow N, using 3 per cent. of the mixture.

These examples will probably be sufficient to show the usefulness of these products, as giving shades in one bath not obtainable with such ease and certainty with any other class of colours.

RECIPES FOR CALICO PRINTERS.

ALIZARINE RED ON COTTON.

Make a colour with

200 oz. alizarine, 20 per cent.,
280 oz. thickening,
68 oz. acetate of lime, 11 degs. Tw.,
60 oz. sulphocyanide of alumina, 30 degs. Tw.,
50 oz. Turkey red oil, 50 per cent.,
72 oz. acetic acid, 12 degs. Tw.,
1 oz. tartaric acid.

MEDIUM ROSE ON COTTON.

Print, steam, wash, soap, and dry.

Make a colour with

187 oz. alizarine,
17 oz. acetate of lime, 11 degs. Tw.,
350 oz. thickening,
15 oz. sulphocyanide of alumina, 30 degs. Tw.,
75 oz. Turkey red oil, 50 per cent.,
93 oz. acetic acid, 12 degs. Tw.,
2 oz. tartaric acid.

Print, steam well, soap, and dry.

YELLOW ON COTTON.

Prepare a colour with

71 oz. of cotton yellow G,

dissolved in

20 pints of boiling water.

Mix with

25 pints tragacanth paste,
2½ pints 20 per cent. soap solution,
2½ pints 20 per cent. phosphate of soda solution.

Print, dry the pieces, and steam without pressure for 45 minutes.

The *Farber Zeitung* gives the following series of recipes, with printed patterns. The colours are very fine and brilliant. The cloth is prepared by passing through a bath of Turkey red oil, 1 oil to 20 water, dried, then printed:—

1.—DARK RED.

7,000 grms. thickening (see below),
1,500 grms. alizarine, 20 per cent. (yellow shade),
900 grms. water,
770 grms. sulphocyanide of alumina, 15 degs. Bc.

(see below).

385 grms. acetate of lime, 20 degs. Bc.,

385 grms. oxalate of tin, 16 degs. Bc. (see below).

2.—PALE RED.

1,000 grms. above dark red,

10,000 grms. thickening (see next column.)

Sulphocyanide of alumina, 15 degs. Be.,
24 kilogrammes sulphate of alumina,
dissolved in

24 kilogrammes boiling water,
27.5 kilogrammes sulphocyanide of barium,
dissolved in

40—50 kilogrammes water.

Both solutions are allowed to cool, and are then mixed; the precipitate is allowed to settle, the liquor poured off, and the residue washed 2—3 times with boiling water; 60 kilogrammes of sulphocyanide of alumina, of 15 degs. Be., will be obtained.

Oxalate of Tin, of 16 degs. Be.

6,400 grms. tin hydroxide are treated with
800 grms. oxalic acid,
6,000 grms. water.

The tin hydroxide is made by adding

24 kilogrammes of ammonia to 35 kilogrammes
chloride of tin, 51 degs. Be.,
washing the precipitated hydroxide 4 or 5 times
with water.

Thickening.

3,600 grms. starch mixed with
30 kilogrammes water,

and boiled; then

9,900 grms. tragacanth liquor (75 grms. per litre),
1,200 grms. olive oil

are added, and the whole well boiled. It is used
cold.

3.—GREEN.

1,000 grms. Prussian blue (see below),
1,000 grms. Persian berry extract, 10 degs. Bs.

Blue.

1,000 grms. prussiate of tin,
500 grms. indigo carmine,
2,000 grms. alum,
1,125 grms. oxalic acid,
1,000 grms. sal ammoniac,
20,000 grms. gum water,
5,000 grms. acetate of alumina, 10 degs. Be.,
6,000 grms. prussiate of tin paste.

[Is it necessary to have all these substances
in this colour?—Ed. T. M.]

4.—PALE BLUE.

1,000 grms. of above blue,
18,000 grms. gum water.

5.—GREENAT.

1,500 grms. starch,
5,000 grms. water,
2,000 grms. acetic acid, 7½ degs. Be.,
1,500 grms. quercitron extract, 20 degs. Bs.,
1,000 grms. olive oil.

Boil, and add

2,000 grms. tragacanth liquor (100 grms. in
litre),
7,000 grms. alizarine, 20 per cent.,

Allow to cool, and add

6,000 grms. acetate of chrome, 18 degs. Be.

6.—GREY.

1,000 grms. new grey,
4,000 grms. thickening (see above).

7.—RESEDA GREEN.

1,000 grms. caralain,
1,250 grms. acetate of chrome, 15 degs. Be.,
0.800 grms. acetic acid, 7½ degs. Be.,
1,250 grms. tragacanth water (75 grms. per
litre).

8.—CHAMOIS.

2,400 grms. Persian berry extract, 30 degs. Bs.
10,000 grms. dextrin thickening,
4,060 grms. acetate of chrome, 15 degs. Be.,
1,330 grms. acetate of lime, 15 degs. Be.

BLACK ON JUTE.—The following is a cheap, bright black for jute. Such a black would be particularly applicable to shoemaker's thread. For 100 lb. material: In a tub of 120 gallons, filled to two-thirds with water, dissolve 5 lb. solid extract of logwood and ½ lb. extract of fustic paste, and bring the liquid to a boil; then shut off steam and enter the jute; open the bundles but not the skeins, and put in some boards to prevent the material from rising. After 24 hours, take up the jute and pack it in heaps by the side of the tub, and repack the heaps two or three times during the next 24 hours, so that all parts of the material be as much as possible exposed to the air. In the meantime dissolve in the logwood bath 8 lb. coppers and ½ lb. bluestone, and add some water if necessary. Bring the bath again to a boil, and re-enter the material again for 24 hours. Then let out the bath, lift the jute, rinse and dry.

Foreign Correspondence.

TEXTILE MATTERS IN THE UNITED STATES.

NEW YORK, AUGUST 23RD.

Mr. Frederick A. Leigh, the senior partner in the firm of F. A. Leigh and Co., Boston, the well-known importers of English textile machinery, died on Saturday last. Mr. Leigh came to this country a quarter of a century ago, from Manchester. He sprang from a family that had been closely connected with the cotton trade, his father being the late Evan Leigh, whose name is familiar as a textile machinist. Two brothers of the deceased—Messrs. E. Arthur Leigh and Thos. A. Leigh—are in business at Manchester and Liverpool. The gentleman who has thus recently passed away from amongst us was a great favourite both in this country and in Mexico. He paid several visits to England after commencing business in Boston, and was in this way able to keep in touch with the latest developments of Lancashire enterprise.

The curtailment of print cloth production has caused attention to be directed to the condition of the industry here viewed in the light of its total output. It is estimated that sixteen mills turn out 1,180,800,000 yards per annum. In 1880 there were 29 calico printing works in operation owning 329 machines, with an output of about 1,258,300,000 yards per annum. Ordinary dress prints for three years past have been declining in public favour. Innovations have been sought for and produced with success, soft-finished goods in imitation of cashmeres and Henriettas having been placed on the market. Gingham, too, are selling very freely, and the signs warrant the assumption that ordinary calico prints will not be so popular as formerly.

The worsted business of Charles Fletcher and Co., at Providence, Rhode Island, is amongst those marked for appropriation by English capital. Arrangements have been made for the immediate conversion of the concern into a limited liability company with a capital of more than three million dollars, and three Bradford gentlemen largely interested in the wool trade will form the English directorate. These are the Mayor of Bradford (Ald. Smith Feather), Mr. J. Benn, and Mr. G. Dawson. The Fletcher Works are said to be the largest of their kind in the world, larger even than the famous Saltaire Mills in England, and the present profits are, according to the books, almost half-a-million dollars a year. Mr. Fletcher, the present head of the firm, is a native of Thornton, a village near Bradford, and he emigrated to America about seventeen years ago as a weaving over-looker. He started in business with twelve hundred dollars, his entire savings, and soon afterwards had his premises burnt out. He has built up his present business within a dozen years, and now employs thousands of work-people. He is a millionaire, with a sumptuously furnished house at Providence, another residence on an island in Narragansett Bay, and a well-appointed steam yacht to convey him to and fro.

"Give us the McKinley Bill or give us free wool" is the cry of the manufacturers just now. The unusual rush of importations has alarmed them, and the delay by Congress causes much annoyance to the contributors towards the campaign fund of 1888. The "goods" have been paid for. What is now wanted is a delivery as per invoice. In other words the manufacturers, having provided funds to the Republicans in return for a promise that the tariff should be increased, now await a fulfilment of the agreement.

The following description of "new" designs in Merrimac goods will no doubt be interesting, as showing the latest move on the part of one of the leading print concerns on this side. I would not, however, advise anyone to consider that the designs are original:

FURNITURE CRETONNES.

The goods are 30 inches wide and made of a

good, durable twill. Most of them show large all-over designs printed in 15 different colours on a white or coloured *fond*. A beautiful cretonne shows a white ground, over which run huge branches in three shades of blue blended with brown. Large bunches of flowers alternate with small ones. The former are printed in about 12 different colours and look as if they were hand painted. The hue of the flower bunch is either light brown or yellow, while the small bouquets are of three different shades of blue.

R. F. FURNITURE CRETONNE.

The weave is a strong *mummy* cloth, the surface of which shows an armure effect in blue, brown, or mauve. The designs are oriental and the colouring extremely brilliant. It is almost an impossibility to describe such designs on account of their arabesque forms, which give so much freedom to the artistic imagination of the designer.

FURNITURE TWILLS.

These goods are of a cheaper quality, and like R. F. furniture cretonne, are 25 inches wide. Notwithstanding the cheapness of price the colouring is quite as brilliant as in the expensive fabrics of the same kind. We see on a plain light yellow ground garlands of dark yellow roses with a brown ombre effect covered by leaves of a lighter shade.

The rose garlands alternate with *bandeaux*, formed by branches of myosotis in a delicate blue. The space between the rose and myosotis stripes is about 3¼ inches.

Returns showing the value of the exports and imports of textiles during the year ended June 30th last, have been published. The figures are of more than ordinary interest, and as will be seen from the table of statistics given in another column [vide page 169] the figures relating to European shipments to this country are suggestive. Cotton goods, for instance, were sent here in 1890 to the extent of nearly 30 million dollars, an increase, in round numbers, of 3 millions on 1889. The increase, however, is entirely in knit goods, curtains, laces, and articles of that class. Cloth, whether in the grey or printed, has declined considerably. The increase in raw silk imports is very marked. Referring to recent reports to the effect that a large importation of Egyptian cotton was imminent because of the price of the American article, the Boston *Commercial Bulletin* says that Egyptian cotton occupies a position between our sea island and extra staple cotton, its length being about 1½ to 1¾; sea island cotton being from 1¼ to 2 in length. It is only the poor grades of Egyptian cotton that approach our middling in price. There is very little call from American mills for the lower grades of our cotton; bagging mills use some, but most of it has to be marketed abroad. Thus, the lower qualities of Egyptian offer no attraction, nor did the size of the crop admit of any considerable quantity being obtained. The staple being long, many mills accustomed to use our shorter stapled upland cotton could not use the Egyptian without some modification of their machinery.

By a fire which broke out in the sewing-machine thread factory at Dresden, damage has been done to the amount of from 15,000 to 20,000 marks.

A LARGE new factory is in course of erection at Hainichen, close to the railway station, in connection with the power-loom weaving shed of G. F. Leonhardt.

A PROPOSAL recently made by the purchasers of the Egerton Woollen Mills in the Punjab (India) to re-form them into a company with a capital of five lakhs has, it is said, fallen through for want of sufficient support. The purchasing syndicate gained possession of the mills for four lakhs, and the property was supposed to be worth over fifteen.

PARIS AS A WOOL CENTRE.—It is reported that some large French wool dealers have banded themselves together to make Paris the central market for the French wool trade, thereby avoiding the necessity of having recourse to Antwerp and London. Whether the proposed ship canal to Paris has originated this notion we are unable to say, but in any case Paris is ill-adapted as a wool centre. Its distance from the sea and also from the principal woolen districts of France renders such a scheme almost impracticable, and we very much doubt whether it has been seriously taken up by any leading men.

News in Brief,

FROM LOCAL CORRESPONDENTS AND
CONTEMPORARIES.

ENGLAND.

Accrington.

The death is announced of Mr. Swain Rhodes, J.P., one of Accrington's most respected public men of the past generation. Mr. Rhodes was born at Harwood, but removed to Accrington with his father while quite young. He entered the cotton manufacturing business at Hynbar Mill, and continued as a manufacturer until six years ago. He took a very active part in public affairs throughout his life, and held many honourable positions in the town.

Bacup.

The Rossendale Industrial Co., Limited, have had their steam engine foundations at Irwell Mill repaired, consolidated, and strengthened during the week end, with Fox and William's Patent Fusible Metallic Cement, the work being most successfully carried out under the personal superintendence of Mr. Williams.

Batley.

On Monday night, a fire broke out on the mill premises of Messrs. Brooke, Wilford, and Co., woollen manufacturers, Carlinghow. Four storeys at one end of the mill were burned through. The fire originated in the blending-room on the basement. Considerable damage was done to the stock and machinery, but the loss is covered by insurance.

Blackburn.

Owing to the breaking of a shaft at Brookhouse Mill, Blackburn, on Friday afternoon, a number of the operatives employed there were thrown temporarily idle.

A meeting of Blackburn mill managers was held on 29th ult. at the George Inn, under the presidency of Mr. Jamieson, for the purpose of hearing a lecture on the aeroprop, by Mr. Hamner, of Manchester. Diagrams were shown of the apparatus, which provides for the humidifying of mills in the manufacture of cotton cloth. In practically demonstrating the utility of the apparatus Mr. Hamner had the aeroprop in motion in the room, and his observations were supplemented by Mr. J. H. Liko, manager of the company.

The spinners employed at the mills belonging to Messrs. J. Fish, Limited, have given a fortnight's notice in consequence of the bad material supplied to them. Mr. Watson, the secretary of the Masters' Association, strongly denies that the workpeople can fairly complain of having had bad material, and says that one of the spinners admitted that he gave notice because of the system of payment by indicator. This method of payment, he asserts, was pressed upon the employers by the workpeople, and the basis of payment adopted at the mills was settled by Mr. Ashton (secretary of the Oldham spinners), Messrs. Fenton and Ball (secretaries for the Blackburn spinners), and Mr. Watson (the masters' secretary).

A monthly meeting of the Blackburn Technical School Council was held in the Committee-room of the Blackburn Town Hall, on Monday night, Alderman Whiteley, vice-president, in the chair. A communication was read from the Town Clerk, informing the Council that by a special resolution of the General Purposes Committee all the members of the Blackburn Town Council are added to the Technical Council, as representatives of the penny rate, under the Technical Instruction Act, 1839. The arrangement was accepted, and in future Town Councillors will be summoned to the Technical Council meetings. A resolution was passed requesting the Town Clerk to obtain the sanction of the Science and Art Department, South Kensington, to a minute to be laid before Parliament, of the technical subjects taught in the school, which are not included amongst the South Kensington grant-making subjects. They are:—Cotton spinning and manufacturing, cotton weaving and designing, and other non-textile subjects.

Bradford.

The old mills of Messrs. Toward Brothers at Cullingworth, which, with a brief interval, when they were in the hands of Mr. Clarendon Willey, have been standing some years, have been purchased by Messrs. Craven and Craven, of Horton.

Bury.

The Ross Manufacturing Company, Limited, Ramsbottom, were summoned on Thursday for breaches of the Factory Act in 25 instances, in employing women and young persons during a part of the time allowed for meals. Mr. J. T. Birtwistle,

factory inspector, prosecuted. The company pleaded guilty, and were fined 5s. and costs in the one case and ordered to pay costs in the remaining 24.

On Monday the Bury Commercial Cotton Manufacturing Company Limited, Tottington, were fined 10s. and costs in one case, and ordered to pay costs in the others, or a total of £1 0s. 6d., for employing ten women after half past five o'clock on the 31st July. Mr. James Pearson, her Majesty's inspector of factories, of Ryehdale, appeared to prosecute. Messrs. William Rumney and Co., manufacturers, also were fined 2s. and costs in two cases, and ordered to pay the costs in eight others, for employing young persons during meal hours.

Darwen.

The news of the decease of Mr. James Walsh, J.P., which occurred on Sunday at hiarsidence, Wilmslow Lodge, Cheshire, was received in Darwen with very general expressions of regret. The deceased gentleman was the son of Mr. Nathaniel Walsh, of Orchard Bank, and was educated at Harrow. After the death of his father he, in co-partnership with his brothers George and Charles, carried on business at the Orchard Mills. This was continued until about seven years ago, when the firm was converted into a limited company. Mr. Walsh was only 43 years old.

Farnworth.

We learn that a limited liability company has been formed by gentlemen in Oldham and Bolton connected with the cotton spinning industry, for the purpose of erecting a spinning mill at New Bury, on the site of Messrs. J. Whitam and Sons' Mossfield Mill, which was burnt down. The site covers about eight acres. It is the intention of the promoters to have one-half of the mill spinning Bolton counts and the other half spinning Oldham counts, and to meet this the engine and boilers will be in the centre of the structure, so that the two divisions can be worked together or separately. The old Mossfield Mills, which were erected in 1868, contained about 30,000 spindles, while the new one will contain 60,000—80,000 in each division. The plans have been prepared by Messrs. Stott and Sons, mill architects, Oldham. Mr. T. E. Smith, of Bolton, has been appointed surveyor.

Guisley.

Mr. Jonathan Peate, of the firm of Messrs. Peate, of Nunroyd Mills, Guisley, has recently been placed upon the commission of the peace for the West Riding and the workpeople at Nunroyd Mills signalled the event on Saturday by presenting him with an illuminated complimentary address. The address, beautifully illuminated in colours, was signed by 23 members of the workpeople's committee. In the top border is an excellent view of Nunroyd House, in the bottom border is an equally good view of Nunroyd Mills, while on the left hand side are portraits of Mr. and Mrs. Peate, the intervening spaces being filled in with a pretty floral design. The whole is enclosed in an elegant English gilt frame. This testimonial had been subscribed for exclusively by the employees of Nunroyd Mills.

Kidderminster.

Messrs. Woodward, Grosvenor, and Co., Limited, are seeking tenders for removing a lot of cottage property belonging to them in Worcester Cross. Upon the space then provided they intend erecting a large shed for the purpose of extending their Axminster plant.

On Sunday morning last a fire, which might have proved disastrous, broke out at the Spinning Mill owned by Mr. Thomas Lea, M.P. Fortunately the outbreak was discovered in good time, and the firemen being quickly on the spot much damage was averted.

Littleborough.

On Saturday morning part of the shed in connection with Shore Mill, which is owned by Messrs. E. Clegg and Son, Limited, was burned down, the total damage amounting to about £300, covered by insurance.

Leigh.

All the mills in the Leigh district closed for the annual August holidays on Friday evening of last week, and work was not resumed until Tuesday morning. A trip to Liverpool, in connection with the firm of Messrs. Tunnichiffe, was got up and was well patronised.

Keighley.

The following students have gained free studentships to the weaving school for the session 1893-94 on the results of the City and Guilds Institute examination in Cloth Weaving and Design—viz., James Bailey, John Barker, Levi Petty, Robert Radman, John E. Smith, Peter Spencer, and John W. Waterhouse.

Manchester.

A meeting of the creditors of Tennenbaum Brothers, merchants and shippers, Brazenose-street, Manchester, and Jassy, Roumania, was held on Monday. Mr. Pilkington, of the firm of Messrs. Edmund Potter and Co., presided, and there was a large attendance of creditors. Mr. R. A. Edgar, solicitor, stated that the liabilities of the firm were from £30,000 to £35,000, and the assets in England were small. A committee of inspection of six of the largest creditors was elected, and Mr. Potash and Mr. A. J. Jeffrey were instructed to proceed with power of attorney to Vienna and Jassy to act on behalf of the creditors.

Mirfield.

Considerable damage was done by fire on Thursday in the extensive works belonging to Messrs. H. Walker and Son, woollen manufacturers. About £2,000 damage was done (insured).

Nelson.

Messrs. Ecoroy and Sons, Lomeshaye Mills, have posted notices stating their intention to reduce the wages of the weavers of worsted satins in their employ to the prices paid by other manufacturers of this class of goods in Nelson. This will mean a reduction of from 1s. 6d. to 2s. 6d. per week for about 250 weavers. On Tuesday, Mr. Ecoroy, senior member of the firm, informed a deputation from the workpeople that the firm would pay according to the standard list of prices for worsted satin goods woven in that district.

On Saturday afternoon a monstrosity demonstration took place at Nelson, near Burnley, in celebration of the reception of the charter of incorporation of the town. The procession was two miles in length, and included 9,000 Sunday-school scholars, a number of luries on which were workmen and machinery giving an exposition of the various trades carried on in the town (the principal being that of weaving plain and fancy goods), a large company of volunteers, policemen, public officials, representatives of Lancashire fire brigades, and members of neighbouring authorities. The town was decorated with flags, triumphal arches, and other devices, and in the evening the streets were illuminated with the electric light, and there were pyrotechnic displays on an extensive scale, while the provisional mayor (Mr. W. Gott) entertained a company of 80 gentlemen at a banquet. Nelson has grown more rapidly than any other place in Lancashire during recent years. It derived its name from a local inn which was itself called after the hero of Trafalgar. It is included in the township of Great and Little Marsden. Nelson has to-day a population of 23,000 souls, and a rateable value of £64,923. In 1831 the whole township, which covers more than double the area of the new borough, contained only 5,133 souls, while in 1861 the total population of the township was but 7,342. In 1865 the population of Nelson was estimated at 8,500; in 1871 it was only returned at 5,580, and in 1881 it had increased to 10,381. Thus the population has doubled itself during each of the past two decades, and now new sheds and new houses are being built, showing that the remarkable growth of the past 20 years is likely to continue. The Local Board was formed in 1864, and the Queen, on the recommendation of the Privy Council, signed the charter of incorporation on the 21st of July last.

Oldham.

The cotton mills in Oldham and district have been closed the whole of this week for the annual holidays. Work will be resumed on Monday.

Work in the carding and spinning departments has been commenced in earnest at the New Deal Mill this week.

The directors of the Stamford Mill Company have decided to have the fireproof mill, which is in course of erection, fitted up with automatic sprinklers.

Next week the Ruby Spinning Company will begin work in earnest. Just prior to the holidays cotton was placed through the first carding engine.

The firm of Messrs. Thomas Emmott and Sons has been converted into a private limited company. They own about 100,000 spindles and 1,300 looms.

Mr. James Stott, mule overlooker at Mosley Spinning Company, is going out to Russia to fill a similar appointment.

Messrs. Stott and Sons, architects, of Oldham and Manchester, are preparing plans for a new mill to hold about 90,000 spindles, which is to be erected at Preston.

Messrs. Potts, Son, and Pickup, of Oldham and Manchester, have been appointed the architects of the new mill being erected by the Mutual Mill Company, Heywood. They also prepared the plans for the No. 1 Mill belonging to the same company.

Mr. Ogden, cashier at Messrs. A and A. Crompton and Company's, Park and Woodend Mills, Group: 100,

has been appointed salesman at the Duke Spinning Company, vice Mr. James Hentborn, who, we announced last week, had been chosen manager of the Beal Mill Company.

It is computed that the new mills in hand in Oldham district will require an addition to next year's crop of American cotton of about 150,000 bales. With the mills closed this week, some 12,000 bales will have been unconsumed.

At the Higginshaw Mills Company seven old boilers are being taken out and replaced with six new steel boilers, four of which are working. The filling of the new mill with machinery is fast approaching completion, there being only one pair of mules and some cardroom machinery now to be delivered.

The savings of the Wakes going-off clubs were distributed last week, and the amount divided is computed at over £20,000. Messrs. Platt's works, as usual, had the list with £14,450, which is nearly £4,000 higher than last year. Messrs. Asa Lees come next with £4,500, against £3,600 twelve months ago. Messrs. Bradbury's amounted to £2,133; Newton's Meter Works, £74; Yewtree Ironworks, £450; and Park Foundry, Hollinwood, £160. One public-house—the Market Hotel, distributed £1,549, and three others over £1,000 each, and a few Sunday Schools a similar amount.

Advantage has been taken of the holidays by having repairs carried out at a large number of the mills, and also in having the lodges cleaned out at the Phoenix Mill. While the latter process was being carried out a slight mishap occurred. On the water being liberated, two walls collapsed. However, they have not caused much inconvenience, and it is expected everything will be in readiness for work on Monday. Another week at least will elapse at the Broadway before the repairs to the engines are completed, while at the Glodwick it is anticipated the water lodge arrangements will be so far finished as to allow of the resumption of work on Monday, this meaning a stoppage of about nine days, excluding the holidays.

It was unofficially announced at the Trades Union Congress on Thursday that Mr. Thomas Ashton, secretary of the Operative Spinners' Association, had been appointed a magistrate. Both the president and secretary of this Association will now occupy seats on the magisterial bench; Mr. E. Mellor, the president, being appointed to the position about two years ago.

Rochdale.

The shareholders of the Norden Manufacturing Company have had notice this week of another call of 10s. per share to be paid on or before the 29th inst. This will make the shares £4 paid up.

The monthly meeting of the Chamber of Commerce was held on Friday evening the 29th ult., when Mr. Evans raised the question of charges on cotton and other goods from Liverpool. He stated that cotton and other goods from Liverpool to Rochdale, either by rail or canal, were charged 10s. per ton, while they were conveyed to Oldham, a distance of seven miles further, for 9s. 2d. per ton, a difference of 10d. per ton. There were, he said, 3,000 or 4,000 tons of cotton coming to Rochdale every month, and putting it at the very lowest estimate Rochdale paid from £1,200 to £1,500 per annum more than, in his judgment, it ought to do. The secretary was instructed to write to the directors of the railway company asking them to receive a deputation on the subject from the Chamber.

Rossendale.

Mr. Mitchell, of Townsend Fold, has taken the Albion mill, Hareholme, which he will fit up for the hard waste trade.

The Lumb Mill, Irwell Vale, which was formerly a paper works, has been re-started work by the Manchester Cop Dyeing Company, who have fitted it up with all the latest machinery.

Shaw.

On Saturday a fire broke out in the carding room of Messrs. Taylor's Lyon Mill. It was caused by friction. This firm has put in the automatic sprinklers, and they acted in a capital manner, subduing the fire before it had time to spread. The damage is but slight.

Sudbury.

The silk weavers working in Sudbury, Glemford, Haverill, Lavenham, Hadleigh Long Melford, and other towns in West Suffolk, are at present negotiating with the masters, middlemen, and "sweaters" of the trade for an increase of wages, shorter hours, and the removal of many minor grievances. Some time ago the operatives, who, as a general rule, work at their homes, were compelled to provide improved looms at a considerable outlay, the producing power of which has doubled a day's output. No equivalent rate of wage has been

granted or offered. This the operatives demand, as well as other extras. Mr. John Williams, chief organiser to the National Federation of All Trades and Industries, has been elected by the silk weavers to be their mediator in this dispute, and the executive council of the above body have given Mr. John Williams full power to act. The London silk workers will, it is understood, also co-operate. The masters have threatened, should the operatives persist in their demands, to import foreign workers from Lyons, France, or send the work to that town. The Trades' Council of Lyons will be communicated with, also the Silk Workers' Society of Paris, and it is expected that the masters—whose depôts are in London—will not receive the expected assistance.

Tyldesley.

Messrs. C. Wright and Co., cotton spinners, now possess the widest and most elaborately built chimney in this district. It replaces their old chimney, which had got to be 30-in. out of the perpendicular in a height of as many yards. The height of the new chimney is 65 yards, and the width at the top 7 ft. 3-in. inside and 8 ft. 9-in. outside. A small tubular chimney, 30 yards high, has been erected inside, in order to prevent the chimney getting overheated. About 750,000 bricks have been used in the erection. A new cotton store has also been erected at the same mill.

Yeaddon.

The promoters of the new Yeaddon Railway scheme have failed to obtain sufficient funds to go forward with the project, which is now at a deadlock for want of sufficient capital.

SCOTLAND.

Arbroath.

On Monday night a fire broke out in a wooden shed at the East Links Rope Works, belonging to Mr. James Smith, rope-spinner. The shed, which was occupied as a heckle shop, and contained a considerable quantity of hemp, was, with its contents, soon destroyed. The damage is £100.

Dunfermline.

The late Provost Donald left a legacy of £10 to each of the operatives employed at Castleblair and Victoria Linen Manufacturing Works, Dunfermline, and last week Mr. Peter Donald, the late Provost's brother, and senior partner of the firm, met the workers (800 in all), and announced that the cashier would pay the legacies at once. In his remarks Mr. Donald advised the operatives to lodge the money in the savings bank, and said he would pay the legacy duty, so that the workers might get the full £10. Some of the heads of departments by the late Provost's will get legacies of from £200 to £1,000.

Galashiels.

On Saturday afternoon, while Mr. James Lees, the managing partner of Messrs. George Lees and Co., Galabank Mill, was riding along the Selkirk-road, his horse shied at a passing train, and he was thrown heavily to the ground. He was considerably bruised and shaken, but no bones being broken, he is progressing favourably.

Glasgow.

The annual meeting of subscribers and others interested in the weaving branch of the Technical College of Glasgow was held in the College, Well-street, on Monday. Mr. J. S. Templeton, one of the trustees, presided. He was accompanied to the platform by Messrs. George Younger, Ingram, Blair, and others.—The secretary (Mr. Frame) stated that the evening classes had been attended by 50 students, 35 of these in the initiatory class and 17 in the advanced class. At the last examination 26 students competed for prizes. The questions for examination were carefully drawn up by the members of the Visiting Committee, and 17 of the students were successful in obtaining a title to a copy of the weaving school diploma. Mr. William Muir was awarded the silver medal and Mr. Robert Gilmour the bronze medal. For the production of the best sample of cloth designed and woven by a student in the school a silver medal was gained by John Ewart, whose exhibit was a tapestry table cover. A silver medal was presented by the secretary to Mr. Robt. D. Clarke for the best set of home exercises, and an extra prize was gained by Mr. Alexander Macdonald. The examiner considered the home exercise books were well worthy the attention of manufacturers. The trustees had to acknowledge the receipt of the late Colonel Nelson's donation to the printing and dyeing branch, the gratifying report of the benefits derived by them, and the fact that in many instances advancement to situations of higher order in their employment has been the result.—The chairman said he would make one practical observation. Many of them got up an

album in which were placed all the conceivable combinations of weaving that they came across. He made it a rule of his life that he understood how every piece of cloth that he saw could be woven. Let them, he said, take that as a hint. They might put the pieces of cloth in to a book and ascertain how and why they were made. This would be a much more interesting pursuit than that of collecting postage stamps.

Inverness.

The Committee entrusted with the carrying out of the arrangements for the Annual Exhibition of the Highland Home Industries and Arts Association, of which the Marchioness of Stafford is the President, have resolved to hold it within the Collegiate Buildings, Inverness, on the days of the Northern meeting. A large display of home-made goods is expected. Arrangements have also been made whereby all the processes of weaving, spinning, and carding by hand will be shown at the Exhibition.

Miscellaneous.

THE WOOLLEN EXPORT TRADE: ITS PRESENT, AND FUTURE.*

(Continued from page 132.)

By W. W. WHITEHEAD.

Coming now to China and Japan, the future will see these countries traversed by railways, which will open out for us a trade of which at present we have but little idea. These countries are comparatively unknown, and there will be a field for enterprise presented there, which I think will command for us an enormous trade. And Burma, settled as we hope it will be by our annexation, will, in its turn, help us to command a large share of the Chinese trade. India, daily advancing under England's beneficent rule, will also become a much larger customer than she is now, and here is a field which must command a good share of our productions. Australia, ever increasing in population and with larger wants, is also a market for the products of our looms. The other Colonies with their ever-increasing population must also surely become larger customers. Africa, an unknown land to all intents and purposes for commercial ideas, may perhaps, in course of time, be interesting enough for business, especially Egypt, which, under British rule, has a fine future in store. South America, unfitted for manufacturing purposes from climatic causes, must also become a much larger consumer than it has ever been.

Thus it will be seen there is a future not without hope, and if we only "tackle" the thing in the right way, I think we can not only hold our own, but still lead the trade in all these countries, in spite of the ever-increasing severity of the foreign and American competition. But this can only be by the adapting of ourselves to new methods and new styles. Every particular market will have to be studied by itself, its tastes, etc.—in a word, every requirement must be carefully and intelligently carried out. Here comes, then, the point where the Yorkshire College must make its presence felt. It will be for you, and for such institutions as yours, to do this work, and you may depend upon it, the greater your advantages for learning, the more will be expected from you. It will be useless to plead the old excuses of machinery not adapted to the work, and others of this kind, to which we have been so long accustomed; it will be useless to offer old-fashioned designs, bad combinations of colours, inferior dyeing, because you must learn the ways to avoid all this. Those who study here must know better, and it is therefore for them to make their knowledge known by the turning out of such work as will ensure a trade.

It has been a matter of surprise that considering England's commercial supremacy, she has never had a minister whose undivided attention could be given to commercial matters. Treaties come and treaties go, but the ignorance of the English Government on commercial matters is proverbial. Perhaps when the wretched party cries which put into the shade all other (to me) more important legislation shall have lulled, we

* A paper read before the Textile Society of the Yorkshire College, Leeds.

then may wake up and find that something more is required, when a strong Minister of Commerce may be appointed, whose sole occupation shall be to look after the interests of this country in business matters. Surely this is more important than the question, for instance, whether women shall vote. Supposing we had a strong Minister of Commerce, he might make it his business to see that our Consuls were a little more up to the mark, and that they kept us better posted up than is the case at present. I do not mean to say they should act as if they were the agents for any particular trade; but I would have a little less of the official and more of the business man, by reports and other means to keep us alive to what is going on, and thus help us to meet the competition which presents itself. It may be that our Chambers of Commerce will become a more important factor than they are at present. With practical men they might be of much greater service to us than now.

Some authorities think the making of the Channel Tunnel would be of service to us, but so far as this part of the country is concerned it may be dismissed as a dream of the dreamers. Some other authorities think the great extension of railway communication on the Continent must have some influence upon our export trade. Mr. Herbert Gladstone, in a letter to the *Leeds Mercury* a few weeks ago, tells us that his experience of through railway rates is that they have a tendency to lower duties. My experience does not shew anything of the kind; in fact, quite the contrary. In spite of the large extensions of railway communication on the Continent during the last ten years, there is not a country in Europe—with the exception of Belgium, Holland, and Switzerland—which has not increased its duties, France and Germany being the chief offenders, so I do not think the future will be influenced by this. The plain truth is, Governments arrange their fiscal affairs without any regard to such matters.

Technical education for our workmen (as in Germany) may become a reality, and this in its turn will help good work to be turned out, and when ratepayers rouse themselves to a sense of the needs of the position they will take care to send enlightened and intelligent men to represent them in the Town Councils, who will approach such a question as this in a fitting manner. Technical schools are doing much, but there is a great amount of lee-way to make up. Technical instruction and the cultivation of the artistic sense must extend over a much wider area, and enter deeper into our industrial system before we can outrun the fertile and facile imagination at work on the Continent. It is not so much that our foreign rivals are cleverer, but that technical knowledge and taste are much more widely diffused amongst them.

There are several difficult questions that we shall have to meet in the future. I need only refer very briefly to two or three of them. First, there is the artificial raising of prices, before the expansion of trade warrants it. I mean not the rise which comes gradually and naturally from increased demand, but that forcing up of the cost of raw material to such a fancy price as to seriously check an improving trade. I refer now more particularly to the cost of coals and the attitude of those who supply us with them. It is not necessary for my purpose to portion out the blame either to coal-owners or men. I would simply point out that we now see a forcing up of the cost in such a manner as must seriously interfere with the prices of manufactured goods, thus helping to divert the trade to other countries.

Another difficulty is the demand for legislative restriction of the hours of labour, or, in other words, the Eight Hours Bill, championed by frantic enthusiasts of the Grahame and Burns type. The leaders of both political parties pooh-pooh the question at present, but we know well enough that when the exigencies of parties demand it, what is described as a *fad* today, is accepted as gospel to-morrow. This is one of those questions which affects our export trade most seriously, and it is little use passing it by, thinking nothing will come of it. It must be killed straight off.

These are a few of the suggestions I offer. There are many more which present themselves,

but which from want of time I must leave; for instance, there is the merchant's duty, which we might well consider. This is sufficient to form in itself material for a paper, but for the present I leave it with the remark, that in Germany the spinner, weaver, dyer, and merchant work into each other's hands, and thus achieve a result, a unity of purpose, which is of the most vital importance.

The future of our export trade is one upon which we cannot look except with anxiety, yet coupled with the greatest hopes, and I believe that having wakened up to what is required of us, we shall, by avoiding past errors and taking up the newest ideas with avidity and intelligence, not only hold our own, but surpass even our cleverest competitors.

FAILURE OF THE "COTTON KING."

The heavy fall which has recently taken place in the cotton market, and especially in near futures, resulted on Tuesday in Mr. William Steenstrand being obliged to-day to post himself in the rooms of the Liverpool Cotton Association as unable to meet his engagements. The heavy fall in prices had before caused several small firms to succumb, and there were reports of the instability of several others. The stoppage of Mr. Steenstrand was not a complete surprise, though he was almost the largest operator in the Liverpool Cotton Market. It will be recollected that he formed a prominent figure in the cotton "corner" which caused so much excitement in the manufacturing regions as well as in Liverpool last year. Mr. Steenstrand apparently then calculated that the season's cotton supply would prove inadequate to meet the trade requirements of the world, and thus anticipated that there would be a considerable rise in prices from the low level of the spring. To utilise this situation for his own advantage Mr. Steenstrand purchased largely and persistently, and as the spinners had not shared his view of the cotton prospects, and had not prepared for the contingency of short supplies and high prices, they seemed to be at his mercy to a large extent. As a relief to the tension—being unable, as time went on, to work at a profit with the high prices prevalent—they ran their mills short time, while some spinners decided to stop altogether during the first half of October, unless the situation improved. As it turned out this was unnecessary, for on the 30th of September the "corner" collapsed, amid a scene of great excitement on the Liverpool Exchange, and there were great rejoicings in the manufacturing regions. It may be stated generally that what happened last year has now been repeated, though in a reversed form, and at the beginning instead of the end of September. The market has not supported Mr. Steenstrand's forecast, various causes contributing to a decline during the past month; while during the past fortnight the fall has been accelerated, probably through the caution of the spinners and the planters forcing new cotton into the market. It is calculated that last year Mr. Steenstrand made about £80,000 profit when September stock failed; while now he is said to have lost something like £200,000 during the past month, and the greater part of this during the last fortnight. Three weeks ago it was currently reported that he held about 150,000 bales in spot and future cotton. In the interval prices have fallen 3d. per lb. for spots, and 4d. per lb. for September deliveries, so that his losses must have been very great. Besides his operations here he is said to have been dealing largely on the other side; and the New York market also having fallen, his difficulties would be thereby increased. It is understood that Mr. Steenstrand has already practically arranged with his creditors, paying them a substantial dividend.

The failure of the "Cotton King" has evoked much sympathy among men on the Liverpool flags, among whom he is best known. He is about 55 years of age. When the late "Cotton King," Mr. Morris Ranger, failed in 1883, as the result of the collapse of a great cotton corner, Mr. Steenstrand was little, if at all, known in connection with cotton, and his association with the business has been for the most part, if not exclusively, speculative. He turned to this enterprise after profitable experiences in coal and salt.

SILK PRODUCTION OF THE WORLD IN 1889.—The production of silk throughout the world last year is estimated at 11,706 tons, as against 11,548 tons in 1888, 11,888 tons in 1887, 10,694 tons in 1886, and 9,002 tons in 1885. The average of the four years from 1885 to 1888 was 10,748 tons. The 1889 crop was rather above it, although scarcely any silk as produced in Syria and other parts of the east.

TEXTILE INDUSTRIES OF DUNDEE.

(Continued from page 133.)

DYEING AND BLEACHING.

The colouring of spun fibre and woven fabrics is one of the most ancient of the arts. Civilisation in its earliest history affords indications of the existence of those who devoted their attention to the production of different hues and colours in order to satisfy the natural desire of the eye for beauty or to mark clan relationships and racial distinctions. The Scottish dyers have long been famed for their skill, and in the times when colours were produced on wool, silk, and cotton by secret processes in the exclusive possession of a few artificers the headquarters of this industry were to be found in the West of Scotland. All this is now changed, however, as machinery has done away with the manual skill required by the dyers of former times, and the invention of the coal-tar colouring compounds has led to a revolution in the trade. Although dyer's colours are now provided for him by the colour-maker in contrast with the older method whereby he had to form the colour in the fibre itself in the process of dyeing, still his duties are as important as formerly. Much skill and experience are required to select the best and most economical method of applying those colouring materials properly suited to the fabric which he is treating from the great range of colours that are now at his disposal. The dyer trade in Dundee was formed by the combination of the Waulker Craft and the Litster Craft, both of which had an independent existence in the fifteenth century. It was not, however, an extensive business in the burgh until a comparatively recent date, and its present prosperity is largely due to the immense impetus given to it by the introduction of jute as a textile fabric. The material, from its physiological structure, and in consequence of the tannin it contains, naturally attracts colouring matter more readily than any other known fibre, and after the original grey of the jute has been removed by bleaching, it will take on dyes which for brightness, fullness, and appearance vie with those of silk and wool. When jute is properly dyed and finished, the fibre shews a beautiful silky lustre that greatly enhances the appearance of coloured goods manufactured from it. The dyed jute yarns are mostly used in the manufacture of jute carpets and matting, and also for the backing of woollen carpets and rugs. The finer yarns are now utilised for fancy woven fabrics—such as curtains, tapestries, tablecovers, etc., and the increasing demand for these goods is no doubt due to the great skill and taste displayed in the colouring and designing of them. During the last few years the printing of jute carpeting has been largely introduced, and this allows the manufacturer to produce a beautiful design in varied colours, where formerly he was confined to the use of very monotonous stripes and figures. In Dundee there are about a dozen dyeing and printing works, employing nearly 400 persons. The principal firm engaged in the dyeing, bleaching, and printing of jute yarns and piece goods is that of Messrs. Francis Stevenson and Sons, Lawside Dyeworks. This business was founded by Mr. Francis Stevenson a considerable time ago, and new works were erected in 1884, with plant and machinery of the most modern character. Whilst the business of this firm is confined to dyeing for manufacturing purposes, the firm of Messrs. Stevenson Brothers, the Dundee Dyeworks, Hilltown, and 88, Tottenham Court-road, London, is devoted to what may be termed the domestic trade—that is, the dyeing of silks, satins and velvets, upholstery, furnishings, damask curtains, and articles of dress. The latter business was established in 1877 by two sons of Mr. Francis Stevenson, and has been recently extended to provide accommodation for new departments added to their works.

The bleaching of yarn has long been an important industry in this locality, though, like other kindred occupations, it has developed amazingly since the introduction of jute. The only fresh water stream of any importance in the neighbourhood of Dundee is the Dighty, and for several miles of its course it is studded with numerous bleaching works, which, though beyond the city boundaries, are still inseparably connected with the trade of Dundee. One of the largest concerns of this kind is that of Messrs. Cargill and Co., who have bleachfields at Mid Mill, Fountainbleau, and Parkhead. Mr. Cargill, the founder of the firm, has had over 50 years' practical experience of the trade, and it has attained its present importance and extent during his connection with it. In 1852 his firm acquired the premises of the Dundee Bleachworks Company, and these have been extended until they now cover an area of 30 acres. Messrs. Cargill and Co. have also a spinning mill at Blebo Works, near Cupar

Fife. Many of the larger firms of jute spinners have now bleachfields of their own, and have made this adjunct of their industry a separate department. The principal bleachfields on the river Dighty are those of Messrs. John Carmichael, Baldovan; Moodie and Co., Balmuirfield; W. Black, Harestane; Boase and Co., Claverhouse; Cargill and Co., Mid Mill; and M'Intyre Brothers, Ballunie.

CALENDERING.

The process of calendering is subsidiary to that of weaving, but is not the less necessary for the purpose of preparing cloth for the market. After the linen and jute fabrics have left the looms they are "cropped" to remove all superfluous fibres, and are then passed through a heavy mangle, which imparts a glossy appearance to them. If the pieces are not to be made into bags or sacking they are measured by a very ingenious machine, and are lapped and made ready for shipment, but if they are intended to be used for the making of bags the webs pass through a machine called the "cutter," which cuts the lengths to the required sizes. In baling the goods the hydraulic press is used, and goods for exportation are thus greatly reduced in bulk so as to occupy less room on shipboard. In the golden days of the jute trade calendering was a distinct industry, outside of the weaving trade, as independent firms finished the goods made in the factories and prepared them for shipment. In this respect, however, a change has gradually taken place in consequence of the competition in the jute trade, the result being that most of the large manufacturers have erected calenders of their own, so as to save the commission of the middlemen. The public calenders are therefore on the decline. As an indication of this change it may be stated that, while 100 of the now and powerful hydraulic mangles required in this business were turned out in the Dundee foundries last year, not one of them has been fitted up in a public calender. The men and boys now employed in the public calenders do not exceed 1,000 persons, exclusive of those employed in this department by weaving firms.

THE CHINA-CLAY UNION does not seem to have gone off very well. At all events, a circular has been sent out inviting applications for fully paid-up shares, and lengthy extracts are quoted from the prospectus. It looks from this as if the promoters or underwriters had been saddled with a lot of the stock, and wanted to get rid of it. If so, we should know what value to put upon the allusion to "the probable future of this great undertaking," and upon the dramatically courageous statement that "these shares should command a much higher market very shortly."—*Financial News.*

"BLACKLEGS" OR FREE-MEN?—"A Free-man" writes:—"Give a dog a bad name and hang him" is an axiom of which the most is being made by the leaders of trade unions. The name 'blackleg,' which they so freely use to designate non-unionists, is most unfair and is doing unspeakable mischief. It may be impossible to prevent the trade union leaders from using bad names, but there seems to be no good reason why their example should be followed by the public. May I suggest, therefore, that in future, by the Press, at all events, the offensive name blackleg should be dropped, and the word 'free-man' used in its place?"

WHAT MR. TOM MANN WILL DO.—Mr. Tom Mann, president of the Dockers' Union, was the principal speaker at a public meeting at Carlisle the other day to promote union among railway workmen, and obtain their adhesion to the General Railway Workers' Union. He said that after giving careful consideration to the industrial situation, he had come to the conclusion that unless matters were altered he would "kick up such a devil of a row that matters would become worse." He did not believe in trades' unionism for the mere purpose of obtaining shorter hours, but as a step towards a system of industrial co-operation.

AN extraordinary piece of Japanese weaving, which is now at the exhibition in Tokio, will shortly find its way to London. It is known as *taure-ori*, or pierced weaving. It is of great size, and the design is equestrian archery, an old world accomplishment in Japan, and one which is frequently used for purposes of illustration and design by Japanese artists. The price asked for it was 10,000 dol., or about £1,700. The distinctive feature of this kind of weaving is that the whole margin of the design is perforated like the joining of postage stamps, so that when the whole piece is held up to the light the design of the artist seems to be suspended in the body of the stuff. In Japan this kind of weaving has been regarded as a *tour-de-force* of the artist, and it is believed that the piece is the largest and finest ever produced.

TEXTILE IMPORTS AND EXPORTS OF THE UNITED STATES.

The following table shows the value of raw and manufactured textiles imported and exported by the United States during the past six years (ending June 30th.) :—

Imports Free of Duty.

Articles.	1885.	1886.	1887.	1888.	1889.	1890.
	dols.	dols.	dols.	dols.	dols.	dols.
Cotton, unmanufactured	954,760	632,508	538,993	744,800	1,194,505	1,392,728
Silk, unmanufactured	12,925,437	18,277,216	19,642,797	19,931,682	19,333,222	24,331,367
<i>Dutiable Importations.</i>						
Cotton, manufactures of	27,197,311	29,709,266	28,940,353	28,917,799	26,805,942	29,318,055
Flax, hemp, jute, etc., unmanufactured	12,362,498	9,960,367	12,312,833	17,545,189	20,469,475	19,844,089
Manufactures of	20,492,376	20,963,135	21,933,028	23,742,171	25,705,553	28,421,279
Hats, bonnets and hoods, and materials for	4,570,429	4,808,175	4,819,986	6,336,353	4,197,877	3,395,326
Silk, manufactures of	27,467,561	27,957,939	31,347,921	33,350,999	35,122,766	38,686,374
Wool, unmanufactured	8,879,923	16,746,083	16,424,471	15,887,217	17,974,511	15,264,083
Manufactures of	35,776,551	41,421,319	44,902,716	47,719,393	52,564,941	56,582,412
<i>Exports.</i>						
Cotton, unmanufactured	201,962,453	205,085,642	206,222,057	223,016,760	237,775,270	250,968,790
Manufactures of	11,836,591	13,959,334	14,929,342	13,013,189	10,212,644	9,999,377
Flax, hemp, jute, and manufactures of	1,134,140	1,401,606	1,402,118	1,391,216	1,644,485	2,094,807

THE India Office has just received additional specimens of Indian fibres. The supply will be divided between the Chambers of Commerce at Manchester and Dundee and the Royal Gardens at Kew and Edinburgh.

RAILWAY RATES.—The Board of Trade have presented to Parliament six reports, made under section 24, sub-section 6, of the Railway and Canal Traffic Act, 1888, on the classification of merchandise traffic and the schedule of maximum rates applicable thereto. The six reports apply to the South-Eastern, London, Brighton, and South Coast, London and South-Western, Great Western, London and North-Western, and Great Northern Railway Companies. With all these companies the Board of Trade have been unable to come to an agreement, and they will therefore employ the time before next session in considering any facts and figures which may be laid before them, before embodying in a provisional order the classification and schedule which they think ought to be adopted.

THE CHEMICAL UNION.—The Press Association learns that the opposition of the paper-making interest to the proposed chemical union is having marked effect. Already the promoters of the union have been compelled to alter their original arrangements, according to which works were to be transferred on September 20th. A hitch has arisen in the negotiations with several of the leading chemical manufacturers, who now hold aloof from the scheme, and the date for the completion of the transfer has, consequently, been indefinitely postponed. According to a Glasgow correspondent, the opinion is gaining ground that the union will not become an accomplished fact. Many provincial newspapers have published articles criticising the scheme, and it is stated that the whole movement is due to the depressed state of the chemical trade, and the consequent desire on the part of the manufacturers to dispose of their works on advantageous terms.

Letters from our Readers.

The Editor does not necessarily endorse the opinions of his correspondents.

THE HORSE-HAIR LOOM.

(TO THE EDITOR OF THE Textile Mercury.)

SIR,—I observe in the accounts which several of your contemporaries have published of the recent visit of members of the Institute of Mechanical Engineers to Messrs. Laycock's works, that a long description is given of the wonderful power-loom now in use for weaving horse-hair seating, the great feature of which is its automatic "selector." It is rather surprising, however, that the writers do not mention the name of the inventor of this most ingenious and successful piece of mechanism. If I remember rightly the British horse-hair seating trade is greatly indebted, since 1872, to a Somersetshire man, Mr. Wm. Henderson, of Bruton, for this triumph of modern inventive skill; and it is, I think, but fair that his reputation should be known, and credit given to whom it is due.

Trusting that you may find room for this note, I am, Sir, your obedient servant,
London.

INVENTION.

RAMIE FIBRE.

(TO THE EDITOR OF THE Textile Mercury.)

SIR,—I read in your last issue, "The ramie plant certainly only awaits the introduction of a suitable decorticating machine to become the object of wider cultivation." Such a machine may be forthcoming, but in the meantime why cannot the discoveries now made be utilised. The small sample, which I now beg to enclose, has been prepared without either machinery or hand labour, and at a less cost than where machinery or hand labour is used. The total cost is far less than that of cotton. J. P.

London, N.
[The sample enclosed appears to be all that could be desired.—Ed. T. M.]

Textile Markets.

REPORTED BY OUR OWN CORRESPONDENTS.

COTTON.

MANCHESTER, FRIDAY.

The annual battle between the 'bulls' and the 'bears' of the cotton market has this year been fought out upon the flag of the Liverpool Exchange at an earlier date than usual. At the date of our last report the contest had been in progress for nearly a fortnight, and was then running disastrously against the bulls. We have not had long to wait for the realization of the prediction ventured last week that prices would make a further descent towards a point indicated as being much more near intrinsic value than 6½d. A portion of the decline was accomplished the same day, and the downward movement was soon accelerated, for on Saturday and Monday two further reductions of ½d. each were made. At this stage it was announced that the chief operator, Mr. William Steenstrand, our old friend to whom the trade mainly owed the cotton corner of last year, and who had done his best again this year, had sold out. He evidently found circumstances too strong for him, and so had made what haste he could to get out. He had not however been quick enough, for on Tuesday he was posted as being unable to meet his engagements. His losses are estimated at over £200,000 during the decline that took place in August. Other operators of less magnitude have also been seriously affected. On settling day more trouble was reported to have been experienced, and great efforts were made to sustain a large firm said to have been struck very heavily.

COTTON.—As stated in our last report, we anticipated a further immediate decline in values on the ground that the then price of 6½d. for spot cotton was considerably above its intrinsic value. A further great fall immediately came about. A reduction of ½d. was made late in the day, and this was followed on Saturday by a drop of ½d. Monday saw a like precipitous fall, brought about by the confusion in the future market. Since then the demand increased, and prices were steadier for a day or two, but became irregular again on Thurs-

day owing to the pressure to sell, and Americans declined $\frac{1}{16}$, whilst futures were very irregular and weak, declining 4 to 5 points for September and 4 points for distants. To-day there is no recovery from the panic feeling amongst sellers. Americans are reduced $\frac{1}{16}$, Brazilian, $\frac{1}{16}$ to $\frac{1}{8}$, and Broach and Tinnivelly, $\frac{1}{16}$. Futures fluctuating are at close near level of last night. Some buying is reported on sealed samples.

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 ..	6,936	37,625	39,630	282,710
Brazilian ..	308	528	530	36,140
Egyptian ..	495	2,215	2,290	35,760
W. Indian ..	1,545	484	430	10,700
E. Indian ..	15,971	5,290	4,040	258,840
	22,585	46,142	46,980	623,650

The following are the official quotations from the same source:—

	G.O.	L.M.	Mid.	G.M.	M.F.
American ..	57 $\frac{1}{2}$	57 $\frac{1}{2}$	57 $\frac{1}{2}$	57 $\frac{1}{2}$	57 $\frac{1}{2}$
Pernam ..	6 $\frac{1}{2}$	6 $\frac{1}{2}$	6 $\frac{1}{2}$	6 $\frac{1}{2}$	6 $\frac{1}{2}$
Ceara ..	6 $\frac{1}{2}$	6 $\frac{1}{2}$	6 $\frac{1}{2}$	6 $\frac{1}{2}$	6 $\frac{1}{2}$
Paraiba ..	6 $\frac{1}{2}$	6 $\frac{1}{2}$	6 $\frac{1}{2}$	6 $\frac{1}{2}$	6 $\frac{1}{2}$
Maranham ..	6 $\frac{1}{2}$	6 $\frac{1}{2}$	6 $\frac{1}{2}$	6 $\frac{1}{2}$	6 $\frac{1}{2}$
Egyptian ..	61	7 $\frac{1}{2}$	7 $\frac{1}{2}$	7 $\frac{1}{2}$	7 $\frac{1}{2}$
Ditto, white ..	61	7 $\frac{1}{2}$	7 $\frac{1}{2}$	7 $\frac{1}{2}$	7 $\frac{1}{2}$
M.G. Broach ..	3 $\frac{1}{2}$	4	4 $\frac{1}{2}$	4 $\frac{1}{2}$	5 $\frac{1}{2}$
Dhollerah ..	4 $\frac{1}{2}$	4 $\frac{1}{2}$	4 $\frac{1}{2}$	4 $\frac{1}{2}$	5 $\frac{1}{2}$
Oomra ..	4 $\frac{1}{2}$	4 $\frac{1}{2}$	4 $\frac{1}{2}$	4 $\frac{1}{2}$	5 $\frac{1}{2}$
Bengal ..	3 $\frac{1}{2}$	3 $\frac{1}{2}$	3 $\frac{1}{2}$	3 $\frac{1}{2}$	4 $\frac{1}{2}$
Tinnivelly ..	4 $\frac{1}{2}$	4 $\frac{1}{2}$	4 $\frac{1}{2}$	4 $\frac{1}{2}$	5 $\frac{1}{2}$

YARNS.—Another week of disorganisation in the Liverpool market has been very strongly reflected here, very little business being done beyond what has been necessary to meet the most urgent requirements, as buyers have deemed it far wiser to wait until cotton assumes a more stable attitude. Another strong factor in inducing quietude is the stoppage of the Oldham mills for the annual holidays. Where attempts have been made to test the market it has been found that purchases can be made at from $\frac{1}{8}$ to $\frac{1}{4}$ below last week's prices. Spinners are not disposed to yield more, and being as yet fairly well in order have a strong backing for their views. Yarns from other cottons have naturally, to some extent, been sympathetically affected by the cotton market as have their basis, Brazilian, Egyptian and Indian cottons. Here, however the reduction is not so great.

CLOTH.—Cloth has been in very slow request throughout the week, the condition of the Liverpool market certainly not having offered any inducement for buyers to operate. It is probable that orders are being held in abeyance, and as soon as a little stability has been regained these will be brought forth. The usual retail business, which, under most circumstances, goes forward in an uninterrupted flow, has been less than ordinary. So far as the market has been tested, manufacturers have not shown much disposition to follow prices down, as, indeed, it is yet exceedingly inadvisable to do so, the decline having scarcely yet reached them. They will also need to strenuously resist the blandishments of buyers when soliciting reductions, if they are to have any improvement of their position from the collapse of Liverpool prices. Common shirting and Burnley printing cloths are in slow request. Most other descriptions exhibit little change.

WOOLLENS AND WORSTEDS.

BRADFORD.

The wool market is firmer, but buyers are operating with great caution. In English wools a better feeling on the part of staplers is shown. Spinners are buying rather more, both in lustre and demi sorts. Staplers try hard to get $\frac{1}{4}$ advance, but cannot do so, as buying is not speculative but merely to cover immediate requirements. Wools cannot be bought from the country at prices current here, and hence the prices taken by dealers leave them without profit. Mohair is without change; alpaca slightly dearer; noils of inferior sorts are easier, but good standard sorts are firm. There is a better price obtained for best merino tops of 60's qualities and upwards. In yarns spinners are having in the aggregate rather more orders, especially for two-fold sorts. Prices are fairly well maintained by spinners, both for lustre and demi sorts; mohairs are called for, especially in thick numbers for export. The piece trade has still no change. The

home trade is steady, but for shipment the demand is slow.

Huddersfield.

Foreign buyers have not operated freely this week, but manufacturers are well employed on orders booked some time ago. The finer worsteds and most descriptions of serges are in good demand. Tweeds sell largely. The United States trade is quiet except for very high class makes.

LEEDS.

The harvest prospects are so poor that business here has already commenced to be affected. Foreign buyers are also coming forward slowly. Winter overcoatings and suitings are not active, although a few repeats have been received. Stocks are low. Orders in connection with the coming spring trade are being rapidly worked out, and the extent of them up to the present time has been satisfactory. Prices show no weakness, either for serges, worsteds, or tweeds. Vicuna cloths of good quality in diagonal and check designs are going largely into consumption for the purposes of the wholesale ready-made trade. Covert coatings in brown mixture, drab, light grey meltons, and faced tweeds are beginning to sell well. There is little animation in the market for plushes and sealskins, but in quotations there is no appearance of giving way. Blankets and army cloths remain without change.

GLASGOW.

Messrs. Ramsey and Co., in their report dated 2nd September, say:—

Wool.—In the wool market this week there has been only a moderate business doing. Trade is much hindered owing to the American Tariff Bill being still undecided. It is hoped, however, that this will be settled on an early date, and business should then move on more freely. Prices are unchanged.

Sheep Skins.—The supply still keeps a full average and of good sorts. Competition has been fairly active at about former values, but without much advance, mainly owing to the uncertain weather.

FLAX AND JUTE.

DUNDEE TRADE REPORT.

WEDNESDAY, 3rd Sept., 1890.

The market here has been very mercurial. Exchange has deceived many. The sharp rise ought to have increased the value both of the jute and flax. But the very large crop of jute, together with the stocks over, has forced prices down. Jute, which opened at £15 10s. for firsts, is done to-day at £12 5s., with sellers over. Flax is not dearer, and tows of certain kinds are almost unsaleable. Jute goods are easy to buy. Yarns are done at 1s. 3d. for 8 lb. cop, with sellers over. Hessians, ordinary, light, weighty, are offered at 1 $\frac{1}{2}$ d. For the fine, wide, extra goods prices are still stiff, and makers well engaged. Linen yarn is not lower, but it is very difficult to move common tow wets. Linens are in fair demand. Fife goods are rather easier to buy; the large production tells. Forfar and Brechin are fairly well engaged, but for good home orders the competition is very keen. Dundee fancy goods are in fair request. Arbroath is busy, the commoner kinds and heavy canvas are much wanted.

The weather is very unsettled and wet. The important agricultural districts of which Dundee may be considered centre—Strathmore, Fife, and the Cars of Gowrie—are all rich with a heavy crop ready to cut, which stands soaking in wet. A few fine days and all might be well, but farmers are anxious, and not without reason.

MANCHESTER.

There is not much doing in our market just now. The wholesale houses will be operating more freely shortly, and now that the holiday season has finished the prospects are altogether better. Were it not for the unsatisfactory nature of the weather and the bad outlook for the harvest, prospects would be still brighter. On the whole the past season was not a bad one. We hear very good reports from Southern houses, the season having been in that direction one of the best ever known, notwithstanding the adverse influence of the dock strike. Linen threads are brisk and sales this year have been large. The report that a large concern is to be converted into a limited liability company is denied.

SILK.

LONDON.

Messrs. Durant and Co., in their Circular dated 3rd inst., say:—
Again the feature of the month has been the con-

tinued demand for China silk for export. The Shanghai market has remained very firm, with an upward tendency, notwithstanding the continued advance in exchange, making the laying down cost still far above our prices. In Canton silk a large business has been done, the relatively low price of this silk fully entitling it to increased consumption. In Japan there has been rather more inquiry, and a few small lots have found buyers at full quotations.

Arrivals in August, 1890.

Bengal ..	19 bales
China ..	415 "
Japan ..	15 "
Canton ..	777 "
Tussah ..	11 "

THURSDAY.—London Produce Clearing House quotations of 5 $\frac{1}{2}$ Tatlee: September 12s. 5 $\frac{1}{2}$, October 12s. 6d., November 12s. 6d., December 12s. 7d., January 12s. 7d., February 12s. 8d., March 12s. 9d. per lb. Sales registered, 60 bales.

HOSIERY AND LACE.

LEICESTER.

Wool is in better demand and staplers' position is becoming more satisfactory. Yarns have improved, worsted descriptions being very steady. Lambs-wool yarns maintain the activity previously reported. In cashmere and fine yarns old contracts, which were not as heavy as usual, are fast running out, but at present rates new orders are placed only for actual requirements, and this is causing some pressure upon spinners. In the hosiery trade a steady business is doing in hose, half hose, socks, etc., while the underclothing makers report about an average turnover. The elastic web manufacturers are fully employed for some time to come.

DRY GOODS

MANCHESTER.

This week there has been a fair amount of activity in certain quarters, but reports unfortunately are not universally satisfactory. Drapers have come forward more freely for heavy goods, and some of the older houses have been very busy in this department. The fancy branches should now be feeling the impulse of the autumn demand. Several of our large buyers have left town for the purpose of purchasing novelties. There is not much going in the shipping trade. In carpets there is not so great an inquiry for six-quarter widths as was formerly the case. A newly-invented process for printing carpets in the finished state is much talked of. The process, like most of the innovations in the trade, is American. Further particulars will be found under "Current Topics." There is nothing much doing for the States manufacturers are not running their looms on American goods except where they are sure of a safe outlet for the production.

THE KIDDERMINSTER CARPET TRADE.

The process of change is slow, and but little alteration in the condition of this trade can be reported upon the past week. In some quarters an improvement is spoken of, and machinery which has been standing idle for the last month or two is set going again, but in others, and these are certainly in the majority, manufacturers still speak of extreme slackness. Where any improvement has taken place, the improvement is almost solely confined to those manufacturers possessing a good shipping connection. In this department a decided change for the better has set in, and this business is providing work for machinery which would otherwise be dormant. The demand for home market continues flat and dull; very few travellers have as yet taken to the road, and those who are out are hardly expected to send many orders home at present. From reports coming to hand, the outlook for the coming season is considered far more promising than last, although some little difficulty is expected to arise at the outset, as the 2 $\frac{1}{2}$ per yard advance is only now actually coming into operation, and it is scarcely likely that buyers will pay more money for their goods without a struggle, however much manufacturers may be justified in demanding it.

There is very little increase in the number of transactions in wools, and, generally speaking, the market keeps dull. Prices, however, continue firm, and where spinners are obliged to seek supplies for current requirements, top rates have to be paid. Manufacturers are still backward in placing their season's contracts for worsted yarns, as they think purchases will be made just as advantageously later on, when their own order books are full, and they will then be better able to gauge their requirements.

Joint Stock and Financial News.

COTTON COMPANIES' DIVIDENDS.

STAN (Royton).—Profit for the quarter, £2,002 3s.; dividend, 2s. per share, or 1½ per cent., after placing £602 3s. to the reserve fund.

HIGGINSHAW (Oldham).—Loss, three months, £503 11s. 9d.; which reduces the balance profit brought forward from last quarter to £251 1s. 6d.

CRAWFORD (Rochdale).—Profit, three months, £2,036; dividend, 10 per cent. per annum; £1,000 carried to reserve fund; share capital, £95,960; loans, £91,730; spindles, 154,464 (64,932 T. and 89,532 W.). Plant, three months ago, £125,126; mill fireproof; company formed 1883.

ARKWRIGHT (Rochdale).—Profit, three months, £1,000 17s. 4d.; disposable balance, £1,506 10s. 3d.; dividend, 10 per cent., which will absorb £937 6s. To the reserve fund is added £270, which now amounts to £3,000. Share capital, £37,492; loans, £56,136; spindles, 25,632 T., 23,230 W., and 26,448 ring; plant, three months ago, £83,589; mill fireproof; company formed 1886.

NEW COMPANIES.

NAB-LANE MANUFACTURING COMPANY, LIMITED. Registered by R. Jordan, 120, Chancery-lane, W.C., with a capital of £5,000 in £125 shares. Object, to carry on business as spinners, weavers, doublers, etc. The members shall conduct the business of the company in such manner as they in their discretion think fit.

J. M. HOWSON AND CO., LIMITED. Registered by Waterlow Brothers and Layton, Limited, Birch-lane, E.C., with a capital of £50,000 in £10 shares. Object, to acquire the business of worsted spinners carried on by James Moss Hawson, at Prospect Mill, Wibsey, near Bradford, and at Albert Mills, Halifax. The first subscribers are:—

J. M. Howson, Bradford.....	1
Mrs. Howson, Bradford.....	1
B. Smith, 10, Cromwell-street, Halifax....	1
F. H. Garnett, Oakwood, Bingley.....	1
E. Boothman, 473, Gibbet-street, Halifax....	1
A. Longthorpe, Trunccliffe, Wibsey.....	1
J. Baldwin, 78, Manchester-road, Bradford 1	

There shall not be less than two nor more than seven directors. The first are J. M. Howson and B. Smith. Qualification, 100 shares. J. M. Howson is appointed managing director, with a remuneration of £750 per annum; the remuneration of other directors to be fixed in general meeting.

THOMAS EMMOTT AND SONS, LIMITED. Registered by Chester and Co., 36, Bedford-row, W.C., with a capital of £175,000 in £100 shares. Object, to acquire, in accordance with an agreement made August 21st, between Thomas Emmott, of Oldham, carrying on business under the style of Thomas Emmott and Sons, at Vale Mill, Clegg-street Mill, Greaves-street Mill, Albion Mill, and Diamond Mill, all in Oldham, and at 38, George-street, Manchester, cotton spinner, manufacturer, and merchant, of the one part, and Squire Holt, of 235, Park-road, Oldham, of the other part, and to continue and develop the same. The first subscribers are:—

T. Emmott, Brookfield, Oldham.....	1
A. Emmott, Parkleigh, Oldham.....	1
W. R. Emmott, Werneth Hall-road, Oldham 1	
G. H. Emmott, Brookfield, Oldham.....	1
T. Emmott, 43, Bewsey-street, Warrington.. 1	
J. Hanson, 86, Beaver-street, Oldham.....	1
C. Emmott, 27, Austinfriars, E.C.....	1

There shall not be less than three nor more than seven directors. The first are Thomas Emmott, Alfred Emmott, and George Henry Emmott. Qualification, 20 shares. Remuneration: Chairman, £150 per annum; other directors, £100 per annum each.

Gazette News.

ADJUDICATIONS.

T. B. Wallis, lace manufacturer, Long Eaton.
P. Brooke, linsey and serge manufacturer, Out-lane, near Huddersfield.

WINDING-UP NOTICES.

The Velvet Cutting Machine Syndicate, Limited.
Newchurch Spinning and Weaving Company, Limited, for re-construction.

PARTNERSHIPS DISSOLVED.

Frederick G. Davies and Thomas W. Davies, trading as Henry Davies, Houghton-street, Nottingham, yarn agents.

Hiley Brothers, Armlay, Leeds, flock and waste merchants, as regards Thomas Cromack
W. Yates, F. Yates, S. R. Yates, and W. Thom, mechanics, engineers, and boiler-makers, Canal Foundry and Engineering Works, and Victoria Boiler Works, Blackburn, trading as W. and J. Yates, as regards F. Yates, as executor of S. R. Yates.

NOTICES OF DIVIDENDS.

A. Tinker, trading as G. Tinker and Son, residing at Rocksides, Holmfirth, and trading at Bridge Mills, Holmfirth, woollen manufacturer; 4s. 6d., first.

Patents.

APPLICATIONS FOR PATENTS.

The names in italics within parentheses are those of Communicators of Inventions. Where Complete Specification accompanies Application an asterisk is suffixed.

25TH TO 30TH AUGUST.

13,350. KAY SEVILLE, 6, Bank-street, Manchester. Box or receptacle for loose boss rollers for spinning mules.

13,379. J. EDELSTON, 64, Barton Arcade, Manchester. Jacquard weaving.

13,386. D. D. LEITCH, 6½, Waring-street, Belfast. Manufacture of damasks and other figured fabrics, and apparatus therefor.

13,443. B. WILLCOX, 47, Lincoln's Inn Fields, London. New sulpho-acids of dioxy-naphthaline or amido-naphthalin and azo colouring matters therefrom. (*Farbenfabriken vormals F. Bayer and Co., Germany.*)

13,450. T. BINNS, 53, Low St. Keighley. Stop or trap mechanism for twisting or doubling machines.

13,478. C. BROUGH, 6, Bank-street, Manchester. Knives for cutting the pile on fabrics.

13,504. T. J. HUTCHINSON, 70, Market-street, Manchester. Obtaining useful products from bleaching powder dregs.

13,516. READ HOLLIDAY AND SONS, LD., and T. HOLLIDAY, 55, Chancery-lane, London. A new sulpho-acid of naphthylamine.

13,518. J. M. HETHERINGTON, 1, St. James's-square, Manchester. Shortening and reversing motions for machines used in the preparation of textile materials.

13,519. W. H. REVIS and J. MARRIOTT, Goldsmith-street Works, Nottingham. Straight bar knitting machines.

13,527. J. HAYDOCK, 70, Wellington-street, Glasgow. Flyers used in spinning.

13,532. J. H. WILSON, 5, John Dalton-street, Manchester. Strengthening flanges of bobbins.

13,556. H. H. LAKE, 8, Southampton Buildings, London. Colouring matters. (*Wirth and Co., agents of A. Leonhards and Co., Germany.*)

13,582. A. BOARDMAN, 61, Barton Arcade, Manchester. Jacquards.

13,586. C. H. BRIGGS and J. LONAM, Sunbridge Chambers, Bradford. Roller Covering.

13,597. J. BROOKS, 8, Quality Court, London. Governing motion of mules or twiners.

13,627. J. Y. JOHNSON, 47, Lincoln's Inn Fields, London. A new indigo blue and sulpho acids thereof. (*Badische Anilin and Soda Fabrik, Germany.*)

13,634. C. A. FEUERLEIN and J. C. LARUSEN, 6, Lord-street, Liverpool. Oil-rouse wool grease.

13,658. J. SAVILLE and S. HULME, Clarence Mill, Middleton-road, Oldham. Apparatus for tubes on spindles.

13,666. B. HAQUE, 78, Fleet-street, London. Knitting, turning-off, linking, stitching, and like machines.

13,671. J. P. BAYLY, 18, Fulham-place, Paddington, London. Shuttle guard for looms. (*I. Benson, United States.*)

13,682. M. TAYLOR, 46, Lincoln's Inn Fields, London. Picking straps of looms.

13,696. T. M. SOUTHWELL, and T. W. HEAD, 47, Lincoln's Inn Fields, London. Moquette or Royal Axminster carpets and similar tufted fabrics.

13,701. H. H. LAKE, 45, Southampton Buildings, London. Weaving silk waste. (*Ecales and Hatry, Germany.*)

SPECIFICATIONS PUBLISHED.

1889.

15,512. GEE, Hank drying machines. 8d.
15,687. NOBLETT, Dyeing cotton, etc. goods. 6d.
15,739. BATEMAN and others. Looms. 61.

1890.

2,615. CROOK and BROOK, Scotch carpets. 6s.
7,049. SCHULDER, Looms. 8d.
10,578. HEALD, Woven fabrics. 8d.
10,579. HEALD, Pile fabrics. 8d.

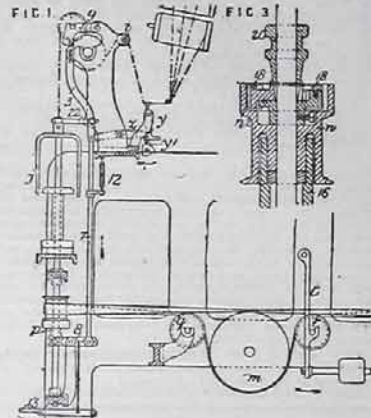
AMENDED SPECIFICATION.

1884.

9,606.* GRIEVE, Yellow colouring matter. 4d.

ABSTRACTS OF SPECIFICATIONS.

5,637. April 3, 1889. Doubling and twisting yarns etc. G. H. HOLDEN and J. ASHWORTH, Knot Mill Iron Works, Manchester.



Rollers and roller heads.—In order that the tension of the yarn may tend to force the delivery rollers towards one another, the upper roller is carried by pivoted arms *g* which engage with the lever *z*. When the detector box is swung aside on the falling of one or more detector wires, the rods *7* on the bracket *g*, and the clutch arrangement *p* for driving the spindle is moved out of contact with the wiper by an incline *v* which is engaged by the end of the lever. The parts may be returned to their normal position by means of a treadle *13*.

Stop-motions.—A vertical rod *7* and its continuation *3* are normally held in their lowest position against the force of a spring *12* by a projection on the pivoted detector box *y* which engages with the lever *z*. When the detector box is swung aside on the falling of one or more detector wires, the rods *7* on the bracket *g*, and the clutch arrangement *p* for driving the spindle is moved out of contact with the wiper by an incline *v* which is engaged by the end of the lever. The parts may be returned to their normal position by means of a treadle *13*.

Spindles and their appendances.—Each driving band is arranged to drive two spindles one on each side of the machine, the band passing as shown beneath the driving pulley *m*, over guide pulleys *o*, one or both of which may be carried by weighted levers *l*, and round the spindles *wharves*. In Rabbeth spindles, the wharve *u* is mounted so that it may rotate freely upon the tube *16* which supports the spindle. Upon the latter is mounted the clutch arrangement described in the Specification No. 13,105, A.D. 1888, and consisting of radially movable spring jaws *18* which may be moved outwards against the flange *22* of the wharve by the sliding conical collar *20*. The bearing for the neck of the flyer *15* may be formed in a bar *17* hinged to the frame. [54.]

5,690. April 3rd, 1889. Card-covered cylinders &c. G. H. FENWICK, Wellington Mill, Greenfield, near Oldham.

In place of the usual taper plug, driven into radial holes in the cylinders, &c., and used for securing the card clothing thereto, longitudinal holes are drilled for about an inch into the ends of the cylinder and filled with plugs of wood, &c., part of the side of the plug being exposed on the surface of the cylinder. Dove-tailed grooves may also be made the whole length of the cylinder and filled with wood, &c. in a similar manner; or longitudinal holes may be cast in the cylinder and subsequently filled with lead or other suitable material so that when the cylinder is turned and finished the lead or other filling will be exposed. [84.] *Drawings.*

5,702. April 3, 1889. Stretching lace, etc. L. LUNDLEY, Short Hill, Nottingham.

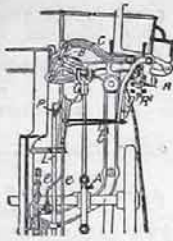
The fabric is stretched longitudinally as well as transversely by elastically connecting together the links, one end of the chains being fixed and the other attached to a movable cross-bar. [84.] *Drawings.*

5,741. April 4, 1889. Combing machines. G. SMITH, B-c-a-street, Leeds-road, Bradford.

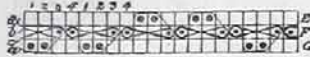
Before the comb is removed from the large circles the fibres are partially drawn through the teeth of said circle by means of a ripping apparatus consisting of a revolving dome *J*, the edge of which is pressed by a spring *N* upon a leather, etc. covered disc *E*, both the dome and disc being driven from the rack *B* by means of the spur wheel *G*, and bevel wheels *K*. The supporting plate *H* may be slightly out of way at the part nearest to the circle if desired. The fibres are prevented from curling, etc., by means of a "striker" operated by a crank. [64.]

5,757. April 4, 1889. Looms. P. FROX and L. GUNNY, 40, Rue Pascal, Paris. (see 1889.)

controlling the drop or circular shuttle boxes and the shedding and picking motions is described. The pattern chain *p* passes around a cylinder consisting of two roses *R* on a shaft *R*. The knives of the shedding mechanism are operated by rods *C* from a lever *B* worked by a rod from a crank *A*. Five levers *I* operated by the pattern chain are connected by spring rods *i* to hooks *H* which engage or not with a lifting plate *P* carried on cam-worred rods *L*. The hooks are connected to levers *e* two of which control the boxes on one side of the loom, two those on the other side, and the other by picking motion. The chain cylinder is operated by a hooked fork, which may be shifted by a handle to reverse the motion, the plate *P* at the same time being lifted clear of the hooks *H* for unwinding. [8d.]



Figured fabric. T. TAYLOR (Barlow and Jones, Limited), and J. WASHBURN, Bolton.

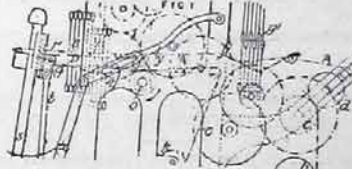


The fabric is applicable for toilet quilts, toilet covers, antimacassars, mats, and the like, and is woven with a raised figure on a comparatively fine ground. In the loom the stitching yarn *s*, *c* from one beam is controlled by a jacquard for making the figure, and by a jacquard or comb boards for the ground. The face yarn *a*, *d* from a second beam is controlled by heads. Two shuttles with fine and coarse weft are employed. The stitching yarn works figure for picks 1 and 2, tabby for 3, and reverse tabby for 4; the face yarn works tabby for picks 1, 2, and 3, and reverse tabby for four. The spaces, *E*, *F*, *G* indicate respectively the picks which go to form the face of the figure, the face of the ground, and the back of the ground. Modifications with three, six, and eight picks to the round are described. [8d.]

5.785. April 4, 1889. Oxymethoxybenzoic acids. J. Y. JOHNSON, 47, Lincoln's Inn Fields, Middlesex.—(P. 308 *Henden*; *Nachfolger*, Badens 1, Germany.) Relates to the manufacture of guaiacol carbonic acid, cresol and

carbon acid, and eugenol. Consists in passing carbonic acid gas into an alkaline or earthy alkaline salt of guaiacol, or cresol, or eugenol, until saturated, and then heating in a closed vessel to 100° C. and upwards. The product is dissolved in water and treated with a mineral acid, whereupon the new acid crystallizes out. Or the carbonic acid may be passed in while the substance is being heated, with or without pressure. Beech tar creosote, or mixtures of guaiacol and creosol resulting from the purification of the creosote, may be acted upon in the same manner, thereby producing carbon acid mixtures. These acids may be used in the manufacture of azo coloring matters. [8d.]

5.813. April 8, 1889. Looms. J. FARRAN, 17, Trafalgar-square, Brook's Bar, Manchester, and F. C. CRAWFORD, 70, New-lane, Barton-upon-Irwell, Lancashire.



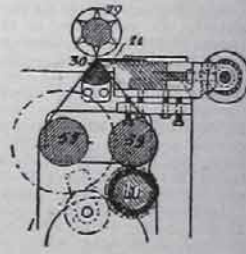
Relates to looms for weaving terry and other fabrics. The terry warp threads *A* (Fig. 1) are let-off from a roller *b*, and pass between rollers *c*, *d*, *e* over bars *p*, *q*, *r*, and through slackening heads *g* to the ordinary heads *B*. The ground warp threads *C* are let-off in the ordinary way from a roller *A*. The lay *s* is operated from cranks on the crank-shaft *t* through rods *p*, jointed to brackets *q*, capable of sliding in grooved brackets *r*. The sliding is effected by a rod *t* connected by levers with a rod *u*, carried by a lever *y*, which is operated by a pin *Z* in a wheel *Z* driven from the crank-shaft. In this way the beat-up is reduced at intervals, the pile warp being raised in loops when the full beating-up is resumed. The let-off roller *c* is driven through gearing from the wheel *Z*, which also drives a tappet chain for operating the levers from which the heads *g* are hung. The warps may be shed by jacquard apparatus in some cases. For weaving a fabric in which cross stripes of plain cloth, etc. are required, the terry beam *e* is driven by ratchet and worm gearing, the motion of the pawl lever being reduced as times by pattern chain or other apparatus; these arrangements may be modified.

Chains.—Loom pattern chains are made up of links carrying the usual projections and of intermediate links connected

therewith by studs, bolts holding the projections in position. Guides prevent the chain from slipping on its cylinder. [1s.]

5.814. April 5, 1889. Cutting, shearing, or cropping pile fabrics, etc. J. FARRAN, 17, Trafalgar-square, Brook's Bar, Manchester, and F. C. CRAWFORD, 70, New-lane, Barton-upon-Irwell, Lancashire.

The rotating helical cut *r* 23 is mounted upon pivoted levers to enable it to be adjusted to be raised clear of the "ledger blade" 26, which is itself capable of adjustment relatively to the triangular or other bar 30. The fabric *I* is passed over the bar 30 by rollers 28, 29, which are studded with pins. The lat *r* roller may be driven faster than the former, or the former provided with a brake, and both are thrown out of action by a clutch as required. The fabric is disengaged from the roller 23 by a rotating brush 27. [1s.]



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