

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.

THE RELATIONS OF PIECERS, MINDERS, AND EMPLOYERS.

Our Oldham correspondent writes:—"A case of considerable importance to spinners and minders came before the Oldham Police-court, on Saturday, in which a piecer was summoned by the Central Mill Company for having left work without giving due notice. The point raised upon the case was—in whose employ was the piecer, in the company's or the minder's? It appears that a vacancy occurring on a pair of mules, the piecer asked the mule overlooker whether he could not be put on at 'joining,' but the overlooker declining to consent to such an arrangement, the piecer said he should go home, and at the same time was informed by the overlooker that if he did he would be summoned. Leave he did, and summoned he was. The contention on the part of the company was that the piecer was in their employ, and that the minder was their agent, but the defendant pointed out that he was engaged by the minder, whom he had summoned in the County Court for wages alleged to be due to him, because the minder paid him his wages. The Magistrates' Clerk (Mr. H. Booth) ruled that the piecer through the minder was liable to the company, and their remedy was against the minder, who had his remedy against the piecer for any loss sustained. He also remarked that the alteration of the present system was in the hands of the spinners themselves; if they would only engage their own servants there would be an end of it. Taking the case of a contractor doing work upon a mill, and having a number of servants working under him, and some of those servants doing something wrong, he asked was the remedy of the millowner against the servant or the contractor?—and his answer came, 'undoubtedly against the contractor.' He also gave it as his opinion that the present system of engagement of piecers was a bad one. Mr. Booth also put the case thus:—The piecer was engaged by the minder, was liable to be discharged by the minder, and the minder paid him his wages. As a matter of fact, it is well known that the relative position of a spinner-minder to his piecer is as stated by the Oldham magistrates' clerk, but there has also grown up with it a kind of dual control; that is, at the direction of the manager through his overlooker the minder is occasionally directed to discharge a piecer. Disobedience in such circumstances has its consequences, which probably may result in the dismissal of the minder. There is not the slightest doubt that the piecer's position is a most peculiar one, and the system under which they are now engaged is capable of improvement. The ruling of the Oldham magistrates' clerk is undoubtedly a common-sense one, and his remarks on the system now in vogue are also entitled to a

like interpretation. To all intents and purposes the minder stands in the position of a contractor, in whose employ the piecer is. But the Company could have overcome the difficulty in the case referred to by substituting the name of the minder as the complainant for that of the company. The principle of dealing with the engaging and discharging of piecers is somewhat complex. If they were engaged and discharged solely by the servants of an employer it would place an amount of responsibility upon them which now falls on the minder, who has them fully under his control, and pays them their wages. Were it that the minder and his piecers were on a footing as to piece work, then they would each be paid from the office, and the employer would thus possess full legislative authority; but the employer only recognises the minder, to whom he pays a certain percentage on the yarn turned off his mules, and he in turn remunerates the piecers or his assistants for their services in the carrying out of the contract, in accordance with his own arrangements, or per custom or rule of the trade. Their wages in a measure are stationary, while those of the minder vary according to the work turned out. The Oldham magistrates' clerk advised that they should not have persons on their premises engaged by other people. The time may come, and no doubt will, when the whole question of the minders and their piecers and their mode of payment will come up for serious consideration, and be dealt with by those in authority; and, indeed, it is possible that piecers themselves may force the question to the front, as there are always two persons in training for the minder's position. Until then we are afraid the present system will have to be worked as well as it can with all its complications."

THE NEED OF REFORM, AND HOW TO CARRY IT OUT.

It is well known that the relations described by our correspondent in the preceding note are a constant source of trouble to all the parties to this incongruous dual control. So annoying has it become, that we think all would gladly welcome a change that would concentrate the authority in the place where it ought to dwell—that is, the firm owning the establishment. To effect a change in this direction does not appear a difficult task. At present the minder pays the piecer a proportion of the sum earned, but as the latter is a variable amount, to avoid trouble in this respect the sum usually paid to the piecer is a fixed one, arranged between them, varying in individual cases. Let an accurate account be taken by the representatives of the employer and the minders throughout each mill spinning a certain range of counts; average the result, and ascertain the percentage it bears to the total earnings from the pair of mules. This would yield a standard rule or principle upon which payments could be made

for that mill. Similar particulars from mills spinning other ranges of counts and qualities might be examined, and if found to be identical, or nearly so, an equitable standard would be obtained for the whole trade. But if this result did not come out in this manner, the particulars would yield percentages or amounts that would govern the various ranges of counts and qualities, which could then be formulated so as to constitute a standard list for piecers. Here is the means of an equitable settlement of the wages question. There only remains the matter of subordination. The minder should be responsible for the quality of the yarn produced from the mules, as at present, and the piecer should be his subordinate and subject to his general direction and orders. In the case of insubordination, negligence, or incapacity in the performance of his work by the piecer, the minder—instead of having the right to dismiss him as at present—should make his report to his superior, the spinning master, or after him to the manager, and leave with him the responsibility of safe-guarding his employer's interest in the matter. On investigation the latter would quickly discern what his duty was in the case. We submit that this sketch affords an easy and equitable plan of compassing this very desirable reform, and one that would obviate the numerous annoyances and petty difficulties that arise from the existing order of things.

CLOTH FROM THE BACK OF THE BISON.

In spite of the warning that there are enough and to spare of textile materials already well known, the search after some new thing for clothing still goes merrily on. Not altogether with the idea of running either flax, silk, wool, or cotton out of the market, which appears to be the hope of some sanguine advocates of new fibres, but rather with the more solid notion of introducing a saleable novelty, somebody has been suggesting that good cloth might be made out of the hair or wool of Canadian cross-bred buffaloes, which, to write by the card, are not buffaloes at all, but bisons, while the idea of manufacturing bison-wool is not to be considered something fresh by any means. It was spun and woven in this country half-a-century ago, and "worsted" yarn, black and grey, of this material, is it not to be found enclosed within the cases of South Kensington? Small articles, such as gloves, stockings, gaiters, and so on, have been made from it, and, on the reliable testimony of Mr. Simmonds, are strong and of presentable appearance. More than that, the Red River Indians have made warm and durable cloth from the hair, and when enquiry reaches this point it is like referring a modern mechanical invention to China, there is nothing but the inevitable and convenient mists of antiquity to be looked for. But on the safer grounds of this present century the *Canadian Journal of Fabrics* tells with much gusto and spirit the instructive tale of an enterprise which set out, in 1817, to make cloth from bison-wool. Certain magnates of the fur trade, who ought certainly to have known better, were inspired by the sight of tufts of buffalo-hair scattered about in every direction, rubbed off against bushes, and to be gathered in bundles where the ponderous animals had departed this life for the happy hunting grounds of the noble savage, if his beliefs were sound. Here was raw material to be had for picking up, and plenty of it. A Buffalo Wool Company with 100 shares of £20 each was formed, the capital subscribed, orders sent to England for all necessary machinery and men, and an establishment was

set up worthy of the undertaking which proposed to supply Europe and America with wool, cloth, hides, and leather. People in the neighbourhood gave up their ordinary occupations to go wool gathering, and everything would have gone on well but for the buffaloes. The animals did not die so frequently or shed their coats so readily as they ought to have done. Hides rose in price from one or two shillings to six shillings each; wool from next to nothing to eighteen pence a pound; boy's wages from half-a-crown to seven shillings a day, and those of men from seven shillings and sixpence to fifteen shillings. Our contemporary gives no particulars as to whether the shares of the company were generally dealt in, or whether the directors were smart enough to unload the shares they held; but it seems that higher prices had no effect upon common confidence, for another small colony of operatives, carriers, tanners, bark makers, wool dressers, teasers, and others of all ages and sizes were imported to carry on the work which was to come. Then mismanagement, neglect, and unlimited whiskey set in, the company became involved in debt and difficulties, a few samples of bison-cloth sent to England fetched no more than four and sixpence a yard, although at ruling rates of wages and materials it had cost something like fifty shillings to produce, and the end was troublous! But it seems that the Buffalo Wool Company was, as some men are often said to be, worth more dead than alive, for the money distributed from it amongst the settlers enabled them to buy up a speculative consignment of cattle which some venturesome Yankee drovers brought there for sale, and so started the great cattle-ranching business of the north-west, of which the end is not as yet within sight, nor likely to be.

LORD REAY ON THE MCKINLEY BILL.

The annual Michaelmas dinner, to commemorate the 114th anniversary of the Manufacturers' Corporation of Galashiels, was held in Galashiels Town Hall on Friday of last week. The speeches made referred largely to political matters, which do not, of course, come within the scope of *The Textile Mercury*—or in that of a Manufacturers' Corporation either, one would imagine. Lord Reay, however, had something to say on the McKinley Bill, which we commend to the notice of those who may not have seen or heard his remarks. He could not, he said, agree entirely in what Lord Napier and Ettrick had said in replying for the House of Lords—that the American Senate was a body which, as a rule, delivered as sound decisions as the House of Lords, because he must stand up for the House of Lords on that occasion, and say that he did not think the House of Lords would ever have passed the McKinley Bill. His lordship was one of those who were not entirely displeased with that measure, for the simple reason that the McKinley Bill did shew how absolutely futile protection was. Some prophesied it would be the last word for protection. He did not think so; and he believed that someone would arise who would out-McKinley McKinley. It was quite clear that in stopping the imports, and in preventing the free flow of the imports, the Americans were doing everything they could to discourage their export trade. In this respect the Canadian statesman had a great grievance, and his lordship applauded Sir John Macdonald's decision not to retaliate, but to seek new markets and improve their line of communication. Lord Reay, in concluding, referred to the subject of technical education, which, he said, lay very near his heart. He regretted to see that of late so great an authority

as Lord Armstrong had rather thrown cold water on the movement, which he considered of vital importance to the country. His lordship had witnessed the great success of technical education in its inception at Bombay. It was, he said, most remarkable to see how all classes strove to make the Technical Institute, the first in India, a real success. But we had seen in India an even more remarkable thing. A German firm had asked him whether the Government would in any way throw any hindrance in their way if they started a technical school. His lordship's first feeling in the matter naturally was that, as a great many other educational agencies in India did, they would ask for a Government grant; but not at all. They did it simply because by establishing these dyeing schools they wanted to create a market and a demand for their goods. This shewed that technical education was no longer a doctrinaire fad of scientists, but a reality.

THE COTTON TRADE IN BOMBAY.

The last mail from Bombay brings a return just issued by the Bombay Millowners' Association regarding the position of cotton mills in India, which sets forth the progress made during the last few years in the development of the industry. It is a most instructive document, and ought to be carefully pondered over by Lancashire spinners and manufacturers, and also by both the working classes and their leaders, as it proves to a demonstration the position we have so often laid down in these columns—that if the trade of Lancashire has to be preserved it can only be by a far more harmonious and co-operative endeavour than has yet been made, and by the exhibition of such a unity of purpose in the future as has not been seen in the past. Twelve years ago there were 56 mills in India, with 1,452,794 spindles and 13,018 looms, employing 42,914 hands, and consuming 936,547 cwt. of cotton. Now there are considerably more cotton mills in the Island of Bombay alone, namely, 70 mills, with 1,895,660 spindles, and 13,785 looms, giving employment to 59,139 workpeople, and consuming 2,226,819 cwt. of raw material. As far as the whole country is concerned, the number of mills has more than doubled within the last decade, there now being 137 mills (including a dozen in course of construction), working 3,274,196 spindles, and 23,412 looms, which give employment to 102,721 hands, and consume 2,529,617 cwt. of cotton. The capital embarked in these enterprises is Rs. 9,13,91,655, of which Rs. 5,28,15,112 is invested in mills in the Island of Bombay. The former does not include the capital of 16 mills privately owned.

WILD SILK IN MEXICO.

At the Mexican Exhibition at Paris in 1889 several specimens of wild silk were exhibited, and also several examples of fabrics woven from it by the Zapoteco Indians. A recent number of the *Revue Financière* of Mexico gives the following interesting details regarding several species of the wild silk-worms which spin their cocoons on certain trees in Mexico. The worms of Mexico work in common. They weave a sort of hammock from 75 to 80 centimetres in length, and with a hole at the bottom through which they drop their ordure and their dead. They pass the day in their nests and the night in the pursuit of food. An attempt has been made at Cordova to domesticate a species of these worms, but the experiments have proved failures, the worms having dispersed. One of this species of worms, which lives on the guava tree or 'goyabo' (*Psidium*

pyrifera) is hairy, of a greyish yellow, with two whitish transverse stripes. Another species settles on the oaks that grow on the slopes of the Sierra of Zongolica (State of Vera Cruz) and of the Sierra of Oaxaca. "I have traversed a fine forest in that region," says an observer, "all the trees in which were hung with hammocks of dazzling whiteness for several square kilometres." The oak-worm, another species, is black, with brown bands. In the Sinaloa a worm is known which lives on the *madrono*, a sort of arbutus very common in the Sierra Madre. The hammocks of the *madrono* worms are of a greyish colour. As a result of these worms working in common, the threads they produce are intertwined, which makes it impossible to reel the silk as is done with ordinary cocoons. Wild silk can only be employed as silk waste, but sold as such it might, in consequence of its great abundance, constitute an article of export of considerable importance, and would appear to be worth the attention of the spun-silk industry of England. Humboldt speaks of the silk of the *Mistique*, which was an article of commerce in the time of Montezuma. He purchased on his journey from Acapulco to Chilpancingo some cloth, which was rough to the touch like certain silks of India that are produced by worms very different from the Mexican.

THE TEXTILE INDUSTRY OF WURTEMBERG.

This State—formerly one of the petty kingdoms of Germany, into the present empire of which it was merged at the great unification which took place about twenty years ago—has for a long time had a fairly extensive textile industry. This has continued steadily to develop, until now it occupies an important position in the aggregate of the industries in which the people of the State find employment. Lord Vaux of Harrowden, writing to our Government regarding the condition of its industries during the past year, says that the "textile industries shew a great improvement. Three large cotton factories have been built during the year, one of them in place of a factory which had been burnt down. A large weaving and carding factory has made considerable additions to its buildings and plant, in order if possible to avoid the necessity of night shifts, to which it had been forced to resort to comply with the demand for its productions. Most of the cotton weavers have increased the number of their looms; a silk-weaving establishment has doubled its machinery, and now weaves coloured silks as well as black ones. The silk-spinning industry has, however, been less active during the past year. The very important wool and cotton weaving industries, especially the branches employed in making blankets, table-cloths, etc., use the mechanical Jacquard loom more and more, and are fully occupied. The manufacturers of knitted goods are endeavouring to find more hands in the labour market." This seems a satisfactory record of progress, but it remains to be seen how far it will be checked by the new American tariff. It is female labour which is mainly employed, and the supply of this, on the whole, is stated to have increased during the past year. No actual statistics are available, but the women are mostly employed in certain definite branches of manufactures, such as textile industries, spinning, knitting, etc., and in these particular branches trade has been very good; the manufacturers have in many instances increased their premises and machinery, and complaint is very generally made that there is a difficulty in obtaining as many workmen as they would wish to employ. Over-time was

worked in the textile trades to a fair extent during the year. There is a movement in progress amongst the working classes towards shortening the hours of labour, and if possible increasing wages at the same time. This, of course, is naturally resisted by the employers, who point to the fact that they are paying considerably more than the employers of North Germany. Herr Von Diefenbach, in a report recently made to his superiors, remarks in this connection that, having for many years been convinced that the reduction of the hours of labour in textile factories to a maximum of 11 a day would be an immense benefit to the workpeople, he addressed a circular in this sense to the manufacturers last summer. He dwelt in this circular particularly on the fact that in England, as a rule, only 56 hours' work was required in the week, whereas his proposal would still allow 66 in Wurtemberg, and also to the fact that it had been repeatedly found in factories where the shorter hours had been introduced that nearly as much work, and of a better quality, was done in 11 hours as in 12 hours or more. He was convinced that, with a fair trial, manufacturers would find that they really incurred no loss whatever from the change. The results of the circular on the whole were satisfactory. A very great number of factories ceased to work more than 11 hours a day. A certain number replied that already they only worked 11, and, in a few cases, 10 hours a day. A few objected to the reduction on the ground that it ought to be accompanied by a corresponding reduction in wages, to which the workpeople would not consent; while a certain number of industries, such as silk spinners and weavers, and some linen and cotton factories, answered, either that they had so many orders on hand that a reduction of the hours at the present moment would entail a considerable increase in the amount of wages paid for over-time, or else that the Belgian and Italian competition, in which countries it was asserted that yet longer hours were usual in these industries, made it impossible for them to reduce their hours of work. Wages are much lower than in this country, but the figures given do not admit of a comparison being made.

THE AMERICAN COTTON CROP.

The reports of the Agricultural Bureau of the United States for the months of September, October, and November, are usually looked forward to with exceptionally great interest. That for September was issued on Friday of last week, and from it we gather that there has been a general decline in condition, though not much more than is usual. According to the official statement, the average condition of the crop shews a general fall from 85.5-10 to 80 per cent. "The largest deterioration is reported from Tennessee, Mississippi, Arkansas, and Louisiana, the falling off being attributed to excessive rain. The superabundance of moisture, coupled with a lack of sunshine and reduced temperature, delays opening, and causes immature bolls to drop and full-grown ones to rot, at the same time inducing sprouting of seed. The same cause discolours the open cotton near the grown, and discharges the colouring matter of the bolls, thus staining the fibre. The value of the crop will, therefore, be somewhat reduced by discolouration. The high expectations formed early in the season were first reduced by early droughts, and afterwards more seriously by more or less continuous rains from North Carolina to Eastern Texas. In the more southern districts there is some complaint of boll-worm, but little mention

of caterpillar. The effectiveness of insecticides when persistently applied is frequently attested. The State averages are as follows:—Virginia, 92; North Carolina, 91; South Carolina, 83; Georgia, 82; Florida, 81; Alabama, 80; Mississippi, 75; Louisiana, 83; Texas, 77; Arkansas, 80; and Tennessee, 83." It is sincerely to be hoped that deterioration will proceed no farther, but that a fine autumn free from killing frosts may extend the period of growth, and as far as possible restore the quality. With one or two more bumper crops, the stocks of cotton in the various centres of growth and consumption would get replenished to such an extent that speculative action to any important degree would be precluded, and the business in every department conducted upon a sound basis. The evil of speculation is in going past its legitimate sphere, which it does when it endeavours to engineer an artificial scarcity.

LISTERS AND THEIR AMERICAN TRADE.

There has been a considerable amount of speculative discussion in Manningham during the week in reference to the departure for America of two of the directors of Lister and Co., Limited—Messrs. J. Reixach (head of the velvet, plush, and seal departments) and W. Watson, junr. (head of the spinning branch)—who sailed from Liverpool on Saturday. The object of their journey is to inquire into the advisability of the Company's establishing works in the United States. We have information on good authority that if such a step is taken it will probably make no difference in the volume of work turned out at Manningham. Seals were taxed on entry to the United States at a prohibitive rate before the McKinley Bill was talked of, and therefore Listers have never had a fair chance of increasing their American trade. By the establishment of works in America they hope to open up new ground, and have no idea of trenching on the work done at Manningham. In previous issues of *The Textile Mercury* the probability of such a step as that now taken was foreshadowed, and our readers have been fully posted as to the reasons which have influenced the firm in their present action.

Articles.

THE "STRIKING" POLICY IN THE COTTON TRADE.

We have a strong conviction that the public interest manifested in and the sympathy extended to the strikes of working men is in a fair way to be cured. It only needs that more knowledge shall be given of the doings of trades-unionists, and in many instances even non-unionists, to accomplish a perfect cure. It will soon be seen that the classes which are not ordinarily ranked among the "working" ones will have all they can do to retain their hold upon the property that is indisputably their own. They will also find that this will not be accomplished without a union and thorough organisation of their forces and the exercise of all the power that can be derived therefrom. So overbearing and arrogant have working men become by the prosperity which has so long been their condition, that even their trades-unions are not aggressive enough to meet their desires. There are strikes existing at two establishments, at the present moment to neither of which has the sanction of the local or general association of the operatives been given. To one of these, the strike at Hippines Vale Mill, Church,

which we hear as we go to press has been compromised, we have already drawn attention.

The second one to which we refer is the strike at the weaving mill of Messrs. Clayton and Frith, Langho, near Blackburn. This firm makes what are termed fine goods, and their weavers' earnings are very high. So high are they, in fact, that about three or four weeks ago the firm discharged a weaver whose average earnings were about 23s. 6d. per week from four looms—a figure not near enough to the general average to satisfy the employers. The man was a good and capable weaver, and it was not from any incapability on his part that he came behind his fellow weavers. The explanation is to be found in the fact that he aspired to be something other than a weaver, and had bought a horse and cart, with which he did jobs in the evenings, and some of which extended far into the small hours of the morning. He would then go home and after having had about three hours' sleep, would have to resume his duty at the looms. It will easily be seen from this that he would be in a very unfit condition and not able to attend to them efficiently. He also made frequent requests to be permitted to go off his weaving in order to do carting jobs. In these cases the looms had either to stand or to be attended by weavers only temporarily engaged, who are rarely either as efficient or attentive as permanent ones. Hence the unsatisfactory results. Messrs. Clayton and Frith seeing this state of things, in which their interests were being neglected, preferred—and very naturally from their point of view—that the man should devote himself entirely to his cart and horse so far as they were concerned, and gave him the opportunity of doing so by discharging him. Will any one affirm that they were not acting within their rights, or were morally to blame in so doing? We think not. But they did not consult the body of their weavers, and the latter immediately struck work and have since been out, now about a month. Perhaps about half of the weavers belong to the Great Harwood Association, whilst the others belong to none. But no step was taken to consult any union on the matter, and therefore no union can be charged with the blame for recklessly instigating the step they have taken. After the strike had been existing some time, however, the Great Harwood Association either formally adopted their quarrel or informally rendered them aid—we are not quite certain which—by making collections for them in the mills of the town. Since then no steps have been taken to settle the matter beyond a deputation of the work-people waiting upon the employers to request the reinstatement of the discharged weaver and the dismissal of two overlookers, which of course was not acceded to.

In view of arrogant pretensions of the kind just stated need there be any wonder excited if English capitalists in increasing numbers are beginning to seriously consider the advisability of taking their knowledge, skill, and means, for investment in countries where they are welcomed with open arms, where free lands, special privileges, and freedom from taxation are granted them, with protection from all competition. There are hundreds of districts in the United States that gladly offer these terms. Austria-Hungary is adopting the same course. It ought at least to be well enough known to all Lancashire working people how the cotton trade of Bombay is advancing by leaps and bounds, and it can only do this at their cost and to their disadvantage. Is this progress likely to stop or diminish whilst Lancashire working men act in the insane manner they are

doing at this establishment and at Hippings Vale Mill? We should think not, but rather that it will be considerably accelerated. A century ago the cotton industry of Lancashire was in the first stage of infancy; half that time ago it was in its youth; it is now possibly in its prime, and half-a-century hence, or even less, may see it either in the last stage of decrepitude, or just dead—killed by those by whom it ought to have been cherished as the most precious of all treasures that they, the working men of Lancashire, could leave to their children. The time of which we speak may well enough be within the lives of the majority of the children who are at present gathering round their fire-sides. What, it may be asked, will be their probable fate if such a decadence of the cotton trade should be in store? Let the present generation appeal to the elders still amongst them, whose memory can carry them over the period, say, from 1820 to 1850, and ask what were the sufferings of the hand-loom weavers and their families during the transition from the hand to the power loom. They will learn an instructive lesson. But the fate of their children in the contingency to which we have referred will be a much harder one than that of the hand-loom weavers' families, because there will be no rising industry ready to absorb them and their children as there was that occasion. This will necessarily mean an enormous amount of suffering to great numbers, and the banishment of thousands to foreign lands in an impoverished condition, with all the hardship this implies. It will mean the destruction, by gradual waste in ineffective competition, of the capital invested in our spinning and weaving mills, and all the subordinate and dependent industries of the country. Is this picture over-drawn? Let those to whom our remarks are addressed only make themselves acquainted with the facts of industrial history, and they will see that it is not. Are they then prepared to bring upon themselves the fate portrayed by persistence in their irrational courses? We trust not, but we have serious fears upon the subject, as our confidence is not large.

We will conclude with a few remarks to the trades-unionist leaders of Lancashire. In making the above observations upon the destructive policy of arrogant pretension and indiscriminate striking which they and their followers have adopted, we have drawn our illustrations from strikes on the smallest scale, because these are at home and are those with which it may be assumed they are perfectly familiar. We could have chosen just as well the recent strikes in London, Liverpool, Southampton, and the present ones in Australia, but the smaller ones at our own door which we have selected, exhibit just as well the working of the mischievous principles at present in vogue. It is useless to object that the Unions are not responsible for the strikes at Hippings Vale and at Langho, because these do not differ in one particle from those which they affirm and support, such as recent ones at Preston, Blackburn, Bolton, the present one at Melrose Mill in Oldham, and impending ones at Blackburn and Church. The motive at the bottom of this policy is well understood, and its effect may be seen in the Todmorden Valley, where two if not three sheds have been closed by their owners rather than that they would submit to it. The pretexts are, of course, different, but even here, as seen in the case of the strikes to which the chief references have been made above, they are simply absurd. In both cases the operatives refuse their employers the right of discharging any one whom they think fit. If

this is a proper claim, its converse must be good as well. Suppose, therefore, their employers refuse the operatives the right to leave their employment when they desire. "Oh, no! this cannot be submitted to, it would be a restoration of slavery." Precisely so, and it is no less an attempt on their part to enslave their employers. Is it likely it will be submitted to? Certainly not. But in view of such conduct need we wonder that English capital is going abroad for investment in foreign mills under the great advantages held out? English money is working mills on the Continent, in Bombay, Japan, Australia, New Zealand, and various parts of South America, the United States and Canada, and in very few of these is it harassed as at home. Will it not be well under these circumstances for both the working classes and their leaders in these districts to carefully review their policy to discover its present and prospective injurious results, and then see if they cannot devise one that will prove more consistent with both their own and their employers' welfare. We think they will succeed if they make the effort.

THE SOCIAL LIFE OF THE CALAIS LACE HANDS.

The *tulliste* of St. Pierre les Calais is not such an unfortunate individual as he himself desires to make out. On the contrary he is frequently placed in a very comfortable position, and leads a life of gaiety from year's end to year's end—a life in which oysters and champagne, if we may credit the statements of those who know this interesting individual, play a not inconspicuous part. This is such a new and startling light in which to view the condition of the strikers' existence that further reference to the matter appears to be necessary. At the present time their lot is, it is true, scarcely an enviable one, but the fault is theirs, and the misery that exists is due solely to their own improvidence. These wretched strikers are to be met in small groups *en route* to the beach in search of fish, or walking in the forest of Guines gathering wild fruit. But the hardy fishwives of Calais, more accustomed to roughing it than the twist hands, display no sympathy, but deride them, and in consequence make the place too hot for them. The strikers therefore no longer assemble at Calais. The operatives, as a rule, live well and deprive themselves of no creature comforts. The gaieties in fact of this portion of the population have even given an unfavourable reputation to the town. This, however, is unjust to the remainder of the inhabitants, who are not such spendthrifts as their fellows. Quite a third of the families in the town possess habits of economy which are worthy of notice, and the *quartier des Fontinettes* is in great part composed of houses built by the savings of the twist hands. Out of four hundred manufacturers, over three hundred sprang from the ranks of the operatives themselves. Of how many manufacturing towns can such a statement be made? But another third of the population of St. Pierre is composed of families with whom economy is utterly unknown. On Saturday the father, who sometimes earns from four to six pounds during the week, gives 12s. to 16s. to the wife—24s. if he happens to be in a generous mood—for housekeeping expenses. The remainder of his pay is spent in selfish, gluttonous enjoyment. Expensive meals at restaurants, preceded by oysters and white wine, form the delight of the twist hand at such periods—and the wife receives 12s. to 16s.! Then follow more oysters, more white wine, and finally champagne. And so it goes on until Monday.

or even later in the week—your true *biberon* does not re-enter harness before Wednesday. At Calais, that town of steady-going burghers, they speak of the twist hands chartering conveyances for Boulogne, dining in the grand hotels of that watering-place, promenading *en costume lippé*, and doing the grand generally. No wonder that there is a deep gulf fixed between the sister towns—a gulf which even municipal annexation has not narrowed.

There is another third composed of that passive class of humanity to be found everywhere. Its members go to the cabaret and drink their wine like the others, spending their money because the example is set them. They return to work on the Monday irritated against their fellows, against the employer even.

What the home itself is one can guess after the above. Too often the wife is a poor house-keeper—a bad manager. She has ideas of taste, and, as is natural in the midst of an artistic industry, dresses well. But she has not acquired that valuable quality in a wife of being able to keep her husband at home, and she spends her money, if he grants her a liberal allowance, without considering his requirements, in the way of dress, and so on. A case has been mentioned to us of a family where the father, mother, and seven daughters frequently earned as much as £16 a week. The crisis found them without a penny to fall back upon. One can well understand how, amongst such specimens of humanity, jealousy and hatred against the more steady of the workmen can be raised by scheming agitators. If the men alone were affected by the strike, the evil caused by the present crisis would be bearable. But, unfortunately, the women, children, and old men, who assist the twist hand by working at subsidiary processes, are equally affected. They have not the excitements of the tavern or the assembly room to make them forget the empty stomachs at home. And they form the majority of those employed too. According to the statistics published by the *Chambre Syndicale* there are only 3,000 twist hands at Calais, and the industry employs 19,168 workers in all, of whom 9,000 are female *decoupeuses* and 2,000 menders.

UNITED STATES DEPARTMENT OF AGRICULTURE.

(Continued from page 251.)

The Silk Section of the Department hardly needs, as yet, to be taken seriously. It is a bold attempt to establish a domestic industry which, if we may judge by the prosperity of the country, is little required. There has been a regular succession of experiments in sericulture for some centuries. Our James I. may be considered to have started them, in jealousy of French prosperity, and was busy enough in directing the planting of mulberry trees, not only in this kingdom, but in those very American colonies where, by the irony of fate, a Republican government is doing its best to follow his royal example. From then to the disastrous enterprise at Dartmoor some years ago, until now, when a fresh and kindly trial is being given to the industry in County Cork, there has been no lack of attempts to make the precious "span gold," but all have so far ended in failure. Whether better fortune will reward the persistence and resources of the Washington authorities cannot yet be foreseen. If it be true that victory falls to the big battalions, they should have a fair chance of success, but there are some issues which not even wealth nor skill can control, and commercial ventures are often numbered among them. This

silk undertaking has now been under official keeping since 1884; it was commenced by the Women's Silk Culture Association in 1880. Last year 5,448 letters upon the subject were received and answered; some 18,000 mulberry trees were distributed, and 18,745 pounds of cocoons, fresh weight, were purchased from 562 people. When this quantity is compared with the total crop of 25,751,000 pounds of reeled silk produced in 1889—10,458,800 from Western Europe, 1,295,800 from the Levant, and 13,996,400 from the extreme Orient—it will be seen that there is likely to be a considerable period of time before the United States makes any very great impression upon the silk market. It has evidently plenty of elbow-room at home, for its imports of reeled silk are very large, and rapidly increasing. In 1884 there were 3,222,546 pounds required for manufacture, but this amount was increased to 5,173,840 pounds in 1888, and 5,329,648 pounds in the fiscal year ending June 30th, 1889. This looks like good business in silk, and promises a receptive market for all that can be raised, if labour difficulties can be overcome. In this respect, as well as in the cultivation of flax and hemp and ramie, from all of which the Department has great expectations, hope is pinned to the invention or improvement of automatic appliances to counteract slow and costly handwork. So far as silk is concerned much attention is being paid to the Serrell reel, and the chief of the silk section expresses his confident belief that "a thoroughly automatic silk reel is a possibility."

Coming to cotton firmer ground is found. There is nothing experimental about cotton, and the tariff does not interfere with it. The fact that about 56 per cent. of the crop of the whole world is raised in the United States is a solid conclusion which we may regret but cannot question. No matter how familiar we may be with the amazing development of its cultivation, it is still nothing less than a marvel that less than a century ago the new United States only produced some 2,000,000 lb. of cotton, and imported 2,531,743 lb. more. A duty of 3 cents per lb. was put upon imported cotton by the Acts of August 10th, 1790, and March 3rd and 4th, 1791, although it had been admitted free by the first tariff set up by the Union in 1789. In December, 1791, Secretary Hamilton reported in favour of the burden of taxation being removed from the raw material, because cotton not being, like hemp, a universal production of the country, it afforded less assurance of an adequate internal supply, but the chief objection arises from the doubts which are entertained concerning the quality of the national cotton. It is alleged that the fibre of it is considerably shorter and weaker than that of some other places, and it has been observed, as a general rule, that the nearer the place of growth to the equator, the better the quality of the cotton. The most striking commentary upon this pessimist opinion is a short table of the exports at intervals of this cotton of doubtful quality and uncertain supply:—

Year.	Exports.	Year.	Exports.
1792	138,828 lb.	1852	1,093,230,639
1812	28,887,877 "	1872	333,537,413
1832	322,215,122 "	1889	2,384,816,669

But leaving the alluring interest of the past for the more serious concern of future supplies, we have the opinion of official experts that as the population of the States becomes denser, and its industries more diversified, a smaller proportion of fibre and more manufactured goods will be sent abroad, and that when the States takes the position of the leading cotton manufacturing country of the world, to which its natural

advantages and the inventive genius of its people entitle it, "planters will continue to supply the demand from the Old World, but it will be a secondary object, the demand for domestic consumption being the first and most profitable." This is a serious outlook for Great Britain, although we cannot but feel obliged for the frankness with which it is put forward. The statistics which bear upon this important point are not, however, so very convincing. Fifty years ago the United Kingdom took 55 per cent. of the commercial supplies of cotton, the Continent 30 per cent., and the United States 15 per cent., but now we only consume 37 per cent., the rest of Europe 38 per cent., and the United States 25 per cent. But when these deductions are put in another form, they do not appear nearly so formidable.

COTTON CONSUMED.

Period.	Gr. Britain.	Continent.	United States.
1841-45	521,230,000	267,350,000	112,500,000
1851-55	750,100,000	451,400,000	281,400,000
1861-65	628,600,000	455,400,000	181,200,000
1871-75	1,228,600,000	856,600,000	524,700,000
1881-85	1,441,100,000	1,314,900,000	856,700,000
1886-90	1,508,700,000	1,510,100,000	994,400,000

Take again the table which shows the proportion of cotton produced which is retained by the States for home consumption:—

Period.	Production.	Exportation.	Per cent. Exported.
1841-50	1,013,706,315	739,181,198	73.9
1851-60	1,656,275,681	1,118,106,790	67.5
1861-70	1,297,745,903	880,437,120	68.8
1871-80	2,183,174,113	1,433,819,284	65.4
1881-88	3,084,677,890	2,092,359,413	67.5

This certainly appears to shew that cotton manufacturing in the States is only keeping pace with production and progress elsewhere, and when we consider these figures together with the growth of the population, there is nothing very remarkable or striking about them. But to give them full weight and significance the counts of yarn upon which the cotton is used require to be put beside them. This would whittle away much of the importance remaining to these impressive millions, and shew that Great Britain has really made as much or more headway than any of her competitors. We can only hope that the outspoken opinion as to the insecurity of the supply of cotton on which we mainly depend may be taken seriously to heart, but there is not yet any sign of the supremacy of this country in cotton manufacture being disturbed.

Foreign Correspondence.

TEXTILE MATTERS IN THE UNITED STATES.

NEW YORK, OCT. 4TH.

SIGNING THE MCKINLEY BILL.—BRADFORD AND THE NEW TARIFF.—A CARPET TRUST AND A LACE SYNDICATE.—SHUT-DOWN ARRANGEMENTS.—THE CANADIAN COTTON INDUSTRY.

"Does your hand tremble?" asked Secretary Blaine, when the President, at the Capitol, had "squared himself" (*Tribune* despatch) to affix his signature to the McKinley tariff bill. "Not a bit," answered the President. "I shall be able to put on a good signature." He wrote the name with "plenty of ink," as he said, and then offered the pen to Major McKinley, who turned it over to Representative Mason, of Illinois, as a precious souvenir. It was deemed best, at Mr. Blaine's suggestion, not to dry the signature with a "blotting pad," but to let the ink "dry on." Did Louis XIV. offer to any court favourite the pen with which he signed the Revocation of the Edict of Nantes? That was in October; but it was over 200 years ago. It was, says the *Hartford Times*, a disastrous signature—and President Harrison's may not prove a fortunate one.

"McKinley prices," of which some details have appeared in the cables to Europe this

week, are now spoken of everywhere, and if the Democrats choose to take up this as a campaign cry in 1892, their opponents will be hard pressed to get out of this difficulty of their own creation.

The probable effects of the McKinley Bill upon the English worsted trade forms the subject of a special communication to *Bradstreet's*. The writer, who dates from Bradford, speaks of the great rush of shipments that has taken place during the past few months—a "rush" by the way which is far from being so great as many seem to imagine. The expression of doubts that occurs in the letter as to whether the Bill would become law, may pass unnoticed. Events have answered those doubts for themselves. It is acknowledged that for at least three months after the passing of the Bill the shipments from Bradford will be few indeed, but as, even under the new tariff, English goods can be retailed in this country at prices less than those paid during the Civil War, hopes are entertained that exports will only be temporarily checked. Reference is also made to the probability of certain Bradford firms opening factories here, but all this will be old news to readers of *The Textile Mercury*, who were fully informed on the subject months ago.

A Brussels carpet trust is now assured, and the price of Brussels carpets will go up 25 to 30 per cent. The Brussels carpet industry was already protected by a duty of 45 per cent., which almost entirely excluded English carpets from the market. It did away entirely with competition, for American carpets of the same quality were sold in the market at 1 dol. 25 cents a yard, when English goods could not be sold for less than 1 dol. 40 cents. Thus importations from England were trifling. Merchants did not handle the English goods, because they were practically shut out of the market by the margin of 15 cents and there was nothing in the English carpet to overcome the difference. Yet by the McKinley Bill the duty on carpets is raised to 60 per cent. This gives the domestic manufacturers a great market. Foreign manufacturers cannot get in at all and the home makers will complete their ring and advance their prices.

During the week an important change has been made in the ownership of the Jennings Lace Works, at Park-avenue and Hall-street, Brooklyn, by which an English syndicate purchases from Mr. Jennings that important concern. Mr. Jennings, in commenting on this purchase, said that his factory was the only one of the kind in the country, and added: "It has been successful in spite of the tariff, which has obstructed me for the past five years. I began twenty years ago, and then my laces were sold in England for less than goods made in Europe. The only objection to having lace factories here is the high tariff. I believe this new corporation will be very beneficial and will attract kindred enterprises. My reason for selling out is that I cannot extend the business on my individual capital and by my personal efforts. I lost my sons, or this business would not go into other hands." It is understood that the price at which the syndicate acquires the property is 1,000,000 dols., of which amount Mr. Jennings retains a ten per cent. interest.

The effort of Fall River manufacturers to induce the Rhode Island mill men to join the combination to stop one week in October has not been successful. The Knights, who are the leading manufacturers of that State, are quoted as saying that if the Fall River mills would agree to shut down for two weeks, instead of a week, they would guarantee that the Rhode Island factories would follow suit. Sixty hours were all that could be accomplished at Fall River at a time, and the corporations will carry out the agreement alone. It is said that a third curtailment in December is not improbable.

With reference to the cotton industry of Canada, which is now, in conjunction with all the other manufactures of the Dominion, a source of interested solicitude on the part of politicians here, it may be noted that although the first mill was only established fifteen years ago, the industry has increased rapidly, the number of operatives to-day being 80 per cent. in excess of those of five years ago. The production is calculated at 158,000,000 yards per annum.

COTTON GOODS IMPORTS INTO MADAGASCAR.—An Antananarivo (Madagascar) correspondent writes: "The import value from June to December, 1889, showed a decline of £3,400 as compared with the first half of the same year. As usual more than three-fourths of the total imports consisted of drills. An attempt was made to introduce an Indian imitation of the American drills, but it fell through although the prices were cheaper. The American article still commands the market, although the demand has somewhat declined of late, as the natives, instead of dressing themselves as hitherto exclusively in white drill, have now begun to use the so-called *Patnas* and *Indiennes*. This has caused a veritable revolution in the trade of Fianarantsoa, the chief trading centre, and importers ought not to lose sight of this circumstance. The average quotations for the imported goods were as follows:—American drills, double width, £17 to £17 10s. per 1,000 yards; single width, £12 10s. to £12 15s. per 1,000 yards. Indian huckaback drills, in single width, £10 10s. per 1,000 yards, had absolutely no sale.

THE Bombay papers report the death on the 12th ult. at Mazagon, in his 67th year, of Mr. Byramjee Jeejeebhoy, C.S.I., a well-known Parsee merchant and philanthropist. Only a few weeks before his death he gave a sum of about four lakhs of rupees for the establishment of a school for the sons of the poorer Parsees in Bombay, and most of his generous contributions for public objects were devoted to educational purposes. Mr. Jeejeebhoy's father started in life as a warehouse keeper, and gradually rose to be one of the leading merchants of Bombay. He was the first native elected to the Chamber of Commerce, and he likewise contributed largely to the spread of education in the Bombay Presidency. Mr. Jeejeebhoy who has just died followed in his father's footsteps. He was one of the first to introduce cotton spinning mills into India, and was instrumental also in introducing fire insurance. In 1868 he was appointed a member of the Legislative Council of Bombay by the Governor, Sir Seymour Fitzgerald. A bare list of the public institutions and objects which he either established, maintained, or to which he gave enormous sums would fill a large space. They include almost every philanthropic institution in Bombay, medical institutions and charities throughout the Presidency, and everything connected with Parsees in all parts of the world.

SPANISH COMPETITION WITH ENGLISH GOODS.—By the revenue law of May 6th, 1882, the duties on Spanish imports into St. Jago de Cuba have been gradually reduced, finally disappearing on July 1st of the present year. One of the results of the working of this law, writes Consul Ramsden, seems to have been the stimulation of the Barcelona manufacturers to meet the requirements of this market, and now the difficulty, which formerly existed, of obtaining specialities in Spain is fast disappearing, and many articles at one time only to be had in England are now supplied by Spain. Spain at present competes advantageously with England in the following articles of dry goods:—Cotton drills, blanketings, towellings, undershirts, hose, etc.; calicoes, cotton and linen long cloths and shirtings; linen, cotton, and mixed holland; linen, cotton, and mixed sheetings; jute bags, material for curtains, wollen and cotton casimirs; silk, linen, and cotton handkerchiefs; damasks; and both linen and cotton material for tablecloths; osnaburgs, unbleached goods, quiltings, woollen and cotton shawls, chintzes, pique, cotton and linen tickings, cretonnes, tape, cotton and linen cambrics, silks, velvets, and ladies' mantles of all sorts; umbrellas and parasols.

Reviews of Books.

All books reviewed in this column may be obtained post free at the published prices from Marsden and Co., "The Textile Mercury," 23, Strutt Street, Manchester.

JONES' HANDBOOK FOR DAILY CABLE RECORDS OF COTTON CROP STATISTICS. Season 1890 91. Liverpool: John Jones, 5, Brown's Buildings. Price 3s. 6d.

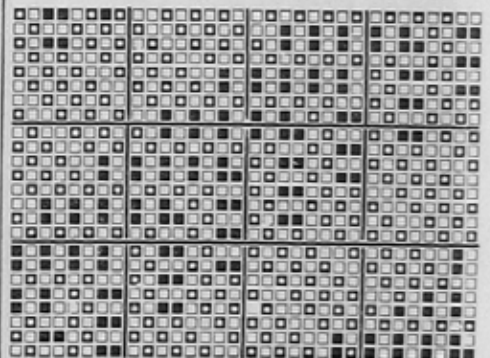
This useful annual, which also indeed is indispensable to the cotton spinner, broker, and merchant, has just made its 20th appearance. The contents consist of all sorts of statistics relating to the cotton crops, their prices and movements throughout the year, so arranged as to facilitate comparison with those of the current season, for the reception of which particular provision is made for every day in the year.

Tables of the cotton mills of India and the Southern States of America are given, shewing the rapid extension of the spinning industry in those parts. A new feature appears in this issue, namely, a table of the principal cotton crops of the world since the American war, which shews in a forcible manner the astonishing and growing capacity of the world to absorb cotton goods. The booklet is got up in a most handy and useful form, and we think must be invaluable to the classes of persons named above.

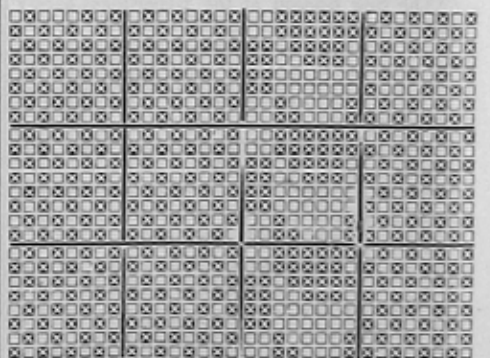
Designing.

NEW DESIGNS.

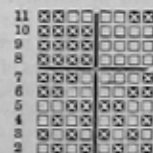
During the past two months the sea-side has been made a favourite resort by thousands; it cannot therefore be out of place to give an account of what has been worn on the beach, the parade, and cliff. White dresses were more numerous than those of any other colour; next came navy-blue serge costumes with dainty white skirts. Occasionally a skirt of shot silk was seen for yachting or travelling, but white skirts have been the rule almost everywhere. It may, therefore, be taken for granted that blue and white are the only colours favoured by the higher votaries of fashion. A very remarkable feature is the excellent fit of the great majority of the dresses, even those composed of cottons, muslins, striped canvas or gauzes, and other inexpensive materials; the figure is well developed, the drapery of the garment all that can be desired, and there seems a total absence of the dress improver, for which we ought to be truly thankful.



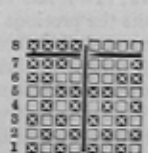
DESIGN 191.



FANCY DRESS STRIPE.



No. 1 PEGGING PLAN AND DRAFT.



No. 2 PEGGING PLAN.

WORSTED TWILL.

Design 191 is a suggestion for a twill useful either for coatings or dress goods. It consists of a figure formed by two sides of a square developed in warp and weft rib and running in twill form across the design. The ground given here is almost plain, but since plain excludes the effective development of either warp or weft rib, perhaps a 5 and 2 twill will prove more useful than the almost plain will given in the design. The warp and weft ribs are the principal feature of this design, and we could suggest various modifications such as arranging in sateen order, checks, etc.

FANCY DRESS STRIPE.

No. 1.—This design is for a fancy stripe in cotton and silk. We have simply given a mere outline of its appearance, as it is worse than useless taking up valuable space when the pegging plans and drafts will give the necessary details for its production. The numbers on each side of *No. 1* and *No. 2* pegging plans denote the draft or mode of drawing in the pattern through the heads. The design comprises 80 ends per inch of 24's dark blue cotton, 14's white organzine or thrown silk for warp, and 80 picks per inch of 24's dark blue for weft, 11 shafts, 8 to round by *No. 1* pegging plan, and 8 shafts 8 to round by *No. 2* pegging plan. Pattern of warp and draft by *No. 1* as follows:—16 dark blue on 1, 2, 3, 4 shafts, 2 white on No. 5 shaft, 2 blue, 1 white, 1 blue, 1 white, 1 blue, 1 white, 1 blue, 1 white, 1 blue, 1 white; the white ends to be on 6, 7, 8, 9, 10, 11 shafts, the blue ends on 1, 2, 3, 4 shafts, 3 blue, 1 white, 1 blue, 1 white, 1 blue, 1 white, 1 blue, 1 white, 1 blue, 1 white, 1 blue on 1, 2, 3, 4 shafts; 2 of white on 5th shaft, making a total of 48 ends.

By *No. 2* pegging pattern and draft would be: 16 dark blue, on 1, 2, 3, 4 shafts, 2 white on 5th shaft, 2 blue, 1 white, 1 blue, 1 white, 1 blue, 1 white, 1 blue, 1 white, 1 blue, 1 white, 1 blue, 1 white; the blues on 1, 2, 3, 4 shafts, the whites on 6, 7, 8 shafts, 3 blue, 1 white, 1 blue, 1 white, 1 blue, 1 white, 1 blue, 1 white, 1 blue, 1 white, 1 blue, 1 white, 1 blue all on 1, 2, 3, 4 shafts, 2 of white on 5th shaft—48 ends full pattern, 38 ends cotton, 10 ends silk. Variations may be made by using white cotton for silk, making the production cheaper, or the two ends on 5th shaft might be crimson silk, orange, primrose, or ruby.

A very wide field is here open for ornamentation by colours, always leaving the ground or plain ends a good contrast, the weft being of the same shade as the ground. A very good effect would be obtained by changing the dark blue in the warp for clear bleached white, and the spotting yarns dark brown, weft white. The ground could be made into a cassimere twill, or matting. We might go on showing how numerous the changes are in a design of this nature, but sufficient has been said to shew manufacturers of dress goods the manifold advantages of adopting these patterns, which can be made on few shafts, with few treads to the round, and with very simple materials a really good and effective cloth can easily be produced at a minimum of expense.

CASHMERE TWILL GINGHAM.

Four-end or cashmere twill gingham pattern:—72 ends on one inch of 24's twist for warp, and 72 picks per inch of 24's weft, all cotton. If made in linen warp and weft the counts for both would be 60's, or warp cotton and weft linen. Pattern of warp and weft:—16 white, 4 coral, 4 white, 4 coral, 16 white, 6 red fawn, 16 of dark slate, 12 red fawn, 16 dark slate, 6 red fawn; complete pattern, 100 ends.

A second twilled gingham pattern:—Same reed, picks, and counts; 60's linen warp and weft; 2 very dark blue, 2 dark buff, 6 white, 2 dark buff, 2 dark blue, 2 dark buff, 6 white, 6 dark buff, 6 white, 2 dark buff; total, 36.

Both these patterns are new, in very neat effective colourings, and ought to take well. The materials may be silk warp and weft, 80 ends per inch, 24's warp, 24's weft, 80 picks per inch. A good cloth can be made from these particulars.

CUT DOUBLE CLOTH.

Design 190 is a typical example of what are termed "cut double cloths," that is double cloths which are marked or figured by means of indentations or furrows formed by two threads or two picks working exactly the opposite of each other, *eg.*, three up and three down in this case. This is not the only way of producing cuts or indentations: for example, if the body weave of a cloth be a warp-face weave or any weave that gives a raised effect, then if ends of plain or small rib be introduced a cut is practically produced; nevertheless the type of cut cloths under consideration undoubtedly yields the neatest, clearest cut of its kind.

In the figuring of cloths on this principle the designer is of necessity confined to fine lines either in the direction of warp or weft, weave effects, and colour, but it is needless to say that very elaborate and effective cloths are produced on this principle. In *Design 190* we have taken the interlacing of threads in plain order as the arrangements of the cuts, filling in the space between the longitudinal cuts with 2 and 2 twill to represent the warp threads, the space between the horizontal cuts with 2 and 2 twill reversed to represent the weft picks, and the space between the threads and picks with hopsack.

Of course other more characteristic weaves might be employed, but if say dark green warp and dark brown weft are used for the face cloth, the weave effects even in this case will be very clearly demarked.

In order to fully realize the system of construction notice the following points:—The face weave is developed in *cross type only*, and the backing threads are developed in *circles only*; while the backing picks will be noticed from the *absence of marks*, and the cutting threads and picks will be readily ascertained, since they are developed in *solid type*. The following warp and sett is suitable.

Warp.

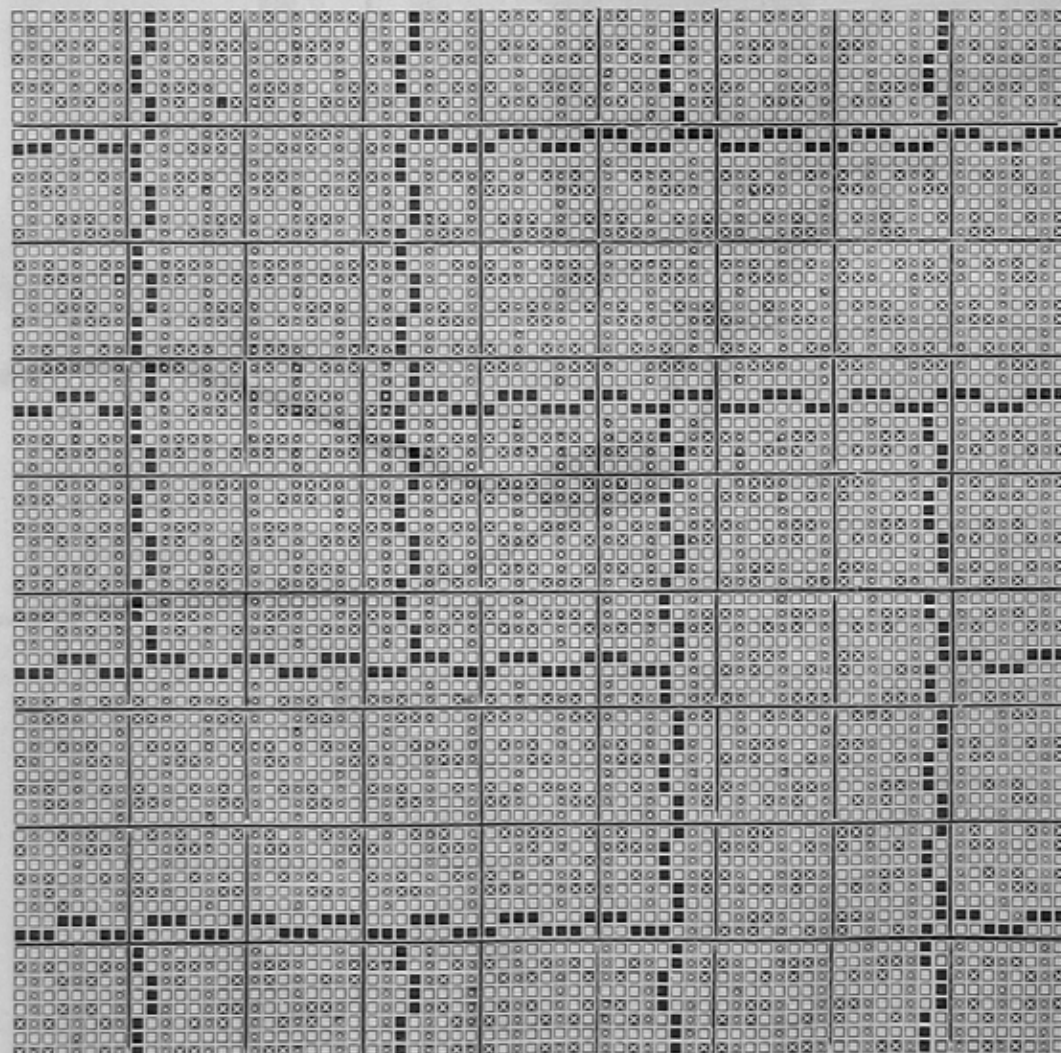
- 1 thd. 2/40's bl'k wstd (for face),
- 1 " 20 sk. bl'k woollen (for bk),
- 1 " 2/40's bl'k wstd (for face)

Weft.

- 2 picks 20's black or brown wstd (for face),
- 1 " 20 sk. woollen for back,
- 84 picks per inch.

In introducing colour here, it is usual to run twists up the sides of the cuts, but perhaps the most effective way to deal with this design would be to introduce olive or brown warp and weft for the threads inclosed by the cuts, and to have the other portions of the designs black; thus the effect of interlacing threads might be still further developed.

[N.B.—Inadvertently in inserting the plain back the wrong order of intersection has been indicated, since if the plain be changed in order, *viz.*, those backing threads that are up when the backing pick comes in, be marked down and *vice versa* in all cases, then the backing effect will coincide with the cuts.]



DESIGN 190.

Machinery and Appliances.

NEW AUTOMATIC NARROWING AND WIDENING MACHINE FOR HOSIERY MANUFACTURING.

MESSES. W. ROTHWELL AND CO., LIMITED,
ALBERT WORKS, BOLTON.

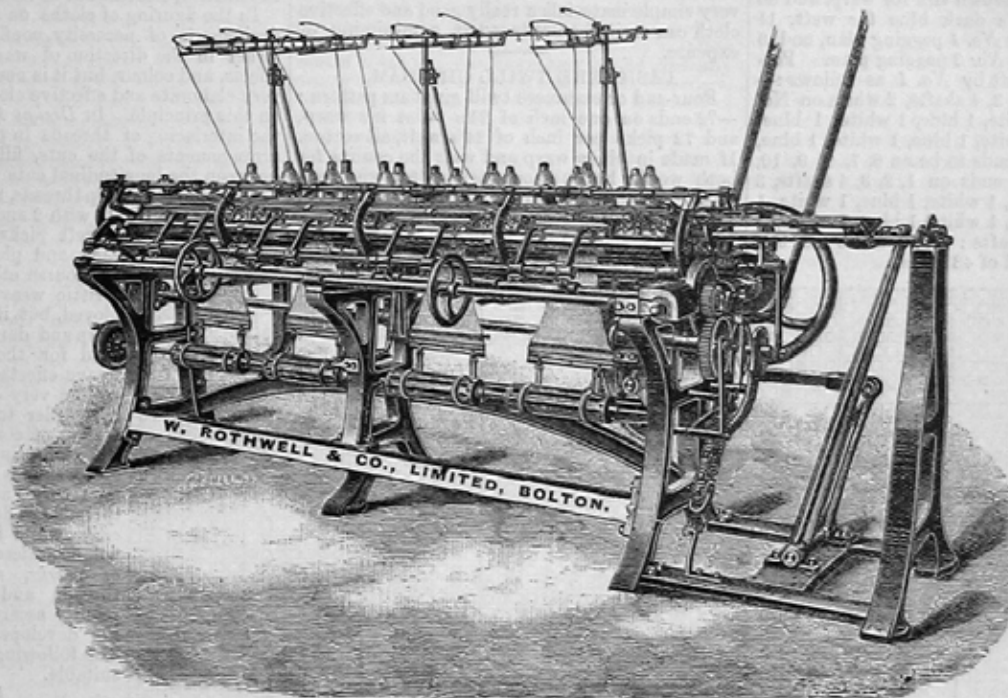
We have several times already drawn attention to the dispersion over the country of the hosiery industry from its original home in Leicestershire and Nottinghamshire. It has got a firm hold in many leading centres of population in Lancashire and Yorkshire, and also in numerous other places elsewhere. It is, however, perhaps only in the first-named counties that the development of the hosiery industry has reached such a magnitude as to require for its conduct the institution of the factory system.

range of capability, doing almost every possible stitch and combination of stitches, and permitting changes from one to the other with facility. This class of machine has been successively improved until it is now very perfect indeed.

The latest improvement we have to note is an invention, the inclusive right to make which has been purchased by Messrs. William Rothwell and Co., Limited, Albert Works, Bolton. Of this concern Mr. Rothwell, who has done so much for the introduction of the hosiery business into Lancashire, is the principal and founder, and we have much pleasure in bringing before our readers the first description of this machine that has been given in this country.

With the general appearance of the latch-needle knitting machine our readers will be acquainted. It consists of the needle beds, which are two planes set back to back and inclined towards each other. Underneath are the cams that actuate the needles, and above is the yarn carrier. It is on these lines that the new machine is based, though the framework is

first brought into such a position and contact with the needles that they are enabled to raise the latter in their beds so that the eyes of the narrowing points, before mentioned, can be brought upon and lay hold of the needle hooks. This is accomplished by the action of the cams upon the three parallel bars arranged above the needle beds, one of which carries the narrowing points. In work the scrapers raise the needles to a position just short of passing through the loops by which the latches are opened, with the last loop resting upon them. The narrowing points now advance and, laying hold of the needle hooks, draw the needles upward until the latches have passed through the loops. Next the narrowing points descend, pushing the needles before them until the loops are slipped over the needles and upon the narrowing points. At this position the needles are caught and held stationary by the scraper, whilst the narrowing points descend a little farther, and having done this they are slightly raised in a vertical direction, in such a manner as to unhook them from



NEW AUTOMATIC NARROWING AND WIDENING MACHINE FOR HOSIERY MANUFACTURING.—MESSES. W. ROTHWELL & CO., LTD., BOLTON.

In the less important centres it has not yet got much beyond the shop stage, in which a few machines are introduced to fill up the time of the apprentices and assistants during slack hours. Although the busy days of the week will probably not exceed two, yet a large staff of assistants are needed to cope with them when they come round, and as they cannot be engaged for those days only, it becomes necessary that they should be permanently engaged, which involves a heavy charge upon these small establishments. Here then comes in the new industry to effect economy by the prevention of waste in the time of the assistants. The benefits resulting from this are found to be so great that, as observed above, the hosiery industry is widely extending, and in this new development is proving so profitable that in many of the centres there is great probability of its ceasing to be the adjunct of the retail businesses mentioned, and that it will take root and grow prosperously as an independent trade.

All this has been rendered possible by the invention of simple automatic and efficient machines, which can be built of sizes suitable for the shop and the factory. These are of great

modified to adapt it to receive the improvement the inventor has made. This consists of the application of a jacquard pattern chain to the machine for automatically fashioning by either narrowing or widening the fabric in process of being made. This is placed at one end of the machine, like the pattern chain of a box loom, and does its work through similar mechanism and connections. This work consists of operating three or more needles, having eye-holes in their extremities, and which project in an inclined direction downwards towards the tops of the knitting needles lying in their inclined beds. The opposite ends of the first-named three needles—which to prevent confusion are termed 'narrowing points'—are fitted in and safely held by a carrier. Assuming that the machine is at work and has come to the point where narrowing is required to commence, the pattern chain comes into action, stops the cam carriages, and brings the narrowing apparatus into work. This is as follows:—The "scrapers," consisting of flat bars arranged upon two arms so as to just stand clear of the needle bed, have a peculiar motion given to them by an arrangement of cams. They are

the needles. They each have possession now of the loops of the fabric previously upon the needles opposite to them. They are now withdrawn in the direction from which they made their first movement to such a position as to clear the tops of the jacks on the needle beds. By another cam arrangement they are now caused to make a lateral movement the distance of one needle. It should be borne in mind that there are three narrowing points, and these have each cleared a needle from its loop of the fabric in process of making. The lateral movement therefore being to the extent of one needle, the position now is that the needle farthest away from the edge brings its loop opposite one in the needle bed already having a loop, the other two coming opposite empty needles. The narrowing points now descend again, carrying the loops down upon the needles before them. Again laying hold of the hooks of these needles, they, obliquely rising, draw the needles through the loops upon them, and having done this again receive a slight vertical movement to detach them from the needle hooks. This being accomplished, the scraper again comes into action and draws the empty needle down to a

position quite clear of the further influence of the cams. The transfer of the loops has now been made, and the discharged needle withdrawn to a place of safety and inaction, so now the narrowing having been accomplished, the narrowing points and the scrapers retire to their original positions to await a further call to duty, and the knitting recommences.

It is remarkable how, in this invention, the movements of the human hands in manual knitting have been perfectly imitated by the inventor, and how by the mechanical action he has secured identical results. In this respect it deservedly classes with the most ingenious arrangements that have yet been constructed for such purposes. In the matter of production the machine is so simple and so perfectly automatic that a man can learn it in a week and can produce as much work from it as can be done by four to six men on latch-needle machines, on which the narrowing has to be performed by hand.

The machine can be made with from one to six heads, and from 8 inches to 32 inches width of needle bed, for knitting circular, open-side, and ribbed fabrics. It can be constructed with any needle gauge desired from the lowest upward, and to knit all classes and counts in cotton, worsted, woollen, silk etc. Users will thus see that it will knit hose, pants, vests, shirts, jackets, and indeed all knitted fabrics in every stitch that can be produced on latch-needle machines. We have pleasure therefore in directing to it the attention of our readers, who will receive any other information they may desire on application to the makers at the address given above.

"IMPROVED RING FRAME BOBBINS."—We omitted to state in our article last week on Mr. W. R. Sidebottom's improvement in ring frame spinning, that the bobbins for the improved arrangement were made by Messrs. Wilson and Co., bobbin manufacturers, Beevor Works, Barnsley.

It is sometimes desirable in a workshop full of machinery to isolate a sound produced by a given machine in order to observe its variations of intensity, as well as the points at which it is produced. For this purpose the following method has been devised by M. Rodolphe Bourcart:—An india-rubber tube of a little more than three feet in length is inserted in the ear. As it only receives vibrations of sound emitted by the small portion of surface to which it is brought near, it conducts to the ear nothing more than the isolated sound. It is advisable in using this method to stop the other ear with wadding.

AWARDS AT EDINBURGH EXHIBITION.—The jurors' awards for exhibits at Edinburgh International Exhibition were issued last week. Amongst others are the following:—Complimentary exhibitors' gold medal: Gresham and Craven, Manchester, injector for feeding boilers, Silver medals: Frictionless Engine Packing Company, Manchester, packings. General exhibitors' diploma of honour: Crossley Brothers, Openshaw, gas engines. Gold medal: James Carr and Sons, Manchester, tapes, cords, bindings, etc., for blinds; George Haynes and Co., Stockport, medicated wools and plaited wicks, Silver medal: Rossendale Belting Company, Manchester, hair belting; Wilson Brothers, Todmorden, excellence of exhibit (bobbins, etc.).

According to a Continental contemporary, the most recent method of removing deposits from boilers is by the application of kerosine oil, which is introduced into the boiler with the feeding water. For this purpose a small apparatus is inserted in the feed pipe, by means of which the requisite quantity of oil is added to the water. One litre and a fifth of oil daily are sufficient if the water be run off partially once a week, and wholly once a month. It is added, however, that chemists find it difficult to put confidence in this method.

Bleaching, Dyeing, Printing, etc.

FINISHING COTTON GOODS.

Of late years great changes have gradually been introduced in the methods of finishing cotton goods of all kinds. These have been partly brought about as the result of the investigations that followed the great Manchester goods case, whereby the evil effects liable to be produced by the excessive use of flour in finishing were demonstrated; and partly because, while a finish has been desired on their cloths by merchants, yet there has been less demand for weighted goods, a larger proportion of purer cloths being now sold than was the case twenty years ago. This has allowed of the requisite finishes being obtained by mechanical rather than chemical means. Formerly the various finishes were got by varying the kind and proportion of the chemicals used in the finishing size, but now they are got by varying the mechanical treatment. This latter has led to the invention and introduction of many kinds of finishing machines, unthought of in the early days of cotton finishing, and a large amount of ingenuity has been displayed in their construction and arrangement to enable them to get through a large quantity of material and yet to give better qualities of finish than were formerly obtainable.

The finisher of to-day, unless there are special reasons, uses as little finishing size as he possibly can, and this is of as simple a composition as possible—just enough, so to speak, to enable the cloth to retain the finish. There has also been a change in the character of the materials used: flour is being abandoned in favour of starch as a stiffening and binding agent, as starch is much less liable to mildew than flour; further, the use of antiseptics has become more common, and their value as preventatives of mildew is being more fully recognised. The use of mineral stiffening agents, such as Epsom and Glauber salts, is largely on the increase, with many advantages, especially as no matter where or how the goods are stored there is no tendency to mildew. The use of such really deleterious substances as Irish moss, glue, bone size, etc., is decreasing; they lead to the production of mildew and other evils in the cloth.

The consequence is that mildew in cloth is of rare occurrence now, and often when it does occur it is more the fault of the merchant than the finisher. For certain calender finishes it is absolutely necessary to use a little flour and starchy matter to enable the cloth to take the finish. Now under ordinary circumstances this cloth will not mildew, but if stored in a damp place it will be sure to do so. This however is the fault of the merchant, and not the finisher: the merchant should take every reasonable care to store the goods, and if he keeps them in a damp place and they go wrong the finisher is hardly to blame for it. Bread if kept in a damp place for a few days will go mouldy, but we never think of blaming the baker, and so it should be with storing or warehousing cotton goods. Carefully stored in a suitable place they will not alter, but if kept in a damp place or where subject to injurious influences they are sure to go wrong. The finisher, however, should not be blamed for this, although he very often is.

This gradual improvement in finishing is a very desirable one, and it is as well that further development in the same direction should take place, and this undoubtedly will be the case as finishers become better acquainted with the materials they use.

There is a great difference between English and Continental methods of finishing. The English are universally acknowledged to be better finishers than their Continental rivals, who are fully twenty years behind the English finishers, and use methods and means that have long since been discarded in this country. Continental finishers still rely largely on the use of materials for producing the different finishes and their sizes are most complex in their composition. They have few machines and these are not so perfect as English machines nor of so great a variety in construction.

THE COAL-TAR COLOURING MATTERS.

I.

These highly important bodies, as all their users are aware, belong to several different groups, varying one from another in their methods of preparation, general properties, and modes of application in dyeing and calico printing. One or two similarities in chemical composition or constitution prevail throughout each of these several groups and impart to them their peculiar properties. Generally these points are not considered of importance by dyers, who unfortunately do not think it worth their while to make themselves familiar with the chemical composition of the dye-stuffs they use. This, however, is undoubtedly a mistake, as by having a knowledge of the subject they would be in a better position to know what methods or processes to use in applying these dye-stuffs in dyeing and calico printing. In the course of a few brief articles we propose to consider the various groups of coal-tar colours, pointing out their characteristics, and more especially dealing with their use and modes of application in the tinctorial arts of dyeing and printing.

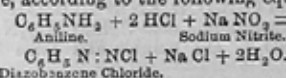
The most important and also the largest group is that of the

AZO-COLOURING MATTERS,

as they are called. It may safely be said that the introduction of this very extensive series of coal-tar products has done more to revolutionise dyeing than any other class of colours ever did. They are generally very brilliant, but there is not a great variety, the colours being mostly yellows, oranges, or reds; while blues, greens, and violets are scarce. They are easily dyed, and on the whole are tolerably fast to light, air, soap, etc.; indeed some of them cannot be excelled in these points.

The characteristic feature of the azo-colouring matters and that which distinguishes them from the other groups, is that they contain one or more groups of two nitrogen atoms—N : N—these are joined together with two bonds of affinity, and each azo group, as it is called, has two bonds with which it unites with alcoholic or other radicals.

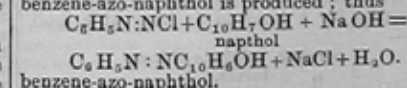
These azo bodies are produced from amines, a group of compounds derived from ammonia NH₃; by a general reaction, which was discovered by Griess. When aniline, which we may take as a type of the amines, C₆H₅NH₂, is treated in the cold with hydrochloric acid and sodium nitrite, it becomes diazotised and is converted into a body known as diazobenzene chloride, according to the following equation:—



All other amines are capable of undergoing the same reaction by the same means.

The diazo bodies so produced are not stable, and soon undergo decomposition, especially when warmed. It is therefore necessary to carry on this process in the cold as far as possible. What is more important, however, is that the chlorine they contain is readily replaceable by other amines, phenols, organic acids and their compounds. Thus if after having made the diazo-benzene chloride it be brought into contact with a solution of aniline, this combines with the diazo-body to form amido-azo-benzene chloride, C₆H₅N : NC₆H₅NH₂·HCl, thus: C₆H₅N : NCl + C₆H₅NH₂ = C₆H₅N : NC₆H₅NH₂·HCl.

Similarly if the diazo body be treated with an alkaline solution of naphthol, a body known as benzene-azo-naphthol is produced; thus



Now the diazo bodies are not colouring matters, but the azo bodies produced from them possess strong colouring powers, and are valuable as dye-stuffs. There is, however, one point to be mentioned—benzene-azo-naphthol and its analogues is insoluble in water, and, therefore, cannot be used as a dye, but by converting them into their sulphonic acids, such as benzene-azo-naphthol monosulphonic acid, C₆H₅N : NC₁₀H₆OH·HSO₃, or more strictly speaking into

their alkaline salts, they are rendered soluble in water and then form useful dye-stuffs.

The azo-colouring matters are divided into several groups:

- 1st.—Amido azo colouring matters.
- 2nd.—Azo colouring matters.
- 3rd.—Dis-azo colouring matters.
- 4th.—Tetra-azo colouring matters.

1st. Amido Azo-Colouring Matters.

These are few in number, and comprise aniline yellow, chrysoidine, and Bismarck brown. These are the salts of amido-azo-benzene, $C_6H_5N:N C_6H_4NH_2$; diamido-azo-benzene, $C_6H_5N:NC_6H_4(NH_2)_2$; and of triamido-azo-benzene, $C_6H_4NH_2N:NC_6H_4(NH_2)_2$, respectively. These bodies are insoluble in water, but their hydrochlorides are freely soluble, and form the commercial dye-stuffs.

These amido-azo dyes have basic properties, forming soluble salts with all acids. On the other hand, alkalies precipitate the base from the dye solutions, and this is insoluble in water.

On cotton they are dyed by using a tannin and antimony, or tin mordant. Wool and silk are dyed in neutral baths; wool with an addition of Glauber's salt, silk best in a bath of old boiled-off liquor, brightening afterwards with weak acetic acid. In calico printing they are applied with a thickening of starch, acetic acid, and tannin, fixing after steaming in a tartar-emetic bath.

The more highly basic the dye-stuffs of this group are the darker in colour, and faster to light and soap. Thus Bismarck brown (triamido-azo-benzene) is darker and faster than chrysoidine (diamido-azo-benzene), and this, again, is faster than aniline yellow (amido-azo-benzene), which, owing to its fugitive character, has gone out of use as a dye.

2nd. Azo-Colouring Matters.

These are exceedingly numerous, and shew a great variety of tints and colours, and also a great variation in the composition. They are obtained by taking aniline, toluidine, xylydine, and other amines and their derivatives, diazotising these in the manner already noted, and then treating the diazo bodies formed with alkaline solutions of phenols, or naphthols, their sulphonic acids, or with sulphonic acids of amines.

The simple combinations of the amine and naphthol, etc., are insoluble in water; while, as already pointed out, the alkaline salts of their sulphonic acids are soluble in water. Thus, xylene-azo-naphthol $C_6H_3(CH_3)_2N:NC_{10}H_6OH$ is insoluble in water, and therefore useless as a dye-stuff; but xylene-azo-naphthol-monosulphonic acid $C_6H_3(CH_3)_2N:NC_{10}H_6OH HSO_2$ and the disulphonic acid $C_6H_3(CH_3)_2N:NC_{10}H_6OH(HSO_3)_2$ are soluble and form useful dye-stuffs.

(To be continued).

FIXATION OF IRON MORDANTS.

Wool.—The iron mordants are not often fixed upon wool previous to dyeing. Ordinarily the wool is first boiled with the dye-stuffs, which in this case are dyewoods, such as red-wood, fustics, logwood, etc.; the "browning" is added, which is either bichromate of potash, sulphate of iron, sulphate of copper, or a mixture of these two sulphates (Salzburg vitriol), etc. We have, however, obtained excellent results by mordanting wool with iron prior to dyeing, which is much handier for sampling, while the colours are not only brighter but faster. We have, for instance, obtained Havanna, otter, bronzes, etc., very brilliant, very fast, and very cheap, by mordanting, for 1 hour to 1½ hour at a boil, with:—

- 5 per cent. sulphate of iron,
- 3 " tartar,
- 2 " oxalic acid,

washing thoroughly, and dyeing with fustic, which can be reddened by alizarine, or blued by logwood, or, better yet, by alizarine blue; but for colours with alizarine it appears always preferable to use chromium mordants.

Silk is mordanted by a simple sufficiently-long immersion. Sometimes the iron is fixed with yellow prussiate, which gives a bottom of Prussian blue for blacks.

Cotton.—For such colours as chamois, rust and nankin, the hydrate of peroxide of iron serves as dye; but the quantity of iron hydrate necessary to give the highest possible effect with such dye-stuffs as madder, alizarine, etc., is not sufficient to constitute a dye upon cotton tissue. But, as in the case of alumina, there are several means of fixing ferric hydrate upon the tissue, namely: (1) The use of basic peroxide salts which surrender a portion of their oxide to the fibre by simple porous attraction. (2) The use of neutral peroxide salts, and precipitation of the oxide by ammonia, caustic alkalies, or alkaline carbonates, and certain alkaline salts (phosphates, arsenates, silicates) whose acid forms insoluble compounds with iron. (3) The use of such peroxide salts as are susceptible of spontaneous decomposition into ammonia and a base which remains fixed upon the cotton. (4) The use of peroxide salts which, besides the precipitation of the oxide, always require a simultaneous or subsequent oxidation. (5) Alkaline solutions of peroxide of iron.

BENZIDINE COLOURS.—The various patents of the Farbenfabriken vorm. F. Bayer and Co. relating to the benzidine colours are gradually undergoing amendment in the direction of disclaiming the use of various bodies named in the original specification. This process illustrates one of the anomalies of our patent laws relating to chemical patents. A patentee is allowed to claim the use of a large number of bodies for the production of colouring matters, which he does on the strength of making a few dye-stuffs from analogous compounds; but some of the substances the use of which is claimed will not make colouring matters, and, technically, one part of the patent being bad the whole is bad. Our patent laws, however, leave a loophole of escape by disclaimers: the use of these worthless bodies is disclaimed, and the patent is again made valid. It seems to us that if a patent claims the use of any products, and these will not produce the results stated, then the patent should be considered invalid—i.e., patentees should only be allowed to claim what can be produced, and to shew that their claims are correct they should deposit samples of all the products for the preparation of which they are obtaining a patent. This course has been urged by the chemical section of the Manchester Chamber of Commerce; it is a most desirable improvement, and will no doubt be brought about when our patent laws are next amended.

THE CALAIS LOCK-OUT.—A great meeting of lace-workers took place on Sunday at the Salle d'Elysee, St. Pierre, at which the attendance reached 3,000. A great deal of enthusiasm was manifested, and it was decided to continue the strike and refuse the terms of the masters. A great deal of distress is beginning to be felt by the men's families, but they are relying upon the help which their delegates in England report will be forthcoming from the English trade-unions. In some quarters there is a disposition to regard the English people as encouraging the strike to keep up prices.

News in Brief,

FROM LOCAL CORRESPONDENTS AND CONTEMPORARIES.

ENGLAND.

Accrington.

The ceremony of turning on the water for the mill erected on Spring Hill Estate was performed yesterday week by Mr. G. W. Pickup, in the presence of a company of gentlemen, including Mr. Shaw (Liverpool), Mr. Pilkington (owner of the estate), Mr. Sharples (contractor), and members of the firm of Messrs. John Bury and Company, for whom the mill has been erected. The mill contains 1,024 looms, with winding, warping, etc., and will give employment for 600 to 700 hands. It is fitted up with the most modern machinery, and is expected to be in full operation in about a week's time. The machinery when set in motion gave every satisfaction. The mill is lighted throughout by electricity.

Barnsley.

Mr. Thomas Edward Taylor, of Dodworth Hall, near Barnsley, died on Monday night. The deceased, who was born in 1803, was the eldest son

of Mr. Thomas Taylor, linen manufacturer, of Barnsley and Middlewood Hall, Darfield. He had for many years been head of the firm of T. Taylor and Sons, the chief firm of linen manufacturers in Barnsley, and was one of the oldest magistrates of the Barnsley bench, having been appointed in 1862.

Bacup.

Messrs. Thomas Best and Co., of Height Barn Mill, Britannia, are placing in the new wing of their mill the necessary machinery for sizing and slashing their own warps.

Barnoldswick.

The Craven Banking Company are, it is said, about to build a new weaving-shed near to Clough Mill.

Blackburn.

The spinners of Daisyfield Mill left their employment on strike on Thursday. Their contention is that the material spins badly, and that they cannot earn sufficient wages. The mill belongs to Messrs. John Dugdale and Sons, who, on their side, affirm that the material cannot be improved with due regard to commercial considerations, it being as good as is ever used for the yarn spun. The employers further affirm that the operatives could earn more money than they are doing if they were disposed. With the usual want of consideration the operatives stayed away from their work without interviewing the management or their employers, either directly or by their secretary.

Bolton.

The new automatic duplex pump, made by Mr. Samuel Walker, of Radcliffe, is now being largely adopted as a supply for automatic sprinklers in place of building towers and putting up tanks. The Melrose Spinning Company and Messrs. Cannon Bros., both of Bolton, and Messrs. J. and J. Hardman, of Farnworth, have just put the pump in for this purpose.

The workpeople employed at Mr. Wm. Young's Derby Mill, on Saturday, to the number of about 80, had a tea on the occasion of making a presentation to their manager, Mr. Joseph Harrison, in commemoration of his 20 years' connection with the firm. The presents consisted of a marble time-piece and bronze ornaments to match, with a brooch for Mrs. Harrison.

The mill of Mr. J. H. Lee at Moses Gate was the scene of a disastrous fire on Thursday morning. The outbreak occurred in a wheelegate in the spinning-room when all the operatives were at work, and the fire spread with such rapidity that the hands had barely time to escape before the flames had complete hold of the building. The damage is estimated at £25,000.

Bradford.

A deed of assignment for the benefit of creditors has been executed by Messrs. William Busfield and Sons, worsted spinners, Ebenezer Mills, Bowling, under which Mr. William Glossop, chartered accountant, Bradford, is trustee. The unsecured liabilities are returned at £19,541 17s. 9d., the fully secured liabilities £18,527 0s. 6d., and the assets are estimated to produce £25,088 15s. 6d. We are informed that the trade creditors will be paid in full. The assignment has been executed in consequence of difficulties arising out of family affairs. Two partners in the firm have died within the last few years, and some difficulty has been experienced in dealing with their estates; consequently it was decided to adopt this mode of settlement.

The strike of velvet weavers which took place at Manningham Mills on Thursday last week terminated the day following. The demand made on behalf of certain of the weavers who are engaged on a new make of velvet goods that the rate of pay should be increased 1d. per yard has been unreservedly granted, the workpeople declining to accept the temporary arrangement which was suggested. Encouraged by the success of the weavers, about a score of "knife-men," or velvet cutters, came out on strike on the Friday with a view of obtaining an advance of 3s. per week. In their case an advance has been conceded in the form of premium, which will in future be at the rate of 1d. for 18 yards, instead of 1d. for 24 yards as heretofore. This only refers to the new cloth, about which the dispute originated, the rate of premium for the other makes remaining as before. It is affirmed that the concession will be more advantageous to the men than the increase of 1s. 6d. per week on the standing wages which they demanded. The weavers and twisters, 700 or 800 in number, who have been at a standstill on account of the strike, will now be able to resume work.

Bury.

Messrs. James Kenyon and Company have about completed the reception of an order of 10,000

spindles, ring frames, and the requisite complement of preparatory machinery, which has been started and is working in the most satisfactory manner.

On Thursday, Buckley Yates and Isaac Wood were each fined £5 and costs for assaulting Henry Greenfield, a machine fitter, employed at Messrs. Hacking and Co.'s, where there has recently been a labour dispute. Time was given for the defendants to take steps for quashing the conviction.

Burnley.

On Wednesday, at the Burnley Borough Police Court, Messrs. Haslam Brothers were summoned in six cases for a breach of the Factory Acts. They were fined 20s. and costs in the first case, and costs in the others.—Messrs. Crook Bros. had 14 cases against them for a breach of the same Act. They were also fined 20s. and costs in the first case, and costs in the others.

At the Burnley County Court, on Saturday, Mitchell Uttley and William Sunderland, of Hebdon Bridge, applied for their certificate of discharge in bankruptcy. The Official Receiver (Mr. Edleston) in his report said that the offences reported were not keeping proper books, trading with knowledge of insolvency, and contracting debts without having reasonable means of being able to pay, giving undue preference, and entry into rash and hazardous speculations. The bankrupts were working-men, and one of them, Uttley, had commenced in the cotton trade at a place near Hebdon Bridge. He then went to a mill called Blackshaw Head Mill, where he was afterwards joined by Sunderland. They agreed to purchase Blackshaw Head Mill from the Queen's Building Society at Manchester, for £650, to be paid in half-yearly instalments of £32 10s. each, which agreement was made in June, 1888. No instalment was ever paid, and the bankrupts remained in possession until the 29th August, when a receiving order was made on their own petition. The only capital they had was £80 contributed by Uttley and £150 contributed by Sunderland. His Honour said that the charge of rash and hazardous speculation had not been proved, but the bankrupts had been very silly young men to have left a career in which they were evidently doing well, as shewn by the amount of money they appeared to have saved, namely £80 and £150 respectively. Though not rash and hazardous in the meaning of the statute, their conduct had been wild and reckless, and, taking all things into consideration, the certificate of discharge would be suspended for twelve months.

Clayton-le-Moors.

Messrs. Ed. Rushton and Son offered for sale, at the Commercial Hotel, Acrofton, on Wednesday evening, Willows Mill, Clayton-le-Moors. The premises cover 7,695 square yards, and are leasehold. There was no bidding.

Cleckheaton.

The following is the trade report of the Cleckheaton Chamber of Commerce for September:—"Wool, worsted spinning: There has been a very quiet wool market, with firm prices. The yarn trade has been slower even than during August.—Cards: On the whole this trade is rather quiet, which is usual at this time of the year.—Flannels: We are glad to report a slight improvement in the flannel trade.—Machinery and engineering: September has been a very quiet month. Very few new orders have been placed.—Chemicals: There has been a fair trade for the month.—Dyeing: There is a good trade doing in Bradford goods, and a fair trade in heavy goods. Flannels are rather quiet."

Colne.

Mr. Benshimain, manufacturer, Black Carr Mill, near Colne, has removed his looms and machinery to the Viaduct Mill, and the vacancy caused thereby has now been filled up by Messrs. John Hopkinson and Jesse Bannister taking all the room.

Church.

The strike at Hippings Vale Mill has just been settled. On Saturday there were collections at the mills in the Church district for funds for the strike hands. The mill company has already taken legal proceedings against some operatives—nine in number—and succeeded on Thursday week, at Church Police Court, in obtaining £2 and costs as damages from three male operatives, and the case of six female operatives were adjourned for a week to get legal advice on the point as to whether the magistrates had power to order married women to pay damages, and recover the same. Mr. Riley, solicitor, Blackburn, contending that they cannot take legal proceedings against married women for leaving their work without notice, or recover any damages from them. A second batch of "striking" operatives were before the magistrates on Thursday, and were fined for absenting themselves

from work and so inflicting damages upon their employers. Yesterday a third batch had to appear. It is probable that these vigorous proceedings had much to do with inducing a more conciliatory disposition towards the settlement which has now been effected. It is quite time that operatives as well as employers should learn that they have duties as well as rights.

Darwen.

A meeting of the Council of the Darwen Technical School was held on the 10th inst., at the residence of Mr. F. G. Hindle, at which the prospect of obtaining a grant from the County Council was discussed. It was resolved that the Town Council be asked to take over the management of the school. The question of erecting premises more suitable to the work of the school was considered, and it was thought advisable to call the attention of the Town Council to the matter. A scheme was also submitted for establishing scholarships in connection with the school. It is expected that one or more scholarships, of the annual value of £75, will be established.

Elland.

We regret to say that Mr. Robert Wilson, woollen manufacturer, of this town, lies in a critical state, being prostrated with the typhoid fever.

Failsforth.

Messrs. S. Johnson and Company, cotton spinners, are making a considerable extension of their premises, and will furnish it with ring spinning, the order for which, with the necessary preparation, has been given to Messrs. John Hetherington and Sons, machine makers, Manchester.

Farnworth.

Messrs. Healy and Coope, hosiery manufacturers, of Bank-street Mill, have decided to convert their business into a Company.

Mr. Nelson, formerly manager for Messrs. Wilson, manufacturer, of this town, has now commenced running 88 looms on his own account at Lime-street Mill. The remaining portion of the mill is being occupied by Messrs. Wilson and Brierley for the manufacture of quiltings, etc. The looms are being brought from Mr. Brierley's Mill near Marple.

The promoters of the new spinning company at New Bury are pushing forward their undertaking, having already secured the excellent site at New Bury, consisting of about 7½ acres, on which there stand the ruins of two cotton mills, the property of the late Major Whittam, and a couple of reservoirs and a chimney stack, which are included in the purchase money, and will be of value to the new company. There is ample room for two large mills of 80,000 to 100,000 spindles each. The present scheme is to build one mill of 80,000 to spin Egyptian cotton, twist, and wet, for the home and shipping trades. Employment will of course be found for a considerable number of hands.

Heywood.

Messrs. Hetherington, of Manchester, are supplying the machinery of the Yew Mill Company, while Messrs. Wilson and Ingham, of Liversedge, have secured the order for the card clothing.

Keighley.

On Monday the death occurred, through apoplexy, of Mr. William Henry Summercales, of the firm of Summercales and Sons, machine makers, Park Side Works.

Kidderminster.

The Kidderminster carpet trade will not be materially injured by the new American Tariff.

Messrs. Naylor and Lloyd, manufacturers, with a view of an early extension of their premises, have purchased land in Park Butts from Mr. T. S. Bucknall for the purpose.

Leyland.

Messrs. Pilkington's Earnshaw Bridge Mill stopped work on Monday evening for repairs, and in order to permit of a new boiler being fixed.

Leeds.

Two more Leeds dyeing firms—those of Messrs. Thomas Kitson and Sons, Bean-street Mills, and Mr. John Musgrove, black dyer, of School Close—have acceded to the demands of the men on strike for an advance of 2s. and 1s. all round. Other firms offer an advance of 1s. all round, which the hands refuse to accept.

Manchester.

Manchester commercial men will regret to hear of the death, which took place the other day at Hamburg, in his 75th year, of Mr. Adolph Albrecht, merchant, formerly of this city. The deceased gentleman, like two other members of his family who came to Manchester in the 'twenties or 'thirties, was a native of the city in which he died. He was for several years partner in the Gorman

firm in this city, first known as S. Albrecht, afterwards as S. Albrecht and Co. He was much respected by the commercial community of Manchester.

At a meeting of cotton spinners who are associate members of the Liverpool Cotton Association, Limited, held on Tuesday at the rooms of the United Cotton Spinners' Association, it was unanimously resolved that Mr. William Ryley, of the firm of Messrs. Ashworth, Hadwen, and Co., of Droylsden, Manchester, be nominated as a director of the Liverpool Cotton Association, Limited, in place of Mr. Henry Harrison, of Blackburn, who retires by rotation.

Nottingham.

A largely-attended meeting of the members of the Operative Laccemakers' Society of Nottingham was held in the Mechanics' Lecture-hall on Saturday afternoon to discuss the question as to whether or not any steps should be taken to assist the locked-out laccemakers of Calais and St. Pierre. Two delegates from the Calais Laccemakers' Union were present and addressed the meeting. A resolution was proposed that the sum of £50 should be granted that day to the Calais operatives, and a similar amount weekly during the continuance of the struggle. An amendment was moved that the sum granted that day should be £100, and £50 weekly while the lock-out lasted. The original resolution was withdrawn, and the amendment was then unanimously adopted amid much cheering.

Oldham.

It is reported that projects are on foot for building a mill at Middleton Junction and another at Hollinwood.

We are informed that Mr. George Lees, of Messrs. Tunstall Brothers, Brierfield, has been appointed manager at the Lime Mill Company.

The arrangements for the formation of a limited company to take over Hall-street Mills, Royton, are about complete.

The directors of the Neville Mill Company have let the contract for new engines to Messrs. Saxon, of Openshaw, and the boilers to Messrs. Tetlow Brothers, of Hollinwood.

Thornham Spinning Company is extending the cardroom by putting in a preparation of revolving flat carding engines, which have been ordered from Messrs. Asa Lees and Company.

The fixing of machinery of the Richmond Mill (Messrs. Murgatroyd and Stansfield's) is proceeding rapidly, and spinning operations are shortly expected to be commenced.

Mr. J. A. Hurst, who has transferred his services to the Rycroft Mills Company, Ashton, has been presented with a time piece, &c., by the employés of the Lime Mills Company, of which he was manager.

Mr. Illingworth, late of the Sion Mill Company, commenced his duties on Monday as manager of the Glodwick Spinning Company, vice Mr. Thomas Cottam, who has transferred his services to the Stamford Mill Company.

At a meeting of the shareholders of the Parkside Spinning Company it was resolved to empower the directors to make arrangements for the erection of another mill in addition to the present one, and also as to the raising of the capital required for the same.

A board of directors at a spinning company in this district has passed a resolution empowering their manager to buy cotton with this clause, "that he buy cotton that can be spun into yarn." Interpreted this would mean that he must not buy rubbish. It would seem that the directors had had cause for complaint or they would not have gone to the trouble or be under the necessity of giving the manager such an instruction.

In his monthly report to the members of the Oldham Operative Cotton Spinners' Association, Mr. Thomas Ashton (secretary) in alluding to the Melrose Mill strike, which he says still continues and is likely to do so for a long time to come, states that the time is fast approaching when all branches of cotton mill workers will be united in one association, and on the principle that unity is strength, such an amalgamation cannot fail to be beneficial to all persons who are employed in cotton mills.

On Thursday night, at the quarterly meeting of shareholders of the West End Mills Company, Mr. S. Buckley, who presided, alluded in condemnatory terms to the promotion of new mills, and especially to the important part which principal servants of spinning companies were taking in the promotion of rival concerns. He said he feared the result would be that the profits of the spinning trade would be intertered with, and that they would have a repetition of a few years ago, when the trade was in a deplorable condition.

Presentations to principal servants of cotton mills have of late become very common in this district, and usually they partake of ornaments of some kind or other. However, the latest turnip is the presentation of an easy chair to a carder at Shaw. We don't suppose it is meant that he should take things "easy" at his work, or not be "chary" while in the pursuit of his calling. No doubt it is intended only to represent the goodwill of his work-people towards him, and when at home he can in the "easy chair" rest himself for the toils of the morrow.

Further particulars are to hand respecting the floating of a company named "The Hazel," to take over the premises owned by the Acre Mill Company, Haslingden. The Oldham gentlemen assisting in engineering the new company are Messrs. Robert Harrison (chairman United Spinning Company), Noah Ackroyd (director Broadway and United Spinning Companies), Francis Hamer (director United Spinning Company, and manager of Goldhurst Spinning Company), and Mr. Herbert Warren (director Henshaw-street, Grosvenor, West End, and Sun Mill Spinning Companies). Messrs. John Ormerod (manufacturer, Clough End Mill, Haslingden), W. A. Shaw (colliery proprietor, Haslingden), and T. L. Ormerod (manufacturer, Clough End Mill, Haslingden), also appear on the prospectus as promoters. The secretary *pro tem.* is Mr. G. H. Clegg, secretary of the Goldhurst Spinning Company, Oldham. The premises contain 7,634 ring, 2,128 throstle, and 24,924 mule spindles, and also 308 looms.

Next to mill floating is the reduction of capital. These are two matters of importance just now to those interested in local limiteds. The mills are alleged to be promoted mostly for the benefit of architects, machinists, etc., though the writer doesn't altogether believe it. But as to the reduction of share capital, no disguise is made of the fact that it is undertaken with the avowed object of being able to pay larger dividends. This is intended to be accomplished by working with more loan and less share capital. Thus if it takes £1,000 to pay a dividend of, say, 8 per cent. on £4 10s., the same amount of gain, or even a little less profit, will enable a larger dividend on £3 10s., and maybe allow something to be placed to a reserve fund. So things are worked. Big dividends are expected to be made at other people's expense. But it cuts two ways; it is all very well to trade on borrowed capital in good times—then it is all right—but in bad trade a heavy burden has to be carried, and the interest has to be met—how about, how about, and then comes the rub, and at the same time the pinch.

Oxford.

Two beautiful stained glass windows have just been completed in Mansfield (Nonconformist) College Chapel, the gifts of Mr. and Mrs. Abraham Haworth, of Manchester. Mansfield is largely indebted to this gentleman and his brother, for the Haworth family have supported it altogether to the extent of something like £5,000.

Pudsey.

Damage to the extent of £100 was done by fire on Saturday morning to the wiley-house of Messrs. W. C. Forrest and Co., fancy woollen manufacturers, Prospect Mills. The fire was caused by the ignition of some cotton by friction whilst it was passing through a teazer.

Radcliffe.

Mr. Samuel Walker, of this town, has lately received several orders for his "Titan" sprinkler, which is now one of the most sensitive sprinklers upon the market. The Springhead Spinning Company, Lees, the Ruby Spinning Company, Oldham, and Messrs. Murgatroyd and Stansfield, Richmond Mill, Hollinwood, have adopted it.

Rochdale.

The Balderson Spinning Co., near Rochdale, have placed an order with Messrs. John Hetherington and Sons, of Manchester, for the openers, scutchers, and machinery for the cardroom department of their new mill.

SCOTLAND.

Arbroath.

The death is announced of Mr. John Lumgair, manufacturer.

Coatbridge.

On Saturday, the foundation-stone of a Technical School was laid in Coatbridge by Sir Archibald Campbell, Bart., of Blythwood, with full Masonic honours and considerable ceremony. Besides the various School Boards being in attendance there was a large trades procession.

Dunfermline.

In an article on the McKinley tariff and how it affects the Dunfermline trade, the *Dunfermline Journal* says:—"From a careful estimate of the Dunfermline exports to the United States we find that the coarser goods, which are to be subject to the 50 per cent. of tariff, do not reach a proportion of more than a fourth of the linens exported. In East Fife, Kirkealdy, Brechin, Dundee, and Forfar, however, matters are different. A very large quantity of goods under the 100 threads to the square inch are sent from those places, and the increased duty will unsettle matters for a considerable time to come. An American correspondent, whom we accept as an authority on the trade, informs us that some years ago two factories attempted goods similar to those produced in many of the works in the county of Forfar, and he anticipates that the new tariff will result in the productive power of the works being increased without delay. Our correspondent does not think, however, that the factory operatives of East Fife and Forfarshire need fear American competition for some years to come."

Edinburgh.

The death took place on Saturday morning at his residence, 16, Blacket-place, of Mr. Archibald Craig, who was well known as the head of the firm of Craig Brothers, wholesale warehousemen, Chambers-street, Edinburgh. Mr. Craig, who was 82 years of age, was, it is said, the pioneer of the Scotch tweed trade in London. It was he who first introduced cloth of Scottish manufacture into the metropolis, and he was called among many in the same line the "father" of the tweed trade. Until about twelve months ago, when he retired from active business, he was the chief partner in a firm which is about 250 years old. He was a member of the Merchant Company, but took little active interest in the affairs of the city or in politics generally. Deceased is survived by Mrs. Craig and a son, who is in the business.

Hawick.

The tweed manufacturing trade in the Border towns is rather dull. Orders for new goods for next summer are coming in slowly and in small quantities, and prospects for the remaining months of the year and the early parts of 1891 are not very encouraging.

A gentleman from Liverpool, representing the promoters of the Salt Union, has been visiting a number of the manufacturing towns on the Borders this week, with the view of endeavouring to buy up several of the tweed factories in Hawick, Galashiels, and Selkirk. Mr. Lees, Town Clerk, Galashiels, has, it is understood, been appointed to represent the syndicate in this district. The representative had a conference with Provost Brown, Galashiels, Mr. A. L. Brown, M.P., and other influential mill-owners. It is believed that several manufacturers in the Border towns are not averse to entertaining proposals from the combination for buying their factories, but the precise conditions of the proposed syndicate have not exactly been agreed on yet. The conditions, however, will be submitted shortly to the several mill proprietors.

Lennoxton.

The winter session of the Young Men's Association was opened on Saturday evening with a lecture by ex-Provost Cameron, Kirkintilloch, on "Calico Printing in Campsie." The chair was occupied by Mr. Wm. Brown, Todhill. The lecturer briefly sketched the rise of calico printing in Scotland, and its introduction into Campsie parish by Messrs. Henderson and Semple at Kincaidfield in 1785, and at Lennoxmill in 1786 by the firm of Lindsay and Smith. He afterwards at greater length traced the progress of the works at Lennoxmill under the firm of R. Dalgligh, Falconer, and Co., who commenced operations in 1805, showing the development and extension of the works under Mr. R. Dalgligh, Provost of Glasgow in 1839, and his son the late M.P. The lecture was interesting, and was enlivened by many reminiscences and anecdotes of former days, with a review of what had taken place in more modern times. At the close the hearty thanks of the meeting were awarded Mr. Cameron.

SEWING COTTON IN TURKEY.—The Belgian Vice-Consul at Metelin (Turkey) writes:—"Manchester supplies us with cotton yarn to the amount of from £24,000 to £26,000 per annum. One large local firm is specially devoted to the sale of this article, calicoes and Indian tissues, and supplies the main part of the neighbouring coast towns wholesale, and can compete with any Constantinople or Smyrna firm in the same branch. Belgium has recently begun to supply a small quantity of reels of sewing cotton.

Letters from our Readers.

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

THE TAXATION OF MACHINERY, AND FOREIGN TARIFFS.

(TO THE EDITOR OF *The Textile Mercury*.)

SIR,—The Chard Guardians have recently issued a circular, in which they appeal for pecuniary support to carry on the litigation which they have brought upon themselves by their attack upon the machinery of the millowners in their Union. As they make reference in this appeal to the action of this society, and as the views and motives of users of machinery have been much misrepresented, may I ask a portion of your valuable space to explain the real merits of this important question?

I have no desire whatever to discuss the legal technicalities of the dispute, which will in due course come before the House of Lords for final decision, but, at the request of my committee, seek only as shortly as possible to point out the broad grounds upon which manufacturers rely for a successful result to their appeal to Parliament for that redress which the courts of law have so far denied them. In the first place, I am directed to say that there is not the least wish to avoid sharing fairly and equally in the local taxation of the country, and if Parliament in its wisdom decides that all personal property is to be rated, owners of machinery will readily acquiesce; but until that is done they will continue to protest against one species alone of that class of property being rated, while all other kinds remain exempt. There is, however, little doubt that the ultimate ground upon which the question will be decided is whether it is desirable in the general interest of the community that the necessary local expenditure should be provided for by such means, and whether taxes on productive machinery are not calculated to act in restraint of the trade of the country, and by increasing the cost of production to hamper English manufacturers in competition with those of other nations. All the arguments in favour of Free Trade are, I venture to say, equally applicable to the freedom of machinery from taxation, and it can hardly be contended that such taxation is not fraught with all the evils produced by a protective tax upon the commodities which give employment to such machinery. The opinion of other nations on the subject is sufficiently shewn by the examples of France, Austria, and the United States.

In one of our great north-eastern ports the local authorities succeeded in laying a heavy burden on the machinery of a firm of shipbuilders, so increasing the cost of producing their ships. The following extract from the most instructive report of our Consul General at Havre for 1889 shows the effect of the opposite policy: "I have observed that people in England are very apt to confound the two classes of bounties, and to conclude that because those given on the construction of ships have not produced much effect, therefore the others have likewise proved a failure. But this is not so. Our building yards being able to construct vessels at a lower rate, and more rapidly than those in France, many French shipowners have found it to be an advantage to purchase vessels from us, although by doing so they lose one-half of the navigation bounty. To counteract this, many persons propose that in the new law bounties shall be only given to vessels built in France. The cost to the country is about 10,000,000f. (£400,000) per annum, and the results are, that while in 1879 France had only 599 steamers of 255,959 tons, the number had increased in 1888 to 1,015 of 569,800 tons. In 1880 Havre had 183 sailing vessels of 48,548 tons, and 103 steamers of 62,000 tons, together 286 vessels of 110,557 tons. In 1889 the numbers were: 83 of 55,687 tons, and 138 of 158,215 tons, altogether 221 vessels of 213,902 tons."

The example of Austria is even more striking and instructive. The Austria-Hungarian Consulate has issued a pamphlet shewing the facilities offered by a law passed this year to encourage the establishment of all kinds of factories in Hungary. The advantages offered include the exemption for periods of 15 years from "local rates," from the house tax, the mining tax, and from "the taxes on all undertakings compelled by law to publish their accounts," from Chamber of Commerce fees, and from all general additions to the income tax; also from "all fees and local rates on the transfer of factory plots or buildings," from stamp duties and fees on all agreements relating to the founding of companies and on the capital employed by them. The Minister of Finance is also empowered to supply salt for such

manufactories at reduced rates, and entire exemption is granted from all municipal road rates; while last, but not least, provision is made for the carriage on all State or subventioned railways of materials and machinery for the erection of such factories at rates not exceeding actual cost.

Public attention has been so forcibly called to the action of the United States Legislature in passing the McKinley Bill, that it is hardly necessary to refer to it. The immediate result of this measure, whatever its future effect, must be most disastrous to our textile, tinplate, and iron trades, in consequence of the enormous increase which will be made in the existing protective duties. Yet, with a fatuity that is incomprehensible, the representatives of the very persons who benefit most by the prosperity of our manufacturing industries are seeking at such a time to enforce a form of taxation the direct effect of which is to further add to the almost insuperable difficulty of maintaining competition with America and other foreign manufacturers.

Surely, sir, these facts sufficiently shew the suicidal effect of the policy for which aid is now being sought by the Chard Guardians, and justify the resistance which is being offered to it.—Yours, &c.,

G. HUMPHREYS DAVIES.

National Society for the Exemption of Machinery from Rating, 22, Buckingham-street, Adelphi, London, Oct. 10th, 1890.

QUERIES AND ANSWERS.

SIR,—I should feel much obliged if you would, in an early issue, answer the following question:—Is the knife roller gin rapidly superseding the saw gin in the States of America; that is, for all classes of American, including the lower grades? If so, why? Burnley, Oct. 7th, 1890. GIN.

GIN.—The knife gin as made by Messrs. Platt Bros. and Co., Oldham, is a very superior machine to the old saw gin, but we do not think it is "rapidly" superseding the latter. The adoption of the best machines in "the ginneries" is much retarded by the impecuniosity and poverty of the owners.—Ed. T. M.

HOT BEARINGS.—SIR,—Will you or some of your readers reply to the following questions:—

No. 1.—The cause why the crank and bearings of a steam engine get heated. No. 2.—How to prevent this. No. 3.—What is best to do when they do get heated.—NOVICE.

NOVICE has been too chary of information upon the matter. The causes that may lead to heating of the bearings and crank shaft of a steam engine are numerous, and some much more obvious than others. We can only reply by asking a number of suggestive questions. The first which offers itself is imperfect lubrication, and upon this we may ask if the lubricant he is using is clean and in sufficient quantity? Are the oil ways free from dirt or other obstruction? Are the oil grooves in brasses adequate in dimensions? If these points are all right, and the parts are receiving the amount of lubrication that has previously sufficed to keep all right, it should be ascertained whether any grit or other impurity is finding its way in. Another may be that the parts from some cause or other have begun to "bind," inducing very severe friction. For this a careful examination should be made as to whether the parts remain truly in line with one another, to ascertain which they should be taken asunder and the shaft turned round, while the journals are carefully inspected for the purpose of discovering any fault that may be developing. If the engine is one of the old type perhaps the engine bed may have become shaken or have partially or irregularly subsided. There are others that will suggest themselves. The means of prevention will be obvious when the cause is discovered. A troublesome bearing may often be got to run by lubricating with a mixture of clean tallow, sulphur, and white lead. This requires feeding by hand at short intervals. It is of course requisite that a bearing should be carefully adjusted as regards the amount of play between shaft and brasses, which may be readily ascertained in the ordinary way by means of lead strips.—Ed. T. M.

G. E. P.—The under-named firms act as brokers for most descriptions of fibres:—Messrs. Collins and Co., 4, Cullum-street, E.C.; Messrs. Falconer and Co., 39, Mincing-lane, E.C.; Messrs. Ide and Christie, 72, Mark-lane, E.C. No doubt Messrs. Durant and Co., silk brokers, 9, New Broad-street, London, E.C., would inform you where to get pierced waste cocoons. We do not think you can obtain any in Manchester.

J. W. (Crumpall).—Dr. Lahman's "Reform Cotton" is simply a knitted fabric made from cotton hosiery yarns. It is made on large machines, such as have been and still are extensively used in the making of stockinette fabrics,

so popular for ladies' jacket cloths. As this sort of fabric is as old as machine knitting, there can certainly be no particular novelty in it. We presume it emanates from Germany. It is merely an imitation in vegetable down of Dr. Jaeger's system, in which the material employed is animal wool, and a specific virtue is claimed on that account. The success that has attended the latter Doctor's efforts, and may possibly attend the new one, is not surprising. We regard it as only another demonstration of the want of enterprise on the part of our manufacturers in the Nottingham and Leicester districts. There is, undoubtedly, a good field for such fabrics for under-garment purposes, and their sale, we feel sure, would be extensive, without claiming for them any semi-miraculous qualities.

Miscellaneous.

CARPET-MAKING IN SYRIA.

The United States Consul at Beyrout (Mr. Bissinger), sends to his Government the following report on carpet making in Syria:—

The carpet industry in Syria is still in a most primitive state, as will be observed from the following responses to the several interrogatories:

There are no manufactories or establishments in the sense that these words are understood in industrial centres. Carpets are exclusively made by peasant women and girls, residing in villages located within the political subdivisions known as "Hakkar," "Hossu," "Safita," and "Hazzoor," in the Mutessarrifiate of Tripoli, Syria.

These most important of these villages—about a dozen in number—is doubtless that of Haidamoor, about thirty miles east of Tripoli, which seems to excel all others in the quality, durability, and design of the carpets it produces.

There is also a good quality of rugs made in a village called Fakeh or Fiki, which are marketed at from 8 dols. to 20 dols. per piece. Fakeh is distant about twenty-five miles from Baalbeck, and politically belongs to the district of the same name in the Vilayet of Syria.

Power looms do not exist in Syria, and, although it has not been possible to ascertain the precise number of "hand" looms, it may be approximately stated as 350 in all. They are of the simplest construction, and are thus described by eye-witnesses:—

Small pegs to which yarns of desired colours are attached and driven close together into the ground. The yarn is carried along the ground the required length and fastened to a corresponding row of pegs. Beginning at the left hand the threads are separated with a strip of board of various widths, generally, however, about four inches, which permits the tossing of a ball of the web; no shuttles are used, a simple ball of yarn replacing them. This board is then advanced about a foot, and turned on its flat side, the operator taking a coarse wooden comb to bring the web together, a rather long and tedious process. One operator can scarcely make more than three or four inches of carpet per diem; but if exceptionally skilful, may succeed in accomplishing six inches. To make the average-sized carpet, for instance, of 3 pics (2½ yards) long by 2 pics (1½ yards) wide, would consume at least six weeks of continuous or uninterrupted work, which is not possible, as the operator is a woman who has domestic duties to perform, besides devoting much time to field labour, such as sowing, reaping, etc., at certain seasons of the year.

Every loom has a female attendant or worker, who is sometimes assisted by a young girl, and the carpet industry in Syria is exclusively in the hands of women.

Most of the rugs are made with a small square of some decided colour, generally blue upon a black ground, placed in a very conspicuous place, intended to ward off the "evil eye."

All the carpets produced in Syria are made of "pure" wool of the ordinary quality grown in the country.

The number of persons engaged in the carpet-making in the Tripoli district is problematical, but does not exceed 500. As there are no factories, and every woman works on her own account, no wages are received or paid; the assistant, if more than one person is engaged upon a single loom, generally being the child of the operator. These women do not and can not devote their entire time and attention to the carpet industry, and they are therefore not very efficient in this handicraft.

Cleaning the wool, dyeing, spinning, and weaving it is the exclusive work of women, conducted separately and by independent interests.

Fairs are periodically held in "Calaat-el-Hossou," i.e., "Hossou-el-Akrad," notably on St. George's

feast" (April 23), on the "feast of the cross" (September 14), in the convent of St. George, and in the convent of St. Elijah at Safita, where merchants from Tripoli, Homs, and Hamath gather to make purchases. To these fairs the husbands, brothers, or other relatives of the women operators bring their rugs, where they are readily disposed of at prices much below those that are usually asked of brokers, who sometimes travel to the villages where they are made expecting to secure bargains. As has already been said, the rugs that come from the village of Haidamoor are superior to all others, and command much better prices, sometimes as much as 25 per cent. If carpets or rugs of a special size are desired, they must be made to order. The square pic—three-quarters of a yard—is worth from 50 to 60 piastres (2 dols. 20 cents. to 2 dols. 64 cents.) if made at Haidamoor, and 40 to 50 piastres (1 dol. 76 cents. to 2 dols. 20 cents.) for those coming from other villages. These rates, of course, are subject to changes, according to design, cost and quantity of wool used, etc. This latter is about 9½ rottles, or 19 okes (53½ pounds; 1 oke=2½ pounds) for a carpet 3 pics (2½ yards) long and 2 pics (1½ yards) wide.

Unless picked up by tourists in their voyages along the coast, these rugs are exclusively marketed in Turkey by merchants from Tripoli, Homs, and Hamath.

Early in this century a number of people from the vicinity of Broussa emigrated to the Tripoli and Hamath Mutessarrifates, in Syria. These people were familiar with the art of making rugs and introduced this industry into the various villages in which they settled. The village of Haidamoor became especially celebrated for its rugs, and many specimens remain to testify to the beauty of design and colour. Strange as it may appear, however, the present inhabitants of this village, who are the largest producers of carpets in that vicinity, have entirely lost the original designs and colourings introduced by their Turkish ancestors.

The rugs made to-day are of very inferior designs as compared with the ancient ones; the prevailing colours are usually red and black, varied occasionally crimson and black, with black or dark brown figures at both ends.

In one village, distant about ten miles from Haidamoor, the colours which predominate are red and green with white borders, having white circles about two inches in diameter with either red or green centres.

A rude sort of carpet is the speciality of another village; it is from twenty to thirty feet long and four feet wide, made in stripes about two inches wide of brown colour, alternating with a dingy yellow, black, and a dirty white, the white and black being the natural colours of the wool.

The deterioration in design may perhaps be due to the fact that the rug-makers use no pattern to guide them, depending entirely upon memory, often treacherous; and being a simple, uneducated people, they have gradually but irrevocably lost the original art.

Until quite recently a beautiful rug of a brown or velvety black was manufactured, but is no longer to be seen; the colour with which to dye the wool was obtained by digging shallow holes in winter streams. In the spring or summer, when the streams were dry, the peasants removed the earth collected therein, which, after repeated washings, produced a beautiful and indelible pigment. The custom has now utterly fallen in disuse, because cheap colouring matter can be secured from France, which has of course greatly deteriorated the quality, beauty, and durability of the rugs and lessened their commercial value correspondingly.

Blue, green, red, old gold, orange, and other colours were formerly extracted from roots, leaves, and barks of trees in the most primitive manner, but the introduction of cheap foreign dye-stuffs has now completely superseded them.

Rugs vary in size from two feet square to three feet wide by twelve feet long.

[Inclosure in Consul Bissinger's report.]

CARPET WEAVING BY THE NOMADS.

(Report prepared by Consular Bissinger from material furnished by Commercial Agent Poche of Aleppo, Syria.)

Carpets are made to some extent in the valley of Amouk by the Rihanian, a semi-nomadic tribe, a fraction of the great family of Turcomans, who also are engaged in the weaving of this article in the country surrounding Maraash, Behesme, and Adiyemen.

The carpet industry is not known at all at Aleppo, nor in any of the towns of the Aleppo vilayet.

Nowhere among these semi-nomadic tribes do there exist any workshops, or any regularly organised systems of carpet making, but it is still performed in the most primitive manner, and exclusively by women, who, after shearing the sheep belonging to their families, select the quantity of wool which the

consider necessary, and, after thoroughly cleansing, washing and combing the same, spin it with the distaff, and dye it the various colours required.

The looms which these women make use of are formed of two wooden crossbars, separated by two smaller parallel ones. It is upon this rude scaffolding, placed perpendicularly, that the warp is put, while the operation of weaving is by means of a ball of wood without the aid of a shuttle.

To give statistics respecting the quantity of carpets thus produced would be impossible, as nothing can determine, with any degree approaching precision, a production which follows the producers thereof in their wanderings about the country looking after pastures for their sheep and work for their camels. This is also the reason why these carpets are sold throughout Asia Minor, now here, now there, by persons who follow these tribes in their peregrinations and purchase their product from them, which is not known to be exported.

SERICULTURE IN FRANCE.—There are in France 135,000 silk-rearers, who have produced on the average during the last few years 8,000,000 kilos. of cocoons per year, which, at the rate of 3-80 francs per kilo. represent a value of 30,400,000 francs. The silk-spinning establishments occupy 12,000 to 15,000 persons, and spin 775,000 kilos. of raw silk per annum, of which 650,000 proceed from French cocoons. French silk-throwing, which is carried on in 708 establishments, occupies 27,000 to 28,000 persons, who receive wages to the amount of sixteen to eighteen millions of francs per annum. The annual production is estimated at three and a half millions of kilos. of open silk. The total number of workers engaged in the production of silk-tissues in France is estimated at 442,170, and the production is valued at 660 million of francs.

Textile Markets.

COTTON.

MANCHESTER, FRIDAY.

The state of our trade continues in every department without material change. The several small strikes and disputes in the various districts remain unsettled, or as one closes another is provoked. In the spinning department work is very full, and all the mills are considerably engaged, there being still a yet unsatisfied demand for yarns for quick delivery. In the manufacturing branch matters are not quite so agreeable, the margin that manufacturers can obtain being very poor and unsatisfactory in the highest degree. It may be that here and there establishments could be found where all the looms are not at work, but this exists nowhere to such an extent as to materially affect the amount of production. The question of the probable course of cotton prices engages a considerable amount of attention. The facts and considerations we laid before our readers two or three weeks ago seem now to be engaging a good deal of attention, and influencing the conduct of many members of the trade. It is to be feared that in too many cases it will be of small benefit beyond affording another instructive illustration of "after-wit," so often a strong point in an Englishman's character. Many spinners are already committed to their season's supply of cotton on a basis of prices that may look and prove very high a few weeks hence. Others, however, have been more prudent, and their turn for going in may soon come.

COTTON.—There has been a fairly steady demand for the raw material during the week, and prices have undergone comparatively little change. In the first half of the week the tendency was in an upward direction, middling fair American advancing $\frac{1}{8}$ d. After this, tone began to be lost and the tendency has been steadily downwards, though not in American to such an extent as to affect the official quotations. Still irregularity has here and there been visible. Yesterday prices became slightly steadier. Futures have exhibited some changes. On Friday a gain was made of 1 point, but half of this was lost again. On Saturday, as a consequence of the Bureau report, a decline of 2 to 2½ points took place. A further descent was made on Monday of 2½ to 3 points, caused by better weather accounts in the States. On Tuesday a slight improvement occurred, but prices again relaxed, with a loss of ½ to 1 point. On Wednesday rumours of frost were prevalent, and this led to a gain on the day of from ½ to 1 point, a further gain of 1 point being made yesterday, owing to the same cause. The result of the week's transactions is that middling fair American is $\frac{1}{8}$ d. lower, the others being unchanged. Futures have fallen 3½ for the current month and 4½ for all other months.

Some parcels of very inferior quality have been in evidence, and pressed at tempting prices upon buyers; it will be well for spinners to be very cautious with such lots, and indeed with all until the real character of the present season's crop is incontestably demonstrated. Old crop is very firmly held. Egyptian has again declined officially $\frac{1}{8}$ d. to $\frac{1}{16}$ d., and unofficially a similar amount. Brazilian is quiet and unchanged, and Peruvian roughs are lower by $\frac{1}{8}$ d., which has brought forth buyers to some extent; smooth sorts are unchanged and quiet. In Indian cottons Broach and fine and fully good Dhollerah are $\frac{1}{16}$ d. lower. African cottons are very slow and tending downwards.

The following particulars of the business of the week are from the official report issued by the Liverpool Cotton Association:—

	Import.	Forw'd.	Sales.	Stock.	Export	Actual
American	75,022	56,478	38,650	194,960	2,934	—
Brazilian	—	2,575	1,430	10,540	—	—
Egyptian	3,336	6,634	2,860	33,340	338	—
W. Indian	2,216	821	1,510	15,760	375	—
E. Indian	2,840	6,874	6,920	207,740	3,867	—

Total. 83,414 73,382 51,370 462,340 7,514
The following are the official quotations from the same source:—

	G.O.	L.M.	Mid.	G.M.	M.F.	
American	5½	5½	5½	5½	6½	
				M.F. Fair.	G.F.	
Pernam				5½	6½	6½
Ceara				6½	6½	6½
Paraiba				6½	6½	6½
Maranhm						
				Fair.	G.F.	G.d.
Egyptian				6½	6½	7
Ditto, white						
	Fr.	F.F.	G.F.	F.G.	F.G.	Fine
M.G. Broach				4½	5½	5½
Dhollerah	3½	3½	4	4½	4½	5½
Oomra	4½	4½	4½	4½	4½	5½
Bengal			3½	3½	4½	4½
Tinnivelly	4½		4½	5	5½	

* Nominal.

YARNS.—In the opening part of the week American yarns were very strongly held, with a tendency to move upwards. Buyers, however, lent no support to the views of producers in this respect, and accordingly held firmly aloof from any important transactions, buying only to meet the most urgent requirements. Wefts keep exceptionally scarce and full in value. Bolton yarns from Egyptian cottons are very steady, though a great business is not passing. In spite of the drooping of cotton, spinners steadily maintain their quotations, believing that a better margin between cost and selling prices is their due. They are fairly well engaged, and, therefore, are not disposed to sacrifice any advantages of their position. In the export section of the market the inquiry for the leading centres of distribution abroad is only limited. Taken all round prices are practically unchanged from last week.

CLOTH.—In cloth there is only a limited demand from Eastern markets, but Mediterranean centres send a fair inquiry. From the home-trade houses there is a moderate demand, which is expected to become stronger should more wintery weather set in at an early date. The trade in shirtings has been somewhat slack during the week, lower qualities particularly being in limited request. Jaconets and mulls are unchanged. Printing goods in best qualities have only met with a slow demand, whilst Burnley classes of the same article are rather worse. The coloured goods trade is experiencing a little more demand, but the amount as yet is not important. Prices on the week show very little change, though where business has been done producers have had to make slight concessions from their current quotations. As the week has progressed the number of orders placed shows perhaps a slight increase, but the aggregate is not large.

WOOLLENS AND WORSTEDS.

BRADFORD.

There is not much movement in the wool market, the business passing being very limited in extent. English and colonial wools are being bought in small quantities for sorting-up purposes. Mohair and alpacas are firm, and a steady demand can be reported. Yarns are quiet both for home and export. There is some variation in the rates of spinning. Some are not indisposed on actual business to yield a slight concession on the prices of two-fold yarns, while there are others who maintain late prices with firmness, though with little result in business. The demand for export is slow. A small business is doing in mohair yarns. Orders in yarns from Botany wools keep spinners in that

rather restricted. The piece market is without improvement. The demand for both home and export is rather restricted. Manufacturers are fully employed, but they have to be content to do business at old rates.

Huddersfield.

There is not much to report this week, but the present being a quiet time of the year manufacturers are not disappointed. The winter trade will shortly be opening out, and in the meantime every preparation is being made by producers for a display of patterns. High-class worsteds and serges are moving off well, and the colours employed in the latter are noteworthy on account of their variety. The lower qualities of tweeds suitable for the wholesale clothing houser are in fair demand, although hardly so much as of late. The mills are at present only kept running with difficulty, for though some manufacturers are exceedingly busy, it is only in the production of special goods for particular purposes, and this, of course, is not general, so that in some cases short time has to be resorted to. Some firms are busy on orders for the States, but it is in the best kinds of fancy worsteds, and when these orders are completed there may be some difficulty as to doing future business under the new tariff arrangements. Yarn spinners are tolerably well off for orders for some sorts of yarns.

LEEDS.

The mild weather having apparently vanished for the present, at any rate, a brisker trade in thick suitings and overcoatings is looked forward to. Up to the past few days a demand for these goods had been interfered with considerably by the unwintery-like temperature. Heavy cloths, such as presidents and pilots, are going off very well for the home trade, but serges seem to occupy the best position, and for overcoatings they are bought freely. Blue greys, checks and stripes are noticeable. For future consumption serges and vicunas are selling most largely, but the absence for the present of repeat orders for them from the Continent is a disappointment in some quarters. The worsted coating trade has entered into a new phase. The conviction grows stronger here every day, however, that the splendid fancy goods of that class made here, but principally at Huddersfield, cannot be driven out of the American market by the new tariff. It remains to be seen whether the Bradford people will not try to compensate themselves for their great deprivation recently by turning their attention to these valuable goods more than they have hitherto done. All woollen mills continue busy, and in such adjacent places as Morley, Yeadon, and Guiseley, the output is immense, and buyers are pressing for rapid deliveries.

ROCHDALE.

Business is not so satisfactory, and the mills are not so busy as could be wished. Prices, however, are firm, and this keeps buyers off to the extent that they only give out orders of a retail character. Although the summer has been a long one, much of it has been so wet and cold that light material has not gone off well, and it is one of the causes of delay now in giving out winter orders. The demand for Yorkshire woollens has improved at former quotations.

GLASGOW.

Messrs. Ramsey and Co., in their report dated 14th October, 1890, say:—

WOOL.—The wool market has been fairly active this week. Buyers are still, however, very cautious in their operations, and limit their purchases to immediate requirements. Prices are without change, but firm.

SHEEP SKINS.—The supply has been only moderate for the week, and of fair qualities. Competition active, and former rates quite confirmed.

FLAX AND JUTE.

DUNDEE TRADE REPORT.

WEDNESDAY, 15th Oct., 1890.

The market is still flat. Advices from America are not encouraging. Jute continues still to droop, and on all sides there is great caution in making offers.

The jute crop is by all parties reported to be larger in area and much heavier than any of recent years.

Firsts are offered at £11 10s., but buyers are still shy.

Flax is a shade easier, exchange having fallen a point, and the new crop being well reported of.

Jute yarns are dull and favour buyers. It is difficult to get $\frac{1}{4}$ d. to-day for common crop.

Hessians are quoted at 1½d. but offers at 1½d. are being made, and the tendency of the market is

Flax yarns are quiet, without change, and tows are not dearer to-day.
 Linens are in excellent demand, all the markets being still busy.
 Arbroath reports an active demand for the coarser fabrics of the heavy linen goods.
 Dundee fancy goods are brisk, and twines, cords, and rope are firm, and are wanted.
 Harvest in Fife, Forfar and the district around is finished. The crop is excellent, and potatoes are selling well. There is some inquiry for America, and but for the tariff this promised to be an important trade.

HOSIERY AND LACE.

NOTTINGHAM.

There has been no change of importance in the lace trade this week, and there is a general feeling of quietness in most departments. Curtain machinery is fairly well employed, but the demand is less active than it was a short time ago, and most of the orders are for medium and common goods, the best qualities being comparatively neglected. Manufacturers nevertheless remain hopeful as to the future. Transactions in plain bobbin nets are only on a moderate scale, and rates still keep at a level that leaves only a very narrow margin for profit to the maker. Mosquito nets are only in middling request, and orders for Brussels and Mechlin nets are small. Business in stiff Paris and Paisley nets for foundation purposes is quiet. There is nothing doing in quiltings. Some silk guipure and Tosca nets with velvet spots are being disposed of, and a few fancy cotton nets are selling. The Levers trade is devoid of animation. A steady business is being done in Maltese and torchon laces of good quality, and the "tulip" set in Valenciennes laces are in fair request yet. Macramé Brabant, and Bretonne laces with vandyke edges are selling to some extent, but the supply of all descriptions of fancy cotton laces is in excess of the demand, and business in silk laces is inactive. There is no improvement in the sale of made-up articles. Hosiery manufacturers are not busily employed. The McKinley Law has resulted in the cancelling of some American orders, and for a time will, no doubt, curtail transactions with the United States. Some express the belief that the effect of the measure will be only temporary, but with views of this sanguine nature the more thoughtful do not coincide. Hosiery manufacturers are not doing much. Merino and cashmere fancies are in fair demand, and fast blacks still maintain their hold on public favour.

LEICESTER.

In wool a rise of from 5 to 10 per cent. on the July rates is maintained in all departments, and the feeling here is firm. The closing sales over the month will be about 20,000 bales less than last year, so that there is not much likelihood of a fall in prices. In the yarn market there is no change since Thursday, the same steady demand being fully sustained all round. The fancy hosiery trade has already received some slight fillip from the bright and colder weather, but there are still some considerable orders holding at the command of home trade merchants.

SILK.

LONDON.

Messrs. Durant and Co., in their circular dated 16th inst., say:—
 The periodical Public Sales were held yesterday. The quantity offered was about 1,250 bales China, 40 bales Japan, 180 bales Canton, and 20 bales Bengal raw silk, with the equivalent of about 180 bales English thrown silk. The attendance of buyers was about as usual. The silk printed without reserve attracted attention, and sold at about 3d. reduction on previous nominal quotations.

Deliveries 1st to 15th October, 1890.

Bengal	24 bales.
China	483
Japan	68
Canton	139
Tussah	48
	738 "

DRY GOODS.

MANCHESTER.

Business this week has been fair, and in the heavy branches distribution has been brisk. The cold weather has given quite an impetus to certain branches. In fancy cotton goods new designs are now under the consideration of merchants. Stocks of corded lawns left over from last season will in

some quarters be "printed up," and probably sold at cost to clear. The carpet section continues to be active. Linens are in fair demand. It is noticed that many of the departments handling these goods are now selling cotton articles, also cotton towels (some at 11s. 6d. only per gross) being included amongst the goods thus dealt in. The shipping trade is dull as far as the United States market is concerned. Matters, however, will, it is thought, soon right themselves. In the meantime large orders cabled across recently are being delayed, as merchants fear that their New York friends have not thoroughly worked out the complicated calculations which require to be made before the real landing cost under the present laws can be ascertained. Specific, *ad valorem*, and package charges all require to be reckoned with.

THE KIDDERMINSTER CARPET TRADE.

Business is somewhat slow in opening out in the Kidderminster districts, and, although the number of orders coming to hand almost daily increases, manufacturers are not yet in the position to speak of ample employment for their machinery. This, of course, can hardly be reasonably expected at present; travellers have only just started out on their journeys, and it must necessarily be some little time before any important effect from their "calls" can be felt. Reports arriving home are considered on the whole fairly satisfactory. A little opposition is being offered by buyers to the advanced price lists, which was anticipated, but it is not expected to be of very long duration, as stocks are said to be extremely light, and it only needs continued cohesion amongst manufacturers to exact what they deem to be a fair remuneration for their goods. Upon this point there is to be no giving way on the part of manufacturers, amongst whom at the present time greater unanimity exists than has ever been known before. The shipping trade continues moderately good, so far as regards certain markets, but the Australasian branch is still in an unsatisfactory condition owing to reasons not far to seek, and signs of relief are anxiously awaited. Business in Axminsters is gradually expanding, and manufacturers of these goods seem comfortably busy.

In the raw material markets there is little change to report. Transactions in wools are rather heavier, and some good parcels are coming into the district. This is in consequence of spinners having booked orders for yarns more freely lately; purchases in the main are to cover these, and there is not much disposition manifested yet to buy beyond actual requirements. Prices are firm for most sorts used in the manufacture of carpet yarns, more especially the better classes, and in some instances an advance has had to be paid. Spinners on the whole are firm in their quotations for spun yarns, although here and there it has been found possible to obtain slight concessions by offering large running contracts. Cotton yarns have slightly receded from the firm point they have stood at so long, but there appears to be an opinion amongst spinners that this is only temporary, and that the price may advance any day again, as the waste from which these yarns are made keeps scarce and dear.

Tariff News.

THE NEW AMERICAN TARIFF.

(Continued from page 261.)

SILK AND SILK GOODS.

	Old Rate.	New Rate.
Silk corden or combed	50c.	50c.
Thrown silk, singles, train, organzine, sewing silk, twist, floss, silk threads, yarns	30p.c.	30p.c.
Spun silk	30p.c.	35p.c.
Webbing, goring, suspenders, braces, braids, fringes, cords, and tassels	50p.c.	50p.c.
Laces and embroideries, handkerchiefs, ruchings, knit goods	50p.c.	60p.c.
Silk not specially provided for	50p.c.	50p.c.
Velvets, pile fabrics, less than 75p.c. in weight of silk	—	1dol.50s. and 40c.
75 per cent. or more	—	3dol.50c.

Braids, plaits, laces, and similar manufactures composed of straw, chip-grass, palm leaf, willow, oster, and rattan, suitable for making or ornamenting hats, bonnets, and hoods (20 p.c.).
 India-rubber, crude, and milk of, scrap or refuse india-rubber, free.

Needles, hand-sewing and darning (25 p.c.).
 Silk, raw, or as reeled from the cocoon, free.
 Silk, cocoons and silk waste, free.
 Silkworms' eggs, free.

Gazette News.

NOTICES OF DIVIDENDS.

Thomas Townend Gledhill, residing in Albert-street, Keighley, and trading at Mildred Court, Bradford, and at Frizinghall, all in Yorkshire, lately at Cabbage Mill, Keighley, and at Frizinghall, in partnership with Joseph Wood, as Joseph Wood and Co., top maker, and worsted spinner; 3d., first and final.

James Ashton, 1, Dudley Villas, Broad-road, Sale, and Edward Palk Williams, 9, Moorside-terrace, Flixton-road, Urmston (trading as Wehner, Ashton, and Williams), formerly at 100, Portland-street, and late 59, George-street, Manchester, merchants; 2s. 6³/₄d., first and final.

Edward Palk Williams (separate estate), 9, Moorside-terrace, Flixton-road, Urmston, formerly trading at 100, Portland-street, and 59, George-street, Manchester, merchant, trading with James Ashton as Wehner, Ashton, and Williams; 1¹/₂s. 2³/₄d., first and final.

PARTNERSHIPS DISSOLVED.

Alice Hoyle and Hannah Piers, Tottington, cotton spinners.

David Firth and Matthew Akroyd, Elland, Yorkshire, cotton spinners.

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.

6TH TO 11TH OCTOBER.

- 15,758. M. LISTER, Commercial-street, Halifax. Machinery for pulling and breaking silk waste, rabbits' down, fur, and other light fibre.
- 15,759. W. A. BOOTH, Manchester. Looms for weaving.
- 15,803. J. Y. JOHNSON, 47, Lincoln's-Inn-Fields, London. A new naphthalene derivative suitable for use in the manufacture of dye-stuffs. (*Badische Anilin und Soda Fabrik, Germany.*)
- 15,829. J. SMYTH and J. HALE, 154, St. Vincent-street, Glasgow. Stretching or breadthning machines.
- 15,835. W. STUART, 115, St. Vincent-street Glasgow. Apparatus for making nets for fishing.*
- 15,841. W. G. BYWATER and T. BEANLAND, Sweet-street Foundry, Leeds. Balling machines.
- 15,856. DORE and Co., France. Stockings, half-hose, and similar articles.
- 15,861. R. JACKSON, 323, High Holborn, London. Circular knitting machines.
- 15,872. E. FRIEDEN and F. KESSNER, 41, East-cheap, London. Warp-loom.*
- 15,883. B. DUKES, 226, High Holborn, London. Measuring fabrics. (*P. Stephan, Germany.*)
- 15,885. A. BOLLENTIN, R. STUNTZ, and A. CUDELL, 6, Bream's Buildings, London. Tufted woven fabrics.
- 15,938. A. C. DICKSON and J. DICKSON, Laragh, near Castle Blayney. Power looms.
- 15,945. R. MAYALL, Junior, Luzley Brook House, Heyside, Royton. Pickers or shuttle checks.
- 15,982. G. YOUNG and W. CRIPPEN, 45, Southampton Buildings, London. Bobbins or spools and cams or receptacles for holding slivers or threads of fibrous material which have to be dyed or bleached.
- 16,007. M. A. FICKER and C. G. HENTSCHEL, 70, Deansgate, Manchester. Circular knitting frames.*
- 16,016. G. TEMPLEMAN, 40, Parliament-street, Nottingham. Straight bar knitting machinery.
- 16,029. W. BOWN and G. CAPEWELL, 308, Summer-lane, Birmingham. Machines for shearing or clipping wool, hair, etc.
- 16,033. G. D. ROSE, 5, Goldington-crescent, St. Pancras, London. Coir yarn diamond mats.
- 16,043. F. WALTON, 28, Southampton Buildings, London. Apparatus for manufacturing mosaic floorcloths.
- 16,083. J. BRUNSCHWELER, Manchester. Machines for winding warped threads on to bobbins, spools, pirns, or tubes. [DATED 6TH OCTOBER.]

- 16,089. A. HARDMEYER, 6, Lord-street, Liverpool. Travellers for ring spinning machines.
- 16,122. R. E. PARR, N. KIRK, and E. KIRK, 45, Southampton Buildings, London. Apparatus applicable to circular knitting machines for producing ribbed looped fabrics.
- 16,137. J. BUTTERWORTH and G. F. BUTTERWORTH, Manchester. Cloth straightening and expanding apparatus for bleaching, dyeing, printing, finishing, and similar machines.
- 16,144. B. HAMILTON and J. C. HAMILTON, 87, St. Vincent-street, Glasgow. Lubricating or treating fibrous materials in process of manufacture.
- 16,149. J. BIRTWISTLE and W. JACKSON, 58, Low-street, Keighley. Operating ratchets for rotary shuttle-boxes of looms.
- 16,150. NOTTINGHAM MANUFACTURING COMPANY, Limited, J. GROVES, and J. WHATNALL, 55, Chancery-lane, London. Knitted fabrics and apparatus employed in their manufacture.
- 16,174. J. P. BAYLY, 18, Fulham-place, Paddington, London. Take-up device for spindle bands of spinning machines. (T. Walker, U.S.)
- 16,195. P. BLACKIE and J. NISBET, 6, Lord-street, Liverpool. Sheep shearing machines.
- 16,196. C. J. MILES and W. SPIERS, 323, High Holborn, London. Circular knitting machines.
- 16,217. A. B. HUNTER and J. INGLIS, Worms a/ Rhein, Germany. Extracting cotton, silk, or any other kind of hard threads out of wool, mungo, or shoddy in process of carding.

SPECIFICATIONS PUBLISHED.

1889.

- 16,873. HANCOCK and DOBBS. Twist lace fabrics. 1s. 1d.
- 17,620. REIXACH. Double pile fabrics. 6d.
- 17,818. MCMASTER (Fraser). Spindles and flyers. 6d.
- 18,115. GRAEMIGER. Dyeing, bleaching, etc., fibres. 8d.
- 18,239. MCFERRAN and PIRRIE. Spinning wet yarns. 6d.
- 18,392. EVES. Spinning linen yarn. 6d.
- 18,394. EVES. Preparing yarn for weaving. 6d.
- 18,517. WILLCOX. (The Farbenfabriken vorm. F. Bayer and Co.) Azo-colouring matters. 4d.
- 19,057. MEADOWS and others. Looms. 6d. 1890.
- 12,776. WRIGHTSON. Knitting machinery. 8d.
- 12,950. THIES and HENZIG. Bleaching. 8d.

ABSTRACTS OF SPECIFICATIONS.

- 7,439. May 4, 1889. Spinning. F. ROSSKOTNER, Zwittau, Moravia, Austria.

Winding mechanism. — The transverse mechanism for building the yarn into cops consists of oscillating thread guides, the pivots of which are moved simultaneously or independently parallel to the axis of the spindle. In the drawing the thread guide *a* is oscillated from the rocking shaft *c* through an arm *x* and link *d*, and the pivot *b* is adjustably connected by a link *r* to a lever *l*, the end of which rests upon a spiral cam *h*, which is slowly rotated upon the oscillating shaft *k* by means of a ratchet arrangement. The pivot may also be moved by a simple screw arrangement. In cup, cone, and like machines, the thread guide is pivoted upon a lever connected to the cup or cone, the fulcrum in this case remaining stationary when the thread breaks. A stop motion is shown in connection with the first described arrangement, consisting of a weighted lever or belt shifter *3* which is normally held in the raised position, with the belt on the fast pulley *2*, by means of a tumbler lever *8* held up by the tension of the thread. When the thread breaks the tumbler *8* and belt shifter *3* fall, and the belt is passed on to the loose pulley *2e*, and the pawl *s* is raised by the belt shifter *3* into the position shown in dotted lines, so that the pivot *b* remains stationary. The arrangement may also be used for stopping the machine when the cop, etc., is completed. [8d.]

- 7,447. May 4, 1889. Looms. D. H. WILKINSON, 46, Pear-street, Burnley.

Damping warps.—Heavy sized warps are damped during weaving by passage over a surface kept constantly moistened by water or other suitable liquid. The drawings show two rollers, between which the warp threads pass. These rollers are arranged across the loom between the warp beam and the reed, the lower roller being partly immersed in liquid in a trough. [8d. Drawings.]

- 7,457. May 4, 1889. Drying linen, etc. E. CORNOY,

bars of vertical frames, which are supported between the radial arms of a rotary frame. The air is heated by a small coke oven or other suitable apparatus, and is supplied towards the centre of the apparatus by a pipe, the products of combustion being led by another pipe through the apparatus to a vertical pipe or chimney. [8d. Drawings.]

- 7,546. May 6, 1889. Carpets. R. B. LOTND, Worcester, Massachusetts, U.S.A.

Wilton and moquette carpets are woven simultaneously by the double method, certain shades of tuft yarns *7* being selected and lifted, as required, from the body *6* of the tuft yarns carried in the Wilton fabric, and bound into the upper or moquette fabric by one or more weft picks *10*, the threads then returning to be bound and carried in the lower fabric. The fabrics are separated by severing the pile. The weave may be modified, and a single or double shuttle loom may be employed. By varying the size of the weft and tuft yarns, the fabrics may be made coarser or finer as required. Patent applied. *See not yet decided.* [8d.]

- 7,550. May 6, 1889. Dyes. C. D. AXEL, 28, Southampton Buildings, Middlesex. (Acetengesellschaft für Anilinfabrikation; Berlin.)

Rosaniline series.—Relates to the preparation of green and violet colouring matters, and consists firstly in preparing methylbenzylamine sulphonic acid and ethylbenzylamine sulphonic acid by heating these amines with sulphuric monochloride or with fuming sulphuric acid. The amine is poured, for example, into fuming sulphuric acid at 40°–100° C. then heated to 80° C. until soluble in dilute caustic alkali. Water is then added at 50° C., and the sulphonic acid is precipitated by addition of caustic soda. Consists secondly in producing leuco sulphonic acids by condensing the above products with aromatic aldehydes. Consists thirdly in oxidising the leucosulphonic acids by means of peroxide of lead and sulphuric acid. Benzaldehyde and ethylbenzylamine sulphonic acid yield a green colouring matter. Dimethylpara-amidobenzaldehyde and ethylbenzylamine sulphonic acid yield a violet colouring matter. Similarly meta or para nitro-benzaldehyde may be used. [8d.]

- 7,559. May 8, 1889. Guiding cloth to finishing machines. J. J. SCOTFIELD, 81, Westminster-street, Providence, Rhode Island, U.S.A.

The guide fingers *d*, *d'* and the rollers *a* are carried by a head or frame *C*, pivoted in a vertical hub on the frame *A*. The pivot stem carries a toothed segment *D*, which engages with a rack frictionally mounted upon a reciprocating slide. This slide is operated by a crank *i* and connecting rod *m*, and its relative position with regard to the rack is regulated by a double ratchet bar on the rack, engaging with one of the swinging segments *p*, *q* according to the position of the edge of the fabric. In addition to this angular adjustment of the roller *a*, an axial adjustment is given to the roller *a* by a fork *e* on the rack. The fabric thence passes over the roller *e* and through the guide *M* to the drying and tentering or other finishing machine. In the former case the apparatus may be attached to the chain guides, and may be adjusted on each side simultaneously by a suitable system of levers. [8d.]

- 7,585. May 7, 1889. Removing fibre from cotton seed. B. F. SPANOVSKO, 171, Antoine-street, New Orleans, Louisiana, U.S.A.

Relates to an apparatus for treating cotton seed, in which lint or fibre is removed without injury and the seed is obtained in a clean and polished condition. The cotton seed is placed in a hopper and is fed by arms between radial feed-regulating projections to a rotary disc, the top of which is covered by a carding surface of metal teeth. A cross frame, divided into four compartments, is arranged within the casing over the disc. Twelve brushes are arranged, three in each compartment, over the disc, and are driven by a belt from a pulley on the main shaft in the reverse direction to that in which the disc is driven. After treatment on the disc, the seed is passed on to be treated by similar discs, and which differ from the first disc in the fineness of the carding surface employed. A fan is arranged beneath each of the discs, and removes the fibre through orifices in the fan casing. The fibres, after leaving the fan, are passed into the condensers, and discharged through shoots, while dust, etc., is discharged elsewhere. The seed, after treatment by the last disc, is delivered, cleaned, and polished. [8d. Drawings.]

- 7,587. May 7, 1889. Dyes. A. BANG, Park Row, Leeds. (Messrs. Dalt and Co.; Barrow, Prussia.)

Consists in the preparation of colouring matters by combining diamidobenzylbenzidine and diamidobenzyltoluidine with phenols, amines, or their sulpho acids. The diamido compound is converted into its tetrazo derivative in the usual manner and treated with alpha-naphthylamine sulpho acid yielding a blue-red dye, or with beta-naphthylamine-beta-sulpho acid yielding an orange dye, or with beta-naphthylamine-alpha-sulpho acid yielding a blue-red dye. If an intermediate compound is first formed from equal molecular proportions of the tetrazo compound and alpha-naphthylamine sulpho acid and the product is caused to react with beta-naphthylamine-beta-sulpho acid a scarlet dye is obtained. [8d.]

- 7,588. May 7, 1889. Nitro compound...

Consists, firstly, in the preparation of paranitrobenzylsulpho acid by heating together paranitrobenzyl chloride and a solution of a neutral sulphite, such as sulphite of sodium. Consists, secondly, in the preparation of dye-stuffs by combining the para-amidobenzylsulpho acid, obtained by reduction of the above paranitro compound, with the tetrazo derivative of benzidine, toluidine, or diamidostilbene, to form an intermediate compound, and then reacting with this product upon naphthionic acid, beta-naphthylamine-beta-sulpho acid, or beta-naphthylamine-delta-sulpho acid. Or an intermediate compound may be prepared from the tetrazo compound and one of the naphthylamine sulpho acids, and caused to react upon the para-amido compound. The colouring matters obtained dye unordanted vegetable fibres and exhaust the dye bath. [8d.]

- 7,591. May 7, 1889. Looms. W. WATTE, Worcester, Massachusetts, U.S.A.

Dobbies.—The cylinder segment gears *16* of the harness mechanism of the Knowles loom are formed with spiral or broken or zig-zag teeth. The toothed crank wheels are thus operated successively instead of together. The same object may be attained by setting over the teeth of the crank wheels with reference to their crank-pin and stop slot. [8d. Drawings.]

- 7,630. May 8, 1889. Fabric printing machines. J. SUTHERLAND, 3,050, Richmond-street, Philadelphia, Pennsylvania, U.S.A.

Apparatus for printing on both sides of fabric in register. The fabric is printed on the first side by printing rollers and impression rollers, and thence passes round a bowl to printing rollers, by which it is printed on the other side. [8d. Drawings.]

- 7,695. May 8, 1889. Spinning. J. ERSKINE, Wolfhill Mill, Ligoniel, Belfast.

Heckling machines.—Relates to means for breaking and removing weak and loose fibres from the ends of the hekked material, and to combing the latter as the holder is raised. In the arrangement shown, a pair of nippers, having fixed and movable jaws *4*, *5*, is used, and also a pair of "finishing heckles" *13* for combing the hekked material. The heckles and the nippers are brought into and out of action simultaneously by a lever system operated from the "head wheel" *15* and a stripper plate for clearing the nippers. The combs *13* are in rows with stripper plates sliding between them, and the latter have tumbling bow catchers. Rollers or endless nipping belts may be substituted for the nippers *4*, *5*. [13s.]

- 7,710. May 8, 1889. Underclothing, etc. W. TATHAM.

Nightdresses, bathing costumes, bathing drawers, hose, combination garments, under-shirts, drawers, shirts, and the sleeves of underclothing in general are made chiefly of a traversed warp fabric, but the wristbands and narrow parts are made of a plain or ribbed knitted fabric, the two fabrics being joined by stitching or seaming in the usual way. [6d. Drawings to Specification.]

- 7,715. May 8, 1889. Waterproofing. C. F. HIME, 100, St. Paul's-road, Camden Town, London, and J. H. NOAD, 12, Prestbury-road, East Ham, Essex.

A composition and process for waterproofing textiles and other materials. The composition consists in a mucilaginous solution of ammonia, zinc, and cellulose, obtained by adding scrap zinc to a solution of cellulose in cupr-ammonium. The textile or other material is soaked in this solution, and is afterwards squeezed, dried, and calendered if necessary. [4d.]

- 7,753. May 9, 1889. Stentering cloth. W. G. HANNA, 24, Wellington-place, Belfast.

The chain-clips are connected by hook and eye joints. [6d. Drawings.]

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