

The Textile Mercury:

A Representative Weekly Journal for

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

In all Branches of the Textile Industries.

Vol. III.—No. 76.

SATURDAY, OCTOBER 4TH, 1890.

PRICE
THREEPENCE.
Annual Subscription, 12s Post free
Six Months " 6s " "
Three " 3s " "
For Foreign Subscriptions, see first column below.

The Textile Mercury.

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

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

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

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

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

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Current Topics.

THE EXTENSION OF SPINNING AND WEAVING.

Steady progress continues to be made in the extension of spinning and weaving in the various districts of Lancashire and the neighbouring counties. We are pleased to see this, as on the whole it indicates a healthy and prosperous condition of our staple manufacture. Yet, notwithstanding this, no one can shut their eyes to the fact that sometimes these extensions are made without due consideration of the circumstances either of the trade or of those who promote them. Sometimes companies are started by persons with a private "axe to grind"—in the way of selling a piece of land for building purposes—who will let a small plot cheaply for a mill or shed, knowing that when such an establishment gets to work it is certain to cause the letting of land near to for cottage purposes. A piece of land that might have lain idle in the natural course of things for many years longer is thus made to return a good income from well-secured ground rent much earlier than would otherwise have been the case. Or building contractors in want of a job may set the ball a-rolling and take up a few shares in payment. Our machinists, too, are brought into the category of those who aid inconsiderate extensions of both spinning and weaving by the bribes which company promoters offer them, as it seems to be getting more and more the case that where no shares are taken up no orders are given for machinery. Now such schemes as those to which we refer might all, perhaps, be classed as legitimate enterprises, but unfortunately they do not prove to be so. Whilst we would guard ourselves against being thought to be opposed to a natural and proper extension of both these great branches of the cotton trade, we would utter a word of warning against improper and illegitimate schemes of this kind. Such we regard to be those in which building operations are commenced with an insufficient subscription of capital to carry the scheme through. When this is the case, preference shares, mortgages, and credit, are all made use of to such an extent that when the scheme is launched it is amongst the rocks and shallows of the commercial seas, where it is soon stranded and broken up, and all that has been invested in it is lost. The hull is then purchased for an old song; say one-fourth or one-fifth of its intrinsic value, it is placed on the stocks anew, rigged afresh, painted, and made to look bright and new, and launched again, this time more successfully than before. The mischief may now be seen in fairly full dimensions: the shareholders have lost all their subscribed capital, the creditors are a large sum out of pocket, and possibly the mortgages are only partly paid. Their loss, however, has been somebody else's gain, for the

mill or shed has been sold, as observed above, for about one-fourth the sum expended upon it. How does the buyer treat it? In one of two ways. He either at once, as it were, realises the profit upon his bargain, and in working it afterwards estimates the establishment and its plant to stand at the cost it has been to the original promoters, and charges the goods produced with the interest and depreciation of the original capital expended; or on the other hand he debits the establishment simply with the sum he has paid for it, and to complete it to his requirements. In the first case he comes into the market with his production properly charged with a natural cost, and is a fair and legitimate competitor, against whom the trade can have no grievance; but in the second he is an unfair and from a moral point of view an illegitimate competitor, who floats upon the disasters of other people into a position from which he can command the market to the disadvantage of all his competitors. The result is injury to his neighbours, which directly flows from the folly of ignorant people, small shopkeepers, hard-working operatives, and others of economical habits investing their life's savings without due consideration in a business they do not understand. Their action affords another illustration of how "ill can be wrought from want of thought," and it is to such that we would utter a word of caution. We have in mind a number of such unfortunate examples, and it is not on behalf of any one desirable to increase them.

THE CALAIS STRIKE: LATEST DEVELOPMENTS.

The expected has happened. On Saturday last seventy firms at Calais closed their works, and others, who gave their men a week's notice, will join the lock-out to-day. On Sunday three thousand of the operatives met in the Elysée at St. Pierre. The proceedings were orderly and enthusiastic. The speakers denounced the alleged attempts of the employers to sow division in the workmen's combination and resist demands for higher a wage tariff and new rules, including right to a week's notice on dismissal. It was unanimously resolved not to return to work until the higher tariff was conceded. Citizen Salembier said he understood soldiers were coming, but he hoped the workmen would keep calm and orderly, not assembling in large crowds in the streets. The local union has no funds to sustain the men during suspension, but hopes of aid from London, Nottingham, etc. Citizen Delcluze, secretary of the French Federation of Trades-Unions, said an appeal would be made to these unions both in France and England. He read sympathetic telegrams from the unionists of Marseilles and Troyes. None were admitted to the meeting but members of the union. One hundred and sixty-four francs were collected at the door as the members passed

the turnstiles. Our information from the seat of the disturbance is again so complete this week that as far as the space at our command for such a purpose will permit, we present a detailed account of the events which have taken place since the agitation commenced. Our readers in Nottingham and elsewhere will thus be enabled to follow the course of the strike, and as our facts are drawn from exclusive sources and from both sides, the continued narrative we present this week is worth preserving for future reference. There has naturally been an examination on the part of those interested into the future prospects of Calais should the advances claimed by the men be paid. Rich, fine, or fancy goods can, it is admitted, bear the burden imposed by extra cost of production; but the manufacture of ordinary and even medium goods, the sale of which in the past has been difficult owing to the competition of other lace centres, will leave Calais absolutely if the strike succeed. A plan is therefore advocated for establishing a special list for those goods which have to bear the fiercest outside competition. Without some such arrangement the interests of Calais will be sacrificed for the benefit of other towns—of Caudry particularly. Calais has attained its present position, and has been able to furnish employment for its 20,000 lace operatives, by its facilities for cheap and rapid production. Even amongst the rich there are more buyers of what (comparatively speaking) may be termed cheap lace, than there are of those who prefer the most expensive articles. This is owing to the constantly changing fashions, which do not permit of any special make to remain in use for any length of time. The days are past when lace was handed down from mother to daughter as a kind of family heirloom. Fashions change too quickly to permit of that, and frequent purchases being thus rendered necessary, cheap production becomes indispensable. On Tuesday the Calais Municipal Council met, and refused to grant a credit of 60,000 francs in aid of the women and children who are suffering from the effects of the strike. The decision of the Council was received with hisses from the crowd. The situation is regarded as serious. Nottingham is assisting the strikers as we write, and as the situation has not yet had time to develop itself, we content ourselves for the present with the above statement of facts. A statement has been circulated that the Nottingham Trade Union had determined to place 75,000 francs at the disposal of the Union des Ouvriers Tullistes, but this has been authoritatively denied, the Nottingham Union declaring that they have only promised help to relieve any cases of dire distress. It is hoped that a settlement will be arrived at in the course of the week.

THE TRADES' CONGRESS AND THE SPINNERS' ASSOCIATION.

We are pleased to have the opportunity of complimenting the Operative Spinners' Association on the resolution recommending its Secretary, Mr. Mawdsley, to resign his appointment on the Parliamentary Committee of the Trades' Congress, to which he was elected along with Mr. Birtwistle at the recent meeting in Liverpool. We regret that both they and the weavers have not gone farther, and dissolved all association with the professing friends, but really the greatest enemies, of their order—the crude and ignorant masses of men who have ranged themselves under the banner of John Burns and Co., and who, as regards intelligence and experience, are at least half a century behind the Lancashire factory operatives. They have not the

faintest notion of the origin of capital, nor of the beneficent part it has played, and plays to-day to a greater extent than ever, in the development of progress, and the enhancement of the happiness of mankind. Let working men seriously reflect for a few minutes upon the achievements of the past century-and-a-half, and ask how much could have been accomplished without the aid of capital, and they will find that it would be a very small amount indeed. At that time there were no highways beyond two or three leading tracks from the metropolis to the chief centres; the rest of the country had to depend upon the pack-horse tracks for communication between village and village. There were no navigable canals; railways, telegraphs, and telephones were undreamt of, and steamships were in the same state, or only little more advanced. Liverpool and Manchester were insignificant villages, and the same might be said of the leading towns of Yorkshire. The vast number of towns that stud both these shires to-day were unknown except as topographical divisions of the country. The wonderful change that has been wrought cannot be attributed to labour in the sense the term is understood to-day. Its origin is directly traceable to the ingenuity of our inventors and the enterprise of our capitalists, and very little, if any, to labour. Let the labourers of Lancashire or the East End of London ask themselves how much of these works they could have accomplished without the aid of capital to pay them their weekly or daily wages, and to bring with it an intelligence superior to their own. If they are honest to themselves they must admit that none of these things would have been accomplished, and that without the aid of capital the world would have been to-day in a state little removed from the semi-barbarism that distinguished it previous to the advent of the era of invention, which has so completely revolutionised it, to the great advantage of every labourer in the country.

THE OVERLAND TRADE BETWEEN RUSSIA AND CHINA.

One result of the development of Eastern trade through the construction of the Suez Canal, and one hardly anticipated, has been a diminution of the overland trade between Russia and China. As a considerable portion of the goods prepared for exportation by the Russian firms in China is now shipped *via* the Suez Canal to Odessa or London, the reason for the falling-off of trade in Kiakhta is apparent. Before the construction of the canal the trade in even expensive Russian goods was profitable, owing to the comparatively short time which it took to convey them into China; but now such articles as cloth, cotton velvet, and cotton tissues of European manufacture have, owing to their cheapness, completely superseded similar Russian goods in the market. The principal European goods imported into China consist of cotton stuffs, which represent about 36 per cent. of the whole of the foreign imports, and the demand for these goods is rapidly increasing. Thus in 1887 cotton goods to the value of 55,066,280 r. were exported, and in 1888 they increased to 65,290,430 r. Indeed China, with her population of over 400,000,000, offers so vast a market to the foreign manufacturer that it is impossible to say what proportions the demand for English and German goods may not attain. Other causes have assisted to produce these results, and the *Moscow Gazette* appeals to Russian manufacturers to combine to restore the stream of commerce to its old channels.

NORTH AFRICAN BEDOUINS AND THEIR BLUE-DYED GARMENTS.

Reports on trade matters abroad by representatives of rival manufacturing nations are not infrequently coloured by national bias. Nevertheless, when faults are pointed out, whomsoever by, it is altogether unwise to ignore them. In this light the following extract from a report by Mr. R. Motta, the Italian Vice-Consul at Bengazi, in Tripoli, should be of interest to British dyers and shippers. "Cotton manufactures," he says, "are imported from England in assorted bales weighing from 800 to 1,000 kilos. Every bale contains from 100 to 500 pieces, according to qualities, and the goods are sent *via* Malta by special English agents. . . . This is an article monopolised by the English trade, with which it is very difficult to compete. Its consumption is very large, and the number of those who deal in this branch of industry is, in proportion to the population, also large; profit is therefore limited. I note more particularly a blue cotton fabric, of English manufacture, but dyed in Alexandria, whence it is imported. These cotton goods are used for the Bedouins' garments. The Alexandrian dye has been imitated in England, and now some quantities of this article come direct, without passing through Egypt. It costs less, but, though fine in appearance, does not last so long as the other, because the dye fades quickly. Consequently the Alexandrian quality is always preferred, especially by caravans. It is sold by pieces of 24 yards, at the price of from 50 to 55 piastres (9—10 francs) per piece, which weighs 7lb."

THE IMPERTINENCE OF "TRADES' COUNCILS."

A recent development of trades-unionism, and one that is characteristic of the arrogance of the modern trades-union spirit, is the formation in our various manufacturing centres of what are termed "Trades' Councils," which consist of delegates representing the workpeople employed in the various manufactories or trades of the places where they exist. These hold weekly meetings, and discuss with more or less intelligence every phase of every trade or industry in the locality, and "pull the local authorities over the coals," as it is phrased, if they do not pay due deference to the interests of the trades-unionists of the district. In the event of such attention not being conceded, they threaten all sorts of opposition to the re-election of the members of the local government, etc. The following affords an illustration:—

A meeting of the Executive of the Blackburn Trades' Council was held on Wednesday (week) evening, when it was decided to issue circulars to members of the Town Council, urging them not to accept contracts from firms who do not pay trades-union prices to workmen. The circular will also strive to ascertain the opinion of the candidates for the Town Council on the question. In all probability two or three labour candidates will seek election on the 1st of November, but no definite decision was come to, though a committee was appointed to consider the matter and report on it at the next meeting.

The local journals every week have each a paragraph of a similar kind, and these "Councils," by their assumption of a name to which they have no claim, and by their activity, succeed in obtaining an amount of consideration far beyond that to which they are entitled. It is a great pity that some public-spirited individual in each centre does not take upon himself the small labour of exposing the arrogance of the claims these bodies put forward. They have no right to the title they have assumed, and in using it they are sailing under false colours. Those forming these associations are in no sense members of trades nor traders. The term implies the manufacture of wares for sale, or com-

merce in such articles. The workmen who assist in the production of these articles do neither; they are workpeople only, and follow, not a trade, but an industry. In using the name, therefore, they arrogate to themselves a title which does not belong to them, and thus obtain the repute or social influence pertaining to it. They are masquerading in false clothes, with the intention to deceive the public. The above paragraph, from one of our local contemporaries, sufficiently illustrates their impertinence without further comment. We trust that in future the public of the districts where such bodies exist will estimate them at their actual value.

AUSTRIA AND FOREIGN TRADE.

The textile manufacturers of Austria are indeed to be envied, as, according to a statement in the last report of the Austro-Hungarian Consul-General at Alexandria (Egypt), they can afford to do without a foreign trade. The imports of manufactured goods into the land of the Pharaohs from Austria, he says, are steadily declining, a fact partly due to the decrease in the consumption. "However," he continues, "no other country profits from this loss in our trade, as their imports have also fallen off. Blue and black cloth, with a width of from 65 to 73 inches, is now being obtained from England in preference. It is used in the manufacture of Arabian costumes. Velvets are obtained at lower prices from England and Germany, whilst Belfast linens, though of equal price, were of a more durable nature. The Austrian imports of woollen and cotton dress material are also not so considerable as those from England, France, and Germany. In printed stuffs Manchester and Mülhausen rule the market, and it would be to the advantage of Austria to turn her attention to these matters; but on the slightest hints our largest establishments reply that they have enough to do for home trade, and *don't need to trouble themselves with exports*. The only advantage that the English have is a cheaper rate of transport. All else is due to better arrangements and to the principle of maximum sales with a minimum rate of profit." Happy Austro-Hungarians!

THE OPERATIVE SPINNERS REJECT THE CONCILIATION SCHEME.

At the meeting of the Amalgamated Association of Operative Cotton Spinners, the subject of the formation of a Board of Conciliation consisting of employers and employed, was brought forward for consideration, and we regret to see that after some discussion it was rejected. It appeared to the assembled representatives—whom we presume it is only courteous to regard as the wisest men of their class—that the operatives would get no advantage from it. In our opinion the representatives have quite misapprehended the object of the proposal, which we opine was to secure justice, and *not* advantages, to the parties resorting thereto. This being the case, unless, as we are inclined to believe, they have been quite mistaken in their views, the representatives have shewn by rejecting the proposal that it is not the principle of justice, but a sentiment of selfishness, that is to govern their conduct in relation to their employers. We trust, however, that this is not the last of the proposition; but that it will be reconsidered, when we are sure it will in the first instance command their favour from its being a scheme well devised for meting out justice to both parties in the disputes that are so liable to occur in their mutual relationships; and in the second from the fact that just settlements of disputes are far more profitable than the attain-

ment of "advantages" not based upon equity and fair dealing. Many people overreach their true interests when, by force, fraud, or deceit they snatch advantages from those with whom they have connections in business or relationships in work. We should be pleased to learn that these spinners' representatives referred the matter back to their constituents, fully explained it to them, and then asked for their instructions. In our opinion a different and better result would be reached.

THE YARN TRADE OF DAMASCUS.

Damascus is probably the oldest existing city on the earth, and such a phrase as "The yarn trade of Damascus" seems not to be in accord with the eternal fitness of things. Nevertheless it is correct enough, as will be gathered from a perusal of the following report on the subject, made by the Italian Chamber of Commerce at Constantinople. According to the Chamber, "the annual consumption of cotton yarn at Damascus is valued at 2,000,000 fr. The cotton yarn No. 20's (and lower) dyed in red, which a few years ago was easily sold from 110 to 120 piastres, has now reached the extreme possible limit, and it is offered at from 75 to 80 piastres at four and five months' credit. The superior quality, viz., No. 20's genuine, is no longer in demand. Numbers reduced 20, 22, 20, and 20, 24, 20, are the only ones which still find any considerable consumption, but the prices for the above-mentioned reductions vary from 70 to 75 piastres; therefore prices higher than 12 fr. to 12 fr. 50 c. would not find buyers. Moreover, it may be noted that for the last twelve months they have commenced to dye the yarn red in this market, and the natives find it to their advantage, especially for the superior quality. The dyeing for a 5 kilo. bundle costs about 20 to 22 piastres. A 5 kilo. bundle of white Maklor, No. 20's, costs from 57 to 58 piastres; thus the natives can obtain in this market a No. 20's genuine red at 77 to 80 piastres. Our manufacturers, in the present high state of the market, could not sell it at less than 85 to 87 piastres, including expenses. The natives cannot obtain the same advantage for the inferior qualities, as they are unable to restore to the bundle the exact weight. Therefore, in this important article, only the introduction of inferior qualities should be tried. England, which hitherto has taken no share in the importation of this article dyed in red, is trying now to compete seriously with the inferior qualities."

THE "ZONE" TARIFF FOR GOODS ON THE HUNGARIAN RAILWAYS.

Englishmen have hitherto been of opinion—and generally with good reason—that they had little to learn from foreigners as regards railway management. The experiment with the "zone" system of fares for passengers made last year by Hungary was therefore regarded in this country as a piece of eccentric folly. To institute only one charge for travelling anywhere within a certain radius, and at the same time to fix the *maximum* rates under the new system at about 60 or 70 per cent. lower than before, seemed to be courting financial failure with a certainty of success—if the Hibernianism is allowable. But the result has been an amazing success of the right sort, which must have surpassed even the most sanguine expectations of the innovators. And now the system is to be extended to goods traffic, if M. Baross, the Hungarian Minister of Commerce, gets his way in the matter, as he is pretty certain to do in view of the enormous success of the system as applied to passenger traffic. For this purpose the State railway

system of the kingdom will be divided into three zones, each of which will extend over a distance of 200 kilometres, or something over 120 miles. Within any of these zones goods of all descriptions will be forwarded at uniform rates irrespective of distance, and the *maximum* rate will be about one-third cheaper than the present charges. The tariff on the zones between Budapest and the Austrian frontier, and also between Budapest and the Harbour of Fiume, will be even cheaper. Should M. Baross's proposal come into operation, English exporters who now send their goods to Vienna, *via* Trieste, will be able to send them at a much cheaper rate *via* Fiume and Budapest. The lesson is obvious. If a poor and comparatively thinly-populated country like Hungary can do this thing and make it pay, then surely the railways of the United Kingdom can do the same and achieve a vastly greater success, while at the same time they would be conferring an incalculable boon upon the trade and commerce of the country.

DISPUTE AT HIPPIINGS VALE MILL, CHURCH.

Amongst the many abuses of the power derived from organisation amongst the operative classes already chronicled in these columns there has not been one of a more shameful character than the strike which has taken place at Hippiings Vale Mill, Oswaldtwistle. This mill is amongst the largest in East Lancashire, containing about 75,000 spindles. Until recently it was furnished with roller and clearer cards, but the proprietors, in order to maintain a footing in the market, felt constrained to substitute new revolving flat cards for the roller and clearer cards. In one room they had forty-eight roller and clearer cards, and to attend to these a staff of four grinders. Having put in 30 cards of the new type, which need no grinders at all, leaving only 18 of the old ones, the company's manager naturally thought that as the proportion of men required was only 1/4, three of the four previously engaged would be ample. And with this any honest and rational man would agree. But "No" says the Card-room Hands' Society, "you must continue the employment of these four men, or divide the pay of the one discharged amongst the other three." Such was the spirit and almost the wording of their demand. They accordingly gave in notices to leave, but a truce was patched up, since which the attention to their duties has been of the most lax kind, and every obstacle possible has been thrown in the way of the management. A vacancy occurred in one of the posts of lap carrier, and a youth was promoted from one of the lower posts thereto, at an advance of 1s. 6d. per week, and the position he vacated was filled up. He was just then going away for a holiday, but on his return he told his employers that the secretary of the local Association would not permit him to commence on his new duties, though he did not know why, and that he could not start while the secretary forbade it. He was then told that as his first place had been filled up there was no other employment for him. He reported to the secretary, and this official instructed him to demand a fortnight's notice or wages in lieu thereof. Subsequent to this the Secretary of the Company, passing through the card-room, found two of the rovers asleep—old offenders in this respect, who had been previously warned. Finding reproof of no avail, they were dismissed. But such action by the management was not permissible, according to the notions of these enlightened card-room operatives, or of the officers of their local Association. Therefore, as "card-room flesh and blood could not stand this kind of treatment

any longer," they all struck work! As, however, they had neglected the little preliminary matter of getting the sanction of their Association, they "are not entitled to any support from their Association," and it has been refused accordingly. Finding out the blunder they had committed, they offered to return to work if—and this, we submit, was a big "if"—the firm would reinstate the discharged workpeople whose dismissal was the cause of their going out, and leave other matters in dispute to be settled afterwards. This was, of course, refused, and the operatives, "feeling that they are right and are fighting in a just cause," remain out. Cut off from their own resources of Union support, they have issued an appeal to the mill operatives and the public generally of the Church and Oswaldtwistle districts asking for support in the struggle. The society to which they belong, and which, by its refusal to sustain them, is punishing their insubordination in striking without its permission, yet does all it can to maintain them in their insubordination to their employer, by stamping a number of begging cards with their official stamp, with which a lot of vagrants will beg at the mill gates on the days when more industrious workpeople receive the wages of honest labour. Disputes like these make one wonder how much farther into the slough of injustice workpeople are prepared to descend, and how much degradation they can bring themselves to submit to when they will publicly announce that they intend to stand and beg for the bread which they could more abundantly and honourably earn by honest labour were they so disposed. It also makes us wonder whether there are any laws upon our statute books against vagrancy, and whether there are any policemen in Church and Oswaldtwistle charged with the duty of seeing that they are observed? Surely there is now an opportunity for them to shew their vigilance.

HOW SOME TRADES-UNIONISTS COLLECT STRIKE FUNDS.

At the West Ham Police Court, last week, Henry Murton (33), a labourer, of Poplar, was sentenced to 21 days' hard labour for assaulting Thomas Mann, another labourer, at the Victoria Docks. The prosecutor said he was working in the tobacco shed when the prisoner came up, and saying, "You are Mr. Mann," "punched" his face, making his nose bleed. The witness was a member of the Dockers' Union, but refused to pay a levy of 3d. per day for the Australian strike fund. We think we have heard something from trades-unionists about brutal capitalists, but after the gross assault upon a Dublin employer engaged in a work of charity towards the wife of one of their own number a few weeks ago, and the above illustration now, it is safe to conclude that the tender mercies of trades-unionists are cruel.

WOOLLENS IN NORWAY.—In the course of last year several small woollen mills were established in Norway, solely for the spinning of yarn for use in the country districts. They are said to be doing well; they use Norwegian wool chiefly, work at small cost, and produce an article which is in growing request, owing to decrease of spinning among the peasantry. The Arcadian simplicity of farm life in Norway is fast disappearing under the joint influence of railways and ubiquitous tourists, and the peasant girls now prefer employment of a more refined kind, and clothing of fashionable cut. There are three large woollen mills at Christiania, Bergen, and Svelvig, and about twenty small factories elsewhere, with some 6,000 spindles and 130 looms. The total import of woollen goods increased considerably last year, rising from £492,000 in value in 1888 to £605,300 in 1889. About a seventh of the whole quantity was supplied from Sweden.

Articles.

UNITED STATES DEPARTMENT OF AGRICULTURE.

We have a natural interest in the United States Department of Agriculture. In the first place, its circulars and reports are full of remarkably interesting and often invaluable information touching many subjects. We have learnt to respect the energy and ability with which its forecast of cotton crops are prepared, and, no matter what else we may think about them, have generally to admit that the official estimates have been very near the mark, and almost reliable to the proverbial T. The same admirable qualities are evident in everything undertaken by the Department, whether in the investigation of the diseases of plants or animals, the study of insect pests, inquiring into the adulteration of articles of food, or researches in forestry or natural history. One incident may serve to shew with what spirit this work, which we can hardly realise to be official, is carried on. The orange growers of California were troubled by a destructive insect known as the Fluted Scale. The official Entomologist found that this fluted nuisance was a native of Australia, but that it was there held in check by a kind of lady-bird, known to science as the *Vedalia cardinalis Mulsant*. Further examination shewed that the Fluted Scale had managed to leave home without the knowledge of the lady-bird with a long name, and was enjoying itself accordingly. But the Department then made up its mind to interfere. Attempts to bring in the lady-bird by letter did not succeed, and so two of the salaried officials were sent to Australia to fetch some, and report on the Melbourne Exhibition at the same time. This enterprise has succeeded admirably, and the lady-bird has resumed its old relationships with its enemies, with very much the same results which would follow upon an interview between the worms and feathered fowls which are so unaccountably coupled together in a verse of the Psalms. In the words of the Secretary, "several important orchards have already been completely freed from the pests by its agency, and despondency has given way to hope and confidence among California orange-growers."

In the second place, we have lately set up a Department of Agriculture of our own. It will be interesting, if not always agreeable, to see in what respect or degree the ways and results of the two Departments differ. To borrow a purely agricultural illustration, the Washington work will be held up before our authorities as beans are dropped before dilatory pigs to get them along. We shall not be too exacting, nor critical over much. There would be no thought of asking for examination of a disease of garden mignonette, such as is illustrated and elaborately treated in the lately-issued annual report of the Secretary of Agriculture across the Atlantic, and if an association of enthusiastic ladies tried to establish silk culture in this country, it would be more than likely that we should let them alone, instead of giving them official help and undertaking the distribution of silkworm eggs to the public, through an organised silk section. Opinions differ, and nobody here would grumble if State aid stopped short of such active cordiality, but it may be hoped that our Minister of Agriculture will keep as free from red-tape routine as his counterpart at Washington, and be as thorough and painstaking in all that he finds to do.

But, for a third consideration, we have a natural concern in the doings of the depart-

ment at Washington because of the part it takes in fiscal affairs. The natural defence of its position in this respect would be that it exists for the assistance of American interests, and labours for the benefit of American industries. But its sympathies are altogether one-sided. As an Executive Department of the State it is the most obedient servant of the party in power, and at present, of course, an advocate of the policy of protection. All this may be well and good enough in its way, and we have neither the right nor the inclination to grumble about it. It is only necessary to bear in mind that where our trade comes into contact and competition with that of the States, and especially in textiles, all the strength and capacity of skilled officials and all the resources of a powerful arm of the administration are at the service of those opposed to us. If, say, the Chancellor of the Exchequer were to propose a tax on tinned milk, under the plea of doing a good turn to dairymen and the tin trades, but really with the hope of going to the country at the next election with all the credit of having established a new industry, we should hardly expect the Board of Trade to set about the collection of evidence as to how beneficial the production of tinned milk would be to the people, and testimony as to the possibility of making for ourselves all the tinned milk that might be required. Nor should we consider it consistent with the dignity of a political party or the State, to publish these conclusions in a pamphlet while the proposed tax was under discussion. But when the McKinley Committee recommended a considerable increase in the import duties on flax and linens, with the thought of stimulating flax culture, and certainly with the hope of promoting linen manufacture, the Department of Agriculture did not hesitate to throw all its influence into the scale, and issued a little tract—and a good tract, too—which proved conclusively what nobody would venture to dispute, that flax and hemp could be raised in the States, and contended that the making of linens was quite possible also. Disadvantages on the score of unskilled and expensive labour were acknowledged, but made light of. Some of the failures which had strewn all the path of linen production with the wrecks of unsuccessful companies were admitted but extenuated, and every scrap of favourable evidence—some of it remarkably thin—which held out hope of making the linens which had never for long been made before, was put forward. The book was a special plea with a political motive. It caused some stir, and called forth some rebukes of its partisanship even from American papers. It undoubtedly added to the disturbance in the linen trade which the McKinley proposals had first occasioned, and gave Belfast much unnecessary uneasiness. It is as little likely to set up a linen industry where so many good ventures have failed, as we are to put a duty on tinned milk, or matches, but this instance will shew the ways and methods of the Department, while the energy and ability at its command and the means behind it make it always formidable.

One matter at present regarded with much anxiety is the large and increasing import of wool, in face of a diminishing stock of sheep. Within the past thirty years it is believed that the average weight per fleece has been doubled, thanks to greater care and skill in breeding, but in spite of an active and progressive manufacture of wool, the quantity brought in from other countries in 1889 was by far the largest known. Starting in 1871 with some 31,850,000 sheep and a clip of 160,000,000 pounds, there was a gradual increase in both respects until high

water mark was reached in 1884 with 50,626,626 sheep and a yield of 308,000,000 pounds in 1885. But since then there has been a steady decline, until the return for last year only gave 42,599,079 sheep, and 265,000,000 pounds of wool. The average imports for the same time, divided into two periods, are thus summarised:—

	Clothing Wool.	Combing Wool.	Carpet Wool.	All Wool.
Average 1869-73	7,111,715	12,528,779	29,657,740	48,697,901
" 1880-89	19,305,070	7,534,293	63,484,036	88,448,399

While the quantity imported last year was no less than 126,181,274 pounds. This looks very bad for Uncle Sam's business, more mutton being eaten, fewer sheep being kept, more wool required to make up, more money to pay for it being put into the pockets of alien growers. Some comfort is found in bringing these figures into line with the population, when some remarkable results are arrived at. Taking the annual average for five periods since 1841 we have—

	1841-50.	1851-60.	1861-70.
Aggregate importation, lbs.	139,764,592	230,106,287	501,611,132
Annual average	13,976,459	23,010,629	50,161,113
Imports per head	0.7	0.9	1.4
Home product	46,000,000	66,000,000	150,000,000
Total supply	59,976,459	89,000,629	200,161,113
Supply per head	3.0	3.3	5.4
Woolen goods imported, dollars	130,028,518	313,332,770	320,465,214
Average per head, dollars	0.65	1.16	0.94
	1871-80.	1881-89.	
Aggregate importation, lbs.	640,916,638	786,562,738	
Annual average	64,091,664	87,422,195	
Imports per head	1.5	1.5	
Home product	186,275,000	281,223,222	
Total supply	250,366,664	368,651,417	
Supply per head	5.7	6.5	
Woolen goods imported, dollars	395,376,596	377,124,877	
Average per head	0.50	0.74	

Thus the wool supplied to the States has steadily grown with the amazing expansion of population, but the quantity of manufactured woolen goods has not since 1860 kept pace with the people, although the average citizen has more than doubled his allowance of wool. This table is held not only to afford gratifying testimony to the greater comfort and better clothing of the people, but proof pleasing to all good and true Americans that the proportion of foreign commodities per head is diminishing at the same time. But still there is that shrinkage in sheep and increase in imported wool to be accounted for, with the uncomfortable conclusion that, if it should continue, the home industry might be nearly destroyed, imports enormously increased, and perhaps prices advanced. The blame is laid upon a reduction of the tariff in 1883, as well as upon legislation which has since broadened the definition of carpet wool, and, together with crafty evasion of the Custom House authorities, admitted higher grades of wool under that title. But the skill of the manufacturers is thought to have something to answer for, too. "They invented machinery for combing merino wool, and taking the long staple of Ohio and Michigan grade merinos, they converted it into combing wool so successfully that very little is now imported. Such a result was a stimulus to other inventions, by which the European fabrics of fashion and taste can be duplicated or simulated with marvellous skill, and the wools of one class can be substituted for those of another. The effect is a serious blow to wool growing, as the motive is strong for such improvements as may render possible the use of wools of the third class, admitted at a nominal duty, instead of those costing more and dutiable at the highest rate. It is charged by wool growers, acknowledged by some manufacturers, and believed by nearly everybody, that the excessive imports of this class are due to this cause possibly quite as much as to increase of carpet manufacture." Between treacherous ingenuity at home and hostile cheapness abroad, the American wool grower seems likely to have a hard time of it.

(To be continued.)

THE MCKINLEY BILL:
ITS PROBABLE EFFECT ON BRITISH TRADE.

At the present juncture, when the whole of the commercial world is trying to solve the problem which has been set for us by the recent action of Mr. McKinley and his party, the opinions of leading firms here on the probable effect of the Bill that has now received the signature of President Harrison, will prove interesting. A correspondent has been at the trouble to interview for us a number of authorities upon the matter, and the result of his inquiries appear below. We may as well state as a guide to those who may happen to read this report, that the views which have been expressed are in every case mainly speculative, owing to the absence of definite information concerning the duties. Without exact details as to these it is of course impossible to master the situation thoroughly, but those engaged in the American trade can nevertheless gauge roughly the probable results, and anything they say is for that reason worth noting. The Bill, which will occupy sixty pages of print, deals with such a vast number of articles that no attempt to deal with it minutely in the course of our inquiry.

As might naturally have been anticipated, Continental manufacturers, in accordance with their usual practice when tariff changes interfere with their usual trade, are now seeking to find additional outlets in Great Britain, in order to compensate themselves for the losses they are experiencing in their American business. This means greatly increased competition in our home market, upon which the foreigners already have a powerful hold, and it means also a curtailment of profits and in many cases absolute loss, with machinery idle and operatives unemployed. We may as well make up our minds that something of the kind will happen and the sooner the danger is grappled with the better. Yorkshire, of course, will feel the change more severely than will Lancashire, and Bradford in particular will be hard hit. Under similar circumstances in previous years the town, after a long period of gloom, recovered in a wonderful way, as was shown by Mr. Swire Smith during his speech at Leek recently. Its exports to the United States declined from £4,000,000 to £1,000,000, and it was feared that the industry of the place was doomed. But new designs and fine cloths eventually made their way amongst the old buyers, notwithstanding the duties, and by and by Bradford was able to sell £5,000,000 worth of goods in a market which threatened to close up altogether. Many, now that a similar difficulty has again to be faced, will say quickly enough that all that need be done now as an offset to the McKinley Bill is to strike out in fresh fields again. But there is a limit to that sort of thing, and in any case human beings cannot always fight successfully such tremendous difficulties as those under which Bradford has laboured. As far as we have been able to gather the Bill is looked upon with composure in Manchester. In no other portion of the country, in fact, has so little excitement been produced by Mr. McKinley's piece of typical American legislation.

The United States Consul here, acting in accordance with instructions from Washington, has issued a circular inquiring as to the effect the McKinley Bill will have upon the trade between this country and the States. The following is a copy of a reply to this query, forwarded by Messrs. Louis Behrens and Sons:—

"Dear Sir,—We have received your letter of the 1st October, in which you ask us to give in writing an opinion in regard to the effect which the new McKinley Bill will have on the trade between England and the United States.

"In reply we beg to inform you that we shall be very pleased indeed to let you have an answer to your question as soon as we receive some definite information from our New York House as to the real amount of extra duty which is to be charged under the New Bill. At the present moment we are not in possession of any definite information, and therefore we are not in a position to reply to your query."

The foregoing is a fair sample of the replies given by a large number of people when interrogated in a similar vein. Mr. Yates, the representative here for Messrs. Jos. H. Walker and Co., of Chicago, said that he considered German hosiery would be seriously interfered with by the Bill—more so, in fact, than hosiery of British manufacture. Chemnitz has been doing a large portion of the trade, and the Saxony town will therefore feel keenly the changed circumstances in which it is now placed.

Some makes produced in this country will, it is generally admitted, have to be marketed elsewhere for the future or not produced at all, as there will hardly be room for them in the States. Better qualities, however, will still continue to sell, and the practical effect of the measure will be that the Americans themselves, who like good things to wear, will have to part with more money to gratify their tastes. If the suggestion of the *Textile Mercury*, be adopted, that at the forthcoming World's Fair all exhibits of British goods should be ticketed with their selling price to the public in England, a lesson would be given to the citizens of the Republic that they would not forget in a hurry. As the principal Chicago merchants are opposed to the tactics of the ultra-protectionists, it should not be difficult to induce them to support such a scheme, and it is to be hoped that the discussion which has already taken place in Chicago on the subject will result in something in the direction indicated. To show the monstrous character of the prices which the American public will have to pay owing to the McKinley Bill, we submit the following table, which deals with linings, astrachans and plushes:—

	Cost (Cents.)	Present Duty.	Proposed Duty.
32 Italian	12	67p.c.	29p.c.
32 Italian	16	62	100p.c.
32 Italian Double warp	12	72	142
D. W. Italian	18	60p.c.	120p.c.
54 D. W. Italian	30	60p.c.	150p.c.
Astrachans	33	80	180
Astrachans	38	76	172
Silk plushes	12	50	225

After adding to this the cost of freight and duty on charges, coverings, etc., it will be seen that a very heavy increase is made.

Mr. Rounds, of Messrs. Carson, Pirie, Scott and Co., being away in the States his opinion cannot be given. The same remark applies to Mr. A. Swan Brown, of the Syndicate Trading Co., which acts for several American dry goods firms.

Mr. Jackson, of Arnold, Constable, and Co., is away also, and does not return until to-day. Mr. Joseph Field, of Marshall, Field, and Co., is out of town.

Mr. Thomlinson, of Jones, Brothers, and Co., believes that the McKinley Bill will force the way for a reduction of the duties. As far as he is concerned the new tariff has not caused his customers on the other side to lessen their purchases for the coming season, and this he regards as a sign that good-class fabrics, the Americans, as heretofore, will insist upon having, no matter what the increased tariff may amount to. The position of the American farmer is one which places upon his back burdens, a share of which should be borne by others. He has to sell his wheat, and low, in the cheapest markets in the world; but the machinery for crushing the wheat, and the clothes he requires for himself and family have to be bought in the dearest markets on the face of the earth. This being so, Mr. Thomlinson failed to see how the agricultural classes of the United States could continue in their present condition.

One of the largest firms in the American trade, whose names we are not at liberty to mention, stated that the new duties have for the time being paralysed trade with the other side. As to what will be the permanent effect every one was in the dark. Certainly it could be taken as positive that the Bill would kill the sale of lower grades of goods to the States, and especially of woollens. The best descriptions, however, could not be kept out by anything short of absolute prohibition.

The linen clauses have given rise to a feeling of great uncertainty. It does not yet seem to be really known whether the duties will be put in force immediately, or at some future period. An impression prevails that Belfast will be all right in this respect until 1892, and some say even until 1894, but this is hoping for a good deal.

Jute prospects are rendered uncertain owing to the admission of free raw material proposed in the Bill as it left the Senate. With free trade in jute the American manufacturers will be placed in a much stronger position than formerly, and Dundee will not be able to have things so much its own way.

The Administrative Bill appears to be the greatest cause of dissatisfaction here. The measure compels manufacturers and shippers to lay bare to the gaze of the Consul and of his Government facts which have hitherto been considered secrets that would not be parted with under any circumstances. Here is a copy of the Form of Declaration which has to be filled in by manufacturers, and in all cases where goods have not been actually purchased:—

"I ———, do solemnly and truly declare that I am the owner (or manufacturer) of the merchandise described in the annexed entry and invoice; that the entry now delivered by me to the collector of ——— contains a just and true account of all

the goods — imported by or consigned to me —; that such actual market value is the price at which the merchandise described in the invoice is freely offered for sale to all purchasers, — — —, and so on.

With reference to prints, Messrs. Edmund Potter and Co. are unable to say anything definite, as details of the duties have not formally reached them. The pirating of their designs by American printers is a drawback against which they always had to contend; and any additional duty would, of course, still further increase the difficulty of the situation.

Foreign Correspondence.

TEXTILE MATTERS IN THE UNITED STATES.

THE TARIFF BILL—TEXTILE MATTERS IN CANADA—ASBESTOS GLOVES, ETC.

NEW YORK, SEPT. 20TH.

Distributors are still very busily engaged and the Southern buyers operating freely. The activity of the demand is in fact noteworthy, seeing the Tariff Bill is executing its influence in a contrary direction. There has almost been a block owing to the accumulation of orders, and when cases have been packed the carriers have been unable to clear off with their usual ease the growing piles of consignments that have resulted. Dress goods promise to become scarce, but sellers, although they have undoubtedly the best of the position, have not yet taken advantage of the fact, and the buyer is still waited upon with the servility which seems to be inseparable from the business methods of to-day. The feeling on the question of the operative date for the McKinley Bill is, as far as the framers of the measure are concerned, adverse to granting importers and through them the foreign manufacturers any indulgences. They knew that the Bill would pass and had ample warning. Such are the arguments brought forward, and to me they seem unanswerable—from the Republican point of view, which is the only one worth considering as matters are at present in this country.

Again must the gravity characteristic of those who have such serious matters as Tariff Bills to consider be relaxed to permit of a brief smile, caused by another eccentricity on the part of certain members of our body legislative. On Thursday while there was a "call" of the House in progress and the doors were locked, a doorkeeper refused to permit Representative Kilgore, of Texas, to leave the chamber. Mr. Kilgore kicked the door down and left. Amos Cummings of New York also kicked a door down in order to get out. The door which Kilgore kicked down, in falling hit Dingley, of Maine, who was on the other side.

It is anticipated that the cotton sections of the Bill will give rise to a number of differences between the Senate and the House, and that some changes will result from this. The provision which has been added by the Senate to the paragraphs regarding cotton, cords, braids and lacings, gimps, galloons, etc., that "none of the articles included in this paragraph shall pay a less rate of duty than 40 per cent. *ad val.*" will most probably become law. Grey cloth not exceeding 50 threads to the square inch counting the warp and weft, will, according to the Senate's proposals, be taxed 2 cents per square yard; if bleached, 2½ cents; if coloured, 4 cents. Exceeding 200 threads to the square inch the duty (on unbleached) is 4½ cents; on bleached, 5½ cents; on coloured, 6½ cents. In addition to the above rates there are heavy *ad valorem* duties ranging from 35 to 45 per cent. As to these I will advise you more fully after the Bill has been finally sanctioned by the joint committee of both Houses.

A special correspondent of *Wade's Fibre and Fabric* sends to his journal some significant facts concerning the condition of the cotton and woollen industries in Canada. There is a general depression in the cotton and woollen industries of Canada at the present time. This state of affairs has been in existence for a year or two, but not quite as bad as it is now. The general belief

is, however, that a brightening up will come this fall, as a boom of some kind is expected, owing to the generally good harvests reaped throughout the Dominion, which will, no doubt, have a stimulating effect upon all industries depending upon the general prosperity of the people for their individual prosperity. The prediction is made by one of the most experienced and important cotton manufacturers of Canada, that unless all signs fail, the movement now under way to get every cotton mill in Canada under one business head will be successful. He says that they were all erected about the same time, when enthusiasm ran high on the question, by individuals and corporations, and the majority of them now regret it, because the output of the cotton goods is altogether out of proportion to the demand for them on Canadian markets. Many of them would like to have their factories in the United States, now that the McKinley Bill is an assured fact, while others feel inclined to reach out for foreign trade in order to find sufficient scope for energies which the home market cannot sustain.

The extensive use of asbestos in workshops, mills, and foundries, for the purpose of guarding against the burning of the face and hands in the working of hot metals is referred to by the *Boston Advertiser*, which says:—

Asbestos mittens to guard the hands are made for firemen, assayers, refiners, etc., and armed with a pair the artisan or worker can grasp hot irons, crucibles and the like without discomfort. Masks, too, for the face are made of asbestos, which are fireproof, and the heat from the hottest fire is said not to penetrate to the skin. Air is drawn from beneath the mask for breathing, so that the burnt or flame and smoke-laden atmosphere is not inhaled. Aprons and insulating coverings for the entire body are also constructed, having like protective qualities, and for firemen complete suits of a besto's fireproof cloth are made. For domestic use sad-iron holders of asbestos may be made, and with these the grasp of the iron, however hot it may be, never causes pain or burning. Plumbers are likely to welcome asbestos cloth for joint-wiping, and large holders, intended for use by smelters, moulders, and workers in metal generally, are among the more recent uses of this mineral. The asbestos thus prepared is very flexible, and even the mittens are sufficiently pliable to permit of small objects being readily picked up and held in the hand wearing them.

Four drawing frames of Mason's, Rochdale, make have recently been placed in the Namquit cotton mill, Bristol, R.I.

Designing.

NEW DESIGNS.

LINEN DRESS DESIGN.

This design, with draft and pegging plan, is for linen table cloths, fancy aprons, travelling rugs, mauds, etc.: 14-end draft, 14 to round; 52 reed, 3 in a dent, or 78 ends per inch of 46's linen for warp; 46's linen for weft, 78 picks per inch. If made for dresses, let the warp be 18's cotton twist, and weft 40's white linen; warp dark brown or dark blue, in fact any dark shade whatever will be appropriate if the weft is any light tint. For towels and aprons, weft and warp grey linen, and well bleached and finished. Makers of rugs, wraps, mauds, and very heavy coarse goods, including horse rugs, will know the quantity of material necessary for such a design. Of course, in the rug make, contrasts will be required; therefore let the ground or warp be black with red weft; black with orange weft; black with violet; brown grounds with grey weft; brown with sky blue; brown with yellow; brown with dark dahlia, and brown with dark buff. Any one of these arrangements in colouring will be found suitable. So far as reed, counts of yarn, and picks are concerned, we simply suggest those we have given as a basis. Any number of ends, picks, and counts of yarn may be used according to circumstances and class of cloth required, but the design will be found in accord with every change. The coarser the material and the larger the figure. The dark type is meant in this case for warp, the blank or light type for weft. For

table coverings the cloth might have a few red ends, one or two inches from the selvage, as a sort of bordering.

FANCY DIAGONAL.

On 6 shafts, 12-end draft, 12 to the round, in 64 reed, or 64 ends per inch of 20's twist for warp, and 64 picks on an inch of 20's weft; 44 inches wide; white, well bleached; and the dark blue a good fast colour, or indigo blue. Pattern of warp and draft as follows:—16 white selvage, 6 of dark blue, 3 white, 3 dark blue, 6 white, 3 dark blue, 3 white, 6 light violet, 3 white, 3 light violet, 6 white, 3 dark blue, 3 white; making 48 ends, drawn on 1, 2, 3, 4, 5, 6, 3, 4, 5, 2, 1, 6, 1, 2, 3, 4, 5, 6, 3, 4, 5, 2, 1, 6, 1, 2, 3, 4, 5, 6, 3, 4, 5, 2, 1, 6, 1, 2, 3, 4, 5, 6, 3, 4, 5, 2, 1, 6=48. The checking the same on 12 to the round, following only the 12 treads.

If woven on a doobby a very novel and pleasing effect would be produced by 48 to the round, or the same order as the draft. If drop boxes are not on each side of the loom for odd picks then, where the threes occur in the checking, two picks could be put in one shed or tread, and in this case it would be better to have the threes in the warp sixes, and drawn in two in a heald.

The pattern is quite new, and a range in different colours would no doubt obtain favourable notice; especially for exportation to the West Indian Islands, where a good market for fancy ginghams could be easily cultivated by sending real, good cloths with fast colours, warp and weft.

WORSTED TROUSERINGS AND COATINGS.

Design 18½ consists of two weaves, combined in stripe form suitable for fine counts of yarn. The portion of the design developed in crosses is practically a broken warp rib effect, which may be extended to more threads if requisite for any particular colouring. The following is a suitable sett:—

Warp.	Weft.
All 2/60's worsted.	30's worsted.
22's reed 5's.	110 picks per inch.

The following are a few suggestions as to colourings:—

PATTERN 1.

16 threads dark drab brown,
2 " lavender and olive brown mixture,
13 " black,
2 " green and grey mixture,
13 " black,
2 " lavender and olive brown mixture.

PATTERN 2.

16 threads black,
2 " olive and old gold mixture,
4 " black,
2 " dark lavender and black,
6 " black,
4 " dark lavender and black mixture,
6 " black,
2 " dark lavender and black mixture,
4 " black,
2 " olive and old gold mixture.

PATTERN 3.

16 threads very dark blue and red mixture,
8 " black,
2 " bright peacock blue and black mixture,
12 " black,
2 " bright peacock blue and black mixture,
8 " black.

The draft for the design is appended, 20 shafts being the number requisite for production as given here, but if desirable a much broader stripe may be produced without any further addition of shafts. The counts of mails per shaft will of necessity vary in this case, but the designer should arrange the relative proportions of the two weaves, etc., to suit the gears which he has in hand.

Design 185 is a 24-shaft twill, suitable either for use in solid colours or with fancy stripes, checks, etc.

Warp.	Weft.
All 2/30's worsted.	All 15's worsted.
15's reed 4's.	60 picks per inch.

The effect developed in cross type gives a broken-up effect, and all colourings must be applied with due regard to this property. As given here we would suggest the utilisation of yarns having a varying number of twists per inch, both for warp and weft.

Machinery and Appliances.

IMPROVED MULE FOR NARROW MILLS.

MESSRS. ASA LEES AND CO., LIMITED, OLDHAM.

There is hardly anywhere to be found such an object-lesson shewing the progress made in cotton spinning as that afforded, until within a few years ago, by the large number of disused cotton mills which improvements and alterations in machinery had rendered unsuitable for the purpose, and unable to compete on anything like equal terms with the new mills of latest construction, built on lines adapted to the most

mules, and the wages list as arranged between the Minders' and Masters' Associations will shew at a glance that the short mules are completely thrown out of all chance of successful competition. In the event of attempting to obviate this difficulty by placing the mules lengthwise, which can be done in cases where the positions of the pillars admit, or where they can be shifted without injury to the stability of the structure, two objections arise to the ordinary mule with the rim at back. The first originates in the driving, and can only be overcome by the introduction of cross shafting and bevel wheels, or complicated arrangements in rope driving; the second is that on account of the rooms being very low they will only admit of the use of a very short strap from the counter shaft to the rim shaft pulleys. But both these difficulties can be overcome by departing from

tion of our readers to such an improved mule, constructed by Messrs. Asa Lees and Co., Limited, Oldham, upon these lines, and incorporating all recent improvements. Possessors of obsolete mill property had better take a new survey thereof, and ascertain whether the improvements recently effected may not have done something considerable towards giving such mills a new lease of life. We think the investigation would yield them pleasure.

The improved mule illustrated herewith has been specially designed for narrow mills, in which the main shaft runs parallel with the length of the building.

Incorporated in this mule are numerous improvements, which we now proceed to describe. The cam shaft is placed along the headstock frame side, which allows the long lever to engage direct with the revolving stops without link

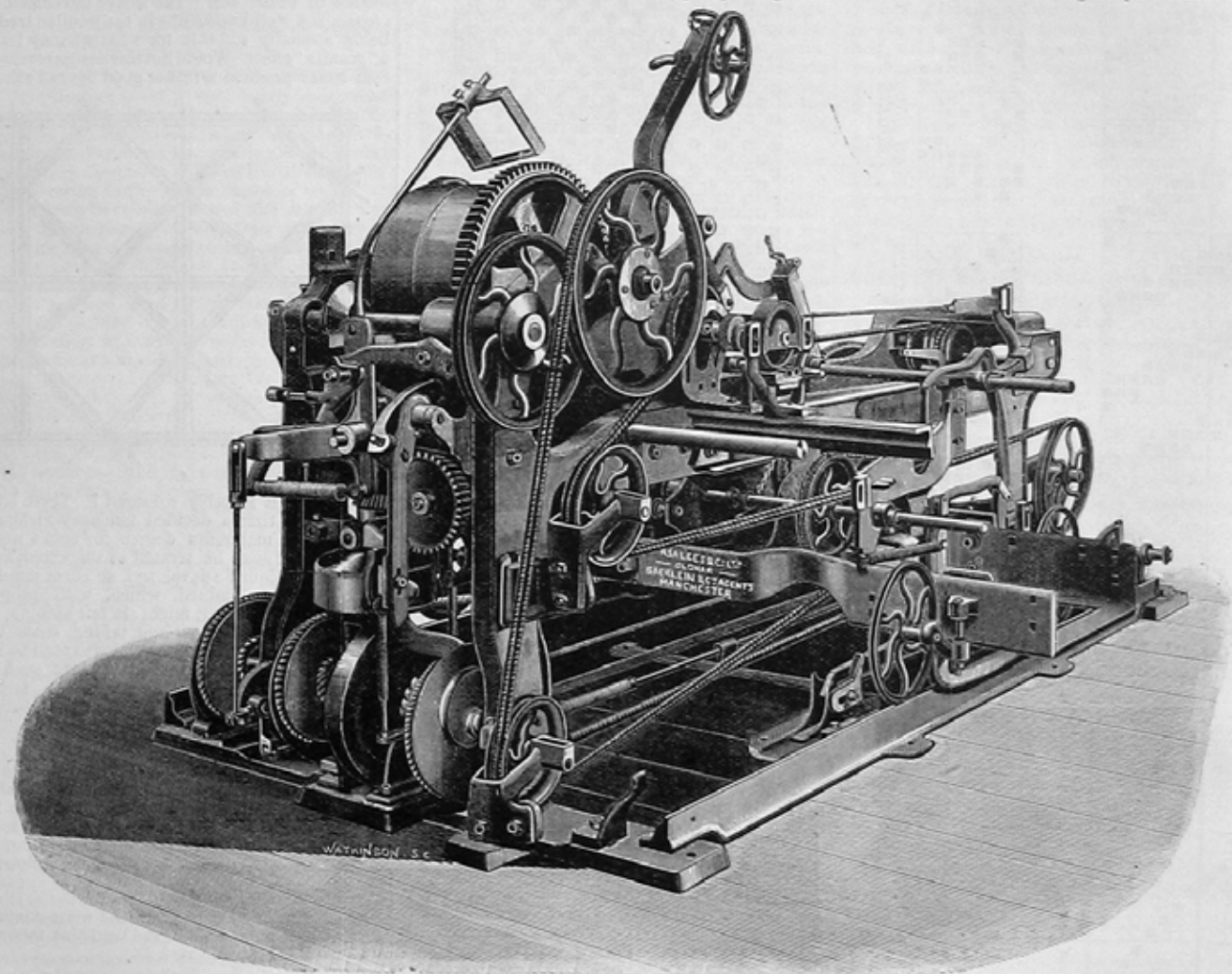


FIG. 1. HEADSTOCK WITH RIM AT SIDE: SHEWING THE RIM-BAND ARRANGEMENT.—MESSRS. ASA LEES AND CO., LIMITED, OLDHAM.

recent types of machinery, and especially of the mule. The gradual increase in the number of spindles in the mule from 600 to 1,200 threw the old, long, narrow mills quite out of the running, and caused an almost complete loss of the capital invested in them. Mills of this construction have two serious disadvantages: the first in their being much too narrow for the mule as now made, and second in their ceilings usually being very low. Mules placed crossways in such rooms would be very short and could not compete with long mules on account of the higher wages that would have to be paid for attending them. This is partly produced by the action of the Minders' Union, which in these districts does not permit a minder to attend to more than one pair of

the ordinary construction of mule and adopting the system of driving with the rim at the side, or the rim shaft parallel with the roller beam. In this case the shaft placed lengthwise in the mill comes in admirably for driving the mule without bevel wheels. And this arrangement of the driving apparatus being placed over the headstock with the strap running parallel to its sides permits of the employment of a very much longer strap, which is a great advantage. But even apart from these special merits a mule of this construction has other advantages over the best ordinary mule, and it will be evident, therefore, that a good mule of this type must command the attention of the trade.

We have much pleasure in drawing the atten-

or extra levers. The cam shaft is driven directly from the upright taking-in shaft by a pair of helical screw-wheels whose working is noiseless. This is a very ingenious application, and gives the most satisfactory results, ensuring, as it does, a maximum of power with a minimum of friction. The cross taking-in shaft for driving the backing-off and taking-in and cam shaft is driven from the counter shaft by a three-grooved rope-pulley. The rope by which the power is transmitted is maintained at a uniform tension by a patent tension-adjusting frame, the centre of which is concentric with the cross shaft, by which arrangement the tightening pulley is always placed between the bands, whatever the angle of the band may happen to be.

The taking-in friction is twelve inches diameter, a size which yields ample power to actuate a long mule as perfectly as a short one. The friction-lever is fitted with a safety latch, rendering it impossible for the lever to get into gear before the carriage has completed its outward traverse and the backing off has taken place, thus entirely precluding the occurrence of mishaps and consequent annoyances. The rim shaft is case-hardened and mounted in wide bearings, and the block to carry the rims is forged upon it. The rim shaft pulleys are 16 inches in diameter and 5 inches wide; or if for duplex driving, 2½ inches wide. The speed wheel pinion is a constant driver and not a driven wheel; by this arrangement, as the counts go higher, the change wheel becomes larger, and consequently finer. The change wheel being a very large one, each tooth

the lever becoming free to lift in the event of the carriage meeting with any obstruction.

These mules are also furnished with assistant taking-in scrolls and ratchet drum on back shaft; both taking-in scrolls are worked with one band, and are tightened by one screw, thus ensuring a uniform tension, resulting in better work and greater durability of bands. The check scroll-band is fastened by a patent clip, without either bolts or screws; and as the band wears it can be drawn through the clip and the bad end cut off, when it is ready for duty again. They are also fitted with a patented governing motion for building the cop bottom, which does not require adjustment after the first setting, as it is perfectly automatic, the re-setting being accomplished by the act of turning back the shaper screw for another doffing. This motion, while it is remarkably simple, is also wonderfully in-

accelerated before the cam changes, which causes the noses to be wound more tightly and so be better formed; it also obviates a great deal of the tendency to form snarls, and if these do occur they are thrown upon the spindle point and not down on the blade. Another patented improvement is an improved method of automatically retarding the starting of the front spindle shaft so that it becomes later every draw, and thereby prevents the snarling of the yarn. This is governed by the copping motion.

The winding click is put into gear as the fallers lock, and before the tin roller commences to move, thus giving a regularity not attainable any other way. The click is not drawn out of gear by the unlocking of the fallers, but in the natural way of the twisting overtaking the winding. As the building of the cop progresses, fewer coils are left on the spindle to unwind in

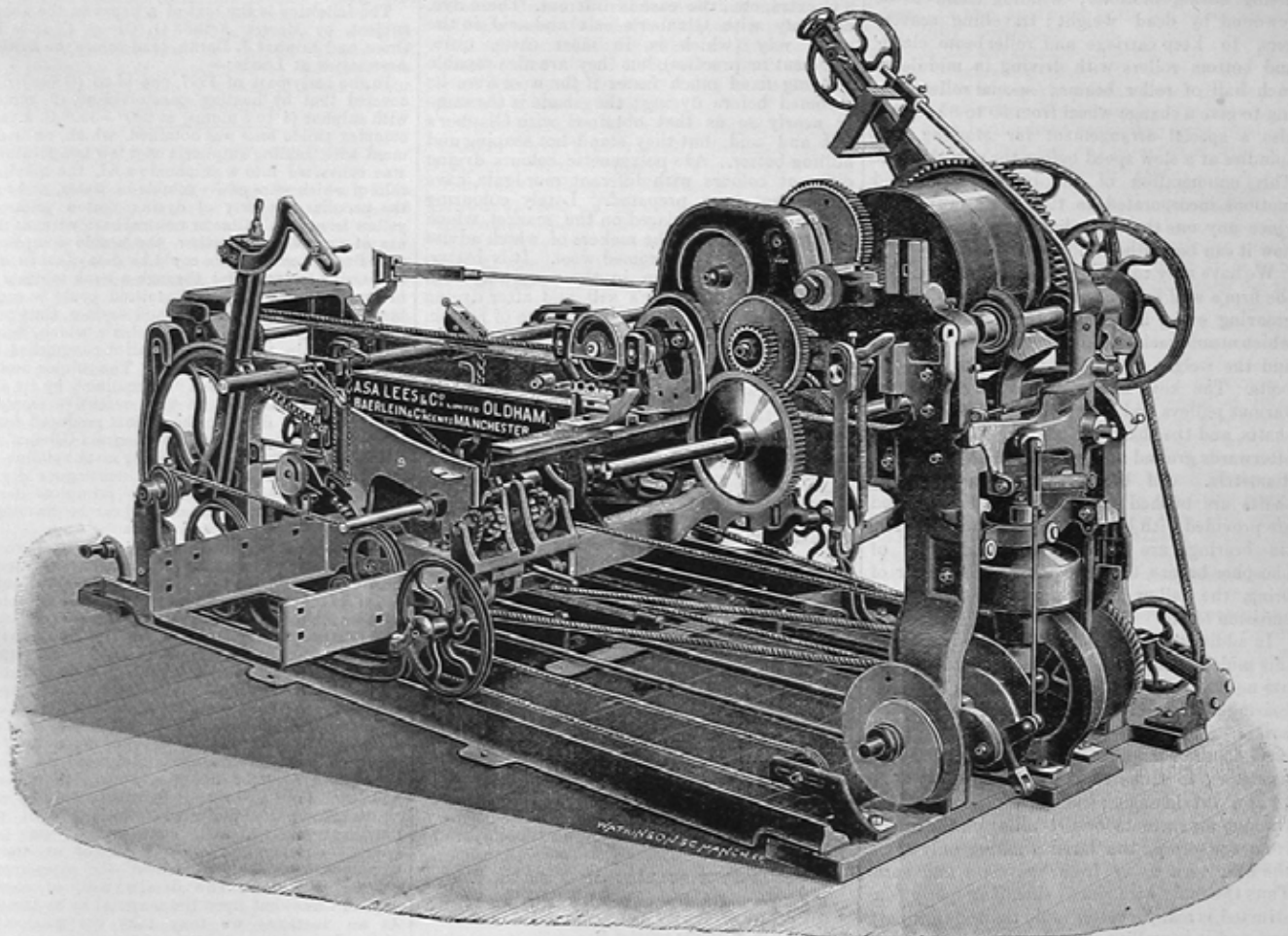


FIG. 2. HEADSTOCK WITH RIM AT SIDE: SHewing THE ROLLER GEARING.—MESSRS. ASA LEES AND CO., LIMITED OLDHAM.

more or less makes only a small difference in the twist per inch. Thus very accurate results as to the desired twist are obtained, whilst the arrangements for changing are such that it can be accomplished in less than a minute.

The twist motion is on the same principle. For a 64-inch draw the drag wheel would be about 128 teeth, every tooth representing half an inch of yarn. The drag lever is fitted with a patent locking motion, specially designed for quick-running mules; this prevents the jumping of the drag lever just as the carriage starts on its outward run, and obviates the cutting of the yarn and the breakage of the wheels that so often result from this defect. Immediately on the change of the cam the drag lever is locked, and remains so until the carriage has moved about four inches, when the tendency to lift ceases and the latch is automatically relieved,

genious, making 40 movements in one set, and never allowing the yarn to run into snarls, whilst it ensures the formation of a sound and well-built cop bottom.

The driving belt is moved from the fast to the loose pulley by a strap-relieving arrangement before the carriage is fully out. Thus it is on the loose pulley instantly the carriage has finished its outward movement, which in quick-running mules prevents it from arriving home with too much force and thus causing vibration. The speed of the spindles is also reduced, and the backing-off is easily and quietly performed. On the inward run of the carriage the strap is transferred from the loose to the fast pulley, by an automatic strap-hastening motion, the action of which yields two considerable advantages: at the finish of the inward run, the spindles have their speed

the backing-off. To meet the requirements of this change, which is constantly in progress, the backing-off chain is automatically tightened from the copping motion; thus fewer turns of the spindle bring the faller wire to the winding point. As soon, however, as the carriage has moved a few inches, the chain is released, the full length again becoming available, thus allowing to the fallers perfect freedom again as they rise. When a set of cops has been completed the mule is stopped in the position for doffing by means of a patent full-cop stopping motion, which puts on the same number of draws every set; thus every set of cops, of the same counts, will yield the same weight of yarn.

To prevent the breakages that so frequently occur in the unimproved mule headstocks, the makers of this mule have introduced a patented

improvement for interlocking the drawing-out, the backing-off, and the taking-in levers, which completely prevents any two motions being in gear at the same time. The rims are made with either 2, 3, or 4 grooves, and the bottom guide pulley fixing is hinged and falls down to take up the slack of the bands just as the carriage starts out. This improvement entirely prevents the bands from slipping off.

Besides the above motions the mule can be fitted with the following extra ones for fine spinning:—Anti-friction bowls for the fallers; roller motion during winding; roller motion whilst twisting; jacking-out or ratcheting motions; snicking motion; faller depressing motions; special backing-off motions; single boss rollers; middle guides; fluker shafts; double roving creels; special copping plates and rails; self-acting nosing motions; winding chain to be rewound by dead weight; travelling scavengers, to keep carriage and rollerbeam clean; and bottom rollers with driving in middle of each half of roller beams; special roller gearing to give a change wheel from 60 to 80 teeth; also a special arrangement for starting the spindles at a slow speed before the cam changes. This enumeration of the improvements and motions incorporated in this mule must convince any one that it is hardly possible to see how it can be further improved.

We have only to add that the mule is built on the firm's well-known principle of tonguing and grooving every fixing into the frame-work, by which means each bracket is held by a firm key, and the weight of the strain is taken off the bolts. The keys also required to fasten the various pulleys and wheels are all sunk into the shafts, and the shafts are all case-hardened and afterwards ground and polished to their required diameters. All bearings for quick-running shafts are bushed with phosphor bronze, and are provided with both oil and tallow cups. The tin bearings are similarly made entirely of phosphor bronze, thus preventing the danger of firing, the tallow being a reserve in case of omission to oil.

In addition to the above positive advantages, this mule has many of a negative character. It has no bevel wheels in connection with the roller gearing; the rim band has not to go round corners, and therefore lasts much longer; the creel does not require to be cut away near the headstock to make room for the down strap to go at a certain angle; there is less inconvenience through air currents, or dirt falling on the roving from the strap, the latter running only along the headstock away from the creel and yarn. Thus the mule with rim at side, if properly constructed, is really a better mule than the ordinary one, and it is really a pity that the difficulty of driving where there are a number in one room, prevents their adoption in large mills. Were it not for this obstacle this type of mule would really excel all others.

The above description of this mule affords, we think, a convincing demonstration that in the construction of cotton-spinning machinery the time when England will be beaten out of her position of leadership in a field of industry she has so specially made her own is not within measurable distance. We need offer no commendation of this particular mule; to describe it is sufficient. Any of our readers who may want further information will be supplied on application to the firm as above.

SHEEP-SHEARING.—Messrs. Harold Brothers, 29, Great St. Helens, London, E.C., are introducing a new sheep-shearing machine, that known as Bariquand's improved patent. It is worked with a double flexible tube and the cutters can be so set that they take every atom of wool off the sheep.

Bleaching, Dyeing, Printing, etc.

DYEING AZO-COLOURING MATTERS ON CHROME-MORDANTED WOOL.

Nietzki's alizarin yellow—which is, however, not an alizarin colour, but nitranilinazosalicic acid—was the first colour after alizarin itself that was required to be dyed on mordanted fibres. Since its introduction many experiments have been made, not only to discover similar mordant-attracting colouring matters, but also to see how other known colouring matters behaved to chrome-mordanted wool. Of the azo dyes that had been on the market roccelline is about the only one capable of forming a colour lake with bichromate; the attraction, however, is but weak. With cloth red in all its brands, B, G, 3 G extra, etc., the case is different. These dye, not only with Glauber's salt and acid in the usual way (which is, in most cases, quite sufficient in practice), but they are also capable of being fixed much faster if the wool fibre be chromed before dyeing; the shade is the same or nearly so as that obtained with Glauber's salt and acid, but they stand hot soaping and milling better. Azo-polygenetic colouring matters dyeing different colours with different mordants, have not as yet been prepared. Lately colouring matters have been placed on the market, which are azo dyes, and the makers of which advise them to be dyed on chromed wool. It is better, however, to dye them in the usual way with oxalic acid and Glauber's salt, and after dyeing to boil them in a bath of bichromate of potash. The shades obtained are rather darker than those got in the usual way in most cases, and this is noticeable in the cases of alizarin yellow, cloth orange, and cloth brown, and they are faster to soaping and milling.

RECIPES FOR DYERS.

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

AZURE BLUE ON COTTON.

For 100lb. of cotton, prepare a bath with
5lb. phosphate of soda,
1lb. sapphire blue.
Enter goods at 180° F., raise to boil, and dye boiling for one hour.

DARK NAVY BLUE ON COTTON.

For 100lb. cotton, prepare a bath with
1lb. diamine black RO,
2lb. diamine blue 3R,
8lb. Glauber's salt,
2lb. soap.
Enter the cotton at 180° F., and boil for 1½ hours.

BRILLIANT SCARLET ON HALF SILK.

For 10lb. satin, prepare a dye bath with
¼lb. Glauber's salt,
¼lb. diamine scarlet B.
Raise to the boil; turn off steam, enter the goods, and work for one hour. The dyebath is not exhausted, and future dyeings only require two ounces of dye-stuff.

PLUM COLOUR ON SILK.

For 10lb. silk, prepare a dyebath with
¼lb. soap,
¼lb. sulphuric acid,
¼lb. orcelline.
Enter the goods at 180° F., raise to boil, and dye boiling hot for one hour. Rinse and dry.

OLIVE BROWN ON JUTE.

For 100lb. jute, prepare a dye bath with
15lb. gambine B.
Heat to the boil, enter the jute, work for quarter hour, then add
3lb. bichromate of potash.
Work half hour, then add
2lb. copperas.
Boil quarter hour longer.

GREEN ON JUTE.

For 100lb. jute, prepare a bath with
20lb. gambine B.

Raise to the boil, enter the jute, work for half hour, then add
5lb. copperas.

Dye at the boil half hour longer.

BLUE-BLACK ON JUTE.

For 100lb. jute, prepare a bath with
15lb. gambine A.
Heat to the boil, enter the jute, work for half-hour, then add
3lb. copperas.

Work quarter-hour longer, lift, add
2lb. bisulphate of soda,
4lb. acid mauve B.

Re-enter jute, and dye at the boil to shade.

ACTION OF LIGHT UPON THE DIAZO COMPOUNDS OF PRIMULINE AND DEHYDROTHIOTOLUIDINE.

A METHOD OF PHOTOGRAPHIC DYEING AND PRINTING.

The following is the text of a paper on the above subject, by Messrs. Arthur G. Green, Charles F. Cross, and Edward J. Bevan, read before the British Association at Leeds:—

In the early part of 1887, one of us (Green) discovered that by heating paratoluidine (2 mols.) with sulphur (4 to 5 atoms) at 200°–300° C. a very complex amido base was obtained, which, on treatment with fuming sulphuric acid at a low temperature, was converted into a sulphonic acid, the alkaline salts of which were easily soluble in water, and had the peculiar property of dyeing cotton primrose yellow from an alkaline or neutral bath without the use of a mordant. Further, the amido compound thus fixed upon the fibre could be diazotised *in situ* by passing the material through a weak solution of nitrous acid, and when diazotised could be combined with various phenols and amines, thus producing a variety of different colours, which, being formed within the fibre, were all distinguished by great fastness to washing, etc. The soluble amido sulphonic acid was named "Primuline" by its discoverer, and has found a very extensive employment in cotton dyeing; the colours produced from it within the fibre were called "Ingrain Colours."

In a similar manner, by heating meta-xylidine or pseudo-cumidine with sulphur, homologues of primuline are obtained, which, like primuline itself, dye cotton without a mordant, and can be diazotised and combined with phenols within the fibre.

It has been long observed by one of us (Green) that the diazo compound of primuline was very sensitive to the action of light, being readily decomposed thereby, and losing its property of combining with phenols and amines. Upon this fact we have now founded a photographic process, by means of which designs can be produced in fast colours upon cotton, silk, wool, linen, or other fabrics. It can also be applied to wool, xylonite, celluloid, paper, or to gelatine films upon glass, thus affording a very wide range of employment. The process, which is a very simple one, merely depends upon the fact that if a material containing diazotised primuline be exposed to light under a design, those parts which are acted upon by light will be decomposed, whilst the parts protected from the light will remain unaltered, and, consequently, on subsequent development with a phenol or amine, will produce colours, whilst the decomposed portion will not. The details will, of course, depend somewhat upon the material to be treated. As an instance we may take the production of a design upon cotton, cotton velveteen, etc. The material is first dyed with primuline from a hot bath containing common salt until the required depth is obtained. It is then washed and diazotised by being immersed for ¼-minute in a cold bath containing about ½ per cent. of sodium nitrate, and strongly acidified with sulphuric or hydrochloric acid. The material is washed again and exposed damp (or, if preferred, after having been dried in the dark) to the action of light beneath leaves, ferns, flowers, or other natural objects, or beneath glass or transparent paper upon which may be painted or printed any design which it is required to copy. Either the arc electric light or daylight may be employed; in the latter case the time of exposure will, of course, vary with the intensity of the light; under half a minute is required in bright sunshine and nearly half-an-hour in very dark cloudy weather. When the decomposition is complete, which may be readily ascertained by means of a test slip exposed simultaneously, the material is removed from the light and either passed into the developing bath at once, or is kept in the dark until it is convenient to develop it. The developing bath consists of a weak solution (½ to ¼ per cent.) of a phenol or amine made

suitably alkaline or acid, the phenol or amine employed depending upon the colour in which it is required to produce the design, thus:—

For red . . . an alkaline solution of beta-naphthol.

For maroon . . . an alkaline solution of beta-naphthol-di-sulphonic acid.

For yellow . . . an alkaline solution of phenol.

For orange . . . an alkaline solution of resorcin.

For brown . . . a solution of phenylene diamine hydrochloride.

For purple . . . a solution of alpha-naphthylamine hydrochloride.

If it be required to produce the design in two or more colours, the respective developers, suitably thickened with starch, may be applied locally by means of a brush or pad. After development the material is thoroughly washed and requires no further fixing.

Linen, silk, and wool are treated in exactly the same way. Paper for copying drawings, etc., is coated on the surface with primuline by means of a brush or roller. For the production of gelatine films upon glass the primuline is incorporated with the gelatine before being applied to the glass.

In place of ordinary primuline the homologues already mentioned may be used, for silk and wool the primuline may be replaced by dehydrothiolumidine-sulphonic acid, by means of which, colourless backgrounds may be obtained.

WET-FINISHING OF WORSTED.

Worsted is generally woven from yarn in an undyed or crude condition; they are next singed, subjected to a wet finish, dyed in the piece, washed, dried, and calendered. Important as is the dyeing of the worsted fabric, nevertheless it requires wet-finishing to ensure cleanliness of weave and clearness of colour.

In the first place, wet-finishing imparts a proper position to the thread in the warp as well as in the weft; that is, it fastens each in its proper place. The weft thread being interlaced with the warp end, now passing above, next lying in the middle of the shed, and then at the back, assumes an undulating form. When drawn out of the weave, it will at once resume its previous natural condition. In order to prevent the ends and threads of a weave from being displaced in the subsequent manipulations of the fabrics, it is necessary to fasten them. The woollen thread having been softened by hot water and chilled by cold, will by this treatment assume the necessary waviness and will in subsequent processes retain it. The temperature of the bath used must be at least as high as the highest used in the following processes.

The warp before being woven must be more or less sized in order to make it stronger, so that the single ends shall not tear in weaving. It is necessary, therefore, to expel this glue or sizing from the weave before subjecting it to the fastening processes. This admixture varies from 8 to 10 per cent., and dissolves in water heated from 122° to 145° F.

The wet-finishing of worsted fabrics consequently comprises two processes: 1, The removal of the sizing by steeping the fabric in warm water. 2, The fastening of the warp ends and weft threads in water heated to the same degree. For performing this wet-finishing two machines are generally placed one behind the other; the first for steeping, the second for fastening. The crude, singed fabric is rolled "thread straight," upon wooden beams, by the aid of the beaming arrangement on each machine. The fabric then passes under a suitable amount of pressure to a lower roller, one-half of which is immersed in the water-box. In the first machine, the water-box is filled with water from 122° to 145° F., to which a little soda ash may be added. The fabric rolled upon the lower beam is revolved with a corresponding pressure of the upper beam. The fabric is then rolled again on the beaming roller, and after having been allowed to stand for a short time, this roller is laid into the bearings of the second machine, when the fabric is swathed on the lower roller. The water box of this machine is filled with water from 190° to 212° F. The fabric rotates in this again with corresponding pressure of the upper roller for ten minutes, and is then passed through the adjacent cold water box and wrapped again upon the wooden beam.

The work with the two machines is generally performed in such a manner that six pieces are first prepared in the first machine. Both are then set in operation, and thus each piece remains about sixty minutes in the first, to thoroughly soak out the sizing, before it is transferred to the second for further treatment. The rollers are frequently changed end for end, to prevent the settling of the sizing at one end of the fabric. The squeezing rollers may be either of wood or iron.

The fixed fabric then passes to the washing machine, in which it is treated either in rope or in an open condition. The latter style of washing is in use, especially for heavy cloths, to prevent tears and cookies. A new full breadth washing machine facilitates this operation on the most delicate dress goods as well as on the heaviest cloths. No further felting takes place during the washing, and the designs become clear and distinct. In mills where such machines are used it is considered that the fabric assumes a better appearance, and a finer feel, which is with difficulty obtained with the old rope washing machine. It is also said that the capacity of the washing machine is greatly enlarged. The machine rinses and washes, per day, from 8 to 16 pieces, each 35 metres long, of men's worsted goods, dyed black, and from 6 to 12 pieces of the same length, dyed blue.—*Centralblatt.*

NEW PINK DYE-STUFFS have been patented by a well-known German firm of colour makers, which dye mordanted cotton shades resembling those produced by rhodamine, but superior in brilliance and fastness. They are produced by treating formaldehyde with an amidophenol, transforming the condensation products into leuco compounds, and oxidising these to form the new colouring matters.

New direct-dyeing yellow cotton colouring matters have been recently patented by the Clayton Aniline Company, who prepare them from dehydrothiopatoluidine and the so-called primuline base. They consist essentially of the azo compounds of the sulphonic acids of those bases. They dye fast yellows on unmordanted cotton, which are not affected by acids, but are turned red by alkalis.

BLEACHING OIL.—About 10 kilos. of good bleaching powder are dissolved in 100 litres of cold water. Twenty litres of the clear liquid are then mixed with 100 kilos. of dark coloured heavy petroleum of sp. gr. 0.905 at 20°, or with tar oils, and the mixture thoroughly stirred up and allowed to settle. The oil, which is still somewhat turbid, is drawn off and mixed with the heaviest distilled resin oil in the proportion of 25.30 parts to 50.75 parts of the latter. Fabrics treated with this mixture are said to require much less time and treatment for bleaching than otherwise. This is a German patent, No. 52,505, November 19th, 1880, by Heinrich Ermisch, of Magdeburg.

A NEW BLUE colouring matter, having the following properties, has been patented. It is a dark crystalline bronze-like powder, soluble both in water and alcohol with a blue colour, the alcoholic solution turning red upon the addition of caustic alkali and becoming decolorised by subsequent addition of zinc dust and heating; on exposure to air the colour is restored. The addition of caustic alkalis to the aqueous solution causes the precipitation of the colour base, which is soluble in ether with a yellow colour, the solution having a yellow fluorescence. It dyes bright blue shades, similar to those of methylene blue, on wool or silk in a neutral or slightly acid bath, or on cotton previously mordanted with tannin.

NEW METHOD OF BLEACHING.—A French inventor, M. Ernest Marchand, bleaches fabrics by the following processes:—1st, Passing the fabric through a bath of water; 2nd, treating it with a bath of permanganate of potash, mixed with alkali, which produces what the inventor calls a suroxidation of the fibre; then, 3rd, a bath follows, wherein deoxidation takes place, with what materials the patentee does not say, except that it is a bath of gas or liquid capable of combining with a considerable quantity of gas. A simple washing in water completes the process for a cream or quarter bleach. A half bleach or white bleach is produced by a slight modification of the preceding process; the permanganate bath is repeated; the first is followed by a washing operation, and a treatment with a bath of chlorine, only about 20 per cent. of that usually employed being used; then follows the second permanganate bath. There is nothing particularly novel about all this. Permanganate of potash has been frequently used for bleaching, especially for animal fibres, and in much the same manner as is now recommended. There is a lack of details in the description of the process.

A SULPHONATED compound of the red basic colouring matter known as rosinduline has been patented. It is a red powder soluble in strong sulphuric acid, yielding a bright green solution, and is also soluble in water and alcohol. Its sodium salts are likewise easily soluble in cold water, and are not precipitable by common salt. In an acid bath it dyes wool or silk a bright red colour.

A NEW METHOD OF DYEING ANILINE BLACK has been patented in this country by a German doctor. It consists in using albumen, gelatine, casein, or similar coagulable matters along with the ordinary ingredients for producing aniline black. The patentee takes a 10 per cent. solution of gelatine and mixes it with 20 per cent. of aniline hydrochlorate. This mixture forms a clear solution when cold, and in it the cloth or goods to be dyed are worked. They are then taken out, and are partially dried, and then oxidised with any of the usual oxidising agents used in the ordinary aniline black process. In this oxidising bath the goods are left till fully developed. The patentee does not specify the advantages obtainable by the use of these coagulating materials, neither are they obvious to any one acquainted with this department of dyeing. We are under the impression that such bodies have previously been tried and given up. Their use was patented in France in the early part of the present year.

The yellow basic colouring matter known as benzoflavine is a derivative of phenyl-acridine, and is obtained from benzaldehyde by combining with a diamine. Recently a similar colouring matter has been obtained from formaldehyde, which body is not often used for the preparation of colouring matters. When 13 kilos. of metatolylendiamine are mixed with 26 kilos. of the sulphate of the same base dissolved in 200 litres of water, and then in the cold with the solution of 10 kilos. of formaldehyde, there is produced the sulphate of tetramidoditolylmethan. This product is now treated with hydrochloric acid, in an autoclave, for some hours, whereupon ammonia is eliminated, and a leuco compound of the base is produced; this, on oxidation, yields the colouring matter. It is soluble in water, with a brilliant green fluorescence. It dyes mordanted cotton fine greenish yellow shades. Its aqueous or alcoholic solution, as well as silk dyed therewith, shews a magnificent green fluorescence.

AZO COLOURS DIRECT.—A recent patent thus describes a process for producing azo colours direct upon the fibre. The colours are produced by impregnating the fibres either separately by means of diazo, dinitroazo, or tetrazo or other analogous compound solutions called "diazo compounds" and solutions of bodies such as phenols and their ethers, or by the amines which are known to produce colours when they are combined together. It is known that when oil or fatty matters are fixed on cotton they absorb the phenols or amines from their solution in water, generally in a colourless state. The oils or sulphated fatty matters either can be fixed on the fibre in the manner generally employed in the dyeing of Turkey red, that is to say by immersing the cotton in solutions or emulsions of oil and alkali, and one or more dryings according to the quality of the substance employed or the quantity of oil to be fixed, or they may be fixed on the fibre in the state of metallic soap produced by alternate immersion in the oil emulsion and metallic solutions such as acetate of alumina. The cotton is then passed through a solution of a phenol, and afterwards into a diazo bath of an amine, when the colour is developed.

TELEGRAPHING from New York on Wednesday, a correspondent says:—"The latest acquisition of English capitalists in America is the lace works of Messrs. Jennings at Brooklyn, the only manufactory of the kind in this country. The business has been bought for one million dollars."

POLISH LINSEY-WOOLSEY.—The Austrian Consul-General in Warsaw states that the manufacture of linsey-woolsey in Poland has declined so greatly as to be hardly worthy of notice. Whereas five years ago about 1,800 looms were in full activity, in 1890 only a small quantity of sheeting was made on some 150 looms, and only 300 looms were employed on table linen. These looms were all driven by hand. Linsey-woolsey fabrics are no longer made.

News in Brief,

FROM LOCAL CORRESPONDENTS AND
CONTEMPORARIES.

ENGLAND.

Ashton-under-Lyne.

Mr. Isaac Heywood, late manager of the Clarence Mill, Bollington, has been appointed to a similar position at the Portland Mills Co., Ashton-under-Lyne, and commenced his duties on the 29th ultimo.

The Guide Bridge Spinning Company was floated about the same time as the Thornham in Oldham, and now that the latter company have decided to put in revolving flats, some of the shareholders are taking notice whether the directors of Guide Bridge will follow the Thornham in its new venture. It is rather singular that all the modern "Limiteds" in Ashton have roller and clearer cards excepting the New Rycroft Spinning Company. Harper Twist, Guide Bridge, Cavendish, and Whitelands, and also Astley are running with roller and clearer cards. The directors of these companies are considered to be men of the times, but it might interest them to know that a "turnover Limited" has set them an example by putting in revolving flats. We allude, of course, to S. H. Swire and Company, Limited.

Batley.

On the 28th ultimo, John Rider Roberts, late cashier and book-keeper to Mr. Matthew Loble, woollen manufacturer, Dock Ing, Carlinghow, surrendered to his bail on charges of embezzlement and falsifying books. Three charges were taken—one of altering an entry in the general cash-book on the 20th of December, 1889, from £206 17s. 1d., to £256 17s. 1d.; another of altering an entry in the wage-book for the 20th of December of £170 8s. 7d. to £174 8s. 7d.; and he was further charged with stealing the £50, the £4, and £47 19s. 6d. For the defence Mr. Edmund Hemingway, accountant, was called, and expressed the opinion with regard to the alleged alterations that they were in a different handwriting to the original entries. The Bench were of opinion that the evidence did not warrant them in sending the case before a jury for trial, and the prisoner was discharged. The decision was received with much applause by a crowded court.

Blackburn.

The dispute at Messrs. Sharples and Birtwistle's Lower Hollin Bank Mill, has been satisfactorily settled, and the weavers have returned to their work.

In Grimshaw Park district the labour market continues to improve, and an important opening for operatives out of work occurred on Monday, when Compstep-street Mill (one of the mills of the late firm of Messrs. R. H. Hutchinson and Sons) was re-started by Messrs. Robert Rogerson and Co. Some five hundred looms will thus be set in motion.

The Spinners' secretary, on behalf of the workpeople employed at Messrs. John Dugdale and Sons', Daisyfield Mill, gave fourteen days' notice on Thursday, in consequence of bad material. Should the workpeople turn out, about 25,000 spindles will be stopped, but it is thought that a satisfactory arrangement will be made before the notice expires.

Bramley.

The new premises at Wellington Mills (Mr. W. E. Yates), which were destroyed by fire some time since, are now nearly completed. New machinery is being put into the rooms with all possible speed. These rooms are to be lighted with electricity, which, if it should prove satisfactory, Mr. Yates proposes to introduce throughout the concern.

Bradford.

Some perturbation has been caused among persons engaged in trade in Bradford, especially wool-staplers, spinners, and manufacturers, by the Weights and Measures Act of July, 1889. One of the provisions of the Act gives local authorities power to appoint inspectors of weights and measures and lay down regulations for their guidance, subject to the approval of the Board of Trade. The Board is empowered to call upon local authorities to make regulations, and if they fail to do so to make them itself. With a view to assisting the local authorities the Board has framed model regulations and in these it is required that weights shall only have one hole instead of two holes, for the purpose of adjustment by putting in lead. Most of the weights at present in use have two holes, and it is estimated that if these have to be discarded and new ones obtained, the change will involve an expenditure in Bradford alone of many

thousands of pounds. There are single firms to whom the replacing of their present weights would cost £50, and many others who would be involved in smaller but serious sums of expenditure. The object of the regulation is supposed to be to check fraud, but how this would be accomplished is not very obvious; and the persons most concerned allege that no advantage would accrue to compensate them for the expense to which they would be put. There seems, however, to be some doubt as to the exact bearing of the regulation. The view taken in official quarters in Bradford is that it does not apply to weights now in use, but only to new weights. The subject is now receiving the attention of the Markets and Fairs Committee, and their conclusions will probably be laid before the next meeting of the Town Council.

Cleckheaton.

It is reported that Hunsworth Mills, vacated some months ago by Messrs. J. and R. Taylor, cloth dyers, have been taken by Messrs. Ripley, of Bowling, and that both dyeing and manufacturing will shortly be commenced.

Darwen.

On Monday afternoon a requisition, unanimously signed by the members of the Darwen Town Council, was presented to Mr. E. M. Davies inviting him to again accept the mayoralty of the town. Mr. Davies thanked the deputation—Mr. Alderman Shorrocks and Mr. Duxbury—and expressed his willingness to accept office. Mr. Davies, who is a Liberal, is a cotton manufacturer.

Haslingden.

On Saturday night, 360 of the operatives of the Hargreaves-street Manufacturing Company, Limited, assembled in the Public Hall, for the purpose of presenting to their manager, Mr. Samuel Cartmell, a handsome clock, as a present on the occasion of his marriage. Mr. Woods made the presentation, and Mr. Cartmell thanked all for their kind present.

Kendal.

Owing to failing health, Mr. W. W. Rutledge, of Storth End, near Kendal, has retired from farming, and dispersed his noted flock of long-wool sheep, which have gained prizes at most of the agricultural shows in the North of England. The rams brought up to £7 in the Kendal Auction Mart, while on Tuesday the sheep attracted much competition. The shearing gimmers sold for £5 each, the principal buyer being Mr. Parr, of Cheshire. Ewes brought from £4 to £5 each, Mr. Parr again being a purchaser, along with others from a distance; while the gimmer lambs sold at from 37s. to 50s. each.

Kidderminster.

Mr. Joshua Crabtree, who has for the last five or six years represented Potter and Lewis on the coast in different parts of the country, has left this week to undertake the management of Messrs. Firths' Brussels plant at Heckmondwike. For some time Messrs. Firths have been endeavouring to obtain the services of a Kidderminster man, and a good selection has been made in Mr. Crabtree, who was born into the trade. It is understood that extensive additions to their machinery for the production of Brussels are intended.

Leeds.

Mr. Andrew Pickard, of Leeds and Ossett, woollen manufacturer and merchant (who died at Llandudno on the 18th instant), gave his personal estate to his trustees and executors, namely, his sister (Miss Pickard), his solicitor (Mr. William Emsley, of Leeds), and his manager (Mr. John Jowitz Jackson, of Leeds), with instructions to pay thereout the following legacies (amounting to £11,000), free of legacy duty:—

To the Royal National Lifeboat Institution the sum of £5,000, to build, equip, and maintain as far as possible five lifeboats to be placed on the coasts of Great Britain and Ireland.....	£5,000
To the Leeds General Infirmary, in addition to the £1,000 which he recently gave to that institution.....	1,000
To Clayton's Hospital and Wakefield General Dispensary, at Wakefield.....	1,000
To the Dewsbury District Infirmary.....	1,000
To the Royal Albert Asylum, Lancaster....	1,000
To the Yorkshire Institution for the Deaf and Dumb, at Doncaster.....	1,000
To the Yorkshire College, Leeds.....	250
To the Leeds Tradesmen's Benevolent Institution.....	250
To the Hospital for Women and Children at Leeds.....	250
To the Blind, Deaf, and Dumb Institution in Albion-street, Leeds.....	250

Leicester.

Considerable sensation was caused at Leicester on Saturday night by the arrest of Mr. George Storer, elastic web manufacturer, and Thomas Wagstaffe, his manager. About seven o'clock a fire was found to have broken out in Storer's Factory, which is situated in a large range of buildings adjoining the Midland Railway Station. By the aid of the fire brigade and some railway porters the flames were extinguished before much damage was done, but a subsequent examination of the premises by the police disclosed circumstances which led them to apprehend Storer and Wagstaffe on a charge of igniting the property.

Liversedge.

On Saturday last the workpeople of Messrs. Wilson and Ingham, card makers, of this town, had an outing to Blackpool at the expense of the firm. The party, which numbered about 100, all included, reached Blackpool before 10 a.m., and partook of breakfast at the Station Hotel, Mr. Wilson (the head of the firm), Mrs. Wilson, and several friends being present, as were also the following representatives of the firm:—Mr. Bainer (Manchester), Mr. Nelson (Oldham), Mr. S. E. Heywood (Bolton), and others. After breakfast, Mr. Middleton (manager of the works) proposed a vote of thanks to Mr. Wilson, and coupled with it "Success to the firm of Wilson and Ingham." They were, he said, all proud of the high position the firm had attained, and of Mr. Wilson as their principal. Other speeches followed, to which Mr. Wilson suitably responded, telling the company that he was anxious that everyone should put their best ability into their work and turn out the best possible articles; and for such he would pay the best possible wages. (Hear, hear.) The company afterwards dispersed, and spent a most enjoyable day.

Lostock Junction.

Messrs. Thos. and Josh. Heaton, fine yarn spinners, are now fitting up their No. 3 mill at Doff-cocker with Threlfall's new self-acting mules.

Manchester.

At the quarterly meeting of the representatives of the Amalgamated Society of Cotton Spinners of Lancashire and adjoining counties, held in Manchester on Saturday, the delegates to the Trades Congress presented their reports, and, whilst the general question of the relation of the Cotton Operatives' Society to the congress was left open for future consideration, it was agreed that, as many of the resolutions passed by the congress were of a character which the Amalgamated Society could not support, the general secretary, Mr. Mawdsley, should be recommended to resign his seat on the Parliamentary Committee.

A strike is in progress of some of the horse-hair and fibre-workers in the employ of Messrs. J. M'Donogh and Co., of this city. Messrs. M'Donogh state that the strike has not occurred because of the rate of wages paid, as a few months ago they gave an advance on black and grey hair of 12½ per cent., but rather that the Manchester Union is endeavouring to prevent women being employed as hair drawers. They consider this a hardship for the women, as the work is more suitable for them than for men, and they can earn from 14s. to 40s. per week. In nearly all horse-hair works women are employed. The present dispute arose through the firm placing a workman who was not a member of the Union as foreman in one of the rooms.

A very familiar face and figure in Manchester commercial life has passed away in the person of Mr. George Beatson Blair, senior partner in the firm of Messrs. Robert Barbour and Brother, whose death took place quite unexpectedly at Blackpool. He was of a well-to-do Perthshire county family, and was born at Glasgow in 1822, and before he was out of his teens made his way to Syria, where he acquired a thorough knowledge of goods for the Eastern markets. On coming to Manchester, about 1846, he entered the service of Messrs. Robert Barbour and Brother, and from the position of buyer he rose to be junior partner, and ultimately (for some years past) to be head of the firm. In politics Mr. Blair was a Liberal; and outside his commercial pursuits his chief interest was concentrated in the welfare of the Scotch Presbyterian Church, Chorlton-on-Medlock, of which, with the Barbour, Bannermans, M'Larens, and others, he was a leading supporter, and for several years an elder. Mr. Blair had resided for the last 20 years at Whalley House, Whalley Range, once the residence of the late Mr. Samuel Brooks, the banker.

Norwich.

The crape and silk manufactory of Messrs. Grout and Co., at Norwich, has been closed. It is stated that private reasons have inclined the firm to this step, and that a number of the Norwich employes

will find work at Messrs. Grout's Yarmouth factory. It would be interesting to learn whether this change is to be attributed to the competition of other Norwich firms, or of houses in other parts of the country?

Oldham.

Messrs. Platt Bros., Ltd., have received the order to replace the machinery at the mills of the Newton Moor Spinning Company.

Mr. Brierley, secretary of the Crumpsall Spinning Company, has been appointed to a similar position at the Neville Mill Company.

Mr. John Hepworth, the assistant secretary at the Chadderton Mill Company, has received the appointment of secretary to the Royal Mills Company, Limited.

Messrs. John Clegg and Sons, Limited, Shaw, are extending their mill premises by the addition of a shed, which it is stated will be used partly as a reeling room and a warehouse.

It has been given out this week that the Pearl Mill Company is sure to go. At any rate the promoters have proceeded to register it at Somersset House.

Mr. James Kershaw, engineer at the Albert Mills Hollinwood, has resigned his position, while the new engineer at the Glebe Mills is Mr. Pickles, of Huddersfield.

The Ark Mill Company, Middleton, which several Oldham gentlemen have assisted to float, has been registered. The company has taken over a fire-proof mill, which it is intended to fill partly with rings and mules.

The directors of the Parkside Spinning Company are asking the shareholders' sanction for the power for the erection of a new mill and also the increasing of the share capital from £65,000 to £100,000 by issuing 7,000 additional shares.

Mr. Alderman Samuel Buckley, head of the firm of Messrs. Buckley and Taylor, engineers, of Castle Ironworks, Oldham, has, at the unanimous desire of the Town Council, consented to undertake the duties of Mayor of the Borough for another year.

Mr. Thomas Hanson, carder at the Smallbrook Spinning Company, has received a similar appointment at the Clough Mills, at Shaw, vacated by Mr. Thomas Goodwin, who has this week commenced his duties as manager of the Neville Mill Company.

The new mule overlooker at the Richmond Mill (Messrs. Murgatroyd and Stansfield), is Mr. Luke Etchells, who has recently returned from India, where he has been acting as spinning master at a mill out there.

Mr. Cooper, of Manchester, has been appointed head book-keeper and cashier at the firm of Messrs. A. and A. Crompton, Wood End Mills, Shaw, in place of Mr. Ogden, who goes to the Duke Spinning Company in the capacity of salesman.

We understand that for the present only one new company will be promoted at Royton, but in the Spring of next year others will be gone on with. It may be that by that time other districts around Oldham will have a "cut in."

The directors of the Sun Mill Company are continuing the work of renewing the machinery, which is being carried out by Messrs. Platt Brothers. In consequence of this process going forward the production is very much interfered with, which must tell on the profit-making capacity of the concern.

Mr. J. S. Dronsfield, of the firm of Messrs. Dronsfield Bros., machinists, etc., Mr. J. H. Butterworth, (Messrs. A. Butterworth and Son, spinners and manufacturers, Glebe Mills), and Mr. E. Stansfield, (Messrs. Murgatroyd and Stansfield, Richmond Mills), are candidates for municipal honours at the November elections.

The Royal Mills Company, Limited, have come this week into possession of the mills owned by Messrs. Cocker and Son, spinners, the name of whose mills the new company has taken. Spinning operations are carried on as usual. We understand the directors are cautiously developing their plans for the new mill which it is intended to erect. They have visited several mills preparatory to giving out the contracts for engines and machinery. The extension will consist of about 70,000 spindles, with preparatory machinery.

There has been a great demand for the prospectuses of the Holly Mill Company, which is being formed at Royton. This is the only brand new £5 share company that has been put before the public in this district for some time, which is to begin with entirely new premises. As a consequence there has been quite a "buzz" over the matter. It is stated that it is being floated on the good old lines—*pro bono publico*; architects and others interested in mill building having no connection with it, as so often is the case now-a-days. Further, the

promoters state that they are not going in for exorbitant salaries, such as £1 per week, and will keep to the old lines in this respect, in which cases the salaries range from £5 to £9 per quarter per director. Considerably more than the 14,000 shares have been applied for.

Ossett.

The weaving and designing classes in connection with the Technical School and Mechanics' Institute were opened on Tuesday night, when about 20 students joined the elementary class. The advanced class met yesterday and the dyeing class on Wednesday.

Padiham.

The well-known loom makers, Messrs. Butterworth and Dickinson, Burnley, have presented to the Science and Art Committee a loom for the use of the students in the cotton class.

Stockport.

The second annual general meeting of the subscribers to the Stockport Technical School was held on Monday evening. Mr. Alderman Joseph Leigh occupied the chair, and there was a large attendance. The Hon. Secretary stated that during the past year 120 new students had been registered. Mr. Alderman Joseph Leigh was unanimously re-elected president, and the following officers were appointed:—Vice presidents, Messrs. Robert Hammond and R. Hollindrake; hon. treasurer, Mr. Thomas Kay; hon. secretary, Mr. J. W. Gray; committee, the Mayor (Mr. W. Lees), Messrs. John Marshall, H. A. Johnstone, S. C. Barlow, and Edward Gordon.

More than customary interest is being manifested in the forthcoming municipal elections at Stockport from the aggressive attitude of the Trades' Council. Already two labour candidates have been selected, in the persons of a licensed victualler, the landlord of the house where the Trades' Council holds its meetings, and the secretary of the Operative Spinners and Cardroom Hands' Association. Other candidates are to be brought forward, the trades unionists announcing that they will do their best to secure a representative in the Town Council for each of the six wards into which the borough is divided. There will also be a stiff contest between the two political parties. There are two vacancies on the aldermanic bench, caused by the death and disqualification respectively of two of the 14 Liberal aldermen: and of the 14 councillors whose term is about to expire only two are Conservatives.

SCOTLAND.

Auchterarder.

The death of Mr. Peter Young is announced, at the age of 76 years. He commenced business as a manufacturer many years ago, and founded the well-known firm of Messrs. Peter Young and Sons, Auchterarder Mills.

Alyth.

Messrs. Smith and Son have recently added, from the firm of Messrs. Fairbairn and Co., of Leeds, a quantity of preparing machinery for their mill. Most of the new machinery has arrived, and is nearly all placed in position. The result will be the employment of more hands.

Dundee.

"A Spinner" writes to the Dundee Advertiser as follows—"As the Dundee Trade is in such an unsatisfactory state, production being more than can be readily taken off, I would suggest that short time be adopted, say—to commence with—not to work on Saturdays. Formerly spinners and manufacturers were too jealous of one another even to meet and discuss what was best to be done, but I hope that such no longer exists. For my part I would willingly adopt short time, but I am too humble an individual to attempt to start such a course. The trade is healthy enough, but there is simply a slight over-production, and directly it was known by buyers of jute goods what was going to be done, I venture to assert that within one month the trade would be as healthy as ever again."

On Monday evening the Y.M.C.A. technological classes under the auspices of The City and Guilds of London Institute, in connection with the jute industry, were restarted. Mr. J. Braik Mason, F.C.S., teacher of chemistry, presided, and introduced the teachers to the students. Mr. Mason felt great satisfaction in the knowledge that the jute classes were again opened, and that they were in the hands of such capable men as Mr. Finlay and Mr. Whitton, both of whom had taken first-class honours and medals in their subjects. As men the teachers would be found exceptionally pleasant in manner, and no student need have any difficulty in asking any question since, such would be answered fully and frankly. Both teachers were

particularly conversant with the work, being engaged in jute spinning and weaving every day. Excellent results were hoped for, and the careful note-taker and painstaking student would be certain of success. The inaugural lectures on spinning and weaving followed.

Hawick.

Mr. Jas. Marshall, formerly teacher of Technology, has been appointed manager of a woollen mill in the Punjab, India. Mr. Cairncross has been appointed mill-man, and Mr. Wm. Waldie dyer. The above have all been science students and received their appointments through Mr. Martin Dechan, F.R.C.S.

Milngavie.

The North British Railway Company have just purchased from Mr. T. R. Ker, of Douglass, the large works known as Allander Print Works. These are situated in the very centre of the burgh, and were rented annually at £600. For more than sixty years, during the days of Messrs. John Black and Co., these calico works employed the greater number of people in Milngavie.

IRELAND.

Lisbellaw.

Messrs. Henderson and Eadie, of the Lisbellaw Woollen Factory, have opened premises in Town-hall-street, Enniskillen, for the sale of tweeds, worsteds, serges, friezes, blankets, shawls, mauds, rugs, knitting yarns, etc.

Miscellaneous.

CLOTHED IN AIR: A SUGGESTION TO MANUFACTURERS.

Under the title "Clothed in Air," "An Experimentalist" writes as follows in *The Christian World*:—The injunction given by General Booth to the Salvationists, that they are to wear wool or merino underclothing all the year round, is one that he might have improved upon if his manifold engagements had allowed him to bring his knowledge and experience up to date. There is a form of this gospel message of healthy clothing more likely to bring salvation to the poor than that which General Booth has adopted. In this particular matter he is taking his inspiration from an old testament rather than a new one. The practical consideration of cost acts as a very important restriction upon anything like a general adoption of the advice he has given; and he would be the last person to preach to the poor that which they could not put into practice, or to lay down rules for his soldiers which could not be adopted by their converts. What General Booth really means is that we should be clothed in air as far as possible, whatever may be the material used. It is possible to be clothed in air with wool, or with silk, or with mixtures of them, or even in pure cotton. If you can accomplish your purpose with cotton it is obvious that you can do it at, say, one-half the cost that you can do it with wool; and if you can reduce the cost by one-half you can confer benefits upon thousands instead of hundreds, upon women and children instead of heads of families. Let the demand for the right fabrics arise, and they will be produced in Lancashire as well as in Germany; and if the manufacturers are too slow for General Booth, he would have little difficulty in setting one mill to work for his own army. They have worn some capital knitted jerseys, which constitute the best form of clothing in air for outer garments; and the same enterprise which provided them would produce perfectly sanitary underclothing in cotton wool at half the cost of that made in animal wool.

This is a matter of personal experience. Tradition is in favour of flannel next the skin; and Dr. Jaeger improved upon flannel by introducing a more porous woollen texture. I thoroughly tried Dr. Jaeger's underclothing, and was quite satisfied with the results. I carried out the principle thoroughly in all my clothing—outer as well as under—and I proved everything Dr. Jaeger alleged, viz., that health and comfort are promoted by facilitating the free escape through the clothing of exhalations from all parts of the body. I was glad when I found that English manufacturers were beginning to produce similar fabrics to those of Dr. Jaeger, and to make up garments that competed with his, although some of them foolishly spoiled their products by inattention to details, such as the use of calico bands. Still, I was not content to enjoy advantages which I found that others would not avail themselves of on account of the cost.

At this stage of my experience another German prophet came upon the scene. He admitted the truth of nearly everything that Dr. Jaeger said; but he pointed out that Dr. Jaeger attributed to the material—wool—that which was really due to the air enclosed in the texture of the wool. The new prophet, Dr. Lahmann, said that cotton grew as a wool; that man, being an imitative animal, made it up like the linen he had formerly been using; but that if he would treat it as a wool, spin it as a wool, weave it as a wool, and so wear it, he would find it practically as good as wool. The new fabric is called reform cotton. I was very sceptical. I tried it tentatively and doubtfully. My trial has now lasted many months. I have been convinced against my predilections. It is very questionable indeed whether I shall ever buy any more woollen underclothing. I have been accused of luxurious extravagance on the supposition that I was wearing silk, and my accusers have been astonished to discover that I was clad in cotton. These cotton garments can be washed as often as desired without any fear of their running up, and when one is travelling one has no fear of their being ruined by the laundress.

I have also tried another form of clothing in air, to which the name of cellular is applied. Cellular cloth is produced in all materials. I have tried it in wool, in merino, and in cotton. The difference between cellular cloth and reform cotton is this: the latter is knitted and woven like wool; the former is a network of ordinary threads with film-covered meshes. Cellular cloth is not elastic; reform cotton is. Cellular wool runs up rapidly; cellular merino runs up a little; cellular cotton is hard compared with reform cotton. I tried the three cellulars before the reform cotton. I did not find in them what I was looking for on behalf of the multitude with short purses. I do find it in reform cotton.

Going about with my eyes open, I notice how many labouring men are wearing cotton—that is calico—shirts. I learn a good deal about suffering from rheumatism. I see some wearing common, rough flannel shirts, which I know to be very uncomfortable in hot weather. I know from actual experience that the cotton used in the shirts that I see in wear is capable of being made up into a different fabric, which would have, if not all the advantages, certainly very nearly all the advantages of the woollen and merino General Booth recommends.

Therefore, if I could inspire General Booth, on revising his rules, I would urge him to let his followers know that the health and comfort he has in view may be secured at half the cost of wool by the adoption of a cotton fabric properly spun and woven. Everybody who sees and handles the reform cotton appreciates it. A Booth shirting like the reform cotton, sold at a fair price, would revolutionise the underclothing of all classes in this country, and effect a sanitary reform which would be a 'Salvation' to tens of thousands who are helpless between the cost of wool and the slavish adherence of our manufacturers to calicoes, in spite of the demand for rational and healthy fabrics.

THE MANCHESTER TECHNICAL SCHOOL AND THE WHITWORTH LEGATEES.

At the annual meeting of the friends of the Manchester Technical School, held on Monday, it was resolved to transfer the property and effects of the school to the Whitworth Institute.

A letter was read by Sir Joseph Lee from Mr. Chancellor Christie, one of the legatees of the late Sir Joseph Whitworth, in which he said:—"As I understand that the council of the Technical School will very shortly meet for the purpose of finally settling upon the amalgamation with the Whitworth Institute, I would suggest to you whether it might not be well to put before them a clear and concise statement of the contributions towards the erection of a new building which they may expect from the institute and from the legatees of Sir Joseph Whitworth. Besides their own Princess-street property, which I understand is estimated at £20,000, and the Whitworth site (which the legatees have given to the institute for that purpose), there is the sum of £14,000 which has been allowed to the Technical School out of the exhibition surplus. This sum is, I take it, all that the institute will be able to contribute to the Technical School buildings. The legatees of Sir Joseph Whitworth are willing to make the following additions to this fund: First, they are prepared absolutely to give and convey their property in Peter-street, of which at present the Technical School has the use. For this property they gave £10,000, and they have expended a considerable sum

upon it; and there can be little doubt but that it would realise in the market at least £10,000 so soon as it is not required by the Technical School. Secondly, upon the representations made to them that it was impossible for the Technical School to be carried on for the present unless it obtained from some source a subvention of £1,000 a year, or thereabouts, the legatees undertook to provide that sum, if necessary for a few years, and they have already made some annual payments of this amount. As, however, the Corporation of Manchester, under the powers conferred by the recent Act, have arranged for the payment of £2,000 a year to the Technical School, the amount conditionally promised by the legatees will not be required. They are willing in lieu of this to contribute the sum of £5,000 towards the building fund. This would make up the contribution to the institute to the sum of £29,000. Taking, then, the value of the Princess-street buildings at £20,000, there would be £49,000 as the nucleus of the building fund. There would not, I hope, be any difficulty in obtaining from the friends of the movement such further sums as might be necessary. While, however, I should like to see a building in every respect adequate and satisfactory, I think it would be a mistake to contemplate the immediate erection of a building on the scale of that of which plans were prepared. I think, about a year since. The design, indeed, should embrace everything that could be needed for many years to come, but it should be so planned that a portion only could, and should, be immediately erected, leaving the rest for the future. In fact, it would follow the lines upon which the Owens College has been partially built. An expenditure of less than £100,000 should, I think, be sufficient for all immediate purposes of the Technical School."

The meeting passed a resolution of thanks to the legatees for their gifts to the school.

THE TRADES-UNIONS CONGRESS AND THE TEXTILE SECTION.

In a paper on "The New Departure in Trade-Unionism," contributed to the October number of the *Nineteenth Century*, Mr. T. R. Threlfall, of Southport, secretary to the Labour Electoral Association of Great Britain and Ireland, refers to the resignation of Mr. Birtwistle as a member of the Parliamentary Committee of the Trade Unions Congress, and to the attitude taken by the unions connected with the textile industries towards the proposal to endeavour to secure "a reduction of the working hours in all trades to eight per day." After stating that he himself, as one voting for an Eight Hours Bill, was not in favour of forcing upon the members of any trade a measure limiting their hours of labour, and expressing the opinion that that was the position of at least three-fourths of the Congress, Mr. Threlfall discusses the incidents of the election to the Parliamentary Committee, and says:—"These accumulating shocks have left a deep and unpleasant impression on the minds of many delegates, and it is doubtful whether the Trades Congress will ever again be so representative of the whole of the labour of the country as it has been for years. A strong stimulus has been given to the latent feeling of several Lancashire trades to sever themselves from it, additional vigour has been lent to the movement in favour of an exclusive congress of the textile trades, and a serious blow has been struck at that *esprit de corps* which animated the veterans. Whatever may have been the shortcoming of the latter their personal influence with their organisations did much to found the Congress and maintain it in vigour during the gloomy years of trade depression. In Lancashire at least the textile combinations exert a commanding influence upon trade-unionism, and their secession from the labour parliament would probably cause the withdrawal of a number of trade councils and local unions. Once commenced, the disintegration movement would be rapid, and in a few short years thoroughly disastrous. The new unionists are, of course, animated with the most laudable desire to make the Congress an effective instrument for the emancipation of labour. There is no evidence that they wish to shirk their duties with respect to it, and not while they have the power and the means to loyally support it. But it would be folly to ignore the fact that some of these unions would succumb in the early stages of another severe commercial depression. The unemployed from the rural districts, from the skilled trades, and from numberless industries may be again found, as in comparatively recent times, struggling for employment at the dock gates, at the gas yards, and wherever there is hope to earn a meal. God send that these days may be far distant, but we have no guarantee as to their nearness or remoteness, and it will be well if their grim shadows are not already creeping over us. For the union with a small balance it will be a life-

and-death struggle. There will in some cases be neither power nor ability to support the Trades Congress however keen the wish. But if prior to this several of the older and stronger unions should have seceded from the Congress, from whatever cause, then this institution, which has been the glory of labour, will by its weakness damage rather than strengthen the cause of which it has been the mouthpiece."

TEXTILE CLASSES IN DUNDEE.

Mr. D. H. Saunders delivered the opening address to the students of the textile classes of the Dundee Textile Institute, of which Mr. Fergusson is the teacher, before a very large attendance of the members. Mr. Saunders, who was received with applause, said he had had much pleasure in acceding to the request which had been made to him to address the class. He congratulated the directors of the Technical Institute, as well as their teacher, upon the large attendance of pupils at the class this season. Of all the classes in connection with the London City Guilds, the one he was addressing seemed to him to be most popular. (Applause.) From three or four of the best houses in the trade they had this year received not merely models, but perfect machines, by means of which all the students could practically see the processes of the jute manufacture. He did not doubt that Dundee, as it was the centre of the jute trade, would become the centre for education in jute manufactures. (Applause.) The study of a subject such as jute was not only advantageous in a money point of view, but was a means of culture and of enjoyment of the most beneficial kind possible. He was happy to learn that nearly a dozen of the students who had lately attended the class, and who were successful prizemen at the examinations, had been successful in either becoming managers of jute works or of having risen to positions of trust otherwise in consequence of their success at the examinations. (Applause.) It was of the greatest importance to all young men who were interested in the jute trade of the city, whether as mechanics or in the mercantile departments, to make themselves conversant with the fibre and with the various processes of manufacture, so that they might not only have an interest in the trade but an intelligent interest in everything connected with the business. No man was likely to be permanently happy who did not have some occupation other than the drudgery of his daily toil. Great statesmen, as well as many men of letters, were distinguished for the width of their culture. The present Prime Minister himself was a man who, had he not devoted his talents to politics, would have been a successful electrician and mechanic; and he had no doubt that Mr. Gladstone would, if he had liked, been a good woodturner. (Laughter and applause.) The young men of Dundee who were busy during the working hours of the day would in their spare hours find endless sources of interest and means of instruction in the study of the jute fibre, the machines, and the management of spindles and looms. The study of the steam engine itself was one which was eminently fitted to train the intellect and to widen human sympathies. The recent improvements in the steam engine had not superseded the great and fundamental principles of Watt and Stephenson. The locomotive and the condensing engine bore and would bear to the end of time the stamp of these great masters. In regard to jute a thorough training of the hand and eye was needed to distinguish the various kinds of yarns for which the fibre was best adapted. A special knowledge was also required for those who were engaging in dyeing, so that they could at once state what colour was required, and thus save expense. (Applause.) Mr. Saunders then entered into a very minute description of the various processes in jute spinning. He described particularly the recent improvements in jute drawing frames, and illustrated his remarks by many numerous characteristic anecdotes, which were thoroughly appreciated by the students. Having spoken of the jute fibre and the machines used in its manufacture, he remarked that not only in the management of these, but in the more difficult and higher sphere of the management of men and women, was success possible in any work or manufactory. (Hear, hear.) It was necessary to inspire every operative, from the foreman to the smallest boy who wrought as a half-timer, with confidence in the management, and that could only be done by making every man, woman, and child within the gate feel that the manager was master of every technical detail of his business. Not only so, but it was essential to awaken enthusiasm in every operative for the success of the industry. (Applause.) Moral influence over men could only be won by strong character. The young men attending these

classes would soon be scattered over the world, and they would deserve real success, not only by becoming masters of the machines, but by carrying in their whole department the old-fashioned virtues which had won for our country the high reputation she enjoyed among the nations. (Loud applause.) Mr. Fergusson, the teacher, proposed a hearty vote of thanks to Mr. Saunders for his excellent and interesting lecture.

Letters from our Readers.

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

THE DIGGLE'S CHAIN MOTION.

(To the Editor of The Textile Mercury.)

SIR,—In the last issue of your paper, in describing a "Patent Positive Dobby," you state:—"It is a curious and interesting fact that the dobbie comes from the identical establishment from which emanated the celebrated Diggle's chain motion many years ago."

This statement is incorrect. The reputed inventor of "Drop-box motion by means of chains"—which has as yet never been excelled for simplicity—was Mr. S. Diggle. He was a member of the firm of Diggle, Tuer, and Co., of which my grandfather, the late Robert Hall, and William Hodgson were also members, and which firm commenced business in a small way in 1844, at Hope Foundry, Bury. Mr. Diggle retired from the firm in 1847, which became Tuer, Hodgson, and Hall, then Tuer and Hall, and subsequently Robert Hall, and now the business is carried on by this latter's sons under the style of Robert Hall and Sons.

The so-called Diggle's patent was taken out in January, 1845, at which time Mr. Diggle was a partner at Hope Foundry. The foregoing facts will, I think, dispose of the statement you made that the motion in question was brought out in Radcliffe, and rather point to Hope Foundry, Bury, as the establishment to which the credit is due.—Yours, etc.,

OSCAR S. HALL.

Bury, Oct. 2nd.

[We are pleased to make public the above correction. Our statement was made upon the ground of imperfect information and what seemed the balance of probabilities. The writer of the above has placed before us documents which completely verify his statements.—Ed. T.M.]

THE Jute Spinning and Weaving Works of Hamburg-Harburg has increased its spindles during the past year to 6,378, and its looms to 453, from 5,342 and 393 respectively for 1889. The net profits of £11,520 allow a dividend of 7 per cent., as compared with 10 per cent. for last year.

A PHILADELPHIA manufacturer says in the American Wool Reporter that they are paying female help in spinning mills 6-00 dollars, which wages, he alleges, are so high that they need more protection! Piecer boys are paid from five dollars to seven dollars per week, which, he thinks, is as much as some overseers get in England!

THE STRIKE IN AUSTRALIA.—A Reuter's telegram dated Sydney, Thursday, says:—"The Labour Congress has decided that the sheep-shearers, shed men, and others employed in the wool trade, whom it called out on strike on the 24th ult., shall resume work immediately. The response to the order to strike was by no means general."

SEWING COTTON IN RUSSIA.—A German consular report from Moscow says:—"In spite of the competition of the two Russian factories, the imports of sewing cotton were still very considerable. This trade is participated in by four large English factories, which have fixed the prices of their goods. Three of these firms have a mutual representative in this place. The attempt which an English firm made a few years ago to open a factory near Moscow has fallen through."

TEXTILE MANUFACTURING COMPANIES IN BRAZIL.—The raising of the Brazilian tariff seems to have been regarded by the Rio company promoters as an opportunity too good to be lost. They have accordingly set their brains to work, and, according to advices from Rio, offered three companies to the confiding public for subscription at the end of August. For the "Manufactora de Camisas," an enterprise for the production of shirts, cuffs, and collars, £240,000 is the capital asked for another, which rejoices in the name of the "Liberdade," £90,000 is the sum wanted for starting the manu-

facture of corsets, white goods, and cravats; and a hat manufacturing concern is offered for £200,000. It is to be hoped that Brazilian investors who take up these shares will find them a satisfactory investment.

FLAX DRESSING IN NEW ZEALAND.—On the 15th Aug. at Wellington, before the Industries Committee of the House of Representatives, Sir James Hector was examined especially in relation to the chemical treatment of flax. He gave it as his opinion that flax as now dressed with the present machinery, if treated with care, was suitable for all purposes to which it is as present put, such as the manufacture of rope and binder twine. He thought that by chemical treatment the fibre might be easily prepared sufficiently fine for manufacturing valuable fabrics. One useful quality possessed by the flax was the power to take dyes, like silk, and on this account it was quite possible that it might be mixed with silk. He did not believe in the spontaneous combustion of flax, but advised prolonged and careful experiments to absolutely settle the point. Mr. F. Bull, of Wellington, who has invented a machine for flax-dressing, also gave evidence. He claimed that his machine would produce flax hemp of superior quality, and at a lower price, £2 or £3 a ton less than those at present in use. He had received a cablegram from the Agent-general, reporting on his first shipment, that it brought £22 to £23 a ton at a time when ordinary New Zealand hemp was selling at from £19 to £20. He exhibited samples of the fibre as dressed by his process. The committee will now proceed to consider the report which they will make to the House on the subject of flax.—British Trade Journal.

Textile Markets.

COTTON.

MANCHESTER, FRIDAY.

Very little change has taken place in the superficial aspect of our market either as regards the industrial section or the commercial side. In the districts, employment, taken all round, continues to be abundant. Here and there a little slackness is discoverable in the Burnley district, and some few looms are at the moment unoccupied. South Lancashire and Cheshire are very well employed, the better grades of printing cloth usually made there being well engaged. In the districts where coloured woven goods are produced a slight improvement has recently occurred, and rather more looms are now at work than has been the case for some time past. This perhaps partly arises from the advent of the new season bringing round fresh orders. The trade is free from any serious disputes with the operatives, and would be quiet so were it not for the fact that the trades-union leaders seem to have adopted the policy of keeping one mill in each district, metaphorically speaking, in "hot water." Looked at either from their own, their employers', or the public interest, this is a most short-sighted, mistaken, and injurious policy, and ought to be at once abandoned. Its disastrous influence will become apparent to its promoters when injuries have resulted which they will be unable to remedy. But as they may not be the chief sufferers, it is to be feared that the probable consequences will not deter them from the course which they seem bent upon pursuing.

COTTON.—There has been a fair and steady demand for the raw material, but the tendency of prices has been downward. The week under review opened strongly, with an advance of 1½ points for September, but this was lost before the day closed, and also three points more. The annual counting of the stock took place on Friday, and the result declared on Saturday proved more favourable than was generally anticipated by those who were hoping for a large deficiency in Americans, with the idea that it might impart some stamina to the market. The result was that Americans declined ½d., and futures three to three and a half points. Monday witnessed another decline in spots, though futures slightly improved, but afterwards suffered a relapse, losing one point on the day. A stronger demand set in on Wednesday, but it was not more than sufficient to steady spot rates, and improve futures about one to one and a half points. The result of the week's work has been a decline of ½d. in American, the disappearance of September from the quotations, a loss of half a point for October-November positions, and a gain of a like amount for distant ones. During the week a good business has been done on gradual delivery terms at firmer prices. The official quotations have now been transferred from old to new crop cottons. The former are now getting

scarce, and have slightly hardened during the week. Brazilian has been in better demand during the week, and an increased business has taken place therein. For rough Peruvian a very fair demand has prevailed at steady rates, but smooth has been in less request, and prices favour buyers. Egyptian has attracted more attention, but prices have again receded ½d. Indian descriptions have met with a fair inquiry, and prices are steady, excepting in Tinnivelly, which in good fair, and fully good fair, have declined ½d.

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

	Import.	Forw'ded.	Sales.	Stock.	Act's Export
American	44,198	51,028	44,940	198,870	1,914
Brazilian	.. ..	1,441	3,240	14,670	..
Egyptian	3,184	3,860	2,800	32,600	113
W. Indian	859	1,867	2,040	15,680	23
E. Indian	..	4,350	7,780	221,260	1,631

Total. 48,245 62,546 60,820 482,880 3,681

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
Pernam	5½	5½	5½	5½	6½
Ceara	5½	5½	5½	5½	6½
Paraiba	5½	5½	5½	5½	6½
Maranhm	5½	5½	5½	5½	6½

	Fair.	G.F.	Gd.
Egyptian	6½	6½	7½
Ditto, white	5½	5½	5½

	Fr.	F.F.	G.F.	G.F.G.	Gd.	F.G.	Fine
M.G. Broach	..	..	..	..	5	5½	5½
Dholerah	3½	3½	4	4½	4½	4½	5½
Oomra	4½	4½	4½	4½	4½	4½	5½
Bengal	..	..	3½	3½	3½	4½	4½
Tinnivelly	4½	..	4½	5	5½	..	..

* Nominal.

YARNS.—In this section of the market there has only been a somewhat slow trade. Owing, however, to the strong position occupied by the spinners, prices are steadily maintained, wets, especially in some instances, being quoted higher. The amount of business passing with manufacturers is not large, though there is a strong demand for wets, which are scarce and dear. In the shipping side the position of bundle yarns for export is unaltered. The market in these articles exhibits, if anything, a tendency to harden, as sellers are showing little disposition for further business, whilst the demand as yet can hardly be said to be satisfied. There has been a better inquiry for the lower counts of Bolton yarns, and these shew a firm front. In the finer sorts more demand has been heard of within the past few days, though as yet it has not resulted in any large accessions to business.

CLOTH.—Cloth is steady, and better advices seem to be arriving from the distant Eastern markets, though fluctuations in the Exchange are again disturbing them. The demand from the Mediterranean is maintained in a good state, and now the revolutionary troubles seem to be subsiding in South America more business is coming round from that side of the world. The orders at present in the hands of manufacturers are rather low, but there seem to be fairly good prospects of their contract books soon being replenished. Prices are steady in every section, and it is difficult to see how manufacturers can make any concessions from their present demands, confronted as they are with firm and dear yarns.

WOOLLENS AND WORSTEDS.

LEEDS.

From the tone displayed at recent cloth markets it is evident that prices have by the common consent of manufacturers been advanced, and that the increases will be insisted upon. Black unions and twills, doe-skins, and hairlines may still be purchased at the same rates as those of 12 months ago; but for check chevots, rib coatings, indigo venetians, blue victorias, and Scotch tweeds rather higher than the usual prices have to be paid. Only few repeat orders in connection with the current winter's trade are now arriving, but new styles in meltons, tweeds, and diagonals for the back end of next year can only be contracted for at comparatively advanced rates. There was no opportunity to-day of ascertaining whether the finest worsted coatings are still holding their ground, but there is no doubt that such is the fact, and that the producers will be among those having the best facilities for obtaining better prices. Neither is there any reason to doubt that serges will continue to be largely in demand irrespective of their being dearer than in the past. Local makers of high-class

tweeds feel assured of a full amount of business for many weeks to come. There is no reason to expect any falling off in the good demand which set in a week or two ago for novelties in mantlings and costumes. Considerable requirements in the way of covert coatings and Bedford cords have yet to be provided for, but the season is too late for any change in the prices of them.

HUDDERSFIELD.

There has not as yet been much of an improvement in the character of trade here. The demand from the home buyers is still rather slow, but a change for the better is anticipated before long. Fancy serges and worsteds are the leading sellers, the new and attractive designs now being brought out having taken the public fancy. Low tweeds have not come forward so freely. Competition in this branch is exceedingly keen, and profits are far from satisfactory.

ROCHDALE.

The improvement in the flannel trade anticipated in our last report has set in, and a more cheerful feeling prevails in consequence throughout the trade. Quotations have been advanced, but the increases made are not uniform, some firms still adhering to the old rates. It is hoped, however, that the promised improvement will not be delayed by any narrow-minded action on the part of such concerns, but that manufacturers will work together for the common weal. Yorkshire woollens are in brisker request, and quotations are higher.

GLASGOW.

Messrs. Ramsey and Co., in their report dated 30th September, say:—

Wool.—The wool market continues firm without, however, much increase in business. The American Tariff Bill has now become law, but, as yet, has had no appreciable effect upon this market, although it is expected more activity will result shortly.

Sheep Skins.—The supply has been a full average, with a large proportion of good sorts. Competition is well maintained, and prices are firm to a shade higher.

FLAX AND JUTE.

DUNDEE TRADE REPORT.

WEDNESDAY, 1st Oct., 1890.

The two remarkable features of the Dundee market are the rise in the value of flax, and the fall in jute, and in all its products.

Jute is offered at £11 10s. for equal M., and even the Greeks at last recognise the importance of meeting the views of buyers. On the spot the value of jute tends still lower. There has been a large business done to arrive at higher prices, and the loss to the local trade is serious.

Upon manufactured goods the fall is even more depressing.

It is obvious that nearly one-third of the price of yarns is made up of the wages, coal, and charges, which are all about 20 per cent. higher than when yarns were quoted at present prices some years ago. For this reason some spinners propose to run short time. For 8lb. cop it is now difficult to get more than 1s. 2d., and for the common spins there are sellers over.

Fine warps are better, and hold their value. For 8lb. good warp 1s. 7d. to 1s. 8d. is paid to-day, but to fetch this price the colour must be good, and the spin first-rate.

Hessians are dull; the best wide widths only are held for list prices. On all common goods there is a decided fall, and the market closes against sellers.

Flax is firm, but there are some holders who seem disposed to take advantage of the welcome demand. The result is a large business on the week, at a rise of from £1 to £2 from the lowest point.

Flax yarns are stiff at a rise of from ½d. to ¾d. per spl.

Tow yarns are also the turn against buyers. All the best warps are 1d. per spl. up from the lowest point.

Linens are in excellent demand at list prices, but manufacturers are asking a small advance to meet the increased cost of yarns. In the local trade the linen manufacturers have recently introduced quite new styles of table linen. The Brechin makers are excelling in designs of great beauty, and in their cheap goods for the workman's dinner table they will be ill to beat. Their good taste and enterprise seem to be rewarded, for they are exceptionally busy.

Arbroath is well engaged in orders for canvas, and the prospect is cheering.

Dundee fancy goods are in fair demand, and in this department superior designs win, and in cheap

and pretty rugs, carpets, and squares, the best makers are very busy.

(Later. By Telegraph). THURSDAY.—Calcutta wires exchange advanced. Jute done at an advance of 10s.

SILK.

LONDON.

Messrs. Durant and Co. in their circular dated the 1st inst. say:—

The past month opened with a firm and active market; during the first ten days considerable daily business was done both for home trade and export at gradually hardening prices. Consumers having supplied their immediate wants all became quiet, but without change in quotations until the collapse in the Eastern exchanges frightened holders, and the month closed with a dull market. Prices are 8d. to 6d. below the highest point. In Japan silk some little has been done at full prices; the stock is now smaller than at any period since the opening of the Japan trade. Our deliveries are fairly good, and our stocks show a further reduction. The periodical public sales are fixed to commence on the 15th instant.

Arrivals in September.

Bengal	26 bales.
China	863 ..
Japan	— ..
Canton	214 ..
Tussah	— ..

HOSIERY AND LACE.

NOTTINGHAM.

There is not much of a change for the better to report in the condition of the lace trade here. The consumption is insufficient to employ all the Lever machines, but it is hoped that the Calais strike will enable manufacturers to effect more sales. Valenciennes laces in sets are still inquired for. Flouncings, in the same style, are well to the front, and for Swiss embroideries a fair demand prevails.

DRY GOODS.

MANCHESTER.

The general trade has been fair this week, and in the fancy sections a good business has been passing. Special shows have proved powerful attractions, and the autumn and winter stuff has come in for a large share of attention. Velvetines are at last beginning to sell more extensively. There is a better inquiry for worsted coatings, and the ready-made clothing manufacturers have bought large quantities of serges. Their purchases of printed meltons, which have for a considerable period been on an extensive scale, have not been so large of late.

THE KIDDERMINSTER CARPET TRADE.

The condition of this trade, so far as the Brussels branch is concerned, is slowly improving. Of course it is too early in the season yet to expect anything approaching a rush in business, and here and there manufacturers still speak of orders being backward, but in the majority of instances machinery is finding better employment, and, generally speaking, the number of orders arriving quite reaches the average. As is usually the case at this early stage, enquiries and orders are principally coming in from wholesale houses, and it is amongst those firms more especially engaged in supplying the requirements of the large trade distributors that an increased activity is observable. Up to the present, as a matter of course, orders are almost solely confined to trials, and a large number of looms are engaged in the production of "sets" or sample pieces of the new patterns in their different colourings. During the last week or two manufacturers have been sending out their lists intimating an advance in their prices, in accordance with resolutions passed at a meeting of the Association, held a week or so ago. Although these lists have only just been issued, the advance referred to—viz., on the basis of 2d. per yard on best Brussels five-frame, making the price at present for goods of this brand 3s. 5d. per yard, was actually resolved upon the 3rd end of last season; but as the business done since has been principally in "repeats," it has scarcely been enforced. Now, however, as nearly all materials used continue dear, manufacturers consider that even with the 2d. advance the price is barely remunerative, and are determined to firmly adhere to it, come what may.

The demand for Royal Axminster is steadily opening out, and amongst makers of these goods the

season is contemplated with considerable confidence. Although not much improvement in the value of wools can be said to have taken place on the week, the aspect of the market becomes brighter and brighter. Holders of the raw material have had their hands strengthened by results of recent sales, and are not inclined to make the smallest fractional concession to promote business. This tends to keep transactions limited to actual requirements, but as spinners now find more request for their yarns, they are compelled to make purchases, and a fair quantity of wool is reaching the district. Worsteds yarns are firm in price; for some sorts spinners have advanced their quotations, and a number of large contracts have been given out by manufacturers lately.

Joint Stock and Financial News.

COTTON COMPANIES' REPORTS.

ALBERT (DARWEN).—Profit, three months, £313. Brought forward, £134. Dividend, 1s. per share. 36,900 spindles.

ASTLEY (DUKINFIELD).—Profit, three months, £790. Dividend, 8 per cent. Share capital, £36,767. Loans, £64,417. Spindles, 84,024 (40,284 T and 43,740 W). Plant, three months ago, £78,534. Mill fireproof. Company formed 1834. Shares (£5), £2 10s. paid; sellers, 3s. prem.

BARNBROOK COMPANY (BURY).—Loss, three months, £350. 50,000 spindles, and 918 looms.

BURY AND HEAP COMPANY.—Profit, three months, £800, not £600, as erroneously stated yesterday.

CROFT BANK.—Profit, three months, £111. Dividend, 10 per cent. Share capital, £10,000. Spindles, 14,590, all twist.

DAWSON HILL (HEYWOOD).—Profit, six months, £463, which is equal to a dividend of 12 per cent. per annum. Dividend 8 per cent. per annum. Looms working 661, and no spinning.

DAWSON MILL CO. (HEYWOOD).—The trade account for the past half year shows a profit of £461 3s. 6d., which, with £2 5s. 4½d. balance of last account, gives a disposal balance of £463 8s. 10½d., which is equal to 12 per cent. per annum. The directors recommend the payment of a dividend of 2s. per share, or 8 per cent., which will absorb £316 6s., and carry forward to next account the sum of £147 2s. 10½d.

DUKE (SHAWS).—The profit is £1,423, and a dividend of 1s. 6d. per share will be paid, placing £500 to reserve fund and carrying forward £227 to next quarter's account. The share capital is £35,000, and loan £44,646. The fixed stock is valued at £60,343, and there are 22,812 twist and 47,568 weft spindles.

GARFIELD (NEW HEY).—The profit is £966, and a dividend of 10 per cent. will be paid, placing £600 to reserve fund and carrying forward £96 to next quarter's account. The share capital is £23,992, and loan £49,812. The fixed stock is valued at £54,419, and there are 30,156 twist and 31,308 weft spindles.

GROSVENOR (OLDHAM).—The profit is £230, and a dividend of 5 per cent. will be paid. The share capital is £5,500, and loan £1,663. The fixed stock is valued at £3,833, and there are 11,220 all weft spindles.

GUIDE BRIDGE.—Profit, three months, £214. Share capital, £75,000. Loans, £97,977. Spindles, 150,240 (96,264 T and 53,976 W). Plant, three months ago, £140,380. Mill fireproof. Company formed 1875. Shares (£5), £2 10s. paid up; sellers, 5s. dis.

HARPER TWIST (ASHTON).—The loss is £128, which increases adverse balance by this amount.

HEY.—Profit, three months, £808, reducing address balance to £250. Share capital, £15,030. Loans, £17,576. Spindles, 29,388 (22,296 T and 7,092 W). Plant, three months ago, £21,604. Company formed 1873. Shares (£5), £3 paid, 27s. dis.

HOLLINWOOD (HOLLINWOOD).—The profit is £800, and a dividend of 9d. per share will be paid. The share capital is £40,000, and loan £33,274. The fixed stock is valued at £54,638, and there are 53,600 twist and 22,024 weft spindles.

HONEYWELL.—Profit, three months, £927 1s. 10d. Balance available for dividend, £1,001. Dividend, 8 per cent. Share capital, £50,000. Loans, £33,240. Spindles, 75,618 (39,684 T and 35,934 W). Plant, three months ago, £62,940. Mill fireproof. Company formed 1874. Shares not quoted.

HOPE (FAILSWORTH).—The profit is £1,248, and a dividend of 10 per cent. will be paid. The share capital is £45,002, and loan £32,995. The fixed

stock is valued at £53,749, and there are 38,376 twist and 28,302 weft spindles.

IVY (FAILSWORTH).—The loss is £96, but a dividend of 6d. per share will be paid out of reserve fund. The share capital is £17,935, and loan, £22,768. The fixed stock is valued at £30,549, and there are 24,576 twist and 10,080 weft spindles.

LEES UNION (LEES).—The profit is £588, and a dividend of 2s. 3d. per share, or 7½ per cent., will be paid, carrying forward £114 to next quarter's account. The share capital is £30,000, and loan £25,651. The fixed stock is valued at £41,059, and there are 19,200 twist and 43,800 weft spindles.

LONGFIELD.—Loss, three months, about £200. Share capital, £38,560. Loans, £12,606. Spindles, 20,760. Shares, £5 paid up, sellers, 79s. dis.

MELBOURNE (OLDHAM).—Profit, three months, £113. Share capital, £40,000. Loans, £4,000. Spindles, 63,528. Plant, three months ago, £30,238. Company formed 1860. Shares not quoted.

MITCHELL HEY (ROCHDALE).—Profit, three months, £155. In order to pay a dividend of 5 per cent. £461 will be taken from the reserve fund, bringing this down to £2,260. Share capital, £65,855. Loans, £90,894. Plant, £118,310. 60,000 spindles and 1,000 looms.

MUTUAL (HEYWOOD).—Profit, three months, £1,574. Share capital, £42,000. Loans, £45,620. Plant, three months ago, £74,834. Spindles, 83,722 (20,638 T and 63,084 W). Mill fireproof. Company formed 1884. Shares (£5), £3 paid, not quoted.

NEW YORK (HEYWOOD).—Profit, three months, £830. Spindles, 74,404 (57,048 W and 17,356 T).

OAK.—Profit, three months, about £1,050. Share capital, £49,982. Loans, £80,310. Spindles, 109,362 (54,444 T and 54,918 W). Plant, three months ago, £97,893. Company formed 1874. Shares (£5) £2 10s. paid; buyers, 6s. 6d. dis.

OLDHAM TWIST (OLDHAM).—The profit is £1,588, and a dividend of 10 per cent. will be paid. The share capital is £62,389, and the loan £75,506. The fixed stock is valued at £101,630, and there are 67,482 twist and 65,836 weft spindles.

PARKSIDE (ROXTON).—The profit is £1,291, and a dividend of 1s. 6d. per share, or 10 per cent., will be paid. The share capital is £39,000, and loan £11,116. The fixed stock is valued at £32,949, and there are 17,916 twist and 30,846 weft spindles.

PERSEVERANCE (MILNROW).—Profit, three months, £7. The adverse balance is now £674.

PRINCE OF WALES (OLDHAM).—The profit is £898 (half year), and a dividend of 1s. per share will be paid, carrying forward £127 to next quarter's account. The share capital £48,000, and loan £39,345. The fixed stock is valued at £77,668, and there are 68,500 all twist spindles.

RIDGEFIELD (FAILSWORTH).—The profit is £1,251, and a dividend of 2s. 6d. per share, or 11 per cent., will be paid. The share capital is £47,485, and loan £50,704. The fixed stock is valued at £65,185, and there are 46,272 twist and 22,800 weft spindles.

ROCHDALE (ROCHDALE).—The profit is £1,191, and a dividend of 12½ per cent. will be paid, placing £600 to reserve fund and carrying forward £104 to next quarter's account. The reserve fund now stands at £5,600. The share capital is £25,332, and loan £56,219. The fixed stock is valued at £65,705, and there are 28,656 twist and 42,016 weft spindles.

ROXTON (ROXTON).—The profit is £1,330, and a dividend of 1s. 6d. per share, or 10 per cent., will be paid. The share capital is £36,000, and loan £33,995. The fixed stock is valued at £52,162, and there are 27,978 twist and 39,642 weft spindles.

STALYBRIDGE (STALYBRIDGE).—The profit is £650 and there will be a dividend of 1s. 3d., or 12½ per cent.

SUN MILL (OLDHAM). The profit is £480, and there will be a dividend of 5 per cent.

SWAN.—Profit, six months, £1,384. Dividend, 2s. 6d. per share of £4 10s. paid up. Share capital, £54,072. Loans, £33,918. Spindles, 71,700 (43,800 T and 27,900 W). Plant, six months ago, £66,661. Mill fireproof. Company formed 1875. Shares (£5), £4 10s. paid, buyers 32s. 6d.

WEST END (OLDHAM).—The profit is £1,003, and a dividend of 1s. 3d. per share, or 5 per cent. will be paid.

NEW COMPANIES.

J. B. HOLDEN AND CO., LIMITED.

Registered by R. Jordan, 120, Chancery-lane, W.C., with a capital of £1,000 in £1 shares. Object, to carry on business as cotton, wool, and flax merchants. Registered without articles of association.

THE NORTHERN HOSIERY COMPANY, LIMITED.

Registered by R. Jordan, 120, Chancery-lane, W.C., with a capital of £1,000 in £1 shares. Object, to buy, sell, and spin wool, cotton, and other fibrous substances. Registered without articles of association.

HALL'S BARTON ROPEERY COMPANY, LIMITED.
Registered by R. Jordan, 120, Chancery-lane, W.C., with a capital of £15,000 in £10 shares. Object, to acquire the business carried on at Barton-on-Humber, formerly under the style of John Hall and Co., and subsequently in the name of W. P. Burkinshaw; to carry on business as ropemakers, twine spinners, and manufacturers, ship chandlers, etc. The first subscribers are:—
Shares.
W. S. Bailey, Commercial-road, Hull 1
J. Atkinson, Parliament-street, Hull 1
T. Ross, Sutton-on-Hull 1
R. Simpson, Collman-street, Hull 1
R. T. Vivian, Hull 1
J. Sherburn, Hull 1
D. W. Sissons, Hull 1
There shall not be less than three nor more than nine directors. The first are the above and J. Smethurst. Qualification, £100. Remuneration, £200, divisible.

Gazette News.

PARTNERSHIPS DISSOLVED.

Thomas Haigh and Sons, Colne Bridge Mills, Huddersfield, cotton spinners.
John Binns and Sons, Cowling, Yorkshire, manufacturers.
Atkinson Bros., Holly Park Mills, Calverley, woollen cloth manufacturers.

NOTICES OF DIVIDENDS.

Arthur Marmaduke Shackleton, 20, Carlton-street, and 9, Carlton Place, Halifax, underclothing manufacturer; 5s. 2d., first and final.

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.

22ND to 27TH SEPTEMBER.

- 14,929. W. J. FORD, 4, Shenton-street, Leicester. Knitted stockings.
- 14,960. S. DAVIS, F. MOORE, F. C. BASTICK, J. GODDARD, and J. PALMER, 45, Southampton Buildings, London. Knitted gloves and similar articles, and apparatus for their manufacture.
- 14,964. W. R. LAKE, 45, Southampton Buildings, London. Looms. (*F. Hofmann, Italy.*)
- 15,042. W. R. LAKE, 45, Southampton Buildings, London. Cotton gins. (*F. H. Chase, U.S.A.*)
- 15,052. E. DAWES, 47, Lincoln's Inn Fields, London. Spinning and twisting machinery.*
- 15,075. J. HOLDEN and W. CATERBALL, Central Chambers, Halifax. Looms.
- 15,076. R. PATON, 6½, Waring-street, Belfast. Dressing or finishing line, etc.
- 15,098. J. T. LISHMAN, 1, Chellow Mount, Allerton, Bradford. Pegs and lags for operating the catches in loom dobbies or shedding motions.
- 15,105. J. CLAYTON and D. CLAYTON, 72, New Market-street, Bradford. Bobbins and spools.
- 15,117. C. A. ROSCHER, Post's Corner, Westminster, London. Tube knitting frames.*
- 15,120. O. IMRAY, 28, Southampton Buildings, London. Black colouring matters. (*The Society of Chemical Industry, Switzerland.*)
- 15,132. L. WOODWARD and C. R. WOODWARD, 24, Southampton Buildings, London. Knitted ribbed fabrics, and machinery therefor.
- 15,134. ROSE A. JOHNSON and R. BREWSTER, 22, Southampton Buildings, London. Rings used in spinning and doubling frames.
- 15,155. J. PARK, 58, Low-street, Keighley. Weaving pile and looped fabrics.
- 15,170. G. SCHULER, 4, Moorfields, London. Linoleum, linocrusta, cere-cloth and the like.
- 15,173. A. KNOX and A. E. KNOX, 96, Buchanan-street, Glasgow. Machinery for cutting chenille.
- 15,181. H. KILBY, E. C. KILBY and K. S. SELLER, 323, High Holborn, London. An improved method of manufacturing the heels of stockings and socks upon straight bar knitting machines.
- 15,238. T. W. WILSON, 39, Lupton-street, Bradford. Shuttles of looms.
- 15,240. W. MATTHEWS, J. YATES, and W. YATES, Manchester. Moistening air and ventilating.
- 15,246. J. WRIGHT, 323, High Holborn, London. Black-dyeing materials composed of mixtures of animal and vegetable fibre.
- 15,278. E. BEER, 4, South-street, Finsbury, London. Warp machines.

- 15,306. G. C. WHITFIELD, 53, Chancery-lane, London. Producing Woodbury type pictures upon textiles.
- 15,331. P. GENTIL and A. E. VANONI, 46, Lincoln's Inn Fields, London. Preventing escape of smoke into the atmosphere.
- 15,345. B. WILCOX, 47, Lincoln's Inn Fields, London. Blue colouring matters. (*Farbenfabriken vorm F. Bayer and Co., Germany.*)
- 15,346. S. PITT, 24, Southampton Buildings, London. Azo dye-stuffs and materials for their production. (*L. Cassella and Co., Germany.*)
- 15,347. S. PITT, 24, Southampton Buildings, London. Production of azo colours in substance or on the fibre. (*L. Cassella and Co., Germany.*)
- 15,351. H. H. LAKE, 45, Southampton Buildings, London. Weaving of silk, silk-waste, and other fibres. (*Escalles and Hatry, Germany.*)

SPECIFICATIONS PUBLISHED.

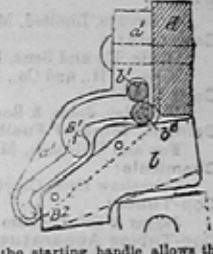
1889.

- 14,036. HART and BAYNES. Cleaning cotton, etc. 1s. 1d.
 - 14,070. PARKER. Loom shedding apparatus. 6d.
 - 14,184. HOYLE and TAYLOR. Knitting fibrous substances. 8d.
 - 14,544. DOUGHTY. Embroidering etc. machines. 6d.
 - 14,810. WOODWARD. Straight bar knitting machinery. 11d.
 - 15,206. MCFERRAN and FERRIS. Wet spinning. 4d.
 - 15,276. DODD. Preparing etc. fibrous materials. 8d.
 - 15,450. NICHOLSON and PALMER. Preserving, etc. colouring matters from tannin, etc. extracts. 6d.
 - 17,172. TRUMAN. Ornamenting lace breadths, etc. 6d.
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 - 17,629. STOWARD. Proofed fabric. 4d.
 - 17,684. STOTT. Winding yarns. 1s. 1d.
 - 17,736. LODGE. Drying warp. 8d.
 - 18,240. LORD and FLETCHER. Carding engines. 6d.
- 1890.
- 7,051. MORRIS. Wire-cloth loom. 11d.
 - 8,297. SERRELL AUTOMATIC SILK REELING CO., LIMITED. Preparing silk cocoons. 8d.

ABSTRACTS OF SPECIFICATIONS.

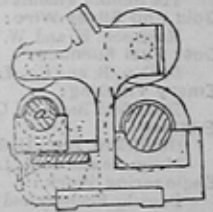
6,978. April 26, 1889. Looms. E. W. A. BAR, Zschopau, Germany.

Shuttle guards.—Brackets are secured to the lay d are slotted to receive the ends of two or more rods b₁, b₂, extending across the warp. When the loom is started, the rods arrange themselves as at B₁, B₂. Flaps f guard the sides of the loom. In a modification, the brackets are hinged to the lay, and are turned partly up by connection with a spring or weighted lever (or with a fixed part of the loom), as each forward motion of the lay. When the loom is stopped, the starting handle allows the lever to turn the brackets quite up, the rods then falling together towards the lay esp. [84d.]



7,021. April 27, 1889. Spinning. G. HUNTER, 26, Avoca-street, Clifton Park, Belfast.

Rollers and roller heads.—The bearings for the back roller a are adjusted simultaneously towards or from the front rollers by means of a longitudinal bar b which is adjustable endwise by means of a screw, projections on the undersides of the bearings taking into inclined slots in the bar. [64d.]



7,024. April 27, 1889. Spinning. H. ISERT, 105, Mill-row-road, Rochdale.

Carding engines.—The object is to obtain upon a single cylinder engine the combined effect of a breaker, an intermediate, and a finisher carding engine, and for this purpose rollers and strippers, Wellman's or other self stripping flats and revolving flats are mounted in order round the main cylinder. The rollers and strippers may be dispensed with if desired, and the clothing of the Wellman flats may be graduated, the clothing on those nearest the revolving flats being finer than the clothing on those further way. [64d. Drawings.]

7,031. April 27, 1889. Spinning. A. SPIEGELBERG, Royal Exchange, Dundee, N.B.

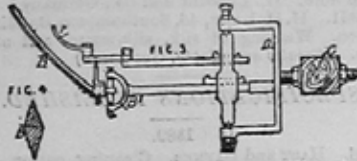
Breaking flax, etc.—The material is fed by an endless apron to three pairs of presser rollers and a smaller pair of nipping rollers, from which it passes to eight pairs of rollers, which are reciprocated both horizontally and vertically, the horizontal movements being such that the distances between adjacent pairs of rollers are always equal. Each pair of rollers is carried by vertical extensions from transverse bars which are also provided with vertical rods, having anti-friction rollers at their lower ends which take into cam grooves in plates, by which the vertical movements are pro-

duced. The rods slide vertically in guide pieces, which are connected by links to a rocking shaft, operated from the main driving shaft. The rollers are rotated on their axes intermittently by means of sprocket gearing driven through a ratchet arrangement from the main driving shaft. (Ed. Drawings.)

7,045. April 27, 1889. **Combing machines.** T. W. HARDING, Tower Works, Leeds, Yorkshire.

Helmsman.—The comb cylinder is made in segments or not, as desired, and the teeth are fixed into holes drilled therein. In order to obtain fine combing effects with comparatively strong teeth the rows of the latter are arranged in groups, preferably of two, the teeth in one row being opposite the intermediate spaces in the other. (Ed. Drawings.)

7,193. April 29, 1889. **Cutting cloth.** J. HOWARTH, 13, An Traill-terrace, and W. T. HOWARTH, Longsight View, both in Tostington-road, Tostington, Lancashire.



For severing cloth specially woven for dividing along the middle and the like, the knife B, of the shape shown, is fixed to a horizontal bar, which is connected by parallel pivoted links to a frame on the beam C. The knife is also pivoted to the fork B₁, which is keyed to a vertical shaft, pivoted between arms of the frame D on the beam C. A rocking tension fork F is mounted as shown, to press equally upon the edges of the cloth after it has been cut. (Ed.)

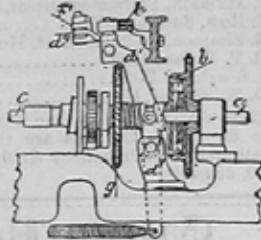
7,067. April 27, 1889. **Dyes.** S. PRYR, Sutton, Surrey.—(L. Cassella and Co.; Frankfurt-on-Main, Germany.)

Leuco Dyes.—Relates to combinations of oxy-ethers of naphthylamine and their sulpho acids with diazo compounds, and to the further acylation of these, and combination thereof with amines and phenols. The ethers of naphthylamine may be prepared from the naphthol ethers by nitration and reducing. The sulpho acids of these may be obtained by the action of fuming sulphuric acid thereon, or the nitro-naphthol ethers may be sulphonated, and then reduced, or the naphthol ethers

may be converted into their sulphonic acids, and then nitrated and reduced. The dyes are prepared by mixing the hydrochlorate of an oxy-ether of naphthylamine, or sulpho acid thereof with a diazo compound, such as those of aniline, scindoline, xylene, alpha and beta-naphthylamine, benzidine, tolidine, or their mono-, di-, or tri-sulphonic acids. The colouring matters thus obtained may be converted into diazo-azo compounds, by means of nitrous acid, and these bodies are then caused to re-act upon phenols, or phenol sulpho acids. (Ed.)

7,123. April 29, 1889. **Spinning.** J. DODD, Hartford Works, Oldham, Lancashire.

Mule.—The tin shaft roller is driven positively instead of through the usual sliding friction clutch during a stretch, when a slow speed is required to be given to the spindles. The friction clutch B, through which the tin roller shaft c is normally driven, is, during the slow motion, held out of gear by means of an adjustable rail e, on the frame which operates a lever f₁ carried by a bracket d₁ on the end of the clutch actuating lever d₁. When the clutch is in gear the tin roller shaft c drives an additional rim shaft by means of a rope g, and a pulley on the latter shaft is also driven independently from a countershaft, the said pulley being connected to its shaft by means of a ratchet and pawl, the pawl being fixed to the additional rim shaft over-runs its gear the ratchet on it when the clutch is thrown out of gear, and the speed of the tin roller shaft becomes reduced, the latter shaft being then driven from the additional rim shaft. Means are described for moving the driving belt on to the proper pulley on the additional rim shaft, when the belt is moved on the ordinary rim shaft. In a modification the additional rim shaft is driven from the ordinary rim shaft, the pawl of the ratchet arrangement being held out of gear, during winding, etc. (Ed.)



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