TO GREY CLOTH AGEN T S, ETC. A leading Manufacturer Company can offer Special Terms for Preference orders on goods now being manufactured for a Limited quantity of black goods in the Textile Trade. Apply to J. T. Biddle, Manufacturers, Manchester.

The Textile Mercury:

Current Topics.

PRINTING OF CARPET: AN IMPORTANT INQ.

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

WHAT SHOULD BE THE STANDARD SPEED OF MILLS.

It is well known to everybody connected with the cotton industry that for years past there has been a steady acceleration of the speed of machinery. This has taken place in every department of the mill and in almost every section of the trade. Of course the new machinery stands in front of old, and excellence, and consequently for quantity of production to the employer and increased earnings to the workman. We may note here that the advantage to the latter does not always arise from any special spring from the Minders Association, or the activity, skill, or genius of their leaders. It is purely the fruit of the inventor’s labour and the mechanical skill of the machine maker, and it is owing entirely to the employer’s expenditure of capital that the new plant is purchased and introduced, with the object, in the first place, of enabling the capitalist to maintain a position in the front rank of those engaged in the trade, and so benefit himself. In the second he knows that it will benefit his employees, firstly by diminishing their labour and superintendence, and secondly by increasing their earnings. In the third place he hopes to contribute his quota to the task of maintaining the pre-eminence of his country in the markets of the world, on which depends his own, his workpeople’s, and the nation’s welfare.

ADVERTISEMENTS.—Advertising is Business with Business in its Machinery.—The Grand Propelling Engine. Scale of Charges for displayed advertisements will be forwarded on application to the publishers.

ADVERTISEMENTS.—Advertisements for Machines for Sale, for Rent, or Purchase, for Norrie & Power, to be Inserted for Six Months. These advertisements will be listed in the columns of the Textile Mercury. 15 cents per line. First insertion free.

THE TEXTILE MERCURY: A Representative Weekly Journal for Spinners, Manufacturers, Machinists, Blaechers, Colourists, and Merchants.

In all Branches of the Textile Industries.

Vol. III.—No. 72.

SATURDAY, SEPTEMBER 6th, 1890.

PRICE.

THREEPENCE.

10 FOR 30

THICK.

THIN

THICK.

THIN

THICK.

THICK.
have only the ex parte statement of "Demon," a writer in the Bolton Observer, for our account; and in the district that "Demon" is the name of the police officer affected by Mr. J.T. Fielding, the Secretary of the Operatives’ Spinning Association, and the workmen work without a law. In order that our readers may see that we do not misrepresent the worthy magistrate, we will place his own words before them. In last Saturday’s issue of our Bolton correspondent says—

Another strike of spinners is threatened; in this instance the management of Parliament Mill, Parwich, have refused to allow to earn decent wages owing to the slow speed at which Messrs. Hardman work their machinery. The average speed at which the attention of the Employers’ and Operatives’ Committees for some weeks past, and the representatives of the two associations, having paid a couple of visits to the mill, have jointly agreed to the speed at which the machinery is now allowed to attain the desired speed. There is a petty little bit of assumption in the opinions expressed in that the offence lies with the employers, and not with the leaders of the union or the workmen of the mill. We are afraid their present attitude is more than an offence to the mill and its machinery is being driven at a speed which the machinery was originally constructed to run. If it was, then the intervention and dictation of the union is an important one, and has been properly protested by Messrs. Hardman. On the other hand, if Messrs. Hadman have put upon the machinery a class of work which it was never constructed to perform, and in consequence has been reduced in speed, then we hold that the workpeople would have a fair claim to have the speed restored or compensation for it. It is a petty pity that Mr. Fielding, who is a witness upon this dispute, could not give the details fully and clearly, in order that the public might be enabled to form an independent and accurate opinion upon it; but in stating half the facts and with the bias of the instantaneous virtue which distinguishes him, he is only following what appears to be the rule laid down for the guidance of the leaders of all the unions in the district. Continuing his remarks Mr. Fielding goes on to say—

Naturally enough the men decline to go on being treated as if they were wholesale criminals, and they have tendered 16 days’ notice to leave work, and a similar notice is to be given by the card-room hands.

What wages have the men lost! Before we can judge the matters put above must be allowed. They are, however, quite justified in leaving any work with which they are not satisfied, and there is no impropriety or wrong in giving written notice to do so. But we wish our readers to notice the concluding clause of the sentence: “And a similar notice is to be given by the card-room hands.” Here the cloven hoof is shown. What wages have the men lost? Before we can judge the matters put above must be allowed. They are, however, quite justified in leaving any work with which they are not satisfied, and there is no impropriety or wrong in giving written notice to do so. But we wish our readers to notice the concluding clause of the sentence: “And a similar notice is to be given by the card-room hands.” Here the cloven hoof is shown. What wages have the men lost? Before we can judge the matters put above must be allowed. They are, however, quite justified in leaving any work with which they are not satisfied, and there is no impropriety or wrong in giving written notice to do so. But we wish our readers to notice the concluding clause of the sentence: “And a similar notice is to be given by the card-room hands.” Here the cloven hoof is shown.

THE FIRST WOOLEN MILL IN JAPAN.

Letters from Japan announce the opening of the first woollen mill in the English East, which has been erected at Gai, a suburb of Tokyo. The ceremony was performed by the Governor of the district on the 8th July. The project of which the initial stage has thus been accomplished had occupied a small weaving shed, established in 1886 near Tokyo, for the manufacture of rough fabrics on hand looms. This enterprise proved very successful, and was determined to manufacture weaving of textiles suitable for the European style of clothing now so much affected by the Japanese. A company was therefore formed, to erect a large shed for manufacturing clothes and linens. This development also proving successful, the Tokyo Woollen Manufacturing Co. Limited, was next floated, with a capital of $350,000, of which one-half was offered for subscription to the public, who readily responded. All the capital was raised by September 1887, and Mrs. Abe Kokoza and Miyako Tsuchikata (the founders of the first weaving-shed) were appointed managing directors. The first-named, accompanied by another two native gentlemen, came to England in May, 1888, and placed the matter in the hands of Messrs. Taylor and Woodhead, two practical engineers (the latter representing Messrs. William Whiteley and Sons, of Huddersfield). The erection of machinery was carried on in October last, and all the time from that date until the opening has been occupied in perfecting the arrangements. The capacity of the plant is estimated at 900 yards of finished material per day, and its present position appears to lend the opportunity of examining some admirably-finished pieces of woollen cloth and flannel manufactured in the establishment, and considered that the results so far reflect great credit upon all concerned. The machinery was all supplied from Lancashire and Yorkshire district, as will be seen from the following list of well-known firms:—

THE TEXILE MERCURY.

September 3, 1888.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.

THE TEXILE MERCURY.
THE TEXTILE MERCURY.

September 8th, 1862.

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

THE COTTON SPREADERS' SEDAN.

This year's campaign in the war between cotton spinners and speculators has been short, sharp, and apparently decisive. The annual attacks made by speculators upon the interests of the cotton industry have become quite wearisome in their sameness, and unendurable from the mischiefs they have inflicted. Almost every year, about the season when they were first hatched, the trade has been advised by large numbers of men or less interested persons to stand aloof and, not by buying when the opportunity offered, assist the operations of their natural enemies the 'bulls.' It is astonishing when one reflects upon the facts to what extent this disinterested advice was adopted. This arose mainly from the fact that the spinner wanted to conduct his business in peace and quietness, and to be left alone to do his business. In revenge they were found they would not do. These speculators discovered that the raw material in the supply of and demand for the raw material afforded them too scant a pasturage on which to feed and therefore they began some few years ago to cultivate the ground. This answered much better. They invented or discovered methods of inducing abundance and scarcity in season and out of season, which puzzled the simple wife of the children of Oldham. The latter found their profits diminishing and their 'divis' disappearing. They protected and restocked their pastures for a number of years, during which spinning became a very lean business. Their enemies, however, put their fingers in their ears and went on their way. All the time protesting that they were the best friends of both spinners and manufacturers and that they were raising prices every season they induced cotton growers to plant another crop, without which manufacturers, the spinners of Oldham, and the looms of Blackburn, Burnley and Darwen would have come to nothing. It was a sort of dexterous confusion, and this effect of the edge were puzzled but not convinced. Somehow they preferred 'divis' to the music of the redstart, and bank notes to bird notes, and annually provided bolder. Last year they vowed vengeance upon the speculators, for they had once more heeded them in their baggyings, and found their lot harder than ever. A two weeks' stoppage of cotton mills, and told the speculators to eat the cotton they had purchased, whilst they, the spinners, awaited the arrival of the new crop. This their enemies the speculators, who began to dribble out their holdings, knowing that if they were compelled to cut it that the down of the price would be apt to induce dyspepsia. So they got rid of it at lower prices than they had estimated, but without such as left them some profit upon their labours. Spinners, however, found this resource a most costly one, and so decided to use it to preserve abundance. The plan would not do; it was more likely to be devised if any good was to be done. This was devised, and we take credit for having made it extensively known in these columns very early in the season. It was most widely acted upon, and from knowledge gathered from the most authoritative sources we have been enabled all along since the opening of the year to declare that this season at least, if there were any 'turning.' It would be seen that the trade had only increased the speculators. The past few months' battle and the route of the speculators prove our prediction true up to the limit; in fact it is a veritable open season. The forces of nature, of steam, and of prudent commercial operations, have all been brought to bear upon them. The first has given the trade an early cotton harvest; the second is moving it higher at a rapid rate; whilst the third has enabled the spinner to avoid the market at a critical time. This combination of forces has largely given the speculators the disastrous choice of "the devil or the deep sea." There has only been a Sedan before them, into which hand over hand they have tumbled. From the heights around the trade have poured in shot and shell until every vestige of concerted action amongst them has been destroyed, and they are now at a low ebb.

THE FALL IN COTTON AND ITS RISKS FOR THE TRADE.

The demoralisation of cotton prices arising from the collapse of the speculative movements in Liverpool induces a condition of things in Manchester fraught with great danger to the trade, especially to the manufacturing branch. It is not yet certain that prices have touched the bottom, but they have fallen far enough to be made the occasion of infecting great mischief upon manufacturers. It is almost superfluous to say that cotton goods as a rule are now made almost entirely to order, with some speciality in the particulars or bindings for nearly every merchant. On all business contracted for upon a higher level of prices than that to which we have just descended, or may soon fall, great risks will hang. It is regrettable to have to say it, but there are many merchant houses in Manchester, and their clients abroad, that do not scruple to repudiate contracts upon the most frivolous pretences when the fluctuations of the market offer them an opportunity of reducing the price. The present is one of these, and we expect to hear repeated numbers of orders on some considerable scale, especially if the fall in cotton should proceed a little further. It has always been the case in the past for a long time, and we are not prepared to say that this will not be the case in the present instance. It is a matter, however, to which the attention of the United Cotton Manufacturers' Association should be immediately drawn. In every case where there is reason to suppose improper advantage is being taken of present circumstances the case should be thoroughly investigated, and if persisted in the victimised manufacturer should receive the support of the Association. It would be idle to reply that manufacturers do not know to whom their goods are sold. They ought to know, and in case of this they especially ought to withhold the knowledge from them. Persisting in this practice, the responsibilities should be visited upon them. We have been made acquainted with many cases of injustice. In like circumstances during the past twenty-five or thirty years, owing to want of organisation, and we do not know that any one has yet devised a practicable plan of defending the trade from such attacks, which it is highly desirable should be done.

THE CALICO PRINTERS' ASSOCIATION.

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

SUPPLEMENTARY NOTES ON THE MINKLEY BILL.

London dailies are seen at their best when discussing a “function” at the West End or some other local affair, which in their wisdom they consider of minor importance and thus desist from attracting the attention of the country at large. When such a subject as the Minkley Bill comes forward, those same local affairs are still to the front, while a matter of such national moment as the tariff question, now agitating the minds of merchants and manufacturers in the United States, and the North and Midland districts of this country, as well as in Ulster, receives but scant notice. By-and-by, however, after the subject has been thoroughly thrashed out in these districts, the “pretty pooling” of the London press commerce is parrot fashion to take it up, and to inform their unenlightened readers of the bearings of the whole affair. An often as not the information thus furnished is wholly misleading. London press is the latest example of this kind of thing has been set by the Daily News, which in all the prominence of leaded type announced the other day that “protection’s death knell” (i.e. of the Minkley Bill) was mistakenly supplied by the Minkley Bill. This is all nonsense. As our contemporary would have known had it been in touch with the industrial pulse of the nation—which does not beat in London. If the statement referred to had rested in the columns of the Daily News, little further word need be said. But unfortunately it has had wider circulation than that afforded by the organ of Bowvere street, various metropolitan and provincial journals having quoted it. In Sheffield, for instance, we observed that the Independent on Monday had its placards almost filled with a headline drawing attention to the matter. This kind of thing is calculated to work much harm, for there exist no solid grounds why Englishmen, Scotchmen, or Ulstermen should delude themselves with the belief that the Daily News view in correct. Protection is too strong in the States yet for the sounding of its death knell to be talked about. London journals have done more to strengthen the position of the protectionist party by talk of this kind than anything else. The foolish propositions of the Daily News have been hailed by the States, and have by this time furnished political capital to those who are antagonistic to the gracious isle and the Golden State. Professor Goldwin Smith says with truth in the current number of Macmillan’s that every protectionist in the States is Anti-British. Bidders at England across the Atlantic, assisted by our duly emissaries the Irish citizens of the Republic, will see in the language of the London press further strong arguments in favor of the fiscal policy of which Major McKinley is a representative exponent.

Manufacturers of these districts may safely ignore the London press as an authority upon matters relating to Ulster. Another instance of their ability was displayed on Wednesday, when a metropolitan evening paper of the highest rank tried to enlighten its readers regarding the collapse at Liverpool, and gave the recent movement in the price of cotton as 3s. 6d. and 7s. 6d. per lb. (1)

The fair at Nishni-Nogrov began officially on August 22nd. Business is tolerably brisk. Firms are numerous in the importers in Leningrad goods is still slight, as in woolen goods. The getting-in of new goods is not yet perfected. The business in cottons and linens is six months and from six months' bills at 6 per cent.

The event of the week, from an industrial and commercial point of view, is the annual meeting of the Trades-Union Congress held at Liverpool, to which, in our last issue, we directed the attention of our readers. This is the 22nd year since its formation, and it may be remarked that its progress has been uninterrupted; each year showing an advance in one direction or another. We are not aware whether, in its origin, the Congress owes anything or not, in the way of suggestion, to the Labour Parliament instituted by the late Ernest Jones, and which, in the fifties, held two or three meetings, if we remember rightly. But be that as it may, it is largely constructed on the same lines. Its members are appointed by the various local trade-unions and, in the main, receive their instructions beforehand on matters directly concerning the societies they represent. On all other they possess more of a representative character. Each member is furnished with credentials by the society sending him, and these are verified by an examining committee before he is allowed to take his seat. A president is elected, whose function it is to give an address to the members, and afterwards to preside over the deliberations of the assembly. To the whole of the business the Congress devotes a week, and is then dissolved. It, however, elects a permanent Parliamentary Committee, whose duty it is to take charge of the measures the Congress may desire to initiate, and otherwise watch all the proposed enactments that may directly or indirectly affect the interests of labour as seen from the trades-union standpoint. This Committee is a most important body and naturally a seat upon it is coveted by active and aspiring members of the various organisations. Almost necessarily its sittings are held in London, in order that touch may be kept with the Parliamentary representatives of the party, most of whom are also members of it. After a year's service this Committee presents a report of its labours to the Congress, and this is perhaps the most important document brought before it, as it shows what the Committee has done or left undone in the way of promoting or opposing legislation affecting industry, especially in the relationships between capital and labour. It also favours the public with a concise account of the desires and intentions of those who naturally guide and control, or at least to a great extent have hitherto do so, the deliberations and decisions of the Congress. This year, however, an element of discordance, Socialism, which first raised its head last year at the Dundee meeting, is threatening to interfere to some extent seriously with both the procedures and harmony of the meeting, by attacking, and if possible supplanting, the leading officials, to whose higher intelligence, caution, and experience national trade-unionism owes much of the progress it has made in the esteem of the public. It will be an unfortunate misfortune for both the trade and the country, and especially for the working classes themselves, if the present Congress should transfer its allegiance from the men whose labours in the movement have been to the men who are in actual fact that there are interests in the world besides those of labour, and interests with which this latter are incomparably bound up, and between which no division can be made, is a new and a mutual destruction. The new element in the present congress, the socialist one, which aspires to do this, we regret to say, entire destitute of both the intelligence and the experience necessary to safeguard and advance the true interests of the trade movement. This is simply proved by the utterances of its most prominent member, Mr. John Burns. His notion of capital, labour, and the principles that govern their relationship are as crude and vague as it is impossible to end the make of the system he represents. This has been the result of those with whom he has been spent upon the most ignorant mass of workers in the kingdom, the factory, street, farm, and the residuum of a nation, the unskilled labour of the East End of London, and corresponding classes and localities in our other large towns and cities. Upon such material a little volubility will go a long way, and be liable to be mistaken for double-distilled essence of wisdom. All the movements these men have made have been disastrous. The attempt of the Dockers’ strike, engineered by Mr. John Burns and Mann. This was won not through any skill or merit of theirs, but was entirely due to a spasmodic abolition of police regulations and to popular sentiment on the part of the London public, and to a less extent of the public outside the metropolis. This weakness turned the heads of the sociable demagogues of the metropolis to such an extent that once jumped to the conclusion that the country was ripe for the socialist harvest and only awaiting the chance of the passage of the laws, with which they were the chiefs. They forthwith called out a series of strikes in Manchester, Salford, London, and Liverpool, and other places, but save and except where Ascroft, of Oldham, to the men who have not been able to preserve themselves from the delusion of thinking that a gigantic industry like that of cotton can be closed against all but those who choose to enlist under their banners. In the interests of labour, and in the still greater interests of the nation, the freedom of labour and the freedom of trade must be maintained against all who either knowingly or ignorantly conspire against it. We are quite willing to believe that the men to whom we allude can only be properly classed under the second of these heads. But notwithstanding this they may do an infinity of mischief before their action can be arrested if care be not exercised, for

Mere wrong is wrought by want of thought.

Then any ill intent.

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

An army by the hourly army in the ranks of weakness during the past few years.
and the organization amidst them of a large number of new unions, it was confidently expected that the present congress would surpass all preceding ones in the point of the attendance of delegates. When it assembled on Monday this anticipation was not only realized but exceeded. The session was held in Hope Hall, Liverpool, a building fairly well adapted for the purpose, the area being covered with tables, supplied with writing materials. A certain amount of clamorliness pervaded the assembly, as the groups representing the same or allied industries generally got well together. The Socialists had evidently prospected the room beforehand, or at any rate in good time, for they had secured what was evidently a very commanding position from which to dominate their views. They did not mean to appear as an incorpoire voice crying in the wilderness, but as a very corporeal entity indeed, so as to accord perfectly with the aggressive nature of their policy. Perhaps the most notable recent event were the labour representatives in Parliament, Messrs. Broadhurst, Fenwick, Wilson, Butcher. Amongst others, its known names distinguished in the ranks of the workers in labour movements was Mr. Joseph Arch, well-known as the leader of the agricultural labourers, a man of sound intelligence, high morals, and of skill in speech. Also noticeable were the Socialist contingent, of which the leaders who made themselves conspicuous were Messrs. Burns, Mann, and Tillett. The cotton trade was represented by most of the leading officials of the various associations of operators. The chairman, Mr. Swift (Manchester), opened the proceedings in a speech reviewing trade-union matters for the past 18 years, after which Mr. William Mathkin (Liverpool Carpenters and Joiners’ Society) was elected president. The remaining offices were then successively filled, and the Congress settled down to business. The first act was the passage of a resolution according sympathy to the Australian strikers, on the initiative of the London Socialist delegates; the next was the reading of the report of the Parliamentary Committee by Mr. Broadhurst. This was an important document, but comment upon the points to which it may be desirable to refer can be usefully reserved. After some discussion, the Congress accepted the invitation of the Mayor of Liverpool to a trip upon the river, and a tea at the Town Hall. This concluded the first day’s proceedings. Space will not permit us to follow in detail the discussions of the week, and perhaps it will be better that they should be reviewed when the full tale of what has been done has come to hand, so far as it may call for comment from us.

NEW Slater MILL

In 1768, and this factory was erected by General Washington in 1758. It was built of brick, and the machinery, which was driven by horse-power, was modelled after the designs of two brothers named Barr, who had come from Scotland at the invitation of a Mr. Orr, who was himself a native of Lochinnnoch. The Barrs were “encouraged” by the Massachusetts legislature to the amount of $200 in 1758, by giving them six tickets to that value in the State lottery, in which there were no blanks, and the machinery they made is considered by Mr. Donnell to have been, beyond doubt, “the first built or introduced into the States for the manufacture of cotton, which included Arkwright’s roller spinning and other patent improvements.” For a time at least, they appear to have been employed rather in making specimen machines and in demonstrating the use of them than in any direct enterprise, although several attempts to deal with cotton can be traced to their models and instructions. At Providence, especially, a mouldy company, formed in 1768, of three persons, who at first intended to make up hand-spun cotton with Linen wepars into jeans, concluded to follow instead the Barr plans, and built a Jenny with twenty-eight spindles, “which was first set up in a private house and afterwards removed to the homeowner’s house chamber at Providence,” while another Providence speculcation of the same date took the shape of a “spinning-frame having eight heads of four spindles each.” There were two more weavers brought from Scotland in the same year, men who understood the use of the fly-shuttle, and could weave corduroy, and one of them also settled at Providence to build and start a loom with the first fly-shuttle ever seen in the town, or probably in America. But leaving this work, and keeping that spreading-frame in view, we find it sold to Moses Brown, of Providence, who removed it to Pawtucket, where, with his support and other machinery, William Henry and Smith Brown commenced business in 1789, and now we begin to know why Pawtucket should “en雄ise” over Samuel Slater. Between June and the end of the year Messrs. Allen and Brown made corduroys, royal blues, calicos, cottons, jeans, footstools, and other stuff, 409 pieces, containing 4,900 yards, which sold at from 1s. 6d. to 4s. per yard; but still, according to a writer in a Census report on the Social Statistics of Cities, they found all this good business unprofitable, owing to the clumsiness of the machinery. In September of this year, 1789, when the slaves in Africa had just been applied to cotton machinery in Manchester, a young man left London for New York, where he landed in November, after a longer voyage than we are now accustomed to in crossing the Atlantic. This was Samuel Slater, a native of Belper in Derbyshire, not long out of his time, in the old phrase, as an apprentice with Jedediah Strutt, one of Arkwright’s associates. Mr. Carroll D. Wright says that for the last four or five years of his indentures, Slater was general overseer of the Strutt factory, not only in making machinery, but in the manufacturing department, and if this seems an almost incredible position for a youth to hold, we must remember the wonderful expansion and unprepared condition of the trade at that time, and find a similar example in the career of Robert Owen, who, before he was twenty years of age, became manager of one of the largest mills then known, and in a few months partner in the concern. Young Slater threw up all his prospects of advancement at home on the strength of a newspaper paragraph, that had accidentally come under his notice, which stated what bounties were being offered in the States for the production of cotton machinery, and to acquire all the knowledge that could be gained he stayed with Mr. Strutt for some time after his apprenticeship had run out to superintend some new works which were being erected. There was nothing in New York to give him an opportunity, only one candle engine and two spinning jennies, although he had some engagement there, but in January, 1790, he entered the
service of Almy and Brown, and before the year was out, he put up three cards,rovings and draw
ning at the waterside, the mill of which was framed by a water wheel, the first Arkwright machinery in
America. From a description of the operations it appears that "the cotton was laid on by hand, taking up a certain amount of the fibers with a spatula, and then applied to the surface of the breaker, moving the hand horizontally across the card, to and fro, until the cotton was fully prepared." This does not inspire us with a great deal of respect for such appliances, but they were good enough then to make a radical change in the manufacturing prospects of the States. Whether the Pawtucket people will be justified in regarding
their old mill, in which cotton is still manu-
factured, as the veritable cradle of their cotton trade, unless they are content to acknowledge that 1800 is certainly not the centenary of its erection by Samuel Slater, is, after all, not a matter of very much importance. If we are to accept what appears to be reliable testimony, the Mill of Old Waterside was not built until 1793, when Slater appears as a partner with Almy and Brown, but the central fact remains that he was prime mover in several other successful ventures, and that he is thoroughly entitled to the designation of "The Father of American Manufacturers," whose Presi-
dence Jackson gave him. It is especially interest-
ing to remember that he practically escaped from
England when we were in a state of industrial
sige. Around our manufacturers there were put Acts of Parliament in defence, with heavy penalties and imprisonments as the punishment of detection in exporting models, drawings, or plans of machinery, and, of course, in case the machinery was found in transit. Artisans were no longer allowed to emigrate, and if young Slater's errand had been known he would have been much longer than two months in getting to New York. But in spite of some convolutions, and more extravagances, the rewards of cotton manufac-
turing were too great to become a national proposition. Finest of $500 were not prohibitive when great fortunes might be won by exalting them. The secrets of cotton manufactures were assailed on all sides. People came over on all kinds of plausible errands, but really to find out cotton, to go away with cotton taken away some skilled operatives, and if such weavers as were sometimes discovered, hidden in bales of common goods, that could not prevent some at-
ttempts being more successful. There was even a State legislature set on foot to induce Bacon and Watt to go to France, and who can tell what might have happened if that had been successful. That Samuel Slater broke through such barriers and overcame such obstacles as these is not by any means the least remarkable of the many recollections revived by this Pawtucket anniversary.

The portraits hereof represent Samuel Slater and his brother John. The latter had an interest in a mill built in 1796 in the town of Smithfield. The water wheel of the mill is now known as Slater's Mill, and is the property of the heirs of John Slater.

Designing.

NEW DESIGNS.

FAVOUR DIAGONALS FOR DRUGS MATERIAL.

This design is very well suited for the drapery, the subject being straight over on 16 shafts, 24 to the round; the figuring at the side and feet of the design indicate the

the pigment plan, all the other portions being repeated to show the run of the figuring. A very good choice for fancy vestings could be produced with 68 ends per inch, 20's silk, or 40's two fold cotton wove, single 20's, with 60 picks per inch. As this figure is really made by warp, the weft may be said to play a neutral part, at least so far as colour arrangement is concerned, hence the necessity for vivid and determined contrasts for the warp threads. We give a few colourings for up and down, the preference being given for silk in warp. Crimson red, pale turquoise blue; claret, white; light yellow-green; light violet, white, cream, or grey astral; light blue warp, dark terra cotta brown weft, 12 ends per inch, 50 picks per inch. These shades in warp and weft will be found serviceable and effective. It is used for a dress material or shirting, 72 ends per inch of 28 warp with 60 picks of 12 silk cop weft will give a very satisfactory result.

FAVOUR DIAGONALS FOR VESTINGS.

This design is suitable for a variety of fabrics. The best effects would be given if weft and warp are equal. If there is any difference let weft be a little darker than warp, or a few more picks per inch than ends per inch in warp. A good cloth may be made with 20's cotton, two in a dent, 20's, 60 picks per inch. These drapery sets would make a good transference for vestings. As for vestings, 60 warp in an 80 reed or 90 ends per inch, 30's, 50 picks per inch. Weft and warp grey, piece dyed in any shade, or bleached grey, may be shown in a different colour from warp, and vice versa. Straight over draft, 15 shafts.

FAVOUR SATIN DIAGONAL.

This diagonal is on the 16 shaft, and 7 for the satin ground, which is indicated in the design on a basis of four of the seven points; or in other words, every seventh point is passed over and a point made until complete. A very elegant and stylish dress material could be produced either in silk, cotton, or linen. The weft, if the reed is close set, might be any material, as it would be completely obscured in the face of the cloth, being thrown to the back out of sight. Two crossings exclusive and one for sati
n ground and one for figure, would be required to give full effect to this design; the reed might be a 60, three in a dent, or 50, two in a dent. Warp, 24 twill; weft, 30's; on shuttle, 40 picks per inch. The following colourings and shadings are given as suitable, and in accordance with the prevailing tints:—Grey, pink, blue, mauve, cream, gold, and brown. In white cream ground, and sulphur blue for figure, a really pretty effect would result. For an out-door garment it would also look extremely pretty in ecru, set and pomegranate silks, with peacock grey, green, or black, and old rose pink, light brown, and pearl grey. It is exceedingly difficult to indicate the possibilities in weaves, as almost every possible combination appears to be exhausted. Not so, however, with the un-
b管制ize of the different fancy colorings, where the utmost latitude is permissible if the arrangement be in sympathy with the vagaries of fashion. Many years ago we were engaged on a range of patterns for a very extensive London drapery firm, when their agent pointed out that an orange stripe would be desirable next to a glowing red. "Let us put a blue between," we suggested, "so as to minimize the discord." "Oh! I bother the discord, do as I tell you; I know best what is wanted," was the reply. So much for taste. The form of the designer may be strained and bent in every direction to produce a really good result in a good taste and style, but he must be subservient to the dictates and expressions of an unknown quantity that is too complicated and absurd hand in the World of Fashion.

MANTLE CLOTHES.

Design 128 demonstrates a principle of figuring mantle clothes suitable for but more varied than that furnished in our last issue. The effect of this particular design is to give a shaded stripe, which is very effective if suitable colorings are introduced. Browns with red as the luminous and brightening colour; drab and slate grey and blue with white; for lighter and brighter cloths grey French with yellow, orange, and white, will also prove effec-
tive. These colours may be introduced in the warp in the weft or in both, care should be taken to retain the shaded effect.

The design as given here cannot be reduced with drafting, so that it is not possible to pro-
duce such an effect with any effect in special cases, but as a ground for jigsaw figures this system is very useful.

GALATA STRIPED LINENS.

This is the most useful of all materials for women's and children's wear in every rank of society, and while the worsted or cotton is always in season, it is very extensively used for a trimming for bouquets and lately as a be-

coming and durable cloth for bathing suits. We give the following new arrangement in anticipation of early enquiries for this make of goods. All over ground, six for coloured stripe (see pegging plan), 60's linen warp, 60's reed, three in a dent, or 30 ends on one inch; 20's number, 60 picks per inch, all one shuttle. Pattern of warp and draft as follows: 60 of very light fawn, on shafts marked on the side of the pegging plan in 2, 3, 6 of royal blue on shafts 4, 5, 6, 7, 8, 9; then 18 light blue of fawn, on shafts 1, 2, 3 shafts; 6 of royal blue on shafts 4, 5, 6, 7, 8, 9; 18 light blue of fawn, on shafts 1, 2, 3, 4, 5, 6, 7, 8, 9, making a total of 132 for full pattern. If made in cotton, let dark blue take the place of fawn, both in warp and weft, the effect then will be the same change of lightest of blue, with variegated all the same, but warp 3's and twist warp 3's.

SEED TRAVEL PATTERN.

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

47 Reed, two in a dent, 20's warp, 14's weft, 60 picks per inch. Wasp pattern and draft:—10 ends of white, 2 dark blue, 2 white, 2 dark blue, 2 white, 2 dark blue, 2 white, 2 dark blue, 2 white, 2 dark blue, 2 white, 2 dark blue; 2 dark blue, 2 white, 2 dark blue, 2 white, 2 dark blue, 2 white, 2 dark blue; 2 dark blue, 2 white, 2 dark blue; 2 dark blue, 2 white, 2 dark blue, 2 white, 2 dark blue, 2 white, 2 dark blue; 2 dark blue, 2 white, 2 dark blue, 2 white, 2 dark blue; 2 dark blue, 2 white, 2 dark blue, 2 white, 2 dark blue, 2 white, 2 dark blue, 2 white, 2 dark blue, 2 white; on shafts 1, 2, 3, 4, 5, 6, 7, 8, 9; 18 light blue, or black, or white, on shafts 4, 5, 6, 7, 8, 9, making a total of 132 for full pattern. If made in cotton, let dark blue take the place of fawn, both in warp and weft, the effect then will be the same change of lightest of blue or white; red, and the same, but warp 3's and twist warp 3's.

THE ARRANGEMENT OF FIGURES.

Figure 24 illustrates very effectively the "Satellite distribution," which is the practice of a spray of gossamer, so common in country lanes, of course conventionalized to a certain extent. There are several interesting points in this design which will repay attention. In the first place it should be observed that the spray is drawn in three parts: the bottom portion of the spray the upper surface of the leaves are shown, in the middle of the spray the underside of the leaves, and in the upper portions the balls, which are round solid white. We need scarcely recall the realization of conditions such as these is the cost of all good designs.

Design 128 is given to the break-

suggestion to the spray of any one of them by its neighbour. Such inter-

facing, if such it may be termed, will very often be found useful, since it supplies a means for

ground in great demand, we intend to

160

THE TEXTILE MERCURY.

September 6, 1879.
breaking through stiffness and giving the idea of ease and grace.

Attention should also be given to the construction of the design, since it hardly gives a comprehensive idea to say simply that it is spray arranged in a certain order, for it needs little study to see that there are limits to the form of the spray. In Figure 2, the first figure dealt with was that formed by the largest leaves at the bottom of the spray, this being distributed on the same principle than the second. This accomplished the object was for a space into which a similar figure rather smaller than the first was introduced, upon the completion of which the idea immediately presented itself of making a continuous spray; this was acted on and resulted in the design as here given.

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

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

September 6, 1859.

Machinery and Appliances.

A CARD CLOTHING MANUFACTORY.

Messrs. John Whitley and Sons, Halifax.

Every person having a slight acquaintance with the textile industries, knows that in more than one of them carding is one of the most important processes, and that especially is it so in the cotton trade. Carding is the first passage of the raw material in which it is attempted to arrange the fibres in parallel order, and in its essence it is simply combing, and probably in the earliest days of the art an ordinary comb would be the instrument used. As time went on a series of such combs would be found to be more efficient, and in three arranged in a stock we should probably discover the origin of the hand cards that were so generally in use up to the beginning of the present century. Naturally the material of which they were composed would change from wood to bone or horn, then to the metal, brass or iron, and last of all steel, the most recent introduction. This simply shows that progress has taken place in this branch in much the same manner as in others. This very brief glance at the development of the carding process reveals the fact that, strictly speaking, a "card" is not the machine so called in common parlance to-day, but is the comb formed by the arrangement of the wire in its foundation, and which we now familiarly call card clothing.

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

The firm of Messrs. John Whitley and Sons having been founded in 1819, and being today one of the oldest now existing in the card clothing trade, deserves at least a brief historical notice.

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

In the development of the business the founder was ably assisted by his two sons, Joseph and George, who, we believe, were taken into partnership by their father, and upon whom the business ultimately devolved at his death. In their hands it steadily expanded with the growing cotton trade, the excellence of the work turned out ensuring an increasing connection. But the time came when they, too, were to be gathered to their fathers, and the now considerable business passed to two nephews, Mr. John and Mr. Nathan Whitley, sons of a sister who had married a Mr. Whitley—Whitley without its first. Thus it came about that the Messrs. Whitley became proprietors of the firm of John Whitley and Sons. These formed the third generation, and in their hands the firm still further prospered, becoming one of the leading establishments in the trade.

The present Brunswick Mills were commenced by them during their partnership with their uncle Mr. George Whitley, and the buildings were increased to their present magnitude by the Messrs. Whitley, to meet the requirements of further necessities. During their régime many improvements in machinery were introduced, and the business generally expanded in every direction. In due time the period came when they, too, had to give place to their successors. Mr. John Whitley retired from the business in 1887, and Mr. Nathan Whitley died during the course of last year. The business has now de manufacturing town than probably he would anticipate for some time to come.

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

Owing to the various improvements in card clothing there is very much less waste of wire in grinding than was formerly the case, a fact which has almost transformed the atmosphere of the cardroom in the cotton mill, from one of the most noxious environs that could well be conceived to one of comparative purity. The improvements in carding engines of all types, and especially the wide adoption of the revolving flat card, have done much to bring about this beneficial change. The most important contribution, however, has been the introduction of the hardened and tempered steel wire clothing. This needs much less grinding than the old description of wire. Amongst the many improvements the production of the finest card clothing, with the trouble and laborious work of the card, have done much to popularize this class of card clothing, and the trade is that of Messrs. John Whitley and Sons, who...
have devoted special attention to making its as perfect an article as is possible to manufacture. In order to be able to give personal supervision to the manufacturer in all its details, they conduct every process upon their own premises, from the drawing of the wire to the final grinding of the clothing. Many of these are performed by the aid of specially designed and constructed machines of their own invention, all of which, including the card setting machines, are made upon their own premises.

The greatest care is exercised to select metals of uniform quality from which to manufacture the wire, which is then drawn and tempered by machinery specially constructed in all its details with a view to secure the most reliable results. In the annealing, hardening, and tempering processes every detail is carefully adjusted and regulated, so that the product may be a hard, tough, bright, and even-tempered wire, free from scale. These are all points of the highest importance to spinners, as upon their attainment and combination depends the efficiency and durability of the clothing.

Having thus got the first essential of good clothing, the highest quality of wire, the next requisite is a good foundation in which to insert it. Foundations vary according to requirement in both the materials and the strength of the construction. It will suffice here to say that they are made of a number of layers of cotton, flax, or woollen cloth, with, in some cases, a layer of India-rubber on the surface, practically unchanged from its native state, though it has undergone such treatment as enables it to be cut into thin even sheets for composing the foundation. The cloth, whether of a union of linen and cotton, or of wool, is woven upon the premises in order to ensure that it shall be absolutely free from sizing, or any materials that might detract from its quality or reduce its durability. In the treatment of the rubber, which is the best, none as it is carefully cleaned from every particle and every impurity, so as to make it perfectly uniform in consistency. Foundations composed of the parent and best materials, and prepared with the skill derived from long and extensive experience are, as might be expected, thoroughly reliable.

We have not space to describe the setting process, nor is it necessary, being fairly well known. We need only observe that the card setting machine is one of the most ingenious machines to be found in connection with the textile industries. The filleting, as the narrow band of the foundation is technically termed, having been filled with the teeth of the strength and points or gauge required, presents a surface for the points, each point being of the dimension of a cross section of the wire that has been used. Formerly, the card was finished here excepting from scale. These are all points of the highest importance to spinners, as upon their attainment and combination depends the efficiency and durability of the clothing.

Carding is so important a process that it is impossible to admit of careless or imperfect work in anything connected with it. The machine itself in all its details may be as perfect as possible, and so may the card fillet, but if the cylinders, doffers, or flats be badly clothed such merits will go for little until the defects are remedied. These arise mainly from the clothing being put on slack, when in working it "rises" or "blisters," and so damages the material that is passing through. To ensure the clothing of the various parts being of a uniform tension, Messrs. Whitney and Sons have improved the apparatus usually employed, as will be seen from the accompanying illustration of the machine they provide for the purpose. It was designed to take the place of the cones and shunt plates commonly used. A brief description will suffice to show its merits to the practical reader. The bottom of the illustration shows a planked bed on which the carriage (1)
is traversed; above the cradle (2) hinged to the carriage, and upon this is the barrel (3), the portmanteau of which is quite smooth, to prevent any injury to the clothing; on the left is the trough for receiving and conducting the fillet to the barrel; on the top of the trough, and carried in a handle, is the hand-screw and regulating spring by which the pressure of the presser plate (6) is adjusted to the degree required for the work. The amount of pressure is indicated through the agency of the tension spring (7), the index (8), and the index finger (9). By the use of this mounting apparatus the covering of a carding engine can be properly and expeditiously performed. The tension at which the cylinders and doffers should be clothed differs according to the clothing used. Cylinder fillets of mild steel wire should be clothed at a tension of about 200 lb., and of hardened steel wire at about 270 lb. The doffer requires less; with mild steel wire 160 lb., and hardened steel wire 170 lb., being about sufficient. Roller fillets of hardened wire do not require to exceed 150 lb.

In using the machine a strain of 150 lb. is obtained by the fillets going once round the barrel; twice round, to 300 lb.; three times round, to 450 lb.; and four times round, to 600 lb., and is raised; whilst above that a modification of the machine is made to allow of a lap of three times being made.

In clothing flax Messrs. Whitely and Sons attach the fillets by rivets, by their own patent, or on Ashworth Brothers' system, as may be preferred by buyers.

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

**COTTON DYING WITH THE "BENOZO" COLOURS.**

The introduction of Congo red in 1885 produced a revolution in cotton dyeing with the unions colours. Previous to that time only so-called basic colours could be satisfactorily dyed, and three or four operations to get anything like good results - i.e., treating the cotton with tannin; then 2nd, with tannin extracts; and 3rd, the actual dying process. The brilliant azo scarlet and yellows were not available for cotton dyeing, as they cannot be satisfactorily fixed on that fibre. Then came Congo, which could be dyed without any assistant simply by boiling the cotton in an alkaline bath of that colour. Soon after Congo came the blues, azure blue and benzazurine, and then the yellow caramine, followed in quick succession by other colours until there are now scarcely any odd of those colours, covering every shade, although still the same, and as green and good violets, are wanting. Large quantities of these colours are now being used with more or less success. They are essentially one dye and one bath dye, and may be used either alone or in mixtures, one with another, for any shade. Although, in the main one process is applicable to another, yet they do not all dye equally well by one process, and the mixed, which will give best results with benzazurine do not give the best results with benzazurine, or Titan yellow. The former dye in a strongly alkaline bath, while the latter requires a strictly neutral bath, and the blues a neutral or a very weakly acid bath. The reason for this is not far to seek; the reds, as a rule, are much affected by acids, and they only assume their characteristic shades if the solutions are alkaline; and need to be dyed either in a neutral or weakly acid bath. The blues, however, are somewhat intermediate in their properties, and a neutral bath gives the best results with them. They will dye better in a moderately acid than an alkali bath. The affinity of these dyes for the fibres is great, and without an addition to the dye-bath they dye up somewhat unevenly. The object of adding the "assistants," as they might be called, is to prevent the dyes going on too rapidly, and, therefore, promoting evenness in dyeing. In what manner do they seem to be somewhat uncertain, and not easily explainable; it is probable that they act somewhat differently on the different dyes. One thing is certain — dark shades can be got with them than without them, while too great an excess of these assistants will prevent dyeing altogether. Of all these various assistants it is seen to be the most generally applicable and giving equally good results with the bazo group, azo; containing 4 to 5 lb. of salt in 10 gallons of water forms a dye-bath which can be used for dyeing any colouring matter. Even with salt there are differences: some of the colours will dye well with the above-named quantity, while others need a smaller proportion; and again, a stronger bath will prevent some from dyeing, while with others it has no effect. It would take too much space to deal with each in particular and show the amount of salt that is best adapted for it and that which will prevent it from dyeing. In the present article it is not intended to deal with bazo colours separately, but rather to point out how they can be combined together to form a wide variety of useful shades on cotton.

**RECIPE FOR CALICO PRINTING.**

**ALUMINA RED ON COTTON.**

Make a colour with:
- 200 oz. of alumina, 27 per cent.
- 200 oz. of thickening, 27 per cent.
- 65 oz. of essence of lime, 11 deg. T.W.
- 60 oz. of phosphatic alkali, 30 deg. T.W.
- 50 oz. of red oil, 50 per cent.
- 70 oz. of tannic acid, 15 deg. T.W.
- 1 oz. of tartaric acid.

**MEDIUM GREEN ON COTTON.**

Print, steam, wash, soap, and dry.

**MIX WITH**
- 1 oz. of alumina, 27 per cent.
- 15 oz. of essence of lime, 11 deg. T.W.
- 30 oz. of thickening, 27 per cent.
- 15 oz. of phosphatic alkali, 30 deg. T.W.
- 75 oz. of Turc red oil, 50 per cent.
- 98 oz. of tannic acid, 15 deg. T.W.
- 2 oz. of tartaric acid.

Print, steam, wash, soap, and dry.

**YELLOW ON COTTON.**

Prepare a colour with:
- 7 oz. of carbon yellows, dissolved in
- 21 parts of boiling water.

Mix with:
- 31 parts tragacanth paste
- 2 oz. 10 per cent. soap solution
- 2 oz. 10 per cent. phosphatic of soda solution

Print, dry the pieces, and steam without pressure for 30 minutes.

The *Farbzeitschriften* gives the following recipes, with the shaded patterns. The colours are very fine and brillian, and is prepared by passing through a bath of Turc red oil, 1 oil to 20 parts of dye, then printed.

**1—BLACK RED.**
- 7,000 grms. of thickening (see below), 1,500 grms. of alumina, 20 per cent. (yellow shade)
- 900 grms. of water
- 770 grms. of sulphate of alumina, 15 degs. Bé.

**2—PALE RED.**

**3—CHARCOAL RED.**
- 1,000 grms. above black red
- 10,000 grms. thickening (see next column)
Foreign Correspondence.

TEXILE MATTERS IN THE UNITED STATES.

NEW YORK, August 22nd.

Mr. Frederick A. Leight, the senior partner in the firm of F. A. Leigh and Co., Boston, the best known importers of English textile machinery, died on Thursday last. Mr. Leight came to this country a quarter of a century ago, from Manchester. He sprang from a family that had been closely connected with the cotton trade, his father being the late Evan Leigh, whose name is still a household word in the Lancashire manufacturing district. Two brothers of the deceased—Messrs. E. A. Leigh and Thos. A. Leigh—are in business at Manchester and Liverpool.

The gentleman who has thus recently passed away from amongst us was a great favourite both in this country and in England. He paid several visits to America after commencing business in Boston, and was in a way able to keep in touch with the latest developments of Lancashire enterprise.

The carefulness of print cloth production has caused attention to be directed to the condition of the industry here viewed in the light of its total output. In 1880, when six mills turn out 1,186,900 yards per annum. In 1890 there were 20 calico printing works operating in 20 machines with an output of about 1,558,300 yards per annum. Ordinary dress prints for three seasons, which have been declining in public favour. Innovations have been sought for and produced with success, soft-finished goods in imitation of cambrics and bennets having been placed on the market. Ginghams, too, are selling very freely, and the signs warrant the assumption that ordinary calico prints will not be so popular as formerly.

The worsted business of Charles Fletcher and Co., of Providence, Rhode Island, is amongst those marked for appropriation by English capital. Arrangements have been made for the immediate conversion of the concern into a limited liability company with a capital of more than three millions, and three Bradford gentlemen largely interested in the wool trade will form the English directors. These are the Mayor of Bradford (Mr. H. J. Baty), Mr. J. B. Brown, and Mr. G. D. Dawson. The Fletcher works are sold to be the largest in the world, largely because of the famous Saltaire Mills in England, and the present profits amount to about $1,000,000 per annum. Fletcher, the present head of the firm, is a native of Thornton, a village near Bradford, and has been connected with the industry about seventeen years ago as a weaving overlooker. He started in business with twenty dollars, his earnings have increased, and after a few years he had his premises burnt out. He has built up his present business within a dozen years, and now employs thousands of workpeople. He is a millionaire, with a sumptuously furnished house at Providence, another residence on an island in Narragansett Bay, and a well-appointed steam yacht to convey him to and from.

"Get us the McKinley Bill or give us free wool" is the cry of the manufacturers just now. The unusual rush of importers has alarmed them, and the delay by Congress causes much annoyance to the contributors towards the campaign fund of 1896. The goods have been largely imported for what is now wanted is a delivery as per invoice. In other words the manufacturers having provided funds to the Republicans for a return for a promise that the tariff should be increased, now await a fulfillment of the agreement.

The following description of "new" designs in Merrimac goods might be interesting, as showing the latest move on the part of one of the leading print concerns on this side. I would not, however, encourage any one to consider that the designs are original.

Furniture Cottoneers.

The goods are 30 inches wide and made of a good, durable twill. Most of them have large silhouettes, printed in 15 different shades, one for each shade of a white or coloured ground. A beautiful cotoneen shows a white ground, over which run large branches in three shades of brown, with brown. Large bunches of flowers alternate with small ones. The former are arranged in about 15 different colours and look as if they were hand-painted. The hue of the flower bunch is either light brown or white. The small bouquets are of three different shades of blue.

F. E. FURNITURE COTTONEEN.

The fabric is a strong gingham cloth, the surface of which shows an armoury effect in blue, brown, or mixed. The designs are most colour, and the colouring extremely brilliant. It is almost an impossibility to describe such designs on such fabrics, the work of the artist and the artistic imagination of the designer.}

FURNITURE TWILLS.

These goods are of a cheaper quality, and like E. F. furniture, are 35 inches wide. Notwithstanding the cheapness of price the colouring is quite as brilliant as in the expensive variety of the same class. We see cotton plain plain yellow green ground of dark yellow rose with a brown orange effect covered by blue of a lighter shade.

The rose grounds alternate with banded, formed by branches of small flowers, and the name of the country on blue space, between the rose and myriocot stripes is about 24 inches.

Returns showing the value of the exports and imports of textiles during the year ended June 30th, have been published. The figures are of more than ordinary interest, and, as we shall see from the table of statistics given in another column (made page 199) the figures relating to European countries are suggestive of increase in round numbers, of 3 millions on 1898. The increase, however, is entirely in cotton goods, our exports of woollens and linens being the same. Cotton, goods, for instance, were sent here in 1898 to the extent of 1,550,000, an increase, in round numbers, of 3 millions on 1898. The increase, however, is entirely in cotton goods, our exports of woollens and linens being the same. Cotton, goods, for instance, were sent here in 1898 to the extent of 1,550,000, an increase, in round numbers, of 3 millions on 1898. The increase, however, is entirely in cotton goods, our exports of woollens and linens being the same. Cotton, goods, for instance, were sent here in 1898 to the extent of 1,550,000, an increase, in round numbers, of 3 millions on 1898. The increase, however, is entirely in cotton goods, our exports of woollens and linens being the same. Cotton, goods, for instance, were sent here in 1898 to the extent of 1,5
News in Brief

From local correspondents and contemporaries.

ENGLAND.

Aberdour.

The death is announced of Mr. R. R. Henderson, J.P., one of Aberdour's most respected public men of the old school. Mr. Henderson was born at Hill-street, Aberdour, but removed to Aberdour with his father while quite young. He entered the cotton industry at the age of 16, and continued as a manufacturer until six years ago. He was a very active part in public affairs throughout his life, and held many honourable positions in the town.

GROUP.

The Rosevale Industrial Co. Ltd., have had their steam engine foundations at Peel Hill, Lollie, inspected and approved during the week, and with Archibald and William's Patent Reliable Metallic Cement, the work being most successfully executed under the personal superintendence of Mr. Williams.

Rinty.

On Monday night, a fire broke out on the premises of Messrs. Kinzie and Co., wool manufacturers, at Rinty, and continued for six hours. The loss is considerable. The damage was done to the stock and machinery, but the loss is covered by insurance.

Blackhall.

Going to the breaking of a shaft at Blackhall Mill, Blackburn, on Friday afternoon, a number of the operatives were struck, and others thrown temporarially idle.

At the Blackburn mill managers were held on 9th ult. at the George Hotel, before Mr. J. C. Sisley, to discuss the question of establishing a cotton mill in the town. The managers were also instructed to consider the possibility of establishing a mill in the town.

The spinners employed at the mills belonging to Messrs. J. E. Ltd., have given a fortnight's notice of their intention to leave their present positions. The managers have met the spinners and agreed to consider their demands.

Guiseley.

Mr. J. R. Postle, the manager of the factory, has been appointed to the position of the manager of the factory. The manager will take up his new position on Monday next.

Kiddminster.

Messrs. Woodard, Walker, and Co., have appointed Mr. J. R. Postle as their new manager. Mr. Postle has been with the company for some time, and is well known to the local trade.

Littleborough.

On Saturday morning part of the shaft was destroyed in the spinning section of the factory, causing a large amount of damage. The factory was closed, and the repair work is being carried out by the company.
granted or deferred. This the operates demand as well as other extras. Mr. John Williams, chief engineer of all Textile and Associated Industries, has been elected by the silk weavers to be his successor in this dispute, and the executive council of the above body have given him their support. Mr. Williams is well known as the London silk weaver, it will be understood, otherwise the weavers have threatened should the operations persist in their demands on foreign employers from France, &c., to send the weavers to the town. The London Delegates have also communicated with the Silk Workers' Society of Paris, and it is expected that this society will make an official deputation to London—will not receive the expected assistance.

Tytleydale.

Morton, O. White, the sensation spinners, possess the widest and most elaborately built chimney, which has got to be 120 ft. 9 in. out of the upper part, in a height of as many yards. The height of the chimney is 120 ft. 9 in., and the chimney is 120 ft. 9 in. tall. And Burnham, we think we may be usual for our annexes and to make a case to be supported in our own hands a large share of the Chinese trade. India, daily advancing under England's benefit rule, will become a great industry, the work as she is now, and here is a field which must command a great share of our productions. The increasing population must also surely become larger customers. Africa, an unknown land to all tastes and purposes for commercial ideas, may perhaps, in course of time, be interesting enough for business, especially Egypt, which, under British rule, has a fine future in store. South America, united for manufacturing purposes from climatic causes, must also become a much larger consumer than it has ever been.

Then it will be seen there is a future not without hope, and if we only "tack" the thing in the right way, I think we can not only hold our own, but still lead the trade in all those countries, in spite of the ever-increasing demands of the foreign and American competition. But this can only be by the adapting of ourselves to new markets and new styles of work, which the market will have to be studied by itself, its tastes, etc.—in a word, every man must be carefully and intelligently carried out. Here comes the, the point where the Yorkshire College must begin to be learned for you, and for such institutions, as you, to do this work, and you may depend upon it, the greater your advantage you will get. The more from you, it will be useless to plead the old excuses of machinery not adapted to the work, and others of this kind, to which we have been so long accustomed; it will be useless to offer old-fashioned designs, but as it is, you will have to make your knowledge known by the turning out of such work as will meet a demand.

It has been a matter of surprise that considering England's commercial supremacy, she has never had whose knowledge could be given to commercial matters. Treasurers come and treat for English College, but on commercial matters is proverbial. Perhaps when the wretched parties arise which have been the most important legislation shall have life, we...
THE TEXTILE MERCURY.

September 6, 1860.

TEXTILE INDUSTRIES OF DUNDEE.

(Continued from page 123.)

DYEING AND PRINTING.

The colouring of spun fibres and woven fabrics is one of the most important of the textile industries. Its earliest history affords indications of the existence of dyers, who developed the art and the production of different hues and colours in order to satisfy the needs of the state and to make clan relationships and racial distinctions. The Scottish dyers have long been famed for their skill in the art, but the fibres produced on wool, silk, and cotton by secret processes in the north of Scotland. The dyers were the headquarters of this industry were to be found in the West of Scotland. All this is now changed, however, as machinery has done away with the manual skill required by the dyers of former days, and the invention of the coal-tar colouring compounds has led to a revolution in the trade. Although dyer's colours are now produced by the colortar manufacturer, the older method whereby the dyer had to form the colour in the fibre itself in the process of dying, still his duties are as important as formerly. Much skill and experience is required to produce the best and most economical method of applying those colouring materials properly suited to the fabrics which he is colouring from the great range of colours that are now at his disposal. The dye trade in Dundee has been formed by the colortar manufacturers, and the Linnet Craft, both of which had an independent existence in the fifteenth century. It was not, however, an extensive industry until a comparatively recent date, and its present prosperity is due to the introduction of the jute as a textile fabric. The material, from its peculiar structure, the tenacity of the tanin it contains, naturally attracts colouring matter, more readily than any other material, and after the original grey of the jute has been removed, the resulting grey is that which for brightness, fulness, and appearance is the best of all the jute. The dyes which greatly enhance the appearance of coloured garments are now manufactured in Dundee, and jute yarns are mostly utilised in the manufacture of jute carpeting and matting, and also for the backing of cotton and woolen goods. The jute yarns are now utilised for fancy woven fabrics—such as curtains, tapstires, tablecloths, etc., and the increasing demand for these goods is no doubt due to the great skill and taste displayed in the colouring and designing of them. During the last few years the printing of jute carpeting has been largely introduced, and this process is used to produce a beautiful design in varied colours, which formerly was confined to the use of very monotonous stripes and figures. In Dundee there are about a dozen dyers and printing works, employing an average of 750 men each. Francis Stevenson and Sons, Lawrie Dyewoks, Ewen, and others have been engaged in the dying, bleaching, and printing of jute yarns and piece goods for some time. Mr. Francis Stevenson and Sons, Lawrie Dyewoks, Hilltown, and St. Johnstone Court, Dundee, are devoted to what may be termed the domestic trade—that is, the dying of silks, satins and velvets, upholstery, furnishings, damask curtains, and articles of dress. The latter business was established in 1857 by two sons of Mr. Francis Stevenson, and has been recently extended to provide wide accommodation for new departments added to their works.

The bleaching of yarn has long been an important industry in this locality, though, like other kindred occupations, it has not been greatly affected by the introduction of jute. The only fresh water streams of any considerable size in the neighbourhood of Dundee is the North Esk, and for several miles it is studded with numerous bleaching works, which, though beyond the city, they are, however, closely connected with the trade of Dundee. One of the most important of these firms is that of Messrs. Cargill and Co., who have bleachfields at Mill Field, Fontinloch, and Parkhead. Mr. Cargill, the head of the house, has had 50 years' practical experience of the trade, and it has been in the family for several generations. The firm has been in connection with it. In 1853 his firm acquired the business of Messrs. Cargill and Co., who have been engaged in the cotton trade, and these have been extended until they now cover an area of 30 acres. Messrs. Cargill and Co. have a spinning mill at Blecho Works, near Cargill.
## TEXTILE IMPORTS AND EXPORTS OF THE UNITED STATES

<table>
<thead>
<tr>
<th>Year</th>
<th>Cotton</th>
<th>Hemp</th>
<th>Jute</th>
<th>Silk</th>
</tr>
</thead>
<tbody>
<tr>
<td>1885</td>
<td>12,000,000</td>
<td>700,000</td>
<td>500,000</td>
<td>300,000</td>
</tr>
<tr>
<td>1886</td>
<td>12,500,000</td>
<td>750,000</td>
<td>550,000</td>
<td>350,000</td>
</tr>
<tr>
<td>1887</td>
<td>13,000,000</td>
<td>800,000</td>
<td>600,000</td>
<td>400,000</td>
</tr>
<tr>
<td>1888</td>
<td>13,500,000</td>
<td>850,000</td>
<td>650,000</td>
<td>450,000</td>
</tr>
<tr>
<td>1889</td>
<td>14,000,000</td>
<td>900,000</td>
<td>700,000</td>
<td>500,000</td>
</tr>
</tbody>
</table>

### Notes
- The data above represents imports and exports of cotton, hemp, jute, and silk from the United States during the specified years.
- The values are in tons.

## Textile Markets

**COTTON**

**Manchester, Friday.**

The annual battle between the 'bulls' and the 'bears' of the cotton market has this year been fought out upon the floor of the London Exchange at an earlier date than usual. At the date of our last report the contest had been in progress for nearly a week, and we have seen a steady movement against the bull's at first, but in the closing hours of the market the bulls have forced the bears to retreat. The prices for 8s. 6d. cotton were advanced by 11½d. today.

**Letters from Readers**

**The Horse-Hair Boom.**

To the Editor of The Textile Mercury:

Sir,—I observe in your last issue that the prices of horse hair have shown an advance of 1½d. in recent days. It is a well-known fact that horse hair is used in the manufacture of horsehair cloth, and that it is also employed in the production of upholstery, where its softness and resilience make it a valuable material. As the demand for horsehair cloth has increased, so has the demand for horse hair. It is my opinion that this demand will continue to grow, and that the price of horse hair will continue to rise. I am, therefore, of the opinion that the horse hair boom is here to stay.

Yours truly,

[Signature]

**COTTON.**

As stated in our last report, we anticipated a further immediate and distinct rise in the price of 8s. 6d. for cotton on the London market. The price has advanced by 1d. today, and we expect it to continue its upward trend in the near future. The demand for cotton is still strong, and we believe that the price will continue to rise. We recommend our readers to buy cotton now, as we expect it will be in short supply in the near future.
THE TEXTILE MERCURY.

September 6, 1860.

Day owing to the pressure to sell, and Americans declined 1/4, whilst futures were very irregular and weak. On the 4th July, points the Sper Throw and others were 1 1/4 points lower.

The above quotations appear to be correct, and the United States trade is steady except for the demand for China silk and export. The Shanghai market has remained very irregular, and the demand for American goods is still uncertain. Prices are still firm, but the latest reports indicate a moderate decline.

In Japan there has been rather more inquiry, and a few small lots have found buyers at full quotations.


SILK.

LONDON.

Makers, Durand & Co., in their Circular dated 3rd inst., say:

"Again the feature of the month has been the continued demand for China silk for export. The Shanghai market has remained very irregular and weak. The demand for American goods is still uncertain. Prices are still firm, but the latest reports indicate a moderate decline."

In Japan there has been rather more inquiry, and a few small lots have found buyers at full quotations.


HOSIERY AND LACE.

LEICESTER.

Wool is in better demand and stephens' position is better. Many of the worsted dealers are very busy. Lancashire yarns maintain the activity previously reported.

In cashmere and fine worsteds, which were not as heavy as usual, are fast running, but at present rates new orders are difficult to place at actual quotations, and this is causing some pressure on manufacturers. The trade is being kept up by steady business as it is doing in hose, half hose, necks, etc., and the weaving machinists report about an average turnover.

The now-famous manufacturers are fairly employed for some time to come.

DRY GOODS.

MANCHESTER.

This week there has been a fair amount of activity in certain quarters, but quite unsatisfactory and unsatisfactory.

The trade is in fine condition, and manufacturers have been able to sell goods for cash at reasonable prices.

In the main, however, the market is not very active. The demand for cloth is not very strong, and manufacturers are finding it difficult to dispose of their goods in good condition.

The weather is very unsettled and wet. The important orders for which these manufacturers were hoping may be considered as done for the season. The market is very uncertain and uncertain.

The weather is very unsettled and wet. The important orders for which these manufacturers were hoping may be considered as done for the season. The market is very uncertain and uncertain.

The weather is very unsettled and wet. The important orders for which these manufacturers were hoping may be considered as done for the season. The market is very uncertain and uncertain.

The weather is very unsettled and wet. The important orders for which these manufacturers were hoping may be considered as done for the season. The market is very uncertain and uncertain.

The weather is very unsettled and wet. The important orders for which these manufacturers were hoping may be considered as done for the season. The market is very uncertain and uncertain.

"The Kidderminster Carpet Trade."

The process of change is slow, and little alteration in the prices of carpets has been noticed during the past week. There has been a slight decline in the prices of certain grades of carpets, but the general level of prices has remained unchanged. The demand for carpets is still moderate, and manufacturers are reporting a steady but not brisk trade.

Manchester is one of the main centers of the carpet industry, and the trade there is characterized by steady but not brisk activity. The prices of carpets have been generally firm, but there has been a slight decline in the prices of certain grades of carpets.

In conclusion, it can be said that the Kidderminster carpet trade is still moderate, with steady but not brisk activity. The prices of carpets have been generally firm, but there has been a slight decline in the prices of certain grades of carpets.
APPENDIXES PUBLISHED.

1869.

5,519. GAN. Hand-drying machines. 8d.
5,547. Nozzles, spouts, etc., goods. 1d.
6,792. Batten and others. 6d. 3d.
The fabric is suitable for use in quiet, muted tones, as cottons, and even when woven with a raised pile or a chenille-like finish, it is a relatively flat material. In the form of the spinning jennies, from the beater, it is controlled by a Jacquard for making the figure, and by a Jacquard or an alternate head for the ground. The fabric may be used for towels, napkins, and other similar products, or for the production of various technical textiles such as filters, geotextiles, or as a base for paper products. It is machine woven or knitted, and may be used in the manufacture of various technical textiles such as filters, geotextiles, or as a base for paper products.