STEAMERS

Any delayed reply to JOHNSON'S PATENT application is in their own interest; this being provided that the invention is honest and unobjectionable in scientific principles.

EVIDENCES.

Messrs. Charles Macintosh & Co., Ltd., Manchester, have recently obtained the patent rights of the famous Macintosh Rubber Boot, and are producing the same under the name of "Macintosh Boots." The boot is made in three grades, from the most expensive to the least, and is sold at a very reasonable price.

Messrs. Rylands & Sons, Ltd., Cotton Mills and Manu-

facturing Co., have recently introduced a new line of cotton goods, which are said to be superior to any previously manufactured.

Advertisements of new products and services must be submitted to the Editors of The Textile Mercury for consideration.

In this issue, the Editors present a comprehensive report on the recent developments in the textile industry, including new patents, innovations, and market trends. The report is intended to provide readers with a comprehensive understanding of the current state of the industry and its future prospects.

The Textile Mercury, Vol. VI, No. 106, Saturday, April 14th, 1894.

OFFICE: 21, STREET, MANCHESTER; MANDER & CO., Publishers.

LONDON OFFICE: 11, NEWGATE STREET, EC.

THE IMPERIAL BUDGET: REMARKABLE REFORMS.

In his Budget speech in the House of Commons, on Tuesday night, the Chancellor of the Exchequer made one or two remarkable statements, which are well calculated to shake the belief of those imprinted in the minds of many country folks as to the amazing profligacy of taxation. In London and other

other textile districts, "cotton spinner" and "money spinner" are interchangeable terms, and when the trade presses to resist extra duties, the load has been successfully resisted by legislation, promoted by professional politicians, with a keen eye to trade-unions' votes, any important nobody can raise a sympathetic laugh in the House.

THE TEXTILE MERCURY.

The Imperial Budget: Remarkable Reforms.

In his Budget speech in the House of Commons, on Tuesday night, the Chancellor of the Exchequer made one or two remarkable statements, which are well calculated to shake the belief of those imprinted in the minds of many country folks as to the amazing profligacy of taxation. In London and other

other textile districts, "cotton spinner" and "money spinner" are interchangeable terms, and when the trade presses to resist extra duties, the load has been successfully resisted by legislation, promoted by professional politicians, with a keen eye to trade-unions' votes, any important nobody can raise a sympathetic laugh in the House.

THE TEXTILE MERCURY.

269

Reduction in Patent Office Fees.

In further reference to the Budget, the only noteworthy new clause proposed was a reduction in the Patent Office fees. The primary fee for $50 per annum was removed from the list, and the fees for the first and second years were reduced to $25 and $10 respectively, for the second year. For the third and fourth years, the fees were set at $15, which the Government proposed to reduce to $5 and $2 respectively, and for the next five years, the fees were fixed at $1, which the Government proposed to reduce to $0. The reduction was to take effect from September 1st, 1894.

Reduction in Patent Office Fees.

In further reference to the Budget, the only noteworthy new clause proposed was a reduction in the Patent Office fees. The primary fee for $50 per annum was removed from the list, and the fees for the first and second years were reduced to $25 and $10 respectively, for the second year. For the third and fourth years, the fees were set at $15, which the Government proposed to reduce to $5 and $2 respectively, and for the next five years, the fees were fixed at $1, which the Government proposed to reduce to $0. The reduction was to take effect from September 1st, 1894.

Reduction in Patent Office Fees.

In further reference to the Budget, the only noteworthy new clause proposed was a reduction in the Patent Office fees. The primary fee for $50 per annum was removed from the list, and the fees for the first and second years were reduced to $25 and $10 respectively, for the second year. For the third and fourth years, the fees were set at $15, which the Government proposed to reduce to $5 and $2 respectively, and for the next five years, the fees were fixed at $1, which the Government proposed to reduce to $0. The reduction was to take effect from September 1st, 1894.

Reduction in Patent Office Fees.

In further reference to the Budget, the only noteworthy new clause proposed was a reduction in the Patent Office fees. The primary fee for $50 per annum was removed from the list, and the fees for the first and second years were reduced to $25 and $10 respectively, for the second year. For the third and fourth years, the fees were set at $15, which the Government proposed to reduce to $5 and $2 respectively, and for the next five years, the fees were fixed at $1, which the Government proposed to reduce to $0. The reduction was to take effect from September 1st, 1894.
employers, was the question of cleaning during meal times, or after the stoppage of the engine on Saturdays. It will be remembered that a great outcry was made during the passage of the last Factory Act through Parliament, and it was thought that the mills should be stopped an hour earlier, for cleaning purposes, on Saturdays—a demand the improper character of which having been demonstrated, the House of Commons refused to sanction. Still, the loud outcry had been made, and the activity of the factory inspectors stimulated in order to ensure the prosecution of the employers, as singularly evidenced by the employers responsible for the proceedings of men who are not their servants, and over whom they have little or no control. The outcome of the cry has been that many employers have been deprived by their employees, the miners, who previously were so loud in their demands for it when it was a weapon with which they could harass the master cotton spinners. But putting the concession in force with a small reduction in the earnings, and therefore they suddenly became silent, as they made up their minds that they would deny it to the pieces, and compel them to clean, as before, during meal hours. But the pieces are determined not to submit, and an agitation is in progress in the Oldham district having for its object to compel the miners to stop cleaning whilst the cleaning is performed. If refused, they are determined to strike. Thus the employer is placed between two fires: his interests have to be sacrificed between the demands of two classes of trades-unionists, the law holding him responsible for such breaches of the Factory Acts as they are quarrelling about. It is quite time that these points were taken into consideration by the associations of employers, and their position in relation thereto clearly defined. Employers who have conceded the liberty to clean machinery during what is termed engine time, would do well to put up in their mills a notice to that effect, and in it to disclaim all responsibility for infractions of the law arising from anyone intervening to set it aside. An inspector who prosecuted the employer under circumstances which would deserve a severe lesson, and no bench of magistrates, we are sure, would convict them of an offence under such circumstances. It is quite time too that the employers from whom we have spoken should be terminated, and the employer become the employer of all persons in his establishment. This change, which might be made as soon as possible, would be a great reform of a very important and radical character. But all in good time: the new organisation of employers, we anticipate, will bear good fruit at an early date.

The Casaguta Fire of Paraguay.

In a Consular report on the condition of Paraguay, just issued, it is stated that the term called "casaguta" abounds and grows naturally in every part of the Republic. In the year 1879 Messrs. Braillo Artecon and Luis L. Lenguas made experiments with much success established that the department of Arroyo y Esteros, having obtained from the Government a concession for the working of this product freely for the space of 15 years in all lands, and to export the same exclusively when manufactured. The results were not satisfactory, owing to the inexperience of those in charge and the imperfection of the machinery. After several fruitless attempts they retired, and their concession lapsed. In 1889 Mr. Artecon again organised the same industry, with modern machinery, and took a contract from the company "Tejipollas," of Boeunos Ayres, for all he could remit. He remitted altogether 500 tons, and the result of the sale might have been remunerative if he had not committed the fault of employing inexperienced hands, and spent his capital in experiments, and he suspended operations. Attempting to send requests from Europe, certain commercial men have lately remitted samples that arrived in perfect condition, from which a profitable result was anticipated, but when they arrived, large quantities in the year 1890 it never set on the voyage, and arrived in Europe in an unacceptable condition. The "bomba" is a species of "casaguta" cotton, and its fibre is of a finer quality than that of its competitor, but neither of them has obtained any importance in commerce, owing to the cost of cleaning and separating the fibre from the leaves. Several attempts, as above mentioned, have been made, but so far without any great success. From the interest which has been awakened in this product in European markets it would seem to deserve a more careful study, and in Paraguay the opinion is held that with improved machinery and more skilled administration more profitable results might be obtained. The flowers have been seen in New South Wales, with a view of determining their exact species, which is still unknown.

Bengal Limiteds.

From the stock quotations which appear weekly in Capital, a fair idea may be obtained of the position of the various mills in Bengal registered at stock companies. As far as the cotton mills in the list are concerned, the shares are generally quoted at a discount. Of nine firms, three paid no dividends last year. These are two of Bengal Mills, with capital at ris. 6,000,000, and debarments together amounting to rs. 7,651,500; the Dunbar Mills, rs. 17,909,500; and the Miri Mills, rs. 21,500,000. The Miri has 42,000 spindles and 700 looms, and the others are spinning companies only, the Calcutta having 20,000, and the Dunbar 47,906 spindles. The former mill is Rs. 40,913 to the bad, and the shares are practically worthless. The shares of the Dunbar (Rs. 70 paid) are quoted at 31, and the Rs. 220 shares of the Miri at 79. This mill is the largest in the province, and has hitherto paid good dividends. The fourth mill, with capital of rs. 7,000,000, paid 8 per cent. for each of the years 1898-9; 5 per cent. for 1888; 11 per cent. for 1887; 9 per cent. for 1886; and 6 per cent. for 1890. With reference to the Bengal cotton industry, the "India Cotton" remarks that the Bowreah Cotton Mills Company is considering a new reconstruction and extension scheme in lieu of the scheme previously rejected, and adds—"The extension of 20,000 spindles, really meaning a new additional mill complete, coming at a moment when the twist trade is not by any means at its best, tells against a perfectly fair consideration of the question, yet it would seem that nothing could be of advantage to the concern to have as a part of its plant something entirely new and efficient in every way, for notwithstanding renewals, and the so-called "old" cotton mills, Bowreah is the oldest cotton mill on this side of India, having first seen the light half a century ago. Particulars of some half-dozen Bengal cotton mills are given below.—

<table>
<thead>
<tr>
<th>Name</th>
<th>Capital</th>
<th>Debentures</th>
<th>Spindles</th>
<th>Looms</th>
<th>Paid up Capital</th>
<th>Closing Quotations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bengal Mills</td>
<td>Rs. 7,200,000</td>
<td>Nil</td>
<td>36,106</td>
<td>280</td>
<td>36,106</td>
<td>280</td>
</tr>
<tr>
<td>Howrah Mills</td>
<td>Rs. 15,000,000</td>
<td>Nil</td>
<td>41,212</td>
<td>500</td>
<td>41,212</td>
<td>500</td>
</tr>
<tr>
<td>Cowanee Mills</td>
<td>Rs. 17,500,000</td>
<td>Nil</td>
<td>23,290</td>
<td>200</td>
<td>23,290</td>
<td>200</td>
</tr>
<tr>
<td>Cochrane Mills</td>
<td>Rs. 12,000,000</td>
<td>Nil</td>
<td>42,108</td>
<td>140</td>
<td>42,108</td>
<td>140</td>
</tr>
<tr>
<td>Bhoreah Mills</td>
<td>Rs. 11,000,000</td>
<td>Nil</td>
<td>1,250</td>
<td>100</td>
<td>1,250</td>
<td>100</td>
</tr>
<tr>
<td>4 First half 1891</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The Bengal Mills alone figure favourably in the column headed "Closing Quotations," the figures in which refer to the prices when the last mail left. The shares of the other companies will be shown at a discount. The Bengal directors have at their command a reserve of Rs. 20,000, and the Empire of India Mills one of Rs. 62,500. The Bengal Silk Co., with a capital of Rs. 50,000, 10 per cent., The Caspawo Woolens Mills (capital Rs. 6,000,000, debentures Rs. 2,000,000) paid 15 per cent., last year, and 10 per cent. in each of the years 1885-1890. This record in the case of jute mills is very satisfactory. From 1854 to 1885 was a most disastrous period. Twelve firms, controlling 4,512 looms, paid no dividends in 1885. In 1887, however, better times set in, and the following figures represent the dividends for 1891—

<table>
<thead>
<tr>
<th>Name</th>
<th>Dividends per Cent. for Years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Managers</td>
<td>Dividends</td>
</tr>
<tr>
<td>Gillanders and Co.</td>
<td>45.50</td>
</tr>
<tr>
<td>Erathus and Co.</td>
<td>71.00</td>
</tr>
<tr>
<td>Jardine, Skinner and Co.</td>
<td>70.00</td>
</tr>
<tr>
<td>Beer Brothers</td>
<td>61.00</td>
</tr>
<tr>
<td>Azar and Co.</td>
<td>90.00</td>
</tr>
<tr>
<td>Bell and Co.</td>
<td>40.00</td>
</tr>
</tbody>
</table>

It remains to be seen what will be the effect of the present jute crisis upon profits for the current year. Probably it will be found the figures for 1892 will not be so favourable as those referred to.

YORKSHIRE INVENTIONS AND IMPROVEMENTS IN THE OLD DAYS.

Still following the career of the Arkroyds, related in "Cotton Notes" to us in these columns last week, one learns of much that helps to throw a light upon the history of the woollen trade in its early days. In 1855 James Arkroyd and Son commenced the manufacture of damask. Seven years previously an improved damask loom had been produced by Mr. James Arkroyd, assisted by "Seetich Jenny," a Paisley town-crofter, well named with the "plash" loom. Bannister, a Stockport fancy assister, assisted, and the two weavers, was kept under look and key. Security was strictly observed till 1856, and the damask was retained. In that year, however, Mr. Jonas Roberts, of Ovenden, started a few looms, and others followed. The jacquard was soon applied to "plash" and figured worsted. Mr. "Dobby" Dawson, originally a carpet weaver at Dean Clough, assisted in perfecting many inventions for the Arkroyds. His speciality was the construction of the jacquard to a twill basis, used for all descriptions of figured goods with plain grounds, such as figured Russells and figured Orlons. Some of these goods were willed with multia. An ingenious joiner named "Wiley" of Great Harwood made two-twill Jacquard engines in 1839, and sold numbers of them. Norwich had already commenced to suffer from Yorkshire competition at this time. A new carpet weaver of the Abbey St. Shulden Dale, near Halifax, named Greenwood, successfully performed the difficult task of weaving Norwich carpets and bomblasticin. The transplanting of the industries of the Norfolk
capital was very difficult. In the case of camelts a peculiar knock was required on the part of the weaver in making his treadles, so as to bring down the web hastily by the loom to curve round the welt. Trusty emi-
curries were sent to Norwey, in 1839, to acquire the "knock" and by personal observation, and they brought back the secret of weaving camelts, bombazines, and Norwey crapes. Robert Good, master of the art of weaving camelts, went to Norwey in 1836, when Paramatta, with fine double cotton warp, commenced to replace them, until in turn were driven from the market by the modern Cobery, which has five single cotton warp. Yarn-dyed camelts in indigo blue, green, and other shades were largely used for workwear, until the mensworn cloth of James Akrury, Jr., Old Lane, supplemented them. Messrs. Macintosh and Company, of Manchester, bought this cloth, which was a light worsted fabric, over sixty years ago. The cloth received a thin coating of India-rubber, the process being then a new one. James Akrury made great advances in this trade, especially in the dressing of unionist.

LORD MASHAM ON FAIR TRADE

On Thursday last week, as briefly recorded in our last issue, Lord Masham attempted to make a speech on the subject of Fair Trade at the Mechanics' Hall, Bradford. We see "attempted," for as a matter of fact the remarks were only audible to the reporters during the greater part of the time, a large number of those present being evidently convinced on the meeting with the fixed purpose of annoying Lord Masham as much as possible. The conduct of the speaker was not due to any feeling in regard to Fair Trade. It was evidently spurred by other considerations, and may be taken as an expression of this opinion entertained of his Lordship personally by a section of the working classes in Bradford. To suggest anything to the contrary would argue lack of personal knowledge of Bradford. "The Boyo Man," "Lab-dollab," "Ain't Long Sync," "I've worked eight hours 24-day," and other coarse songs were sung freely at the meeting, which was a perfect farce from the beginning to the end of Lord Masham's speech. Amongst those present were Henry H. Ester, Mr. H. Byron Reed, M.P., Mr. H. C. McClure, Mr. Joseph Wright, of Macclesfield, Mr. Robert Thomas Watson, Mr. H. G. Tetley, Mr. B. T. Gibbs, Mr. Francis Willey, Mr. W. Greaves, and Mr. W. H. Mitchell. Amongst those in the stalls were Mr. E. A. Arnold-Forster, Mr. A. Mitchell, and Mr. John Lee. Lord Masham endeavored by quotations from Morgenred to show that this country was prosperous under protection. For between 20 and 30 years ago our ports were thrown open to the world we received practically nothing cither to injure our farmers or our manufacturers, with the exception of silk. This latter industry, employing, it was said, 120,000 people, was practically anhitiated. He wished to point to two very remarkable facts; first, that we prospered for between 20 and 30 years because Free Trade was inoperavive; if certainly did not do us good, but much harm, especially to the silk, and many other smaller industries; and secondly, that as long as we were prosperous, we paid more for food than we did before the repeal of the Corn Laws. After referring to the unanimity of other nations in favor of Protection, Lord Masham said that the real point to be considered in applying the principle of Protection on a particular case was whether the duty enhanced the price to the consumer in the market by a smaller amount than the duties of the total imports. In 1809, the banks importing wool had increased to eighteen, importing 300,000 bales, and by 1857, the number of banks rose to fourteen, importing 21,000,000 bales, nearly 16 per cent of the total. Action of Frost on Cotton

At the last meeting of the Manchester Section of the Society of Chemical Industry a short communication by Mr. J. W. Bell was read. The title of the paper was "The Action of Frost on Cotton." The literature published on this subject, said the author, gave the idea that cotton was "tendered" by frost. To quote Hummel's "Dyeing of Textile Fabrics," "the evidence on this point was conflicting," and it was not conceivable that the crystallization might act in a mechanical way, and that the atmospheric ozone might also exercise some slight destructive influence. This uncertainty might be attributed to the fact that, until recently, no reliable machine for testing the strength of the cloth was available. To determine the force with which two pieces of "madder-bled" cloth, one of good and the other of very poor quality, were placed together, and whether the strength of the cloth was the same as if it had been subjected to an atmosphere of 4°C (28°F). The cloth was quite stiff in this case, and the strength of the cloth was tested in Goodrich's machine against some of the original cloth, when the breaking weights were found to be identical. The trials were repeated, the cloth being frozen for sixteen hours. In this case also the strengths were found to be identical. It was, therefore, evident that the cloth was not "tendered" by the freezing of water within it, at any rate not when in the ordinary width. If the fibre were compressed to a greater or less extent, as would happen at the bottom of a waggoll load, the cloth might probably be weakened mechanically by the crystallization of the water, but he had no proof of this. The prevailing opinion that cloth was weakened by frost had no doubt, arisen from the fact that the fibres were frozen stiff when they were easily snapped, but any stiffening body, such as gum, would have the same effect, and this had obvious nothing to do with the actual strength of the fibre. Textiles at the Tasmanian Exhibition

Tasmania is having a little exhibition all to herself, although very little notice appears to have been taken of it in England. Mr. and Mrs. Stanley were amongst the distinguished visitors who inspected the show. There is not a strong display of textiles, however, mineral and other products being more prominent. There are black, brown, and gray worsteds, and woollens, and also a magnificent sample of the fleece of a sheep (18 months old) in Sir Samuel Wilson's Eccoli embrocus. This exhibit, which took the first prize at the Melbourne Exhibition, shows the improvement effected in the wool produced in Australia since Captain John Macarthur. The Melbourne Exhibition introduced the merino sheep to Australia at the beginning of this century, and is accompanied
by an explanatory pamphlet, edited by Mr. Maiden. The exhibit of the Waverley Woollen Mills is interesting as being practically the first substantial collection of woollens made in Tasmania. Mr. H. M. Stanley, of Stanley's Mills, has spent a long time examining the goods displayed from these mills, upon the occasion of their visit, and (a local report says) were, like everyone else, surprised at the varied assortment of the mill's excellent manufacture. The exhibit includes twills, suitable for ladies' and gentlemen's wear, in endless designs and make-ups, and blankets, which now form an important feature in the manufacture. Among the latest fabrics of the Waverley blankets have been in constant demand all over the colony, and they are said to be comparably valued with those made at Katipiti and Meiged in New Zealand. There is also a good display of flannels, varying in colour from snow white to deeper tints, both plain and twilled. Sanitary flannels are now a specialty, and of those exhibited the natural black or brown ones are made from wool grown in the colony, and purchased by the Waverley Mills. The men's, youths', and boys' clothing which is displayed is of strong material, in well-worn patterns, and for style, cut, and finish is an excellent illustration of what can be done in Tasmania. After all the great merit of the exhibit is that it occurs local enterprise and industry. There are also shown a couple of deserted models—a lady and a little boy—which display the material in its made-up state. The mill itself is situated about three miles from Launceston, and many additions and improvements have been effected during the past few years. One set of carding machines are at work, and some twelve bales of wool are made pure wool. In the spinning department there are two large mules, each containing 350 spindles. A number of the looms work three widths of cloth and others two widths. The dye vats are detached, and contains a large dyeing vat and scouring and running troughs. The mill is illuminated with electric light, and during the winter season, or when night work is necessary, its advantages are fully appreciated. These Waverley Mills are one of the sights of Launceston, and an enthusiastic writer in the 'Tasmanian' says that the dawn of a new era in the colony is at hand.

The Russian Flax Trade: Shrinkage of the Cultivated Area.

The report of Consul Wagstaff on the trade of the port of Riga possesses unusual interest, owing to the important position of cotton in the trade in relation to the flax export business of Russia. The prohibition of the export of wheat has had a serious effect upon the shipping trade generally, and the British steamers being laid up owing to the short supply of homeward cargoes from Baltic and Black Sea ports. The most interesting portion of the Consul's remarks is that which refers to the area under flax. In England flax growing has, practically speaking, disappeared, and it can scarcely be said to exist in Scotland. In Ireland also the shrinkage of the flax area has been greatly in the interest of the cultivation of flax, the successful prosecution of which is of important to the staple industry of Ulster. Russia has hitherto been the principal source of supply of the flax, but the supply of the country the acreage has diminished—a fact of profound importance to all connected with the industry. The reason offered is the reduced market price of the staple compared with the former deennial period, entailing loss on the farmer's yield. There has also been a lighter yield per acre owing to the exhausted state of the land. Flax is of course naturally an autumn crop; but after the revolution made by Reuter's Special Commissioner as to the

The Textile Mercury.

April 19, 1856.

The primitiveness of Russian agricultural methods and the ignorance that prevails amongst the peasants regarding the use of fertilizers, the assumption may safely be hazarded that certain provinces of Russia who had some experience to do with the result referred to. The quality of last year's flax crop did not come up to the expectation, owing to variable weather. The summer was too dry, and the autumn rain had been protracted; these do not altogether explain the production, especially the flax grown in Lithuania and Courland. Not only is the flax crop inferior in quality to previous years, but also in the manner it has been cultivated. In the several cotton districts of Russia the flax crop was less than usual and weaker than usual. The total production of flax in Russia was in 1851 245,175 tons. The three preceding years yielding respectively 288,140 tons, 316,831 tons, and 266,022 tons. The province of Livonia is the highest flax growing province, and with a total return of 33,560 tons, showing a decrease of 1,720 tons under the preceding triennial average. Courland, however, gave a heavier crop last year, 4,997 tons, or nearly 2,000 tons above the average for the three years preceding. The gradual reduction noticeable in the flax crop had had the effect of hardening prices. The average price, c.i.f., during the last three years, is slightly under 4.5 per cent. as a basis, about £19 8s. per ton. The Commercial of Texas.

A recent Consular report gives some interesting facts concerning Texas, and special reference is made to Galveston, the commercial capital of the State. The population of the city is not large—3,500 to 4,000—... and there are a large number of customers residing in the city Galveston in one respect resembles New York, inasmuch as it is situated on an island. The connection between the town and the shore is at present by means of a roughly constructed railway bridge, consisting of piles, with the accompanying supports, the intervals between the sleepers being open. This is obviously a most undesirable state of things for such a port as Galveston, and a scheme has been broached for the construction of a bridge for vehicular traffic. Galveston has in full work a cotton factory, with all the latest machinery, employing about 600 hands. The chief articles that it produces are sheetings, shirtings, and drillings, all in different qualities and weights, weighing from 250 yards to 500 yards per pound. There is also a rope and twine factory, producing annually about 4,680,000 lb. of rope and 300,000 lb. of twine, and a production of 250 bales of 500 bales of raw cotton, which turns out about 300,000 yards of bagging and a large quantity of twine. The demand for cotton is not more than the mill can meet. A vaccine and a certain of the town is a distance of seven miles from the city. The corner stone has been laid, and machinery is shortly expected from Nottingham, England, with skilled labour also. The present population of Texas is estimated at 2,900,000, and of this number is scarcely noticeable, and there are many regions practically uninhabited. The cotton crop of 1851 and 1852 is the largest in Texas which has ever been known. It is estimated at about 2,000,000 bales, and the increase is calculated to be 10 per cent. over the official report of last year. In fact, already the cry is that there is too much cotton, and prices have not been so low since the French Revolution. Nevertheless, a very decided tendency to enrich the cotton producers is a standing feature of the price of cotton, and the price of cotton at present prices does not pay, and cannot pay. The bare or insufficient profit accruing to the grower under the present price received, had led to the formation of companies for the purpose of erecting cotton mills, water power being abundant in certain portions of this State; and as cotton can be manufactured where it is grown cheaper than in New England, the calculation is that the raw cotton price will be reduced to two dollars in Galveston, or less from the banks, on the security of the next cotton crop, have in many cases been refunded at the credit of all, and that the cotton interests have been informed that on account of the low price of cotton they must pay in cash.

The density of textile. An interesting discussion took place at a recent meeting of the Académie des Sciences between M. Leo Vignot and M. Chardonnnet, on the question of the determination of the specific weight of textiles. The following are a few of the results obtained by means of the hydrostatic balance, working in pure benzene:—For cotton, 1.59; for wool, 1.30; for raw silk, 1.32; for boiled off silk, 1.34; for silk charged with tin, 1.57. M. Chardonnnet, on the other hand, has obtained higher figures by the method of floating, in a solution of boric acid and cadmium. M. Chardonnnet argues that the difference between these results obtained by Vignot, and those of M. Vignot is due to the fact that silk absorbs metallic salts in an aqueous solution. In reply to the objection that he was not sufficiently aware of the density of the textiles, M. Chardonnnet observed that the density continued the same after three days of exposure in vacuum. We glean the above from our contemporary, "Le Figaro," and should like to ask what is the practical value of the experiments made, and how are they to be rendered useful in the textile industry. We can imagine one or two things that the experimenters may have been looking to, but would rather have their own statement of the objects they have in view.

The lock-out. As we write these lines (Thursday morning) intelligence is to hand from nearly every spanning centre showing how determinedly and unanimously, according to engagements, the mills are being closed. A large number are closed already, many more close to-day, and some few work on until Saturday noon by mutual arrangement with the workers. These arrangements, however, have not, in the majority of cases, had to close on Monday or Tuesday. As to the offer of arbitration by the operatives, this has been made before and declined, and is not likely to be accepted. There really is nothing to arbitrate about. At the commencement of the dispute the employers were all along willing to submit it in that manner, but the operatives refused everything except from compulsion to their demands. If the proposal be considered at all it
THE TEXTILE MERCURY.

April 13, 1876.

Can only be so formally. Statements have been made that the weavers' unions in East Lancashire are preparing to hand over their funds to the spinners, but this hardly likely, as the meeting of manufacturers early next week may do the latter another unlooked-for blow. The mills in the various districts which combine spinning and weaving will mostly run to supply their own looms with yarns, paying heavy contributions to the funds of the Employers' association according to the rules provided for such a contingency. These include many of the old firms in Cheadle and on the South Lancashire borders, some few in Oldham, and a number in Bury. Altogether, there is more immutability than has ever before been seen in connection with any event of this kind, and confidence that the lesson will do much to induce a more considerate behaviour on the part of the workpeople and their leaders.

THE LOCK-OUT IN THE COTTON TRADE.

The effect of a few hours from the moment of our writing these lines will witness the accomplishment of the combination of the operatives in the cotton trade by the employers, which indicates the extension over a very wide area of a dispute that ought never to have been started. It is impossible to repeat the state of strike at the Stalybridge Spinning Company's Mill, Stalybridge. This company was formed and registered in 1876. It issued 15,000 shares of £5 each, on which £4 has been called up, leaving a reserve of share capital of £45,000. Its mills are on the newest and most modern plan, boiler, engine, and gearing being all first class, while it has been equipped with machinery by Messrs. A. Lee and Company, Limited, Oldham, and Messrs. Taylor, Lang, and Company, Limited, Stalybridge. The mills contain 72,750 male spindles for spinning and 35,000 clark's and 16,000 drawing-frames, altogether, the establishment forms one of the finest in the country. Its fixed stock at last balance sheet was £6,013. It is this firm's mill that the leaders of the operatives, in pursuance of their policy of harassing the employers, brought to a standstill, as stated in our comment upon the matter last week, on the 25th of September, that is, 29 weeks ago. The loss that has already accrued, taking that of both parties together, cannot have been less than £200,000, and instead of there being any prospect of a termination of this, there is only one of rapid and increasing, increase. The cotton trade of the country is to-day paralyzed, and over 150,000,000 spindles and preparation machinery have been brought to a standstill for an indefinite period, owing to the wicked obstinacy of the mischief-makers, who have instigated and prompted the continuance of this strike. This stoppage will mean a direct loss to the employers and employed of not less than £75,000 per week. It will imply a loss of the circulation in labour and trade channels of this sum four times fold every week that the dispute endures. This will mean impoverishment, distress, and destitution, in a greater or less degree through all the ranks of the community, and its influence will not cease to be felt for many months, or even years, willially before its effects altogether disappear, should it be continued for a few weeks.

The world will very probably say—what is it all about? Absolutely, a mere figment of the imagination. Some idle fellow amongst the misleaders in the employ of the Stalybridge Spinning Company goes to his employer and says the work at his mill is "spinning bad." The foolish committee gave ear to his complaint, as it was always thus, because it was an opportunity of airing their own importance, and drinking money was probably running low. It was held, therefore, to be a case for consultation, and after due consideration and a reference to the head centre in Manchester, it was decided to make a claim upon the company for compensation for four weeks' wages, at the rate of 80 per cent. for and upon four weeks' wages of the spinners. This would amount to £20,000, and would have been the first time in the history of the branch of the Union very nearly had been paid: but it was not. The claim, however, having been advanced in a manner not consistent with trade union principles or the dignity of secretaries and committeemen that it should be withdrawn, and therefore must be enforced. The operatives gave their consent, and the mill was "struck." Our readers will recognize the identity of the procedure in this case with that pursued subsequently in that of the Accrington Spinning Company, which is still being maintained. So much alike are the two cases that they afford a strong presumption of having been hatched in one brain-pan. That these endeavours to extort compensation on such allusions as have been made are simply gross attempts to levy blackmail upon the employers sufficiently proved last week from the testimony of J. T. Fielding, the Bolton operatives' secretary. He says:—

"The employers themselves have decided not to hold intercourse with them, as being totally incapable of doing justice to their constituents, whilst all the same are persistently ingratiating upon the operatives. We think it is, and if this step was taken it would do much to liberate both parties from a position in which they are infallibly disastrous. Let those operatives who have not yet tumbled into the snare of misrepresentation, take notice that by-and-by, when they wish to drag them, pause while there is a chance, make their voices heard in disappointment, and the document of their leaders, and if they cannot restrain them in their madness, let them be driven by their own self-interest and that of others with whom they have dealings, to a realization of this fact. It is only by some such proceeding that their best interests can be smothered from serious peril, not absolute ruin.

Foreign Correspondence.

TEXTILE MATTERS IN THE UNITED STATES.

BOSTON, April 1.

A CHANCE FOR TEXTILE MACHINISTS.

A large portion of the immense carpet mills of John Bromley and Sons, located on several streets, Filmore and Somerset Streets, Philadelphia, has been destroyed by fire, causing a loss of over $20,000, and throwing several hundred hands out of employment. The amount of insurance on the three buildings burned is not known at present. They consisted of part of No. 1 mill, 35 by 300 feet, four stories and basement, used with weaving and other machinery; No. 2 mill, two stories high, 40 by 60 feet, located directly east of the main mill, in which the pickers and other preparing machinery were placed; and No. 3 mill, one story high, 40 by 60 feet, located at the rear of the large weaving sheds. The boiler house was also badly damaged; and the contents of the boiler, valued at $500, was destroyed by a fireproof brick fire wall which had been built in the centre of the main building when the entire establishment was destroyed. The work of reconstruction is now in progress; the carpet, less certain, and identical mills of John Bromley and Sons are the most imposing and extensive of all the buildings along that famous manufacturing thoroughfare, Leavenworth Street.
WEFT PILE FABRICS.

The construction of these cloths is in reality very simple, since no pile is formed in the loom, the cloth being woven as an ordinary piece, as shown in Design 20. After leaving the loom, all the picks that flush, for example a, are cut with a knife b, thus the two ends will stand straight up from the threads c and d. The point-paper for this is given in Design 27, in which there are four pile picks a to one ground pick b, and since the pile picks are only bound once in every 8, 10, or 12 ends, as the case may be, a large number of picks per inch are required to hold the pile firmly. A further binding is that shown in Design 23, in which the pile welt interlaces for three threads with the warp. A corduroy type of effect is given by Design 29, and the reason is very apparent: if the bindings of the pile picks are examined, it will at once be seen that they all bind in a line up the piece; thus, when cut, they all project from one portion of the piece, forming a distinct rib.

The difficulties in analysing such cloths sink into oblivion when it is remembered that the pile is woven like ordinary piece. There is one point, however, which must not be overlooked, and that is, that designs similar to Nos. 27, 28, and 29 the pile picks will not occupy so much space in the cloth as represented on paper. For example, in Design 27 the four pile picks will altogether make one plain pick, and may be regarded as one. In determining the number of pile picks between each ground pick, then, this fact must be remembered. A recent innovation in manufacturing these goods provides for the cutting, as required, in the loom, by means of thin knives passing between the pile and the ground pick. These knives are made of copper and so sharp that elaborate figures may be woven thus, but under any circumstances the cloth should be analysed as intended above, since the pile is formed by the hardens or harnesses giving the requisite float to the pile pick, the knife simply being worked to cut the ends of the pile marks. Another type of weft pile is formed in the finishing process. A plan similar to Design 30 is employed with a cotton warp noil and wool, the result being that shrinkage takes place welt way, resulting in the long float being thrown up as a curl. The analysis in this case, of course, is exactly a manner similar to the previous example.

WARP PILE.

The structure and analysis of warp pile goods is somewhat more complex than the above. In Design 21, for example, there is evidently some arrangement for forming the loop, while in Design 23 there is evidently still more complication. These loops are usually produced by means of wires inserted in a shed specially provided for them, for it is evident that only the pile threads must pass over the warp. Thus, in designing for these fabrics, the point-papers must be classified into ground and pile threads, and picks, and these: Design 21 is the point-paper for Design 21, the solid type representing the ordinary picks and the crosses the wires, while a are pile threads and b ground threads. With these particulars ordinary piles may readily be analysed, this being usually effected by examining the back of the fabric with a piece of glass, but the more intricately figured fabrics call for further explanation.

The simplest method of figuring these goods is by means of cut and uncotted or looped pile, as illustrated in Figure 7 and Diagram 21, in this latter d being the looped c and the cut a. The advantages of figuring in this manner are, firstly, that only one pile warp beam is required, each end taking up alike, while the figure produced is very distinct, as illustrated in Figure 7, which exaggerates very little the variation between the looped c and the cut a. Another effective method of figuring is that illustrated in Figure 8 and Diagram 22, in which case the pile warp is composed of two colours, say red and tan, arranged red and red. Under these conditions, either red or tan figures may be formed by bringing every other end over the wires as required, but only one pile warp beam be used, every thread must be over the wires the same number of times. Should these conditions not be met, however, four distinct effects may be produced, viz., red pile, red cut and uncotted, tan pile, cut and uncotted.

Another system of figuring with pile by piece is by means of different heights of wires, as shown in Diagram 23, in which, when the shed for a is formed, a broad wire is inserted, while at b a narrow wire is inserted. This system of figuring is often employed with a flat or satin ground, as illustrated in Figure 9, in which a is the satin ground, b the short loop, and c the long loop or cut pile.

In analysing any figures similar to those given the figure must be ascetted by one of the systems already given, but, in sketching on design paper, the situation of pile (not picks and wires) to threads must be carefully ascertained, and the design paper selected accordingly.

Designing.

THE ANALYSIS OF PATTERN—IX.

PILE FABRICS.

Great care is needed in the construction and analysis of these fabrics, as is evident from the scope of these articles, so that all we propose doing is to touch very briefly upon the principal structures, and indicate in a general way the best system of analysis.

Formerly there was little difficulty in defining the structure of this class, there being a multitude of specially constructed cloths, partaking more or less of the appearance of pile fabrics, that any classification was impossible. The classification of these cloths, viz., ends or loops standing straight out of the body of the cloth, however, renders the classification easy.

There are two distinct classes of pile fabrics, viz., those in which the pile is formed by the warp, as seen in Diagrams 20 and 21, and the weft pile may be formed considered.
to this proportion. Should only ordinary design paper be at hand, the figure may be sketched out upon this and then be put on to the cutting design sheet, missing picks for the wires as required. In this means, however, the figure will be considerably distorted.

A type of figured pile likely to be useful for the above is that known as "tapestry carpet," in which the figure is printed upon the warp in a准备ately elongated form to allow for the take-up in weaving.

Another type, of much greater beauty, is the Axminster carpet in which the pile is put in from bobbins in the front of the loom, the looking being arranged in the colors required to give the pattern, in many cases a large number of colours being employed with most telling effect.

**NEW DESIGNS.**

**COTTON DRUGS FABRICS.**

There is never failing succession of novelties in cotton fabrics to tempt buyers—satins stripes in pale blue, pink, maroon, yellow, and light green—one of these colours alone, or two or three; and in some instances all together are in great request for evening dresses. The satin is a warp face, totally concealing the weft, in closest set, giving all the possible brilliancy of colour beauty in these stripes. A great favourite for day dress is the fabric known as Russian green, red merely appearing in combination with green, navy blue, and black—the fashionable hosiery stripe, commonly as cherry-pie; nominally it is a pale blue passing into white; one variety shades into a dark purple.

The colour scale for the spring season may be taken in orange. Nile green, olive, ivory, grey, yellow, pink, and cream. These are well shown in velvets; in fact, a delicate and refined taste seems to increase every season, and cotton fancy goods are fast becoming perfection in colour, designs, and ornamentation.

Diagram which we submit, is a shaft, 32 end draft, 32 to the round, forming a check in distinct squares, with one shuttle; warp, 24" twist, 50 picks per inch; weft, 50 picks per inch; one black, one white, without twist in a breast, forming one shaft; with black and white, wound on the loom for the shuttle, without twist. Larger squares, two or three inches in size, are fabricated, to obtain these the draft and round would have to be increased. Whenn width is to be 30 inches.

**Design A** is another novelty for cotton dress goods, 35 ends, 35 to the round, 50 picks per inch of 30 twist, 50 black, 50 white, without twist for 32 ends. Warp all two in a breast, one black per dent, orange and deep blue slightly twisted, say 1" twist, the same, but without any twist: one shuttle. The following varieties will give capital effects:—

**Designd B**.

<table>
<thead>
<tr>
<th>Warp</th>
<th>Weft</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red and white</td>
<td>Green and red, orange and purple, yellow and purple, green and white, pink and white.</td>
</tr>
<tr>
<td>Blue and white</td>
<td>White and red, blue and pink, white and white.</td>
</tr>
<tr>
<td>Brown and blue print</td>
<td>White and red, black and white, white and brown.</td>
</tr>
<tr>
<td>Linen and pink print</td>
<td>White and brown, white and red, white and black.</td>
</tr>
</tbody>
</table>

It is evident from these variations that almost any other number can be formed at will; of course if heavier or lighter cloths are required the quantities, counts, and sett of reed may be increased or decreased if necessary.

**Design C** is constructed for a class of dress dioramas which is becoming very popular, in large plain patterns, and which is likely to be a success, especially in white and all the delicate shades, for summer and autumn. We have given a little variety in the squares, which will entail the use of a small jacquard, 36 ends repeat, 32 to the round, the angle of diagonal to the right; it may be reduced considerably so as to be brought within the compass of a dobby machine, 24 shafts. We may in a future issue give a few patterns suitable for dobbyes. This design can be worked out from the following particulars:—Warps 2,000, 400 picks per inch, two in a dent; weft 81 picks per inch of 24's cotton. If it should be considered necessary to preserve the squares exactly in form, then 36's; 80 picks per shaft, would be required. The dots are well to the face.

**First pattern** is a chenille satin, somewhat after the striped, 100 picking per inch, 12 royal blue, 24 dark brown, 4 straw, 4 black, 4 white, 24 dark brown, 8 crimson, 4 black, 4 crimson, 4 brown, 4 black, 8 crimson, 24 dark brown, 4 white, 4 black, 4 straw, 24 dark brown, 12 royal blue repeat from the "200 crimson." Weft pattern the same. One variation of this pattern may be made by substituting dark green for 100 picking, or 8 for white for crimson, and crimson for the small portions of white.

**Second pattern** 12 red, 12 chocolate, 12 red, 20 chocolate, 12 scarlet, 20 red, 20 very light lavender, 12 red, 12 chocolate, 12 red, 20 very light lavender, repeat from the first "12 red." Weft pattern the same. This combination will give a handsome pattern, with a good, bold effect. The diagonals break up the continuity of vertical and transverse lines, giving the fabric a very pleasing appearance in the making-up of dresses.

**Third pattern** 24 mid grey green, 12 scarlet, 24 mid grey green, 24 dark brown, 24 light green, 24 dark blue, 24 light cream, 24 dark brown, 24 light grey, 24 dark brown, and repeat from the "200 grey green." Weft pattern, red for green and green for scarlet. All the other checking same as warp pattern.

**Fourth pattern** Shepherd's plaid, 24 white, 24 black or blue. Weft pattern the same.
Machinery
and Appliances.

ANOTHER NEW DIFFERENTIAL
MOTION.

MAKERS: MESSRS. BROOKS AND DODGE, (LATE
SMITH, BROOKS), WEST GORTON, MANCHESTER.

It is remarkable how much attention has been
concentrated upon the "differential motion" of
the frame series of machines in the cotton trade
during the past ten years. For over half a
century after its invention by Holdsworth, in
1826, it was scarcely used at all. Indeed it
seems to have been regarded, for most of that
time, as such a wonderful mechanical feat, that
no attempt to improve it would be like laying
sacrilegious hands upon a mechanical holy of
holies, to touch which would bring down
catastrophic punishment upon the daring
adventurer. To account for the existence of this
sentiment is not difficult. From the earliest
days of the new system of cotton manufacturing,
cylindrical vessel, into which the rove should
be received. This was made to revolve slowly
upon a pivot, thus coiling the rove in the can,
which was a reversal to the simple form of the
drawing frame. These cans were fitted with a
side door, by which, when the can had been
filled, the rove was removed. From the con-
struction of this can the machine received the
name of the lantern or can roving frame, owing
to the can being like the old-fashioned bell-
topleft common lantern. When the rove had been
removed, it had to be more carefully wound
upon spools or bobbins, which was done by a
blocking machine, for use in the spinning frame.
That it would suffer a great deal by breakage
and elongation in this process, and so make
very inferior yarn, will be obvious to anyone
who knows anything of the matter.

With this arrangement and this process of
winding the trade had put it up for a time,
after which the Jack-in-the-box roving frame
came to the front, the feature of which was the
introduction of a bobbin arranged horizontally
in the "lantern" can, and furnished with a
traversing guide wire, the bobbin being actuated
by a friction driving arrangement working in
contact with its surface. The bobbin and fly
frame was the next step, and was a return to
the type of the water frame. As reintroduced,
it was at first a very unsatisfactory machine,
owing to the extreme difficulty of accurately
making the many necessary changes and the
proportionate adjustments of the speeds of the
bobbin, which were found in practice to be
quite beyond the capacity of most overlookers
of the preparation rooms of cotton mills, who
seldom arrived at the correct difference till
after an expensive and wasteful series of errors
and alterations, whereby the quality of the
work was more or less damaged, for several
weeks, at each change of the twist or of the
cotton supplied. "The good yarn made be-
fore Holdsworth's invention," says the early
writer from whom the above quotation has
been taken, "requires prodigious pains in the
first adjustment of the machine, and its quality
could not be altered to suit a new market with-
out extraordinary efforts on the part of the machinists, as well as
the spinners, of a factory."

From all these troubles and difficulties Hold-
sworth's "differential" saved the trade, and we
see, therefore, the origin of the loving regard it

and, indeed, previously thereto, the handling
of the rove had not been an easy matter.
Under the old hand-system the carded cotton
had been lightly spun on to the rove, and wound
into large cones on the old hand wheel, and this
was taken, and by further attenuating in the fingers
and twisting by the wheel, was transformed
into yarn. When Arkwright and his co-inventors
had produced the series of partially automatic
machines, one of their chief remaining difficulties
was how to deal with the rove as it came from
the roving frame. Wind it upon bobbins they
could not, as they had no "differential" driving
arrangement; and in every attempt they made,
and by every modification they introduced into
the water frame for the purpose, they absolutely
failed to prevent the rove being pulled down or
so injured that it was useless. That they made
such attempts is stated on good authority. It
is well known to any student of the industry that
Arkwright's water twist frame is the parent of
the modern slack, intermediate, and roving
frames. It was, therefore, a sound inference
of Mr. Richard Marsden, in his work upon
"Cotton Spinning," to say that the solution of
this problem "quite baffled the skill and
ingeniousness of Arkwright." To get over the
difficulty, Arkwright devised a conical or

and the arrangement in which the bobbin was made
to lead. Still, even in this position the spindle
would start first and injure the rove to a greater
or less extent. These were the effects that it
was desirable should be obviated; and that the
skill of inventors was invoked to remedy. The
result has been that a number of new arrange-
ments have been devised to accomplish this
end, as our readers are aware, and our columns
have testified. And to-day it becomes our
duty to bring another of these plans before the
attention of our readers. The invention which
we illustrate herewith is by Messrs. Brooks and
Shaw, and the sole makers are Messrs. Brooks
and Dodsby, Union Ironworks, West Gorton,
Manchester.

The chief object the inventors have had in
view in the construction and arrangement of
this new motion, upon which a great deal of
careful study and labour have been expended,
has been to transform the labour and strain of
driving the bobbins from the cone strap to the
driving shaft, which has been very ingeniously
accomplished. From these several advantages
have accrued, and opportunity has been taken
in the necessary remodelling of the arrange-
ment to obtain several others. The new motion
has been thoroughly tested in practice, as well
at the commencement of the bobbin, and decrease in speed as the bobbin fills, as in the first-issued case. The absence of any strain upon the cone belt, except the very slight one required to vary the speed of wheel, converts the two cones into governors instead of drivers, and in consequence the winding becomes much more regular. This arrangement diminishes the power required for driving to almost nothing, and correspondingly reduces the strain upon the cone belt, obviating all the slipping that usually occurs, and the irregular driving and winding which is experienced in frames fitted with the Houldsworth motion, where the whole of the power required to drive the bobbin passes through the cone belt. This is the principal defect of the old Houldsworth motion, and one that has been very inadequately overcome by the improvements hitherto effected. Another improvement accomplished by the positive driving of the bobbins by the worm and worm-wheel is that the "back lash" which is so noticeable in other existing frames (where the spindle advances from a 4 in. to 5 in. before the bobbin commences to revolve) is entirely obviated, and the bobbin starts exactly with the spindle, thus doing away with all the injury to the row that has usually arisen from this source.

It will be gathered from what has already been stated that as the mechanism driving the bobbin revolves in the same direction as the driving shaft, there is a minimum amount of friction generated, and consequently greatly diminished wear and tear. On account of the slow speed the wear of the gearing inside the motion is practically nil. This has been proved by means of a motion which has been working on a spinning frame continuously for about twelve months. The worm in this motion was made of hardened steel, and the wheel purposely of soft cast iron with cut teeth, so as to test the worm and wheel under the most adverse circumstances, and at the end of the period specified the soft wheel only presented a slight polish on the surface of the teeth. In order, however, to prevent any possible wear, these worms and wheels are all being made of steel and cut by special machinery, so that the teeth are exactly the correct shape; they are then hardened by a special process. Access to the motion has been specially studied, and the whole of the parts can be readily separated for cleaning purposes, inspection, or any other requirement.

Complete arrangements for oiling have been introduced, by means of which all the parts can be oiled from outside the cove, the receptacles inside the motions being arranged so that oil cannot be thrown off when revolving.

The advantages secured by this improved arrangement may be summarised as the requirement of less power for driving; great reduction of wear and tear of cone belts, and gaining of three-quarters more perfect driving of bobbins in relation to spindle; positive driving of bobbin, ensuring a simultaneous start of bobbin with spindle; and generally less wear and tear, greater durability, and better work than with the old arrangement. It well deserves the attention of the trade.

Messrs. Brooks and Doxy will be pleased to afford further information that may be desired, and, by arrangement, will shew it at work.

**Picking Motion.**—An invention for an improved picking motion in all kinds of looms, by Messrs. James and Abn. Moss, cotton manufacturers, of Holburn Bridge, has been brought under the notice of the Parisian Academy for Inventions, which has conferred upon the inventors the first-class diploma, and also awarded them the grand gold medal.

**NEW AUTOMATIC BRAKE FOR MULES AND TWINERS.**

**MAKERS:** Messrs. Curtis, Sons, & Co., Manchester.

Of late years the cotton trade has been a great acceleration of speeds in its various machines. The purpose of this has been to obtain increased production. The way was led by the new ring frame, which being a continuous spinning machine, and having attained high speeds, soon left the mule as it was then working a long way in the rear. Makers of mules accordingly had to make great efforts forth in order to prevent its supersession by the young rival that had entered the field against it. The consequence was that the mule was overhauled, and every part improved in construction, in accuracy of action, and in finish; and increased in strength so as to admit of the great acceleration of speed desired. By these means the distance between the two competing machines was greatly lessened, if not obliterated. Still, this acceleration of speed was not a pure advantage; it had its drawbacks. One of these was that such a momentum was imparted to the spindles of the mule that their stoppage at the end of the outward run of the carriage was not an easy matter, but put a very great strain upon the backing-off friction gear, the rim band, and the tin roller. Besides this, there was an appreciable loss of time at each stop of the carriage when it had run out, owing to the momentum the spindles had acquired. In spinning Oldham counts, a mule makes, to speak in round numbers, five draws or stretches per minute, and probably loses from the cause stated a second of time in each, or five seconds per minute. This in a week amounts to a clear loss of three to four and a half working hours, with a corresponding diminution of the productive capacity.

We have the pleasure of publishing to our readers an ingenious little invention by Mr. J. K. Wain, of the mule department of Messrs. Curtis, Sons & Co., of this city, which is intended to prevent this loss, and to obviate the strain upon the working parts referred to above. It consists of a brake attached to the end of the mule carriage. As will be seen from our illustration, its parts consist of a bracket fixed to the end of the carriage near the back, from which, projecting towards the front, is a lever which has its fulcrum upon the bracket, falls into position for the next draw directly the carriage moves. The motion can be instantly put in or out of gear.

It is, in fact, a new adaptation of an old and well-known appliance—the power-loom brake. As will be obvious, its advantages are that it saves the time hitherto lost in waiting for the exhaustion of the momentum acquired by the spindles in running at their present high velocities, and it enables that time to be utilised for productive purposes. It relieves the backing-off friction gear, diminishes the wear and tear of the rim band, and reduces the torsion of the tin roller, the value of which is still of great extent to our practical readers will correctly appreciate. In addition, it secures more uniformity of twist in the yarn, and imparts additional steadiness to the movement of the carriage.

It will be obvious that this device will prove of considerable value to spinners, being capable of application to all mules and twiners, and at little cost. Any further information may be obtained on application to the makers, as above.

**The Boston (Mass.) Journal of Commerce** says:—"Many of the machine builders of the city are constantly in search of organization for the purpose of aiding the government
in the detection of fraud upon the customs revenues, relating to the importation of machinery, and for securing the revenue, as an act or acts of parliament, the action of the board of appraisers affecting the importation of machinery, when disconnected and not properly packed. The only packings that are apparently under the auspices of the manufac
turers, are those of the Philadelphia textile machine builders are employed as members. There is a strong feeling in some quarters, that this is machinery that comes into our ports undervalued."

Bleaching, Dyeing, Printing, etc.

METHODS OF SILK DYING: THEIR PRINCIPLES AND PRACTICE—II.

(Continued from page 25.)

All dye-stuffs, whether of natural or artificial origin, are divisible into two distinct classes or groups, which, following the nomenclature of Cibert, are called substantive and adhesive dye-stuffs. The colours of the substantive group are characterised by having a direct affinity for the silk, and will dye the latter whether or not a mordant is used. Even with a stronger affinity to the fibre, they only dye one colour in many tints. Those of the adhesive group, on the other hand, are not so fast. The process may be modified. The adhesive dye-stuffs have no direct affinity to the silk, and must have an intermediate substance, such as a mordant, to fix them to the fibre. It is the action of this intermediate substance that determines the character of the dyeing. The fibre, therefore, is not directly dyed, but by means of the mordant, which is itself not dyed.

The substantive colours are of two kinds: first, those which are directly dyed by the mordant; and, secondly, those which are not directly dyed, but only by means of a third substance, such as mordant or tannin. The former are called substantive dye-stuffs, and the latter are called adhesive dye-stuffs.

DYEING THE SILK, AND DYEING IT DEEPER.

Some of the principal substantive dye-stuffs are:-

1. DYEING THE SILK POORLY.

Ochre, ochraceous yellow, sanguineous, and antimony yellow, are all substances that cannot be used on silk, as they cause it to become yellow. They are, however, extensively used in the dyeing of wool and cotton.

2. DYEING THE SILK CAREFULLY.

The method of dyeing silk is much more complex than that of dyeing cotton, as the former is much more sensitive to the action of the dye-stuff. The fibres must be thoroughly washed and properly dried before being dyed, as the slightest trace of dirt or moisture may cause the dyeing to be imperfect.

3. DYEING THE SILK PROPERLY.

The method of dyeing silk is much more complex than that of dyeing cotton, as the former is much more sensitive to the action of the dye-stuff. The fibres must be thoroughly washed and properly dried before being dyed, as the slightest trace of dirt or moisture may cause the dyeing to be imperfect.

This process is the most important in dyeing silk, and is therefore the subject of the following sections.

DYEING ALL-SILK AND MIXED SILK TERRITORIES.

For a number of years past the dyeing of silk goods in the piece has been much practised in Europe and the United Kingdom. The process is essentially the same as that used in the manufacture of silk goods in the piece, with the exception that the silk yarns are selected and carefully dyed before being woven. The dyed silk is then woven into the desired design, and the finished fabric is sent to the mercers or to the dye works.

The system of dyeing in the piece presents several advantages over the common method, as it allows the manufacturer to control the colour of the final product, and to vary the shade to suit the customer's requirements.

The process of dyeing in the piece involves several steps:

1. Soaking the silk in a hot water bath to remove any impurities or stains.
2. Adding the dye-stuff to the water bath, and heating the mixture to the correct temperature.
3. Dyebath: the silk is dyed in the dye-bath, and the shade is adjusted by adding or removing dye from the bath.
4. Washing and drying the dyed silk.
5. Inspecting the dyed silk for any imperfections, and making any necessary adjustments.

DYEING SILK WITH DYE STUFFS.

Some of the principal adhesive dye-stuffs are:-

1. DYEING THE SILK POORLY.

Ochre, ochraceous yellow, sanguineous, and antimony yellow, are all substances that cannot be used on silk, as they cause it to become yellow. They are, however, extensively used in the dyeing of wool and cotton.

2. DYEING THE SILK CAREFULLY.

The method of dyeing silk is much more complex than that of dyeing cotton, as the former is much more sensitive to the action of the dye-stuff. The fibres must be thoroughly washed and properly dried before being dyed, as the slightest trace of dirt or moisture may cause the dyeing to be imperfect.

3. DYEING THE SILK PROPERLY.

The method of dyeing silk is much more complex than that of dyeing cotton, as the former is much more sensitive to the action of the dye-stuff. The fibres must be thoroughly washed and properly dried before being dyed, as the slightest trace of dirt or moisture may cause the dyeing to be imperfect.

This process is the most important in dyeing silk, and is therefore the subject of the following sections.

DYEING ALL-SILK AND MIXED SILK TERRITORIES.

For a number of years past the dyeing of silk goods in the piece has been much practised in Europe and the United Kingdom. The process is essentially the same as that used in the manufacture of silk goods in the piece, with the exception that the silk yarns are selected and carefully dyed before being woven. The dyed silk is then woven into the desired design, and the finished fabric is sent to the mercers or to the dye works.

The system of dyeing in the piece presents several advantages over the common method, as it allows the manufacturer to control the colour of the final product, and to vary the shade to suit the customer's requirements.

The process of dyeing in the piece involves several steps:

1. Soaking the silk in a hot water bath to remove any impurities or stains.
2. Adding the dye-stuff to the water bath, and heating the mixture to the correct temperature.
3. Dyebath: the silk is dyed in the dye-bath, and the shade is adjusted by adding or removing dye from the bath.
4. Washing and drying the dyed silk.
5. Inspecting the dyed silk for any imperfections, and making any necessary adjustments.
The textile mercury.

April 16, 1849.

News in brief.

England.

Ashton under Lyne.

The Rock Spinning Co., Limited, have made a call of 5s. per share, making 10s. per share called up, due on May 29th. The second stage of their mill will now be commenced. The machinery will be supplied by Messrs. Assam & Co., Limited, Oldham.

Blackburn.

The first meeting of the council of the Technical School was held in the Town Hall, on Monday evening. After the officers had been elected, an arrangement was made with Mr. H. S. Robinson, of the Yorkshire College, to deliver two lectures on textile manufacturing, which was unanimously approved of.

On Tuesday, in the County Court, before his Honour Judge Coventry, Alice O'Hallan, woman, was committed for trial on a charge of stealing a watch from Mr. Women, represented the plaintiff and Mr. Higgins defended the defendant. The plaintiff, who was a married couple, and the defendant was a man of the corporation's, was committed for trial on charges about seven months, and was paid by the union.

On March 15th she was told she would be fined 20 for a certain charge, and to pay it up within two days, or the fine the plaintiff left the work, and the money due to her for wages was forfeited in his name. Mr. Women's application for the Married Women's Property Act of 1882, it is competent for a woman to enter into a contract to convey her own estate, and that the contract was just as binding as a similar contract by a man would be. The effect of the Married Women's Property Act was to override the Employers' and Workmen's Act of 1872. Women wanted to have an equal footing with the men under the Married Women's Property Act, so that they were on an equal footing they wanted something more. His Honour said he could not agree with Mr. Women's argument. In 1875 it was provided that no abatement should be made in a woman's wages in respect of her work, without her consent, and in 1880, except when actual damage in business was proved. In this case there had been no damage proved, and the plaintiff was only entitled to the opinion of the Act of 1882 which meant to give women certain rights of wearing certain contracts. The highest degree of the Act of 1875. The plaintiff was entitled to the privileges given under that Act, and he would give a verdict for the husband for the full amount.

Bolton.

The three mills of Messrs. and T. Barnes and Co., which have been running short for some time past, commenced working full time on Monday.

Burnley.

An important demand of weavers had been held on Tuesday night to consider what is called the "driving system" in weaving sheds. Mr. David Holmes, Mr. Bezek, a member of the Association, addressed the audience in the Mechanics' Hall. The system was described as one of the most necessary things that had ever existed. It sought to influence the manufacture of the weaver, under unfavorable conditions, and make use of so much waste as would not be better to material to weave. It was stated that this system was in operation at three mills in the town. The following resolutions were unanimously adopted, amid cheers: "That the Committee of the Mechanics' Association is requested to see what measures in regard to each firm as they deem necessary, and that this meeting pledges itself to support all those who may be engaged in the scheme, in order to put an end to the cruelty and tyranny now practised in Burnley, under what is known as the "driving system."

Bury.

Messrs. Fox and Williams, Manchester, have received an order from Messrs. Bell, of Bury, and have been instructed to supply 1,000 tons of 100-pounders for locomotive engines. The work will be done during the holidays.

On Wednesday morning Messrs. J. K. Schofield and Co., Ltd., Spennelows, Bury, had the finished work, and received their first order for the engine for 100,000 for the purpose of the locomotive, and the order is for 1,000,000. This will be a good thing for the Bury district, and Messrs. Fox and Williams are to be congratulated on being able to keep up the pace, in order to put an end to the cruelty and tyranny now practised in Burnley, under what is known as the "driving system."

Bradford.

A serious strike has occurred in one of the dyeing communities, and has been successfully put down. This week the notices given by the men employed by Messrs. George Armitage and Sons, for an advance of wages, expired, and the men, demanding their demands were granted; they stopped work. The advance asked for averaged from 5 to 7 per cent. The men were prepared to support the strike of Messrs. Armitage by a general lock-out; and in that case probably 5,000 will be more than the number of men on strike at the Bradford at once. On Monday the Bradford Board of Conciliation, at a private meeting, was held, but in order to avoid the threatened lock-out. The men have formed a committee for the purpose of obtaining the names of the men who have been ordered out by the master and bury who are now on strike. A friendly conference between masters and men concerned in the strike was held on Tuesday.

The three mills of Messrs. and T. Barnes and Co., which have been running short for some time past, commenced working full time on Monday.
belong to the Bradford and District Staff Dyers’ Association, and are to meet at a regular quarterly meeting in accordance with a resolution passed recently by that body to the effect that unless the dyers employed by Messrs. Amshold and Beardmore of Bradford have the assurance that the new tariff shall receive the same remuneration as those they succeed, the dyers in the association will close their works. Mr. Joseph Bell, states that among the members of his association, upwards of 200 of the workpeople will be thrown out of employment. He points out that his dyers, having nothing whatever to complain of, their work was still on two weeks and that the proposal had been very recently advanced. The managers declare, however, that they have their businesses supported by their own workpeople.

London.

The manufacturers of the “Grindal” spinklers, Messrs. Fox, Flower, Taylor & Co., Ltd., have arranged their London address from 19 and 21, Queen Victoria-street, E.C. to 19, Victoria-street, Westminster, S.W. 1.

Manchester.

Messrs. Fox and Williams, of this city, have just received an order for 450 boxes of driving cotton for the textile mill of the North Lancashire Iron Works. This is the second order from the same firm, Mr. George Belcher, of the firm of Fox & Belcher, of this city, and a director of the Manchester Chamber of Commerce, has just been appointed by the President of the Board of Trade to a committee on the condition of the cotton trade.

On Tuesday evening a fire broke out in one of the mills of Messrs. George Belcher & Co., cotton manufacturers, and the fire engines were speedily called upon a quantity of street lamps of cotton. The fire brigade proved to be three strong engines of the five-engined building, but they, however, brought the fire under control without much damage.

Very few indications of a desire on the part of local firms to exhibit at Chicago have been noticeable this month. It is understood that a well-known cotton manufacturer, whose productions include such goods as Linsey and Twill, has decided to show at the World’s Fair, but their business is of an exceptional character.

Newcastle.

It is proposed to erect a new shed here, to hold 500 boxes. The shed of the Springhill Room and Tower Co., there is now in preparation in the Nelson accommodation for about 4,000 boxes.

Nottingham.

The meeting of the Chamber of Commerce was held on Monday, when the Secretary reported as follows: —

Mr. W. T. F. Cartwright, with references to the new regulations which had been made by the borough magistrates as to the certificates of origin of goods for Spain, and that a new form of declaration was being prepared, which would in future be required by the magistrates, granted their certificates.

It is reported that there are stocks of cotton at Oldham railway stations which are fifteen months old. Mr. J. H. Barlow has been appointed as the representative of the King’s Crescent Co., Limited, in place of Mr. John Greco, who resigned. It is stated that the management of the Mill will be in the hands of Mr. Benjamin Moores, who for several years has been the manager of the Moon Spinning Co., of this city.

Considerable progress is being made with the erection of machinery at the mill of the Holy Mill Co., Ltd., of which Mr. John Barlow is a director. The employment, however, is very much less than anticipated.

It is stated that the management of the Mill will be in the hands of Mr. Benjamin Moores, who for several years has been the manager of the Moon Spinning Co., of this city.

Considerable progress is being made with the erection of machinery at the mill of the Holy Mill Co., Ltd., of which Mr. John Barlow is a director. The employment, however, is very much less than anticipated.

It is stated that the management of the Mill will be in the hands of Mr. Benjamin Moores, who for several years has been the manager of the Moon Spinning Co., of this city.

Considerable progress is being made with the erection of machinery at the mill of the Holy Mill Co., Ltd., of which Mr. John Barlow is a director. The employment, however, is very much less than anticipated.
in a few minutes the whole store was in flames and was soon consumed. The damage to the mill, which is estimated at £6,000, is covered by insurance.

IRELAND.

Derry.

The weekly payment of wages is proposed to be made compulsory in Ireland by a Bill introduced by Mr. Sexton, M.P. "Serious in its tendency" are described as the proposals of the Bill. But where any other workman works for wages calculated by time, the period of the payment of the wages is directed to be one week, unless the custom by which payment is made is altered by consent of the employer and employee.

The Bill was introduced by Mr. Sexton, M.P., and it is stated to have been referred to a Committee of the House for further consideration.

COTTON.

Macclesfield, Thursday, April 14.

Our market this week has been considerably perturbed by the advent of one or two factors not always welcome. The first of these was the resolution already announced of a general stoppage in the spinning section of the trade, in consequence of demands arising out of the conduct of the operations and their leaders. Immediately previous to this there was a wide enquiry amongst the leading members of the trade and joint-stock companies affected showed that there is not the slightest sign of weakness or of retiring from the position assumed. There is a general consensus of opinion that the conduct of the operations is simply unanswerable, and that no longer be submitted to. It is therefore clear that, as has been frequently pointed out in these columns, the workmen, by entrusting their interests to the men who have in charge, have been led into a quagmire. Their want of wisdom is deeply to be regretted, as the men of the trade have no power, by any means, to compel their employers to act upon such an arrangement, and still less to compel them to act upon such a course, and still less to compel them to act upon such a course.

Letters from readers.

ASHWORTH versus LAW.

TO THE EDITOR OF THE TEXTILE MERCURY.

Sir,—Owing to numerous epidemics, and very considerable misapprehensions, concerning the true interests involved in this case, your readers may be interested in hearing from me in what capacity justice to both parties concurred in one or two observations with regard to the recent decision of Deputy Vice-Chancellor 173.

1. It is well known to the card clothing trade that prior to 1850 there was not any practical system of grinding deep down the sides of fine card waste, i.e., no efficient machines had been discovered of removing what was generally known as "end surface" that did not leave something considerable to be desired, until the appearance in that year of the Ashworth patent specification.

2. It is equally well known that prior to 1850 various methods for polishing or sharpening the teeth of cards had been devised, such as those of Humphreys and Johnson's, Walton's, Wilkinson's, and others; but in the case there were more successful as complete as to those inventors who would have succeeded, nor did the trade accept them as such, mainly for the reason that the extreme care with which the cards were sharpened by these processes, and the wear and tear of the clothing being thus increased, are very much derived.

3. It is clear, therefore, from the two broad facts above stated, to which no evidence has yet been brought in refutation—that had the position been taken by the Ashworth patent of 1850 been accessible, evidently not have been adopted in open court, such as an almost general acceptance of by the trade, an estimated sale of £200,000 worth of this clothing by 1854 had been increased, and, frequently the issue of no contention at law could possibly have succeeded against such a patent, and the overwhelming evidence in favour of the originality of and value of the polishing over all known methods of card sharpening.

4. The defendants, Messrs. Law & Son, could not, nor did they, attack the special scientific polishing method of Messrs. Ashworth, the method of sharpening the teeth of card was altogether that of the patents—so far as grinding a deep down the sides of a long card is considered. And it was and substantially that of Mr. Ellis Wilkinson, in which view they were supported by the deputy Vice-Chancellor.

5. It is here where the confusion as to prior use has arisen. The evidence of 1857 did not claim the prior use of deep grinding; it simply claimed the grinding of the extreme points of wires by means of "V" shaped stones, and since the defence had no difficulty at all in finding the first such method was patented in 1850, it was not the subject of claim, and that only.

Manchester, April 12th, 1852.

Charles J. Hale.
Today the market opened very quietly, with merely a holiday sort of attendance up to one o'clock. No change in the positions.

WOODLENS AND WORSTEDS.

BRADFORD.—Woof is unchanged. Yarns are dull, and spinners are not well provided with orders. The worsted trade is not very active, although some fair consignments. Prices are low, and sales are said to be dull to those who have not been satisfied. A good deal of machinery idle. Piece goods not purchased freely. The situation of worsted mills is not very active.

LEEDS.—New effects in cottons and serges have been in active request amongst home-trade buyers. Tweeds and prints are in some demand. Merchants make every effort to sell, but not making generally. The American demand for worsted, a little better. Local producers are finding it very fair, but the situation of worsted factories is not satisfactory. The spinning trade is quiet. Out of the market.

ROCHDALE.—Continues to place orders, and those who are usually late are now more disposed to make arrangements for next season. The actual business settled before Easter is on a much larger scale than is usual. Manufacturers expect a better trade, and it is almost certain that if the present state of wool is maintained they will be compelled to raise prices more than they have already asked for. The upward movement in the price of wool at the London sales has led the effect to come in to the merchants to complete their arrangements.

GLASGOW.—Machines, Romney and Company, wool brokers, in their report, dated 12th April, say:—Woof.—The worsted trade continues in the same condition as last week. The spurt at the London sales has met with good resistance at the Manchester sales.

YORKSHIRE.—Wool.—White.—M. & G. M. F.

Dundee.—The trade here does not improve. Colours bring the young dye factory even from the worsted, but the later sawmills are delayed from the same reason. Cloth manufacturers are ultra quiet. White goods are not making generally. The situation of worsted factories is not satisfactory. Plaids, etc., are not making generally. The situation of worsted factories is not satisfactory. Plaids, etc., are not making generally.

DUNDEE, TUESDAY.—The trade here does not improve. Colours bring the young dye factory even from the worsted, but the later sawmills are delayed from the same reason. Cloth manufacturers are ultra quiet. White goods are not making generally. The situation of worsted factories is not satisfactory. Plaids, etc., are not making generally.

PLAID AND JUTE.

DUNDEE.—The trade here does not improve. Colours bring the young dye factory even from the worsted, but the later sawmills are delayed from the same reason. Cloth manufacturers are ultra quiet. White goods are not making generally. The situation of worsted factories is not satisfactory. Plaids, etc., are not making generally.

JUTE.—As yet the plaiters have not had the slightest effect in stimulating a demand for cloth. All factories are selling very poor reports and have little or no orders, and, as far as the orders that are received, they are for short periods only. The demand for jute goods is not improving at all.

Belfast.—The demand for yarns and cloth is very small. Colours, however, are on the increase. The worsted and worsted manufacturers are finding it very quiet. The situation of worsted factories is not satisfactory. Plaids, etc., are not making generally.

DRIED FISH.

MANCHESTER.—The market, as far as it goes, has been somewhat quiet and the demand for fish has not been very keen. The quantities of fish landed are not very large, although fairly regular. Prices are low, and sales are not very brisk. A good deal of machinery idle. Piece goods not purchased freely. The situation of worsted mills is not very active.

OSWALD AND LACE.

LEICESTER.—There is a firm order from the wool market. Yarns have been quiet, although there is more sawing than was the case a week ago. Colours and fine yarns are firm. The home demand for woollen goods has been good. Steady sales have been made.

NOTTINGHAM.—There has been a better trade this week in anticipation of the holidays. Some grades of coarse yarns are selling well. Many fancy goods, and other made-up goods, sell more freely. Colours and worsted goods are in demand and are not at unseasonable prices. Robin nets are quiet. Prints and Paisley nets are quiet. Silk lace is dull.

In the restored and financial news:

New Company.


Patents.

NOTICE OF REMOVAL AND CHANGE OF FIRM.

E. K. DUTTON & CO.

New York.

Grants of Patents

SPECIFICATIONS PUBLISHED.

Each of the following specifications may be seen at the Sales Room, 9, Cornhill-street, London, for the price of 5s., or may be ordered on the Post Office, Tin plate, price 6s., which is now on sale at all the principal Post Offices in the United Kingdom.

858 Lamb.—Lamb.

415 Young and Crump.—Treating fabrics in the spare matrix.

5476 Wilson and Moseley.—Card-setting machines.

5,605 Bradbury and others.—Looms finished—guaranteed.

1,772 Sawyers and Holman.—Spinning, etc., fine materials.

1,745 Hargreaves and others.—Terry frieze cloth.

1,757 Piddock.—Oil cloth.

1,749 Holman.—Washing yarn.

1,740 Tole.—Producing works cloth.

2,921 Keeler.—Shearing yarn.

2,925 Boudreaux and others.—Stitching and tying threads.

960 Bess.—Weave fairing.

2,323 Fair and Mullender.—Yarn—warping.

939 Ono.—Colouring pictures on textiles.

2,143 Gled.—Centre and warp.

2,146 Boardman and Kelly.—Felt fabrics.