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NOTICE.

CHANGE OF ADDRESS.

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THE FLAX CROP AND THE LINEN TRADE.

Linen manufacturers are in the happy position
of being able to boast that, while shippers of
woollens and worsteds in the United Kingdom
have suffered a serious diminution in their
exports, they have been able to increase their
consignments abroad during the half year just
closed. For the six months ending June 30th last,
87,149,100 yards of linens were shipped from the
United Kingdom, as against 79,138,000 in 1891;
the values being £1,929,280 and £1,843,461
respectively. The average values per yard this
year were 538d., as against 571d. for the
previous period. If flax had been dearer, this
reduction of nearly a third of a penny per yard
would have signified a good deal. Fortunately,
however, the returns show that the average
value of flax imports this year is less than that
of 1891, the official figures indicating an average
of £32 per ton for the June half, as against £33 for
last year; the quantities being 56,000 and 51,670
tons respectively. Yarn averages are also lower,
14.66d. and 10.58d. per lb. representing the
values in 1891 and 1892, the exports having
increased by over 10 per cent. For the twelve
months ending June 30th the results are not so
satisfactory as those for the half year. Speaking
of piece-goods values only, we find from the
Flax Supply Association's figures that, during
the year ending with the 30th ult., shipments
were valued at £3,825,643, as against £3,874,240,
a decline of 1.2 per cent. On the whole, these
figures cannot be regarded as discouraging.
Linen manufacturers have, it will be seen, been
able to increase the sales abroad during the half
year, as compared with that preceding. This is
a result of which firms in other trades would
have been very glad to boast. The United
States and the Foreign West Indies—the two
most important markets for our linens—show
a large increase for the half year, and although
Mexico and Brazil have fallen off, the Colombian
Federation has increased its purchases from
211,700 to 230,800 yards. South America is
not yet able to resume its former position as a
buyer of British and Irish goods. With refer-
ence to jute goods, the decline in shipments for
the six months is shown below:—

	1891.	1892.
Yarns, lb.	17,957,200	12,727,000
Piece Goods, yds. ...	135,779,600	117,048,800

The decline in this instance may be accounted for
by the increased prices of raw material—a
difficulty which has been removed with the
approach of the new crop.

COLCHESTER SAYS.

On Thursday and Friday in next week the
Huguenot Society proposes to hold its summer
conference at Colchester, carrying out, as far
as the limited time will permit, the programme
of drives and excursions, meetings and discus-
sions, refreshments—mental and material—
and other mild delights common to such
occasions, but with a serious purpose in view
which can be cordially approved. The intent
and place of celebration are peculiarly in
keeping. Those who are proud, and with such

excellent reason, of their direct descent from
the industrious and skilful strangers who found
in this country open refuge from religious per-
secution in the sixteenth and seventeenth
centuries, could have found few more suitable
places in which to congregate than "the
antient, large, handsome, and populous town"
—as Colchester was once described—which was
so greatly indebted for its prosperity to the
textile trades, either instituted or improved by
the immigrants. There is the testimony of old
Thomas Fuller in his "Church History of
Great Britain" that Colchester first secured
the making of says and serges, through the
settlement of some of the artisans coaxed over
from the Netherlands by the promises and per-
suasion of agents of Edward the Third; and this
statement is, for a wonder, assigned by mistake
in the admirable volume upon "The Huguenots
in England and Ireland," by Dr. Smiles, to the
latter expatriation of Protestants after the fall
of Antwerp. But even at the first of these
dates there is no reason to suppose that Col-
chester was entirely destitute of textile manu-
factures. In 1301 there were only about nine
towns in the Kingdom that exceeded it in
importance, although it only paid poll-tax upon
2,055 lay persons. In that year there was a
full valuation, for purposes of inland revenue,
of all the movable property in the town, and
although the sum total amounted to no more
than £518 16s. 0½d., the inventory affords a
clear view of the domestic and industrial cir-
cumstances of these days of long ago. The
stock-in-trade and household goods of a tanner
were estimated together at £9 17s. 10d. The
stock of the only mercer in the town, consisting
of a piece of woollen cloth, some silk and
fine linen, flannel, silk purses, gloves, girdles,
leather purses, and needlework, was valued at
£3 the lot, and his "plenishings," as the Scotch
would say, at another £2 9s. However attrac-
tive the contemplation of a good start in life on
a five-pound note may now be, although there
were, of course, no five-pound notes in those
times, that amount represented a considerable
sum at that period; but, making all allowance
for the difference in the value of money then
and now, the particulars discount any idea
of fourteenth century comfort. Among the
twenty-nine trades carried on in Colchester in
1301, may be found the dyer, the fuller, and
the weaver, and the wool-comber, to tell of
textile employment before the incoming of any
foreign craftsmen. The point, however, is of no
great importance, and is altogether overshadowed
by the manifest improvement which took place
in its textiles and trade after the Huguenot
strangers settled there in Elizabeth's reign. In
1622 "Colchester for bayes and Canterbury for
sayes" are mentioned by Misselden as manu-
facturing centres of good credit and estimation;
and, at a later date, Sir Josiah Child proposed
to allow to "Colchester bayes, perpetuandes,
cheanyes, and some other sorts of Norwich
stuffs . . . the honour of a public seal, by
which to be bought and sold here and beyond
seas, as if it were upon the public faith of
England; and wherever such seal is affixed to
any commodity, I would desire the commodity
should be exactly made according to the institu-
tion, and always kept to its certain length,
breadth and goodness." Better evidence than
this as to the commercial standing of Colchester
stuffs could not be desired, and the "1300
Wallasons and other persons of foreign parent-
age" shewn as resident in the town in 1609,
had evidently made their mark upon its industry.
It had become the heart of a busy manufactur-
ing district, with many thriving villages round
about dependent upon it, and in 1660 the sub-
stantial complement of an Act of Parliament
was paid to its fabrics. Another Act, of 1715,
setting aside a restrictive bye-law of the
Corporation, which would have confined the

privilege of the weaving trade to those who had served apprenticeship to it, was not quite so complimentary, but was still expressive of prosperity. Defoe set down the population of the town in 1753 at 40,000, and a later authority estimated the annual value of goods produced to be over a million and a half sterling. There was a considerable export to Spain, and over a hundred looms were employed on silk goods. The happy comparison by Fuller in his "Worthies of England," wherein he likened Essex to "the good wife described by Bathsheba—She layeth her hand to the spindle, and her hands hold the distaff," continued applicable to a comparatively recent date. But the course of textile empire has since taken its way, not westward, but northward, and, but for one notable exception, an account of Essex textiles in 1892 would be a counterpart of the famous chapter on the snakes of Iceland. But this unavoidably slight sketch of Huguenot influence, in a typical instance, upon English manufactures, may be commended to the Fellows and Council of the Huguenot Society, with the hope that they will hold fast the traditions which so closely connect their ancestors with the progress and prosperity of their country. Some of the transactions or proceedings of the Society might, with advantage, be devoted to the history of Huguenot industry, some to textiles especially; and it would be a graceful and appropriate recognition of what will no doubt be a pleasant visit, if one of the papers to be read on Thursday or Friday next were devoted to the bygone glories of Colchester textiles in fuller measure than has been possible in these columns.

THE TRADE OF CALAIS.

Calais affairs are of special interest to one section of our readers—those engaged in the lace trade—and to others also the trade of the energetic French town is of more than passing interest. The course of the staple industry of the centre has been traced pretty fully during the past twelve months in our columns, and Consul Bonham's report for 1891 contains therefore very little information that has not already appeared in *The Textile Mercury*. Of the lace trade of the town, he says that during the year there was no improvement—that it was worse in fact. For a short time last year trade was no doubt better, narrow flounces, especially fine goods, selling well. In the autumn, trade was dull, but towards the end of the year American buyers came earlier than usual, and gave a few orders. Hopes were then entertained, and apparently with reason, that the bottom had been reached. Great efforts had been made by the trade, especially by some of the large manufacturers, who went to great expense in producing novelties, believing that the tide had turned, that lace would come into fashion, and the demand in the early part of this year would be good. Their hopes have not been realised, and though some of those producing the higher-class silk lace goods have done fairly well, business in general has been and is very bad indeed. The dispute between employers and workmen in October, 1890, is said by some to have had a good result in levelling the scale of wages to a certain extent, and no doubt every possible device has been resorted to for the purpose of reducing expenses. Some of the weaker makers are stated to have damaged the trade by turning out inferior goods. This however is a statement that need not be regarded too seriously; for needy-makers everywhere must, and for inferior goods they will in all probability, receive inferior prices. Mr. Bonham says that the competition is very great, the number of machines at Calais having greatly increased. This is true, if not new. He adds

that Cauchy has now become a great place for lace making, much machinery having been put up there, and large numbers of persons being engaged in the trade. Not only have the actual number of machines been increased, but such improvements have been introduced that a machine is capable of producing, at nearly the same expense, much more lace than formerly. Consequently the capabilities of this part for producing lace have so largely increased that, for the existing machinery to be in full work as formerly, the demand for lace would have to be immense; and then it must be borne in mind that lace is produced in other places besides the north of France, notably at Nottingham, the original seat of the trade, from whence it was brought to Calais. Nottingham certainly competes successfully in curtains and cotton laces generally, though Calais has so far always held its own in silk laces, especially of the more expensive kinds. The Consul is told by a gentleman who is in a position to form a sound judgment, that what in his opinion has chiefly interfered with the Calais lace trade this season has been, firstly, the large and cheap production of cotton lace in Nottingham; and, secondly, the beautiful new articles in guipure laces, and others in silk and cotton, which Flamen, in Saxony, has brought out, and which have had an unprecedented success. These articles have taken the place of Chantilly laces, for which class of goods the Calais manufacturers had made large and extensive preparations. It is no doubt true that the tide of prosperity in Calais has for the moment received a check, but it is difficult to believe that the enterprising manufacturers of the town are doomed to remain under a commercial cloud for long. At the same time it is satisfactory to find that it is not at Nottingham alone that the shoe pinches; and if we are to believe Mr. Bonham, trade there has been extremely good. With this assertion, however, we are not disposed to agree: Nottingham is not so badly off as it was a few seasons ago; but things are not so rosy there as our Calais Consul suggests. It would be of interest to know what amount of laces Calais shipped last year. Unfortunately, however, the only entry we can find under which such goods are probably included, is that relating to "tissues, various." Such a classification is of course perfectly useless to those manufacturers in this country for whose benefit Mr. Bonham's report is presumably written.

THE TEXTILE RESOURCES OF PERSIA.

It is becoming impressed upon the public mind of this country that if England has to maintain its position in the world of commerce and industry, the best efforts must be made not only to maintain our position in neutral markets, but to improve it wherever possible. Beyond this it is equally important that we strain every nerve and muscle if necessary in the way of further developing those that have only hitherto been partially worked, and in the acquisition of new ones. Perhaps one of the most important of these is Persia, which has begun of late to attract a good deal of attention. It is unquestionable that much more use might be made of this country than has hitherto been the case in the way of obtaining raw materials, of which it produces many available for the textile trades, and almost without exception all of them are capable of being greatly extended. The French Minister in Persia, M. de Ballory, has just sent home a very interesting report upon the natural products of the country. This is an evidence of how keenly our neighbours are prospecting for openings for the extension of trade and outlets for their manufactures. The writer says:—

There are found to be in Persia not only the products of the temperate, but also of the torrid zone. On the high central plateau, the mean altitude of which is 1,200 metres, vast stretches of desert land alongside very fertile valleys are met with. The summer there is very hot, the winter often severely cold, and rain rare. Up to 2,000 feet above the sea level, wheat, barley, and rice are cultivated; lower, tobacco, and peppery for opium. The climate along the coast is entirely different; that of the northern slope of the Elbraz, towards the Caspian Sea, is warm and moist. The forests are thick, the vegetation luxuriant; the soil produces rice, the sugar-cane, and numerous tropical plants. On the littoral of the Persian Gulf, on the other hand, the climate is dry, and the principal branch of culture is the palm. Cotton grows everywhere, and everywhere also are to be found wheat, barley, sugar, rice, opium, wool, silk, fruits, gums, horses, sheep, and mules.

This indicates the agricultural capabilities of the country, and shows that with the infusion of a little more enterprise, which would arise from more frequent intercourse with Europeans, and especially with those of the mercantile community, there is the promise of a considerable increase of trade, which it would be folly on the part of this country to neglect.

SILK AND COTTON CULTURE IN PERSIA.

The writer continues:—

Since the commencement of the 17th century, sericulture in Persia has so prospered that, at the present time, silk may be considered as the chief product of the country; but for 20 years, by reason of the worm disease, this industry has been losing its importance, no remedy having been found for this state of things. The centres of production are at present the following:—Khorassan, which yields 7,386 kilos of silk. The markets are at Salzwasser and Nishapur. The quality is generally good; the silk is made into skeins from 76 to 78 centimetres in length; the price of it at Salzwasser is from 5 to 15 tomanes the shanar, or from 37½ to 103½ per 540 grammes. A portion only is sent to Russia, the greater quantity being consumed on the spot. The Caspian provinces give—Ghilan, 206,815 kilos.; and Mazandaran, 15,905 kilos. This is the best silk in Persia; it sells at from 89½ to 103½ per 540 grammes; the skein measures from 50 to 53 centimetres in length. That of Mazandaran is of average quality; it is pressed in bales from 30 to 35 kilos., and costs from 74½ to 88½. A portion of this silk goes to Russia with that of Ghilan. Racht is the great market for these two provinces. The central districts show only the moderate production of 5,905 kilos., and it is not capable of being increased by reason of the lack of water. Azerbaijan produces 14,372 kilos., but the silk is of inferior quality. This all goes to Russia. It is estimated that the total annual production is about 275,000 kilos., of which, in a good year, one-third is consumed at home. In Ghilan and Mazandaran the crop is gathered in May; in the other districts in June and July.

There is much that is suggestive in this passage. We are surprised that our neighbours have not utilised Pasteur's discovery for stamping out the silk-worm disease, by subjecting the seed to microscopic examination, and destroying all that which is diseased. With improved seed there should soon be a greatly enlarged production, which would ensure a better return to the growers even if sold at a less price. Passing over the question of opium and tobacco production, at which the writer next glances, we come to the subject of cotton cultivation. This must always be of interest in Lancashire. He says:—

The quantity of cotton exported is estimated at more than 3,600,000 kilos. It is grown in the districts of Azerbaidjan, Khorassan, Kermanshah, Isfahan, Gand, and Keraman. The products of the north go to Russia, where Persian cotton is in great demand. The quality is good, and although the fibre is a little short it may be estimated at 25 per cent. above the price of the best Egyptian cotton.

We greatly doubt this estimate of value. The quantity named is not a great amount to export, being only about the equivalent of 16,000 bales of American, but the fact that cotton is grown, and so much spared of the crop from domestic consumption for export, is a proof that it needs little stimulus to increase the quantity. Also if it be sold at such a low price as to bear the additional heavy charges of overland transit to the Russian centres of manufacture, and can compete with the water-borne cotton

of India, Egypt, and America, it must be sold at a price that will pay to place it in the Lancashire market, and make it worth somebody's while to do it.

PERSIAN WOOL AND CARPETS.

Wool is an article invariably associated with Eastern countries and the lives of their pastoral peoples. Of this article the writer named in the preceding notes says:—

The richest districts as regards wool are Khorassan and Kerman. In 1888, 1,200,000 fleeces were exported through Bender-Ahbas, Bushire, and Mohammazah, amounting in weight to over 3,500,000 kilos. About one-third is sent to Bombay, the remainder to Basrah, where it is mixed with Turkish wools, and then sent to Europe, chiefly to Marseilles.

The export is of about the same weight as that of cotton. It may be questioned whether the wool production of the country can be greatly stimulated, or whether it will ever be possible for Persia to become in any sense a successful competitor with the Australian, New Zealand, Cape, and South American wool-producing countries, aided as they are by great capital and the highest science in pasterology. They will, however, always produce a surplus, which no doubt they will gladly dispose of for Western manufactures. Of course wool has always been an article of manufacture amongst nomadic peoples, and domestic manufacture of Persia, especially of rugs and carpets, has long been renowned in the West for its excellence. M. de Balloy observes that:—

The term "Persian carpet" is very vague, as there are from 25 to 30 different kinds. All are made by hand, and the design varies with each carpet. In 1888, the exports of this article, viz Chiraz, Bushire, Lirah, Bender-Ahbas, and Tauris, were estimated to be worth £140,000.

This of course is a manufacture and commerce of which England receives a fair share, and perhaps it is one not very capable of being greatly increased. Still it would always help to swell the total of a general trade. Of course we have made no reference to the numerous other productions of the country not directly relating to the textile manufactures. In many respects however it is far richer than has been generally supposed, and especially in its mineral resources there is a great store of wealth that has as yet been little drawn upon. If we do not look after it others will, and as the Shah is very favourably disposed towards us, there ought to be no difficulty in securing all the necessary privileges and abasing none, so that our enterprises in the country might be extended without risk of rebuff.

THE COMMERCE OF PHILADELPHIA.

Consul-General Becker's report on the trade of New York for 1891 is stale news to our readers. The report speaks of the dry goods trade of the city for 1891, which was reviewed in our columns about six months ago. Consul Chipperton's observations on the trade of Philadelphia are, however, of greater interest in some respects, although he gives practically no information about the textile industries of the city, which form the principal source of employment for its workers. The omission is surprising, as Mr. Chipperton's reports in previous years have been very interesting on account of the amount of information they contained about the Philadelphia textile trades. The Consul would earn the thanks of many of those for whose information these reports are intended, if he would on future occasions repair the omission made this year. The city of Philadelphia has within the past few years made rapid strides in the way of improvements, increased trade, industries, and commercial facilities, and has also become one of the chief financial centres of the country. The future of the port and city is assured so far as continuous

public improvements and enlarged railway facilities are especially concerned. The city is at the junction of the Rivers Delaware and Schuylkill; its population is 1,046,964, to which may be added about 200,000 living adjacent; the area being 129 square miles; there is a frontage of 18 miles on the Delaware River, all navigable, with wharfrage running for 5 miles, and the channel in many sections runs in a depth of 35 to 40 feet at low water. The Schuylkill River flows through the city for 16 miles, and there are 4 miles of dockage and wharfrage along its banks. There are 1,351 miles of open streets and alleys, and these figures are continuously increasing; the lighting, gas, and electricity, and the drainage are good, and the water supply ample. The City Hall, where the municipal departments are located, is the largest structure in the United States. This handsome building is not as yet completed, but up to date the expenditure has reached £3,000,000, and it is estimated that another £1,000,000 is necessary to finish the structure, which is of white marble with lavish ornamentation. It is now proposed to erect a general Exchange to be known as the "Bourse," wherein all commercial and stock exchanges will be located. The structure will be on a large scale, and will cost some hundreds of thousands of pounds.

SAD RESULT OF A STRIKE RIOT.

Our readers will all have seen the account of the terrible strike riot which occurred at Messrs. Carnegie's iron mills, Homestead, near Pittsburg, Pennsylvania, last week. The iron trade in the United States, it appears, is depressed, and this large firm, with an invested capital of over £5,000,000 sterling and employing over 40,000 hands, deemed it necessary to make a reduction of wages, to which the workers would not agree. The consequence was a rupture in their industrial relations: the workers either left of their own accord or were locked out by the employers. From the account given it is not quite clear by which name we are to characterize the stoppage, but this point is quite immaterial: whichever way it was both sides were clearly within their right. But now comes the crucial point on which the conflict arose, and in which the workers were absolutely in the wrong. Having left their work or been dismissed, their duty in their own interest was to have sought work elsewhere at more satisfactory terms to themselves than their late employers offered. They, in their own interest, proceeded to exercise their right of engaging another complement of men who were willing to accept the terms offered. These new men were also quite within their right in accepting the engagement. But here the old employés step in, attack the rights of both, and by violence determine to prevent their exercise. To protect the men the firm called in the aid of a large detachment of "Pinkerton's men." This is a sort of private army, called a detective agency, which is open to engagement by any person in the States who can pay for the services of the organization. It is an *Imperium in Imperio*, and constitutes a very tangible proof, were such required by anybody, of the lax administration of the State laws of the whole country. The head office of the organization is located in Chicago. Three hundred armed men of this corps were engaged to protect the new employés, and to avoid attack went by river from Pittsburg to Homestead, where they found the banks lined with several thousands of the strikers determined to resist their landing. The first attempt to land was made at daybreak, but the boats were repulsed from the bank. A shot from a revolver, it is said, was fired from the barges, which was very imprudent, though made in defence of their rights and against wrongful attack. Then began a furious exchange of shots,

which lasted fully ten minutes. Pinkerton's men were armed with revolvers and Winchester repeating rifles, whilst their opponents had only revolvers. This was the first encounter. Another followed at 7 o'clock, and again a number of men were killed. Desultory fighting continued throughout the day, and the strikers laid an embargo upon a cannon which they brought into effective action. Of Pinkerton's men seven were killed and about thirty wounded. The number killed and wounded of the strikers will probably never be known, but it is roughly estimated at 20 killed. The strikers in the end proved victorious, capturing and burning the barges and taking their occupants prisoners. A truce was arrived at, but great fears apparently prevail that there will be a renewal of hostilities. A telegram on Monday reported that a corps of the State militia, 8,000 strong, had been dispatched to the place to preserve the peace. All this is very sad and regrettable, but it is the natural outcome of the ignorance and the evil advice to which working men are too prone to listen. This instance, resulting as it has done in the practical outbreak of civil war, has simply for its basis the pernicious principle that the working man has a right to refuse to work himself and to prevent others doing so. The former claim is not denied; the latter is utterly subversive of the foundation of all society, and will not until chaos come again be permitted in any civilized state. We direct attention to the matter here simply on the ground of shewing its identity with the principle involved in the pretensions of the cotton operatives in this country of preventing employers engaging new hands to work their mills in cases of dispute, such as the numerous ones that have occurred in Lancashire and neighbouring counties during the past couple of years, and of which the Stalybridge case may be taken as a sample. We adduce this American case for their especial benefit as an illustration of what may come out of their own pretensions if persisted in. Society can never and will never admit the claim involved, and in the last resort will not be slow to employ, if necessary, the extreme resources of civilization in self-defence. We trust, therefore, that this part of the English trades-unionist policy will be reconsidered and as a consequence abandoned, as assuredly it will be if wisdom presides over their councils.

PRE-HISTORIC PLAITING AND WEAVING.

A volume of a German encyclopedia which is just appearing contains an interesting article on pre-historic plaiting and weaving, which we translate from the columns of a contemporary. "There can be no doubt," writes the author of the article, "that the beginnings of the art of plaiting date very far back into the past, the need of binding and fastening tightly together being one of the most original needs of man. An example was furnished by the natural plaiting of trees and bushes; and binding materials, or stuff for the production of fabrics, were supplied to pre-historic man by blades of the stronger varieties of grasses, the bark of certain trees, the sinews of animals, strips of their intestines, portions of skin, and other substances. Certain decorations found on utensils of Diluvial man, the *suréts* of which are said to have been taken from textile art, have often led to the inference that even the cave men of the Diluvial age were acquainted with the rudiments of the textile art, that is, with the twisting of a thread or a string, and the fundamental features of the *technique* of plaiting. Be that as it may, the appliances of weaving, etc., discovered among the finds of the neolithic period shew that plaiting had made considerable progress during this pre-historic epoch. In the caves of Franco-Italian Switzerland were found implements made of bone (shuttles, crochet

needles, etc.) which had served for weaving and for the knitting of nets. The richest store of implements and products of pre-historic plaiting have been furnished by some of the pile dwellings of Switzerland, especially the stations of Robenhansen and Wangen. The remains of unwrought flax found there are said by Heer to belong to the variety *linum angustifolium*—a perennial plant which differs from the *linum catharticum* by its comparative shortness and greater fineness of fibre. At Robenhansen the explorers found not only unwrought flax in the stalk, but also raw flax in bundles, skeins of this material laid side by side and held together by similar skeins, as well as bundles of yarn, and stronger threads and strings consisting of two or more fibres twisted together. Of the plaited articles the simplest are the nets. The woven goods vary in fineness, and were evidently prepared by means of a loom consisting of a frame to stretch the warp threads and an arrangement for passing the weft through them. The number of the threads in a square inch of the stuff varies, as well as the thickness. Some of the fragments of nets had evidently been in the water. The excavations made at Robenhansen brought to light not only plain stuffs, but also fabrics with fringes, and figured stuffs and ribbons. As for the Bronze Age, certain articles of dress found in graves of that period—for instance, the garments brought to light from the grave mounds of Treenhoi and Borum-Eshoi in Jutland—have supplied clear proof that the working-up of wool was well understood at that time. Buschau remarks that the oldest fabrics with which we are acquainted belong to the Germany of to-day (not including those supplied by the South German Swiss pile-buildings, and the proceeds from the moor-finds of the bronze period. He draws the following conclusions: "1. That in the prehistoric Germany wool (mostly sheep's wool), and flax were worked up, but no hemp, 2. That the manufacture of fabrics of wool preceded in Germany the manufacture of flaxen stuffs; in the Northern Bronze Age woollen stuffs are found exclusively; in the Iron Age (but not at the beginning) also fabrics of flax, 3. That the wool of the sheep bred in prehistoric times was dark, not white. 4. That most of the stuffs were twilled; satin-like stuffs are never found." That very good articles of different sorts can be produced by apparatus of extraordinary simplicity is taught us by the appliances still in vogue in Arabia, Persia, India, etc., as well as by those which are represented on the Aztec pictures of Mexico. We also possess from ancient Egypt not only actual specimens of its skill in mummy-wrappings, but also have representations on the monuments of the whole process of the preparation of flax. The technique of spinning was also represented: the Egyptian spindles were, as a rule, of considerable size, and generally of wood, and to increase the turning power the disc-shaped head of the spindle was not seldom of gypsum or metal. Other nations attained the same end by attaching a whorl to the spindle.

QUICK SHIPPING.

An instance of the rapidity with which Manchester houses can now ship consignments from Liverpool to foreign ports came under our notice this week. The goods in question arrived at a Cannon-street warehouse at 11-30 a.m. from Bolton on Tuesday. They left here for Liverpool by the noon train, and arrived in time to catch the White Star liner *Majestic* before she left her berth in the evening. The shippers will not, it may here be noted, accept freight after six. The *Majestic* sailed on Wednesday for New York, and the Consul's certified invoice was posted in time to catch the boat at Queenstown on the following day.

This is an instance of speed which is no doubt often seen in connection with goods that are urgently required by customers abroad. The matter, however, having been personally brought to our notice, reference to it in detail may be of interest. In this case, the goods will reach New York from Bolton, via Manchester and Liverpool, more speedily than a shipment could be effected by rail from New York to San Francisco, which is about the same distance. The average speed on the American transcontinental lines is not superior to that of our best ocean liners between Liverpool and New York. The average travelling in the case of freight trains is decidedly below that of the *Majestic*, *Teutonic*, *Etruria*, or *Umbria*, amongst English boats, or of the *City of Paris* and *City of New York* amongst foreign (we write the word with reluctance) ships. We do not know what the "schedules," as they are termed in the States, indicate at the present time, but eight years ago it occupied 3½ days to traverse the route between Omaha and San Francisco, a distance of 1,867 miles, for which the fare was \$95, or about 2½d. per mile. The "express" only travelled from 20 to 25 miles an hour, a speed which the Liverpool racer of to-day can easily attain. Since the passing of the McKinley Bill there has, it need scarcely be said, been a considerable decline in the New York business obtainable by shipping agents in Manchester, Bradford, and other centres. Some have experienced a diminution of quite one half in the volume of consignments passing through their hands, while with others the decline has only been about a third. This result would be expected by those who have followed our tables showing the value and quantities of goods shipped during the past few years through the U.S. Consulates in Bradford, Leeds, and elsewhere.

A COMMERCIAL NAPOLEON.

This is the designation which has often been applied to the late Mr. James Arthur, of Glasgow, founder of the firm of Arthur and Co., Limited, who are the Rylands's of Scotland. Mr. Arthur was in many respects a remarkable man. Born at Paisley in 1819, he was placed by his father (who had a bleachfield at West Arthurlie) as apprentice to Mr. Henderson, draper, of Hamilton. Before he was 20 he had commenced business on his own account as a draper and silk mercer in Paisley, and his shop on Saturday afternoons was crowded with workers from his father's bleachfields. Mr. Arthur had some shrewd notions of his own, which are of the character known by some as common-sense ideas. In matters of taste he argued that the public should be the judges. One day he was dressing the door with goods of a very striking pattern, when a friend, who was passing, remarked that he was surprised people could be found to buy such vulgar designs, to which Mr. Arthur quietly replied, "And do you think people without taste are to go naked?" Before he had been 20 years in Paisley his business had increased so much that he took additional premises, and in 1849 opened a shop in Argyll-street, Glasgow, under the style of Arthur and Fraser, which still exists under the altered title of Fraser, Sons, and Co. When the Glasgow business had developed to a certain stage, he decided on commencing the warehouse trade in distinct premises, and in 1856 founded the concern now grown to colossal proportions in Queen-street, which has its ramifications, either by branches or by representation through commercial travellers, in many parts of the world, the Colonial trade being a very large one. At that time (1856) the commercial traveller was a much rarer bird than he is now, and Mr. Arthur may be said to have given the impetus to representation by

travellers which is such an important feature of commerce in the present day, and has compelled every house (with perhaps one or two exceptions) to follow his example. Heretofore that there was a wide field open in the direction of obtaining orders which saved his clients' time, trouble, and expense, and he acted on it by sending a whole bevy of travellers to the country shops which were open to deal with him. Some years ago there appeared in one of the London journals a series of articles on Scotchmen, written in a vein of somewhat bitter sarcasm, and Mr. Arthur, in "*Clydesdale Camions*," appeared among others; but the writer was not very hard on him, and was content to remark, as an illustration of his wonderful business energy, "that when the North Pole was discovered, one of Arthur's travellers would be found sitting beside it, with his case of samples, ready to open up business." When the Western Bank failure started the commercial world, Mr. Arthur, like many others, found himself in difficulties. He could not get the support from the bankers which he considered himself entitled to, so he called a meeting of his creditors, and shewed that he had a considerable surplus, asked those who had confidence in him to give him time, and offered to pay those who could not or would not wait, on obtaining a liberal discount. This bold course saved the concern from ruin, and afterwards its progress was continuous. Mr. Arthur died in 1885 at his residence, Carlung, Ayrshire, at the age of 70, after building up one of the largest dry goods houses in the world. He was a man of fine physique, and a hard worker. More stories are told of him than of any other merchant of his class in the country, and some of them go to shew that, with all the vast responsibilities that rested upon him, he was not disinclined on occasion to cast them aside for a brief interval. The capital of the firm of Arthur and Co., Limited, is now £1,500,000.

THE CHICAGO EXHIBITION AND ENGLISH MANUFACTURERS.

It will be remembered that at a very early period in the history of the Chicago Exhibition project we put forth our views as to its utter worthlessness, under the conditions then and now existing, to English manufacturers. A country which, in the hands of the dominant and ruling party, has for the past thirty years been assiduously and persistently engaged with all its power, by fair means and foul, to destroy our trade with it, cannot by reasonable persons be taken at its own estimate when it comes with effusive professions of friendship, gives invitation to its great show, and tells of the wonderful advantages to be obtained by exhibiting therein on an extensive scale. We pointed out that the only advantage that could result to English manufacturers by exhibiting would arise from utilising the Exhibition as an opportunity of giving the people of the States an object-lesson of a strongly demonstrative character regarding the extent to which they were being taxed for the benefit of their own manufacturers. This we pointed out could be done by placing upon every exhibit its selling price in this country, and its selling price in the States when the duties and profits of the traders had been put upon it. This might, we said, do something in the way of leading to a reduction of the tariff, with benefit to both the American people and English manufacturers. This suggestion was taken up by a Chicago commercial paper, and the Exhibition Commissioners were interviewed upon it. It was also taken up very strongly by the English Chambers of Commerce in the manufacturing centres, the

result being that the promoters of the exhibition soon saw that if they had to expect any support whatever from English manufacturers they would have to concede the point. It was therefore granted officially, and so announced by the English commissioners through Sir Henry Truman Wood, their secretary. The English Government then made a grant of £25,000 towards the cost of an adequate representation of the British industries at Chicago.

Notwithstanding both inducements, however, and the raising of the grant to £60,000, so that exhibitors might be relieved from all charges for space, the proposal to take an important part in the display has been, and we think very properly, cold-shouldered. It is not receiving a tithe of the support anticipated on the other side, and for which space provision has been made. The prospects were so gloomy regarding it, that a special deputation visited Manchester and other industrial centres, with a view to stimulating interest in it, and inducing manufacturers to come forward and exhibit. This, however, had very little effect, as the deputation was considerably heckled, and got the advantage of listening to some very plain speaking. In the meantime we had drawn attention to the concession that had been made in favour of foreign exhibitors in the matter of showing these prices, and advised all persons who might, under this inducement, be led to exhibit, to take the most scrupulous care to see that the concession was a reality, and not a sham, and to have a guarantee that it should endure throughout the period of the Exhibition. That this was not an unnecessary caution very soon after became markedly obvious, by the issue of an official circular from Director-General Davis, stating in relation to this point that exhibitors would be permitted to state upon their goods the cost of production, and the price at which they could be sold in the States when the duty had been paid. This is obviously a very different thing indeed from what had been demanded, and to this fact we promptly drew attention a few weeks ago. The world is getting a little bit awake to Yankee "smartness," and in due time, with a little more experience, will perhaps become widely so.

The circular has had the run for some time, and has, we believe, seriously injured what small prospect there ever was of inducing English manufacturers to exhibit. This has been discovered and its influence felt, especially by Sir Henry Wood in his efforts to get exhibitors. This was no doubt one of the chief, if not the principal, reasons of his visit to the States, for which he left this country a few weeks ago, and to get the obnoxious circular recalled. In this he appears to have been successful, if we may credit a telegram from New York despatched on Tuesday. This telegram we reproduce. It is as follows:—

NEW YORK, TUESDAY.

Sir Henry Truman Wood, secretary of the British Royal Commission for the Chicago World's Fair, and Mr. J. J. Goullston, the Ceylon Commissioner to the Exposition, will sail for England to-morrow. The main purpose of Sir Henry Wood's visit to the Exposition has been to secure increased space for the British sections in all the great departmental buildings of the Fair. During Sir Henry's first interview with Director-General Davis he called attention to the circular sent to all foreign countries recently by the Director-General regarding the marking of prices or values on foreign exhibits. The circular referred to stated that any prices at which the goods could or would be sold in America and their cost of manufacture should appear. Sir Henry objected to this on behalf of the British exhibitors. He declared that no manufacturer would be willing to expose his business secrets by disclosing what it cost to make his wares. Director-General Davis was greatly annoyed at the policy outlined by the circular. On investigation he found that it had been prepared by his chief clerk through a misunderstanding, and that he had signed

it with a great number of other documents on a verbal explanation of its contents. As the unfortunate circular had been widely circulated, steps were immediately taken to correct the mistaken impression it had created. Another circular was sent out recalling the incorrect one, and setting forth clearly that foreign exhibitors may show on all their goods the price at home and the price here with the duty added. Sir Henry Wood states that various Chambers of Commerce throughout the United Kingdom laid great stress on the privilege of marking their goods with and without tariff prices.

The "main purpose" of Sir Henry Wood's visit, as stated above, may be dismissed as simply having its origin in the fertile imagination of an American newsmen or interviewer. We do not think Sir Henry has been as yet under any urgent pressure on that score, nor do we think he is likely to be, either immediately or at any period before the opening of the Exhibition. His difficulty seems as if it would be much more of an opposite character, namely, to fill the space he already has at disposal. That somebody has blundered in that unfortunate circular has now, it is evident, been recognised, and Director-General Davis's chief clerk has been put in the fault, whether justly or not we will not venture to say. It has, however, been withdrawn, and another issued more in accordance with the true rendering of the original claim we made, and its concession by the authorities of the Exhibition. It will, however, hardly avail the management to any important extent, or add to the number of exhibitors. The trade on this side, if they visit America at all, will go to inspect what the Americans are doing rather than to exhibit their own achievements.

Meanwhile it is amusing to learn that some Chicago wags have placed the directors of the exhibition and American protectionists on the horns of a dilemma. The Single Tax Club, of Chicago, has sent a petition to the directors asking "that on foreign exhibits of dutiable goods at the World's Fair the selling price in the country from which the goods are exported, the transportation charges from point of origin to Chicago, and the selling price in Chicago, be stated separately." The petitioners add:—"We conceive that neither political party can consistently be opposed to this, as the framer of the existing tariff confidently asserts as the faith of his party that the foreign exporter pays the tax, and the opposing party asserts with equal confidence that the American consumer pays the tax. It is respectfully submitted that the Exposition can confer no more important service to the American people than to aid in the solution of this vexed and most important question." This petition is a happy combination of wit and wisdom; and if the petitioners will "ever pray" in this style they may in time achieve some notable thing.

Foreign Correspondence.

TEXTILE MATTERS IN THE UNITED STATES.

BOSTON, JULY 4TH.

THE TRADE OF PROVIDENCE.

During the year 1891, 205,589 bales of cotton were received in the Providence Market, against 169,190 bales in 1890. This may not show an increase in cotton manufacturing, as the low price of cotton led manufacturers to buy largely in excess of their requirements, for it was believed that prices would not decline further. The increase in sales was in the finer grades. The dividends of New England mills averaged about one-third less than in 1890, and the dividends of 1890 were one-fourth less than those of 1889. This tells the story of cotton manufacturing in New England.

PRINT CLOTHS.

At Fall River the reported sales for the week ending June 25, 1892, were as follows:—

	Pieces.
64x64 cloths, spots, at 3½¢. to value.....	21,000
64x64 cloths, to be made	—
56x60 cloths, spots and to be made	—
Irregular cloths, to be made.....	\$2,000

Total 103,000

From Providence the reported sales for the week ending June 25 were as follows:—

	Pieces.
64x64 cloths, spots, at 3½¢.	12,000
64x64 cloths	—
64x64 cloths, to be made at 3½¢.	—

Total 12,000

The contract sales at Fall River were: For July delivery, 142,000 pieces; August, 102,000 pieces; September, 65,000 pieces; October, 17,000 pieces; November, 12,000 pieces; December, 8,000 pieces.

The reported stocks at the several centres Saturday, June 25, 1892, as compared with the corresponding week in the previous two years, were as follows:—

	1890.	1891.	1892.
Fall River manufacturers ..	80,000	450,000	—
Fall River speculators ..	—	—	—
Providence manufacturers ..	388,000	456,000	—
Providence speculators ..	—	—	—
Elsewhere	18,000	—	—
Total	486,000	906,000	—

The closing quotations for middling spot cotton, and 64x64 and 56x60 cloths, June 25, in the three years were as follows:—

	1890.	1891.	1892.
	Cents.	Cents.	Cents.
Extra 64x64 cloths.....	3½	2 7/8	3½
56x60 cloths	3	2 5/8	3
Middling cotton, spots. ..	12	8 3/8	7 3/8

SAXONY WOOLLEN DRESS GOODS.

The total amount of woollen dress goods shipped to the United States from the consular district of Plauen, Saxony, during the four years 1888-91, writes the United States Consul at that place, amounted to \$7,385,508'54—a yearly average of \$1,845,879'89. In 1890, owing to the probable passage of the new Tariff Bill, the shipments amounted to \$2,239,119'99, showing an increased shipment over the previous average annual amounts of \$395,740'11. This increase over the average was, no doubt, caused by a desire on the part of the American importers to escape the duty of the new tariff. The demand does not appear to have increased, for we see that during the year following (1891) the exportations dropped to \$1,122,652'47, or \$623,227'42 under the average. The shipments of 1890 were \$395,740'11 over the average; add that to 1891, making the total exports for 1891 amount to \$1,516,392'55, and there yet remains a deficit of \$329,487'31. Was this difference supplied from other districts? If not, it is fair to assume that it was supplied by our home manufacturers. This hypothesis is strengthened by the fact that of my personal knowledge one firm of woollen manufacturers in this district has established a mill for the manufacture of woollen dress goods at Passaic, N.J., and they have assured me that they are satisfied with the results. Labour at Plauen has been somewhat seriously affected by the new tariff; many mills are not running up to their full force, and there is a consequent reduction in the amount of labour required. The spinners of yarn have felt the shrinkage resulting from the decrease in the output of woollen dress goods; prices have fallen, and some failures are reported.

I regret to have to announce the death of Mr. Nichol Pringle, the dress goods buyer for Messrs. Teft, Weller, and Co., of New York. Mr. Pringle, who was well known in Bradford and other European dress goods centres, was born at Newstead, near Melrose, Scotland, in 1850. He came to this country 20 years ago, and successively found employment with Brown, Thompson, and McWhirter, of Hartford, Conn.; A. T. Stewart, and Co., Wilnot, Davis, and Co., Halsted, Haines and Co., and Lee, Tweedy, and Co., in their respective dress goods departments, and left the last-mentioned firm to accept of the position with the house of Teft,

Weller, and Co., which he has held for the past six years and up to the last.

HOSIERY, LACE, FLUSH.

The hosiery trade is quiet. Spring goods have been ordered in large quantities by Western houses. With reference to foreign hosiery, there have been some repeat orders for autumn goods, and prospects have improved during the past few weeks.

A new curtain fabric, by the Mitcheline process, has appeared in Philadelphia, and is being shown to buyers of fall goods. It is said the patterns are extremely beautiful, while the novelty of the material is such as to command universal admiration among those in quest of attractive goods. The company who control this novelty have also introduced a quilt made of the same style of fabric. Both the quilt and curtain come in a variety of patterns, and many different designs in colour and decoration work.

The Pioneer Plush Company of Paterson, which employs about 200 hands, is making a few velveteens, but it is principally engaged in the production of the cheaper grades of silk plushes for upholsterers and box makers. The fact that velveteens are being manufactured by this young firm is, however, one of some significance to Manchester men. Candidly, I do not think that a long period will elapse before this country is producing much larger quantities of velveteens than it is to-day. The difficulties to Americans are not insuperable.

MACHINERY NOTES.

At a recent meeting of the directors of the Portland (Me.) Plush Mill Corporation, Mr. Ackroyd was instructed to go to Europe to buy machinery, etc., and he left on the *City of Paris* last Wednesday. In two or three weeks President Robie or Treasurer Tilton will follow him.

It is said that German and French machinists have been making enquiries about the "Improved Duffy and Wowell spindle" made by Taylor, Shaw, and Cocker, silk machinists, of Paterson.

Reviews of Books.

THE KINDER PRINTING CO.; ITS STRANGE HISTORY. By "Kinder." Manchester: *Spy* Office.

This is a pamphlet unique in its way. It deals with the origin, growth, and decay of one of the best-known calico-printing concerns in the country, and although many of its pages relate to personal matters, on which we cannot be supposed to comment, there is enough information in the remaining portion of the work to repay outsiders for the labour of perusal. As a picture of life behind the scenes in a print-works the *brochure* is specially worthy of notice. There are many chatty details, too, of a friendly character, regarding well-known print men, both at the Manchester "end" and at the works of various firms, with some reminiscences of a school of print buyers, such as old Captain Farr, of Henry's (whose hats must, we fancy, be especially made for him), now rapidly passing away. As a sample of the class of information given by the author, we reproduce a cost sheet which is said to represent prices paid at the Kinder Works in 1881:—

Wages	s. d.
Drugs for bleaching	0 8
Colour	0 0½
Starch and blue	1 9
	0 2½

Brought forward	s. d.
Blankets and doctors	2 8½
Coal	0 1½
Casting	0 4
Dye-house	0 1
Sundries	0 3
	0 1
	5 6¼

This cost sheet was taken from a run of 574 pieces of 29 yards without a change of colours, and the fitting stripe all black. The style was a five-colour white ground Persian stripe, with a fitting black roller, and the goods finished pure for Constantinople. The combinations are yellow, pink, red, green, blue, and black, and the price per gallon of each colour was as follows:—

Pink	s. d.
Red	4 0
Green	10 0
Blue	7 6
Yellow	6 0
Black	4 0
	2 8

The pamphlet may be recommended to the notice of all calico-printers, being full of highly interesting material.

Designing.

THE ANALYSIS OF PATTERN.—XIV.

CHANGING THE WEIGHTS OF CLOTHS.

(Continued from page 383, Vol. vi.)

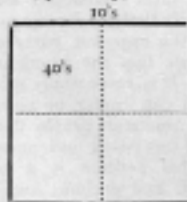
An example will, perhaps, render the demonstration of the underlying principles more easy. Therefore, suppose a cloth is found to be made to the following particulars: Warp all 36's, worsted 64 threads per inch; weft all 36's, worsted 64 picks per inch; and a cloth 1-6 heavier is required, then, evidently, 6-6 must be made into 7-6, or the weight must be increased as 6 : 7. The correct procedure is as follows:

As 7 : 6 :: 4³6 : 4²x = 26 counts required; or
as 7² : 6² :: 36 : 26 counts required,

and since the sett of a cloth must always be varied according to the square root of the counts, or diameter of the yarns employed.

As 4³6 : 4²26 :: 64 : 55 threads per inch; or
as 7 : 6 :: 64 : 55 threads per inch.

This latter procedure—the reduction instead of increase of the threads per inch for extra weight, seems strange; but the following explanation will, probably, clear up the matter.



As already intimated, the counts of the cloth must not be changed in direct proportion, or a perfect cloth cannot be formed. Since, however, the counts are changed, a relatively similar change must be made in the ends per inch to preserve a perfect structure. Now changing in the proportion as 7² : 6² is a greater change than changing in the proportion as 7 : 6, for

As 7 : 6 :: 1 : ⅔ or ⅔; and
as 7² : 6² :: 49 : 36 :: 1 : ⅔

so that the change made in the latter proportion gives a *less* number, and, therefore, a heavier count than the count required to give 1-6 heavier cloth. Therefore, the number of threads must be *decreased* to compensate for the heavier yarn employed. This may be demonstrated as follows: Suppose a cloth is found to be made of a 40's yarn, and it is required four times the weight: then the simplest method is to change directly by the counts, thus—

As 4 : 1 :: 40 : 10 the required counts.

Now, Figure 29 shows this to be true; but according to the correct method the change would be—

As 4² : 1² :: 40 : 2½ the correct counts required.

But 2½ counts would give a cloth four times the required weight as given by 10 counts; so this weight must be decreased four times by decreasing the number of threads—

As 4 : 1 :: 40 : 10 threads per inch,

and this is precisely the change necessary for the increase in the thickness or diameter of the yarn, viz.,

As 40 : 2½ :: 40 : 10 threads per inch; or
as 40 : 2½ :: 40² : 2² :: 10 threads per inch.

That this is correct the following calculations show:—

40 x 30 x 60
42 x 560 = 3½ lbs. x 4 = 12½ lbs.

for cloth 30 inches wide and 60 yards long.

10 x 30 x 60
2½ x 560 = 12½ lbs.

A still more difficult question may occur as follows:—A cloth is woven in the 2-and-2 twill weave with 64 threads and picks per inch of 2-40's yarn, and a piece is required in the 4-and-4 twill, giving an increased weight of ⅓th. Then

As 6² : 5² :: 25 : x = 17½ counts required, and
as 6 : 5 :: 64 : x = 53½ threads per inch required for the cloth ⅓th heavier.

For the 4-and-4 twill, however, a further change is necessary according to the relative number of intersections in the respective weaves. Now, 8 threads of 2-and-2 twill occupy 12 diameters, while 8 threads of 4-and-4 twill only occupy 10 diameters; therefore, to change from the 2-and-2 to the 4-and-4 twill—(53½ ends ÷ 8) x 12 = 80 and 80 ÷ 10 = 8 repeats of the 4-and-4 twill x 8 = 64 threads per inch.

But this is an increase of weight in the proportion as 53½ : 64; therefore, the weight must be reduced in this proportion.

As 53½ : 64 :: 17½ : x = 25 counts, and
as 53 : 64 :: 64 : x = 77 threads per inch.

Therefore, a cloth made of 2-50's yarn with 77 threads per inch, is ⅓th the heavier than a cloth made with the same yarns 64 threads per inch, while the perfection of structure is preserved even in changing from the 2-and-2 to the 4-and-4 twill. It should be noted that the return to the 25's counts is merely a coincidence. In decreasing the weight, the same principles apply, in a decrease of one-fifth the proportion will be

As 5 : 4 or ⅔ will become ⅓ and so on throughout.

We should always recommend the analyst to reason out important calculations, as here shown, and not to depend upon rules until the principles are thoroughly grasped.

THE WEIGHTS OF FINISHED CLOTHS.

The treatment of the relationship between the cloth woven and the cloth finished is usually ignored, or is treated in a very brief manner in most text-books; and since we have

LIST VII.

Yarn.	Counts.	Ns. of Yds. Reelod.	Greasy Weight, in Grains.	Average Greasy Wgt.	Average Scoured Weight, in Grains.	Loss per lb.
1. Grey Notary	2/15's	100	166'5, 166'4, 166'85, 167'02	166'95	158'99	313'71 grains.
2. " " " " " " " " " "	18's	100	54'3, 53'92, 54'14, 54'25	54'35	51'7	404'6 "
3. Brown " " " " " " " " " "	20's	100	51'05, 51'04, 51'77, 51'85	51'58	49'45	289'06 "
4. Claret " " " " " " " " " "	2/56's	100	34'2, 34'1, 34'17, 34'22	34'27	31'25	508'18 "
5. White " " " " " " " " " "	40's	100		27'05	24'77	861'76 "
6. Dark Brown Cross-hred	2/16's	100	153'05, 151'42, 151'84, 151'8	152'03	148'3	172'1 "
7. Black " " " " " " " " " "	2/24's	100		97'57	92'82	340'97 "
8. Blue English	30's	100	40'20, 41'92, 42'02, 42'07	41'55	40'87	114'51 "
9. White Woolen	36 sk.	100		73'15	67'15	574'06 "

* The colour should be stated, since some colours (such as indigo) are liable to affect the results.

been at some trouble in collecting the following particulars, we trust they may prove useful to our readers, and an inducement to further minute research in the matter.

It is a comparatively easy matter to calculate the weight of a cloth as woven, but it is quite another matter to estimate the weight per yard when finished. The chief causes of variation are loss of oil in scouring; loss of fibre in milling; increase of weight per yard owing to contraction in length, which contraction may be varied, within certain limits, at will; and lastly, in the filling often put into cotton and cloths.

The loss of oil, etc., in scouring, must first be considered. Practically, all wool yarns are spun with oil; thus, when a yarn is delivered to a certain count, it is only that count so long as the oil remains in it; therefore, it will evidently be advantageous to ascertain the probable loss in scouring, by reeling, say, 100 yards of the yarn, accurately weighing, scouring with soap at about 95° F., drying, and leaving, say, a couple of days to regain the natural moisture, and weighing again to estimate the loss.

A series of such experiments are shown in List VII.

A curious point is here revealed, viz., that a marked difference frequently occurs in the weight of the same yarn in the same state weighed at different times. These weights have been very carefully tested, and may be taken as an indication of what actually occurs in practice, the weather materially influencing the weight of the wool; or more correctly the amount of moisture in the wool. Another point that should be carefully noted is the heat at which the yarns are scoured. This should not exceed 95° F., and guess-work will not do. (A pocket thermometer may be purchased for about 1s., which will answer every requirement for exact work, and should always be used to test the heat of the bath.)

It will be observed that only one example of woollen yarn is given, and not even one of cotton. We have not gone further into this matter, simply because the conditions will vary so much, owing to the oil in the case of woollen and filling in the case of cotton, that any further particulars than those given would really be of little service. The analyst should carefully

take a test on the lines here laid down for each yarn with which he has to deal, and this, with the following particulars, should enable him to fairly accurately estimate the weight of the finished cloth.

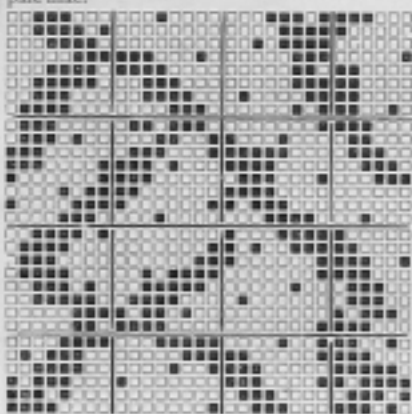
(To be continued.)

NEW DESIGNS.

COTTON DRESS GOODS, ETC.

Spots are very much in vogue at present, especially white spots on a dark-blue ground. The simplest of all, on satinette, are pretty and effective; for whether these spots be close together or far apart, large in size or small, they always stand out well on a satin material. The sea-side costumes made in this style from all-cotton warp and weft are generally white spots on a cardinal-red ground; cream, red, and blue are favourites.

For tennis dresses, cotton canvas cloths still retain their popularity; they are really much cooler for hot weather than any other washing material yet produced. Maise as a colour is coming very much to the front, especially as a foundation for gauze fabrics of pure white or pale lilac.



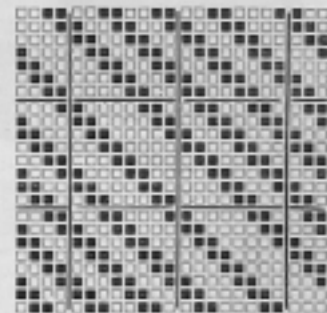
A: PEGGING PLAN.

Shaded stripes, an example of which is given in Design B, are peculiarly novel and prettily fanciful in the blendings, tones, tints, and shades, offering a very wide field of choice, and justly claiming general commendation.

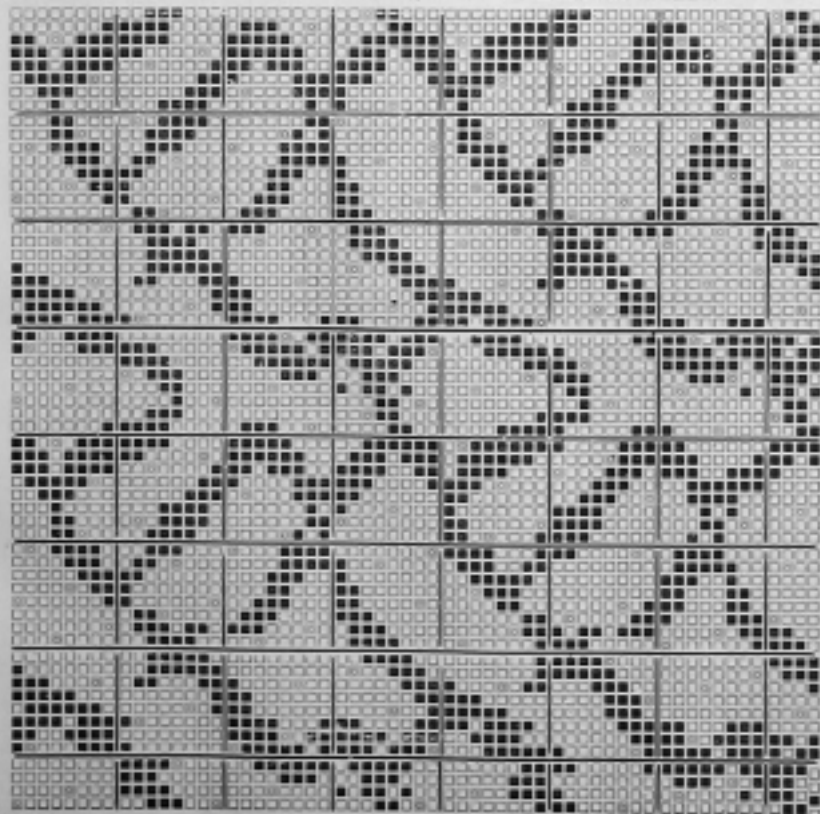
Design A will be found useful, not only as a species of ornamentation for dress and shirting goods, but by an increase of warp and weft would be very effective as a ladies' vesting pattern. It is 30 shafts, 30 to the round, straight-over draft, and may be made a warp or weft figure. The pegging plan gives the undotted squares as weft, which might with advantage be of some lustrous materials—either spun silk or linen. Warp 40's twist, in 30 dents per inch, three in a dent; weft 24's, quantity of picks to be regulated by quality of cloth required; less warp yarns for very light fabrics. In fact, as it is a suggestive design, very much may be left for consideration of materials and quantity. All light ground for warp; weft dark tones, such as cream ground, purple or brown weft, etc.

Design B will give a shaded stripe, the weft crossings breaking up the colours in the stripe from a perpendicular line, but at the same time giving each its proper effect in varied groups. Warp 30's twist, 40 dents per inch, two in a dent; weft 80 picks per inch of 30's cotton or spun silk; 25 shafts, 25 to the round, straight-over draft. We give a pattern from which any number may be formed by rearrangement of colour and increase or decrease in size of stripes.

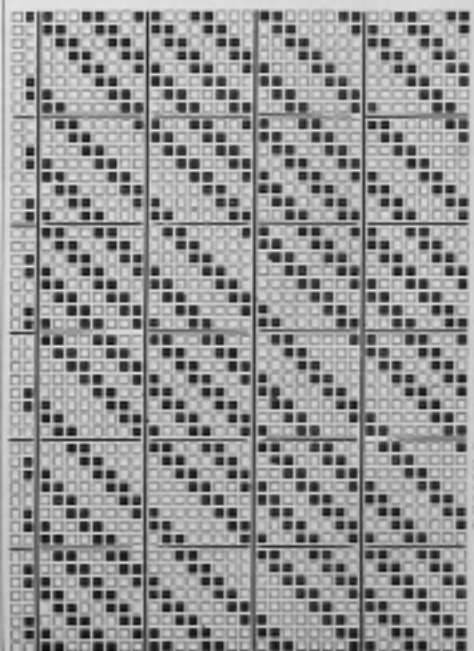
Warp pattern: 15 brown, 3 white, 15 brown, 3 white, 15 brown, 3 white, 15 royal blue, 3 white, 15 blue, 3 white, 15 blue, 3 white, 15 coral, 3 white, 15 coral, 3 white, and repeat first 15 of brown; weft all white.



B: PEGGING PLAN.



DESIGN A: DRESS GOODS, 40



DESIGN B: SHIRTINGS AND DRESS GOODS.

Machinery and Appliances.

IMPROVED DOFFING ARRANGEMENT FOR REELS.

MESSES. BROOKS & DOXEY (LATE SAMUEL BROOKS), UNION IRONWORKS, WEST GORTON, MANCHESTER.

Yarn reeling, for home and export combined, is a not inconsiderable branch of the cotton trade. There are straight-reeled and cross-reeled bundles, and long and short bundles; there are

end of the reel. Various arrangements have been invented to ensure freedom from this risk, and herewith we have pleasure in drawing attention to the latest, now being introduced to the trade by Messrs. Brooks and Doxey (late Samuel Brooks), Union Ironworks, West Gorton, Manchester.

The new arrangement consists of a projection or standard cast upon the frame of the machine, which contains a horizontal stud or pin, upon which are mounted two curved levers, one the readjusting lever, and the other the doffing lever. The first-named is fixed upon the stud by a set screw, while the second is loose. Upon

when the lever is lifted to elevate the reel for the purpose of doffing. In this illustration the machine is shown with all the parts in position as when at work. When the hanks have been completed, and are ready for doffing, the reel is made to collapse, the hanks are run to its end, and thrown into the curve of the levers of which we have been speaking, where they hang down, as shewn in Fig. 2. The reeler next draws back the doffing lever, which brings its lower projection into contact with the reel shaft, and lifts the reel into position for doffing. Upon the doffing lever hangs a latch which engages with a slotted stud bolted to the framing. The action just referred to presses back a detent in the fulcrum, which subjects the first lever to the action of a spring, and this throws it back into the position alongside the doffing lever as shewn, thus opening a way for the removal of the hanks. This position is fully seen in Fig. 2. When the hanks have been removed, and it is desired to resume work, the first lever is pushed up into its former position, and thereby releases the latch on the doffing lever, which then falls away to its working position, the bush upon the end of reel shaft drops into its first seat. The position is now as it was at first, as seen in Fig. 1. This performance is of course gone through in much less time than it takes to describe either by pen or voice. To ensure freedom from oil stains the pivot of the reel shaft at the doffing side is bushed, as previously stated. The outward extremity of the bush which is closed, contains a small chamber for the reception of any excess of oil that may be used for lubricating, and there is a channel cut inside its orifice to perform the same service of preventing the emission of any superfluous oil that might find its way upon the external surface of the bush, and so lead to stains. These means seem effectually to prevent all possibility of such occurring.

The machine is made for winding both from cops and ring bobbins. Fig. 1 shows the construction for cops, and Figs. 2 and 3 for bobbins. The workmanship and material employed in construction are of the best, and in keeping with that of every machine that issues from this firm's establishments. The makers will be pleased to shew the machine in operation, and afford any further information that may be desired, on application.

IMPROVED METHOD OF DRIVING CONE DRUMS.

MAKERS: MESSRS. DOBSON AND BARLOW, LIMITED, BOLTON.

The driving of the bobbins of the slubber, intermediate, and roving frames of a cotton mill by means of the cone drums has long been regarded in many respects as unsatisfactory. The fact that the drums are cones and not parallel is one element of the trouble, because when driven by a single strap it is impossible to get the working surface of the strap to grip the lesser circumference of the periphery of the cone upon which it is working as firmly as it does the larger one. The strap has therefore to perform its task really with little more than one edge, instead of its whole breadth. It is thus unduly strained and is liable to slip—a contingency that often occurs. The defect is not removed by the presence of the second cone; it is only to a limited extent neutralised, and this by putting a similar strain from below, as the first was from above, upon the second edge. The line of greatest strain upon the strap when thus working is a diagonal one across its breadth, and extending from the highest to the lowest points of its contact with the cones. These, it will be obvious, are not conditions that even approximate to theoretical perfection. A second defect is



FIG. 1.



FIG. 2.



FIG. 3.

IMPROVED DOFFING ARRANGEMENTS FOR REELS.—MESSRS. BROOKS AND DOXEY, MANCHESTER.

bundles of 5lb. and bundles of 10lb., but it is not necessary to enter into any further description of these, or the reasons why the variety exists. It is only needful to observe that all the yarns of which they are composed has to be reeled, whether it is ring or mule yarn. One great thing desired by yarn reelers is that all reeled yarns shall be doffed from the reel with facility, quickness, and, above all things, with perfect freedom from oil stains, which seriously deteriorate the value of the yarn. As the pivots of the reel must be lubricated, the liability of oil staining the yarn arises in passing the hanks over the

the extremity of curve of the first lever is cast a small projecting hand lever, by which its position is changed when required. At the point of the junction there is a groove seat for the reception of a bush, fitted upon the end of the reel shaft. These details are seen in Fig. 1, at the right-hand side of the illustration, and at the end of the reel shaft, the hand lever being shewn white. Next to it is the doffing lever, the upper part of which forms a hand lever, while the opposite end shews a projection, extending beneath the reel shaft, and upon which is formed a groove for the reception of the reel shaft

their arrangement over one another, and the limited space in which they have to work within the frame of each machine. They are thus brought so closely together that only a very short strap can be used, which must necessarily be kept very tight, be greatly strained, and work under much disadvantage. As is well known, the wear and tear of these straps is excessive over that normally occurring with other straps. Many devices have been resorted to in order to obviate these difficulties, but as usual in these matters there is something left to be overcome by others following after.

all the differentiation of the driving has to be obtained in this method from one cone, it follows that the taper must be much greater than, indeed double, that of an ordinary cone, and so is made to yield the same drive as the two cones in the old form. It is, therefore, constructed with a taper of four to one.

As the periphery of the friction pulley is parallel with its axis, and the cone drum has to act as the driver, the difficulty experienced with the ordinary cone and its strap was liable to recur by the drive having to be accomplished by the action of a very narrow ring of the periphery of the cone upon the edge of the driving

when the frame is stopped for meal times, nights, and week-ends, the weight of the cone is lifted from the friction pulley so that the covering of the latter shall not be distorted by long compression. This avoids any possible irregularity of drive from that source. When the friction drum has got to the length of its traverse, and the doffing has been finished, the attendant returns it to its original or starting position in the same manner, and by the same means as is applied to the cone strap.

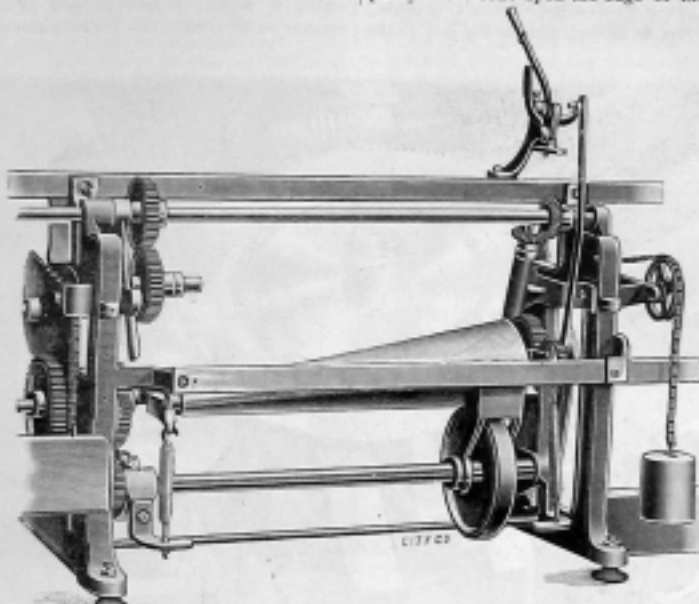
This invention is a decided improvement upon the old plan, and our practical readers will, we think, be quite as able to appreciate and accurately estimate its value as we are, and this we leave to them to do. Messrs. Dobson and Barlow, Limited, will be pleased to answer any enquiries that may be made for further information upon application as above.

IMPROVED SELF-ADJUSTING BOBBIN RAIL BALANCE.

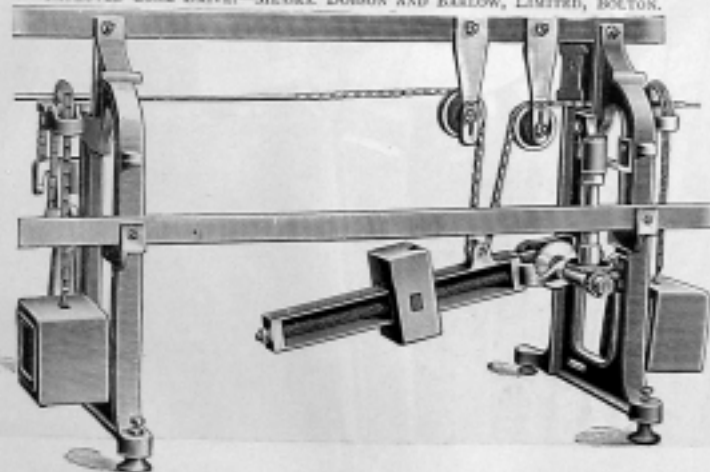
MAKERS: MESSRS. DOBSON AND BARLOW, LIMITED, BOLTON.

The traverse or bobbin rail of the slubbing, intermediate, and roving frame, which carries the bobbins vertically upward and downward through a space corresponding to the length of the tubes and the size the bobbin has to be made, is naturally of considerable weight, and when loaded with its bobbins becomes heavier by the added weight. To keep these rails in constant movement would naturally absorb a considerable amount of power, and consequently would entail a great cost in providing it. To reduce this requirement the provision of balance weights by one expedient or another was very early resorted to. The rail at different times has had various arrangements for this purpose applied, but we need not review these. The surviving one, and that now in common use, is a fixed weight, about equal to the rail for its service of empty bobbins. This, as is well known, is a permanent weight. As the bobbins fill with the material, the balance becomes deranged, attaining its maximum of imperfection when the bobbins are full. Thus there is, with every set of full bobbins produced upon the series of machines to which our remarks apply, a certain excessive expenditure of power—that necessary to move through the traversed space the unbalanced portion of the weight carried. But this is not all. As the bobbins gradually fill, there naturally arises a disturbance of the balanced arrangements previously existing, and this greatly increases the friction upon the rail slides, and consequently consumes more than a corresponding amount of power to overcome it. These defects it has been held desirable to remove.

The invention under our notice is an appliance designed to preserve a perfectly balanced condition of the traverse rail throughout all the changes of weight from empty bobbins to full ones, thus economising power and diminishing wear and tear. It consists of a balance lever, mounted inside, and parallel to the machine frame. This lever carries a weight, which by means of a screw inside the lever is traversed away from the fulcrum of the lever a short space for the deposition of every layer of the material put upon the bobbin. Each movement in this direction, it will be obvious, is equal to the addition of more weight to the balance, which is thus preserved. The movement of the screw is obtained from a long traverse rack and suitable connections. When set it is automatic in its action, needing no attention at any time from the operatives in charge, as it is readjusted by the same means, the same action, and at the same time, as the cone strap in the ordinary drive, or the cone-friction pulley referred to in another



IMPROVED CONE DRIVE.—MESSRS. DOBSON AND BARLOW, LIMITED, BOLTON.



IMPROVED AUTOMATIC COUNTER BALANCE FOR BOBBIN RAIL.—MESSRS. DOBSON AND BARLOW, LIMITED, BOLTON.

We have much pleasure in drawing the attention of our readers to an invention just being introduced to the trade by the firm of Messrs. Dobson and Barlow, Limited, Bolton, which has for its object the elimination of the defects of the ordinary method of cone-driving just described. In the new arrangement the bottom cone drum is dispensed with, and is substituted by a friction pulley, the periphery of which is covered with leather or other suitable material, though leather will undoubtedly be found both the most convenient and useful. The top or driving cone drum is lowered so as to come into contact with and have its whole weight impinging upon the friction pulley. As

pulley. This, however, has been overcome by inclining the axis of the cone to such an extent that the under surface of its periphery shall describe a horizontal line parallel to that of the friction pulley it has to drive. This completely and perfectly overcomes the difficulty, and gives the new arrangement all the advantage that can be got from full contact. There is no slip at starting as is so often the case when driving by the ordinary method, the driven part starting simultaneously with the driver, and consequently there are none of the frequent faults in the material that result from the bobbins starting later than they ought.

There is a relieving arrangement by which,

article, is reset. The appliance is fixed about midway in the length of the machine, and is connected by link chains with the lifting slides of the rail.

It is an improvement in a detail that will, we are confident, commend itself to the judgment of our practical readers. The makers will be pleased to supply any further information that may be desired.

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IMPROVED ANTI-DEFLECTION GRINDING APPLIANCE FOR REVOLVING FLATS OF CARDING ENGINES.

MAKERS: MESSRS. DOBSON AND BARLOW, LIMITED, BOLTON.

The amount of attention devoted to the improvement of the carding engine in its different phases during the past few years has, as our readers are well aware, often been expatiated upon in these columns. There is therefore no need to go over this ground again. The subject of our present notice is another improvement in grinding appliances, the specific object of which is to overcome the consequences of the deflection of the flat when in its working position. The periphery of the cylinder is rigid enough; but not so the flat, which, as we have often explained, when suspended upon its extremities across the face of the cylinder, from its own weight bends from a true parallel line into a curve towards the latter. The greatest depth of this curve is in the middle, and if the flat were permitted to work in this condition, it would inevitably make bad work, owing to the impossibility of setting a curve and a straight line, together with their respective parts, equidistant. Many inventions, possessing considerable merits, have already appeared, having for their object the overcoming of this difficulty. Most recent ones have been based upon the principle that to effect this the flat must be ground resting upon its working surface, and there can be no doubt about the correctness of this view. This principle is also adopted in the improvement under notice. Deflection of the flat can hardly be altogether eliminated without making it disproportionately strong and heavy for all other requirements, and therefore on all hands it has been deemed desirable that the clothed face of the flat shall be ground down to such an extent that when it is in the position in which deflection takes place, the clothed face shall offer a line to the cylinder perfectly parallel with that across its own periphery.

The grinding apparatus we have now to describe is a modification of that invented and applied by the makers in the Centennial Simplex Card described in these columns some time ago. The modification has been made to enable it to be used in connection with all revolving flat cards, to which it can be applied for a very reasonable cost. Fig. 1 gives a perspective view of the arrangement when in position applied to the card at the taker-in side and just above that roller. Fig. 2 gives a view of the details, only shewing in connection therewith just sufficient of the card itself to render the description comprehensible.

In applying this invention there is attached to the ordinary slide which carries the shaft and bowls upon which the flats travel as they enter upon the flexible bend, an arm D, to which is pivoted a lever H for the reception of the grinding roller as shewn. This lever is partially balanced, and is kept up to its work by the helical spring E. The upper surface of this lever forms a curved incline, constituting a cam P. Centred upon the shaft of the flat carrier bowl is a radial or bell-crank lever B, in the pendent arm of which is a slot or slide, and in this is fitted an intermediate piece C, the upper surface of which is constructed to conform in

the most accurate manner to the radius of the flexible bend. The lower surface of this piece has a projection or finger which slides in contact with the incline or cam P. The horizontal arm of the radial lever B has a spring S attached to it, the tendency of which is to keep the pendent arm in the position in which the grinding of the flat commences. In the arrangement illustrated here, the sliding intermediate piece C is pressed by the cam lever D against the working surface of the flats, which is outwards, the flats in travelling towards the cylinder coming into contact with the grinding roller. There is also upon one end of the intermediate piece C a spring catch having an incline, and shewn just to the

piece C upon the face of the cam, cause the grinding roller to approach or recede to and from the flat so near and so far as to grind in a very accurate manner the bevel desired. When the flat has passed the surface of the grinding roller, the catch incline C comes into contact with the left hand incline T on the cam lever shewn in dotted lines. The incline C slides down this, and so disengages the catch, which allows the spring S to return the radial lever B and its attachment to its first position, ready to engage the next flat and begin operations anew.

Attached to the lever B is a small finger, which is arranged and pivoted in such a manner as to ensure the gradual elevation of



FIG. 1.—IMPROVED GRINDING ARRANGEMENT.—MESSRS. DOBSON AND BARLOW, LIMITED, BOLTON.

right of the letter C. This, as the arm B is moved forward by the passage of the flat towards the cylinder, comes into contact with the inclined face of another piece, shewn in dotted lines and fixed upon the upper surface of the cam lever. The catch engages with the edge of the flat, and, in consequence, the intermediate piece C and the radial lever arm B to which it is attached are carried forward by the movement of the flat, which thus passes over the grinding roller, receiving its due need of grinding.

In order to secure the grinding of a proper bevel in the flat, the cam surface of the lever is so constructed that the passage of the flat around the carrier bowl, and its actuation and traverse of the finger of the intermediate

the grinding roller to the proper position for the reception of the next flat, thus controlling the action of the spring L, which might otherwise throw the roller upwards too sharply.

The cam lever D, to which frequent reference has been made, is constructed in two parts, so as to more readily admit the introduction, adjustment, and withdrawal of the grinding roller when required. When the grinding has been completed the roller can be taken out for use upon another card. If not required for that purpose the mechanism can be thrown out of gear, and the roller left idle.

It will be obvious from this description that the adaptability of this arrangement to all makes of revolving flat cards, and the capability of fixing it either over the taker-in, as we have

described, or over the doffer, as may be convenient, makes it an exceedingly valuable one, well deserving the attention of the trade. The makers will be pleased to shew it at work, and afford any other information desired.

Bleaching, Dyeing, Printing, etc.

ALIZARINE: A STUDY IN CHEMISTRY.—IV.

(Continued from page 23.)

The tetra-oxanthraquinones next claim attention. These bodies contain, as their name indicates, four groups of hydroxyl atoms, which

become useful as a source of dye-stuffs possessing very valuable properties.

Oxybuterone is so named because it is obtained from purpurin by the action of fused caustic potash. So far it has no technical applications, its dyeing properties being too weak and poor; but treated as anthrachrysone it might yield useful products.

Quinizarine is obtained by heating alizarin with sulphuric acid at a high temperature. In this compound the hydroxyl atoms are evenly distributed between the two benzene rings, but, of course, in positions different from those they occupy in anthrachrysone. Although capable of dyeing mordanted fibres, yet, owing to a variety of circumstances, it has met with no applications in the textile colouring arts.

Rufopis is capable, like the last, of dyeing mordanted fibres, but the colours it gives are so poor that it cannot be used satisfactorily in

liquids; by dissolving in sulphuric acid with the production of differently coloured solutions; by giving variously coloured lakes with alumina, chrome, iron, barium, and lead salts; by giving, when dissolved in alkaline solutions, different absorption spectra; by melting at various temperatures; and by other points of difference.

The penta-oxanthraquinones are by no means so well known as the less complex bodies already described. *Alizarine cyanine*, which dyes chrome-mordanted fibres a fine blue, is one. This is prepared by acting on alizarine Bordeaux with fuming sulphuric acid, or by heating other poly-oxanthraquinones with sulphuric acid and oxidising agents. Another can be obtained by heating gallic acid with di-oxobenzoic acid and sulphuric acid together for a short time; this has dyeing properties, but it is not used for that purpose.

One hexa-oxanthraquinone is known, and has been named *rufgallic acid*. It is obtained by heating gallic acid with sulphuric acid, and has the formula $C_{14}H(OH)_6(CO)_2C_6H(OH)_2$, shewing that the six hydroxyl groups are equally divided between the two benzene rings. *Rufgallic acid* possesses dyeing properties, giving browns with alumina mordants, while with iron mordants blacks are obtained. There is still room for further investigation in the chemistry of the oxanthraquinones; they are, as a rule, very valuable dye-stuffs, possessing the useful features of being fast to light, soap, acids, and other influences that usually act upon and destroy colours.

DYEING OF LOOSE WOOL.

The efficient dyeing of loose wool is not a matter easily attained. From a chemical point of view it is easy enough: the difficulty is purely mechanical, and in part arises from the necessity of carrying on the operation at the boil. Now if this be done in a simple tub, heated by an open steam pipe, the dyeing is apt to be uneven unless the wool be well worked; but the heat of the dye-bath and the working are liable to cause felting, which spoils the wool for spinning; moreover, the steam from the steam pipe is liable to act upon the wool fibre and somewhat deteriorate it in quality. Steam-jacketed dye-pans present some advantages over the direct steam-heated pans, but still they require the wool to be worked, and thus the liability to felt is present. Patent apparatus, like Obermaier's, have been invented and used with fairly satisfactory results, but still there is some tendency for unevenness of dyeing, and a difficulty in matching-off. Some little time ago a German machinist invented a dye-vat that has been found in practice to possess some advantages. In shape it is globular, with a prolongation at the bottom, into which is placed a coil for open steam. This is separated from the main body of the boiler by means of a perforated plate, which prevents the plate from coming into contact with the loose wool and so deteriorating it. Besides this, the main portion of the boiler is jacketed so that if necessary the dye-vat may be heated indirectly. There is no trouble in matching off shades if such a procedure is required.

HENRI SCHMIDT, in the *Chemiker Zeitung*, subjects Grawitz's latest patents for the dyeing of aniline black on textiles to a scathing criticism, with a view to shew that what Grawitz now proposes to do has been done many years ago, and he says that the process given in the patents will not produce a black.

The bark of the chestnut tree contains about 7% of tannin, while the wood contains a little more than this. Trimble in one sample found 7.3 and 7.8% respectively, and from other experiments he came to the conclusion that the tannin principle in each was identical; so that the extract manufacturers are doing quite right in making chestnut extract from both the bark and the wood in one operation.

A new green dye-stuff of a basic character, allied to the rosaniline series, is prepared according to a German patent by taking a body known as tetramethyl diamidobenzhydrol, and acting on this with benzoic acid and sulphuric acid, then throwing the mixture on ice,

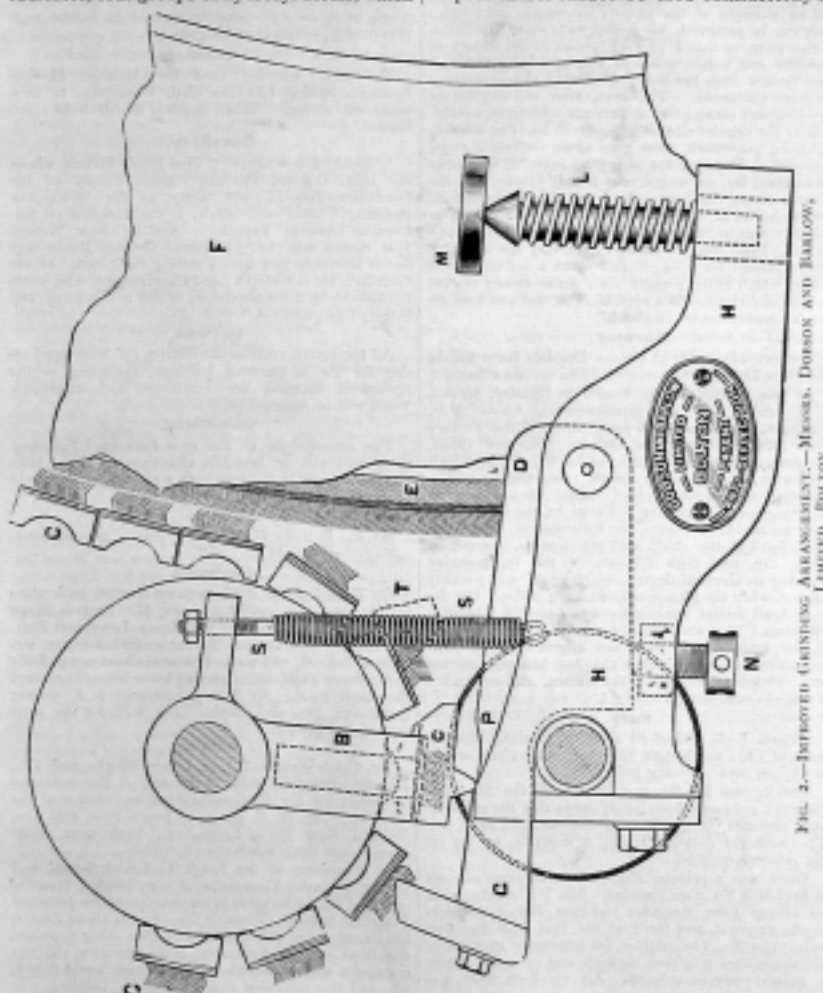


FIG. 2.—IMPROVED DYEING ARRANGEMENT.—MESSRS. DORSON AND BARLOW, LIMITED, ENGLAND.

may be either contained in one benzene ring, or distributed in various proportions between the two benzene rings of the anthraquinone nucleus; hence it follows that a large number of tetra-oxanthraquinones are possible to be made. At present there are not many known—some six or eight—but there is no doubt that this number will be added to in the future. The first of this group of compounds which claims notice is—

Anthrachrysone. In this body the hydroxyl groups are evenly distributed between the benzene rings. At present it is not used for dyeing purposes, and it has few technical applications; a patent has, however, lately been taken out for converting it by the action of fuming sulphuric acid into a dye-stuff (probably a penta-oxanthraquinone), which will dye chrome-mordanted fibres a fine blue; so that if of no use as a dye-stuff, anthrachrysone may

dyeing or textile printing, giving as it does very brownish reds with alumina. Probably it may serve as the starting-point for the preparation of other and more useful dye-stuffs.

Oxyanthragalols.—There are two of these bodies, distinguished as the *alpha* and *beta*-oxyanthragalols. They are both obtained by heating pyrogallol with oxybenzoic acid and sulphuric acid together. Both will dye mordanted fibres, but they are not used in the dyeing industry, as the shades they yield are not satisfactory.

The dye-stuff known as *Alizarin Bordeaux*, which has only lately been placed on the market, and has found some use in dyeing and calico printing, is also a tetra-oxanthraquinone, but its relations to the other members of the same group are not known.

All these bodies are distinguished from one another by their varying solubility in alkaline

and afterwards diluting with water. Caustic soda and sodium acetate are added to the solution to obtain the leuco base of the new colouring matter. This leuco base is now oxidised by the use of red lead, when the new green colouring matter is formed. This it has been found best to send out to dyers in the form of a paste.

ALIZARINE BORDEAUX is, as most colour chemists know, a derivative of alizarine, as also is alizarine cyanine. Now alizarine colours are imported free of duty into the United States, and consequently any reasonable person would imagine that the two dye-stuffs in question would also be admitted free. Such however is not the opinion of the appraisers of the American Custom House, who have decided that they are aniline colours, and consequently liable to a duty of 35% of their value.

M. GRAWITZ, in his latest patents for the production of aniline black, makes use of a comparatively large proportion of sodium acetate. Such addition has been made by previous experimenters, who have placed on record the results they have obtained. The universal opinion or experience of those chemists is that if in too large an amount—Kertész in 1890 gives it as that quantity required to neutralise the hydrochloric acid which is present—the acetate prevents the formation of the black. As Grawitz uses rather more than this it seems to follow that black cannot be obtained by his process.

An American inventor has patented a new method of dyeing wool and other textiles. It consists in immersing the goods in a dye-bath as usual, then blowing in at the bottom of the dye vat a jet of compressed and hot air, whereby the contents of the vat are thoroughly agitated, and it is heated to any required degree. It is also claimed that the jet of air supplies the necessary amount of oxygen required both by the dye-stuff and the goods. Except in a few special cases this last idea of oxidation is a doubtful quantity in dyeing.

News in Brief.

ENGLAND.

Accrington.

Mr. James Kerr, J.P., president of the Liberal Unionist Association in the Accrington Division, and one of the best known men in East Lancashire, died suddenly on Saturday morning, aged about 50 years. Mr. Kerr was a native of Ayrshire. As a lad he was sent to Glasgow to fight his own way in the world. Before he was 20 he went to London, and subsequently to India, where he remained for five years. Returning home, he established the house of Kerr, Tazuck, and Co., Calcutta, from which firm he withdrew on coming to Church, Accrington, to take charge of the works of Messrs. F. Steiner and Co., turkey-red dyers. In this firm he subsequently became a partner, but was latterly associated with the Liverpool shipping trade.

Bacup.

Messrs. J. and J. Hoyle have placed a further order with Messrs. Brooks and Doney, West Gorton, Manchester, for 30 ring spinning frames, containing over 8,000 spindles, which will make between 20,000 and 30,000 spindles supplied to Messrs. Hoyle by this firm. The new frames as well as all the other spinning frames in the mill are to be supplied with Brooks and Doney's new straight-building motion.

Blackburn.

A receiving order was made at Blackburn Bankruptcy Court on Wednesday, on the debtors' own petition, against James Sharples, John Sharples, Robert Edmund Sharples, and William Henry Sharples, trading in co-partnership under the style of James Sharples and Co., as cotton manufacturers, at Garden-street.

Bolton.

The overlookers employed at the mill of Messrs. Crosses and Dewsbury's, Ltd., Nelson-street, with their wives and a few friends, held their annual picnic on Saturday, the place selected being Southport.

A very destructive fire occurred on Saturday whereby the extensive cotton mills belonging to Messrs. Hodgkinson and Sons, situate in Sidney-street and Bridgeman-street, were destroyed. Several workmen were badly injured with falling bricks and timber, but the whole of the employes, about 800 in number, were able to make good their escape. The mills were erected forty years ago, and have been enlarged at

various times. A large portion of the works had recently been fitted with new machinery. The damage, which is covered by insurance, is estimated at £40,000.

Bradford.

On Thursday a fire occurred at the mill of Messrs. Tankard and Sons, Bowling Back-lane. A store of tops and soils was burnt; damage, £200.

Cornel W. R. Heam, in his report to the Foreign Office on the trade of Rio Grande do Sul for last year, tells how Bradford emigrants, lured out to the Brazil by false information as to the state of the country, supplied by unscrupulous emigration agents, have suffered. Consul Heam says:—"In 1891 many honest, hard-working, skilled weavers were brought out from Bradford and other towns to the State of Santa Catharina, and to all intents and purposes left to starve, for there was no weaving to be done, and they could neither dig nor fell forests. Happily their fellow-countrymen and her Majesty's Government came to their rescue, and nearly all who survived have been repatriated. As an example of the poverty of wages, even when they can be procured, for skilled weavers in this State, I may mention that I procured work in the factory of woolen and cotton goods in this city for a man and two women from Bradford, who were almost starving in Santa Catharina. The man, after working for six months, was earning two dollars 200 reis a day, equivalent at the present rate of exchange to 2s. The women, by doing piecework, were able to earn about £2 15s. a month. The man has now gone home in a steamer as freeman, for no wages, *via* Rio de Janeiro and the United States, in hopes of being taken on, when he arrives home, at his old factory, at his old wages, by which means he hopes to be able to save money enough to bring home the two women. In very few instances does a skilled labourer get more than 2 dollars 50 reis a day, which in the present state of the money market is a little over 2s., while rent, clothes, fuel and food are much dearer than in England."

Burnley.

The extensive mills of Messrs. Dagdale Bees, will be closed on Thursday for three weeks for certain repairs.

At the County Police Court, on Monday, Messrs. I. K. and J. Graham, manufacturers, Grove Mill, Padburn, were summoned for a breach of the Factory Act, 1859. Mr. C. H. Osborn, inspector (Manchester), said this was a case under the Cotton Cloth Factories Act. It was a simple case, and he understood defendants would plead guilty. On the occasion of the visit of Inspector Williams to the defendants' shed he found that one of the hydrometers, which had to be fixed in the shed, was out of order, the maslin being dry, and both columns of the thermometer showing an identical degree, which could not possibly happen when the glass was in working order. On the 25th April similar irregularity was found by Inspector Williams. This was rather a serious offence, because if the hydrometers were not attended to, it was impossible to tell whether the Act had been carried out. Defendants admitted the offence, and contended it was an oversight. Fined £5.

Bury.

Messrs. J. K. Schofield and Co., Limited, report a profit of £676 on the past half year. A dividend of 2s., or 5½% per cent., is being paid.

The income for the past quarter of the Bury and District Card-room Association shows that the expenditure amounts to £420, and the receipts to £526. The members number 1,560, a decrease of 24 on the previous quarter.

There was a private trial of the new steam engines at Peel Mill No. 2 on Tuesday. Mr. Walter Musgrave (of Messrs. John Musgrave and Son, Bolton, builders of the engines), and three of the Peel Mill directors were present. The engines are quadruple expansion, the steam having to pass through four cylinders before it passes away as exhaust. An excellent start was made, and the engines were run up to full speed, namely, 80 revolutions per minute, for the space of half an hour. There was an entire absence of vibration and noise, and the smooth working of the vast machine was exceedingly satisfactory. That frequent difficulty at the starting of new engines, namely, heated necks and journals, gave no trouble. Ropes to drive two rooms of the new mill will be placed in position at once, and it is expected that next week the new engines will be kept regularly running while the remainder of the machinery to complete the mill is erected. The engines are to be called "The Majestic," and the formal christening ceremony will be held shortly. Rapid progress is being made with the spinning and card-room machinery, and in a very short time the spinning of cotton will be in full operation at Peel Mill No. 2.

On Tuesday a meeting of the card-room hands and spinners employed at the mill of the Bury and Elton Spinning Co. was held at Elton to consider a strike which they have threatened. It seems that instead of fitting grinders with mild-tempered steel wire, the company have had hardened wire attached; and this

change has, they urge, given them the right to discharge one of the strippers and grinders they employ in connection with their more than 20 grinders. The local card-room hands and spinners' associations deny this right, and, acting on their advice to the members of the association employed at the mill, the card-room hands and spinners gave a week's notice on Wednesday week to leave work. At the meeting last night, over which the president of the Bury and District Card-room Hands' Association presided, the secretary of that association (Mr. Job Aspin) and the secretary of the Bury and District Operative Spinners' Association (Mr. Andrew Backley) were present, and there was a large attendance of the employes.—Mr. Aspin stated that the secretary of the Bury and District Masters' Association (Mr. Rostrom) had telegraphed asking that the notices might be withdrawn for a week and promising that a committee of the association should meet a committee of the operatives' representatives on Thursday night.—The meeting, after hearing Messrs. Aspin and Backley, decided that the notices should be withdrawn for a week but should be persisted in if no settlement is arrived at before next Wednesday, which is making-up day.

Colne.

The new weaving shed for Messrs. Haslam Brothers, Spring Gardens Mill, Waterside, is now ready for slating. When finished it will hold 1,500 looms.

Coventry.

A society paper says: "Miss Bessie French, whom the Hon. Colonel Herbert Francis Eaton, of the Grenadier Guards, will marry at the Wellington Barracks Chapel next week, is the daughter of Mr. Francis Oswald French, a wealthy New Yorker. Her dowry will be £200,000. Colonel Eaton met her at Bermuda last winter during the 'scale' of the Guards. He is a son of Lord Chylesmore, who made his fortune by the manufacture of silk at Coventry, and is forty-five years old."

Darwen.

All the cotton mills in this district will be stopped to-day for the midsummer holidays, according to the agreement between the employers and employed. Work will be resumed on Monday week.

Dukinfield.

The corner-stone of the new Park-road Spinning Co.'s mill will be laid this afternoon by Mrs. John Ashworth. After the ceremony a meeting will be held in the Co-operative Hall, followed by tea.

Eccles.

Mr. H. J. Roby (L.), sewing cotton manufacturer, has been elected M.P.

Heywood.

On Thursday the Parliamentary election took place at Heywood, the candidates being Mr. Thomas Snape (Gladstonian Liberal) and Sir Henry Lawrence, Bart. (Unionist). Mr. Snape, the successful candidate, was born at Salford, and worked for some time among cloths and calicoes in Manchester warehouse before entering the alkali trade. Sir Henry Lawrence is a country gentleman, pure and simple. The mills for the most part closed at noon.

Leigh.

Mr. Caleb Wright (L.), of Caleb Wright and Co., Limited, Bamfield Mills, Tyldesley, is the successful candidate for the Parliamentary representation of this division. Mr. W. C. Jones, of Jones Bros. and Co., Bedford New Mills, Leigh, and York-street, Manchester, was the Conservative candidate.

At a meeting of the Leigh Technical School and Public Libraries Committee it was decided that the sum of £10,000 be spent in the erection of the proposed Technical School. Towards this amount about £6,000 has already been subscribed, and after other promised donations have been received, it is understood that the remainder will be provided by the Leigh Local Board, who will also take over and maintain the building.

Liverpool.

On Monday a meeting was held of the creditors of Messrs. Isaac Cooke and Sons, cotton brokers, of Liverpool, whose stoppage has been brought about through dealings in cotton with J. A. Wilson and Isaac K. Lunt, two men under restraint on a charge of embezzling large sums of money belonging to their employers, Messrs. Reynolds and Gibson, cotton brokers. The defalcations of Wilson and Lunt are said to amount to about £160,000. At the meeting of Messrs. Cooke and Sons' creditors, Mr. Bancroft Cooke, practically the principal of the firm, tendered an explanation which lasted three-quarters of an hour. Mr. Cooke explained how he was led into transactions in cotton for a syndicate, which, to his astonishment and dismay, turned out to be composed only of a small broker on the Exchange flags and the two prisoners, Wilson and Lunt. The transactions commenced in 1891. Mr. Cooke remarked that, in the depth of the misery to which these matters had reduced him, he had stated to one or two persons he feared that his assets would prove to be practically nothing. The books

and affairs of the firm had, however, been investigated, and he was able to say that there would be about £15,000 to meet liabilities. Mr. Cooke having answered a number of questions put to him by creditors, the meeting separated without coming to any decision in regard to the failure and the complications associated with it, which have naturally formed the subject of much talk on 'Change.

London.

The third series of London Colonial wool sales closed on Thursday night, with prices for all good quality merino and crossbred wools about a penny with last May's rates, but with Capes a halfpenny and faintly and clothing wools generally 5 per cent. down.

Manchester.

Mr. Wm. Mather (L.), of Messrs. Mather and Platt, calico printers' engineers, Salford, has been re-elected M.P. for Gorton division.

The death is announced of Mr. W. R. Clarke (senr.), F.C.A., of W. R. Clarke and Son, chartered accountants. The deceased gentleman was originally engaged in the linen trade in Manchester. The business will be continued by his son, Mr. W. R. Clarke (junr.), A.C.A.

The death is announced of Mr. Bryson-Smith, calico printer, at his residence, Rye Bank, Chorlton-cum-Hardy. The deceased, who passed away at the age of 60, was one of the best known members of the calico printing trade, and his death has given rise to much sympathetic comment in the trade.

At the Manchester City Council on Wednesday, Sir John Harwood, one of the Corporation directors of the Ship Canal, said, in answer to questions, that the canal could not possibly be opened before the end of next year, and it would need more money than the three millions the Corporation had already got power to advance, but he did not think the sum would be so great as some people seemed to imagine. He regretted that the canal had been laid with such great foundations, as otherwise the money already spent would have brought ships to Manchester by now.

New Mills.

At the New Mills Petty Sessions, on Wednesday, Messrs. E. R. Rumsey and Co., calico printers, New Mills, were summoned for employing at work overtime six youths on the 4th instant. Five of the youths had worked from 6 a.m. to 7 p.m., and a sixth from 6 a.m. till 8:30 p.m. The offence was admitted, and an extension was pleaded the bench imposed a fine of 5s. and costs in each case, total £4 5s. 6d.

Nottingham.

A general meeting of the Nottingham Rotary Frameworkers' Society was held at the East-street Schools on Friday last week. Mr. W. Potter presided, and there was a full attendance of members. A question was raised as to the action of Mr. S. Bower, the secretary, in supporting Colonel Seely against Mr. Henry Broadhurst in West Nottingham, and after a somewhat warm discussion, a resolution of confidence in Mr. Bower was carried unanimously.

Oldham.

It is again reported that a new mill is about to be erected in the Lees district. It is intended to hold about 90,000 spindles, and is to be laid out for the spinning of Egyptian cotton.

The death is announced of Mr. George Heywood, head of the firm of Messrs. Heywood and Whitehead, mining engineers and surveyors, Queen-street, Oldham. The deceased, in an unostentatious manner, was identified with the Oldham limited liability movement, and was for a number of years a director of the Junction Spinning Co.

The cleaning question is engaging the attention of members of the Oldham Operative Spinners' Association, and at the monthly meeting of the Shaw branch on Wednesday evening, a resolution was passed that no minder or piccer clean the "male ends" or "fillers" with anything but waste, and that to clean them with "liquor potash or anything else" was "contrary to the spirit of the new rule."

The dispute that took place at the New Earth Mills Co. three weeks ago over the cleaning question has not been settled. It occurred through the pieces striking work because their demands were not at once complied with, and without legal notice having been tendered to cease work. It is understood that spinners and other operatives are being supported from the funds of their respective associations.

Preston.

Messrs. Swainson and Birley's mill is about ready to start, after a stoppage from last November, caused by the putting in of a new engine and building a new engine house.

The profits of the Lostock Hall Spinning Co., Ltd., after allowing for depreciation, is £1,766 for the last half year, enabling a dividend of 5s. 8d. per share, or over 6½ per cent. to be paid.

Pudsey.

Mr. B. Prizley (L.), a warranted manufacturer at Bradford, has been re-elected M.P.

Rochdale.

Rapid progress is being made with the new mill being erected in Millrow by Messrs. Clegg, woollen manufacturers.

At the meeting of shareholders of the Eborac Spinning Co., Millrow, the chairman (Mr. Emmanuel Clegg) stated that everything was being done to make the mill one of the best mills for miles round. There were now 16 pairs of mules at work with card-room preparation to cover, and they were giving every satisfaction. The directors, too, were very well pleased with the manner in which the erection of machinery was progressing. He had not the least hesitation in saying that taking the Eborac Mill all round it was second to none in Lancashire.

Rosendale.

Mr. J. H. Madsen (L.), cotton spinner and manufacturer, has been elected M.P.

Stalybridge.

At the quarterly meeting of the Operative Spinners' Association on Wednesday the secretary read out the names of non-members.

Stockport.

Mr. D. Walsley, H.M. Inspector of Factories at Liverpool, has been promoted to the Stockport district in place of Mr. Stokes, who recently resigned. Mr. Walsley was for many years mill manager for Messrs. J. and T. Brocklehurst and Sons, Macclesfield, prior to his appointment as an inspector. There are now several vacancies on the staff, and it is believed that a competitive examination will shortly be held, with a view to filling same.

SCOTLAND.

Ayr.

Mr. W. Birkmyre (L.), linen and jute manufacturer of Colcista and Serranop, has been elected M.P.

Dundee.

A serious fire occurred at a warehouse in Commercial-street, on Monday. The building was filled with jute, flax, hemp, and cordilla, and the value of the stock was about £8,000, while the building was valued at £2,000. The fire brigade got the flames under within an hour, but great damage was done to the stock and building. The loss, which is covered by insurance, is estimated at over £5,000.

Glasgow.

The following table gives the value and destination of the exports of cotton and linen goods from the Clyde for last week, and also the totals to date for the year. The first line refers to cotton goods, and the second to linen:—

English and Ireland.	U.S. and Canada.	W. Indies & Americas.	Australia.	India and East Ind.	Continents.	Totals.	Weeks for year to date.
£50,110	13,110	4,514	49	—	2,710	70,543	8,000,000
to	40,560	51	—	—	1,151	42,272	518,317

The following are the total values of the exports for the same twenty-eight weeks of last year:—Cotton, £2,150,955; linen, £455,267.

IRELAND.

Lisburn.

On Friday evening of last week the threadworks of Messrs. Wm. Barbour and Sons, Hildon, Lisburn, were honoured by the visit of a distinguished party, which consisted of the Marquis and Marchioness of Downshire, Lord and Lady Arthur Hill, Lady Bective, Lady Trevor Hill, the Hon. Nina Hill Trevor, and the Hon. Miss Hill. The visitors were received by Mr. Frank Barbour, managing director, and Mr. J. Mills Barbour, who conducted them through the various departments of the extensive works. It was greatly regretted that the genial head of the firm, Mr. John D. Barbour, D.L., was unavoidably absent. The visitors were much interested in all they saw in the great concern, and expressed their thanks before leaving to the Messrs. Barbour. As they passed through the mill yard loud cheers were raised by the workers for the young Marquis and his mother, the Marchioness, also for Lord and Lady Arthur Hill.

Whiteabbey, Co. Antrim.

The employees of the Whiteabbey Flax Spinning and Weaving Co., Limited, had their annual excursion on Saturday, the place selected being Portrush, where sports were held. The manager, Mr. Hunter, presented the prizes to the successful competitors.

The firm of Johana Rehak propose erecting a power-loom weaving factory at Unter-Wannendorf, in Bohemia.

The firm of Schölte and Wagner, power-loom weavers in Greiz, are erecting a new factory in Greiz, which will, it is hoped, commence working in October of the present year.

Miscellaneous.

WEAVING AND EMBROIDERY IN CHINA AND JAPAN.

By Professor Dr. J. LESSING.

(Continued from page 37.)

As, for commercial and political reasons, we are more familiar with Japan than with China, we are acquainted with a whole series of Japanese fabrics that are regarded there as sacred relics. These show us that from the sixth and seventh centuries of our era a certain degree of luxury has prevailed in that country. Still it must be remembered that we are not yet certain whether given articles of that period come from Japan or from China, India, or Persia. Perhaps we shall some day be able to note the fine distinctions which undoubtedly exist. As it is, all that has been said about China applies to Japan down to the last century. At present Japanese culture is the more extended, but in the 10th century its development was not so rich as that of China, nor was it so independent. The feature in Japanese art that interests us most is a sort of independent study of nature, which asserted itself in some measure in the last century, and has reached its highest point in our own days. Theatrical dresses are especially notable products of Japanese textile art. They do not indeed possess any great durability: for the silk stands up in long ends like flocks of wool, is not at all tied, and would therefore soon become rough in ordinary wear; but on the stage these articles produce a remarkably splendid effect. They were very rarely woven whole; as a rule, breadths only were woven, which were afterwards sewed into large garments—an arrangement that did not materially interfere with the result, as the spectator could not perceive the details of the design.

The special Japanese practice of copying nature goes still further in our age, but not on the large scale. We find patterns growing smaller and smaller, which are really characterised by a sort of European taste, and can be used for any purpose. They are not actually in extensive use, being generally very dear, as they require a large quantity of silk. These small-pattern fabrics are used by the Japanese for the large girdles which hold the clothes together. They contain all possible shapes, written characters, etc.; we also meet often with chrysanthemum-blossoms, the arms of the Imperial family, etc. Remarkable dexterity is displayed by the Japanese in their treatment of velvet. Their technical skill, however, is not as high as ours; we, for instance, are able to produce velvet both cut and uncut, which is beyond their power. Velvet is formed, as every one knows, by passing the warp-thread over a long needle so that it forms loops, the needle is then drawn out and the loops remain, having a blunted appearance. If we now cut the loops open they stand up like tufts, and, when we look in, we perceive the deep gloss of colour so much admired in velvet. Our European velvet-weaving can produce cut and uncut velvet on the same piece by passing all the loops which are to be cut open over another needle than those which are to remain uncut. We effect the cutting open of these loops by machinery, but this the Japanese cannot do: the cutting of velvet is amongst them an effort of manual skill. A pattern is marked with chalk, and this is cut, whilst the other loops continue closed. A wonderful example of this class is a wall-screen in the Berlin Commercial Museum, made of green velvet; the ground is not cut, whereas the flowers are cut open and painted at the top. The most notable specimen of Japanese velvet-weaving which we possess is a piece, bronze in colour, in which the following process has been used. A thread of gold is laid under the needle over which the warp-thread passes. When the needle is drawn out the gold thread has disappeared; it lies inside the pile, and we have before us only a piece of velvet of the usual bronze colour. As soon, however, as the velvet is cut open at any place, the gold thread shines through here and there.

This is an effect of artistic refinement, such as we scarcely ever see again produced in the whole art of the East and the West. If we look at the piece from the side, the upright tufts of the velvet conceal this gold thread; if we look into it from the top, an incomparably fine effect is obtained. Besides, parts of this article are furnished with sepia-painting, so that all the shades which the bronze is able to produce from pale gold to the dark bronze colour are represented.

Another form of artistic refinement is found in the splendid embroideries which constitute the pride of our Berlin museums. Our ladies are trying to imitate the Japanese in this respect, but it cannot be said that they have yet equalled them. With astonishing refinement the embroidery is put only where it is desired by means of the moderate use of gold to gain in some measure a luminous effect which colour cannot produce, whilst all the colouring is executed only with painting. These articles were mostly used as envelopes for the transmission of presents. I may mention as a proof of the great dexterity of the Japanese that they display magnificent art even in the production of cheap market goods. Many an article in our collections is of the same sort as those which can be purchased for a very small sum in our shops, and yet when closely examined we find that a surprising amount of artistic skill and care have been lavished upon it.

We must notice also the remarkable methods of dyeing which are in use in China and Japan. The ground of pieces of this kind is not merely painted by the laying on of the colour, but is dyed by an actual process of dyeing, and the process employed is that which was mentioned in a former lecture. The places which are not to be dyed are covered with wax or are tied up. If, for instance, a stuff is to be dyed red and only a few spots are to remain white, the spots in question are tied up; a bit of the stuff is taken, laid over a small piece of wood, a thread saturated with wax is then taken and this bit of stuff is tied up tightly, and the same is done to all the other points which are not to receive the colour of the ground. When the fabric has been dyed, the piece that has been wrapped round, which has become quite curly, is drawn apart, and all the spots that have been tied up remain untouched by the colour-bath. When we consider the complicated nature of this procedure we cannot but admire the love of work which these people exhibit.

Other productions of Chinese and Japanese textile art are small satchels, pipe-cases, etc., with small flowers sewed on. Lace-making also, and braiding work, are cultivated in Japan, more particularly the latter, for the tying of knots is a favourite occupation in that country, and is one of the indispensable items in the education of a lady. If a small box be given as a present to a lady it is wrapped round many times with a silk cord, which is carefully knotted; sometimes these knots are as large as a hand, and shaped into very graceful patterns. It is a point of etiquette for Japanese ladies to keep all their small boxes closed with such graceful knots; whilst we are accustomed to make the fastening of a box as simple as possible, a Japanese lady will spend hours in making it complicated.

In all productions from China and Japan we find this loving devotion, this delight in the elaboration of details, and it is undoubtedly this which gives the articles their special charm. In the trimmings of dresses we find that everything is exactly designed for the place which it is intended to occupy; so in the coverings of chairs, the seat, being soonest worn out, has the least embroidery, and the decorations are expended chiefly on the part which forms the support. These covers show best on the light bamboo chairs of the country. In like manner the pictures painted in water-colours on silk fabrics can display their peculiar charms only on the walls of a Japanese room, which consist of light-coloured straw mats. We must not, however, suppose that these pictures hang constantly day by day on the walls of a Japanese dwelling. A Japanese gentleman would consider it very bad

taste for the same picture to hang constantly in the same place; he keeps his pictures carefully packed up in a box, hangs a fresh one up every day on the wall, and can then sit before it in his bamboo chair for hours and enjoy it.

There are not only embroidered carpets in Japan, but also painted ones. Painting is extraordinarily popular in that country. Just as we engage pianists or violinists to grace an entertainment, the Japanese invite the most famous flower painters, who produce pictures in the presence of the guests, and these are then distributed as souvenirs.

ANOTHER "PARTICULARS CLAUSE" CASE.

At the Croston monthly sessions on Wednesday, the Rev. J. F. Hogg-Goggin presiding, the Croston Manufacturing Company was charged under the 24th section of the Factory and Workshops Act, 1891, not having supplied a weaver named Betty Telford, who was in their employ and paid by the piece, with sufficient particulars to enable her to ascertain the rate of wages she was entitled to be paid for her work, contrary to the above section. This was regarded as a very important case, being the first brought under the new Act in the district.—Mr. Holden, of Bolton, appeared for the prosecution; and Mr. Foshaw, of Preston, for the defendant company.—Mr. Holden said the case was a typical one, and he understood from Mr. Foshaw that there was no dispute in the matter. The proceedings were taken under the new Act of 1891, which was to the effect that any weaver paid by the piece in any factory or workshop should be supplied with particulars in order to ascertain the rate of wages to which he or she was entitled to be paid, the liability in default of which was one not exceeding £10. In cases of that kind the Home Office had power to send inspectors from other districts as experts, and that had been done in the present case. He wished to draw the attention of the bench to the fact that however small the amount of wages which might be saved to the employer in a particular case, that it was a matter which, taking the year round, in many other thousands of manufacturing places meant a very great deal, and that was the reason of the action taken by the Home Office. The report of the two inspectors appointed to enquire into the circumstances stated that on May 4 they found at the Jubilee Mill, Croston, a piece of cloth woven by a weaver employed there, the ticket on which was for 110 yards, but which proved to be 117 yards at 12 inches, or as claimed by the firm at long stick, 114'41 yards, the worker being defrauded to the extent of 4'41 yards. Two other cases were also given in which the fraud was to the extent of 5'4 yards, so that in the three cases the bench might take it that there was an average of five yards which the weaver had woven for which he or she would not be paid.—Mr. Foshaw, for the defence, said he pleaded guilty to the technical offence. He contended that the amount of value taken from the weavers was only an infinitesimal sum, not more than a penny, and that the amount of saving in that particular length was nothing.—The chairman of the bench said that after serious consideration they had come to the conclusion that they ought to inflict a penalty in each case of £2 10s. with costs. The three cases amounted altogether to £9 3s.

TRUE BLUE.

Without in any way encroaching upon the benevolent neutrality of business in relation to politics, we are able to look into the origin of true blue, since Liberals and Conservatives are equally concerned in it according to locality. It has been traced to the "Presbyterian true blue" mentioned in *Andover*; from thence to the Scotch Covenanters, who are said to have chosen it as their badge because of the "ribbands of blue" appointed to be worn by the children of Israel. But the association of blue with fidelity can be found long before those sturdy Protestants troubled the Stuarts. It has that meaning in heraldry. More than once Chaucer couples it with constancy, and in his *Covert of Love* makes it clear—

To yonder folk (quoth she) that knell in Meun,

They were the colour, ay, and ever shal,

In signe they were and ever shall be true,

Withoute change.

In all probability the colour is really connected with all the hopes which lie beyond "the spacious firmament on high." In popular phraseology there is every reason to believe that Dr. Brewer correctly renders true blue as an abbreviation of an old proverb, "As true as Coventry blue," although he gives the greater prominence to a more doubtful allusion to the true blue blood of Spanish aristocracy. It was not only the rhythm of the phrase that gave it currency; for Coventry was famous for its fast blue dye, in threads especially, and as long ago as the reign of Henry V.

the commonalty of Coventry asked Parliament for permission to choose four of their number yearly to survey the dyers of the town. The threads were widely used in embroidery, especially of handkerchiefs, which passed as tokens or tokens between those who were, in the words of a modern wit, about to consummate. Coventry blue was generally worn by tailcoats, and in the description of a player who took part in one of the pageants presented to Queen Elizabeth on her visit to Kenilworth, it is said that out of his bosom there was drawn a lappet of his napkin, or handkerchief. Those articles evidently had a tendency, even at that early date, to ripple over the edge of the pocket, when worth presenting to view, and this one was "edged with a blue lace, marked with a true love, an heart, and a D. for Darsien, for he was but a louscher yet." In Ben Johnson's *Gipsie's Metamorphosis* one of the characters is troubled at the loss of her "thimble and a skein of Coventry blue, I had to work Gregory Litchfield a handkerchief," and in another play of about the same date, a young miller who is leaving for the wars says to his sweetheart, "Miss Ursula, 'tis not unknown that I have loved you; if I die it shall be for your sake, and it shall be valiantly; I leave an handkercher with you; 'tis wrought with blew Coventry; let me not, at my return, fall to my old song, *She And a skein of mine made with blew Coventry, and so hang myself at your infidelity.*" With this evidence, there cannot be much question as to how true blue came to have place in common speech.—*Warehouseman and Draper.*

A COCOON REELING COMPANY IN CHINA.

An attempt is being made to form a company for the purpose of cocoon reeling in China. The chief promoter is Mr. Aug. H. Martens, who has had considerable experience in such business at Shanghai.

The company will be registered under the Limited Liability Acts, and will consist of an issue of 20,000 shares of £10 each, of which £2 10s. would be called up; the reserved liability serving to facilitate the credit of the company for the purchase of silk reeled on the new method in China on account of customers. A board of directors would be appointed in London who would act in conjunction with an advisory board in Shanghai. The prospectus says—

"It is universally recognised by experts that the cocoons reared in the districts surrounding Soochow and Hangchow, in the provinces of Kiang-Si and Che Kiang, form the best material in the world for the production of the highest class of silk. Owing, however, to the primitive and imperfect manner in which these cocoons are reeled by the Chinese peasant, the silk produced from them is irregular in size, 'ribby,' and far inferior to the clean and even thread produced by the Italian method of reeling. This superior method has already been successfully tested and applied by several mercantile houses established in Shanghai, and of late years some 150,000 lb. of silk thus reeled have been annually exported and sold to French and American buyers at prices equal to those obtained for the choicest Italian and French silks.

"It is not possible to state with entire accuracy the difference between the average price realised by the native-reeled silk and the silk produced by these improved methods, but it may be approximately estimated at 5s. to 6s. per lb.

"Under existing conditions of the trade, the European silk throwster or manufacturer using native-reeled China silk, incurs an estimated expense or loss of from 15 to 20 per cent. in washing and cleaning the thread and dividing the original masses, or skeins, according to the different sized thread which they contain—the latter a process involving considerable waste.

"Tradition may probably be relied on for regarding China as the cradle of this beautiful and valuable industry. But, great as are the natural advantages possessed by the country, it is in danger of seeing this trade carried off by countries which, though less richly endowed by nature, have more readily adopted improvements in the process of reeling, by which a thread has been produced, though from inferior cocoons, yet of greater general acceptability to the throwster and manufacturer, owing to its greater cleanness and evenness of size. Bengal, Brusa, Persia, and Japan, have widely adopted, and are still extending the use of these methods of reeling, the latter with such success that one-third of its present total export of silk has been thus prepared. Meanwhile the foreign export and use of Chinese native-reeled silk languishes, and its extinction within a measurable time is threatened unless expedients are adopted to check this growing decay. The fate of the China tea trade impends over its silk trade.

"In order to avert this fate, to restore to China a lucrative yet waning industry, and to give to Europe the benefit of silk properly reeled from these unequalled cocoons, it is now proposed to extend the Italian system of reeling by the establishment of another Filature in Shanghai, furnished with reeling

basins, or 'tables,' which by reason of their low cost and tested efficiency, are perfectly adapted to the end proposed, and the gradual adoption of which by the peasantry will bring about the desired improvement and renovation of the trade.

"The proposed Filature would be erected in Shanghai on a scale adequate to the annual production of, say, 60,000 lbs. of silk, and serve as an industrial school for the education of the peasantry in the new method of reeling, the period of instruction being usually from two to three months, according to the intelligence of the pupil. An abundant supply of labour can be confidently relied on.

"From this Filature the reeling apparatus would be supplied at reasonable yet remunerative prices to all applicants in the silk districts, and as it is of extreme simplicity, it can be adapted to the cottage industry which has heretofore furnished those supplies of silk which are so inseparably identified with the name and industrial history of the country.

"The total quantity of native-reeled silk now annually exported from Shanghai is about 4,000,000 lbs., while the quantity reeled by the improved European methods is at most 150,000 lb. It will therefore be seen that a large field exists for the immediate operations of the company, and for the future extension of its business.

"The following is the estimated cost of a Filature of 300 basins and the expense of working it:—

	£	s.	d.
A plot of land about 4½ acres can be secured for	1,760	10	0
300 basins cost complete	3,525	0	0
A building to be erected to contain same ..	1,560	13	4
A building to be erected for storing cocoons ..	1,560	13	4
Filter bed for cleansing water	293	15	0
Pumps and fittings	88	2	6
15,000 frames for drying cocoons	581	5	0
Office and silk room furniture	107	14	2
Dwelling house for Europeans, including furniture	685	8	4
	£10,477	8	8

"No provision has been made for steam turning power, as the tables and basins are intended to be moved by treadle or manual labour.

"A year will comprise 300 working days, and the Filature will produce a total of 60,000 lbs. per annum if the workpeople turn out the very moderate quantity of 10 to 11 ounces per basin per day.

"One pound of silk will require 4 lb. 3 oz. of dry cocoons, or about 15 lb. of fresh cocoons. The latter will cost laid down in Shanghai an average price of 8½ pence per pound, and as a quantity of 900,000 lbs. must be bought in a single fortnight, a sum of £39,935 will be required; the total factory charges on this quantity of cocoons as ascertained by actual experience, £6,655 12s. 6d., and if there is added to cover interest of money and incidental expenses a sum of £3,426 13s., the total amounts to £41,007 20s. 6d. on the contra side there may be estimated from—

	£	s.	d.
Sales of inferior cocoons and waste ..	3,427	5	0
Sales of 99,820 lb. Filature silk at an average price of 15s. 3d.	45,615	12	6
	£49,042	17	6

"Without a sufficient supply of capital to purchase the whole of the cocoons required for a year's work for the Filature, it is quite useless to reel on a large scale. The object of Mr. Maertens is to introduce the establishment of small Filatures that can be carried on in every village, but until the Chinese become accustomed to dry their cocoons, store them and reel them off at leisure in the Italian methods, it is idle to expect any improvement in their silk.

"At the opening of the new silk season in China about 1,000,000 persons will be engaged roughly reeling off cocoons into silk, the cryalides are alive, and if the work is not completed by the time the moth pierces the cocoons, it is then only used for carding purposes. The reeler in the native system earn about 4s. per day during the reeling season of a fortnight and afterwards betake themselves to other pursuits."

HERK LUDWIG KREITZSCH intends to build a wool washing factory at Amberg.

The lace and cord factory of D. Hoelken and Son, in Bremen, has been burnt down, the damage representing about £10,000.

The large turkey-red dye-works of Wilhelm Baus and Son, at Nienberg, near Wandsbek, have been destroyed by fire.

The damage done by fire in the cotton spinning mill of Job. F. Klausner at M. Gladbach is estimated at £4,000.

The first bale of the new crop of American cotton is reported by cable as having made its appearance at Houston, Texas.

COTTON BLANKETS.—Messrs. Barlow and Jones, Limited, who have for years paid special attention to the production of cotton blankets and sheets, chiefly for

export, seem at last to have achieved success in their attempts to produce blankets of the type long exclusively made in Belgium. In the opinion of some their make is even an improvement on the Belgium; it certainly seems better value. Should the apparent success prove real, a business of considerable annual value will have been reclaimed from Continental possession, and the prestige of Lancashire manufacturers enhanced.

There must have been some fancy hosiery even in the earlier days of the industry, although, doubtless, crude and clumsy to a degree. In a play called "Willy Beguiled," printed in England in 1623, a country girl says: "I came trip, trip, trip over the market hill, holding up my petticoats to the calves of my legs to show my fine coloured stockings and how trimly I could foot it in a new pair of coked shoes I had bought."

THE CABINET AND "FAIR TRADE."—Lord George Hamilton, speaking at Chiswick the other day, said there was what was known as a war of tariffs going on. Many countries, both American and European, were having recourse to a system of Protection for the express purpose of shutting out English goods. There was a certain section of their opponents who imagined a man to be an idiot and a fool who was not a Free-trader. He was a Free-trader in that he believed the fewer duties put on imports the better. But unless this country was prepared to retaliate in some way upon nations which would give us no advantages we should find ourselves more and more shut out of foreign markets. Who, he asked, was most likely to successfully conduct these negotiations against hostile tariffs—Mr. Gladstone or Lord Salisbury? So far as Free Trade was concerned, the principles which were advocated by Mr. Bright and Mr. Cobden were right; but the present Government took the view that the condition of the producer ought to be one element for a statesman's consideration.

REVIVAL OF THE SPINNING WHEEL.—The exhibition just concluded at the Albert Hall of the Home Arts and Industries Association included a collection of spinning-wheels representative of the various types in former and present use both here and in many parts of the Continent. It appears evident to the *Graphic* that spinning is a coming fashion for the drawing room and boudoir. For some time past—indeed, ever since Miss Ellen Terry as Marguerite showed us all how pretty and becoming an accomplishment it might be when allied to white, ruffled aprons and a graceful figure—old lumber rooms have been ransacked to find these quaint survivals of a time when the term "spinster" had a literal meaning, and farm-house auction sales have been attended by astute dealers in old furniture, who have recommended their decorative value in Chipendale or Queen Anne rooms. Now, however, their position has passed beyond that of the merely ornamental stage, and at the Albert Hall Exhibition ladies of title well known in society deftly demonstrated the mysteries both of flax and wool spinning. Not only did they do this upon the serviceable-looking English wheels (one of which, lent by Miss Lary, of Charlotte, was reputedly 300 years old), but, dressed in the quaint peasant costumes of the Black Forest, Thuringia, and Ireland, among others, they displayed equal skill in the management of the less familiar foreign mechanisms.

FIRES ON COTTON SHIPS.—A gratifying feature of last year's business at Charleston, according to Consul St. John, was the infrequency of cotton fires on foreign vessels. The British steamer *Yesso*, loaded with 5,125 bales, took fire about the beginning of the year, the loss to ship and cargo being quite a serious one to the underwriters; but this was the only cotton fire at the port resulting in considerable damage, the cause of this fire, as usual in such cases, being unknown. Several instances of slight fires or incipient blazes among cotton on British vessels were reported by the masters, but the damage was trifling. The record for the year, therefore, compares very favourably with previous seasons, notwithstanding the large amount of tonnage in port and the unusually heavy receipts and exports of cotton. Several years ago so many fires occurred there on cotton ships that Charleston was almost a black list port in the eyes of underwriters and insurers. The United States Government recently issued circular instructions to the Custom House officials calling attention to the necessity of enforcing strictly the regulations with reference to the loading and stowing of cotton, with a view to the prevention of fires on shipboard. The local police laws bearing on this matter are also quite strict, and appear to be fairly well carried out.

Textile Markets.

COTTON.

MANCHESTER, FRIDAY.

Business has been interfered with throughout the entire week under notice by the progress of the General Election. This has caused as before a good deal of distraction of attention from business on the part of

frequenters of both the Liverpool and Manchester Exchanges. The former however has had other exciting causes of distraction in the collapse of a great 'bull' movement in cotton, and the exposure of its foundation upon embezzlement and fraud. It is a sad story, but one that does not call for further cognizance here. It is probable that the upward movement against which we warned operators in the trade in this column all the time it was in progress was entirely started by the parties incriminated in this new scandal of our commercial life. It is stated that it has entailed a loss upon them of one hundred and thirty to one hundred and eighty thousand pounds, the whole of which was abstracted from the coffers of their employers, and most of it lost in cotton. The incident has brought one old and respected house to the ground, and its disastrous consequences would have been far more extensively felt had it not been that the fraud was committed upon one of the very strongest houses in Liverpool, which will not be injuriously affected in its credit or financial condition by the enormity itself. The market was very much shaken when the revelation was made, and would probably have suffered a disastrous collapse had a syndicate not been immediately formed to take over the current contracts of the fraudulent operators, which are being placed upon the market quietly and slowly so as not to break prices. There is no material change in trade aspects in Manchester, or as seen therefrom. It is as sluggish as ever and as unsatisfactory. Prices are fairly steady, on a basis which cannot easily go lower, until cotton first makes a descent. It may be interesting to note in this connection that the receipt of the first bale of cotton of this season's growth has been reported from Houston, Texas, and a second at New Orleans.

COTTON.—With an introduction such as the above no brilliant report of the cotton market can be expected. The full force of the incident referred to above was experienced yesterday week. The prompt action taken to stave off the consequences induced a return of steadiness and some recovery of prices on Friday and Saturday, and on Monday the scare and its consequences had practically disappeared from the market. On Tuesday and Wednesday the prospects of the passage of the Anti-Option Bill through the American Legislature gave the market another scare, lasting over Wednesday. Yesterday, with the diminution of fear on this score, a better demand from the trade, and alleged crop reports of a rather less favourable character, the market again recovered tone, and made good its losses. Throughout the disturbances of the week the official rates for spots have been unchanged, though they have come near being affected in both directions at one time or another. Benefits have only been in small request and are the turn easier. Rough Persian has been reduced ¼d. Egyptian has been freely offered by holders, and prices have declined ¼d. East Indian is inactive at unchanged rates.

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

	Import.	Forward.	Sales.	Stock.	Actual Export.
Americans ..	17,039	41,345	42,790	1,315,660	5,630
Brazilians ..	1,009	1,996	1,130	45,840	1,499
Egyptian ..	4,144	1,928	1,640	95,790	1,254
West Indian	158	315	480	40,050	194
East Indian	9,840	1,845	720	57,350	990
Total ..	32,190	47,329	46,960	1,549,190	9,557

The following are the values of futures at mid-day on each day of the week—American deliveries—any port; lots of middling; low middling class; (the fractions are in 64ths of a penny):—

PRICES OF FUTURES AT 1.30 P.M. EACH DAY.

	Satur-day.	Mon-day.	Tues-day.	Wednes-day.	Thurs-day.	Friday
July	3-18 1/2	3-18 1/2	3-18 1/2	3-17 5/8	3-17 3/4	3-15 1/2
July-Aug.	3-18 1/2	3-18 1/2	3-18 1/2	3-17 5/8	3-17 3/4	3-15 1/2
Aug.-Sept.	3-18 1/2	3-18 1/2	3-18 1/2	3-17 5/8	3-17 3/4	3-15 1/2
September.	3-18 1/2	3-18 1/2	3-18 1/2	3-17 5/8	3-17 3/4	3-15 1/2
Sept.-Oct.	3-18 1/2	3-18 1/2	3-18 1/2	3-17 5/8	3-17 3/4	3-15 1/2
Oct.-Nov.	3-18 1/2	3-18 1/2	3-18 1/2	3-17 5/8	3-17 3/4	3-15 1/2
Nov.-Dec.	4-0 1/4	4-0 1/4	4-0 1/4	3-19 1/2	3-19 1/2	3-17 1/2
Dec.-Jan.	4-0 1/2	4-0 1/2	4-0 1/2	3-19 1/2	3-19 1/2	3-17 1/2
Jan.-Feb.	4-0 1/2	4-0 1/2	4-0 1/2	3-19 1/2	3-19 1/2	3-17 1/2
Feb.-Mar.	4-0 1/2	4-0 1/2	4-0 1/2	3-19 1/2	3-19 1/2	3-17 1/2
Mar.-April	—	4-1 1/4	—	4-1 1/4	—	4-0 1/2

Price of Mid American.	3 1/2-15	3 1/2-16	3 1/2-15	3 1/2-16	3 1/2-16	3 1/2-16
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Estimated Sales including Spec. and Export.	5,000 500	4,000 500	3,000 500	2,000 500	1,000 500	500 500
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The following are the official quotations from the same source:—

	G.O.	L.M.	M.A.	G.M.	M.F.
American.....	3½	3½	3½	4½	4½
	M.F. Fair. G.F.				
Perman.....	3½	4½	4½	4½	4½
Coars.....	3½	4½	4½	4½	4½
Paraha.....	3½	4½	4½	4½	4½
Manarham.....	4	4½	4½	4½	4½
Egyptian.....	4½	4½	4½	4½	4½
Duto white.....	4½	4½	4½	5	5
	Fr. F.F.G.F. F.G.F. Gd. F.G. Finc.				
M.G. Branch.....	—	—	—	3½	3½
Dholerah.....	2½	3½	3½	3½	3½
Omesa.....	2½	3½	3½	3½	3½
Bengal.....	—	2½	2½	3½	3½
Tinnivelly.....	2½	3½	3½	3½	—

YARNS.—As may be naturally expected, there has been a very limited trade in yarns. Producers are in many cases anxious sellers, whilst buyers are very reticent and very rarely in a mood to be tempted. The transactions of the week are nearly all on a very retail scale, and prices are, where changed, the same as last week.

CLOTH.—In the cloth section of the market there is a moderate amount of enquiry, but the trouble about this is that it is at prices which preclude the transaction of business on any adequate scale for keeping looms at work. It may be, as soon as the election gets moved out of the way, that it will be possible to effect such compromises as will admit of orders of more weight being brought to book. Egypt and the Mediterranean markets generally are sending slightly more cheerful advices, and those coming from South America are of a somewhat similar character. There are, however, still a considerable number of looms standing idle, and it will need more improvement than is yet visible on the commercial horizon to get them to work.

To-day cotton remains without change. In yarns during the past few days there has been a slight increase of business in single and twofold heddles for the Eastern markets. Caps continue very slow and unsatisfactory in every section. In cloth we hear of no improvement.

WOOLLENS AND WORSTEDS.

Huddersfield.—Some manufacturers still keep well engaged on orders for the finest qualities of fancy worsteds, but there is a great deal of short time prevalent. There is a fairly good trade being done with the Continent and with some parts of America, but the exports are not as large as in past years.

Leeds.—There is no feature of special importance in the woollen trade just now. Prices, though not materially changed, are, on the whole, firm, and in many instances an upward tendency is noticeable. Stocks are said to be light in districts where many of the best purchasers are situated. The shipping trade is in many respects more active. There is a decided improvement in some of the Colonial markets, and Continental houses are taking larger quantities of certain goods.

Glasgow.—Messrs. Ramsey and Company, wool brokers, in their report dated 22nd July, say:—“Wool. There is no change in the wool market from last week. Business continues quiet, and transactions are only of a retail character. There is no quotable change in values. Washed half-bred hogs and Wethers are commanding attention at full prices. Sheep-skins.—The supply has rather improved in numbers, mostly short wools. The competition is fairly vigorous, and full values are maintained.”

London.—Messrs. H. Schwartz and Co., in their report dated July 14th, say:—“The third series of London sales of Colonial wool, which commenced on the 14th June, closed to-day, the following quantities having been catalogued:—

	Bales.	Eales.
Sydney.....	89,615	against 95,995
Queensland.....	32,915	“ 18,075
Fort Phillip.....	49,400	“ 47,125
Adelaide.....	21,748	“ 23,422
Tasmania.....	11,184	“ 12,316
Swan River.....	12,715	“ 14,513
New Zealand.....	133,048	“ 115,282
Cape.....	47,351	“ 26,556

Total..... 367,976 against 353,284. The net total available amounted to 382,000 bales. Of these 358,000 bales have been sold, 151,000 bales for home consumption, 164,000 bales to the Continent, and 21,000 bales to America, leaving 44,000 bales to be carried forward to next sales. The sales opened with prices for merino wools on a par with the closing rates of the preceding series, and on this level the better classes of grease wool from old upwards may be said to have steadily maintained themselves to the end. Medium and inferior grease gave way ½d to

¾d. after the first week, owing chiefly to the passive attitude of the French buyers, and though latterly rather more activity was displayed in that quarter, no quotable recovery took place. Scoured wools also declined as the series proceeded to the extent of ½d. to 1d. per lb., and this applies alike to good and to inferior descriptions. Wherever, in fact, the market was not supported by American competition prices fell 5 per cent. below the May level. On considered, the decline—½d. to 1d.—is proportionately stronger, owing, no doubt, to the large supply and the low prices of the home produce. The competition for these wools was, nevertheless, throughout keen, and the position of the coarse sorts has lately again become stronger. Cape wools opened well on a par with May rates, and at first improved, especially in the case of the best snow whites, but they lost ground subsequently, and stand now for grease ¼d. and for snow whites ½d. under last sales' closing rates. The sales close with fair spirit, and taken on the whole the result may be said to be as good as the indifferent condition of the trade appears to warrant. The following shows the supplies and deliveries of Colonial wool as compared with last year:—

LONDON MARKET:—		1894.	1893.
	Bales.	Bales.	Bales.
Home consumption.....	274,000	274,000	274,000
Export.....	303,000	303,000	303,000
Total sold.....	577,000	577,000	577,000
Home consumption, forwarded direct.....	111,000	101,000	101,000
Foreign “ from last year via England.....	59,000	59,000	59,000
“ “ direct imports.....	39,000	39,000	39,000
Total deliveries.....	209,000	209,000	209,000

The quantity sold in London in the first three series—963,000 bales against 927,000 bales last year—shows an increase of 36,000 bales, the direct purchases—549,000 bales against 461,000 bales—one of 88,000 bales, giving a surplus of 124,000 bales in the total deliveries to the trade. This, with the 54,000 bales already received in excess in November, is more than the expected Colonial increase, and the supplies for the next series will therefore, notwithstanding the large quantity held over, probably fall short of last year's total available by about 30,000 bales. Of the 124,000 bales surplus in the deliveries, the home trade, it will be seen, takes only 13,000 bales. The next series is to commence on Tuesday, the 13th September.

The following are the fresh arrivals up to date, and, so far as an estimate can be formed at so early a date, the probable net total for disposal:—

Arrivals.	Probable Net Total.	Available Sept. series 1894.
Sydney..... 33,472	Bales 94,000	Bales against 100,000
Queensland..... 89,277	“ 35,000	“ 35,000
Fort Phillip..... 45,750	“ 42,000	“ 42,000
Adelaide..... 4,078	“ 18,000	“ 5,300
Tasmania..... 5,412	“ 5,000	“ 5,300
Swan River..... 125	“ 2,000	“ 4,000
New Zealand..... 62,803	“ 34,000	“ 114,000
Cape..... 51,840	“ 45,000	“ 45,000
	750,753	350,000

The opening of the last series has not yet been fixed, but it has been decided to close the list of arrivals on the 22nd November. Bank rate 2 per cent.

FLAX AND JUTE.

DUNDEE, WEDNESDAY.—The market for jute has been more active and at from £12 to £12 10s. according to the reputation of the first marks. A large number of small sales have been made for new crop. On the spot jute continues to droop, and one hears from day to day of sales being made at a fall of from £6 to £7 a ton under the prices paid for the same jute only a few weeks ago. In these circumstances there is little wonder that some firms are sorely smitten and that trade is greatly disorganised. To-day there is some indication that for the moment jute has touched the bottom. Sellers are this morning making 5s. more. Yarns are still very much depressed, and, indeed, the same lower. For 5lb. common cup the price is 1s. 3d. with sellers over. For 5lb. warp 1s. 6d. is all one can get, and some lower qualities are offered at 1s. 4d. Even in the higher qualities the depression is felt and business is difficult to carry through. Jute cloth is in all positions depressed, and one again hears of looms being stopped. Advances from all the chief markets are adverse, and Calcutta competes keenly for orders in places hitherto considered secure for Dundee. Flax is nominally easier to buy, but when one comes to examine

quality the price of good flax is really higher, and the news of the growing crop is not very favourable. Fine quality tows are scarce and dear; all other kinds are easy to buy and very low in price. Linens are at the moment dull. The home trade is greatly interfered with by the General Election. There is still a fair foreign demand, however, and Flax is specially well engaged. The Dundee Jute Army Trade is very quiet indeed and orders are difficult to be had. Only the very best makers are busy. Twines, cards, and ropes are in excellent request, and this branch of the jute trade alone is busy.

BELFAST.—The prospects of flax in the north keep gloomy, the recent heavy rain having laid the plant. Yarns have sold in moderate parcels to most manufacturers' immediate requirements, no disposition being shown to go into stock. Brown power-loom have not shown much life, but there is perhaps a better feeling, as bleached linens have been bought rather better on home account. On shipping account there is a quietly increasing trade doing.

DRY GOODS.

MANCHESTER.—There has been no change in the condition of the trade generally. The silk department remains partially employed, and there is a good deal of discontent, natural under the circumstances, at the inactivity prevalent. Sales of silk yarns for plush and other fabrics are dull, and the shipping trade has seldom been in such an unsatisfactory condition. As far as the American market is concerned matters appear to be at a standstill. The affairs of the Dale-street Warehouse Company, Limited, excite widespread interest. The official liquidator has issued a circular asking the consent of the creditors to accept a composition of 17s. 6d. in the pound. Otherwise, he says, it will be his painful duty to make a call upon the ordinary shareholders, who are still liable to the extent of £3 for each of their shares. As many of these shareholders are small drapers or ex-employees of the concern, the result would be in some cases most disastrous, and the hope is expressed that it will not be necessary to adopt such a step as that indicated.

HOSIERY AND LACE.

NOTTINGHAM.—Some novelties in millinery laces meet with support, but trade is on the whole unsatisfactory. Irish guipures and pearls do not meet with so much attention as formerly. Some grades of fancy laces and trimmings are sought for export. Fancy silks keep quiet. Silk veil nets meet with a steady sale. There is no improvement in the demand for lace curtains, and although the output is large it could be much increased if all the machinery were fully engaged. The plain net branch remains quiet, and prices are at an unsatisfactory level. The making-up departments are not very active. There is no new feature of importance in the hosiery trade.

LEICESTER.—Yarns are in steady request, lambs' wools being in good demand. Cotton descriptions are, however, flat. Hosiery manufacturers are very fairly engaged, and for elastic wools there is a steady demand.

Joint Stock and Financial News.

NEW COMPANIES.

JAMES MILLS, LIMITED, HEYWOOD.
Registered by W. H. Cate, 32, Bouverie street, E.C., with a capital of £10,000 in £5 shares. Object, to acquire the undertaking of an ironfounder, now carried on by S. Mills at Moss Founley, Heywood, Lancashire, and to develop and extend the same. Registered without special articles of association.

GRAND-ROAD MANUFACTURING CO., LTD., HASLINGDEN.

Registered by Sir J. Cusston and Sons, 5, Eastcheap, with a capital of £5,000 in £5 shares. Object, to acquire the business of cotton manufacturers hitherto carried on by Evans and Berry, at Grand-road Mill, Haslingden, and to carry on business as cotton manufacturers generally. Most of the regulations of Table A apply.

SURREY FULLER'S EARTH COMPANY, LIMITED.
Registered by Waterlow Brothers and Layton, Birch-lane, E.C., with a capital of £6,000 in £1 shares. Object, to carry into effect an agreement made between H. Dyson, of Huddersfield, of the one part and this company of the other part; generally, to carry on business as manufacturers of and dealers in fuller's earth. H. Dyson is managing director, his salary as such being £700 per annum. Qualification, £1,000. Remuneration of ordinary directors, £50 each per annum.

Patents.

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- 1891.
- 9,926 ARCHAMBAULT. Looms for chenille, etc.
 - 9,927 ARCHAMBAULT. Looms for chenille carpets.
 - 10,134 EYRE AND HOPKINS. Treating and scouring wool.
 - 10,348 CLARKE. Loom picking bands.
 - 12,589 LAKE (Kells and Co.). Colouring matters.
 - 13,102 CANNON. Bleaching and treating post fibre.
 - 13,599 PECK. Bleaching textile fabrics.
 - 13,755 WHITE AND MILLS. Splicing knitted fabrics.
 - 13,772 HARRIS. Cotton openers.
 - 13,868 KUCHINIKER. Spinning machines.
 - 13,881 HOEL. Self-acting mules.
 - 13,967 APFENDELLER AND FILLEUL. Testing strength of cotton, etc.
 - 14,065 COMBE. Flyes for twisting frames.
 - 14,294 JOHNSON (Bastick Austin and Soda Patent). New sulpho acids.
 - 14,358 CORNELY, E. and R. Embroidering machines.
 - 15,181 SMITH AND PARK. Straight-bar knitting machines.
 - 21,470 SILSTONE. Striching creases from woven fabrics.

- 1892.
- 6,052 HUYCK AND ALLEN. Spindle attachments.
 - 7,179 BOWDEN AND WALKER. Spinning yarn from cotton, etc.
 - 8,375 GRIFIN. Treating wool washings.
 - 8,964 THOMSON (Birlingham). Bleaching compound.
 - 9,386 SZCZEPANSKI AND PROSTKOWSKI. Centrifugal machine.

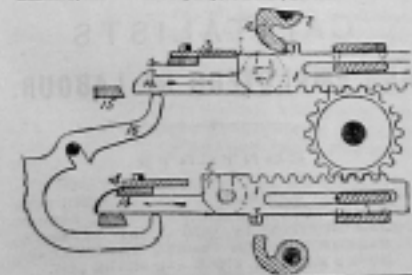
ABSTRACTS OF SPECIFICATIONS.

RAW MATERIALS, SPINNING and WEAVING.

2,444B. Feb. 10, 1891. **Storing cotton.** L. SMITH, 112, La Salle-street, Chicago, Illinois, U.S.A.
 Relates to a right and water-tight structure for storing cotton, such structures being provided with doors, skylights, and ventilators, which can be tightly closed in the event of fire. *Drawings.*

2,447. Feb. 10, 1891. **Carpets.** J. DEVLIN, Philadelphia, Penn., U.S.A.
 In the manufacture of tapestry, velvet, or other pile carpets, a simple pile fabric is first woven with threads in an undyed state, and is then dyed to produce the pattern. To prepare the yarn for the colour the surface is damped with a preparation obtained by adding caustic soda to the surface of a mixture of olive oil, oil of vitriol, soda, and water. The carpet is then dyed. The colouring matter is applied by a printing machine comprising a large heavy drum, over which the carpet is passed, and a series of colour-applying rolls which are cut or engraved (according to the pattern), so that the colouring matter is deposited thereon in this perforated layers or sheets, as shown in section at B in the drawing. Great pressure is applied during the printing, so that the heads of the pile press into the cells of the colour rolls, and take up all the colouring matter. An endless elastic blanket passes between the drum and the carpet. Free steam is (after the printing) blown on; and into the carpet from one or both sides by means of perforated steam pipes. The carpet is then dried, steamed, washed, scoured, and dried again.

2,507. Feb. 10, 1891. **Looms.** G. H. BRADCOCK, F. LEESING, and W. TETLER, Laysanville Mill, Bradford.



Bobbins.—The upper and lower draw-locks 1 are formed with shoulders 2 and legs 3. Leading bars 12 are mounted on shafts 7 revolved by connection with the knives 4 or their racking lever. When one knife is drawing out one of the stitches 14 the corresponding bar 12 comes against the legs 3 of the locks which are

rot drawn out, and will hold them, and will also press them slightly inward to free them from the gripping bar 15, so that they will offer no resistance to the action of the setting levers 16. When the loom moves towards a plus 3 thousand acts against the shoulders 2 and pushes in the whole of its racks. In "spring" motion the plate 1 may be depressed with.

2,452. Feb. 11, 1891. **Gearing belt, rope and chain.** T. JENNISON, 26, Broad-street, London.
Rope gear, variable ratio.—The pulley is composed of two discs having convex faces which are pressed together by springs and connected to the shaft by grooves and rollers. The driving rope, under the control of one or a pair of guide pulleys, can be moved towards or away from the centre of the shaft with a corresponding variation in the speed imparted. When the shaft is vertical, one half of the pulley may be fixed to the shaft and the other pressed down by spring or weight. *Drawings.*

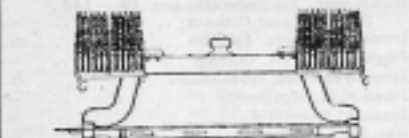
2,475. Feb. 11, 1891. **Gearing belt.** E. HERRMANN, 2, Poche, Solingen, Prussia.

Loose gear wheels are placed on the shaft on one or both sides of the pulley to receive the belt in case it runs off. *Drawings.*

2,517. Feb. 11, 1891. **Incrustation and corrosion, preventing.** T. W. J. WARREN, 144, Albert-road, Walsley, Hypodermis and sulphides of alkalis and alkaline earths are added to the feed-water or supplied to the boiler.

2,525. Feb. 11, 1891. **Looms.** J. BRYAN, and J. SWANSON, both of Cowling, near Knapthorpe.

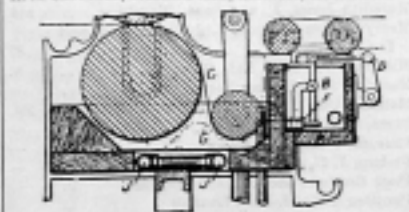
Accessories.—To prevent the cords from easily slipping on the cylinder a, cords c or the like are arranged to travel around the latter and around a roller d or equivalent mounted to move with the cylinder.



the various looms, which may be supplied as required. A perfect control of the web may be effected by the use of these means.

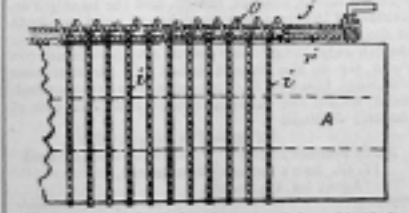
2,585. Feb. 14, 1891. **Looms.** F. H. L. STELLING, 3, Bennett-street, Crumford, Manchester.
Change-bar motions.—Relates to drop-bar motions of the kind described in Specification No. 2,544, A.D. 1891, and to other motions in which needles, acted on by pattern cards, plates, etc., are employed for governing the motion of cranks, cams, or similar effecting the movements of the looms. When any needle is acted on by a card it is moved into a position such that, if another like card be presented to the set of needles, the said needle will be reacted on thereby, the cards being prepared to allow of this. By these means it may be arranged that a card of any one character will, when presented to the needles, always bring a certain change-bar into position, and that too only. *Drawings.*

2,585. Feb. 14, 1891. **Sizing yarns.** J. H. KAYE and H. A. CROFTON, Broadfield Mills, Lockwood, Huddersfield.



In sizing machines the trough C, wherein the warp is sized, is shaped as shown, and contains sipping rollers, a division being sometimes provided at G. The size is fed from a trough B, which is provided with hinged or sliding lips, the supply valve F being controlled from a rod H. Both troughs are lined with copper. The size squeezed out of the warp may be received in a channel partly surrounding the sipping rollers and returned to the trough C through a pipe. This trough may be heated by steam pipes J.

2,703. Feb. 14, 1891. **Fringe or chenille.** J. YEAGON, 34a, York-street.

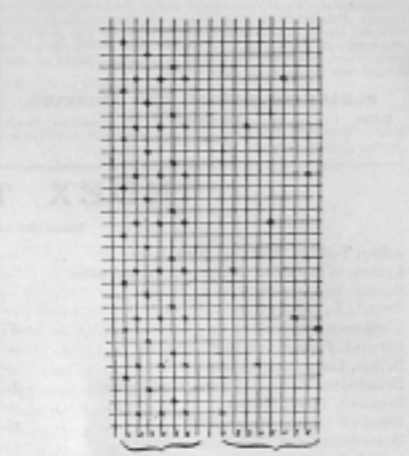


The fringe or chenille for hosiery, etc., is formed by binding the fringe or chenille yarn i between the coils of a wire helix a by means of one or more longitudinal threads j, j'. The helix, with the threads j, j' within it, is held on a mandrel A rotated between casters by suitable means. The yarn i is supplied from a reel, and is passed through a guide-eye on a carriage traversed beneath the mandrel, and is fed to one end of the helix. The yarn i is then wound around the mandrel, and into the coils of the helix. The latter is then pressed flat by a roller, and the loops of yarn i are cut, if desired, and the mandrel removed. The arrangements may be modified.

2,772. Feb. 15, 1891. **Pile fabrics.** J. FARR, Skipton. In order to avoid streaky or shaly markings in weaving pile

fabrics (such as Utrecht or mohair plush) by the double method, an idle warp, which serves to guide the pile warp, is passed through the reed and between the fabrics being woven, each warp passing from an independent beam and being wound upon a beam in front of the loom without being bound to either fabric. In a modification the ground warp may be supplied in place of an independent idle warp, each ground warp passing across a roller in front of the loom and returning through the reed to a roller at the back of the loom and passing forward from thence to be woven in in the ordinary way. The heddles for the idle warp are at full travel at each beat-up. The Provisional Specification states that the object of the invention may be attained by passing each pile thread through the reed between two ends of ground warp, for each fabric. *Drawings.*

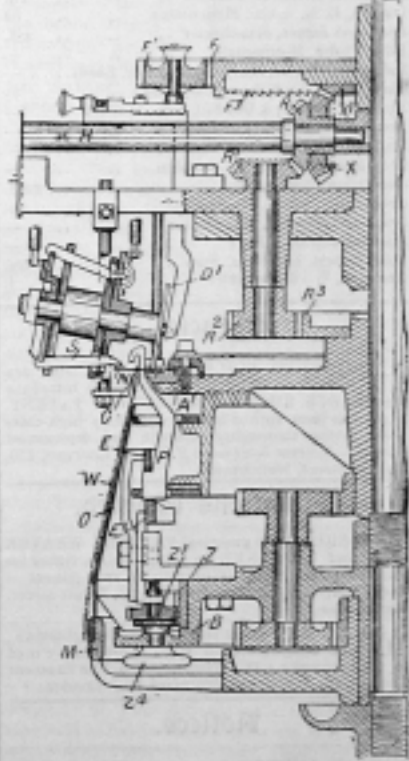
2,788. Feb. 15, 1891. **Pile fabric.** P. TABAREL, E. CAILLIEN, and F. CHAPUIS, all of 19, Rue de l'Archevêque, Lyons, France.



The fabric has a velvet facing and a satin reverse, the satin warp being fixed only when the velvet warp forms the foundation stitches, so as to be unscraped when the pile warp (ground warp) is cut. The drawing indicates the weaving for an "Ancien velouté" of six looms, and a set of eight heddles, the velvet consisting of three foundation stitches, and of three pile stitches raised over three consecutive wefts. The two side chains are separately warped on two sets of looms, and are woven alternately with each other.

HOSIERY AND LACE.

2,498. Feb. 11, 1891. **Knitting.** C. TERSOFF, C. de la V., Warsenburg, Germany.



Circular machines.—In machines in which the needles N are fixed to a needle bar A and rotated by gearing K₁, K₂, K₃, K₄, K₅, K₆, the sliders P are formed as shown, in curve both as jack sliders and lead sliders, and are operated by adjustable cam-rings E, E'. These cam-rings are raised or lowered to regulate the length of loop by screws and pieces Z₁, operated

either by the hand-wheel Z₂ on the gear wheel Z on the stationary disc B. The rollers are operated by means on the bar A and by push-backs C. The work W is guarded from the lubricated parts of the machine by a casing O, carried by a support M, which is raised by gearing from the needle-bar A₁. The rollers are rotated either by levers S, arranged as shown, and operated through D from the needle-bar, or by levers pivoted on the rollers F and operated by a pressure wheel. The thread-conveying wheels F₁ for the different systems are operated by a common intermediate wheel F, driven by gearing X₁, X from the shaft H.

2424. Feb. 20, 1892. **Hosiery.** C. LLOYD, Kurland-street, Leicester.

Articles of hosiery, such as hose, half-hose, under-shirts, pants, and the like, are thickened at parts by introducing courses of loose loops, forming a pile at the back of the fabric, which may be afterwards treated or brushed to form a fleecy surface.

2427. Feb. 21, 1892. **Knitting.** C. YEROFF, Coventry, Wottonburg, Germany.

Circular machines.—In frame or similar machines for the production of plaited fabrics, the rollers of its loop wheels form two sets, and are operated longitudinally by slits, for the purpose of alternately placing one of the threads in front of the other. By these means longitudinally striped or coloured bands or other designs may be produced. *Drawings.*

BLEACHING, DYEING, AND PRINTING.

2428. Feb. 20, 1892. **Dyeing.** H. R. LAKE, 45, Southampton Buildings, Middlesex.—(S. & S. Searcy, 218, South-street, Boston, Mass., U.S.A.)

Relates to apparatus for dyeing large quantities of styre goods after being made up into bats and other articles, and for bleaching or other analogous purposes. *Drawings.*

2521. Feb. 20, 1892. **Dyeing.** M. TYSON, London, and F. CURRY, Rastatt, both near Baden-Kreis, Baden, Germany.

Acid-blue dyeing.—Relates to a process in which hydrofluoric acid is partially substituted for the acids usually employed in dyeing or printing aniline black, or analogous brown or grey colours derived from aniline and its homologues, or from naphthyl-amine, upon animal or vegetable substances in the raw, spun, or woven state. The object is to prevent the liability of the colour to fade green, or to limit the green to a pre-determined shade. The results are attributed to the volatility of hydrofluoric acid, and to the fact that no chlorine is produced by its action upon the chlorides employed. As an example, a bath for dyeing mixed materials of cotton and silk is described, consisting carbonate of copper, bicarbonate of ammonia, hydrochloric acid, hydrofluoric acid, aniline oil, and chloride of sodium. For printing the usual vanadate, caustic, iron, chromate, or copper compounds are employed with the chlorides and with some hydrofluoric acid.

2595. Feb. 25, 1892. **Dyeing.** H. H. LAKE, 45, Southampton Buildings, Middlesex.—(Searcy, Wicks and Co., Agents for A. Lovibond and Co., Malvern, near Worcester, the Main.) *Blue dye.* Relates to certain colouring matters referred to in Specification No. 1725, A.D. 1871, which are combinations of tetrachlorophenol compounds with phenol, and to colouring matters, which are combinations of tetrachlorophenol-diolpheno acid and phenol. Consists in rendering these colouring matters fast against alkalis by alkylating them by means of benzyl chloride, ethyl chloride, etc., by the usual methods.

2511. Feb. 25, 1892. **Discharge printing.** O. JENNY, 21, Southampton Buildings, London.—(Partners Messrs. Hester, Lucas and Treweek; Manchester-House.)

Printing process.—Consists in the production of indigo dyed fabric of any colour which resist washing and rubbing, by padding the fabric in alkaline phenol solution, printing it with thickened diam compound mixed with ferricyanide, and passing it through an alkaline bath to effect the reduction of the indigo. An example is given in which an indigo blue dyed cloth is padded on the hot flat with a preparation of *Acid-naphthol*, soda lye, Turkey red oil, and then printed with a discharge red, consisting of ponceauvermilion, sodium stearate, thickening, hydrochloric acid, ferricyanide of potassium and acetate of soda. The red colour having been formed the fabric is passed through soda lye at 90° to 100° C.

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PATENTS, DESIGNS, AND TRADEMARKS ACTS, 1883 TO 1888.

NOTICE IS HEREBY GIVEN THAT SAMUEL KNOWLES and JOSHUA KNOWLES, both of Tottington, near Bury, Co. Lancashire, have applied for LEAVE TO AMEND the Specification filed in pursuance of the Application for Letters Patent No. 1,184 of 1892 for "Improvements in machines for printing scarves, scarves, shawls, and the like." Particulars of the proposed amendment were set forth in the Illustrated Official Journal (Patents) issued on the 6th July, 1892. Any person may give notice (on Form G) at the Patent Office, 25, Southampton Buildings, London, W.C., of opposition to the amendment, within one calendar month from the date of the said Journal.

(Signed) H. READER LACE, Comptroller General, 17, St. Ann's Square, Manchester, Agent for Applicants.

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