

## WOOLLENS AND WORSTEDS.

## BRADPORE.

There is no appreciable change in prices, but a steady business is being put through. Stocks of English wools are low, but the demand is only for small lots. Skin wools and noils move off with some freedom, and for mohairs and alpacas there is a moderate enquiry. Two-fold yarns for home and foreign account are in steady request. Botany yarns are unchanged as far as price is concerned. In pieces the business passing is mostly for home trade account. Stocks are not excessive.

## LEEDS.

Spring repeats have not been given out so freely as should have been the case under ordinary circumstances, and it would be difficult to ascribe a cause for this. Probably the proximity of the next London wool sales has something to do with it, as merchants prefer to wait and see whether the raw material market is likely to change or not. Producers will probably have difficulty in obtaining remunerative prices for some little time to come, as raw material does not promise to become any cheaper. On the contrary, the indications are that it will become firmer, and this fact, considered in conjunction with the circumstance that the demand for shipment shows no signs of a revival, but rather of a decline, is sufficient to warrant the forecast given above. Novelties are not being shewn to any noteworthy extent. Serges and chevots promise well. New designs and dyes in tweeds may perhaps be sold at better prices. The demand for worsted coatings is still very dull, and the difficulties of manufacturers are rather serious. The attendance on 'Change has been an average one.

## GLASGOW.

Messrs. Ramsey and Co., in their report dated 20th January, say:—

**WOOL**—There has been more doing in the Scotch wool market this week, both in white-faced and black-faced wools. Buyers have been operating more freely, and a fair quantity has been taken for export. There is no change in prices, which remain steady at late quotations.

**SHEEP SKINS**—The supply has been rather short, but mostly of good sorts. Competition has not been quite so strong, and the turn of prices is easier.

## FLAX AND JUTE.

## DUNDEE TRADE REPORT.

WEDNESDAY, JANUARY 21ST, 1891.

The improved tone of the market continues.

Jute is sold at a rise of quite 10s. per ton, and quotations come at even more from Calcutta, with refusal of bids.

Flax is also rather better in value with a fair enquiry, especially for good brown flax.

Jute yarns are  $\frac{1}{4}$ d. per pound dearer all over, with a firm market.

Flax yarns in the bleached state are firmer, owing to the rise in the cost of bleaching. In the green they are firmer a shade, especially the favourite warp spins.

Tow yarns remain dull and difficult to sell. Common wefts are a shade easier to buy.

Jute Hessians are firmer, and there are now no sellers at the lowest quotations. Fine white wide goods are dearer and are in demand for early delivery.

Linsens, while not higher in price, are selling so as to prevent stocks increasing, and makers being all well engaged are quite firm. The rise in coal, the increasing cost of all kinds of mill and factory stores, cause manufacturers to be very cautious, as their old scales of costs are constantly exceeded.

Dundee fancy goods, carpets, rugs, and matings continue in excellent demand, and a good business is still being done.

Twines and cords are wanted, and all makers are pushed for delivery.

The railway strike causes inconvenience, but day by day the trains run and the goods and mineral traffic seems now to work better.

Unfortunately a very bitter feeling prevails, and the men speak of invoking Parliament to interpose.

## HOSIERY AND LACE.

## LEICESTER.

English wools, which are said to be in light supply, are passing freely into consumption, and values keep firm. The results of the Liverpool sales have tended to increase the feeling of firmness prevalent here. Foreign buyers are operating more freely for raw material, and knowledge of this fact tends to confirm the attitude of holders here. Lambs' wools and cashmere yarns receive fair request, but other descriptions are slow. Hosiery is in poor demand, cashmere and

half-hose being very quiet. The result of recent trading has, on the whole, been unsatisfactory to manufacturers, and fears are expressed as to the future should there be no improvement in prices.

## THE KIDDERMINSTER CARPET TRADE.

Business in the Brussels branch of this industry cannot yet be pronounced good, or indeed anything approaching what it should be at this period. Nearly all the firms' travellers are out again plying the country markets, but up to the present the returns, with but few exceptions, are not spoken of as satisfactory. By this, of course, no reflection is intended on the travellers themselves; manufacturers very fully appreciate the difficulties they have to contend with, and are quite prepared to endure with patience the present state of things, and obtain what they consider to be only a fair price for their goods rather than make concessions, which they say would end in certain loss. The outlook is still considered bright, and a rush of business only a matter of time. For the present buyers are evidently determined to continue the waiting policy, and only buy just what their requirements dictate. Although production is still slow, consignments have been considerably larger so far this month, which points to a healthy demand for consumption.

The wool market continues steady, and the better feeling referred to last week is sustained. Several lots have changed hands this week at prices distinctly higher than December quotations, but transactions are still conducted with care and caution.

In the worsted yarn branch there has been an increase in the number of orders booked. These have been principally at late rates, although in one or two instances for special blends spinners have succeeded in obtaining a slight advance. Manufacturers, however, are still disinclined to look too far ahead, and prefer to take their chance so long as their own business remains backward.

Jute goods remain firm with an advancing tendency, owing to the great Scotch railway strike. Spinners have been looking a few more contracts in consequence.

Linen goods are pretty firm, but spinners of these yarns complain bitterly of the competition lines, and say they cannot see their own at prices at present obtainable. Foreign competition, more especially the Italian, is pressing the English spinners of these yarns severely.

## DRY GOODS.

## MANCHESTER.

The home trade is of an average character, but in some branches there is a distinctly marked want of activity and an inelasticity which is somewhat discouraging. The print rooms are now ready for receiving the new season's goods, and there will be more to say concerning them later on. Laces are quiet. A demand for flouncings is prophesied in some quarters, but although there have been enquiries here and there, such speculations can only be regarded as rash. Manufacturers as well as distributors appear to be equally at sea as to the outlook for the season, and the views expressed by experts are very divergent. The reports that the cheap cotton lace trade is to be competed for more keenly by Calais are disbelieved. Nottingham, it is generally admitted, cannot be beaten in the production of low-class goods, and the French makers will probably lose money if they try to enter the trade. The branches they at present cultivate, and which they excel in, are the most remunerative. The depression in the plush trade has brought about a decline in the business of firms engaged in the sale of silk yarns to Yorkshire manufacturers. American orders on the other hand have increased somewhat of late. The inference is obvious. For South American account there is not much doing. Merchants say that their own private advices are delayed, and owing to the cable being cut no advices have been received for four days. Comment on the political situation is carefully avoided by the West Coast correspondents of Lancashire houses, as messages are "revised" by the party favouring President Balmaceda.

A rumour has reached us to the effect that certain important changes are contemplated in the constitution of the firm of Messrs. Horrockses, Crewdson, and Co., Limited. Beyond the statement that these changes may mean a return to the old order of things, which prevailed before the recent amalgamation of Horrockses, Miller, and Co., and Crewdson and Crosses, nothing can be said.

The linen departments are steady, although the trade passing offers no feature worthy of special remark. Deliveries from Scotland are still most irregular notwithstanding the repeated promises made by the officials of the North British Company, and many goods that were urgently required this week have not yet come to hand.

## Joint Stock and Financial News.

## NEW COMPANIES.

## ROBERT MCCLURE AND SONS, LIMITED.

Registered by Rowcliffes, Rawle and Co., 1, Bedford-row, W.C., with a capital of £100,000 in £100 shares. Object, to acquire the business of cotton spinners and manufacturers as carried on by Robert McClure and Sons, at Travis Brook Mill, Heaton Norris, and at Manchester. The first subscribers are:—

D. McClure, West Bank House, Heaton Mersey	1
J. McClure, Norris Bank House, Heaton Norris	1
Mrs. McClure, Norris Bank House, Heaton Norris	1
R. M. McClure, West Bank House, Heaton Mersey	1
W. R. McClure, Norris Bank House, Heaton Norris	1
D. M. McClure, West Bank House, Heaton Mersey	1
E. K. McClure, Norris Bank House, Heaton Norris	1

There shall not be less than two nor more than 12 directors; the first are D. and J. McClure, it being stipulated they shall hold a special qualification of £25,000 each. Qualification of other directors, £100. Remuneration to be determined in general meeting.

## THE UNION PRESSING COMPANY, LIMITED.

Registered by F. C. James, 2, Quality-court, Chancery-lane, with a capital of £20,000 in £100 shares. Object, to carry on the business of merchants and dealers in, and balers, packers, exporters and importers of, jute, cotton, and hemp. There shall be not less than two nor more than seven directors.

## MINERVA SPINNING COMPANY, LIMITED.

Registered by Bower, Cotton, and Bower, 4, Bream's-buildings, Chancery-lane. Capital, £80,000 in £5 shares. Object, to carry on the business of spinners, doublers, weavers, &c. The first subscribers are:—

E. Barlow, Fraser-street, Ashton-under-Lyne	1
D. D. Isherwood, 110, Oldham-road, Ashton-under-Lyne	1
J. Morland, Ashton-under-Lyne	1
S. Newton, Ashton-under-Lyne	1
F. G. Plant, Oakwood Mills, Romiley	1
A. Shaw, Ashton-under-Lyne	1
W. Baxter, Ashton-under-Lyne	1
H. Shaw, Ashton-under-Lyne	1
J. Pownall, Ashton-under-Lyne	1
J. Turner, Ashton-under-Lyne	1
J. Wilson, Ashton-under-Lyne	1

There shall not be less than three nor more than seven directors; the first are the first five subscribers to the memorandum of association. Qualification, 150 shares. Remuneration, £250, divisible.

## Patents.

Where Complete Specification accompanies Application an asterisk is suffixed.

The names in italics within parentheses are those of Communicators of Inventions.

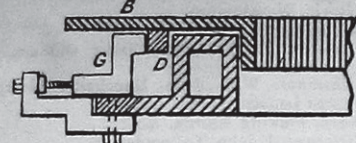
## SPECIFICATIONS PUBLISHED.

1890.

3. DE NIGRI. Knitting machines. 1s. 3d.  
 529. KIRLEW. Waterproof fabrics. 4d.  
 1,118. HAYTER and TERRY. Woollen vests, combinations, etc. 6d.  
 2,911. KIRKBRIDE. Looms. 6d.  
 2,929. BEEVER. Shearing hearthrugs, carpets, etc. 6d.  
 3,009. KEENE. Bleaching, etc., fibrous materials. 8d.  
 3,098. LAKE (*A. Leonhardt and Co.*). Colouring matters. 6d.  
 3,107. KNIGHT and ASHWORTH. Weaving shuttles. 6d.  
 3,815. WALKER and PARKER. Ring spinning, etc., machines. 8d.  
 15,117. ROSCHER. Tube knitting frames. 6d.  
 19,175. NEWTON (*A. Smith and Sons' Carpet Company*). Scouring machines. 11d.  
 19,303. WILLIAMS. Ornamenting, etc., selvages of pile, etc., fabrics. 6d.  
 SECOND EDITION.  
 1880.  
 11,627. RAWLIFF and EASTWOOD. Doffing bobbins, etc., from spinning frames. 6d.

ABSTRACTS OF SPECIFICATIONS.

**12,329.** August 2, 1889. **Combing-machines.** F. ILLINGWORTH, Caledonia Works, Bradford.



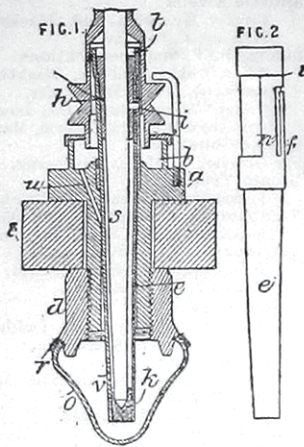
**Combing circles, guiding.**—To the under side of the rack circle plate B, is fixed a guide ring D concentric with the flange at the back of the rack teeth, the outer surface of the ring taking against adjustable brackets G. The outer face of the ring is continuously lubricated by means of suitable pipes carried by brackets and supplied with lubricant by a pipe. 64d.

**12,367.** August 2, 1889. **Absorbent fabric.** M. CHOTZEN and O. SILBERMANN, 33, Gartenstrasse, Breslau, Silesia, Germany.

The fabric consists of compressed wadding or similar material having on both sides a covering of gauze or its equivalent fixed by roller pressure. The wadding may be impregnated with antiseptics or other medicinal substances. The fabric may be bound up in blocks from which a piece may be torn for use in cleansing and dressing injured parts of the body or for cleansing surgical instruments. 44d.

**12,431.** August 6, 1889. **Spinning.** C. H. CHAPMAN, Groton, Massachusetts, U.S.A.

**Spindles.**—The shell e carrying the bolster h and footstep k is supported from a casing a by means of one or more spring supports f, which act in the same direction as the pull of the driving band, and press the whole against a fixed guard s supported from the casing a. The bolster h, shell e, and spring support f are connected together by a pin i or otherwise. The spring supports f may be bent into a double conical form if desired, so as to render them elastic, both vertically and horizontally. o is an oil cup, the upper edge of which is sprung into grooves formed in ears on the nut d, which secures the casing a in position, and it is closed by a rim or cover r. It communicates with the step bearing by an aperture v, the overflow from the cup t flowing into a covered cup b on the casing a, which communicates by a passage u with the lower part of the bearing. 84d.

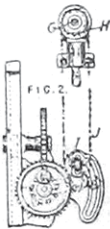


**12,448.** August 6, 1889. **Spinning.** M. J. RENAUT, 1, Boulevard St. Denis, Paris.

**Breaking and decorticating ramie, etc.**—Several breaking machines are used, the material from all the breaking machines being fed by an endless apron to a decorticating machine. Each breaking machine consists of a pair of fluted rollers provided with a pair of rotary brushes. The material is fed to the machine by an endless apron, the feeding being controlled by a vertical block, which is raised at intervals by means of a pedal, or automatically. The material is delivered from the breaking machines to an apron, by which it is fed to the decorticating machine. The stalks are placed with their heels over an endless rope, and are held between it and a pulley, while being acted on by a revolving drum provided with blades and turning opposite a concave block. When the stalks have passed half-way round the pulley and half-way round an intermediate smaller pulley, the decorticated part is gripped by another part of the rope and a pulley, and the ends formerly held by the pulley are decorticated by another drum. The rope is provided with a tension pulley carried by a spring and adjustable by hand. 84d. *Drawings.*

**12,534.** August 8, 1889. **Looms.** E. HOLLINGWORTH, Dobbers, Yorkshire.

**Take-up motions.**—In the "Hollingworth and Knowles" and other looms a chain wheel I, connected with the take-up motion, is connected by a chain J with a wheel H on the reversing shaft G of the dobby. When the latter is reversed the cloth beam will be correspondingly reversed. The arrangements may be modified. 64d.



**12,549.** August 8, 1889. **Dyes.** T. R. SHILLITO, 89, Chancery-lane, Middlesex.—(A. Fees, Brombach, Germany.)

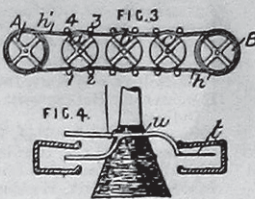
Relates to the manufacture of yellow to orange colouring matters by the action of sulphur on tetramethyldiamidodiphenylmethane in presence of ammonia or a primary aromatic amine. Consists, for example, in heating tetramethyldiamidodiphenylmethane in a digester with one-fourth its weight of sulphur, at 128° C., then adding common salt and ammonium chloride in powder, raising the temperature to 175° C., and passing ammonia gas through the mixture at low pressure for 7-8 hours whilst stirring. The yellow mass produced is treated with a little water to extract the common salt, and is then dissolved in hot water and precipitated by addition of common salt. 44d.

**12,560.** August 8, 1889. **Dyes.** S. PITT, Sutton, Surrey.—(L. Cassella and Co., Frankfurt-on-Main, Germany.)

**Azo dyes.**—Consists in the production of red colouring matters by combining tetra-diphenol, or a homologue thereof, with beta-naphthol gamma-disulpho acid in equal molecular proportions, combining the product with a molecular proportion of phenol, and then alkylating or benzylating this product by heating it, for example, with alcohol, caustic soda, and ethyl bromide. Instead of the gamma-disulpho acid beta-naphthol alpha-mono-sulpho acid may be used, and cresol may be substituted for phenol. 44d.

**12,564.** August 8, 1889. **Spinning.** E. DE PASS, 75, Fleet-street, London.—(A. Vinnoli, 70, Rue de Rivoli, Paris.)

**Driving spindles.**—The spindles are driven by an endless belt h (Fig. 3) which is pressed against the spindles by drums a, b, c, driven by bevel gearing, the drums and spindles being preferably arranged so that each drum drives four spindles 1, 2, 3, 4. The belt passes over end pulleys A, B, one of which is mounted on a sliding carriage operated by a weighted chain. Two or more rows of drums may be provided and arranged either in the same or different planes.

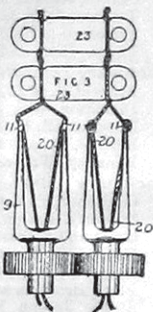


**Rollers, etc.**—The drawing-rollers are placed nearer together than usual, the pressure is applied by a system of spring levers, and they are arranged so that the threads descend vertically to the spindles. They are driven through a pair of speed cones, the band of which is moved automatically, as the cop bottoms are built up, by means of ratchet gearing from the coping rail, the speed being reduced at the beginning of each set, and gradually increased as the cop bottoms are formed. A similar arrangement may also be used for varying the delivery according to the diameter of the chase at which the winding is taking place.

**Rings and travellers.**—The traveller, which is specially suitable for spinning worst yarns, consists of a curved web or blade w (Fig. 4) forked at one end and provided with a wing t at the other. The ring is preferably in the form of a hollow box as shown. 84d.

**12,585.** August 9, 1889. **Connecting loom cards.** J. WILKINSON, Laurel Bank Mill, Nelson, Lancashire.

The cards 2 are formed with side notches, and are connected, as shown, by twisted cords 20, which pass through eyes 11 in oppositely oscillating forks 9. The cards are placed by hand between the cords, and are carried on by a suitably turned cylinder. The details of the machine employed are described. 84d.



**12,587.** August 9, 1889. **Looms.** A. B. BARLOW, Cornbrook Works, Manchester, and H. BROOK, Crossland Moor, Huddersfield.

**Heads.**—The stays g, which hook over the top and bottom metal rods e, on which the wire leashes are strung, are each formed with a projection g1 at one end, extending into a recess a1 in the shaft a. The stays



are thus checked from lateral movement, and prevent the rods e from springing out of their hooks, or out of the usual wood supporting hooks. 64d.

**12,626.** August 10, 1889. **Spinning.** G. W. ROBERTSON, 62, St. Vincent-street, Glasgow. D. BLACK, Boghead, Lenzie, Dumbarton, and J. McGLASHAN, 39, Hanover-street Edinburgh.

**Treating whea, ramie, china grass, etc.**—The material is first softened in a bath of water, caustic soda, etc., and then passes through an apparatus whereby it is broken and wound on to a hollow perforated reel or bobbin between two layers of wire netting or other suitable material. 84d. *Drawings.*

**12,652.** August 10, 1889. **Looms.** W. WARRINGTON, Fairfield Mills, Droydsden, Lancashire.

**Stop-motion.**—To enable the weaver to put in cross-headings of a different width at certain measured intervals, in weaving towels, shawls, handkerchiefs, etc., apparatus is provided which will indicate the length, and will stop the loom unless the change is made by the weaver at the right time. A graduated wheel, driven from a pinion on the emery roller shaft, is set in a position such that, when the required length is woven, a projection comes beneath and raises a lever, which, by means of a bell-crank lever, depresses the web-fork, and so causes the loom to stop. The spring handle or other stop-motion may be acted on in some cases. 64d. *Drawings.*

**12,677.** August 10, 1889. **Knitting.** W. H. BLACKBURN, E. HOULLEGATE, and J. DAVIES, all of Ilkeston.

**Straight-bar machines.**—Gores are produced on each side of the centre of a division of the fabric, and widenings at two places between the gores. 1s. 2d. *Drawings.*

**12,670.** August 10, 1889. **Spinning.** A. MARSDEN, A. LAYCOCK, and A. STEPHENSON, Tower Mills, Turnbridge, Huddersfield.

**Condensers.**—For guiding the threads between the two sets of rubbers an apparatus is used in which curved guide wires are mounted on a pivoted rod, which may be operated by handles, so as to move the wires into or out of position. In another arrangement, the threads are separated by an annular-grooved roller. 64d. *Drawings.*

**12,678.** August 10, 1889. **Dyeing and drying yarns, etc.** E. HEYENSTALL, Cambridge-road, Huddersfield.

Hanks of yarn, slubbings, etc., are dried on a wheel or swift, rotating in a closed chamber, as described in Specification No. 16,756, A.D. 1888, in connection with dyeing or scouring. A current of hot or cold air is forced or drawn through the chamber, the lower or inlet part being formed with an extension, covered with a curved perforated plate or the apparatus may be used for drying and drying alternately. 84d. *Drawings.*

**12,757.** August 13, 1889. **Driving belts and bands or ropes.** R. DICK, Greenhead, Glasgow.

Manufactured from a union fabric woven from cotton and wool yarn, or linen and wool yarn, or cotton and linen yarn, coated in the web on one or both sides with a solution of gutta-percha, Balata, etc., folded into bands, with or without an inner cotton canvas, in the centre. The belts may be made with an outer layer of gutta-percha, solutionised canvas, or union fabric, and an inside layer or gripping surface of leather, or of gutta-percha, solutionised woolen fabric. Round bands are made by rolling

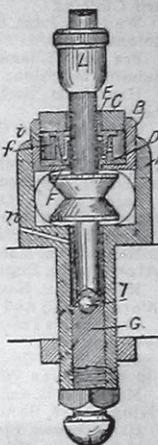
layers of the above-mentioned union fabrics, or of woolen cloth solutionised with gutta-percha. 44d.

**12,767.** August 13, 1889. **Dyes.** H. H. LEIGH, 22, Southampton Buildings, Middlesex.—(R. G. Williams, Albany, State of New York, U.S.A.)

**Azo dyes.**—Relates to the preparation of mixed azo colouring matters, and consists in combining in molecular proportions a tetrazo compound with naphthalene-azo-naphthylamines or their sulpho acids, and in reacting with the intermediate product thus obtained upon an amine, phenol, or a sulpho acid thereof. For example, naphthionate of soda is precipitated by hydrochloric acid, and diazotised by addition of nitrite of soda, and an equal quantity of alpha-naphthionate is then added to the mixture. The clear scarlet solution containing alpha-naphthalene-sulpho acid-azo-naphthylamine-sulpho acid is run into a molecular proportion of tetrazoditoly in presence of acetate of soda. When the combination is complete a solution of naphthionate of soda is added, and after stirring several days the mixture is raised to boiling point, soda ley is added to form the sodium salt, and the colouring matter is precipitated by addition of common salt. It dyes un mordanted cotton a bright red. In another example orcin is used in the last stage instead of naphthionate of soda. 64d.

**12,769.** August 13, 1889. **Spinning.** C. A. PRATT, Fitchburg, Massachusetts, U.S.A.

**Spindles.**—The footstep G is adjustable vertically in the casing A by screwing, and supports a ball I, the footstep and the end of the spindle being suitably hollowed for the purpose. Lubricant is admitted through a passage n. A sleeve E fits tightly on the spindle and rotates with it, a tapering projection f thereon taking against the tapered collar D, which is secured by its horizontal flange to a nut B adjustable in the casing A; C is a screwed cover which holds the sleeve E in position, and closes the chamber formed by the nut B, to which lubricant is admitted through an aperture i, and from which it is supplied through apertures in the collar D to the bearing surfaces. F is a guard to prevent the oil from running down towards the spindle below the bearing, and L is a spring bushing which serves to hold the bobbin when the spindle is in operation. 84d. *Patent applied. Case not yet decided.*



**12,784.** August 13, 1889. **Dyes.** O. IMRAY, 28, Southampton Buildings, London.—(La Société Anonyme des Matières Colorantes et Produits Chimiques de St. Denis, 105, Rue Lafayette, Paris.)

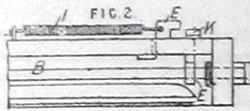
**Rosaniline series.**—Relates to the production of green to blue colouring matters by condensing para-toluidine, alpha-metaxylylene, pseudo-oxaline, and mesidine with tetramethyldiamidodiphenylmethane, and oxidising the benzylised bases thus obtained. For example, by heating on a water bath one molecule of tetramethyldiamidodiphenylmethane, one and a half molecules of para-toluidine hydrochlorate, and two molecules of hydrochloric acid, a leuco base is obtained which melts at 130° C. By varying the proportions, operating at a lower temperature, and using concentrated sulphuric acid as a condensing agent, a leuco base melting at 165° C. is obtained. On oxidation, by means of bi-oxide of lead and hydrochloric acid, colouring matters, e.g. triamido-tetramethyltriphenyl carbinol, are obtained, which dye wool in a neutral bath, and cotton with a tannin mordant. The leuco bases may be diazotised and converted into their hydroxylated derivatives before or after oxidation. They may also be benzylised by heating with benzyl chloride and carbonate of soda solution, the benzylised bases may be then sulphurised by means of fuming sulphuric acid, and subsequently oxidised with the production of greenish blue colouring matters which dye wool in an acid bath. 64d.

**12,808.** August 14, 1889. **Knitting.** E. BUXTOFF, Troyes, Aube, France.

In the manufacture of plaited figured goods the relative position of the two thread-guides is changed according to the pattern by an electro-magnet in combination with a pattern wheel, a tatten chain, or an engraved roller and a contact device. The invention is applicable to circular and straight machines, and the motion may be given to one thread-guide only. 1s. *Drawings.*

**12,866.** August 15, 1889. **Looms.** J. W. SHORROCK, Bolton-road Foundry, and J. K. HACKING, 10, Belgrave-terrace, both of Darwen.

**Loose reed motion.**—A hooked projection E, loosely mounted on the picking spindle B, is moved by the shuttle as it enters the box into position to engage with a finger K on the stop rod, and thus to lock the reed. A spring I returns the hook when the shuttle leaves the box. When the shuttle fails to box the finger K is unacted on, and the reed is free to swing outwards. 64d.



**12,878.** August 15, 1889. **Spinning.** H. HAWORTH, Gaol-lane, Halifax, and J. P. BINNS, 25, Cromwell-terrace, Halifax.

**Rollers.**—The leather, etc., covering is secured to metal rollers by means of nails, etc., driven into wooden plugs, forced into apertures in the ends of the roller. The roller may be metallic throughout, or have a core of wood with a metallic axle. 64d. *Drawings.*

**PATENTS.**  
**W. P. THOMPSON & CO.**

Agents for procuring Patents and Registering Trade Marks and Designs.  
**6, Bank St. (Exchange), Manchester,**  
6, Lord St., LIVERPOOL, and 322, High Holborn, LONDON.  
Largest Patent Agency in Great Britain.  
"Facts for Inventors" (Pamphlet sent free on application)