

edges, but the continued popularity of this style is very doubtful; of late it certainly has not increased, and manufacturers, therefore, are inclined to limit production until they see how the style is likely to run. Such goods as Bretonne laces, point d'Alencou, point de Paris, and point de Gaze are moving off slowly. For silk Chantilly laces moderate orders are on hand, and an increased demand in this section of the trade is shortly expected. For everlasting trimmings and Swiss embroideries there is a good demand, and in curtains a large business continues to be done, as also in window blinds, antimacassars, and vitrage nets. In the hosiery trade matters are not very brisk and there is nothing new to report, but manufacturers are kept fairly steadily engaged, notwithstanding the severity of competition both at home and abroad.

THE KIDDERMINSTER CARPET TRADE.

The position of the proposed carpet company has undergone no important change during the past week, at least so far as the general public have been made aware of. Two meetings of the vendors were held in Kidderminster on Wednesday, but beyond the fact that "progress was reported," nothing authentic has been made public. Still it is a fact that since the reduction in the bank rate, good progress has been made with the necessary financial arrangements, and that this part of the scheme will be satisfactorily completed during the present week. Of course, it is impossible, on account of the state of the money market, to say when the company will be put forward for subscription. As everyone knows, the money market is still in a very queer condition, and speculators are not speculative; therefore, until a healthier feeling predominates, it is hardly likely, after waiting so long, that the promoters will exhibit precipitancy; at any rate everything is now in a forward state, and only the right moment is awaited to proceed. The carpet trade has not altered much during the past week; production in the Brussels branch continues heavy, and consignments so far this month have been heavier than for some months past. Whilst several manufacturers are now running their machinery a few hours beyond the ordinary working day, in one or two directions a slight falling off is noticeable, and complaints are heard that orders are not coming in sufficiently well to take the place of those being worked off. Buyers are certainly not operating with the freedom they usually do at this time, which is probably on account of the unsettled state of the industry, but they will possibly find in the end that they have waited too long, as manufacturers all round, inside and outside the combinations, are getting greatly dissatisfied with the current prices, and a substantial advance may now take place any day.

There is very little business doing in wools, and although on the whole the market remains healthy, prices for some sorts are slightly easier and a few cheap lots are being offered. Spinners keep pretty busy on old contracts, but new orders are scarce, and little alteration is looked for in this respect until matters in the carpet trade become more settled.

The second International Customs Conference will be opened at Brussels on June 20 next. The desirability of the establishment at Brussels of an international office for the publication, in the principal languages, of the customs tariffs of all nations, is now admitted in principle by all the Powers.

Joint Stock and Financial News.

COTTON AND OTHER COMPANIES.

SHILOH, ROYTON.—Profit, three months, £703, reducing adverse balance to £1,071. Share capital, £17,793; loans, £21,941. Spindles, 37,132 (14,496 T and 22,636 W). Plant, three months ago, £28,564. Company formed 1874.

LANSDOWNE, OLDHAM.—Profit, three months, £1,028, reducing adverse balance to £1,759. Share capital, £15,794; loans, &c., £37,244. Spindles, 51,360 (28,008 T and 23,352 W). Plant, three months ago, £45,405. Company formed 1875.

DERBY MILLS SPINNING AND MANUFACTURING COMPANY, HEYWOOD.—The thirtieth half-yearly report of the Derby Mills Cotton Spinning and Manufacturing Company states that after allowing £180 for depreciation, and providing for interest on loans, there is a deficiency of £121 17s. 10d., which is partly caused by stoppage of three weeks through a breakdown of one of the steam engines.

ADERDEEN JUTE COMPANY, LIMITED.—The report of the directors is as follows:—The directors have pleasure in reporting the result of another twelve-month's satisfactory business. The credit balance for the year amounts to £5,703 19s. 7d., and this, with the addition of £119 10s. 2d. brought forward from last year, places a net balance of £5,823 9s. 9d. at the disposal of the shareholders. The directors propose that this sum be applied as follows: In paying, on 11th March, 1890, a dividend of 1s. 6d. per share, £3,187 7s.; in adding to the reserve fund, £2,500; and in carrying forward to next year's account a balance of £136 2s. 9d.—total, £5,823 9s. 9d. It will be seen from the balance sheet that a sum of £814 13s. 1d. has been debited to capital account. About £900 has been spent in providing a new pond and some necessary drainage work; but as these do not in any way increase the productive power of the plant, the cost has been charged to revenue. A further sum has also been spent in machinery and shafting, which might possibly have been charged to capital account; but, in respect that the machinery in both mill and factory is getting older and more liable to compulsory renewals, the directors considered it only prudent to charge that likewise against the year's revenue. The retiring directors are Mr. John Crombie, jun., and Mr. John Davidson, and both are eligible for re-election. The auditor, Mr. James Meston, also retires, and is eligible for re-election.

NEW COMPANIES.

SUGDEN KEIGHLEY AND CO., LIMITED.
Registered by Molson Brothers, 3, Brownlow-street, Holborn, with a capital of £60,000 in £10 shares. Object, to acquire the business of worsted spinners and manufacturers, carried on at Low-street Mills, Keighley, and elsewhere, under the style of Sugden Keighley and Co. The first subscribers are:—

Sugden Keighley, Keighley.....	1
W. H. Keighley, Keighley.....	1
J. Keighley, Keighley.....	1
A. Keighley, Keighley.....	1
J. Hart, Newark-street, Leicester.....	1
H. Wright, Keighley.....	1
J. J. Waterworth, Keighley.....	1

There shall not be less than three, nor more than five directors. The first are Sugden Keighley, W. H. Keighley, and J. Keighley, all of Keighley. Qualification, £1,000. Remuneration to be determined in general meeting.

VICTORIA MILL (CLAYTON-LE-MOORS) COMPANY, LIMITED.

Registered on the 19th inst., with a capital of £9,000, in £300 shares, to carry on cotton spinning and manufacturing at Clayton-le-Moors. The subscribers are:—

Wm. Campy, Clayton-le-Moors, mill manager	1
A. Slater, Great Harwood, grocer.....	1
T. Lyond, Great Harwood, shoemaker.....	1
A. Slater, Great Harwood, mill manager.....	1
J. Taylor, Great Harwood, innkeeper.....	1
J. Hadfield, Great Harwood, taper.....	1
G. Wolmsley, Great Harwood, taper.....	1

The company in general meeting will determine the remuneration of directors. Registered office, Victoria Mill, Clayton-le-Moors, near Accrington.

THE HOLLINGREAVE MANUFACTURING COMPANY, LIMITED.

Registered by R. Jordan, 120, Chancery-lane, W.C., with a capital of £5,000 in £1 shares. Object, to carry on the business of cotton manufacturers, now carried on at Hollingreave Shed and Clifton Mills, Burnley. The regulations of Table A, with slight alterations, apply.

THE BRADFORD MANUFACTURING COMPANY, LIMITED.

Registered by R. Jordan, with a capital of £41,000 in 2,050 preference and 2,050 ordinary shares of £10 each. Object, to carry into effect an agreement made between John Maddocks, of Bradford, trading under the style of the Bradford Manufacturing Company, and John Maddocks and Co., of the one part and the company of the other part; to carry on business as

combers, doublers, spinners, manufacturers, dyers, finishers, wholesale and retail drapers, &c. The first subscribers are:—

	Shares.	Prof. Ord.
J. Maddocks, 27, Canal-road, Bradford	550	550
J. Morley, 54, Ashgrove, Bradford.....	25	25
L. M. Griffiths, 13, Springcliffe, Bradford.....	20	30
W. M. Gray, District Bank Chambers, Bradford.....	1	1
S. Feather, 19, Ware-street, Bradford	25	25
S. Robinson, 16, Heaton-grove, Bradford.....	1	1
R. E. Buckley, 25, Queen's-road, Bradford.....	1	1

There shall not be less than three nor more than seven directors. The first are J. Maddocks, Smith Feather, J. L. Morley, C. Fawcett, and L. M. Griffiths. Qualification, £250. Remuneration, £250, divisible.

Gazette News.

ADJUDICATIONS.

Spencer, A. (trading as J. A. Spencer and Co.), bleacher and dyer, Green Mount Works, Harpurhey, and Fountain-street, Manchester.

Field, J., rag and mungo merchant, Chickenley-lane, Soot-hill, near Dewsbury.

Smith, R. R., woollen merchant, lately of Lawrence-lane, Cheapside, London.

RECEIVING ORDERS.

Field, J., rag merchant, Chickenley-lane, Soot-hill, near Dewsbury.

Yewdall, A., dyer, Manningham-lane, Bradford.

PARTNERSHIPS DISSOLVED.

Thomas Grange and Alfred Bealand (trading as Alfred Bealand), job stuff and fent merchants, Well-street, Bradford.

Gillott and Co., handkerchief printers, &c., George-street, Manchester.

Kean and Scott, fancy trimming manufacturers, Corporation-street, Birmingham; William C. Kean retiring.

Eli Stott and Sons, woollen merchants, Huddersfield.

Godfrey Sykes and Sons, mantle cloth and seal-skin manufacturers, Moldgreen, Huddersfield.

Wallace and Vautrey, worsted spinners, Victoria Mills, Honley.

Albert E. Lillie and William C. Haughton, warehousemen, Chatham-street, Piccadilly, Manchester.

Metcalf and Clement, cotton waste spinners, Oswaldtwistle.

Patents.

APPLICATIONS FOR PATENTS.

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

Where Complete Specification accompanies Application an asterisk is suffixed.

17TH FEBRUARY.

2,514. THOMAS, JOHN THOMAS, and JAMES TAYLOR, 4, St. Ann's-square, Manchester. Winding mechanism of twiners used in doubling yarns.

2,537. A. G. SPEIGHT, 257, Liverpool-road, Islington. A machine for the manufacture of corrugated or fluted paper or textile fabrics.

18TH FEBRUARY.

2,582. JAMES and ABRAHAM MOSS, 3, Commercial-street, Halifax. Picking motion of looms.

2,584. C. HYDE, 21, Greg-terrace, Reddish, near Stockport. Red, white, and blue loop bands.

2,589. JOHN and STEPHEN HOLFEGATE, 12, Burnley-road, Clayton-le-Moors. Looms.

2,597. H. B. BROADHURST, 64, Barton-arcade, Manchester. "Dhootie" weaving.

2,599. F. LEEMING and W. J. MONK, Central-chambers, Halifax. Attaching the end of one piece of cloth or other textile fabric to another.

2,604. SIR JAMES FARMER, 17, St. Ann's-square, Manchester. Clipping appliances for taking creases and folds out of the edges and stretching woven fabrics during various finishing operations.

2,614. SAMUEL HERBERT BROOKS and F. BARLOW, 5, Market-street, Manchester. Ring spinning and doubling machinery.*

2,616. J. S. COOKE and J. W. BROOKE, Central-chambers, Halifax. Scotch or ingrain carpets.

19TH FEBRUARY.

- 2,675. A. WILSON, 64, Waring-street, Belfast. Spinning flax and other yarns upon pirns or cops.
 2,693. W. B. KEMSHAW, 4, South-street, Finsbury, London. Paper and like textile fabrics.
 2,707. CAROLINE A. WHIPPLE, 323, High Holborn, Middlesex. Machines for the manufacture of woollen, felted, textile, and other similar fabrics.
 2,714. W. HOTHERSALL, 20, High Holborn, London. Bobbins or spools of shuttles used in looms.*

20TH FEBRUARY.

- 2,724. S. TUCKER and C. F. B. YOUNG, Cotton-lane, Moseley, Worcestershire. Holder for wool, cotton, silk, and other similar material.
 2,733. W. HARRISON, Arcade-chambers, Manchester. Glove, stocking, and clothing knitting machines.
 2,734. W. FAIRWEATHER, Arcade-chambers, St. Mary's Gate, Manchester. Fringing machines.
 2,736. W. CLIFFE, Market-place, Huddersfield. Woollen condensers.
 2,737. G. E. STEAD, 17, St. Ann's-square, Manchester. Woven fabric, particularly applicable for covering seats, upholstering and like purposes.
 2,762. A. BANCROFT, 6, Bank-street, Manchester. Transit frames for velveteens and other pile fabrics.
 2,763. W. L. WISE, 46, Lincoln's Inn Fields, London. Apparatus for dyeing and otherwise treating textile fibres in the form of bobbins or cops. (Ferd. Mommer and Co., Prussia.)

21ST FEBRUARY.

- 2,800. F. LREMING and R. WILKINSON, Central-chambers, Halifax. Dobbies of looms.
 2,807. F. MORTIMER, A. MORTIMER, and W. WATGHT, Upper Spen Mills, Gomersal, near Leeds. Jacquards.
 2,809. J. HALL, 80, Strand, Middlesex. Automatic combined fast and loose reed action for power looms. (Amos Lockwood, Germany.)
 2,827. A. J. BOULT, 323, High Holborn, Middlesex. The manufacture or treatment of textile or similar fabrics.
 2,837. J. E. DYSON, 2, New-street, Huddersfield. Hank dyeing machinery.

22ND FEBRUARY.

- 2,848. G. F. EYRE, 4, St. Ann's-square, Manchester. Rolling or packing cotton wool and apparatus therefor.
 2,850. J. HOWARD SCOTT, 18, St. Ann's-street, Manchester. Sectional warping and beaming machines.
 2,853. E. WHALLEY, 109, Bury New-road, Manchester. A machine for the manufacture of wetting or other similar cord.
 2,863. J. B. BLACK, Raceview House, Ballymena, Antrim. Scutching machines for flax, etc.
 2,867. E. GESSNER, junior, 52, Chancery-lane, London. Cloth shearing machinery.*
 2,903. C. E. THOMSON and A. S. ROGERS, 45, Southampton-buildings, London. Ribbed undergarments, and similar knitted articles.

SPECIFICATIONS PUBLISHED.

1889.

- 1,432. RIDGWAY. Winding and drawing machines. 6d.
 4,478. WALTON. Floorcloths, &c. 8d.
 4,551. HAYWARD. Scutching flax, etc. 8d.
 4,757. WALKER and LEEK. Looms. 11d.
 4,850. TURNER. Drying hanks of cotton, etc. 8d.
 5,128. RIENSSL and VON MEDVEY. Carpets, rugs, etc. 8d.
 5,362. BIRKIN and BIRKIN. Jacquard cards. 1s. 1d.
 5,410. HEYS (Greening). Wire-weaving looms. 8d.
 5,455. GADD and DREY. Cutting weft pile fabrics. 8d.
 5,599. HATTERSLEY and HILL. Looms. 11d.
 5,604. SCOTT. Cut-pile fabrics, etc. 8d.
 5,884. WILKINSON. Carding-engine flats, etc. 8d.
 14,645. THOMPSON (Wright). Spinning machines. 1s. 9d.
 18,971. WELDON. Yarn dyeing machines. 6d.
 20,693. GILBERT (Kelly and anv.). Looms. 6d.

AMENDED SPECIFICATION.

1885.

- 15,296. JESSEN. (Actiengesellschaft fur Anilin fabrikation.) Azo-colours. 6d.

ABSTRACTS OF SPECIFICATIONS.

- 12,563. August 31, 1888. Mercaptol and sulphone. J. Y. JOHNSON, 47, Lincoln's Inn Fields, London.—(The Farbenfabriken vorm. F. Bayer and Co., Elberfeld, Germany.)

Consists in the production of diethyl mercaptol by condensing diethyl ketone with ethyl mercaptan in presence of gaseous hydrochloric acid or of sulphuric acid. The product is converted into diethyl-sulphone-diethyl-methane by oxidation by means of potassium permanganate and sulphuric acid. [4d. No Drawings.]

- 12,339. August 23 1888. Looms. C. CATLOW, 22, Clifton-street, Burnley.

Beat-up mechanism.—Spiral or blade springs attached to each lay sword and to the loom frame assist to the crank and connecting rod over the dead centre. The Provisional Specification describes the springs as connected with cam-worked levers, and also states that to give a longer dwell for picking the crank is linked to extended lugs on the lay swords.

Leno and selvage weaving.—Certain warp threads 7 (Fig. 5) are passed through eyes in hanging blades 5 and thence upwards through other eyes 8 to the warp beam. The blades are mounted in a reed or frame reciprocated laterally by cams or by the dobby lever, so that the threads 7 are thrown alternately on opposite sides of the adjoining heald warp threads.

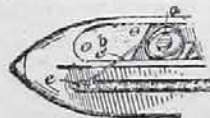
Shuttle and picker checking apparatus.—To an arm 15 (Fig. 7) of the boss 13 on which the swell 14 is hinged is attached a strap 16, which is carried to the spindle 17 behind the picker 18. As the picker is forced by the shuttle against the strap the swell is forced in against the shuttle and arrests the latter, and then leaves it free for picking.

Letting back cloth.—A blade-spring bolted to the cross-rail is in gear at its free end with the teeth of a wheel of the take-up motion. When the driving catch is raised the spring, by its re-action, reverses the motion of the wheels.

Tappet shedding.—To produce a uniform shed the treadle levers are mounted on different fulcra, and are acted on by bowls of uniform size on tappets of equal throw.

Loose reed mechanism.—A rod beneath the lay-beam carries fingers extending upwards to the back of the reed casing, and other fingers extending forwards so as to come beneath a fixed cross-bar on the beat-up. If the shuttle traps the reed is pressed out, and the lower fingers pass above the cross-rail and leave the reed loose. In a modification a spring-lever 41 (Fig. 11) pivoted at 42 on the lay-sword 1 is connected a finger 43 extending from the back of the reed. On the beat-up the lever 41 rests on a locking-bar 44, and its finger 46 is engaged in the notch 45 of a lever 39. If the shuttle traps the lever 41 is tilted, and will escape the bar 44 and lever 45, and leave the reed loose. [11d.]

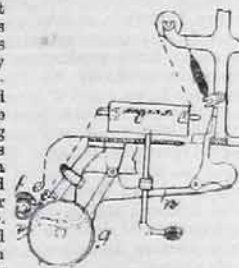
- 12,335. August 23, 1888. Looms. J. B. DAUDELIN, Fall River, Massachusetts, U.S.A.



Shuttle.—Arrangements are described for assisting the threading of loom shuttles. The shuttle is held by the operator with the delivery-eye *e* towards him, and the thread is passed over a thread post *a*¹, the taper and notched head of which directs it downwards, and then prevents it from rising. The thread passes through a narrow slit *e*¹, and thence into the passage of the delivery-eye *e*. This passage opens to the interior of the shuttle in the vertical part of a bent-plate *b* covering a recess in the shuttle body. In a modification the thread is directed beneath the head of the thread-post by the inclined sides of a suitable slot, and is then passed through a slit into a thread-guide contained in a recess of the shuttle. This guide is formed of a slit cylinder with curved projections for holding it in position and directing the thread to the interior of such guide, and preventing its return. The recess forms the delivery-eye. [8d.]

- 12,430. August 23, 1888. Gassing yarns. B. A. DOBSON and J. HILL, Kay-street Works, Bolton.

The yarn, after it has been gassed, is wound upon flangeless bobbins or tubes *f* by means of quick traversing guides *e* placed close to the nip of the bobbin *f* and driving drum *g*. The guides are mounted upon a bar, which is traversed by an oscillating lever at one end of the frame. The traverse is varied to make bobbins with conical ends by means of a nut and screw on the oscillating lever, operated automatically by ratchet mechanism. The bobbin is lifted out of contact with the drum by the catch-lever *n*, and by the gears *c* are lowered by the usual arrangements. [8d.]



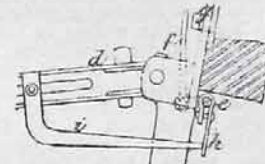
- 12,485. August 30, 1888. Dyeing, scouring, &c. W. BROWN, Ettrick Lodge, Selkirk.

Relates to apparatus for treating fibrous materials, yarns, or fabrics with boiling liquids. Consists of an outer vessel of suitable form, heated by direct fire heat or by a steam jacket, and containing an inner vessel which is perforated with small holes at the bottom portion, and a similar series near the top. In operation a current of boiling liquid ascends between the two vessels and discharges through the upper holes on to the materials, circulation without agitation of the materials being thus effected. [6d. Drawings.]

- 12,506. August 30, 1888. Finishing pile fabrics. S. C. LISTER and J. REIXACH, both of Manningham Mills, Bradford.

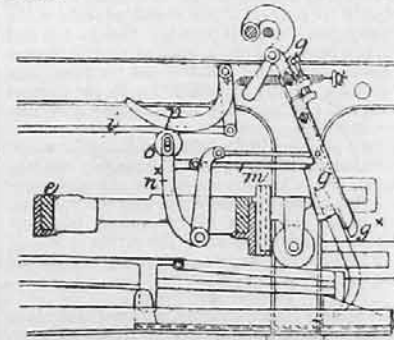
Lacquer or other lustring liquid is applied to the fabric by means of rotary and reciprocating brushes as it is drawn over a tension roller and a curved table by a roller. [11d. Drawings.]

- 12,528. August 31, 1888. Looms. R. HARGREAVES and E. EDGE, Vale Mill, near Todmorden.



Shuttle relief motion.—A lever *i*, bolted to the crank arm *d*, pushes against a projection *h* on the stop-rod *e* just before the picking motion acts. The rod is thus partially rotated, and its finger *f* is removed from the swell *g* to release the shuttle. [6d.]

- 12,591. September 1, 1888. Mules and twiners. R. CURTIS and J. WAIS, Phoenix Works, Manchester.



Backing-off and driving the cam and scroll shafts.—In order that the speed of the backing-off wheel, of the cam shaft or of the scroll shaft may be modified without altering the speed of the others, they are all driven through the same endless band, which is provided with a tension arrangement, the backing-off wheel being driven by a pinion carried by a shaft driven by the band and the scroll shaft through the usual friction driving gear. For stopping the backing-off just before the drawing-in gear comes into action the backing-off rod *i* is connected by a curved lever *p*, bowl *o*, lever *n*², and rod *m*, to an auxiliary sector or lever, *g*² connected to the ordinary lever *g*, but set a little in advance of it.

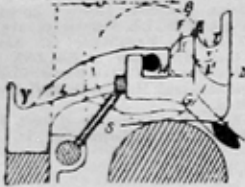
Clutch mechanism.—The sliding part of the clutch-box on the cam shaft is connected to a disc having curved inclined projections which pass through slots in the fixed part and are operated at the proper time by a projection on the balance lever. [11d.]

- 12,611. September 1, 1888. Looms. H. and T.

BURGESS, Congleton, Cheshire, and C. CLAY, Dale-street, Manchester.

Taking-up apparatus.—In looms for bands, tapes, ribbons, and the like the top castle, head-rail, or other part or against which the woven articles pass before leaving the loom, is provided with pivoted spring catches or eccentric pieces c. The ribbons, etc. H are gripped between the catches and their carrying plates D, and may be pulled forward when required, back motion being prevented by the catches. [8]d.]

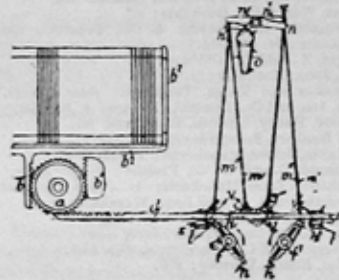
12,617. September 1, 1888. **Spinning and doubling frames.** T. H. FALLOWS, Bullfield Mill, Bolton, Lancashire.



Stopping delivery; cap-bars.—The top rollers B are held in the working position by jaws H carried by a balanced frame G, which is pivoted at F and held in the position shown by the tension of the thread, the front edge K of each jaw taking against a projection L¹ on the frame of the machine. When the yarn breaks, the balanced frame turns on

the centres F and the top roller rolls along the arms L into the recesses Y on arms carried by the cap-bar, the periphery of the roller resting against the cap-bar, which may be slightly hollowed at this part in order that it may make a more efficient brake. When operating on fine yarns, the frames G may be held in the raised position when the machine is stopped by means of fingers S carried by a longitudinal rod, which is operated by hand as desired, and is held with the fingers in the position shown by means of catches. Z are recesses for supporting the top roller when not in use. [8]d.]

12,662. September 3, 1888. **Looms.** J. PARK, Skipton.



Shedding-motion.—The healds c are operated from racks b formed with bifurcated ends b². These racks are worked by pinions a turned by sliding racks d which are slotted for the passage of rods m, m¹, m¹¹, hanging from the setting levers n, n¹, operated by a pattern surface o. When a rod m descends through a rack it is caught by the spring wings h or h¹ of one of two revolving cams e, whereby the rack is moved one way or the other. When the

rods are raised they escape the cams. Springs s¹, s¹¹, s¹¹¹ on the racks catch in bars t, t¹, until operated by projections v on the rods m. Racks b¹ act as counterbalances. By making the rods m to project more or less through the racks, and by inclining the axes f, f¹, the motion of the healds may be varied and the shed equalized. The mechanism may be arranged to operate above the healds.

Change-box motion.—Circular boxes are operated by mechanism similar to the above, the upright rack operating a pinion on the box-shaft, and the motion of the box depending on the distance the rods m project through the racks. A modification is described in which a pin and crown-wheel operated by hooks in place of the racks d, and operating the box by a band and pulleys, is employed. [7]d.]

12,665. September 3, 1888. **Carding engines.** W. MENGER, Peel Spinning & Co., Bury.

Casings and coverings.—The covering over the taker-in is shortened at one end, and an inclined or curved cover is attached to it for guiding on to the feed-table the loose fibre ejected by the air current caused by the rotation of the taker-in. [8]d. Drawings.]

12,672. September 3, 1888. **Knitting.** L. A. GROSS, 3, Tokenhouse Buildings, London.—(G. F. Grosser, Markersdorf, Germany.)

A fabric having two right sides with broken or irregular mesh lines is made on Lamb machines in such a manner that in each row of meshes the formation of "right and right" meshes alternates with the formation of "enlarged pearl" meshes. This is done by employing in one needle plate needles with four working points, and a jacquered apparatus. [8]d. Drawings.]

12,682. September 3, 1888. **Obtaining Fibres.** J. MACTEAR, Victoria Mansions, Westminster.

Vegetable fibrous material is treated with ammonia in the presence of a sodium or potassium solution, aided, if desired, by electrolysis. [6]d. No Drawings.]

TEXTILE MACHINERY, APPLIANCES, &c.—DIRECTORY OF MAKERS.

- Auctioneers**
 - Rushton, Edward, and Son, Blackburn, and Manchester.
 - Salisbury & Hamer, Blackburn and Manchester.
 - Unsworth, Geo., Manchester.
- Belting**
 - Reddaway, F., and Co., Pendleton.
 - Rosendale Belting Co., Manchester.
 - Sampson and Co., Stroud.
- Bobbins, Spools, Shuttles**
 - Kay, John, Rochdale.
 - Livesey, Henry, Limited, Blackburn.
 - Wilson Brothers, Todmorden.
- Calenders**
 - Hoyle, E., and Sons, Limited, Halifax.
- Cement, Mineral Fusible**
 - Fox and Williams, Manchester.
- Chemicals**
 - East Lancashire Chemical Co., Manchester.
 - Grimshaw Bros., Clayton, Manchester.
- Cop-Tubing Apparatus**
 - Jagger and Co., Oldham.
- Gold and Silver Wire**
 - Makinson, E. and W. G., Preston.
- Dust Fuel Furnace**
 - Donkin, B. and Co., London.
- Emery Filleting**
 - Dronfield Brothers, Oldham.
- Engines**
 - Musgrave and Sons, Ltd., Bolton.
- Engineering Work**
 - Bransby Foundry and Engineering Co., London.
 - Hoyle, E., and Sons, Limited, Halifax.
- Fire Hose**
 - Reddaway, F., & Co., Pendleton.
- Heating Engineers**
 - Matthews and Yates, Manchester.
- Humidifiers**
 - Matthews and Yates, Manchester.
 - Scott, E., & Co., Stockport.
- Hydraulic Presses**
 - Hoyle, E., and Sons, Limited, Halifax.
- Hydro-Extractors**
 - Broadbent, Thomas, and Sons, Huddersfield.
- Indicators**
 - Orme, G., and Co., Oldham.
- Jacquard Machinery**
 - McMurdo, James, Manchester.
- Knitting Machinery**
 - Harrison, W., Manchester.
- Lattices, Pegs, Jacquard Slips, &c.**
 - Livesey, Henry, Limited, Blackburn.
 - Stone and Burnett, Preston.
- Looms etc.**
 - Butterworth and Dickinson, Burnley.
 - Dugdale, John, and Sons, Blackburn.

- Hacking and Co., Bury.**
- Hall, Robert, and Sons, Bury.
- Hutchinson, Hollingworth, and Co., Dobcross Oldham.
- Livesey, Henry, Limited, Blackburn.
- Pemberton and Co., Burnley.
- Platt Brothers and Co., Limited, Oldham.
- Schofield and Kirk, Huddersfield.
- Shaw, Wright, Stockport.
- Lubricators**
 - Bradshaw, A., Accrington.
- Machinery (Cotton)**
 - Curtis, Sons and Co., Manchester.
 - Hetherington, John, and Sons, Manchester.
 - Holden, G. H., and Co., Manchester.
 - Horrocks, John, and Son, Manchester.
 - Howard and Bullough, Accrington.
 - Hurst, W., Rochdale.
 - Lees, Asa, and Co., Limited, Oldham.
 - Lord Brothers, Todmorden.
 - Platt Brothers and Co., Limited, Oldham.
 - Stubbs, Joseph, Manchester.
 - Tatham, John, and Sons, Limited, Rochdale.
 - Taylor, Lang and Co., Stalybridge.
- Machinery (Dyeing)**
 - Heppenstall, E., Huddersfield.
- Machinery (Silk)**
 - Curtis, Sons and Co., Manchester.
 - Holden, G. H. and Co., Manchester.
 - Horrocks, John, and Son, Manchester.
 - Platt, Brothers and Co., Limited, Oldham.
 - Stubbs, Joseph, Manchester.
 - Sykes, John, and Sons, Huddersfield.
 - Taylor, Lang and Co., Limited, Stalybridge.
- Machinery (Woolen and Worsted)**
 - Curtis, Sons, and Co., Manchester.
 - Hetherington, John, and Sons, Manchester.
 - Holden, G. H. and Co., Manchester.
 - Horrocks, Jno., and Son, Manchester.
 - Lees, Asa, and Co., Limited, Oldham.
 - Platt Brothers and Co., Limited, Oldham.
 - Stubbs, Joseph, Manchester.
 - Sykes, John, and Sons, Huddersfield.
 - Tatham, John, and Sons, Limited, Rochdale.
 - Taylor, Lang and Co., Stalybridge.
- Oil Cans**
 - Koyle, W., Leigh.
- Oils**
 - Wells, M., and Co., Manchester.
- Patent Agents**
 - Bosshardt, F. & Co., Manchester, Oldham, and Stockport.
 - "Textile Mercury" Patents Dept., Manchester.
- Pickers, Picking Bands, &c.**
 - Greenwood, John, Todmorden.

- Picker Steeper**
 - Green, James, Blackburn.
- Pistons**
 - Lancaster and Tonge, Pendleton.
- Reducing Valves**
 - Bradshaw, A., Accrington.
- Roller Leather**
 - Meredith-Jones, J., and Sons, Wrexham.
- Shuttles**
 - Kay, John, Rochdale.
 - Livesey, Henry, Limited, Blackburn.
 - Pickles, Robert, Burnley.
 - Walton and Halstead, Hebden Bridge.
 - Wilson Brothers, Todmorden.
 - Greenwood, John, Todmorden.
- Sizing and Filling Preparations**
 - Adley, Tolkien, and Co., Blackburn.
 - Eastwood, James, Manchester.
 - "Gloy" Manufacturing Co., London.
 - Grimshaw Brothers, Clayton, Manchester.
- Smoke Consumers**
 - Greaves, W. McG., Manchester.
- Sprinklers, Automatic**
 - Bradshaw, A., Accrington.
- Steam Traps**
 - Bradshaw, A., Accrington.
 - Lancaster and Tonge, Pendleton.
 - Matthews and Yates, Manchester.
- Tambouring Threads, Braids, &c.**
 - Makinson, E. and W. G., Preston.
- Technological Handbooks**
 - Bell, George, and Sons, London.
 - Brooks, C. P., Stalybridge.
- Temples, etc.**
 - Blezard, James, and Sons, Padiham.
- Tools (Machine)**
 - Hetherington, John, and Sons, Manchester.
- Type Writers**
 - Richardson & Co., London and Manchester.
- Valves**
 - Bradshaw, A., Accrington.
- Ventilation**
 - Blackman Ventilating Co., London.
 - Matthews and Yates, Manchester.
 - Rothwell, John, Farnworth.
 - Scott, E., & Co., Stockport.
- Wire, Gold and Silver**
 - Makinson, E. and W. G., Preston.
- Wire Healds**
 - Barlow, H. B., and Co., Cornbrook, Manchester.
- Yarn Assorting Balance**
 - Thomas, G. and Co., Manchester.
- Yarns, Coloured**
 - Makinson, E. and W. G., Preston.
- Yarn Testing, &c. Machine**
 - Wallwork, Henry and Co., Manchester