

NOTICES OF DIVIDENDS.

Taylor Wheelhouse (separate estate), residing and trading at Birkby-lane, near Bailiff Bridge, Yorkshire, and also at Brankholme Works, Bradford-road, Bailiff Bridge, as Taylor and Wheelhouse, tanner, currier, and leather merchant, trading with John Hall, as J. Hall and Co., lately as A. Broadley, and Co., as commission wool combers; 5s. first.

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.

24TH MAY.

- 8,130. J. TATTERSALL, Central Chambers, Halifax. Driving and adjusting the rotation of the top squeezing rollers of sizing machines.*
- 8,133. T. W. HARDING, Globe-road, Leeds. Frames for holding pile and other fabrics.*
- 8,134. E. SYKES and D. SYKES, 3, Commercial-street, Halifax. Machinery for dyeing, scouring, and drying hanks.
- 8,148. J. B. COLEMAN, W. S. COLEMAN, and S. E. COLEMAN, 323, High Holborn, London. Sizing of lace, etc.
- 8,154. H. LIVESY and T. GILL, 6, Bank-street, Manchester. Swells of shuttle-boxes.
- 8,177. W. BERCHOFF, 33, Chancery-lane, London. Pressing, smoothing, and finishing garments or parts of garments, also for pressing woollen or other woven or felted fabrics.
- 8,180. C. V. DE LA ROCHE, 55, Chancery-lane, London. Retting and scouring of textile fibres.

27TH MAY.

- 8,183. J. M. CAMPBELL, 17, St. Ann's-square, Manchester. Colouring, sizing, and otherwise treating paper, and apparatus therefor, also applicable for filling and treating woven fabrics.
- 8,205. R. MCCONNELL, 166, Shanklin-road, Belfast. Wheels for winding yarn into hanks.
- 8,211. A. E. WALKER and T. GREENWOOD, Market-place, Huddersfield. Looms for weaving astracan and other like curled pile fabrics.
- 8,215. J. HALL, 47, Lincoln's Inn-fields, London. Colouring matter.
- 8,221. M. TOQUET, M. BOUARD, and C. H. CRAWLEY, 45, Southampton-buildings, London. Double action jacquard.
- 8,238. J. BELL, 96, Buchanan-street, Glasgow. Dyeing and finishing black stiff goods.
- 8,243. W. R. LAKE, 45, Southampton-buildings, London. Colouring matters. (*Wirth and Co., agents for A. Leonhardt and Co., Germany.*)
- 8,246. C. BANNEK, 22, Southampton-buildings, London. Fashioning machines for attachment to stocking frames.*
- 8,252. W. A. E. HENRICI, 18, Buckingham-street, Strand, London. Ironing machines.*

28TH MAY.

- 8,270. E. and G. E. SUTCLIFFE, 1, St. James's-square, Manchester. Apparatus for washing, dyeing, and treating textiles.
- 8,296. SERRELL AUTOMATIC SILK REELING CO., LD., 46, Lincoln's Inn-fields, London. Preparing cocoons for reeling. (Date applied for under Patents Act, 1883, Sec. 103. 1st April, 1890, being date of application in France.)*
- 8,297. SERRELL AUTOMATIC SILK REELING CO., LD., 46, Lincoln's Inn-fields, London. Beating silk cocoons. (Date applied for under Patents Act, 1883, Sec. 103. 14th Jan., 1890, being date of application in France.)*
- 8,303. J. Y. JOHNSON, 47, Lincoln's Inn-fields, London. Treating alizarin blue for new compounds thereof, and alizarin blue S. (*Badische Anilin and Soda Fabrik, Germany.*)

29TH MAY.

- 8,359. S. HALL, 4, St. Ann's-square, Manchester. Governing motion of looms or twiners.
- 8,367. W. H. HOYLE, 8, Quality-court, London. Machinery for knitting cotton, wool, etc.
- 8,387. J. W. LEECH and H. H. SINKINSON, 9, Old Bank-chambers, Leeds. Machinery for taking threads out of laps.
- 8,389. A. REMY, R. KRAMER, and W. HEBRING, 89, Chancery-lane, London. Colouring matters or dyes.*
- 8,411. B. WILLCOX, 47, Lincoln's Inn-fields, London. Coamaria colouring matters. (*The Farbenfabriken vormals Bayer and Co., Germany.*)

8,430. R. C. ANDERSON, 4, South-street, Finsbury, London. Treatment of cloth and other absorbent materials or surfaces.

8,424. I. HILLAS, Nelson-terrace, Church-street, Morley, near Leeds. Double lift open shed jacquard.

31ST MAY.

- 8,439. J. HURLEY, 8, Quality-court, London. Warp balling machines.
- 8,432. A. PAGET, Radmoor, Loughborough. Warp-weaving machines.
- 8,443. E. FIELDEN, 70, Deansgate, Manchester. Loom brake.
- 8,450. R. INGHAM and J. B. MOORHOUSE, 58, Low-street, Keighley. Coupling the bobbins or spools of drawing, twisting, and like machines to their motors.
- 8,452. E. KNECHT, 73, Little Horton-lane, Bradford. Process for the separation of certain textile fibres from each other.
- 8,475. A. T. LAWSON, F. W. LAWSON, and S. DEAR, 24, Southampton-buildings, London. Preparing, flax, hemp, jute, wool, and other fibres.
- 8,053. W. A. BOOTH, New Bridge-street, Manchester. Sectional warping machines.
- 8,056. W. SIMPSON and S. SMART, 70, Deansgate, Manchester. Selvedges, two or more pieces being woven side by side.
- 8,061. E. W. COOPER, 77, Colmore-row, Birmingham. Holding webbing and other material in looms during the manufacture thereof.
- 8,066. W. SUMMER, G. Bank-street, Manchester. Spindles, and collars or bearings thereof, for preparing, spinning, doubling, twisting, and winding.
- 8,080. S. LEDERER and J. DUCHY, 28, Southampton Buildings, London. Carding machines.*
- 8,090. J. D. PENNOCK and J. A. BRADBURN, 18, Buckingham-street, Strand, London. Manufacturing bleaching powder and caustic soda.*
- 8,094. O. FRITZSCH, 3, Poets' Corner, London. Fabricating bead-ribbon or bead-cordon.

SPECIFICATIONS PUBLISHED.

- 7,695. ERSKINE. Hackling flax, etc. 11d.
 - 8,097. HARTNAD BAYNES. Blowing cotton, etc. 11d.
 - 8,498. WILKE. Looms. 1s. 3d.
 - 8,676. WASSERMANN. Looms. 8d.
 - 9,243. HITCHON. Beaming yarn. 6d.
 - 9,530. DICK. Driving, etc., ropes. 8s.
 - 10,596. SCOTT. Looms. 6d.
 - 10,810. REYNOLDS and REYNOLDS. Crimping textile materials. 6d.
 - 10,906. CORNELI and CORNELI. Embroidering machines. 11d.
 - 10,933. WILGON. (*Farbenfabriken vorm. F. Bayer and Co.*) Tannin compounds. 4d.
 - 11,087. DAWSON. Loom shuttles. 8d.
 - 12,808. BUNTORF. Knitting machines. 11d.
 - 14,751. SMITH. Treating woollen, etc., fabrics. 6s.
 - 15,175. IMRAY (*The Farbwerke vormals Meister, Lucius, and Bruning*). Colouring matters. 6s.
 - 15,176. IMRAY (*The Farbwerke vormals Meister, Lucius, and Bruning*). Colouring matters. 6s.
- 1890.
- 1,702. CRAVEN. Dyeing machines. 8d.
 - 5,047. WRIGHTSON and HOLT. Knitting machines. 11d.
- AMENDED SPECIFICATION.
- 14,424.* JOHNSON (*Farbenfabriken vorm. Fr. Bayer and Co.*) Azo dyes. 6s. REPRINTS (with alterations). 1888.
 - 15,896. CORRIGAN. Winding yarn, etc. 8d.
 - 15,908. DYSON and BLACKBURN. Carding engines. 8d.

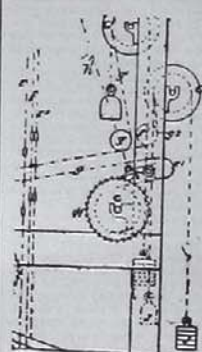
ABSTRACTS OF SPECIFICATIONS.

18,467. Dec. 18, 1888. Pile fabrics. S. HELLIWELL, Leo Mill, Hebden Bridge.



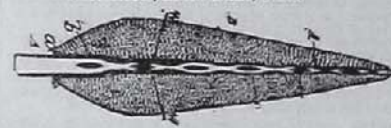
Fasteners, such as cords, Genoes, thicksets, and constitution cloths, are made with elevated checks, squares or other like shapes, on the face of the fabric. To effect this, two or more weft shoots *b* are sent across the loom and are held down by the warp; afterwards a larger number of picks *c* are made, held down at intervals by the warp *a*. When the knife is introduced, as indicated by arrows, the weft *c* on the face is alone cut, forming squares or other rectangular figures. [6d.]

18,497. Dec. 18, 1888. Weaving mats, rugs, etc. W. SHEPHERD, Dundee.



In weaving cut or uncut pile cloth, such as plain or figured rugs, mats, and the like with a border all round of one colour, the yarn used as pile at one time is used for forming ground at another time. In the loom employed the ground warp *g*, the pile warp *g'*, for the centre and end borders of the rug, etc., and the pile warp *g''* for the side borders are respectively let-off from the beams *G, G', G''* and passed through healds *E, E', E''*. The beam *G* is provided with a ratchet wheel *H* and a pawl *A* under the control of the weaver through a string *I*; the beams *G', G''* are provided with drag cords *J*. The warps are guided by rollers *F, F', F''*. When the threads from *G'* or *G''* are not employed in forming pile they are woven with that from *G* to form the ground. The arrangements may be modified. [8d.]

18,517. Dec. 18, 1888. Dyeing, bleaching, etc. H. F. LITTLE, Providence, Rhode Island, U.S.A.



Cop tubes.—Relates to perforated tubes for dyeing, bleaching, and otherwise treating yarns in cops. Consists in forming the tubes *A* with the diameter contracted in the part corresponding to the thickest portion *a* of the cop *B*, in order that the cop may be thoroughly saturated at this part and may not be prevented by shrinkage from easy removal from the tube. A flange *c* is fixed to the tube *A*, and *b* is a cop tube preferably of textile material stiffened with size. [8d.]

18,614. Dec. 20, 1888. Carbonising and drying fibres, etc. J. ILLINOWORTH, Hildings Mill, Whiteley, Yorkshire.

The material is fed into a hopper containing feeding rollers, and passes thence into a slightly inclined rotary chamber, provided with internal prongs or blades, and surrounded by a metallic or brickwork casing. The apparatus may be heated by a fireplace and flues beneath the floor, which may be perforated, or by suitably placed hot air or steam pipes. The carbonizing gases may be admitted at the feeding end of the chamber by a pipe, or at the delivery end through perforations in the sides of the chamber, the gases being admitted to an annular space, surrounding the latter, by means of another pipe; there is a fan for withdrawing the fumes, etc., from the chamber. [8d. Drawings.]

18,625. Dec. 20, 1888. Knitted hosiery goods, etc. G. TEMPERMAN, Whitehall's Factory, Nottingham.

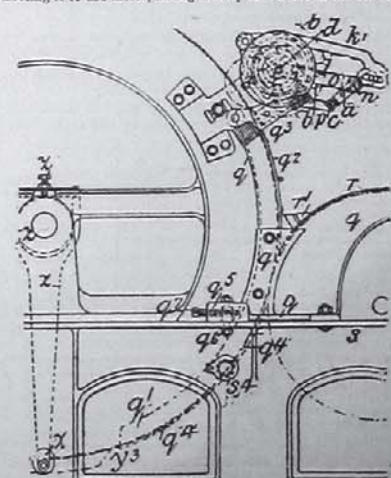
Knitted hosiery goods, shirts, pantaloons, vests, drawers, and like articles made on straight-bar machines, are spliced throughout to the extent of about eight needles from each selvage. For this purpose the traverse of the ordinary splicing thread carriers is regulated by an extra catch or stop, operated by the narrowing tackle at each end of the machine. [6d. Drawings to Specification.]

18,633. Dec. 20, 1888. Drying and ageing fabrics and yarns. T. and T. BARCKOFF, Dover-street, Cleveland, Crompton.

The fabrics or yarns are passed over a series of rotary frames in such a manner as to expose their two sides alternately to the action of the hot or dry air. The frames are preferably rotated by spur gearing, and the air is admitted to their hollow perforated shafts from pipes, to the former of which they are connected by means of stuffing boxes. The air may, however, be supplied by pipes between the series of frames. [6d. Drawings.]

18,668. Dec. 21, 1888. Carding engines. B. A. DOSOOS and W. I. BROMLEY, Kay-street Works, Bolton, Lancashire.

Flats, stripping.—The flats *b* are stripped by an oscillating card *a*, which is itself cleaned by a fixed card *c*. The lever carrying the stripping card *a* is connected by a pin and slot arrangement to a lever *d* and also to a lever *e*, the pin *e*, connecting it to the latter, taking loosely into a slot in the bracket



p, and the lever e engaging with the star wheel shaft d by means of a slot. The levers h, a are operated by cam grooves in a disc j loose on the shaft, and driven at a suitable rate by gearing, the lever carrying the card e being operated in such a manner that when oscillating in one direction the card engages with the teeth in the card flats, but moves clear of the card e, and when oscillating in the other direction, it engages with the fixed card e, but moves clear of the flats.

Frame-work, casings, and covers.—Upon each side of the carding engine is fitted an adjustable frame g, which carries the doffer cover r, and has attached to it, or formed in one piece with it, a segment q₁, the upper part of which supports the ordinary door or lap-piece q₂, to which is secured the front fly-plate q₃. The segment q₁ is preferably continued below for supporting the undercasing, which may consist of one or more steel, etc., blades q₄, concentric with the wire surface. The doffer may also be provided with an undercasing in a similar manner. Below the filling-up piece r₁ is secured to the frame g a small piece of metal, which extends to the points of the teeth, preventing the passage of air between the cylinder and doffer at the edges. The whole of these parts are adjusted simultaneously by means of a differential screw q₇, which engages with a hollow box q₅ on the frame g, and also with an eye-belt q₆ securing the said box to the frame e. The fly-plate q₃ and undercasing q₄ may be provided with additional adjustments if desired. In a similar manner the taker-in, the "back-knives," the taker-in knives, and the undercasing of the main cylinder may be adjusted simultaneously. The front part of the undercasing q₃ is preferably provided with a separate adjustment, which may consist of a bracket s hanging from the cylinder bearing, and adjustable longitudinally, either by means of a screw z, or of a suitable slide near the end of the bracket; other methods of adjustment are described in the Specification. S₄ are removable stop-pieces for closing apertures through which a gauge may be passed for testing the adjustment of the casing.

Lifters and take-offs.—The setting apparatus above described may also be applied to the pedestals of the doffer and taker-in. **Cylinders.**—The ends of the cylinder are recessed, and the bearings are extended so as to project equally on each side of the body of the under framing, and the weight of the cylinder is over the centre body of the main framing. [Is. 2d.]

18,769. Dec. 21, 1888. **Dyeing.** E. EDWARDS, 85, Southampton Buildings, London. (Standard Brothers; Homan, Belgium.)

Relates to a process for dyeing blue, to be used instead of indigo dyeing, on cotton, thread, or cloth. Consists in first boiling the material in a bath of logwood extract and soda salt. When cold, the material is placed in a cold bath of sulphate of iron. After rinsing and wringing, it is heated again in the first bath, wrung out, placed in a bath of soap and soda salt, and then immersed in a bath of sulphate of soda and a colouring matter, such as aniline blue. Finally it is rinsed, wrung out, and dried. [4d. No Drawings.]

18,777. Dec. 21, 1888. **Mordant.** E. O. FANKHAUSER, Burgdorf, Switzerland.

Relates to a mordant for enabling the direct dyeing of cotton, silk, wool, and other materials to be effected without previous boiling. The compound is prepared by treating castor oil with 20 per cent. of its weight of sulphuric acid, neutralizing with soda, and adding, when cool, a previously boiled mixture of 7 per cent. of sumac extract and 20 per cent. of olein soap. [4d.]

18,730. Dec. 22, 1888. **Looms.** C. HAILLO, C. E. LIENBERG, and T. HASSON, Mill-street, Bradford.

Temple.—A number of toothed segment plates are mounted to slide to and fro longitudinally upon the temple spindle. The motion is set up, as the cloth passes over the temple, by pins E on the plates working in a cam groove D on the spindle. [6d.]

18,794. Dec. 22, 1888. **Velvets.** S. C. LISTER and J. REINACH, Manningham Mills, Bradford.

Velvets are woven as double pile fabrics with each pile warp e held by a single pick of welt c between two upper and two lower ground warp threads b. The fabrics may be woven in a double or a single shuttle loom, fast selvages being produced in the latter case by passing the shuttle three times between the warps of one fabric before passing it into those of the other or by combinations of passing it three at one time and one at the next, and so on. The fabrics are steamed and then dyed, and finally sized on the back if desired; or the pile warp is dyed before weaving, and the fabric is gummed or stiffened on the back, after first steaming in some cases. For steaming, the fabric is held by its selvage on hooks upon a carriage which is placed in a hermetically closed oven filled with steam under pressure. [8d.]

18,737. Dec. 22, 1888. **Ring spinning, etc.** A. BARLOW, 63, Cambridge-street, and J. LEACH, Railway View, both in Oldham.

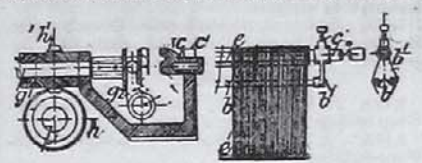
Bobbins.—The lower end of the bobbins is strengthened, etc., by means of a rim or head. [6d. Drawings.]

18,776. Dec. 22, 1888. **Dyeing.** F. HADDAN, 18, Buckingham-street, Strand, London. (E. Siscoire; Tourcoin, France.)

Hank machines.—The skeins are mounted on longitudinally ribbed rollers a, running loosely upon shafts c, to which are fixed brackets d₁, carrying two rods i within the skin for the purpose of shifting the skeins on the rollers as the shafts c rotate. These shafts are primarily supported on bars H of a frame carried by vertical racks G which gear with pinions H on a shaft I mounted in frame X surrounding the vat. The two shafts I are connected by a cross shaft and bevel wheels V, and one of them is continued to carry a

worm-wheel K operated by a worm K, the shaft of which is driven by means of pinions N, M, and N', mounted on a lever W, which can be moved by a hand-wheel W' to throw M or

N into gear with an internally toothed wheel O on the main shaft. By these devices the shafts c can be raised from or lowered into the vat. When lowered they drop into notches c₁ in rails at the sides of the vat, and are thrown by simultaneously operated clutches q₂ into gear with short shafts q₁ which carry worm-wheels s₁ gearing with alternately right and left handed worms h on a shaft l. The latter shafts l are driven from the main driving shafts by bevel-wheels and a clutch which automatically at intervals reverses the direction of rotation. The skeins and the shafts c may be carried to and from the machine from a traveller running on rails at the side of the vat. This traveller carries also devices for securing the lower rods e₁ and keeping the skeins stretched, although the latter may be of various lengths. [9d.]



18,780. Dec. 22, 1888. **Dyeing.** H. RECKER, 20, Markt, Zittau, Saxony.

Aniline black dyeing.—Consists in a process and apparatus for dyeing cotton yarn warps. The threads are passed from the warp beams over guide rollers in a steam-heated boiler, thence over guide rollers in the first bath, containing aniline hydrochlorate, excess of which is removed by squeezing rollers, and thence the threads pass round a guide roller in the second bath, so as to be immersed for a very short time in a solution of chromate of potassium. Before any chemical action is effected by the latter the threads pass into a tower, containing a large number of guide-rollers, about which passes upwards a current of air heated by steam pipes. The tower is provided with transparent sides to enable the progress of the oxidizing process to be observed. On leaving the lower the threads are washed, dressed, dried, and beamed in the usual manner. [8d. Drawings.]

18,801. Dec. 24, 1888. **Looms.** J. MORRISON, Kirkton Forfar, N.B.

Let-off motion.—An adjustable frictional appliance is interposed between the warp beam, or a part fixed thereon, and a ratchet-toothed or other ring which is stationary whilst the loom is working. [6d. Drawings.]

18,806. Dec. 24, 1888. **Packing surgeons' tow, etc.** W. STURTEAD, 81, Market Hall, Southport.

Surgeons' tow and other like material, is made into rolls by winding it to and fro on a spindle, and applying pressure by means of a roller or other means. [6d. Drawings.]

18,847. Dec. 24, 1888. **Looms.** H. THELFORTH LAER, near Muenster, Westphalia, Germany.

Jacquard apparatus for looms for bordered and other goods. The needles of pass in groups through a series of perforated needle boards or dividing plates G, worked up and down through levers J by a set of tappet chains I. A cylinder F formed with upper and lower rows of selecting holes e, e₁ is carried by a rocking arm E, and is turned by a catch in the usual way. The needles which come opposite the holes of the cylinder enter the same, and allow their corresponding lifting hooks f to be caught by the rising knife C, whilst the others sink into the holes of the beam D. The knife C and beam D move up and down oppositely about end pivots. The chain roller is driven one way or the other from the cylinder E, the direction being determined by the action of a tappet chain (not shown) tappet chain (not shown)

on a pin wheel on the shaft E driven from the cylinder F, which pin wheel is shifted to engage either with a star wheel on the shaft A, or with a star wheel on the shaft e geared to the latter. The roller c of the tappet chain is driven from the shaft E through pin and star wheel mechanism, the pin wheel being shifted in and out of action by another tappet chain on the shaft A. [11d.]

18,863. Dec. 27, 1888. **Looms.** A. SOWERS, Springfield House, Baildon, Yorkshire.

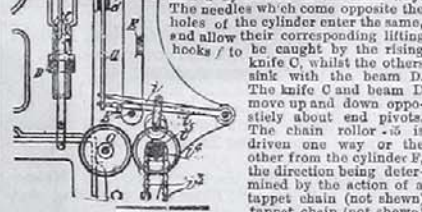
Dobbies.—The cylinder shaft carries two catch wheels 6, 6, operated by pull and push catches 4, 8. The latter are carried and operated by a broken-backed lever 2, connected by a rod 9 with the rocking lever of the dobbie, and are put in and out of gear with their respective wheels by cord connections 11 with a spring lever 12 pivoted to the lever 2. The cylinder may thus be turned either way as required. Instead of the broken-backed lever, a concentrating rod may, by means of springs, be made available to protect the dobbie from injury in event of fouling. [8d.]

18,890. Dec. 27, 1888. **Ropes and cords.** G. L. BROWNELL, Worcester, Massachusetts, U.S.A.

Machine for making.—Detailed particulars are given of the entire machine. [8d. Drawings.]

18,894. Dec. 27, 1888. **Dyeing.** J. COWAN, 129, Ren-feld-street, Glasgow.

Relates to an indigo dyeing compound and processes for dyeing therewith. The indigo compound is prepared in the dry form by intimately mixing pure commercial indigo with an equal weight of zinc oxide or zinc powder, and smaller proportions of West Indian or other sugar and potassium carbonate, or an equivalent of the latter, such as potassium bicarbonate, or oxide, or sodium carbonate, bicarbonate, oxide, nitrate, or borate, or soda ash. A dyebath is prepared by mixing this preparation with an equal weight of bisulphite of soda, and then boiling up with water. A liquid preparation is made in the same manner as the dry compound, an equal weight of liquid bisulphite of



soda, and water in quantity according to the concentration required, being added. In the Provisional Specification sulphuric acid is also added, but this is unnecessary, except when the solution becomes deficient in sulphurous acid.

In dyeing with these preparations no lime is used, and consequently no time is lost in setting. A higher temperature may also be employed. The bath, when prepared as above described, is boiled up and allowed to settle for a few minutes, and is then ready for use. Unspun wool is put into a bath at 180° F., and the temperature may then be increased to 200° F., for woollen yarns or piece goods, a bath at 150°-170° F. is employed at first, and this is subsequently, in the case of piece goods, raised to just off-boil. Silk dyeing is effected in a more concentrated bath at about 150° F. Cotton warps and yarns are dyed in a single bath, a high temperature being employed. [6d.]

18,920. Dec. 28, 1888. **Spinning, twisting, winding, etc., machines.** J. and T. A. BORN, Shettleston Iron Works, Glasgow.

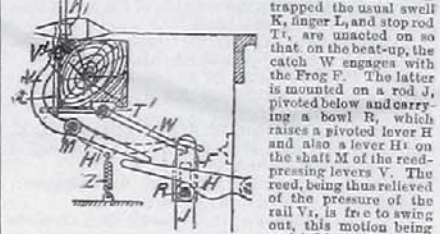
Relates more particularly to machines of the kind described in the Specification No. 2,819, A.D. 1883, and No. 15,171, A.D. 1884. [8d. Drawings.]

18,940. Dec. 28, 1888. **Looms.** W. L. WISS, 46, Lincoln's Inn Fields, London. (H. Joss; Heidenheim-on-the-Brenz, Germany.)

Shuttle-guard.—The guard consists of one or more safety bars, mounted in or on guides or slides attached to the lay. The bars may be put up out of the way, from which they fall into position when the loom is setting. [6d. Drawings.]

18,949. Dec. 28, 1888. **Looms.** L. POVEL, Nordhorn Germany.

Loose reed motion.—When the shuttle is trapped the usual swell K, finger L, and stop rod R, are unacted on so that on the next top, the catch W engages with the Frog F. The latter is mounted on a rod J, pivoted below and carrying a bowl R, which raises a pivoted lever H, and also a lever H₁ on the shaft M of the reed-pressing levers V. The reed, being thus relieved of the pressure of the rail V, is free to swing out, its motion being assisted by hooks on the



said rail. The reed may be held fast when in its forward position by the usual parts (shown in dotted lines), or these may be dispensed with if the spring Z be attached to the lever H. In a modification the lever H and bowl R are respectively replaced by a fixed stop and a pivoted lever. The application of the invention to looms in which the reed is released at the top only, or at both top and bottom, so as to fall right out of its case, is described. [Is. 2d.]

19,987. Dec. 29, 1888. **Washing, bleaching, etc.** J. POLLARD, Newton Bank Print Works, Hyde.

Beaters.—Relates to beaters for use in washing, scouring, bleaching, dyeing, and similarly treating textile fabrics. Each beater F consists of a shaft to which are fixed discs or spider wheels carrying four or other suitable number of blades of formed with scoop-shaped edge. A convenient number of such beaters are mounted in a tank so as to be partly immersed in the liquid, and to strike upon and simultaneously dash the liquid against the fabric as it is carried over them. The beaters are geared together by pinions, and driven by suitable means from the main shaft. They are mounted also so that the blades on one beater come opposite the spaces on the adjacent beaters. [6d. Drawings.]

19,051. Dec. 31, 1888. **Looms.** B. J. B. MILLS, 23, Southampton Buildings, London. (H. Berger; Lyons, France.)

Change-box motion.—The drop box A, on each side of the loom is raised to its full height by a rod E operated through a rock shaft from a jacquard hook. On being allowed to fall its position of rest is determined by the bar Q of the lay, or by one of the stops I, M, which are carried and set by levers o, p, operated through separate rock shafts from jacquard hooks. The two boxes move together. **Picking Motion.**—The picking sticks Z, hanging from the lay and passing through the pickers A, are operated simultaneously by connection with cam worked levers. [6d.]

19,052. Dec. 31, 1888. **Embroidering.** J. WITTEK, 433, Strand, London. (B. Bittenger and Co.; St. Gall, Switzerland.)

Relates to embroidering machines having horizontal rows of hook-needles, and work frames movable in a vertical plane. [8d. Drawings.]

16. Jan. 1, 1889. **Nitro and amido phenols.** A. DENIGER, 21, Hohestrass, Dresden, Saxony.

Relates to the preparation of nitro and amido phenols from the corresponding amides. Consists in acting upon salts of amines in acid solution with nitrous acid. Sufficient nitrous acid in the free state or as nitrite of soda, is added slowly to aniline sulphate, for example, to convert it into the corresponding diazo compound. More nitrous acid is then quickly added, and the mixture is rapidly heated to 70° C., concentrated sulphuric acid having been previously run in. Orthonitrophenol is thus produced. In a similar manner, if toluene is employed instead of aniline, orthonitrotoluene is produced, or the reaction is carried out at the ordinary temperature, paranitro compounds are obtained. In a similar manner, nitronaphthols are obtained from naphthylamine, and dinitrophenol and dinitrotoluene from benzidine and tolidine. The corresponding amidophenols are obtained by reducing the nitrophenols with sulphuretted hydrogen, or with tin and hydrochloric acid. [6d.]

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