

2 Sheets: Sheet 1.

Patented. Sep. 26. 1865.

Fig. 1.

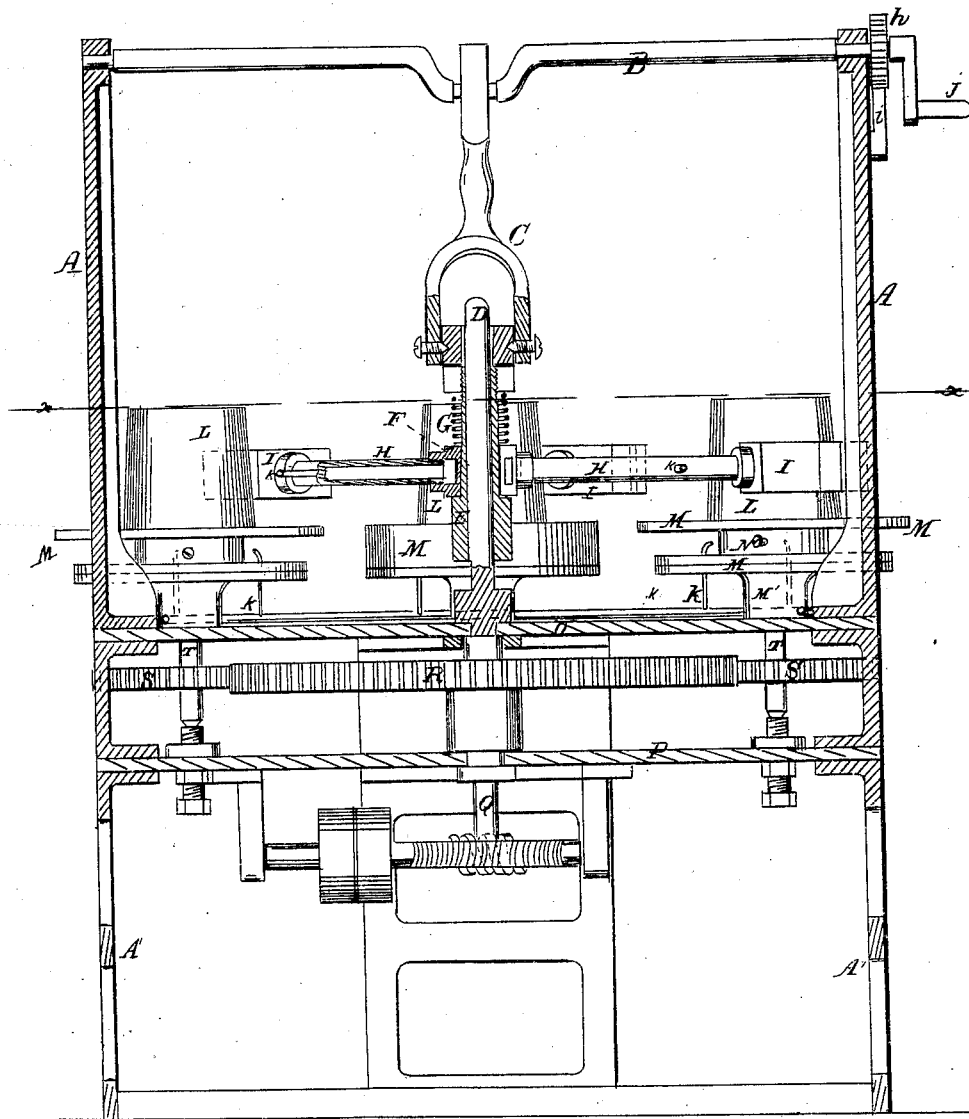
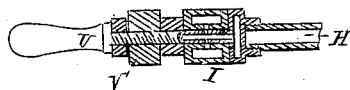


Fig. 2.



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Roche & Stewart,
Ironing Hats.

2 Sheets, Sheet, 2d

No. 50,165.

Patented, Sep. 26, 1865.

Fig. 3.

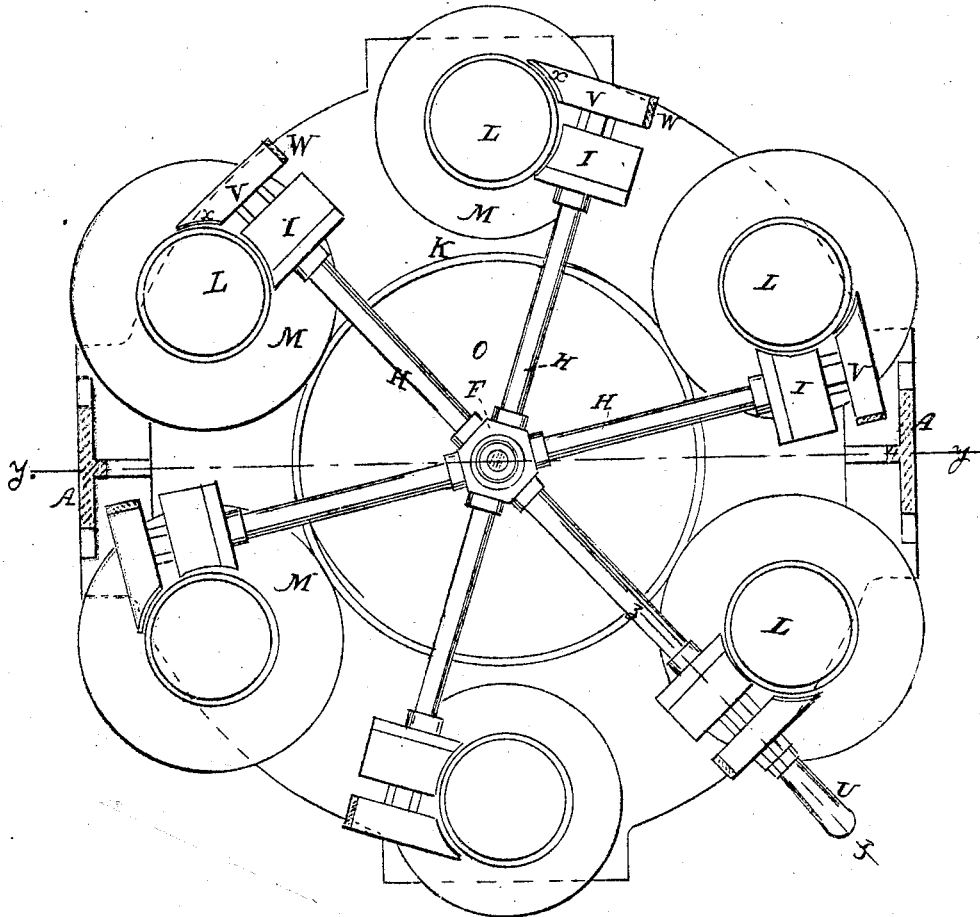


Fig. 4.

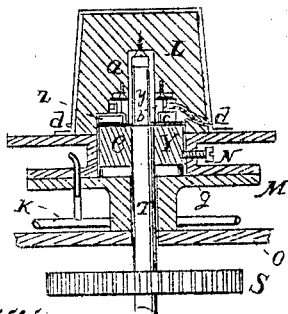


Fig. 5.

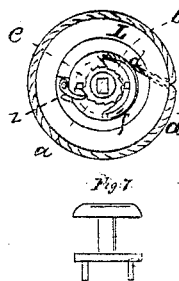
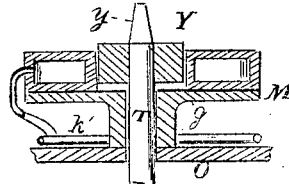


Fig. 7.

Fig. 6.



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IMPROVEMENT IN APPARATUS FOR FINISHING HATS.

Specification forming part of Letters Patent No. 50,165, dated September 26, 1865.

To all whom it may concern:

Be it known that we, J. A. ROCHE and J. J. STEWART, of Williamsburg, in the county of Kings and State of New York, have invented a new and useful Improvement in Machines for Finishing Hats; and we do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is an elevation of an axial section of a machine made according to our invention, the plane of section being seen at *y*, Fig. 3. Fig. 2 is a detailed sectional view of one of the irons and its appurtenances, the plane of section being seen at *z*, Fig. 3. Fig. 3 is a plan of a section taken on the line *x* in Fig. 1. Fig. 4 is an axial section of one of the tables with a block thereon. Fig. 5 is a plan of the under side of a block. Fig. 6 is a section of one of the tables, to show how it may be heated by steam. Fig. 7 represents a wrench for operating the pulley of the hat-block.

This invention consists in new and improved machinery and devices for finishing hats, whereby much of the manual labor now required is performed by mechanical means.

The hat-blocks are set on spindles arranged around a common center with the irons, the arms of the irons being hollow. The hat-blocks have pulleys set centrally in their bases to operate the cord which binds the hat on the block. The cord is double and passes from the pulley through one side of the block at its base, and the hat is perforated near its brim to let the cord pass through, the cord being then divided or opened into a loop which is stretched over the hat, and the pulley is then wound up by a wrench, a ratchet on the hub of the pulley being engaged by a detent in order to keep the pulley from running back.

The arms on which the irons are mounted all belong to one system, and are capable of vertical motion on their axes; and they are so mounted on their axes as to be capable of yielding in an upward direction when passing over an uneven surface below them, as when going over a crooked brim. Each iron is hollow and is capable of revolving on its arm. Beyond the irons on each arm is a "lurer,"

capable of turning on its arm, and which has at one side a sponge for wetting the hat and at the other an elastic or flexible or other rubbing surface.

The frame of the machine is supported by legs *A'*, and has standards *A A*, whose tops carry a shaft, *B*, which is bent to form a crank at the middle of its length. A link, *C*, is suspended from this crank, and the lower end of the link is forked, to embrace the top of the hollow axis *E* of the ironing-arms *H*, to which hollow axis it is fastened by set-screws. This hollow axis *E* is free to slide vertically on the spindle *D*, which rises from the circular bed *O* of the frame.

F is a hollow hub placed loosely on the hollow axis *E*, and free to be moved vertically thereon, and it is held down to its lowest place thereon by a spiral spring, *G*, surrounding the axis *E*. From this hub *F* extend several hollow radial arms, *H*, six being shown in this example, near whose ends are mounted hollow irons *I* and lurers *V*, one of the arms being also provided at its extremity with a handle, *U*, by means of which the arms *H* are moved horizontally to and fro to bring the irons and lurers up to and away from the blocks *L*.

Q is a vertical shaft beneath and in line with the spindle *D*. It is supported on the lower bed, *P*, of the frame or in any other suitable way, and carries near its upper end a horizontal gear-wheel, *R*, its said upper end rotating in a box secured to the lower side of the bed *O*. The shaft *Q* is turned by means of a gear-wheel on its lower end, which is engaged by a worm on a horizontal shaft supported, in this example, by hanging bearings, on which shaft is a fast and a loose pulley, as shown in Fig. 1. Cone-pulleys may be substituted for these, if desired.

The blocks *L* are mounted above the tables *M* upon spindles *T*, which pass centrally through said tables. Said spindles are enlarged at the place where they emerge above the tables, as at *Y*, and their upper ends, *y*, are made oblong with straight sides and fit in oblong sockets *a* made in the hat-blocks. (See Fig. 4.) The bases of the blocks have circular depressions *f*, to receive the upper part of the enlargements *Y*, which, as seen in Figs. 4 and 6, rise above the surfaces of the tables *M*. The

tables M are circular in plan view, and have central hubs, *g*, whose bases rest on the bed O.

The tables can be connected to the spindles T by means of set-screws N, one of which is seen in Fig. 4, or they can be left independent of the spindles, in which case they remain motionless on the bed O. The tables are made hollow, so that they can be heated by means of steam-pipes K' or by means of gas-pipes K. In the base of each hat-block is a pulley, *b*, fitted to run on the upper end of the socket-piece *a*, which is rounded for that purpose. The upper side of the pulley has a hub, on which is formed a series of ratchet-teeth, *e*, that are engaged by a detent, Z, which is pivoted in the bottom of the depression *f* at one side of the pulley and far enough above the level of its rim to clear the cord *d*. This cord is wound upon the pulley, and issues thence through a perforation made in the side of the block, and is used to fasten to the block the hat to be finished by making a perforation in the side of the hat at a point corresponding and opposite to the perforation in the block and passing the cord through the same to the outside of the hat, where it is opened out in the form of a loop, the cord being wound double on the pulley for that purpose, and stretched around the body of the hat. The pulley is then wound up to tighten the cord by means of a wrench like that seen in Fig. 7, or by any other suitable device, holes *c c* being made in the exposed side of the pulley on opposite sides of its axis to receive the forks of the wrench. The pulley is wound up until the cord is strained around the hat sufficiently tight, the detent the meanwhile engaging the ratchet *e* and holding the pulley till the hat is finished.

The detent may be held up to its work by a spring, if desired.

The spindles T are placed in the machine at equal distances apart and at equal distances from the common center of the machine, and each has a gear-wheel on it which engages with the large gear-wheel R. Consequently the spindles T are revolved at the same time and speed and in the same direction when power is applied to the machine.

Each of the irons I has one of its ends curved to fit the convexity of the hat-block, its under side, next to the table M, being plain or curved, so that it may be used to iron the brim. The table M has also a surface of the proper character to act on that side of the brim lying on it. The said irons are hollow, and their interior spaces are made to communicate with the hollow spaces of their arms, so that steam may be circulated in them for the purpose of heating them, as is shown in Fig. 2, or gas may be supplied to them by means of a gas-pipe, K, which shall penetrate each of the arms H, the gas being burned by means of proper burners fixed within the irons, and the interior spaces of the irons being then prepared in any suitable manner to admit of this manner of heating them.

Beyond the irons on each arm we place a lurer, V, whose office it is to supply moisture to the hat during the process of finishing, and also to brush and smooth it after the iron. For this purpose the lurers are made capable of turning on the arms H, and one end is supplied with a sponge or other suitable material which will hold water or other suitable liquid, and the other end is curved to fit the contour of the hat, and is supplied with a suitable rubbing-surface, which should be, by preference, elastic, and may be of cloth padded behind, or made in any other way suitable for a lurer.

The irons are also made capable of turning on their arms, so that they may be inclined at any desired angle, whereby they can be made to iron hats with curved bodies or bell-crowned. In this example we have shown both irons and lurers so placed on their arms as that each has to be rotated separately; but they can be turned simultaneously, if desired, by connecting them together so as to be under the control of the same lever—that is to say, the irons may be connected so as to be inclined by a common lever, and the lurers may be operated and turned by another lever.

When the brim of a hat which is being ironed is not a plane surface the irons are free to yield to the unevenness of its surface by reason of the yielding pressure bearing on the hub of the arms H, and when brims of such a character are to be placed on the blocks the upper surface of the tables M should be changed to conform to them.

On one end of the shaft B is a crank, *j*, on a wheel, by means of which it is turned so as to control the movements of the irons and lurers. The shaft B has also a ratchet-wheel keyed on it, which is engaged by a detent, *i*, to hold the irons at any desired elevation. The crank on the shaft B is of such a length as to allow the irons to be brought up above the level of the hats on the blocks, and when in operating the machine they are brought over the hats the workman, by means of the crank *j* or by means of a wheel or other equivalent device, suffers them to rest on their crowns with such part of their whole weight as will be suitable and proper, in the meanwhile with his other hand directing the said irons by means of the handle U. The irons are next brought alongside the hats, which, during the whole operation, are to be revolved through the agency of the central shaft, Q, as above stated.

When it is desired, as in ironing hats with curved brims or with brims whose lower surfaces are not to be ironed, to prevent their brims from being rubbed over the tables M, the latter are made to revolve with the hat-blocks by connecting them to the spindles T by means of set-screws N.

Several machines can be connected and operated together by extending the shaft B to a length sufficient to carry one or more additional series of irons and lurers, and the irons of the several machines or their arms H can be connected to each other, so that when one set

is moved its motion will be imparted to the other.

The parts *y* of the spindle are oblong, and are each arranged so that each is in the same relative position with the others to the iron which belongs to its appropriate block, whence it follows that the blocks will each be placed in the same relative position on their spindles, so that radial lines projected from the center of the machine will cut each block at the same place. It results from this that the operations of the machine will be uniform for each block and each iron and lurer. The hole made in the side of the hat for the passage of the cord *d* is to be only of sufficient diameter to receive the cord, and such hole does not mar the beauty nor injure the quality of the hat, because it is concealed from view by the hat-band.

Instead of a cord we may use a wire of flexible character. This machine may be adapted for pouncing hat-bodies by substituting for the irons and lurers blocks whose concave faces are clothed with emory or its equivalent, the shape of the hat-blocks being made to conform to the shape of the bodies to be formed.

We claim as new and desire to secure by Letters Patent—

1. In hat-finishing machines, the combination, on the same arm, of an iron and a lurer, substantially as described.

2. Hanging the irons from a hollow shaft, *H*, substantially as described, so that the whole series of irons can be raised and lowered by means of the crank-shaft *B*.

3. Applying a yielding pressure on the hub *F*, so that the irons are free to move upward when passing over an uneven surface, substantially as shown.

4. Arranging and operating a series of hat-blocks and a series of irons around a common center, substantially as shown.

5. The combination, substantially as shown, of the spindles *T* (one or more) with the hat-blocks *L* (one or more) and the pawl and ratchet, the same being constructed and operated substantially as shown.

6. Placing a pulley in the base of a hat-block for tightening the cord which fastens the hat on the block, substantially as shown.

7. In hat-blocks, passing a cord through its side or sides for the purpose of holding the hat thereon during the ironing process, substantially as described.

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