R. Fitzgerald.

Forming Bats.

No. 26395 Patented Dec. 6, 1859.

Fig. 1.

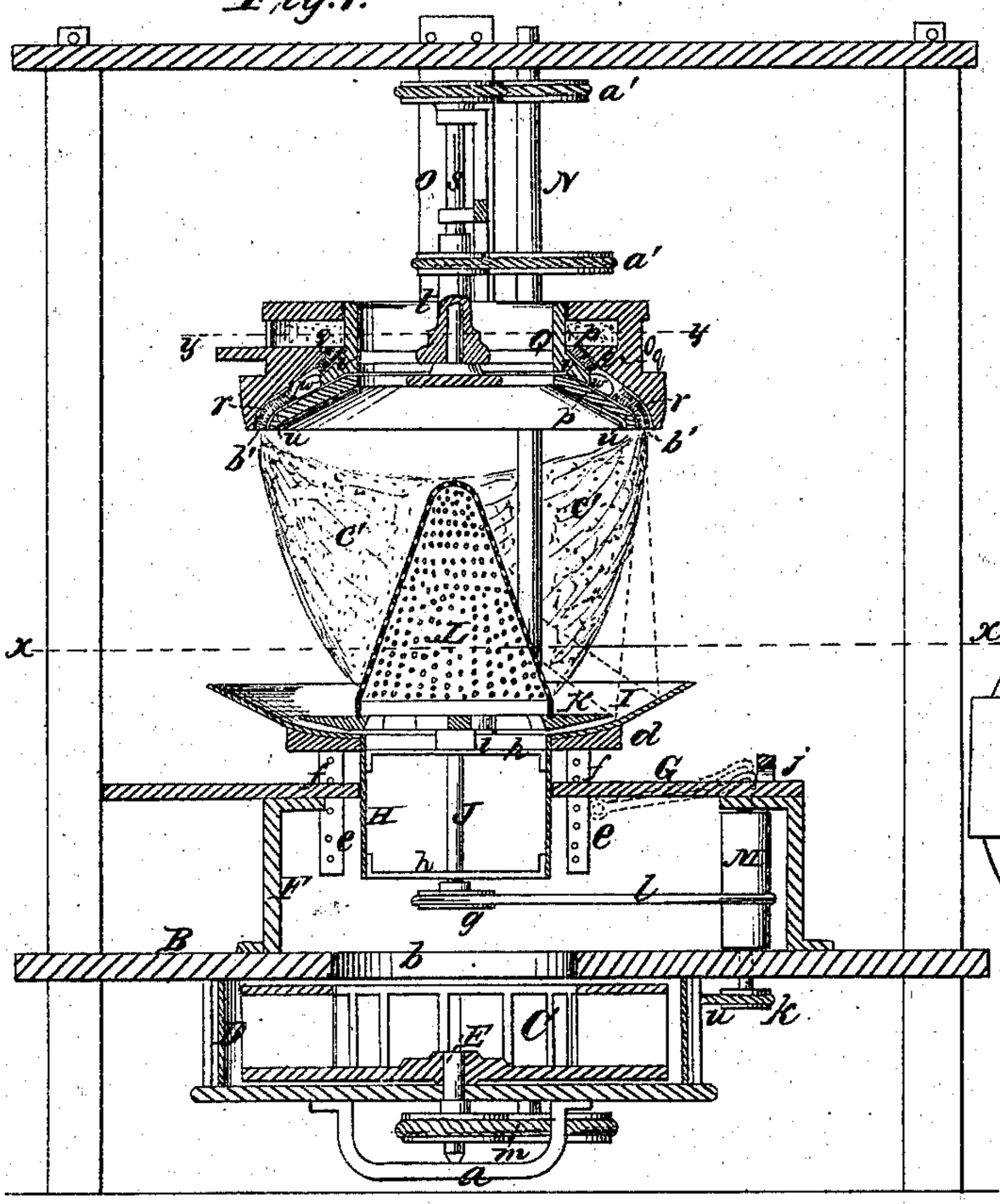


Fig. 3.

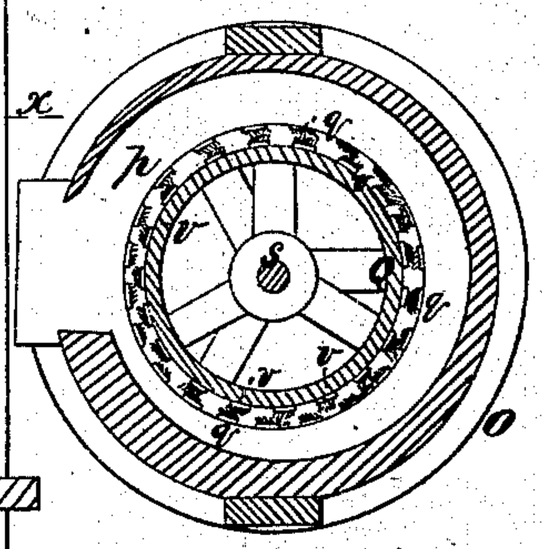


Fig. 4.

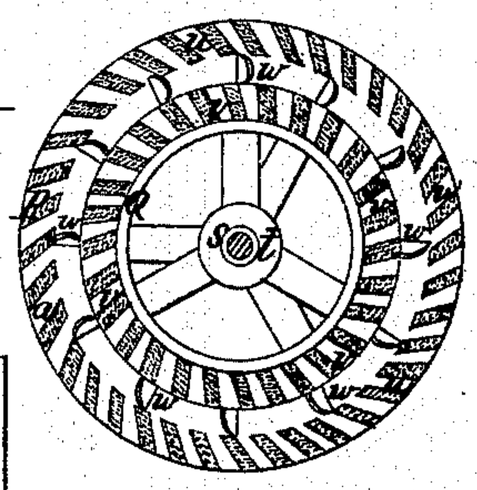
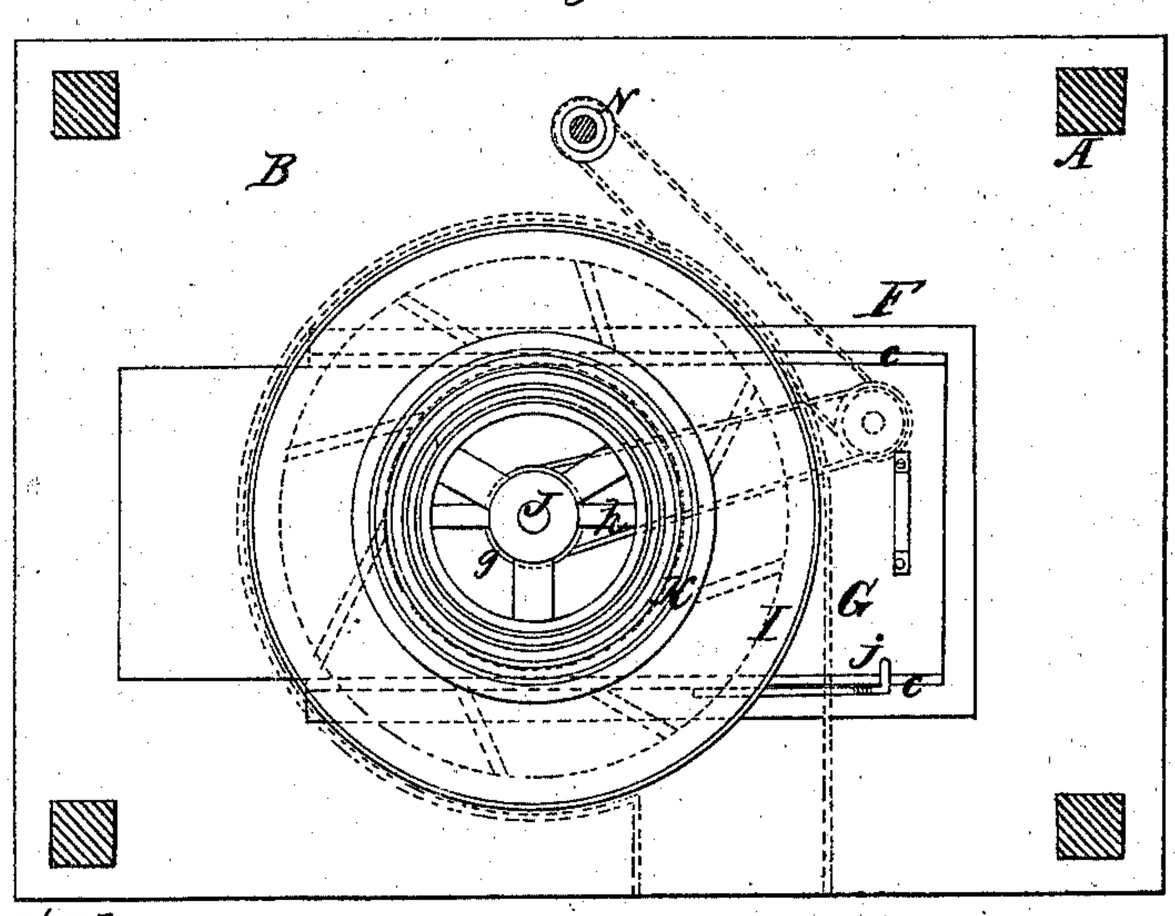


Fig. 2.



Witnesses.

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UNITED STATES PATENT OFFICE.

R. FITZGERALD, OF NEWARK, NEW JERSEY, ASSIGNOR TO JAS. BOOTH, OF SAME PLACE.

MACHINE FOR FORMING HAT-BODIES.

Specification of Letters Patent No. 26,395, dated December 6, 1859.

To all whom it may concern:

Be it known that I, RICHARD FITZGERALD, of Newark, in the county of Essex and State of New Jersey, have invented a new and Improved Machine for Forming Hat-Bodies; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1, is a vertical central section of my invention. Fig. 2, is a horizontal section of ditto taken in the line *x*, *x*, Fig. 1. Fig. 3, is a horizontal section of ditto, taken in the line *y*, *y*, Fig. 1. Fig. 4, is a detached plan or top view of the revolving cards and fan.

Similar letters of reference indicate corresponding parts in the several figures.

This invention consists in a novel way of distributing and presenting the fur to the former, substantially as hereinafter described, whereby the fur is deposited on the former with a very even graduation and by a very simple means.

The invention also consists in a peculiar arrangement of the driving mechanism of the former, its suction chamber and slide, whereby the former may be drawn from its working position and its rotation automatically stopped for the removal of the formed body, and shoved back again in working position and automatically set in motion to receive the fur for the formation of the succeeding body.

The invention further consists in the employment or use of revolving cards or pickers placed within a stationary and co-centric shell also provided with cards or pickers and used if necessary in connection with fan-blades or wings for properly disintegrating the fur or loosening its fiber and discharging the same over and around the former.

To enable those skilled in the art to fully understand and construct my invention I will proceed to describe it.

A, represents a framing which may be constructed in any suitable way to support the working parts of the device.

B, is a flooring underneath which a rotary suction fan C, is placed, said fan being fitted within a suitable case or box D, provided with a discharge spout. The fan C, may be constructed in any of the known or most approved ways; it is placed on a vertical axis E, which is stepped at *a*, as shown clearly in Fig. 1.

In the flooring B, a circular opening *b*, is made co-centric with the fan C, and over this opening a box E, is placed which is provided with a slide G, at its top. This slide G, is fitted and allowed to slide freely between guides *c*, *c*, at each side of the box, and in the slide at about its center a vertical tube or pipe H, is fitted snugly but still allowed to work freely up and down therein. To the upper end of the tube or pipe H, a circular dish-shaped hopper I, is attached, and to the under side of this hopper an annular bearing piece or bed *d*, is secured, said bed having four pendent guide bars *e*, attached, which bars pass through the slide G, are perforated and secured at any desired height within the range of their movement by pins *f*.

Within the tube or pipe H, a vertical shaft J, is placed centrally, the lower end of said shaft having a pulley *g*, attached to it, the shaft being supported on its upper guide or bearing *h*, by a collar *i*, the lower guide *h*, of the shaft being at the lower end of the tube or pipe. To the upper end of the shaft J, an annular bed K, is attached. This bed is just over the bottom of the hopper I, but not in contact with it. This bed K, supports the former L, which may be constructed of wire cloth or perforated metal plate and in the usual conical form. To one side of the box F, a catch *j*, is secured. This catch may be simply a hook so arranged as to catch into a hole in the slide and keep the latter in proper position, as shown more particularly in Fig. 2. On the flooring B, and within the box F, a vertical drum M, is placed, as shown clearly in Fig. 1. The shaft of this drum extends below the flooring B, and has a pulley *k*, placed on it. Around the drum M, and pulley *g*, of the shaft J, an elastic belt *l*, passes. The fan C, and shaft J, are driven from a vertical shaft N, the fan being driven direct by means of a belt *m*, and the shaft J, driven through the medium of the drum M, and elastic belt *l*, the drum receiving its motion from the shaft N, by a belt *u* which passes around the pulley *k*.

In the upper part of the framing A, there are two pendants *o*, *o*, to the lower ends of which a conical shell O, is attached. This shell O, has a recess *p*, formed within it at its inner side, said recess extending all

around the interior of the shell and forming a reception chamber for the fur, as will be hereinafter described. Within the shell O, and just below the recess *p*, a series of cards or pickers *q*, are attached, and a similar series *r*, are attached to the lower part of the shell. Within the shell O, there are placed two revolving rings or wheels P, Q, co-centric with each other and the shell O, the shaft *s*, of the ring or wheel P, passes through the shaft *t*, of the wheel Q, the latter shaft *t*, fitting loosely on *s*. The ring or wheel P, is larger than Q, and it has a series of cards or pickers *u*, attached to it on its upper surface at its edge, see Fig. 4. The smaller ring or wheel also has a series of cards or pickers *v*, attached to it at its lower end, and also a series of fan-blades *w*. The surfaces of the rings or wheels P, Q, to which the cards or pickers *u*, *v*, are attached, are inclined corresponding to the inclination of the interior of the shell O, as shown clearly in Fig. 1. The smaller ring or wheel Q, is made to rotate faster than the larger one P; they may both rotate in the same direction and are driven by belts *a'*, *a'*, from the driving shaft N, as shown clearly in Fig. 1.

The operation is as follows:—The shaft N, is rotated by any convenient power and the fur is fed into the chamber *p*, by an attendant. The fur is acted upon by the rotary and stationary cards or pickers and fully disintegrated or its fiber loosened and a current of air or blast is generated by the rotation of the cards or pickers or fan-blades *w* either or both said blast discharging the loosened or disintegrated fur out from the annular opening or space *b'*, between the lower ends of the larger ring or wheel P, and shell O. This annular opening or space *b'*, is co-centric with the former L, and at a suitable distance above it, and as the fur, designated by *c'*, is discharged from the annular opening or space *b'*, it is drawn upon the former by the suction blast generated by the rotation of the fan C, the former L, rotating as the fur is deposited upon it. The fur *c'*, it will be understood is discharged from the opening *b'*, all around the former L, in the form of a hollow cylinder and the suction blast consequently will draw the fur equally on the former all around it, provided its discharge from the opening *b'*, is uniform or equal at all points. To obviate any uneven deposition of the fur on the former from an uneven discharge, the former has a moderate rotary movement given it which it receives from the bed K. The fur will be deposited thicker on the former near its base and gradually decrease in thickness toward its upper end. This result is due to the gradually decreasing strength of the suction blast as the distance increases from the upper end or mouth of the tube or pipe H, in conjunction with the assistance given the suction blast by the downward blast generated by the fan-blades *w*, or the pickers. This will be fully understood by referring to Fig. 1, in which it will be seen that at the lower part of the former L, the suction blast generated by fan C, and the direct or fur-discharging blast generated by the blades *w*, are nearer in line with each other or more direct than at any other point. It will therefore be seen that the deposit of the fur on the former will be just as required, that is, gradually decreasing in thickness from its base to its apex, and it will also be seen that the graduation of the fur on the former may be varied as desired, by simply raising and lowering the former, which is done by raising and lowering the tube or pipe H, and bars *e*, the latter being secured at the desired height by the pins *f*, as previously stated. The hopper I, serves to catch particles of fur that may be projected by the upper blast from the blades *w*, beyond the suction blast and deflect said particles on the former as indicated by the red dotted lines in Fig. 1.

When sufficient fur has been deposited on the former L, to form a body, the operator releases the catch *j*, and the belt *l*, owing to its elasticity, will throw out the slide G, so that the former will be out from underneath the shell O, and its rotation stopped on account of the laxity of belt *l*. The former with the body upon it may then be removed from the bed K, with facility, and an empty former placed on the bed. The slide G, is then shoved back, and the belt *l*, consequently tightened and the former rotated for the formation of a succeeding hat body. In lieu of the elastic belt *l*, a rigid belt may be used in connection with a loaded slide pulley in order to admit of the moving of the slide G. This however would be equivalent to the elastic belt.

All machines for forming hat bodies that have hitherto passed under my observation have had the fur directed horizontally on the former, and in order that an even body may be formed, the rotation of the former must be perfectly regular or even and the fur must also be fed evenly to the former. But in my invention as the fur is fed down over and all around the former it will be seen that the only obstacle in the way of a perfectly even body would be an unevenness in the feed or discharge of the fur, and as this would be slight in a properly constructed machine, the rotation of the former will fully compensate for such contingency.

Although only two rotary rings or wheels P, Q, are shown and described, still more may be employed if desired, two however will probably be sufficient, and if necessary the usual "devils" may be connected with the recess *p*, of the shell O.

Having thus described my invention what I claim as new and desire to secure by Letters Patent, is,—

1. Distributing the fur c', on the former L, by discharging the same through an annular opening b', over and co-centric with the former L, substantially as herein set forth.

2. The employment or use of the stationary shell O, provided with the recess p, cards or pickers q, r, and having within it the co-centric rotary wheels P, Q, one or more, also provided with cards or pickers v, w, and with or without fan-blades W, when said parts are arranged relatively with the former L, to operate substantially as described.

3. The employment or use of the slide G, with the sliding tube or pipe H, fitted within therein containing the former shaft J, the box F, and elastic belt l, or its equivalent, the above parts being arranged relatively with the suction fan C, and the shell O, and wheels P, Q, substantially as and for the purpose specified.

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Witnesses:
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G. F. FOCKNICK.