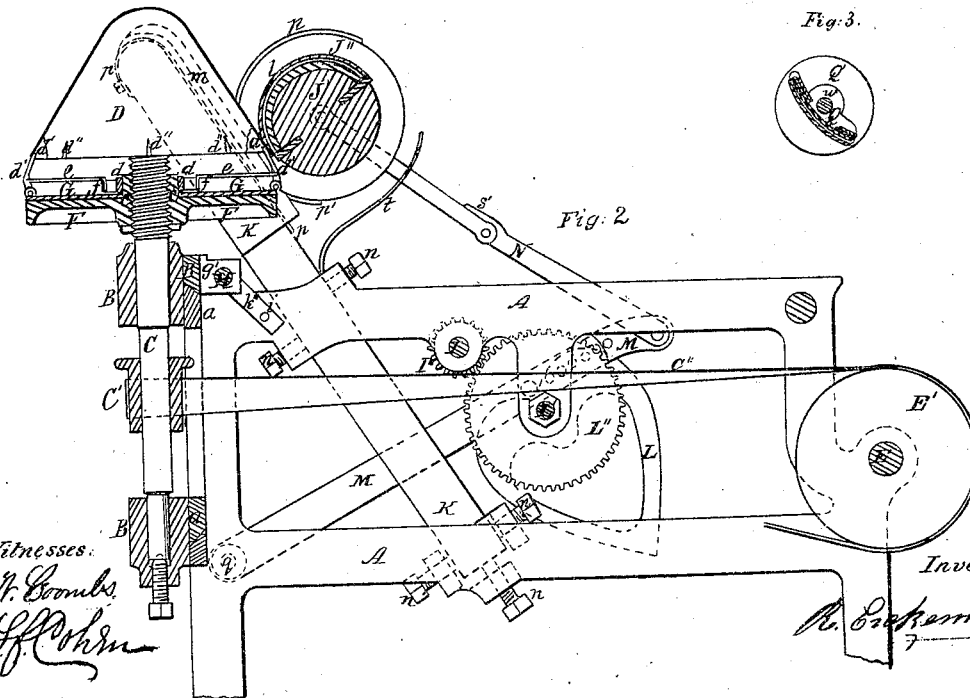
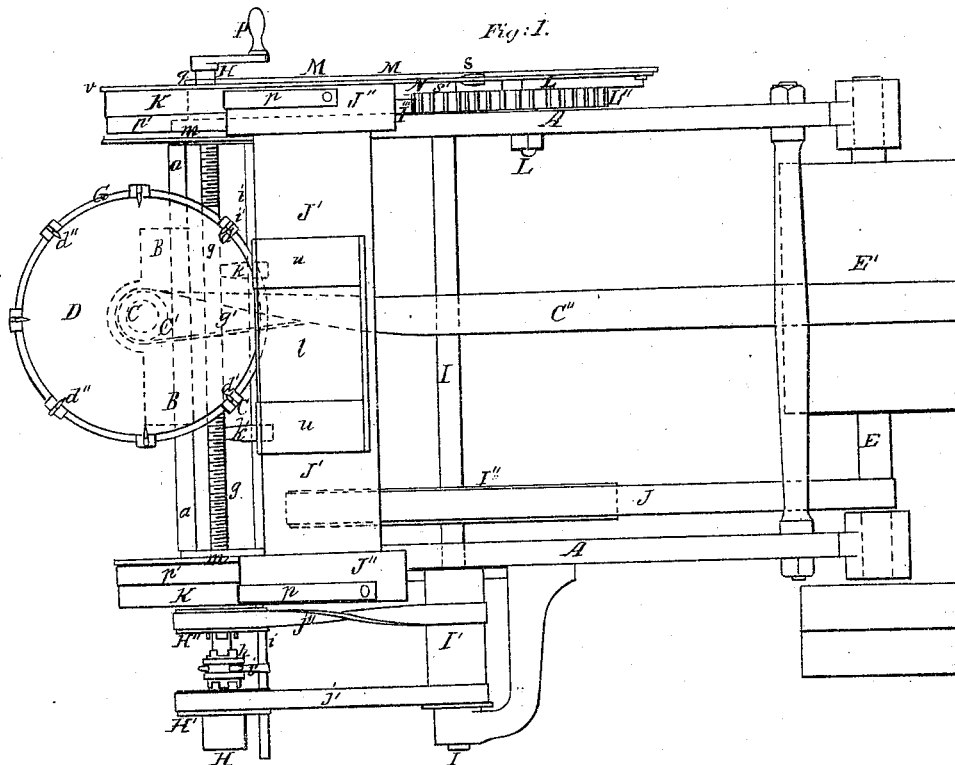


R. Eickemeyer, Pouncing.

No. 46552.

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Witnesses:
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RUDOLPH EICKEMEYER, OF YONKERS, NEW YORK.

IMPROVEMENT IN MACHINES FOR POUNCING AND NAPPING HAT-BODIES.

Specification forming part of Letters Patent No. 46,552, dated February 28, 1865.

To all whom it may concern:

Be it known that I, RUDOLPH EICKEMEYER, of Yonkers, in the county of Westchester and State of New York, have invented a new and useful Improvement in Machinery for Pouncing and Raising the Nap on 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 accompanying drawings, forming part of this specification, in which—

Figure 1 is a plan of a machine constructed according to my invention. Fig. 2 is a longitudinal vertical section of the same. Fig. 3 is a vertical section of a pouncing-pad, which may be substituted for the roller represented in Figs. 1 and 2.

Similar letters of reference indicate corresponding parts in both figures.

The object of this invention is to enable the process of pouncing and rubbing to which felt and other hats are subjected to be performed in a better and more expeditious manner than by the machines heretofore used, which, as far as known to me, consist simply of a block over which the hat-body is stretched, and which receives a rotary motion while the pouncing or rubbing material is held in the hand.

To this end it consists principally in attaching the pouncing or rubbing surface to a roller or its equivalent which has an automatic movement back and forth over the block from the edge to the crown of the hat, and vice versa, and in giving the hat-block a traverse motion across the pouncing or rubbing surface, or the latter a traverse movement across the face of the block.

It also consists in a novel device for stretching the hat-body upon the rotating block.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

A is the main frame of the machine, furnished at one end with stationary horizontal guides *a a* for the reception of a horizontal sliding carriage, B, which contains the bearings for the upright shaft C, which carries the cone or hat-block D, upon which the hat-body is stretched to be pounced. This shaft C is furnished with a pulley, C', which receives a belt, C'', from a pulley, E', on the horizontal main shaft E, which is arranged in bearings at the other end of the frame. Rotary motion

given to the shaft E produces, through the belt and pulleys above mentioned, a rotary motion of the block D. Below the block D there is cut upon the shaft C a screw-thread, *b*, to which is fitted a circular disk, F, of a diameter about equal to that of the base of the block; and to the hub *c* of this disk there is loosely fitted a loose disk, G, which is secured by a collar, *d*, which is secured tightly on the portion of the hub *c* above in such manner as to cause the disk G to move up and down with F, but to permit the latter to turn independently of G.

The disk G, which is situated between the disk F and the block D, has hinged to its periphery, at equal distances apart, a number of inverted hooks, *d' d'*, the points of which are turned outward, and the backs of these hooks are fitted into notches *d' d'* in the lower part of the block D, which compels them and the disk F to rotate or remain stationary with the block, which is firmly secured on the shaft C. The several hooks *d' d'* are connected by links or wires *e e* with a spring, *f*, consisting of a ring of india-rubber, which is arranged between the block D and disk G, and which draws all of the said hooks toward the center of the block. The said hooks are intended to secure and stretch the hat-body (which is shown in section in Fig. 2 in red color) upon the block.

To put on the hat-body, the disk E is screwed up on the screw *b*, and the hooks are thereby raised to a suitable height to enable the edges of the body to be drawn over and hooked onto them, and when this has been done the disk F is screwed down again, drawing with it the disk G and hooks and stretching the hat-body as tightly as may be desired over the block.

The sliding carriage B, which carries the upright shaft C of the hat-block, has firmly secured to it a nut, *g'*, which fits a screw-thread, *g*, on a shaft, H, which extends all across the main frame A of the machine, and which is made with journals to fit to bearings in or on the said frame in such manner that though it may turn freely it cannot move longitudinally. This shaft is fitted with two loose pulleys, H' and H'', each of which has attached to it one portion of a clutch, and between the said pulleys there is fitted to the shaft a double-clutch piece, *h*, which is free to slide lengthwise upon, but compelled to turn

with the shaft, and this clutch-piece is grooved to receive the forked arm *i'* of a sliding rod, *i*, which extends across and passes through the main frame A. The pulley H'' receives a crossed belt, *j''*, which runs on a pulley, I', on a shaft, I, which is arranged in suitable bearings parallel with the screw-shaft H and the main shaft E, and the pulley H' receives an open belt, *j'*, running on the same pulley I'.

The shaft I is furnished with a large pulley, I'', and receives a slow rotary motion through a belt, J, running from a small pulley on the main shaft to the said pulley I'', and is thus made to transmit rotary motion to the screw-shaft by means of one of the belts *j' j''* in one direction or the other, according to which of the pulleys H' H'' is in gear with the double clutch-piece *h*, and by this means the sliding carriage with the hat-block shaft C and block are caused to have a slow traversing movement across the main frame. This traversing movement is reversed and made reciprocating by means of two tappets, *k k'*, on the sliding rod *i*, one of which is acted upon by the nut *g'*, as the sliding carriage completes the necessary traverse motion in either direction, and the said rod *i* is thereby moved longitudinally far enough for its forked arm *i'* to move the clutch-piece *h* out of gear with one and into gear with the other of the two pulleys H' H'', thus reversing the rotary motion of the screw-shaft H. The shaft H is furnished with a crank-handle, P, by which to turn it by hand when necessary.

J' is a cylindrical roller, to which the sand-paper or other pouncing material *l* is attached, the surface of the said material being concentric with the axis of the said roller. This material has applied underneath it a cushion, *u'*, of india-rubber or other elastic material, to enable it to yield to any inequalities in the hat-body and prevent it from cutting holes therein. The said roller has two concentric heads, J'' J'', which are arranged to run upon tracks or patterns *m m*, provided on two parallel bars, K K, which are so secured to the sides of the main frame A by adjustable clamping-screws *n n* as to enable them to be adjusted to bring the tracks *m m* parallel with the longitudinal profile of the hat-block D. The upper parts of the said tracks are made to conform to the top or crown of the hat-block, so that the roller in running up and down the tracks will cause the pouncing-surface to press and act uniformly on all parts of the hat-body from the lower edges to the crown and subject all parts alike to its operation. The heads of the roller are confined to the tracks *m m* by straps *p p'*, which pass around the said heads in opposite directions, one end of each strap being attached to the head of the pulley and the other to one of the bars K K. One of the heads J'' J'' of the roller is fitted easily between guides *v v*, provided on the edges of one of the bars K K, as shown at the top of Fig. 1, and the roller is thus prevented from longitudinal displacement.

The movement of the roller up and down the tracks or patterns *m m* and over the surface of the hat-body is effected by means of a cam, L, of heart-shaped or other suitable form, turning on a stud, L', secured in one side of the framing. This cam has secured to it a spur-gear, L'', which gears with a pinion, I''', on the shaft I, and the said cam, by the rotary motion received through the said gear and pinion is caused to act upon a lever, M, the lower end of which is attached by a fulcrum-pin, *q*, to the frame A, and the upper end of which is connected by a rod, N, with a pin or axle, *r*, secured in the center of one end of the pouncing-roller. This rod N is made with a hinge joint, *s*, at about the middle of its length, to enable it to bend sufficiently to permit the heads of the pouncing-roller to come down upon rests *t*, secured to each side of the machine, the pouncing-surface *l* of the said roller being then below the hat-block. The hinge-joint *s* is made with a stop, *s'*, which keeps it straight while the roller is required to be in operation. On each side of the pouncing-surface *l* on the pouncing-roller there is secured to the periphery of the roller a piece of felt, *u*, or other soft material for smoothing the nap of the hat-body after the pouncing. The cushion *u'* extends also under this soft material *u*.

The operation of the machine is as follows: The hat-body having been stretched upon the block D, the carriage B is adjusted by turning the handle P to bring the hat-block to the proper position opposite the pouncing-roller, and the rod N is straightened to bring the pouncing-roller J' to an operative position. The machine is then set in action by giving rotary motion to the shaft E, from which all parts derive their respective movements. The hat-block revolves rapidly, while the roller J' rolls up and down over the surface of the hat and effects the pouncing equally from top to bottom. The movement of the carriage B produced by the screw *g* on the shaft H carries the hat-block and hat across the pouncing-surface *l*, and afterward brings them opposite to one of the soft surfaces *u u*, by which the nap is laid and the surface of the hat-body smoothed.

The velocity of the traverse movement of the carriage B is intended to be such that a hat will be finished by each traverse movement, the operation being commenced while the body is opposite to one end of the pouncing-surface *l*, and the block carrying it once across the said surface in one direction and once back and forth across one of the finishing-surfaces *u*.

There may be substituted for the pouncing-roller a pad, Q, shown in Fig. 3 hung on a shaft, *w*, which is furnished at each end with a cylindrical roller-like head, Q', the said roller-like heads being applied in a manner similar to that of the heads J'' J'' of the pouncing-roller to run up and down the bars K K and track *m*; or the pouncing material

may be attached to a carrier which slides upon the track or pattern *m* or its equivalent without any rolling action. These devices may be considered as the equivalents of the roller *J'*, but I prefer the roller, as by its rolling action it produces a greater change of the relative positions of the pouncing surface and the hat-body, so that any inequality or sharp projecting grain does not act so much upon one portion of the surface of the body.

Racks might be applied to the bars *K K* and teeth be provided upon the heads of the pouncing-roller or pad-shaft, the better to insure the rolling of the said roller or shaft up and down the said bars.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. Attaching the pouncing and rubbing surfaces to a roller or its equivalent which has a movement upon a track or tracks or pattern parallel with the longitudinal profile of the rotating block upon which the hat is stretched, substantially as herein described.

2. So applying and operating the shaft of the rotating hat-block and the roller or its equivalent to which the pouncing or rubbing surface is attached that the one has a traverse movement relatively to the other, substantially as herein specified.

3. The interposition of a cushion, *l*, of india-rubber or other elastic material, between the sand paper *l* and felt *u*, or other pouncing and smoothing materials, and the roller *J* or its equivalent, to which such materials are attached, substantially as and for the purpose herein specified.

4. A device for stretching the hat-body upon the block, consisting of a system of hooks all connected with disks *G* and *F* or their equivalent, having a movement up and down or lengthwise upon the shaft of the block, substantially as herein specified.

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