F. R. & S. R GOING.
Hat-Pouncing Machine.

No. 196,218. Patented Oct. 16, 1877.

Fig. 1

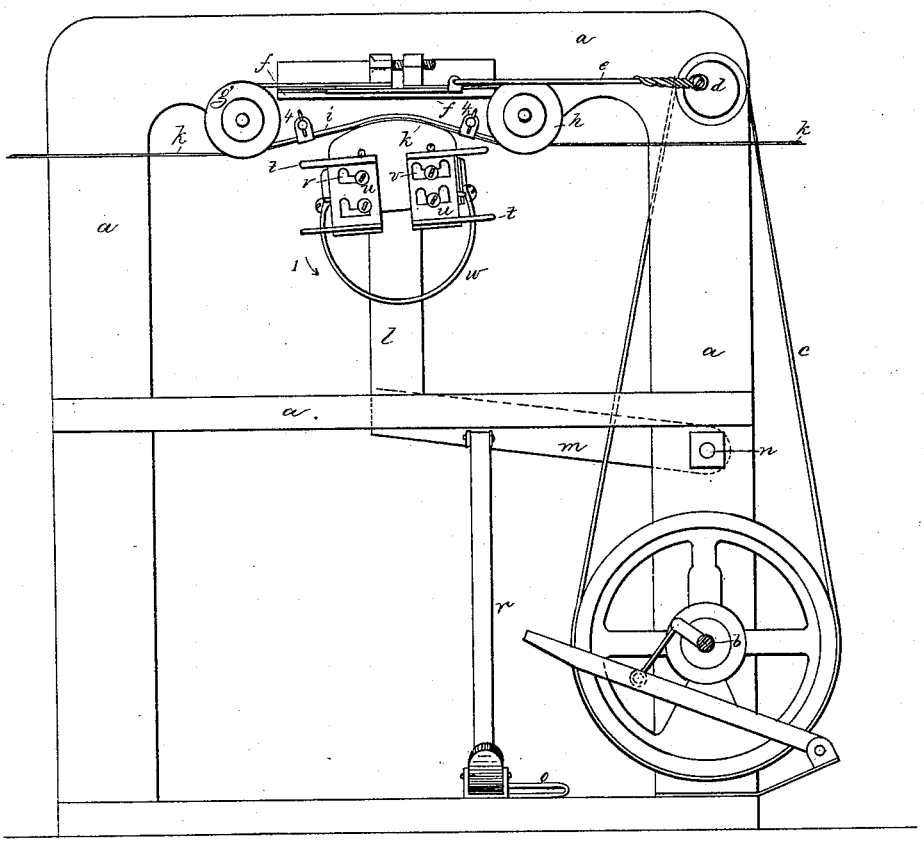


Fig. 5.

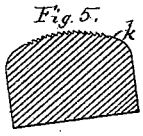


Fig. 2.

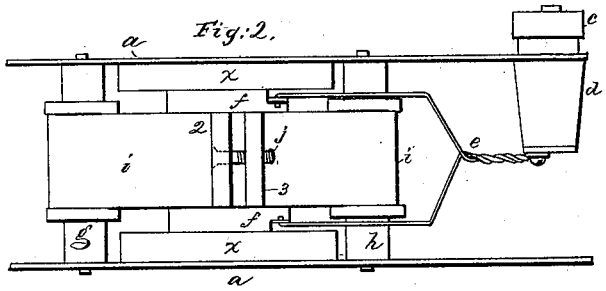


Fig. 3.

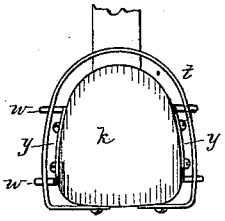


Fig. 6.

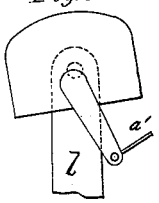
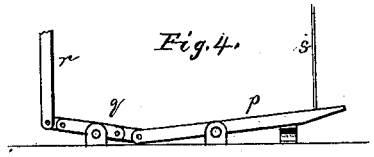


Fig. 4.



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UNITED STATES PATENT OFFICE.

FRANCIS R. GOING, OF BOSTON, MASSACHUSETTS, AND STEPHEN R. GOING, OF BROOKLYN, NEW YORK.

IMPROVEMENT IN HAT-POUNCING MACHINES.

Specification forming part of Letters Patent No. **196,218**, dated October 16, 1877; application filed March 23, 1877.

To all whom it may concern:

Be it known that we, FRANCIS R. GOING, of Boston, in the county of Suffolk and State of Massachusetts, and STEPHEN R. GOING, of Brooklyn, in the county of Kings and State of New York, have invented an Improved Hat-Pouncing Machine, of which the following is a specification:

This invention relates to machines for pouncing hats; and has for its object the production of a pouncing-machine adapted to operate and move the pouncing-surface substantially as a workman when pouncing a hat by hand will operate it.

It is well understood that the best pouncing is done by hand, the workman then giving the pouncing-surface a quick short reciprocating motion, holding the pouncing material against the hat-body with an elastic or yielding pressure.

In ordinary pouncing-machines, operating upon the hat-body, the latter is stretched over a block mounted upon a spindle having imparted to it a rapid rotation backward and forward.

In this class of machines the pouncing material held against the body, owing to the extent of the rotation of the block, is made to act against the body with a long stroke—a motion not like that imparted by the hand of the operator in hand-work. These machines wear rapidly, owing to the great strain resulting from suddenly changing the rotary motion of the spindle carrying the hat-block.

A machine has been devised in which the hat-body was sustained upon a "horn" provided at top with either a flat or a roller-like surface. The hat-body placed thereon was acted upon by a pouncing-roller having a continuous rotation in one direction, and acting to grind the projecting fibers from the body. This roller, moving always in one direction, strained the hat-body and tended to stretch it out of shape.

In our improved pouncing-machine we employ a skeleton block, forming a substantially stationary support for the hat, and in connection therewith we employ a rapidly reciprocating or vibrating flexible belt or band, provided with pouncing material, it acting by its short quick reciprocations to felt and compact the body, and to rub and break off the projecting hairs.

Our invention consists in the combination, with a rapidly-reciprocated elastic pouncing-hand, of a skeleton block or support, to operate as hereinafter described.

We incline or so place the surface against which the hat-body rests when being pounced that one end thereof is lower than the other, whereby the hat-body is moved more when the pouncing tool or hand is moved in one direction than when the tool or hand moves in the opposite direction, which results, owing to this excess of motion in one over that in the other direction, in causing the hat-body to move gradually forward in one direction under the rapid reciprocations of the hand, no other feed being necessary.

Figure 1 represents, in side elevation, a hat-pouncing machine, showing one embodiment of our invention; Fig. 2, a top view of the pouncing tool or hand and its operating devices; Fig. 3, a top view of the skeleton block or hat-supporting surface; Fig. 4, a detail of the levers for raising or lowering the stationary hat-support; Fig. 5, a modification of the support, and Fig. 6 a second modification.

The frame *a* of the machine is made of suitable form to support the working parts. The shaft *b*, operated by belt or treadle-power, is connected by belt *c* with a shaft, *d*, having a crank-pin attached by link *e*, (preferably forked, as shown at Fig. 2,) and connected with a slide, *f*. This slide, supported in suitable guideways *x*, is reciprocated rapidly by the link and crank, the movements being short and quick.

At opposite ends of the slide are loose rollers *g h*, over which is extended a flexible belt or band, *i*, attached at one end (herein shown as end 2) to the slide *f*. The other end, 3, of the band, is attached to a cross-bar, nut, or equivalent device, adapted to receive a screw, *j*, or equivalent, by which to attach both ends of the strap or band together, and cause the band to move in one direction and then in the other over the rollers as the slide is reciprocated. This flexible belt or band we denominate the "pouncing tool" or "hand," and to it,

by clamps 4 4 or their equivalents, is secured the strip of pouncing material *k*—sand-paper or other well-known pouncing material. This flexible band or belt is elastic, conforms readily to the hat-body on the supporting-surface *k*, and nearly approximates the action of the human hand.

The top of the supporting surface, upon which rests the hat-body—preferably a piece of wood somewhat rounded—is attached to the top of a post or arm, *l*, projecting upward from a lever, *m*, having its fulcrum at *n*. This lever is, through the action of a suitable spring, held pressed upward, so as to force the hat-body on the block against the pouncing-hand. As shown in the drawing, this spring to so hold up the lever may be arranged, as at *o*, to press upward the end of a treadle, *p*, adapted to operate a second treadle, *q*, connected with the lever *m* by a link, *r*. Any other form of spring may be employed to lift the free end of the treadle *p*—as, for instance, a spring, *s*, connecting it with part of the frame *a* above. A portion of this spring is shown in Fig. 4. The operator, by placing his foot upon treadle *p*, may lower the hat-support entirely away from the flexible hand, or simply decrease the pressure of the body against the pouncing material.

The block or supporting-surface has attached to it extension-pieces composed of wires *t t*, projecting from fastening-plates *u*, slotted as at *v*, to receive the heads of screws or pins projecting from the support into such slots. The slots are made with angular extensions, to enable the extension-piece to be expanded or contracted, to adapt it to the size of the hat-body being pounced. Auxiliary extension-pieces *w*, connected with plates *y*, adjustably connected with the support, as described with reference to plates *u*, extend downward below the support.

It will be noticed that a support provided with these curved extension-pieces *t w* forms a skeleton block which may be used to hold the hat-body while its side and tip are being pounced by the hand. This skeleton block permits the hat-body to be turned in the direction of the arrow 1, or horizontally in the direction of the pieces *t*. The face *k* of the support is so tipped or placed that one end is lower than the other. The hand is reciprocated in substantially a horizontal plane above the support, and in contact with the hat-body thereon. To cause the hand to act as a feeding device to properly feed the hat-body over the support, we lower that end of the support in the direction it is desired the body to move.

As shown in Fig. 1, the left-hand end of the support is lowered. When so lowered the pouncing-surface on the hand, as it moves toward the left, engages and moves the hat-body with it, unless the latter is held by the operator.

The operator holds the hat, and only permits it to be so moved when, in his judgment, it is sufficiently pounced at each particular spot. As the hand moves toward the right, in the construction shown in Fig. 1, the hat-body does not have the same tendency to move with the pouncing material as when the hand moved toward the left, for, in the former case, the hat-body has to be moved up the inclined surface of the support, instead of down it. The hand and pouncing material, reciprocated rapidly, and arranged with reference to the support as described, act to move the hat-body farther as the hand is reciprocated in one direction than when the hand is reciprocated in the opposite direction, the result of which is that the hat-body is gradually fed or moved in one direction.

The surface of the support may, if desired, be grooved or serrated, so as to provide it with fine ridges or teeth, with edges or points inclining in the direction of the feed. This will assist in further preventing the hat-body moving backward as far as forward with the hand.

Fig. 5 shows, in edge view, a support so grooved. The support may be provided upon its forward end, at top, with sand-paper, to assist in preventing the backward movement of the hat-body.

Each set of extensions *t* and *w* are made suitable for two or three different-sized hat-bodies. They may be easily removed from the support and others, larger or smaller, be substituted, or one support, made detachable from the post *l*, may be used for several sizes.

The mechanical details for reciprocating the hand or the belt or band may be varied, as may be the devices for raising or lowering the support, without departing from our invention.

As so far described, the support for the hat-body has been represented as substantially stationary during the time the body was being pounced. If desired, however, this support may be pivoted upon the post *l*, as shown in Fig. 6, and be reciprocated through a link, *a'*, connected with a cam or eccentric upon the shaft which carries or operates the crank-pin for the slide *f*.

The extension-pieces are essential for the proper operation of the machine. They are expanded or contracted sufficiently to fill and keep the hat-body properly stretched or extended, so that the portion of such body upon the support *k* is kept taut. This support and its extension-pieces enables us to provide a cheap and light skeleton block as a substitute for the usual pouncing-block.

With this our machine we are enabled to pounce the entire hat—crown, tip, and brim.

When pouncing hats upon machines as now commonly used in hat-factories, the crown and tip, stretched over a block, are first pounced in one machine, and then the body is removed from the block to another machine, when the brim is pounced.

The top of the supporting surface may be so tipped that it will bear against the belt or band at one side of its longitudinal center, or at one edge, with more force than at the other or opposite edge. Such construction will cause one edge of the pouncing material upon the

hand or belt to engage the hat-body more strongly than the other edge, and the hat, held back somewhat by the operator, will be moved less at the point where the pressure is least, and this unequal engagement of the hat-body will cause it to move over the support.

In Fig. 6 it is considered unnecessary to add the extensions *t w*, as they are sufficiently shown in Fig. 1.

We claim—

1. The support adapted to sustain the body and crown of the hat, and permit the movement of the body over it, so as to present the tip or side crown uppermost, as described, in combination with a reciprocating elastic pouncing hand or tool to sustain the pouncing material, to operate substantially as described.

2. A pouncing-tool composed of a reciprocating elastic band or belt, adapted to carry the pouncing material, in combination with a non-rotating supporting-surface for the hat-body, such surface being made lower at its end in the direction of the feed, to permit the pouncing-tool to feed the hat-body over the support, substantially as described.

3. The combination, with the rollers and slide, and devices, substantially as described, to operate it, of the belt or band and its connecting mechanism, substantially as set forth.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

FRANCIS R. GOING.
STEPHEN R. GOING.

Witnesses for F. R. Going's signature:
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E. C. PERKINS.

Witnesses to S. R. Going's signature:
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