No. 648,873. Patented May 1, 1900.

G. F. LARKIN.

HAT POUNCING MACHINE.

(Application filed Dec. 9, 1899.)

(No Model.) 3 Sheets—Sheet 1.

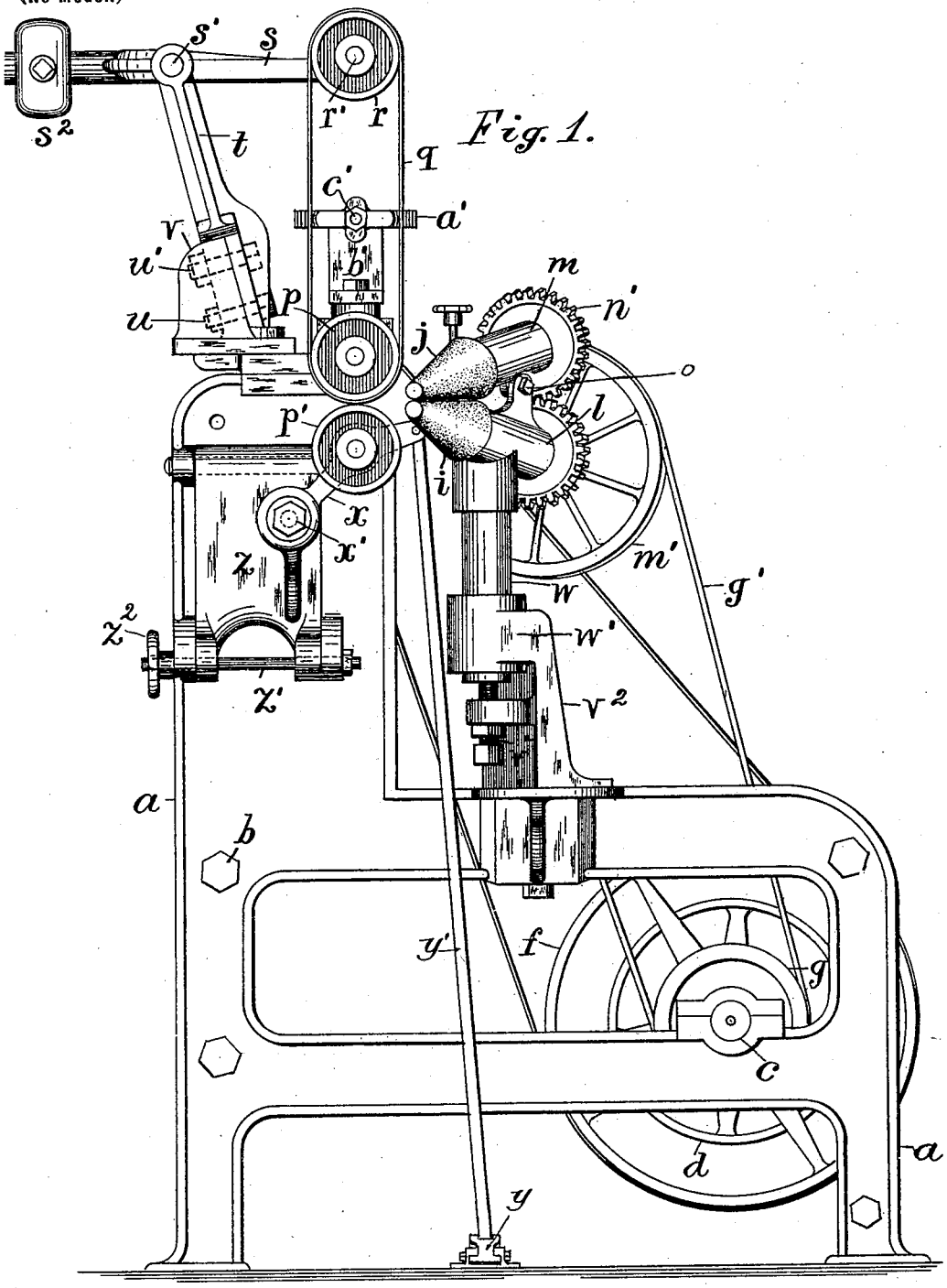

Fig. 1.

Attest:
L. Lee.
H. H. Talmage.

Inventor.
George F. Larkin, per
Thomas S. Crane, Atty.

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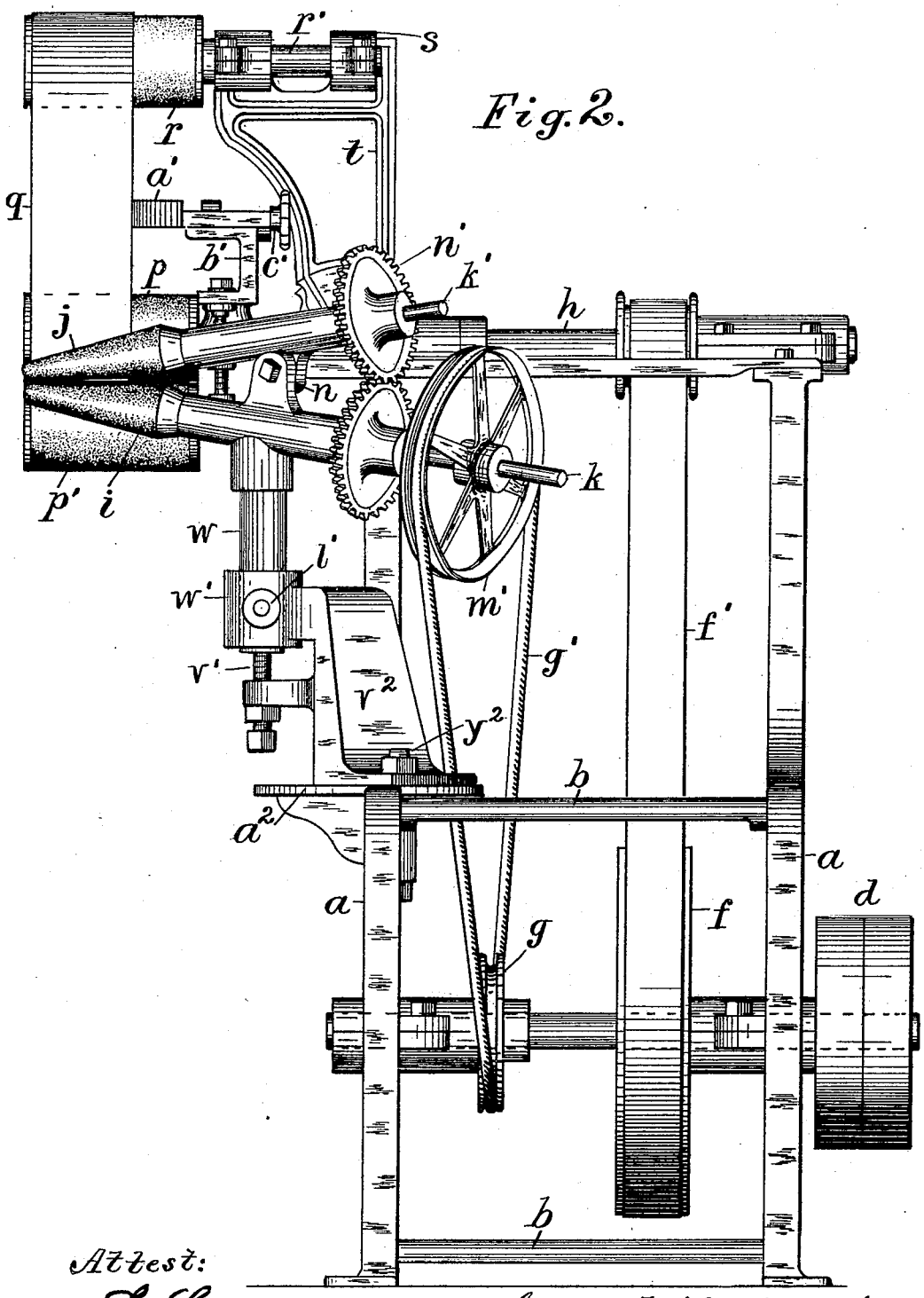
Fig. 2.



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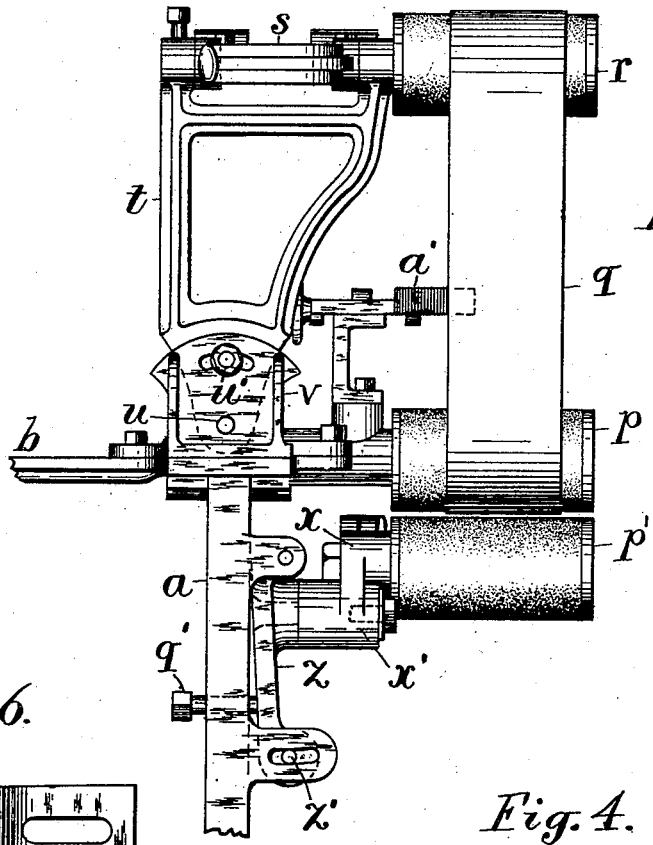


Fig. 3.

Fig. 6.

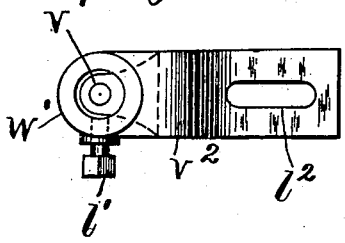
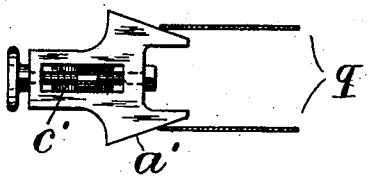


Fig. 4.



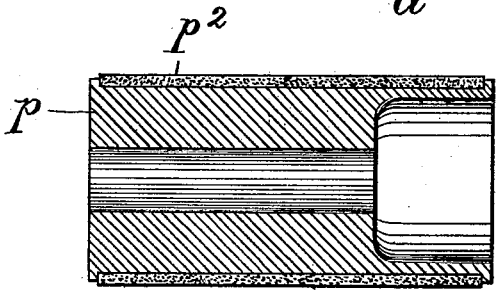


Fig. 5.

Attest:
L. Low.
W. H. Talmage.

Inventor
George F. Larkin, per
Thomas S. Crane, Atty.

UNITED STATES PATENT OFFICE.

GEORGE F. LARKIN, OF NEWARK, NEW JERSEY.

HAT-POUNCING MACHINE.

SPECIFICATION forming part of Letters Patent No. 648,873, dated May 1, 1900.

Application filed December 9, 1899. Serial No. 739,766. (No model.)

To all whom it may concern:

Be it known that I, GEORGE F. LARKIN, a citizen of the United States, residing at No. 187 Broad street, Newark, county of Essex, State of New Jersey, have invented certain new and useful Improvements in Hat-Pouncing Machines, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

The present invention relates to that class of hat-pouncing machines in which an endless pouncing-belt is used; and the object of the invention is to furnish means whereby the belt may exert an elastic pressure upon the surface of the hat, the pressure upon the inner or outer edge of the brim may be varied at pleasure, the belt kept in its proper position upon the driving-roll automatically, and the feeding-rolls adjusted to grip the inner and outer edge of the brim in the desired manner and propel it in the required direction.

The improvements also include means for varying the relation of the tension-roll to the driving-roll of the pouncing-belt and means for driving the lower feed-roll from the main shaft of the machine.

In the annexed drawings, Figure 1 is a front elevation of the machine. Fig. 2 is an elevation upon the right-hand side of the same; Fig. 3, an elevation of the roll-adjusting devices viewed from the left-hand side of the machine. Fig. 4 is a plan of the guide for the pouncing-belt with a section of the belt. Fig. 5 is a section of one of the pressure-rolls, showing the rubber facing; and Fig. 6, a plan of the bracket to carry the feed-rolls.

a designates the side frames of the machine, connected by tie-bars *b*. The driving-shaft *c* is propelled by fast and loose pulleys *d* and carries pulleys *f* and *g*, provided, respectively, with belts *f'* and *g'* to drive the pouncing-roll shaft *h* and feed-roll shaft *k*.

The feed-rolls *i* and *j* are journaled in the bearings *l* and *m*, each of which is provided intermediate to its ends with a lug *n*, and the lugs are connected by a pivot-bolt *o*, which serves to clamp the two lugs together and hold the bearings in a fixed position when adjusted.

The upper feed-roll is carried by shaft *k'*, and the shafts *k* and *k'* are connected by gears *n'*. A pulley *m'* upon the shaft *k* receives the belt *g'* to drive the rolls as required. The lower bearing *l* is attached to a round post *w*, and a vertical socket *w'* upon the frame serves to support the post adjustably. With this construction the post may be rotated to turn the feed-rolls *i* and *j* at different angles to the pouncing-belt, and thus draw the brim through the same in the best manner, and the post also affords the means of adjusting the feed-rolls vertically, being clamped in the socket *w'* when adjusted by the set-screw *l'*. The driving-roll *p* propels the pouncing-belt *q*, and a tension-roll *r* is arranged directly above the roll *p* and has its shaft *r'* journaled in bearings upon one arm of a lever *s*. At the opposite end from the shaft *r'* the lever *s* is provided with a weight s^2, which may be adjusted upon the lever to vary the yielding draft exerted by the tension-roll upon the pouncing-belt. Such weight and lever operate to produce an elastic tension in the belt, which prevents it from slipping upon the driving-roll when the belt gets loose, as sometimes occurs through wear and atmospheric influences. The fulcrum *s'* of the lever *s* is horizontally pivoted in a fulcrum-frame *t*, and such frame is also pivoted by bolt *u* upon a bracket *v*, so as to tip the fulcrum *s'* in a vertical plane and vary the relation of the tension-roll *r* to the driving-roll *p*. Such variation inclines the belt to run toward the inner or outer ends of the rolls, and thus controls the position of the belt at pleasure. The bracket *v* is shown bolted upon the frame adjacent to the inner end of the driving-roll; but the fulcrum-frame may be pivoted upon the machine-frame in any convenient manner. A screw *u'* is inserted through a slot upon the bracket *v* into the fulcrum-frame to clamp the same when adjusted. The hat-brim is pressed toward the under side of the driving-roll *p*, where the pouncing-belt is supported by a pressure-roll *p'*, journaled upon the end of a hinged arm *x*, which is pivoted upon a stud *x'*, adjustable in a vertical plane to set the inner or outer end of the roll *p'* nearest to the roll *p*. The arm *x* is provided with a stud, upon which the pressure-roll *p'* is journaled, and such arm being mounted upon the stud *x'* is influenced by any variation in the inclination

of the stud x', which is affected by the adjustment of the plate z. Such adjustment of the stud x' correspondingly affects the position of the pressure-roll and varies its line of contact with the pouncing-belt. A treadle y is connected by a rod y' to the outer end of the arm x to force the pressure-roll toward the driving-roll p, and thus hold the hat-brim against the pouncing-belt as the brim is drawn between the two rolls by the feed. The stud x' is projected from a hinged plate z, which is pivoted to the machine-frame at the upper end and secured adjustably at the lower end by nut z^2 on a bolt z'. (See Fig. 3.)

A set-screw q' passes through the frame against the rear side of the plate z, and thus serves to tip the stud and to adjust the pressure-roll p' at the required angle to the driving-roll p. Each of these rolls is formed with a collar at each end, forming a rectangular groove or recess around the periphery, into which an endless rubber band p^2 is shrunk to form an elastic jacket upon the roll. Such jacket in the case of the roll p sustains the pouncing-belt elastically, while the jacket upon the roll p' supports the hat-brim elastically against the pouncing-belt. The brim is thus supported elastically and the cutting-surface of the belt therefore operates more freely and is less liable to clog or become jammed against the felt than where supported upon a rigid surface. The fitting of the elastic rubber band p^2 into a rectangular groove upon the surface of the roll p p' secures a renewable surface which may be readily removed and replaced when worn.

It will be understood that a belt running at high speed freely over two rolls is very liable to shift laterally and run off the rolls if the belt be not guided accurately, as shown in Fig. 5. It is therefore most important that the hat-brim should be fed between the rolls p and p' at exactly the right angle, the tension-roll r should set at the right angle with the driving-roll p, and the pressure-roll p' should not press any harder upon one edge of the belt than upon the other. To secure and maintain such adjustments has been very difficult in the machines heretofore used; but all of such adjustments are readily effected with the construction described herein. To positively control the position of the belt in case any of the adjustments is defective, I provide a further security in a wedge a', which is mounted adjustably intermediate to the rolls p and r, with its slanting edges in contact with the rear edges of the belt. The wedge is mounted upon a stand b' over the front bearing of the driving-roll and is adjusted by means of a screw c' to press within the edges of the belt in the required degree. It has been found in practice that the slightest touch of such wedge suffices to drive the belt forwardly upon the rolls, and thus holds it in any required working position without injury to the belt.

I have found it very desirable in some cases to set the junction of the feed-rolls a little above or below the junction of the pressure-roll and driving-roll, as the draft of the brim against the pouncing-belt is thus varied and the belt is caused to operate with more or less effect upon the brim.

With a thick brim the rolls may be set above the bottom line of the driving-roll and the brim thus drawn upwardly and its surface kept in contact for a longer time with the pouncing-belt than if the brim were drawn downwardly along the surface of the pressure-roll. To effect such adjustment with accuracy, a set-screw v' may be mounted upon the bracket v^2, below the post w, and the post supported and adjusted by such set-screw. It also facilitates the adjustment of the feeding-rolls in an exact relation to the pouncing-belt to make the bracket v^2 adjustable upon the frame, which is effected by providing a horizontal seat a^2 upon the frame below the feed-roll bearings and forming the foot of the bracket, as shown in Fig. 6, with a longitudinal slot l^2 in line with the axis of the feed-rolls. A bolt y^2 inserted through such slot into the seat serves to hold the bracket adjustably. The adjustments described afford a means of feeding the hat-brim through the pouncing devices in the most perfect manner and greatly diminish the labor of attending the machine and preserving its efficiency.

Having thus set forth the nature of the invention, what is claimed herein is—

1. In a hat-pouncing machine, the combination, with the driving-roll p, of the tension-roll r mounted above the same, and an endless pouncing-belt applied to such rolls, of the pressure-roll p' under the driving-roll, the hinged arm x provided with stud to carry the pressure-roll and having pivot x' parallel with the pressure-roll, whereby the parallelism of the pressure-roll and pivot x' is maintained during the movement of the pressure-roll to press the hat-brim upon the pouncing-belt, substantially as herein set forth.

2. In a hat-pouncing machine, the combination, with the driving-roll p, of the tension-roll r mounted above the same, and an endless pouncing-belt applied to such rolls, of the pressure-roll p' under the driving-roll, the hinged arm x provided with stud to carry the pressure-roll and having pivot x' parallel with the pressure-roll, and the pivot x' having means, as the adjustable plate x, to vary the inclination of the stud x', and thus regulate the inclination of the pressure-roll when in contact with the pouncing-belt, substantially as herein set forth.

3. In a hat-pouncing machine, the combination, with a driving-roll, of a tension-roll mounted above the same, and an endless pouncing-belt applied to such rolls, of a pressure-roll under the driving-roll, an angularly-adjustable bracket adjacent to the pressure-roll with lever pivoted thereon having a stud to carry such pressure-roll, means whereby the lever may be pressed upwardly, and feed-

rolls at the side of the pressure-roll, substantially as herein set forth.

4. In a hat-pouncing machine having a driving-roll and tension-roll with endless pouncing-belt applied to the same, the means for leading the belt in the desired path upon such rolls comprising the wedge-shaped guide d' fitted between the opposite sides of the belt, substantially as herein set forth.

5. In a hat-pouncing machine, the combination, with a driving-roll and tension-roll, and an endless pouncing-belt applied thereto, of the wedge-shaped guide with means for adjusting it axially of the said rolls, as and for the purpose set forth.

6. In a hat-pouncing machine employing an endless belt, the combination, with the driving-roll, of the tension-roll mounted above the same, of means as the lever s and weight s^2 for pressing the tension-roll elastically upward to hold the belt tightly upon the driving-roll, as and for the purpose set forth.

7. In a hat-pouncing machine employing an endless belt, the combination, with the driving-roll, of the tension-roll mounted above the same, of the lever-arm s having the tension-roll journaled thereon, and a fulcrum for such lever-arm angularly adjustable to vary the relation of the tension-roll and driving-roll, substantially as herein set forth.

8. In a hat-pouncing machine employing an endless belt, the combination, with the frame, of the shaft carrying the belt-driving roll, the fulcrum-frame t mounted adjustably upon the machine-frame, the lever-arm s hinged upon the fulcrum s' and having the tension-roll r journaled thereon, and means for pressing the lever-arm upward to strain the pouncing-belt when applied to the said rolls, substantially as herein set forth.

9. In a hat-pouncing machine employing an endless belt, the combination, with the machine-frame, of the shaft carrying the belt-driving roll p, the bracket v mounted upon the machine-frame adjacent to such driving-roll, the fulcrum-frame t pivoted thereon by bolt u, and provided with means, as the screw u', to clamp the fulcrum-frame when adjusted, the lever-arm s hinged upon the fulcrum-frame, and having the tension-roll r journaled thereon, and means for pressing the lever-arm s to strain the pouncing-belt when applied to the said rolls, substantially as herein set forth.

10. In a hat-pouncing machine employing an endless belt, the combination, with the machine-frame, of the shaft carrying the belt-driving roll p, an angularly-adjustable tension-roll r for carrying, with the driving-roll, the endless belt q, an angularly-adjustable pressure-roll p' with treadle y and suitable connections for pressing it toward the under side of the driving-roll, feed-rolls having bearings provided with the post w, and a socket upon the machine-frame with means whereby such post can be rotated or adjusted vertically in the socket, as and for the purpose set forth.

11. In a hat-pouncing machine, the combination, with the frame of the machine, of conical feed-rolls having bearings provided each intermediate to its ends with a hinge-lug n and connecting-pivot, the post w projected from the lower bearing, and a socket upon the machine-frame with means whereby such post can be rotated or adjusted vertically in the socket and the rolls thus adjusted to and from one another, or moved in a horizontal or vertical direction.

12. In a brim-pouncing machine, the combination, with the frame of the machine having the vertical socket w', of the post w sustained adjustably in such socket, and bearings upon such post carrying the feed-rolls, means for clamping the post within the socket, and an adjusting-screw applied to the post below the socket to raise and lower the same therein, as and for the purpose set forth.

13. In a brim-pouncing machine, the combination, with the frame of the machine, of a horizontal seat below the feed-roll bearings, a bracket v^2 adjustable upon the seat in the line of such bearings and carrying the vertical socket w', the post w sustained adjustably in such socket, and bearings supported upon such post and carrying the feed-rolls, as and for the purpose set forth.

14. In a hat-pouncing machine employing an endless pouncing-belt, the combination, with the frame of the machine, of the overhung driving-roll p having the tension-roll r above the same, the plate z hinged upon the frame of the machine below the driving-roll and secured adjustably by set-screw q', and by clamping-nut upon the bolt z', the stud x' projected from the hinge-plate, the arm x pivoted upon such stud, and the pressure-roll p' journaled upon such arm, whereby the pressure-roll may be inclined, as required, to the working face of the pouncing-belt.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

GEORGE F. LARKIN.

Witnesses:
THOMAS S. CRANE,
LEO SCHEER.