(No Model.) 3 Sheets—Sheet 1.

G. E. BRUSH.

MACHINE FOR POUNCING CROWNS OF HATS.

No. 573,856. Patented Dec. 29, 1896.

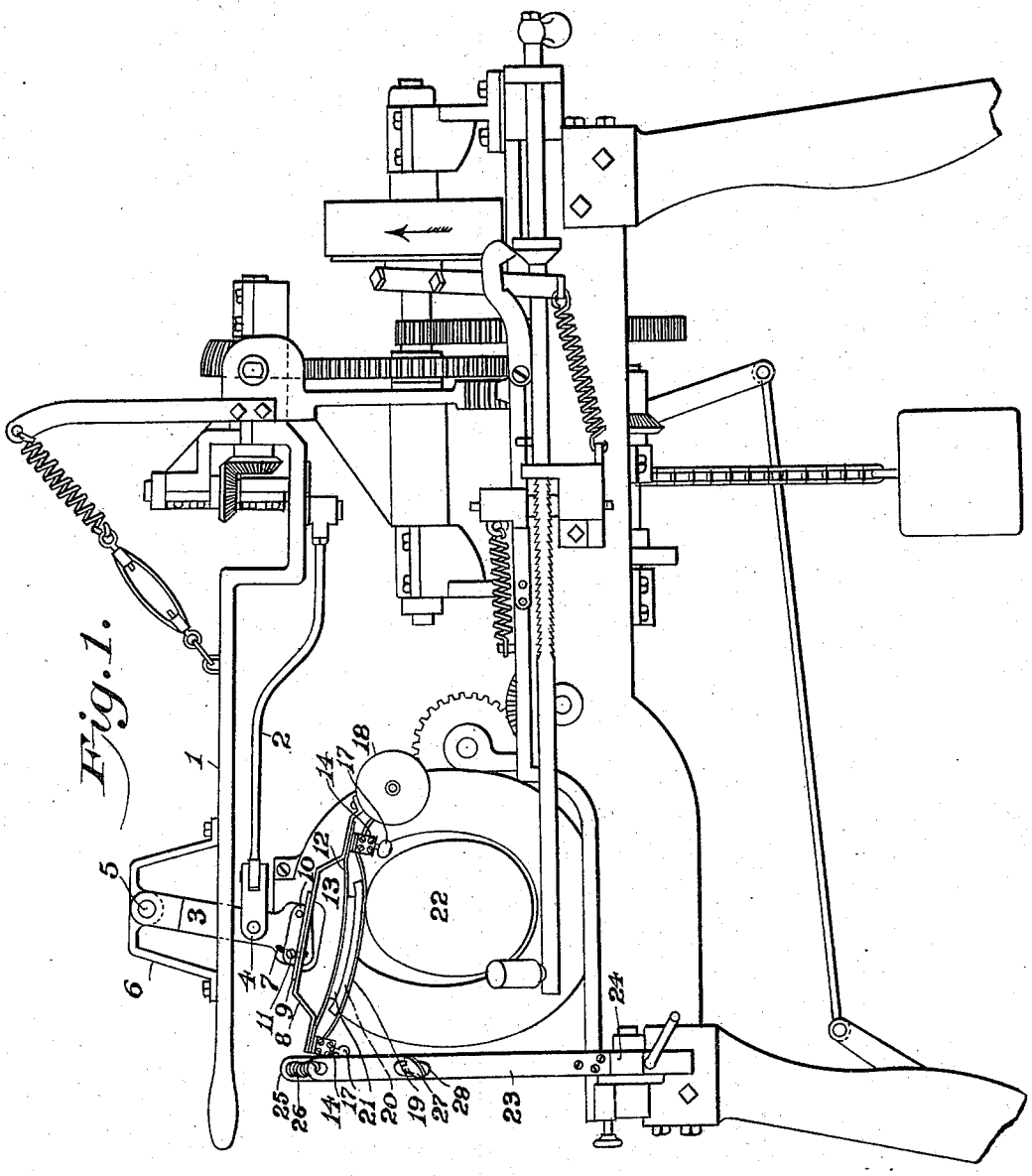

Fig. 1.

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(No Model.) 3 Sheets—Sheet 2.

G. E. BRUSH.

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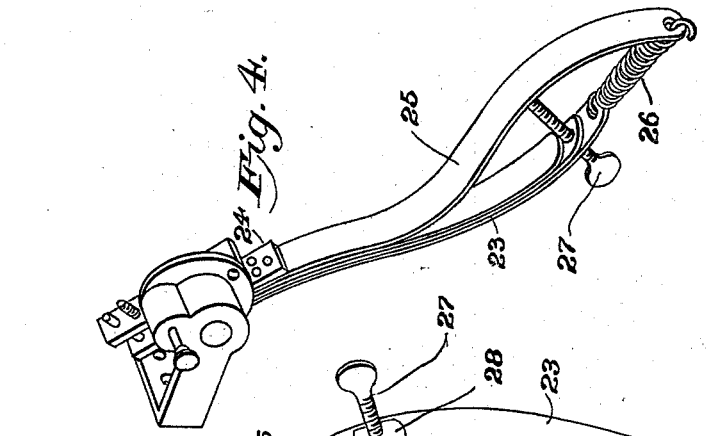

Fig. 4.

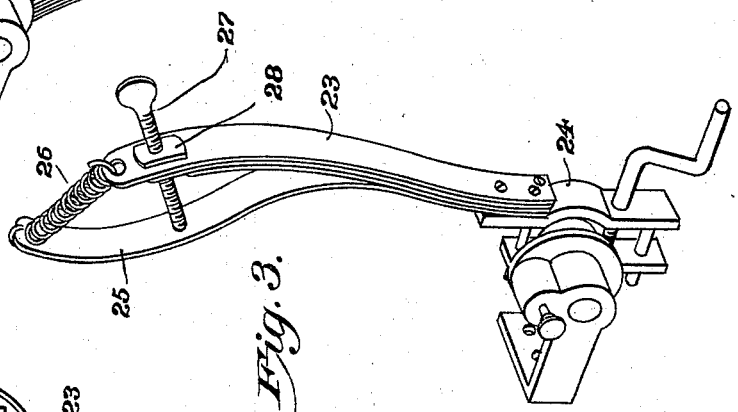

Fig. 3.

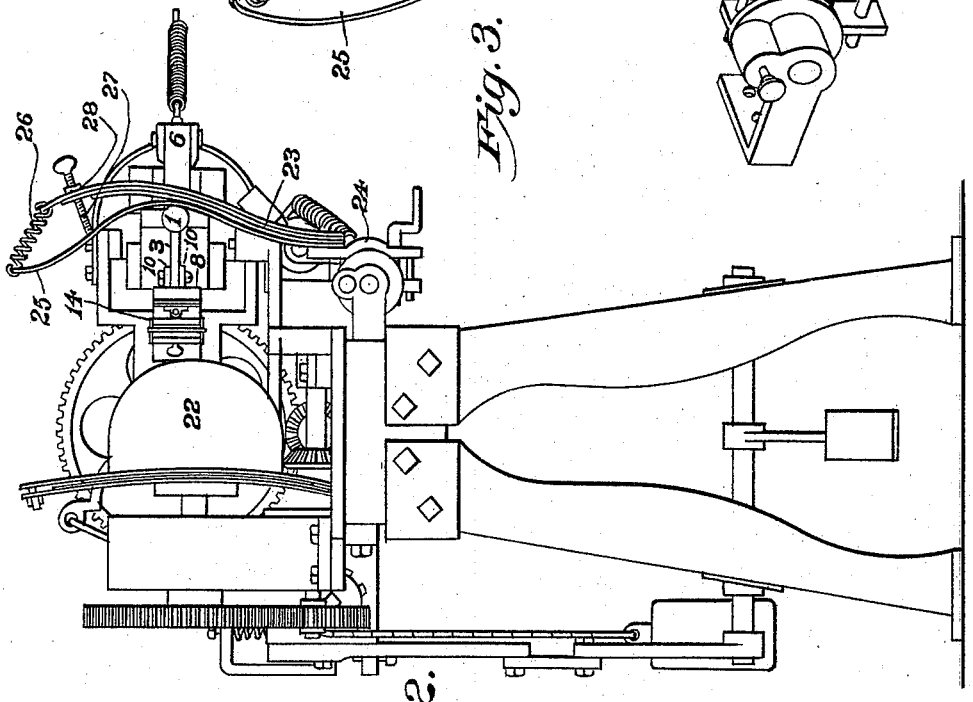

Fig. 2.

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(No Model.) 3 Sheets—Sheet 3.

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MACHINE FOR POUNCING CROWNS OF HATS.

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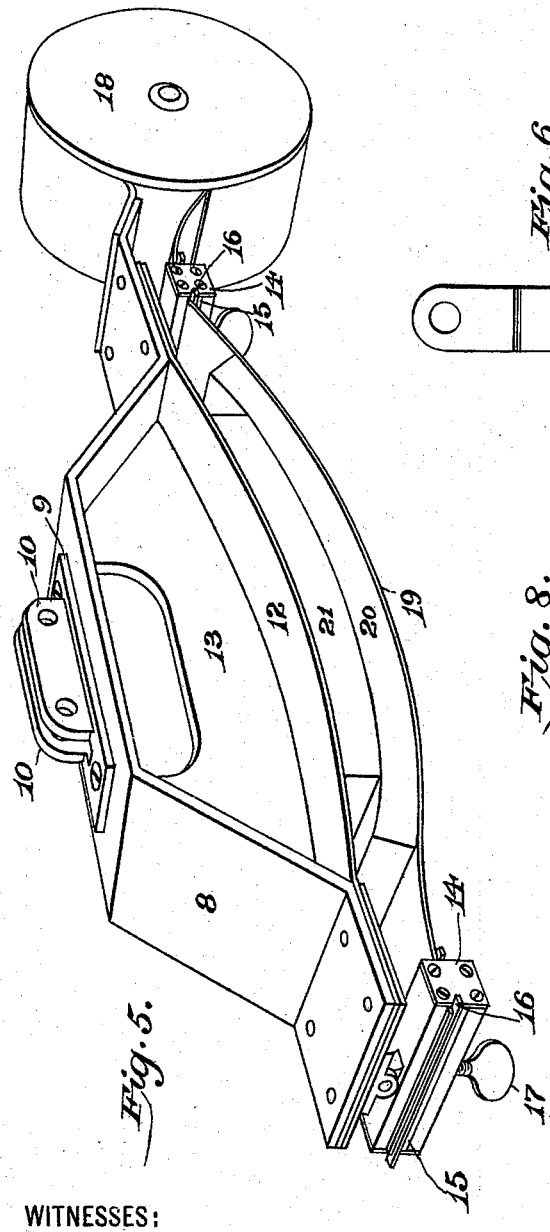

Fig. 5.

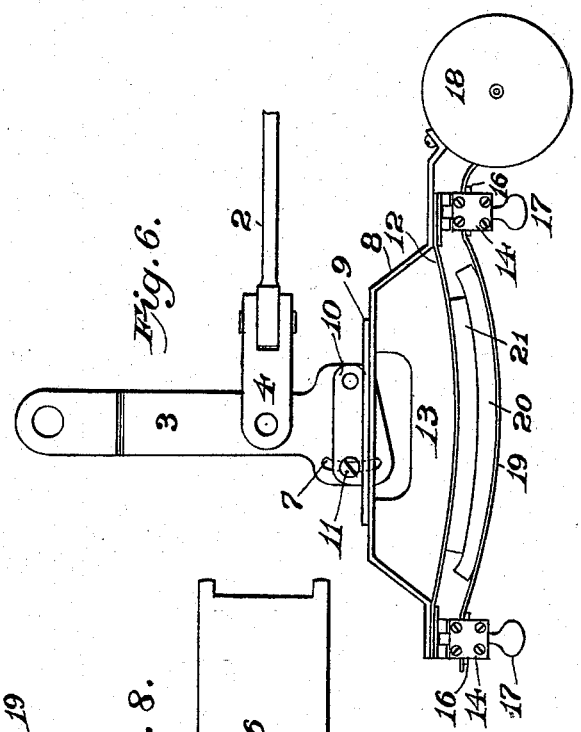

Fig. 6.

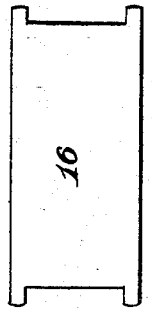

Fig. 8.

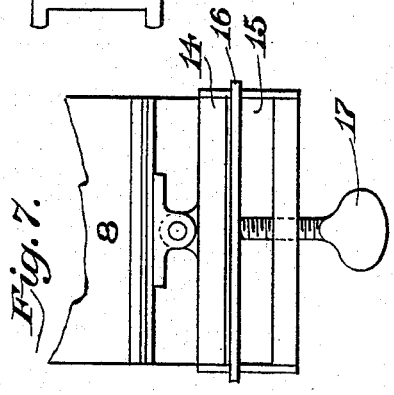

Fig. 7.

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UNITED STATES PATENT OFFICE.

GEORGE E. BRUSH, OF DANBURY, CONNECTICUT.

MACHINE FOR POUNCING CROWNS OF HATS.

SPECIFICATION forming part of Letters Patent No. 573,856, dated December 29, 1896.

Application filed September 19, 1896. Serial No. 606,415. (No model.)

To all whom it may concern:

Be it known that I, GEORGE E. BRUSH, a citizen of the United States, residing at Danbury, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Machines for Pouncing the Crowns of Hats; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to certain improvements in machines for pouncing the crowns of hats; and it consists in the details of construction and combination of parts, such as will hereinafter be fully described and then specifically be pointed out by the claims.

In the accompanying drawings, which form a part of this application, Figure 1 is a side elevation of a hat-pouncing machine equipped with my improvement; Fig. 2, an end elevation of the same; Fig. 3, a detail perspective of the adjustable spring devices which hold the pouncing-pad up to its work when operating against the tip of a hat, such devices being shown in their elevated or normal position; Fig. 4, a detail perspective of the devices shown in Fig. 3 as they appear when they are dropped or swung away from their normal or operative position; Fig. 5, a detail perspective of my improved pad and sandpapering device; Fig. 6, a detail elevation of the pendulum and the adjustable pad carried thereby and showing also the connection for reciprocating said pendulum; Fig. 7, a detail broken end view of the pad-bow-box clamp for the sandpaper, and Fig. 8 a detail plan of the clamp-plate within such box.

Similar numbers of reference denote like parts in the several figures of the drawings.

The present invention is closely identified with the construction shown and described in my Letters Patent of the United States No. 562,509, issued June 23, 1896, and in fact does not differ in the slightest therefrom except in respect to the manner of constructing and reciprocating the pouncing-pad and the specific construction, arrangement, and adaptation of the spring element which serves to keep the pad up to its work when operating against the tip of a hat. I will therefore not enter into any description of the parts of the machine except to refer incidentally to such parts that are immediately associated or connected with the pouncing-pad and this spring element.

A great fault with all hat-pouncing machines lies in the fact that the pad on its return movement raises the nap of the hat, so as to necessitate a subsequent operation to properly dress the hat.

As the result of very careful and exhaustive experiments carried on by me during the past five months I have ascertained that the above-noted imperfections in hat-pouncing were due to two causes, namely, the cutting of the fur by the pad in a horizontal plane and the returning of the pad across the hat with substantially as much friction thereon as in the instance of the forward or effective movement of the pad.

My present invention cures these defects, and my improved pad always cuts out the fur in the arc of a circle and does not exert enough friction on the return movement to raise the nap of the hat, as will be readily understood from the following description.

Referring to Figs. 1, 5, and 6, 1 is the arm which carries the pouncing-pad and is capable of swinging movements so as to bring such pad from the base of the hat-crown to the tip thereof, and 2 is the reciprocatory rod by means of which the to-and-fro movements of the pad are effected in the manner fully set forth and described in my Letters Patent aforesaid. This rod 2 in my former patented construction is connected directly with a slide, which latter carries the pad so that the movements of this rod will cause the pad to operate in a horizontal plane against the hat. In the presence instance, however, this rod is loosely connected to a pendulum 3 through the medium of a short link 4, the extremities of which latter are pivoted, respectively, to said pendulum and rod in the manner usual in obtaining connections of this sort. This pendulum is pivoted at 5 to any suitable bracket 6, carried by the arm 1, and has within its lower extremity an arcuate slot 7.

8 is the bow of the pouncing-pad, having affixed to the top thereof a plate 9, from which rise two ears 10, between which latter, at one side thereof, is pivoted the pendulum 3, while through the opposite side of said ears a set-

screw 11 is passed and extends freely through the slot 7. This pivotal connection between said bow and pendulum enables the former to be swung into any suitable angular adjustment with respect to the latter, while the set-screw is efficient in securing the parts in such adjustment.

12 is a flexible strip secured to the bow at its under side, and 13 is a thin web inside the bow and rigid therewith and affording a direct abutment against the strip 12 along the axial line of the latter.

14 are the sandpaper-clamping boxes, which are pivoted at each end to the bow beneath the same and are capable of swinging in a plane at right angles to the length of said bow, said boxes having openings 15 therethrough, within which are assembled clamping-plates 16, while set-screws 17, driven through the bottoms of the boxes against said plates, operate to force the latter upward to perform their function, presently to be explained.

The sandpaper-carrying drum 18 is secured to and carried by the inner end of the bow, while the sandpaper strip 19 from said drum is led through the clamping-boxes above the plates 16 and is then securely clamped by the operation of the screws 17.

20 21 are respectively pads of felt and rubber interposed between the strip 19 and strip 12, for the purpose of affording a proper flexible backing for such strip of sandpaper.

From the foregoing it will be clear that the pouncing-strip 19 is capable of an axial movement, which is very desirable in operating against a hat from the side of the crown to the tip, and this independent movement of the strip is greatly facilitated by the fact that the web 13 is rigid and affords a firm abutment, while at the same time it has contact with so small a portion of the surface of the strip 12 that no material resistance is afforded to either the turning of the strip 19 or the consequent yielding of the backing-sections 12, 20, and 21.

The pad should at all times be so adjusted with respect to the pendulum that the rear portion of the operating-surface of such pad is a greater distance radially from the pivotal point of the pendulum than the forward portion of such surface. As the pad swings forward across the hat the forward portion of such pad, although resting upon the hat and backed up by the weight of the arm 1 and the parts supported thereby, will not accomplish much in the way of cutting the fur, but as the rear portion of such pad comes in contact with the hat the friction against the latter will be greater and the arm 1 will of course be elevated, so that the work of cutting the fur will be done mainly by such rear portion. Now on the return movement of the pad the arm 1 will commence to fall and will continue so to do until the forward portion of the pad is reached, and this continual dropping of the arm during the return movement of the pad causes the latter to bear with but very little friction comparatively against the hat, and the nap of the fur is accordingly practically undisturbed.

Of course it will be clear that the adjusting of the pad with respect to the pendulum is merely a matter of degree so long as it be borne in mind that the rear portion of such pad at its operating-surface must be at a greater distance radially from the pivot of the pendulum than the forward portion. It will also be noted that my pad in its operation has a tendency to cut across the hat not in a horizontal plane but in the arc of a circle, and while this is a small point in itself nevertheless it is mainly instrumental in laying the nap of the fur better than it has heretofore been laid by machine.

22 represents the hat, which is held in position clamped to the ordinary oval lathe precisely as is set forth in my Letters Patent aforesaid.

From the foregoing it will be clear that the pouncing-pad is only effective from the front to the rear portion, and that the efficacy of the pouncing-surface is in direct proportion to the radial distance of the same from the pivotal point of the pendulum.

In my Letters Patent noted herein I showed and described a stiff spring against which the pouncing-arm was carried while the pad was operating around the tip of a hat, the function of such spring being to automatically keep the pad with a proper pressure up to its work, and while this construction was perfectly satisfactory in all instances where the tip of the hat was full, that is to say, approximating a circle, nevertheless I ascertained that the construction of spring shown in said Letters Patent was not properly adapted for the purpose of keeping the pad up to its work in the instance of hats having narrow crowns, that is to say, crowns which were ovoidal in shape rather than circular.

In attempting to utilize my old form of spring in connection with hats such as those last referred to it became necessary to adjust the spring closer to the hat in order that the pouncing-pad might be kept snugly against the rapidly-narrowing crown, but when the pad in its travel arrived near the tip of the crown it was found that the pressure was far too great and that the pad would cut the hat badly. This of course was due to the fact that it was impossible to make the inner face of the stiff spring of such shape that it would conform to the two shapes of crowns, and also to the fact that the height of a full-crown hat, measured from the tip down to the point where the curve of the latter meets the straight sides, is considerable less than the corresponding height of the other style of crown referred to, and therefore the extreme movements of the spring are less in one instance than in the other. My present invention adapts this spring for use in connection with all styles of hat-crowns, and at the same time preserves the identical construction and adap-

tation of bracket which carries the spring such as described in my aforesaid Letters Patent.

Referring to Figs. 1, 2, 3, and 4, 23 is the leaf-spring, which is secured to the upper part of the frame 24 precisely in the same manner and for the same purpose as in my Letters Patent above referred to, and the construction and operation of said frame and its relation to the other parts of the machine are all the same as in said patent.

My improvement consists in providing a separate flat spring 25, which is secured at its lower extremity to the frame 24 inside of the spring 23, while the upper end of this separate spring is connected to the upper extremity of the spring 23 by means of a coil-spring 26. Adjusting-screw 27 is driven through a threaded nub 28, which latter is integral with the outer leaf of the spring 23, the extremity of said screw bearing directly against the spring 25, so that it will be readily understood that when said screw is driven inward it will cause said spring to distend from the spring 23 at the upper portion thereof.

The function of the coil-spring 26 is to draw back the spring 25, so that its extremity will be so disposed as to readily permit the arm 1 to strike against the same after the manner of a cam, and although I prefer to use this coil-spring, since it avoids any necessity of shaping the spring 25, nevertheless such coil-spring can be dispensed with and said spring 25 shaped up, so as to normally extend outwardly at its extreme end, and thereby accommodate the ready engagement of the arm 1.

In pouncing the tips of narrow-crowned hats, such as have been hereinbefore defined, the spring 25 serves to keep the pouncing-pad up to its work after it has been properly adjusted as to its proper flexibility by means of the screw 27, for it will be clear that said spring will yield readily, so as to prevent the pad from bearing with too great a pressure on the tip of the hat, while at the same time the benefit of the spring 23 will be obtained in so far as a proper reinforcement of the spring 25 is concerned.

In pouncing the crowns of hats which are of the same size, but which differ as to the fullness, it must be borne in mind that such difference exists only in the shape of the crown, while the height of such crowns is precisely the same. Therefore, after an adjustment of the spring 23 has been made for the purpose of pouncing hats with full crowns this adjustment is never disturbed in pouncing hats of the same size but with ovoidal crowns of the same depth, but the screw 27 is simply operated to throw the spring 25 inward toward the hat-crown, so that when the pouncing-arm strikes said spring it will keep the pad properly up to its work when pouncing around the curve of the tip, the same pressure of the pad being preserved against the extremity of the tip in the instance of both kinds of crowns, for the reason before explained that both springs 23 23 are never disturbed with respect to their normal condition at the point immediately opposite the axis of such tip.

It will thus be readily understood that I always preserve the same tension and strength of this spring element, taken as a whole, and merely change the position of a portion of the same in order that it may be properly effective without any undue pressure against the tip of the crown.

While this particular construction of spring is covered generically by my patent aforesaid, nevertheless it is exceedingly advantageous and enables me to do the work more effectively and expeditiously and obviates the necessity of changing adjustments from time to time in the normal position of the main spring.

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

1. In a hat-pouncing machine, the combination of means for properly supporting and revolving the hat, of the pouncing-pad carried by a pendulum and having the rear portion of its operative surface a greater distance radially from the pivot of said pendulum than the forward portion, substantially as set forth.

2. In a hat-pouncing machine, the combination of means for properly supporting the hat, the pendulum, means for supporting the pendulum the pad pivoted thereto whereby a tilting adjustment may be obtained, and means for securing said pad when adjusted, substantially as set forth.

3. In a hat-pouncing machine, the combination of the pouncing-arm, the pendulum carried thereby means for reciprocating said pendulum to and fro, a rotatory support for the hat, and the pouncing-pad carried by said pendulum and having its operative surface effective only from front to rear in direct proportion to the radial distance of such surface from the pivotal point of said pendulum, substantially as set forth.

4. The herein-described pad for a hat-pouncing machine, comprising a bow, boxes pivoted at each end of said bow beneath the same and capable of swinging in a plane at right angles to the length of the bow, the sandpaper strip extending through said boxes, means for clamping said strip within the boxes, and suitable flexible backing between said bow and strip, substantially as set forth.

5. The herein-described pad for hat-pouncing machines, comprising a bow, boxes pivoted at each end of the bow and beneath the same and capable of swinging in a plane at right angles to the length of the bow, the sandpaper strip extending through said boxes at the bottom of the pad, means for clamping said strip within the boxes, the flat strip secured to the bottom of the bow, the thin web integral with said bow and affording an un-

yielding abutment axially disposed throughout the length of said strip, and suitable flexible backing intermediate of said strips, substantially as set forth.

6. The combination of the bow having secured to its bottom the flat strip, the thin web integral with said bow and bearing axially against said strip throughout its length, the sandpaper-drum carried by said bow, the boxes pivoted to the under side of said bow at each end and capable of swinging in a plane at right angles to the length of the bow, said boxes being provided with openings and clamping-plates therein, the set-screws extending through the bottoms of said boxes and bearing against said clamping-plates, the sandpaper strip extending through said openings and adapted to be clamped within the boxes by the action of said screws and plates, and flexible backing interposed between said strips, substantially as set forth.

7. The combination with the arm which carries the pouncing-pad, the oval lathe which carries the hat-block and the resilient keeper comprising a stiff spring and a light spring secured together at their lower extremities and a screw driven through the stiff spring and operating against the light spring to throw the same inwardly toward the hat-block, said keeper being secured to the bed of the machine beyond the tip of said block and within the field of travel of said arm, substantially as set forth.

8. The combination of the rotatory hat-block and the arm which carries the pouncing-pad, with the springs 23, 25, secured at their lower extremities to the bed of the machine beyond the tip of the hat-block, the screw 27 driven through the spring 23 against the spring 25 whereby the latter may be distended inwardly toward the hat-block, and the coil-spring 26 connecting the upper extremities of said springs, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

GEORGE E. BRUSH.

Witnesses:
F. W. SMITH, Jr.,
M. T. LONGDEN.