

(No Model.)

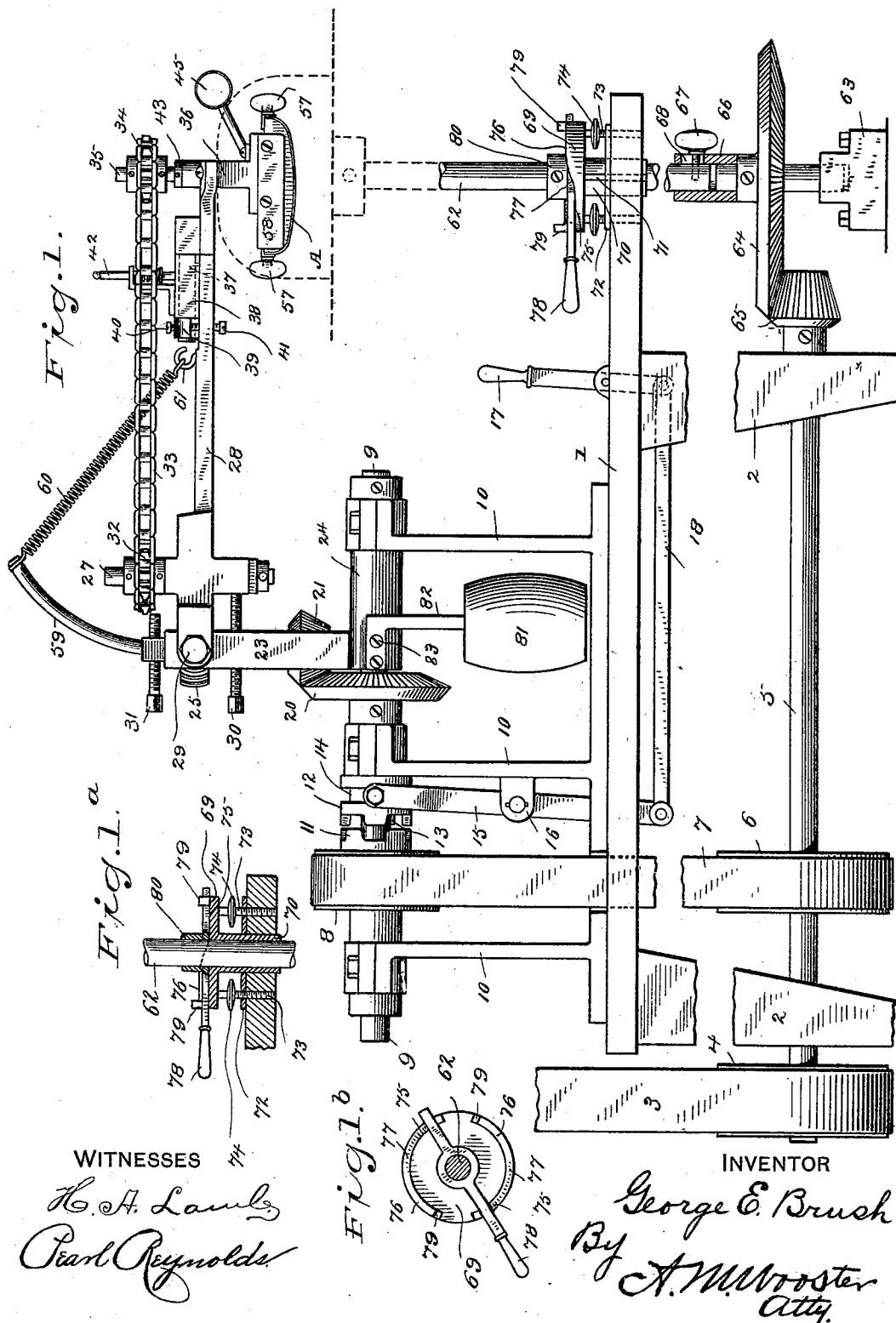
3 Sheets—Sheet 1.

G. E. BRUSH.

MACHINE FOR POUNCING CROWNS AND BRIMS OF HATS.

No. 513,873.

Patented Jan. 30, 1894.



WITNESSES

H. A. Lamb,
Pearl Reynolds.

Pearl Reynolds.

INVENTOR

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By *A. M. Wooster*
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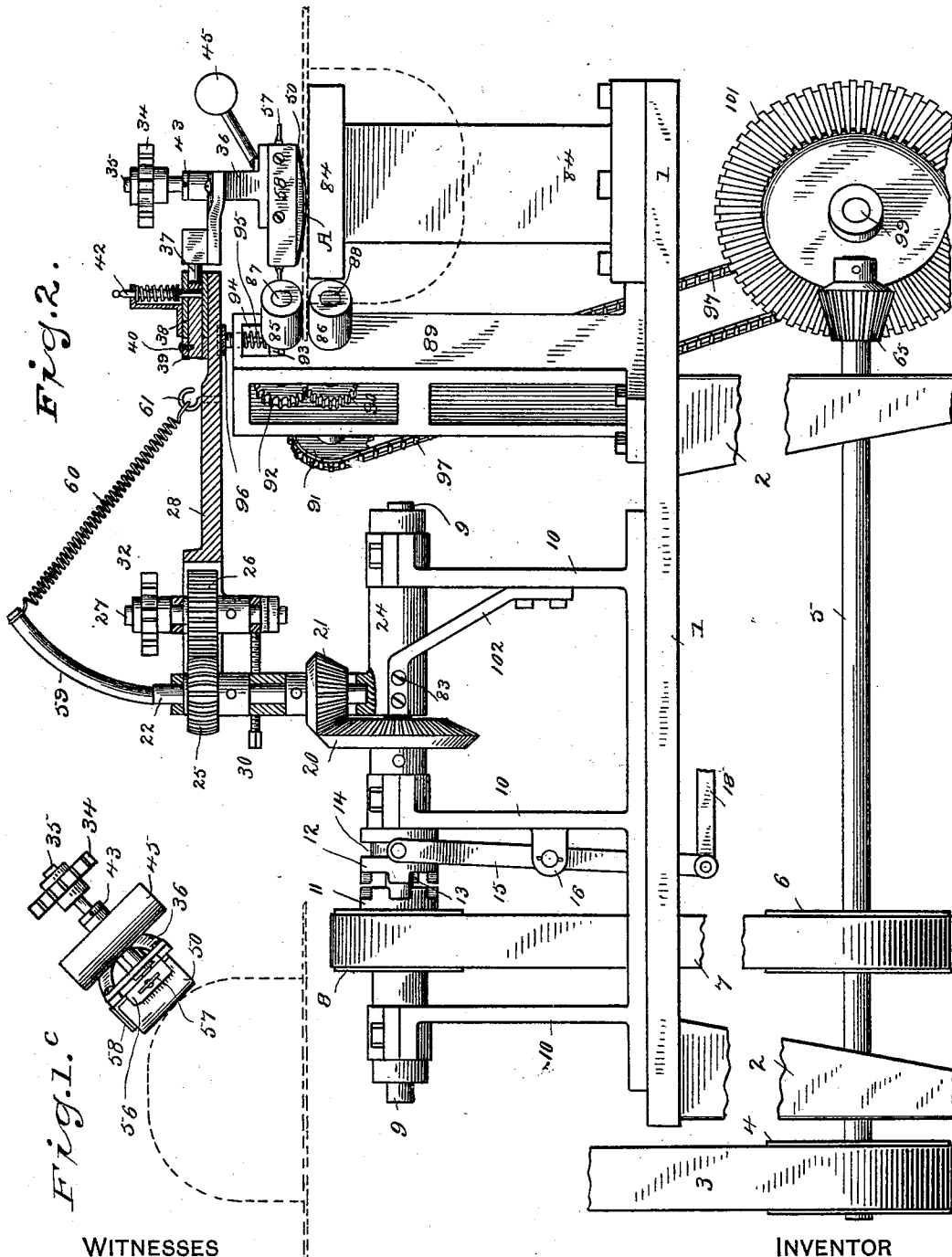


Fig. 2.

Fig. 1.

WITNESSES

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(No Model.)

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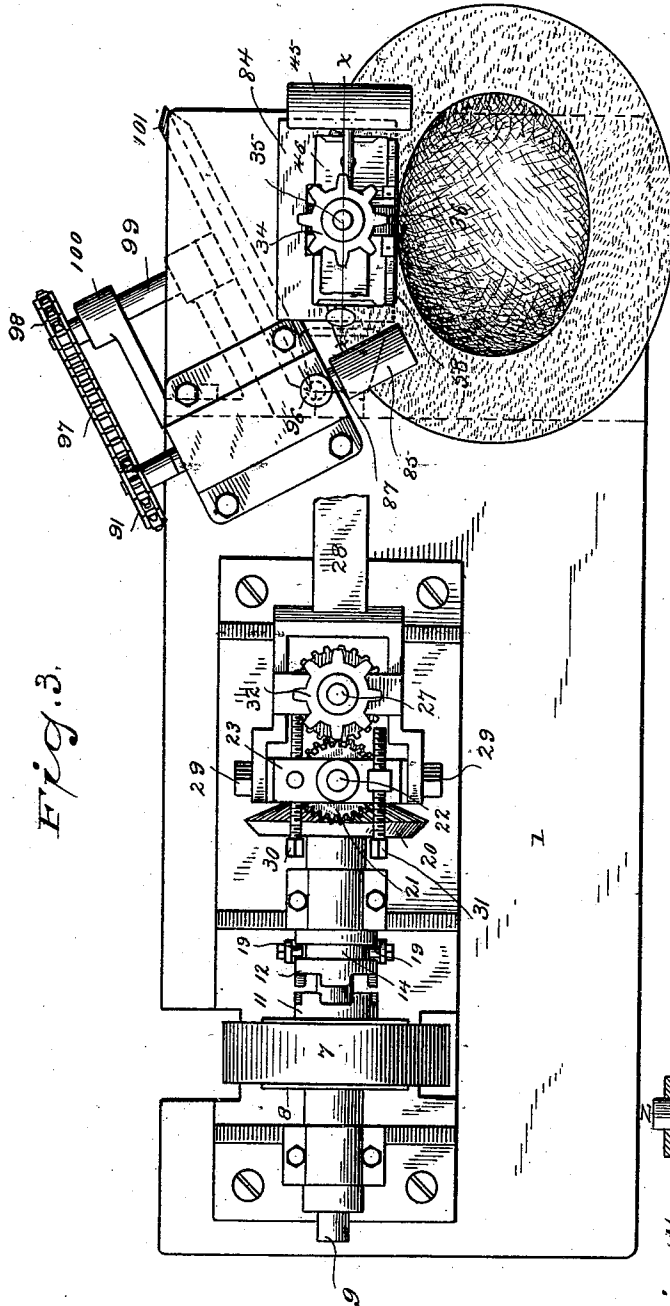


Fig. 3.

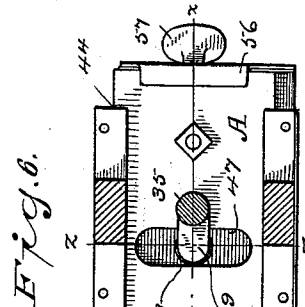


Fig. 6.

Fig. 5.

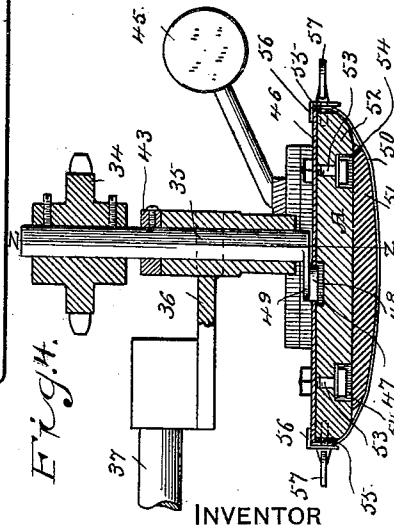


Fig. 4.

WITNESSES

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UNITED STATES PATENT OFFICE.

GEORGE E. BRUSH, OF DANBURY, CONNECTICUT.

MACHINE FOR POUNCING CROWNS AND BRIMS OF HATS.

SPECIFICATION forming part of Letters Patent No. 513,873, dated January 30, 1894.

Application filed May 22, 1893. Serial No. 475,065. (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 Crowns and Brims 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 has for its object to provide a simple, inexpensive and durable machine for pouncing the crowns and brims of hats. This operation has up to the present time been usually performed by hand owing to the fact that machines which have been devised for this purpose have been complicated and expensive and their operation in general use has been inferior to work done by hand. In order to overcome these objections and to provide a practical machine adapted for general use I have devised the novel crown and brim pouncing machine which I will now describe, referring by numbers to the accompanying drawings forming part of this specification, in which—

Figure 1 is a side elevation of my novel machine illustrating the mode of operation when used upon hat crowns; Fig. 1^a a detail sectional view corresponding with Fig. 1; Fig. 1^b, a detail plan view corresponding with Fig. 1^a. Fig. 1^c is a detail view of the pouncing pad adjusted to one of its angular positions; Fig. 2 a side elevation of my novel machine partly in section illustrating the mode of operation when used upon hat brims; Fig. 3 a plan view corresponding with Fig. 2; Fig. 4 a section of the pouncing pad on an enlarged scale on the line *x x* in Figs. 3 and 6; Fig. 5 a transverse section of the pouncing pad on the line *z z* in Fig. 6, and Fig. 6 is a section on the line *y y* in Fig. 5 showing the pouncing pad in plan.

1 denotes the bed of the machine and 2 legs by which it is supported. Power is applied by a belt 3 running over a pulley 4 on a shaft 5 under the bed.

6 is a pulley on shaft 5 from which a belt 7 passes over a pulley 8 on a shaft 9 journaled in standards 10 extending above the bed. Pul-

ley 8 is loose on shaft 9 and has formed integral therewith a clutch member 11.

12 denotes the other clutch member which is locked by a key 13 to the shaft so as to rotate therewith but is free to slide longitudinally thereon. See Figs. 1 and 2. Clutch member 12 is provided with a groove 14 and is operated by means of a lever 15 pivoted in a yoke 16, and a hand lever 17 which is connected to lever 15 by a rod 18. The upper end of lever 15 is bifurcated and is provided with studs 19 which engage the groove in clutch member 12.

20 is a bevel gear on shaft 9, which meshes with a bevel pinion 21 on a shaft 22 journaled in a housing 23 which is integral with or rigidly secured to a sleeve 24 on shaft 9.

25 denotes a gear wheel on shaft 22 which meshes with a gear wheel 26 on a shaft 27 journaled in a swinging arm 28 which is pivoted to the housing as at 29.

30 denotes a set screw in the housing which is adapted to engage some portion of arm 28 to limit the downward movement of said arm and 31 a similar set screw in the housing adapted to engage some portion of the arm to limit the upward movement thereof.

32 denotes a sprocket wheel on shaft 27, and 33 a sprocket belt engaging sprocket wheel 32 and also a sprocket wheel 34 on a shaft 35 journaled in a carrier 36 which is secured at the outer end of arm 28 in such a manner as to permit oscillation of the carrier in the vertical plane independently of the arm, more especially when the machine is used in pouncing crowns as will be more fully explained. In the present instance I have shown the carrier as provided with a spindle 37 which engages a block 38 at the outer end of the arm. At the inner end of the spindle is a block 39 which is locked thereto by a set screw 40. 41 denotes one of two set screws, one only appearing in the drawings, the other being in line therewith as appearing in Fig. 1 which engage block 39 to limit the oscillation of the spindle and carrier.

42 denotes a spring actuated bolt carried by block 38 which is adapted to engage a hole in the spindle, see Fig. 2, to lock the spindle against oscillation when the machine is used upon brims or when for any reason independ-

ent oscillation of the carrier is not required. When it is desired to change the machine from crowns to brims, set screw 40 is loosened, and the spindle is drawn outward until bolt 42 will drop down into the hole in the spindle thus locking the spindle and carrier rigidly to the arm, as clearly shown in Fig. 2.

The special shape of the carrier is not of the essence of my invention. It is simply required that the carrier be so shaped as to carry shaft 35 which is held in place therein by a collar 43 which rests upon the top of the carrier, and that it be provided with ways 44 in which the pouncing pad, denoted as a whole by A, slides. The carrier is provided for convenience with a handle 45 by which the arm, carrier and pouncing pad are manipulated when the machine is used either upon crowns or brims. The construction of the pouncing pad will be clearly understood from Figs. 4, 5 and 6.

46 is a metal plate which engages the ways and is provided with a transverse slot 47 which is engaged by a hub or pin 48 on a crank 49 at the lower end of shaft 35. The hub or pin may be provided with a roller if preferred. It is apparent that rotation of shaft 35 through engagement of the crank with the slot will cause the pouncing pad to reciprocate in the ways in the carrier.

It is of course well understood that the pouncing action upon both crowns and brims is produced by sand paper.

In my novel machine the sand paper which I have designated by 50 rests upon a piece of rubber 51 which is curved on its under side and which is itself preferably secured to a piece of cork denoted by 52. The rubber is ordinarily cemented to the piece of cork and the cork is secured to the metal plate 46 by means of bolts 53 the heads of which rest in sockets 54 in the piece of cork. The ends of plate 46 are provided with downwardly turned lugs 55 and the piece of sand paper is secured in place by clamping plates 56 which are themselves held in place by set screws 57 which engage lugs 55. The curvature of the under side of the pouncing pad is an important feature as it enables me to place the reciprocating pad in use in contact with every portion of a hat crown.

58 is a guard plate secured to the carrier at one side of the pouncing pad to prevent the possibility of injury to the crown when the pad is pouncing a brim. The use of this plate will be clearly understood from Fig. 3. In order to partially support the weight of arm 28, the sprocket chain, the carrier and pouncing pad so that in raising the arm to insert or remove a hat brim and more especially in pouncing crowns the operator will be required to exert but little physical strength, I provide an arm 59 which extends upward from the housing and supports one end of a spring 60 the other end of which is connected to a hook 61 on the arm. This

spring is made strong enough to serve as a counterbalance.

It will be understood from what has already been said that the machine is adjusted differently when used upon brims than when used upon crowns, parts used in one instance not being required in the other instance although the use of the machine as a whole and of the reciprocating pouncing pad specifically, is the same in both instances.

Turning now to Fig. 1 in connection with Figs. 4, 5 and 6 I will describe the use of my novel machine in pouncing crowns. The hat body is blocked in the usual manner. The block however is not shown as it forms no portion of my invention, the position of the blocked body while the crown is being pounced being indicated by dotted lines in Fig. 1. The blocked body is carried by a vertical shaft 62 which is journaled in the bed and is stepped in a bracket 63 which may extend upward from the floor or be bolted to the bed or to the legs. Rotation is imparted to this shaft by means of a bevel gear 64 carried thereby which meshes with a bevel pinion 65 on shaft 5. In order to provide for changing the length of shaft 62 to raise or lower the blocked body I make the shaft in two independent parts the lower end of the upper part passing into a sleeve 66 on the lower part and being locked thereto by a set screw 67 which passes through a slot 68 in the sleeve and engages the lower end of the upper part.

It will of course be understood that the main shaft is constantly in rotation when the machine is in use.

In order to disconnect shaft 62 from the main shaft so that bevel gear 64 will not engage the pinion on the main shaft and receive motion therefrom I provide means for raising shaft 62 and the parts carried thereby which I will now describe.

69 denotes a plate through which shaft 62 passes and which is provided with a sleeve 70 which passes into or through the bed and is provided with a key or spline 71 which engages a plate 72 secured to the bed. This prevents plate 69 and the sleeve from rotating with the shaft and permits said parts to be moved vertically if required for purposes of adjustment, by means of screws 73 which engage plate 72 and bear on the under side of plate 69. These screws are provided with finger wheels 74 for convenience in operation. The top of plate 69 is provided with two depressed surfaces 75 and two raised surfaces 76 which are connected by inclines 77.

78 is a hand lever the center of which is enlarged to receive shaft 62 and which turns freely thereon. This lever is adapted to engage the raised or depressed surfaces of plate 69 riding up or down the inclines while being shifted.

79 denotes stops on plate 69 which limit the oscillation of the lever in both directions.

80 is a collar rigidly secured to shaft 62

the under side of which is engaged by the hand lever. It will be seen that oscillation of the hand lever on the shaft will cause said lever to ride up or down the inclines and to pass from the raised to the depressed surfaces or vice versa. Movement in one direction of course raises the lever on the shaft and by engagement of the lever with collar 80 raises the shaft itself and all parts carried thereby sufficiently to wholly disconnect bevel gear 64 from the pinion. When used in pouncing hat crowns, sleeve 24 which is formed integral with or rigidly secured to housing 23 is free to oscillate on shaft 9. In order to counterbalance the weight of the housing, arm, &c., so that the arm will remain above the shaft instead of swinging around under the shaft, I provide a weight 81 which is secured to the sleeve by means of an arm 82 and screws 83. In this form spring actuated bolt 42 is raised as shown in Fig. 1 so that spindle 37 is not locked to block 38 but is free to oscillate therein thereby permitting an oscillatory movement of the carrier and pouncing pad independent of any movement of sleeve 24 and the housing and arm, the limit of the oscillatory movement of the spindle and carrier being determined by set screws 41 as already explained. The operation of my novel machine in pouncing crowns will be clearly understood from Fig. 1. It should be understood however that the dotted position of the hat body is merely to indicate its proper position and that the pouncing pad, arm, &c., are not in the position which they would occupy if operating upon the side of a hat crown, the bottom of the pad in use being at all times in engagement with the crown and that position being obtained by oscillating the sleeve, housing, arm, &c., on shaft 9.

The operation is briefly as follows: The operator places a blocked hat body upon shaft 62 and swings hand lever 78 to the position shown in Fig. 1 which places bevel gear 64 in engagement with the bevel pinion on the main shaft and imparts rotation to shaft 62. The operator then by means of handle 45 oscillates sleeve 24, the housing, arm, &c., on shaft 9 and places the curved bottom of the reciprocating pouncing pad in contact with the hat crown. The only hand movement required is to keep the pouncing pad in contact with the crown, using a varying amount of pressure as may be required, that being a matter wholly within the judgment of the operator, and to slightly oscillate the sleeve, housing and arm until the pouncing pad has passed from the brim to the tip of the hat. The pad may be moved upward or downward on the crown as preferred. In practice a single movement, the rapidity of which is a matter wholly within the judgment of the operator is all that is required. It will be apparent that the oscillatory movement of the sleeve, housing and arm, the swinging movement of the arm independently of the housing, and the oscillatory movement of the car-

rier and pouncing pad independently of the arm give to the pouncing pad a practically universal movement, and that the curved under side of the pad permits a perfect contact with every portion of the crown.

Turning now to Figs. 2 and 3 in connection with Figs. 4, 5, and 6 I will describe the operation of my novel machine in pouncing the brims of hats. In this form the hat brim rests upon a suitable table 84 which is supported by the bed, and the feeding operation is performed by upper and lower feed rollers 85 and 86 between which the brim passes as is clearly shown in Fig. 3, and as indicated by dotted lines in Fig. 2. The shafts which carry these rollers are denoted respectively by 87 and 88. The shaft of the lower roller is journaled in a housing 89 and carries a gear wheel 90 and a sprocket wheel 91. The shaft of the upper roller is provided with a gear wheel 92 which meshes with gear wheel 90 and is journaled in a box 95 which lies in a recess 94 in the housing in which it is adapted to move vertically; said box being held down by a spring 95 the tension of which is adjusted by a screw 96 passing through the top of the housing. Motion is imparted to the feed rollers by a sprocket chain 97 which passes over sprocket wheel 91 and over a sprocket wheel 98 on a shaft 99 which is journaled in a bracket 100 under the bed. This bracket may be bolted to the bed or legs as indicated in Fig. 3 or may rest upon the floor as preferred. At the opposite end of the shaft 99 from the sprocket wheel is a bevel gear 101 which meshes with bevel pinion 65 on shaft 5, said pinion being in this form reversed on the shaft. Motion is thus communicated from shaft 5 to the feed rollers. It will be seen that the brims may be inserted between the feed rollers without difficulty as the upper roller will yield upward against the power of spring 95. The general operation of the machine is the same as when used in pouncing the crowns of hats. In view of the fact however that oscillation of housing 23 and arm 28 and also independent oscillation of carrier 36 is wholly unnecessary I preferably when using the machine for pouncing brims, remove weight 81, and lock sleeve 24, the housing, and arm rigidly in position by means of a bracket 102 the respective ends of which are bolted to the sleeve and to one of the standards, see Fig. 2, and I lock the carrier against oscillatory movement relatively to the arm by means of spring actuated bolt 42 as already fully described, and as illustrated in Fig. 2. In pouncing the brims of hats the operator simply passes the brim over table 84 and between the feed rollers allowing the feed rollers to draw it along, the brim being meanwhile submitted to the pouncing action of the reciprocating pouncing pad. Having pounced one side of the brim the same operation may be repeated on the other side of the brim, the position of the body being inverted.

It will be understood that the operation of the pouncing pad may be stopped and started again at any time by manipulation of hand lever 17.

- 5 The various details of construction not being of the essence of my invention, may of course be varied greatly without departing from the principle thereof.

I claim—

- 10 1. In combination, the rotary block for the hat, the pouncing pad with means for reciprocating it, the swinging arm for supporting the pad, the support for said arm and the intermediate carrier forming the connection between the pad and the arm, said carrier being connected to the arm by a horizontal pivot, to swing laterally and vertically to different angles, and extending from the arm and having guide ways on which the pouncing pad moves, substantially as described.
- 20 2. In combination, the block for the hat, the pouncing pad with means for reciprocating it, the swinging arm for supporting the pad, the support for said arm, the carrier intermediate of the swinging arm and pad having guide ways in which the pad moves, said carrier being pivoted to the swinging arm to have lateral oscillatory movement independently thereof and extending therefrom to support the pad, and the stops for limiting the oscillating of the carrier, substantially as described.
- 30 3. In combination, the block for the hat, the pouncing pad with means for reciprocating it, the swinging arm for supporting the pad, the support for said arm, the carrier intermediate of the swinging arm and pad having guide ways in which the pad moves, said carrier being pivoted to the swinging arm to have lateral oscillatory movement in relation thereto and the locking device for fixing the carrier to the arm, substantially as described.
- 40 4. The combination with the swinging arm having block 38, the support for the arm the reciprocating pouncing pad, and a carrier therefor having a spindle 37 engaging block 38, of a block 39 on the spindle, and set screws engaged by said block to limit the oscillation of the carrier and pouncing pad.
- 50 5. In combination, the hat block, the reciprocating pouncing pad, the carrier having guide ways therefor, the crank shaft extending through and journaled in the carrier to operate the pad, the swinging arm supporting the carrier and connected thereto by a horizontal pivot, the support for the swinging arm, said carrier having oscillating movement about its horizontal pivot to extend at different angles to the arm, substantially as described.
- 60 6. The combination with a pouncing pad having on its upper side a plate 46 with a transverse slot 47, of a carrier having ways engaged by the projecting side edges of said slotted plate, a shaft journaled in said carrier and having a crank with a hub 48 engaging the slot whereby the pad is reciprocated

in the carrier and the means for operating the shaft, the said slotted plate serving both as a connection between the pad and its crank shaft and also as the connection to the carrier guide ways.

7. The combination with the carrier and the pouncing pad reciprocating therein, of a lateral guard plate 58 secured to the carrier at one side of the pad to prevent injury to crowns when operating upon brims.

8. The combination with the rotary shaft 9 carrying bevel gear 20, and sleeve 24 and housing 23, of arm 28 pivoted to the housing, a pouncing pad carried by the arm, shaft 35 having a crank engaging the pad, and mechanism intermediate bevel gear 20 and shaft 35 whereby said shaft is rotated and the pouncing pad is reciprocated.

9. The combination with shaft 9 carrying sleeve 24 and housing 23, arranged to turn on the said shaft of arm 28 pivoted to the housing, a pouncing pad carried by said arm, means to counterbalance the pivoted arm 28 on the housing and a weight 81 secured to sleeve 24 whereby the housing, arm and parts carried thereby are counterbalanced and retained in operative position.

10. The combination with shaft 9 carrying a sleeve 24 and housing 23 turning thereon, of arm 59 extending upward from the housing, arm 28 pivoted to the housing, a pouncing pad carried by the arm, and a spring 60 engaging arms 59 and 28 tending to lift the pad from its work whereby the weight of arm 28 is partially supported for the convenience of the operator.

11. The combination with shaft 9 carrying bevel gear 20, and sleeve 24 and housing 23, of arm 28 pivoted to the housing, a pouncing pad carried by the arm, shaft 35 having a crank engaging the pad, mechanism intermediate bevel gear 20 and shaft 35 whereby said shaft is rotated and the pouncing pad is reciprocated, and a weight 81 secured to sleeve 24 whereby the housing, arm and parts carried thereby are counterbalanced and retained in operative position.

12. The combination with shaft 9 and sleeve 24 and housing 23 turning on said shaft, of arm 28 pivoted to the housing, a reciprocating pouncing pad carried by the arm, and set screws 30 and 31 extending from the housing to limit the upward and downward movement of the arm.

13. The combination with shaft 9 having bevel gear 20, the means for turning the shaft sleeve 24, the housing, arm 28 pivoted thereto, the carrier secured to the arm, the pouncing pad, and shaft 35 having sprocket wheel 34, and having also a connection with the pad of shaft 22 journaled in the housing and having a bevel pinion engaging bevel gear 20, and a gear wheel 25, a shaft 27 journaled in the arm and having a gear wheel 26 engaging gear wheel 25, and a sprocket wheel 32, and a sprocket chain connecting sprocket wheels 32 and 34.

14. The combination with shaft 9, of the sleeve 24—arranged to turn thereon, the housing carried by the turning sleeve, the arm pivoted to the housing to swing toward and from the plane of the shaft independently of the turning of the sleeve, the reciprocating pouncing pad the means for reciprocating the same and a carrier therefor which is secured to the arm and is provided with a handle 45 whereby the sleeve, housing, arm, carrier and pad may be oscillated in pouncing crowns and the arm and parts carried thereby may be lifted in pouncing brims.

15. The combination with the hat block and the shaft 62 having collar 80 and hand lever 78 turning freely on said shaft below the collar, and the gearing for operating the said shaft of plate 69 having raised and depressed surfaces connected by inclines, and stops 79 at the ends of said surfaces, a key 71 by which said plate is held against rotation, and

screws 73 by which said plate may be adjusted vertically.

16. The combination with shaft 62 having the hat block the collar 80 and hand lever 78 turning freely on said shaft below the collar, of plate 69 having raised and depressed surfaces connected by inclines, and stops 79 at the ends of said surfaces, plate 72, sleeve 70 formed integral with plate 69 and having a key engaging plate 72 whereby plate 69 is held against rotation, screws 73 engaging plate 72 and bearing upon the under side of plate 69 whereby the latter may be adjusted vertically and the gearing for operating the shaft 62, substantially as described.

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

• GEORGE E. BRUSH.

Witnesses:

JABEZ AMSBURY,
SAMUEL H. RUNDLE.