

(No Model.)

2 Sheets—Sheet 1.

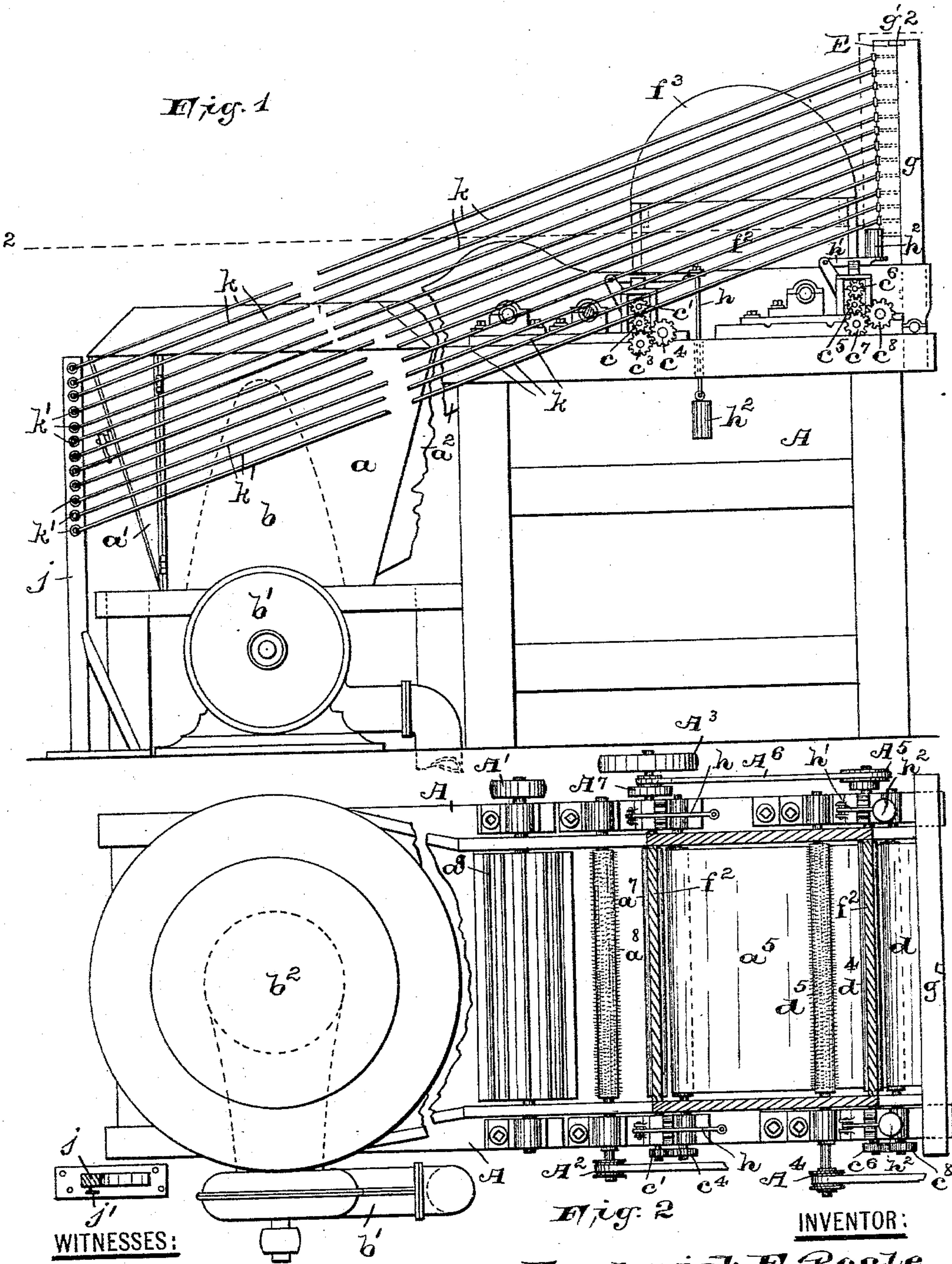
F. F. POOLE.

FEEDING DEVICE FOR HAT FORMING MACHINES.

No. 556,861.

Patented Mar. 24, 1896.

Fig. 1



WITNESSES:

Wm. B. Campfield, Jr.  
Marcy Z. Dunsdell.

Fig. 2  
INVENTOR:  
Frederick F. Poole,

BY  
Fred C. Fraentzel,  
ATTORNEY



2 Sheets—Sheet 2.

Patented Mar. 24, 1896.



INVENTOR:

**6** | *Fig. 4*

Frederick F. Poole,  
BY  
Fred C. Fraentzel,  
ATTORNEY



# UNITED STATES PATENT OFFICE.

FREDERICK F. POOLE, OF NEWARK, NEW JERSEY.

## FEEDING DEVICE FOR HAT-FORMING MACHINES.

SPECIFICATION forming part of Letters Patent No. 556,861, dated March 24, 1896.

Application filed August 1, 1895. Serial No. 557,892. (No model.)

*To all whom it may concern:*

Be it known that I, FREDERICK F. POOLE, a citizen of the United States, residing at Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Feeding Devices for Hat-Forming Machines; 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, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

My present invention relates generally to improvements in hat-forming machines, and has for its primary object to provide a fur-feeding device to be used in connection with any of the well-known constructions of hat-forming machines for depositing successively certain quantities of fur set aside for forming the hat-bodies one at a time upon the conductor-board of the machine, which is then conducted in the usual manner to the forming-cone by an air-blast from a blower.

The invention therefore consists, broadly, in the arrangement and combination, with a hat-forming machine, of a device termed a "weighing-box," having compartments, in each of which a certain quantity of fur is set aside sufficient to form one hat-body, and means for causing each compartment to be operated successively, and thereby deposit the fur contained in the compartment upon the conductor-board of the machine to be carried off to the forming-cone on which the hat-body is formed.

The invention consists, furthermore, in certain other arrangements and combinations of parts and also in the details of construction of the device, such as will be hereinafter fully described, and finally set forth in the clauses of the claim.

In hat-forming machines as now used the fur is first weighed out in certain quantities and then fed and spread by hand upon the conductor-board of the machine. In my invention the fur is simply arranged or placed in the several compartments of the weighing-box, each compartment being of such a size that it cannot hold more than the proper quantity used in making a hat-body, and

when the device is placed in a frame connected with the hat-forming machine, preferably at the back of the conductor-board, then each chamber can be emptied of its contents as required by suitable mechanism operated by the workman at the front of the machine in charge of the forming-cone, while heretofore a second person was required at the back of the machine for feeding the fur into the same and spreading it out upon the conductor-board.

My invention is clearly illustrated in the accompanying sheets of drawings, in which—

Figure 1 is a side elevation of one form of hat-forming machine provided with the feeding device embodying the principles of my invention; and Fig. 2 is a plan or top view of the machine with the feeding device represented in horizontal section, said section being taken on line 2 2 in Fig. 1 and the weighing-box being removed. Fig. 3 is a longitudinal vertical section of the feeding device and weighing-box on an enlarged scale, illustrating the same in connection with part of the hat-forming machine. Fig. 4 is a front view of the weighing-box. Fig. 5 is a detail horizontal section taken on line 5 5 in Fig. 4, and Fig. 6 is a detail vertical section taken on line 6 6 in said Fig. 4.

Similar letters of reference are employed in all of the above-described views to indicate corresponding parts.

In said views, Figs. 1, 2 and 3 show my novel construction of feeding device in connection with one form of hat-forming machine, which consists, essentially, of a main frame A, in front of which is a case or trunk a, provided with the door or doors a', which surrounds the former cone b, and against which the fur is conducted from the conductor-board a<sup>2</sup> by the air-blast from a suitable blower b', which is connected by a pipe with the under side of the rotating table, on which the cone is placed in the usual manner.

As will be seen more especially from Fig. 3, two rollers a<sup>3</sup> and a<sup>4</sup> carry a conveying-apron a<sup>5</sup>, which delivers the fur directly between the feed-rollers a<sup>6</sup> and a<sup>7</sup> to a rotating picker-cylinder a<sup>8</sup> and thence to the brush-roll a<sup>9</sup>, from which the air-current carries the fur to the mouth of the casing or trunk a, where it collects upon the forming-cone, as will be under-



stood. The cone  $b$  is made in the usual manner, of perforated sheet-copper, and is placed upon the rotating table, in the center of which is the opening  $b^2$ , (see Fig. 2,) communicating with the exhaust-fan  $b'$ , by means of which an air-current is drawn through the perforations, so that the fur is thus caused to be deposited on the surface of the cone.

The brush-roll  $a^9$  is operated by a suitable pulley  $A'$  on the shaft thereof, while the picker-cylinder  $a^8$  is operated by a pulley  $A^2$ . The lower feed-roll,  $a^9$ , is operated by a pulley-wheel  $A^3$  on its shaft and communicates motion by means of a gear-wheel  $c$  meshing with a gear  $c'$  to the upper feed-roll,  $a^7$ . A gear-wheel  $c^3$  in mesh with the gear  $c$  actuates a gear-wheel  $c^4$  connected with the shaft of the apron-carrying roll  $a^3$  to operate the latter and its conveying-apron  $a^5$ . All the shafts rotate in suitable bearings, substantially as shown.

Between the two rolls  $a^3$  and  $a^4$  I have arranged a suitable partition or base-board  $a^{10}$ , as will be seen from Fig. 3.

The several parts of the machine just described are old, *per se*, being employed in connection with most any of the well-known forms of hat-forming machine.

As will be seen from said Fig. 3, I have arranged above the conveying-apron  $a^5$  of the machine a second apron  $d$ , which passes over the rolls  $d'$  and  $d^2$ . Directly in front of the roller  $d'$  is a second pair of feed-rollers  $d^3$  and  $d^4$ , and in front of these is a picker-cylinder  $d^5$ , which conveys the fur to the conveying-apron  $a^5$ , as will be clearly understood from an inspection of Fig. 3.

Above the apron  $d$  I have arranged a suitably-inclined board  $d^6$ . The picker-cylinder  $d^5$  is operated by a pulley  $A^4$ , while the axle of the lower feed-roller  $d^3$  is operated by a stepped pulley  $A^5$ , which is connected by a belt  $A^6$  with the stepped pulley  $A^7$  on the axle of the feed-roller  $a^6$ , substantially as shown.

A gear-wheel  $c^5$  on the shaft carrying the feed-roll  $d^3$  is in operative mesh with a gear  $c^6$  on the shaft of the roll  $d^4$ . A gear-wheel  $c^7$  in mesh with the gear  $c^4$  actuates a gear-wheel  $c^8$  connected with the shaft of the apron-carrying roller  $d'$ . The shafts of these several parts of construction just described rotate in suitable bearings, substantially as illustrated in Figs. 1 and 2.

The feed-rollers  $a^3$  and  $a^4$ , as well as the feed-rollers  $d'$  and  $d^2$ , are controlled by means of the usual forms of weight-arms  $h$  and  $h'$ , respectively, each carrying a suitable weight  $h^2$ , as will be clearly seen from Fig. 1. Above the feed-roll  $a^4$  I have arranged a partition  $f$ , and over the feed-roll  $d^2$  is a second partition  $f'$ . Resting upon said partitions is a suitable box  $f^2$  having a screen cover  $f^3$  in the top thereof. These parts are detachably secured to enable the operator to get at the several parts of the machine for cleaning or removing obstructions.

At the back of the machine are two uprights

$g$  connected at the top by a cross piece or bar  $g'$ .

The weighing-box  $E$ , containing the fur, rests in an offset in a cross-piece  $g^2$ , in which it is held by a locking-button  $g^3$  or other suitable means, and said box is also held at the top in a similar cross-piece  $g^4$  by a button  $g^5$  or other like means. Said weighing-box  $E$  is closed at the back  $e$  and has the two sides  $e'$  being entirely open at the front.

Pivotally secured to the back  $e$  by means of suitable hinges  $i$  are partitions or boards  $e^2$ , of which there are usually twelve; but any other desirable number of such boards may be used. When said boards are in their horizontal positions, (indicated in Figs. 3 and 4,) they form certain compartments  $E'$   $E'$ , in which the fur in sufficient quantity to make a hat-body is arranged. Secured to the front edge of said sides  $e'$  of the box  $E$  are certain holding-catches  $e^3$ , made of spring metal, against which a plate  $e^4$  on the under side of each board  $e^2$  is brought in sliding contact when the board is raised, to permit the upper edge of the catch  $e^3$  to spring under the plate  $e^4$  on the board  $e^2$ , and thereby hold the latter in its raised position, as will be clearly understood from an inspection of Fig. 6. To cause said boards  $e^2$  to drop from their horizontal positions (indicated in Fig. 3) to the inclined positions indicated in dotted outline in said Fig. 3, I have secured to one of said uprights  $g$  of the framework of the hat-forming machine certain plates or bars  $l$  having the arms  $l^2$  connected thereto by suitable hinges  $l^3$ , as clearly shown. Each arm  $l^2$  has attached thereto a spring  $l^4$ , which is also connected with the upright  $g$ , and the free end  $l^5$  of each arm  $l^2$  is in operative frictional engagement with the back of the spring-catches  $e^3$ , as clearly represented in Figs. 4 and 5. Each arm  $l^2$  has also secured thereto a pull-rod  $k$  or other suitable operating means, provided at the front with a ring or finger-piece  $k'$ , by means of which the front ends of the rods can be held in position on suitable hooks  $j'$  on the post  $j$  for convenient handling by the operator. Now, when all the compartments in the weighing-box  $E$  have been filled with the proper quantity of fur and the box is placed in position between the uprights  $g$  of the machine, then the arms  $l^2$  are in their normal engagement back of the respective spring-plates  $e^3$ , as clearly shown in Fig. 5. As soon as the workman starts the machine he pulls the lowest rod  $k$ , thereby bringing the arm  $l^2$  to the dotted position indicated in Fig. 5. This causes the disengagement of the catch  $e^3$  with the plate  $e^4$  on the board  $e^2$ , and allows the said board to drop to the position indicated in dotted outline in Fig. 3, and the fur in the lowest compartment will be spread upon the apron  $d$ , across the entire width thereof, from which it immediately passes through the feed-rolls  $d^3$  and  $d^4$  upon the picker-cylinder  $d^5$  and upon the apron  $a^5$  to the other parts of the machine, and finally to the form-



ing-cone, in the manner as has been herein-above fully described.

When the lower rod  $k$  is released by the operator, the spring  $l^1$ , connected with the arm  $l^2$ , causes the return of the latter to its normal position, while the lowest board  $e^2$  remains in its dropped position.

When the fur has been deposited upon the cone, which is very rapidly done, said cone is removed and replaced by a second cone. The workman now pulls on the next higher rod  $k$ , and thereby operates the next higher board  $e^2$  of the weighing-box E in the manner just described, causing the fur to be spread over the entire width of the apron, to be finally collected upon the cone, and so on. The different boards  $e^2$  are operated successively by the different rods  $k$  connected therewith.

To prevent the fur from dropping upon the cover  $f^3$  and the screen covering  $f^4$  thereon, I have secured in front of said weighing-box a suitable curtain  $m$  or other covering, as will be seen from said Fig. 3.

The various combinations and arrangements above described produce a practical and operative machine, the operation being substantially that of a person feeding the fur at intervals into the machine and upon the conductor-board, thereby resulting in a great saving of labor and time.

Of course it will be evident that many changes may be made in the details of construction without departing from the scope of my present invention. Hence I do not limit my invention to the exact arrangements and combinations of the parts herein shown and described.

Having thus described my invention, what I claim is—

1. The combination, with the mechanism of a hat-forming machine, of a weighing-box removably arranged on the frame of the machine, and mechanism connected with said weighing-box and operating to deposit the fur in said box into the forming-machine, substantially as and for the purposes set forth.

2. The combination, with the mechanism of a hat-forming machine, of a weighing-box arranged on the frame of the machine, and having compartments therein, and means connected with each compartment, operating to separately deposit the fur in said compartments into the forming-machine, substantially as and for the purposes set forth.

3. The combination, with the mechanism of a hat-forming machine, of a weighing-box arranged on the frame of the machine, and provided with pivoted boards  $e^2$ , and means connected therewith for normally retaining said boards in horizontal positions to form compartments, and mechanism connected with each compartment, operating to deposit the fur in said compartments into the forming-machine, substantially as and for the purposes set forth.

4. The combination, with the mechanism

of a hat-forming machine, of a weighing-box arranged on the frame of the machine, and provided with pivoted boards  $e^2$ , and catch-plates  $e^3$  for normally retaining said boards in horizontal positions to form compartments, and mechanism connected with each compartment, operating to deposit the fur in said compartments into the forming-machine, consisting, essentially, of spring-actuated arms in normal engagement with said catch-plates, and a pull-rod connected with each arm, substantially as and for the purposes set forth.

5. In combination, with the mechanism of a hat-forming machine, a conveyer-apron  $d$ , a pair of feed-rolls  $d^3$  and  $d^4$ , a picking-cylinder  $d^5$ , a weighing-box arranged on the frame of the machine, and mechanism connected with said box and operating to deposit the fur in said box, upon the apron  $d$ , substantially as and for the purposes set forth.

6. In combination, with the mechanism of a hat-forming machine, a conveyer-apron  $d$ , a pair of feed-rolls  $d^3$  and  $d^4$ , a picking-cylinder  $d^5$ , a weighing-box arranged on the frame of the machine, pivoted boards  $e^2$  in said box, and means connected therewith for normally retaining said boards in horizontal positions to form compartments, and mechanism connected with each compartment, operating to deposit the fur in said compartments into the forming-machine, substantially as and for the purposes set forth.

7. In combination, with the mechanism of a hat-forming machine, a conveyer-apron  $d$ , a pair of feed-rolls  $d^3$  and  $d^4$ , a picking-cylinder  $d^5$ , a weighing-box arranged on the frame of the machine, pivoted boards  $e^2$  in said box, catch-plates  $e^3$  for normally retaining said boards in horizontal positions to form compartments, and mechanism connected with each compartment, operating to deposit the fur in said compartments into the forming-machine, consisting, essentially, of pivoted and spring-actuated arms in normal engagement with said catch-plates, and a pull-rod connected with each arm, substantially as and for the purposes set forth.

8. The herein-described weighing-box, consisting, essentially, of a back board  $e$  and sides  $e'$ , hinged boards  $e^2$ , and means on one of said sides  $e'$  for retaining said boards  $e^2$  normally in horizontal positions to form compartments, substantially as and for the purposes set forth.

9. The herein-described weighing-box, consisting, essentially, of a back board  $e$  and sides  $e'$ , hinged boards  $e^2$ , and catch-plates  $e^3$  on one of said sides  $e'$  for retaining said boards normally in horizontal positions to form compartments, substantially as and for the purposes set forth.

10. The herein-described weighing-box, consisting, essentially, of a back board  $e$  and sides  $e'$ , hinged boards  $e^2$ , and means on one of said sides  $e'$  for retaining said boards normally in horizontal positions to form compartments, in combination, with an upright,



as *g*, pivoted and spring-actuated arms secured thereto and in normal engagement with said means on the sides *e'*, and a pull-rod connected with each of said arms, substantially  
5 as and for the purposes set forth.

11. The herein-described weighing-box, consisting, essentially, of a back board *e* and sides *e'*, hinged boards *e<sup>2</sup>*, and catch-plates *e<sup>3</sup>* on one of said sides *e'* for retaining said boards  
10 normally in horizontal positions to form compartments, in combination, with an upright, as *g*, pivoted and spring-actuated arms se-

cured thereto and in normal engagement with said spring-catches, and a pull-rod connected with each of said arms, substantially as and  
15 for the purposes set forth.

In testimony that I claim the invention set forth above I have hereunto set my hand this  
31st day of July, 1895.

FREDERICK F. POOLE.

Witnesses:

FREDK. C. FRAENTZEL,  
WM. H. CAMFIELD, Jr.