2 Sheets—Sheet 1

A. DELKESCAMP & F. B. BRADLEY.

Machine for Arranging and Feeding Blanks.

No. 203,897. Patented May 21, 1878.

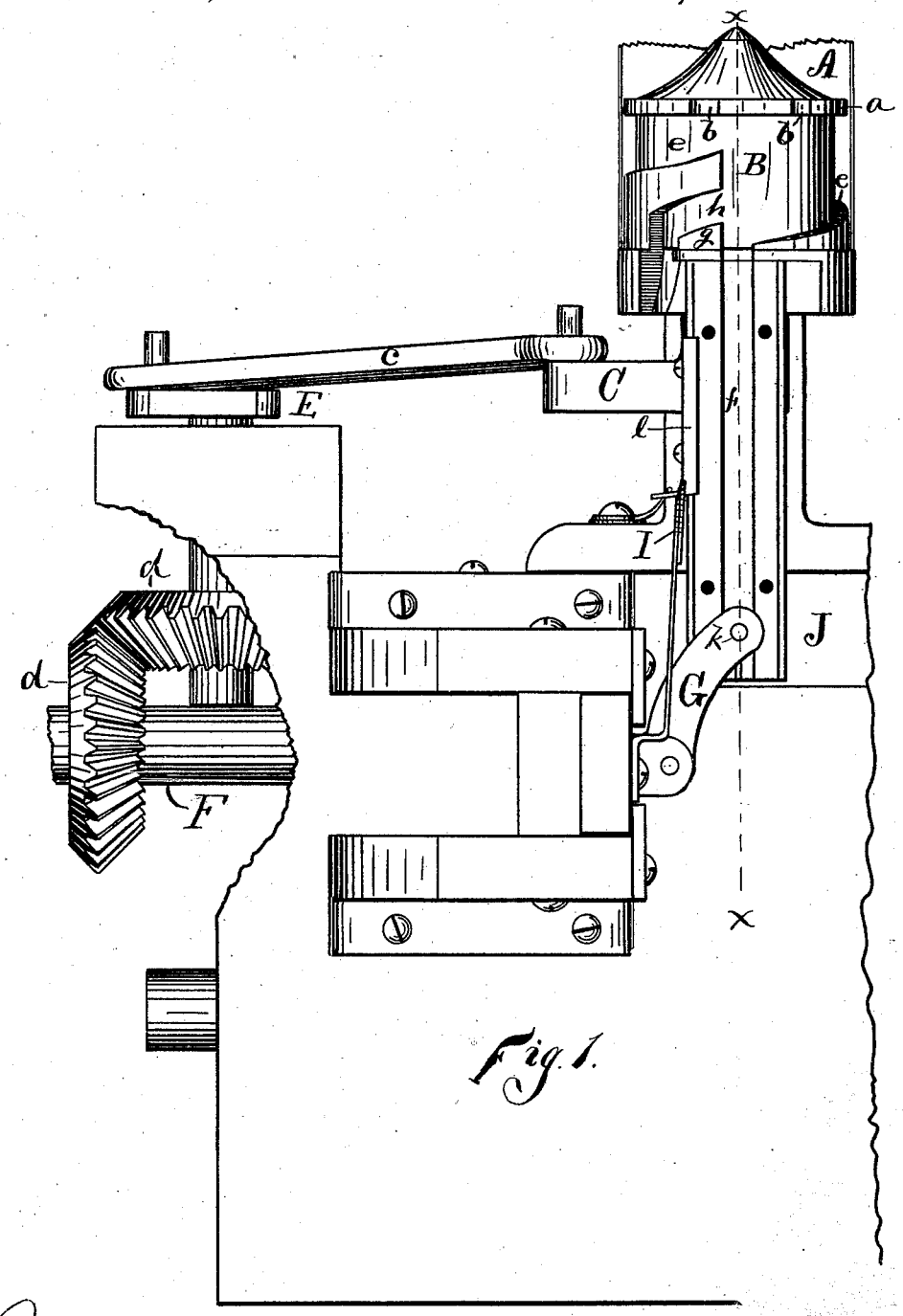

Fig. 1.

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Fig. 3.

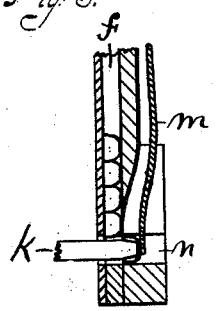


Fig. 2.

Fig. 4.

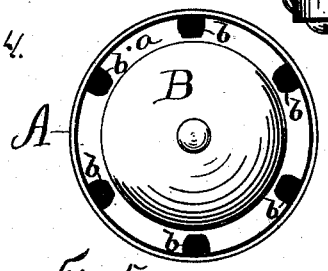
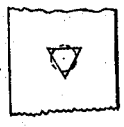


Fig. 5.



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UNITED STATES PATENT OFFICE.

ADOLPH DELKESCAMP AND FRANKLIN B. BRADLEY, OF SOUTHINGTON, CONNECTICUT; SAID DELKESCAMP ASSIGNOR TO SAID BRADLEY.

IMPROVEMENT IN MACHINES FOR ARRANGING AND FEEDING BLANKS.

Specification forming part of Letters Patent No. **203,897**, dated May 21, 1878; application filed October 4, 1877.

To all whom it may concern:

Be it known that we, ADOLPH DELKESCAMP and FRANKLIN B. BRADLEY, both of Southington, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Machines for Feeding Blanks in the manufacture of buttons, ferrules, and other articles from cup-shaped blanks, of which the following is a specification:

Our invention consists in the peculiar construction and operation of certain devices, and in the novel combination of parts, as hereinafter described.

In the accompanying drawing, Figure 1 is a front elevation of a machine for feeding cup-shaped blanks which embodies our invention, the same being represented with the front plate of the conductor removed. Fig. 2 is a vertical section of the same on line *x x* of Fig. 1. Fig. 3 is a like view of the conductor with its adjacent parts represented in a different position. Fig. 4 is a top view of the receptacle and its rotating cylinder, and Fig. 5 is a front elevation of a detached portion of the conductor.

A designates a hollow cylindrical receptacle, represented in vertical section in Figs. 1 and 2, and with its top broken off; but it may be carried up to any desired height. Within the receptacle A, and extending upward some distance above its bottom, is a rotating cylinder, B, made conical on its top end, and provided with a peripheral flange, *a*, at the base of said conical-shaped end, which flange is provided with openings or guides *b*, of the same contour in plan view as the contour in side view of the blanks to be fed, and with the largest or widest part of the openings at the periphery of said flange. The blanks to be fed are placed promiscuously within the receptacle A, and a partial reciprocating and rotary motion is imparted to the cylinder B by means of crank C, attached to the cylinder-shaft D, the pitman *c*, and crank E, the latter receiving a continuously-revolving motion through the beveled gears *d d* and main shaft F.

The conical-shaped end of the cylinder B has a tendency to throw the blanks over the flange *a*, and the reciprocating rotary motion before described causes the openings *b* to be brought under the blanks within the receptacle and over the flange, when those which happen to be in a position to coincide with the openings will fall through, and those which do not at first so coincide will be gently turned or rolled over by the movement of the flange upon which they lie, until they also coincide with and fall through the openings *b*, so that, when no obstruction is offered to the passage of the blanks below the flange, all of the blanks placed within the receptacle may be automatically fed through it, and without in the least bruising them, even when made of very thin metal.

From the flange *a* the blanks fall into the space between the sides of the receptacle A and cylinder B, which space is just a little wider than the length of the blank, and the blanks are wide enough so that they will not turn over endwise within said space. When the blanks and openings *b* are of the form shown, they are deposited between the sides of the receptacle and cylinder, with their open ends toward the sides of the receptacle. At the lower end of the space under the flange *a* there is a stationary spiral incline, *e*, which nearly surrounds the cylinder B, as most clearly shown in Fig. 1, and the lower end of which incline is at the top of the vertical and stationary conductor *f*. In Fig. 1 the front plate of this conductor is removed, in order to show its interior, which is, in cross-section, a four-sided figure with right-angled corners; but the size of it is such that a blank once falling sidewise into it, in the position in which the series of blanks are represented in it in Fig. 2, cannot change its position except to rotate on its own axis.

When the blanks fall through the openings *b* of the flange *a* upon the incline *e*, they roll down the same and into the conductor *f*. In case there is any tendency to clog on the incline, the reciprocating motion of the cylinder B against the solid end of the blanks has a tendency to free them and precipitate them down the incline. At the upper end of the conductor *f* there is a stop, *g*, the height of which is about equal to the diameter of the blanks, and the face of which is flush with the side of the conductor which is opposite the

foot of the incline *e*, as shown in Fig. 1, and above said stop is a waste-chute, *h*. The stop *g* acts to stop the blanks over the upper end of the conductor *f* and turn them into it as they come down the incline *e* until the conductor is full. If the blanks then come down the incline so fast as to be more than one tier high, they are not stopped and turned downward by the stop *g*, but pass on over the top of it and into the waste-chute *h*, from which they may be discharged into any proper receptacle, so that, no matter how fast blanks may be fed down the incline within certain limits, they will never remain more than one tier high at the top of the conductor, so that it is impossible for the blanks to clog up the lower end of the receptacle A, and at the same time more than enough to supply the conductor may be let through the flange *a*, so as to insure a supply always sufficient to keep the conductor full. By making a greater or less number of openings in the flange *a*, the supply may be increased or diminished at pleasure. The blanks which are discharged through the waste-chute may be again placed in the receptacle A. As the blanks are held on the incline with their open end toward the sides of the receptacle A, they are consequently deposited in the conductor with their open ends to the front, as shown in Fig. 2. The lower end of the conductor *f* is closed.

Upon the main shaft F there is a crank-pin, *i*, Fig. 2, to which is connected the pitman G for imparting motion to the reciprocating carriage H. Said carriage is provided with a punch, *k*, the body of which is triangular in cross-section, and the end of which is made of such size and shape as to substantially fill the inside of the blanks. Upon one side of the conductor *f* there is a small vertically-sliding carriage, *l*, which carries a light spring, *m*, Figs. 2 and 3, the lower end of which spring rests in a vertical slot at the base of the conductor *f*. A wedge, I, is also carried by the horizontally-reciprocating carriage H, which wedge engages with the under side of carriage *l*, and elevates it and the spring *m* at every reciprocation of the wedge I and carriage H.

At the base of the conductor *f*, and directly opposite the punch *k*, there is a circular delivery-opening, *n*, leading horizontally and transversely through the back of the conductor.

The plate on the front of the conductor (shown by the detached front view, Fig. 5) has a triangular opening which allows the body of the triangular punch to pass through it, as represented in Figs. 2 and 3. By making this opening and the punch *k* triangular, the punch can be made to completely fill the blank at three points, and thereby better guide it in its course, and at the same time the hole is so shaped that it is impossible for a blank to work forward through or partially through the hole, whereas, if the punch were round and made to fill the inside of the blanks, the hole to admit it would have to be so nearly the diameter of the blank that the latter would be liable to work wholly or partly out through it.

As the blanks fall down the conductor *f*, and are stopped with the bottom blank at the foot of the conductor in front of the transverse delivery-opening *n*, preparatory to being delivered through the same, some means must be provided to keep the blank from partially entering said opening and turning over upon one side, in which position it would be mashed out of shape by the punch *k* in its next forward movement. The means employed to prevent such a result is the spring *m*, which, to all practical purposes, closes the opening *n*, so that the bottom blank keeps its position in the conductor *f* the same as if no transverse delivery-opening were made therein until the blank is acted upon and held by the punch *k*, as hereinafter described.

When the reciprocating carriage H throws the punch *k* into the transverse hole in the conductor, said punch enters the inside of the lowermost blank, while the spring *m* is pressed firmly against the back of said blank, and holds it in place, as shown in Fig. 2. The further movement of the punch *k* depresses the spring *m* and forces the blank into the circular delivery-opening *n*, as shown in Fig. 3, the spring meantime continually holding the blank against the end of the punch. The wedge I has by this time been driven under the carriage *l* so far as to slightly raise the spring, but not enough to disengage it from the blank, which blank, however, is now so far advanced into the circular delivery-opening *n* as to be supported thereby without the aid of the spring; and as the punch proceeds the spring is raised so high that its lower end clears the blank, which is forced entirely through *n* and into the receiving-die J, as partially indicated by the broken lines in Fig. 2. By means of the mechanism last described every blank is taken from the stationary conductor and firmly and squarely seated in the receiving-die, where it may be further operated upon in any desired manner. The receiving-die may be made to move back and forth to present unfilled dies to the back of the circular opening *n*, or it might travel by it on the periphery or face of an intermittent revolving carriage for the same purpose, all of which is immaterial to our invention, because the subsequent operation of dies, after once being filled from the conductor, constitutes no part of the feeding mechanism. Upon the return movement of the carriage H the punch *k* is wholly withdrawn, the spring *m* returns to its normal condition, and another blank falls down, and is forced transversely out of the stationary conductor, as before described.

We have herein described the cylinder B as having a vibratory motion; but other movements will answer the same purpose—as, for instance, a continuous rotary or an intermittent rotary motion. We also prefer to make the top of the cylinder conical; but, if made

flat, the motion imparted to it would tend to throw the blanks outward, and produce the same result. We have also described the blanks as cup-shaped; but if the solid end were removed, the form of the blank would still be the same, and could be fed just the same. Neither is it essential that the blank should be hollow, as any blank having a controlling shape may be fed by means of the same mechanism, made to conform to the shape of the blanks.

We claim as our invention—

1. In a machine for feeding blanks, the flange *a*, mounted on the upper end of the cylinder B, and provided with peripheral openings *b*, in combination with the sides of the receptacle A, surrounding said flange, and forming one side of the openings for the passage of the blanks, substantially as described, and for the purposes set forth.

2. The combination of the receptacle A, rotary cylinder B, and spiral incline *e*, substantially as described, and for the purpose specified.

3. The combination of receptacle A, cylinder B, incline *e*, and conductor *f*, substantially as described, and for the purpose specified.

4. The combination of conductor *f*, incline *e*, stop *g*, and waste-chute *h*, substantially as described, and for the purpose specified.

5. The combination of the following elements, viz: first, a stationary receptacle; second, an incline placed within the receptacle in such relative position as to incline downward when the receptacle is in a vertical position; third, an internal rotating cylinder; and, fourth, mechanism for imparting motion to the said cylinder relatively to the receptacle, substantially as described, and for the purpose specified.

6. The combination of the conductor *f*, having opening *n*, the spring *m*, reciprocating punch *k*, and mechanism for raising the spring out of the path of the punch, substantially as described, and for the purpose specified.

7. In combination with the conductor *f*, the punch *k*, of triangular form in cross-section, and a corresponding-shaped opening in the front of the conductor, substantially as described, and for the purpose specified.

8. The receptacle A, having a chamber at both its ends, in combination with the arranging mechanism and cut-off, forming a transverse division through the receptacle between said chambers, the lower chamber being located below the plane occupied by the arranging mechanism, substantially as described, and for the purpose specified.

9. In a machine for feeding cup-shaped blanks, the conductor *f*, having a transverse delivery-opening, in combination with the spring *m*, or equivalent mechanism, for closing said opening and preventing the bottom blank from rolling over while it is being seated preparatory to being delivered through said opening, substantially as described, and for the purpose specified.

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