H. C. HARVEY.

BLANK FEEDING MECHANISM.

APPLICATION FILED MAY 3, 1917.

1,244,086.

Patented Oct. 23, 1917.

Fig. 2.

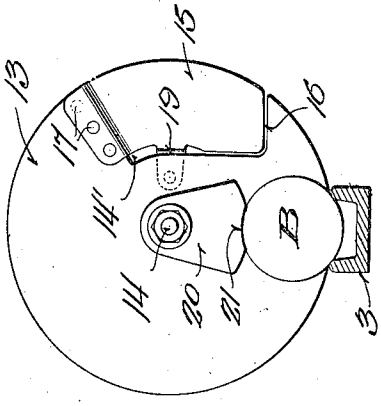


Fig. 1.

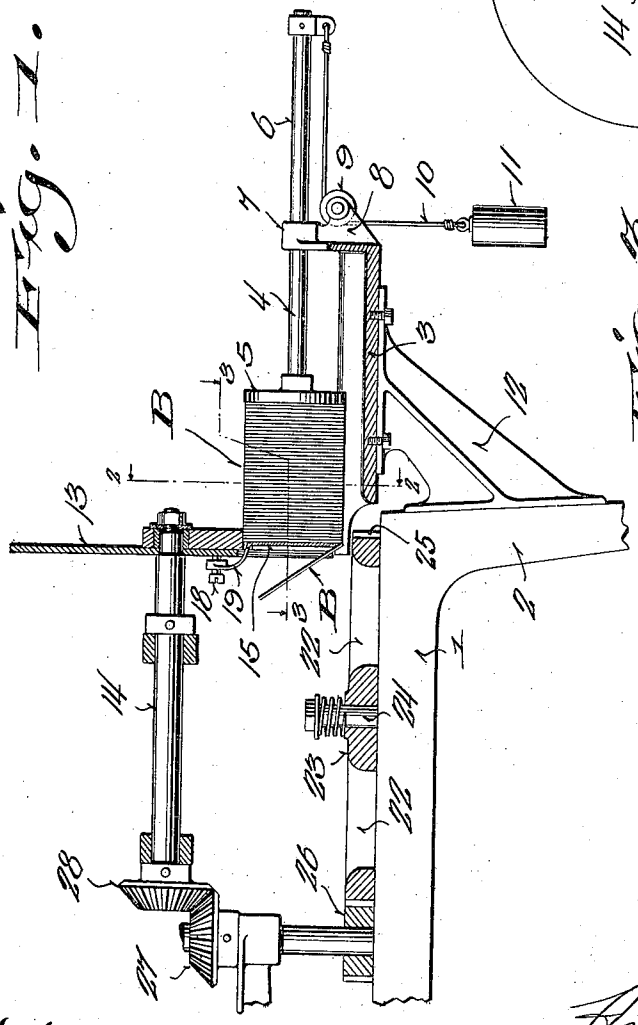
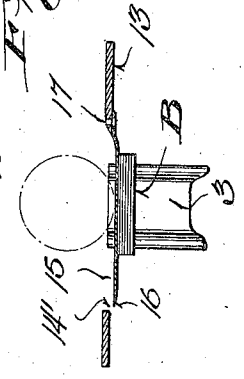


Fig. 3.



Witness:

Inventor:
Harold C. Harvey
By Geo. W. Young
Attorney

UNITED STATES PATENT OFFICE.

HAROLD C. HARVEY, OF MILWAUKEE, WISCONSIN, ASSIGNOR TO MILWAUKEE LACE PAPER CO., OF MILWAUKEE, WISCONSIN.

BLANK-FEEDING MECHANISM.

1,244,086. Specification of Letters Patent. Patented Oct. 23, 1917.

Application filed May 3, 1917. Serial No. 166,113.

To all whom it may concern:

Be it known that I, HAROLD C. HARVEY, a citizen of the United States, and resident of Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented certain new and useful Improvements in Blank-Feeding Mechanisms; and I do hereby declare that the following is a full, clear, and exact description thereof.

My present invention relates to improvements in blank feeding machines, particularly to that type of machine in which the blanks are arranged in superposed relation in a suitable magazine.

Specifically the invention relates to improvements on the mechanism illustrated in in my co-pending U. S. patent application, Serial No. 152623, filed Mar. 6, 1917.

One of the principal objects of this invention is to provide a novel means for feeding the blanks to a suitable receiving mechanism.

An additional object is to provide a machine in which the operating parts may be disposed in substantially any position and yet effectively operate upon the blanks.

With these general objects in view the invention resides in the improved construction and novel combination of parts which will be hereinafter more particularly described, and claimed, and shown in the drawing, wherein:

Figure 1 represents a vertical sectional view through a portion of a conventional cup forming machine having my improved blank feeding mechanism applied thereto;

Fig. 2 is a detail transverse sectional view on the plane of the line 2—2 of Fig. 1; and

Fig. 3 is a detail horizontal section on the line 3—3 of Fig. 1.

As hereinbefore mentioned this invention like that illustrated in my companion application is designed for feeding sheets of material in the form of paper blanks to a suitable forming machine where the blanks are made into articles of various shapes having different purposes. The structure illustrated in the drawing is primarily adapted for use in connection with the stamping mechanism of bon-bon cup forming machines.

Referring more particularly to the drawing in the present application it is seen that the numeral 1 designates the bed of a bon-bon cup forming machine supported by suitable legs as at 2 and carrying the blank feeding mechanism. This mechanism consists broadly of a magazine, means for separating one or more sheets of blanks from the plurality of the same contained in the magazine, and a receiver to convey the blanks removed from magazine to a suitable point where they may be acted upon. The same means which actuates the blank removing device actuates the receiver so that the movement of these parts will be synchronized.

Although these several parts may be disposed at various angles with respect to the horizontal and vertical, they are preferably arranged as shown in the drawing wherein it will be seen that the blank holding tray 3 in which the plurality of blanks B are disposed is positioned horizontally and slightly above the plane of the bed 1. This tray 3 together with a suitable feeding plunger 4, which includes a head 5 carried by a longitudinally slidable rod 6, forms the magazine above mentioned. This rod 6 is mounted in a suitable bearing collar 7 formed on one end of the tray 3, said end also having a pair of spaced ears 8 between which a guide roller or pulley 9 is disposed. Over this roller is trained a flexible cable 10, one end of which is secured to the end of the rod remote from the head 5 while the other end has a weight 11 of any preferred shape secured thereto. All of this last described mechanism including the tray and plunger are supported upon one of the legs 2 by a bracket 12 as clearly shown in Fig. 1. This position of the tray disposes the blanks B vertically and one or more of them are removed at the proper time by a revolving blade carrying a plate 13 which is fixed to one end of a horizontal shaft 14 disposed above the bed 1, it being journaled in suitable bearings carried by the other on which the bed forms a part. The plate is circular as shown in Fig. 2 and has a rather large notch 14 formed therein in which is disposed a blank removing blade 15, one edge of which is sharpened as at 16 to permit the same to be readily forced between the blanks. It will also be noted from this figure that the blade is relatively elongated and has the end opposite the sharpened edge 16 slightly off set and secured as at 17 to

one edge of the notch 14, the outer side edge of the blade is arcuate to correspond to the curvature of the periphery of the plate 13.

It is obvious that as this plate rotates the blade will be moved into and out of engagement with the plurality of blanks held in the tray. The weight 11 of the feeding plunger causes the latter to force the blanks into engagement with one face of the plate 13, this engagement continuing until the blade 15 is moved across the longitudinal axis of the plurality of blanks, whereupon the pressure of said blanks is shifted thereto. As the plate continues to revolve the blade is moved out of this engagement with the blanks and the same are again forced against the solid portions of said plate.

In case it should be necessary to sever more than one of the blanks from the plurality the sharpened end of the blade 15 is moved inwardly or outwardly with respect to the plate by means of a set screw 18 and an arm 19. The latter is formed integrally with the blade so that when the set screw engages the plate the desired adjustment is procured.

The blanks B adjacent the plate 13 have a tendency to ride out of the tray 3 because of the movement of the plate in a direction substantially transversely of the tray, and also because of the action of the blade 15, therefore means are provided for holding such blanks in engagement with the tray until severed by the said blade. In the present instance this means consists merely of a pendant weight 20 carried by the end of the shaft 14 it being held non-rotatably therewith. The end of the weight adjacent the blanks is arcuately recessed at 21 for a more effective engagement.

As the blanks are severed from the plurality contained in the magazine they drop by gravity on to the bed 1 as shown in Fig. 1. They are preferably deposited into several blank receiving recesses 22 of a rotative plate 23. The plate is preferably circular and is mounted on a stub shaft 24 extending from the bed 1 and the recesses are arranged concentric with this shaft. The recesses 22 are so disposed that one of the same will be in the plane of the longitudinal axis of the plurality of blanks whenever one of said blanks is being removed by the blade 15.

This coincidental movement of the plates 13 and 23 is procured by gearing the same to a common operating means. One arrangement is shown in Fig. 1 wherein it will be noted that gear teeth 25 are formed on the periphery of the plate 23 and mesh with teeth on a gear 26 which is rotated simultaneously with a beveled gear 27 and by any suitable operating means (not shown). The beveled gear 27 meshes with a similar gear 28 fixed to the shaft 14.

By this arrangement it will be evident that as fast as the blanks are separated from the majority of the blanks in the magazine they will drop into the recesses in the plate 23 and be conveyed to a suitable point where they may be operated upon to form articles such as bon-bon cups. Because of the very simple nature of all the parts of this feeding mechanism the same may be inexpensively manufactured and will be very unlikely to become disarranged or otherwise get out of order.

I claim:

1. In a blank feeding mechanism of the class described, a rotative plate, means for continuously feeding blanks toward one side of the plate in a direction parallel to the axis of rotation thereof, means carried by the plate for removing a blank from the feeding means upon each revolution of the last named means, and a rotative blank receiving plate having its axis of rotation disposed at right angles to the axis of rotation of the first mentioned plate and adapted to receive the blanks removed by the blank removing means.

2. In a blank feeding mechanism of the class described, a rotative circular plate, one edge having a notch formed therein, a blade disposed in the notch and secured by one end to one edge thereof, the free end of said blade being extended beyond one face of the plate, and means for adjusting said free end of the blade relative to said face, said blade being adapted to engage a blank upon each revolution thereof.

3. In a blank feeding mechanism of the class described, a rotative plate, one edge having a notch formed therein, a blade disposed in the notch and secured at one end to one edge thereof, the free end of said blade being extended beyond one face of the plate, an arm projected from the blade and disposed to the opposite side of the plate from that beyond which the blade is positioned, and a set screw threaded in the arm to engage the adjacent face of the plate, whereby to move the free end of the blade toward the plate, said blade being adapted to engage a blank upon each revolution of the plate.

4. A blank feeding mechanism of the class described, including a blank holding tray, means for moving the blanks in one direction in said tray, means for removing the blanks from one end of the tray, a shaft disposed over the tray, and means on the shaft over the last mentioned end of the tray for engaging blanks in the tray to prevent them from being thrown therefrom when engaged by the blank removing means.

5. A blank feeding mechanism of the class described, including a blank holding tray, means for moving the blanks in one direction in said tray, blank removing means operable substantially transversely of the tray

for removing blanks from one end thereof, a rotary shaft disposed over the tray for operating the blank removing means, and a pendant weight held against rotation on said shaft and disposed over the last mentioned end of the tray, said weight being adapted to engage blanks in the tray, whereby to prevent them from being thrown therefrom when engaged by the blank removing means.

6. A blank feeding mechanism of the class described, including a blank holding tray, means for moving the blanks in one direction in said tray, a rotary shaft disposed over the tray, a blank removing plate fixed on the shaft and rotatable transversely of the longitudinal axis of the tray and adjacent one end thereof, and a pendant weight held against rotation on said shaft and disposed over the last mentioned end of the tray, said weight being adjacent the blank removing plate and adapted to engage blanks in the tray to prevent them from being thrown therefrom when acted upon by said blank removing plate.

In testimony that I claim the foregoing I have hereunto set my hand at Milwaukee, in the county of Milwaukee and State of Wisconsin.

HAROLD C. HARVEY.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."