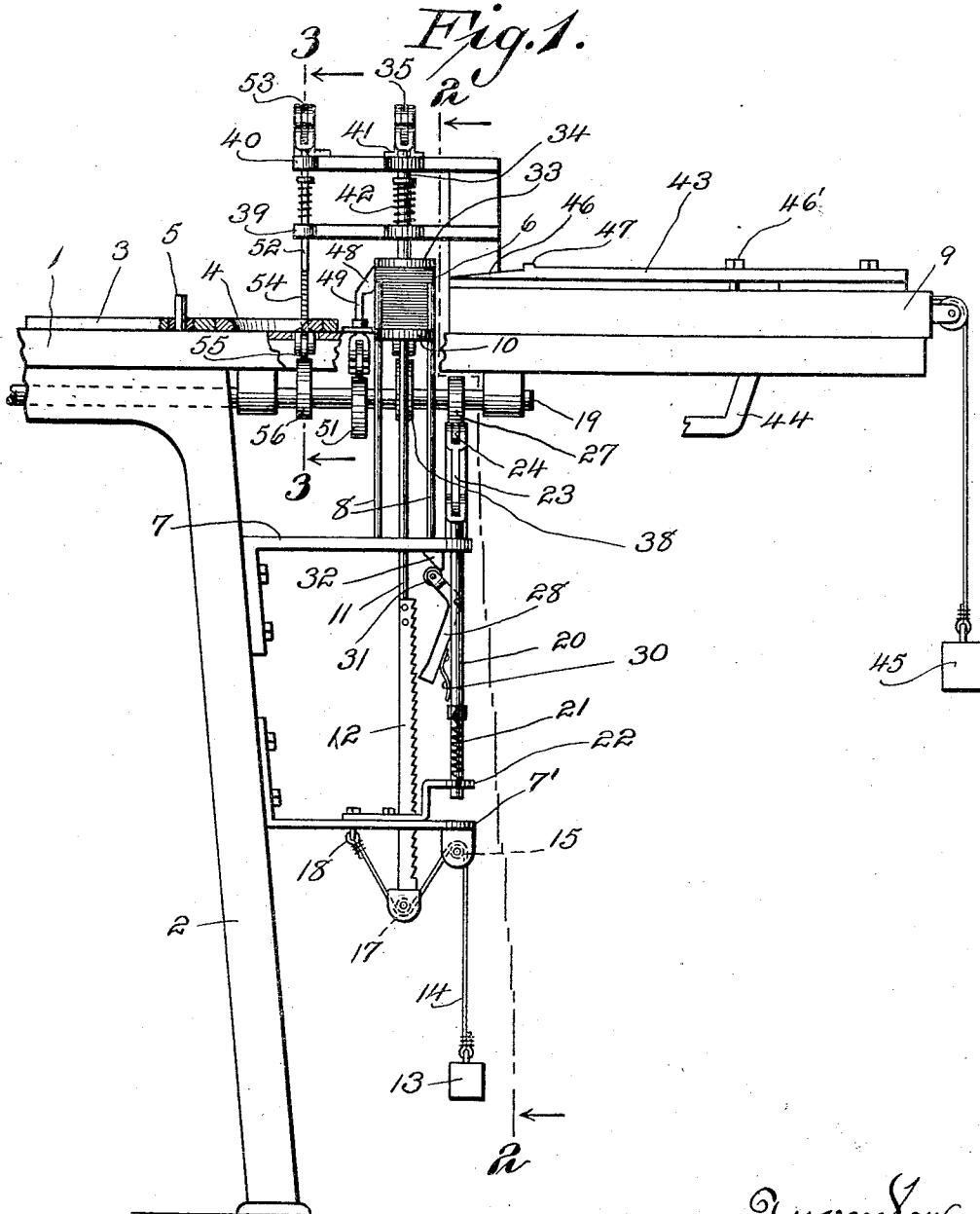


H. C. HARVEY.  
PAPER FEEDING MECHANISM.  
APPLICATION FILED MAY 18, 1917.

1,246,592.

Patented Nov. 13, 1917.  
3 SHEETS—SHEET 1.



Inventor  
Harold C. Harvey

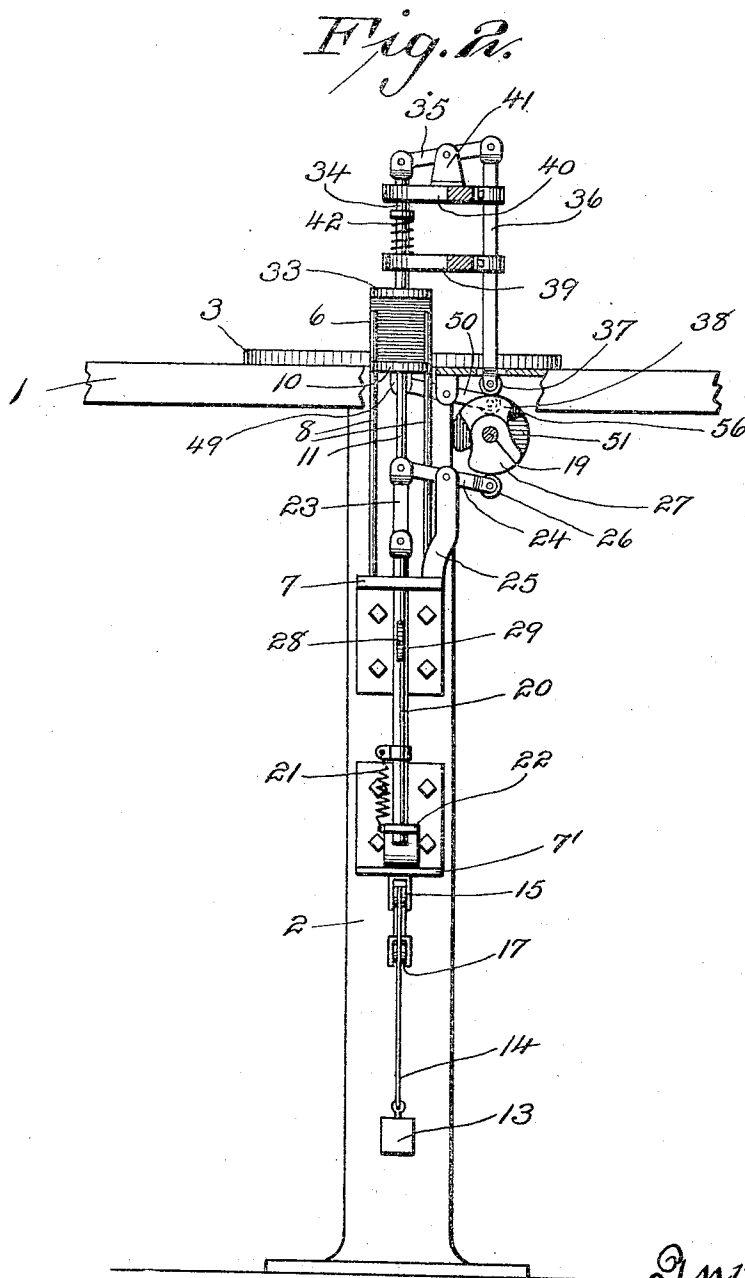
Witness:  
T. P. Brett

By *Geo Young*  
Attorney

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3 SHEETS—SHEET 2.



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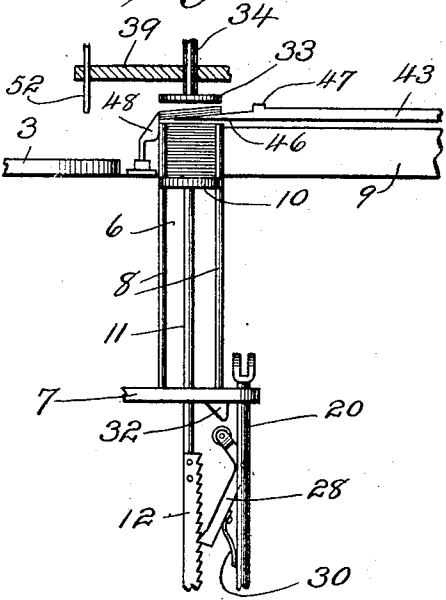
*By Geo W Young*  
*Attorney*

*Witness:*  
*J. P. Brett*

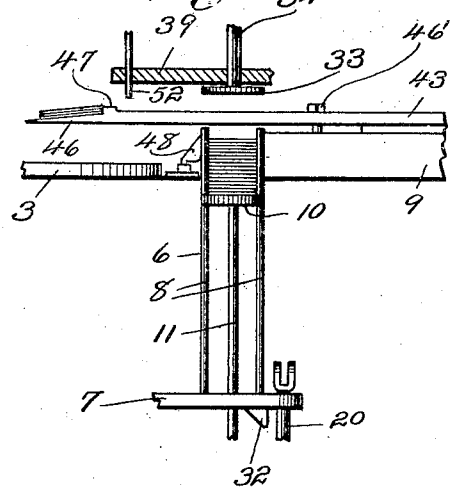
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3 SHEETS—SHEET 3.

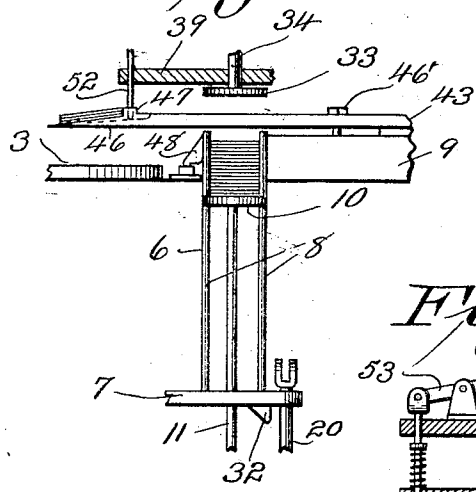
*Fig. 4.*



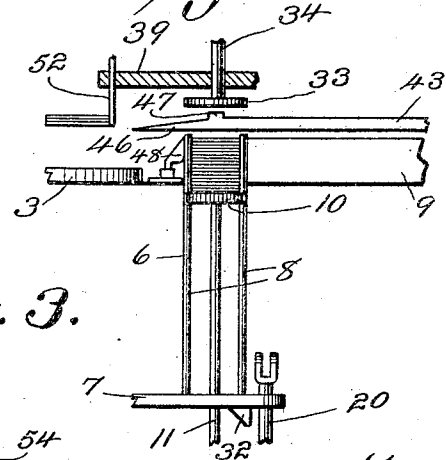
*Fig. 5.*



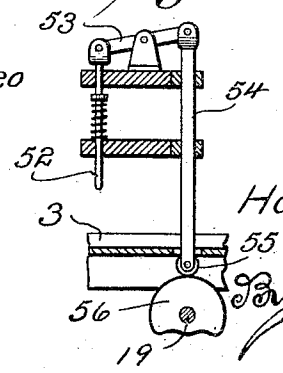
*Fig. 6.*



*Fig. 7.*



*Fig. 3.*



*Witness,  
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# UNITED STATES PATENT OFFICE.

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

## PAPER-FEEDING MECHANISM.

1,246,592.

Specification of Letters Patent. Patented Nov. 13, 1917.

Application filed May 18, 1917. Serial No. 169,425.

*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 Paper-Feeding Mechanisms; and I do hereby declare that the following is a full, clear, and exact description thereof.

My invention relates to certain new and useful improvements in paper feeding mechanisms for machines used in the manufacture of paper bonbon cups or the like, and is an improvement over the machine described in my pending application filed March 6, 1917, Serial Number 152623.

One of the objects of the invention is to provide a simply constructed mechanism whereby one or more sheets of paper may be removed from the stack containing a plurality of sheets and deliver it to an apparatus for conveyance to a point where it may be further operated upon.

An additional object is to provide novel means for removing one or more sheets from the stack so as to prevent the disarrangement of the stack while being acted upon.

A still further object is to provide a simply constructed device for cooperating with a reciprocative plate for removing one or more sheets of material from the stack.

With the above and other objects in view which will appear as the description proceeds, my invention resides in the novel construction, combination and arrangement of parts, substantially as hereinafter described and particularly defined by the appended claims, it being understood that changes in the precise embodiment of the herein disclosed invention may be made without departing from the spirit of the invention.

In the accompanying drawings I have illustrated one complete example of the physical embodiment of my invention constructed according to the best mode I have so far devised for the practical application of the principles of my invention, in which;

Figure 1 is a plan view of my invention, with parts broken away to more clearly illustrate details of construction.

Fig. 2 is a sectional view taken on line 2—2 of Fig. 1.

Fig. 3 is a sectional view taken on line 3—3 of Fig. 1.

Fig. 4 is a diagrammatic view of the maga-

zine of my invention, showing the removing blade just engaging several of the sheets of material for removing the same therefrom.

Fig. 5 is a diagrammatic view similar to Fig. 4 showing this removing blade as in fully extended position with several of the sheets of material on its outer end.

Fig. 6 is a diagrammatic view similar to Fig. 5 showing the removing blade as being retracted, and

Fig. 7 is a view similar to Fig. 6 showing the removing blade as further retracted, the sheets of material carried thereby having been removed by the removal means.

In the accompanying drawings I have shown my improved feeding mechanism applied to certain portions of an ordinary paper bonbon cup forming machine, but it is obvious it may be used on various machines and also for feeding other material than paper, for instance sheets of cloth. Therefore, only so much of the cup forming machine has been illustrated as to show a complete and operative paper feeding mechanism.

Referring now more particularly to the several figures of the drawings, it will be seen that the numeral 1 designates a table of a cup forming machine, the same being supported by suitable supports 2 and having rotatably mounted there-above a circular delivery plate 3 having a plurality of concentrically arranged circular openings 4. This plate 3 is adapted for rotation by any suitable means (not shown) and is pivoted at 5 to the table 1.

My invention is so arranged that it may automatically feed one or more sheets of paper of appropriate size and shape to each of the openings 4 as the plate 3 revolves, therefore the magazine 6 which is to contain the plurality of sheets of paper is disposed adjacent said plate 3 as later described.

The magazine is mounted in a bracket plate 7 disposed beneath the table 1 and secured to the support 2 by any suitable fastenings, and comprises the vertical guide rod members 8 having their upper ends extending the proper distance above the table 1, which is about the height of a raised portion 9 carried by one end of the table. The sheets of material are adapted to be placed between the guide rods 8 and slidably mounted in the magazine is a suitable tensioning device for urging the sheets up-

wardly. This tensioning means consists of a lift or plunger 10 carrying an upwardly extending rod 11 which has secured to its lower end a toothed rack 12. The rod 11 and rack 12 are slidably mounted in the bracket plate 7 and a similar bracket plate 7' secured to the support 2 beneath said plate 7. The means for urging the plunger 10 upwardly consists of a weight 13 carried by one end of a cord or wire 14 which passes over a pulley 15 supported from the plate 7' and thence over a pulley 17 carried by the lower end of the rack bar 12, and then having its end 18 fixed to the plate 7' as more clearly shown in Fig. 1.

For overcoming the pressure exerted by the weight 13 in order to allow the plunger 10 to drop, for reasons later described, cam controlled means are employed in connection with the power driven shaft 19. These means consisting of a vertical sliding rod 20 normally urged downwardly by a spring arrangement 21, the rod 20 being slidably mounted in plate 7 and bracket 22 mounted upon said plate 7'. The upper end of the rod 20 is forked or bifurcated to pivotally receive one end of a link member 23, the upper end of which is bifurcated to pivotally engage one end of a rock lever 24 pivoted in the upper end of a bracket 25 carried by the plate 7, the other end of this rock lever having journaled therein a roller 26 tracking upon a cam 27 driven by the shaft 19.

This cam is so arranged as to, at the desired step in the operation of my device, allow the spring 21 to draw the rod 20 downwardly permitting the angular lever 28 pivoted in the slot 29 of the rod 20 to engage the teeth of the rack bar 12 and hence overcome weight 13, dropping the plunger 10.

This angular lever 28 carries a spring 30 bearing against the rod 20 for normally urging its tooth engaging lower end outwardly toward the rack bar 12, and has journaled in its upper end a roller 31 adapted to ride upon the slanting cam face 32 of a lug carried by plate 7 when the rod 20 is drawn upwardly by the cam 27, as will be readily apparent from an inspection of Figs. 1 and 2. When the cam 27 is in its position shown in Fig. 2, the lever 28 will be out of engagement with the rack bar 12 hence allowing the weight 13 to exert an upward pressure against the sheets of material, but when the cam is in a position just opposite to that just described, the lever 28 will be in a position as shown in Fig. 4.

For limiting the upward movement of the sheets of material, a cam operated stop 33 is employed disposed directly over the magazine and having its upwardly extending rod 34 bifurcated and pivoted to one end of a rock lever 35 having its other end pivoted in the upper end of a cam operating

rod 36, having journaled in its lower end a roller 37 tracking upon a cam 38 also fixed upon the shaft 19.

The rods 34 and 36 are slidably mounted in spaced horizontal shelves 39 and 40, and the rock lever 35 is pivotally supported in a bracket 41 fixed upon the shelf 40. The cam 38 is so positioned upon the shaft 19 as to permit the simultaneous movement of the stop 33 with the plunger 10, and the roller 37 is retained upon the cam 38 by means of a spring 42 mounted upon the rod 34 and exerting an upward pressure thereon.

For intermittently removing one or more sheets from the plurality, a reciprocating sheet removing blade 43 is employed similar to that described in my pending application, it being in pitman connection with the driven shaft 19 by means of pitman 44, a weight 45 being employed to assure the quick return thereof. This blade is provided with a suitable adjusting device 46', as described in said pending application, for adjusting the same for removing the desired number of sheets of material.

In the operation of my device, the blade 43, which has its inner end 46 tapered and formed with an abutment 47 at the termination is moved forward, and its end 46 inserted between the sheets of material separating several sheets from the plurality. The cams 27 and 38 are so timed as to permit dropping the plunger 10 and lifting the stop 33 as before described, and a sheet positioning member or stop 48 is employed to insure the disposition of the sheet upon the end of the blade 43, said stop 48 being also cam operated to permit the same to drop from out of the path of movement of the blade 43 at the proper time.

As above stated, the stop 48 is cam operated and has its arm 49 slidably mounted in the table 1, and pivoted to a rock lever 50 having a roller in its free end tracking upon a cam 51 mounted upon the drive shaft 19. The cam 51 is so disposed upon the shaft 19 as to drop the stop 48 just at the moment the tapered end of the blade 43 reaches the same, thus allowing the blade to continue to the position shown in Fig. 5 which is a little beyond the opening 4 of disk 3 registering therewith.

Upon the return of the blade 43 to the position shown in Fig. 6, a detent in the form of a pin 52 drops into engagement with the blade 43 to the rear of the sheets carried thereby. The detent 52 is also cam operated being pivoted at one end to a rock lever 53 having its other end pivoted to a rod 54 having journaled in one end thereof a roller 55 tracking upon a cam 56 fixed to the driving shaft 19.

As shown in Fig. 7, when the blade is further retracted, the detent 52 removes the

5 sheets from off the blade permitting them to drop into the registering openings 4, and when the blade is fully retracted all of the parts return to normal position, which is illustrated by Figs. 1 and 2.

10 It is thought that from the foregoing description taken in connection with the accompanying drawings, the operation of my invention will be clearly understood and hence further description thereof is thought unnecessary.

What is claimed is:—

15 1. In a mechanism of the class described, a magazine adapted to receive a plurality of sheets of material, a stop disposed adjacent the magazine, a plunger normally urged against the plurality of sheets, the sheets of material being disposed between the stops and plunger, means for moving 20 the stop and plunger away from each other in unison, and means for removing a sheet from the plurality.

2. In a mechanism of the class described, a magazine adapted to receive a plurality of sheets of material, a stop disposed adjacent the magazine, a plunger normally urged against the plurality of sheets, the sheets of material being disposed between the stop and plunger, means for removing a sheet 30 from the plurality, means for moving the stop and plunger away from each other upon movement of the sheet removing means in one direction, and means for moving the stop and plunger toward each other upon 35 movement of the sheet removing means in the reverse direction.

3. In a mechanism of the class described, a magazine adapted to receive a plurality of sheets of material, a stop disposed above 40 the magazine, a plunger slidably mounted in the magazine, the sheets of material being disposed between the stop and the plunger, means for removing a sheet from said plurality, and cam operated means for simultaneously lifting the stop and dropping the plunger. 45

4. In a mechanism of the class described, a magazine adapted to receive a plurality of sheets of material, a plunger engaging the 50 plurality of sheets, means normally urging the plunger in one direction, means for removing a sheet from the plurality, means for moving the plunger in the opposite direction including a rack on the plunger, a 55 reciprocative rod, a lever pivoted to the rod, means for reciprocating the rod whereby to cause the lever to engage the rack and move the plunger against the action of the first mentioned means, and means for disengaging 60 the lever from the rack comprising a lug to be engaged by the lever when the rod is moved in one direction.

5. In a mechanism of the class described, a magazine adapted to receive a plurality of 65 sheets of material, a blade movable through

the plurality to separate a sheet therefrom, a sheet positioning member normally disposed in the path of movement of said blade, and means for moving the member out of the path of movement of the blade when the 70 latter is partially through the plurality of sheets.

6. In a mechanism of the class described, a magazine adapted to receive a plurality of sheets of material, a stop disposed above 75 the magazine, a plunger slidably mounted in the magazine, the sheets of material being disposed between the stop and plunger, a reciprocative removing blade adapted to remove a sheet from the plurality, and 80 means for assuring the proper positioning of the sheets to be removed upon the removing blade.

7. In a mechanism of the class described, a magazine adapted to receive a plurality of 85 sheets of material, a sheet removing blade movable through the plurality of sheets in one direction to separate a sheet therefrom, said sheet being carried beyond the magazine by said blade, means for returning the 90 blade to its initial position, and means movable into engagement with the sheet of material prior to the actuation of the last mentioned means.

8. In a mechanism of the class described, 95 a magazine adapted to receive a plurality of sheets of material, a reciprocative pin disposed adjacent the magazine, a sheet removing blade movable through the plurality of sheets and beyond said pin, a sheet being 100 carried toward the magazine by said blade, means for returning the blade to its initial position, and means for moving the pin into the path of returning movement of the blade behind the sheet to remove the same from 105 the former.

9. In a mechanism of the class described, a magazine adapted to receive a plurality of sheets of material, a reciprocative sheet removing blade movable through the plu- 110 rality of sheets in one direction to separate a sheet therefrom, said sheet being carried beyond the magazine by said blade, a reciprocative pin movable at right angles to the path of movement of the blade, means 115 for returning the blade to its initial position after having passed through said plurality of sheets, and means for moving the pin into engagement with the blade prior to the return movement of the latter. 120

10. In a mechanism of the class described, a magazine adapted to receive a plurality of sheets of material, a sheet removing blade movable through the plurality of sheets in one direction to separate a sheet therefrom, 125 an abutment on said blade, said sheet being engaged by said abutment and carried beyond the magazine with said blade, a sheet positioning member disposed in the path of movement of said blade, a detent, means for 130

moving the member out of the path of movement of the blade when the latter has reached a predetermined position, and means for moving said pin into engagement with the blade behind said abutment, whereby to remove the sheet from the blade upon return movement thereof

11. In a mechanism of the class described, a magazine adapted to receive a plurality of sheets of material, a shiftable sheet removing blade movable through the plurality of sheets, a vertically movable sheet positioning member disposed in the path of movement of the blade, a normally raised vertically movable pin, means for shifting the blade to separate a sheet from the plurality, and means for successively depressing the sheet positioning member and pin.

12. In a mechanism of the class described, a magazine adapted to receive a plurality of sheets of material, a shiftable sheet removing blade movable through the plurality of sheets, a vertically movable sheet positioning member disposed in the path of movement of the blade, a normally raised vertically movable pin, means for shifting the blade to separate a sheet from the plurality, means for disposing the member out of the path of movement of the blade as the latter approaches the former, and means for moving the pin into engagement with the blade.

13. In a mechanism of the class described, a magazine adapted to receive a plurality of sheets of material, a flange slidably

mounted in the magazine, a stop disposed above the magazine, means for normally urging said plunger and stop toward each other to hold the sheets of material therebetween, a sheet removing blade adapted to remove a sheet from the plurality, a sheet positioning member normally disposed in the path of movement of the blade, a pin movable into engagement with the blade when the same is in one position, and means for successively moving the stop and plunger away from each other, shifting said blade, moving the sheet positioning member out of the path of movement of the blade, and moving the pin into engagement with the blade, and means for returning the blade to its initial position.

14. In a mechanism of the class described, a magazine adapted to receive a plurality of sheets of material, a stop disposed above the magazine, a plunger slidably mounted in the magazine, the sheets of material being disposed between the stop and plunger, a reciprocative removing blade adapted to remove a sheet from the plurality, means for assuring the proper positioning of the sheets to be removed upon the removing blade, and a detent for removing sheets of material from the end of said blade upon its return, substantially as described.

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.