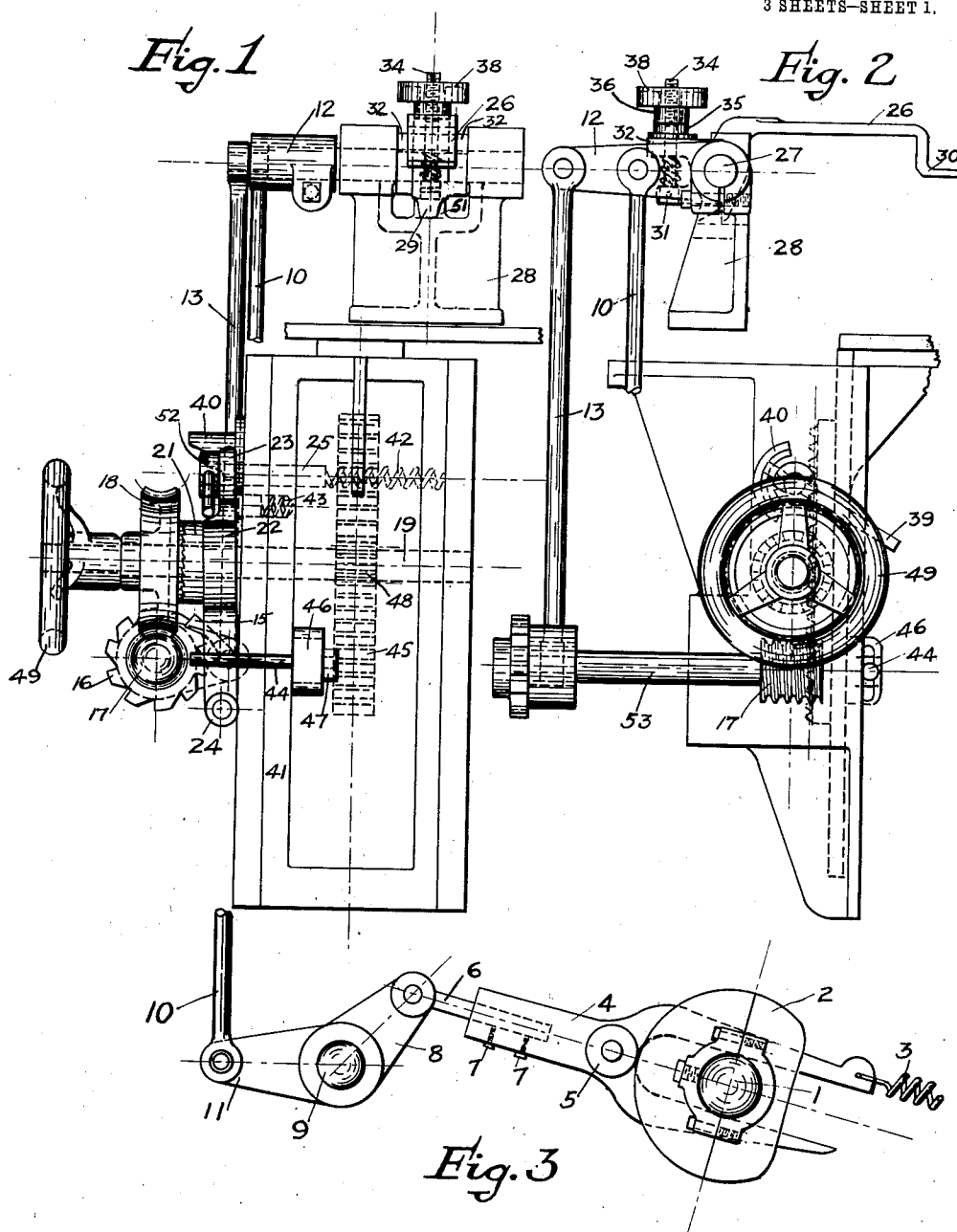


F. L. SCHMIDT.
FEEDING MECHANISM FOR ENVELOP MACHINES.
APPLICATION FILED JAN. 18, 1912.

1,063,140.

Patented May 27, 1913.

3 SHEETS—SHEET 1.



WITNESSES

Harry Jacobson
Wm. Gailich

INVENTOR

Ferdinand L. Schmidt
George BY Finkelstein
ATTORNEY

F. L. SCHMIDT.
FEEDING MECHANISM FOR ENVELOP MACHINES.
APPLICATION FILED JAN. 18, 1912.

1,063,140.

Patented May 27, 1913.

3 SHEETS—SHEET 2.

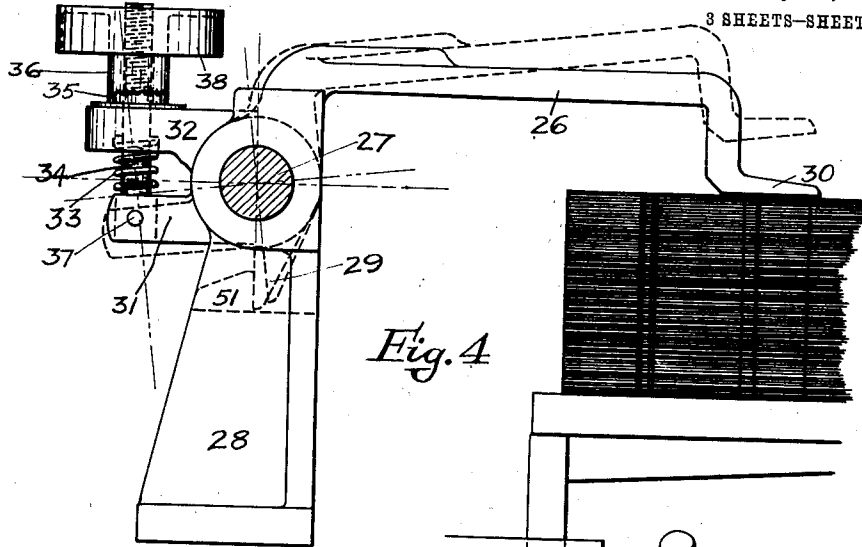


Fig. 4

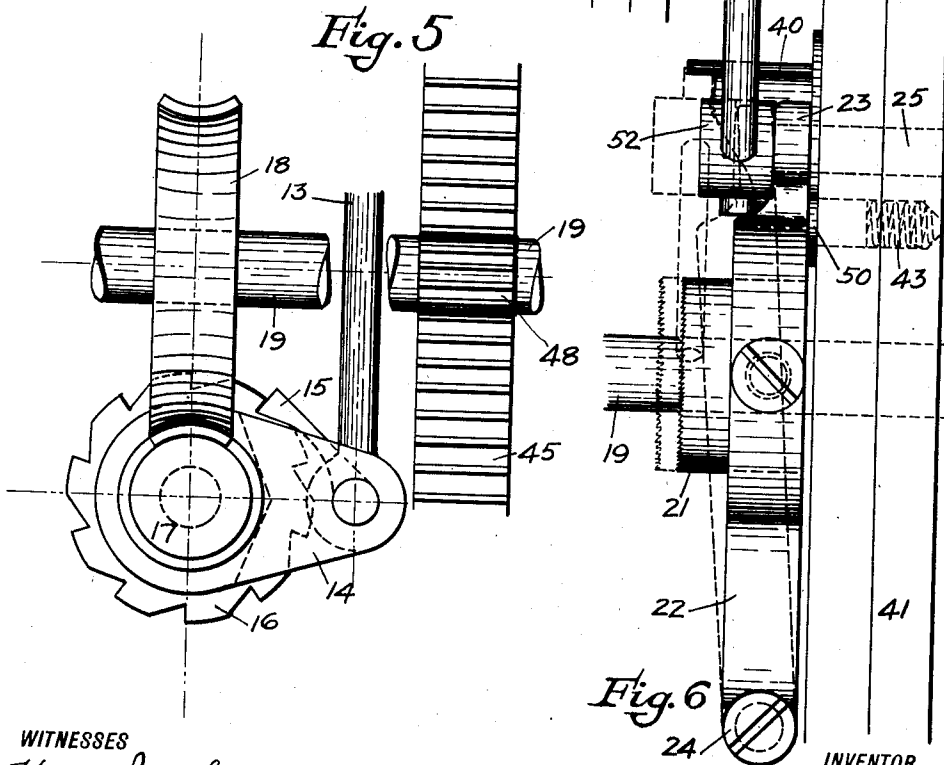


Fig. 5

Fig. 6

WITNESSES
Harry Jacobson
Dora Gulick

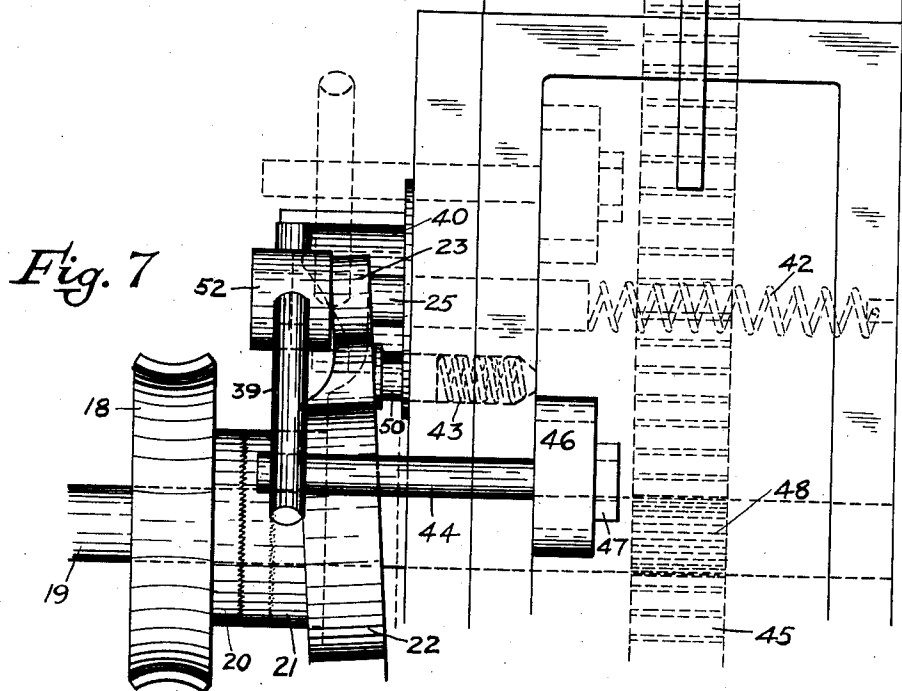
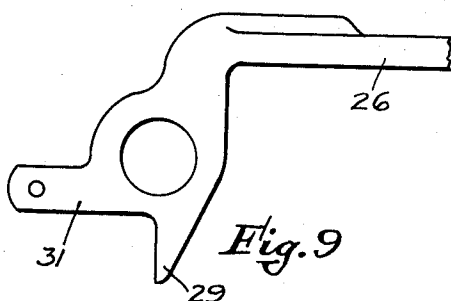
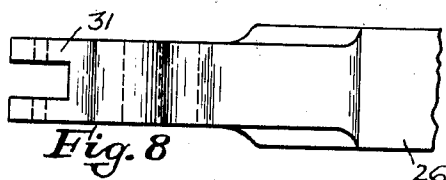
INVENTOR
Ferdinand L. Schmidt
BY
George Pinkelstein
ATTORNEYS

F. L. SCHMIDT.
FEEDING MECHANISM FOR ENVELOP MACHINES.
APPLICATION FILED JAN. 18, 1912.

1,063,140.

Patented May 27, 1913.

3 SHEETS-SHEET 3.



WITNESSES

Harry Jacobson
Dora L. Litch

INVENTOR
Ferdinand L. Schmidt
BY
George Finkelstein
ATTORNEYS

UNITED STATES PATENT OFFICE.

FERDINAND L. SCHMIDT, OF NEW YORK, N. Y.

FEEDING MECHANISM FOR ENVELOP-MACHINES.

1,063,140.

Specification of Letters Patent.

Patented May 27, 1913.

Application filed January 18, 1912. Serial No. 671,796.

To all whom it may concern:

Be it known that I, FERDINAND L. SCHMIDT, of the city, county, and State of New York, have invented certain new and useful Improvements in Feeding Mechanism for Envelop-Machines, of which the following is a specification.

This invention relates to improvements in elevators for envelop machines, whereby the elevator platform, on which rests the pile of envelop blanks, is intermittently raised the proper distance as the top blank of the pile is picked up by the envelop machine mechanism provided for that purpose.

The object of this invention is to provide an elevator for envelop machines, that will automatically keep the top of the pile of envelop blanks, which rests on the elevator platform, within reach of the picking mechanism of the envelop machine and at an accurate and adjustable height; that will accurately maintain the position of the top of the pile of blanks while the blanks are being fed to the pickers; and that will automatically release and drop the elevator platform when the said platform reaches a given height, thus preventing the said platform from interfering with the picker and gumming mechanism of the envelop machine, which interference would break or otherwise damage some of the machine parts.

To the accomplishment of the aforesaid objects, my invention consists of the peculiar novel construction, arrangement and combination of parts herein described in the specifications and more particularly pointed out in the claims, reference being had to the accompanying drawings forming a part of this specification, wherein like numerals of reference denote like parts throughout this specification.

Figure 1 is a side view of the elevator complete as it appears in position on the envelop machine, and Fig. 2 is similarly a front view of the elevator. Fig. 3 is a side view showing the mechanism which transmits the motion from the main shaft to the elevator parts. Fig. 4 is an enlarged view showing the mechanism for controlling the vertical motion of the platform and the platform frame. Fig. 5 is an enlarged view of the worm-gear and the worm with which it meshes, together with the rack and pinion showing the controlling device for raising the elevator platform intermittently as the

blanks are fed to the machine. Fig. 6 shows the engaging and disengaging mechanism for automatically and intermittently raising the platform of the elevator and for dropping the said platform when it reaches a certain height. Fig. 7 is a view of the mechanism for raising the platform automatically, in connection with the platform and shows the operation of said mechanism. Fig. 8 is a front view of a portion of the feeler and Fig. 9 is a top view of a portion of the feeler.

Referring to Fig. 3 of the drawings, the operating power of the elevator is obtained from the shaft 1 on which is mounted the cam 2. Straddling the shaft 1 is the forked bar 4 on one side of which is fastened the roller 5; the tension spring 3 fastened to the frame of the machine holds the said roller in contact with the outer edge of the cam 2, and thereby causes the said roller and the forked bar 4 to which it is fastened to move reciprocally back and forth as the shaft 1 rotates. The reciprocating motion of the forked bar 4 is transmitted to the vertical connecting rod 10 by means of the short connecting rod 6 adjustably fastened to the said bar 4 by means of the screws 7, and suitably fastened to one arm of the bell-crank-lever 8, the other arm 11 of said lever 8 being fastened to the connecting rod 10. The lever 8 is mounted on the rocking shaft 9, said shaft being suitably journaled in the frame of the machine, so that the rotation of the shaft 1 causes the vertical connecting rod 10 to move longitudinally by means of the connecting mechanism.

Referring to Figs. 1 and 2, the rod 10 is suitably fastened near the middle of the rocking lever 12. One end of the lever 12 carries the rod 13 and the other end is fulcrumed on the lever shaft 27, which is supported in the frame 28, said lever shaft 27 also carrying the feeler 26, which vibrates with the partial rotation of the shaft 27, as shown by the dotted lines in Fig. 4. The position of the foot 30 of the feeler 26 is controlled by the position of the top of the pile of blanks and is adjustable by means of the mechanism shown in Fig. 4, more particularly explained in another part of this specification. The said mechanism in connection with the mechanism shown in Fig. 5 also controls the intermittent rise of the elevator platform. One end 30 of the

feeler 26 has a double right angle bend so shaped that the envelop blanks will not be injured when the feeler strikes the pile of blanks, and the other end 31 is bent so that it comes below the center and on the other side of the shaft 27, and is forked to receive the square headed screw 34, said screw being held in place by the pin 37. The strap yoke 32 is fastened on the shaft 27 by its bifurcated parts which are fitted between the sides of the frame 28 and that part of the feeler 26 which is mounted on the shaft 27. Between the projecting portion of the strap yoke 32 and the portion 31 of the feeler 26 is supported the spring 33 which is mounted on the shank of the screw 34, said screw being supported by the perforation in the strap 32, and the feeler 26, shown in detail in Fig. 4. The short tubular member 35 is fastened to the upper part of the strap 32 and is toothed on the upper part of the hub to engage the teeth cut on the lower part of the hub 36 of the thumb wheel-nut 38, said nut being threaded to fit the screw 34 and mounted on it. When the nut 38 is turned to move down on the screw 34, the end 31 of the feeler 26, and the strap 32, are drawn together against the action of the spring 33, thus lowering the end 30 of the feeler. When the nut 38 is turned to move up on the screw 34 the action of the spring forces the strap 32 and the part 31 of the feeler apart, thus raising the end 30 of the feeler 26 and shifting the arc through which said end 30 may swing. The oscillation of the rocking shaft 27, due to the motion of the rocking lever 12, causes the feeler 26 and the strap 32, which are mounted on the shaft 27 to vibrate, carrying with them the nut 38 and the screw 34 together with the parts immediately connected therewith. The spring 33 is intended to hold the teeth of parts 35 and 36 in mesh so that the adjustment cannot be jarred or changed except when the nut 38 is turned at the will of the operator. The projecting lug 29 of the feeler 26 in combination with the lug 51 of the supporting frame 28 is a safety device for preventing the swinging end 30 of the feeler 26 from going down too low and damaging any of the machine parts. When the downward motion of the feeler 26 tends to become too great, that is, when the end 30 of the feeler 26 swings down too low for safety, the portion 29 of the feeler strikes the lug 51 of the frame and arrests the further downward motion of the feeler end 30. Within certain limits any desired position can be maintained for the top of the pile of blanks by adjusting the nut 38. This method of adjusting by hand the downward movement of the feeler 26 by means of the nut 38 is new and so simple and safe that it can be readily understood, operated

and controlled by the girls who are the usual operators of envelop machines, without the help of an expert mechanic.

The intermittent rise of the elevator frame and platform is accomplished by means of the device shown in Fig. 5: in which the reciprocating motion of the rod 13 is the actuating power. One end of the said rod is fastened to the rocking lever 12 and the other end to the rocking lever 14. The connecting mechanism between the rocking lever 14 and the point to be adjusted consists of the connecting rod 13, the rocking lever 12, the shaft 27 and the feeler 26. To the same end of the lever 14 to which the rod 13 is attached is hung the pawl 15, which slides over the teeth of the ratchet wheel 16 on the downward movement of the rod 13. On the upward movement of the rod 13, the pawl 15, if it is raised sufficiently high, catches a tooth of the ratchet wheel 16 and thus turns the said wheel. The pawl 15 will advance a tooth if the vertical motion of the rod 13 is great enough, this depending on the swing of the feeler 26, and the swing of the feeler 26 in turn depending on the position of the top of the pile of envelop blanks. When the top of the pile of blanks becomes lower than the normal height intended, the feeler swings down lower and thus causing the vertical motion of the rod 13 to become great enough to move the pawl 15, thereby causing said pawl to engage an additional tooth of the ratchet wheel. The rocking lever 14 is controlled in its downward movement by the roller 5 being on the high part of the cam 2 so that the pawl 15 is therefore always brought to the same position at the downward end of its movement. The position of the pawl 15 at the upper end of its movement is controlled by the position of the foot 30 of the feeler 26 resting on the pile of blanks; thus when the top of the pile of blanks is too low the pawl 15 will engage the tooth in ratchet 16 and will feed this ratchet in its next upward movement.

The worm 17 is on the same shaft 53 as the ratchet wheel 16 and revolves intermittently as the said wheel is turned by the pawl 15. The worm wheel 18 meshes with the worm 17 and is loosely mounted on the shaft 19. The worm wheel 18 can be connected with the shaft 19 by means of a toothed clutch; one member 20 of the clutch is attached to the said worm wheel, and the other member 21 of the clutch is fastened to the peculiarly shaped pivoted lever 22; said member 21 is guided on the shaft 19 to and from the member 20 by means of the usual feather and groove connection with the said shaft. When the member 21 is drawn out of engaging contact with the clutch member 20 the platform and platform frame may be quickly raised or lowered by the hand

wheel 49, which is directly connected to the shaft 19, on which shaft is mounted the pinion 48 which meshes with the rack 45 secured to the platform frame.

5 The lever 22, which operates the sliding clutch member 21, is pivoted at the lower end 24. The middle part of the said lever 22 is cylindrically shaped to suitably hold the clutch member 21, and the upper end 23 is shaped to fit around the small shaft 10 25 on which said upper end 23 is movable. The said shaft 25 is loosely journaled in the frame of the elevator platform guide to allow said shaft to move longitudinally. 15 One end of the shaft 25 is attached to the tension spring 42, the other end of said spring being suitably fastened to the frame of the platform guide. To the other end of the shaft 25 is fastened the stud 52, 20 through which is passed the rod 39 in such manner that the said rod has a short projecting arm on one side of said stud and a large projecting arm on the opposite surface of said stud, so that said rod 39 may be 25 used as a lever to turn the shaft 25. On the rotation of said shaft 25 the short projection of the rod 39 travels around the cam shaped hub of the short tubular section 40, said partially tubular member 40 being fastened to the frame of the machine and acts 30 as a stationary cam by causing the stud 52 and with it the shaft 25 to move longitudinally with the partial rotation of the lever 39. When the long projecting end of the 35 lever 39 is turned upward, the short projecting end moves downward along the cam shaped hub of the member 40 and also moves closer to the machine frame due to the action of the tension spring 42, causing the 40 stud 52 and shaft 25 to move longitudinally toward the spring 42. When this longitudinal motion occurs, the stud 52 pushes the upper end of the pivoted lever 22 with it in the same direction, thus drawing the 45 clutch member 21 out of engaging contact with the clutch member 20, releasing the connection between the shaft 19 and the worm wheel 17, and allowing the said shaft 19 to rotate freely. There being no longer 50 any connection between the rack of the platform frame and the automatic raising mechanism the said platform frame will fall down as far as it can, due to its own weight.

The above described releasing operation 55 may be the result of the automatic raising of the lever 39, or of the operation of the said lever by hand. The long end of said lever is placed in the path of the projecting rod 44 and is raised automatically thereby, 60 said projecting rod being inserted through the slotted member 46 attached to the frame 41 and held by the nut 47 in a plane at right angles to the plane of the lever 39, in such a manner that the intermittent rise of the 65 platform and platform frame will cause the

rod 44 to touch one end of the lever 39, and gradually lift it. When the platform reaches a given height, the long end of the lever 39 has been raised sufficiently to operate the releasing action as described above, 70 in which event the platform suddenly drops to its lowest limiting position. To continue the automatic raising of the platform after it has been dropped, the long end of the lever 39 is pushed down, causing the short 75 end of said lever to travel upward along the curved hub of the member 40, and drawing the stud 52 on the shaft 25 away from the machine frame against the action of the tension spring 42. The short projection of the lever 39 is prevented from being pulled 80 back along the curved hub of the member 40 by means of the slight projecting lump of the curve. The upper end of the pivoted lever 22 is made to follow the stud by means 85 of the small compression spring 43, which forces the member 50 against the lever 22, so that said lever moves in the required direction. The lever 22 carrying the clutch member 21 thus brings the clutch members 90 21 and 20 into engaging contact, making the connection between the shaft 19 and the worm wheel 17 and through this connection transmitting the intermittent rotation of the said worm wheel 17 to the shaft 19 95 and the pinion 20 which is mounted thereon, and finally transmitting said motion to the platform and platform frame.

The above described adjusting mechanism can be utilized on any other feed and is not 100 confined to the one above described.

What I claim is:

1. In an envelop machine, the combination of a vertically movable table for holding the envelop blanks, means for automatically elevating the table, a feeler having a projecting lug thereon, a second lug suitably positioned in said envelop machine so that it will engage the lug on said feeler when said feeler descends below a predetermined position, means for swinging said 110 feeler, means for adjusting the arc through which said feeler can swing, and means operatively connecting said feeler and said movable table elevating means. 115

2. In an envelop machine, the combination of a vertically movable table for holding the envelop blanks, means for automatically elevating the table, a feeler having a projecting lug thereon, a second lug 120 suitably positioned in said envelop machine so that it will engage the lug on said feeler when said feeler descends below a predetermined position, means for swinging said feeler, self-locking means for adjusting at 125 one operation the arc through which said feeler can swing, and means operatively connecting said feeler and said movable table elevating means.

3. An envelop blank feeding device com- 130

prising a vertically movable blank supporting table, a stationary frame having a lug thereon, a shaft supported in said frame, a rocking lever to one end of which said shaft is attached, means for operatively rocking said lever to rotate said shaft, a feeler attached to said shaft to swing vertically, means for adjustably changing the arc of the swing of said feeler, a projecting lug on said feeler which will engage the lug on said stationary supporting frame when said feeler swings below its lowest normal position, and means for operatively connecting the said rocking lever and the vertically movable blank supporting table.

4. In an envelop machine, the combination of a vertically movable table for holding the envelop blanks, means for automatically elevating the table, a feeler having a projecting lug thereon, a second lug suitably positioned in said envelop machine so that it will engage the lug on said feeler when said feeler descends below a predetermined position, means for swinging said feeler, means operatively connecting said feeler and said movable table elevating means, and means for automatically dropping the table to its lowest position when said table reaches a predetermined position.

5. In an envelop machine, the combination of a vertically movable table for hold-

ing the envelop blanks, means for automatically elevating the table, a feeler having a projecting lug thereon, a second lug suitably positioned in said envelop machine so that it will engage the lug on said feeler when said feeler descends below a predetermined position, means for swinging said feeler, means for operatively connecting said feeler and said movable table elevating means, and means for dropping said table from any position to its lowest position manually at one operation.

6. In an envelop machine, the combination of a vertically movable table for holding the envelop blanks, means for automatically elevating the table, a feeler having a projecting lug thereon, a second lug suitably positioned in said envelop machine so that it will engage the lug on said feeler when said feeler descends below a predetermined position, means for swinging said feeler, means operatively connecting said feeler and said movable table elevating means, and means for manually adjusting said table to any position in its path of movement.

FERDINAND L. SCHMIEDT.

Witnesses:

PERLITA WOLFF,
ELIOT L. WILLIAMS.