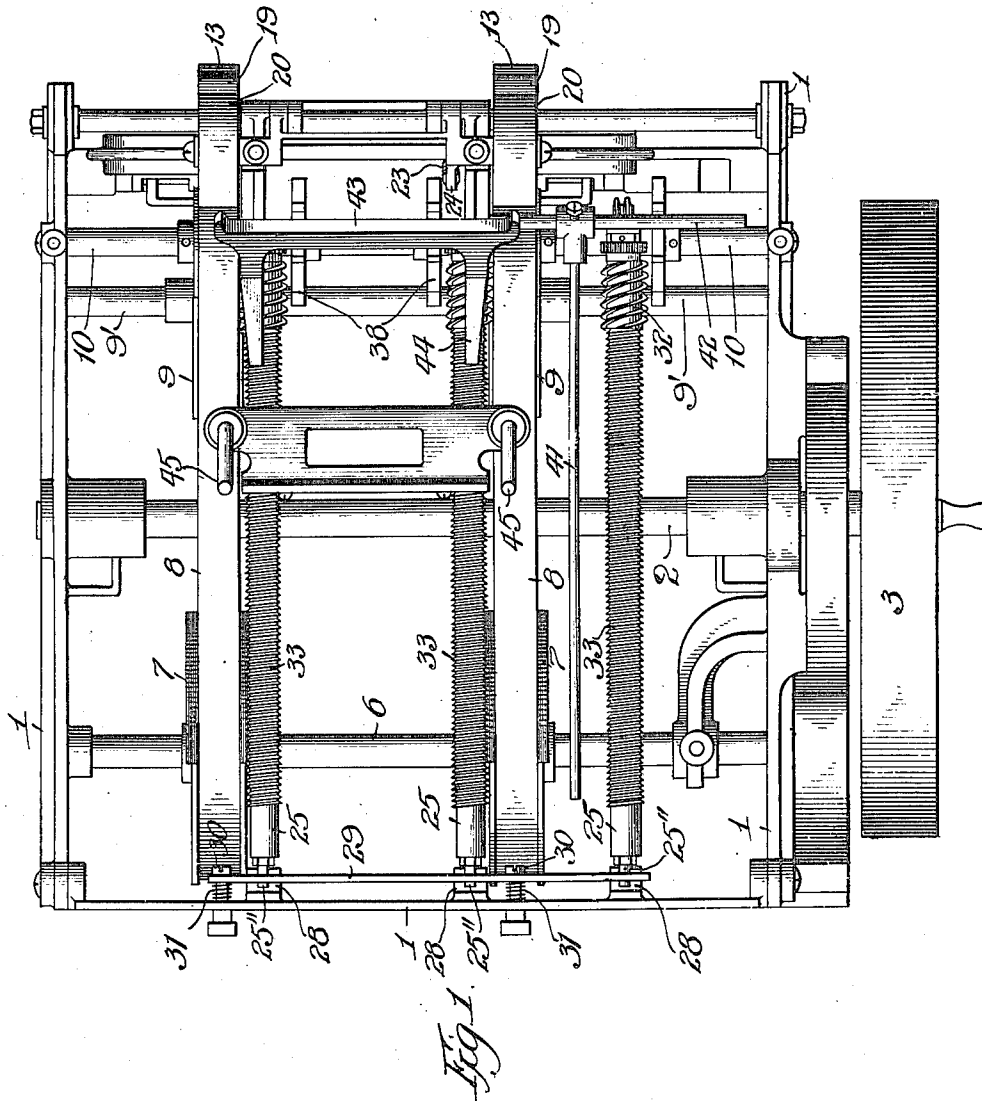


J. S. DUNCAN.
 ENVELOP DELIVERY MECHANISM.
 APPLICATION FILED AUG. 18, 1910.

1,063,339.

Patented June 3, 1913.

4 SHEETS—SHEET 1.



Witnesses:
 Geo. C. Davison
 M. A. Kiddie

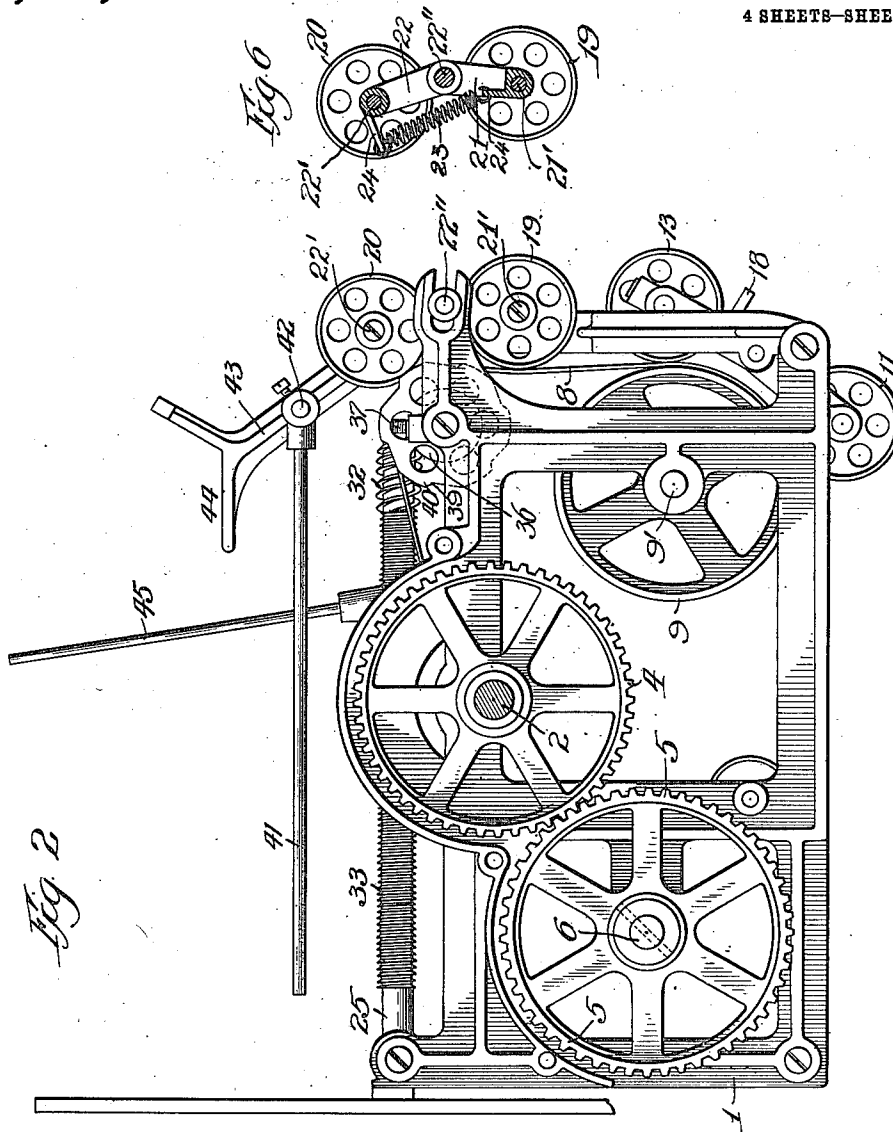
Inventor:
 Joseph S. Duncan
 By *Lutheinn, Belt & Fuller*
 Attys.

J. S. DUNCAN.
 ENVELOP DELIVERY MECHANISM.
 APPLICATION FILED AUG. 18, 1910.

1,063,339.

Patented June 3, 1913.

4 SHEETS—SHEET 2.



Witnesses:
 Geo. Davidson
 M. A. Kiddie

Inventor:
 Joseph S. Duncan
 By *Luithicum, Belt & Fuller*
 Attys.

J. S. DUNCAN.
ENVELOP DELIVERY MECHANISM.
APPLICATION FILED AUG. 18, 1910.

1,063,339.

Patented June 3, 1913.

4 SHEETS—SHEET 3.

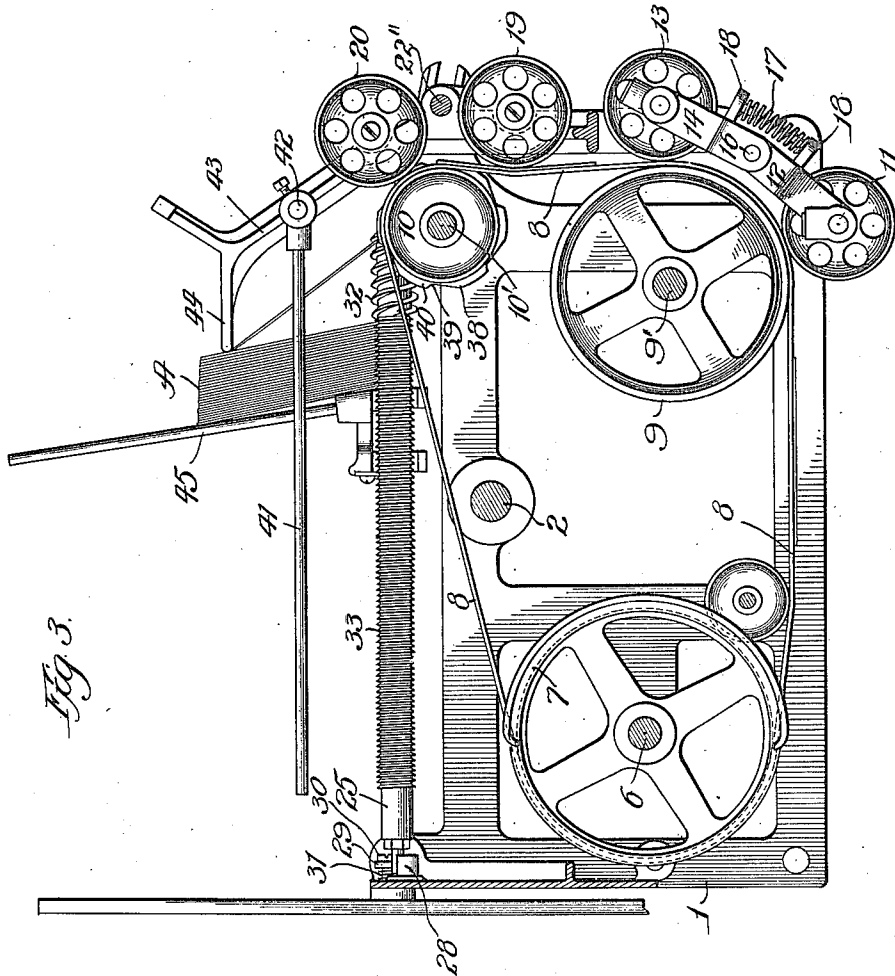


Fig. 3.

Witnesses:
Ed. G. Davis
M. A. Kiddie

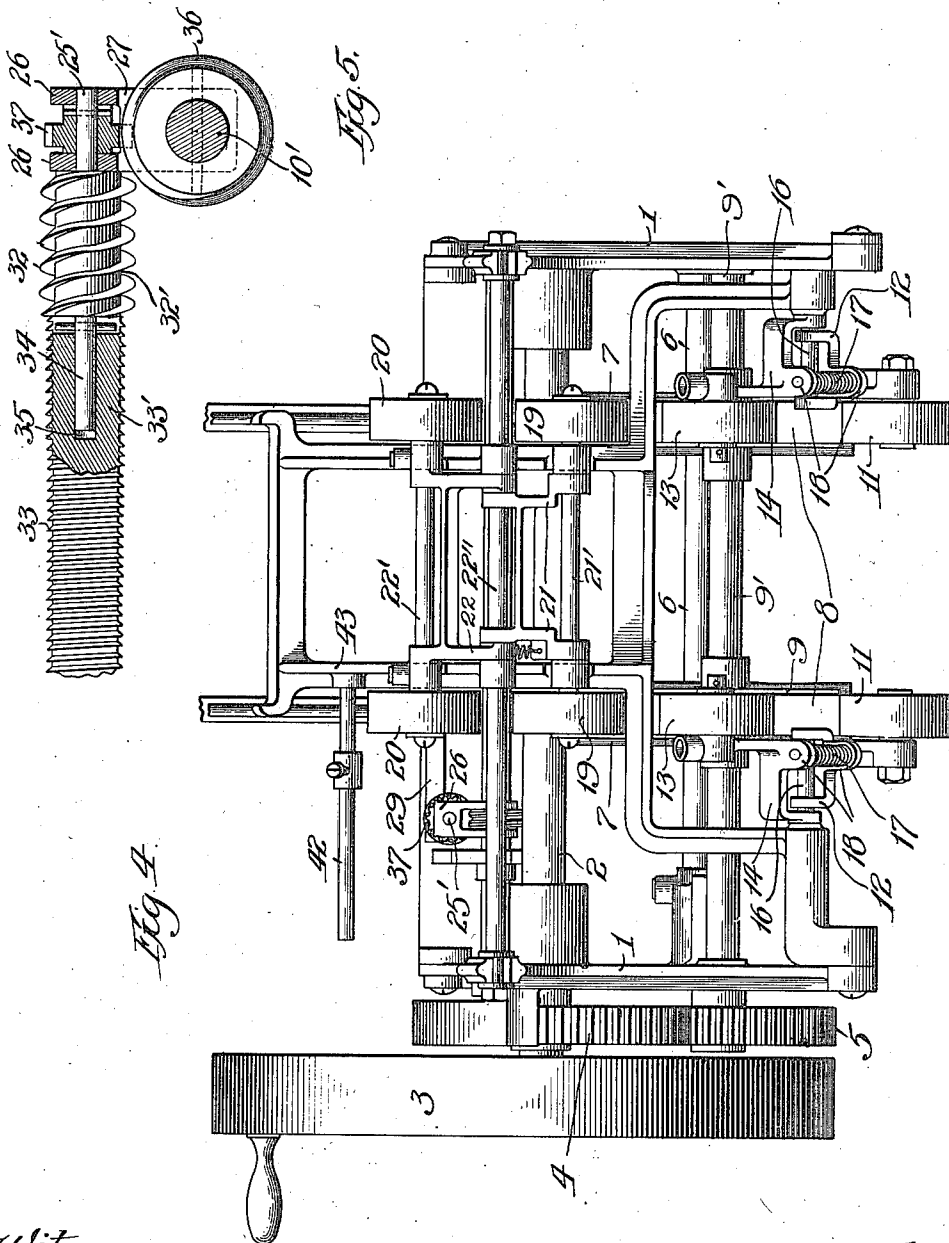
Inventor.
Joseph S. Duncan
By Lindholm, Belt & Fuller
Attys.

J. S. DUNCAN.
 ENVELOP DELIVERY MECHANISM.
 APPLICATION FILED AUG. 18, 1910.

1,063,339.

Patented June 3, 1913.

4 SHEETS—SHEET 4.



Witnesses:
 Geo. Davidson
 M. A. Kiddie

Inventor:
 Joseph S. Duncan
 By Luther C. Belt & Fuller
 Attys.

UNITED STATES PATENT OFFICE.

JOSEPH S. DUNCAN, OF CHICAGO, ILLINOIS, ASSIGNOR TO ADDRESSOGRAPH COMPANY,
OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

ENVELOP-DELIVERY MECHANISM.

1,063,339.

Specification of Letters Patent.

Patented June 3, 1913.

Application filed August 18, 1910. Serial No. 577,737.

To all whom it may concern:

Be it known that I, JOSEPH S. DUNCAN, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented new and useful Improvements in Envelop-Delivery Mechanism, of which the following is a specification.

The primary object of this invention is to provide means of simple character for delivering and stacking envelopes, cards, or the like, in a compact and even pack convenient for removal.

My invention is especially adaptable for use in connection with an addressing or other form of printing machine in which the envelopes or cards are fed forward from a supply to printing position and are carried forward, after being printed, and neatly arranged in a pack ready for removal.

A further object of the invention is to automatically and regularly adjust the pack as it is formed on the delivery table so that the pack will be formed and maintained in an even and regular condition with the envelopes or cards all standing on edge and close together.

The invention also has other objects in view which will appear hereinafter in the detailed description of the accompanying drawings in which—

Figure 1 is a top plan view. Fig. 2 is a side elevation with the power wheel removed and the shaft therefor shown in section. Fig. 3 is a vertical sectional view. Fig. 4 is an end view. Fig. 5 is a detail sectional view of one of the threaded rods. Fig. 6 is a fragmentary sectional view taken on the line 6—6 of Fig. 1.

Referring to the drawings, 1 designates a frame which may be of any suitable construction adapted to support the various parts comprising the invention. This frame may be made especially for the invention or it may comprise a part of the machine with which the invention is embodied. A power shaft 2 is mounted in the frame and power is applied thereto by means of the pulley 3, or in any other suitable manner. The power

shaft carries a gear 4 which drives a gear 5 on the shaft 6, also mounted in the frame, and this shaft carries rolls 7 of suitable character adapted to drive the feed tapes 8. These tapes travel on the rolls 9 and 10 mounted respectively on the shafts 9', 10', journaled in the frame. Rolls 11 are mounted in frames 12 and rolls 13 are mounted in frames 14 and these frames are pivotally mounted in pairs on pins 16 in the frame. The frames 12 are arranged in opposition to the frames 14 and the rolls 11 engage the tapes approximately beneath the rolls 9 and the rolls 13 engage the tapes approximately in front of the rolls 9 so that these two sets of rolls 11 and 13 operate to carry an envelop around the corner of the frame on which they are mounted by pressing the envelop against the tapes where they travel in engagement with the rolls 9. The rolls 11 and 13 are held to their work by springs 17 which are arranged in front of the pivots 16 and between lugs 18 projecting laterally from the frames 12 and 14. These springs act upon the frames to yieldingly press the rolls 11 and 13 against the tapes to feed the envelop as before stated. Additional feed rolls 19 and 20 are suitably mounted in the frame above the rolls 13, the rolls 19 being shown below and the rolls 20 above the horizontal plane of the shaft 10' which carries the rolls 10. I prefer to mount the rolls 19 and 20 to yieldingly engage the tapes similarly to the rolls 11 and 13, and in order to accomplish this result I mount these rolls on pins 21' and 22' in the frames 21 and 22 pivoted at 22'' on the main frame. A spring 23 is connected at its ends to lugs 24 on the roll frames 21 and 22 and is arranged to pull the roll frames inward to hold the rolls 19 and 20 in yielding engagement with the tapes.

Thus far I have described that portion of the delivery mechanism which carries the envelop upward to the stacker or delivery table and while I prefer to use the construction hereinbefore described it will be obvious to those skilled in the art that it may be varied considerably and any suitable deliv-

ery mechanism employed for moving the envelopes thus far.

The delivery or stacker table comprises a plurality of rods 25 each of which is mounted at one end in the bearing lugs 26 of a collar 27 loosely mounted on the shaft 10' (Fig. 5). The rods are supported at their other ends on socket lugs 28 on the main frame and are held in place thereon by a locking strip 29 which is mounted on the screw bolts 30 in the frame. Springs 31 are arranged on the bolts 30 between the main frame and the locking strip to normally project said strip in position across the ends of the rods 25. For convenience I prefer to reduce the ends of the rods 25, as shown at 25' and 25''.

On a short length of the rod 25 adjacent to the end 25' I provide means preferably in the form of a triple spiral screw 32 having three threads of the same pitch arranged in parallel relation for feeding rapidly the envelopes delivered thereon. The remainder of the rod is provided with a helical thread 33 for feeding the pack of envelopes backward on the rod. It will be evident that both the threads 32 and 33 also tend to feed the envelopes laterally of the rod. For convenience I prefer to make each rod in two parts, one part 32' having the triple spiral thread 32 and the other part 33' having the helical thread 33 and these parts may be connected in any suitable manner as by means of a pin 34 rigid with the part 32' and fitting into a socket 35 in the part 33'. This construction permits of the parts 33' of the rods constituting the delivery or stacker table being readily removed from the machine by releasing the locking strip and lifting the ends engaged by the locking strip from the socket lugs and withdrawing the parts 33' from engagement with the parts 32'. This may be necessary for the purpose of repair or replacement but principally, perhaps, to permit ready access to the interior of the machine. These rods not only constitute the delivery or stacker table of the mechanism but they also operate to feed the envelopes thereon and to maintain the stack of envelopes in an even, upright and compact form. The rods are rotated in unison by worms 36 rigidly mounted on the shaft 10' and engaging and operating worm gears 37 rigidly mounted on the ends 25' of the rods. Thus the rods are all turned in unison and they are operated at a rate of speed timed with relation to the feeding mechanism so as to feed the envelopes on the table in a proper manner to maintain the pack A in an even and compact form.

To insure the envelop being carried over the ends 25' of the rods and the gears 37 I provide a plurality of disks 38 which are rigidly mounted on the shaft 10' and are

provided on their periphery with peripheral notches 39 and shoulders 40. The irregular periphery of the disks projects sufficiently to engage the envelop when it is fed up by the tapes and rolls and the shoulders lift and throw the envelop over the parts at the ends 25' of the rods on to the spirally threaded parts 32' of the rods. The spiral thread quickly feeds the envelop on to the helically threaded parts 33' of the rods and at the same time feeds the envelop to one side against an adjustable gage 41. This side gage may be supported in any suitable manner but I prefer to support it on a rod 42 attached to a deflector 43 which is located above the disks 38 and serves to direct the course of the envelop as it passes from the tapes on to the delivery or stacker table. The deflector is provided with arms 44 which limit the upward movement of the envelop as it passes from the tapes and insures its engagement with the rods to be fed rapidly by the spirals on to the helices.

The envelopes are supported in upright position on the table by a rest 45 which is threadingly engaged with and carried by the helically threaded parts 33' of two of the rods and is fed back on the rod simultaneously with the envelopes when the rods are rotated.

My invention is adapted for feeding envelopes, cards, or the like, and it can be readily embodied with feeding and printing mechanism of different kinds for taking the envelop or card after it is printed and delivering it in a neat and convenient pack for removal. The rods which constitute the delivery or stacker table are operated automatically and not only support the pack of envelopes as they are deposited one by one thereon but they hold the envelopes in a compact form and feed the pack as it increases in size. The disks engage the envelop at or about the time it leaves the tapes and throw the envelop upward with a quick movement so that the lower edge of the envelop will be engaged with the triple spiral thread on the adjacent ends of the rods. This prevents any liability of the envelop falling down to horizontal position which would seriously interfere with the operation. The triple spiral thread on the rods serves to feed the envelop quickly away from the discharge from the tapes and disks and on to the helically threaded parts of the rods and at the same time the envelop is fed sideways against the gage to register it in proper relation to the pack. The rest travels with the pack on the rods and maintains the pack in upright position at all times.

I prefer to provide the mechanism with a sufficient number of rods to form a table adapted to support large envelopes and if small envelopes are employed with this mech-

anism the side gage can be adjusted to confine the pack to a less number of rods than is necessary for large envelopes.

What I claim and desire to secure by Letters Patent is:

1. In a mechanism of the character described, the combination of a rod provided with feeding threads of a relatively small pitch to feed an envelop along the rod at a relatively slow speed and threads of a greater pitch at the receiving end for quickly delivering the envelop to said feeding threads, means for rotating said rod and means for delivering an envelop to the rod.

2. In a mechanism of the character described, a threaded rod adapted to engage the envelopes, said rod having a triple spiral thread at its receiving end and a helical thread beyond said triple spiral thread whereby the envelopes are continuously fed along the rod at varying speeds, and means for turning the rod to feed the envelopes.

3. In a mechanism of the character described, a threaded rod adapted to engage the envelopes, said rod being made in two parts, detachable one from the other, one of said parts having thereon a triple spiral thread and the other part having thereon a helical thread whereby the envelopes are fed longitudinally of the rod at a relatively fast and slow speed by the triple thread and the helical thread, respectively, and means for turning the rod to feed the envelopes.

4. In a mechanism of the character described, a plurality of threaded rods on which the envelopes are delivered on edge threaded to positively feed the envelopes at varying speeds, a worm and gear for turning each rod, and means for simultaneously operating said worms and gears.

5. In a mechanism of the character described, a threaded rod on which the envelopes are delivered on edge, a pivotal support for one end of said rod, a rigid support for the other end of said rod, and means for locking the rod in place on said rigid support.

6. In a mechanism of the character described, a plurality of threaded rods on which the envelopes are delivered on edge, lugs supporting said rods at one end thereof, and a yieldingly mounted locking strip to engage said ends to hold them in place on the supporting lugs.

7. In a mechanism of the character described, a threaded rod on which the envelopes are delivered on edge, said rod being pivotally supported at one end and locked at its other end and having thereon two threads of different pitch.

8. In a mechanism of the character described, the combination of a delivery table, means disposed beneath the table for frictionally engaging an envelop to carry the envelop to a position beneath and at one end of said table, and means mounted beneath the table for positively engaging the lower edge of said envelop to elevate the same from the carrying means to the upper surface of the table.

9. In a mechanism of the character described, the combination of a delivery table, means disposed below the table for engaging the flat faces of an envelop to convey said envelop to the receiving end of said table, and means mounted beneath the receiving end of the table for positively engaging the lower edge of said envelop to elevate and deliver the envelop from the conveying means beneath the table to the top of said table.

10. In a mechanism of the character described, the combination of a delivery table, a delivery mechanism, and means comprising a plurality of shouldered disks rotatably mounted beneath the table and adjacent one end thereof and adapted to positively engage the edges of the envelopes and throw the envelopes from beneath the table onto the top thereof.

11. In a mechanism of the character described, the combination of a delivery table, rotatable means mounted beneath the table and adjacent one end thereof for delivering envelopes on edge onto said table, and a stationary deflector positioned to engage an edge of said envelopes delivered by said delivery means and guide the movement of the envelopes onto the table.

12. In a mechanism of the character described, the combination of a delivery table, means located beneath the table for delivering envelopes on edge onto said table, and a deflector disposed above the table to engage the upper edges of the envelopes delivered by the delivery means, and direct the movement thereof on the table.

13. In a mechanism of the character described, the combination of a delivery table comprising a plurality of rods, means for delivering envelopes on edge to said table, a deflector for directing the movement of said envelopes as they leave the delivery means, a side gage for the envelopes adjustably mounted on said deflector, and means on said rods for maintaining the envelopes in engagement with said gage.

14. In a mechanism of the character described, the combination of a plurality of threaded rods forming a delivery table, means for delivering envelopes on edge on to said table and comprising a plurality of shouldered disks mounted beneath the table and adapted to engage and throw the envelopes over the ends of said rods on to the table, and means for operating said disks and turning said rods in unison.

15. In a mechanism of the character described, the combination of a delivery table and means for delivering envelopes onto said table, said means comprising a plurality of oppositely disposed frames provided with laterally projecting lugs, said frames being pivotally and coaxially mounted, rolls mounted upon the outer ends of said frames, and yielding means disposed between said laterally projecting lugs and adapted to urge said rolls into engagement with an envelop being fed.

JOSEPH S. DUNCAN.

Witnesses:

WM. O. BELT,

M. A. KIDDIE.