

No. 756,981.

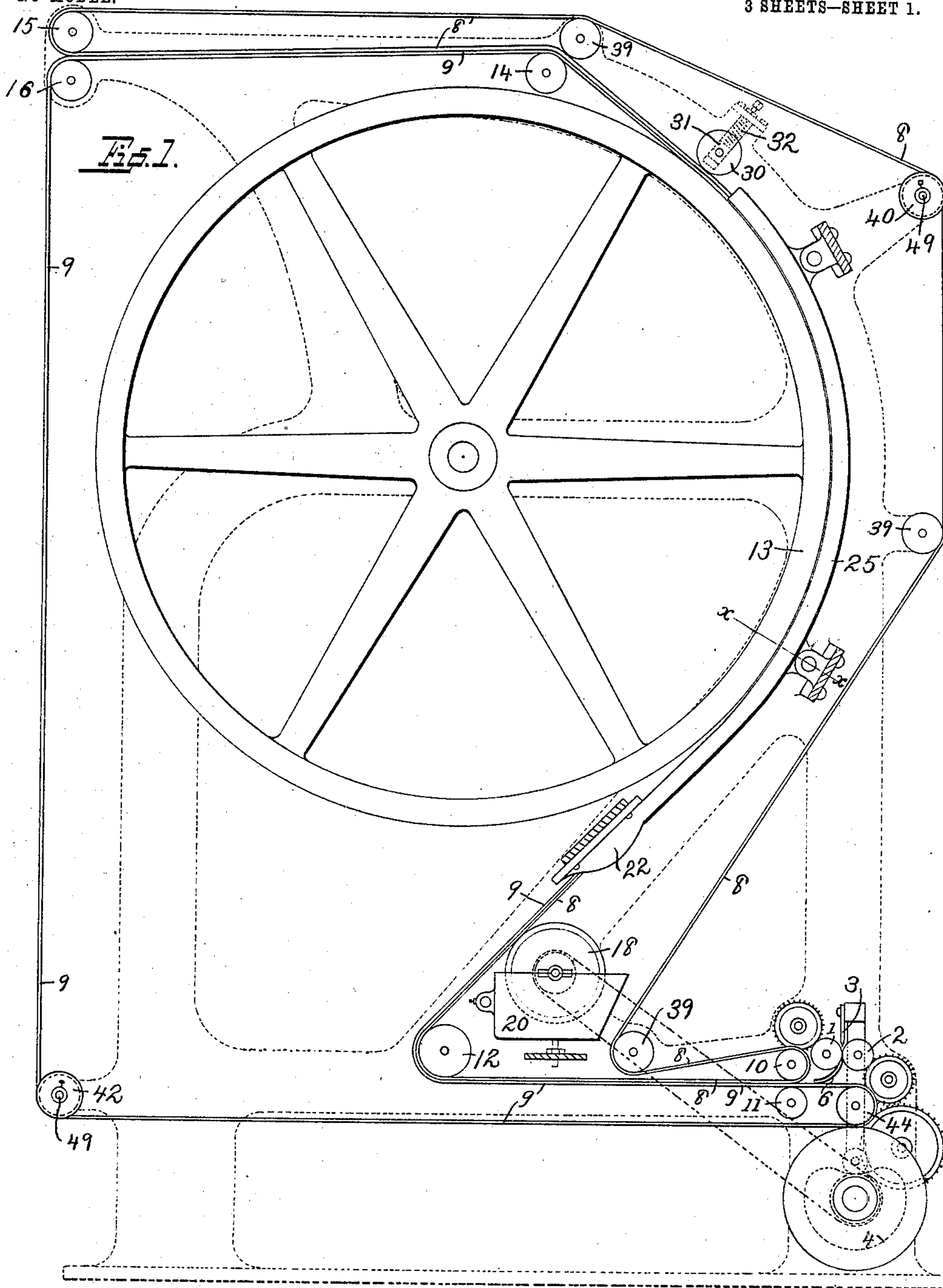
PATENTED APR. 12, 1904.

W. L. RINEHART.
ENVELOP MACHINE.

APPLICATION FILED DEC. 12, 1902.

NO MODEL.

3 SHEETS—SHEET 1.



WITNESSES:
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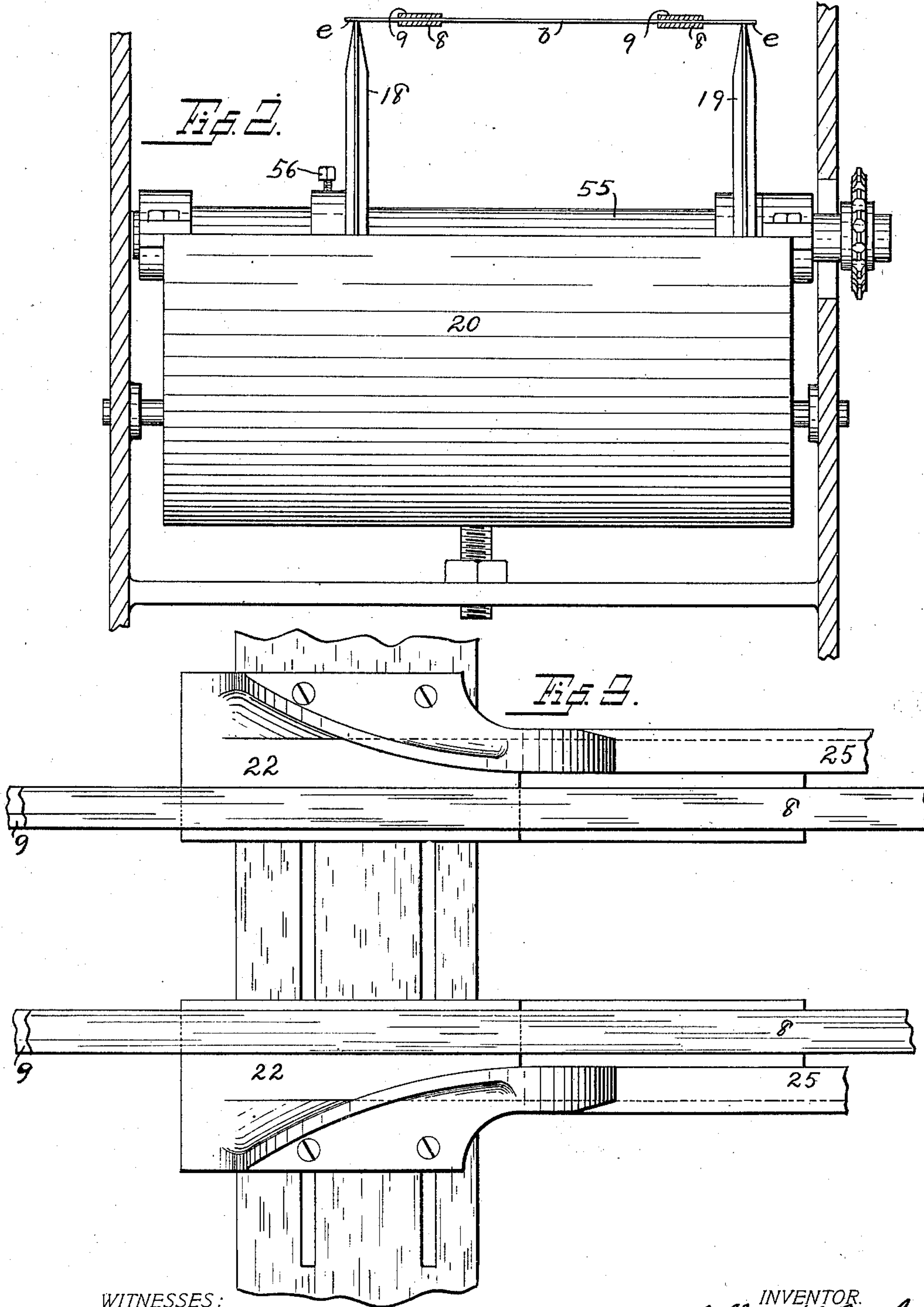
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3 SHEETS—SHEET 2.



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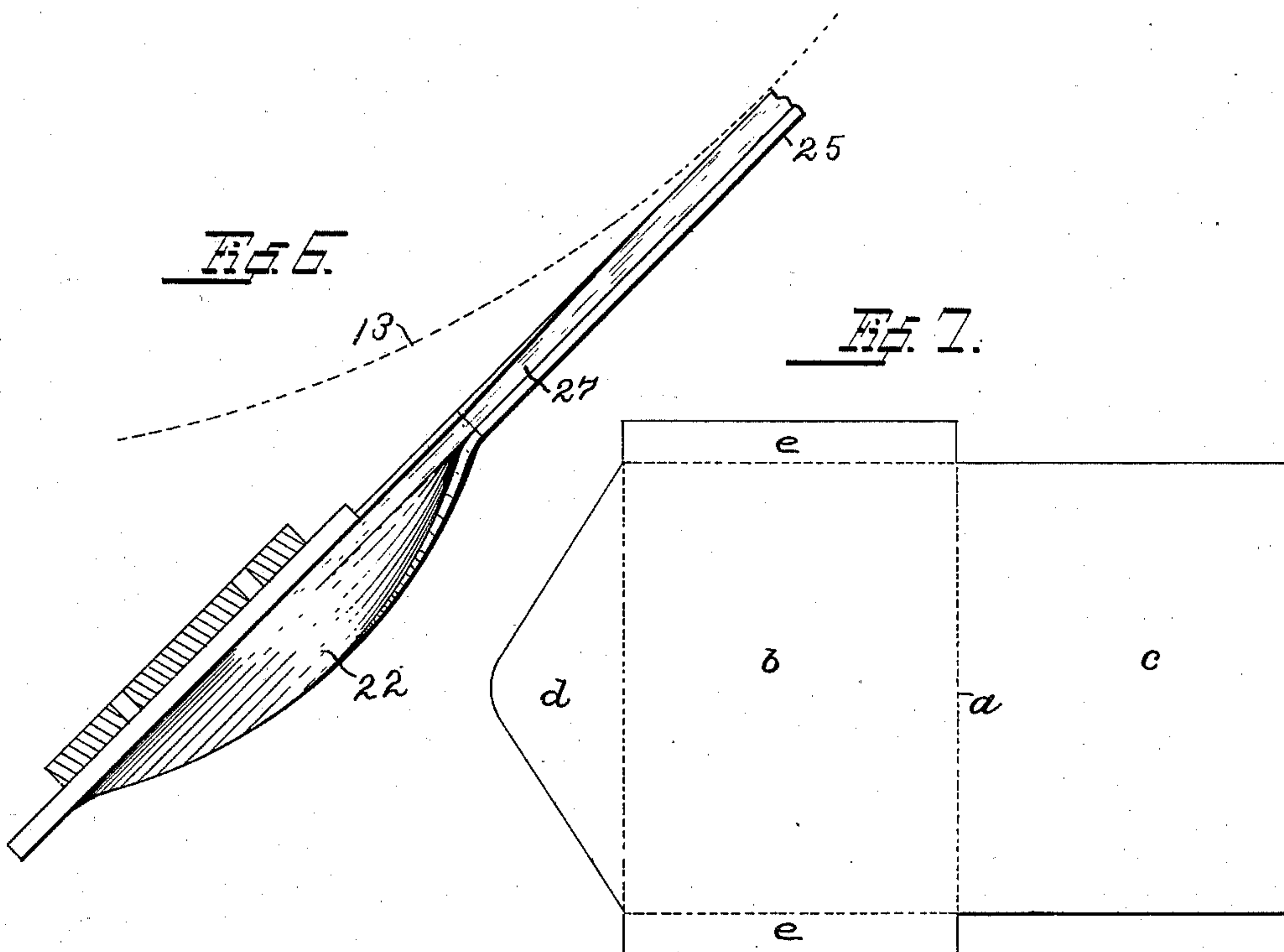
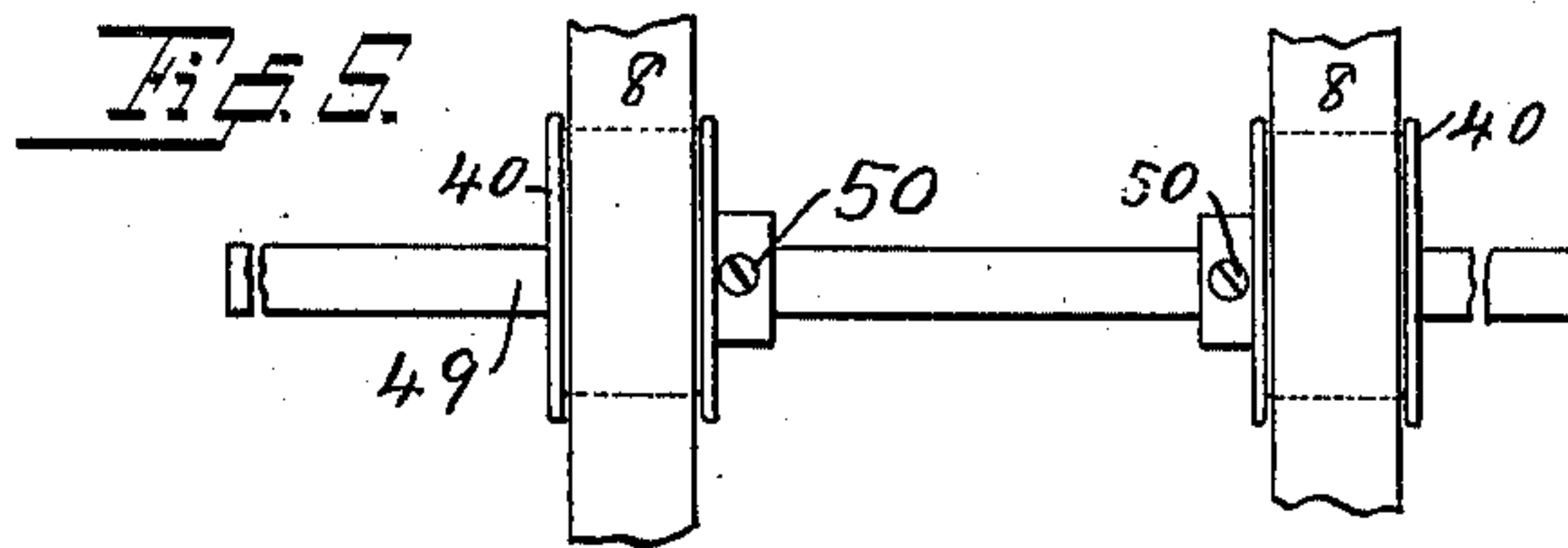
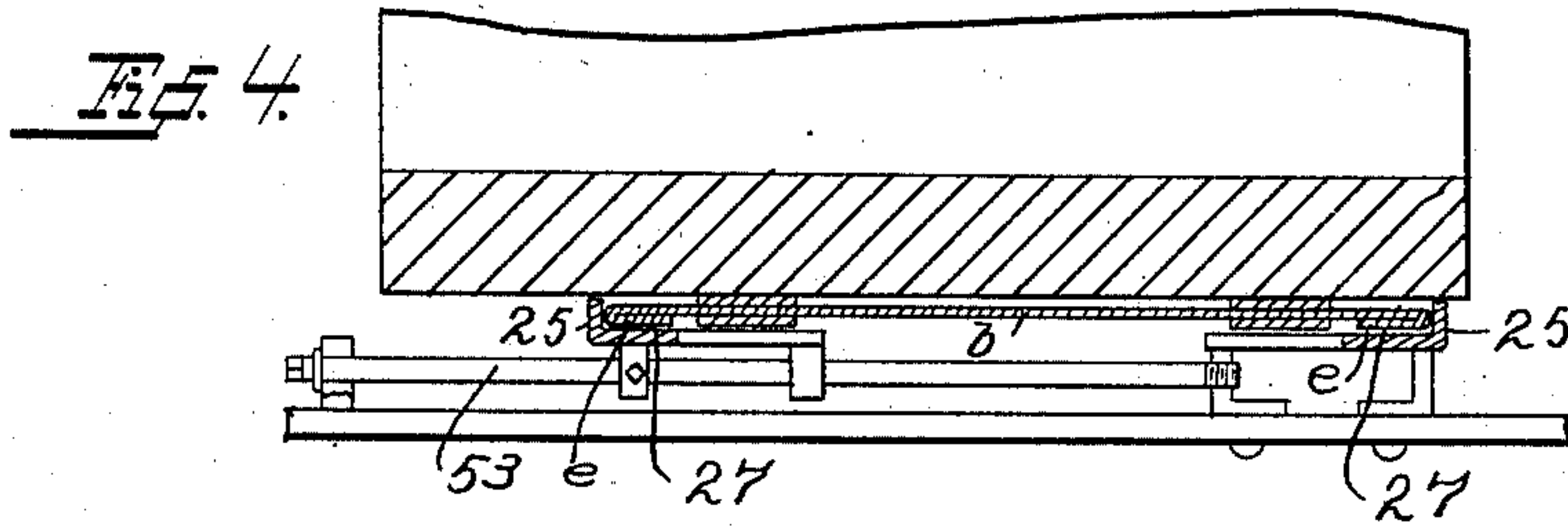
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NO MODEL.

3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

WILLIAM L. RINEHART, OF MILWAUKEE, WISCONSIN.

ENVELOP-MACHINE.

SPECIFICATION forming part of Letters Patent No. 756,981, dated April 12, 1904.

Application filed December 12, 1902. Serial No. 134,909. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM L. RINEHART, a citizen of the United States, residing at Milwaukee, county of Milwaukee, and State of Wisconsin, have invented new and useful Improvements in Envelop-Machines, of which the following is a specification.

My invention relates to improvements in envelop-machines, and pertains especially to the mechanism for gumming and sticking the side edges of the envelop.

One object of the invention is to provide means for conveying the envelops, after they have been gummed and folded, through a guideway in which the folded margins are continuously held in position until the folding operation is completed, the friction of the guideway being overcome by providing means whereby the conveying devices are made to take a firm grip upon the envelop during the period of such contact.

A further object of my invention is to render the mechanism adjustable for envelops of different widths.

In the following description reference is had to the accompanying drawings, in which—

Figure 1 is a side view of my invention with some of the frame-bars shown in cross-section and others in dotted lines. Fig. 2 is a front elevation of the paste-tank and wheels, showing the envelop-conveyer in cross-section. Fig. 3 is a view of the device for folding the pasted edges as seen from the under side. Fig. 4 is a sectional view drawn on line *xx* of Fig. 1. Fig. 5 is a detail front view of the adjustable guide-pulleys of the conveyer. Fig. 6 is a detail of one member of the folder and guide as seen from its inner side, showing also a portion of the periphery of the drum to which the guide is applied. Fig. 7 is a view of the paper sheet as it is cut preparatory to forming the envelop.

Like parts are identified by the same reference characters throughout the several views.

The stock—*i. e.*, the sheet of paper of which the envelop is to be formed—is first cut in the form shown in Fig. 7 and fed in any convenient manner across the folding-rollers 1 and 2 underneath the creasing-blade 3, the latter being actuated from a cam 4 (indicated in dot-

ted lines in Fig. 1) to crease the stock along the line *a*, Fig. 7, when it is caught by the rollers and folded to form the front *b* and back *c*, respectively, of the envelop. The stock then passes through a guideway 6 and is discharged between the superposed conveyer-tapes 8 and 9. These parts may be of any ordinary construction. The conveyer-tapes 8 and 9 extend in superposed position and carry the stock from the receiving-rollers 10 and 11 around the guide-roller 12, drum 13, and guide-roller 14 to delivery-rollers 15 and 16, from between which the completed envelop is finally discharged. The operations of pasting, folding, and sticking the side edges are performed and completed while the stock is being thus conveyed by the tapes.

The stock is fed to the folding-rollers in such a position that when folded the part *b*, having the sealing-flap *d* and constituting the front of the completed envelop, will be uppermost when the doubled sheet passes between the receiving-rollers. The tapes are adjusted, as hereinafter explained, so that the marginal flaps *e* of the stock will project beyond the tapes at each side in a position for contact with the paste-wheels 18 and 19, which have a different peripheral speed from the speed of the tapes and stock carried thereby. The lower edges of the paste-wheels are immersed in a supply of liquid paste in a tank 20, and the revolutions of the wheels carry up the paste and distribute it along a line on the under surfaces of the projecting margins *e*. The stock is then carried by the tapes to a folder 22, formed with curved guide-wings at the sides, which engage the upper surfaces of margins *e* and progressively bend them downwardly and inwardly until the same are folded underneath the side edges of the back *c*. Similarly-curved guide-wings are in common use in envelop-machines, and it is therefore not necessary to describe them with more particularity, except that one of the wings is made adjustable with reference to the other, as hereinafter explained.

Segmental guides 25 extend from the folder 22 around a drum 13, upon the periphery of which the tapes are arranged to bear. These guides are also adjustable, one with reference

to the other, and each guide is provided with a recess or channel 27, in which the side edges of the envelop engage to about the width of the folded flap *e*. The guides prevent the
 5 folded portions of the envelop from becoming distorted until the flaps *e* have been folded throughout their entire length, and for this reason the guides are made of considerable length to accommodate envelops of various
 10 linear dimensions. While passing through the guides the envelopes are tightly gripped by the tapes, which bear upon the periphery of the drum between the guides. The increased friction of the envelop in the guide is
 15 therefore overcome by the grip of the tapes upon the central portion of the envelop.

On passing the guides the envelop is carried by the tapes between the drum and a sticking-roller 30, the latter being mounted
 20 in movable bearing-blocks 31, which are resiliently cushioned in the frame by springs 32. The springs push the roller in the direction of the drum and cause it to compress the tapes and the envelops carried by them
 25 forcibly against the drum, thereby pressing the flaps *e* against the back *c* of the envelop, when the paste will hold them in position. After passing between the roller 30 and the drum the completed envelops are conveyed
 30 by the tapes to the point of delivery, when they are carried between the rollers 15 and 16, and the tapes 8 and 9 are separated to release the envelops. From the roller 15 the tapes 8 are returned over rollers 39 and guide-
 35 pulleys 40 to the initial roller 10. The tapes 9 are returned from the roller 16 over the guide-pulleys 42 and roller 44 to the initial receiving-roller 11. The guide-pulleys 40 and 42 are adjustably secured to their supporting-
 40 shafts 49 by set-screws 50, Fig. 5. By loosening the set-screw of one pulley on each shaft it may be adjusted to a greater or less distance from the other on that shaft, and thus adjust the tapes, for, as the other rollers are each
 45 cylindrical in form and extend transversely across the line of the tapes in any position of tape adjustment, the position of the pulleys will control the adjustment of the tapes.

One of the guides 25 is fixed in position,
 50 while the other is mounted upon a bolt 53, whereby it may be adjusted in correspondence with the position of the guide-pulleys. The same means of adjustment is employed for the guide-wings of the folder 22, which may be
 55 conveniently formed in rigid connection with the guides 25, as shown. The paste-wheel 18 is mounted on the supporting-shaft 55 and secured in the desired position of adjustment by ordinary set-screws 56.

60 It will be observed that from the time the stock passes between the initial rollers to the time it issues as a complete envelop from between the discharge-rollers it is continuously supported and held by the conveyer-tapes.
 65 The provision of the drum 13 in a position to

press against the superposed tapes and cause them to grip the stock firmly between them during the passage of the latter through the guides is a feature of great importance, as it
 70 not only prevents distortion and clogging, but holds the folded flaps in true parallel positions, thus rendering all the envelops uniformly neat in appearance.

Having thus described my invention, what I claim as new, and desire to secure by Letters
 75 Patent, is—

1. In a machine of the described class, the combination of a flexible stock-conveyer; pasting and folding devices operative in coöperation with said conveyer; a drum, bearing
 80 against the conveyer and adapted to impart a gripping pressure to the conveyer members which engage the stock; and a segmental guide extending from the folder partially around the drum, said guide being formed with angle
 85 flanges adapted to hold the folded edges of the stock in position.

2. In a machine of the described class, the combination of a flexible stock-conveyer, comprising superposed members adapted to hold
 90 the stock between them; pasting, folding and sticking devices arranged in coöperative relation to the conveyer; a drum located between the folding and sticking devices with the conveyer running on a segment of its periphery;
 95 and segmental flanged guides extending along that portion of the drum which is in conveyer-contact, said guides being formed to hold the folded edges of the stock in position pending the operation of the sticking devices.
 100

3. In a machine of the described class, the combination with a paper-folding device having curved guides at the sides adapted to turn the edges of the stock; of a guideway extending from the rear of the folding device, adapted
 105 to engage and hold the turned edges in position; a conveyer for the stock, arranged to convey the same through the folding device and guideway; and means for applying pressure to the conveyer, whereby the same
 110 is made to grip the stock during its passage through said guide.

4. In a machine of the described class, a set of guides for holding the folded edges of the stock; a conveyer having superposed bands
 115 adapted to receive the stock between them, and arranged to convey it along the guides; and means for applying pressure to the conveyer while passing the guides.

5. In a machine of the described class, a segmental guideway, comprising two angularly-flanged bars; a drum revolving in close proximity to the guideway on the concave side;
 120 and a set of superposed pairs of conveyer-tapes bearing on the drum between the bars
 125 forming the guideway.

6. In a machine of the described class, a segmental guideway, comprising two angularly-flanged bars; a drum revolving in close proximity to the guideway on the concave side;
 130

and a set of superposed pairs of conveyer-tapes bearing on the drum between the bars forming the guideway; and means for adjusting one of the guide-bars with reference to the other.

7. In a machine of the described class, a segmental guideway, comprising two angularly-flanged bars; a drum revolving in close proximity to the guideway on the concave side; a set of superposed pairs of conveyer-tapes bearing on the drum between the bars forming the guideway; and means for adjusting one of the guide-bars with reference to the other; together with means for correspondingly adjusting one pair of tapes to and from another pair of the set.

8. In a machine of the described class, the combination of sets of conveyer-tapes, arranged in superposed pairs; tape-adjusting

pulleys for the tapes of at least one pair; means for adjusting the pulleys to regulate the positions of the tapes; a set of gluing-wheels adjustable in correspondence with the positions of the tapes; a drum bearing upon the tapes beyond the gluing-wheels; a sheet-folding device, and segmental guideway formed in sections, one at each side of the tape conveyer, and adjustable in correspondence therewith; said segmental guideway being formed with a curvature conforming substantially to that of the drum, and located in close proximity thereto.

In testimony whereof I affix my signature in the presence of two witnesses.

WILLIAM L. RINEHART.

Witnesses:

LEVERETT C. WHEELER,
PAUL G. LEWIS.