Dec. 13, 1938. A. NOVICK 2,140,112

ENVELOPE MACHINE

Original Filed May 9, 1935 7 Sheets-Sheet 1

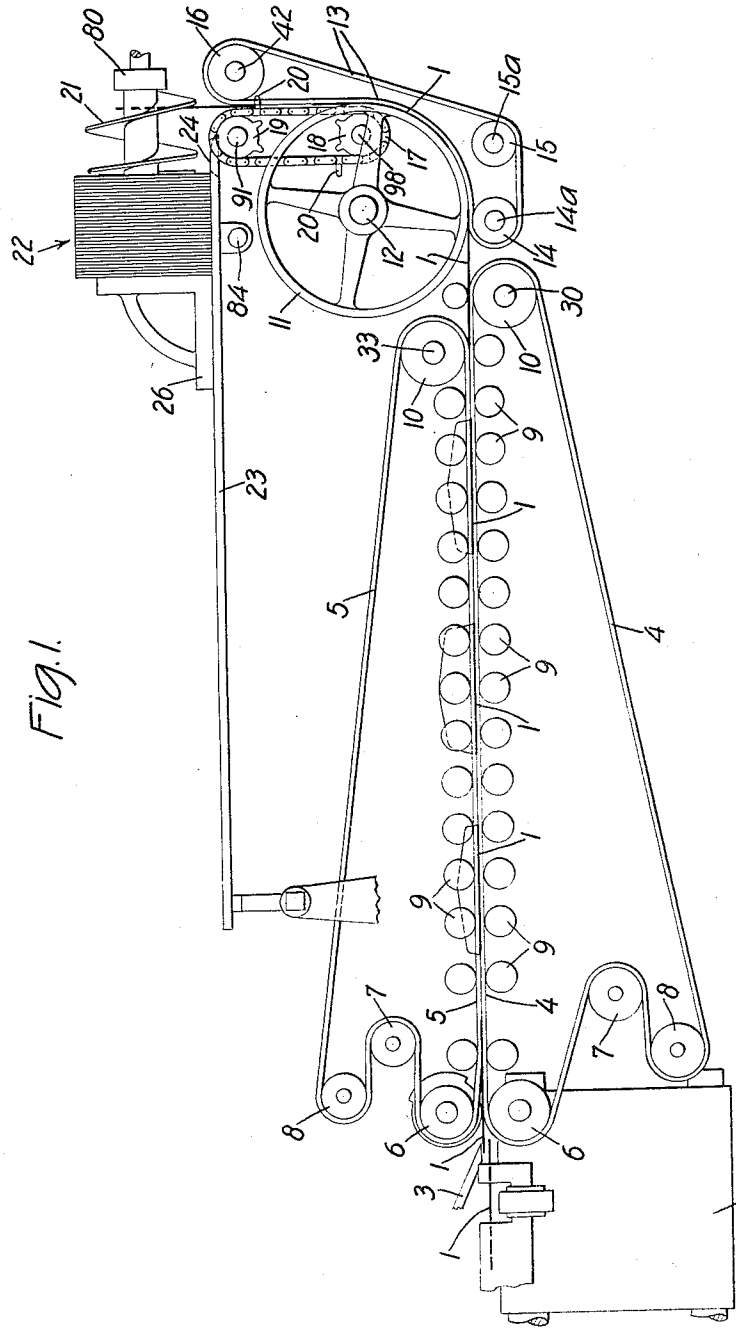


Fig. 1.

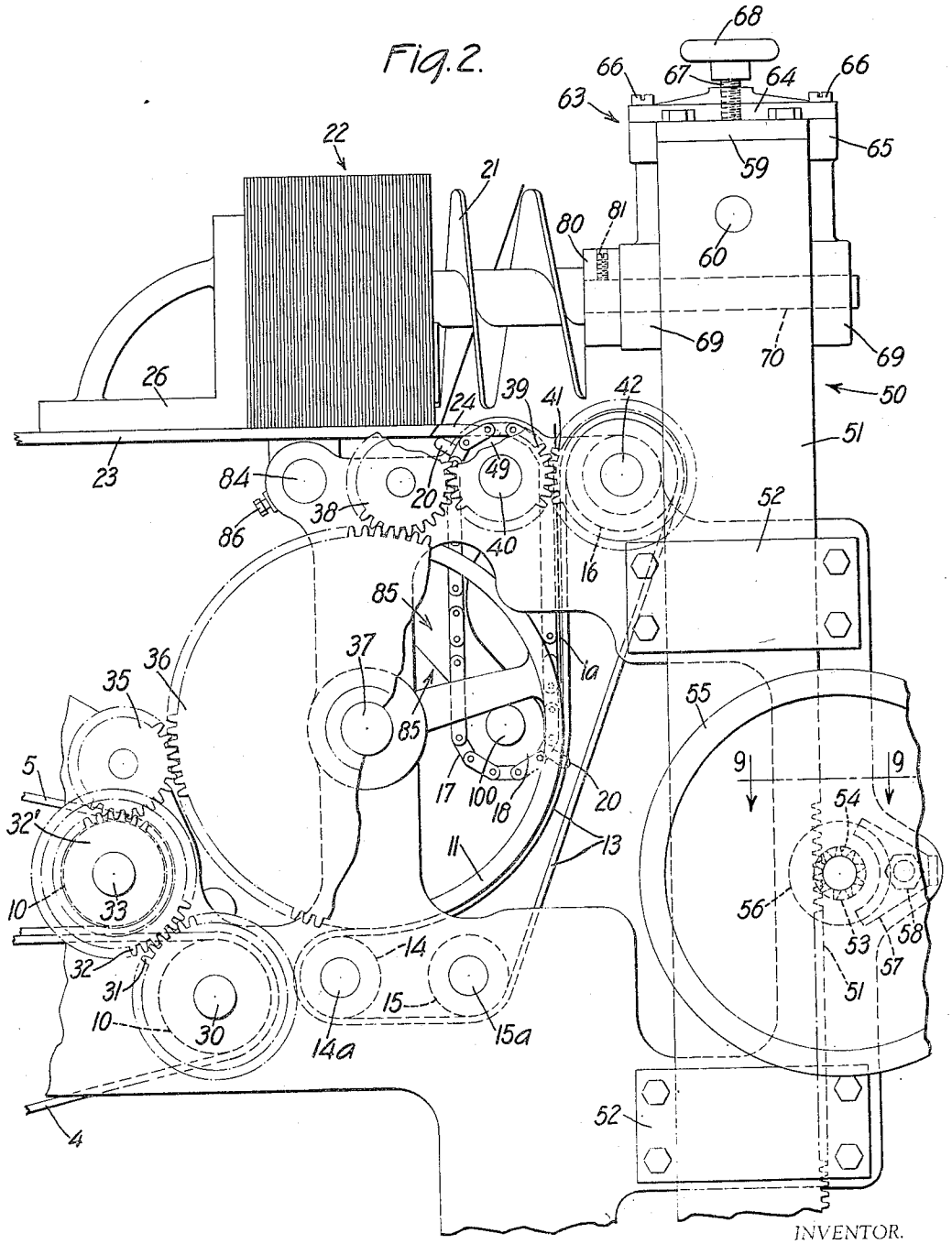
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BY Moses & Holte
ATTORNEYS.

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ENVELOPE MACHINE

Original Filed May 9, 1935 7 Sheets-Sheet 2

Fig. 2.



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Fig. 3.

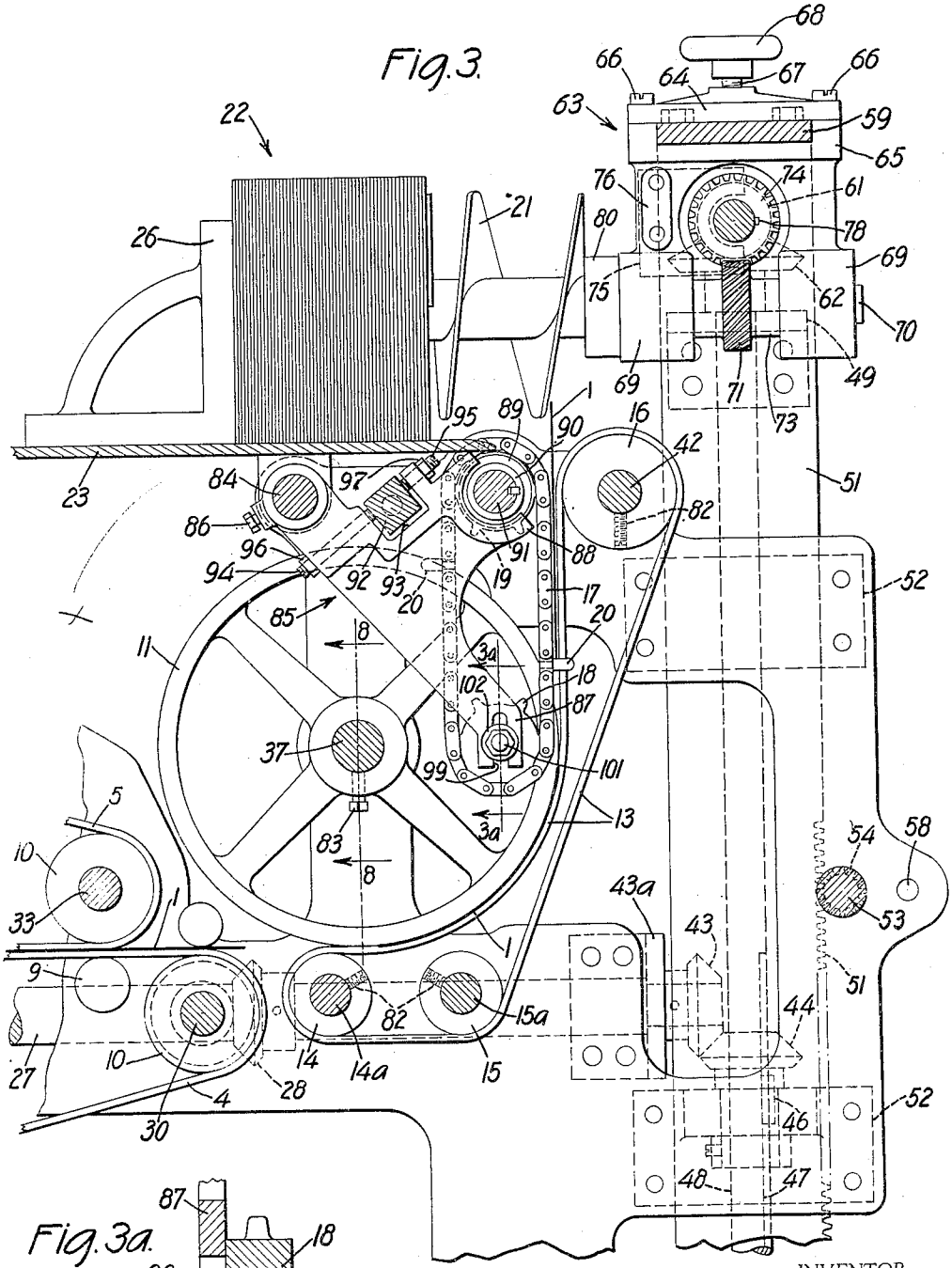
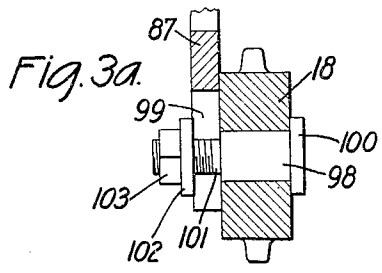


Fig. 3a.



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ENVELOPE MACHINE

Original Filed May 9, 1935 7 Sheets-Sheet 4

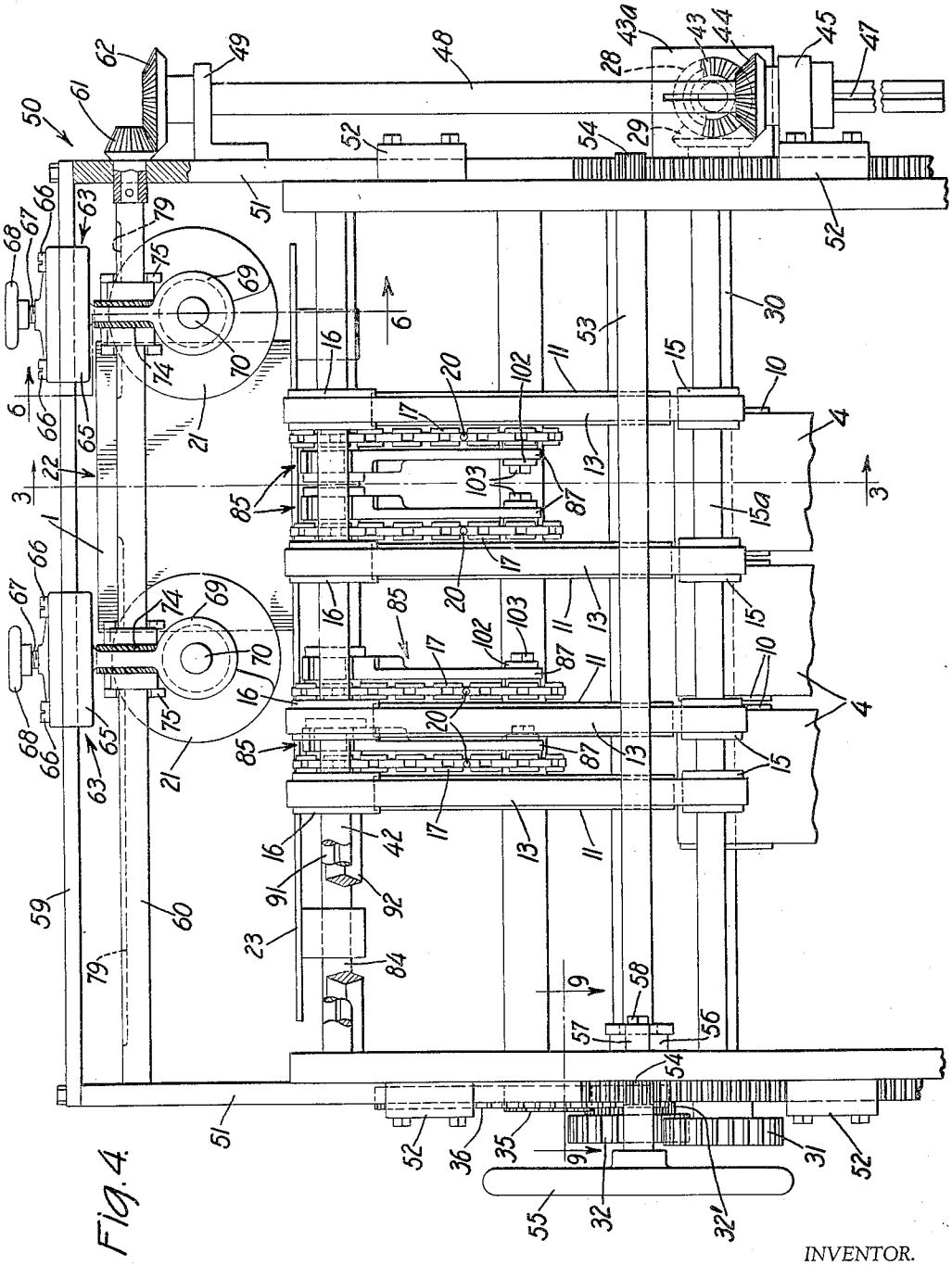


Fig. 4.

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ENVELOPE MACHINE

Original Filed May 9, 1935 7 Sheets-Sheet 5

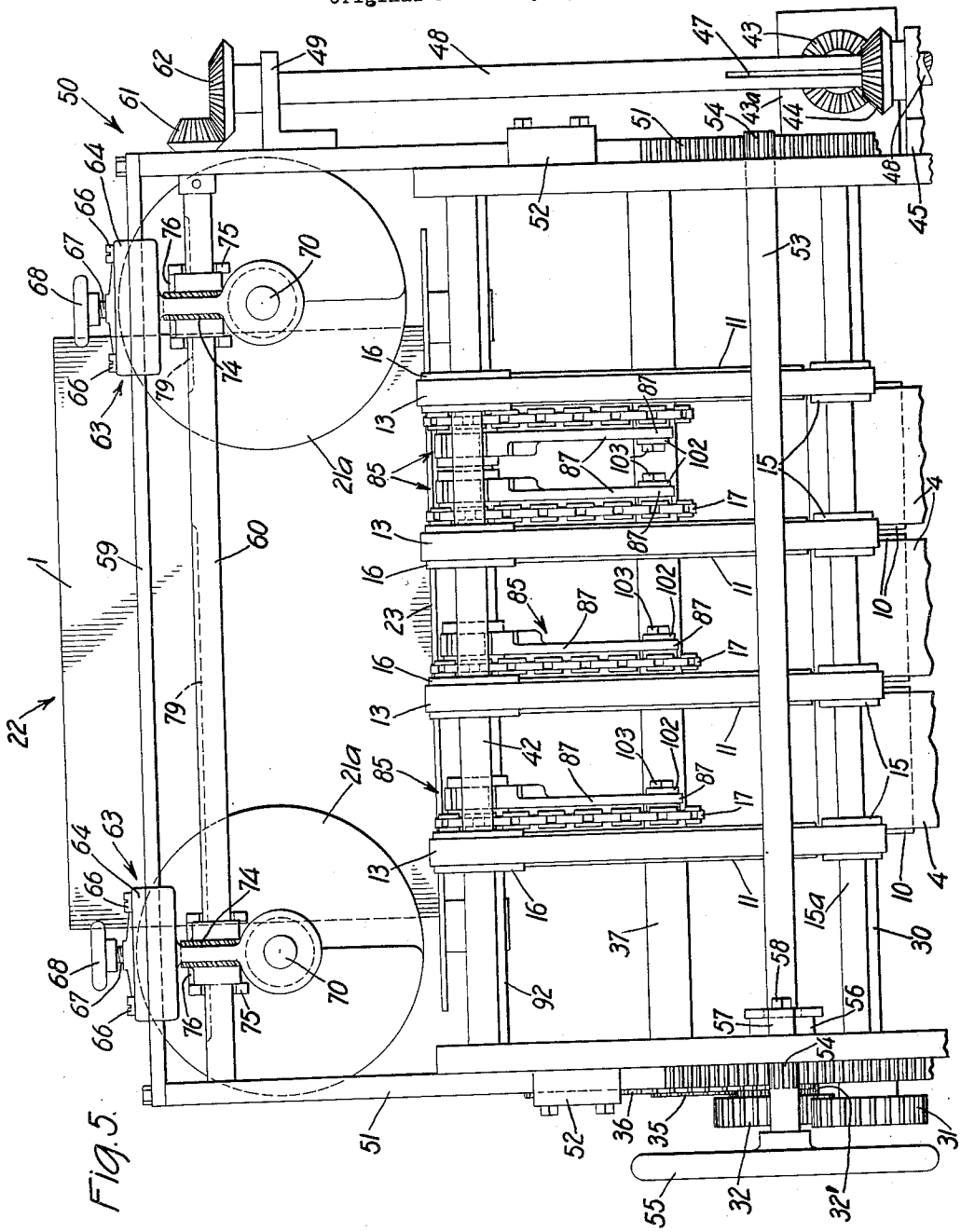


Fig. 5.

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ENVELOPE MACHINE

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Fig. 6.

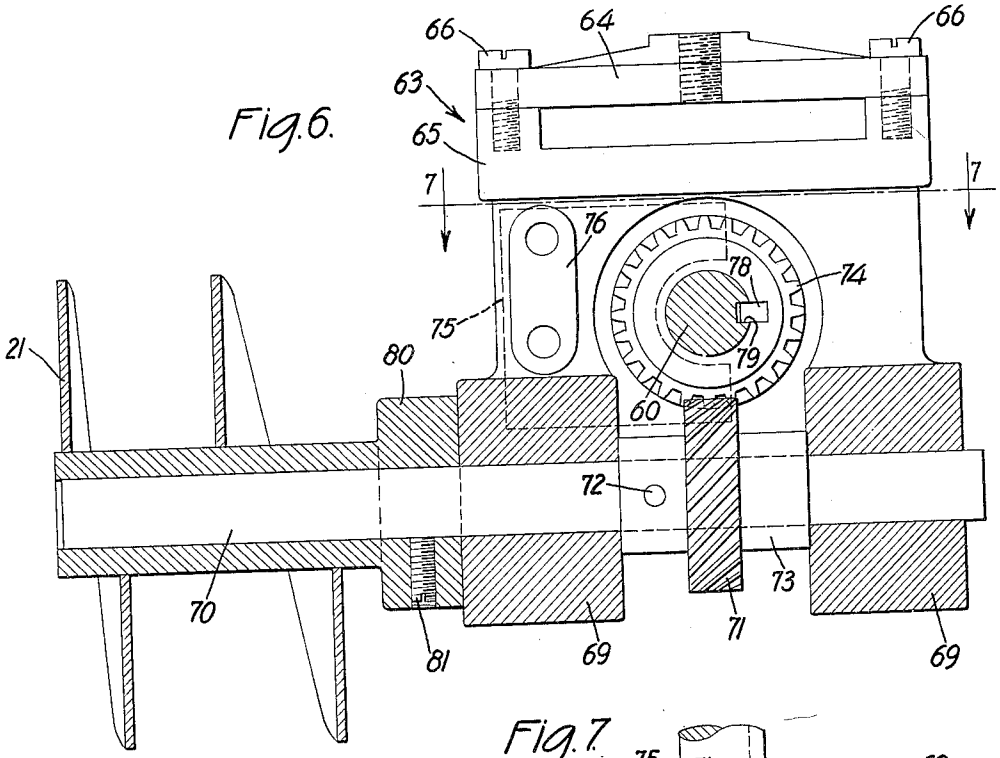


Fig. 7.

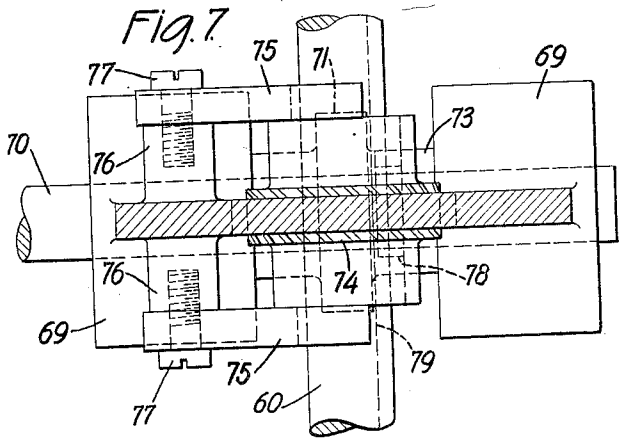


Fig. 8.

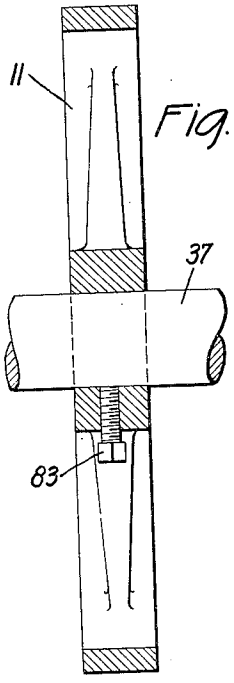
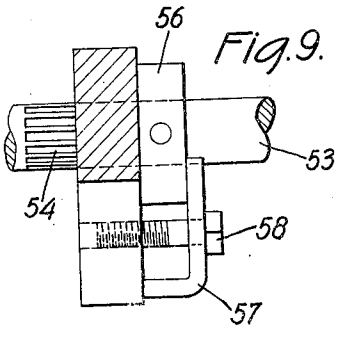


Fig. 9.



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Fig. 10.

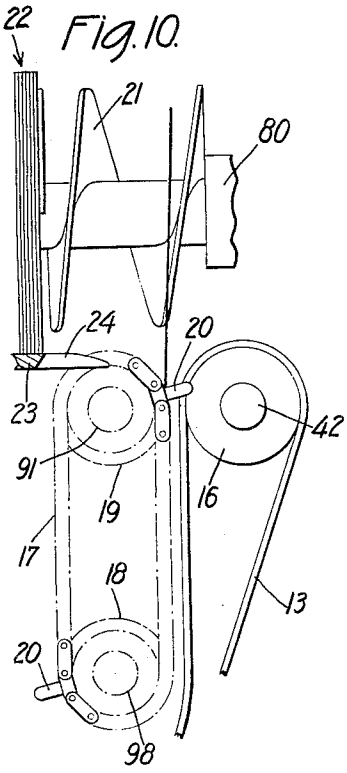


Fig. 11.

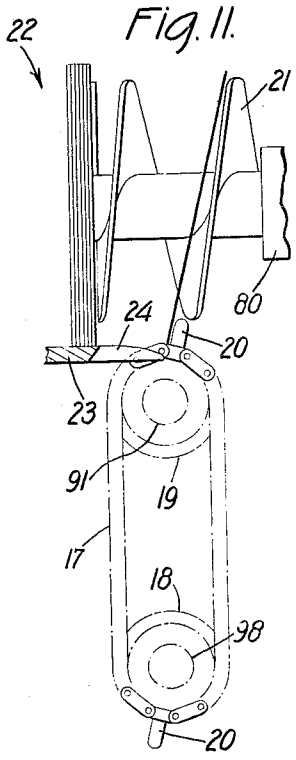


Fig. 12.

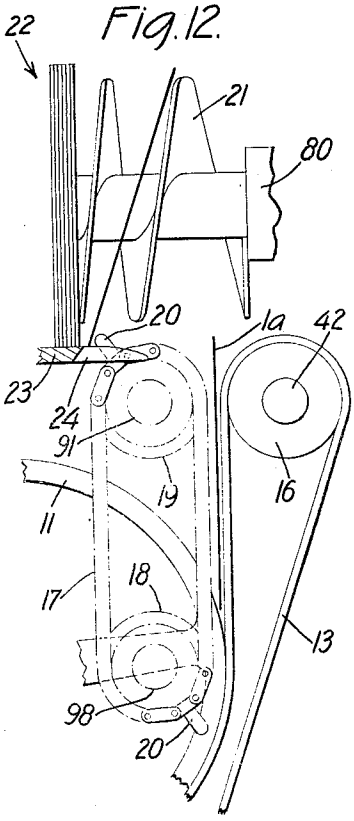


Fig. 13.

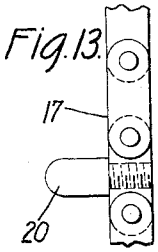
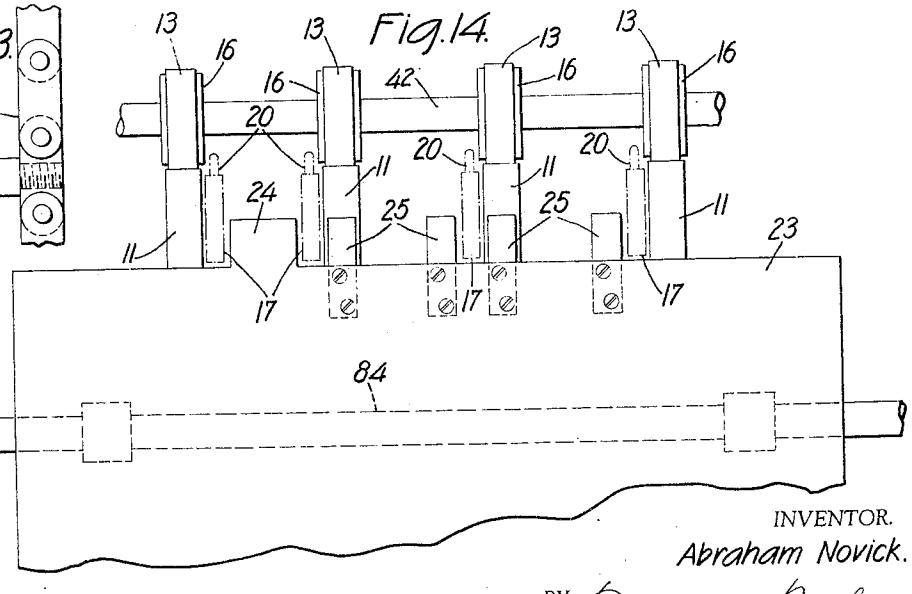


Fig. 14.



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Patented Dec. 13, 1938 2,140,112

UNITED STATES PATENT OFFICE

2,140,112

ENVELOPE MACHINE

Abraham Novick, Flushing, N. Y., assignor to F. L. Smithe Machine Co., Inc., New York, N. Y., a corporation of New York

Application May 9, 1935, Serial No. 20,575
Renewed April 20, 1938

19 Claims. (Cl. 271—69)

This invention relates to delivery mechanism for envelope machines. It is illustrated as applied to a machine for making open end envelopes of the center seam type, but its utility is not confined to the illustrated use. The invention may be employed to advantage in any situation where it is desired to rearrange successive spaced out sheets, envelopes, or other containers of sheet material into stock form.

It is the primary object of the invention to provide an efficient mechanism for receiving spaced out sheets as they are delivered successively and stacking them.

It is a further object of the invention to provide mechanism of the kind referred to which is adaptable to a wide variety of sizes and shapes of envelopes or containers.

Other objects and advantages will hereinafter appear.

In the drawings forming part of this specification and illustrating a preferred embodiment of the invention,

Figure 1 is a fragmentary view in side elevation illustrating a portion of an envelope machine having a delivery mechanism embodying features of the present invention applied thereto;

Figure 2 is a fragmentary view in side elevation, partly broken away, the view being on a larger scale than Figure 1;

Figure 3 is a view in sectional elevation illustrating the same part of the machine as that shown in Figure 2, the section being taken on the line 3—3 of Figure 4, looking in the direction of the arrows;

Figure 3*a* is a fragmentary, sectional detail view showing a sprocket mounting; the section being taken on the line 3*a*—3*a* of Fig. 3;

Figure 4 is a fragmentary view in front elevation of the delivery end of the machine;

Figure 5 is a view similar to Figure 4 but showing the parts readjusted for a different size envelope and larger stacking helices substituted for the helices shown in Figure 4;

Figure 6 is a detail view in sectional elevation taken approximately on the line 6—6 of Figure 4, looking in the direction of the arrows;

Figure 7 is a fragmentary, sectional, plan view on the line 7—7 of Figure 6, looking in the direction of the arrows;

Figure 8 is a fragmentary, detail view, in sectional elevation, taken on the line 8—8 of Figure 3, looking in the direction of the arrows;

Figure 9 is a fragmentary, sectional view taken on the line 9—9 of Figure 4, looking in the direction of the arrows;

Figures 10, 11 and 12 are fragmentary diagrammatic views illustrating successive phases of the operation of a portion of the delivery mechanism;

Figure 13 is a fragmentary detail view illustrating a portion of an elevator chain; and

Figure 14 is a fragmentary plan view illustrating the stacking table and the associated mechanism.

The invention is illustrated as applied to a machine for making open end envelopes of the center seam type. The particular type of envelope machinery employed is unimportant, however, and is illustrated simply for the reason that it typifies the practical application of the invention to the rearrangement of spaced out envelopes delivered in time relation into stack form.

In the machine as illustrated, envelope blanks 1 are advanced lengthwise by an inclined conveyor 2 into position to be acted upon by a sucker 3. They are then transferred individually by the sucker to cooperating conveyors 4 and 5 which run upon rollers, 6, 7, 8, 9 and 10 to advance the blanks sidewise for the operations of pasting the bottom flap and folding the bottom and sealing flaps. The finished envelopes are delivered from the conveyors 4 and 5 in definitely timed and spaced out condition. Each envelope is delivered to a bight formed between a series of coaxial cylinders or discs 11 mounted on a shaft 12 and a series of opposed conveyor bands 13 which run upon pulleys 14, 15 and 16. The bands 13 bear against the respective discs 11 throughout substantially a quadrant and extend upward from the discs in a substantially vertical plane tangent to the discs. Elevator chains 17 run upon sprockets 18 and 19 in substantial parallelism to the vertical stretches of the bands 13. The chains and bands are arranged in alternation and fingers 20 carried by the chains project outward to intersect the plane of the confronting portions of the bands.

When an envelope is delivered to the bight formed by the discs 11 and the bands 13 it is gripped and positively advanced until it reaches the position 1*a* illustrated in Figure 12. The timing of the mechanism is such that a set of the fingers 20 overtakes the trailing edge of the envelope and operates to lift it. During this lifting operation the envelope is guided between the parallel stretches of the chains 17 and the bands 13, being thrust upward between parallel, spaced screws or helices 21 which act as impellers to thrust the envelope toward a stack. The arrangement of the chains and the bands 13 is such

that the pins 20 are caused to incline upward, as seen in Figure 10, before the pins move out of intersecting relation to the bands. In this way liability of a blank slipping off the end of a pin is avoided.

The helices are of the same pitch but of opposite thread, and they rotate in opposite directions. The helices act to move the upper portion of an envelope toward a stack 22 at the same time that the pin 20 travels around the upper sprocket 19 to carry the lower edge of the envelope toward the stack.

A stack supporting table 23 is disposed substantially in the plane of the top of the sprocket 19 and is provided with a projection 24 and fingers 25 which are curved downward so as to extend beneath the path transversed by the bases of pins 20 in passing around the sprockets 19. The pins are, therefore, effective to deposit the lower edges of the envelopes on the projections of the table so that the envelopes are definitely delivered to the table in position to be supported on edge and propelled by the helices to the stack. A stop 26 is placed upon the table in opposed relation to the helices and as the envelopes are added to the stack the stop is pushed by the accumulating envelopes away from the helices but resists such movement and serves to hold the envelopes of the stack compactly together.

As has been pointed out each envelope reaches the position to be released from the grip of the discs 11 and the bands 13 some time prior to the arrival of a pin 20 in position to elevate the envelope from such position. By virtue of this arrangement the elevator mechanism is automatically adapted to deal properly with envelopes of a great variety of widths (heights as illustrated in Figure 12).

Other features of the invention have to do with adapting the helices to deal with envelopes of different widths and with adapting the elevator mechanism and the helices to deal with envelopes of different lengths. These features will be made clear in conjunction with the detailed description which follows.

The features referred to have to do in part with the driving means for the delivery mechanism and hence a description of the driving means is appropriate at this point.

All of the operating parts of the disclosed mechanism are driven from a main shaft 27. The main shaft has fast upon it a bevel pinion 28 which drives a bevel pinion 29 fast on a cross shaft 30. The cross shaft 30 carries the end rollers 10 of the conveyor 4 and serves to drive said conveyor. The shaft 30 has fast upon it a gear 31 which drives a gear 32 fast on the shaft 33. The shaft 33 carries the end roller 10 of the upper conveyor belt 5 and drives the belt 5 in unison with the belt 4. A gear 32' also fast on the shaft 33 acts through a gear 35 to drive a gear 36 fast upon a shaft 37. The shaft 37 has the rollers or discs 11 fast upon it and the arrangement of gearing is such that the discs 11 travel at a peripheral speed substantially equal to the speed of the belts 4 and 5. The gear 36 acts through a gear 38 to drive a gear 39 fast upon a shaft 40. The shaft 40 has fast upon it the sprockets 19 whereby the elevator chains 17 are driven. The gear 39 drives a gear 41 fast upon a shaft 42, the latter shaft having fixed to it the end rollers 16 of the conveyor bands 13. The gearing is desirably so proportioned that the elevator chains 17 and conveyor bands 13 travel at the same speed as the peripheral speed of the discs 11. It is not important, however, that the chains travel at the same speed as the other parts so long as the design of the parts causes the chain pins 20 to come into play in correct timed relation to the arrival of the blanks in position to be acted upon by them, and so long as the pins move rapidly enough to avoid being overtaken by a following envelope.

The main drive shaft 27 is supported in a bracket 43a and also has fast upon it a bevel pinion 43 which drives a bevel pinion 44 journalled in a fixed bracket 45. The pinion 44 is provided internally with a key 46, Fig. 3 which extends into a keyway 47 provided in a vertical shaft 48. The key and keyway cause the pinion to drive the shaft 48 but permit vertical adjustment of the shaft relative to the pinion while maintaining such driving connection. The shaft 48 extends upward through an ear 49 provided upon a vertically adjustable frame 50. Frame 50 comprises rack bars 51 which extend through guides 52 fixed to opposite sides of the frame. A shaft 53 is journalled in the machine frame and extends transversely thereof. This shaft is provided with pinions 54 for driving the rack bars in unison. It is also provided with a hand wheel 55 at one end whereby it may be turned to adjust the frame 50 up or down. Provision is made for clamping the shaft 53 against further rotation when it has been set to a desired position. The clamping means is illustrated in Figure 9. The shaft 53 is provided with a fixed collar 56 against which an angle member or clamp 57 bears. A screw 58 threaded into the machine frame draws the clamp firmly against the collar to bind the collar between the clamp and the frame. When it is desired to adjust the shaft the screw 58 is first backed out a sufficient distance to relieve the pressure applied to the collar.

The vertically adjustable frame 50 carries the stacking helices 21 and the means for driving and for adjustably supporting said helices. The frame 50 comprises a cross bar 59 which connects the rack bars 51 to one another. The rack bars 51 jointly support a shaft 60 which has fast upon it a bevel pinion 61 driven by a bevel pinion 62 fast on the upper end of the shaft 48. Hanger brackets 63 embrace the cross bar 59 and are adjustable longitudinally thereof (laterally of the machine). Each hanger bracket comprises a bracket plate 64 overlying the cross bar and a bracket frame 65 beneath the cross bar. The bracket members 64 and 65 are joined together by screws 66. A set screw 67 is threaded through each bracket plate 64 into engagement with the upper side of the cross bar and is provided with an adjusting knob 68 whereby it may be turned into clamping relation to the cross bar or released as desired.

Each hanger bracket 65 includes spaced bearing members 69 forming bearings for a helix shaft 70. Between the bearings 69 a spiral gear 71 is mounted on the shaft 70, being affixed thereto in any suitable manner as by a pin 72 passed through its hub. A spacing collar or hub 73 is provided on the shaft 70 at the side opposite the gear hub to fix the gear 71 in position longitudinally of the shaft to mesh with a spiral gear 74. The spiral gear 74 is supported upon the shaft 60 and is retained between end bearing blocks 75 carried by bosses 76 on the bracket frame 65. Each end bearing block is secured to one of the bosses 76 by a pair of screws 77, and each end bearing block partially embraces the

shaft 60. The spiral gears 74 are adjustable longitudinally of the shaft 60, being constrained by the end bearing members 75 to move with the hanger brackets 65. Each gear 74 is provided internally with a key 78 which fits in a slot or keyway 79 of the shaft 60.

It will be observed that each hanger bracket and the parts carried by it, together with the associated gear 74, constitute a unit adjustable laterally of the machine. When it is desired to readjust the machine to handle blanks of a different size from that for which it has been set the frame carrying the helices is adjusted vertically in accordance with the new width of the envelopes. Adjustment is then made of one or both of the hanger brackets 63 longitudinally of the shaft 60 to a proper setting for envelopes of the new length.

If the change of size is substantial it may be that different size helices are required. Each helix comprises a sleeve or hub portion 80 which is detachably secured to the shaft 70 by means of a set screw 81. Substitution of one helix for another can be very readily effected. The set screw 81 is unscrewed slightly. Hub 80 with its helix is removed and a similar assembly but including a larger or smaller helix is substituted. The helices 21a of Figure 5 are substituted, these helices being of larger diameter than the helices 21 of the other figures.

In making this substitution, however, it is not desirable that the speed at which the blank is propelled by the helix longitudinally of its axis be changed, since this speed must fall within the limit adapting the helix to cooperate properly with the elevator pins 20. The several helices, therefore, are designed to have the same axial throw per revolution or, in other words, the pitch is inversely related to the diameter of the helix.

While the adjustment of the helices has been described it is also desirable that provision be made to adjust the discs and the elevator mechanism laterally of the machine in accordance with the length of envelope being operated upon. The rollers 14, 15 and 16 upon which the bands 13 run are fixed to their respective shafts 14a, 15a and 42 by means of set screws 82. The set screws secure the rollers to their respective shafts, but when the set screws are loosened the rollers and the bands carried by them are free to be adjusted laterally of the machine with the associated discs 11. The discs 11 are secured to their shaft 37 by set screws 83 and may be adjusted longitudinally of the shaft (laterally of the machine) when the set screws are loosened.

The elevator mechanisms including the chains, are arranged to be adjusted angularly relative to the vertical stretches of the bands 13 and also to be adjusted laterally of the machine. Each elevator chain is adapted to be adjusted laterally with its sprockets as a unit. The elevator units are all supported upon a stationary, transverse shaft 84. Each unit includes a bracket 85 which is adapted to be fixed longitudinally of the fixed shaft 84 by means of a set screw 86. Each bracket 85 includes a yoke 87 to which the sprocket 18 is adjustably secured. Each bracket also includes a yoke 88 which partially embraces a groove 89 in a hub portion 90 of one of the sprockets 19.

When it is desired to adjust one or more of the elevator chains laterally of the machine the set screws 86, of the brackets 85 associated with the chains which are to be adjusted, are loosened, and the bracket is moved laterally of the machine to the new desired location. The yoke 88 acts to move the sprocket 19 longitudinally of the shaft 91 to which it is keyed. The yoke 87 of the shaft carries the sprocket 18 with it.

For effecting angular adjustment of the elevator mechanism provision is made of a square shaft 92 which is mounted in the machine frame and which is embraced by a recess 93 of each bracket 85. Screws 94 and 95 are threaded through the bracket 85 and bear against opposite faces of the square shaft 92. The screws may be adjusted within limits to change the angular position of the bracket 85, and hence to adjust the angular position of the chain associated with the bracket. The screws 94 and 95 are locked in adjusted positions by lock nuts 96 and 97, the adjustment may be such that the screws do not bind against the shaft 92 but leaving the bracket free to be adjusted laterally of the machine.

The mounting of a sprocket 18 upon one of the yokes 87 is illustrated in detail in Figure 3a. The sprocket 18 is journalled upon a stub shaft 98 which is of larger diameter than the width of the slot 99 formed in the yoke 87. The sprocket is supported between the yoke 87 and a head 100 on the shaft 98. A reduced portion 101 of the shaft 98 extends through the slot of the yoke 87, and at the opposite side of the yoke from the sprocket 18, carries a washer 102 which is clamped against the yoke by a nut 103. With the described arrangement the sprocket may be adjusted vertically in the yoke to take up slack of the associated chain.

When the machine is used for making small envelopes the parts are adjusted substantially as shown in Figure 4. The two right hand elevator devices being used in conjunction with the helices 21 and the two left hand elevator devices being ineffective. When large envelopes are made, however, all four of the elevator devices shown are used in conjunction with helices 21a, the adjustment being, for example, like that illustrated in Figure 5.

If the envelopes which are being made are too large to permit both of the elevator pins 20 to be used one of the pins may be unscrewed from the elevator. In such a case the blanks are fed through the machine at only half the normal frequency.

I have described what I believe to be the best embodiments of my invention. I do not wish, however, to be confined to the embodiments shown, but what I desire to cover by Letters Patent is set forth in the appended claims.

I claim:

1. In an envelope machine, the combination with means for delivering envelopes in spaced out relation of a plurality of co-axially arranged feed rollers, bands running in conformity with the rollers and tangentially away therefrom in an upward direction, and elevator conveyors opposed to the upwardly extending stretches of the bands and having lifting fingers extending into intersecting relation to the straight stretches of the bands.

2. In an envelope machine, the combination with means for delivering envelopes in spaced out relation of a plurality of co-axially arranged feed rollers, bands running in conformity with the rollers and tangentially away therefrom in an upward direction, and elevator conveyors opposed to the upwardly extending stretches of the bands and having lifting fingers extending into intersecting relation to the straight stretches of the bands, and sprockets for the elevator conveyors around which the lifting fingers are carried,

the axes of said sprockets being located at a low enough level to cause the lifting fingers to incline upward while still intersecting the plane of the straight stretches of the bands.

3. In an envelope machine, the combination with means for delivering envelopes in spaced out relation of a plurality of co-axially arranged feed rollers, bands running in conformity with the rollers and tangentially away therefrom in an upward direction, and elevator conveyors opposed to the upwardly extending stretches of the bands and having lifting fingers extending into intersecting relation to the straight stretches of the bands, and sprockets for the elevator conveyors around which the lifting fingers are carried, the axes of said sprockets being located at a low enough level to cause the lifting fingers to incline upward while still intersecting the plane of the straight stretches of the bands, a stack table extending substantially tangentially from the upper group of said sprockets, and a pair of spaced screws for receiving between them envelopes thrust upward by the lifting fingers and propelling the envelopes into stack formation on the table.

4. In an envelope machine, the combination with means for delivering envelopes in spaced out relation of a plurality of co-axially arranged feed rollers, bands running in conformity with the rollers and tangentially away therefrom in an upward direction, and elevator conveyors opposed to the upwardly extending stretches of the bands and having lifting fingers extending into intersecting relation to the straight stretches of the bands, and sprockets for the elevator conveyors around which the lifting fingers are carried, the axes of said sprockets being located at a low enough level to cause the lifting fingers to incline upward while still intersecting the plane of the straight stretches of the bands, a stack table extending substantially tangentially from the upper group of said sprockets, and a pair of spaced screws for receiving between them envelopes thrust upward by the lifting fingers and propelling the envelopes into stack formation on the table, the lifting fingers travelling in intersecting relation to the receiving end of the table when passing around the sprockets.

5. In an envelope machine, the combination with means for delivering envelopes in spaced out relation of a plurality of co-axially arranged feed rollers, bands running in conformity with the rollers and tangentially away therefrom in an upward direction, and elevator conveyors opposed to the upwardly extending stretches of the bands and having lifting fingers extending into intersecting relation to the straight stretches of the bands, sprockets for the elevator conveyors around which the lifting fingers are carried, a stack table extending substantially tangentially from the upper group of said sprockets, and a pair of spaced impellers for receiving between them envelopes thrust upward by the lifting fingers and propelling the envelopes into stack formation on the table, the elevator conveyors travelling in intersecting relation to the receiving end of the table when passing around the sprockets.

6. In an envelope machine, the combination with means for delivering envelopes in spaced out relation of a plurality of co-axially arranged feed rollers, bands running in conformity with the rollers and tangentially away therefrom in an upward direction, and elevator conveyors opposed to the upwardly extending stretches of the bands and having lifting fingers extending into intersecting relation to the straight stretches of the bands, sprockets for the elevator conveyors around which the lifting fingers are carried, a stack table extending substantially tangentially from the upper group of said sprockets, and a pair of spaced impellers for receiving between them envelopes thrust upward by the lifting fingers and propelling the envelopes into stack formation on the table, the elevator conveyors travelling in intersecting relation to the receiving end of the table when passing around the sprockets, means for driving the impellers, and means for vertically adjusting the impellers and the driving means thereof to change the height of the impellers relative to the elevator conveyors.

7. In an envelope machine, the combination with means for delivering envelopes in spaced out relation of a plurality of co-axially arranged feed rollers, bands running in conformity with the rollers and tangentially away therefrom in an upward direction, and elevator conveyors opposed to the upwardly extending stretches of the bands and having lifting fingers extending into intersecting relation to the straight stretches of the bands, and sprockets for the elevator conveyors around which the lifting fingers are carried, the axes of said sprockets being located at a low enough level to cause the lifting fingers to incline upward while still intersecting the plane of the straight stretches of the bands, a stack table extending substantially tangentially from the tops of the sprockets, and a paid of spaced screws for receiving between them envelopes thrust upward by the lifting fingers and propelling the envelopes into stack formation on the table, means for driving the screws comprising a common drive shaft, a frame carrying the screws and said common drive shaft, a vertical shaft carried by the frame and geared to the common drive shaft, means having a sliding driving connection with the vertical shaft, and means for adjusting the frame vertically.

8. In an envelope machine, the combination with elevator means for thrusting envelopes upward, of a pair of spaced screws for receiving the envelopes between them and propelling them into stack formation, screw carrying and driving means comprising screw shafts, means for adjusting the screw carrying and driving means vertically and laterally and means for detachably mounting the screws on their shafts whereby they may be readily replaced by screws of different sizes.

9. In an envelope machine, the combination with elevator means for thrusting envelopes upward, of a pair of spaced screws for receiving the envelopes between them and propelling them into stack formation, screw carrying and driving means comprising screw shafts, spiral gears on the screw shafts, a common drive shaft therefor, spiral driving gears for the screw gears having sliding driving connection with the common drive shaft, means for effecting adjustment longitudinally of the common drive shaft of each screw together with the associated pair of coacting spiral gears as a unit, and means for maintaining the spiral gears in proper cooperative relation when adjusted.

10. In an envelope machine, the combination with elevator means for thrusting envelopes upward, of a pair of spaced screws for receiving the envelopes between them and propelling them into stack formation, screw carrying and driving means comprising screw shafts, spiral gears on

the screw shafts, a common drive shaft therefor, spiral driving gears for the screw gears having sliding driving connection with the common drive shaft, means for effecting adjustment longitudinally of the common drive shaft of each screw together with the associated pair of co-acting spiral gears as a unit, and means for maintaining the spiral gears in proper cooperative relation when adjusted, a frame carrying said screw carrying and driving means, means for adjusting the frame vertically, and means for maintaining driving connections from the common drive shaft in all adjusted positions thereof.

11. In an envelope machine, the combination with means for delivering envelopes in spaced out relation of a plurality of co-axially arranged feed rollers, bands running in conformity with the rollers and tangentially away therefrom in an upward direction, and elevator conveyors opposed to the upwardly extending stretches of the bands and having lifting fingers extending into intersecting relation to the straight stretches of the bands, and sprockets for the elevator conveyors around which the lifting fingers are carried, the axes of said sprockets being located at a low enough level to cause the lifting fingers to incline upward while still intersecting the plane of the straight stretches of the bands, a stack table extending substantially tangentially from the upper group of said sprockets, and a pair of spaced screws for receiving between them envelopes thrust upward by the lifting fingers and propelling the envelopes into stack formation on the table, and means for adjusting the elevator conveyors angularly toward and from the bands.

12. In an envelope machine, the combination with means for delivering envelopes in spaced out relation of a plurality of co-axially arranged feed rollers, bands running in conformity with the rollers and tangentially away therefrom in an upward direction, and elevator conveyors opposed to the upwardly extending stretches of the bands and having lifting fingers extending into intersecting relation to the straight stretches of the bands, and sprockets for the elevator conveyors around which the lifting fingers are carried, the axes of said sprockets being located at a low enough level to cause the lifting fingers to incline upward while still intersecting the plane of the straight stretches of the bands, a stack table extending substantially tangentially from the upper group of said sprockets, and a pair of spaced screws for receiving between them envelopes thrust upward by the lifting fingers and propelling the envelopes into stack formation on the table, and means for adjusting the elevator conveyors angularly toward and from the bands, and means for effecting lateral adjustment of the elevator conveyors while preserving the angular adjustment thereof.

13. In an envelope machine, the combination with means for delivering envelopes in spaced out relation of a plurality of co-axially arranged feed rollers, bands running in conformity with the rollers and tangentially away therefrom in an upward direction, and elevator conveyors opposed to the upwardly extending stretches of the bands and having lifting fingers extending into intersecting relation to the straight stretches of the bands, and sprockets for the elevator conveyors around which the lifting fingers are carried, the axes of said sprockets being located at a low enough level to cause the lifting fingers to incline upward while still intersecting the plane of the straight stretches of the bands, a stack table extending substantially tangentially from the upper group of said sprockets, and a pair of spaced screws for receiving between them envelopes thrust upward by the lifting fingers and propelling the envelopes into stack formation on the table, and means for fixing the elevator conveyors, the rollers and the band in different adjusted positions laterally of the machine.

14. In an envelope machine, the combination with means for delivering envelopes in spaced out relation of a plurality of co-axially arranged feed rollers, bands running in conformity with the rollers and tangentially away therefrom in an upward direction, and elevator conveyors opposed to the upwardly extending stretches of the bands and having lifting fingers extending into intersecting relation to the straight stretches of the bands, and sprockets for the elevator conveyors around which the lifting fingers are carried, the axes of said sprockets being located at a low level to cause the lifting fingers to incline upward while still intersecting the plane of the straight stretches of the bands, a stack table extending substantially tangentially from the upper group of said sprockets, and a pair of spaced screws for receiving between them envelopes thrust upward by the lifting fingers and propelling the envelopes into stack formation on the table, means for fixing the elevator conveyors the rollers and the bands in different adjusted positions laterally of the machine, means for adjusting the screws laterally of the machine, and means for vertically adjusting the screws.

15. In an envelope machine comprising the elements combined and cooperating as set forth in claim 1, propelling screws and screw-carrying and driving shafts combined and cooperating to form a stack of envelopes.

16. In an envelope machine, the combination with means for delivering envelopes in spaced-out relation, of a plurality of co-axially arranged feed rollers, bands running in conformity with the rollers and tangentially away therefrom in an upward direction, and elevator conveyors opposed to the upwardly extending stretches of the bands and having lifting fingers extending into intersecting relation to the straight stretches of the bands; a pair of spaced screws for receiving the envelopes between them and propelling them into stack formation, screw carrying and driving means comprising screw shafts, means for adjusting the screw carrying and driving means vertically and laterally and means for detachably mounting the screws on their shafts whereby they may be readily replaced by screws of different sizes.

17. In an envelope machine, the combination with a conveyor adapted to feed envelopes in a given direction, and to discharge them edgewise in a plane at an angle to said direction, of means for thrusting said envelopes positively edgewise in said plane, and a pair of spaced screws for receiving between them the envelopes as delivered edgewise from said last-named means, and for propelling said envelopes into stack formation.

18. In an envelope machine, the combination with means for delivering individualized envelopes in succession, including an endless conveyor running in a predetermined orbit, from which orbit the envelopes are discharged seriatim; endless conveyors disposed at the discharge station, and having fingers extending into intersecting relation with the path of discharge of said envelopes; a pair of spaced helical feed devices for receiving the envelopes from said last-named con-

veyors, and propelling them into stack formation; and means comprising screw shafts for carrying and driving said helical feed devices.

19. In an envelope machine, the combination with means for delivering envelopes in a given direction, of means to discharge them edgewise in a plane at an angle to said direction comprising roller feeding means, bands running in conformity with the roller feeding means and tangentially away therefrom in an upward direction, and elevator conveyors opposed to the upwardly extending stretches of the bands and having lifting fingers extending into intersecting relation to the straight stretches of the bands.

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