

April 12, 1927.

1,624,899

G. E. NORTHROP

MAILING MACHINE

Original Filed Dec. 21, 1925

6 Sheets-Sheet 1

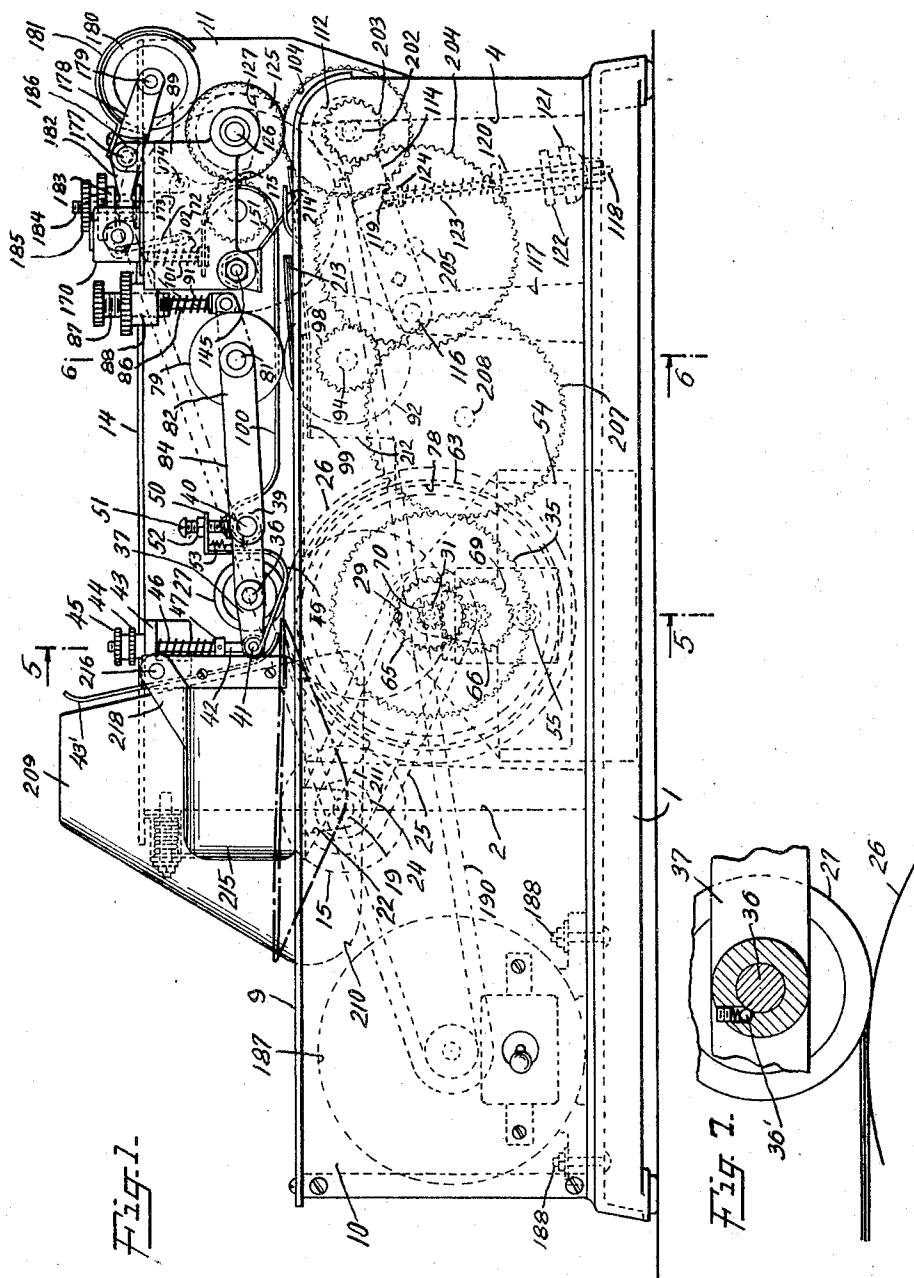


Fig. 7.

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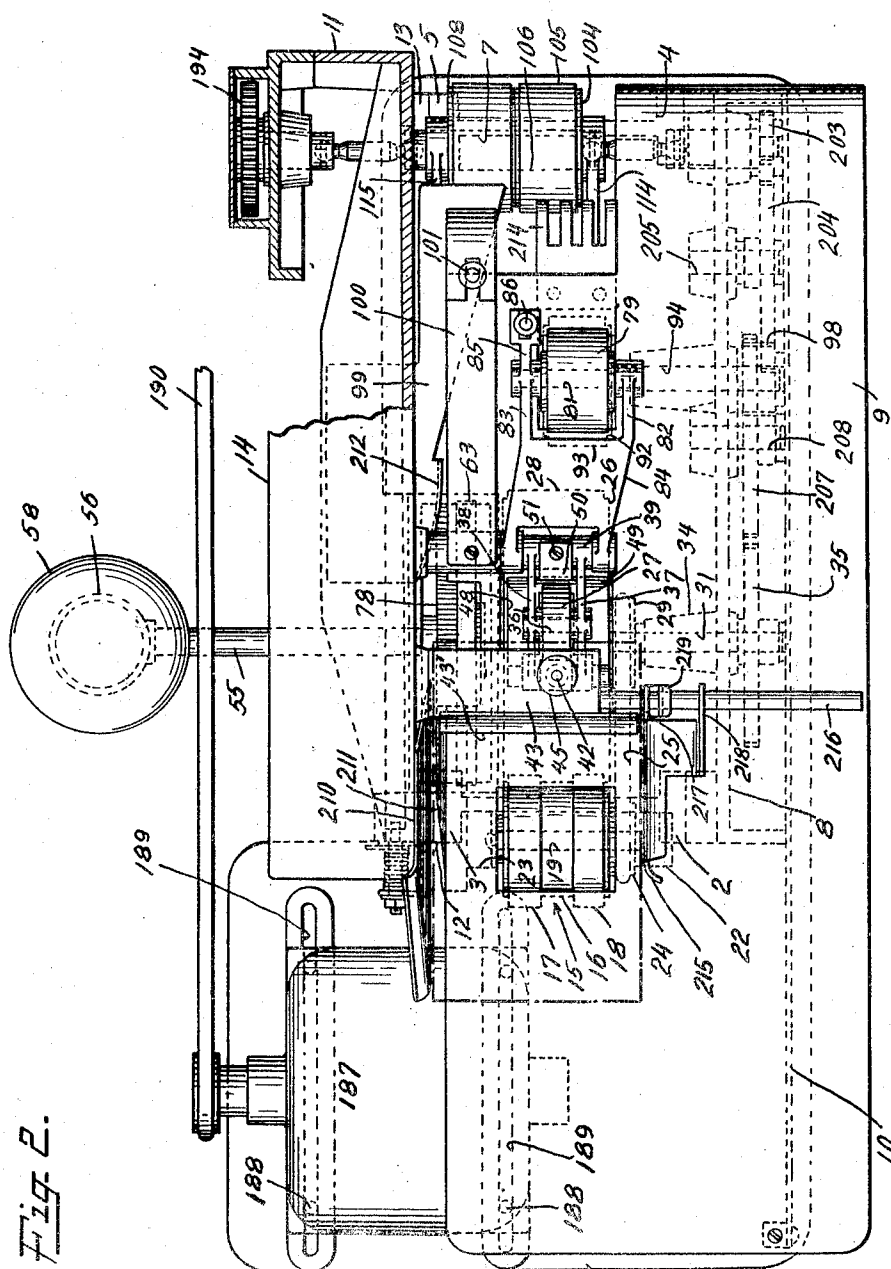
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6 Sheets-Sheet 2



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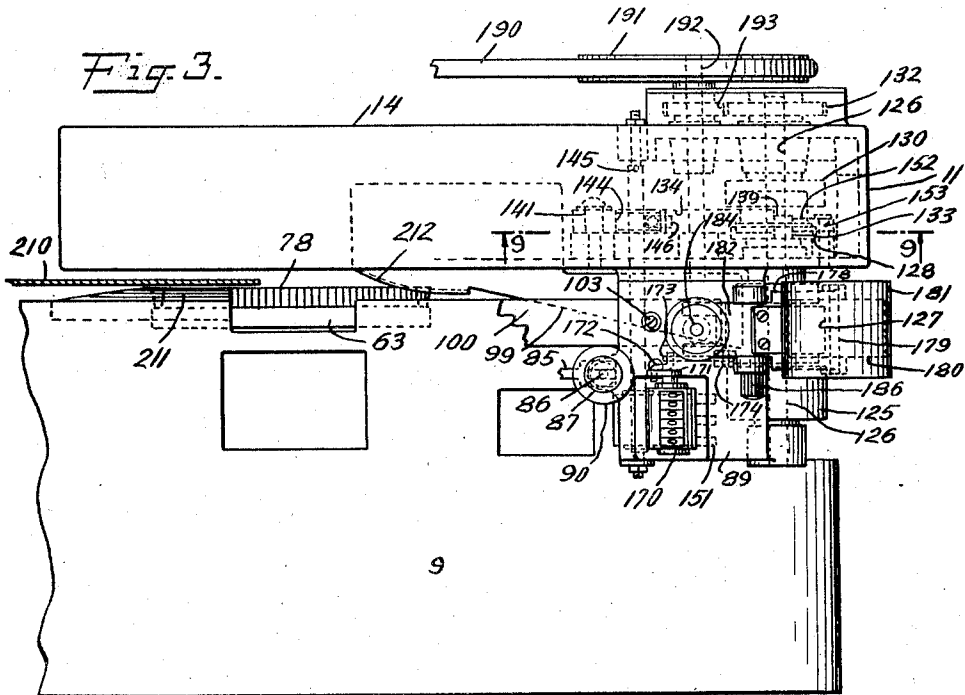
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6 Sheets-Sheet 3



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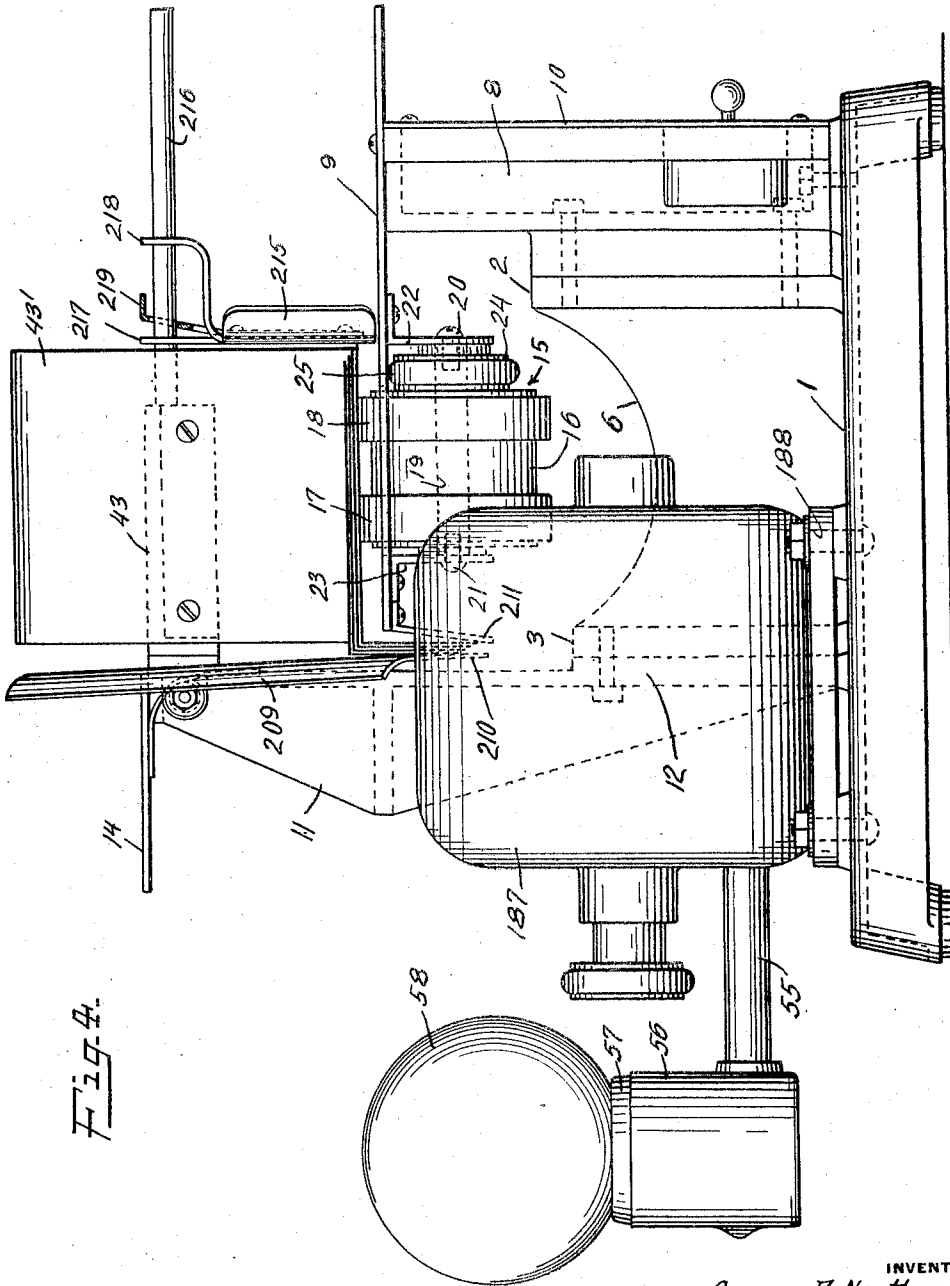
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6 Sheets-Sheet 4



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MAILING MACHINE

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6 Sheets-Sheet 5

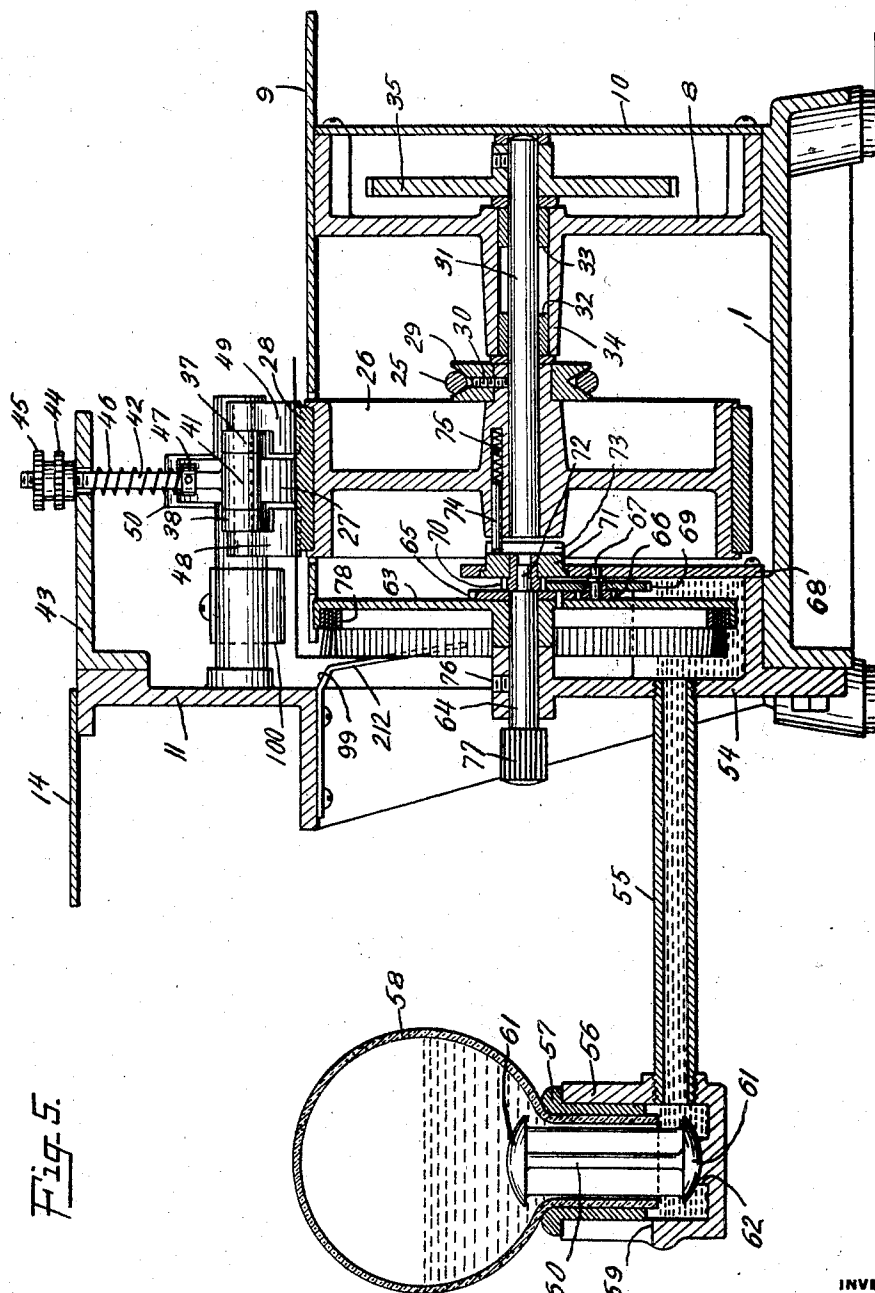


Fig. 5.

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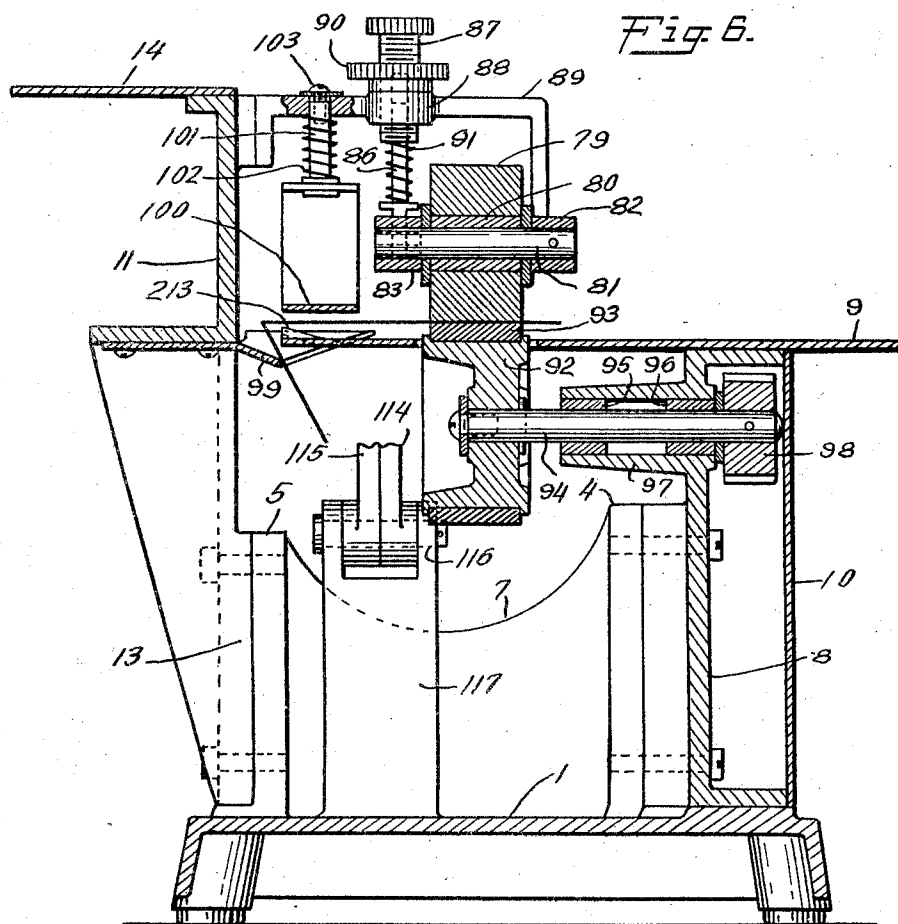
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MAILING MACHINE

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6 Sheets-Sheet 6



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UNITED STATES PATENT OFFICE.

GEORGE E. NORTHROP, OF STAMFORD, CONNECTICUT, ASSIGNOR TO RED STAR APPLIANCES, INC., OF STAMFORD, CONNECTICUT, A CORPORATION OF DELAWARE.

MAILING MACHINE.

Original application filed December 31, 1925, Serial No. 78,524. Divided and this application filed April 24, 1926. Serial No. 104,301.

The present invention relates to machines for sealing envelopes, and for printing with ink on the face of the envelope, as, for instance, to cancel a Government stamp that previously has been affixed on the envelope and to place adjacent to the cancelled stamp the name of the post office, the date and hour of cancellation, and the permit number of the user. The machine is also of service for counting envelopes, cards, and other flat objects, and can be used for printing small inscriptions thereon simultaneously with the counting.

This application is a division of my co-pending application, Serial No. 78,524, filed December 31, 1925.

Although the machine is capable of a wide variety of uses, it is intended particularly for sealing stamped envelopes, and then cancelling the Government stamp and counting the number of stamps so cancelled.

Envelopes to be used in this way may be of the character now furnished by the United States Government, and having the postage stamp formed directly in the paper of the envelope, or equally well, may be plain envelopes to which adhesive Government stamps have been affixed.

When the sealed envelopes come from the machine with the stamps cancelled, and with the name of the post office and the date printed thereon, they can be delivered in bulk to the post office and there can be distributed directly into the outgoing pouches without the delays and labor incident to first placing them face up on the sorting table and then passing them through the stamp cancelling device now commonly used by the Government employees. In other words, by the use of this machine, much of the labor now done at the post office is done before the mail reaches the post office, with a consequent saving in time in placing the mail in transit to its destination.

The receiving platform of the present machine is so arranged that the envelopes may be stacked with their bodies substantially horizontal and their flaps hanging downward over the edge of the platform, and in shingled relation, a driven roller being provided for advancing the lowermost envelope of the stack into engagement with the feed roller of the machine, and means being provided at the front and on each side of the

stack of envelopes for keeping the envelopes in proper alignment.

The machine also embodies a cylindrical barrier above the feed roll and serving to hold back all but the lowermost envelope of the stack. This barrier or baffle is pivotally mounted so that the wear on it can be distributed over its entire surface.

A moistening device of novel construction and fed with water from a constant level fountain serves to moisten the flap of each envelope during its passage over the feed roll. Transfer rolls and a cooperating inclined plate or guide serve to fold the gummed flap upward against the body of its envelope. Ultimately the forwardly moving envelope trips a printing mechanism which, by a rolling movement over the travelling envelope, cancels the postage stamp and prints adjacent thereto other data, such as the name of the post office, the date and hour of cancellation, and the like. Counting mechanism operatively connected with the printing mechanism records the number of printed imprints, and consequently the number of envelopes, cards, or the like, that have been passed through the printing mechanism. The printing mechanism itself is so mounted that it easily can be removed for adjustment or repair or for changes in the dies and type with which it is equipped. The dies and type are secured in place in novel manner to permit replacement without the aid of special tools.

Power for the machine is supplied by an electric motor through a driving belt, the tension of which can be readily adjusted. Anti-friction wood bearings are used wherever needed to insure quiet operation and to obviate the need for oil in places from which it might be distributed to the passing envelopes.

Other objects and details of the complete machine will become clear from the following description taken in conjunction with the accompanying drawings.

Fig. 1 is a side elevation of the complete machine;

Fig. 2 is a plan view of the same with the printing and discharge end removed;

Fig. 3 is a plan view of the printing and discharge end of the machine;

Fig. 4 shows the machine in end elevation as viewed from the intake end;

Figs. 5 and 6 are respectively sectional elevations on the lines 5-5 and 6-6 of Fig. 1;

Fig. 7 shows a clutch mechanism for one of the rolls.

Frame-work and receiving platform (Figs. 1, 2, 4, 5, 6, and 7).

The frame work of the machine comprises a cast metal base 1 integral with which are four vertical supporting members 2 and 3 and 4 and 5 arranged in pairs; (Figs. 2 and 4). Connecting members 2 and 3 is an integral transverse stiffening web 6 and connecting members 4 and 5 is a similar web 7. Bolted against the outer edges of members 2 and 4 is a cast metal box 8, the lower face of which rests on base 1 and the upper face of which serves as a support for a horizontal platform 9. The latter extending the entire length of the machine is cut away at appropriate points to permit rollers to come in contact with the passing envelopes. On the outside of box 8 is a vertical sheet metal plate 10 which serves to cover up certain of the gears and other elements.

At the other side of the machine is a casting of irregular shape comprising a channel 11 having two depending legs 12 and 13, one of which is bolted to supporting member 3 and the other of which is bolted to supporting member 5. Mounted above channel 11 is a horizontal platform 14 which covers up certain of the moving elements.

The receiving platform for the envelopes to be sealed is at the left hand end of the machine, as viewed in Fig. 1, and includes a belt driven drum 15. This drum 15 comprises a cylinder 16 on which are two rubber treads 17 and 18. The cylinder is mounted on a metal shaft 19, the ends of which are secured by bolts 20 and 21 to a pair of brackets 22 and 23 (Fig. 4) carried by platform 9. Attached to the cylinder is a pulley 24 on which runs a belt 25.

When the envelopes are stacked for insertion into the machine, the flaps are adjusted to lie in shingled relation at right angles to the bodies, as indicated in Figs. 1 and 4. The lowermost envelope rests on the rubber treads 17 and 18 of the drum 15, and the weight of the stack of envelopes is relied on to give good frictional engagement with the treads. Each envelope, as it reaches the bottom of the stack, will be advanced into the machine.

The feeding roll and baffles (Figs. 1, 2 and 5).

While an envelope is being advanced by the belt driven drum 15, it is gripped between a large feeding roll or drum 26 and a small cylindrical baffle 27. The feeding drum has a soft rubber tread 28, and has a hub on which is mounted a driving pulley

29. The pulley and hub are secured by a transverse threaded pin 30 to a supporting shaft 31. This shaft passes through anti-friction wooden collars 32 and 33 inserted in the tubular extension 34 of the cast metal box 8, and carries a large gear wheel 35 by which it is driven.

The upper roll 27 is secured to a shaft 36 supported in arms 37 and 38 which are integral with a hub 39 mounted to swing on a shaft 40. This shaft 40 is mounted on channel 11 and serves as a support for other elements as hereinafter pointed out.

The ends of arms 37 and 38 are connected by a shaft 41 to which is attached a vertical link 42 which passes through a bracket 43 (Fig. 5) and is screw threaded to receive an adjusting nut 44 and lock nut 45. Coiled about this link is a compression spring 46 held between bracket 43 and a collar 47. Upward movement of roll 27 swings arms 37 and 38 about shaft 40 and compresses spring 46.

The upper roll 27 does not rotate freely with a passing envelope, but on the contrary, is held against free rotation by a spring-pressed ball 36' (Fig. 7) housed in arm 37 in clutching engagement with the shaft 36 to which roll 27 is rigidly connected. Roll 27 therefore acts as a restraining baffle to hold back the stack of envelopes while the lowermost envelope is being pushed forward by the rubber treads on feed roll 26. There is, however, enough slippage at clutch 36' to permit small rotary movements of roll 27. It is in this manner that the wear on roll 27 is equalized. The roll can, of course, be turned backward by hand at any time, to present a fresh wearing surface opposite to the feed roll 26.

Supplementing the action of the cylindrical restraining baffle 27 are a pair of inclined baffles 48 and 49, one on each side of roll 27. Each of these baffles is made of sheet metal and has its forward end wrapped around shaft 41. The other end of each baffle passes up between arms 37 and 38 and connects with a horizontal finger 50. Through this finger is treaded a vertical bolt 51 having a lock nut 52 (Fig. 1). The lower end of the bolt rests on hub 39. A tension spring 53 tends to hold the screw in contact with the hub. An adjustment of the screw can be made to regulate the elevation of the baffles 48 and 49 in conformity with the thickness of the envelopes which are being passed through the machine.

The drive (Figs. 1 to 6 inclusive).

The source of power is an electric motor 125 187 secured to base 1 by bolts 188 which slide in slots 189 (Fig. 2) to permit adjustment of the main driving belt 190 with which the machine is equipped. This belt passes over pulley 191 (Fig. 3) secured to a

shaft 192 which drives a pinion 193 meshing with pinion 132 on shaft 126. Gear 132 meshes with a lower gear 194 (Fig. 2) secured on a stub shaft which shaft is connected through universal joints and a connecting shaft, to a stub shaft 202 on which is secured a pinion 203. The latter meshes with the gear 204 (Fig. 2) on stub shaft 205. Gear 204 meshes with a wide pinion 98 fastened to a shaft 94 (Fig. 6), whereby the transfer rolls are driven. Pinion 98 also meshes with gear 207 (Fig. 1) mounted on a stub shaft 208 and meshing with a gear 35 whereby the feeding drum is driven. The drum 15 is driven from the feeding drum shaft by a belt 25 passing over a pulley 24 connected to the drum 15 and a pulley 29 secured to the shaft 31.

The operation.

Envelopes are stacked on the platform one above another in substantially horizontal position with their flaps hanging downward in shingled relation at the side of the table. The spring pressed side baffle 209, in conjunction with the opposed baffle, keeps the lowermost envelope in alignment with the feeding drum. Envelopes are picked off one by one from the bottom of the stack by the rubber treads 17 and 18 of the belt driven roller 15, and are delivered under the plate 148' which acts as a front baffle. Ultimately a travelling envelope is dragged forward by the feeding drum and slides across the lower face of the relatively stationary cylindrical baffle 27 while at the same time the damp bristles of a moistening drum wipe the gummed flaps. During this operation the flap of the envelope is held against lateral movement by a finger 210 (Fig. 4) on baffle 209 and by an opposed bracket 211 suspended from the top platform 9 of the machine.

The means for adjusting the machine to envelopes of different thicknesses has already been described. To adjust for envelopes of different widths, there is provided at the intake end of the machine (Fig. 4) a baffle plate 215 suspended from a shaft 216 by arms 217 and 218 and locked in position on that shaft by a spring plate 219 which grips the shaft 1 and has a convenient thumb piece by which that gripping may be released to permit shifting of the baffle along the shaft. The lower end of this baffle rests on platform 9.

Changes may be made in details of the machine without departing from the spirit of my invention as defined by the appended claims.

I claim:

1. In a machine of the character described, the combination of a platform on which a stack of envelopes may be placed with their bodies substantially horizontal

and their flaps hanging downward in shingled relation, a power driven drum for advancing the lowermost envelope of the stack, and a feeding drum to which said advanced envelope is delivered.

2. In a machine of the character described, the combination of a platform on which a stack of envelopes may be placed with their bodies substantially horizontal and their flaps hanging downward in shingled relation, a power driven drum for advancing the lowermost envelope, a feeding drum to which said advanced envelope is delivered, and a relatively stationary baffle under which said envelope passes.

3. In a machine of the character described, the combination of a platform on which a stack of envelopes may be placed with their bodies substantially horizontal and their flaps hanging downward in shingled relation, a feeding drum for withdrawing the lowermost envelope of the stack, a cylindrical baffle under which said envelope is drawn by said drum, and guide plates on both sides of the stack of envelopes, substantially as described.

4. In a machine of the character described, the combination of a platform on which a stack of envelopes may be placed with their bodies substantially horizontal and their flaps hanging downward in shingled relation, a feeding drum for withdrawing the lowermost envelope of the stack, a cylindrical baffle under which said envelope is drawn by said drum, and a ball clutch restraining said baffle against free rotation with the travelling envelope.

5. In a machine of the character described, the combination of a platform on which a stack of envelopes may be placed with their bodies substantially horizontal and their flaps hanging downward in shingled relation, a feeding drum for withdrawing an envelope from the stack, a cylindrical baffle across the face of which said envelope is withdrawn by said drum, a ball clutch restraining said baffle against free rotation with the travelling envelope but permitting rotation in the opposite direction, and spring pressed means for permitting said baffle to swing away from said drum when envelopes of greater thickness are to be handled.

6. In a machine of the character described, the combination of a platform on which a stack of envelopes may be placed with their bodies substantially horizontal and their flaps hanging downward in shingled relation at the side of said platform, a feeding drum having a wide rubber tread adapted to contact with the lowermost envelope of the stack, a cylindrical baffle having a smooth surface for yieldingly engaging the envelope, and a swinging baffle at the side of said cylindrical baffle.

7. In a machine of the character described, the combination of a platform on which a stack of envelopes may be placed with their bodies substantially horizontal and their flaps hanging downward in shingled relation at the side of said platform, a feeding drum having a wide rubber tread adapted to contact with the lowermost envelope of the stack, a cylindrical baffle having a smooth surface for yieldingly engaging the envelope, and a spring pressed baffle located on each side of said cylindrical baffle.

8. In a machine of the character described, the combination of a platform on which a stack of envelopes may be placed with their bodies substantially horizontal and their flaps hanging downward in shingled relation at the side of said platform, a feeding drum for withdrawing the lowermost envelope of the stack, a spring pressed plate for progressively pushing said envelopes laterally into proper alignment with said feeding drum, and a guide plate opposed thereto and adjustable to accommodate envelopes of different widths.

9. In a machine of the character described, the combination of a platform on which a stack of envelopes may be placed with their bodies substantially horizontal

and their flaps hanging downward in shingled relation at the side of said platform, a power driven roller projecting through said platform, and on which said stack of envelopes rests, a feeding drum for withdrawing the lowermost envelope of the stack, and a spring pressed plate for progressively pushing said stack of envelopes laterally so that at all times the lowermost envelope will be in operative alignment with said feeding drum.

10. In a machine of the character described, the combination of a platform on which a stack of envelopes may be placed with their bodies substantially horizontal and their flaps hanging downward in shingled relation at the side of said platform, a feeding drum for withdrawing the lowermost envelope of the stack, a belt driven roll on which the stack of envelopes rests, a spring pressed plate for holding the lowermost envelope in operative alignment with the feeding drum, an adjustable guide plate opposed thereto, a stationary baffle at the front of said stack, and a cylindrical baffle across the face of which the envelopes are drawn in succession by said feeding drum.

In testimony whereof I affix my signature.

GEORGE E. NORTHROP.