

No. 891,277.

PATENTED JUNE 23, 1908.

J. A. MARKOE.
ENVELOP SEALING MACHINE.

APPLICATION FILED APR. 23, 1906.

2 SHEETS—SHEET 1.

Fig. 1.

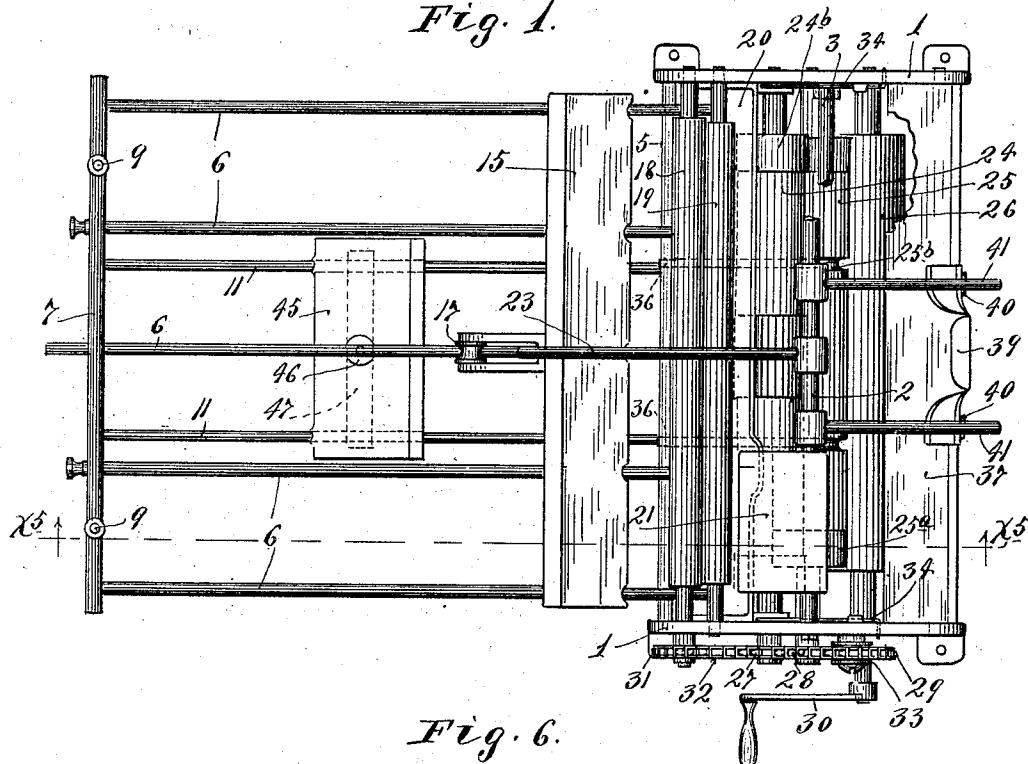


Fig. 6.

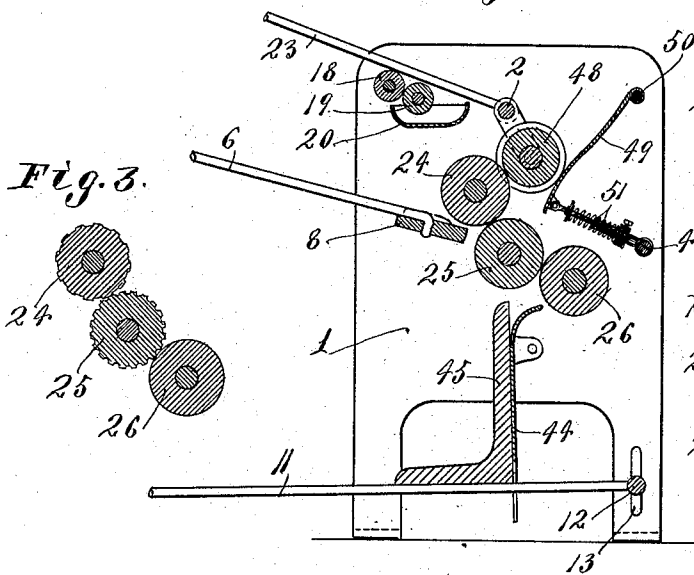
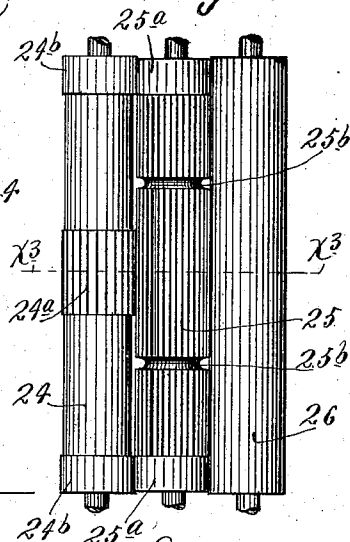


Fig. 2.



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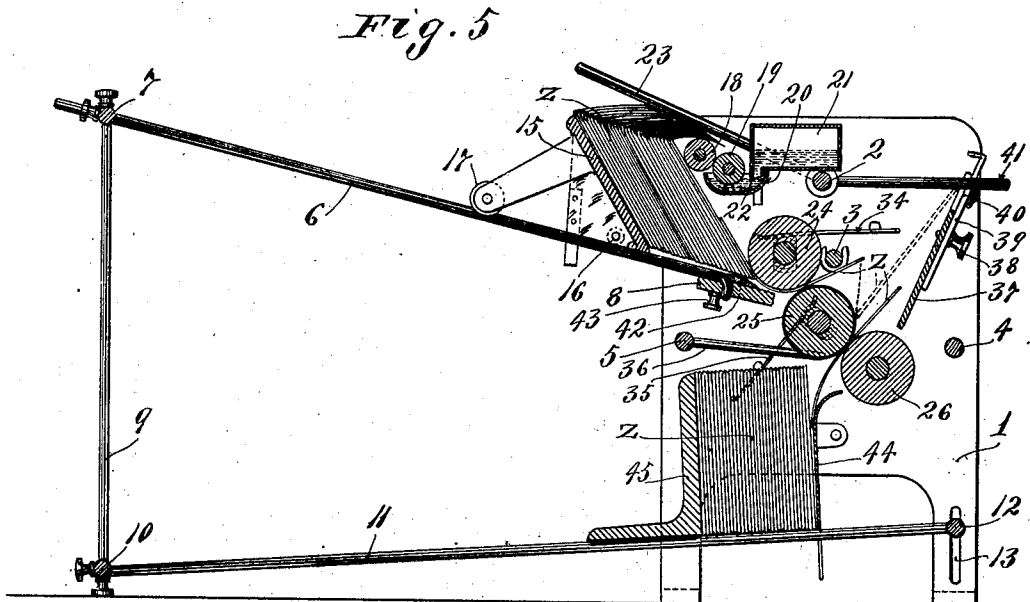
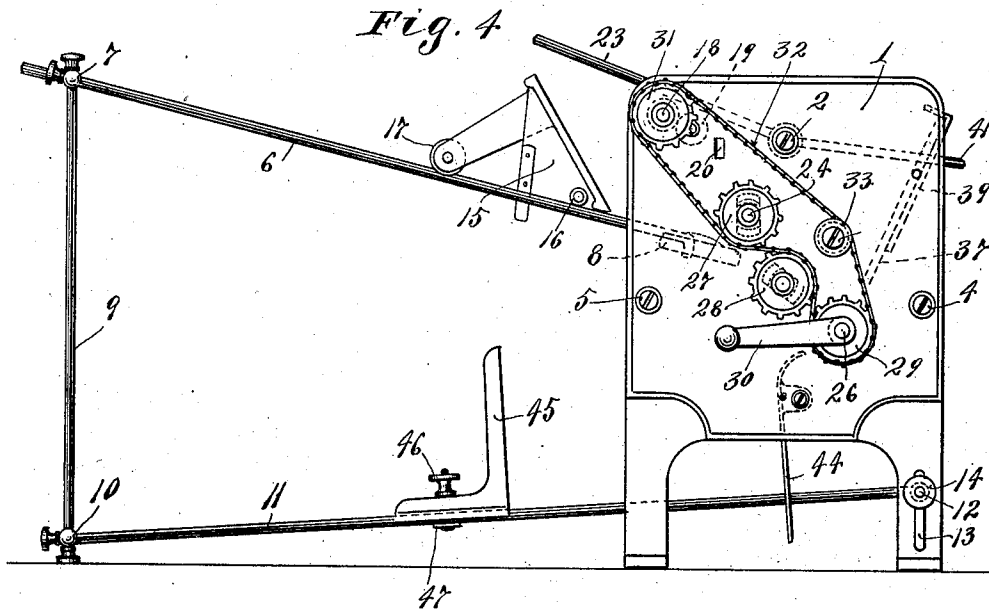
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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

JOHN A. MARKOE, OF WHITE BEAR, MINNESOTA.

ENVELOP-SEALING MACHINE.

No. 891,277.

Specification of Letters Patent.

Patented June 23, 1908.

Application filed April 23, 1906. Serial No. 313,229.

To all whom it may concern:

Be it known that I, JOHN A. MARKOE, a citizen of the United States, residing at White Bear, in the county of Ramsey and State of Minnesota, have invented certain new and useful Improvements in Envelop-Sealing Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My present invention is in the nature of an improvement on the device set forth and claimed in my pending United States application Serial Number 253,265, filed April 1, 1905, and allowed October 25, 1905, entitled "Envelop sealing machines," and has for its object to improve the same in the several particulars hereinafter noted.

The invention consists of the novel devices and combinations of devices hereinafter described and defined in the claims.

In the accompanying drawings which illustrate the invention, like characters indicate like parts throughout the several views.

Figure 1 is a plan view of the improved machine. Fig. 2 is a detail, looking at the faces of the three feed rollers of the machine. Fig. 3 is a vertical section taken through the feed roller on the line $x^3 x^3$ of Fig. 2. Fig. 4 is a left side elevation of the machine. Fig. 5 is a vertical section taken through the machine on the line $x^5 x^5$ of Fig. 1; and Fig. 6 is a view corresponding to Fig. 5, but illustrating a modified construction, with some parts broken away, and with some parts removed.

The numeral 1 indicates a pair of laterally spaced upright bearing plates which, as shown, are rigidly connected by transversely extended tie rods 2, 3, 4 and 5.

The envelopes z are delivered over an inclined deck made up of a plurality of parallel rods 6, the outer ends of which are secured to a transverse tie rod 7, and the inner ends of which are secured to a transverse deck bar 8, the ends of which are secured to the bearing plates 1. The tie rod 7 is supported by a pair of upright rods 9, the lower ends of which are tied together by a transverse rod 10. A receiving deck, or table, made up of a pair of parallel rods 11, underlies the feed deck or table 6. The outer ends of the rod 11 are secured to the lower tie bar 10, while the forward ends thereof are secured to a tie rod 12 that is vertically adjustable in slots 13

of the bearing plates 1, and is securable in different adjustments by thumb screws 14.

Mounted to work on the rods 6 of the feed deck, is a gravity actuated follower head 15, having an inclined face and provided with small wheels 16 and 17 that run upon the said rods and guide the said follower head for straight line movements.

The envelopes are placed in a stack, with their flaps partially opened and overlapped, as shown in Fig. 5, and by the follower head 15, the gummed flaps thereof are pressed against a water distributing roller 18 that runs in contact with a water supply roller 19 which, in turn, is partially submerged in water contained within a transversely extended trough 20 that is supported, at its ends, by the bearing plates 1. As shown, water is supplied to the trough 20, in which a constant level is maintained, from an inverted water box 21 having a depending discharge neck 22 and, as shown, loosely rests upon one edge of the trough 20 and on top of the tie rod 2. The flaps of the envelopes are lightly pressed downward toward the roller 18 by a flap pressing rod 23, the forward end of which is loosely pivoted on the intermediate portion of the rod 2.

The envelopes are fed, one at a time, from the feed deck 6 and thence to the receiving deck 11, by three cooperating feed rollers 24, 25 and 26, that run in close engagement with each other and the shafts of which are journaled in the bearing plates 1 and, at one side of the machine, are provided, respectively, with sprockets 27, 28 and 29. The shaft of the roller 26 is also provided with an operating crank 30 adapting the feed rollers to be run by hand, but, of course, when power device, such as an electric motor is to be employed, other connections will be provided. The shaft of the water distributing roller 18 is provided with a sprocket 31 that aligns with the sprockets 27, 28 and 29. A sprocket chain 32 runs under the sprockets 27 and 29 and over the sprockets 28 and 31, and also over an idle guide sheave 33, mounted on the adjacent bearing plates 1. By this means, the three feed rollers, as well as the two moistening rollers, are driven from the crank 30. The roller 25 has a limited yielding movement with respect to the roller 26, and the roller 24 has a limited yielding movement with respect to said roller 25; and the shafts of said two rollers 24 and 25 are, respectively,

subject to springs 34 and 35 that are anchored to the bearing plates 1. The said bearing plates are, of course, slotted to permit limited lateral movements of the shafts of the rollers 24 and 25.

The roller 26 is preferably provided with a smooth rubber face. The intermediate roller 25 is formed with quite deep corrugations and, at its ends, is provided with smooth sections 25^a that are of the same diameter as the outer portions of the corrugated part of said roller, so that the two rollers 25 and 26 are caused to run smoothly, when in engagement. Said roller 25 is also preferably with peripheral grooves 25^b which, at the under surface of the roller, receive the forwardly projecting ends of guide fingers 36 secured to the tie rod 5. The upper roller 24, at its central portion, preferably has a corrugated section 24^a and, at its ends, has smooth sections 24^b that are of the same diameter as the outer portions of the corrugated section 24^a, so that the two rollers 24 and 25 run smoothly, when in engagement.

As the envelopes are fed, one at a time, between the rollers 24 and 25, their gummed flaps are drawn over the water distributing roller 18 and, hence, are moistened. As the envelopes are fed forward from between the rollers 24 and 25, they are inverted, or turned with their flap equipped edges downward, and their upper edges are delivered against an inclined deflecting plate 37, the ends of which are secured to the bearing plates 1 approximately over the roller 26, and in position to direct the envelopes between the rollers 25 and 26. Adjustably secured to the back of the deflecting plate 37, by means of a thumb screw 38, is a stop plate 39, the upper end of which is turned inward so as to afford a positive stop for limiting the upward movements of the envelopes. The adjustment of the stop 39 permits it to be set for envelopes of different size or width. Loosely pivoted on the tie rod 2 and loosely resting upon shoulders 40 of the stop 39, are one or more, as shown two, stop rods 41. These stop rods yieldingly resist the upward movement of the envelope and assist in imparting an initial downward movement to the envelope, thereby forcing the same between the feed rollers 25 and 26.

The tie rod 3, it will be noted, by reference to Fig. 5, stands in position to prevent the envelopes from being carried upward and over the upper feed roller 24. As the envelopes are fed between the rollers 25 and 26, their moistened flaps are pressed tightly closed. The corrugations of the roller 25 assist in carrying the lower edges of the inverted envelopes, from a position in line with the passage between the rollers 24 and 25, to a position in line with the passage between the rollers 25 and 26. The moistened, gummed flaps of the envelopes, in passing be-

tween the rollers 24 and 25, engage only with the narrow corrugated surface 24^a of the roller 24 and, hence, find but little roller surface with which they may tend to adhere.

When very thin letters, that is envelopes containing matter of but very little thickness, are fed through the machine, there is sometimes a tendency for two envelopes to stick together or to be fed frictionally at the same time between the rollers 24 and 25. To prevent this, I place a soft rubber friction strip 42 on the deck bar 8, adjacent to the roller 24, as shown in Fig. 5. This friction device may be made adjustable, by means of a screw 43, so that it may be moved in an operative position close to the roller 24, when thin letters are to be fed, and may be moved backward into inoperative position, when thick letters are to be fed.

The sealed envelopes that are fed downward and rearward from between the rollers 25 and 26, are delivered against a guide plate 44 which is secured to the bearing plates 1, in an upright position and has a curved upper edge. The envelopes are accumulated on the rods 11 and are forced against a clamping head 45 that rides upon the rod 11 and, as shown, is adapted to be frictionally clamped thereto, under the desired tension, by a nutted bolt 46 and a clamping bar 47, which latter engages the under surfaces of said rods 11.

By vertical adjustments of the tie rod 12, the forward ends of the rod 11 may be raised and lowered to adapt the machine to envelopes of different size. The guide fingers 36 prevent the envelopes from being carried upward, by the intermediate roller 25.

In the modified construction illustrated in Fig. 6, a fourth roller 48 which has frictional contact with the roller 24, is journaled in the bearing plates 1. Coöperating with the roller 48 is a hinged deflecting plate 49, the upper edge of which is pivoted on a rod 50, supported by the bearing plates 1, and the lower edge of which is subject to a spring link 51 which, as shown, is pivoted on the rod 4. This modified construction is especially adapted for use in handling envelopes that are heavily filled, or filled with bulky matter, because the pressure of said plate 49 greatly assists in sealing the envelope, and the roller 48 assists in forcing the same downward between the rollers 25 and 26.

What I claim is:

1. The combination with a moistening device and coöperating movable upper and lower and intermediate feed devices, of means for directing the gummed flaps of the envelopes to the said moistening device while subject to one of said feed devices, and a yielding flap-pressing rod or arm arranged to press the envelop flaps against the moistening device, substantially as described.
2. The combination with a moistening device including a water distributing roller, of a

yielding flap - pressing rod overlying said roller, upper and lower and intermediate feed rollers, and a deflecting device, said upper and intermediate rollers being arranged to feed the envelops and to carry their gummed flaps over the water distributing roller, and said deflecting device being arranged to feed the inverted envelops between said intermediate and lower feed rollers, to seal the same, substantially as described.

3. In an envelop sealing machine, the combination with means for moistening the gummed flaps thereof, of upper and lower and intermediate feed rollers, a deflecting device arranged to receive the envelops fed from between the upper and intermediate rollers, and to direct the same between the intermediate and lower rollers, and a yielding stop rod overlying said feed rollers and arranged to assist in imparting an initial movement of the inverted envelop between said intermediate and lower feed rollers, substantially as described.

4. In an envelop sealing machine, the combination with means for moistening the flaps thereof, of upper and lower and intermediate feed rollers, a deflecting plate arranged to receive the envelops delivered from between said upper and intermediate feed rollers, and to deliver the same between said intermediate and lower feed rollers, and a pivoted gravity actuated stop rod overlying said feed rollers, and arranged to assist in imparting an initial movement of the inverted envelop between said intermediate and lower feed rollers, substantially as described.

5. In an envelop sealing machine, the combination with means for moistening the gummed flaps thereof, of upper and lower and intermediate feed rollers, a deflecting plate arranged to receive the envelops fed from between the upper and intermediate rollers and to direct the same between the intermediate and lower rollers, a stop plate rigidly but adjustably secured with respect to said deflecting plate, and a yielding stop rod loosely resting upon said stop plate, and adjustable therewith, substantially as described.

6. In an envelop sealing machine, the combination with a moistening device, of upper and lower and intermediate feed devices extending parallel with and below said moistening device, of a yielding stop arranged to act upon the envelops and to assist in

directing the same between the intermediate and lower feed devices, substantially as described.

7. In an envelop sealing machine, the combination with a corrugated intermediate feed roller, of a cooperating upper feed roller corrugated at its central portion only, a lower feed device cooperating with said intermediate feed roller, means for directing the envelops between said upper and intermediate feed rollers, and means for moistening the flaps of the envelops while they are being thus fed to the said intermediate and upper feed rollers, substantially as described.

8. In an envelop sealing machine, the combination of upper and lower and intermediate feed rollers, said intermediate feed roller being corrugated, and said upper feed roller being corrugated at its central portion only, and the said upper and intermediate rollers having smooth engaging end portions, substantially as and for the purposes set forth.

9. In an envelop sealing machine, the combination with upper and lower and intermediate feed rollers, of a deflecting device arranged to receive the envelops from between said intermediate and upper feed rollers, and to deliver the same between said intermediate and lower feed rollers, a vertically adjustable receiving deck below said feed rollers, and a pair of clamping members for holding the envelops upon said receiving deck, one of which clamping members is movable with respect to the other, to permit the accumulation of envelops, substantially as described.

10. In an envelop sealing machine, the combination with a feed roller and cooperating upper and lower feed devices, of a moistening device with which the gummed flaps of the envelops are adapted to be engaged as they are moved between said roller and the upper cooperating feed device, and a yielding stop arranged to act upon the envelops with a force tending to press the same edgewise between said feed roller and the cooperating lower feed device, substantially as described.

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

JOHN A. MARKOE.

Witnesses:

MALIE HOEL,
F. D. MERCHANT.