

F. A. MAXWELL.
 ENVELOP SEALING MACHINE.
 APPLICATION FILED AUG. 16, 1911.

1,046,477.

Patented Dec. 10, 1912.

5 SHEETS—SHEET 1.

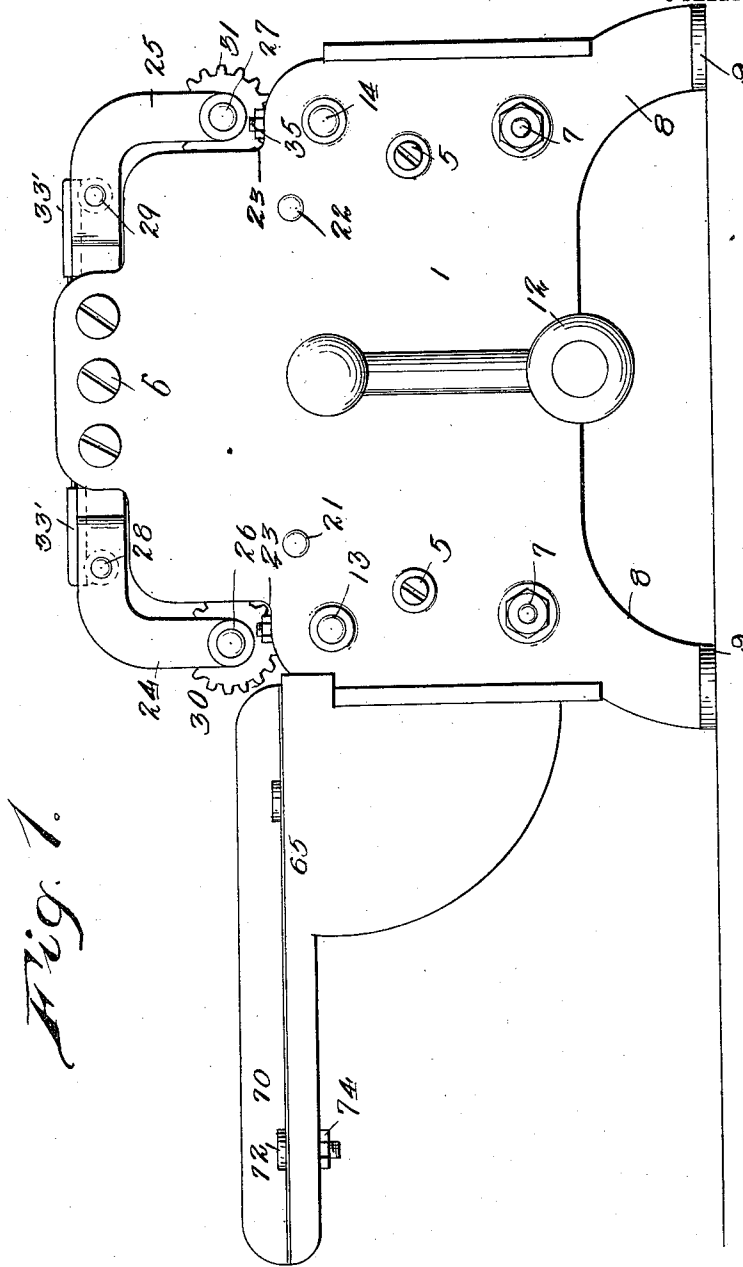


Fig. 1.

Witnesses

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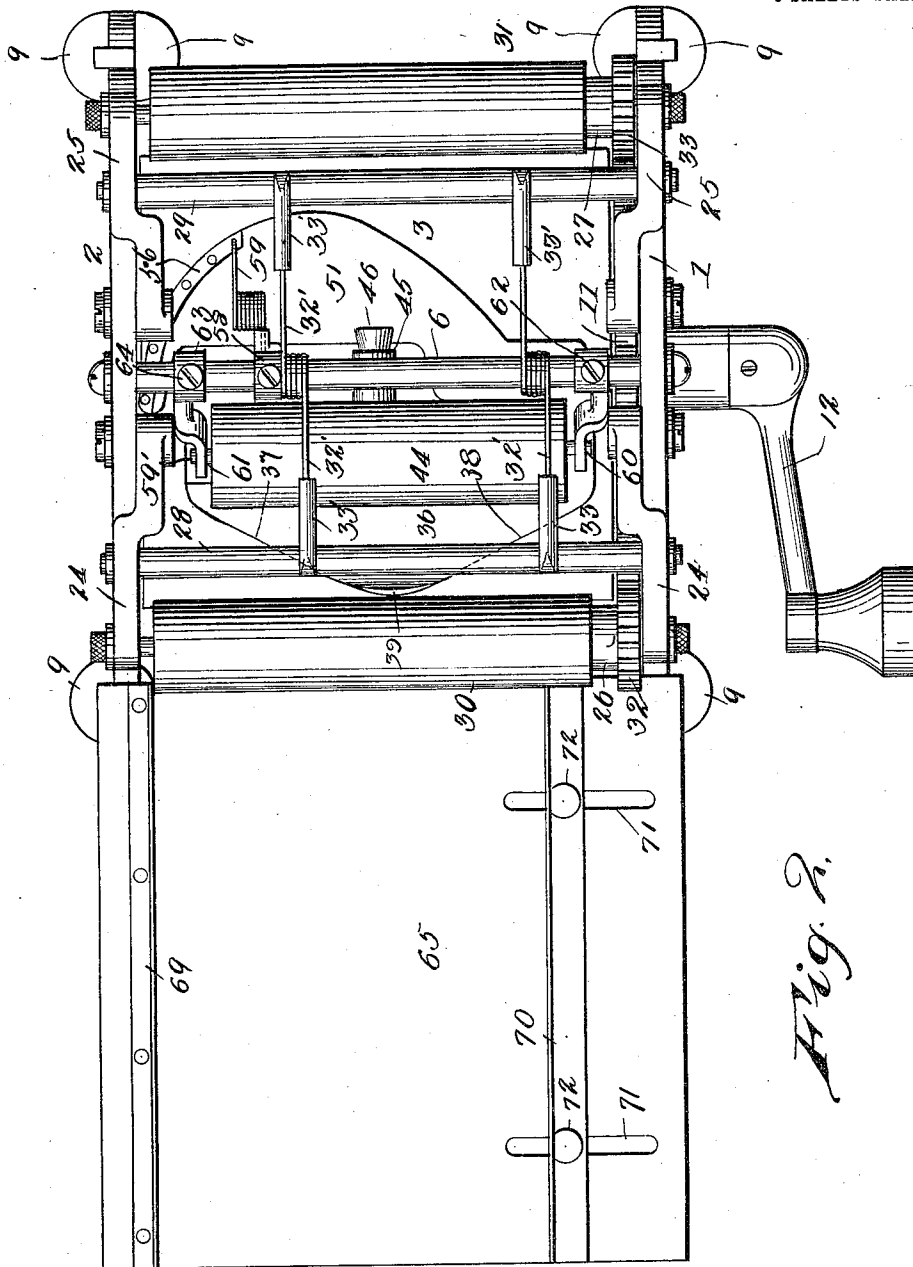


Fig. 2.

Witnesses

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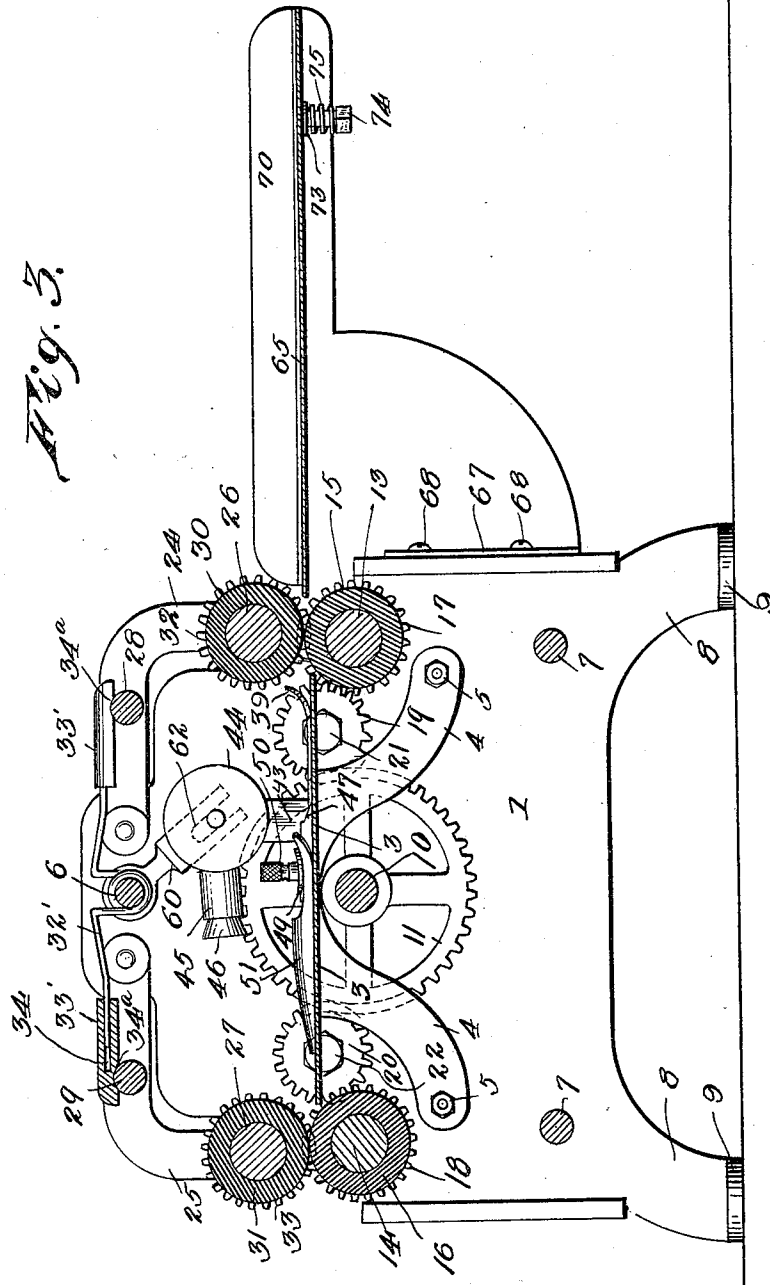
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5 SHEETS—SHEET 3.



Witnesses

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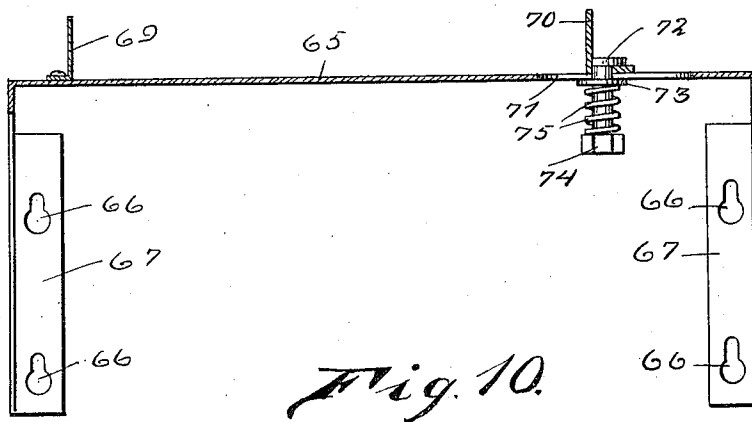
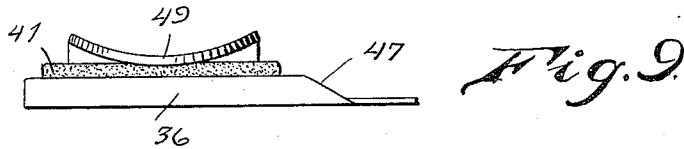
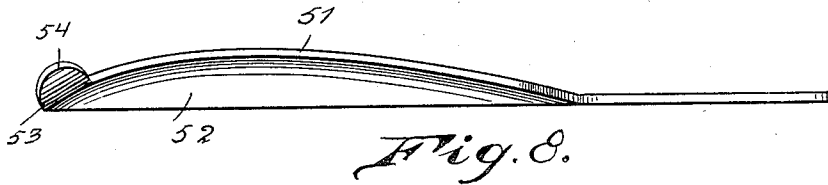
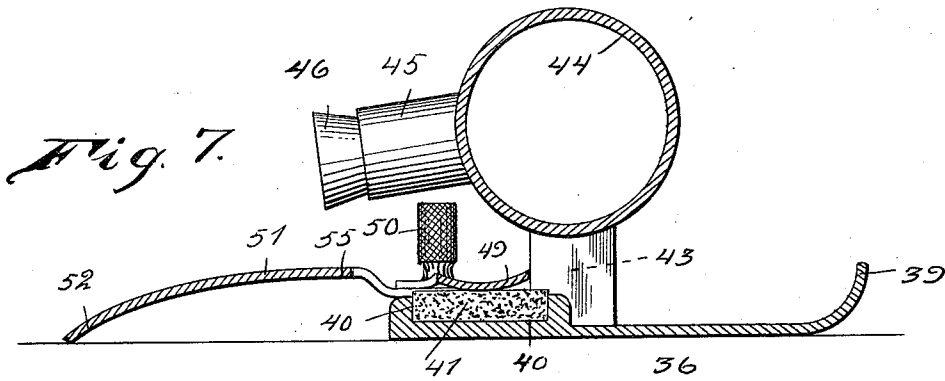
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5 SHEETS—SHEET 5.



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UNITED STATES PATENT OFFICE.

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ENVELOP-SEALING MACHINE.

1,046,477.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, FRED A. MAXWELL, a citizen of the United States, residing at Lakewood, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Envelop-Sealing Machines, of which the following is a specification.

My invention relates to devices for sealing envelopes and has for one of its objects the provision of gear driven feed rolls at the entrance and exit of the machine that are geared to uniform speed and positively driven by a suitable actuating mechanism to secure uniformity in the movement of the envelop through the sealing device.

Another object of my invention is the mounting of one roll of each pair of feed rolls on pivoted arms that are spring depressed to press the envelop between the rolls and accommodate them to envelopes containing inclosures of varying thicknesses.

Another object of my invention is the provision of a moistener and flap opener and closer that is adjustable to accommodate envelopes containing inclosures of varying thicknesses.

Another object of my invention is the provision of a flap closer so constructed as to draw the flap into proper position regardless of the thickness of the inclosures in the envelop and that prevents any tendency of the flap to curl up at the end.

Another object of my invention is the provision of a fountain moistener so constructed as to prevent leakage but at the same time providing for keeping the moistening pad saturated as long as there is any water in the container.

Another object of my invention is the provision of manually adjusted means for limiting the downward movement of the arms carrying the adjustable feed rolls to compensate for wear of the rolls and other parts.

Another object of my invention is the provision of a feed table that may be quickly and expeditiously removed and replaced.

Another object of my invention is the provision of an adjustable guide flange for the feed table that is held in position by spring tension nuts so that the flange is capable of instantaneous adjustment to arrange the machine for operation on envelopes of different widths.

My invention will be described in detail

hereinafter and illustrated in the accompanying drawings in which—

Figure 1 is a side view of my improved machine, Fig. 2, a top plan view, Fig. 3, a cross section, Fig. 4, a plan view of the moistener and sealer removed from the machine, Fig. 5, front view in elevation of the moistener and sealer, Fig. 6, a rear view, Fig. 7, a cross section on the line 7—7 of Fig. 4, Fig. 8, an edge view of the sealing plate removed from the moistener and sealer, Fig. 9, an edge view of the flap moistener plate removed from the moistener and sealer, and Fig. 10, a sectional detail of the feed table showing the guide flange supporting mechanism.

In the drawings similar reference characters will be used to designate corresponding parts in all of the views.

The frame of my improved machine comprises side plates 1, 2, and a base plate 3 secured to the side plates 1, 2 by means of arms 4 extending downwardly from the base plate and engaging bolts 5 secured to the side plates.

6 indicates a brace rod connecting the upper ends of the plates 1 and 2, and 7 other brace rods connecting the plates adjacent to their lower edges.

8 indicates legs with laterally extending feet 9 formed integral with the lower edges of the plates 1 and 2 to support the frame in position on any horizontal surface such as a table or desk top (not shown).

10 indicates a driving shaft journaled in plates 1 and 2 having a gear wheel 11 secured thereto, said shaft being shown provided with a crank handle 12 for operating it, but it will be apparent that said shaft may be actuated by an electric or other suitable motor (not shown) that may be installed beneath base plate 3 and geared to gear wheel 11, or the motor may be geared to the shaft in any other familiar manner.

13, 14 indicate bearing shafts connecting the plates 1 and 2 adjacent to the side edges of the plate, and on which are revolubly mounted presser rolls 15, 16 having pinions 17, 18 secured to their cores.

19, 20 indicate idler pinions journaled on stub shafts 21 and 22, respectively, that mesh with gear wheel 11 and pinions 17 and 18, respectively.

The upper corners of plates 1 and 2 are formed with rectangular cut-away portions 23, and 24, 25 designate rectangular arms

pivotally secured to the side plates 1 and 2 and normally seated in said cut-away portion 23. The free ends of arms 24, 25 are connected in pairs by bearing shafts 26, 27, adjacent to their free ends, and by cross rods 28, 29 adjacent to their pivoted ends.

30, 31 indicate presser rolls revolvably mounted on bearing shafts 26, 27, and 32, 33 indicate pinions secured to the cores of said rolls 30, 31 that mesh with pinions 17, 18, respectively, when the arms 24, 25 are in their normal position.

32' indicates springs mounted on brace rod 6, and 33' designates bearing members provided with sockets 34 to receive the ends of said springs, said bearing members being provided with segmental notches 34^a that engage cross rods 28 and 29. This structure contributes to hold the arms 24, 25 in their lowered positions so that rolls 30, 31 engage rolls 15, 16 and the pinions 32, 33 are in mesh with pinions 17, 18, and also permits upward movement of the rolls 30, 31 to permit automatic adjustment thereof to the varying thicknesses of envelops and their inclosures.

35 indicates set screws that engage the free ends of arms 24, 25 to limit their downward movement, it being apparent that by manipulating said set screws the degree of pressure of the rolls 30, 31 on rolls 15, 16 may be regulated as desired, and the wear of the rolls may be compensated for by lowering the set screws periodically when necessary.

The moistening and sealing device consists of a plate 36 having its front edge formed tapered, as shown at 37, 38, and with its forwardmost point curled upwardly as shown at 39. The rear end of plate 36 is provided with a socket 40 in which is seated a moistening pad 41, and 43 indicates a feed duct communicating with said socket. A supply tank 44 is secured at the upper end of feed duct 43 and is furnished with a filling nipple 45 that is closed by a plug 46.

47 represents an inclined projection connecting the upper surface of plate 36 and the top of moistening pad socket 40 that is adapted to carry the gummed flap of an envelop over the moistening pad 41, the curved portion 39 of the plate 36 carrying the envelop under the plate while the inclined edge 37 engages under the envelop flap and causes it to pass over the upper side of the plate and, by way of the inclined projection 47, up over the moistening pad 41. To insure the above operation of the flap opener the edge of the inclined portion 47 may be beveled, as shown at 48, to insure separating the flap from the body of the envelop.

49 indicates a flap depressor plate mounted on screws 50 secured to plate 36, said plate 49 being slightly concave in cross section to insure engagement with the upper sur-

face of the envelop flap, and being formed of spring metal, such as thin plate steel, insures depression of any thickness of paper against the moistening pad 41. The sealing plate 51 is also secured to screws 50 and is formed with a rearwardly, laterally and downwardly extended portion 52, and a forwardly extending and laterally inclined tongue 53, with its tip curled upwardly, as shown at 54. The front edge of the rearwardly, laterally and downwardly extended portion 52 is raised sufficiently above the plane of pad 41, as shown at 55, to insure engagement with the top of the flap, and together with the forwardly extending tongue 53 combining to insure passage of the flap together with the envelop under the portion 52 to be sealed.

56 indicates a raised portion adjacent to the rear and free edge of portion 52 and having sockets 57 therein. Said raised portion 56 may be formed by pressing the metal of the plate 51 upwardly, or may consist of a separate piece of metal secured to the upper side of the plate, the object being to prevent the lower ends of the metal inclosing the sockets 57 from extending below the under surface of the plate 51 where they would interfere with the movement of the envelop being sealed.

58 indicates a socket adjustably mounted on cross brace 6, and 59 a spring secured in said socket and having its free end seated in one of the sockets 57.

59' indicates trunnions on ends of tank 44 that engage slots 60, 61 in arms 62, 63, respectively, arms 62 and 63 being secured to cross brace 6 by means of screws 64. This structure of the moistening and sealing device admits of removal of said device when necessary to refill the tank. The removal of the moistening and sealing device is accomplished by removing set screw 64 from either arm 62 or 63, and sliding said arm away from engagement with the trunnion 59 on the end of the tank, the spring 59 is then removed from engagement with the socket 57 in plate 51, and, after lifting arms 24, the moistening and sealing device may be removed by turning its free end rearwardly and away from the other of said arms 62 or 63. This construction of the moistening and sealing device provides a unitary structure that is yieldingly and removably mounted as such in the slotted arms 62, 63, permitting an upward and downward movement of the device to compensate for the varying thicknesses of inclosures in the envelops being sealed, it being apparent that the weight of the device is sufficient to keep it in engagement with the upper side of the envelop which is fed into the machine with its flap uppermost and toward the left of the machine, the feed rolls 15 and 30 first engaging the envelop and causing it to engage

with the curled front edge 39 and of the plate 36 and pass under the plate, the edge 47 next passes under the loose flap of the envelop causing it to pass over the moistening pad 41 as heretofore described and the flap held in engagement with the pad by means of the flap depressor plate 49. The flap then passes under and is pressed into engagement with the envelop by means of the sealing plate 51, and, after passing from engagement therewith the envelop passes between rolls 16 and 31 and out of the machine. As the rolls 15, 30 and 16, 31 rotate at uniform speed, it will be apparent that although the envelop may be engaged by both pairs of rolls at the same time it will progress smoothly through the machine.

65 indicates the feed table that is removably mounted on the front edge of the plates 1 and 2 by means of key-hole slots 66, in downwardly extending brackets 67, engaging pins 68 on the edges of the plates.

69 indicates a fixed flange on the upper side of the table 65, adjacent to the left hand side thereof, and 70 designates a flange, L-shaped in cross section, slidably mounted in transverse slots 71, adjacent to the right hand edge of the table, by means of screw bolts 72 engaging the slots.

73 indicates washers loosely mounted on bolts 72, 74 nuts engaging the bolts, and 75 springs mounted on the bolts between the washers 73 and nuts 74; this structure providing for holding the flange 70 in any adjusted position against accidental displacement, but permitting movement of the flange without necessitating unscrewing and rescrewing the adjusting nuts 74.

Before starting operation of the machine the adjustable L-shaped flange 70 should be set so that the distance between flanges 69 and 70 will be slightly more than the width of the envelop to be operated upon to permit feeding of the envelops in proper position to be operated upon by the moistening and sealing device, but provided that the opened edges of the envelops are made to engage with the fixed flange 69 the position of the movable flange 70 need not be accurately determined, but by positioning the flange 70, as stated, the operation of the machine will progress without necessitating the operator giving thought to the feeding of the envelops.

Having thus described my invention what I claim is:

1. In an envelop sealer, slotted supporting arms suitably mounted, and a moistening and sealing device slidably mounted in the slots in said arms.

2. In an envelop sealer, a sealing plate having a downwardly inclined portion extending laterally from its secured end, and a forwardly extending and laterally inclined tongue on its free end.

3. In an envelop sealer, a sealing plate having a downwardly inclined portion extending laterally from its secured end, and a forwardly extending and laterally inclined tongue on its free end and having its free end curled upwardly.

4. In an envelop sealer, a sealing plate, a raised projection on said plate and provided with a series of sockets, and a spring suitably secured and having its free end engaging one of said sockets to depress the plate.

5. In an envelop sealer, slotted arms suitably secured and downwardly inclined, and a moistening and sealing device provided with trunnions slidably engaging the slots in said arms.

6. In an envelop sealer, a moistening device consisting of a plate provided with means to lift the loose flap of the envelop, a socket at the rear of the plate, a moistening pad mounted in said socket, a supply tank, ducts connecting said tank and socket trunnions on the ends of said supply tank, a flap depressing plate mounted on the rear portion of the first mentioned plate, and slotted arms suitably secured and slidably engaging said trunnions.

7. An envelop sealer comprising a frame, feed rolls revolubly mounted on said frame, a drive shaft, gearing connecting said shaft and rolls, slotted arms suitably secured on said frame, a moistening and sealing device slidably engaging said arms, said moistening and sealing device consisting of a plate having a tapered front edge with an upwardly curled point, the rear portion of said plate formed with a socket, a moistening pad mounted in said socket, a feed tank, a duct connecting said tank and socket, a flap depressor plate mounted on the first-mentioned plate and seated over said moistening pad, and a flap sealing plate having a downwardly inclined portion extending laterally from its secured end, and a forwardly extending and laterally inclined tongue on its free end, said free end being curled upwardly.

8. An envelop sealer comprising a frame, a base plate secured to said frame, bearing shafts secured to said frame, presser rolls revolubly mounted on said shafts, pinions on said rolls, a driving shaft, a gear wheel on said shaft and geared to the pinions on the rolls, arms pivotally secured to said frame, bearing shafts secured to said arms, presser rolls revolubly mounted on said shafts, pinions secured to said rolls and normally meshing with the pinions on the first-mentioned rolls, springs suitably secured and engaging said arms, set screws secured to said frame and engaging the free ends of said arms to limit their downward movement, slotted arms suitably secured to said frame, a moistening and sealing device seated on said base plate and slidably engaging said slotted

arms, said moistening and sealing device consisting of a forwardly tapered plate having its end upwardly curled, the rear portion of said plate formed with a socket, a
5 moistening pad mounted in said socket, a feed tank, ducts connecting said tank and socket, a flap depressor plate secured to the first-mentioned plate and extending over said moistening pad, said plate being con-
10 caved in cross section, a flap sealing plate secured to the first-mentioned plate and having a downwardly inclined portion extend-
ing laterally from its secured end, a forwardly extending and laterally inclined tongue on its free end, said free end being
15 curled upwardly, sockets in the rear portion of said flap sealing plate, and a spring suitably secured and having its free end engaging one of said sockets.

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Witnesses:

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
Washington, D. C."