

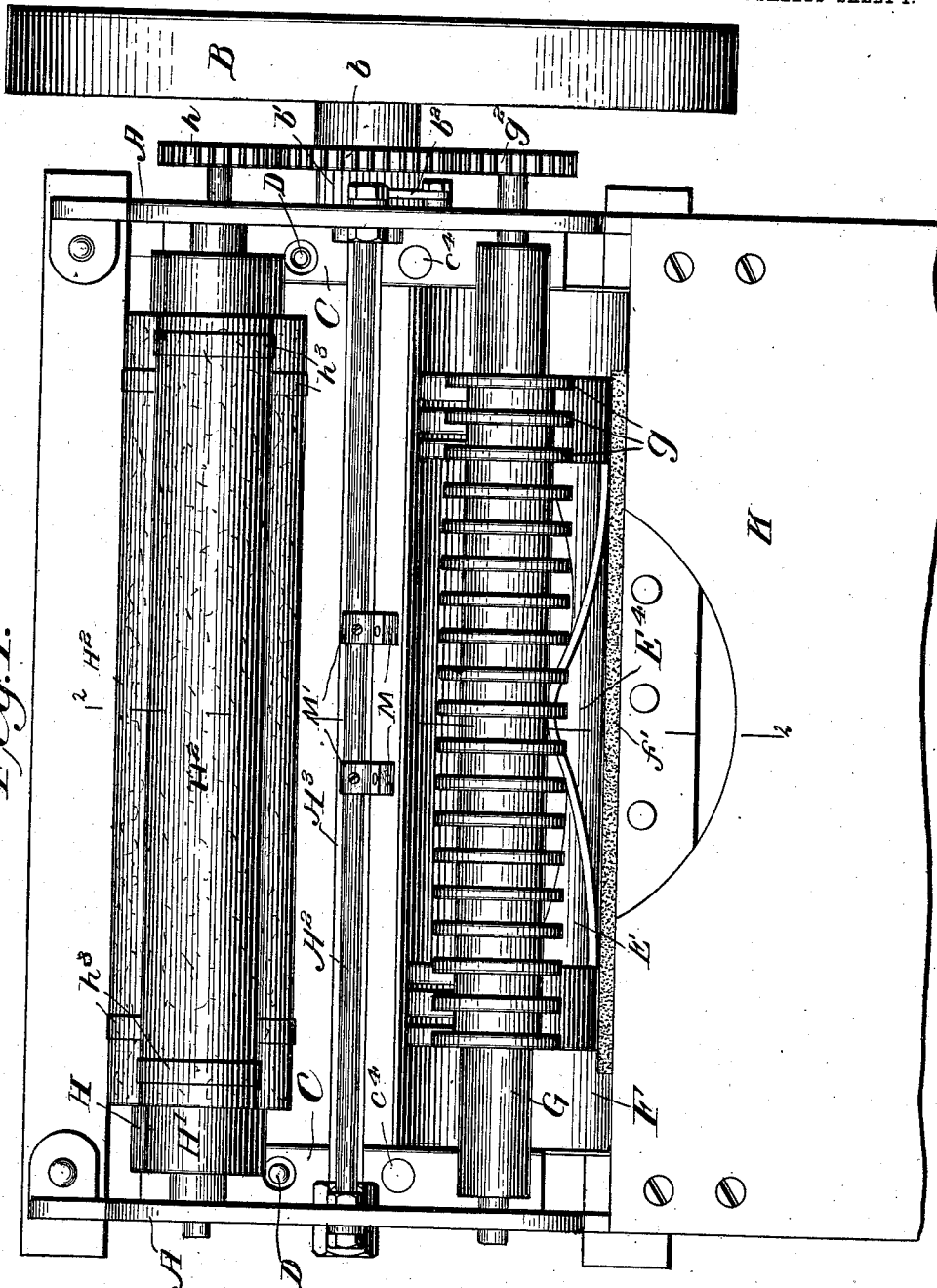
L. A. WAKEFIELD.
 ENVELOP MOISTENING AND SEALING MACHINE.
 APPLICATION FILED NOV. 15, 1911.

1,043,053.

Patented Oct. 29, 1912.

4 SHEETS—SHEET 1.

Fig. 1.



WITNESSES

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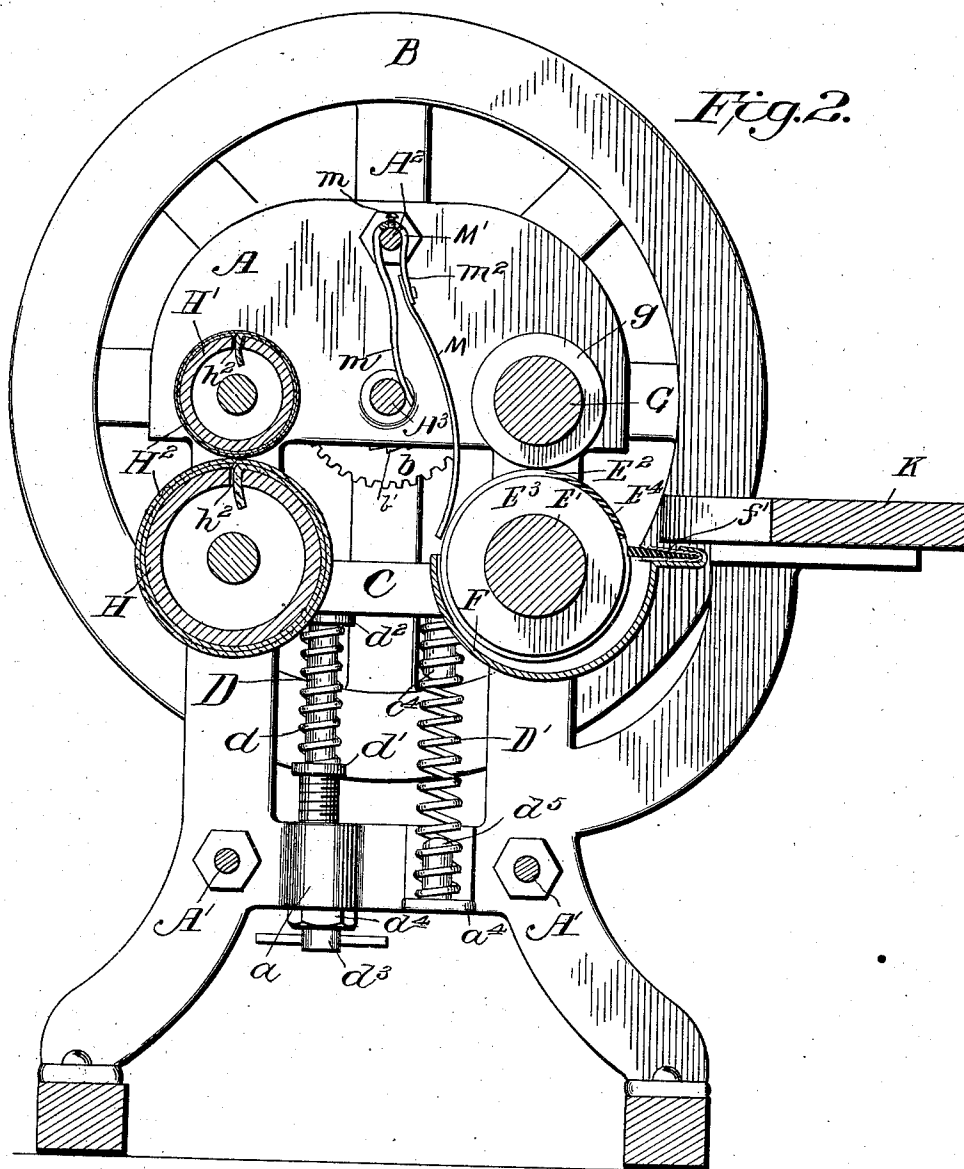
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4 SHEETS—SHEET 3.

Fig. 3.

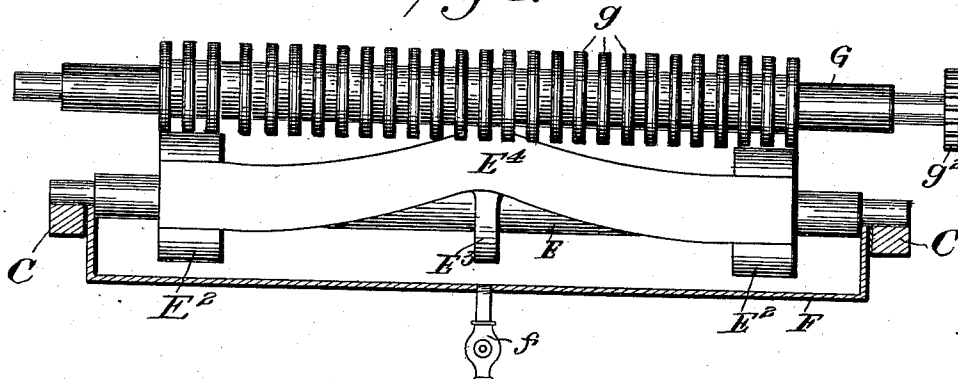
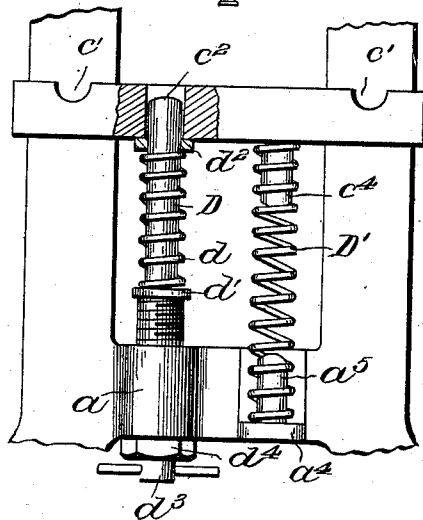


Fig. 7.



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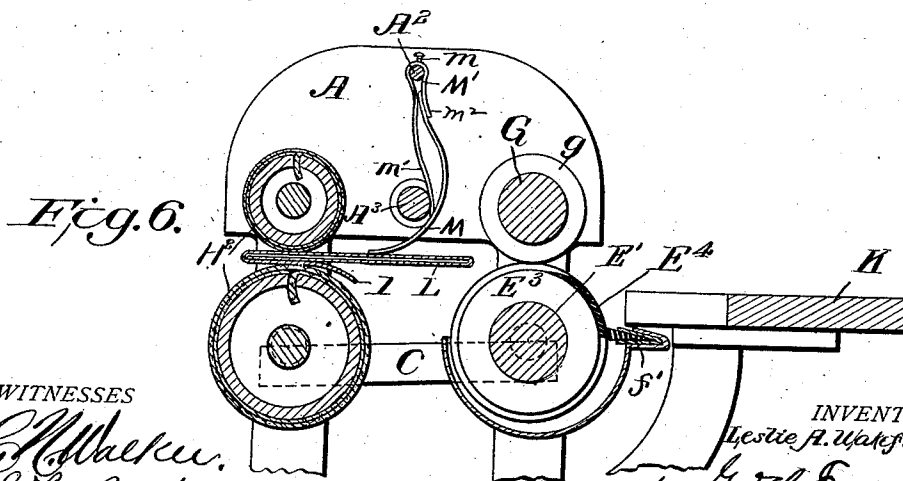
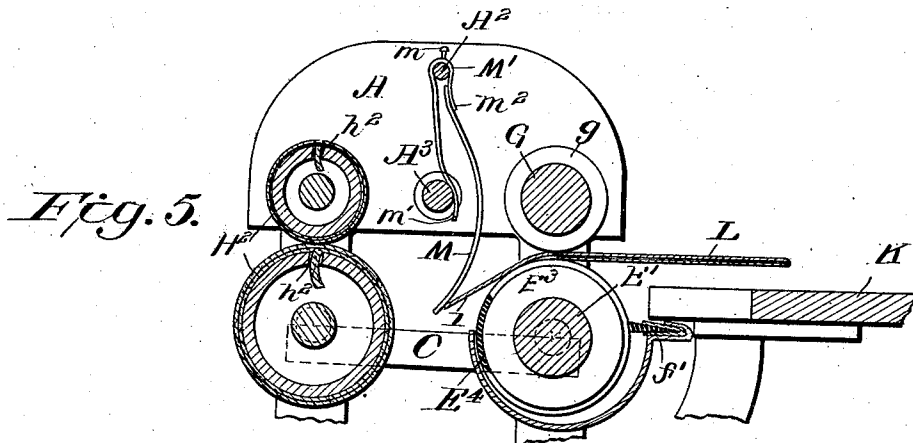
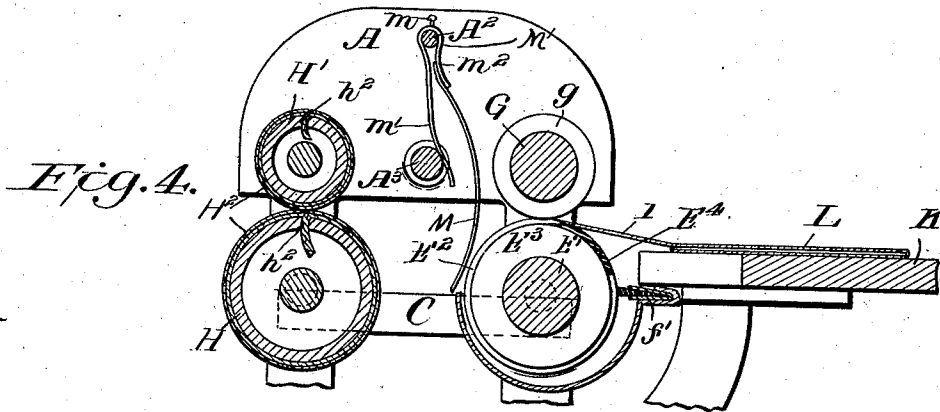
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1,043,053.

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4 SHEETS—SHEET 4.



WITNESSES

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UNITED STATES PATENT OFFICE.

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ENVELOP MOISTENING AND SEALING MACHINE.

1,043,053.

Specification of Letters Patent.

Patented Oct. 29, 1912.

Application filed November 15, 1911. Serial No. 660,464.

To all whom it may concern:

Be it known that I, LESLIE A. WAKEFIELD, a citizen of the United States, residing at Trempealeau, in the county of Trempealeau and State of Wisconsin, have invented certain new and useful Improvements in Envelop Moistening and Sealing Machines, of which the following is a specification.

My invention relates to machines for moistening and sealing envelopes.

The object of the invention is to provide a machine in which envelopes with their flaps extended will be drawn between a moistening roll and a feed roll and fed thereby directly to a pair of sealing rolls; a flap bender being provided between the two pairs of rolls to first bend the flap and then yield to the passage of the envelop so that the edge carrying the partly folded and moistened flap will be fed to the said sealing rolls which will complete the sealing of the flap and feed the sealed envelop to the discharge side of the machine.

A further object is to construct the moistening roll that it will only moisten the gummed portion of the flap.

A further object is to mount the moistening roll and the lower sealing roll upon adjustable yielding supports, which supports also carry the water trough of the feed roll.

A further object is to provide the sealing rolls with a fabric cover, preferably of blotting paper, wound thereon and adapted to have its outer end torn off from time to time to present a clean surface.

Figure 1 is a plan view of the machine. Fig. 2 is a vertical cross section on line 2—2, Fig. 1. Fig. 3 is an elevation of the moistening and feeding rolls. Fig. 4 is a diagrammatic view showing the envelop with its extended flap entering the moistening rolls. Fig. 5 is a like view showing the envelop flap being bent down by the spring-fingers. Fig. 6 is a like view showing the flap-edge of the envelop entering the sealing rolls after it has raised the spring-fingers. Fig. 7 is a detail view showing one of the yielding bars or bearings.

The frame of the machine comprises two end standards A, A connected at their lower portions by two cross rods A, A' and at their top portion by two vertically aligned cross rods A², A³. The right hand end of the cross bar A³ extends beyond the standard A

and forms a bearing on which turns the drive wheel B which receives power from any suitable source. This wheel B is shown as a fly wheel and may be rotated from a treadle or other device. C, C are two horizontal roll supports formed of bars lying next to the inner sides of the standards A, and the upper faces of these bars or supports are recessed at their ends to form bearings *c*, *c'*; the front bearings *c* serving to support the end journals of the moistening roll E, and the rear recesses *c'*, supporting the journals of the lower sealing roll H to be presently described.

The supports or bars C, C are supported adjustably and yieldingly in rear of their middle portions by means of two vertical screw rods D, D, the lower threaded portions of which pass through the threaded lugs *a*, *a* on the inner sides of the standards A, A, and the upper non-threaded ends of said screws pass freely through apertures *c*², *c*² in the supports or bars C, C. Mounted on the screw rods D are springs *d*, *d*, the lower ends of which rest on collars or shoulders *d'*, *d'* on the screw rods and the upper ends of the springs bear on loose collars *d*², *d*² which engage the under sides of the supports or bars C, C. Below the lugs *a*, *a* the screw rods are provided with operating means *d*³ and set nuts *d*⁴ so that the rods, after being adjusted to place the springs under proper tension, may then be locked against accidental movement.

D', D' designate two springs which support the bars C, C just in rear of their recesses *c*, *c*, and the lower ends of these springs are supported from lugs *a*⁴ provided with studs *a*⁵ and secured to the inner faces of the standards A. The upper ends of the springs D' engage depending studs *c*⁴, *c*⁴ on the under side of the supports or bars C, C.

F designates the water trough secured at its ends between the front ends of the bars C, C fixedly thereto, and the moistening roll E revolves in this tank. The roll E and tank F may thus yield together without affecting their relative positions. The trough F is provided with a drain cock *f* and its front edge has a wiper *f'* of soft rubber for the roll E.

The moistening roll E is formed of a shaft E' on which are mounted spaced end rings

E² of hard rubber, and midway between these end rings E² is a ring or support E³. The flap moistener comprises a hard rubber plate E⁴ shaped to conform to the gummed surface of the envelop to be moistened and is supported at its middle on the ring or support E³ and secured at its ends to the end rings E² flush and concentric with the surfaces thereof. The surface of the moistener plate is grooved longitudinally to form minute water carrying grooves. The moistening roll is driven from an upper feed roll G, comprising a shaft having a series of spaced hard rubber rings *g* extending from end to end. The rings *g* engage the rings E² and the moistener plate E⁴ to drive the moistening roll. The middle support or ring E³ is cut away beyond the moistener plate so that it will carry no water to the envelop, the gummed surface only of which is to be moistened. The drive wheel B has a spur gear *b*, which meshes with a pinion *g*² on the shaft of the feed roll G, and back motion of the drive wheel is prevented by means of a ratchet wheel *b*¹ engaged by a pawl *b*².

In front of the moistening roll E is a table K, the upper surface of which is approximately in the plane of the contacting points of the rolls E, G, so that envelops L, laid on the table with their flaps extended, gummed side down, may be fed between the two rolls as the point of the moistener plate E⁴ reaches its uppermost position. At this time the point of the flap will be grasped between the plate E⁴ and the feed roll G, and drawn inwardly until the ends of the envelop reach the end rings E², when the said ends will be grasped and the envelop be forced forwardly till it passes through the rolls. As the flap *l* passes from between the rolls E, G, it is necessary that it be bent downwardly without changing the straight course of the envelop through the machine. This is effected by two very light spring tongues M, M depending from heavier spring plates M', M' secured to the upper cross bar A² by set-screws *m*, *m*; the plates M', M' each having a rear extension *m*¹ resting against the cross rod A³ and a forward extension *m*², to which the light tongues M, M are secured. These spring tongues are preferably of celluloid.

Above the lower sealing roll H is the driven sealing roll H', provided with a pinion *h*, meshing with the drive gear *b*, opposite to the pinion *g*² of feed roll G, so that the rolls G, H' will be rotated in the same direction and at the same speed. The rolls E, G are near enough to the sealing rolls H, H' to receive between them the flap edge of the envelop before its opposite edge is released from between the rolls E, G, and the envelop is held by the rolls E, G and fed horizontally past the light spring-fingers M, M,

which are pressed up out of its path after they have depressed the moistened flap. It is obvious, therefore, that the rolls H, H' will complete the closing of the flap and discharge the sealed envelop at the opposite side of the machine. The course of the envelop is, therefore, straight through the two pairs of rolls without the necessity of any change of direction whatever and no power-actuated flap closing mechanism is necessary. The sealing rolls H, H' are formed hollow and each has a longitudinal slot *h*².

H², H² are sheets of absorbent fabric, preferably blotting paper, with their inner ends extending through the slots *h*² and then wound upon the rolls. The ends of the fabric H² thus rolled are held from unrolling by spring bands *h*³ sprung over the ends of the rolls. It will be seen that since the moistening roll E always rotates in the water trough all mechanism for bringing the water to the roll periodically is avoided. The fine longitudinal grooves in the moistener plate E⁴ cause the plate to hold just enough water to properly moisten the gummed surface of the envelop and render the use of felt and like moistening surfaces unnecessary.

My machine, by reason of the fact that it receives the pointed part of the flap first, requires no devices for adjusting it for different sizes of envelops. It will take any envelop that will pass through the machine, regardless of the depth thereof.

It will be seen that, owing to the lower rolls E, H being spring supported and friction driven, they will yield readily to letters varying in thickness. Moreover, the rolls E, G perform several functions, as, in the first place, they are self feeding and self adjusting; cause the water to be directly applied to the gummed surface and the said rolls force the flap against the spring-fingers M, and thus turn down the flap and finally said rolls continue to move the envelop till its flap carrying edge is grasped between the sealing rolls H, H'.

I do not restrict myself to the particular construction shown, as the same is capable of change within the scope of my invention.

For convenience sake, the rolls E, G may be termed the moistening and feeding rolls, since the combined action is to moisten the flap and feed the envelop.

What I claim is:

1. An envelop moistening and sealing machine comprising a pair of moistening and feeding rolls constructed to receive an envelop flap-first and moisten the gummed portion, a pair of sealing-rolls parallel with the moistening rolls and located near enough thereto to receive the flap-edge of an envelop directly therefrom, and light spring-fingers between the two pairs of rolls in the path of the extended envelop flap to

turn the same and then be forced back by the oncoming envelop in its travel to the sealing rolls.

2. An envelop moistening and sealing machine comprising a spring supported moistening roll, a water trough in which said roll turns and mounted on the roll supports to yield therewith, an upper driven feed roll to hold the envelop with its flap extended down to the moistening roll and feed it rearward, a pair of sealing rolls to receive the envelop, flap-edge first, direct from the moistening roll, and light spring-fingers between the two sets of rolls in the path of the oncoming flap to first turn it and then be moved out of the way by the flap edge of the envelop.

3. An envelop moistening and sealing machine comprising a frame, spring supported bars at opposite ends of the frame, a water trough mounted on the front portions of the bars, a moistening roll mounted on said bars and turning in the trough, a driven feed roll mounted in the frame above the moistening roll, a lower sealing roll mounted on the rear ends of said yielding bars, an upper sealing roll driven at the same speed and in the same direction as said feed roll, means for rotating the said driven rolls; the feed rolls being spaced from the moistening roll to receive an envelop, flap-edge first, directly therefrom and a yielding flap turner extending into the path of the extended flap to bend it and then yield to the passage of the envelop.

4. An envelop moistening and sealing machine comprising a moistening roll formed of end driving rings or disks and a moistening plate diverging rearwardly from its forward middle portion in opposite directions toward its end where it is secured to said driving rings or disks, a water trough in which said roll turns, a driven feed roll over the moistener roll and divided into a series of rings or disks, a pair of sealing rolls in rear of the first named rolls and spaced therefrom a distance to receive the flap-edge of an envelop directly therefrom,

means for driving the upper sealing roll and a yielding flap turning device between the two pairs of rolls and extending into the path of the envelop flap to first bend it and then yield to the passage of the envelop.

5. An envelop moistening and sealing machine comprising a yielding moistening roll formed of end rings or disks and a moistening plate diverging rearwardly in opposite directions from its forward middle portion to its ends where it is secured to said rings or disks; said plate having its surface formed with minute water receiving grooves, a water trough in which the roll revolves, a scraper on the trough engaging said roll to remove surplus water, a driven feed roll comprising a series of rings or disks, a pair of sealing rolls adapted to receive the flap edge of an envelop directly from the first named rolls, and a yielding flap-bender intermediate the two pairs of rolls and extending into the path of the envelop flap to bend it and then yield to the passage of the envelop.

6. An envelop moistening and sealing machine comprising a frame, parallel horizontal bars at opposite sides of the frame, springs supporting the forward ends of said bars, adjusting screw rods and springs supporting the rear ends of said bars, a water trough carried by the forward ends of said bars, a moistening roll mounted on the bars and turning in said trough, a driven feed roll for the moistener roll, a lower sealing roll mounted on the rear ends of the said bars, an upper driven sealing roll, a driving mechanism for the driven rolls, and light spring fingers extending down between the two pairs of rolls into the path of the envelop flap to bend it and then yield to the passage of the envelop.

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

LESLIE A. WAKEFIELD.

Witnesses:

A. A. GIBBS,
C. H. GROUT.