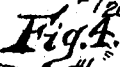


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INVENTOR.

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TO WILLIAM C. RENFROW, OF KANSAS CITY, MISSOURI.

MOISTENER AND SEALER FOR ENVELOPS.

982,353.

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To all whom it may concern:

Be it known that I, FREDERICK R. S. DITMARS, a citizen of the United States of America, residing at Kansas City, in the county of Jackson and State of Missouri, have invented certain new and useful Improvements in Moisteners and Sealers for Envelops; and I do hereby declare that the following is a full, clear, and exact description of the invention, such as will enable others to make and use the same, reference being had to the accompanying drawing, forming a part of this specification.

The object of the invention is the moistening and sealing of the sealing-flap of the envelop in successive operation, and in the progressive movement of the envelops manipulated in successive order or in series with rapidity.

The invention consists in the novel construction and combination of parts, such as will be first fully described and then specifically pointed out in the claim.

In the drawings: Figure 1. is a plan view of a machine embodying the invention. Fig. 2. is a longitudinal, vertical, sectional view, taken upon the line *x, x*, on Fig. 1. Fig. 3. is a detail, broken view of the connecting bar supporting the crank shaft. Fig. 4. is a detail view of the end of the trough for the moistening roller, taken on the line *y, y*, Fig. 1. Fig. 5. is a detail view of an end portion and roller on the reciprocating carriage.

Similar numerals of reference indicate corresponding parts in all the figures of the drawing.

Referring to the drawings, the frame of the machine as shown is rectangular in form. The said frame is composed of the longitudinal side plates 12, which are narrow and of the requisite length to support the moistening and sealing devices hereinafter described. The frame 10 is supported by the forward and rear legs 14 and 15, respectively, which are formed integral with the lower portions of the side plates 12 and provided with outwardly-extended feet 15*, at their lower ends, the legs 14 and 15 being located in proportion to the length of the sides 12, at short distances forward and rear of the respective forward and rear ends of said sides 12. With the inner surfaces and upper end portion of said legs 15, a short distance below the line of the lower hori-

zontal surfaces of the sides 12, are connected by means of the bolts 16, the laterally extended flanges 17, upon the outer ends of a T angle-bar 18, as seen in Fig. 3, the inner ends of which bar, at a point equidistant from the legs, are connected rigidly with a journal-bearing 19, in which is journaled in a vertical position a crank shaft 20, upon the upper end of which shaft is rigidly connected the inner end of a crank arm 21, and upon the lower end of which shaft adjacent to the lower surface of the bearing 19 is connected a bevel gear 20*.

With the inner surface of the forward legs 14, at a point equidistant from the feet 15*, and the point of connection of said legs with the sides 12, is connected the ends of a transverse T angle-bar 22, upon which ends are laterally-extended flanges 23, secured to the legs by the bolts 24. With the inner surface of the T angle bar 22, at a point equidistant from the legs 14, is connected rigidly one end of an arm 25, which extends rearwardly a short distance, and the other end bent at right angles and extended upwardly, and upon said end is a bearing 26, which is in line horizontally with the bearing 20, on the bar 18, at the rear end of the machine. In the bearing 26 is journaled one end of a rotary shaft 27, and upon said end is fixed a bevel gear 28. The rear end of shaft 27 extends rearwardly to the bearing 20, and its rear end reduced in circumference as at 28 and said end journaled in an opening 29, made therefor in the adjacent surface of the bearing 20. Upon the said rear end of shaft 27 is a bevel gear 30, which meshes with the bevel-gear 20*, in the bearing 20. Through the upper portion of the forward legs 14, in a vertical line with the vertical portion of the angle plate 22 and a short distance above said plate extends the main rotary power shaft 31, which is journaled in said portions of the legs 14, the end portion of which shaft upon the left-hand side of the machine extends a short distance outwardly from the line of the outer surface of said leg 14, and upon which end of the shaft is a shaft-actuating crank-arm 32. Upon said shaft between the crank-arm and the outer surface of leg 14, is fixed a gear-wheel 33. Upon the central portion of said shaft 31 is fixed a bevel-gear 34, which meshes with the bevel-gear 28, on shaft 27.

With the inner surface of the side-plates 12, at a point a slight distance above a line horizontal with the lower horizontal surfaces of side plates 12, and in a vertical line with the shaft 31, is connected by means of the screw bolts 35, the transverse bar 36, the bolts 35 extending through the side plates into the ends of said bar. The bed of the machine, over the surface of which the envelops are progressively moved, consists of a number of narrow strips or bars 37, extending in the longitudinal direction of the frame of the machine, and arranged in the transverse direction to the frame of the machine, at equal distances apart, and connected at 38, at short distances in rear of their forward ends, with the upper surface of the transverse bar 36. The rear ends of said strips 37 extend rearwardly to and are connected to the forward edge portion of a semi-circular water-trough 40, located a short distance rearwardly of an intermediate point in the length of the sides of the machine, and extending transversely from a point inwardly from the inner surface of one side 12, of the frame 10, to a point inwardly from the inner surface of the other side 12. This trough 40 is provided with semi-circular ends 41. Within said trough is a moistening roller 42, the peripheral portion of which is covered with a moisture-absorbing substance such as felt, indicated at 43, Fig. 1.

Upon the right-hand side of the machine, and connected rigidly with the outer surface of the side 12, a short distance forward of a line extending transversely to the frame through trough 40, are standards 44, extending upwardly a short distance, and with the outer surface and upper ends of said standard is connected a water-supply tank 45. With the bottom of said tank is connected a supply pipe 46, the lower end of which pipe extends downwardly to a position opposite the end of the trough 42, and is bent at right angles and extended through the side 12 of said frame and to a position above the trough immediately in rear of the roller 42, as seen in Fig. 4. With the bottom portion of the end of the trough receiving the water is a drain cock 47. In the top of the tank 45 is an inlet pipe 48, provided with a valve 49, to regulate the admission of air to the tank and regulate the flow of water.

At the forward end of the sides 12, of the frame 10 is an upward and forwardly-curved extension 50, extending from the upper portion of the sides and direct forward extensions 51, from the lower portions of the said sides, in which latter extensions are journaled the journals 52, of a large roller 53.

In the upper extensions 50, of the sides of frame 10 are the vertical slots 54, in which are journaled the journals 55, of the upper

roller 56, smaller in circumference than the roller 53, and of the proper weight to afford a pressure contact with the roller 53, and movable in the slots 54. The journal of roller 53, on the left hand side of the machine extends a short distance beyond the line of the outer surface of the side 12, and upon said journal is fixed a gear wheel 57, which meshes with the gear 35, on the main power shaft 31, these rollers 53 and 56 constituting the sealer for the envelops.

On the inner surface of the sides 12, of the frame 10, at a point a short distance above the line of the lower horizontal surface of said sides, are the horizontal narrow strips or track rails 58, which are in two portions, the rear portions of the track rails extending from the rear ends of the sides 12, to a position in rear of a line extending transversely to frame 10, through the trough 40, and the forward portions 58', extending from a line position forward of the line of trough 40 to a position beneath the transverse bar 36, at the forward end of the machine.

The feeder for feeding the envelops consists of a reciprocating carriage composed of a forward transverse plate 59, extending the distance transversely from near the inner surface of one side 12, to near the inner surface of the other side, the ends 60 being bent at right angles and extended downwardly and to the outer surface of which ends are pivoted the rollers 61. This plate 59 is located in rear of the transverse bar 36, and is movable toward said bar. The rear transverse plate 62 of the carriage is located in rear of the forward portions of the rear track rails 58, in rear of trough 40, and is provided with downwardly-bent portions and with rollers 63, in the same manner as the forward transverse plate. With the forward transverse plate 59 are connected the forward ends of the connecting strips 64, which are adjacent to the inner surfaces of the sides 12, and the rear ends connected with the rear transverse plate 62.

With the lower surface of the transverse plate 59, at a point intermediate the ends of said plate is pivotally connected at 65, the forward end of a connecting bar 65, which is bent upwardly in slight degree, the rear end of which bar is pivotally connected at 66, with the outer end of the crank arm 21, on the crank shaft 20. The said forward bar 59 is movable directly beneath the stationary plates 37, of the bed of the machine, and upon the upper surface of said bar intermediate plates 37 are secured fixedly the rear ends of the forward feed plates 67, which are short in length, the portions connected with the plate 59 being in the same horizontal plane of the stationary strips 37. The forward ends of the feed plates 67 extend forwardly and are inclined upwardly in a

slight degree, and portions 68, of the forward ends bent downwardly to a position below the line of the horizontal surface of plates 37.

5 70 indicates main feed and moistening plate, which extends nearly the width of the frame 10 from one plate 64 to the other, and in length from the rear transverse plate 62 forwardly to a position a short distance in rear of a vertical line extending through the forward plate 59, said forward end of plate 10 70 being bent or inclined upwardly and forwardly at 71, in a slight degree. Between the adjoining surfaces of the rear end of plate 70 and the transverse plate 62 is a transverse strip 72, secured to the upper surface of the plate 62, and to which the rear end of plate 70 is attached, thus leaving a slight space between the lower surface of plate 70 and the upper surface of plate 64.

Upon the lower surface of the forward end of feed plate 70, immediately in rear of the upwardly and forwardly-extended portion 71, are transverse lugs 72, opposed in position, and which extend a slight distance downwardly, and between which lugs is inserted and held thereby a transverse absorbent substance 73, such as felt in a long strip, the felt extending below the line of the lower surfaces of the lugs 72.

Upon the upper surfaces and toward the rear ends of the sides 12, of the frame, is movably secured the ends of a narrow plate 74, portions 75 and 76 of which ends are bent downwardly upon the outer surfaces of the sides 12, the bent portions 76 being provided with set screws 77, which secure the plate to said sides and adjustably in position. This plate 74 is located in position with its forward edge portion a short distance in rear of a vertical line extending through the rear portion of the trough 40, and with the said forward surface of plate 74 are connected the vertical guide strips 78, extending in height the required distance for supporting a stack of envelopes, and the lower ends extending downwardly to within a slight distance of the upper surface of plate 70, and the lower portions of said ends bent at right angles and extended forwardly, as at 79, a short distance.

To the inner surface of the side 12, of the frame 10, on the right hand side of the machine and immediately forward one of the strips 78, is attached the lower end of a vertical strip 80, the same height as strips 78, and against which the ends of the envelopes are held in a stack.

With the standards 44, one of which standards is for the water tank 45, are connected rigidly the ends of a transverse, vertically arranged carriage plate 82, secured to said standards by the bolts 83. The lower end of said plate extends downwardly to a position a short distance upwardly from the upper

surface of plate 70 and is bent forwardly and upwardly in the arc of a circle as at 84.

With the inner surfaces of the standards 81, at a point a considerable distance above the line of the upper surface of the sides 12, 70 is connected rigidly the sockets 85, in which sockets are fixed from rotation the ends of a transverse rod 86. With said rod are connected the upper ends of the fingers or plates 87, the lower ends of which plates extend downwardly to the plate 10, and the lower ends extended forwardly and upwardly as at 88. These plates 87 are jacketed with a covering of rubber, as seen in section in Fig. 2, so as to bear with a resistance upon the envelopes.

In operation the tank 45 is supplied with water, which is admitted to the trough 40 through the pipe 46, the absorbent 43, on the roller 42, taking up the water and becoming moistened.

The envelopes in a large quantity are placed upon the upper surface of plate 70, with the adhesive flaps downward and extending forwardly and stacked with the right-hand ends against strip 80, and the rear longitudinal surfaces against the strips or girders 78, and the lower envelopes on the feet 79, of strip 78. Power being applied to the crank-shaft 32, rotary motion is communicated to the main shaft 31 and from gear 33, on said shaft, to gear 57, on the roller journals 52, and imparting rotation to the large sealing roller 53. At the same time power is transmitted from the power shaft 32 to the rotary shaft 27, through the bevel gear 28 and 34, and from said shaft through the bevel gear 30 and 21 to the crank shaft 20 to the arm 21, and bar 65 connected with the transverse bar 59, and reciprocating movement is imparted to the carriage carrying the feed plates 67, and the combined feed plate and moistener 70. In the instant rearward movement of the feed plate 70, upon which the envelopes are stacked, the rear end of said plates moves to a position rearwardly to the line of the rear end of the frame 10, of the machine, in which movement the absorbent 73, on the lower surface and forward end of said plate 70 is brought to a position immediately above and in contact with the absorbent surface of the moistening roller 42, which is moved partially in rotation, so as to cause the portion of the roller uppermost in position to enter the water in the trough and becomes saturated, and the moisture transmitted to the absorbent 73, on the feed plate 70. Upon the forward movement of the feed plate 70 the envelop at the bottom of the stack lying on plate 70 is moved forwardly from the stack by the friction of the plate 70, beneath the lower curved portion of guide plate 82, on standard 81, and to a position beneath the fingers 87, which fingers now hold the en- 130

velop from rearward movement. The plate 70 in the rotation of the crank arm 21 now moves rearwardly, the envelop being held by the fingers 87 in which movement the forward end 71 of the feed plate moves beneath the envelop and in rear of the sealing flap on said envelop. In the next forward movement of the plate 70 the upwardly-extended portion 71, of the feeder plate extends beneath the flap of the envelop, and the moistener 73 moistens the adhesive inner portion of the flap, and moves said envelop away from the fingers 87, to an advanced position directly above the plates 37, forming the bed of the machine, and in the rearward movement of plate 70, the envelop drops upon said plate 37 in advance of the feeder plates 67, and in the forward movement of plate 70 these feeder plates 67 push the envelop to a position between the rollers 53 and 56, in which the rollers grasp the envelop and is fed through and ejected from the rollers at the same time sealing the flap of the envelop. The envelops in the stack rapidly follow one another in succession, in the repeated reciprocal movements of the carriage and plate 70, until the quantity of envelops are moistened and sealed, when a new stack of envelops are placed on the machine and the operation continued.

It is obvious that the supply of water to the trough may be regulated so as to simply afford a continuous amount or cut off when

the supply is sufficient, the plate 70 concurrently covering the trough.

Having fully described my invention, what I now claim as new and desire to secure by Letters Patent is—

In a machine for moistening and sealing the sealing flap to an envelop, the combination with the frame of the machine and its bed composed of longitudinally extended slats, and with the sides to the machine extending above the plane of the bed and with the envelop sealing rollers supported by said sides of track rails on the inner surfaces of said sides, a carriage frame beneath the bed of the machine and wheels on said carriage frame movable on said track rails, an envelop supporting and feeding plate connected with said carriage frame having a forwardly and upwardly extended portion adapted to engage with the sealing flap of the envelop and envelop moisteners on the lower surface of said portion of the plate, means for imparting a reciprocating movement to said plate, and separate upwardly and forwardly extended envelop feeding plates, connected with the carriage frame and lying between the slats composing the bed of the machine.

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Witnesses:

LUTHER BOTTS,
DAISY E. CURP.