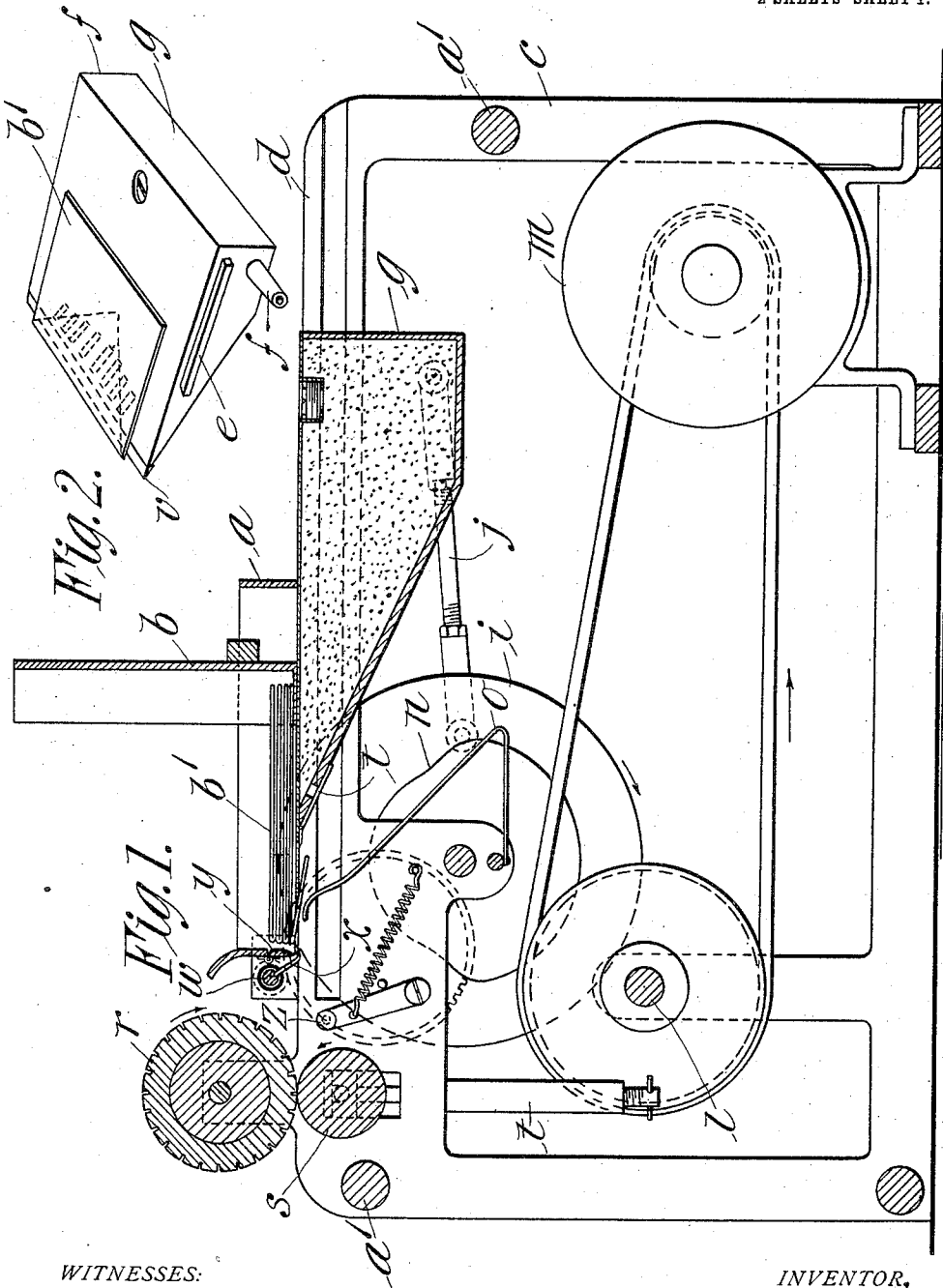


C. H. DAVIS.
ENVELOP SEALING MACHINE.
APPLICATION FILED FEB. 3, 1912.

1,044,756.

Patented Nov. 19, 1912.

2 SHEETS—SHEET 1.



WITNESSES:

Franklin L. Neal
Harry W. Brown

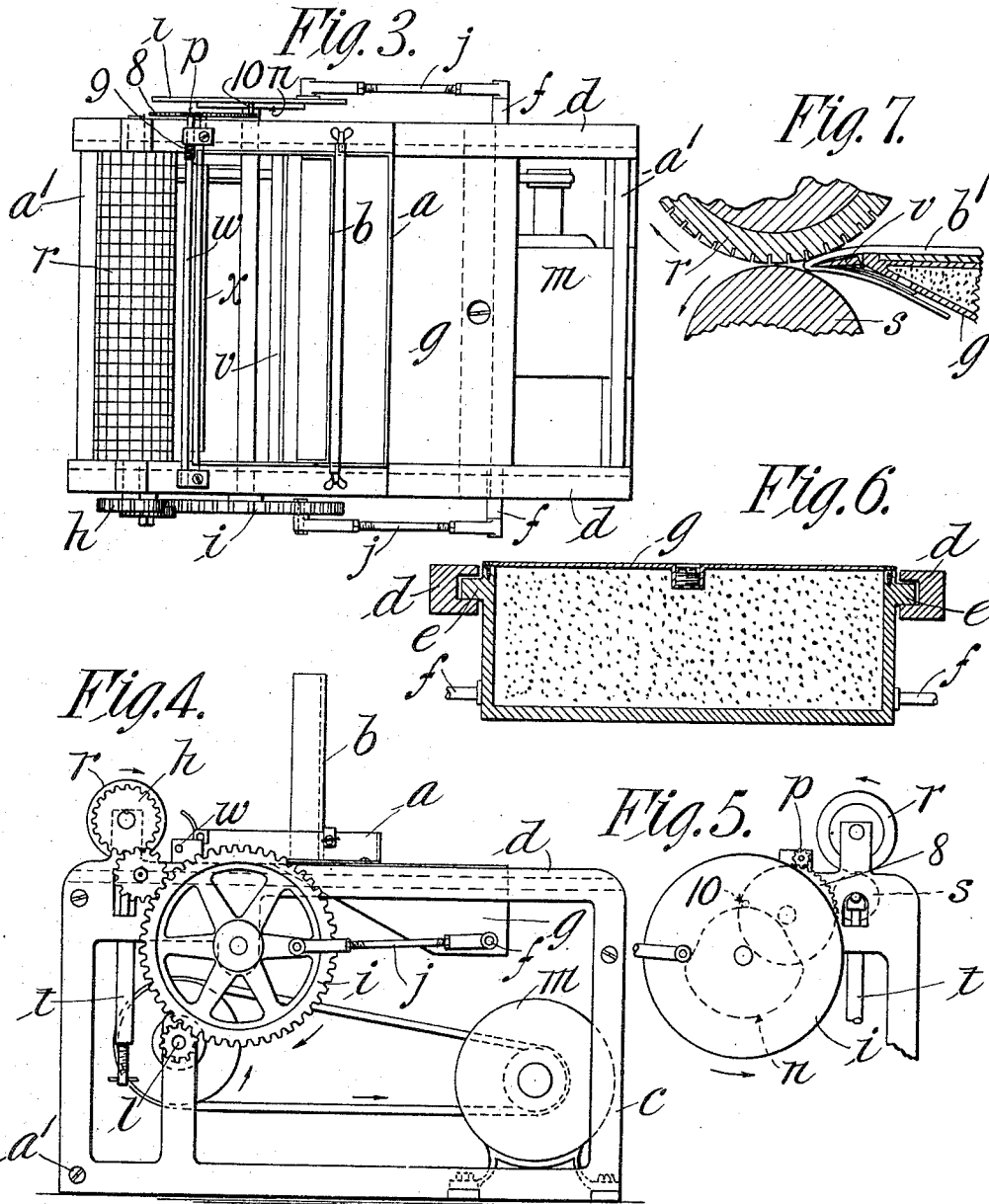
INVENTOR,
Carl H. Davis,
BY *Chapin Geo.*
ATTORNEY.

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Harry W. Brown.
Franklin P. Neal

INVENTOR,
Carl H. Davis,
BY Chapman & Co.,
ATTORNEY.

UNITED STATES PATENT OFFICE.

CARL H. DAVIS, OF SPRINGFIELD, MASSACHUSETTS, ASSIGNOR TO UNITED STATES ENVELOPE SEALING MACHINE COMPANY, OF SPRINGFIELD, MASSACHUSETTS, A CORPORATION OF MASSACHUSETTS.

ENVELOP-SEALING MACHINE.

1,044,756.

Specification of Letters Patent.

Patented Nov. 19, 1912.

Application filed February 3, 1912. Serial No. 675,267.

To all whom it may concern:

Be it known that I, CARL H. DAVIS, a citizen of the United States of America, residing at Springfield, in the county of Hampden and State of Massachusetts, have invented new and useful Improvements in Envelop-Sealing Machines, of which the following is a specification.

This invention relates to an envelop sealing machine wherein letters of any thickness may be quickly sealed in an efficient manner.

It has been found from experience that a great many of the envelop sealing machines at present in use will work efficiently when the envelops which are to be sealed are of a uniform thickness. Thus in demonstrating a machine, empty envelops are usually passed through the machine which are sealed up in a most efficient manner. However, when envelops of a varying thickness are passed through the machine, as is necessary in commercial use, many of them are not properly sealed.

It is the object of this invention to provide an envelop sealing machine which will operate efficiently regardless of the varying thicknesses of the letters or envelops to be sealed.

The object of this machine is, specifically, to provide means for efficiently sealing an envelop containing considerable material forming a thick package.

Other objects of the invention will appear in the detailed description and annexed claims.

In the drawings forming part of this application,—Figure 1 is a cross sectional view of the assembled apparatus. Fig. 2 is a perspective view of the reciprocating moistening and carrying device. Fig. 3 is a plan view of the assembled machine. Fig. 4 is a side view of the assembled machine. Fig. 5 is a detail view showing parts of the mechanism which can not easily be understood from the other figures. Fig. 6 is a cross sectional view of the moistening device showing the manner of supporting this device for a reciprocating movement. Fig. 7 is a cross sectional detailed view of the sealing rolls and the moistening device as it feeds a thick envelop to the sealing rolls.

This invention is an improvement on the

machine described in my co-pending application filed on June 19, 1911 under Serial No. 633,997 in which machine envelops of a uniform thickness could be sealed efficiently, but an especially thick envelop could not be sealed efficiently. In the machine forming the subject matter of this invention, however, special means are provided for handling envelops of any thickness.

Referring to the drawings, (Fig. 1) mounted on a frame having vertical supports *c* and cross supports *a'* is a motor *m* which drives the main shaft *l* which, in turn, by the mechanism shown best in Fig. 4, is geared to all the other driven parts of the machine. The moistening device *g* is mounted for horizontal reciprocating movement in the top bars *d* of the frame which are provided with recesses in which the projections *e* on the sides of the device *g* slide. The fit between the projections *e* and the recesses in the top bars *d* is rather loose allowing the moistening device *g* free play therein. The gear *i* (see Fig. 4) has a pin set off from its center to which is connected a rod *j* pivoted on the moistening device *g*. As the gear *i* rotates, it will reciprocate the device *g* in a horizontal direction.

Mounted above the frame is a container for the envelops (best shown in Fig. 1) which has an adjustable guide *b* therein which allows envelops of any size to be accommodated. The bottom of this container is open. The guide *b* has a horizontal support, as shown, for one end of the pile of envelops. The other end of the pile is supported and thus prevented from falling through the open bottom of the container *a* by a swinging arm or hook *x* mounted on a shaft *w* which by a spring 9 (Fig. 3) has a normal tendency to keep the hook *x* as shown in Fig. 1. A hinged plate is provided adjacent the hook on the forward end of the container *a* as seen in Fig. 1, so that when an envelop leaves the container in a horizontal direction this hinge will give way and prevent any binding action in the operation, to be hereinafter described. The shaft *w* is arranged to rotate against the force of the spring 9 by means of a cam and gear connection shown best in Fig. 5. A gear *p* meshes with an idle mutilated gear 8 mounted on a stub shaft in the side of the

frame. On this mutilated gear is a pin 10 on which a cam n operates (as shown in Fig. 5). This cam is mounted on the same shaft with the gear i . Therefore as the gear i is driven from the shaft l to reciprocate the container g , the cam operates to swing the mutilated gear by means of the pin 10 through a certain arc, which arc is sufficient to operate the gear p and swing the shaft w and withdraw the hook x from its supporting position and swing it up out of the way, as indicated in Fig. 4. This hook x is timed to swing out of the way as the moistening device g is driven forward toward the end of the container a . Whenever the device g moves under the container a it supports the pile of envelopes contained therein. Therefore, the hook x is not needed and in order to be out of the way, it is swung up, as described. An inspection of Fig. 1 will show the general operation of the apparatus.

The device g is filled with water and any suitable absorbent material. It is then moved toward the rolls r and s by the gear i and connecting rod j . The edge v of the device g moves under the flap of the envelop and as it continues to move forward it withdraws the lowermost envelop from the pile b^1 and forces it between the rolls r and s , as shown in Fig. 7. The rolls r and s are driven by gears, as indicated in Fig. 4. The roll r has a piece of readily yielding rubber for its outer periphery, as shown in Fig. 7. As the rolls grip the end of the envelop they shoot it through beyond the rolls into any suitable receptacle and in so doing draw the flap of the envelop with its mucilaged edge past the opening t in the container g through which water is fed from the absorbent material in the container. The edge is thus moistened and as the envelop passes through between the rollers, it is firmly pressed against the under side of the envelop and properly sealed.

A spring o (see Fig. 1) is provided in the path of the container g and as the container moves forward, this spring presses the flap of the envelop against the beveled side of the container g insuring a good contact of the flap with the moistening surface t . A roller z , yieldingly mounted transversely of the apparatus and pivoted in the frame, is adapted to press the flap of the envelop against the beveled edge of the device g until the envelop is gripped by the rolls r .

The lower roll s of the sealing rollers is adapted to be vertically adjusted by means of the device t (see Fig. 1). The edge v of the moistening device g is hinged in a yielding manner so that whenever a thick envelop is being presented to the rollers r and s (as for instance in Fig. 7), the rubber edge of the roll r forces the edge of the envelop down into contact with the roller s and thus centers the edge of the envelop for passage

between the rollers. The lip v allows the edge of the envelop to turn downwardly, as shown, and is normally horizontal, but is hinged to the end of the device g and will yield when necessary. Thus the rollers r obtain a good grip on the edge of the envelop and pull it away from the container quickly.

When a thin envelop is presented to the sealing rollers it passes therebetween without any difficulty, but when an envelop containing considerable material is presented thereto, the edge of the envelop usually strikes the roller r first and in the absence of special provision for handling thick envelops, the roller r rolls around rubbing on the envelop to its damage. However, with a spring lip v normally horizontal, the roller r bears on the thick envelop bending the lip v down so the edge of the envelop may be gripped by both rolls r and s , whereupon it is passed therebetween to the efficient sealing of the thick envelop. The apparatus described has proved very efficient in use as it will seal tightly envelops of any thickness within reasonable limits of the apparatus as designed.

What I claim, is—

1. An envelop sealing machine comprising an envelop container having a rear support for a pile of envelops, the bottom of the container being otherwise open, a horizontal shaft mounted just forward of the container having a hook-shaped arm normally underlying the end of the container to support the forward end of the pile of envelops, a carrier embodying a moistening device arranged to move under the container and between the lowermost envelop and its flap, means for reciprocating the carrier, and a gear connection between said means and the horizontal shaft to retract the hook-shaped arm as the carrier enters between the envelop and its flap, and sealing rollers to take the envelop from the carrier whereby the flap is wiped across the moistening device and sealed.

2. An envelop sealing machine comprising an open bottom container for envelops having front and rear supports, a carrier and moistening device with horizontal top and rearwardly beveled front face in which the moistening device is located, a pair of sealing rollers, means to move the carrier forward under the container between the lowermost envelop and its flap, a spring located under the flap to force the flap against the moistening device, means for moving the front support away from the carrier as the carrier moves toward the sealing rollers, a roller yieldingly mounted between the container and the sealing rollers to engage the flap of the envelop as it moves toward the rollers to force the flap against the moistening device as the rollers grip the

envelop and remove it from the carrier, whereby the flap is moistened and the envelop is sealed.

3. In an envelop machine, the combination
5 of a container for a pile of envelops having front and rear supports, a pair of sealing rollers adapted to rotate in line with the bottom of the container, a carrier and moistening device, means to move said carrier under the
10 container to cause it to enter between the lowermost envelop and its flap and present the envelop to the sealing rollers whereby the said rollers pull the flap across the moistening device, and the envelop from the
15 carrier to seal it, said carrier having a horizontal top and a rearwardly beveled front face, and a readily yielding lip at the point of the carrier for the purpose described.

4. In an envelop sealing machine, an envelop container, a pair of sealing rollers, a
20 carrier arranged to carry an envelop from the container and present it to the sealing rollers, said carrier having a pointed readily yielding front edge around which the flap
25 of the envelop fits, all for the purpose described.

5. In combination, an envelop container, a pair of sealing rollers, a carrier having a sharp front edge yieldingly mounted,
30 means to move the carrier beneath the container between the lowermost envelop therein and its flap, and forward to the sealing rollers whereby the latter can remove the envelop from the carrier, all for the purpose
35 described.

6. In an envelop sealing machine, the combination of sealing rollers, means to rotate said rollers, a reciprocable moistener and carrier device adapted to carry an envelop up to the bite of the rollers, an auto-
40 matic centering device on said carrier comprising a yieldingly mounted plate on the forward edge around which the flap of the envelop bends, said plate being arranged to yield when the carrier presents a well filled
45 envelop to the sealing rollers, the yielding of the said plate allowing the proper centering of the envelop for passage between the rollers.

7. In combination, a pair of sealing rollers normally having a common horizontal
50 tangent one mounted above the other for rotation and one movable with respect to the other, a moistener and carrier device having its top face in substantially the same
55 horizontal plane as the common tangent, and a sharp front edge around which the flap of an envelop is adapted to bend, means to move said device along the horizontal plane to the rollers, and yielding means on
60 the forward edge of said device when a well filled envelop is carried by the said device to the rollers and contacts with one of the rollers first to allow the edge of the envelop to bend and enter between the two rollers
65 for proper passage therethrough.

CARL H. DAVIS.

Witnesses:

HARRY W. BOWEN,
FRANKLIN G. NEAL.