No. 796,936. PATENTED AUG. 8, 1905.

D. G. SAUNDERS, Jr.

ENVELOP SEALING MACHINE.

APPLICATION FILED SEPT. 21, 1904.

2 SHEETS—SHEET 1.

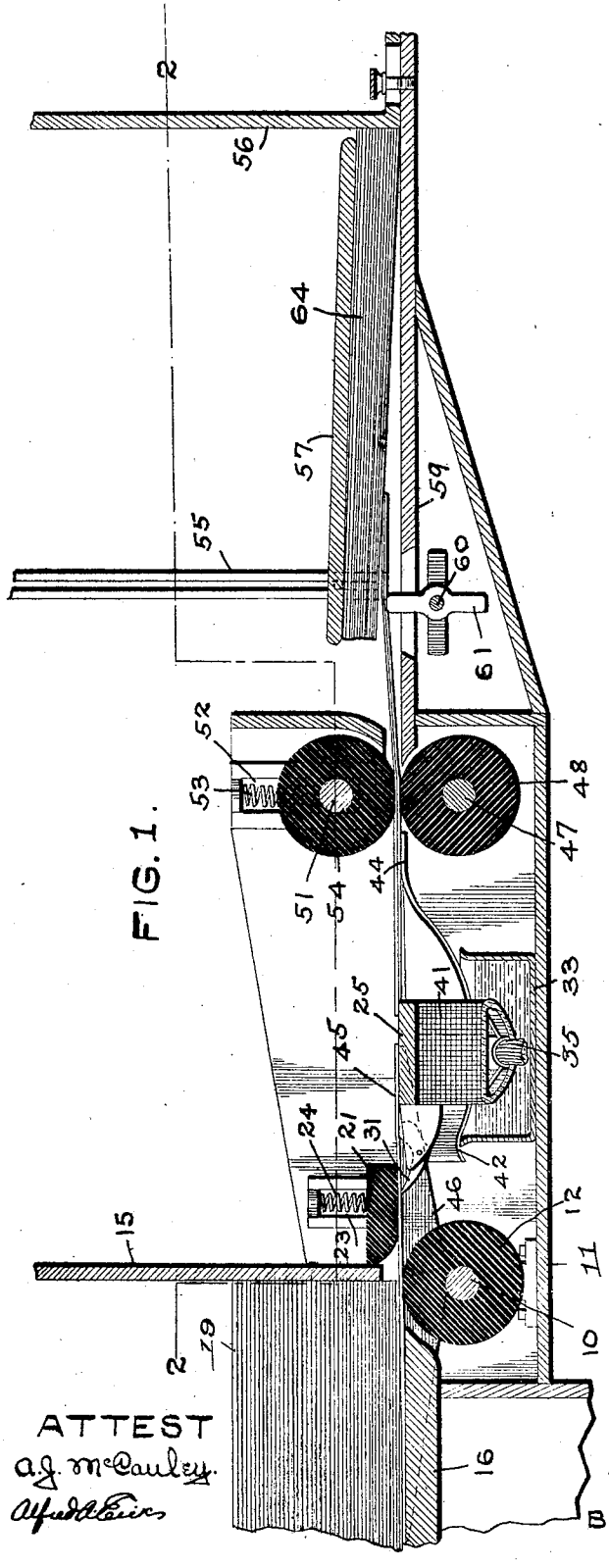


FIG. 1.

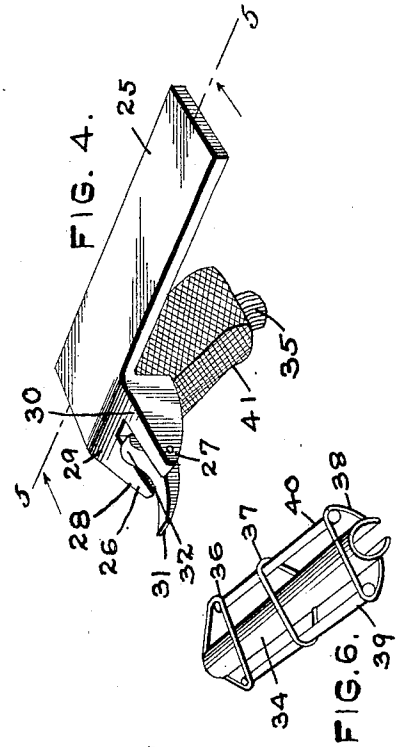


FIG. 4.

FIG. 6.

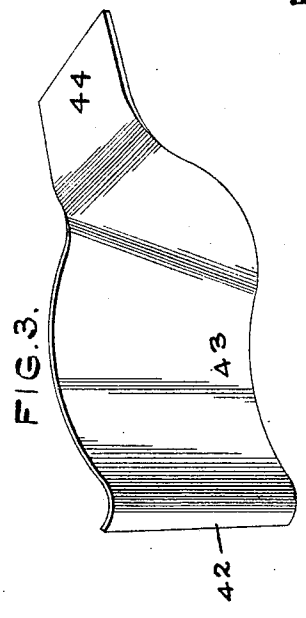


FIG. 3.

ATTEST

A. J. McCauley.

Alfred Elvis

INVENTOR

Daniel Green Saunders Jr

BY Hyde & Langan & Hopkins

ATTY'S.

ANDREW B. GRAHAM CO., PHOTO-LITHOGRAPHERS, WASHINGTON, D. C.

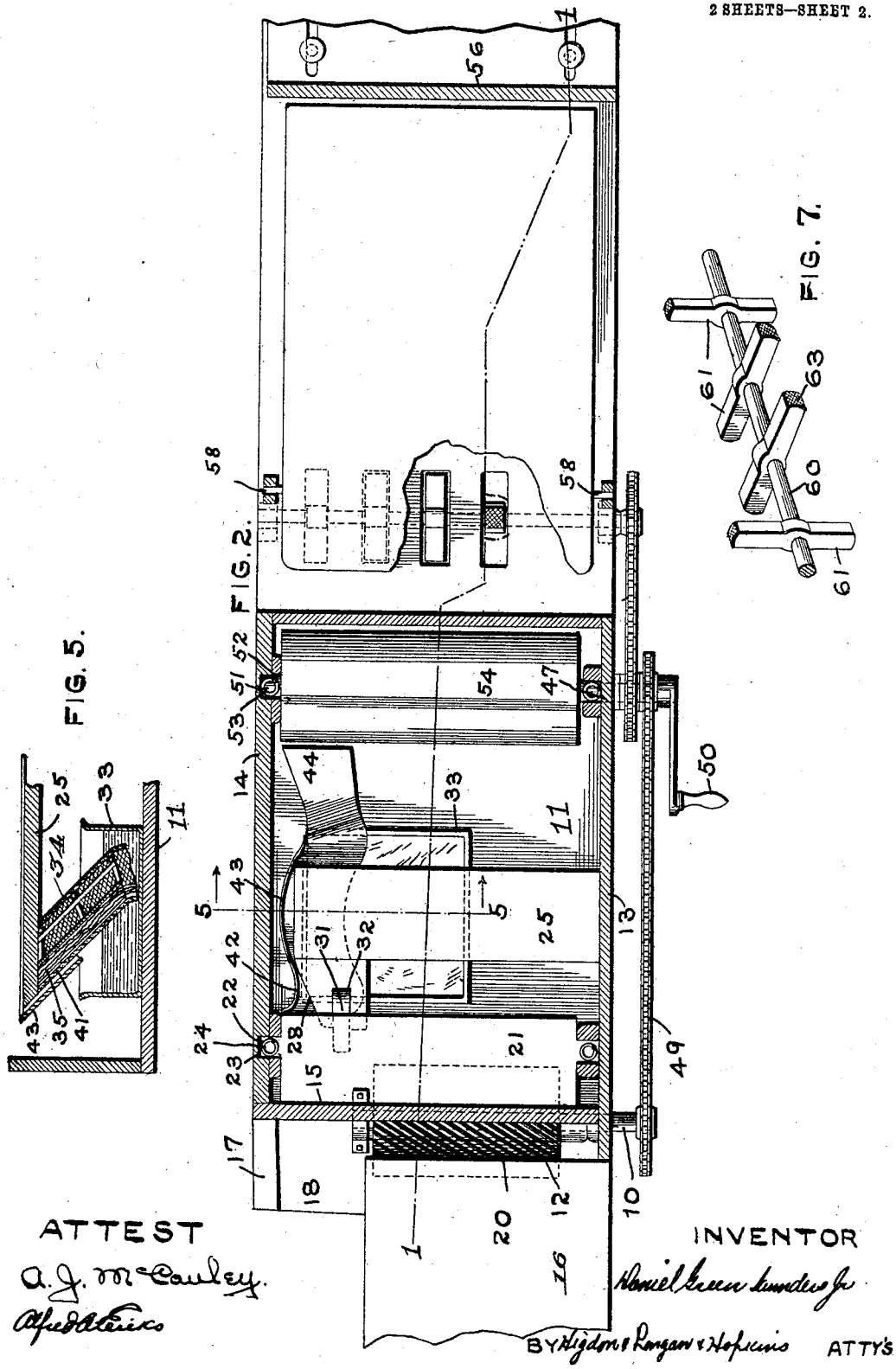
No. 796,936. PATENTED AUG. 8, 1905.

D. G. SAUNDERS, JR.

ENVELOP SEALING MACHINE.

APPLICATION FILED SEPT 21, 1904.

2 SHEETS—SHEET 2.



ATTEST

A. J. McCauley.

Alfred Steiros

INVENTOR

Daniel Green Saunders Jr

BY Higdon & Langan & Hopkins ATTY'S

ANDREW B. GRAHAM CO., PHOTO-LITHOGRAPHERS, WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

DANIEL GREEN SAUNDERS, JR., OF KANSAS CITY, MISSOURI.

ENVELOP-SEALING MACHINE.

No. 796,936. Specification of Letters Patent. Patented Aug. 8, 1905.

Application filed September 21, 1904. Serial No. 225,331.

To all whom it may concern:

Be it known that I, DANIEL GREEN SAUNDERS, Jr., a citizen of the United States, and a resident of Kansas City, county of Jackson, State of Missouri, have invented certain new and useful Improvements in Envelop-Sealing Machines, of which the following is a specification, containing a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

My invention relates to improvements in envelop-sealing machines; and it consists of the novel features herein shown, described, and claimed.

In the drawings, Figure 1 is a vertical longitudinal section on the line 1 1 of Fig. 2 and looking in the direction indicated by the arrow. Fig. 2 is a horizontal section on the line 2 2 of Fig. 1 and looking downwardly, as indicated by the arrow. Fig. 3 is a perspective of the flap-closer. Fig. 4 is a perspective of the flap opener and moistener. Fig. 5 is a sectional detail on the lines 5 5 of Figs. 2 and 4 and looking in the direction indicated by the arrow. Fig. 6 is a perspective of the frame of the moistening device. Fig. 7 is a perspective of the jogger.

Referring to the drawings in detail, the feed-shaft 10 is mounted in suitable bearings extending upwardly from the bottom 11, and a soft rubber feed-cylinder 12 is mounted upon the shaft to rotate therewith. Side pieces 13 and 14 extend upwardly from the bottom 11. A stop-board 15 connects the forward ends of the side pieces and extends upwardly a considerable distance above the side pieces, said stop-board being substantially in vertical alinement with the shaft 10 or slightly behind the center of the shaft. The feed-board 16 is mounted horizontally in front of the shaft 10, the upper face of the feed-board being substantially on a horizontal line with the uppermost part of the feed-roller. A gage-plate 17 extends forwardly in alinement with the side piece 14, there being a flap-space 18 between the feed-board 16 and the gage-plate 17. The feed-roller 12 is shorter than the width of the feed-board 16, so that the space 18 extends backwardly beyond the roller. The envelops 19 are piled against the stop-board 15 and against the gage-plate 17, with their flap sides down and with the flap of the lowermost envelop in the flap-space 18 and with the forward end and lower surface of this envelop in engagement with the feed-roller 12. Spiral corrugations 20 are formed in the surface of the feed-roller, so that as the feed-roller rotates to carry the envelops backwardly the direction of the corrugations will force the envelop toward the gage-plate 17. A soft-rubber presser-bar 21 is mounted with the guides 22, extending from its ends into the guideways 23, so that the presser-bar may move vertically, there being springs 24 in the guideways to hold the presser-bar yieldingly down upon the envelop.

The flap-opener comprises the guide-plate 25, mounted crosswise of the machine, with its upper face substantially on a level with the lower face of the presser-bar 21 and the uppermost surface of the feed-roller; the rigid fingers 26 and 27, extending forwardly from the flap end of the guide-plate, the flap side 28 of the finger 26 being beveled and the upper sides 29 and 30 of the fingers 26 and 27 being inclined downwardly and forwardly; the pivoted finger 31, pivotally connected to the rigid fingers 26 and 27 and extending forwardly; the counterbalancing-weight 32, extending backwardly from the finger 31, the tip of the finger 31 being in position to allow the end of the envelop to pass over it until the envelop strikes the weight 32, and then the friction between the envelop and the weight 32 will press the tip of the finger 31 upwardly into contact with the body of the envelop, so as to pass between the flap and the body and open the flap. The inclined surface 28 will guide the flap toward the farther side of the machine, and the inclined surfaces 29 and 30 will guide the envelop upwardly to its horizontal position, so that it will pass over the guide-plate 25.

The moistener comprises the water-pot 33, mounted upon the bottom 11; the wick-holder 34, attached to the flap-opening end of the guide-plate 25 and extending downwardly into the water-pot at an angle of about forty-five degrees; the wick 35, mounted in the wick-holder; a frame mounted upon the wick-holder and comprising the triangular loops 36, 37, and 38; the inside bars 39 and 40, and the moistener-pad 41, mounted upon the frame.

The flap-closer comprises a sheet-metal plate bent to form the curved approach 42; the central portion 43, curved to press the flap against the moistener-pad and the closing-arm 44 in position to force the flap against the body of the envelop after it has been moistened. The lowermost envelop 45 is in such a position that its flap will spring downwardly into the space 18, and as the envelop is carried backwardly by the feed-roller 12 under the presser-bar 21 the finger 31 engages between the body of the envelop and the flap 46, deflecting the flap downwardly under the moistening-pad 41. The curved approach 42 guides the flap into the space between the moistening-pad and the curved portion 43. The curved portion 43 forces the gum-surface of the flap against the moistening-pad, and the closing-arm 44 forces the flap upwardly against the body of the envelop after it has been moistened, thereby sealing the envelop.

The sealing and delivery shaft 47 is mounted in bearings supported in any suitable manner and in horizontal alinement with the shaft 10 and parallel therewith and at the opposite side of the water-pot, and a soft-rubber roller 48 is fixed upon the shaft. A sprocket-chain 49 connects the sprocket-wheel upon the shaft 47 to a similar sprocket-wheel upon the shaft 10, and a hand-crank 50, carried by the shaft 47, provides means of operating the device. A compression-shaft 51 is mounted in guideways 52 and held yieldingly by springs 53, and a soft-rubber compression-roller 54 is fixed upon this shaft, said roller 54 being in opposition to the roller 48, so that as the envelop passes between the rollers 54 and 48 the flap is still more firmly pressed and sealed, and the envelop is firmly carried backwardly.

The jogging and piling mechanism comprises guideways 55, extending upwardly at each side of the machine; a stop-plate 56, adjustably mounted at the extreme rear end of the machine; a jogging-plate 57, having pintles 58 extending into the guideways 55; the guide-board 59, extending backwardly from the rollers 54 and 48, the upper face of the plate being below the line-passage between the rollers and the stop-plate 56 being fixed to this guide-plate, and the jogger-shaft 60, mounted parallel with the shaft 47 and having cross-arms 61 extending upwardly through the opening 62 in the guide-plate 59, so that as the shaft 60 rotates the stack of envelops is alternately raised and lowered or jogged and at the same time the lowermost envelop is moved backwardly toward the stop-plate 56. The ends of the jogger-arms 61 have corrugated faces 63 to frictionally engage the envelop. The pile of envelops 64 is built from the bottom, each successive envelop being forced under the previous envelop.

The wick 35 may be of coarse fibrous material that will carry water freely, and the moistening-pad 41 may be of a firmer material that will hold the water and apply it to the gummed surface of the flap. The rollers 12, 48, and 54 should at least have a soft-rubber surface, so that they will stick to the envelops, as required to move the envelops along. The presser-bar 21 should have a soft-rubber surface to contact with the envelop, so that if two envelops should stick together and be fed backwardly by the roller 12 the rubber surface of the presser-bar 21 would retard the upper one of the two envelops and hold it back until the lower one passed out of its influence.

I claim—

1. In an envelop-sealing machine: a feed-roller; a stop above the feed-roller; a feed-table; and a gage; there being a flap-space between the end of the feed-table and the gage, so that the envelop-flaps may spring downwardly as they pass forwardly over the feed-roller; substantially as specified.

2. In an envelop-sealing machine: a feed-roller; a stop above the feed-roller; a feed-table; a gage; there being a flap-opening between the gage and the feed-table; and a presser-bar above and behind the feed-roller; substantially as specified.

3. In an envelop-sealing machine: a feeding mechanism adapted to receive a pile of envelops with their flaps downwardly and having an opening to allow the flap of the bottom envelop to swing downwardly; a guide-plate behind the feeding mechanism and providing a space for the flap to swing downwardly; flap-opening fingers extending forwardly from the guide-plate; means for moistening the flap as it passes under the flap-opening fingers; and means for closing the flap.

4. In an envelop-sealing machine: feeding mechanism; a guide-plate behind the feeding mechanism; flap-opening fingers extending forwardly from the guide-plate; said fingers being beveled downwardly and laterally; and a pivoted finger extending forwardly from the first-mentioned fingers to open the flap; substantially as specified.

5. In an envelop-sealing machine: a feed-board; a gage-plate at one side of the feed-board; a stop-board behind the feed-board; there being a passage under the stop-board; a soft-rubber feed-cylinder under the stop-board to engage the bottom one of the pile of envelops upon the feed-board; a presser-bar mounted behind the stop-board in position for the envelop to pass under the presser-bar; means of opening the flap; means of moistening the flap; and means of closing the flap.

6. In an envelop-sealing machine: means for moistening and closing the flap; a guide-board extending backwardly to receive the closed envelop; guideways extending upwardly from the guide-board; a jogging-plate

above the guide-board; pintles extending from the jogging-plate into the guideways; a shaft rotatably mounted below the guide-board, there being an opening through the guide-board above the shaft; and cross-arms mounted upon the shaft and extending through the opening to engage the closed envelop.

In testimony whereof I have signed my name to this specification in presence of two subscribing witnesses.

DANIEL GREEN SAUNDERS, JR.

Witnesses:

ALFRED A. EICKS,

EDW. M. HARRINGTON.