

Dec. 15, 1936.

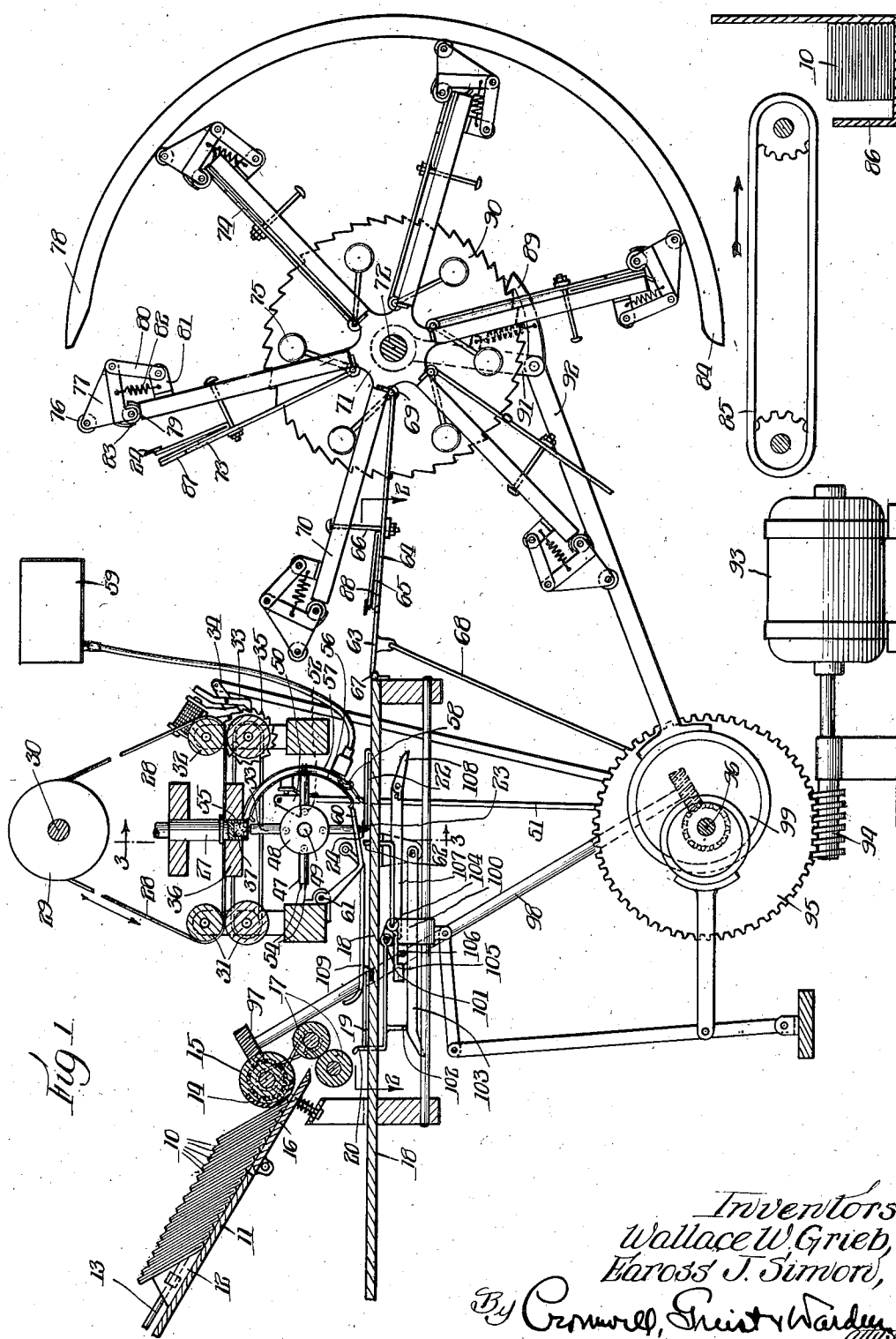
W. W. GRIEB ET AL

2,064,658

MACHINE FOR SEALING FOLDERS

Filed Dec. 18, 1933

4 Sheets-Sheet 1



Dec. 15, 1936.

W. W. GRIEB ET AL

2,064,658

MACHINE FOR SEALING FOLDERS

Filed Dec. 18, 1933

4 Sheets-Sheet 2

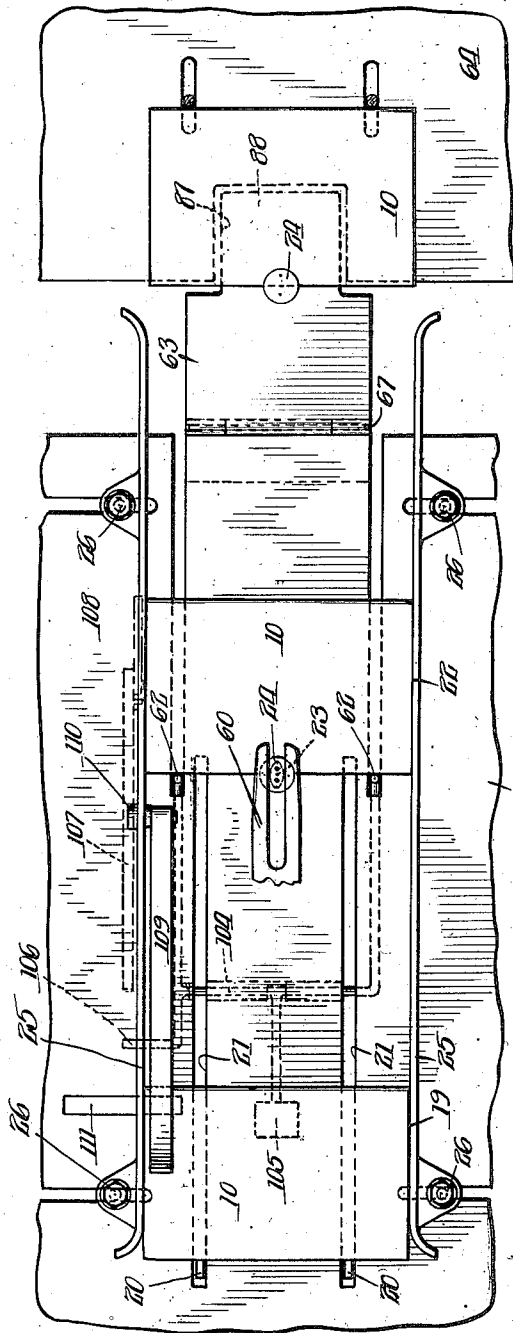


Fig. 2.

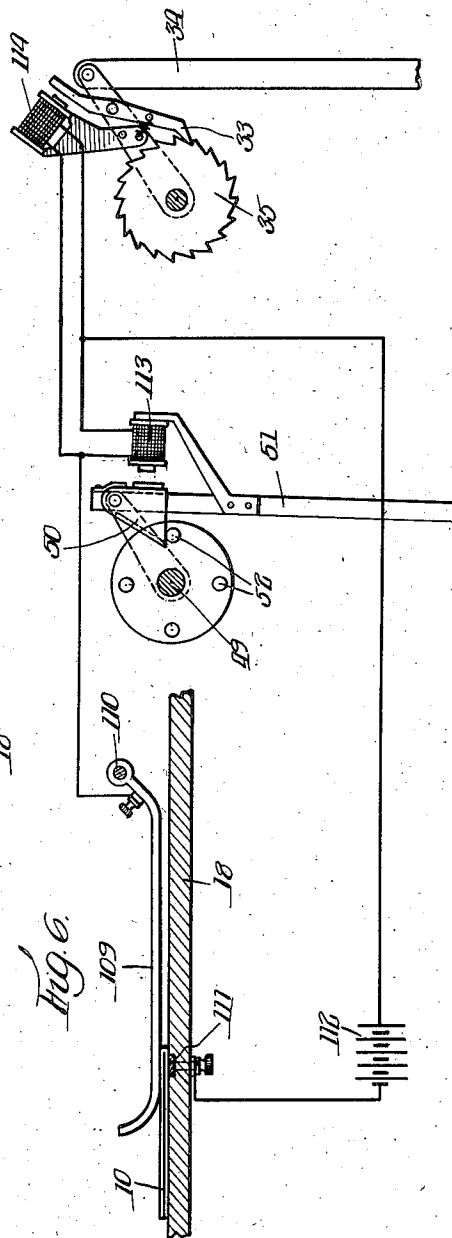


Fig. 6.

Inventors:
Wallace W. Grieb,
Harold J. Simon,
By Counsel, Shurt & Warden ms.

Dec. 15, 1936.

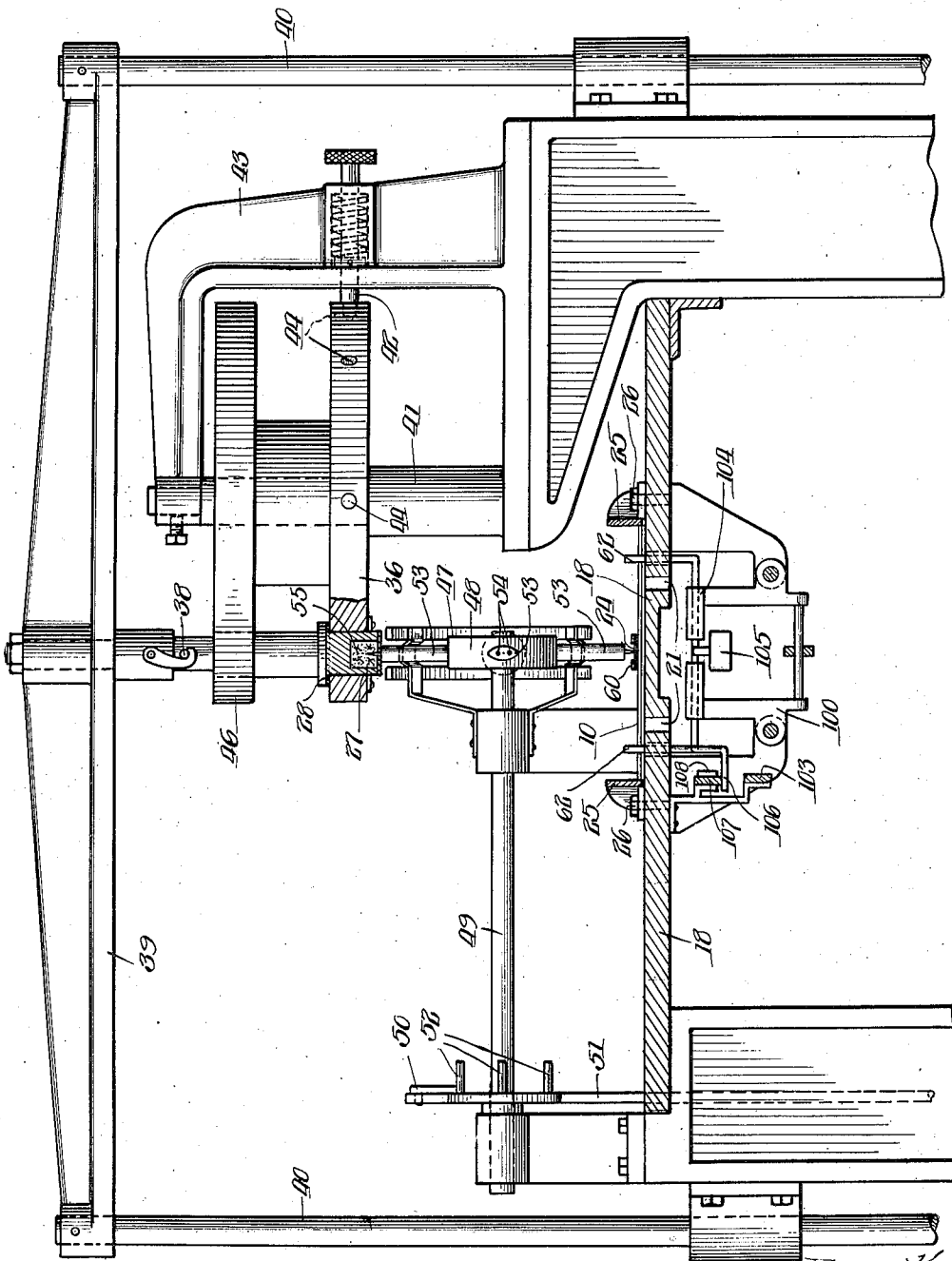
W. W. GRIEB ET AL

2,064,658

MACHINE FOR SEALING FOLDERS

Filed Dec. 18, 1933

4 Sheets-Sheet 3



Inventors:
Wallace W. Grieb,
Eaross J. Simon,
By Crommel, Priest & Warden atty.

Dec. 15, 1936.

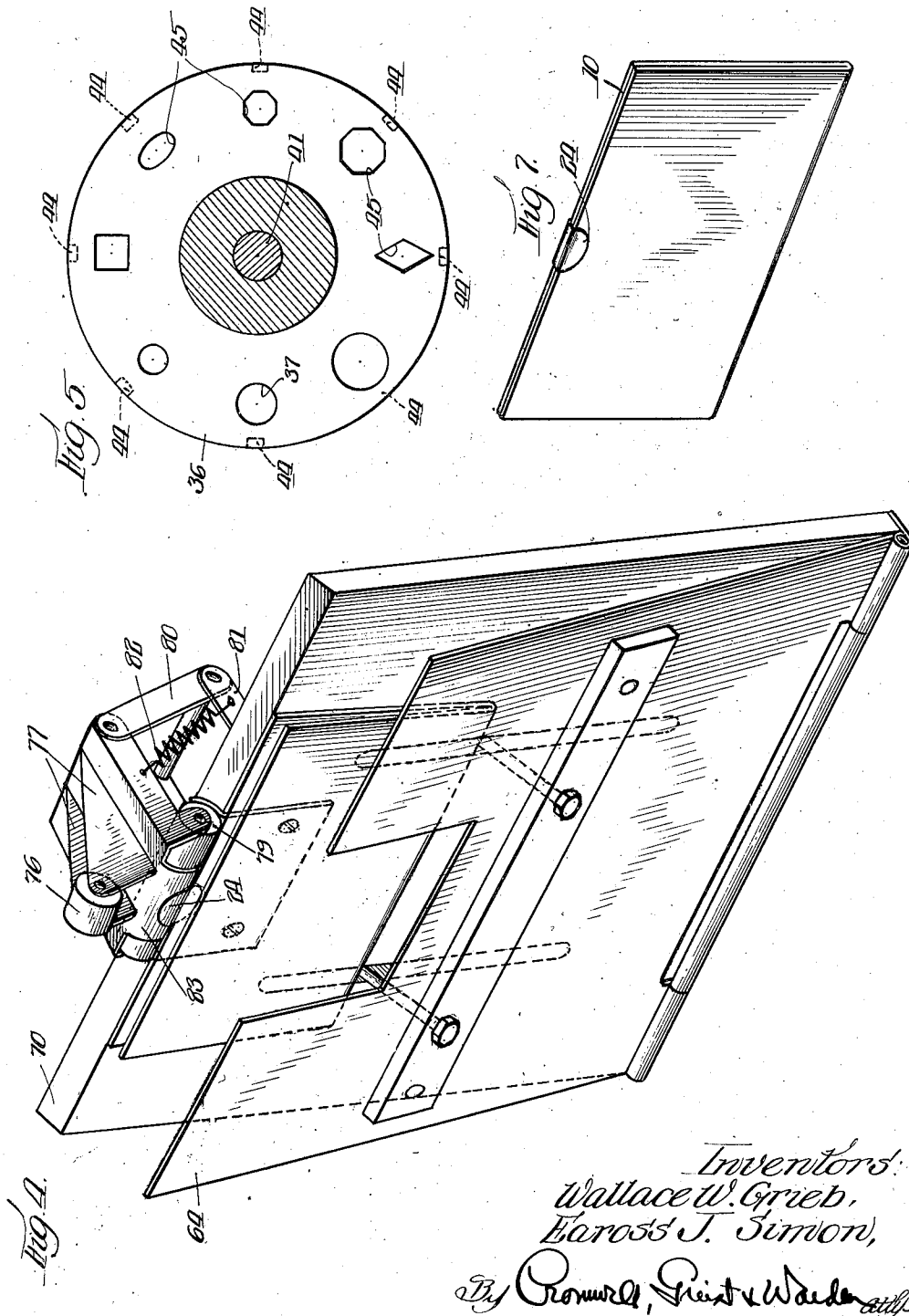
W. W. GRIEB ET AL

2,064,658

MACHINE FOR SEALING FOLDERS

Filed Dec. 18, 1933

4 Sheets-Sheet 4



UNITED STATES PATENT OFFICE

2,064,658

MACHINE FOR SEALING FOLDERS

Wallace W. Grieb, Downers Grove, and Eaross J. Simon, Chicago, Ill., assignors to Henry C. Scholz, West Pullman, Ill.

Application December 18, 1933, Serial No. 702,862

4 Claims. (Cl. 216—25)

This invention has to do with machines for automatically attaching gummed seals to paper folders in such a way as to fasten together the open edges of the latter, and is particularly concerned with certain hereinafter disclosed improvements which serve to greatly increase the efficiency of such machines.

The purpose of the present invention, generally stated, is to provide an improved folder sealing machine which is absolutely dependable in operation.

Other objects and advantages of the invention will be apparent to those skilled in the art upon a full understanding of the construction, arrangement and operation of the machine.

In order that the invention may be readily understood, one form of the same is presented herein for the purpose of exemplification, but it will of course be appreciated that the invention is capable of being embodied in other structurally modified forms coming equally within the contemplated scope of the appended claims.

In the accompanying drawings:

Fig. 1 is a longitudinal section through a machine constructed in accordance with the invention;

Fig. 2 is a fragmentary plan view of the bed of the machine over which the folders are caused to move, observed from approximately the line 2—2 of Fig. 1;

Fig. 3 is a vertical transverse section through the machine, taken on approximately the line 3—3 of Fig. 1;

Fig. 4 is a perspective view of one of the folder compartments;

Fig. 5 is a plan view of the die plate in which the seals are cut;

Fig. 6 is a schematic view showing the device for automatically stopping the feeding of the gummed tape to the die and the movement of the cut seals into fastening position upon the failure of a folder to be advanced to the seal attaching position; and

Fig. 7 is a perspective view of a folder, showing the manner in which the machine of the invention applies a seal to the open edges of the folder.

In the particular machine which is shown in the drawings by way of illustration, the folders 10 to which seals are to be applied are stacked in an inclined chute 11 with the open edges of the folders uppermost. The folders are urged downwardly in the chute by a weighted follower 12 which is slidably mounted upon laterally spaced guide rods 13, which rods may also serve as guides

for the side edges of the folders. In the operation of the machine, the lowermost folder 10 in the chute 11 is engaged frictionally by a segment 14 of rubber or other suitable material mounted in the otherwise smooth frictionless periphery of a rotating roller 15 and is moved by reason of such engagement down over the lower upwardly spring-pressed end 16 of the chute into a position between two more rapidly rotating rollers 17, which rollers thereupon deposit the folder on the bed 18 of the machine in the position 19. From the position 19 the folder 10 is slid along the table by two laterally spaced fingers 20 which project upwardly through slots 21 into engagement with the rear open edges of the folder. The fingers 20, which move first in one direction and then in the other longitudinally of the slots 21, leave the folder 10 in the position 22 on the bed, in readiness to have applied to the upper rear edge thereof at 23 a gummed seal 24. In being moved from the position 19 to the position 22, the folder 10 is prevented from shifting sidewise by a pair of properly spaced guide strips 25 which are adjustably attached to the bed 18 by bolts 26.

The seals which are applied to the folders are cut by a vertically reciprocating die 27 from a gummed tape 28 which feeds off of a spool 29 on a spindle 30 onto a similar spool (not shown) on the spindle 30 behind the spool 29. In approaching and leaving the die 27, the tape passes between a pair of feed rolls 31 and a second pair of feed rolls 32. One of the rolls 32 is intermittently rotated a portion of a revolution by an inwardly spring-pressed oscillating pawl 33 which is pivotally mounted on an operating arm 34 in one-way driving engagement with a ratchet wheel 35 connected to the roll, whereby to cause the tape 28 passing between the rolls to advance intermittently beneath the die 27 across the upper surface of a coating die plate 36, which plate has a suitably shaped aperture 37 therein for the reception of the die. The die 27 is detachably connected at 38 to a cross head 39 which is mounted on the upper ends of two laterally spaced vertically reciprocating rods 40. The die plate 36 is circular in shape and is pivoted at its center on an upright standard 41, being held against rotation on the standard by an outwardly spring-pressed indexing plunger 42 which is mounted in a stationary bracket 43 and projects into any one of a number of sockets 44 in the periphery of the plate. In addition to the aperture 37, the die plate is provided with a number of apertures 45 of different cross-sections.

tional configurations for the reception of correspondingly shaped dies when seals are desired which are different in shape or size from the circular ones shown in the drawings. To produce and apply a different seal, it is merely necessary to withdraw the indexing plunger 42, turn the die plate 36 to a position wherein an aperture of the desired shape is in vertical register with the die, and substitute a die corresponding in cross-sectional shape to that particular aperture, whereupon the machine is ready to cut and apply seals of a different shape. In reciprocating into and out of the aperture 37 of the die plate, the die 27 is guided in its movement by a plate 46 which is rigidly associated with the die plate above the latter. The plate 46 is provided with apertures in alignment with those in the plate 36, and the shank of the die is guided in the particular aperture in the plate 46 which is in register with the aperture in the plate 36 through which the die moves in cutting the seal from the tape. The seal 24, upon being cut by the die 27, is forced downwardly by the bottom of the die onto a carrier 47.

The carrier 47 consists of a hub 48 which is secured to a shaft 49, which shaft is intermittently rotated one-quarter of a revolution by means of a spring-pressed dog 50 which is pivoted to a vertically reciprocating rod 51 for hooked engagement with driving pins 52 associated with the shaft 49. Four spoke-like members 53 project radially from the hub 48 of the carrier and are provided at their ends with sets of two or more sharp pins 54. Upon each partial revolution of the carrier 47, one of the spokes 53 stops in an upright position directly beneath the aperture 37 in the die plate 36, and the die 27, upon passing downwardly through such aperture, impales the cut seal upon the pins 54, the upper ends of the pins entering a yieldable insert 55 of cork or other suitable material in the bottom of the die. When the die thereafter moves upwardly, the seal remains in a substantially horizontal position upon the pins 54, and, when the carrier 47 thereafter commences to rotate, the seal moves in a circular path between an inner pair of laterally spaced guide strips 56 which are curved concentrically with respect to the shaft and an outer pair of laterally spaced guide wires 57 which are also curved concentrically with respect to the shaft 49. The tape 28 is arranged with the gummed face thereof uppermost where it passes over the die plate 36, with the result that the seal is impaled on the pins 54 with the gummed face toward the guide wires 57. As the seal moves downwardly in an arc on the carrier 47, a brush 58, which is supplied with water from a container 59, moistens the gummed face of the seal, and, when the seal reaches a position directly beneath the spindle 49 of the carrier, after having traveled 180°, it is stripped off of the pins 54 by a thin spring presser foot 60 and implanted firmly on the rear upper open edge of the folder at 23. The foot 60 is pivotally mounted at 61 and is oscillated up and down in synchronism with the other moving parts of the machine, the resilient yieldability of the foot insuring sufficient pressure on the top of the seal regardless of small differences in the thickness of the folders being sealed.

After the seal 24 has been applied to the folder, with the latter in the position 22, the folder is engaged by a pair of laterally spaced fingers 62 and slid along the bed 18 across a bridge plate 63 onto a panel 64, where it comes to rest in the

position 65 against two laterally spaced gauge pins 66. During the movement of the folder from the position 22 to the position 65, the bridge plate 63, which is pivoted at 67 and is operated in proper synchronism by a rod 68, is momentarily raised into a horizontal position to span a gap present between the end of the bed 18 and the edge of the panel 64. The panel 64 is pivoted at 69 to another panel 70 which is rigidly mounted in a radial position on a hub 71 journaled on a shaft 72. In addition to the panels 64 and 70, the hub 71 carries several other correspondingly mounted sets of panels about its circumference, which panels move consecutively into positions with the lowermost panel 64 in horizontal alignment with the end of the bed 18 upon each partial revolution of the hub. The gauge pins 66 are adjustable with respect to the panels 64 and 70 in order to accommodate folders of different sizes, and are so set as to leave the rear open edges of each folder substantially even with the outer edge of the panel on which it rests.

After the folder has been deposited upon the panel 64, the bridge plate 63 is lowered by the rod 68 and the hub 71 is rotated one-sixth of a revolution in a clockwise direction, bringing the panel 64 into the position 73 and the next panel into the horizontal position previously occupied by the panel 64 in readiness to receive the next folder. Upon the next partial revolution of the hub 71, the panel 64 moves from the position 73 to the position 74. During the first part of such movement, a weight 75 connected with the panel 64 reaches a position wherein it overcomes the weight of the panel and swings the panel 64 closed against the panel 70 upon the interposed folder. Shortly after this occurs, a roller 76 which is mounted on a support 77 comes into contact with a curved cam rail 78 and moves the support 77 in such a way with respect to the end of the panel as to cause a roller 79 mounted on the inner side of the support to bend the projecting portion of the seal 24 reversely about the open edges of the folder, the roller support 77 being pivoted to a link 80 which is in turn pivoted to a bracket 81 on the panel 70 and being resiliently drawn toward the same during the bending operation by a spring 82. To preclude any possibility of the projecting portion of the seal curling under the roller, a small shield 83 is mounted on the support immediately in front of the roller 79 for straightening out the projecting portion of the seal should it tend to curl. The roller 79 effectively bends and rolls down the seal into firm engagement with the side of the folder which is opposite that to which the seal was applied by the presser foot 60, and serves to maintain the folded seal pressed against the opposite sides of the folder from the time that the roller 76 comes into engagement with the cam rail 78 until the time, three sealing operations later, when the roller leaves the cam rail at 84. As soon as the roller 76 rides free of the cam rail, the panel 64 separates from the panel 70 under the action of the weight 75 and allows the folder with the then dried seal thereon to drop out onto a moving conveyor 85, which conveyor thereafter deposits the sealed folder in a suitable receptacle 86. In order to bend and roll down the seal in the manner above described, the panel 64 is notched at 87 so as not to obstruct the movement of the roller 79, and the bridge plate 63 is preferably provided with an extending tongue 88 which occupies the notch

when the bridge plate is raised into alignment therewith. The hub 71 is rotated by means of an inwardly spring-pressed pawl 89 which engages within teeth in a ratchet disk 90 secured to the hub. The pawl 89 is pivoted to the outer end of a lever 91 which is pivoted to the shaft 72, and the outer end of the lever 91 is in turn pivoted to an operating rod 92.

The several moving parts of the machine may be operated from a motor 93. The motor may be provided with a worm 94 which meshes with a worm gear 95 on a shaft 96, from which shaft all of the parts may be operated. The only continuously moving parts are the rolls 15 and 17, which may be operated by worm gears 97 on the ends of a connecting shaft 98. The remaining parts are all designed for intermittent movement and the operating rods for the same may be connected with the shaft 96 by eccentrics 99.

In the operation of the machine it will be understood that the fingers 20 move the folders from the position 19 to the position 22, while the fingers 62 thereafter move the same folders from the position 22 to the position 65. In returning to their initial positions, the fingers 20 and 62 must move beneath the level of the bed 18 to prevent displacement of the folders on the bed. To accomplish this, the fingers 20 are pivoted to a reciprocating frame 100 at 101, and are provided with a projection 102 which moves to the right over a pivoted cam rail 103, drops down at the end of the rail and returns to the left under the rail. The projection 102 cams up onto the rail 103 again at the commencement of the next feeding movement. The fingers 62 are pivoted to the same reciprocating frame at 104, and are provided with a counterweight 105 and a projection 106, the latter cooperating with a stationary cam rail 107 having an upwardly yieldable end portion 108. When the fingers 62 are shifted to the right, the projection 106 travels beneath the rail 107 and rides under the downwardly inclined end portion 108 on one end of the rail, and, when the fingers 62 start their return movement, the projection 106 is cammed upwardly by the front beveled edge of the end portion 108, thereby raising the weight 105 and lowering the fingers 62 below the level of the bed.

In order to stop the cutting of the seals by the die 27 and the advancement and moistening of the cut seals by the carrier 47 in the event the feed of the folders is discontinued for any reason, an automatic stopping device is pro-

vided. The device consists of a blade 109 which is pivotally mounted above the bed at 110. As long as there is a folder on the bed, either in the position 19 or in any intermediate position between 19 and 22, such folder will hold the blade 109 up off of the bed 18 and prevent the blade from coming into electrical contact with a terminal 111 located flush with the surface of the bed. Should the blade 109 move into contact with the terminal 111 by reason of the absence of a folder on the bed, the electrical circuit of a battery 112 or other source of current will be closed through two solenoids 113 and 114 and the cores of such solenoids will withdraw the previously described pawl 33 and dog 50 into inoperative positions, wherein the pawl and dog will not function to rotate the tape feeding roll 32 and the carrier moving spindle 49 notwithstanding the continued reciprocating movement of the rods operating such members. As soon as a folder is fed into the position 19, however, the circuits of the solenoids 113 and 114 will be broken and the pawl 33 and dog 50 will proceed to function in the regular way.

We claim:

1. In a folder sealing machine, means for intermittently feeding a gummed tape, a die plate over which the tape is fed, a reciprocating die for cutting seals from the tape through the plate, and a carrier beneath the die plate having upwardly projecting sharp points on which the seal after being cut is impaled by the die.

2. In a folder sealing machine, a die for cutting a gummed seal, a carrier having a sharp point on which the cut seal is impaled, and guides between which the seal is moved by the carrier in a flat condition from the die to a point near the point of application.

3. In a folder sealing machine, a die for cutting a gummed seal, a carrier having one or more sharp points on which the cut seal is impaled, guides between which the seal is moved by the carrier from the die to a point near the place of application, and means for moistening the gummed face of the seal during such movement.

4. In a folder sealing machine, a die for cutting a gummed seal, a rotary carrier having radially projecting points on which the cut seal is impaled, and curved guides between which the seal is moved by the carrier from the die to a point near the point of application of the seal.

WALLACE W. GRIEB.
EAROSS J. SIMON.