Oct. 22, 1929. P. F. MURPHY 1,732,908

MACHINE FOR APPLYING PASTERS TO FOLDERS AND THE LIKE

Filed Dec. 26, 1925 4 Sheets-Sheet 1

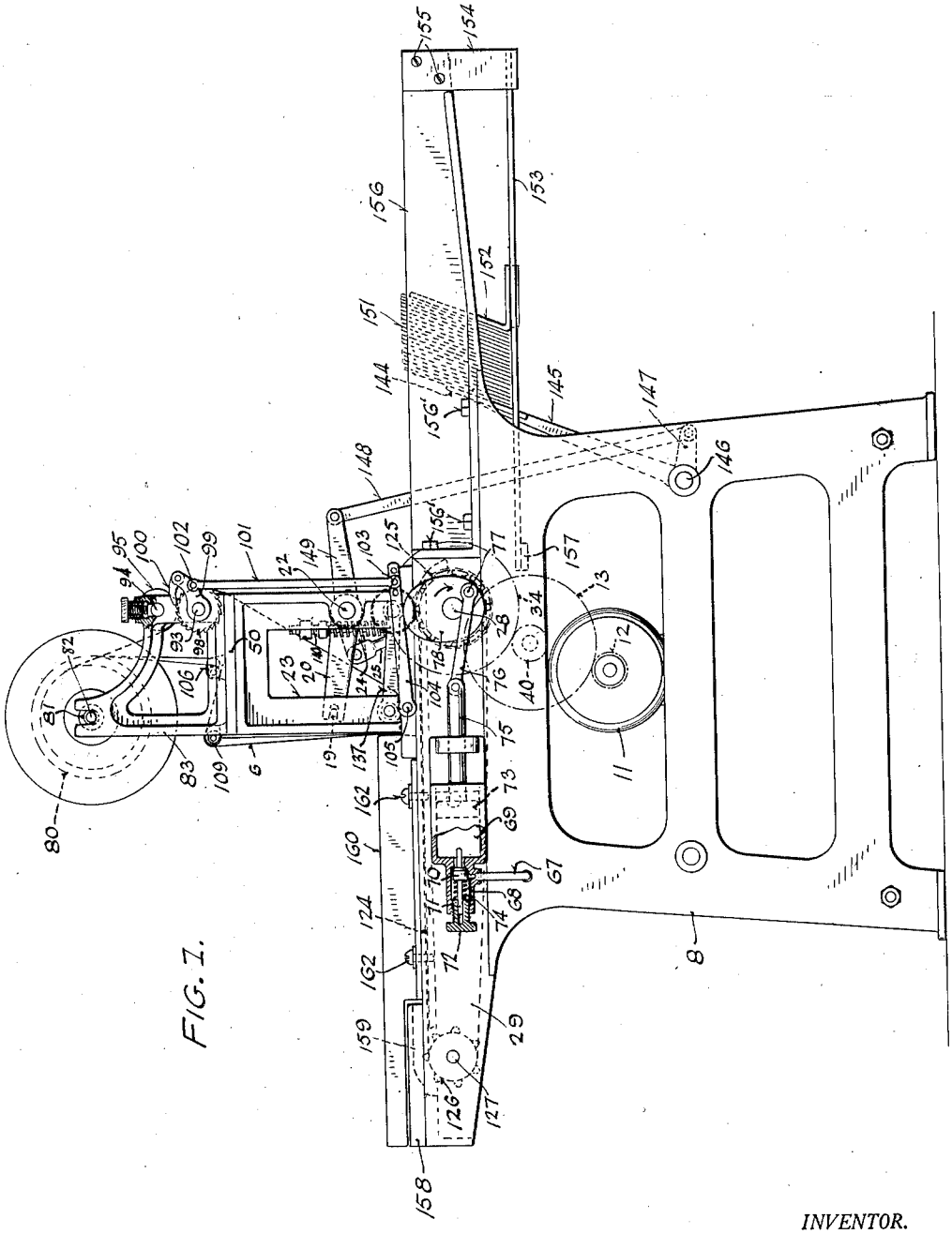


FIG. 1.

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Filed Dec. 26, 1925 4 Sheets-Sheet 2

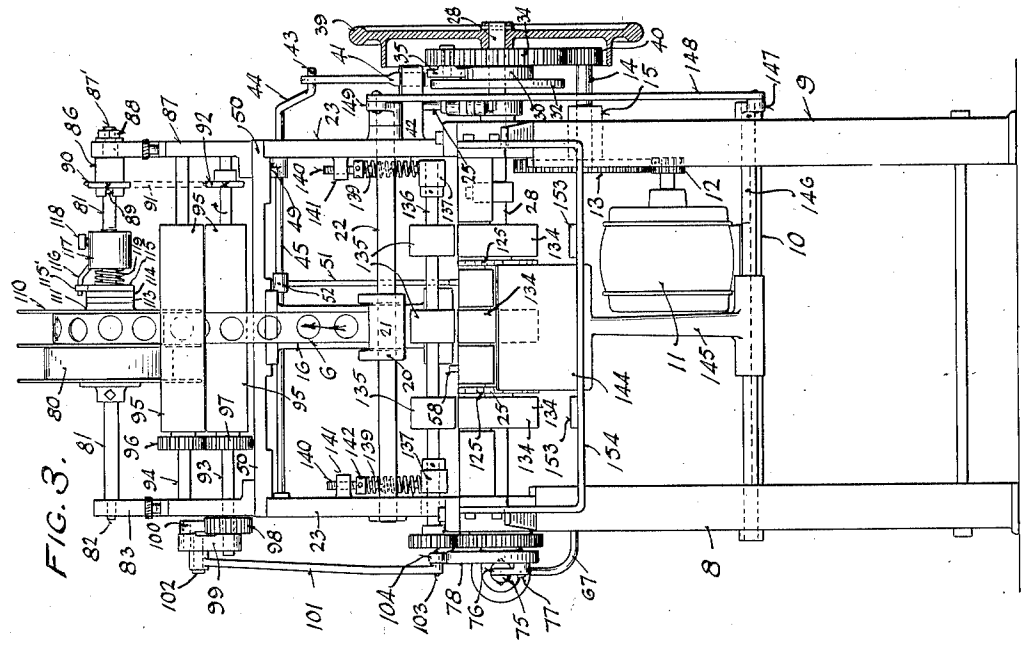


FIG. 3.

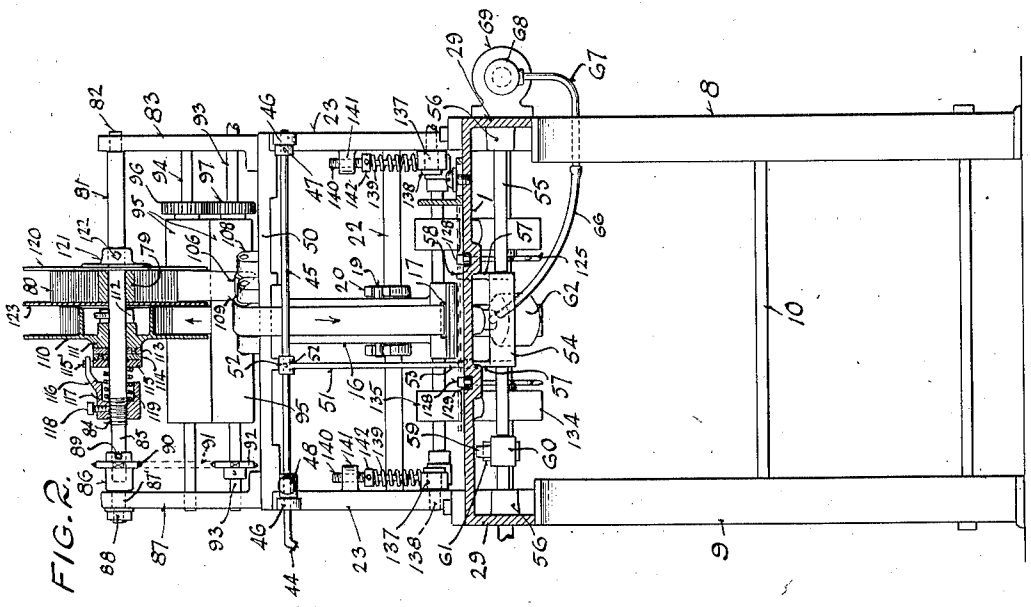


FIG. 2.

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MACHINE FOR APPLYING PASTERS TO FOLDERS AND THE LIKE

Filed Dec. 26, 1925 4 Sheets-Sheet 3

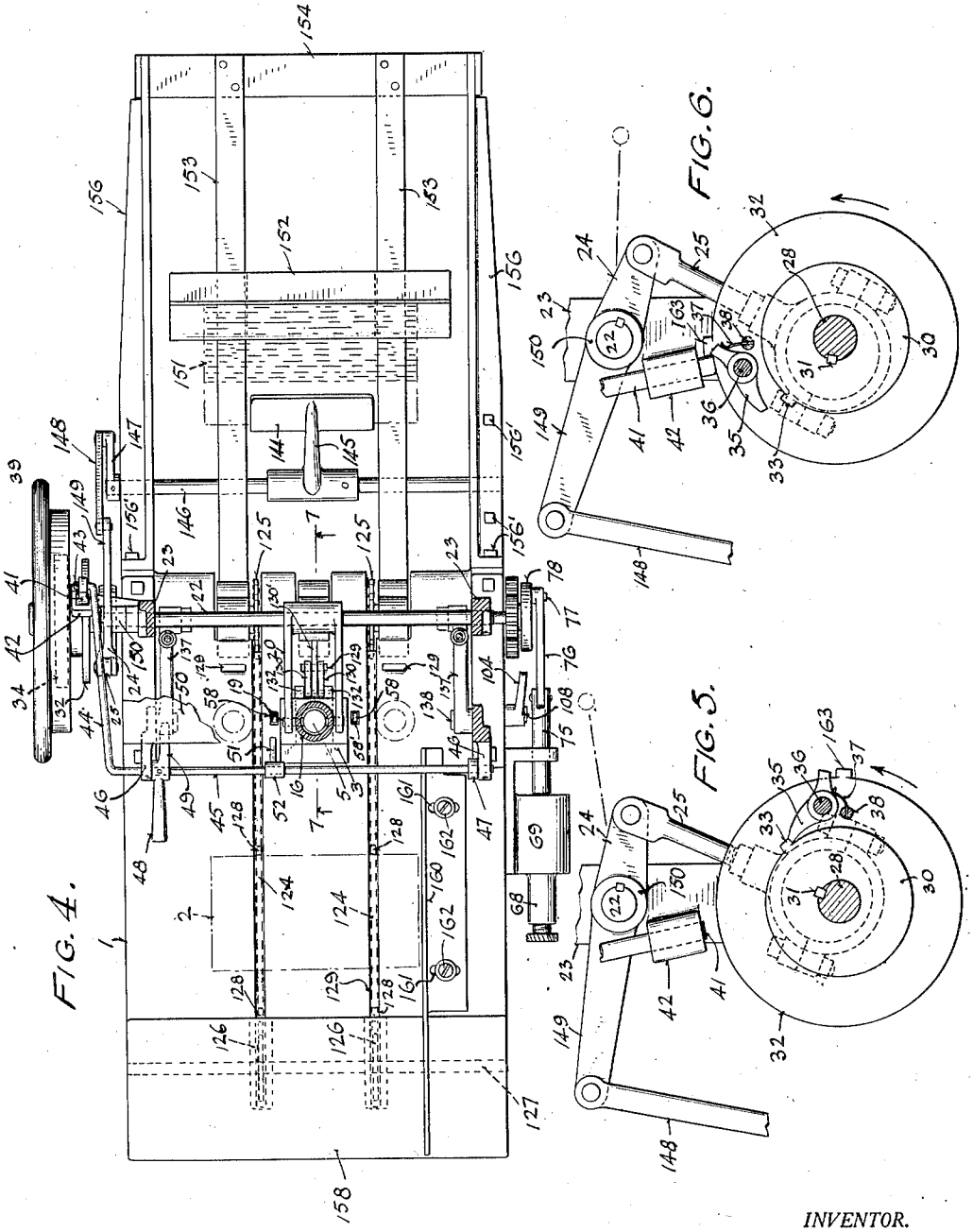


FIG. 4.

FIG. 6.

FIG. 5.

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MACHINE FOR APPLYING PASTERS TO FOLDERS AND THE LIKE

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FIG. 7.

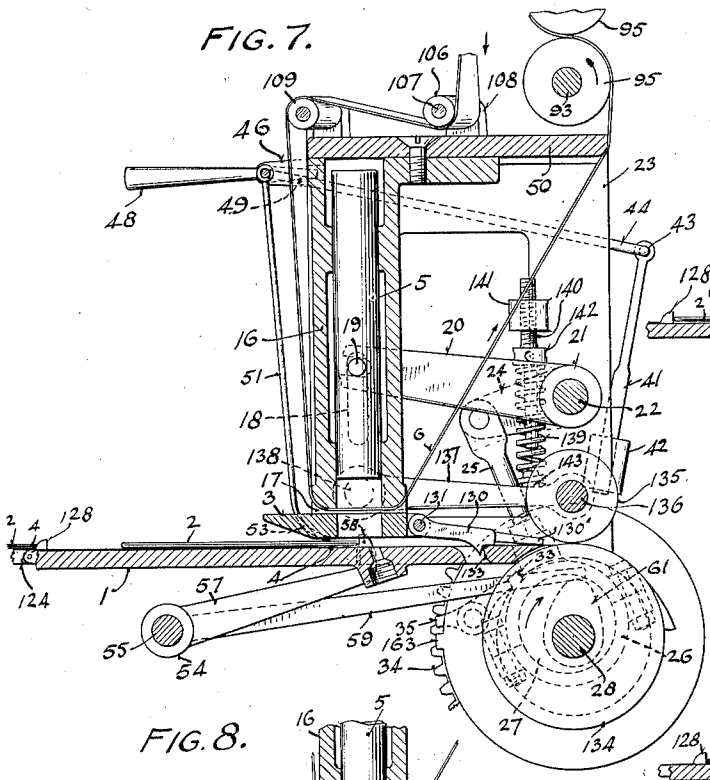


FIG. 10.

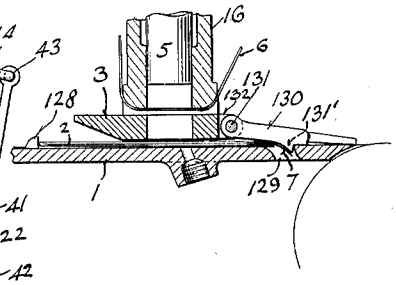


FIG. 11.

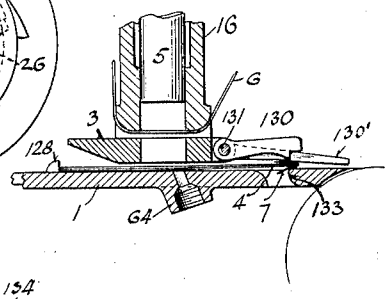


FIG. 8.

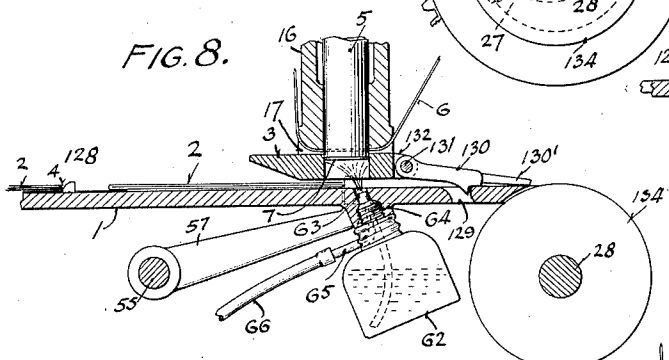


FIG. 12.

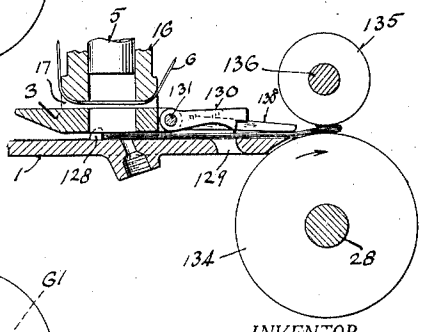
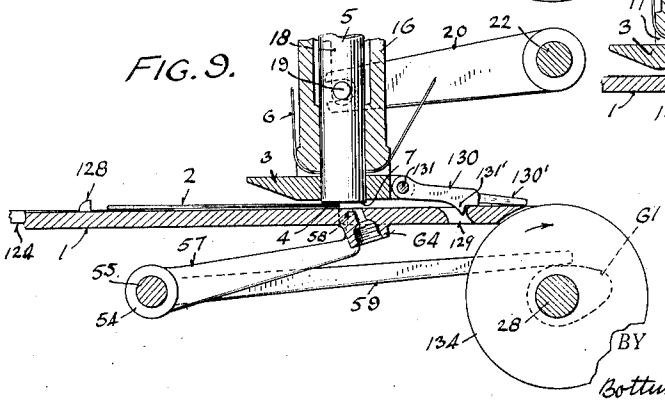


FIG. 9.



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Patented Oct. 22, 1929 1,732,908

UNITED STATES PATENT OFFICE

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MACHINE FOR APPLYING PASTERS TO FOLDERS AND THE LIKE

Application filed December 26, 1925. Serial No. 77,804.

This invention relates to improvements in sealing machines, and more particularly to sealing machines of the type adapted primarily for applying seals to folders, circulars, pamphlets, catalogs and the like, although as will hereinafter appear the present invention is not limited in its usefulness to sealing operations in a strict sense, but is of much broader adaptation and may be used in applying or affixing labels, stamps, stickers or the like to articles of various kinds and for various and sundry purposes.

One object of the present invention is to provide a machine of the character described which shall include a single means for both cutting a seal or sticker from a strip of sealing material and applying the same to one side of the article to be sealed.

Another object is to provide in a sealing machine means for cutting a seal from a strip of sealing material and applying a portion thereof to one side of a folder, together with means for folding the remaining portion of the seal over the edge of the folder and applying the same to the other side thereof.

Other objects and advantages relates to the control of the machine, the feeding of the articles through the machine, the disposition of the unused portion of the sealing strip, the moistening of the sealing strip and to the various other cooperating mechanisms and instrumentalities employed for accomplishing the many improved results hereinafter more fully pointed out.

The invention will now be described more in detail by reference to the accompanying drawings wherein one embodiment thereof is illustrated.

In the drawings:

Figure 1 is a side elevation, partly in section, of the machine;

Fig. 2 is an end elevation, partly broken away and looking toward the right in Fig. 1, some of the parts being removed;

Fig. 3 is a view similar to Fig. 2, looking toward the left in Fig. 1;

Fig. 4 is a plan view, partly in section, some of the parts being broken away;

Figs. 5 and 6 are detail fragmentary views of the clutch for connecting and disconnecting the actuating mechanism for the various parts of the machine to and from the drive shaft therefor;

Fig. 7 is an enlarged sectional view taken on line 7—7 of Fig. 4; and

Figs. 8 to 12 are views similar to Fig. 7, showing different positions of the mechanism for cutting the seals from the strip and applying the same to the folders.

Referring more particularly to Fig. 7, the machine in the embodiment illustrated comprises, in general, a table 1, a die 3 supported in spaced relation with respect to the base to permit of the folders passing between the die and said table, as shown, a punch 5 supported for relative movement toward and away from table 1, and a gummed strip of sealing material 6 arranged between the punch and die, the punch being adapted upon a single stroke thereof toward base 1 to cooperate with die 3 to punch or cut out a seal 7 from strip 6, as shown in Fig. 8, and to apply a portion thereof to the upper side of the folder, as shown in Fig. 9, and means for folding the remaining portion of the seal over the edge of the folder and applying the same to the other side thereof to thus seal the same.

The table 1 may be supported by and secured to the upper ends of side frame members 8 and 9 of any suitable construction, a cross member 10 being arranged transversely of and secured to frame members 8 and 9 to support an electric motor or other suitable means 11 connected by means of gears 12 and 13 to the common drive shaft 14 for the actuating mechanism hereinafter described for the various parts of the machine, shaft 14 being journaled in a bearing 15 which may be cast integrally with side frame member 9.

The construction of die 3 and the actuating mechanism for effecting reciprocating movement of punch 5 toward and away from table 1 will now be described. Die 3 is provided with a vertical hollow shank 16 which punch 5 loosely fits, the shank being provided with slots 17 at the lower end thereof through which sealing strip 6 passes and with vertical slots 18 through which the ends of pin 19 pass, the pin extending through punch 5 and providing a connection between

the latter and the punch yoke 20. The punch yoke is provided with a hub 21 fixed to a shaft 22 journaled in uprights 23 secured to table 1, the free ends of the arms comprising the punch yoke being bifurcated to receive the ends of pin 19, as shown in Figs. 4 and 7. Oscillation of shaft 22 to cause vertical reciprocatory movement of punch 5 toward and away from table 1 is effected by means of an arm 24 fixed to shaft 22 and pivotally connected to a connecting rod 25 secured to a collar 26 mounted upon an eccentric 27 fixed to a shaft 28 journaled in the downwardly extending flanges 29 of table 1. Referring to Figs. 3, 5 and 6, one end of shaft 28 is extended beyond frame member 9 and provided with a disc wheel 30 fixed thereto by any suitable means such as a key 31 and provided with a circular rim or flange 32 and a lug 33. A gear wheel 34 is loosely mounted upon this end of shaft 28 and is provided with a dog 35 loosely mounted on a pin 36 fixed in the gear 34, dog 35 being arranged to engage lug 33, as shown in Fig. 5, and being urged in a counter-clockwise direction to engage the lug by means of a spring 37 engaging one end of the dog and being secured to a pin 38 fixed in gear 34. A hand wheel 39 is fixed to shaft 28 and is arranged as shown in Fig. 3 to hold gear wheel 34 against outward axial movement with respect to the shaft. Gear wheel 34 meshes with a smaller gear wheel 40 fixed to the end of drive shaft 14. From the foregoing it will be seen that spring 37 holds dog 35 in engagement with lug 33 so that wheel 30 which is fixed to shaft 28 will be connected to gear wheel 34 for rotation therewith, and that upon tripping of dog 35 out of engaging relation with lug 33, shaft 28 will be disconnected from motor 11 since gear wheel 34 is loosely mounted upon shaft 28, as explained above.

The means for tripping dog 35 out of engaging relation with lug 33 may comprise a latch 41 extending loosely through a guide 42 formed integrally with upright 23 and provided at its upper end with an opening through which the end 43 of a rod 44 loosely extends, the portion 45 of rod 44 being bent at substantially a right angle with respect thereto, as shown in Fig. 4, and journaled in suitable brackets 46 which may be formed integrally with upright members 23, a collar 47 and handle 48 being fixed on portion 45 of the rod and arranged against brackets 46, as shown, to prevent axial shifting of the rod. Upon downward movement of handle 48, end 43 of rod 44 will be raised to lift latch 41 to the position thereof shown in Fig. 5, in which position the latch is out of operative relation with dog 35 to permit engagement of the latter with lug 33 whereby the actuating mechanism for punch 5 is operatively connected to drive shaft 14. The handle 48 may be provided with an extended portion 49 arranged to engage the underside of the plate 50 arranged transversely of the machine and secured to the upper ends of uprights 23, the extended portion 49 acting to limit downward movement of handle 48 when latch 41 has been moved to inoperative position. Upon release of handle 48, latch 41 will drop by its own weight to the position shown in Fig. 6, in which position it engages dog 35 and causes rotation thereof in a clockwise direction against the action of spring 37 whereby the dog is moved out of engaging relation with lug 33 as it passes the latter to prevent rotation of wheel 30 with gear wheel 34, gear wheel 34 being rotated in the direction of the arrows in Figs. 5 and 6. An arm 51 is provided with a hub 52 fixed to portion 45 of rod 44 and extends downwardly below the plane of movement of folder 2, the lower end 53 of the arm being curved forwardly for engagement by the free edges 4 of the folder as the latter is moved forwardly and inserted between table 1 and die 3, whereby the arm is swung forwardly, as shown in Fig. 7, and portion 45 of rod 44 rotated in a counter-clockwise direction to lift latch 41 out of engaging relation with dog 35 to permit engagement of the latter with lug 33 whereby the actuating mechanism for punch 5 is operatively connected to drive shaft 14. After the seal has been applied to the free edges 4 of folder 2 and the latter moved forwardly from engaging relation with end 53 of arm 51, latch 41 drops by its own weight to engage dog 35 and disconnect the actuating mechanism for punch 5 from drive shaft 14, in which position of the latch arm 51 is in a vertical position. By means of arm 51, therefore, and engagement therewith by the free edges 4 of folder 2 upon insertion of the latter between table 1 and die 3, connection of the actuating mechanism for punch 5 is only effected when a folder is in position between table 1 and die 3, as shown in Fig. 7, the actuating mechanism for the punch being disconnected at all other times from drive shaft 14.

A collar 54 is fixed to a shaft 55 arranged transversely of the machine and having its ends journaled in bosses 56 which may be cast integrally with the downwardly extending flanges 29 of table 1, collar 54 being provided with arms 57 formed integrally therewith and having their free ends 58 extending upwardly and arranged to pass through suitable openings 58′ in table 1 in position to be engaged by the free edges 4 of folder 2 when these edges have been moved to a position below the left half of the end of punch 5, as shown in Fig. 7. An arm 59 is provided with a collar 60 also fixed to shaft 55, the free end of arm 59 resting upon a cam 61 fixed to shaft 28. The cam 61 is adapted to oscillate shaft 55 in such manner that the

ends 58 of arms 57 extend above base 1 during the latter portion of the upward movement of punch 5 and throughout the downward movement thereof until the punch has applied seal 7 to the article, as shown in Fig. 9. At this time, however, the lower side of cam 61 comes into engagement with the free end of arm 59, to permit rotation of shaft 55 in a clockwise direction to withdraw the ends 58 of arm 57 below the upper surface of table 1 to permit forward movement of folder 2 in the manner hereinafter explained, the free end of arm 59 being held in engagement with cam 61 by the weight of the arm. Cam 61 is so shaped that the high side thereof does not engage arm 59 to cause movement of ends 58 of arms 57 above table 1 until folder 2 has been moved forward to the right to a position beyond openings 58′ in base 1 through which ends 58 pass, these ends then being moved into position above table 1, as shown in Fig. 7, to act as a stop for the free edges of the next folder whereby the free edges of the latter are positioned in proper operative relation with respect to die 3 and punch 5.

The means for moistening the seal 7 before the left half thereof is applied to the upper free edge of the folder will now be described. An atomizer of any well-known type comprising a liquid reservoir 62, and a nozzle 63 directed upwardly toward the gummed underside of seal 7 is secured in position, as shown in Fig. 8, the nozzle being screwed into a boss 64 cast integrally with table 1. The air nozzle 65 of the atomizer is connected by means of a flexible tube 66 and pipe 67 to a chamber 68 communicating with the cylinder 69 through a passage controlled by the valve 70, the valve being provided with a stem 71 extending loosely into a cap 72 screwed into and closing one end of chamber 68. The stem 71 extends through valve 70 and into cylinder 69 for engagement by piston 73. A coil spring 74 is arranged upon stem 71 between cap 72 and valve 70 to urge the latter upon its seat to close the passage between chamber 68 and cylinder 69. The piston rod 75 is connected by means of a rod 76 to a crank pin 77 fixed to a cam 78 which is keyed or otherwise fixed to shaft 28 for rotation therewith, the shaft being rotated by means of motor 11 in the direction of the arrow shown in Fig. 1. Crank pin 77 is so arranged that piston 73 is moved to the left and the air in cylinder 69 compressed during the downward vertical movement of punch 5 until the latter engages the gummed strip 6 to punch or cut out seal 7 therefrom, at which time piston 73 engages stem 71 of the valve and opens the latter against the action of spring 74 to admit compressed air to air nozzle 65 and thus cause a spray of the liquid in reservoir 62 to be directed against the gummed underside of seal 7, as shown in Fig. 8, before the left half thereof is applied to the upper free edge 4 of the folder upon further downward movement of punch 5 to the position thereof shown in Fig. 9. During the upward stroke of punch 5, piston 73 completes its return stroke to the right, valve 70 closing under the action of spring 74 upon disengagement of the piston from stem 71.

The mechanism for effecting intermittent movement of gummed strip 6 through slots 17 to bring an uncut or unpunched part of the strip in position between die 3 and punch 5 during upward vertical movement of punch 5 and after the lower end thereof has been withdrawn from die 3, will now be described. The gummed strip 6 is wound upon a spool 79 to form a roll 80, the spool being loosely mounted on a shaft 81 having a reduced end 82 which fits loosely in the bifurcated upper end of a bracket 83 secured to member 50. The other end of shaft 81 is provided with a threaded portion 84 and a reduced portion 85 extending into a cup-shaped member or socket 86 provided with a stub 87′ extending loosely through an opening in the upper end of a bracket 87 also secured to member 50, a nut 88 being threaded upon the end of stub 87′ to hold socket 86 in position and to permit rotation thereof. The edge of socket 86 is provided with diametrically arranged notches to receive the ends of a pin 89 which passes through shaft 81 whereby the shaft is fixed to socket 86 for rotation therewith. A sprocket wheel 90 fixed upon or formed integrally with member 86 is connected by means of a chain 91 to a second sprocket wheel 92 fixed to the shaft 93 having its ends journaled in brackets 83 and 87. A shaft 94 is arranged parallel to shaft 93 and has its ends also journaled in brackets 83 and 87, shafts 93 and 94 being provided with rollers 95 fixed thereto and arranged in close engagement with each other. A gear wheel 96 is fixed upon shaft 94 and arranged in mesh with a similar gear wheel 97 fixed upon shaft 93, one end of the latter being extended beyond bracket 83 and having a ratchet wheel 98 fixed thereto. An arm 99 is loosely mounted on the extended end of shaft 93 and carries at its free end a pawl 100 arranged to engage with the teeth of ratchet wheel 98 upon upward movement of a rod 101 pivotally connected at 102 to arm 99 whereby rotation of rollers 95 and shaft 81 is effected. Arm 99 may be held against outward axial movement along shaft 93 in any suitable manner such as by riveting over the extended end of the shaft or passing a cotter pin therethrough. The lower end of rod 101 is pivotally connected at 103 to a lever 104 pivotally mounted on a pin 105 fixed in the base of one of the upright frame members 23, lever 104 being arranged in engagement with cam 78, as shown in Fig. 1, the cam being adapted to effect upward movement of bar 101 and rotation of

ratchet wheel 98 and shafts 93 and 81 in a counter-clockwise direction during upward vertical movement of punch 5 and after the lower end of the latter has been withdrawn from die 3. Referring more particularly to Figs. 2, 3 and 7, the end of gummed strip 6 is passed under a roller 106 loosely mounted on a pin 107 fixed to a bracket 108 which may be cast integrally with member 50, over a similar roller 109 and down along the front side of shank 16 and through slots 17, upwardly over the rear edge of member 50 and between rollers 95, and is then secured in any suitable manner to a reel 110 provided with a hub 111 loosely mounted on shaft 81. A collar 112 is fixed to shaft 81 by means of a pin as shown in Fig. 2, and arranged against hub 111 of reel 110 to prevent axial movement of the latter to the right along shaft 81. The means for connecting reel 110 to shaft 81 for rotation therewith may comprise friction discs 113 and 114 loosely arranged on the shaft, disc 113 being fixed in any suitable manner to hub 111 of the reel for rotation therewith and disc 114 being secured in any suitable manner to a disc 115 also loosely mounted on shaft 81 and provided with a lug 115′ which is engaged by a finger 116 cast integrally with a collar 117 threaded upon the threaded portion 84 of the shaft for axial adjustment along the same and held in adjusted position by means of a set screw 118, collar 117 being provided with a recess at one end thereof to receive a coil spring 119 arranged on shaft 81 between the collar and disc 115, as shown. Upon upward movement of rod 101 to effect rotation of shaft 93 in the direction of the arrow in Fig. 3 during the latter part of the upward movement of punch 5 and the first part of the downward movement of the latter, the lower roller 95 will be rotated with shaft 93 and the upper roller 95 will be rotated in the opposite direction with respect to the lower roller to pull a portion of strip 6 through slots 17 in the direction of the arrows shown in Figs. 3 and 7, shaft 81 being rotated in the same direction as shaft 93 by means of sprocket wheels 90 and 92 and chain 91. Reel 110 is thereby rotated to wind up the cut out portion of strip 6, rolls 95 being rotated by the upward movement of rod 101 an amount just sufficient to pull a portion of strip 6 through slots 17 which is slightly greater in length than the diameter of punch 5 so that a small amount of the strip will remain between the openings therein caused by punch 5, as shown in Fig. 3. An equal portion of the unpunched strip is unwound from roll 80 as the strip is pulled through slots 17 upon rotation of rollers 95. Shafts 81 and 93 rotate at the same rate since sprocket wheels 90 and 92 are equal in diameter and are provided with the same number of teeth. There will be a difference, however, between the displacement at the periphery of the roll of punched out strip being wound upon reel 110 and the length of the portion of the strip which is pulled between rollers 95 and which is always the same, this difference increasing as the punched out strip accumulates upon reel 110. As shaft 81 rotates, therefore, there will be a corresponding slippage between friction discs 113 and 114 to compensate for this difference between the portion of strip 6 pulled through rollers 95 and the portion of the strip which would otherwise be wound upon reel 110 and thereby break the strip if this frictional connection between shaft 81 and reel 110 were not provided. The frictional engagement between the adjacent faces of friction discs 113 and 114 may be adjusted by loosening set screw 118 and adjusting collar 117 along shaft 81 to compress spring 119 a greater or less amount. The roll 80 is held in position on shaft 81 by means of a disc 120 provided with a boss 121 fixed to shaft 81 by means of a set screw 122 and a similar disc 123 loosely mounted on the shaft and arranged between the roll and reel 110. When roll 80 has been consumed, the reduced end 82 of shaft 81 is lifted upwardly out of its bearing in the bifurcated end of bracket 83 and the opposite end of the shaft slipped out of engagement with socket member 86. Set screw 122 is then loosened and discs 120 and 123 and spool 79 removed from the shaft. The roll of the punched out strip is also removed from reel 110. It will, therefore, be seen that shaft 81 may be readily removed to permit removal of the roll of the punched out strip and the placing in position of a new roll.

The mechanism for folding over the right half of paster 7 and applying the same to the lower free edge 4 of folder 2 and for removing the folder from the machine will now be described. Sprocket chains 124 are arranged upon sprocket wheels 125 fixed to shaft 28 for rotation therewith and sprocket wheels 126 which may be loosely mounted on a shaft 127 arranged transversely of the machine and having its ends supported in the downwardly extending flanges 29 of base 1, the chains being provided with outwardly extending spaced lugs 128 arranged to extend above base 1 and to travel along slots 129 therein. Lugs 128 are so arranged and sprocket wheels 125 and 126 are of such diameter that when the operator places the free edges 4 of a folder against the front sides of lugs 128 and moves the folder forwardly with the lugs until the free edges 4 of the folder engage the upwardly extending ends 58 of arms 57, the adjacent lugs 128 will not engage the front or folded edge of the folder until punch 5 has completed its downward stroke to cut out seal 7 and apply the left half thereof to the upper free edge 4, but will engage the folded edge of the folder just after punch 5 starts its upward stroke. Folder

2 will then be moved forward to the right by lugs 128, and the right half of seal 7 bent downwardly into an opening 129 in table 1 by means of members 130 loosely mounted on a pin 131 fixed to lugs 132 which may be formed integrally with die 3, the free ends of members 130 extending over opening 129 and being provided with cam portions 131′ arranged to deflect the right half of seal 7 downwardly into opening 129, as shown in Fig. 10. Upon continued movement to the right of folder 2 by lugs 128 to the position shown in Fig. 11, the free edges 4 of the folder will swing members 130 upwardly, as shown, so that the right half of seal 7 is folded over upon the lower free edge 4 by its coaction with the edge 133 of opening 129, the free edges of the folder having sufficient stiffness so that they are not deflected downwardly into opening 129 by members 130. Upon continued movement of the folder to the right by lugs 128, the free edges of the folder are inserted between rollers 134 fixed upon shaft 28 and rollers 135 fixed upon a shaft 136 having its ends loosely journaled in the free ends of arms 137 pivotally mounted on pins 138 fixed in uprights 23, rollers 135 being urged downwardly into close engagement with rollers 134 by means of coil springs 139 arranged upon rods 140 threaded into lugs 141 cast integrally with uprights 23 and provided with adjusting collars 142, the lower ends of springs 139 fitting over lugs 143 which may be formed integrally with arms 137. A finger 130′ may be loosely mounted on pin 131 between members 130 and extended beyond the free ends of the latter, as shown, to hold the free edges 4 of the folder down upon table 1 and to assist in guiding the folder into position between rollers 134 and 135. Rollers 134 and 135 press the free edges 4 and seal 7 applied thereto closely together whereby the paster is securely attached to the free edges of the folder to secure the latter together, the rollers then carrying the folder further toward the right until the latter drops in front of a blade 144 at the upper end of an arm 145 fixed to a shaft 146 suitably journaled in frame members 8 and 9. An arm 147 is fixed to shaft 146 and connected by means of a link 148 to an arm 149 cast integrally with a collar 150 fixed to shaft 22 and forming in effect a continuation of arm 24 which is also cast integrally with collar 150, as shown in Fig. 4. Arms 147 and 149 and link 148 connecting the same are so arranged as to cause a forward and return movement of blade 144 during movement of the other parts of the machine to apply a seal to one of the folders, blade 144 being in its extreme position to the left, as viewed in Fig. 1, when one of the folders drops from engagement with rollers 134 and 135, as explained above. Blade 144 is then moved to the right to the position thereof shown in Figs. 1 and 4, to move the folder which has just been operated upon to the front end of the pile 151. The right end of pile 151 is supported by means of a member 152 arranged across longitudinal tracks 153 and adapted to slide along the latter as the pile of folders 151 increases in dimension during operation of the machine, tracks 153 being secured at their opposite ends to a U-shaped member 154 secured by means of screws 155 to longitudinal members 156 and a suitable cross member 157 having its opposite ends secured to frame members 8 and 9, the longitudinal members 156 being secured to frame members 8 and 9 by means of bolts 156′.

A member 158 is arranged across table 1 at the front end thereof to provide a shelf upon which is placed the pile of folders which are to be run through the machine, the underside of member 158 being provided with a recess 159 to accommodate lugs 128 with which sprocket chains 124 are provided. A guide member 160 is arranged longitudinally upon base 1 and provided with transverse slots 161 for receiving adjusting bolts 162 threaded into the table. In feeding the folders into the machine in the manner above explained, the operator holds one edge of the folder against guide member 160 and slides the folder along the latter until the free edges 4 thereof engage the front sides of lugs 128, as shown in Fig. 7. The seals will therefore always be applied at the same place upon the free edges 4 of the folders, depending upon the adjustment of member 160.

Flange 32 of wheel 30 is provided with an outwardly extending lug 163 arranged to engage latch 41 after the latter has engaged dog 35 to move the same out of engaging relation with lug 33, as shown in Fig. 6, the latch resting upon flange 32. Upon movement of folder 2 from engagement with the lower end 53 of arm 51, latch 41 will be permitted to drop by its own weight into position to engage dog 35, the dog being arranged so that it will not be engaged by latch 41 until the folder has passed through rollers 134 and 135, at which time punch 5 will be approximately in the middle of its downward stroke. After disengagement of dog 35 from lug 33, lug 163 will engage latch 41 to prevent further movement of the parts of the machine by their own moment of inertia. The parts of the machine, therefore, always come to rest at the same phase of their respective movements. Movement of lugs 128 is synchronized with the rotation of dog 35 so that when folder 2 is moved forwardly by the operator, as explained above, latch 41 is moved to inoperative position by engagement of the free edges of the folder with end 53 of arm 51 and dog 35 thereby permitted to engage lug 33 when lugs 128 are in line with the upwardly extending ends 58 of arms 57 and when the free edges 4 of the folder are in proper position

between table 1 and die 3, as shown in Fig. 7.

A complete operation of the machine will now be outlined, starting with the position thereof shown in Fig. 7. Punch 5 completes its downward stroke, cutting out seal 7 and applying the left half thereof to the upper side of the folder. During this operation of the punch piston 73 engaged stem 71 of valve 70 which resulted in a spray of the liquid in reservoir 62 having been directed against the under gummed side of the seal just previous to the application of the latter to the folder. The low side of cam 61 is now in engagement with arm 59 causing withdrawal of ends 58 of arms 57 as punch 5 begins its upward stroke, so that the oncoming lugs 128 may engage the forward edge of folder 2 and move the same to the right until the other edge thereof passes between rollers 134 and 135. When the lower end of punch 5 is withdrawn from die 3, the high side of cam 78 will begin to engage lever 104 to effect upward movement of rod 101 and rotation of rollers 95 and shaft 81, as explained above, to pull a portion of strip 6 through slots 17 in the direction of the arrows shown in Fig. 7, the length of this portion of the strip being slightly greater than the diameter of punch 5. It will, therefore, be seen that an uncut portion of the gummed strip 6 is moved into position between die 3 and punch 5 during the latter part of the upward movement of the latter and the first part of the downward movement of the same, and that the punched or cut out strip is rewound upon reel 110 during operation of the machine and as the strip is unwound from roll 80. When punch 5 is in the position of its downward stroke shown in Fig. 9, the highest part of cam 78 will be in engagement with lever 104, as shown in Fig. 1, and rod 101 about to commence its downward movement, during which movement of the latter pawl 100 rides over the teeth of ratchet wheel 98 and therefore causes no rotation of shaft 93 and rollers 95. It will thus be seen that the parts are so arranged that there is no movement of strip 6 during movement of punch 5 into and out of die 3. When the folder has been moved to the right out of engagement with the lower end 53 of arm 51, latch 41 drops by its own weight into position to engage dog 35 and thereby disconnect shaft 28 from drive shaft 14 after the folder has dropped into position in front of blade 144. If the operator, however, places a folder in position in front of the lugs 128 which carry the preceding folder through the machine, as explained above, there will always be a folder in engagement with the lower end 53 of arm 51 whereby latch 41 will always be held in inoperative position, as shown in Fig. 5, and the machine driven continuously by drive shaft 14. Furthermore, during the latter part of the upward movement of punch 5 and the first part of the downward movement thereof, the folder will be moved to the right by lugs 128 and the right half of seal 7 deflected downwardly into opening 129 by members 130 and bent over upon the lower free edge 4 of the folder by edge 133 of opening 129, as shown in Fig. 11. The free edges of the folder and the paster applied thereto will then be inserted between rollers 134 and 135 which complete the operation and drop the folder in front of blade 144, as explained above.

From the foregoing it will be seen that an improved machine of the character referred to has been provided in which the various parts thereof and actuating mechanism for these parts are operated from a common drive shaft, and that the machine is provided with a punch which, during a single stroke thereof, cuts out a seal from the gummed strip 6 and applies one-half of this seal to one of the free edges of the folder, other mechanism being provided for folding the remaining half of the seal over upon and applying the same to the other free edge of the folder, and that the improved machine has many advantages over those constructed heretofore as regards simplicity of construction, ease of operation, the rate at which the seals may be applied to the folders or other articles, and the cost of manufacture of the machine. Although the machine shown and described cuts out the seals from a strip of gummed material, it is to be understood that the machine shown and described represents but one embodiment of the invention, and that instead of cutting out or removing only a portion of the gummed strip, the entire strip may be consumed, such as would be the case when a strip of cancelled stamps is substituted for the gummed strip 6 shown, any changes in the machine which would be necessary for this being obvious to those skilled in the art. It will further be seen that the article or folder is moved along the table of the machine by means of the lugs 128 in a straight path toward, through and beyond the various parts of the machine which remove and apply a portion of the strip 6 to the article.

In the foregoing description, the term "folder" has been employed in a rather general and more or less arbitrary sense and not as defining any limitations upon the invention. As used, this term is intended to include not only folders of all kinds, but in addition, catalogs, pamphlets, circulars and, in fact, all articles requiring or being subject to sealing in the sense herein employed. It is also desired to point out that the invention in its broader aspects is distinctly not limited to a sealing operation, strictly speaking. For instance, the machine could be employed for applying labels, stamps, stickers, etc. to articles of various kinds and in such use the label, sticker, etc. could be applied to the article at any desired location thereon as distin-

guished from the particular location of the seal on the folder in the embodiment illustrated in the drawings. In the foregoing, therefore, the term "seal" has been used in a broader sense and is intended to include stamping, labeling and the application of stickers and the like to articles and goods in general and not as imposing limitations such as might be implied from a strict interpretation of the term.

The various parts of the machine, furthermore, may be timed so as to moisten the strip 6 before, after, or at substantially the some instant during which the seal is punched out by the member or punch 5, and instead of using a gummed strip and applying water thereto, a plain strip may be used and adhesive material applied thereto at the proper instant. Various other changes, of course, may be made, such as in the size, shape and arrangement of parts, without departing from the spirit of the invention or the scope of the claims.

The invention claimed is:

1. In a machine of the character described, a fixed support for articles, means for intermittently feeding articles over said support, means in constant relation to the support for supporting a strip of sealing material above said article support, and a single member for punching small pieces of said material therefrom and applying the same successively to said articles as the latter are fed over said support, the pieces punched from said material being of such size and so spaced that the strip form thereof is preserved throughout the punching operation, and means for reeling up the strip of unused material as the punching operation progresses.

2. In a machine of the class described, a support for an article, means for supporting a seal adjacent said article, means for engaging said seal and affixing a portion thereof to said article, and independent means for folding the remaining portion of said seal over one edge of said article and applying said remaining portion to the other side of said article.

3. In a machine of the class described, an apertured support for an article, means for supporting a seal adjacent said article, means for engaging said seal and affixing a portion thereof to said article, and means for folding the remaining portion of said seal over one edge of said article and applying said remaining portion to the other side of said article, said last-named means comprising a member adapted to engage said remaining portion of the seal and to deflect the same into the opening in said article support as the article is moved forwardly whereby the forward edge of said opening may thereafter engage such portion of said seal and move the same into engagement with the underside of said article upon continued forward movement thereof.

4. In a machine of the class described, an apertured support for an article, means for supporting a seal adjacent said article, means for engaging said seal and affixing a portion thereof to said article, means for folding the remaining portion of said seal over one edge of said article and applying said remaining portion to the other side of said article, said last-named means comprising a member adapted to engage said remaining portion of the seal and to deflect the same into the opening in said article support as the article is moved forwardly whereby the forward edge of said opening may thereafter engage such portion of said seal and move the same into engagement with the underside of said article upon continued forward movement thereof, and a plurality of compression rolls for firmly affixing said seal to said article as thus applied.

5. In a sealing machine, a fixed table, a reciprocating member mounted thereabove for sliding rectilinear movement, means for feeding a strip of sealing material between said member and said table in a path substantially parallel to the latter, means for moving said member through said strip to remove a portion therefrom and to apply said portion to an article supported on said table and means for feeding the article along the table at the proper time.

6. In a sealing machine, a table, a reciprocating member slidably mounted thereabove, means for feeding a strip of sealing material between said member and said table in a path substantially parallel to the latter, means for moving said member through said strip to remove a portion therefrom and to apply a part of said portion to one side of an article supported on said table, and means for thereafter folding the other part of said portion over one edge of said article and affixing said other part to the other side of said article.

7. In a machine of the character described, a support for an article, means for supporting a strip of sealing material adjacent said article support, a single member for removing a portion of said strip and applying the same to said article, and means for moistening said portion prior to its application to the article, said last-named means comprising a liquid reservoir mounted on the support, an atomizing nozzle located below the support and associated with said liquid reservoir and directed towards said strip, said support having an opening to permit of the spraying of the liquid from the nozzle onto the portion of the strip to be applied to the article, and means for automatically supplying air under pressure to said nozzle.

8. In a machine of the character described, a support for articles, means for intermittently feeding articles over said support, means maintained in fixed and constant relation to and overlying said support for sup-

porting a strip of sealing material above said article support, means for punching small pieces of said material therefrom and applying the same successively to said articles as the latter are fed over said support, means for imparting a step-by-step feed to said strip in one direction only, and means associated with said last-named means for reeling up the unused portion of said strip.

9. In a machine of the character described, a support for articles, means for intermittently feeding articles over said support, means for supporting a strip of sealing material above said article support, means for punching small pieces of said material therefrom and applying the same successively to said articles as the latter are fed over said support, means for imparting a step-by-step feed to said strip, means associated with said last-named means for reeling up the unused portion of said strip, and means for imparting a step-by-step rotation to said reeling means including a slip drive to compensate for the varying peripheral speeds of the roll of unused strip as the reeling thereof progresses.

10. In a machine of the character described, a support for articles, means for intermittently feeding articles over said support, means maintained in fixed and spaced relation to and overlying said support for supporting a strip of sealing material above said article support, means for punching small pieces of said material therefrom and applying the same successively to said articles as the latter are fed over said support, the pieces punched from said material being of such size and so spaced that the strip form thereof is preserved throughout the punching operation, means for reeling up the strip of unused material as the punching operation progresses, and means operating in synchronism with said punching means and engaging said strip of unused material for imparting a predetermined step-by-step feed thereto.

11. In a sealing machine, means for cutting seals from a strip of sealing material, a plurality of reels mounted on a common shaft, one of said reels being adapted to receive a roll of said material, the other of said reels being adapted to receive said strip after the same has been operated upon by said cutting means, said first-named reel being free on said shaft, a slip clutch connecting the other of said reels to said shaft, positive means for unreeling said strip step-by-step from said free reel and feeding it to said cutting means, and means for imparting a corresponding step-by-step motion to said shaft for driving the other of said reels to thereby reel up the unused portion of said strip issuing from said cutting means.

12. In a machine of the character described, means for supporting a folder, a member supported for relative movement toward and away from said folder, means for holding a strip of material between said member and said folder, said member being adapted upon relative movement thereof toward said folder to sever part of the material of said strip therefrom and to apply a portion of said part to one side of said folder, and means for thereafter folding the remaining portion of said part over upon and applying the same to the other side of said folder.

13. In a machine of the character described, a table, a slotted guide supported in spaced relation with respect to said table to permit a folder to be inserted between the latter and adjacent end of said guide, a member supported for relative movement in said guide toward and away from said table and adapted upon movement toward the latter and upon insertion of material through the slots in said guide to cooperate with the latter to cut out a part of said material and to apply a portion of said part to said folder, and means adapted to fold the remaining portion of said part over upon and to apply the same to the other side of said folder.

14. In a machine of the character described, a table, a die supported in spaced relation with respect to said table to permit a folder to be inserted between the latter and said die, a punch, mechanism adapted to effect relative movement of said punch toward any away from said table, means for supporting a strip of material with a portion thereof arranged between said die and said punch, said punch being adapted upon relative movement thereof toward said table to cooperate with said die to cut out a part of said strip and to apply a portion of said part to one side of said folder, means adapted to fold the remaining portion of said part over upon and to apply the same to the other side of said folder, and means adapted upon relative movement of said punch away from said table to effect movement of said strip to bring an uncut part thereof in position between said die and said punch.

15. In a machine of the character described, a table, a die supported in spaced relation with respect to said table to permit a folder to be inserted between the latter and said die, a punch, mechanism adapted to effect relative movement of said punch toward and away from said table, means for supporting a strip of material with a portion thereof arranged between said die and said punch, said punch being adapted upon relative movement thereof toward said table to cooperate with said die to cut out a part of said strip and to apply a portion of said part to one side of said folder, means adapted to fold the remaining portion of said part over upon and to apply the same to the other side of said folder, means adapted upon relative

movement of said punch away from said table to effect movement of said strip to bring an uncut part thereof in position between said die and said punch, and means adapted to direct a liquid spray against the portion of said strip thus positioned.

16. In a machine of the character described, means for supporting a folder, a member supported for relative movement toward and away from said folder, means for supporting a strip of sealing material between said folder and said member, means for actuating said member to cut a seal from said strip and apply the same to one side of said folder, means for effecting movement of said strip to bring an uncut part thereof into position between said folder supporting means and said member after the latter has been raised, a reel for receiving and holding the part of said strip from which seals have been cut, and a driving connection between said strip-feeding means and said reel, said driving connection including a plurality of friction elements arranged in engagement and adapted for relative movement with respect to each other to compensate for variations in tension.

17. In a machine of the character described, means for supporting a folder, a member supported for relative movement toward and away from said folder, means for supporting a strip of sealing material between said folder and said punch, means for actuating said member to cut a seal from said strip and apply the same to one side of said folder, a pair of rollers for imparting a step-by-step feed to said strip, means for driving said rollers, a reel for reeling up the part of said strip from which seals have been cut, and means for imparting a corresponding step-by-step operation to said reel.

18. In a machine of the character described, a table for supporting a folder, a slotted guide supported in spaced relation with respect to said table to permit a folder to be inserted between the same and said table, means for supporting a strip of material with a portion thereof extending through the slot in said guide, a punch mounted in said guide and arranged upon movement toward said folder to cut a part of said strip therefrom and apply a portion of said part to one side of said folder, actuating means for said punch, means adapted to fold the remaining portion of said part over upon and to apply the same to the other side of said folder, and means for effecting movement of said strip to bring an uncut part thereof into operative position in said guide during the return stroke of said punch.

19. In a machine of the character described, a table for supporting a folder, means for supporting a seal in spaced relation with respect to said table, a member adapted for movement toward said table to engage said seal and to apply a portion thereof to one side of said folder, a movable stop for positioning said folder on said table with respect to said member, means for moving said stop out of the path of said folder after said seal has been applied, means for thereafter moving said folder forwardly on said table, and means for folding the remaining portion of said seal over upon and applying the same to the other side of said folder during such movement thereof.

20. In a machine of the character described, a support for a folder, means for holding a strip of material adjacent said folder with a portion of said strip in position for application thereto, means for cutting said portion from said strip and applying part of said portion to one side only of said folder, and means for folding the remaining part of said portion over one edge of said folder and applying the same to the opposite side thereof.

21. In a machine of the character described, means for supporting a folder, means for supporting a strip of sealing material, means adapted to cut a seal from said strip and to apply a portion of said seal to one side only of said folder, and means adapted to fold the remaining portion of said seal over the edge of said folder and to apply said remaining portion to the opposite side of said folder.

22. In a machine of the character described, a table, a reel for holding a roll of strip material, means for guiding said strip and supporting a portion thereof in spaced relation with respect to said table to permit insertion of an article between the latter and said portion, means for cutting out said portion and applying the same to the adjacent side of said article, a second reel for winding up the cut-out strip, and operating means for said second reel.

23. In a machine of the character described, a table, seal-applying means arranged on one side of said table and arranged in spaced relation with respect thereto to permit insertion of an article between the same and said means, a nozzle on the opposite side of said table and directed toward said means, said table having an opening between the nozzle and said seal applying means, a liquid reservoir connected to said nozzle, and fluid-pressure means associated with said nozzle and adapted to cause liquid from said reservoir to be discharged from said nozzle and upon said seal to render the latter adhesive before the same is applied to said article, said fluid-pressure means including a cylinder and means associated therewith for effecting communication between the same and said nozzle when the pressure in said cylinder reaches a predetermined value.

24. In a machine of the character described, a table, a shaft, supporting means for said shaft, a pair of reels loosely mounted on said

shaft and rotatable with respect to each other, one of said reels carrying a roll of strip material, means for guiding and supporting said strip, means associated with said last-mentioned means for cutting out a portion of said strip therefrom and applying said portion to an article placed upon said table, the portion of said strip from which portions have been cut out being connected to the other of said reels for rewinding thereon, means for effecting intermittent movement of said strip to bring an uncut portion thereof into operative relation with said cutting-out means after the latter has performed its said function, and driving means for said other reel, said supporting means forming part of said driving means and permitting removal of said shaft without disturbing the assembly of the parts comprising said driving means.

25. In a machine of the character described, means for supporting an article, means for supporting a strip of sealing material adjacent said article, a single member for removing and positively applying a portion of said strip to said article, and a plurality of compression rolls for firmly affixing said portion of said strip to said article after the same has been applied.

26. In a machine of the character described, means for supporting an article, means for supporting a strip of sealing material adjacent said article, a single member for removing and positively applying a portion of said strip to said article, and a plurality of compression rolls for firmly affixing said portion of said strip to said article after the same has been applied, said parts being so arranged that the article to be sealed travels in a straight path from the time it enters said machine until it emerges from said rolls.

27. In a machine of the class described, a table, means overlying and maintained in fixed and spaced relation to the table for supporting a strip of sealing material just above and in spaced relation to the table, means for feeding successively spaced articles along the table and below the sealing strip, means for removing a portion of the sealing strip and applying it to one side only of the article adjacent one edge of the article, and means for thereafter folding the portion of the sealing strip so applied to the article around the edge of the article and applying it to the other side thereof.

28. In a machine of the class described, a table, means for intermittently feeding an article to be sealed along the table in a straight path, means for applying a seal to the article at one position thereof on the table with a portion of the seal secured to one side of the article only, a portion of the seal projecting beyond the edge of the article, and means for folding the projecting portion of the seal around the edge of the article and applying it to the other side thereof as the article is fed along the table.

29. In a machine of the class described, a table, means for intermittently feeding articles to be sealed along said table, means for supporting a strip of sealing material above the table in spaced relation thereto, a die associated with said means and operatively disposed with respect to said strip, the articles being adapted to be positioned below said die, a punch cooperable with the die to remove a seal from the strip and apply it to the article and means for applying liquid to the portion of the strip located within the outlines of the die immediately prior to the severance of said portion by said punch and the application thereof to the article.

30. In a machine of the class described, a support for an article, means for feeding an article therealong, seal applying means associated with the support and cooperable with the article thereon, actuating mechanism for the seal applying means, a swingable controlling member having a portion projecting into the path of the article along the support and engaged and displaced by the article as the article is fed to the seal applying means, said controlling member riding on the article when displaced and being biased to a position wherein it lies in the path of the article, and motion transmission means between the controlling member and the actuating mechanism whereby the operation of the actuating mechanism is regulated by the controlling member.

31. In a machine of the character described, a support for an article, means for intermittently feeding an article over said support, seal applying means associated with the support and cooperable with the article, and automatically operable means engageable with the article to maintain it in cooperative relation with the seal applying means until the seal has been applied thereto and for releasing the article for movement along the support after the seal has been applied thereto.

32. In a machine of the character described, a support for an article, means for intermittently feeding an article along said support, means for supporting a strip of sealing material above said support, means for removing a portion of the strip and applying the same to said article, automatically operable means for maintaining the article in proper position on the support while the portion of the strip is being removed and applied thereto, and means controlled by articles fed along the table to render the operation of the means for removing and applying a portion of the strip dependent upon the positioning of an article in cooperative relation with respect thereto.

33. In a machine of the character described a support for a folder, means for supporting a strip of sealing material, means for cutting

a seal from said strip and applying a portion of said seal to one side only of said folder, with a portion of said seal projecting beyond an edge of said folder, independent means for folding the projecting portion of said seal over the edge of said folder and applying the same to the opposite side of the folder and means for moving said folder along its support in one direction only and in a straight path toward, through and beyond both of said last mentioned means.

34. In a machine of the character described a support for a folder, means for supporting a strip of sealing material, means for cutting a seal from said strip and applying a portion of said seal to one side only of said folder, with a portion of said seal projecting beyond an edge of said folder, a folding member engaging the projecting portion of the seal and biased to bend said projecting portion down around the edge of the folder, said support for said folder having means engageable with the bent portion of the seal to wipe said bent portion of the seal up against the other side of the folder as the folder is fed along the support, and means for feeding the folder along the support.

35. In a machine of the character described, a support for an article, means for intermittently feeding the article over said support, means for supporting a strip and for feeding the same in one direction only over the support, a guide for supporting a portion of the strip in spaced relation to the support to permit of the feed of the article between said support and said guide, a single member for cutting a seal from the strip and applying the seal to the article, and means operable in synchronism with the member for holding the article in operative position relative to the member during the cutting and applying of the seal.

In witness whereof I hereto affix my signature.

PETER F. MURPHY.

CERTIFICATE OF CORRECTION.

Patent No. 1,732,908. Granted October 22, 1929, to

PETER F. MURPHY.

It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction as follows: Page 10, line 46, claim 27, strike out the word "spaced"; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 4th day of February, A. D. 1930.

M. J. Moore,
Acting Commissioner of Patents.

(Seal)