

[54] STAMP AFFIXER

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[52] U.S. Cl. **156/532**

[51] Int. Cl. **B32b 31/00**

[58] Field of Search..... **156/530, 531, 532**

[56]

References Cited

UNITED STATES PATENTS

3,219,511	11/1965	Moser et al.	156/532
1,877,849	9/1932	Gmelin et al.	156/532
3,455,769	7/1969	Way	156/530

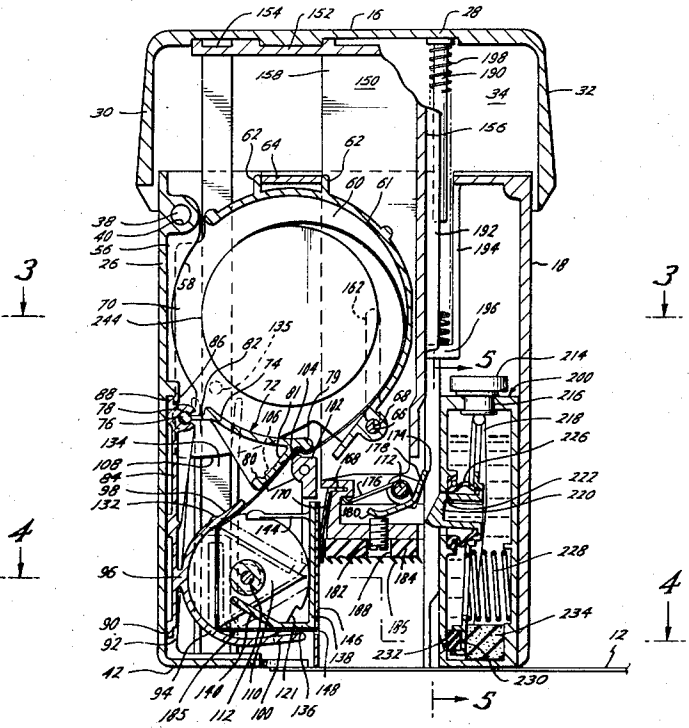
Primary Examiner—Douglas J. Drummond

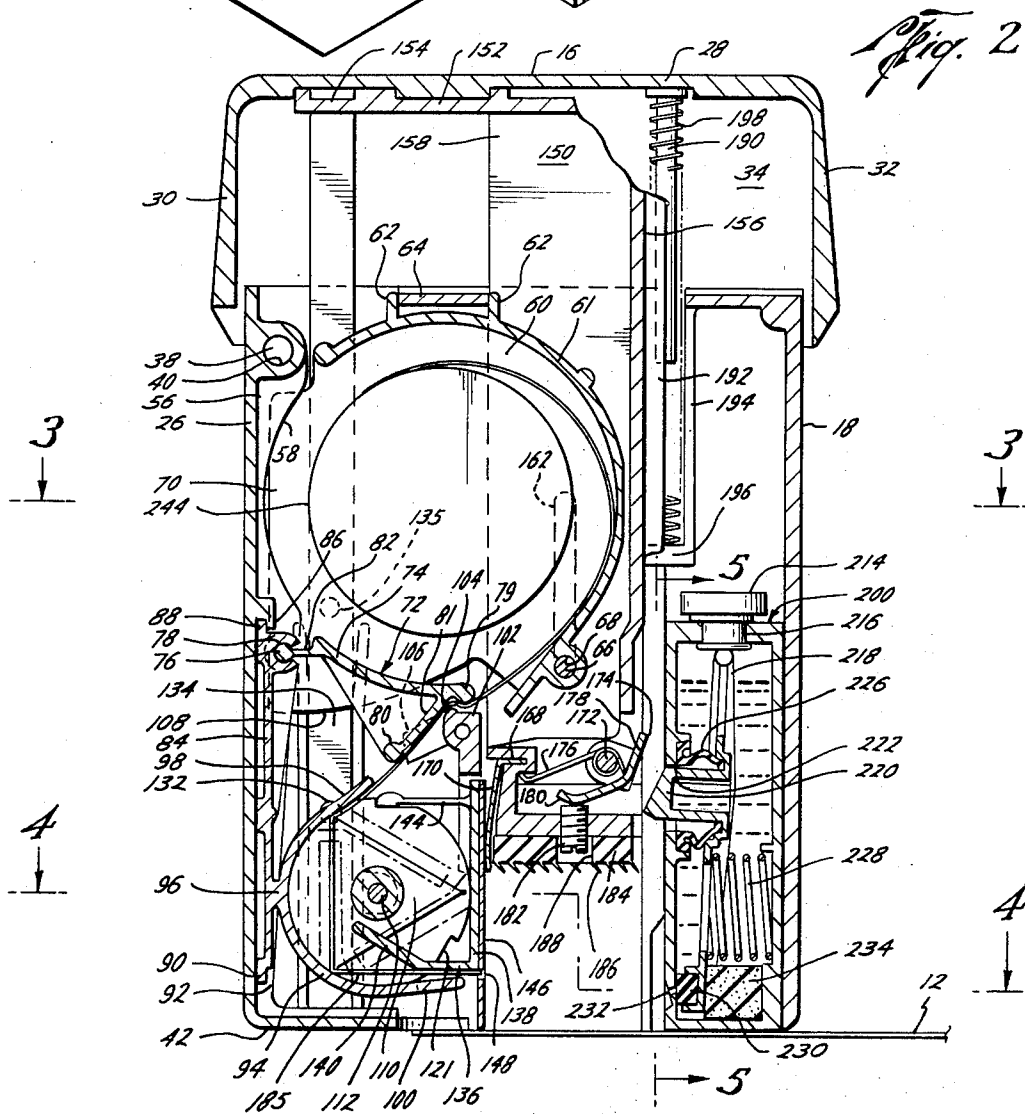
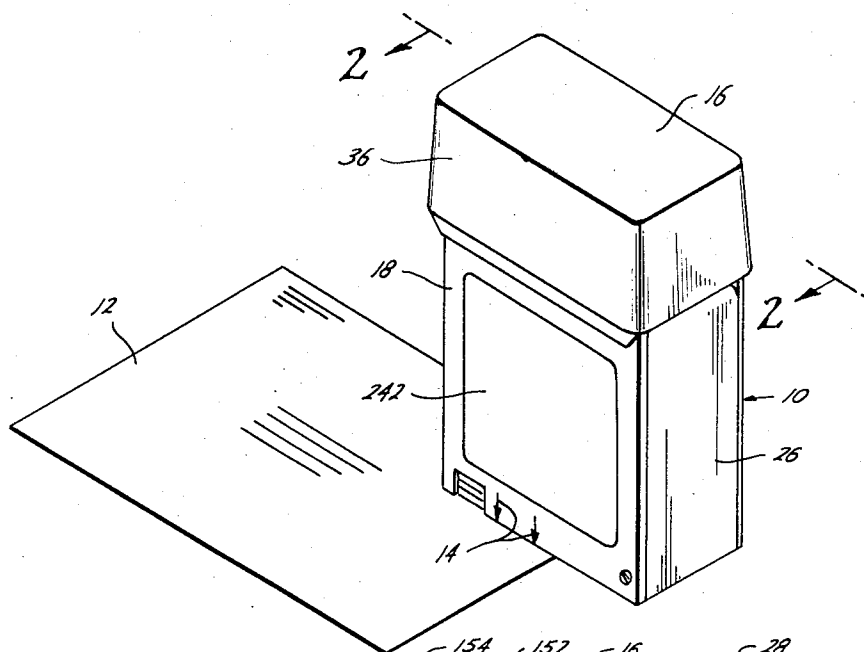
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ABSTRACT

A portable device adapted to contain a roll of postage stamps which are fed, cut off, moistened and adhered to a surface by a single movement of the device.

11 Claims, 11 Drawing Figures





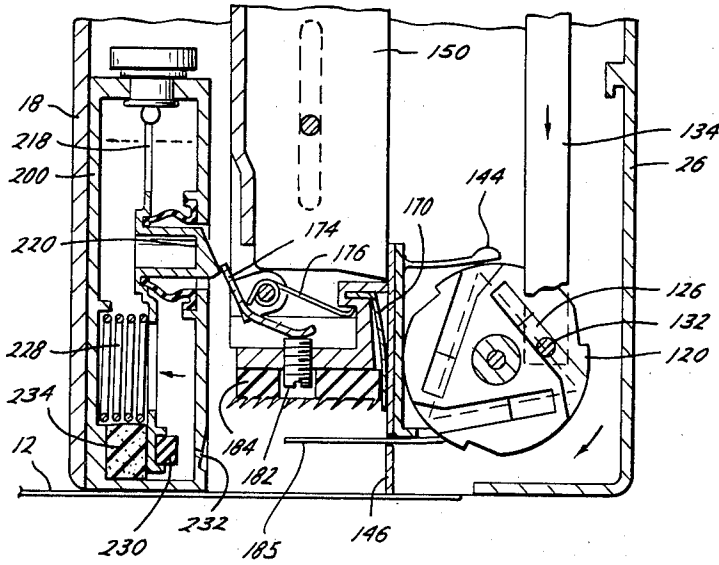


Fig. 2A

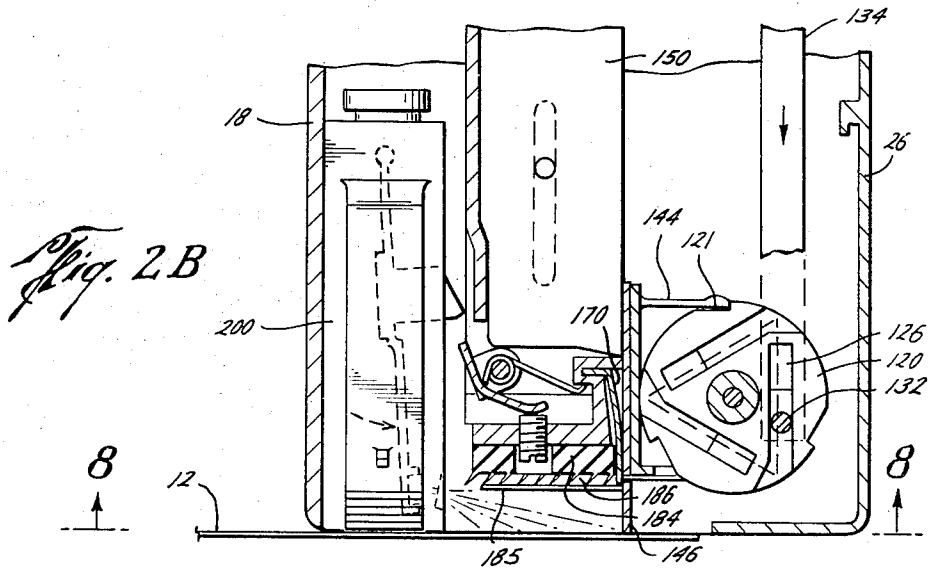


Fig. 2B

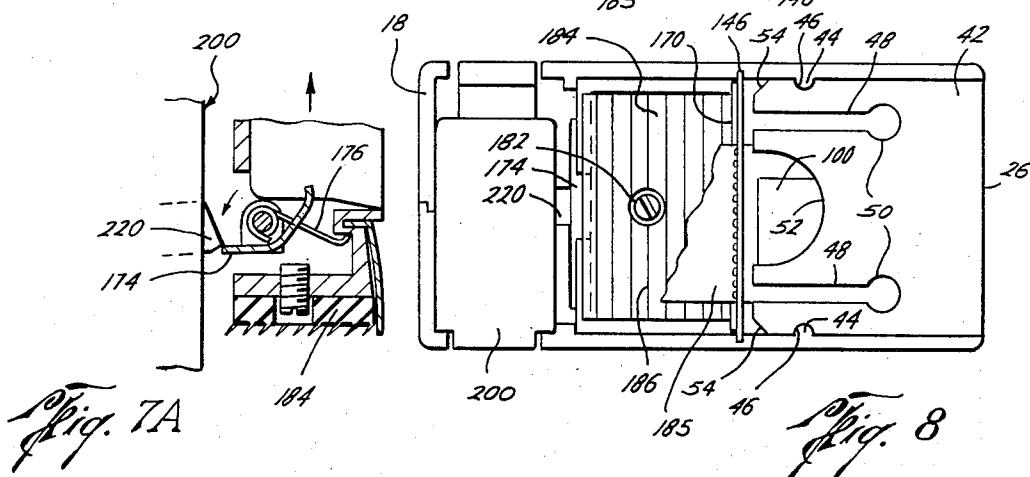


Fig. 7A

Fig. 8

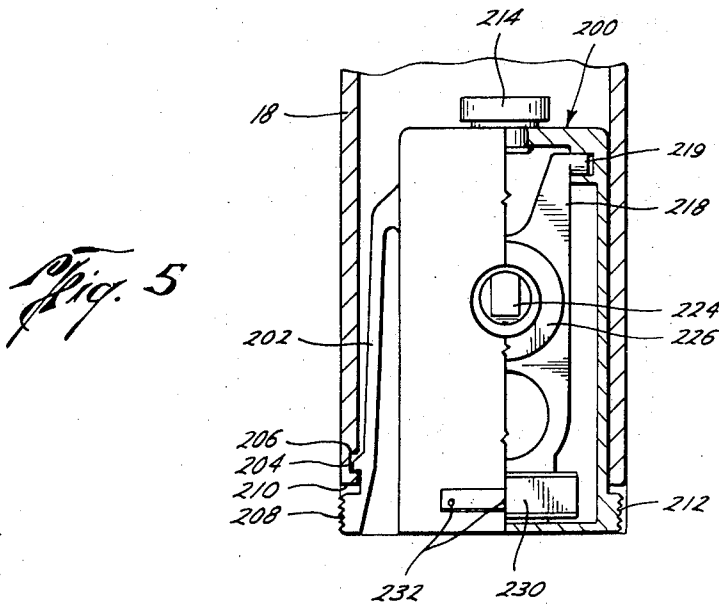
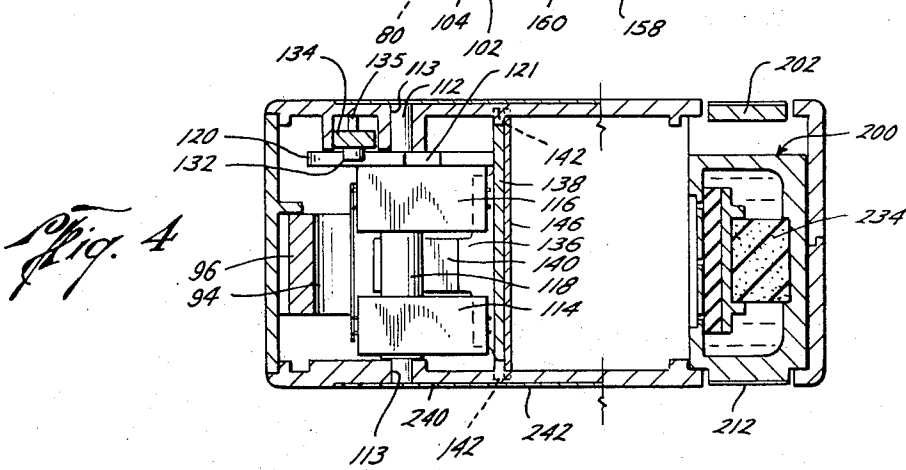
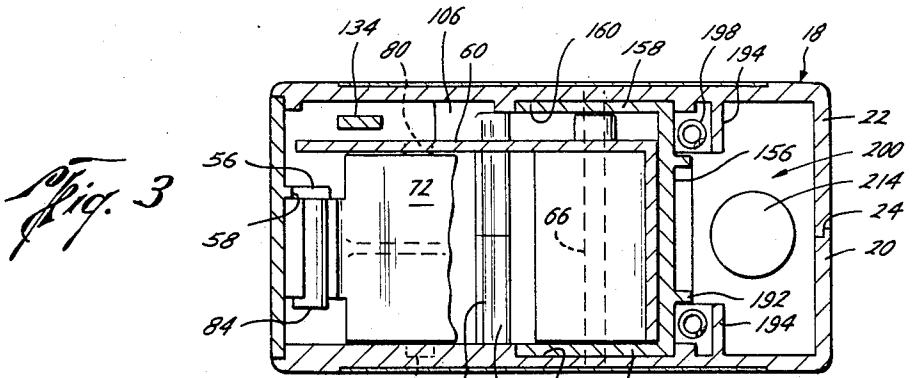


Fig. 6

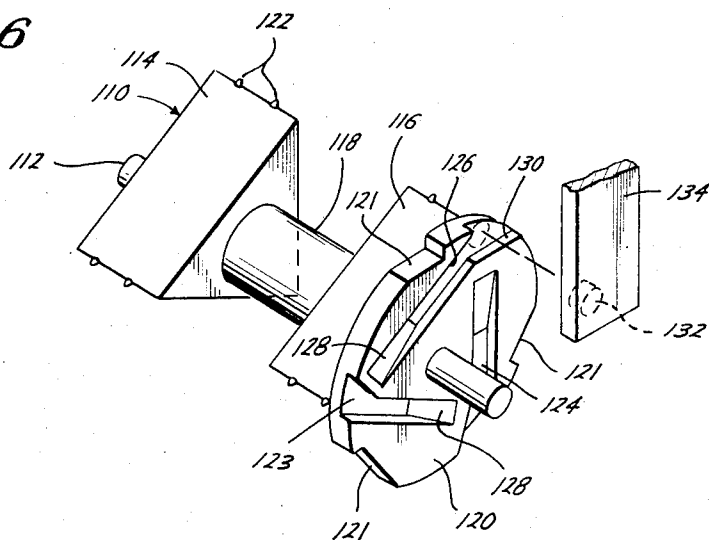
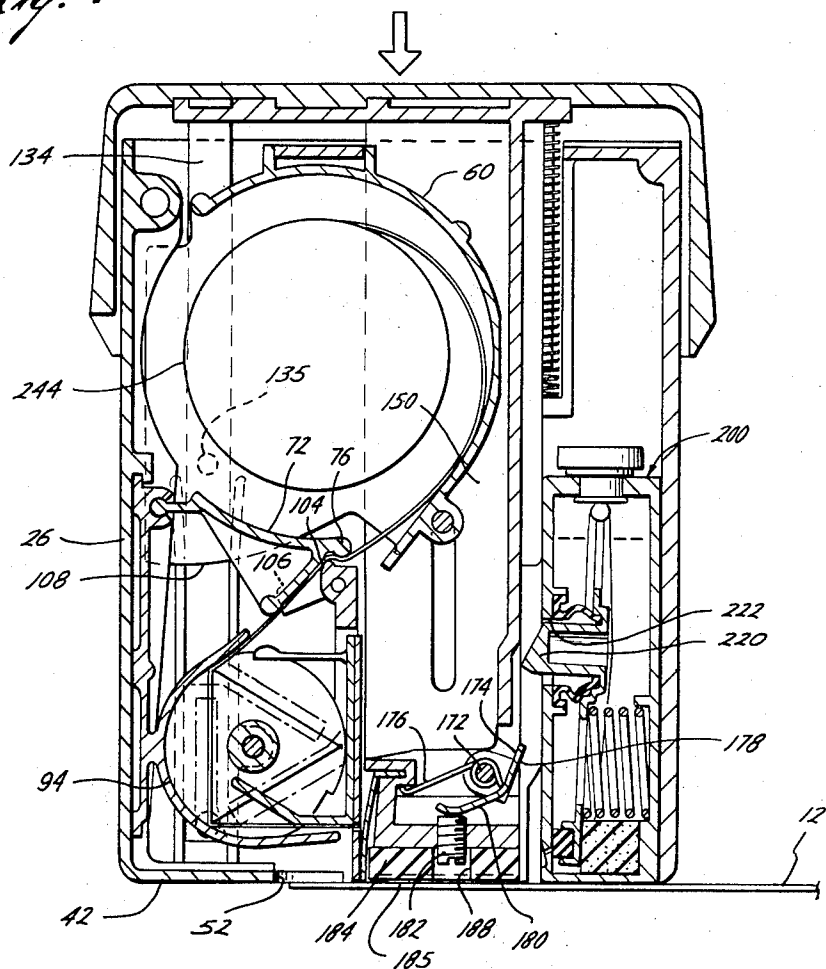


Fig. 7



STAMP AFFIXER

BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention relates to apparatus for affixing postage stamps to envelopes and the like.

2. Description of the Prior Art

Various hand-operated postage stamp affixing devices have been known since at least as early as the patent to Storck U.S. Pat. No. 993,732, issued May 30, 1911. Other such devices developed since then include those shown in U. S. Pat. Nos. 1,012,021, 1,029,671, 1,289,240, 1,682,084 and 1,877,849, and German Patent No. 279,415. For various reasons, however, none of these stamp affixers was commercially successful. Finally in 1962 Irving S. Moser et al. developed a new concept in stamp affixers as shown in U.S. Pat. No. 3,219,511. This design has been outstandingly successful. However, this design has also had certain shortcomings. A primary problem has been that the structure was such that a high proportion of the parts had to be formed from metals, thereby causing assembly to be complicated and resulting in a relatively high cost. It was difficult to thread the stamps from the stamp roll receptacle around the feeding device so as to insure that the stamps would be fed properly to be cut off at the perforations. Furthermore, the feeding mechanism could not be depended upon to always feed the stamps perfectly. Difficulties were encountered in obtaining a straight cut of the stamps. Also it was sometimes found that the pressure pad did not cause a good adhesion of the stamp to the envelope.

SUMMARY OF THE INVENTION

It is an object of the present invention to overcome the problems which were encountered in the Moser et al. design, as disclosed in the aforesaid U.S. Pat. No. 3,219,511. The provision of means to limit rotation of the feed mechanism in either direction makes loading easier and improves reliability of accurate feeding. The stamp receptacle is modified so as to greatly simplify loading and threading of the stamps, while insuring accurate feeding of the stamps. A new cutting mechanism provides an improved cut-off. In the preferred embodiment of the invention the water supply mechanism is modified. Cost of manufacturing and assembly is greatly reduced by a redesign which allows substantially all parts to be made of molded plastic.

BRIEF DESCRIPTION OF THE DRAWING

FIG. 1 is an isometric view showing one embodiment of the stamp affixer of this invention being used to apply a postage stamp to an envelope;

FIG. 2 is a vertical sectional view of the embodiment of FIG. 1, taken at line 2—2 of FIG. 1;

FIG. 2A is a vertical sectional view, rotated 180° from FIG. 2, of the lower portion of the embodiment of FIG. 2, showing this portion during an initial stage of the operation of the device;

FIG. 2B is a view similar to FIG. 2A showing the device at a later stage of the operation;

FIG. 3 is a horizontal sectional view of the embodiment of FIG. 2, taken at line 3—3 of FIG. 2;

FIG. 4 is a horizontal sectional view of the embodiment of FIG. 2 taken at line 4—4 of FIG. 2;

FIG. 5 is a vertical sectional view of a portion of the apparatus shown in FIG. 2, taken at line 5—5 of FIG. 2;

FIG. 6 is an isometric view of the feeding mechanism of the embodiment of FIG. 2;

FIG. 7 is a view similar to FIG. 2, showing the device in its fully operated condition;

FIG. 7A shows a portion of the apparatus of FIG. 7, rotated 180°, during the retraction phase of the operating cycle; and

FIG. 8 is a bottom view of the apparatus as shown in FIG. 2A.

DESCRIPTION OF THE PREFERRED EMBODIMENT

FIG. 1 of the drawing discloses how the apparatus of this invention is used to apply a postage stamp to an envelope or the like. As there shown, the stamp affixing device 10 is placed on the envelope 12 with the arrows 14 on the body of the stamp affixer placed to indicate the location where the stamp is desired. As will hereinafter appear, upon depressing the cover 16 a single stamp is fed, cut off, and affixed to the envelope.

The housing 18 of the stamp affixer is preferably made in two sections, a front section 20 and a back section 22, as shown in FIG. 3, which may, for example, be injection molded from a suitable plastic material and joined together, after assembly of internal components therein, as by sonic welding at the joint 24. The housing provides structural support for the functioning elements within it.

One of the narrower sides of the housing is covered by a pivotally mounted L-shaped door 26 which has a portion 42 covering a part of the bottom of the housing and which may be opened for insertion of a new roll of stamps. The cap 16, which may also be molded from plastic material, fits over and closes the upper end of the housing and forms means for actuating the stamp affixing mechanism. As shown, the cap comprises a flat top 28 and depending end walls 30 and 32 and side walls 34 and 36. In the position of the cap shown in FIG. 2 the side walls extend below the open top of the housing, and a small clearance is provided between the side walls of the cap and the side walls of the housing. The end wall 30 of the cap is somewhat shorter than the other walls in order to provide a clearance for opening of the door 26.

As seen in FIGS. 2 and 8, the door 26 covers one side and a part of the bottom of the stamp affixer. The door may also be injection molded from a suitable plastic material. The door is hingedly attached to the housing by means of short integral pins 38 extending from the walls of the housing into an opening 40 extending the width of the door adjacent its upper end. As shown, the door extends upwardly somewhat above the hinge connection formed by the pins 38 and the opening 40 to provide complete closure of this side of the stamp affixer.

The lower end 42 of the door covers a portion of the bottom of the stamp affixer, and is provided with detent latch means for holding the door in closed position. Such latch means are provided by a pair of protrusions 44 extending inwardly from the walls of the housing and corresponding notches 46 cut into the sides of the lower end 42 of the door. The portions of the door containing the notches 46 are made resilient by elongate slots 48 cut therein which terminate in openings 50. A

recess 52 in the end of the door bottom is formed for engagement by a finger so that the application of pressure thereon will cause the notches 46 to slide off the protrusions 44 so that the door can be opened. The end of the door bottom is beveled as at 54 for ease of closing.

Looking now at FIG. 2 together with FIG. 3 it will be seen that a portion of the door is formed to assist in retention of a roll of stamps in the housing. Thus the door has formed on its inner surface an elongate arcuate rib 56 having a concave surface 58 facing inwardly of the housing.

Laterally inwardly from the concave surface 58 a stamp receptacle or well 60 is affixed to the housing 18. This receptacle comprises a generally cup-shaped member having approximately half the cylindrical wall removed, so that an arcuate wall 61 extends from adjacent the upper end of the arcuate surface 58 approximately 180°, the center of the wall 61 being substantially at the center of the arc forming the concave surface 58, so that the surface 58, when the door is in closed position, forms a continuation of the wall of the receptacle. The receptacle 60 is held in place by means of ears 62 extending upwardly therefrom to engage a cross member 64 which is molded integrally with the housing, and by means of a pin 66 extending through the walls of the housing and engaging an opening 68 in a boss on the circumference of the receptacle 60. The receptacle is also provided with a flat side 70 adjacent the door.

The remaining opening in the wall of the receptacle 60 is nearly closed by the decurling device 72 which constitutes an arcuate wall portion 74 which, in the closed position as shown in FIG. 2, has its center substantially at the center of the arc of curvature of the wall 61 of the receptacle 60 and of the surface 58 on the door. This surface 74 terminates at one end in a hinge pin 76, received within a hinge recess 78, and at the other end in a generally cylindrical transverse bead 79. A guide portion 81 curving downwardly and to the left as shown in FIG. 2 from the arcuate portion 74 also terminates in a generally cylindrical bead 80 at its lower edge.

The hinge recess in which the decurler is mounted has an opening which is greater than the thickness of the wall 82 which supports the hinge pin 76, so that the decurler can pivot in the hinge. The hinge recess is formed in a support member 84 which is retained on the door by interlocking lips 86 and 88 at the upper end and interlocking lips 90 and 92 at the lower end. This support member is resilient between its ends and also has integrally formed therewith a stamp guide 94 which comprises a generally semi-cylindrical element supported at a point 96 intermediate its ends on the support member 84, so that the stamp guide is resiliently mounted. The stamp guide terminates at its ends in tangential substantially straight portions 98 and 100, the portion 98 being substantially in alignment with and extending toward the portion 81 of the decurler, and the portion 100 extending generally horizontally.

A bar 102 extending between the opposite walls of the housing is provided with a protruding rounded edge 104 which, when the door is closed, protrudes into the recess formed between the element 81 and the rounded edge 79 of the stamp decurler 72. There is some space between these elements, substantially greater than the thickness of a postage stamp, to allow the postage

stamps to pass therebetween. However, the protrusion 104 is placed far enough into the recess that a postage stamp passing between the element 72 and the element 102 is required to be bent a substantial amount to curl it opposite to its direction of curl on the roll.

A ledge 106 formed on the housing wall and an extension 108 on the lower end of the receptacle 60 provide means for guiding the decurler into place and supporting it at the desired clearance when the door is closed.

In a lower portion of the housing 18 within the curvature of the stamp guide member 94, there is positioned a stamp feeding device comprising a feed rotor 110 mounted on a shaft 112 journaled in openings 113 (see FIG. 4) in opposing walls of the housing. The axis of the shaft 112 is substantially coincident with the center of curvature of the stamp guide 94.

As more clearly seen in FIG. 6, the rotor 110 comprises a pair of equilateral triangular blocks 114 and 116 connected by a cylindrical member 118, all concentrically mounted on the shaft 112. Cross sectional configurations other than triangular, e.g. four, five or more sides, can be used, and a square cross section feed wheel gives excellent results, but the triangular configuration has been found to be the optimum configuration because of space-saving considerations. A detent flange or ratchet wheel 120 fits on one end of the shaft adjacent the block 116. Each 60° corner of the triangular blocks is provided with a pair of integral pins 122 which are sized and positioned to fit in the perforations between adjacent postage stamps. Each side of the blocks 114 and 116 is approximately the length of a single postage stamp, so that the pins 122 will engage in the perforations between adjacent stamps. The distance between the outboard edges of the blocks 114 and 116 is somewhat greater than the width of a postage stamp, allowing clearance on each side.

The ratchet wheel 120 comprises a generally circular disc provided with three notches 121 spaced 120° apart around its circumference and three grooves 123, 124, 126 spaced 120° apart on the side of the disc opposite the block 116. Each of the three grooves is provided with a ramp 128 from the bottom of the groove terminating at the surface of the disc adjacent the succeeding groove. The opposite end of each groove runs out at the circumference of the disc. This end of each groove is widened on the side toward the preceding groove to form a shoulder 130 which is substantially perpendicular to the preceding groove.

A pawl 132 affixed to an indexing arm 134 is positioned, when the apparatus is in the position shown in FIGS. 2 and 6, to engage one of the shoulders 130. The shoulder 130 is positioned laterally to one side of the shaft 112, so that when the index arm 134 is moved downwardly, the pawl 132 engages the shoulder 130 and causes the rotor to rotate counterclockwise, as seen in FIG. 2. As rotation continues the pawl moves longitudinally in the groove 126. Then when the index arm is moved upwardly the pawl slides up through the groove 126 and up the ramp 128, across the short intervening portion of the face of the disc and drops off into the adjacent groove 123.

When the pins 122 are engaged in the perforations between adjacent stamps a rotation of the rotor 110 through 120° will feed a single stamp from the roll within the receptacle 60. As the stamps are fed from the receptacle around the bead 79 and the protrusion

104, they are pulled against the protrusion in a reverse bend so as to remove the curvature in the stamp which resulted from rolling the strip of stamps. This greatly assists in insuring that the stamp is substantially flat when it is applied to an envelope or other surface to which the stamp is to be affixed.

Referring to FIG. 4 it will be noted that the width of the stamp guide 94 is less than the distance between the pins 122 on the triangular blocks 114 and 116. The curvature and location of the stamp guide is such that there is only a slight clearance, enough to pass a stamp, between it and the corners of the blocks 114 and 116 as they rotate on the shaft 112. Since the stamp guide is supported only at the support point 96, the ends are free to flex so that stamps can be pulled through the space between the rotor and the guide even though the parts are not perfectly proportioned. This reduces the need for very close tolerances on these elements.

As best seen in FIGS. 2 and 4, a stamp take-off arm 136 mounted on a support member 138 is provided with a first horizontal portion spaced just above the lower end 100 of the stamp guide 94, and has an upwardly diverging portion 140 thereon which extends into the space between the triangular blocks 114, 116 of the rotor. This arm functions as a doctor blade to separate the stamps from the pins 122 on the rotor, so that as the rotor operates, stamps are fed between the lower end 100 of the stamp guide and the initial portion of the stamp take-off arm 136.

The support member 138 for the take-off arm may fit into suitable slots 142 (see FIG. 4) provided therefor in the housing 18, and may extend upwardly from the take-off arm 136 to provide support for a pawl arm 144 which extends laterally into engagement with the circumference of the flange 120, the pawl thereon being sized to engage the circumferential notches 121 on the flange 120. The support member 138, the take-off arm 136 and the pawl arm 144 may be molded from a resilient plastic material in a single unit. The arm 144 is positioned so that it will normally engage a notch 121 as shown in FIG. 2. Due to its resilience and flexibility it can ride up over the circumference of the flange 120 when the flange is rotated.

In the embodiment shown in the drawing a shear plate 146 is also mounted in the grooves 142 provided in the walls of the housing. The shear plate has an opening 148 therein positioned opposite the space between the extension 100 on the stamp guide 94 and the stamp take off arm 136, so that a stamp 185 fed through this space may pass through the opening 148. The opening is, of course, slightly wider than a stamp, and is preferably provided with a square or sharp edge on the side away from the stamp guide and stamp take-off arm. The shear plate is preferably made of a heat treated sheet steel material, hardened and ground smooth on the side opposite the support member 138. The lower edge of the opening 148 is preferably substantially horizontal.

The cap 16 has affixed to it a plunger member 150 which may, for example, be injection molded from plastic. The upper part 152 of the plunger provides a mounting base which may be sonic welded to the cap and may enclose therein, in a groove 154, the upper portion of the indexing arm 134. The main body of the plunger is a channel-shaped member 156 having opposed walls 158 which slide in grooves or channels 160 (see FIG. 3) formed in the walls of the housing. Each

of the walls 158 of the plunger is provided with an elongate slot 162 through which the pin 66 passes.

The lower end of the plunger has formed therein a knife support groove 168 which has tightly received therein a knife 170. The knife 170 is generally L-shaped in cross-section, and is made of a resilient spring steel. One leg of the knife is received and retained in the groove 168 and the other leg is resiliently biased into engagement with the shear plate 146. The lower or cutting edge of this leg of the knife is in continuous engagement with the shear plate, and is preferably longer on one side than the other, so that when the knife moves past the opening 148 in the shear plate one edge of the knife will reach the opening before the other, thereby providing a progressive shear.

The lower end of the plunger also carries a transversely extending shaft 172 which has mounted thereon a striker member 174 and a striker spring 176. The striker 174 may be made, for example, from sheet steel material and is pivotably mounted on the shaft 172. The striker includes a camming surface 178 which is biased by the spring 176 to a position so that it slopes outwardly and upwardly. A stop arm 180 on the striker is positioned to be engaged by an adjusting screw 182 which is threaded into the bottom of the plunger 150.

A pressure pad 184 preferably made of a soft synthetic rubber is attached, as by means of a cement, to the bottom of the plunger 150, and is provided on its lower side with a plurality of flexible canted ribs 186. An opening 188 through the pad 184 is provided for access to the adjusting screw 182. As seen in FIGS. 2B and 8, the pressure pad is slightly larger than a postage stamp 185.

A pair of spring guide rods 190 are held between the top of the cover 16 and the top 152 of the plunger 150 and extend downwardly therefrom into spring wells formed between a rib 192 on the plunger and a rib 194 on the wall of the housing. The spring wells terminate in bottom members 196 which extend from the wall of the housing. A compression spring 198 extends from the cap to the bottom 186, in the space between the post 190 and the spring well.

A water pump 200, best seen in FIGS. 4 and 5 in conjunction with either FIG. 2 or FIG. 7, is preferably molded in two halves from a transparent plastic material and the two halves sonically welded together. The water pump is slidably received in an opening therefor provided in the bottom of the housing. As seen in FIG. 5 one side of the water pump housing is provided with a downwardly extending resilient arm 202 having a lug 204 thereon engaged in a recess 206 in the wall of the housing 18, and having a finger grip 208 at its lower end which extends outwardly through an opening 210 in the wall of the housing 18.

An opposite finger grip 212 is provided on the opposite side of the water pump housing.

The water pump is provided with a plug 214 at its upper end, preferably molded from a synthetic rubber, which is formed to seal an opening 216 in the upper end of the pump housing.

Within the pump housing an operating lever 218 is pivotably mounted on pivots 219 in the upper end of the pump housing, and extends downwardly therefrom to adjacent the lower end of the housing. The operating lever is provided with a push rod 220 which extends through an opening 222 in the wall of the pump hous-

ing facing the plunger 150. The push rod 220 has a downwardly and outwardly extending cam face 224 on its outer end, which is slightly beveled in the opposite direction on the lower edge. A flexible boot member 226 surrounds the push rod 220 and sealingly engages the wall of the pump housing around the opening 222 as well as sealingly engaging the operating lever at the point of intersection of the push rod 220 therewith. A compression spring 228 is mounted between the operating lever 218 and the outside wall of the pump housing, providing means biasing the operating lever toward the opposite wall of the housing. At the lower end of the operating lever an outlet seal 230 is secured to the operating lever, as by means of an adhesive. The outlet seal is positioned to cover a plurality of liquid outlet apertures 232 in the wall of the pump housing facing the space beneath the pressure pad 184. The outlet seal is preferably made of flexible fairly soft synthetic rubber material or the like to provide a seal for the apertures 232. A resilient block 234 is positioned behind the end of the lever 218 and the wall of the pump housing. This resilient block is preferably formed of a material such as, for example, a foamed natural rubber or synthetic rubber of a polyurethane composition. In its relaxed condition this resilient block substantially fills the space between the lower end of the lever 218 and the opposite wall of the water pump housing.

Recesses 240 (see FIG. 4) are preferably provided in both sides of the housing 18 to receive cover plates 242 therein, to cover up the ends of the pin 66 and other structure so as to present a more pleasing outside appearance.

In the operation of the stamp affixer of this invention the door 26 is opened by applying pressure to the recess 52 in the bottom to cause disengagement of the detents 46. When the door swings open it carries with it the stamp guide 94 and the decurling device 72. It will be seen that the bead 79 on the decurling device is caused to ride along the surface 106 during opening of the door.

When the door has been opened a roll of stamps 244 is placed into the receptacle 60, with the loose end of the stamps extending down over the protrusion 104. The stamp roll is then unwound enough for two to three stamps to extend beyond the protrusion 104. The perforations adjoining the center one of these stamps are then placed over the pins 122 on the rotor, and the end stamp 185 can be, but does not need to be, placed so that its end extends into the opening 148 in the shear plate 146. The door may then be closed. Whether or not the stamp affixer is held in upside position during the closing of the door the bead 79 will ride on the surface 108 on the receptacle 60, and upon closing of the door bead 80 will contact 106 causing the decurler to become operative wherein bead 79 will be in proper position behind the protrusion 104. The stamp guide 94 is also moved into position, upon closing of the door, to guide the stamps through the slot 148. If the stamp perforations have not been placed on pins 122, then upon pressing down the cap 16, thereby operating the mechanism, the pins 122 will move along the stamps until the pins reach a row of perforations and will then engage themselves, causing the feed function to begin. The arms 98 and 100 of the stamp guide and the mounting at 96 have such resilience that the stamp guide will conform as required on the rotor to cause the stamps to stay in position until engaged by the pins 122.

To fill the water pump the resilient arm 202 is flexed inwardly by grasping the finger grips 208 and 212 so that the water pump can be removed from the housing. The plug 214 is removed and the pump filled with water. The plug is then replaced and the pump reinserted into the housing 18 until the detent 204 snaps into place. The stamp affixer is now ready for operation.

When in "ready" condition the relationship of the elements of the stamp affixer is as shown in FIG. 2. Successive stages of the operation of the stamp affixer are illustrated in FIGS. 2A, 2B, 7 and 7A.

As shown in FIG. 1, the stamp affixer is placed upon a letter or other material to which a stamp is to be attached, with the arrows 14 indicating the position desired for the stamp. Downward pressure is then exerted upon the cap 16. As the cap moves downwardly the pawl 132 on the index arm 134 engages one of the shoulders 130 on the flange 120 causing the rotor 110 to rotate. The engagement of the pins 122 in the perforations of the stamp thereon causes stamps to be pulled from the roll of stamps 244. Movement of the stamps past the bead 79 and protrusion 104 causes the stamps to be bent oppositely to the way in which they were rolled up, thereby causing some decurling of the stamps, so that they are less likely to curl up when placed upon the envelope. Such rotation of the rotor causes the endmost stamp 185 to begin feeding out through the opening 148.

The same downward movement of the cap moves the plunger member 150, which causes the striker plate 174, the knife 170 and the pressure pad 184 to also begin to move downwardly. As the stamp 185 continues to feed through the opening 148, as seen in FIG. 2A, the striker plate 174 engages the cam face of push rod 224 in the pump 200. Since the opposite end of the striker plate is against the adjustment screw 182, the striker plate is prevented from rotating so it forces the push rod 220 into the pump housing. This pivots the operating lever 218 so that the outlet seal 230 is moved away from the perforations 232. Compression of the pad 234 serves to prevent the inward movement of the push rod 220 from increasing the pressure within the pump housing. As the plunger 150 moves downwardly to just beyond the point depicted in FIG. 2A, the striker plate 174 moves past the push rod 220, allowing the spring 228 therein to rapidly swing the operating lever 218 to the right, so that the seal 230 is caused to slap against the liquid between it and the perforations 232 and cause small amounts of water to be squirted through the perforations and onto the surface to which the stamp is to be affixed. The location of the perforations is such that the surface being moistened is immediately below the pad 184.

As the plunger 150 continues to move downwardly a single stamp 185 is continuously being fed out through the opening 148, with the pawl 132 moving in the slot 126 in the ratchet wheel. The pawl 132 may be held in engagement with the slot by any convenient means, as for example a projection on the housing wall behind it. A support rib 135 (see FIG. 4) may extend from the wall of the housing 18 against the index arm to insure that the pawl remains in the slots. The ratchet wheel, the rotor, and the grooves in the ratchet wheel are proportioned so that the slot 126 reaches vertical position and rotation of the ratchet wheel ceases just as the perforations of a single stamp 185 reach the cutting edge of the shear plate, i.e. the surface on which the moving

knife slides. Since the pawl 132 is in a groove, engagement of the opposite wall of the groove with the pawl prevents inertia of rotation from causing any overtravel of the feeding mechanism.

After feeding of the stamp ceases, and following the moistening operation, the knife 170 reaches the slot 148 in the shear plate 146, and cuts off the stamp, as shown in FIG. 2B. Further downward movement of the plunger carries the stamp down into engagement with the surface which has been wetted. The open ends of the grooves in the ratchet wheel allow lost motion movement of the pawl during this part of the operation. The canted ribs 186 on the pressure pad 184 engage the stamp to cause it to be moved laterally a small amount, thereby helping to break down the adhesive film on the stamp and spread out the moisture so as to obtain better adhesion of the stamp to the surface.

When the stamping operation is completed and the cap 16 is released, the plunger begins to move upwardly due to the force of the springs 198. The pawl 132 moves upwardly in the slot 126, slides up the ramp 128 in its upper end, across the narrow face of the flange and drops off behind the next shoulder 130 into the next adjacent groove 123. The engagement of the pawl 144 in one of the notches 121 prevents any possibility of reverse rotation of the rotor.

As the plunger 150 moves upwardly the striker plate 174 engages the push rod 220 and pivots downwardly to bypass it, as shown in FIG. 7A. The spring 176 then causes the striker plate to be returned to the initial position, as shown in FIG. 2.

The springs 198 then return the cap and plunger to their initial position, a stop on upward movement being provided by engagement of the pin 66 with the lower end of the slots 162 in the plunger.

During the downward movement and the feeding of stamp 185, the rotation of the feed rotor 110 has of course positioned another stamp for feeding through the aperture 148. The stamp affixer is then ready for another stamping operation.

A major benefit obtained from the stamp affixer of the present invention is due to the structure of the receptacle for the roll of stamps, particularly in combination with the novel stamp guide, which greatly facilitates proper loading of a new roll of stamps in the machine. As has been seen, upon opening the door 26 the receptacle and the feed rotor are fully exposed so that the roll of stamps may be merely dropped in and perforations between the stamps at the end of the roll placed over the pins 122 on the feed rotor 110.

The engagements of the pawl 132 with the shoulder 130 and/or 126 and the pawl 144 with the notch 121 prevent the feed rotor from moving appreciably while the stamps are being loaded, making the loading operation much easier. Then upon closing of the door one is assured that the stamps are in proper place for accurate feeding. In designs heretofore available it has been necessary to feed the stamps through a slot or restricted opening in such a way that the operator was never sure that the stamps would be properly engaged and would properly feed.

Another benefit of the stamp affixer of this invention results from the provision of the grooves on the face of the ratchet wheel which positively prevent any overtravel of the ratchet wheel, thereby assuring that the machine continues to feed stamps accurately. Such accurate feeding is further assured by virtue of the pawl

144 which prevents reverse rotation of the feed rotor.

More accurate cutting of the stamps at the perforations is attained due to the particular configuration of the knife 170 and the edge of the opening 148 in the shear plate, and due to the fact that a resilient knife is used so that the resiliency of the knife itself insures that the edge of the knife continuously bears against the shear plate.

Many other novel features in the design which is the subject of this invention contribute to greater economies in manufacturing and insure dependable operation of the stamp affixer. Most of the pieces can be injection molded from any one of a number of suitable plastic materials, and readily assembled into the housing halves and the cap.

The housing halves are easily welded together to form a unitary structure providing adequate support for all of the functional elements therein.

Although certain preferred embodiments of the invention have been shown and described herein, many modifications thereof incorporating the advantageous features of this invention will be apparent to those skilled in the art. Accordingly, the invention is not to be considered to be limited to the specific embodiments shown and described, but only as set forth by the appended claims.

We claim:

1. In a stamp affixer comprising

a housing,

a door on said housing,

a stamp roll receptacle in said housing,

means for feeding a stamp from a roll of stamps in said receptacle into a cut-off position above a surface to which the stamp is to be affixed,

means for detaching said stamp from said roll when said stamp is in said cut-off position,

means for moistening said surface, and

means for pressing said stamp onto said moistened surface, and

the improvement wherein said receptacle comprises a semi-circular wall affixed to said housing, an arcuate wall rigidly attached to said door, and an arcuate wall pivotally attached to said door, said semi-circular wall and said arcuate walls forming substantially a full circle with a gap between said pivotal wall and said semi-circular wall, and means on said housing for guiding said pivotally attached wall into position when the door is closed.

2. A stamp affixer as defined by claim 1 and including

guide means attached to said door positioned, when said door is closed, to guide stamps through said feeding means.

3. A stamp affixer as defined by claim 2 and including

stamp take-off means attached to said housing and positioned to cooperate with said guide means to cause stamps to be fed from said feeding means to said detaching means.

4. In a stamp affixer comprising

means for feeding a stamp from a strip of stamps into a cut-off position above a surface to which the stamp is to be affixed,

means for detaching said stamp from said strip when said stamp is in said cut-off position,

means for moistening said surface,
 means for pressing said stamp onto said moistened surface,
 actuating means operably engageable with the afore-
 said means, 5
 all of which means are supported in a housing, the improvement wherein said housing includes means forming a channel to guide said actuating means during operation thereof,
 a shear plate rigidly mounted in said housing parallel 10
 to and adjacent said channel,
 a resilient knife mounted on said actuating means and biased into engagement with said shear plate by the resiliency of the knife,
 said shear plate including a slot through which a 15
 stamp to be cut off is fed, said slot having a substantially straight bottom edge,
 said knife having a cutting edge at an acute angle with said bottom edge, and only the cutting edge of 20
 the knife engaging the shear plate.

5. In a stamp affixer comprising
 means for feeding a stamp from a strip of stamps into a cut-off position above a surface to which the stamp is to be affixed, 25
 means for detaching said stamp from said strip when said stamp is in said cut-off position,
 means for moistening said surface,
 means for pressing said stamp onto said moistened surface, and 30
 actuating means operably engageable with the afore-
 said means, the improvement wherein
 said feeding means comprises
 a rotatable feed rotor,
 a ratchet wheel affixed to and having a common 35
 axis with said feed rotor, and
 a pawl affixed to said actuating means adapted to engage and rotate said ratchet wheel sufficient to feed a stamp upon each operation of said actuat-
 ing means, 40
 a plurality of grooves in the face of said ratchet wheel facing toward said pawl,
 each groove having a camming surface and an oppositely directed limiting surface, whereby engage-
 ment of said limiting surface with said pawl pre- 45
 vents overtravel of said ratchet wheel,
 said pawl being resiliently biased in a direction parallel to the axis of the ratchet wheel toward a position engageable with the grooves in the ratchet wheel, 50

and

cooperating means on said pawl and said ratchet wheel providing means for moving said pawl from one groove to another after each operation of said actuating means. 55

6. A stamp affixer as defined by claim 5 and including
 a second pawl and ratchet system engaging said feed rotor to allow movement of said feed rotor in a direction to feed stamps but preventing movement in the opposite direction. 60

7. A stamp affixer comprising
 a housing,
 a door adapted to close one side of said housing, 65
 a vertically movable cap on said housing,
 actuator means mounted on said cap and extending downwardly into said housing,

compression spring means mounted to bias said cap upwardly to a "ready" position,
 a stamp roll well affixed to said housing,
 said stamp roll well including an arcuate wall opening toward said door,
 a facing arcuate wall affixed to said door,
 another arcuate wall pivotally attached to said door,

said arcuate walls together forming substantially a full circle when the door is closed, with a gap between the free end of the pivotal wall and the adjacent end of the wall mounted in the housing,
 means on said pivotal wall and on said housing cooperating to form a stamp decurler when the door is closed,

cooperating means on said pivotal wall and said housing adapted to guide said pivotal wall into position during closing of the door,

means in said housing operable upon depression of said cap against said spring means to feed a stamp from a stamp roll in said stamp roll well into a cut-off position above a surface to which the stamp is to be affixed,

means for detaching said stamp from said roll when said stamp is in said cut-off position,
 means for moistening said surface, and
 means for pressing said stamp onto said moistened surface.

8. In a stamp affixer comprising
 means for feeding a stamp from a strip of stamps into a cut-off position above a surface to which the stamp is to be affixed,
 means for detaching said stamp from said strip when said stamp is in said cut-off position,
 means for moistening said surface,
 means for pressing said stamp onto said moistened surface,

actuating means operably engageable with the afore-
 said means, 40
 the improvement including
 means engageable with said feeding means to prevent overtravel of said feeding means,
 means engageable with said feeding means to prevent reverse operation of said feeding means,
 said feeding means comprising a rotatable feed rotor having means thereon to engage the perforations between adjacent stamps, and pawl and ratchet means engageable with said rotor to cause rotation thereof in response to operation of said actuating means, and

said overtravel prevention means comprising a groove on said ratchet means, said groove positioned to engage said pawl at and following the completion of a feeding operation.

9. A stamp affixer as defined by claim 8 wherein said reverse prevention means comprises biasing means positioned to contact a surface of said ratchet means at the completion of a feeding operation.

10. In a stamp affixer comprising
 means for feeding a stamp from a strip of stamps into a cut-off position above a surface to which the stamp is to be affixed,
 means for detaching said stamp from said strip when said stamp is in said cut-off position,
 means for moistening said surface,

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means for pressing said stamp onto said moistened surface, and
actuating means operably engageable with the afore-said means,
said feeding means comprising a rotatable feed rotor 5
having means thereon to engage the perforations between adjacent stamps, and ratchet means and a first pawl engageable with said rotor to cause rotation thereof in response to operation of said actuating means, said ratchet means including grooves in 10
communication with said pawl means to prevent overtravel of said feeding means,
all of which means are supported in a housing,
a second pawl connected to said housing,
a plurality of notches in said ratchet means, said 15
notches positioned to contact said second pawl at the completion of feeding operations to prevent reverse operation of said feeding means.
11. In a stamp affixer comprising
means for feeding a stamp from a strip of stamps into 20
a cut-off position above a surface to which the stamp is to be affixed,

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means for detaching said stamp from said strip when said stamp is in said cut-off position,
means for moistening said surface,
means for pressing said stamp onto said moistened surface, and
actuating means operably engageable with the afore-said means,
said feeding means comprising a rotatable feed rotor having means thereon to engage the perforations between adjacent stamps, and a first pawl and first ratchet means engageable with said rotor to cause rotation thereof in response to operation of said actuating means, whereby said first ratchet means in communication with said first pawl means acts to prevent overtravel of said feeding means,
all of which means are supported in a housing,
a second pawl connected to said housing and in communication with a second ratchet means whereby reverse operation of said feeding means is prevented.

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