June 17, 1969 J. J. DOHNALIK 3,450,009

MACHINES FOR MAKING ENVELOPES

Filed Nov. 4, 1966

Sheet 1 of 5

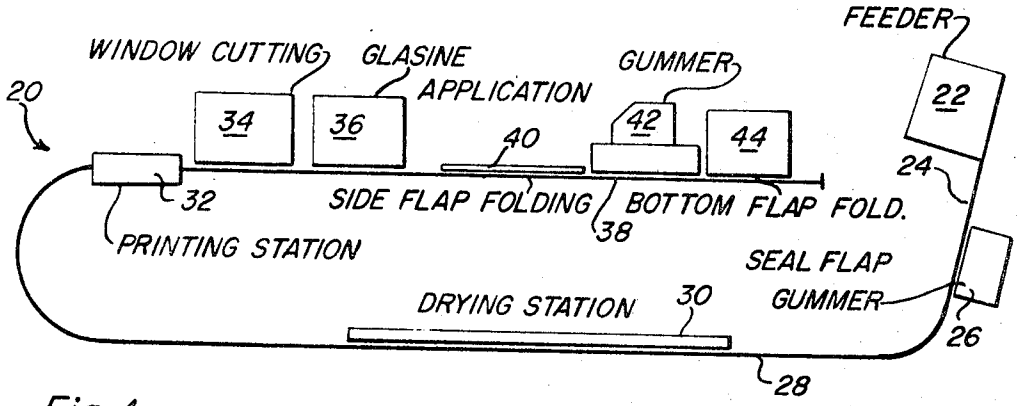


Fig. 1

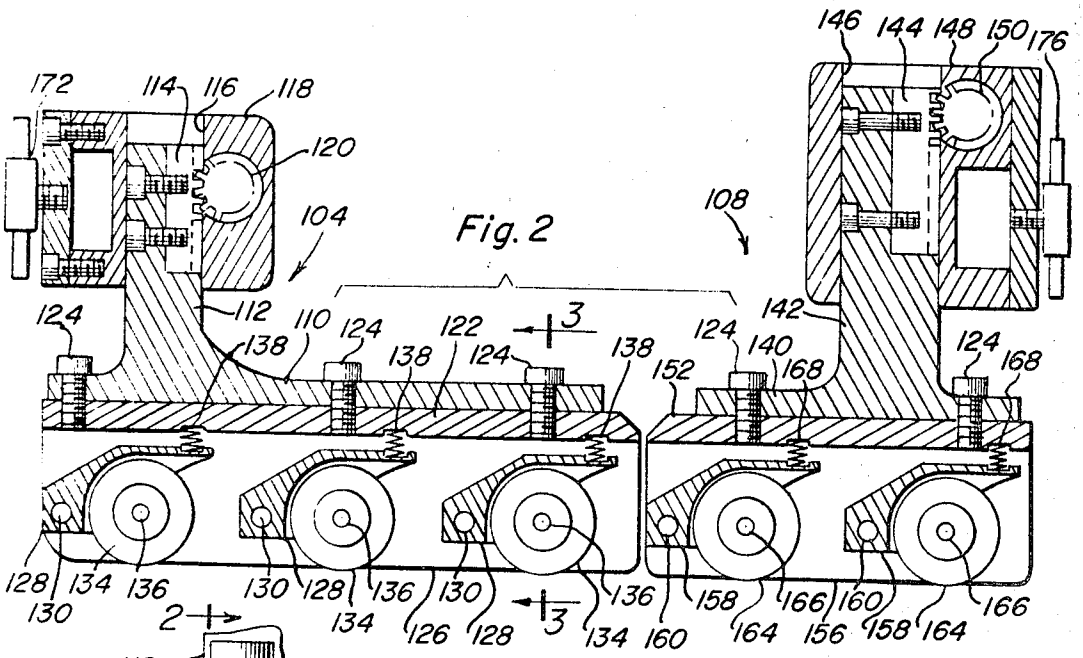


Fig. 2

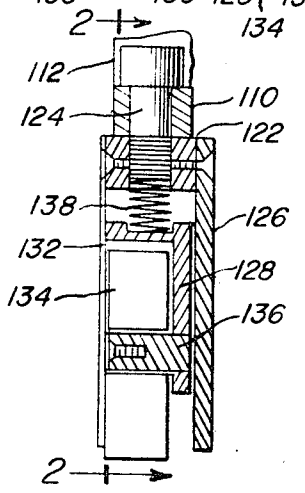


Fig. 3

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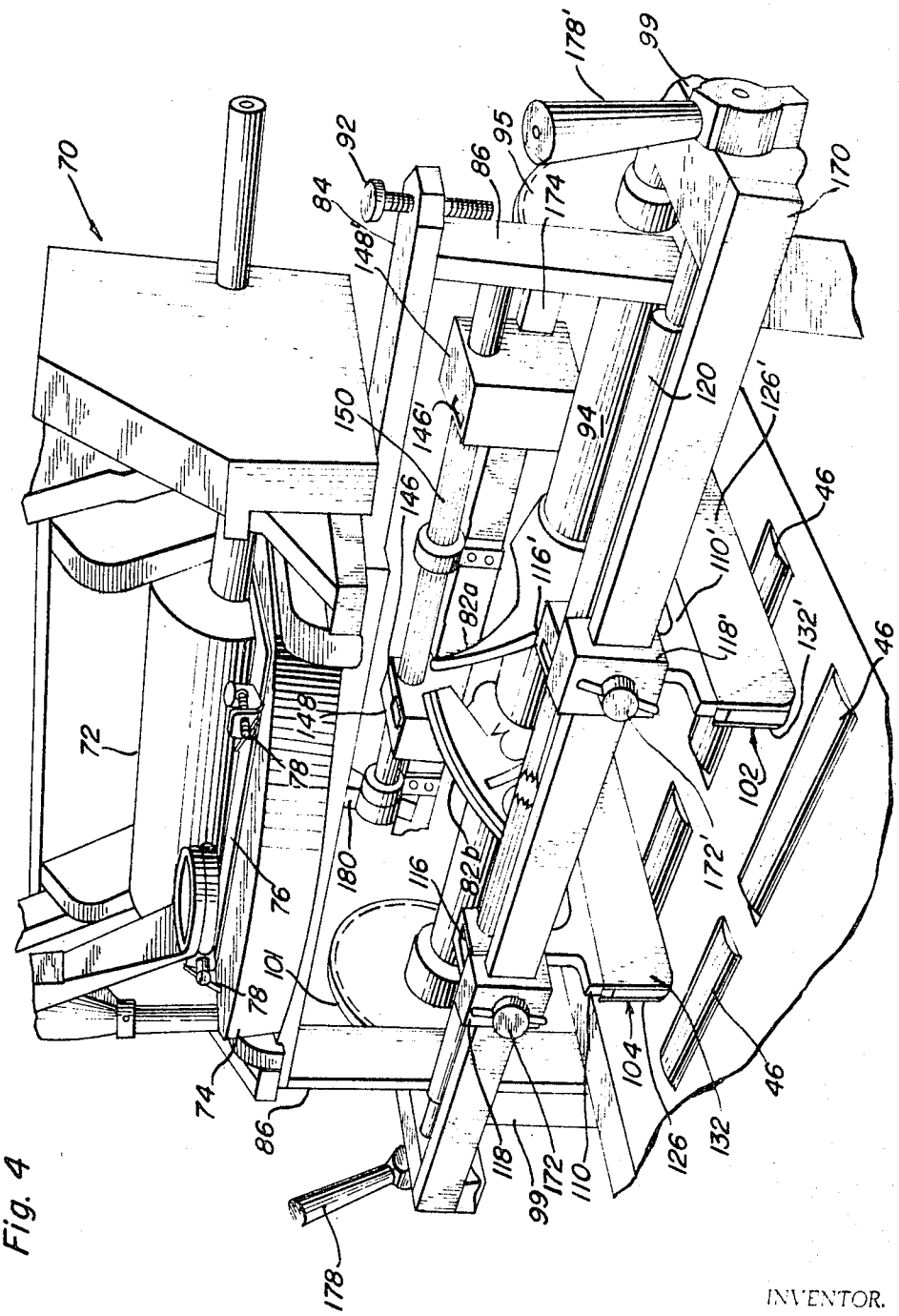


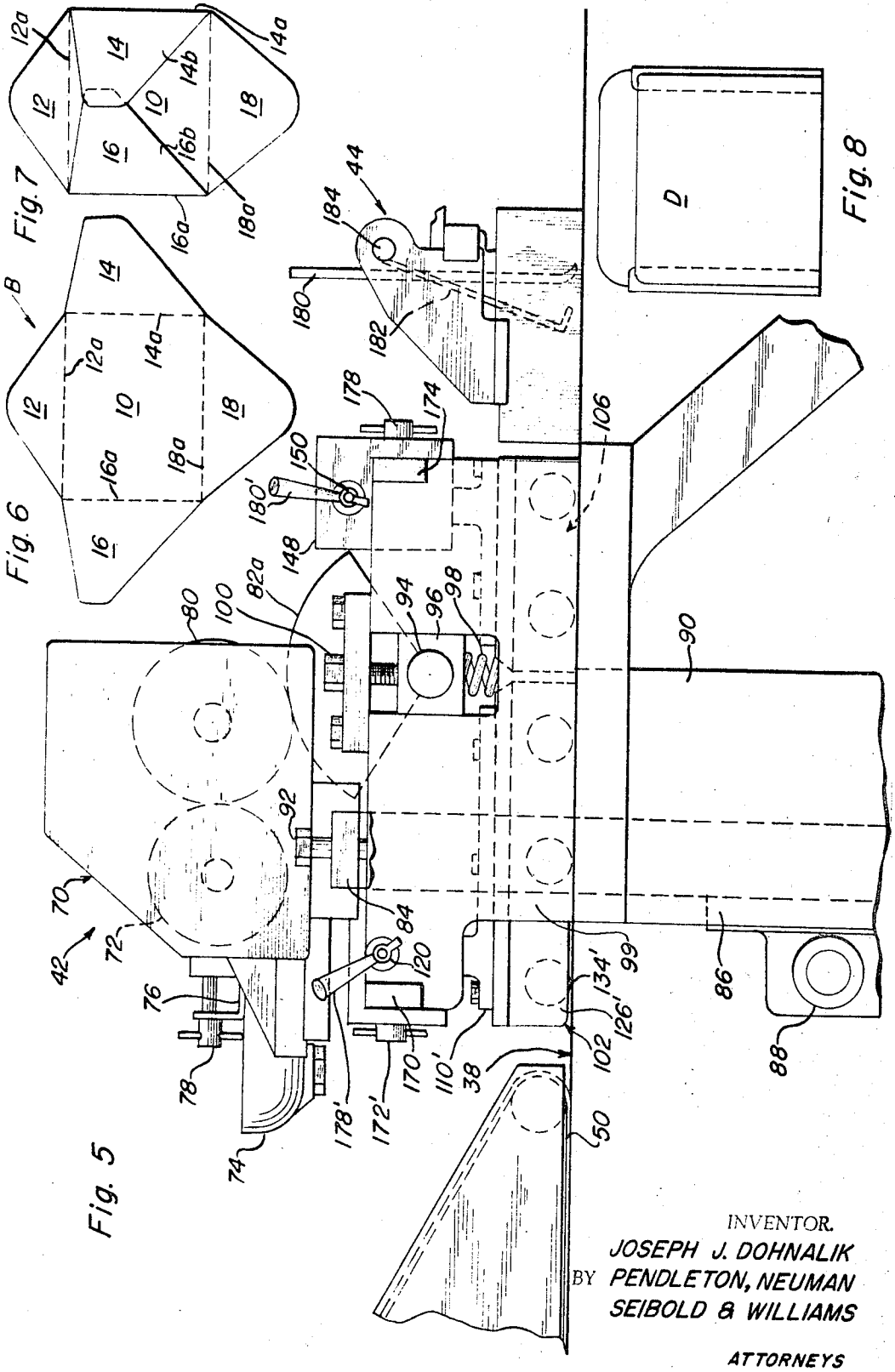
Fig. 4

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MACHINES FOR MAKING ENVELOPES

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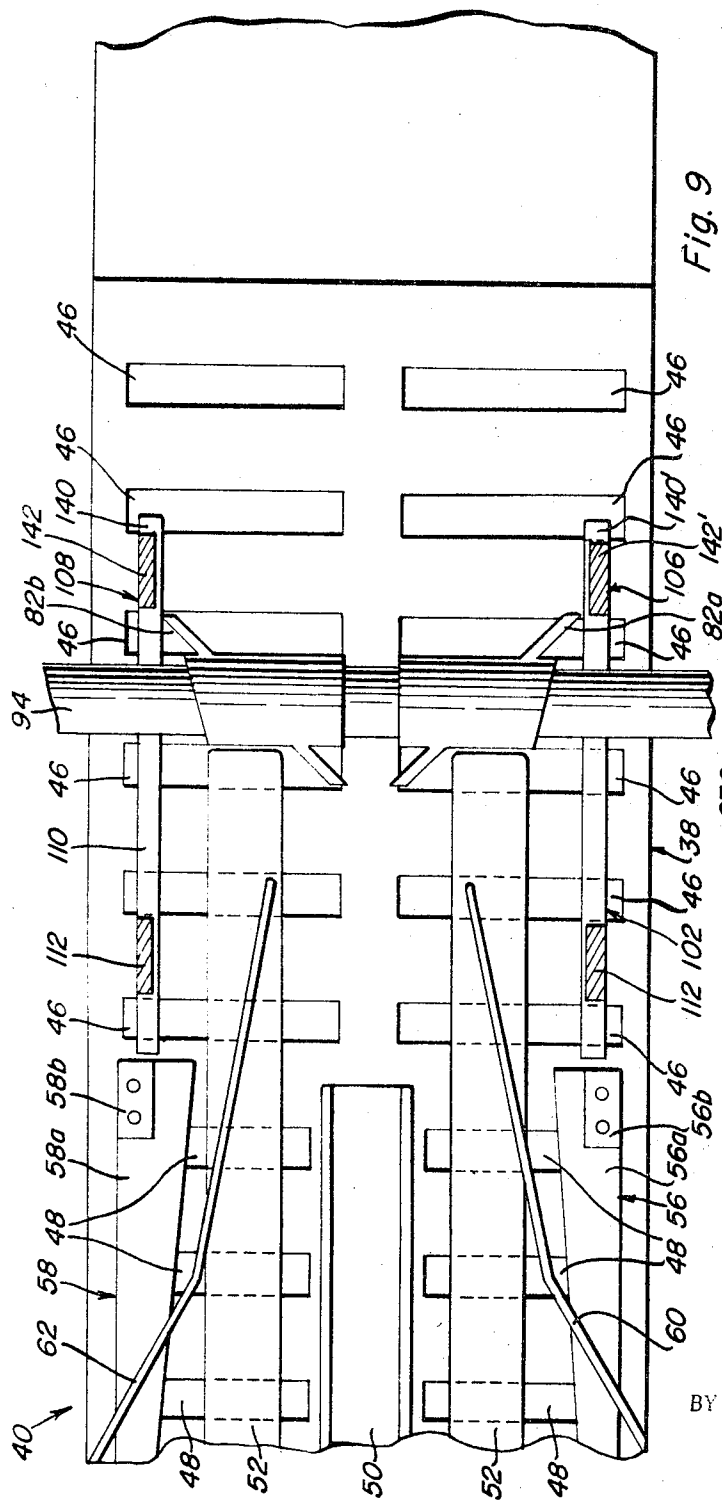


Fig. 9

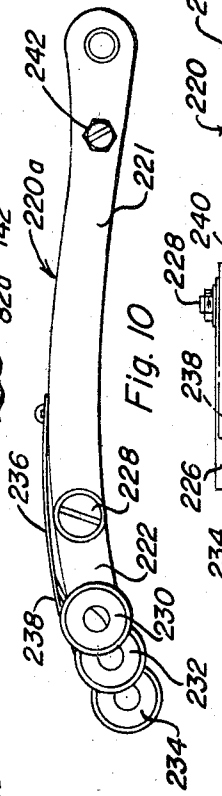


Fig. 10

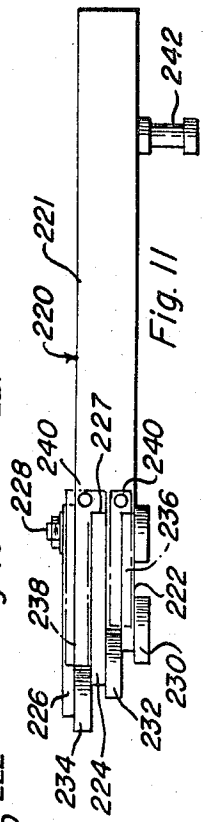


Fig. 11

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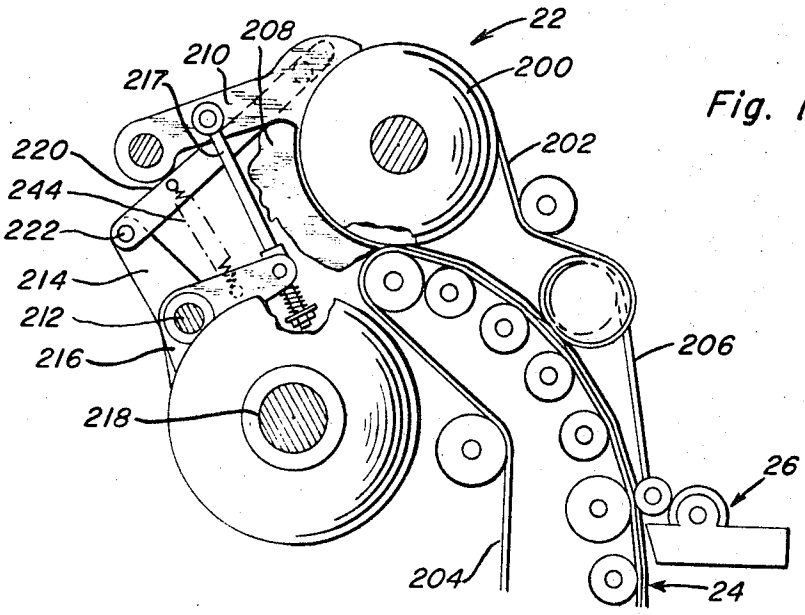
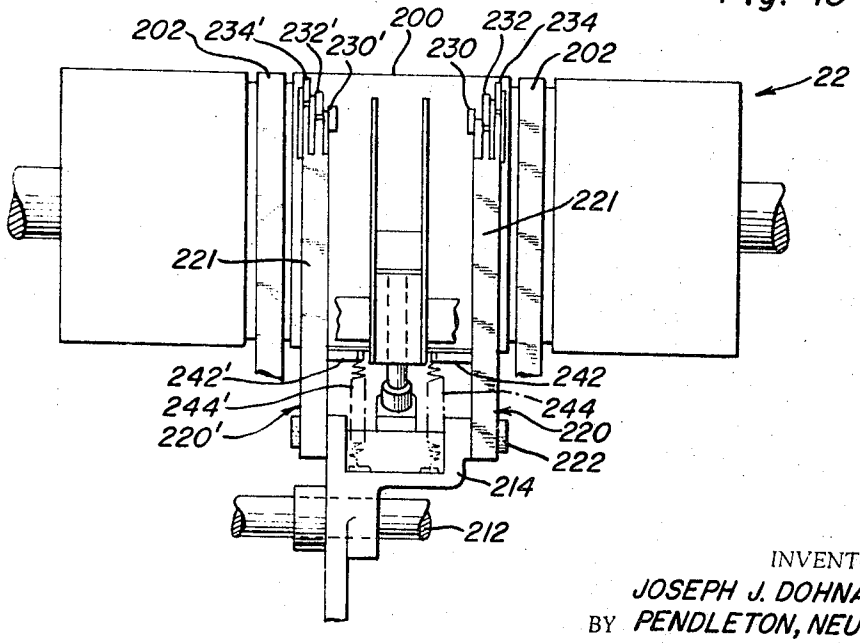


Fig. 12

Fig. 13



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3,450,009

MACHINES FOR MAKING ENVELOPES

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Int. Cl. B31b 21/36, 31/00
U.S. Cl. 93—62 9 Claims

ABSTRACT OF THE DISCLOSURE

An envelope forming machine for making large diagonal seam envelopes includes a flat horizontal bed, side flap folders, a rotary segmental applicator and a bottom flap folder over the bed, with presser carriages extending beneath the applicator shaft and including a plurality of presser rollers disposed over the outer edges of the path of travel of the envelope blanks and closely adjacent to the outer edges of the applicator. The presser rollers are mounted on stub shafts extending inward from a support, and a thin cover plate extends over the inner side of each set of rollers. The carriages are supported for vertical reciprocating adjustment and horizontal sliding adjustment. The mechanism for feeding the blank to the machine includes a rotary drum and two sets of independently resiliently mounted rollers disposed in opposite echelon arrangement for engaging the leading edges of a blank for forming a diagonal seam envelope.

This invention pertains to machines for making envelopes and particularly to apparatus adapted for forming large diagonal seam envelopes in high speed envelope-forming machines.

One type of a relatively large envelope which has obtained wide acceptance and use is the so-called open side diagonal seam envelope (sometimes identified as the cross-seam or baronial type envelope). There is a need for mechines capable of producing such envelopes economically and at high production rates, Further, it is desirable that such machines be highly flexible for producing various modifications of these envelopes, such as with extensive and/or multicolor printing and with or without windows, and that the machines be readily adaptable for forming other types of envelopes. Due to the substantial cost of such machines, one desirable manner of obtaining the aforementioned capabilities is by providing for convenient field or operator conversion of existing high speed machines between setups for forming diagonal seam envelopes and setups for forming other types of envelopes.

A machine presently in use for forming large open side diagonal seam envelopes from appropriate blanks is the "Large Open End Envelope Machine" produced and sold by F. L. Smithe Machine Co. Inc., Duncansville, Pa. This machine has a production capacity on the order of 5000–6000 envelopes per hour. Another machine presently in commercial use for forming relatively large envelopes is identified as the "Medium Open End Envelope Machine" (sometimes referred to herein as the MO machine) produced and sold by said F. L. Smithe Co. Inc. This machine is capable of forming envelopes from blanks at rates on the order of about 18,000 envelopes per hour. This machine also has greater capabilities than the Large Open End Envelope Machine in several other respects, such as in applying printing to the blanks as the envelopes are being formed. However, a conventional MO machine is no capable of producing certain types of envelopes, notably diagonal seam envelopes.

It is an object of this invention to provide improvements in machines for producing envelopes. Further objects of this invention are to provide improved machines for forming large diagonal seam envelopes at high production rates; to provide improvements for increasing the flexibility of machines for forming envelopes; to provide for producting open side diagonal seam envelopes on an MO type machine; and to provide improvements permitting convenient field conversion of such machines for forming various types of envelopes, including diagonal seam envelopes. Further and additional objects and advantages will appear from the description, accompanying drawings and appended claims.

For reference in discussing envelope sizes, it may be noted that a conventional MO machine is adapted for making open end center seam envelopes in sizes of about 5″ to about 12″ in width and about 7″ to about 15½″ in length. The machine also may be used for making open end single side seam envelopes on the order of 9″ in width. Such an MO machine modified in accordance with the present invention may be utilized for making open side diagonal seam envelopes of the same or slightly larger sizes, i.e., about 6″ to about 12½″ wide and about 7″ to about 19½″ in length.

While the invention is disclosed and described herein with respect to the production of diagonal seam envelopes on an MO machine modified in accordance with this invention, such a modified machine is also adapted for use in forming open side double side seam envelopes (sometimes identified as booklet type envelopes) with substantially the same setup as for forming diagonal seam envelopes. Further, this modified machine may be readily converted for forming the various types of envelopes for which it is conventionally adapted. In each instance the modified machine retains its basic structure and manner of operation in that each blank is or may be moved through a seal flap gummer, a dryer, printing stations, a window cutter and a glassine applicator in a flat, open condition, with the bottom flap at the leading edge and then through flap closing and envelope discharge apparatus.

In accordance with one illustrative form of this invention, as each envelope blank is conveyed through the flap closing apparatus it first moves through folding apparatus for folding the side flaps over the body, then through a gummer station where a rotary segmental adhesive applicator die positioned over the conveyor applies adhesive to the appropriate edges of the infolded side flaps, and finally through a bottom flap folder which folds the bottom flap over the adhesive areas on the side flops to complete the balnk. Presser carriages at each end of the applicator engage the edges of the blank as it passes through the gummer station. The folding and gumming of the side flaps and the folding of the bottom flap all occur as the blank moves in a one linear direction, with the blank moving in a single plane through these stations.

For a more complete understanding of this invention reference should now be had to the embodiment illustrated in the drawings by way of example of the invention.

In the drawings:

FIG. 1 is a schematic diagram of a machine for making envelopes and employing teachings of this invention; FIG. 2 is a cross-sectional view of a carriage mechanism employing teachings of this invention, taken generally along line 2—2 of FIG. 3; FIG. 3 is a cross-sectional view taken generally along the line 3—3 of FIG. 2; FIG. 4 is a perspective view of the adhesive applying mechanism of a machine employing teachings of this invention; FIG. 5 is a side elevation view of the mechanism of FIG. 4; FIG. 6 is a plan view of a blank for forming a large, open side diagonal seam envelope; FIG. 7 is a plan view of the blank of FIG. 6 with the side flaps folded in; FIG. 8 is a plan view of an open end double side seam envelope; FIG. 9 is a plan view of the conveyor, side flap

olders and adhesive applicator of the mechanism of FIGS. 4 and 5; FIG. 10 is a side elevation view of an mproved envelope feeder element; FIG. 11 is a top plan iew of the element of FIG. 10; FIG. 12 is an end view of a portion of the feed mechanism of a machine as in FIG. 1 and employing the improved feeder element of FIG. 10; and FIG. 13 is an elevation view of a portion of the mechanism of FIG. 12.

The invention is illustrated as applied to modify an MO machine for forming large open side diagonal seam envelopes from appropriate blanks B, see FIG. 6. Each blank B includes a body portion **10**, a seal flap **12**, two side flaps **14** and **16**, and a bottom flap **18**. The flaps are jointed to the body portion along fold lines **12***a*, **14***a*, **16***a* and **18***a*, respectively, as illustrated.

Referring to FIG. 1, the machine **20** includes an envelope feeder **22**, for instance of the general type shown in Novick U.S. Patent No. 2,954,225. The feeder **22** feeds blanks B to conveyor belts at **24** which carry the blanks through a seal flap gummer **26**. The blanks then are carried by dryer chains **28** through a drying station including heating elements **30**. After drying of the adhesive on the seal flaps **12**, the blanks move along the conveyor system of the upper portion of the machine where they may be subjected to suitable printing elements at the printing station **32** and/or a window cutting mechanism at **34** and a window applicator at **36**. Thereafter the blanks are conveyed along the upper surface of a flat conveying bed at **38**, with the inner surface of the blank upward, the bottom flap extending in the direction of movement (to the right in FIG. 1), and the side flaps **14** and **16** extending to the sides of the blank as in FIG. 6. As they move over bed **38** the blanks pass through a side flap folding station at **40** where the side flaps are folded inwardly over the body **10** as shown in FIG. 7, then through a gummer station **42** where adhesive is applied to the upwardly exposed edges **16***b* and **14***b* of the side flaps (see FIG. 7) and through the bottom flap folder **44** where the bottom flap **18** is folded over the body **10** with its edges overlying the gummed edges **16***b* and **14***b* and is pressed against these edges. The completed open side envelope is then removed from the machine, as by a conveyor (not shown) moving laterally of conveyor **38** at the right of the bottom flap folder **44** in FIG. 1.

Referring now to FIGS. 5 and 9, the conveyor **38** is of conventional construction comprising a support bed with a generally planar upper surface and a plurality of drive rollers **46** and **48** having their uppermost peripheral edges projecting slightly above the upper surface of the support bed. A presser belt **50** is supported with a flight contiguous to the upper surface of the bed between rollers **48** to assist in moving the blanks over the bed **38**. Presser plates **52** overlie the rollers **48** at each side of belt **50** and extend to points adjacent the adhesive applicator **42** to assist in maintaining the envelope blanks which pass thereunder flat and in frictional engagement with the underlying rollers.

Side folders **56** and **58**, together with folder wires **60** and **62** fold the side flaps **14** and **16** over the body **10** as the blank is conveyed through the side flap folding station **40**. Each side flap folder includes elements to engage, lift, crease and fold the side flaps inwardly over the body **10** as is generally known in the art. However, the folders **56** and **58** are preferably extended, as by including auxiliary plates **56***a* and **58***a* on the plowshares **56***b* and **58***b*. Folder wires **60** and **62** are positioned in accordance with the size of the envelope blank, and thus the width of the flaps being folded.

With particular reference now to FIGS. 4 and 5, the gummer apparatus **42** includes a gum box **70** which may be of conventional construction. The illustrated gum box includes a reservoir roller **72** journaled to rotate with its lower portion in adhesive in a reservoir **74**, with a scraper or doctor blade **76** adjustably mounted as by thumb scews **78** for controlling the thickness of adhesive on reservoir roller **72**. The reservoir roller **72** transfers a quantity of adhesive to the surface of transfer roller **80**, which in turn, is effective to distribute the adhesive to rotary applicators **82***a* and **82***b* as indicated in FIG. 5.

The gum box **70** is mounted on a cross bar **84** which is secured to two vertical supports **86**. As illustrated in FIG. 5, the lower portion of each of these vertical support bars **86** may include a rack section which engages a pinion **88** supported on the machine frame **90**. A handle or other suitable means is provided for rotating the pinions **88** and thus for effecting vertical movement of the gum box **70** between the upper retracted position of FIG. 4 and the lower operative position of FIG. 5. Adjustable stop screws **92** are provided in the ends of bar **84** to abut frame elements of the machine when the gum box is lowered and serve as gauges for positioning the transfer roll **80** in appropriate contact with the applicator segments **82***a* and **82***b*.

The applicator segments **82***a* and **82***b* are mounted on a shaft **94** and comprise appropriate opposed helical segments of a cylindrical surface to apply adhesive in the V-shaped pattern of the edge portions **14***b* and **16***b* of the infolded side flaps **14** and **16** (see FIG. 7). The shaft **94** is driven by a sprocket **95** in suitable timed relation with the movement of envelope blanks therebeneath to apply adhesive to the desired area of each such blank. Referring particularly to FIG. 5, each end of the shaft **94** is journaled in a block **96** supported on a compression spring **98** in a guideway in a side support plate **99**, with an adjustable abutment screw **100** for effecting fine vertical adjustment of the block **96** and thus of the applicator segments **82***a* and **82***b*. Gear **101** on shaft **94** engages a gear (not shown) on the shaft of roller **80** to drive the gum box rollers.

A convex recess (not shown) may be provided beneath the applicators **82***a*–**82***b* to avoid application of gum to the underlying bed in the event of a missed blank. Alternatively, other known arrangements may be included to allow for missed blanks.

With reference now to FIGS. 2, 4, 5 and 9, a first pair of roller carriages **102** and **104** are mounted at the in-feed side of the gummer station, and a second pair of carriages **106** and **108** are supported at the output side of the gummer station. The two carriages at each side of the bed are aligned with one another (see FIG. 9) and extend beneath the drive shaft **94** to points closely adjacent one another, whereby each aligned pair **102**–**106** and **104**–**108** forms an essentially continuous articulated carriage assembly at the respective side of the adhesive application station. The area over the folders, between the presser belt and the gummer apparatus, is thus open to permit unobstructed folding of wire side flaps such as flaps **14** and **16**.

The construction of the illustrated presser carriages will be described with reference to the carriages **104** and **108**, it being understood that carriages **102** and **106** are of identical though reversed construction, being right hand units instead of left hand units as in the instance of carriages **104** and **108**.

Referring first to carriage **104** in FIGS. 2 and 3, a carriage bracket **110** includes an upright post portion **112** secured to a rack section **114** which is slidably received in a vertical slideway **116** in a carriage slide **118**. The rack **114** engages a splined pinion shaft **120** (see also FIG. 4). A mounting bar **122** is secured to the carriage bracket **110** by a plurality of cap screws **124**, and a carrier plate **126** is mounted on the bar **122**. A plurality of roller brackets **128** are journaled on studs **130** which are mounted on support plate **126** and project toward a cover plate **132** on the opposite side of the carriage. Each roller bracket **128** carries a roller **134** freely rotatably journaled on a stub shaft **136** supported on the respective bracket. A compression spring **138** is confined between the support bar **122** and the distal or free end of each bracket **128** to urge the respective roller **134** downwardly against envelope blanks which

pass between the roller and the underlying conveyor bed. Thus, the rollers assist in creasing the blanks along the side flap fold lines and insure frictional drive-engagement between the blanks and the underlying driven rollers of the conveyor.

It will be noted that each roller **134** is supported entirely by the support plate **126** and that this support plate is disposed on the outward side of the carriage **104**. The inner plate **132** serves only a covering and guard function, e.g., to prevent adhesive on the applicator segments and/or on the enveloped blanks from coming into contact with the rollers. Accordingly, the plate **132** may be of very thin material and may be positioned closely adjacent the inner surface of the rollers **134**. This permits the outermost edges of the adhesive applicators **82***a*–**82***b* to be operated very close to the inner edges of the rollers **134** whereby the adhesive may be applied very close to the outer edges of the envelope blanks which are gripped beneath the rollers **134**.

Carriage **106** is of substantially the same construction as described above regarding the carriage **104** and includes a carriage bracket **140** having a vertical post section **142** joined to a rack segment **144** and slidably engaged in a vertical slideway **146** extending through a carriage slide **148**. The rack segment **144** meshes with a splined segment of a pinion shaft **150** (see also FIG. 4). A support bar **152** is joined to carriage bracket **140** by cap screws **154** and carries a support plate **156**. Roller brackets **158** are mounted on studs **160** secured to the support plate **156**. Rollers **164** are journaled on stub shafts **166** which are mounted on brackets **158**, and compression springs **168** are confined between support bar **152** and the outer ends of brackets **158** to urge the rollers **164** downward against envelope blanks passing therebeneath. A thin cover plate (not shown), corresponding to cover plate **132**, extends parallel to support plate **156** at the opposite side of the rollers **164**.

Parts of the carriages **102** and **106** are referred to herein by the same numerals as used in describing corresponding parts of carriages **104** and **108**, but with prime notations added, e.g. **110'**.

Referring now to FIG. 4, the carriage slides **118** and **118'** are slidably supported on a support bar **170** extending across the bed **38**. Slides **118** and **118'** are fixed in any given lateral position on bar **170** by clamping screws **172** and **172'**. The carriage slides **148** and **148'** are supported in the same manner on a transverse support bar **174**, being secured in the desired lateral position through hand screws as at **176** (see FIG. 2). It will be appreciated that the slidable engagement of the four carriage slides on bars **170** and **174** and the slidable engagement of the corresponding racks on the splines of pinion shafts **120** and **150** permit lateral adjustment of the carriages **102** and **104** for convenient adjustment to envelopes of various widths. It will be appreciated that an individual pinion gear may be provided for each carriage, with such gears being slidably mounted on drive shafts of appropriate configuration in place of the shafts **120** and **150**.

Rotation of pinion shafs **120** and **150** effects vertical adjustment of the respective pairs of carriages. Handles may be provided on the ends of the pinion shafts, as at **178**, **178'**, **180** and **180'** (see FIG. 5) for convenient rotation of these shafts by the operator from either side of the machine. Suitable locking means also may be provided for securing the shafts in a desired position of vertical adjustment of the various carriages.

The carriages **102**–**108**, in their vertical adjustment, reciprocate along paths normal to the axis of rotation of the adhesive applicators **82***a*–**82***b*, and thus parallel to the plane of rotation of the outer ends of these applicators. Any preset clearance between the carriages and the applicators will be maintained as the carriages are raised and lowered. This avoids any danger of damaging the machine due to interference of these parts should an operator start the machine with the carriages raised or attempt to adjust the carriages vertically while the applicators are rotating. Accordingly, the machine safely may be set up for operation with very little clearance between the outermost edges of the adhesive applicators and the inner surfaces of the carriage guard plates. Considering further that the guard plates are formed of thin material and are closely adjacent the presser rollers, adhesive may be applied to the blanks closely adjacent the edges gripped beneath the presser rollers, i.e. close to fold lines **14***a* and **16***a* in FIG. 7.

Referring to FIG. 5, the bottom flap folder **44** may be of a type known in the art. For instance, the illustrated folder normally includes a lifter comb (not shown) journalled just beneath the upper surface of bed **38** and which moves upward briefly as each successive envelope blank approaches to direct the leading edge of a bottom flap upward along the forward face of bottom flap skids **180**. As the bottom flap fold line **18***a* aproaches the lower end of the skids **180**, tucker blades **182** mounted on a pivot shaft **184** assist in folding the blank B at line **18***a* and in feeding this fold between the lower ends of skids **180** and the upper surface of bed **38**. Thereupon, the continued movement of the envelope, to the right in FIG. 5, results in folding of the bottom flap over the infolded side flaps. Appropriate means are provided to press the bottom flap against the underlying side flaps to complete the adhesion of the overlapping edges of the three flaps.

The feed mechanism illustrated in FIGS. 12 and 13 is a part of a feeder of the general structure and arrangement shown in the Novick U.S. Patent No. 2,954,225 as aforenoted. The illustrated components include a drum **200**, feed belts **202**, **204** and **206**, with suitable support rollers as illustrated, guide arms **208**, deflectors **210**, a stationary shaft **212**, a rocker lever **214** mounted on shaft **212**, a rocker arm **216** also mounted on shaft **212**, a rod **217** connecting rocker **216** with deflector **210**, track cams (not shown) mounted on shaft **218** for actuating rockers **214** and **216**, and arms **220** pivotally mounted on pins **222**. The illustrated components, in cooperation with other elements (not shown) withdraw envelope blanks one at a time from a stack of blanks supported above drum **200** and feed these blanks between the belts **202** and **204**. The belts **204** and **206**, which comprise the conveyor belts **24** of FIG. 1, then feed the blanks through the seal flap gummer **26**, and thereafter deliver them to the chains **28** for conveying to the drying station.

Referring more particularly to FIG. 13, there are two arms **220**, comprising right and left-hand versions designated as **220** and **220'**. Arm **220** is illustrated in greater detail in FIGS. 10 and 11. Referring thereto, a base arm **221** supports three fingers **222**, **224** and **226** journaled on a lateral shaft **228**. Presser rollers **230**, **232** and **234** are journaled on stub shafts mounted in the outer ends of the respective fingers **222**, **224** and **226**. The central finger **224** is provided with a substantially square end at **227** which is disposed adjacent a corresponding surface or shoulder on the base arm **221** whereby finger **224** has rather limited pivotal movement about the axis of shaft **228**. Fingers **222** and **226** are freely pivoted on shaft **28** and are urged downward, into contact with drum **200** by leaf springs **236** and **238**. These springs are secured at one end to arm **220** by rivets **240**, the outer end of spring **236** bearing on the outer end of finger **222** and the outer end of spring **238** bearing on the outer end of finger **226**. A stud **242** is engaged by a tension spring **244** (see FIG. 12) which urges the outer end of arm **221**, and thus the rollers **230**, **232** and **234** toward drum **200**. The mounting arrangement for the fingers **222**, **224** and **226** insures that all three rollers will conform to and remain in yielding contact with the surface of the drum **200**.

As will be seen in FIG. 13, arm **220'** is of the same construction as arm **220** except that the three rollers

230', 232' and 234' thereon are disposed in opposite echelon arrangement. The angular arrangement of the two sets of rollers on arms 220 and 220' conforms to the included angle between the two sides of the leading edge of bottom flap 18 whereby this type of pointed flap will be engaged by all six rollers of the arms 220 and 220' for improved positive feeding of this type of blank by the feed mechanism 22.

It will be obvious that other modifications of the specific embodiment shown may be made without departing from the spirit and scope of this invention.

While the illustrated machine 20 is adapted for forming diagonal seam envelopes, it readily may be converted to the formation of double side seam envelopes D (FIG. 8) by the substitution of appropriate adhesive applicator segments on shaft 94. An added advantage it that the machine also may be converted for use in forming other envelopes in its conventional manner of operation simply by raising the gum box unit 70 to an inactive position as shown in FIG. 4 and utilizing the gummer normally positioned beneath bed 38 ahead of the side flap folding station 40 (to the left of folding station 40 in FIG. 1). Thus the present improvements increase the flexibility of the machine 20 by providing for its use in forming additional types of envelopes without in any way impeding or impairing its use for forming envelopes in accordance with its original design.

It will thus be seen that the aforenoted objects have been met.

While a particular embodiment of the invention has been shown, it will be understood, of course, that the invention is not limited thereto since modifications may be made by those skilled in the art, particularly in light of the foregoing teachings. Therefore, it is contemplated by the appended claims to cover any such modifications as incorporate those features which may be said to constitute the essential features of these improvements, within the true spirit and scope of the invention.

I claim:

1. Envelope forming apparatus adapted for making diagonal seam envelopes comprising means for conveying an envelope blank, an adhesive applicator positioned over said conveying means for applying adhesive to blanks conveyed thereby, said adhesive applicator including two segmental dies in opposed helical arrangement on a rotatable support for applying adhesive to a blank in a V-shaped pattern, presser means disposed at each outer edge of said applicator for engaging such blanks, and an envelope blank feeder for feeding blanks to said conveying means, said feeder comprising a rotary feeder element and a pair of arms pivotally supported adjacent thereto, a plurality of presser rollers supported on each of said arms, each roller being supported on the respective arm for movement toward and away from said element independently of the other of said rollers on such arm, each of said rollers being yieldably urged against said element, said rollers on each of said arms being disposed along a line extending at an angle to the axis of rotation of said element to simultaneously engage an edge of a blank for forming a diagonal seam envelope.

2. Envelope forming apparatus as in claim 1 including a plurality of fingers independently pivotally mounted on each of said arms, one of said rollers being rotatably mounted on each of said fingers, and means for yieldably positioning one of said fingers on each arm relative to another of said fingers thereon.

3. Envelope forming apparatus adapted for making diagonal seam envelopes comprising means for conveying an envelope blank, an adhesive applicator positioned over said conveying means for applying adhesive to blanks conveyed thereby, said adhesive applicator including two segmental dies in opposed helical arrangement on a rotatable support for applying adhesive to a blank in a V-shaped pattern, presser means disposed at each outer edge of said applicator for engaging such blanks, and an envelope blank feeder for feeding blanks to said conveying means, said feeder comprising a rotary feeder element, two sets of presser rollers, each of said sets comprising a plurality of rollers, and means for supporting said rollers, each roller of each of said sets being supported thereby for movement toward and away from said element independently of the other of said rollers of the respective set, each of said rollers being yieldably urged against said element, and said rollers of each of said sets being disposed along a line extending at an angle to the axis of rotation of said element to simultaneously engage an edge of a blank for forming a diagonal seam envelope.

4. Envelope forming apparatus comprising a generally horizontal planar bed, means for conveying envelope blanks over said bed, a rotary adhesive applicator positioned over said bed for applying adhesive to such blanks being conveyed thereover, and elongated presser means disposed over said bed adjacent each outer edge of said applicator for engaging the edges of blanks passing beneath said applicator, each of said elongated presser means extending transverse the axis of rotation of said applicator and being mounted for vertical reciprocating movement toward and away from said bed, wherein each of said presser means includes roller support means extending transverse the axis of rotation of said applicator and a plurality of rollers rotatably supported on said support means.

5. Envelope forming apparatus comprising a generally horizontal planar bed, means for conveying envelope blanks over said bed, a rotary adhesive applicator positioned over said bed for applying adhesive to such blanks being conveyed thereover, and elongated presser means disposed over said bed adjacent each outer edge of said applicator for engaging the edges of blanks passing beneath said applicator, each of said elongated presser means extending transverse the axis of rotation of said applicator and being mounted for vertical reciprocating movement toward and away from said bed, wherein each of said presser means includes a support extending along the outer side of the path of travel of blanks on said conveying means and a plurality of rollers each supported solely on said support and extending over the adjacent path of travel of a lateral edge of such blanks.

6. Envelope forming apparatus as in claim 5 wherein each of said presser means includes a cover plate extending adjacent said rollers on the side thereof remote from said support.

7. Envelope forming apparatus comprising a generally horizontal planar bed, means for conveying envelope blanks over said bed, a rotary adhesive applicator positioned over said bed for applying adhesive to such blanks being conveyed thereover, and elongated presser means disposed over said bed adjacent each outer edge of said applicator for engaging the edges of blanks passing beneath said applicator, each of said elongated presser means extending transverse the axis of rotation of said applicator and being mounted for vertical reciprocating movement toward and away from said bed, wherein said applicator is mounted on a shaft extending transversely of said conveying means, each of said presser means comprising two presser carriages with one carriage supported at one side of said shaft and the other supported at the other side of said shaft, said two carriages of each presser means being aligned with one another and extending into adjacent relation to one another beneath said shaft.

8. Envelope forming apparatus comprising a generally horizontal planar bed, means for conveying envelope blanks over said bed, a rotary adhesive applicator positioned over said bed for applying adhesive to such blanks being conveyed thereover, elongated presser means disposed over said bed adjacent each outer edge of said applicator for engaging the edges of blanks passing beneath said applicator, each of said elongated presser means extending transverse the axis of rotation of said applicator

and being mounted for vertical reciprocating movement toward and away from said bed, and means supporting each of said presser means for relative positioning transversely of said conveying means, each of said supporting means including a rack, a rotatable drive shaft extending transversely of said conveying means, and means for engaging each of said racks with said drive shaft as said presser means are adjusted transversely of said conveying means, whereby the clearance of said presser means from said conveying means may be varied by rotation of said drive shaft.

9. Envelope forming apparatus as in claim 8 including a support bar extending parallel to said drive shaft, said presser means being supported on said support bar for selective positioning transversely of said conveying means.

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93—36, 52, 61, 73; 271—2

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UNITED STATES PATENT OFFICE

CERTIFICATE OF CORRECTION

Patent No. 3,450,009 Dated July 9, 1969

Inventor(s) Joseph J. Dohnalik

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

Column 1, line 39, "mechines" should read -- machines --; line 41, "rates," should read -- rates. -- ; line 62, "F. L. Smithe Co. Inc." should read -- F. L. Smithe Machine Co. Inc. -- ; line 69, "no" should read -- not -- . Column 2, line 22, "19-1/2" should read -- 9-1/2 -- ; line 48, "flops" should read -- flaps -- ; line 49, "balnk" should read -- blank -- . Column 5, line 59, "shafs" should read -- shafts -- . Column 6, line 18, "aproaches" should read -- approaches -- ; line 62, "28" should read -- 228 -- . Column 7, line 17, "it" should read -- is -- . Column 10, line 4, after "Bergstein" insert -- 93-56 (PD) -- ; line 6, after "Novick" insert -- 93-61 (A) -- .

SIGNED AND
SEALED
MAR 24 1970

(SEAL)
Attest:

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