

June 20, 1939.

V. E. HEYWOOD

2,163,038

MANUFACTURE OF DRY-SEALING ENVELOPES

Filed Aug. 13, 1936

3 Sheets-Sheet 1

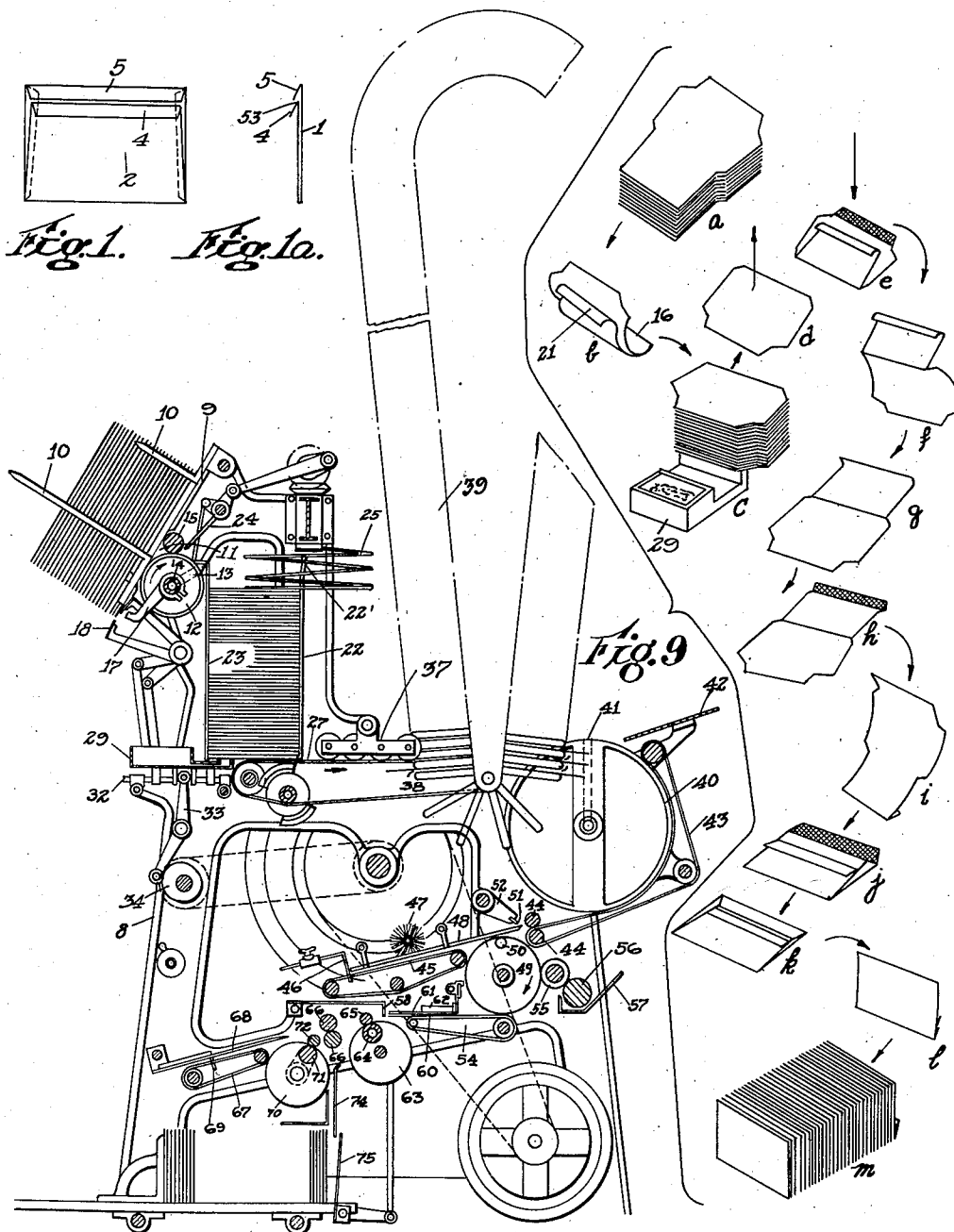


Fig. 2.

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3 Sheets-Sheet 2

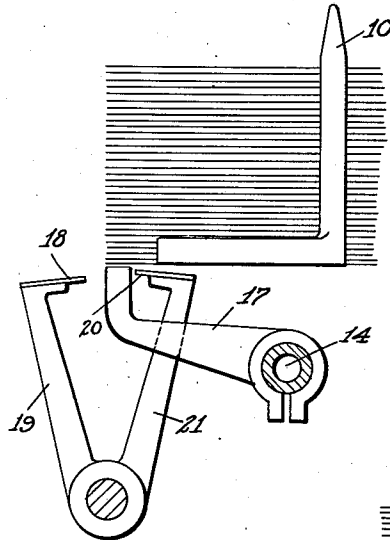


Fig. 3.

Fig. 4.

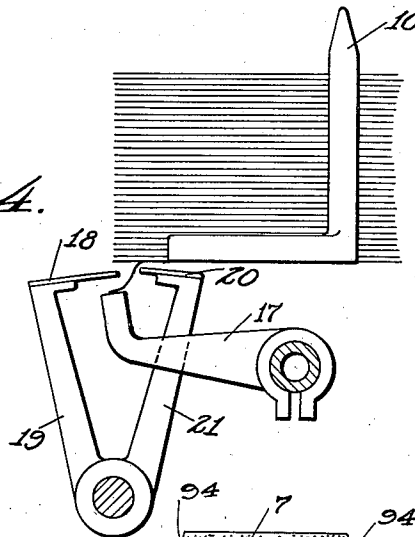
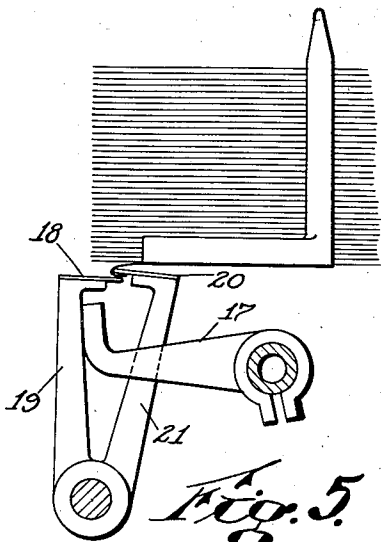


Fig. 5.

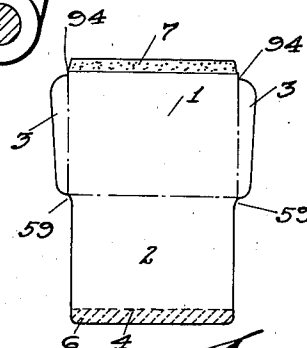


Fig. 1b.

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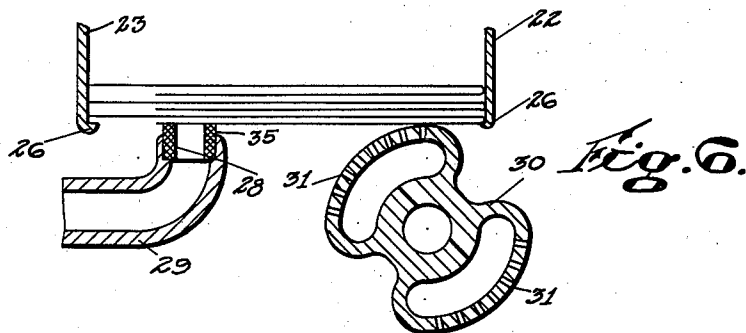
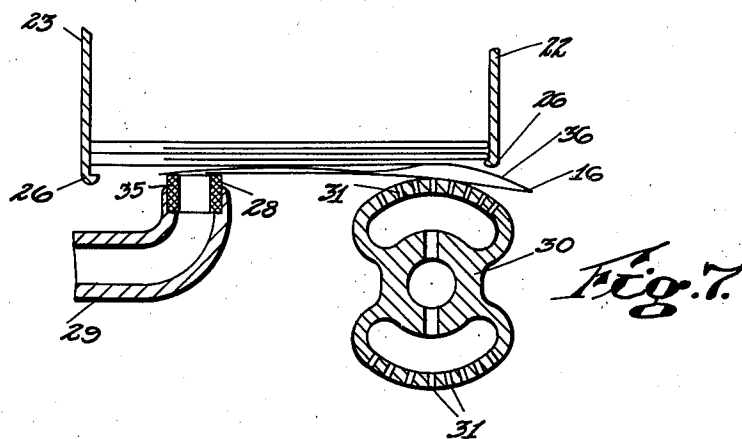
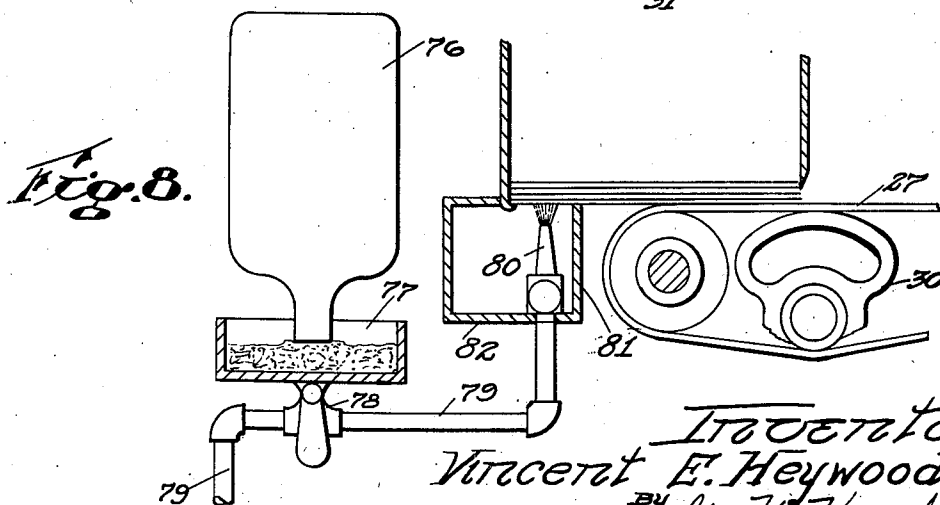
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MANUFACTURE OF DRY-SEALING ENVELOPES

Filed Aug. 13, 1936

3 Sheets-Sheet 3



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UNITED STATES PATENT OFFICE

2,163,038

MANUFACTURE OF DRY-SEALING
ENVELOPESVincent E. Heywood, Worcester, Mass., assignor
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Application August 13, 1936, Serial No. 95,871

16 Claims. (Cl. 93—62)

The present invention relates to methods of and apparatus for the manufacture of envelopes of the so-called "dry-sealing" type, being envelopes adapted to be adhesively sealed without need for any wetting or moistening of adhesive-coated areas. In such a dry-sealing envelope, matching areas on the closure flap and on the envelope body, respectively, provide bands of dry or substantially dry adhesive (obtained by coating said areas with rubber latex or a rubber cement in liquid form and then allowing such coatings to dry out),—the coatings when dried having the property of adhering to each other, but not to uncoated areas of the envelope material, and this property being availed of to obtain the sealing of the envelope merely by the act of pressing the two coated areas into contact with each other.

Such a dry-sealing envelope, of a structure which normally maintains its two cooperating adhesive areas out of contact, and protected from exposure and dirt, is shown and described by Vogel Patent No. 1,944,020, January 16, 1934. For illustrative purposes, I have shown my invention as applied to the manufacture of this patented Vogel envelope,—but it will be understood that such showing is merely by way of example, and that my invention is not limited to the production of any particular type or style of dry-sealing envelope, except as may be specified in the appended claims.

My invention is particularly concerned with the method and the means employed for producing on each envelope, or on the blank therefor, its two cooperating dry-adhesive-coated areas,—such means and method of my invention involving radical departures from previous practices in the manufacture of dry-sealing envelopes. Other and further objects and advantages of the invention will be made apparent in the following detailed description thereof, taken in connection with the accompanying drawings, in which—

Fig. 1 shows in rear elevation the aforesaid patented Vogel dry-seal envelope,—adapted to be produced by my invention.

Fig. 1a is a sectional view of said envelope in open or unsealed condition.

Fig. 1b illustrates the blank from which said envelope is made.

Fig. 2 is a view in side elevation, partly in section, of mechanism, illustrative of my invention, for the manufacture of such envelopes.

Figs. 3, 4 and 5 are large scale fragmentary views illustrating different positions of certain

blank-warping instrumentalities provided by the mechanism of Fig. 2.

Figs. 6 and 7 are large scale fragmentary views illustrating the application of the dry-sealing adhesive to successive blanks.

Fig. 8 is a large scale fragmentary view illustrating a modification of the means employed for applying the dry-sealing adhesive.

Fig. 9 is a schematic or diagrammatic view, illustrating by successive stages or steps marked *a, b, c*, etc., the sequence of the operations performed on the envelope blanks in the manufacture of the envelopes, according to my invention.

Like reference characters refer to like parts in the different figures.

Referring first to Figs. 1, 1a and 1b, the portion 1 of the blank provides the envelope's front wall, while the rear wall is provided by the overlapping adhesive attachment of blank portion 2 to infolded side flaps 3, 3. The upper extremity of folded portion 2 is left free and unsecured, to provide a flap 4 adjacent to the seal flap 5. With both flaps 4 and 5 folded down as shown, their respective coatings 6 and 7 of dry-sealing adhesive are on the inside, and thus fully protected from exposure and from accidental contact with each other in the packing and handling of the envelope. In the use of said envelope, the seal flap 5 is first lifted, giving access to the pocket for the insertion of an inclosure; then, after flap 4 has been turned up and over through approximately 180°, to expose its coated area 6, the sealing of the envelope is effected by simply pressing down the closure flap 5 to contact its coated area 7 with the coated area 6, in the absence of any need for moistening either of said areas.

Heretofore, a complicated and protracted procedure has been in use for the manufacture of dry-sealing envelopes of this type, wherein it will be noted the coated areas 6 and 7 must be on opposite surfaces of the blank or sheet from which the envelope is made. This circumstance, coupled with the fact that the usual coating materials (latex or rubber-cement solutions) are difficult to apply to paper by the use of ordinary gumming dies, gumming rollers, and the like, had made it expedient, in the application of these coating liquids, to virtually flow the same in a continuous film onto the areas to be coated,—this mode of treatment having given rise to the practice (see Winkler et al. Patent No. 2,019,946, November 5, 1935) of so shingling or stepping a succession of the flat blanks (Fig. 1b) as to expose in the movement of the shingled blank as-

sembly past the open mouth of a receptacle containing such coating liquid only the limited area of each blank which it is desired to coat with such solution, the latter thus being spread in a substantially continuous film to cover only the successive blank areas so exposed (for example, only the flap areas 7, 7 of a succession of the shingled flat blanks of Fig. 1b).

According to the aforesaid patented Winkler et al. procedure, the so-coated blanks are maintained in shingled or stepped relation while advancing progressively through a drying chamber,—the prolonged travel through such chamber procuring the evaporation of the liquid from said so-coated areas 7, 7; then, with the blanks still maintained in such shingled relation, the entire operation (coating and prolonged drying) has to be repeated for the exposed flap areas 6, 6 on the reverse or opposite side of the traveling shingled assembly of flat blanks. That is to say, in the aforesaid patented Winkler et al. mechanism, each flat blank is first coated on one edge 7 with the liquid dry-sealing substance, and then subjected to a prolonged drying period for the evaporation of the liquid; next, the other edge 6 must be similarly coated, following which a second prolonged period for drying and evaporation is necessary. Not until the blank is fully dried after its second application of the coating liquid can it be delivered to the creasing, folding and gluing instrumentalities which convert it into the envelope structure shown by Fig. 1.

My copending companion application Serial No. 70,619, filed March 24, 1936, deals, among other things, with the production in each blank, prior to any application of the coating liquid thereto, of a transverse fold which disposes adjacent to each other the two blank areas (4 and 5, Fig. 1b) to be coated; in this way, upon shingling of the so-folded blanks to expose on each blank only the said two adjacent areas, the latter can be coated by a single application of the coating liquid, instead of by the two applications required in the aforesaid Winkler et al. procedure; furthermore, the time required for drying the liquid coating is practically only one-half the time required in said Winkler et al. machine, because of my improved method, the two coated areas of each blank can be dried simultaneously.

The present invention utilizes the transverse folding of each blank, prior to coating same, which is characteristic of the procedure of my aforesaid copending application,—but the present invention procures the application of the coating liquid to the so-folded blanks in the entire absence of any shingling or stepping of the latter, thereby greatly simplifying the process of manufacture and the machinery therefor. An organization of mechanism for carrying out my improved method of manufacture in the absence of such shingling or stepping is shown in Fig. 2, and the same will now be described in detail, with reference to the schematic showing of Fig. 9, which depicts the successive stages of the process.

Referring to Fig. 2, the machine framework 8 supports an inclined plate 9, whereon is received between suitable posts 10, 10 a stack or pile of the blanks (Fig. 1b) with their inside faces uppermost, and in the relative position indicated at a, Fig. 9. The lowermost blank of the stack bridges a transverse opening 11 of plate 9, through which opening projects, into substantially tangential relation to said lowermost blank,

a portion of the periphery of a clockwise rotating roller 12. The surface of roller 12 provides a suction opening 13 elongated in the direction of said roller's axis, or transversely to said lowermost blank, said opening 13 communicating with a suitable interior passage 14 which, by the rotation of roller 12, is alternately connected to and disconnected from a source of vacuum, by any suitable valve, not shown.

Said valve, as opening 13 approaches the lowermost blank, produces suction through said opening to seize transversely the back portion 2 of said blank and to draw it through opening 11 of plate 9,—this seizure and movement by roller 12, in conjunction with an adjacent roller 15 over which the blank portion 1 is drawn, producing, (see b, Fig. 9), a transverse line of fold 16 between said blank portions 1 and 2. This folding results in disposing right next to each other those surfaces of the seal flap 5 and the marginal portion 4 which are to receive the liquid coating,—being surfaces which, except for such folding, would be on opposite sides of the blank. Consequently, each blank as thus transversely folded, is in condition to receive a single application of the coating liquid for the two areas thereof to be coated, said two areas having been brought into juxtaposition so that they constitute, in effect, only a single area. But the drying of a film of dry-adhesive substance on such a two-part area is apt to cause difficulty, from the tendency of the two parts to stick together; consequently, the same as in my aforesaid copending application, I preferably make provision here for avoiding such difficulty by preliminarily imparting to the margin 4 of each blank, before it is withdrawn from the stack, a definite tendency to curl or spring away from the flap 5 which, by the aforesaid transverse folding, is disposed adjacent to said margin 4; in this way, despite the application of the coating liquid simultaneously to the two parts of the single area, the separation of said two parts, prior to drying of said solution, is insured. To this end, in the arrangement of mechanism shown by Fig. 2, each blank before its withdrawal from the stack is acted upon as follows:—

Referring to Figs. 3, 4 and 5, the margin 4 of the lowermost blank, overhanging the lower edge of plate 9, is seized and pulled down by an oscillatory hollow suction arm 17, here shown as pivoted on the shaft of roller 12. This operation carries the margin 4 into the path of a blade 18, carried by an oscillatory swinging arm 19; in the movement of arm 19 from the position of Fig. 4 to the position of Fig. 5, the blade 18 strips the margin 4 from the suction device 17 and bends it, as shown in Fig. 5, under a companion blade 20 carried by an arm 21. Thereupon, arm 21 moves toward the arm 19, causing the blade 20 to free the margin 4 from the blade 18 and producing a definite downward curl 21 of said margin (see position b, Fig. 9). All of this takes place on the lowermost blank of the stack just before such blank is seized, as above described, by suction roller 12, whose opening 13 takes hold of blank portion 2 and carries the latter upwardly until the buckle or bend is entered between said roller 12 and the other roller 15, making the aforesaid fold 16; the curl 21 so formed in margin 4 is only temporarily flattened out by its passage between the rollers 12 and 15.

According to my invention, the thus pre-curved and pre-folded blanks as delivered successively by the rollers 12 and 15 are adapted to be stacked

vertically, one above the other,—as here shown in such a manner as to face downwardly the surfaces destined to receive the liquid adhesive coating (i. e., the adjacent exposed surfaces of blank portions 4 and 5). To this end, as shown in Fig. 2, I provide in advance of rollers 12 and 15 a suitable pile-forming and retaining mechanism for operation on the folded blanks successively projected outwardly, fold 16 foremost, from said rollers; this mechanism, as here shown, consists of a suitable vertical receptacle, whose cross-sectional shape, as defined by a front portion 22 and rear portion 23, and opposite lateral portions, not shown, corresponds substantially to the contour of the partly-folded blank bodies. The front and rear portions 22 and 23 and the side portions, not shown, of said receptacle may be either in the form of walls or in the form of vertical rods to engage and guide the edges of the folded blanks in their descent toward the receptacle bottom. The front wall portion at its upper end is extended to provide stops 22' to arrest each blank by engagement with its fold 16; suitable joggers or pushers 24 are preferably provided to engage each blank from the rear, as it is projected by the rollers 12 and 15, so as to insure its proper alinement with the confining and guiding surfaces of the vertical receptacle.

As delivered to the top of said receptacle, each partly folded blank is received and supported between the open convolutions of a slowly-rotating spiral 25,—the blank being gradually lowered into the receptacle by the rotation of said spiral, and a stack or pile of such blanks gradually building up in said receptacle, one above the other, until the receptacle is filled. The stack or pile is supported in the vertical receptacle by intumed lips 26, 26 on the front and rear portions 22, 23 and also by a pair of belts 27 (only one being shown) that underlie the extended side flaps 3, 3 of the lowermost partly-folded blank; additional support is afforded by the underlying upwardly opening mouth 28 of a receptacle or tub 29, containing the liquid coating solution in sufficient quantity to maintain it level in the mouth 28 with the top edge of said mouth; however, the liquid does not spill over said top edge, owing to the constant pressure maintained on the overlying pile of blanks by the rotating spiral 25. The mouth 28 is elongated transversely to correspond in length substantially to the length of the blank margin 4 which directly overlies said mouth, as shown in Fig. 6; and also at c, Fig. 9; thus, as each lowermost blank is withdrawn from the bottom of the vertical receptacle by movement to the right, Fig. 2, past said receptacle's front portion 22, the margin 4 and also the adjacent flap portion 5 of said blank receive a coating of the adhesive solution, by being drawn across the open mouth 28 which is kept filled with such solution to its upper edge.

Such withdrawal movement is here shown, (see Figs. 6 and 7), as effected by a rotary hollow segmental member 30, the peripheral portions of which provide suitable suction openings 31 which engage and seize the underlying portion 2 of each lowermost blank, to pull down the fold 16 past the ledge or lip 26 of front portion 22, thus freeing the blank from the vertical receptacle and transferring its support to the upper courses of the travelling belts 27. The peripheral gaps in segment 30 prevent any contact of the latter with the freshly coated surfaces 6 and 7 of the blank portions 4 and 5, respectively. I have discovered that any tendency of the coating solu-

tion to "seize" between successive blank withdrawals can be overcome by keeping the mouth 28 in motion, relative to the lowermost blank of the vertical pile, and for this purpose, as shown in Fig. 2, the tub or receptacle 29 is mounted for sliding or reciprocatory movement on a rod 32, the motion being imparted by a rocking lever 33 actuated by a rotating cam 34. By this motion, the mouth 28 is made to travel to the right with the blank that is being withdrawn by the suction segment 30, but the tub motion is at a very much slower speed; the mouth 28 reverses its motion and starts to travel to the left before the flap portion 5 of the blank is fully parted from the mouth. Referring to Fig. 7, this left hand motion, owing to the adhesion between the marginal portion 4 and the rubber lip 35 of mouth 28, produces a buckle 35 in the folded blank, which promotes the downward spring of fold 16 from the forward retaining ledge 26, thereby greatly assisting the action of the suction segment 30 in freeing the blank from the vertical pile. Thus the motion of mouth 28 not only acts to prevent any "seizing" by the coating solution, but also insures an accurately-timed separation and withdrawal of the lowermost partly-folded blank from the vertical pile.

The freshly coated blank thus transferred to the travelling belts 27, with its coated surfaces 6 and 7 facing downwardly, is conveyed flatwise on said belts to the right, Fig. 2, (see d, Fig. 9) beneath a set of rollers 37 which engage the side flaps 3, 3 above the belts and thus prevent slippage of the conveyed blanks. Each blank so conveyed is delivered into one of the open compartments 38 of an endless drier chain 39, the travel of the latter being so coordinated with the operation of suction segments 30 and belts 27 that a drier compartment 38 arrives in blank receiving position at the proper time to receive each individual blank so separated and conveyed. The endless drier 39, which may be carried to any desired height, thus handles the coated partly-folded blanks individually, said blanks as received by said drier being carried by the travel of said drier first upwardly and then downwardly, and at the end of their downward travel being individually withdrawn from the drier and subjected to folding operations, as hereinafter described, for manufacture into envelopes such as shown by Fig. 1.

In the drier 39, each compartment of which receives an individual blank, the upward blank travel occurs with the coated surfaces 4 and 5 facing downwardly, but this condition is reversed on the downwardly moving side of the drier, where the coated surfaces 4 and 5 face upwardly (see e, Fig. 9). By the time each blank arrives at the lower end of the downwardly moving side of the drier 39, the treated surfaces 4 and 5 of said blank will have dried sufficiently for the blank to be freely handled,—the evaporation of the liquid from the coating being promoted, if desired, by inclosing the drier 39 in a suitable heating chamber, not shown. Thus the manufacture of each dry-adhesive coated blank, arriving at the discharge end of drier 39 in the partly-folded condition shown at e, Fig. 9, can be proceeded with, by the employment of any suitable mechanism for converting such blank, by appropriate creasing, 70 gluing, and folding instrumentalities, into the envelope shown by Fig. 1. In Fig. 2, I have shown one way of so operating on the delivered blank (see e, Fig. 9) as to convert it into the envelope of Fig. 1; but my invention is not in any sense

limited to this way of converting, or to the mechanism shown; the latter is merely illustrative.

As shown in Fig. 2, a suitable take-off drum 40 provides an elongate suction opening 41 which, in the clockwise rotation of said drum, will engage and seize the under or uncoated side of the projecting flap portion 5 of each blank as it arrives at the lower end of drier 39. The action of drum 40 draws the doubled or folded blank out of the drier toward a blade 42, the inner edge of which is contacted by the inside surface of portion 2 and margin 4 so that, as drum 40 pulls the blank downwardly onto a belt 42 that partly encircles said drum, the previously-folded back portion 2 is unfolded (see *j*, Fig. 9),—and in this condition the blank, after release of the suction of opening 41 at or near the point where the belt 43 leaves the drum 40, is delivered to a pair of rollers 44, 44, which project it flatwise and outside face uppermost (see *g*, Fig. 9) onto a suitable set of gage table belts 45, where it comes to rest against suitable stops or gages 46.

In this condition, the extended blank is centered and squared against the gages 46 by the action of the belts 45 and, if need be, by the action of a revolving brush 47, the blank being prevented from buckling by suitable overhead rails or skids 48. In this position, the margin 4 of the blank overlies a clockwise rotating cylinder 49, the periphery of which provides a suitable gripper 50, extending longitudinally of said cylinder and with which cooperates a suitable tucker blade 51 carried by a rotary arm 52 above the blank. The blade 51 in its counterclockwise rotation engages the coated margin 4 and tucks or folds it into said gripper 50, forming thereby (see *h*, Fig. 9) the crease 53 (Fig. 1a) which disposes the coated area 6 on the inside of flap 4. The gripper 50, by the rotation of cylinder 49, carries the blank around (see *i*, Fig. 9) and delivers it, inside surface uppermost, onto folding station belts 54,—the usual means, not shown, being employed to effect the release of crease or fold 53 by gripper 50 as the belts 54 are engaged. In this travel around cylinder 49, the extended side flaps 3, 3 of the blank are preferably coated with ordinary wet glue, by means of a pair of suitable gluing rollers 55 (only one being shown) which receive the glue from a transfer roller 56, running in a suitable receptacle 57.

On the belts 54, each extended blank, inside surface uppermost, (see *i*, Fig. 9), and with its side flaps 3, 3 wet with glue on the underside, is conveyed, fold 53 foremost, to folding instrumentalities of substantially the construction and mode of operation shown by Novick Patent No. 1,298,776, April 1, 1919, for the folding up and over of said side flaps 3, 3 and for the refolding, on line 16, of back portion 2 so that the latter will overlap and adhere to the glue-coated surfaces of the intumed side flaps. A detailed showing and description of said folding instrumentalities is unnecessary, since the same per se form no part of the present invention.

It is sufficient to note that such folding mechanism includes a pair of centering stops or gages 58, 58 (only one being shown), which are engaged by the reentrant angle portions 59, 59 of each blank received and conveyed on the belts 54,—this engagement serving to bring the blank to rest upon a table or support 60 and beneath a suitable forming plate 61, beyond which projects the blank's back portion 2. Cooperating with the forming plate 61 are a pair of folding devices 62, 62 (only one being shown), the lat-

ter operating, as described in the aforesaid Novick patent (see Fig. 4 of Novick) to fold the side flaps 3, 3 inwardly over the edges of said forming plate (see *j*, Fig. 9); after this, an oscillatory drum 63, carrying rotating rollers 64 and 65, move clockwise to engage the blank portion 2 from beneath and to refold it, on line 16, over the forward edge of plate 61. The fold 16 is thus seized between the rollers 64 and 65, whose rotation strips or withdraws the blank from plate 61, producing at the same time the requisite pressure to firmly stick the back portion 2 to the glue-coated side flaps 3, 3. As the drum 63 makes its return or counterclockwise swing to the position shown in Fig. 2, the thus-formed envelope (see *j*, Fig. 9), folded except for its seal flap 5, is projected by the rollers 64 and 65 into other cooperating rollers 66, 66 which feed it, fold 16 foremost, onto belts 67. Here, as brought to rest beneath a forming plate 68 by a suitable stop 69, the operation of folding down the seal flap 5 is performed; for this purpose, an oscillatory drum 70, carrying rotating rollers 71 and 72, operates in the same way as drum 63 to fold the seal flap 5 over the edge of plate 68, after which the fold 73 thus formed (see *i*, Fig. 9) is seized by said rollers which, on the clockwise or return swing of drum 70, project the completed envelope, fold 73 foremost, into a chute 74 delivering to any suitable stacking and counting mechanism 75 (see *m*, Fig. 9).

Fig. 8 illustrates a somewhat different apparatus from that shown in Figs. 2, 6 and 7 for applying the dry-adhesive substance in liquid form to the adjacent portions 4 and 5 of each lowermost partly-folded blank in the vertical stack or pile. Said vertical stack or pile is formed and maintained in the same way, but the application of the coating solution to the desired areas is in this case effected by spraying,—the solution being supplied from a suitable container 76 to a receptacle 77, from which latter leads a tube 78 that delivers the solution in a regulated amount in the path of a jet of compressed air, supplied, for example, by a pipe 79. The air atomizes the solution and the mixture is discharged through a suitable nozzle 80 against the underneath surfaces or portions 4 and 5 of each lowermost blank,—the confinement of the sprayed mixture to such areas being accomplished by segregating them by means, for example, of a partition 81, from the remainder of the blank. Said partition 81 is preferably part of a casing 82 which surrounds the nozzle 80, being arranged to catch any drip or excess of the sprayed-on coating liquid. In this case, the withdrawal of each lowermost partly-folded blank from the vertical pile or stack is effected as before by a rotating suction segment 30, cooperating with belts 27, 27 to engage the extended side flaps 3, 3 of each blank.

I claim:

1. In the manufacture of envelopes of the type adapted to be sealed by the contact of two complementary areas of dry-sealing adhesive, one area on the closure flap and the other on the envelope's rear wall, the improvement which consists in procuring for each envelope or blank in process the adjacent disposition of the two areas destined to be coated with such adhesive, and subjecting each such envelope or blank separately to a single application of such adhesive in solution, for the coating of said two areas.

2. In the manufacture of envelopes of the type adapted to be sealed by the contact of two complementary areas of dry-sealing adhesive, the im-

provement which consists in so folding each envelope blank as to dispose contiguous to each other the two blank areas destined to be coated with such adhesive, subjecting each so-folded blank separately to a single application of such adhesive in solution, for the coating of said two areas, simultaneously drying said adhesive-coated areas of each blank, and thereafter subjecting each blank to the gumming and folding operations required for its conversion into an envelope.

3. In a machine for making envelopes of the type adapted to be sealed by the contact of two complementary areas of dry-sealing adhesive, means for so folding each envelope blank as to dispose contiguous to each other the two areas destined to be coated with such adhesive, and means for subjecting each so-folded blank separately to a single application of such adhesive in solution, for the coating of said two areas.

4. A machine for making envelopes of the type adapted to be sealed by the contact of two complementary areas of dry-sealing adhesive, comprising means for so folding each envelope blank as to dispose contiguous to each other the two areas destined to be coated with such adhesive, means for subjecting each so-folded blank separately to a single application of such adhesive in solution, for the coating of said two areas, means for simultaneously drying said adhesive-coated areas of each blank, and means for thereafter subjecting each blank to the gumming and folding operations required for its conversion into an envelope.

5. In the manufacture of envelopes of the type adapted to be sealed by the contact of two complementary areas of dry-sealing adhesive, the improvement which consists in so folding each envelope blank as to dispose contiguous to each other the two blank areas destined to be coated with adhesive, forming a stack of the so-folded blanks, and procuring by the withdrawal of each such blank from said stack the coating of its two said areas with such adhesive in solution.

6. In the manufacture of envelopes of the type adapted to be sealed by the contact of two complementary areas of dry-sealing adhesive, the improvement which consists in so folding each envelope blank as to dispose contiguous to each other the two blank areas destined to be coated with such adhesive, delivering each so-folded blank to one end of a stack of said blanks while withdrawing a blank from the other end of said stack, and by such withdrawal procuring the application of such adhesive in solution to the two said areas of the blank being withdrawn.

7. In a machine for making envelopes of the type adapted to be sealed by the contact of two complementary areas of dry-sealing adhesive, means for so folding each blank as to dispose contiguous to each other the two areas destined to be coated with such adhesive, means for forming a stack of the so-folded blanks, and means operative by successive withdrawals of said blanks from the bottom of said stack for coating with such adhesive the two said areas of each blank so withdrawn.

8. In a machine for making envelopes of the type adapted to be sealed by the contact of two complementary areas of dry-sealing adhesive, means for so folding each envelope as to dispose contiguous to each other the two areas destined to be coated with such adhesive, means for stacking the so-folded blanks, and for maintaining such stack at substantially constant size by with-

drawing the blank from one end with each delivery of the blank to the other end, means operative on each such blank withdrawal for coating with the adhesive in solution the two said areas of the blank so withdrawn, means for simultaneously drying said adhesive-coated areas of each blank, and means for thereafter subjecting each blank to the gumming and folding operations required for its conversion into an envelope.

9. In the manufacture of envelopes of the type adapted to be sealed by the contact of two complementary areas of dry-sealing adhesive, the improvement which consists in imparting an outward curl or warp to a margin of one of said areas of each blank, so folding each blank as to dispose the so-curved area in adjacent relation to the other area, subjecting each so-folded blank separately to a single application of such adhesive in solution, for the coating of said two areas, and drying each blank in its partly-folded condition, the aforesaid warp or curl preventing said areas from sticking together during such drying.

10. In the manufacture of envelopes of the type adapted to be sealed by the contact of two complementary areas of dry-sealing adhesive, one area on the closure flap and the other on the envelope's rear wall, the improvement which consists in producing in each envelope or blank the adjacent disposition of the two areas destined to be coated with such adhesive, and by a separate operation on each envelope or blank procuring the coating of its said two areas with such adhesive.

11. In the manufacture of envelopes of the type adapted to be sealed by the contact of two complementary areas of dry-sealing adhesive, one area on the closure flap and the other on the envelope's rear wall, the improvement which consists in disposing adjacent to each other the two said areas of each blank, and applying to each blank separately an adhesive coating to cover said two areas.

12. In a machine for making envelopes of the type adapted to be sealed by the contact of two complementary areas of dry-sealing adhesive, means for feeding the envelope blanks, means operative on each blank to dispose adjacent each other the said two areas, and means for applying to each blank individually an adhesive coating to cover its said two areas.

13. For envelopes adapted to be sealed by contact of two complementary dry-sealing adhesive areas, one on a closure flap and the other on a rear wall flap, both flaps, for the packing of such envelopes, being folded down to prevent exposure of said areas, the improvement in manufacture which consists in procuring for each blank or envelope in process the disposition alongside each other of its said two flaps in unfolded condition, and applying said dry-sealing adhesive to both flaps by a separate operation on each envelope or blank.

14. In a machine for making envelopes of the type adapted to be sealed by the contact of two complementary areas of dry-sealing adhesive, the combination with stacking mechanism receiving the blanks of such envelopes in a folded condition that disposes alongside each other the two areas of each blank destined to be coated with such adhesive, of means operable at the bottom of said stacking mechanism for applying such adhesive simultaneously to the said two areas of each blank as the latter, by successive withdrawals of the lowermost blank of the stack, arrives

in position to be acted on by said adhesive-applying means.

15. In a machine for making envelopes of the type adapted to be sealed by the contact of two complementary areas of dry-sealing adhesive, the combination with stacking mechanism receiving the blanks of such envelopes in a folded condition that disposes alongside each other the two areas of each blank destined to be coated with such adhesive, of means operable at the bottom of said stacking mechanism for applying such adhesive simultaneously to the said two areas of each blank as the latter, by successive withdrawals of the lowermost blank of the stack, arrives in position to be acted on by said adhesive-applying means, means for drying the so-treated blanks, and means for subjecting them, succes-

sively to the gumming and folding operations required for their conversion into envelopes.

16. In apparatus for the manufacture of envelopes and like articles adapted to be sealed by the contact of two flap and body areas coated with dry-sealing adhesive, the combination with an applicator for such adhesive, said applicator being in substantial registry lengthwise with one of said areas of an envelope, of means for arranging said two areas of each envelope in side-by-side juxtaposed relation and means for moving each so-arranged envelope past said applicator with its other areas shielded from contact therewith, thereby to obtain at each movement the adhesive coatings of both of said first-mentioned areas.

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