June 10, 1941. A. NOVICK 2,244,723

ENVELOPE MACHINE

Filed July 30, 1936 5 Sheets-Sheet 1

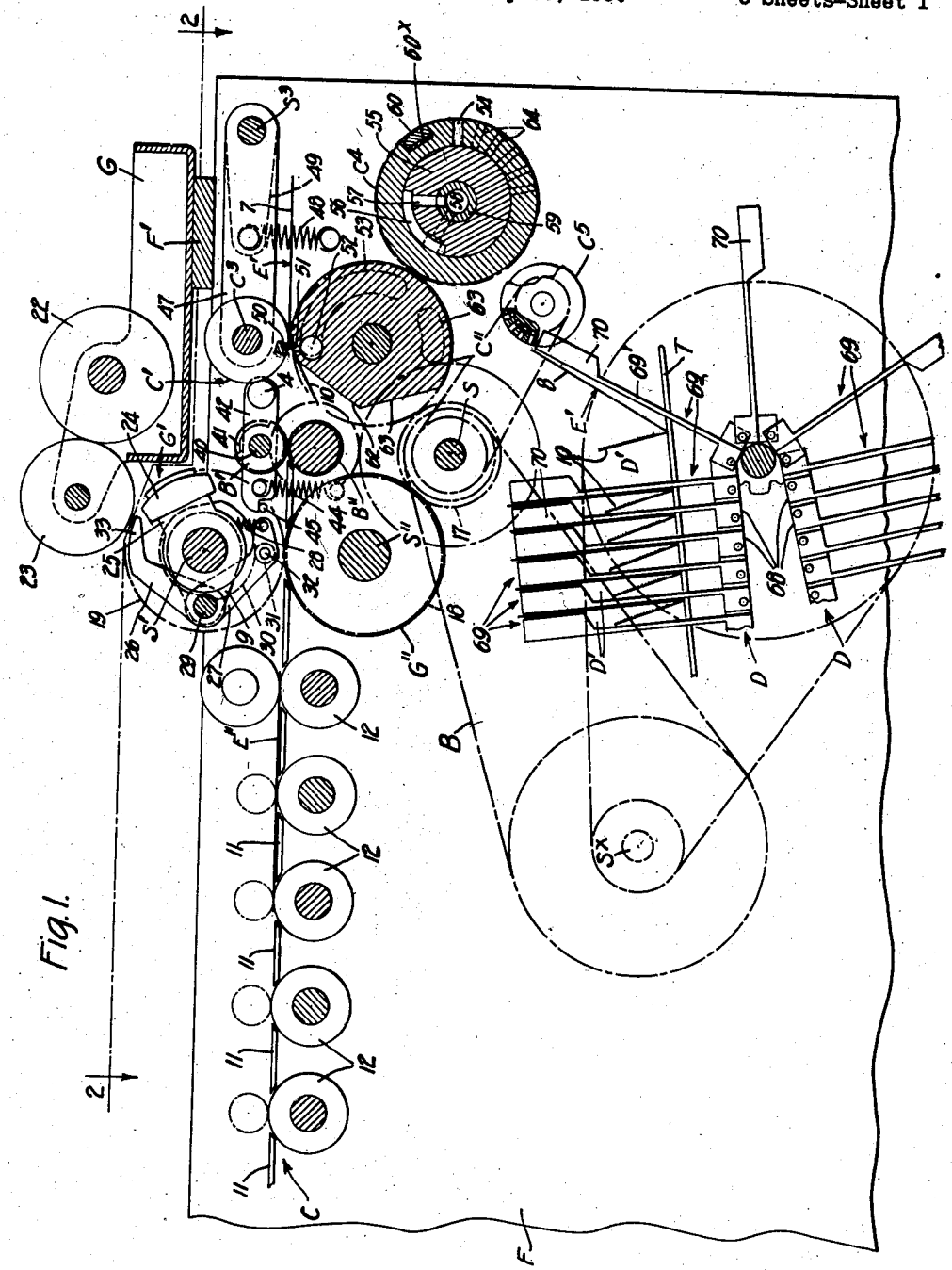


Fig. 1.

INVENTOR.
Abraham Novick

BY Moses & Nolte
ATTORNEYS

June 10, 1941. A. NOVICK 2,244,723

ENVELOPE MACHINE

Filed July 30, 1936 5 Sheets-Sheet 2

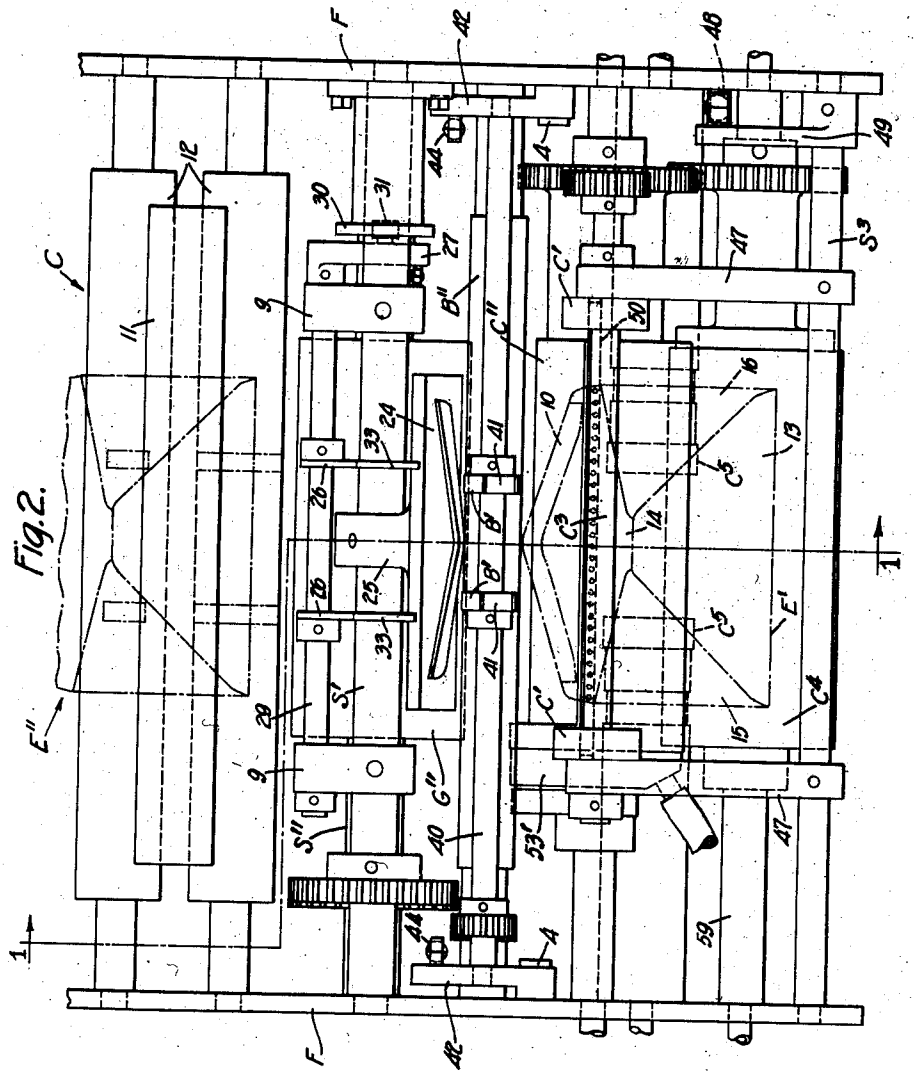


Fig. 2.

INVENTOR.
Abraham Novick

BY Moses & Holte
ATTORNEYS

June 10, 1941. A. NOVICK 2,244,723

ENVELOPE MACHINE

Filed July 30, 1936 5 Sheets-Sheet 3

Fig. 3

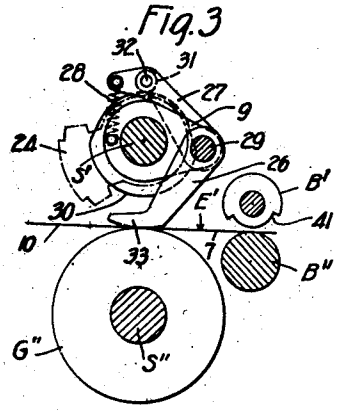



Fig. 4.

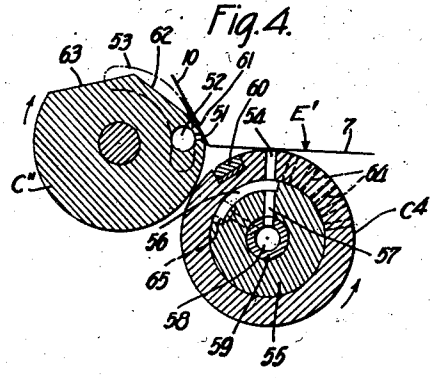



Fig. 5.

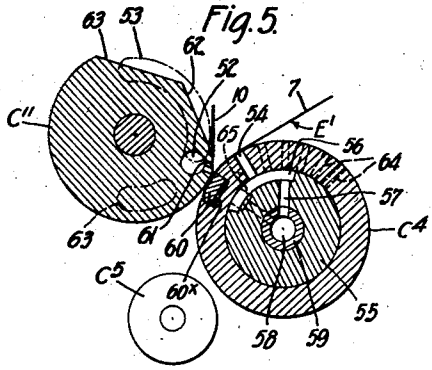



Fig. 6.

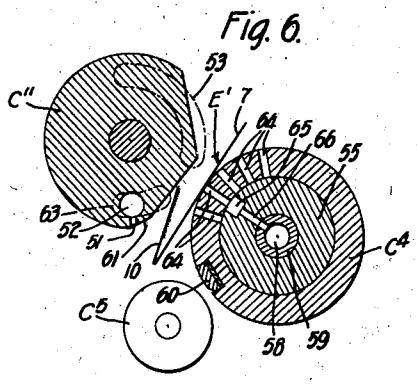
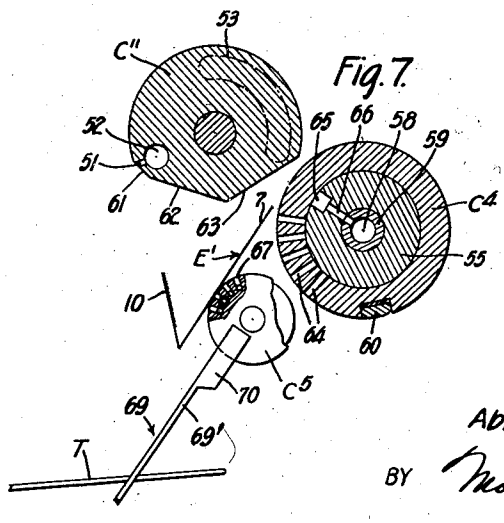



Fig. 7.




INVENTOR.
Abraham Novick
BY Moseo & Nolte
ATTORNEYS

June 10, 1941. A. NOVICK 2,244,723

ENVELOPE MACHINE

Filed July 30, 1936 5 Sheets-Sheet 4

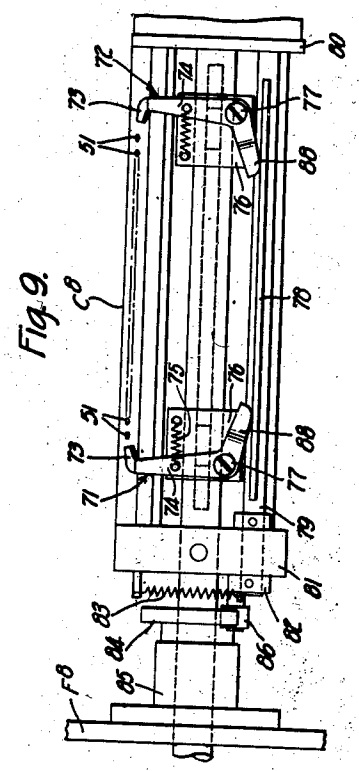


Fig. 9.

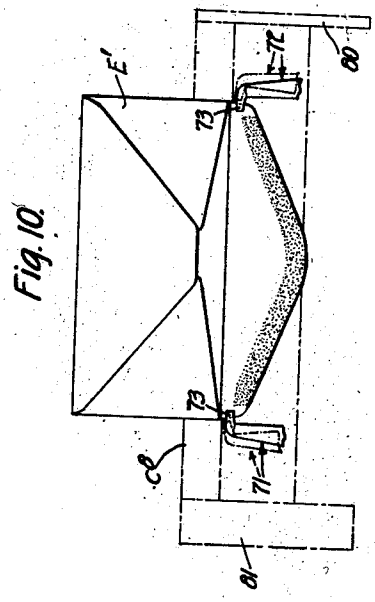


Fig. 10.

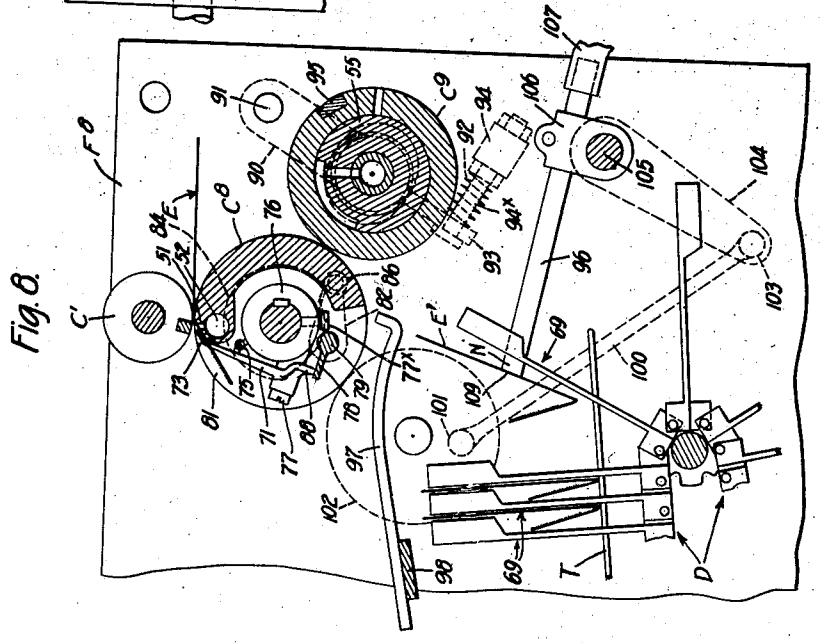


Fig. 8.

INVENTOR.
Abraham Novick

BY Moses & Nolte

ATTORNEYS

June 10, 1941. A. NOVICK 2,244,723

ENVELOPE MACHINE

Filed July 30, 1936 5 Sheets-Sheet 5

Fig. 11.

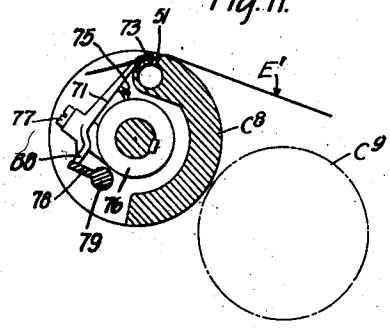



Fig. 12.

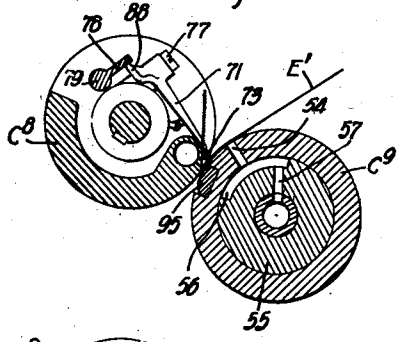



Fig. 13.

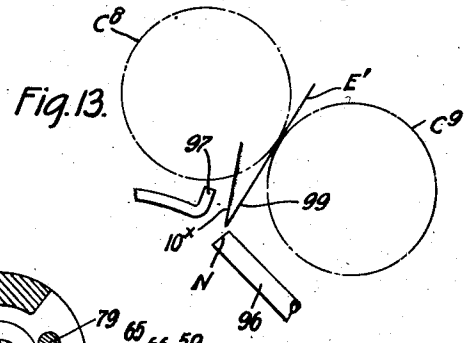
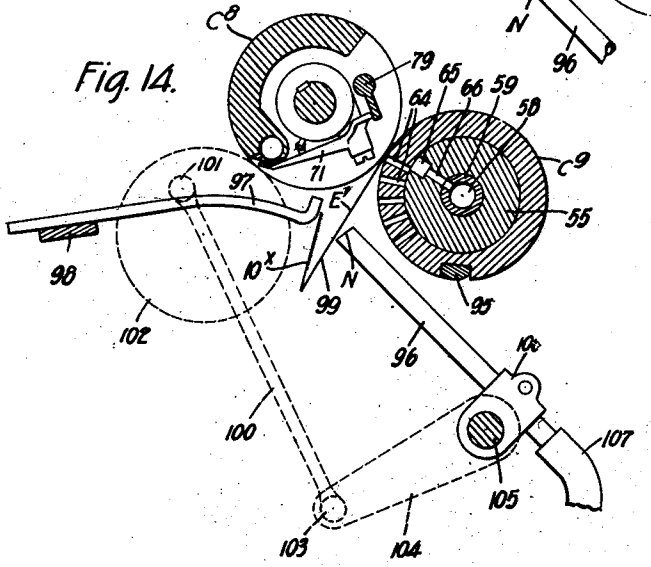



Fig. 14.




INVENTOR.
Abraham Novick

BY Moses & Nolte

ATTORNEYS

Patented June 10, 1941 2,244,723

# UNITED STATES PATENT OFFICE

2,244,723

## ENVELOPE MACHINE

Abraham Novick, Flushing, N. Y., assignor to F. L. Smithe Machine Co., Inc., New York, N. Y., a corporation of New York

Application July 30, 1936, Serial No. 93,322

17 Claims. (Cl. 93—61)

This invention relates to an envelope machine, especially to a mechanism for gumming the sealing flaps of a multiplicity of otherwise virtually complete envelopes, and for disposing the gummed flaps in proper position for drying them without danger of unintended adhesions, and delivering them seriatim to a conveyor which may be associated with mechanism for drying the moist flaps.

The gumming and drying of sealing flaps upon completed or partially fabricated envelopes is a known practice, but has not yielded an altogether satisfactory output, and it is a general object of the present invention to provide a novel method of performing the several steps incidental to the aforesaid operation in a manner which results in increase of output amounting to about one hundred per cent for a given period of operation; and it is also an object of the invention to provide mechanism of a novel character for performing the aforesaid steps more accurately, smoothly and continuously, as well as more rapidly, than is possible with existing machines for the intended purpose.

In pursuance of the above general object, it is a further object of the invention to provide runs of mechanism in each of which the steps incidental to folding the gummed sealing flaps successively into non-adhering positions are performed under suctional control to an extent not contemplated heretofore, so that the source of suction conventionally provided in existing machines of this general class may be employed to a greater extent and in a more economical manner, with consequent reduction in the initial cost of a machine, and in the perennial item of maintenance, as well as an increase in continuity of output resulting from freedom of the need for repairs and consequent periods of disuse which are sometimes inseparable from the provision of numerous co-acting mechanical elements instead of the herein described suctionally acting media.

It will be understood by those skilled in the art that the novel method herein disclosed, and various of the mechanisms employed in carrying the same into effect, are capable of utilization in fields other than that of the fabrication of envelopes, and also that physical embodiments of the underlying idea of means other than those shown and described illustratively herein, may be employed without departure from the invention.

Other objects and features of the invention will appear as the description of the particular physical embodiment selected to illustrate the invention progresses.

In the drawings, like characters of reference have been applied to corresponding parts throughout the several views comprised in the drawings, in which:

Fig. 1 is a view taken on the line 1—1 of Fig. 2 in vertical, sectional elevation, showing in schematic form the operating instrumentalities of an envelope machine in the construction of which the present invention has been embodied;

Fig. 2 is a similar schematic view, in plan, of certain of the mechanisms as shown in Fig. 1;

Fig. 3 is a fragmentary, detail view in vertical section illustrating a certain stage in the operation of the feeding rolls associated with the gumming mechanism;

Fig. 4 is a similar fragmentary detail view showing a blank-bending couple in a different rotative position from that in which they are shown in Fig. 1;

Fig. 5 shows the same couple at an advanced rotative position;

Fig. 6 shows the same couple at a still more advanced position;

Fig. 7 shows the same couple after the blank has been discharged to a further feeding roll;

Fig. 8 is a view similar to Fig. 1, showing in schematic form, in vertical sectional elevation, a modified delivery means for transforming envelope blanks to a drying mechanism;

Fig. 9 is a fragmentary detail view, in plan, of a pair of auxiliary gripper means and associated mechanism;

Fig. 10 is a fragmentary detail view in plan of the envelope and gripping means of Fig. 9;

Fig. 11 is a view similar to Fig. 4 of the modified form of device for initiating the folding of the gummed sealing flap of an envelope blank preparatory to transfer thereof to drying mechanism;

Fig. 12 shows the same parts in a more advanced stage of the folding operation;

Fig. 13 is a diagrammatic view of a still more advanced stage of the folding operation; and

Fig. 14 is a fragmentary, detail view of a schematic character, in vertical sectional elevation, showing certain of the parts of the modified structure, combined as in Fig. 8, but in a different operative position, viz., at the stage of discharge of a blank from the folding mechanism to the transfer mechanism.

In a now preferred embodiment of the invention, selected for illustration and description, the parts designated generally by the reference

characters F, F'' etc. are members of a framework or supporting structure and these include side-members, cross rods, shafts, and like members to which reference will be made more particularly from time to time.

A conveying means, designated generally by the reference character C, leads into the mechanism from the left-hand side thereof, as illustrated in Fig. 1, and comprises a series of table and roll elements 11 and 12 which serve, in conventional manner, to carry a multiplicity of envelopes, or like articles E', E'', etc., of a generally planiform character, into the field of operation of the several runs of mechanism. The latter are coordinated in pursuance of the invention to perform the intended series of steps making up the novel method herein disclosed.

The first step to be performed is that of gumming the flaps 10 of the envelopes E', E'', etc., of which a multiplicity are disposed along the length of the conveyor C in serial relation, constituting a supply of envelopes each of which, in the present instance, is virtually completed, having a body panel 14 (see Fig. 2) a bottom flap 13, and side flaps 15 and 16, folded over and adhered to each other in known fashion. Other forms of envelopes, or of similar planiform articles, may be substituted, if the same have parts analogous to the flaps 10 which are to be gummed and then folded to non-adherent position, and dried, according to the present invention.

The envelopes are advanced by the conveyor C with their sealing flaps 10, as yet gum-free, in trailing position respectively, into the bite of a pair of gumming rotors G' and G'', of which the lower element G'' is shown as a cylindrical rotor of usual, or any suitable structure upon a shaft S'' driven suitably, as by a train of gears 17 and 18 actuated by a shaft S which may be suitably driven to serve as the main driving shaft of the mechanism. The rotor G' is mounted on a shaft S' which has a gear 19 meshing with gear 18 of the above mentioned train of gears, so that the gumming couple runs at a predetermined fixed ratio of speed.

The supply of mucilage, paste or other gumming material is contained in a tank designated by the letter G, and a roller 22 transfers it thence to another roller 23 which is contacted recurrently by a gumming segment 24 mounted in known fashion on an arm 25 fixed on shaft S'.

Upon cranks 9, also secured to this shaft, is mounted a rock shaft 29, having arms 26 and an arm 27 the last named arm being biased inwardly by a coil spring 28, toward a cam 30 which controls its inward limit of movement.

This cam 30 is fixed on the frame F and a follower roller 31 on a pivot 32 of the arm 27 runs on the periphery of cam 30. At the free end of each of the arms 26, a sector 33 is provided, being adapted to sweep around into engagement with each envelope E', E'' etc. in advance of the gummer segment 24. The cam 30 acts to cause retraction of this section positively against the bias of the coiled tension spring 28, so that, at the time of passing the gumming roller 23, the sector 33 as shown in Fig. 1, will clear the roller 23 and so will not be fouled thereby. The bias of spring 28 acts to press the sectors 33 yieldingly against each advancing blank, as E', E'' etc., and the sectors act to feed each envelope forward frictionally, the yielding tension on the spring 28 compensating for various thicknesses of envelopes.

From the gummer means G', G'', just described, each blank is advanced to a feeder couple comprising a rotor C' and a rotor C'', the former being disposed above the plane of feeding, and the latter below said plane. The diameter of the lower rotor is such that a substantial gap exists between the rotors G'' and C'', and in this gap is an auxiliary pair of feeding couples B' and B'', into the bite of which each envelope proceeds from the gumming couple G' and G''. At 41 the upper feeding rollers are cut away peripherally to prevent contact with the gummed area on the sealing flap as the latter is fed between rolls B' and B''. The rollers B' are mounted on a shaft 40 supported by arms 42 pivoted on fulcrum pivots 4 on the frame F, and are biased toward the idler roll B'' by a spring 44, a stop 45 serving to limit the range of swinging movement of lever arm 42 and roll B' toward roll B''.

The envelope, as E', proceeds from rolls B', B'' into the bite of pairs of rolls C' and C'', the upper rolls C' being secured to a shaft $C^3$ carried on the free ends of a pair of arms 47 secured to a shaft $S^3$ pivoted on the frame F, and which is biased rotatively counterclockwise by a spring 48 attached to an arm 49 fixed on shaft $S^3$. The rolls C' are connected by a cross bar 50, which is suitably disposed to be brought to the position illustrated in Fig. 1 at the same time that the other rolls C'' are so rotated as to present one of a series of ports 51 in position to exert upon the gum-free side of the gummed sealing flap 10 of the envelope E' a suctional force derived from a suitable source thereof through a channel 52 having an open end adapted to travel along, and to derive suction from a face channel, indicated by dotted lines 53, in a stationary part 53', at one end of the rotor C'' (see Fig. 2).

As the rotor C'' turns, the bar 50 presses lightly against the flap 10 so as to secure good contact with the margin surrounding the orifice 51, so that the suction will take hold; then, as the rotor C'' turns further from its Fig. 1 position to the position shown in Fig. 4, the body 7 of the envelope turns with it and is thereby caused to engage with the periphery of a rotor $C^4$, the suction though port 51 continuing, as the channel 52 is still in communication with the source of suction, through the channel or groove 53.

The rotor $C^4$, which has the shape of a ring adapted to revolve around a barrel 55, is provided with an orifice or slot 54, entirely traversing the thickness of the ring and in communication with a face groove 56 in the barrel from which a radial groove 57 leads to the axial bore 58 of a tube 59. The tube 59 is in communication with the source of suction by a connection (not shown), and as the ring $C^4$ is turned counterclockwise it cooperates with the rotor C'' to bend toward each other the divergent body and flap portions 7 and 10 of the envelope E' until the fold at the pre-scored top edge of the envelope, (i. e., at the usually scored line upon which the cover flap of an envelope is folded over to close the open edge of the envelope), is advanced between the rotors C'' and $C^4$ to substantially the position shown in Fig. 5. The approach to this position is characterized by completing the cooperative turning of the adjacent circular portions of the peripheries of rotors C'' and $C^4$ and by the entering into action momentarily of a bar 60 to give a light squeeze to the fold last mentioned.

By a shim, or shims, 60*x*, the projection of the member 60 may be adjusted to vary the clearance space between rotors C'' and $C^4$ in order to produce at will a tight fold or a loose fold. Imme-

diately thereafter, the channel 52 passes out of communication with the groove 53 and the source of suction is thus cut off from the flap 10, but the channel 54 in rotor 64 still is in communication with face channel 56, etc., and the body 7 is therefore held against the circular periphery of ring C4 as shown in Fig. 5.

The short, flat portion 61 of rotor C'', through which the orifice 51 leads to the face of flap 10, and against which flat the flap 10 has been held firmly up to this point, is now succeeded, (at the mid-region defined by a line joining the axes of rotors C'' and C4) by a longer flat 62, the face of which is so far removed from the rotor C4 when the rotors have turned to the relative positions shown in Fig. 6, that there is ample space for the V-shaped leading end of the envelope to be disposed out of contact with the rotor C'', the port 51 now having been connected to atmosphere by a groove 63, so that the rotor C'' no longer influences the envelope in any way. The envelope is held, however, as shown in Fig. 6, by the rotor C4.

This holding is no longer accomplished by the orifice 54, which has now turned out of communication with the face channel 56 of rotor barrel 55, and no longer exerts suction on the body 7 of the envelope. This function has now been assumed by the first of a series of orifices 64 disposed around the circumference of the ring C4 in annular arrangement, as well shown in Figs. 4 to 7 inclusive. There is a set of these orifices at each end of the rotor cylinder C4, and the pair of orifices at opposite ends of a line lying in the periphery of the cylinder C4, one at each end, will be engaged each with an end of the envelope when the latter occupies the position shown in Fig. 6, and will hold the latter by the suction available for this holding operation, through the orifices 64 of which there are two rows, one near each side edge of the envelope, the active orifices communicating with ports 65 and radial channels 66 of barrel 55 (see Fig. 6).

It will be observed that each port 65 is wide enough to overlap two of the orifices 64 at once, just long enough for each orifice 64 to pick up the blank body 7 by its suction before the preceding orifice 64 has been cut off from the source of suction by rotation of ring C4.

This advancement continues until the leading end fold of the envelope has been projected to approximately a position shown in Fig. 7 where it is engaged with the circumferences of rotors C5 in each of which a series of sucker orifices 67 enter into retentive action progressively with the trailing body 7 and send it forward to the end of its downward path, in the manner shown in Fig. 7, where the envelope E' is released by the rotor C5 just before the leading edge reaches a table T.

When so released the envelope passes down upon the table T, along each side of which runs a link belt or chain D (see Fig. 1), constituting a conveyor of known form, each link 68 of each of the chains being fitted with U-shaped members 69 having arms 69' between which the table T is located. The upper end of each arm 69' has a space block or enlargement 70, of suitable size and shape to adapt it for the formation, with a complemental adjacent flight or arm, of a compartment D' having at its lower end space enough to accommodate the V-shaped fold of one of the envelopes E', E'' etc., each of which has, throughout its advancement from the rotor C'', been free at all times from contacts likely to cause unintended adhesion between its moist, gummed face 10 and the body 7 of the envelope which it is designed to close and seal eventually.

In Figs. 8 to 14 inclusive, a modification is illustrated in which the suctional effect of the orifice 51 in a rotor C8 of the type illustrated at C'' in Fig. 1 to 7 inclusive, is supplemented in the rotor designated C8 by a pair of levers 71 and 72 of the bell-crank order (see Fig. 9), having hold-down fingers 73 on their arms 74 which are biased to the hold-down position of Figs. 9, 10 and 11 by action of coil springs 75. This modification is intended primarily for use in operating upon envelopes or like planiform articles made of paper or other material of such a stiff quality that the suctional effect may be insufficient to prevent the article from stripping from the rotors or turning out of proper alignment.

The spacing of the levers 71 and 72 is variable, to accommodate envelopes of different widths, by sliding movement of the blocks 76 on which the levers are pivoted, as at 77, said blocks being keyed to said shaft and held in place by set screws 77$x$, Fig. 8.

The levers are rotated positively to release the envelope E' (see dotted line position in Fig. 10) by action of a blade 78 (see Figs. 8 and 9) fixed radially on a rock-shaft 79 journalled in the collars 80 and 81 of the rotor C8, the shaft having a crank 82 biased to the position of Fig. 9 by a tension spring 83, while a cam 84 fixed on the boss 85 projecting from frame member F8 is engaged by follower 86 at the free end of the crank. When the high spot of cam 84 is traversed by the follower 86, the crank-shaft 79 is rocked to turn the blade 78 against the arms 88 of the bell-crank levers 71 and 72, and the envelope E' is thus released.

In the position or stage illustrated in Fig. 8, the fingers are shown as ready to be effective although not pressed firmly against the blank.

The release is timed, by suitably positioning the cam 84, to occur at the stage illustrated in Fig. 12, after the envelope has been carried around to a region between rotor C8 and a rotor C9 which in general structure resembles the rotor C4 already described, both in elements and in function, so that it is provided with corresponding reference characters, part for part.

The rotor C9 has a characteristic mounting, however, being journalled in a pair of arms 90 (see Fig. 8), of which only one is shown in dotted line in Fig. 8, being mounted pivotally, as at 91, upon the frame member F8, each arm 90 being biased toward rotor C8 by a coiled spring 92 interposed between the free end 93 of arm 90 and an abutment 94 in which a bolt 94$x$ is mounted adjustably, to vary the space between the rotors C8 and C9. Thus provision is made to compensate for different thicknesses of blanks, and for folds of varying looseness.

A fixed block 95 is accordingly provided in this modification, instead of the shim-adjustable block 60 hereinbefore shown and described.

Having been fed through the pass between rotors C8 and C9 in substantially the manner already described, and which is illustrated more particularly in Figs. 11, 12 and 13, the envelope E' is finally released by shift of the fingers 71 and 72, and the fold, as already described having been compressed by the block 95 (see Fig. 12) the envelope emerges as shown in Fig. 13 and is now already to be seized by a sucker arm 96, being guided by an abutment member 97 which extends from a cross-bar 98 into position

to be engaged by the flap 10*x*, the other side of the latter having been gummed by the gummer mechanism hereinbefore described (see G, Fig. 1).

The resilience of the flap fold 10*x* is adequate to bias the part 99 toward the sucker nozzle N, by the suction of which the envelope is entrained as it passes down toward the position illustrated in Fig. 14. The sucker arm 96 is now swung downward bodily by the action of a link 100 which works between a crank pivot 101 on the rotor gear 102 and a pin 103 on the arm 104 mounted on rock-shaft 105, serving to oscillate a clamp 106 carrying the sucker arm 96.

In action, the sucker arm 96 first is energized by suction derived through tube 107 from a suitable source (not shown) and draws the envelope part 99 against it as shown in Fig. 8 at 109. Thereafter, the action of the arm 96 is similar in purpose to that of the feed rotor C5 illustrated in Fig. 1 and Fig. 7, viz., to pass the envelope along and drop it gently against the table T of the drier, between two flights 69 of the link belt conveyor D which leads to the drier (not shown).

This operation need not be described further, it being understood that the suction is cut off from the nozzle at the region 109 in time to release the blank E', which passes between rotors C8 and C9 as seen in Fig. 12.

I have described what I believe to be the best embodiments of my invention. I do not wish, however, to be confined to the embodiments shown, but what I desire to cover by Letters Patent is set forth in the appended claims.

I claim:

1. In an envelope machine, the combination of gumming mechanism adapted to gum a flap portion of an article, and rotary devices adapted to fold said flap to partially closed, non-adhering position and to advance said article, said rotary devices including a first rotary device having means to receive said article and to hold the same by its gummed flap, deflecting said flap toward the body of the article, a second rotary device adapted to receive the body and to deflect the body toward the flap while the article is still held by said flap, said rotary devices having adjacent portions spaced apart and arranged to pass the article between them with the gummed side of the flap spaced from the article, at an angle to its original path; means for compressing the fold between the body and flap of the article; a third device to which said article with partly folded flap is delivered by said rotary devices, said third device acting upon the body of said article to hold the same while advancing it progressively; and transfer means cooperating with said third device to receive and advance the article.

2. A machine of the class described, comprising a rotary gumming mechanism adapted to gum a flap portion of an article to be gummed, and rotary devices adapted to fold said flap to partially closed, non-adhering position and to advance said article to a drier, said rotary devices including a rotor having means to receive said article and to hold the same by its gummed flap, deflecting said flap toward the body of the article, and carrying said body through an arcuate path, a rotary device to receive the body so carried around, and to retrovert said body in its direction of movement deflecting said body while still held by said flap, said first-named rotary device and second rotary device having adjacent portions spaced apart to pass the article between them with the gummed flap spaced from the article and cooperating to feed said article in retrograde movement at an angle to its original path; a rotary means to compress the fold between the body and flap of the article; a third rotary device to which said article with partly folded flap is delivered by said first rotor and second rotor said third rotor acting upon the body of said article to hold the same while advancing it progressively, and a conveyor means to which said article is fed by said third rotor, for advancement to a drying means.

3. In a machine of the class described, in combination, means for feeding seriatim a multiplicity of planiform articles such as envelopes, each having a flap portion to be gummed, folded and dried without adhesions; a gumming mechanism adapted to gum said flaps individually in succession; means to advance said articles with the gummed flaps trailing; means to receive said articles and to hold each by its gummed flap, bending said flap around toward the body of the article, and carrying said body through an arcuate path, means to receive the body so carried around, and to retrovert said body in its direction of movement, bending said body toward said flap while still held by said flap, said first-named means and second-named means cooperating to feed said article in retrograde movement at an angle to its original path and having adjacent portions spaced apart to pass the article between them with the gummed side of the flap spaced from the article; means to compress the fold between said body and flap of the article; a third feeding means to which said articles with partly folded flap is delivered by said first feeding means and second feeding means, said third feeding means acting upon the body of said article to hold the same while advancing it progressively, and a conveyor means to which said articles are fed seriatim by said third feeding means, for advancement successively to a drying means.

4. In an envelope machine, the combination of means for feeding seriatim a multiplicity of envelopes each having an ungummed open flap; a gumming mechanism adapted to gum said flaps individually in succession; means to advance said envelopes; means for receiving and holding said envelopes each by its gummed flap and deflecting said flap toward the envelope body; means for receiving the envelope body and deflecting it toward said flap, said two receiving means having adjacent portions spaced apart to pass each envelope between them with the gummed side of the flap spaced from the envelope body, in a direction at an angle to the original envelope path; means for compressing the fold between the body and flap; a third receiving means to which said articles with partly folded flaps are delivered by said first and second receiving means, said third receiving means acting upon the body of each envelope to hold the same while advancing the envelope; and transfer means to which said envelopes are fed seriatim by said third receiving means.

5. A machine of the class described, comprising the mechanisms combined and cooperating as set forth in claim 2, and further characterized by having said first feeding means, said second feeding means and said third feeding means respectively provided with suction-actuated means whereby the articles to be fed are held suitably for the several operations of folding and advancement of said articles.

6. A machine of the class described, comprising a gumming mechanism adapted to act upon a flap portion of an article to be gummed, and a first rotor adapted to feed said article in cooperation with a second rotor, said first and second rotor being provided each with a suction means adapted to hold a component of said article, as for example the body of an envelope and a loose flap thereof, while advancing said article between said rotors and a transverse member carried by one of said rotors and arranged to compress the fold between the body and flap of the article.

7. A machine of the class described, comprising a gumming mechanism adapted to act upon a flap portion of an article to be gummed, and a first rotor adapted to feed said article in cooperation with a second rotor to be described, said first and second rotor being provided each with a suction means adapted to hold a component of said article, as for example the body of an envelope and a loose flap thereof, while advancing said article between said rotors, a creasing abutment carried by one of the rotors the other rotor having a limited portion of its periphery arranged to press the fold edge adjoining the body and flap of said article against said abutment as said article is advanced between said rotors in such manner as to give a permanent set to the flap.

8. A machine of the class described, as claimed in claim 7, in which means are provided for adjustment of the clearance between said limited peripheral portion and an opposed portion of the periphery of the complemental rotor.

9. A rotor, comprising the elements combined and cooperating as set forth in claim 6, and further characterized by having said rotor formed as a ring in which circumferential sets of orifices are formed, and a barrel on which said ring revolves, said barrel having a substantially radial channel, and a communicating axial bore, through which suction may be applied through said orifices.

10. A rotor, comprising the elements combined and cooperating as set forth in claim 6, and further characterized by having said rotor formed as a ring in which circumferential sets of orifices are formed, and a barrel on which said ring revolves, said barrel having a substantially radial channel, and a communicating axial bore, through which suction may be applied through said orifices, said radial channel having a port of suitable size to overlap two of said orifices simultaneously in part at least, at the inner openings of said orifices.

11. In an envelope machine, the combination of means for advancing an envelope to a predetermined position, a rotary gumming mechanism arranged to gum a flap portion of the envelope as it advances along said path, a rotary device arranged to engage and hold the flap portion of the envelope when the latter is at said predetermined position and to convey the envelope with its body portion out of engagement with the rotary device, a rotor cooperating with said rotary device and arranged to fold the flap to partially closed, non-adhering position and transfer means cooperating with said rotor to advance the envelope to a drier.

12. The combination of elements as recited in claim 11 in which the envelope is advanced along said path with the flap portion trailing and in which said rotary device has a portion of its periphery spaced from said rotor by a distance sufficient to form a free passageway for the envelope with its flap partially open.

13. In an envelope machine, the combination of means for advancing an envelope to a predetermined position, a rotary gumming mechanism arranged to gum a flap portion of the envelope as it advances along said path, a rotary device having a cylindrical peripheral portion and a surface inwardly spaced from the cylindrical surface plane of said cylindrical portion, means for holding the flap of the envelope against said flat surface when the latter is at said predetermined position and for conveying the envelope while its body portion is supported entirely by the flap, a rotor having a cylindrical peripheral portion against which the body portion of the envelope is conveyed and which cooperates with the cylindrical portion of said rotary device to fold the gummed flap to partially closed, non-adhering position, and transfer means cooperating with said rotor to advance the envelope to a drier.

14. A device, comprising the elements combined and cooperating as set forth in claim 13 and further characterized by said rotary device having a portion immediately adjacent said surface cut away to thereby provide a clearance space for the partially open flap as the envelope passes between the rotary device and the rotor.

15. In a machine of the class described, in combination, means for advancing an envelope along a path to a predetermined position, a rotary gumming mechanism arranged to gum a flap portion of the envelope as it advances along said path, a rotary device having a cylindrical peripheral portion and a surface located within the cylindrical surface plane of said cylindrical portion, a suction means operative upon the envelope reaching said predetermined position to hold the flap portion against said surface, means comprising a movable member mounted on said rotary device, means automatically operative upon the envelope reaching said position to cause said movable member to press the flap portion against said surface, a rotor having a cylindrical peripheral portion against which the body of the envelope is conveyed and which cooperates with the cylindrical portion of said rotary device to fold the gummed flap to partially closed, non-adhering position, and transfer means cooperating with said rotor to advance the envelope to a drier.

16. A device, comprising the elements combined and cooperating as set forth in claim 15 and further characterized by having the means mounted on the rotary device provided with oppositely disposed fingers, spring means to cause the end portions of the fingers to engage the outer ends of the flap and cam operated means to withdraw the fingers from the flap.

17. In a machine for making envelopes or like articles, the combination of a rotary gumming mechanism adapted to gum a flap portion of the article, a pair of cooperative rotary devices adapted to fold the gummed article and lightly crease it between them, one of said rotary devices being in the form of a sector and including a set back portion, suction means for holding the flap of the article against the set back portion, the other of said rotary devices including suction means for holding the body of the article to itself at and after the creasing operation, to prevent contact of the gummed flap with the article body during creasing, and conveyor means for advancing the article from said rotary devices.

ABRAHAM NOVICK.