Nov. 5, 1957 G. H. KENNEDY, JR 2,811,905

ENVELOPE MANUFACTURE

Filed Feb. 29, 1956 2 Sheets-Sheet 1

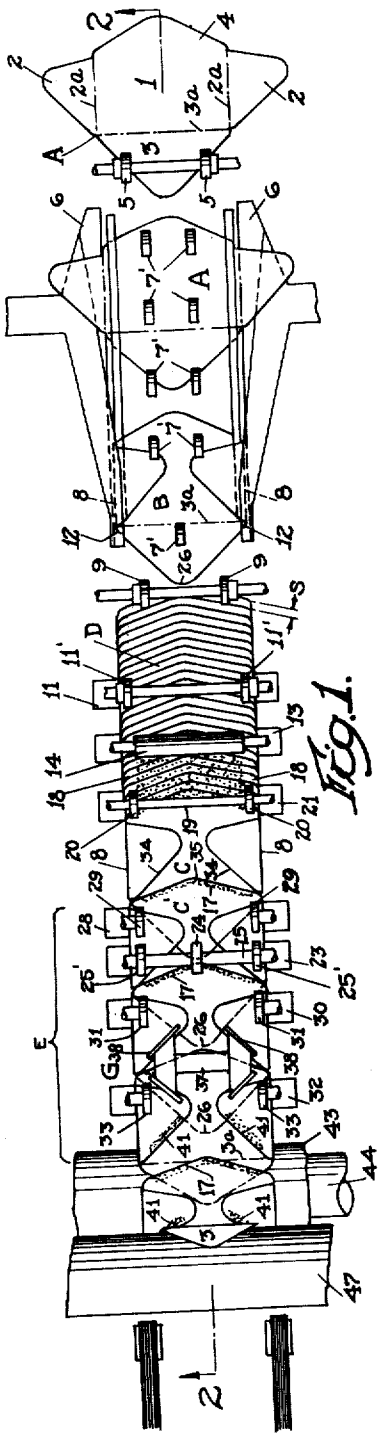

Fig. 1.

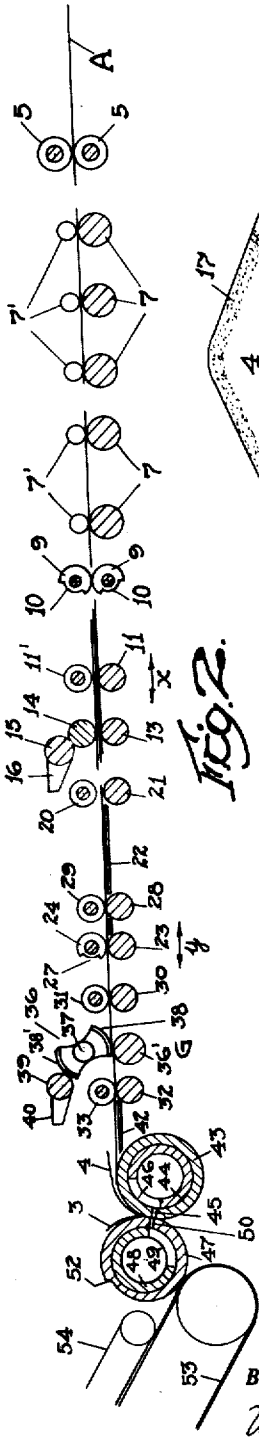

Fig. 2.

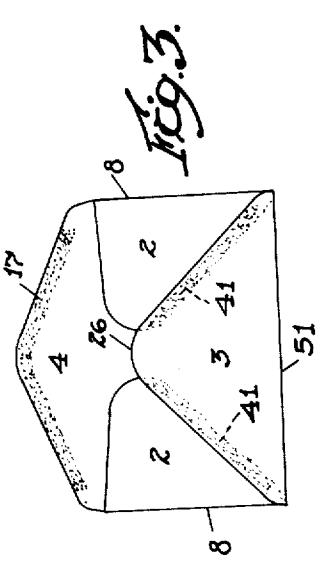

Fig. 3.

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ENVELOPE MANUFACTURE

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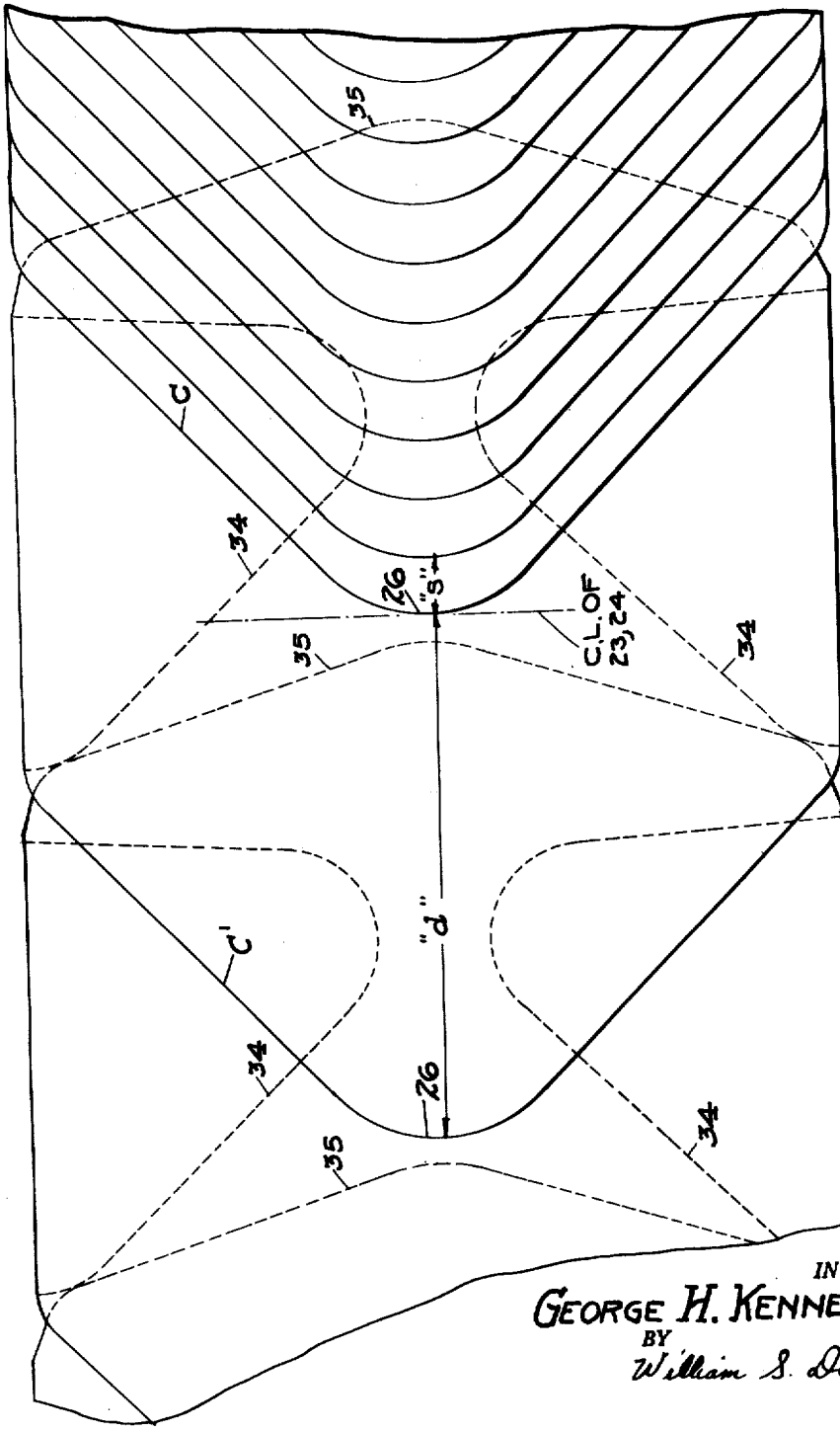

FIG. 4.

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2,811,905

Patented Nov. 5, 1957

2,811,905

ENVELOPE MANUFACTURE

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Application February 29, 1956, Serial No. 568,493

12 Claims. (Cl. 93—62)

This invention, like the invention set forth in Vincent E. Heywood application Serial No. 375,091, filed August 19, 1953 (now abandoned), for Manufacture of Envelopes (and its continuation-in-part, Serial No. 670,981, filed July 10, 1957), relates to methods and mechanisms for obtaining extremely high rates of production, in the rotary machine manufacture of envelopes.

In envelope manufacture by the sequences and arrangements of the aforesaid Heywood applications, extremely high rates of envelope production can be achieved. Actually, the envelope production rate, under such sequences and arrangements, is limited only by the speed at which it is practicable and feasible to perform on the successive envelope blanks in process the two flap folding operations which are essential to their conversion into envelopes. These flap folding operations, for each blank, are an initial infolding of its side flaps, and a subsequent folding over of its back or bottom flap into adhesive seam connection with its side flaps.

That is to say, with the invention of the aforesaid copending Heywood applications, the rate of envelope production suffers no limitation or curtailment whatsoever, from the operations of applying to the successive blanks (1) the glue for sticking the envelope seams, and/or (2) the seal flap glue or gumming. This is because of the fact that the gluing is applied, progressively and en masse, to seal flap margins as well as to seal flap margins of the successive blanks, with the latter collected, for each glue applying operation, in a slow speed closely shingled or stepped assembly that exposes only the desired glue-receiving flap margins to the action of the gluing roller or wiper.

One difficulty or drawback however, with these procedures of the aforesaid copending applications, is the need for the closely shingled blanks, once their leading back flap margins have received the seam sticking glue, to be completely de-shingled or individualized, and then to undergo a second shingling operation, in opposite relation to the first, before their trailing seal flap margins can be coated with glue.

The instant invention overcomes this difficulty or drawback, by a sequence of operations which, in achieving an envelope production rate nearly as high as the aforesaid procedures, requires only a single shingling operation to be performed on the blanks.

Other and further objects and advantages of this invention will be made apparent by the following detailed description thereof, taken in connection with the accompanying drawings, in which

Fig. 1 is a plan view, illustrating schematically the envelope making method and apparatus of this invention, but omitting, for the sake of clearness, certain glue receptacles and glue transfer rolls.

Fig. 2 is a vertical sectional view on the center line 2—2 of Fig. 1, and showing also the elements omitted from Fig. 1.

Fig. 3 is a large scale view of one of the envelopes

produced by this invention, from blanks of the form shown at the right-hand end of Fig. 1.

Fig. 4 is a large scale fragmentary diagrammatic view, as seen from the underside of Fig. 1, showing how the blanks in process undergo partial deshingling from a closely shingled relation to a shallowly shingled relation.

This invention achieves extremely high rates of production, in the manufacture of "triangular flap" or "diagonal seam" envelopes, from blanks of any conventional shape, such as shown in Fig. 1 by the blanks A, A. Each blank A, as shown, consists of the usual rectangular body portion 1, having opposite triangular side flaps 2, 2, a deep triangular back flap 3 and a shallow seal or closure flap 4. It is contemplated that a succession of these or other appropriately-shaped blanks will be fed flatwise one by one at high speed, either from a supply stack (not shown) or, in the case of blanks of substantially diamond or rhombic shape, from suitable oblique cutoff devices operable on a traveling paper web to sever successive blanks therefrom. In either case the successive blanks, such as A, A, by the action of suitable feed rolls or the like (not shown except at 5, 5 Figs. 1 and 2) are advanced rapidly, from right to left, in spaced apart relation, toward the illustrated mechanism, each with its back flap 3 leading and its seal flap 4 trailing; preferably each flat blank A, during its initial high speed advance, receives lines of scoring 2*a* at the base of each side flap, and a line of scoring 3*a* at the base of its back flap 3.

The initial operation here, the same as in the aforesaid copending Heywood application, is to fold inwardly the side flaps 2, 2 of the successive advancing spaced-apart blanks A, A. For this purpose, the illustrated mechanism, in the path of said rapidly advancing spaced blanks, provides conventional "plowshare" folding devices 6, 6 (shown only in Fig. 1) equipped with the usual high speed forwarding rolls 7, 7 and with suitable traction rolls 7', 7'—these sets of rolls 7, 7' cooperating to continue each blank's advance at the same high speed as that imparted by the feed rolls 5, 5. The "plowshare" folders 6, 6 operate in the usual and well-known manner to obtain, by each blank's movement therethrough, the progressive turning, inwardly and downwardly, on score lines 2*a*, 2*a*, of its side flaps 2, 2 against its body portion 1, to give the blank the opposite parallel side edge folds 8, 8 as shown by the blank marked B in Fig. 1.

The next operation on the successive partly-folded blanks B, B is to progressively collect them, one after another, in a deep shingled slow speed assembly, as shown at D, Fig. 1, for the progressive en masse gumming of their trailing seal flap margins. To this end, the mechanism provides, beyond the plowshare folders 6, 6, suitable high-speed rolls 9, 9 operating at the same high peripheral speed as the preceding rolls 5, 5 and 7, 7'. Said rolls 9, 9 are appropriately relieved, as shown at 10, 10, Fig. 2, so as to release each blank B and to discontinue its high-speed advance, substantially at the instant that back flap areas 12, 12 just ahead of its side edge folds 8, 8 encounter and are seized by a suitable low speed blank forwarding means, here shown as consisting of a lower roll 11 and a cooperating pair of upper narrow rolls or discs 11', 11' the latter engaging the successive blanks B only along zones adjacent to their side edge folds 8, 8. These slow speed rolls 11, 11' as a unit are made adjustable toward and away (see arrows X, Fig. 2) from the high-speed rolls 9, 9, to accommodate the spacing to blanks or greater or less dimension, measured in the direction of their travel through the mechanism.

Rolls 11, 11' have a peripheral speed which is only a very small fraction (here with blanks A, A about one-sixteenth) of the peripheral speed of the preceding rolls 9, 9. Thus each partly-folded blank B as it encounters

the rolls **11, 11'** has its speed of advance so drastically reduced that it is almost entirely overtaken by the next following fast moving blank B, before the latter in turn is slowed down by the rolls **11, 11'**. In this overtaking or shingling action, provision is made for each fast moving blank B to be projected beneath the trailing seal flap **4** of the preceding slowed down blank, by disposing the bite of the slow rolls **11, 11'** at a slightly higher level than the bite of fast rolls **9, 9**, as shown in Fig. 2.

Thus by the conjoint action of fast rolls **9, 9** and slow rolls **11, 11'**, the successive partly-folded blanks B are progressively collected in a slow moving close or deeply shingled assembly D. Therein each blank B overlies and covers the next following blank B except for an exposed narrow area, of shingle dimension "S" along the inside margin of the latter's trailing seal flap **4**. Beyond the range of forward adjustment of the rolls **11, 11'** are provided suitable means for rolling or spreading glue, for envelope sealing purposes, upon the adjacent exposed trailing seal flap margins of the blanks B, B of said shingled assembly D. Such means, as shown, consists of a lower roller **13** and an upper shorter roll **14**, both operating at the same low peripheral speed as the shingling rolls **11, 11'**, to continue the latter's slow speed advance of the shingled assembly D. The periphery of upper roll **14** is continuously supplied with seal flap glue by a conventional glue transfer roll **15**, associated with a glue supply tub **16**, as shown in Fig. 2. This glue, by the slow rotation of roll **14**, is continuously and progressively spread onto the exposed trailing seal flap margins of the blanks B, B, of assembly D, in a wide band or stripe, as indicated by the strippling in Fig. 1.

The above-described operation, except for the fact that the constituent blanks of slow moving assembly D have had their side flaps initially infolded, corresponds to the so-called coating or spreading process of seal flap gumming, well-known in the art, and described in Winkler & Dunnebier Patent No. 2,132,227 of October 4, 1938 and many other patents.

This operation gives to every seal flap of the successive shingled blanks B, B a glue-coated margin **17** which is of uniform width throughout, with squared-off ends. The latter's conventional inward spacing from the blank's side edge folds **8, 8** gives to shingled assembly D, beyond the edges of the seal gluing thereon, the opposite marginal unglued areas **18, 18**, which enable the assembly's slow advance to be continued, by the contact with said areas **18, 18** of a pair of spaced upper narrow forwarding rolls or discs **20, 20**, cooperating with a lower full length roll **21**—said rolls **20, 21** having the same low peripheral speed as the rolls **11, 11'** and **13, 14**.

These final slow speed rolls **20, 21** maintain their control of each blank B of assembly D during such blank's movement, at slow speed, across a suitable horizontal support element **22**. The latter extends forwardly, as best shown in Fig. 2, from the vicinity of the final slow rolls **20, 21** to the vicinity of the bite between a lower full length roll **23**, and a cooperating centrally positioned narrow roll or disc **24** mounted on a shaft **25**. The bite of rolls **23, 24** is forwardly spaced from the bite of slow rolls **20, 21** by nearly the full blank length. That is to say, this spacing is such that the slow assembly's foremost and topmost blank (marked C in Figs. 1 and 4) will have its trailing seal flap edge released by the bite of slow rolls **20, 21**, at just the instant that its leading back flap tip or apex **26** is seized by the bite of the rolls **23, 24**. These rolls **23, 24** as a unit are made adjustable toward and away (see arrows *y* Fig. 2) from the final slow speed rolls **20, 21**, to accommodate the last mentioned spacing to blanks of greater or less dimension, measured in the direction of their travel through the illustrated mechanism.

The peripheral speed imparted to the rolls **23, 24** is only about one-half the peripheral speed imparted to the initial blank forwarding rolls **5, 5, 7, 7'** and **9, 9**. But this gives to the rolls **23, 24** a peripheral speed which is several times faster than the very low peripheral speed shared in common by the shingling rolls **11, 11'**, the glue applying rolls **13, 14** and the final assembly forwarding rolls **20, 21**. In consequence of this last, each successive foremost blank C of slow moving assembly D, upon encountering (by its tip or apex **26**) the bite of rolls **23, 24**, has its forward motion sharply accelerated. This acceleration is such that each so-seized foremost blank C is propelled forwardly through a distance "*d*" Fig. 4 (or from position C to position C' in Fig. 1) in the time that it takes for the next-following blank of assembly D, under the influence of slow rolls **20, 21**, to be advanced (see Fig. 4) through the shingle distance or dimension S. Each next following blank, having in this fashion arrived at position C, Fig. 1, will be similarly accelerated by rolls **23, 24**, to move in unison with the preceding position C' blank, and so on, indefinitely, for each succeeding foremost and topmost blank of assembly D.

It is particularly to be noted that the narrow intermediate speed roll or disc **24** has a circumference that is equal in length to the blank displacement distance *d*; and that said roll **24** is suitably relieved or recessed, as shown at **27**, Fig. 1, so as to escape contact at each revolution with the wet glue coated area **17** on each passing blank's seal flap margin. Also to be particularly noted is the fact that the principal burden on these intermediate speed rolls **23, 24** is merely to initiate the above-described acceleration of each successive foremost blank of assembly D; that is to say, once any such blank, by action of rolls **23, 24** on its leading apex **26** has had its faster movement commenced, the blank's continued steady propulsion at this faster rate is taken over and subsequently maintained by the action, along-side the blank's side edge folds **8, 8**, of additional sets of forwarding rollers, all operating at the same intermediate peripheral speed as that imparted to the rolls **23, 24**.

One such set of intermediate speed rolls consists of a full length lower roll **28** and cooperating upper narrow rolls or discs **29, 29**; these are arranged, as shown in Fig. 1, in closer relation to the final slow rolls **20, 21** than the rolls **23, 24**. Despite this closer relation, a blank of assembly D, in its approach to blank position C will not come under the influence of these intermediate speed rolls **28, 29** until its acceleration has been initiated by the above described action of the intermediate speed rolls **23, 24** on the leading tip or apex **26** of said blank. The same is true of the narrow rolls **25', 25'** carried by the shaft **25** of central roll **24**. Another set of intermediate speed rolls, consisting of a full length lower roll **30**, and cooperating upper narrow rolls or discs **31, 31** is arranged beyond the rolls **23, 24**, to continue the advance of the successive blanks at the intermediate speed initiated by the rolls **23, 24**. A third such set, for the same purpose, and consisting of a full length lower roll **32**, and cooperating upper narrow rolls or discs **33, 33**, is arranged as shown in Fig. 1, beyond the mechanism's seam gum imprinting station G, presently to be described.

As clearly appears from Fig. 1, the effect of accelerating in turn each successive foremost and topmost blank of closely shingled slow moving blank assembly D is to just uncover the leading side flap edges **34, 34** of each following blank by the trailing seal flap edge **35** of the preceding blank. Thus the blank assembly D is progressively transformed into a shallowly shingled blank assembly E, which, exactly like that of Vincent E. Heywood Patent No. 2,772,611, dated December 4, 1956, exposes in close proximity to each other the two different glue-receiving areas (leading side flap margins and trailing seal flap margin) of successive adjacent blanks. Said blank assembly E herein, the same as the shallowly shingled blank

assembly E of said Heywood Patent No. 2,772,611, moves past the rotary glue imprinting device or devices of station G at a speed which is approximately only about one-half the highest blank speed through the machine, at which the flap folding operations on the successive spaced apart blanks are performed. Accordingly, at station G, any suitable rotary seam glue imprinting device **36**, rotating (with its platen roll **36'**) in step with the intermediate speed of advance of the blank assembly E, will not attain a rotational speed at which centrifugal throw-off of glue takes place until said highest blank speed (which determines the envelope production rate of the machine) is two or three times greater than the highest permissible blank speed in conventional rotary envelope making machines of the prior art. Furthermore, the blank assembly E herein has the same ability as the blank assembly E of said Heywood Patent No. 2,772,611, to prevent such glue as is thrown off centrifugally by rotary imprinting device **36**, from accumulating on nearby machine surfaces, because it (said assembly E) covers all such surfaces.

The seam glue imprinting device **36** as herein shown is of multiple construction, and provides, at opposite ends of its shaft **37**, two sets of matching narrow segments **38**, **38'** which are 180 degrees apart, and spaced from each other, circumferentially, by the distance *d* (Fig. 4) which, in shallowly shingled assembly E, separates the seam glue receiving margins along leading side flap edges **34**, **34** of adjacent overlapped blanks. This multiple construction of the glue imprinting device **36** still further reduces its tendency for centrifugal glue throw-off, by increasing its radius, since centrifugal force is inversely proportional to the radius of rotation. The segments **38**, **38'** receive glue from a transfer roller **39** (Fig. 2) associated with a conventional glue receptacle **40**. The rotary imprinting device **36** is so timed with the advance of assembly E that said segments **38**, **38'** provide successive narrow seam glue imprints **41**, **41** for each blank's infolded side flaps **2**, **2**, just inwardly of the latter's leading edges **34**, **34**.

While each successive foremost blank of assembly E is receiving its seam glue imprints **41**, **41**, as above described, its forward portions are passing across a suitable support **42**, beyond rolls **32**, **33**, at the intermediate assembly speed imparted by said rolls. Upon the release by said rolls **32**, **33** of each such blank, the latter is speeded up, substantially as described in said Heywood Patent No. 2,772,611, in order to draw it away from assembly E, for the folding over on score line **3***a* of its back or bottom flap **3**, into seam-forming engagement with the glue imprints **41**, **41** of its infolded side flaps. Any suitable mechanism for thus progressively de-shingling the successive blanks, by restoring to each in turn the high speed of advance imparted by the rolls **5**, **5**, **7**, **7'** and **9**, **9** may be employed.

As herein shown for this purpose, the mechanism provides, just beyond support **42**, a hollow roller **43**, journaled on a stationary hollow shaft **44**, and having counter-clockwise rotation at the same peripheral speed as the high speed rolls **5**, **5**, **7**, **7'** and **9**, **9**. The roller **43**, for seizure of each blank along its score line **3***a*, just as said blank is released by intermediate speed rolls **32**, **33**, has a suction port or slot **45** (Fig. 2) whose inner end is in periodic communication with the interior of shaft **44**, through a port or opening **46** of limited angular extent; said shaft interior is connected to any suitable source of suction, such as a vacuum pump, not shown.

Figs. 1 and 2 show a foremost blank which has thus been suctionally gripped at its score line **3***a* by slot **45** of roller **43**, and drawn downwardly by said roller's high speed rotation, away from assembly E, toward the line of bite between said roller **43** and an adjacent pressing and forwarding cylinder **47**, which rotates clockwise at the same high peripheral speed as the roller **43**.

Cylinder **47** is mounted, for its high speed rotation, on a stationary hollow shaft **48** (Fig. 2) having its interior connected to said source of suction, and providing a longitudinal port **49** of substantially 90 degrees angular extent, with which is adapted to periodically register the inner end of a slot or port **50** of the rotating cylinder **47**. Said slot **50** at its outer end serves for the suction seizure, on each revolution of said cylinder **47**, of each individualized or de-shingled blank which, as above described, is drawn downwardly by the high speed cylinder **43**.

The respective ports **46** and **49** of hollow shafts **44** and **48** are so positioned, as shown in Fig. 2, that suction through slot **50** becomes available, for blank seizure by cylinder **47**, substantially coincidental with the cut-off of suction through slot **45**, to release such blank from the roller or cylinder **43**. The transfer of each blank from cylinder **43** to cylinder **47** occurs as their respective ports or slots **45** and **50** come into opposing substantial alinement, with the slot **50** seizing the blank in the same location as the slot **45**, viz., at or just behind its score line **3***a*.

As each blank, upon seizure at its score line **3***a* by slot **45** moves downwardly with cylinder **43**, its forwardly projecting back flap **3**, beyond said score line undergoes an upward bending or deflection which increases to a pronounced transverse fold **51** (Fig. 3) as the downward high speed blank movement, first by cylinder **43** and then by cylinder **47** carries each de-shingled blank, score line **3***a* leading, between said two cylinders. The pressing action of said cylinders accentuates said fold, and is of course also exerted to press together the overlapped seam connection of back flap **3** with the wet gluing **41**, **41** of the infolded side flaps **2**, **2**. The cylinder **47**, as shown at **52**, Fig. 2, is suitably relieved, to prevent its contact with the wet seal gum **17** on each blank, as the latter's trailing seal flap **4** is drawn between the cylinders **43** and **47**. The cylinder **47** then delivers each envelope, as thus completed, to suitable feed belts **53**, **54** running to drying mechanism, not shown, wherein the seal flap gum **17** is subject to prolonged drying.

I claim:

1. In the manufacture of envelopes from a succession of blanks advancing flatwise at high speed in spaced relation with seal flaps trailing, the improvement which consists in folding inwardly the side flaps of the successive so-advancing spaced blanks, so progressively collecting the successive partly-folded blanks in a low speed closely shingled assembly that each blank thereof, except for the margin of its trailing seal flap is overlain by the preceding blank of said assembly, progressively spreading glue, in the low speed advance of said assembly, onto the so-exposed adjacent trailing seal flap margins of its successive partly-folded blanks, progressively so increasing in succession the speed of each foremost so-glued blank of said assembly as to just uncover, by its trailing seal flap edge, the leading margins of the next blank's infolded side flaps, thereby to create a shallowly shingled blank assembly whose speed of advance is appreciably lower than the blank speed at which the side flaps of the successive spaced blanks are folded inwardly, and imprinting with glue at said appreciably lower speed the successive exposed leading side flap margins of the blanks of said shallowly shingled assembly.

2. In the manufacture of envelopes from a succession of blanks advancing flatwise at high speed in spaced relation with seal flaps trailing, the improvement which consists in folding inwardly the side flaps of the successive so advancing spaced blanks, progressively collecting the successive partly-folded blanks in a slow speed closely shingled assembly, for the progressive en masse gluing of their trailing seal flap margins, progressively partially de-shingling said closely shingled blank assembly by speed up of each foremost so-glued blank thereof, but only to an extent such that its trailing seal flap edge uncovers and exposes the leading edges of the next blank's infolded side flaps, thereby to create a shallowly shingled blank assembly whose speed of advance is between the high blank speed at which the blank's side flaps are folded inwardly and the low speed of said closely shingled blank

assembly, and imprinting with glue, at said intermediate speed, the successive exposed leading side flap margins of the blanks of said shallowly shingled assembly.

3. In the manufacture of envelopes from a succession of blanks advancing flatwise at high speed in spaced relation with seal flaps trailing, the improvement which consists in folding inwardly the side flaps of the successive so advancing spaced blanks, progressively collecting the successive partly-folded blanks in a slow speed closely shingled assembly, for the progressive en masse gluing of their trailing seal flap margins, progressively partially deshingling said closely shingled blank assembly by speed up of each foremost so-glued blank thereof, but only to an extent such that its trailing seal flap edge uncovers and exposes the leading edges of the next blank's infolded side flaps, thereby to create a shallowly shingled blank assembly whose speed of advance is between the high blank speed at which the blank's side flaps are folded inwardly and the low speed of said closely shingled blank assembly, imprinting with glue, at said intermediate speed, the successive leading side flap margins of the blanks of said shallowly shingled assembly, progressively completing the deshingling of the blanks of said intermediate speed assembly, by restoring to each foremost fully glued blank thereof the initial high speed at which the blanks' side flaps are folded inwardly, and then folding over the leading back flap of each successive deshingled blank, into adhesive seam connection with its side flaps.

4. In envelope making mechanism of the class described, means for rapidly advancing successive blanks flatwise in spaced relation, with their seal flaps trailing, means operative on each so-advancing blank to fold inwardly its side flaps, means for so progressively collecting the successive partly-folded blanks in a low speed closely shingled assembly that each blank thereof, except for the margin of its trailing seal flap, is overlain by the preceding blank of said assembly, means for progressively spreading glue, in the low speed advance of said assembly, onto the so-exposed adjacent trailing seal flap margins of its successive partly-folded blanks, means for progressively so increasing in succession the speed of each foremost so-glued blank of said assembly as to just uncover, by its trailing seal flap edge, the leading margins of the next blank's infolded side flaps, thereby to create a shallowly shingled blank assembly whose speed of advance is appreciably lower than the blank speed at which the side flaps of the successive spaced blanks are folded inwardly, and means rotating in step with said appreciably lower speed for imprinting with glue the successive so-uncovered leading side flap margins of the blanks of said shallowly shingled assembly.

5. In envelope making mechanism of the class described, means for rapidly advancing successive blanks flatwise in spaced relation, with their seal flaps trailing, means operative on each so-advancing blank to fold inwardly its side flaps, means for progressively collecting the successive partly-folded blanks in a slow speed closely shingled assembly, for the progressive en masse gluing of their trailing seal flap margins, means for progressively partially deshingling said closely shingled blank assembly, by speed up of each foremost so-glued blank thereof, but only to an extent such that its trailing seal flap edge uncovers and exposes the leading edges of the next blank's infolded side flaps, whereby to create a shallowly shingled blank assembly whose speed of advance is between the high blank speed at which the blank's side flaps are folded inwardly and the low speed of said closely shingled blank assembly, and means rotating in step with the intermediate speed of said shallowly shingled assembly, for imprinting with glue the marginal areas along the so-exposed leading side flap edges of each blank of said shallowly shingled assembly.

6. In envelope making mechanism of the class described, means for rapidly advancing successive blanks flatwise in spaced relation, with their seal flaps trailing,

means operative on each so-advancing blank to fold inwardly its side flaps, means for progressively collecting the successive partly-folded blanks in a slow speed closely shingled assembly, for the progressive en masse gluing of their trailing seal flap margins, means for progressively partially deshingling said closely shingled blank assembly, by speed up of each foremost so-glued blank thereof, but only to an extent such that its trailing seal flap edge uncovers and exposes the leading edges of the next blank's infolded side flaps, whereby to create a shallowly shingled blank assembly whose speed of advance is appreciably lower than the blank speed at which the side flaps of the respective blanks are folded inwardly, means rotating in step with the speed of advance of said shallowly shingled assembly for imprinting with glue the successive leading side flap margins of the blanks of said shallowly shingled assembly, means for progressively deshingling said shallowly shingled blank assembly, by restoring to each foremost fully glued blank thereof the initial high speed at which its side flaps are folded inwardly, and means for folding over the leading back flap of each successive deshingled blank, into adhesive seam connection with its side flaps.

7. In the manufacture of envelopes from a succession of blanks advancing flatwise at high speed in spaced relation with seal flaps trailing, the improvement which consists in folding inwardly the side flaps of the successive so advancing spaced blanks, progressively collecting the successive partly-folded blanks in a slow speed closely shingled assembly, for the progressive en masse gluing of their trailing seal flap margins, progressively partially deshingling said closely shingled blank assembly by speed up of each foremost so-glued blank thereof, but only to an extent such that its trailing seal flap edge uncovers and exposes the seam glue receiving margins of the next blank's infolded side flaps, thereby to create a shallowly shingled blank assembly whose speed of advance, is appreciably lower than the blank speed at which the side flaps of the respective blanks are folded inwardly and imprinting with glue, at said appreciably lower speed, the so-exposed side flap margins of the successive blanks of said shallowly shingled assembly.

8. In the manufacture of envelopes from a succession of blanks advancing flatwise at high speed in spaced relation with seal flaps trailing, the improvement which consists in folding inwardly the side flaps of the successive so advancing spaced blanks, progressively collecting the successive partly-folded blanks in a slow speed closely shingled assembly, for the progressive en masse gluing of their trailing seal flap margins, progressively partially deshingling said closely shingled blank assembly by speed up of each foremost so-glued blank thereof, but only to an extent such that its trailing seal flap edge uncovers and exposes the seam glue receiving margins of the next blank's infolded side flaps, thereby to create a shallowly shingled blank assembly whose speed of advance is between the high blank speed at which the blank's side flaps are folded inwardly and the low speed of said closely shingled blank assembly, and imprinting with glue, at said intermediate speed, the successive exposed seam glue receiving side flap margins of the blanks of said shallowly shingled assembly.

9. In the manufacture of envelopes from a succession of blanks advancing flatwise at high speed in spaced relation with seal flaps trailing, the improvement which consists in folding inwardly the side flaps of the successive so advancing spaced blanks, progressively collecting the successive partly-folded blanks in a slow speed closely shingled assembly, for the progressive en masse gluing of their trailing seal flap margins, progressively partially deshingling said closely shingled blank assembly by speed up of each foremost so-glued blank thereof, but only to an extent such that its trailing seal flap edge uncovers and exposes the seam glue receiving margins of the next blank's infolded side flaps, thereby to create a shallowly

shingled blank assembly whose speed of advance is between the high blank speed at which the blank's side flaps are folded inwardly and the low speed of said closely shingled blank assembly, imprinting with glue, at said intermediate speed, the successive seam glue receiving side flap margins of the blanks of said shallowly shingled assembly, progressively completing the deshingling of the blanks of said intermediate speed assembly, by restoring to each foremost fully glued blank thereof the initial high speed at which the blank's side flaps are folded inwardly, and then folding over the leading back flap of each successive deshingled blank, into adhesive seam connection with its side flaps.

10. In envelope making mechanism of the class described, means for rapidly advancing successive blanks flatwise in spaced relation with their seal flaps trailing, means operative on each so-advancing blank to fold inwardly its side flaps, means for progressively collecting the successive partly-folded blanks in a slow speed closely shingled assembly, for the progressive en masse gluing of their trailing seal flap margins, means for progressively partially deshingling said closely shingled blank assembly, by speed up of each foremost so-glued blank thereof, but only to an extent such that its trailing seal flap edge uncovers and exposes the seam glue receiving margins of the next blank's infolded side flaps, whereby to create a shallowly shingled blank assembly whose speed of advance is between the high blank speed at which the blank's side flaps are folded inwardly and the low speed of said closely shingled blank assembly, and means rotating in step with the intermediate speed of said shallowly shingled assembly, for imprinting with glue the successive so-exposed side flap margins of each blank of said shallowly shingled assembly.

11. In envelope making mechanism of the class described, means for rapidly advancing successive blanks flatwise in spaced relation with their seal flaps trailing, means operative on each so-advancing blank to fold inwardly its side flaps, means for progressively collecting the successive partly-folded blanks in a slow speed closely shingled assembly, for the progressive en masse gluing of their trailing seal flap margins, means for progressively partially deshingling said closely shingled blank assembly, by speed up of each foremost so-glued blank thereof, but only to an extent such that its trailing seal flap edge uncovers and exposes the seam glue receiving margins of the next blank's unfolded side flaps, whereby to create a shallowly shingled blank assembly whose speed of advance is appreciably lower than the blank speed at which the side flaps of the respective blanks are folded inwardly, means rotating in step with the speed of advance of said shallowly shingled assembly for imprinting with glue the successive so exposed side flap margins of the blanks of said shallowly shingled assembly, means for progressively deshingling said shallowly shingled blank assembly, by restoring to each foremost fully glued blank thereof the initial high speed at which its side flaps are folded inwardly, and means for folding over the leading back flap of each successive deshingled blank, into adhesive seam connection with its side flaps.

12. Envelope making mechanism as claimed in claim 10, in which the rotary glue imprinting means provides a plurality of seam glue imprinting segments.

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