

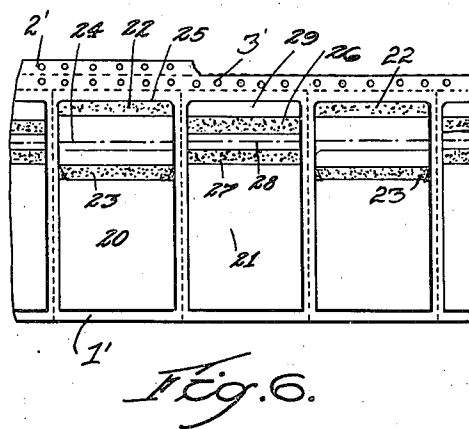
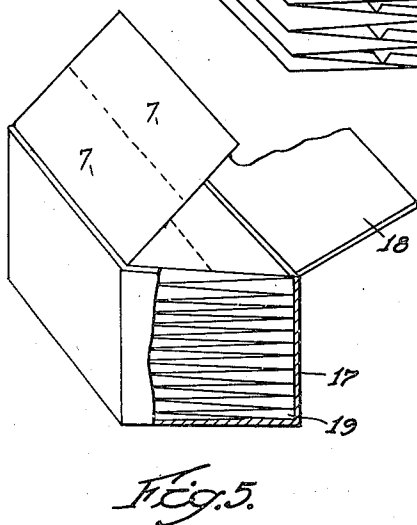
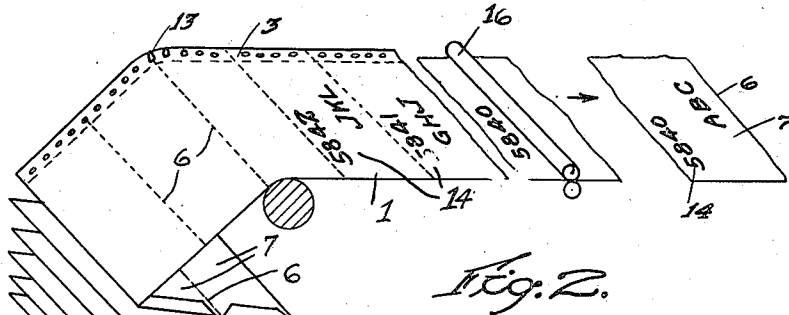
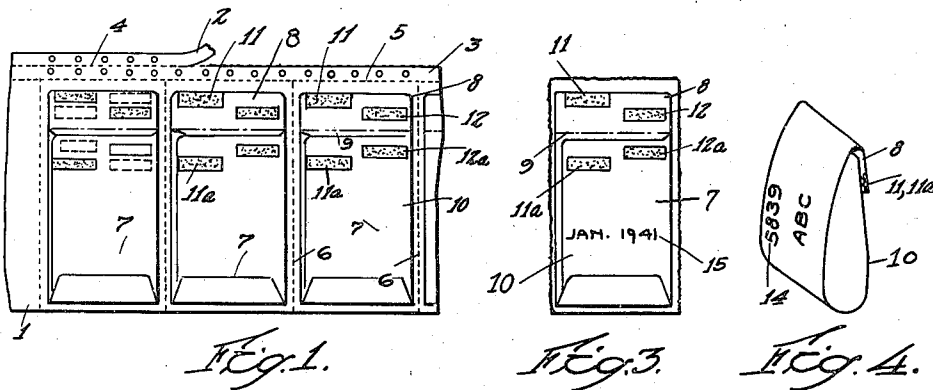
Oct. 26, 1943.

V. E. HEYWOOD
CONTINUOUS ENVELOPE

2,332,637

Filed Feb. 5, 1941

3 Sheets-Sheet 1



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CONTINUOUS ENVELOPE

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3 Sheets-Sheet 2

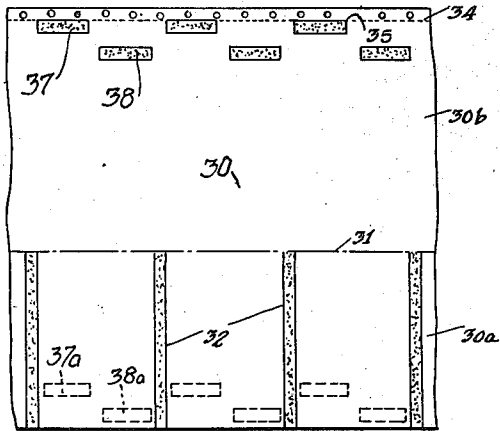


Fig. 7.

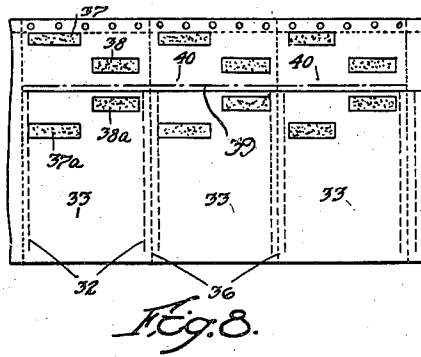


Fig. 8.

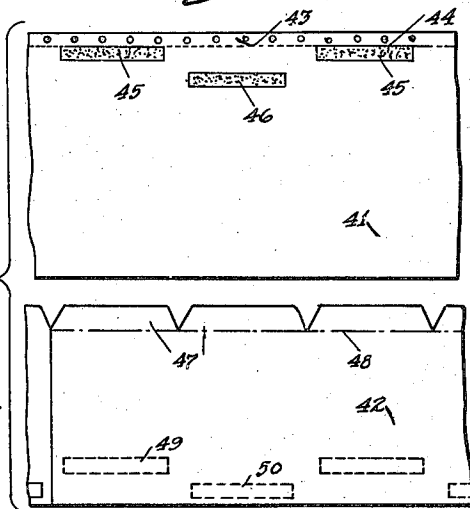


Fig. 9.

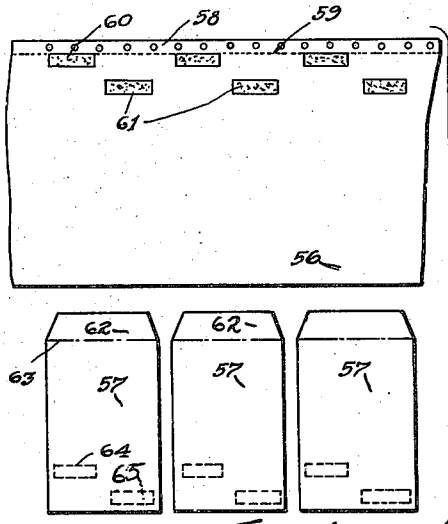


Fig. 11.

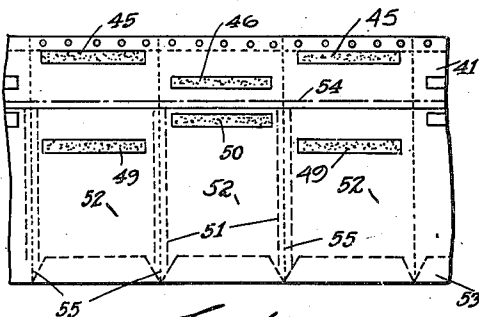


Fig. 10.

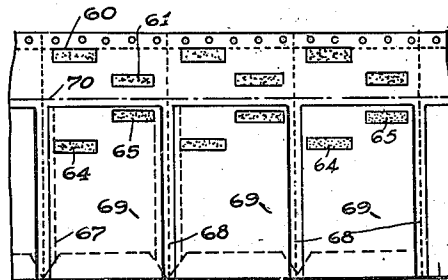


Fig. 12.

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3 Sheets-Sheet 3

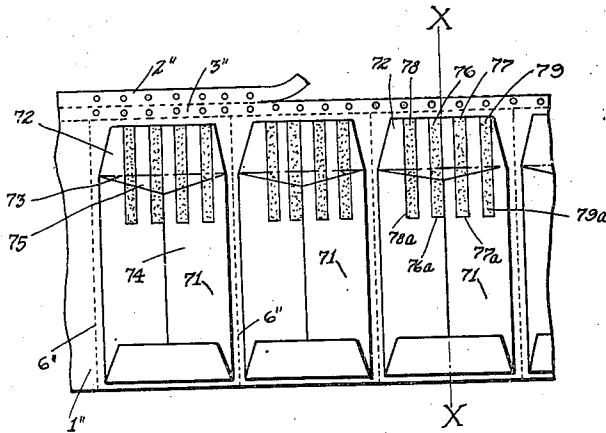


Fig. 13.

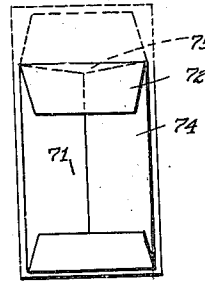


Fig. 14.

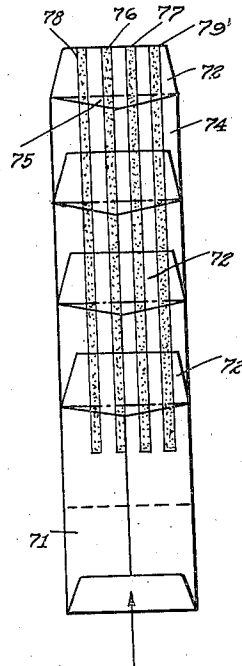


Fig. 15.

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UNITED STATES PATENT OFFICE

2,332,637

CONTINUOUS ENVELOPE

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Application February 5, 1941, Serial No. 377,544

11 Claims. (Cl. 229-69)

The present invention relates to continuous envelope assemblies adapted for stacking in zig-zag or "fan-folded" relation, and also to be fed continuously, as a connected series, into various types of business or writing machines for the printing of data thereon, such envelopes being capable of ready separation from the series into individual units, for subsequent loading and sealing.

According to my invention, each envelope of the connected series is of "dry-sealing" type, requiring no moisture or licking to effect the down sealing of its closure flap—the latter, and also the body of the envelope, having complementary areas of dry-sealing adhesive which adhere firmly to each other when brought into registry; notwithstanding these exposed dry-adhesive areas on adjacent envelopes of the series, said adjacent envelopes are foldable into face-to-face relation without possibility of registration and sticking together of their respective dry-adhesive areas.

The above and other advantageous features of the invention will hereinafter more fully appear from the following description with reference to the accompanying drawings, in which:

Fig. 1 is a plan view of a series of dry-sealing envelopes embodying the present invention.

Fig. 2 illustrates passage of an envelope series through a business machine.

Fig. 3 is an envelope unit detached from the series, preparatory to sealing.

Fig. 4 is a perspective view of a sealed envelope.

Fig. 5 is a perspective view of a container for packing a fan-folded series of dry-sealing envelopes.

Fig. 6 is a plan view, illustrating two different series of dry-sealing envelopes further embodying the invention.

Figs. 7 and 8 illustrate the manner of making a series of dry-sealing envelopes of the type shown in Fig. 1 from a single web.

Figs. 9 and 10 illustrate the manner of making different series of dry-sealing envelopes of the types shown in Fig. 6 from separate webs.

Figs. 11 and 12 illustrate the manner of making a series of dry-sealing envelopes of the type shown in Fig. 1 from a single web and separate blanks.

Fig. 13 is a plan view of a series of dry-sealing envelopes having their adhesive areas displaced with reference to the longitudinal axis of each envelope.

Fig. 14 shows one of the envelopes of Fig. 13 in sealed condition.

Fig. 15 illustrates the manner of applying adhesive simultaneously to a number of envelopes of the type shown in Fig. 13.

Referring first to Figs. 1 and 2, the invention is shown, for purposes of illustration, in connection with a continuous feed carry strip 1, one edge of which provides perforated feed bands 2 and 3, that are readily removable from the strip along weakened lines of severance 4 and 5, for a purpose which will later appear. The strip 1 is also subdivided transversely of its length by weakened severance lines 6, whereby the strip may be divided into separate units.

The strip 1 carries a series of envelopes 7 uniformly positioned in the areas between the transverse severance lines 6, and the body of each envelope 7 provides an extended seal flap 8, foldable along a line 9 into overlying relation with the rear wall 10 of the envelope. The seal flap 8 provides separate areas 11 and 12 of dry-sealing adhesive displaced different distances from the fold line 9, and the rear wall 10 provides correspondingly shaped dry-sealing adhesive areas 11a and 12a displaced from the fold line 9 the same amount as are the flap areas 11 and 12, respectively. Consequently, folding over the seal flap 8 to close an envelope 7 after loading, brings the adhesive areas 11, 11a and 12, 12a into engagement to cause immediate dry-sealing of the envelope.

In carrying out this particular embodiment of the invention, the dry-sealing envelopes 7 are produced separately, after which the envelopes are secured separately to the strip 1, with their seal flaps 8 extended, by means of suitable adhesive applied to the front wall 10a of each envelope. The perforations in the feed band 2 serve as a convenient means for advancing and registering the strip 1 with suitable envelope applying devices, so that the envelopes 7 will be secured to the strip at regular intervals. The transverse severance lines 6 can be made in the strip 1 either in advance or at the time of applying the envelopes, the main consideration being that each envelope 7 is symmetrically disposed with reference to adjacent severance lines 6.

In its passage through the envelope attaching devices, the feed band 2 is removed from the strip 1, as indicated in Fig. 1, and the strip with its attached envelopes is then ready to be fed into any desired type of writing or business machine. As indicated in Fig. 2, the strip 1 is folded in a zigzag manner, so that a considerable length of strip with its envelopes can be condensed into a small space and placed in the hop-

per of the machine into which the strip is to be fed.

It is to be particularly noted that when the carry strip 1 is fan-folded in the manner shown in Fig. 2, along the severance lines 6, the envelopes 7 on opposite sides of any given line 6 will be disposed in face-to-face relation. However, due to the staggered relation of the dry-sealing adhesive areas 11, 12, 11a and 12a on any pair of envelopes when placed face-to-face, there can be no contact between the areas on different envelopes, as indicated in dotted lines at the left-hand end of the strip shown in Fig. 1. Therefore, while each individual envelope 7 is dry, or "self"-sealing as regards its own seal flap and rear wall, the envelopes are not self adhering, and can be handled with the utmost freedom in folding the strip prior to feeding it into a business machine.

Since printing or business machines are available in many forms, it is unnecessary to describe such a machine in detail, other than to state that it provides suitable mechanism 13 cooperating with the perforations of the second feed band 3, as indicated in Fig. 2, so as to convey the strip 1 through the machine, for the purpose of printing data 14 at regular intervals, between the severance lines 6. Assuming that the envelopes 7 are to be utilized as pay envelopes, the functions of the business machine would be to print the names and other information regarding wage payments to various individuals represented by the envelopes on the opposite side of the strip 1 to where the printing takes place, or some printing could be applied to the envelope rear walls 10, as indicated at 15 in Fig. 3.

The strip with the necessary data 14 printed thereon is indicated as emerging from the machine at the right in Fig. 2, it being apparent that the feed band 3 has been removed during the passage of the strip through the printing machine. The strip is then subjected to the action of suitable separating devices 16, either forming part of or separate from the printing machine, the function of which is to tear the strip 1 successively along the severance lines 6, so as to present envelope units appearing as shown in Fig. 3, with the identifying data 14 indicated in dotted lines, and the data 15 in full lines.

Each envelope unit is then ready to be loaded, since its seal flap 8 is extended to give access to the envelope mouth, after which the envelope can be quickly and permanently sealed by merely folding over the flap 8, to bring the dry-sealing adhesive areas 11, 11a and 12, 12a into engagement. A loaded and sealed envelope is shown in perspective in Fig. 4, from which it is evident that the engaged dry-sealing adhesive areas provide effective means for securely sealing an envelope when its contents are of a bulky nature, as with a pay envelope. Since an essential characteristic of dry-sealing adhesive is the formation of an extremely tenacious seal upon contact, the folded down seal flap 8 will not tend to separate itself from the bulging rear wall 10 after sealing has occurred, as might well take place with an adhesive that requires moistening. Furthermore, the sealed envelope cannot be opened surreptitiously by pulling the flap, without destroying the original appearance of the contacted dry-sealing adhesive areas, which merge to form substantially one area upon contact.

Referring now to Fig. 5, a series of dry-sealing envelopes connected together to provide a con-

tinuous feed strip, are shown packed in a suitable container 17 for convenient handling and storage of the envelopes prior to use by business machines. The container 17 provides a cover 18 and its opening 19 is of such dimensions as to closely receive a stack of connected envelopes that are fan-folded to dispose the envelopes into the same face-to-face relation shown in Fig. 2, without the possibility of bringing the dry sealing adhesive areas 11, 11a and 12, 12a into engagement. It is obvious that in fan-folding the envelopes, it is entirely immaterial as to whether one or more envelopes are disposed face-to-face, two being shown as illustrative of the usual practice for feeding envelopes to business machines.

In Fig. 6, a continuous carry strip 1' is shown as being provided with alternately arranged dry-sealing envelopes 20 and 21 that are dissimilar insofar as the location of their dry-sealing adhesive areas is concerned. Each envelope 20 provides dry-sealing adhesive areas 22 and 23 equally displaced from the fold line 24 of the seal flap 25, whereas each envelope 21 provides dry-sealing adhesive areas 26 and 27, lying closely adjacent to the fold line 28 of the seal flap 29. Consequently, when the strip 1' is fan-folded, before passing through a business machine, the adhesive areas 26 and 27 of an envelope 21 will engage the surface of an envelope 20 entirely within and free of the adhesive areas 22 and 23. The subsequent use and manipulation of either type of envelope 20 or 21 is the same as previously described with reference to an envelope 7.

As previously indicated, envelopes embodying the present invention are also susceptible of being made directly as a series, or chain, as distinguished from attachment of separate envelopes to a carry strip, as will be apparent from a consideration of Figs. 7 to 12, inclusive. In Fig. 7, the envelope units are formed from a single web 30, foldable longitudinally along a line 31, intermediate its edges, to dispose one portion 30a of the web in partial overlying relation to the other. Prior to the folding, ordinary envelope adhesive 32 is applied at intervals transversely of the web, so that a number of separate envelope pockets 33 are formed, as indicated in Fig. 8, by adherence between the web portions. The portion 30b extends clear of the overlying portion 30a, and this portion provides a single feed band 34, removable along a weakened severance line 35. The completed envelope chain also provides weakened severance lines 36 extending transversely and bisecting the adhesive bands 32 separating the envelope pockets. Thus, each envelope pocket 33 can be separated from the chain as an envelope unit, after passage through a business machine.

Each envelope pocket 33 provides pairs of correspondingly shaped dry-sealing adhesive areas 37, 37a and 38, 38a respectively, located at different distances from a fold line 39 extending along the underlying web portion 30b. Consequently, each envelope pocket 33 provides what amounts to a seal flap 40 bounded by the severance lines 35, 36 and fold line 39. Obviously, the envelope chain can be fan-folded as shown in Fig. 2, without possibility of engagement between the dry-sealing adhesive areas, while each envelope pocket 33 can be detached from the chain after being printed on, to be handled as a dry-sealing envelope unit having all the capabilities of the envelope shown in Fig. 3.

In Figs. 9 and 10, the continuous envelope series is shown as being composed of two separate

webs 41 and 42, which are of different widths, so that a portion of the web 41 will extend beyond the web 42 when the webs are assembled. The wider web 41 provides a single feed band 43, removable along a weakened severance line 44, with dry-sealing adhesive areas 45 and 46 displaced alternately from the line 44 at different distances. The web 42 is notched along one edge, to define flaps 47 foldable along a line 48, with the under side of the web 42 along the opposite edge providing dry-sealing adhesive areas 49 and 50 alternately spaced with reference to this edge.

The webs 41 and 42 are shown assembled in Fig. 10, with bands 51 of ordinary envelope adhesive securing the webs together at intervals to form separate envelope pockets 52 in the completed chain, indicated generally by the reference character 53. In the chain 53, it is to be noted that the dry-sealing adhesive areas 45, 49 and 46, 50 are alternately displaced, in pairs, at different distances with respect to a fold line 54 extending along the underlying web 41. The chain 53 also provides weakened severance lines 55 bisecting the transverse bands 51 separating the envelope pockets 52, so that the pockets can be separated from the chain into individual envelope units having all the capabilities of the self-sealing envelopes 20 and 21 shown in Fig. 6.

In Fig. 11, the continuous envelope series is shown as being composed of a single web 56 and a number of similar blanks 57, assembled as shown in Fig. 12. The web 56 provides a perforated feed band 58 removable along a weakened severance line 59, with dry-sealing adhesive areas 60 and 61 displaced alternately at different distances from the severance line 59. Each blank 57 provides an edge flap 62 foldable at 63, with the under side of each blank providing dry-sealing adhesive areas 64 and 65 at different distances from this edge.

In forming the completed chain indicated by the reference character 66 in Fig. 12, the blanks 57 are secured individually to the web 56 by ordinary envelope adhesive 67, with weakened severance lines 68 extending transversely of the chain midway between each attached blank. Consequently, the chain 66 provides a series of separate envelope pockets 69, in each of which the dry-sealing adhesive areas 64 and 65 on the blank 57, are spaced from a fold line 70 the same as the dry-sealing adhesive areas 60 and 61, respectively. The envelope chain 66 shown in Fig. 12 is capable of being fan-folded in the same manner as the strip 1, without possibility of engagement between the dry-sealing areas of adjacent envelope pockets 69. Furthermore, each envelope pocket 69 is capable of being detached from the chain after passage through a business machine, whereupon it may be loaded and dry-sealed in the same manner as previously described with reference to Figs. 3 and 4.

In the several forms of envelopes previously described, the dry-sealing adhesive areas have been shown as extending transversely across the seal flap and body of each envelope, with portions thereof displaced different distances from the fold line of the seal flap, to prevent premature engagement when the envelopes are fan-folded. The present invention also contemplates longitudinally extending dry-sealing adhesive areas differently displaced with reference to the central axis of each envelope, for the same purpose, and an illustrative embodiment of such a modified form of envelope is shown in Figs. 13 and 14.

In this latter form of envelope, the carry strip is indicated at 1', and a series of envelopes 71 are mounted thereon so as to be uniformly positioned in the areas between the transverse severance lines 6''. The strip 1' is otherwise similar to the strip 1 shown in Fig. 1, in that it provides perforated feed bands 2'' and 3''. Each envelope 71 provides an extended seal flap 72, foldable along a line 73 into overlying relation with the rear wall 74 which comprises adhered side flaps, so formed as to leave exposed an inside portion 75 of the front wall of the envelope, just below the fold line 73.

The seal flap 72 provides separate areas 76, 77, 78 and 79 of dry-sealing adhesive displaced different distances from the central axis $x-x$ of the envelope 71, and the rear wall 74 provides correspondingly shaped dry-sealing adhesive areas 76a, 77a, 78a and 79a in alignment with the areas 76 to 79 inclusive, so that folding over the seal flap 72 to close the envelope after loading, brings the adhesive areas into engagement to cause dry-sealing of the envelope.

When the carry strip 1' is fan-folded in the manner shown in Fig. 2, along the severance lines 6'', the envelope 71 on opposite sides of any given line 6'', will be disposed in face-to-face relation. However, due to the non-uniform displacement of the dry-sealing adhesive areas 77, 77a and 79, 79a to the right of the envelope axis $x-x$, with relation to the dry-sealing adhesive areas 76, 76a and 78, 78a to the left of the axis, there can be no contact between the areas on different envelopes when placed face-to-face, as indicated in dotted lines at the left-hand end of the strip shown in Fig. 13. Obviously, when any envelope 71 is detached from the strip 1', after passage through a business machine, folding over of its seal flap after loading, brings the adhesive areas into engagement, as shown in Fig. 14, to cause dry-sealing of the loaded envelope.

As previously pointed out, the rear wall flaps are so formed as to expose an inside portion of the front wall at the envelope mouth, as indicated at 75, and it is to be noted that the several dry-sealing adhesive areas 76 to 79 inclusive, extend over the fold line 73 into this area 75. Therefore, the rear wall adhesive areas 76a to 79a inclusive, are substantially continuous with the seal flap adhesive areas, and the envelope mouth is securely sealed, not only by adhesion between the flap and rear wall, but also by adhesion of a portion of the flap to the front wall within the area 75. For this reason, an envelope 71 is particularly adapted for use as a pay envelope, due to the added security of adhesive engagement of the flap to both the front and rear walls.

The above described disposition of the adhesive areas on an envelope 71 is readily obtained by arranging the envelopes in shingled relation, as shown in Fig. 15. In so arranging the envelopes, the extended seal flaps 72 of adjacent envelopes are displaced from each other a distance equal to the depth of each seal flap, so that all of the dry-sealing adhesive areas can be applied simultaneously as substantially continuous bands by the passage of the envelopes in shingled relation, with reference to a suitable adhesive-applying station. The envelopes 71 are then unshingled and attached to the carry strip 1', it being evident that the envelopes can be handled separately, without possibility of adhesion to each other, should any pair of envelopes be disposed in face-to-face relation.

From the foregoing, it is apparent that by the

present invention there is provided a continuous series, or chain, of connected dry-sealing envelopes for use with business machines, characterized by the fact that the dry-sealing areas of each envelope are so arranged that the envelopes of the series may be fan-folded into any desired face-to-face relation, without possibility of premature contact between the dry-sealing areas.

I claim:

1. A series of identical envelopes whose corresponding faces expose areas of dry-sealing media, said envelopes being disposable in face-to-face engagement, with their areas of dry-sealing media in non-registering relation.

2. A series of connected envelopes disposable in fan-fold relation for passage through a business machine, each said envelope having exposed areas of dry-sealing adhesive that escape registry, in said fan-fold relation, with the corresponding dry-sealing adhesive areas of the adjacent envelope of said series.

3. A continuous envelope device for the purpose described, comprising a carry strip having a series of envelopes attached thereto whose corresponding faces expose areas of dry-sealing adhesive, with said strip being foldable between envelopes to dispose said adhesive areas in non-registering relation.

4. A continuous envelope device for the purpose described, comprising a strip carrying a series of envelopes, each providing corresponding dry-sealing adhesive areas disposable into non-moistened contact to provide a closure for the envelope, with said strip being foldable between envelopes to dispose said dry-sealing adhesive areas in non-registering relation.

5. A continuous envelope device for the purpose described, comprising a strip carrying more than one series of envelopes providing dry-sealing adhesive areas differently spaced and arranged alternately on the strip, with folding of said strip between envelopes serving to dispose the dry-sealing adhesive areas on the envelopes in non-registering relation.

6. A continuous envelope device for the purpose described, comprising oppositely disposed layers of flexible material secured to each other at intervals to provide separate pockets, with each pocket providing a dry-sealing closure and said device being foldable between pockets to bring said pockets into face-to-face engagement with their dry-sealing closures in non-registering relation.

7. A continuous envelope device for the purpose described, comprising oppositely disposed layers of flexible material secured to each other at intervals to provide separate pockets, with each pocket providing a dry-sealing closure, said pockets being disposable into face-to-face engagement with the dry-sealing closures in non-registering relation.

8. A continuous envelope device for the purpose described, comprising oppositely disposed layers of flexible material secured together at intervals to provide pockets separable from each other along weakened severance lines, with each pocket providing corresponding dry-sealing areas engageable for instant adhesion upon contact, said pockets being foldable along said severance lines to bring them into face-to-face engagement with said adhesive areas in non-registering relation.

9. An envelope assembly for use in a business machine, comprising a plurality of like envelopes connected together in strip form, with their respective closure flaps all lying along one edge of said strip, each envelope by its closure flap and body portion exposing on one side of said strip complementary areas of dry-sealing adhesive adapted to register for the sealing of said envelope when said closure flap is folded over said body portion, each such adhesive area lying wholly to one side of its envelope's median line across the strip, whereby to avoid registration of the corresponding adhesive areas of two adjacent envelopes when said strip is fan-folded to dispose said two envelopes in face-to-face relation.

10. An envelope assembly for use in a business machine, comprising a plurality of like envelopes connected together in strip form, with their respective closure flaps all lying along one edge of said strip, the closure flap and body portion of each envelope having a pair of complementary areas of dry-sealing adhesive, each envelope exposing a pair of dry-sealing adhesive areas on its closure flap, and a complementary pair of dry-sealing adhesive areas on its body portion, for registration with each other when said closure flap is folded down, the adhesive areas of each pair being on opposite sides of the envelope's median line running crosswise of the strip, and said areas of each pair being offset from each other crosswise of the strip, whereby to avoid registration of corresponding adhesive areas of two adjacent envelopes when said strip is fan-folded to dispose said two envelopes in face-to-face relation.

11. An envelope assembly for use in a business machine, comprising a plurality of envelopes connected together in strip form, with their respective closure flaps all lying along one edge of said strip, each envelope by its closure flap and body portion exposing on one side of said strip complementary areas of dry-sealing adhesive adapted for registration with each other, to seal said envelope when said closure flap is folded down, said areas being offset by different distances from the fold lines of said closure flaps, whereby to avoid registration between the adhesive areas of two adjacent envelopes when said strip of envelopes is fan-folded to dispose adjacent envelopes in face-to-face relation.

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