

July 1, 1952

V. E. HEYWOOD

2,601,946

DRY OR PRESSURE-SEALING ENVELOPE

Filed Nov. 24, 1948

2 SHEETS—SHEET 1

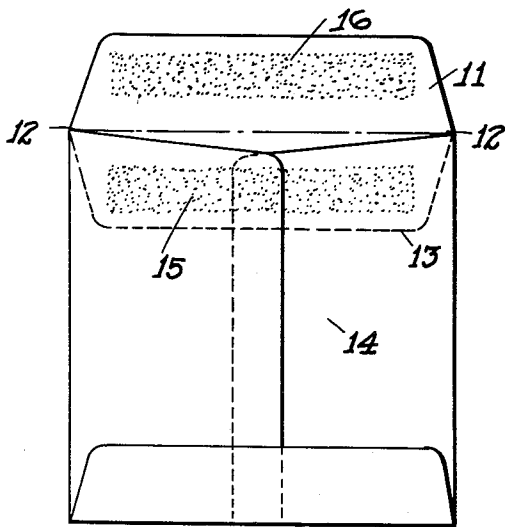


Fig. 3.

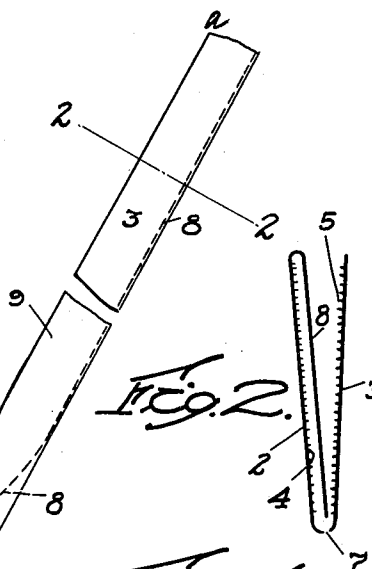


Fig. 2.

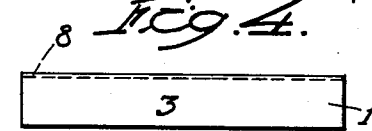


Fig. 4.

Fig. 1.

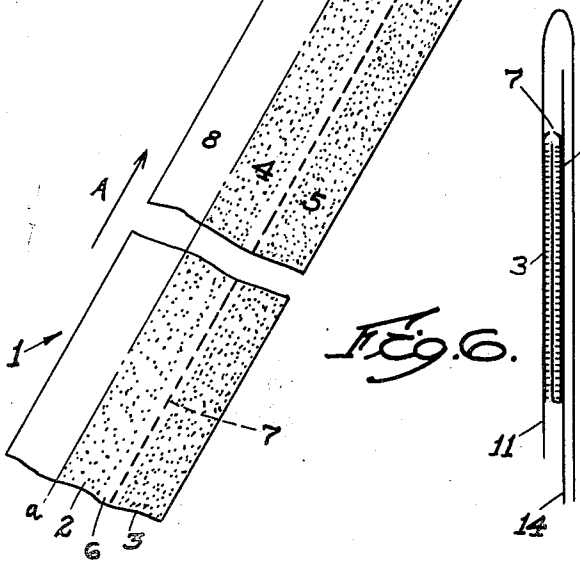


Fig. 1.

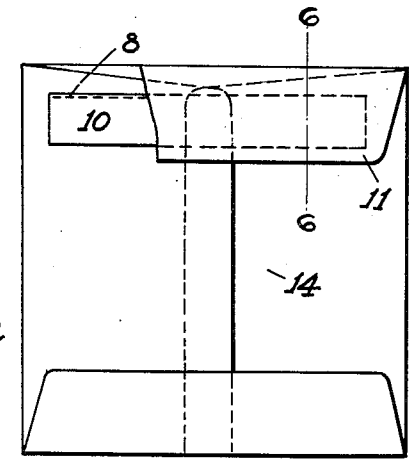


Fig. 5.

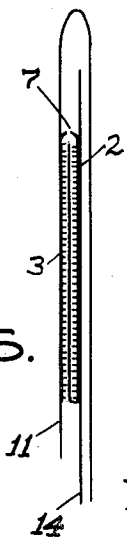


Fig. 6.

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DRY OR PRESSURE-SEALING ENVELOPE

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2 SHEETS—SHEET 2

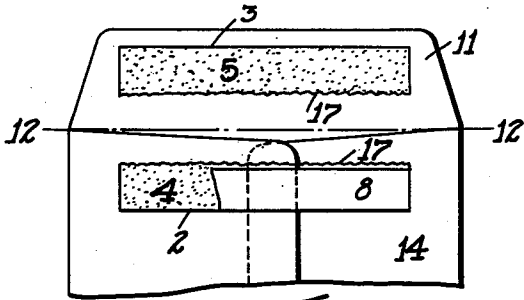


Fig. 7.

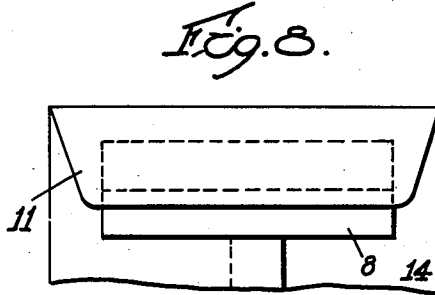


Fig. 8.

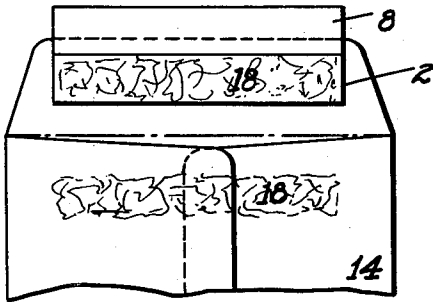


Fig. 9.

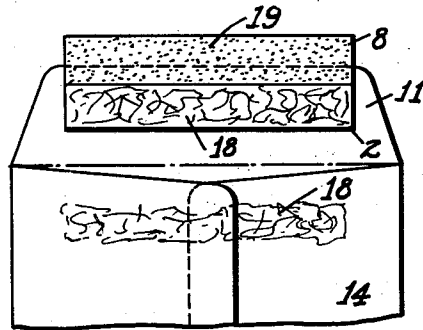


Fig. 10.

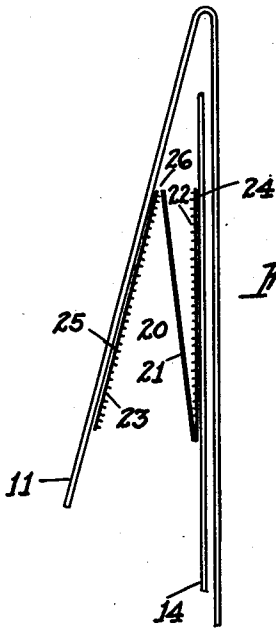


Fig. 11.

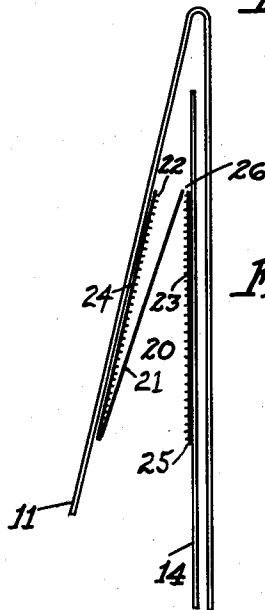


Fig. 12.

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UNITED STATES PATENT OFFICE

2,601,946

DRY OR PRESSURE-SEALING ENVELOPE

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Application November 24, 1948, Serial No. 61,776

17 Claims. (Cl. 229—80)

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This invention relates to improvements in the construction and manufacture of so-called dry or pressure-sealing envelopes, being envelopes which are adapted to be adhesively sealed without the usual wetting or licking of seal gum or glue on their closure flaps. In a dry or pressure-sealing envelope, the closure flap, instead of carrying wettable gum or glue, carries an area of tacky rubber latex, or similar material which, upon the folding down of said flap, adheres and seals, by contact and pressure, to a complementary area of the same material provided on the body portion or wall of the envelope.

Dry or pressure-sealing envelopes as heretofore constructed have usually required the use, in machines for their production, of expensive and elaborate drying apparatus, by which to subject the two latex coatings of each envelope or envelope blank to a prolonged drying period, because without such drying, the latex, which has to be applied in thin liquid form, would be transferred or smeared onto other areas of the envelope material, in the various machine operations that procure the completion and/or the handling of the envelopes.

To avoid the complications of so drying the latex coatings on the envelope material in process, it has heretofore been proposed to apply and dry the latex upon separate strips of paper or the like, and then to paste two such strips, by their uncoated surfaces, to the rear wall and the closure flap respectively of each envelope, using a folded-over extension of one strip as an insulation between the latex coatings. However, the cost of making dry-seal envelopes in the above-described fashion is very high, because it involves the separate handling and pasting on of two different latexed strips, and also the need for special measures to insure the spacing of both strips at exactly the same distance from the fold line of each envelope's closure flap.

One of the principal objects of my invention is to simplify and reduce the manufacturing costs of dry-seal envelopes that utilize such pasted on latex-coated strip material. To that end both of the complementary mutually adhesive areas are furnished by a single suitably folded strip which, as hereinafter described, it pasted simultaneously to each envelope's rear wall and closure flap respectively.

A further object of my invention is to provide this pasted on latex-coated element of each envelope in a form which temporarily anchors the closure flap in a folded-over position, thus giving the maximum protection against access of

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dust and dirt to the latexed areas thereof, and also against premature or accidental contact between any of such mutually-adhesive areas, in the handling of such envelopes by users or consumers.

A further object of my invention is to provide in such a dry or pressure-sealing envelope, an effective pull tab by which opening or lifting of the sealed closure flap is secured, not by rupture of the latex connection or seal, but rather by rupture of one of the pasted connections of said latex-coated strip; thus my improved envelope can always be opened more quickly and cleanly than other dry sealed envelopes, whose opening operations are not only difficult and time-consuming, but oftentimes cause strings or streamers of the dry sealing material to be drawn across the mouths of the envelope pockets.

Other and further objects and advantages of my invention will more fully appear from the following detailed description thereof, taken in connection with the accompanying drawings, in which

Fig. 1 is a schematic view illustrating the manufacture of the material for the aforesaid folded latex-coated strips, used in making envelopes in accordance with the preferred form of my invention.

Fig. 2 is a larger scale cross sectional view of said strip material, the section being taken on the line 2, 2 of Fig. 1.

Fig. 3 is a rear view of a conventional envelope, before its conversion, according to my invention, into a dry or pressure-sealing envelope.

Fig. 4 is a face view of a strip cut off from the product shown by Figs. 1 and 2, said strip being cut to a length appropriate for incorporation, according to my invention, with the envelope of Fig. 3.

Fig. 5 is a rear view, partly broken away, of one of the completed envelopes of my invention, as produced by combining the strip of Fig. 4 with the envelope of Fig. 3.

Fig. 6 is a fragmentary sectional view, on an exaggerated scale, of the completed envelope of Fig. 5, the section being taken on the line 6, 6 of Fig. 5.

Fig. 7 shows fragmentarily the envelope of Fig. 5, with its closure flap lifted or opened up, preparatory to filling or loading.

Fig. 8 is a view similar to Fig. 7, showing said envelope after its closure flap has been turned down and dry or pressure-sealed.

Fig. 9 is a view similar to Figs. 7 and 8 showing

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how said dry or pressure-sealed envelope is pulled open.

Fig. 10 is a rear view showing a refinement or added feature in connection with the preferred form of my invention shown by Figs. 1 to 9 inclusive.

Figs. 11 and 12 are sectional views, similar to Fig. 6, showing two other forms of my invention.

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

My improved dry or pressure-sealing envelope is essentially a two-piece device, one piece being an envelope (see Fig. 3) of any conventional construction, and the other piece, which is glued or pasted to said envelope, being a folded paper or like strip (see Fig. 4) that provides interiorly, as hereinafter described, the two complementary latex coatings by which the dry or pressure-sealing of such envelope is obtained. Fig. 1 indicates schematically a way by which the material for supplying great numbers of the folded strip pieces of Fig. 4 can readily be manufactured in a continuous manner, by certain operations performed upon a web or tape of paper or like material which, as drawn from a supply reel or the like, not shown, is to be understood as moving longitudinally in the direction shown by arrow A. The numeral 1 in Fig. 1 represents said moving paper web after it has been progressively acted upon, first by suitable coating devices, not shown. From said coating devices, the moving web 1, along its central portion 2 and along one side or marginal portion 3, has already received on one face, two narrow latex bands or stripes corresponding respectively to the stippled areas 4 and 5 of Fig. 1; these two latex coatings, applied in liquid form, have been dried by the web's progressive passage through said drying devices, and it will be understood that the two latex bands 4 and 5 shown by Fig. 1, having undergone such drying, are in condition for said web to undergo the two progressive longitudinal folding operations indicated by said figure, and hereinafter described.

It will also be understood that said web 1, by its movement past suitable slitting or perforating devices, not shown, has received along its narrow uncoated area 6 between the latex bands 4 and 5, a continuous line of slits or perforations indicated at 7, 7, which enable the strip material, for a purpose to be described, to be readily pulled asunder on substantially the boundary line between its central coated portion 2 and its outside coated portion 3. Said web's other outside portion 8, which is here shown as being practically as wide as each of the coated portions 2 and 3, does not receive on either face any latex coating. As the above described web material moves along, its two outside portions 3 and 8 encounter suitable folding devices, not shown, that operate progressively, first on the uncoated outside portion 8 to fold same over on line $a-a$ against the latex coating 4 of central portion 2, and then on the coated outside portion 3 to fold same over on the line of slits 7, 7 against the folded-down uncoated web portion 8, the latter being thus interposed or interleaved (see Fig. 2) in the resulting folded and narrowed traveling web 9 (see right-hand end of Fig. 1) between the web portions 2 and 3, so as to insulate and prevent contact between the latter's mutually adhesive inwardly facing latex coated areas 4 and 5.

Any pieces or strips of appropriate length (such as the strip 10 of Fig. 4) that are cut from this 3-layer web 9, are adapted to be combined with

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ordinary envelopes, to make the latter dry or pressure-sealing, in accordance with my invention. For purposes of such dry-seal envelope manufacture, the folded web material 9, as fast as it is made, can be accumulated in rolls, for future use, in the manufacture of my envelopes, or alternatively, as fast as it is made, can be cut up in pieces or strips 10, 10 for direct application of each successively cut piece, either to any envelope (see Fig. 3) that has been completely folded and seamed, or to any envelope that is in process of being formed. It is only necessary that the envelope be one whose closure flap 11, when folded over on score line 12, 12 to its closed position shown by broken line 13, covers a sufficient area on the envelope's wall 14 for the folded strip 10 to be glued or pasted by its two opposite external surfaces, to said closure flap and to said wall area, when interposed between them.

For obtaining such adhesive connection of the folded strip 10 to the envelope, wet glue may be applied, either to both outside uncoated surfaces of the folded strip piece 10, or as indicated by the stippling in Fig. 3, to matching areas 15 and 16 on the envelope's rear wall and closure flap, of substantially the same size as the strip 10 and equidistant from the fold line 12, 12; in the latter case, the envelope of my invention is completed by registering the strip 10 on one of said wet glue areas 15 or 16, and then folding down the closure flap 11, so that the folded strip 10 will be pasted by one of its external surfaces to the closure flap, and by its other external surface to the envelope wall, as shown by Figs. 5 and 6.

Such external surfaces of the folded strip material are, as best shown in Fig. 2, the uncoated surfaces of the strip portions 2 and 3. In the preferred form of the envelope of my invention shown by Figs. 5 and 6, the folded strip 10 is so interposed between envelope wall and closure flap, that the strip portion 2 is adhered to the envelope wall 14 while the strip portion 3 is adhered to closure flap 11. In so combining each folded strip 10 with an envelope, it is to be noted that the strip's fold $a-a$, between portions 2 and 3, is maintained at the strip's lower edge, i. e., the edge farthest from the fold line 12 of the envelope's closure flap 11.

It is further to be particularly noted that in the above-described preferred form of the envelope of my invention, the folded strip 10 serves to anchor the closure flap 11 in its folded-down position on the envelope, a circumstance which not only protects the latex surfaces 4 and 5 from any access thereto of dirt and dust, but also insures against any accidental contact between the latex areas of a plurality of such envelopes, such as frequently occurs in the handling of all previously-known types of dry or pressure-sealing envelopes when their latex areas are prematurely or otherwise exposed.

However, such closure flap anchorage, in the completed envelopes of my invention, is no detriment to their ready availability for loading and use, since the anchorage or connection established by strip 10 is readily breakable along the perforated or weakened line 7, 7. That is to say, a user of one of my completed envelopes (Figs. 5 and 6) needs only to exert a light upward pull on its so-anchored closure flap 11, to cause breakage of the connecting strip 10 along its perforations or slits 7, 7, as indicated at 17 in Fig. 7, which shows my envelope opened up, for loading of its pocket, this manipulation exposing

the latex 5 on the closure flap, but leaving the rear wall latex 4 still covered by the overlying strip portion 8.

For sealing the envelope, after it has received its contents, the user needs merely to turn back the insulating strip portion 8, for exposure of the rear wall latex 4, and then to fold or press down the closure flap 11, as indicated in Fig. 8, this operation causing the two complementary latexed areas 4 and 5 to adhere firmly to each other, for the dry or pressure-sealing of the envelope.

It will be obvious, in the use of my invention, that this sealing procedure may be modified, in that the uncoated strip portion 2, instead of being turned back against the envelope wall 14, as shown in Fig. 8, may be torn off and discarded; to facilitate this last, the strip material of Fig. 1 could additionally be furnished with a second line of perforations or slits, similar to the slits 7, 7, along the indicated fold line *a-a*. However, in the preferred form of my invention, this additional weakening of the strip material along the fold line *a-a* is not utilized, since I have found that the retention of said strip portion 2 as a part of the dry or pressure-sealed envelope, affords a definite advantage in the use of the envelopes of my invention, as follows:

An objection to all prior dry or pressure-sealed envelopes has been the difficulty frequently experienced by recipients of same in pulling them open, due to the fact that the seal between the contacted mutually-adhesive latexed areas of closure flap and body portion is usually very strong and resistant to rupture; furthermore in the act of breaking this seal, some of the latex frequently pulls loose, and is drawn out, by lifting of the closure flap, in irregular strings or streamers, which extend across the mouth of the pocket and thereby obstruct access to the pocket's contents.

These difficulties are overcome in the envelope of my invention, whose strip portion 8, after serving as an insulator as above described, before the envelope is sealed, becomes available for pull tab use by the recipient of the dry or pressure-sealed envelope to open the latter with the utmost ease and dispatch. The recipient of one of my envelopes in its sealed condition (Fig. 8) can open same readily, merely by seizing and pulling upwardly the exposed strip portion 8. The strain of such pull comes not at all on the latex seal (contacting coated areas 4 and 5) but only on the glued or pasted connection 15 by which the strip portion 2 is secured to envelope wall 14. Consequently, it is this glued or pasted connection that undergoes rupture, as shown at 18, 18, Fig. 9, by the above-described pull, the latter lifting not only the closure flap 11, but also with it the strip portion 2 which is integral with said pull tab 8.

An added feature or refinement of this preferred form of my invention is illustrated in Fig. 10, this involving the provision on strip portion 8 of wettable seal glue or gum 19 of the same character as that commonly provided on the closure flaps of ordinary envelopes. Such wettable seal glue 19 would be applied to and dried on the reverse side of the traveling web 1 of Fig. 1, before the longitudinal folding operations are performed thereon, and would supply my improved envelope with sealing means for a second or return use. In other words, after this dry or pressure-sealed envelope has been opened in the manner indicated by Fig. 9, it can be re-sealed for a second use by moistening the glue 19 of

the portion 8 and sticking same down against the back wall 14.

It will be understood that the foregoing is not to be taken as limiting my invention to envelopes equipped for dry-seal purposes with coated and folded strip material of the specific construction shown by Figs. 1 and 2 nor to the particular way shown by Fig. 6 of combining such coated and folded strip material with the body and closure flap of an envelope. It is within the scope of my invention to use, for example, latex coated strip material which is folded in "Z" fashion, as shown sectionally at 20 in Fig. 11. In this modified form of my invention, it is the uncoated central portion 21 of the strip that serves as an insulator between the two latexed coatings 22 and 23, the former being on one surface of an outside portion 24 of the folded strip and the latter being on the opposite surface of the other outside portion 25 of the folded strip. The strip portion 24 is adhered by its uncoated surface to the envelope wall 14 and the strip portion 25 by its uncoated surface to the envelope's closure flap 11. The line of perforations or slits on which this "Z" folded strip is pulled asunder is indicated at 26, along the fold between the strip portions 21 and 25. In this embodiment of my invention, the strip's insulator portion 21, after the envelope has been dry or pressure sealed, is exposed on the envelope, for service, in the same fashion as the insulator portion 8 of the preferred embodiment, as a pull tab to secure easy opening of the envelope, by rupture of the glued or pasted connection between the strip portion 24 and envelope wall 14.

In Fig. 12, the Z-folded strip 20 is shown adhered by its portion 25 to the envelope wall 14 and by its portion 24 to the closure flap 11; as so arranged, the strip's insulator portion 21, when the strip breaks apart on its perforations 26 as flap 11 is turned back for loading the envelope, is left on said flap, and is swung down to expose the flap's latex 22 for dry or pressure-sealing contact with the other latex area 23 on the envelope wall. In the so-sealed envelope, insulator 21 is exposed as a convenient pull tab, by which to effect the envelope's opening, but in this case rupture may take place either at the glued connection of strip portion 25 to wall 14, or at the latex seal between strip portions 24 and 25, depending upon which is least resistant to such pull.

I claim:

1. A dry or pressure-sealing envelope of two-piece construction, one piece being constituted by an envelope body having a closure flap, and the other piece being a single strip folded to the three-thickness form and providing two complementary coatings of dry-sealing material in insulated relation, said folded strip being adhesively connected to both body and closure flap, to hold the latter, prior to opening of the envelope for loading, in folded-down position on said body.

2. As a new article of manufacture, a dry or pressure-sealing envelope of two-piece construction, one piece being constituted by an envelope body having a closure flap, and the other piece being a strip folded to three-layer form and adhesively connected by its two outside layers to said body and flap, to hold the latter, prior to loading and sealing of the envelope, in folded-down position on said body, the inwardly facing surfaces of said two outside layers having complementary coatings of dry-sealing material,

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which are maintained out of contact by the third layer of said folded strip.

3. A dry or pressure-sealing envelope of two-piece construction, one piece being constituted by an envelope body having a closure flap, and the other piece being a single strip folded to three-thickness form and providing two complemental coatings of dry-sealing material in insulated relation, said folded strip being adhesively connected to both body and closure flap, to hold the latter, prior to opening of the envelope for loading, in folded-down position on said body, the material of said folded strip being weakened, to provide for its lengthwise parting, in response to lifting of said closure flap, to open the envelope for loading.

4. As a new article of manufacture, a dry or pressure-sealing envelope of two-piece construction, one piece being constituted by an envelope body having a closure flap, and the other piece being a strip folded to three-layer form and adhesively connected by its two outside layers to said body and flap, to hold the latter, prior to loading and sealing of the envelope, in folded-down position on said body, the inwardly facing surfaces of said two outside layers having complemental coatings of dry-sealing material, which are maintained out of contact by the third layer of said folded strip, the material of said folded strip being weakened along one of the folds between its layers, to procure its parting, in response to movement of said closure flap toward open position.

5. As a new article of manufacture, a dry or pressure-sealing envelope of two-piece construction, one piece being constituted by an envelope body having a closure flap, and the other piece being a strip folded to three-thickness form and adhesively connected by its two outside thicknesses to said body and said flap, to hold the latter, prior to loading and sealing of the envelope, in folded-down position on said body, the inwardly facing surfaces of said outside thicknesses having complemental coatings of dry-sealing material, which are maintained out of contact by the third thickness of said folded strip, said third thickness being movable, for the envelope's dry or pressure sealing by contact of said coatings, to an exposed position, for service as a tab by which to pull open the so-sealed envelope.

6. As a new article of manufacture, a dry or pressure-sealing envelope of two-piece construction, one piece being constituted by an envelope body having a closure flap, and the other piece being a strip folded to three-thickness form and adhesively connected by its two outside thicknesses to said body and said flap, to hold the latter, prior to loading and sealing of the envelope, in folded-down position on said body, the inwardly facing surfaces of said outside thicknesses having complemental coatings of dry-sealing material, which are maintained out of contact by the third thickness of said folded strip, said third thickness being movable, for the envelope's dry or pressure sealing by contact of said coatings, to an exposed position, for service as a tab by which to pull open the so-sealed envelope, on one of said adhesive connections of said strip.

7. As a new article of manufacture, a dry or pressure-sealing envelope of two-piece construction, one piece being constituted by an envelope body having a closure flap, and the other piece being a strip folded to three-thickness form and adhesively connected by its two outside thicknesses to said body and said flap, to hold the

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latter, prior to loading and sealing of the envelope, in folded-down position on said body, the inwardly facing surfaces of said outside thicknesses having complemental coatings of dry-sealing material, which are maintained out of contact by the third thickness of said folded strip, said third thickness being movable, for the envelope's dry or pressure sealing by contact of said coatings, to an exposed position, for service as a tab by which to pull open the so-sealed envelope, on the adhesive connection of said folded strip to said body.

8. As a new article of manufacture, a dry or pressure-sealing envelope of two-piece construction, one piece being constituted by an envelope body having a closure flap, and the other piece being a strip folded to three-thickness form and adhesively connected by its two outside thicknesses to said body and said flap, to hold the latter, prior to loading and sealing of the envelope, in folded-down position on said body, the inwardly facing surfaces of said outside thicknesses having complemental coatings of dry-sealing material, which are maintained out of contact by the third thickness of said folded strip, said third thickness being movable, for the envelope's dry or pressure sealing by contact of said coatings, to an exposed position, for service as a tab by which to pull open the so-sealed envelope, by rupture of said dry or pressure seal, or of the adhesive connection of said strip to said body.

9. A dry or pressure-sealing envelope of two-piece construction, one piece being constituted by an envelope body having a closure flap, and the other piece being a single strip folded to three-layer form and adhesively connected by two of its layers to body and closure flap respectively, said strip having two complemental latex-coated areas normally maintained out of contact by the third of its layers.

10. A dry or pressure-sealing envelope of two-piece construction, one piece being constituted by an envelope body having a closure flap, and the other piece being a single strip folded to three-layer form and adhesively connected by two of its layers to body and closure flap respectively, said strip having two complemental latex-coated areas normally maintained out of contact by the third of its layers, and having a weakened zone, along which it is torn asunder in response to movement of said closure flap toward open or loading position.

11. A dry or pressure-sealing envelope comprising a body portion, a closure flap and an interposed paper or like strip folded longitudinally in two places to interpose an outside or edge portion thereof between its other outside or edge portion and its central portion, the inner surfaces of said two last-mentioned portions being coated with dry-sealing material, and the outer surfaces of said two last-mentioned portions being glued to said body portions and closure flap, to retain the latter, prior to loading and sealing of the envelope, in folded-down position on said body portion.

12. A dry or pressure-sealing envelope comprising a body portion, a closure flap and an interposed paper or like strip folded longitudinally in two places to interpose an outside or edge portion thereof between its other outside or edge portion and its central portion, the inner surfaces of said two last-mentioned portions being coated with dry-sealing material, and the outer surfaces of said two last-mentioned por-

tions being glued to said body portion and closure flap, to retain the latter, prior to loading and sealing of the envelope, in folded-down position on said body portion, the material of said strip along one of said folds being weakened, for easy breakage, in response to movement of said closure flap toward open position.

13. As a new article of manufacture, material for supplying elements for attachment to ordinary envelopes to make them dry or pressure sealing, said material being a strip folded longitudinally to three-layer form, and having latex coatings on the inside surfaces of its two outside layers, and with its third layer between said coatings.

14. As a new article of manufacture, material for supplying elements for attachment to ordinary envelopes to make them dry or pressure sealing, said material being a strip folded longitudinally to three-layer form, and having latex coatings on the inside surfaces of its two outside layers, and with its third layer between said coatings, the material of said strip being weakened along one of its folds.

15. In an envelope of the class described, a body portion and a closure flap, each carrying an area of dry-sealing material, said areas being complementary to one another, a single piece of folded strip material glued to body portion and closure flap respectively and providing both of said areas, said piece having a portion adapted normally to insulate said two areas from one another, and said insulating portion when reversely folded to permit contact of said areas for dry sealing of the envelope, being exposed on the so-sealed envelope for service as a pull tab to procure opening of said envelope by rupture of one of the glued connections thereto of said strip.

16. In an envelope of the class described, a body portion and a closure flap, each carrying an area of dry-sealing material, said areas being complementary to one another, a single piece of folded strip material glued to body portion and closure flap respectively and providing both areas of dry-sealing material, said piece having a portion adapted normally to insulate said two areas

from one another, said insulating portion when reversely folded to permit contact of said areas for dry sealing of the envelope, being exposed on the so-sealed envelope for service as a pull tab to procure said envelope's opening on the glued connection of said strip to said body portion.

17. As a new article of manufacture, a dry or pressure-sealing envelope of two-piece construction, one piece being constituted by an envelope body having a closure flap, and the other piece being a strip folded to three-thickness form and adhesively connected by its two outside thicknesses to said body and said flap, to hold the latter, prior to loading and sealing of the envelope, in folded-down position on said body, the inwardly facing surfaces of said outside thicknesses having complementary coatings of dry-sealing material, which are maintained out of contact by the third thickness of said folded strip, said third thickness being movable, for the envelope's dry or pressure sealing by contact of said coatings, to an exposed position, for service as a tab by which to pull open the so-sealed envelope, on the adhesive connection of said folded strip to said body, and said third thickness having a coating of wettable gum or glue, by which to obtain re-sealing of the so-opened envelope.

VINCENT E. HEYWOOD.

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