

May 8, 1934.

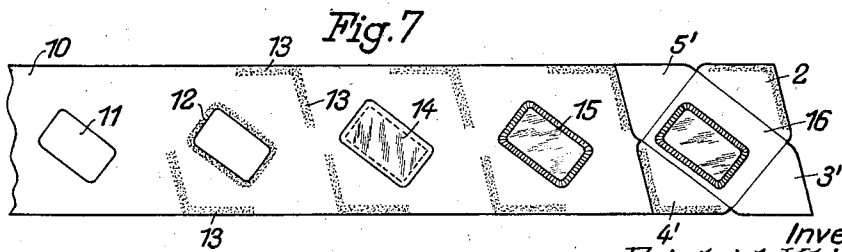
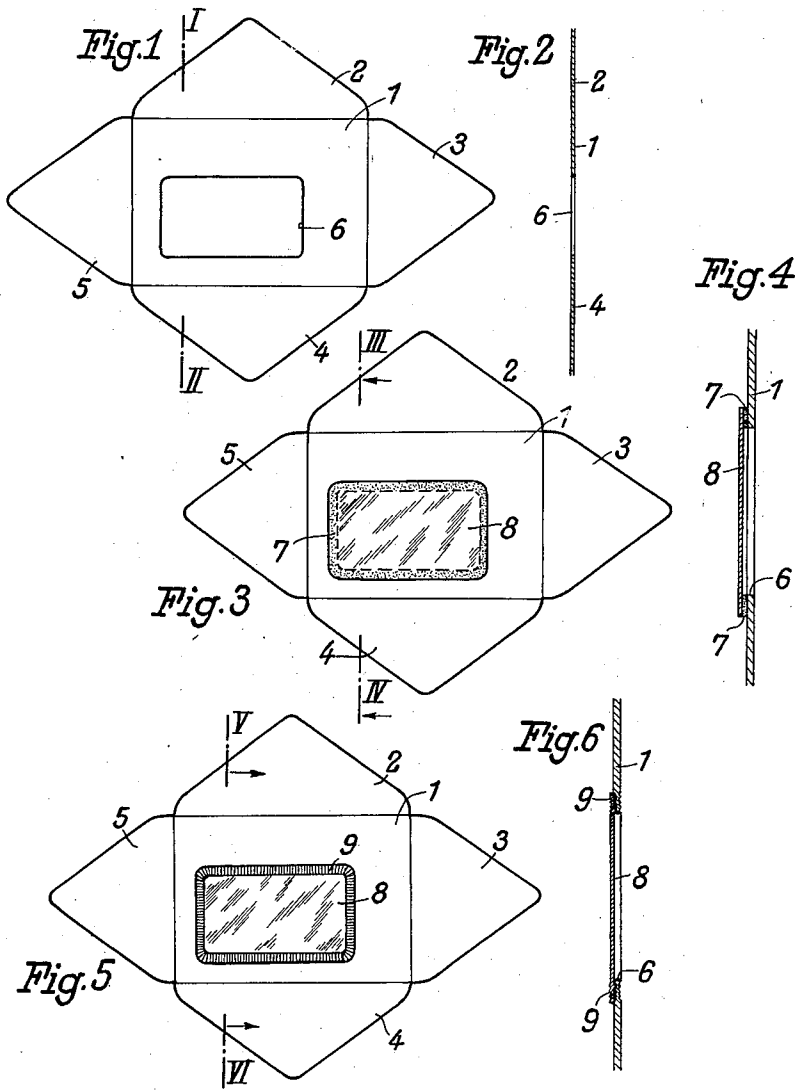
F. KLINGER

1,958,005

RECEPTACLE AND METHOD OF PRODUCING THE SAME

Filed July 27, 1933

2 Sheets-Sheet. 1



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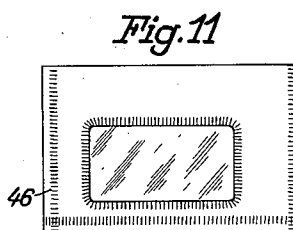
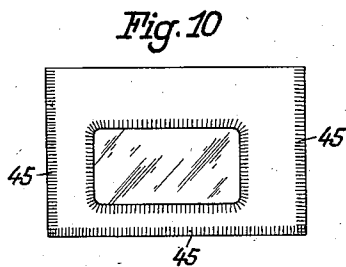
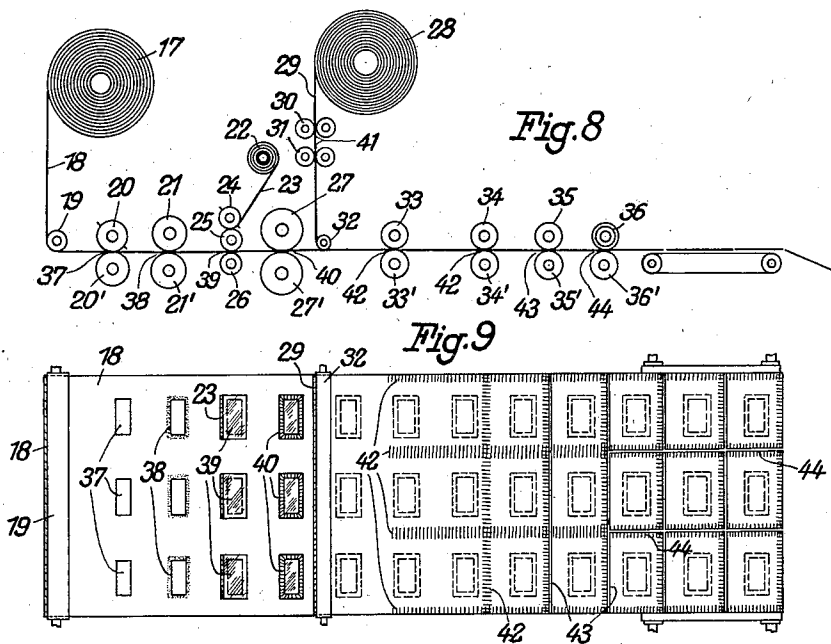
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RECEPTACLE AND METHOD OF PRODUCING THE SAME

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2 Sheets-Sheet 2



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UNITED STATES PATENT OFFICE

1,958,005

RECEPTACLE AND METHOD OF PRODUCING THE SAME

Friedrich Klinger, Hamburg, Germany

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In Germany September 1, 1932

11 Claims. (Cl. 93-61)

The invention relates to the construction of a multiple of the width of one envelope, is first cut out in such way that the apertures for the windows are obtained at the appropriate positions whereupon adhesive is applied to the aperture for the window as well as to the requisite positions on the envelope; a foil transparent or translucent material is now secured to the window by adhesive and is firmly fixed to the envelope by embossing and finally the individual envelopes are separated from the web by stamping out, cutting or the like.

One mode of producing the window in the known envelopes is to render a part of the front of the envelope transparent by impregnation with or application of a transparentizing solution of organic material such as resins or the like. The edge of such a window is indefinite because the liquid spreads. Thus in order to obtain a pleasing appearance a broad black band surrounding the window is printed on the front of the envelope.

It is also known to produce the window by cutting a corresponding aperture in the envelope and securing a transparent foil of cellulose derivatives or the like on the rear side by adhesives. This adhesive however does not afford a permanent connection and the transparent foil can be detached from the window without great trouble so that the contents of the envelope are not completely protected.

Ordinary envelopes without lateral folds have already been proposed which are closed laterally by intercorrugating and applying adhesive to the two surfaces; safety envelopes preventing unauthorized opening and closing have been produced in that a number of layers of paper of the envelope secured in superposition by adhesive or engaging one over the other in a dove-tail manner are secured together by means of a stamp with relief characters so that the protuberances in one layer of paper engage in the corresponding protuberances in the layer above it. Here also however the characters are applied only at the edge of the envelope and not centrally as is the case in securing windows.

According to the invention after a window aperture has been produced in a web in known manner a known transparent or translucent foil is connected with the web not merely by adhesive as is customary but also by means of corrugating or embossing by means of ribbed tools. As in the case of marginal reinforcement it is desirable to secure the foil to the window by adhesive before the embossing operation and to perform the latter before the adhesive has fully dried so that the known plastic toothing is obtained. Window envelopes according to the invention may be prepared either from a pile of separate sheets or from a continuous paper web.

In the latter case a travelling paper web which in the customary manner is of a width equal to

a multiple of the width of one envelope, is first cut out in such way that the apertures for the windows are obtained at the appropriate positions whereupon adhesive is applied to the aperture for the window as well as to the requisite positions on the envelope; a foil transparent or translucent material is now secured to the window by adhesive and is firmly fixed to the envelope by embossing and finally the individual envelopes are separated from the web by stamping out, cutting or the like.

It is possible to provide a window according to the invention in envelopes both with and without lateral folds.

Certain embodiments of the invention are shown by way of example in the accompanying drawings:

Fig. 1 shows an envelope with lateral folds after the lateral folds and the aperture for the window have been cut out.

Fig. 2 is a section along the line I-II of Fig. 1.

Fig. 3 shows a view of the same envelope after a transparent foil has been applied to the window aperture.

Fig. 4 shows an enlarged section along the line III-IV of Fig. 3.

Fig. 5 shows a view of the same envelope with the window secured by embossing.

Fig. 6 shows an enlarged section along the line V-VI of Fig. 5.

Fig. 7 shows another embodiment for producing window envelopes in accordance with the invention from a travelling paper web.

Fig. 8 shows schematically the production of envelopes or the like without lateral folds from a continuous web in accordance with the invention, the lateral edges of the envelopes being joined by corrugating or embossing.

Fig. 9 represents the working operations on a travelling paper web in the method illustrated in Fig. 8.

Fig. 10 shows a window envelope according to the invention without lateral folds and with the corrugations joining the envelope disposed directly at the edges.

Fig. 11 shows an envelope in which the corrugating is effected at a certain distance from the edge.

As seen from Figs. 1-6 an envelope blank with lateral folds 2, 3, 4 and 5 is produced from a sheet of paper by stamping or severing operations and an aperture 6 for the window is provided in the blank. As shown in Figs. 3 and 4 this aperture is preferably first provided with an adhesive margin 7 on which is secured a

transparent foil 8 extending beyond the window aperture by the width of the adhesive margin as is shown in Figs. 3 and 4.

The foil 8 is now firmly joined to the envelope 1, Fig. 5, by a corrugation 9. Preferably the embossing is effected while the adhesive at 7 is still moist so that an intimate connection of the adhesive with the individual fibres of the paper and the transparent foil occurs and an extremely firm closure is obtained which cannot be released without damaging the envelope or the window.

The envelopes with lateral folds may also be produced in accordance with the invention in known manner from a paper web as shown in Fig. 7. If desired a number of envelopes can be produced simultaneously side by side.

In the first place an aperture for a window 11 is cut out from the paper web 10 by a suitable machine; the edge of the aperture is provided with a stripe of adhesive 12 and preferably at the same time the envelope is also provided with stripes of adhesive at the points 13 which are to be stuck. The web 10 may conveniently be drawn off from a roll. Then as shown at 14, the foil which is cut or stamped out to the requisite size is stuck on the window aperture and firmly connected with the envelope at 15 by an embossing or corrugating operation. The manner in which the individual envelopes are severed or separated from the continuous paper web is indicated at 16. In order to obtain a complete envelope it is now only necessary to fold over the lateral folds 2', 3', 4' and 5' and to stick them together.

Another embodiment of the method according to the invention is represented schematically in Fig. 8. From a roll of paper 17 a paper web is guided over a guide roller 19 between co-operating rollers 20 and 20' whereby the window aperture is cut out from the web. The paper web then passes between the rollers 21, 21'. Here the margin surrounding the window aperture is coated with adhesive. A web of transparent foil 23 is drawn from a roll 22 and an appropriate section for covering the window aperture is severed by the rollers 24, 25, 26 and applied or pressed against the window aperture by means of the rollers 27, 27' or by suction means.

After this operation a second paper web from a roll of paper 28 is introduced which by means of the adhesive rollers 30 is furnished with longitudinal stripes of adhesive and by means of the roller 31 with transverse stripes of adhesive at the points at which the lateral edges are to be stuck together.

By means of a guide roller 32 the paper web 29 is superimposed on the paper web 18 and the two paper webs are joined at the lateral edges of the resultant envelopes by a corrugated or embossed edge 33, 33'. Thereupon they are joined transversely of the paper web by embossing rollers 34, 34' and then separated into individual envelopes by severing rollers 35, 35' and 36, 36'.

In order that this mode of operation should be more readily understood the varying stages are shown schematically on the paper web itself in Fig. 9. Here it can be seen that in the first place the window apertures are cut out at 37 and these apertures are provided with a margin of adhesive at 38. At 39 the window of transparent foil is secured and is firmly fixed to the paper webs at 40 by embossing. Now the second paper web is added which in the first place is provided at 41 with stripes of adhesive along which it is joined at 42 by corrugating or embossing. At 43 the individual envelopes are sev-

ered from the length of the paper web and at 44 the individual envelopes are severed from one another transversely of the paper web.

The envelopes obtained in this way have no lateral folds and are connected at their lateral edges by corrugated strips 45 as shown in Fig. 10. The corrugated strips 45 may be disposed directly at the edge of the envelope as represented in Fig. 10. They could however be disposed at a certain distance from the edge as indicated in Fig. 11 at 46. The lateral edges could also be connected in known manner by applying adhesive and corrugating in which case the corrugating is effected before the gum has completely dried, whereby an intimate connection of the adhesive with the paper and the window is obtained, as can be seen from Fig. 6. The envelope or bag such as is obtained by the method of Figs. 8 and 9 has no closure flap (see Figs. 10 and 11) and can be closed by corrugating or embossing. The envelope and bag could also be made in known way with closure flap. In this case preferably a single paper web is used which is folded at the edge of the envelope opposite to the closure flap.

The securing of the window by corrugation can be effected by means of an appropriately constructed embossing stamper with a corresponding counter-stamp or by rollers provided with relief patterns constituting embossing stamps, or the like.

Transparent or translucent foils of any suitable material may be used for the window. Thus for example use can be made of cellulose derivatives such as cellulose acetate, cellulose xanthogenate and cellulose hydrate, or of hardened gelatine products or products of the nature of parchment paper or in short all flexible elastic foils which could be termed "glass skin" or "horn glass".

The production of window envelopes in accordance with the invention can be carried out on a large scale in a continuous and efficient manner and with a minimum of waste. The envelopes and windows are extremely resistant and permanent and can be opened only by damaging the envelope or the window. The envelopes and the windows can be made powder-tight so that they are adapted for the production of sample bags and the like and also coloured foils can be used if it is desired to pack light-sensitive materials.

Whereas windows secured solely by adhesive readily fold or wrinkle and give rise to a wavy surface as is well known, whereby the deciphering of the writing beneath the window is made more difficult, it has been found that windows secured by embossing in accordance with the present invention are completely smooth without wrinkles and plane and are not tensioned.

While I have described my invention as applied to such envelopes as are used for business and other correspondence, it is apparent that the term "envelopes" as used has a broader significance. The invention should not be limited to commercial envelopes since it manifestly can apply to any type of paper or other thin walled envelope, bag or like receptacle. It may very effectively be applied to bags and other thin walled receptacles such as those used for packing coffee, sugar, chocolate and other food-stuffs, tobacco and the like. In such cases the bag or receptacle is provided with an aperture covered with transparent sheet material forming a window through which the goods may be viewed. Such application of the invention not only provides an attractive con-

tainer but obviates the necessity of opening the bag or receptacle to see what it contains.

I claim:

5 1. A receptacle comprising a front portion furnished with a window aperture and a transparent foil covering said aperture and secured to the surrounding portion of the envelope by corrugations impressed in said foil and said surrounding portion.

10 2. A receptacle comprising a front portion furnished with a window aperture and a transparent foil covering said aperture and secured to the surrounding portion of the envelope by adhesive applied between said foil and the surrounding portion of the envelope and by corrugations impressed in said foil and said surrounding portion.

20 3. A method for producing receptacles provided with a transparent window, including the steps of attaching a foil to the envelope blank by adhesive and securely fixing the foil by impressing a relief pattern in the superimposed sections of said foil and envelope blank.

25 4. In the method for producing receptacles according to claim 3 impressing the relief pattern before the adhesive has dried.

30 5. The method for producing window receptacles from a continuous band of material, including the steps of punching out window apertures, applying adhesive to the margins of said apertures, positioning a sheet of foil over each aperture in contact with said adhesive, impressing a relief pattern in the superimposed layers of foil and band material and severing said band between adjacent window apertures.

35 6. The method for producing window receptacles from a continuous band of material of width corresponding to a number of envelopes, including the steps of punching out window apertures, applying adhesive to the margins of said apertures, positioning a sheet of foil over each aperture in contact with said adhesive, impressing a relief pattern in the superimposed layers of foil and band material, severing said band transversely and longitudinally between adjacent window apertures.

7. The method for producing window receptacles from a continuous band of material, including the steps of punching out window apertures, applying adhesive to the margins of said apertures, severing foil windows from a band of foil, superimposing said windows on said adhesived margins, impressing relief patterns in said superimposed portions, applying adhesive in stripes of predetermined location to a further band of envelope material, superimposing said band on the first band with the adhesive stripes in contact therewith, impressing relief patterns in said superimposed bands in register with said adhesive stripes and severing bands between adjacent windows.

8. The method for producing window receptacles including the steps of forming window apertures, securing transparent windows thereto by adhesive and impressed relief patterns substantially as hereinbefore set forth.

9. A receptacle comprising a portion having a window aperture, a piece of transparent sheet material covering said aperture, said piece of transparent material being secured to the portion surrounding said aperture by corrugations impressed in said transparent material and surrounding portions.

10. A receptacle comprising a portion provided with a window aperture, a piece of transparent sheet material covering said aperture, adhesive means between said transparent material and the edges surrounding said aperture, and a series of corrugations impressed in said transparent material and the edges surrounding said aperture to join said transparent material to said edges securely.

11. A method of producing receptacles provided with transparent windows, including the steps of attaching a piece of transparent material to a blank provided with an aperture by adhesive and securely fixing the transparent material to the edges surrounding said aperture by corrugations impressed in said transparent material and in said edges.

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