

J. J. VANDERVEER.

PACKING CASE.

APPLICATION FILED MAR. 2, 1906. RENEWED NOV. 5, 1910.

1,039,225.

Patented Sept. 24, 1912.

2 SHEETS—SHEET 1.

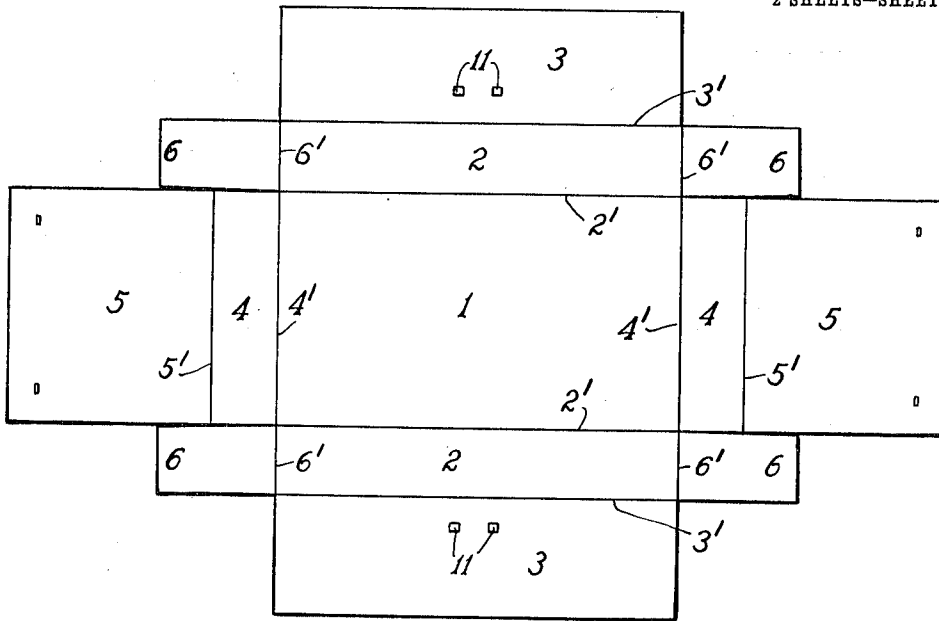


FIG. 1.

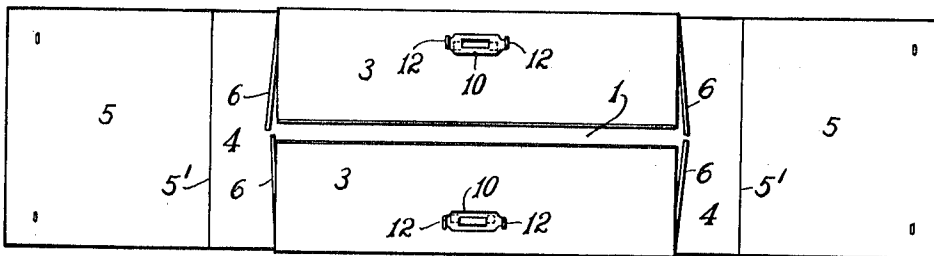


FIG. 2.

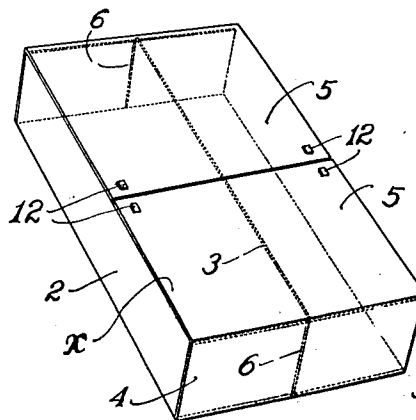


FIG. 3.

WITNESSES

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2 SHEETS—SHEET 2.

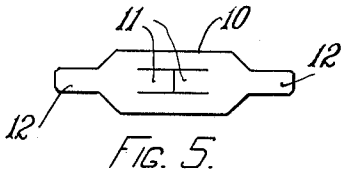


FIG. 5.

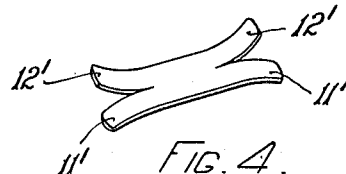


FIG. 4.

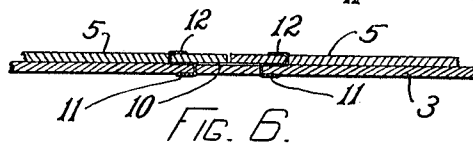


FIG. 6.

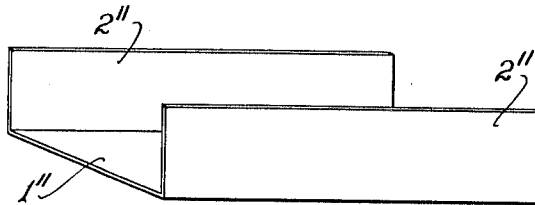


FIG. 7.

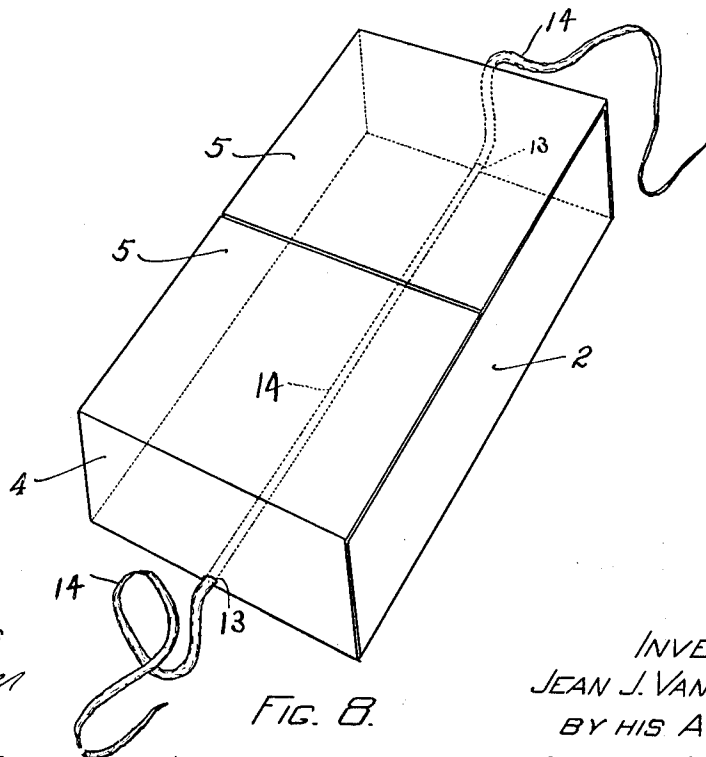


FIG. 8.

WITNESSES

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UNITED STATES PATENT OFFICE.

JEAN J. VANDERVEER, OF CONCORD, MASSACHUSETTS.

PACKING-CASE.

1,039,225.

Specification of Letters Patent.

Patented Sept. 24, 1912.

Application filed March 2, 1906, Serial No. 303,766. Renewed November 5, 1910. Serial No. 590,879.

To all whom it may concern:

Be it known that I, JEAN J. VANDERVEER, of Concord, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Packing-Cases, of which the following is a specification.

This invention relates to packing-cases; particularly envelops or other wrappers for incasing books or other oblong packages for transmission through the mails.

The objects of the invention are to provide an envelop of inexpensive manufacture, which may be shipped in flat form; quickly and easily folded into form for use, and of such form that, although unsealed, it has no exposed flap liable to become caught or engaged with other mail matter in passing through the mails.

It is another object to produce these results with an envelop in whose manufacture or use no glue or other adhesive is required, and no slits through the material of the envelop; also an envelop protecting the book or other contents from injury by external blows; and having the other advantages of the construction hereinafter shown.

The invention also comprises a special form and arrangement of fastener adapted for use with the envelop.

These objects are accomplished by cutting a one-piece blank of pasteboard or other wrapping material in the form herein described, and preferably by providing creases to assist folding of the same on the desired lines. Metallic fasteners may also be inserted, as shown; and this blank may be shipped flat. When used, the book or other package is laid upon the central portion of the blank and the flaps are then successively folded into place upon it and fastened.

In the accompanying drawings,—Figure 1 shows a plan view of the blank from which the envelop is formed by folding the same. Fig. 2 is a plan view of the blank partly folded. Fig. 3 is a perspective view, showing the envelop folded and fastened, the dotted lines indicating location of the

folded portions which are concealed from view. Fig. 4 shows a simple form of fastener. Fig. 5 shows another simple form of fastener. Fig. 6 is a sectional view on the line 6—6 of Fig. 3, showing the latter form of fastener as it may be applied. Fig. 7 shows, in perspective, a form of additional protective material which may be used. Fig. 8 shows an envelop in which a different form of fastening is employed.

Referring to the drawings: Fig. 1 shows a blank in plan view, having a central portion 1, side portions 2, side flaps 3, end portions 4, end flaps 5, and corner flaps 6. For convenience in forming the completed envelop from this blank it is preferred to provide creases 2', 3', 4', 5' and 6', on which each adjacent part may be folded toward the central portion 1. Thus, the side portions are bent upward upon the crease 2' and the side flaps are bent over downward toward the central portion upon the crease 3', as shown in Fig. 2. Likewise, the end portions 4 are bent upward on the lines 4' and the end flaps 5 are bent over downward toward the central portion on top of the side flaps on the lines 5'. The corner portions 6 may be attached to either the adjacent end or side portion. It is preferred, however, in most cases to attach them to the side portion, and this form is shown in the drawing; and when thus constructed they are bent on the lines 6' toward their respective side portions, and when these side portions are folded upward, as previously described, these corner flaps take positions at the ends, as shown in Fig. 2, and are subsequently enveloped by the end portions when the latter are folded up as previously described. The width of the side portions 2 and end portions 4 is made to correspond with the desired thickness of contents of the envelop. If the material itself be protective in character to act as a buffer to reduce shock upon the contents in handling, or if the protective feature of the structural arrangement hereinafter described be relied upon wholly to protect the

contents, the dimensions may be such as to contain the book precisely when folded, or, if preferred, they may be slightly larger to allow for insertion of extra protective material within. When additional protective material is used it may consist of paste-board or cellular board cut of suitable size to fold into the shape shown in Fig. 7, in which the part 1" is intended to lie upon the portion 1 of the blank and the parts 2", 2" lie next to the side portions 2, 2 of the blank. This may be shipped flat and the two portions 2" folded up when the package is being formed. The structure of the package is such that by furnishing this additional covering for the three sides 1, 2, 2 the package has a double thickness of material on all sides of the contents, and on no side a triple thickness, all the material being thus efficiently utilized, and all the sides protected to a uniform degree.

When folded into the position shown in Fig. 3 the portions 5—5 are uppermost, and a fastener may be applied connecting these two portions 5 together and to the portion 3 under them. Such fasteners may be preferably located at the corners of the flaps 5. The form of fastener which I prefer is hereinafter described in greater detail: As the portions 5 are preferably of such length that when folded into the position of Fig. 3 their edges come together, neither lapping upon the other, thus presenting a smooth exterior surface without any flap projecting above any portion thereof and thus making the package safer and less likely to be caught or torn in transmission through the mails, a single fastener might be used; but by using two, one located at each corner, the corners are held firmly down and the likelihood of any edge becoming bent or buckled above the general surface is materially reduced.

Another feature of the invention consists in so proportioning the sizes of the side and end flaps that when folded to final position neither side flap overlaps the other, and neither end flap overlaps the other, but both side flaps have their edges abutting together and both end flaps do likewise. In all envelopes hitherto known, so far as I am aware, adapted to be unsealed when complete and thus transmissible at low rates through the mail, there has been a flap of some sort on one of the surfaces of the package, resting loosely for some distance on said surface, under which flap other pieces of mail matter are liable to catch, owing to the presence of said looseness. By the construction here described, in which the edges of the outside flaps abut, and particularly by using material which is stiff in itself and hence will not wrinkle, but will lie as placed, this objection is avoided.

It is one feature of the invention to

make the envelop of material which is relatively stiff. When this is done the envelop takes on structural protective features which give it the aspect of a trussed casing. The greatest danger to contents of packages is apt to result from blows received upon a corner. Thus, if the material be easily flexible, a blow falling vertically upon the point x of Fig. 3 will be transmitted with full force to the contents, except so far as the latter may be protected by the padding effect of the wrapping material. If, however, the material be stiff and not easily flexible a blow falling vertically on the point x will be received edgewise upon the stiff material of the portion 2 under it and will be absorbed thereby and not transmitted to the book or other contents within. If said blow happen to strike from an oblique direction it will tend to collapse the case from its rectangular shape to the shape of a parallelogram having oblique angles; but this is resisted by the stiff vertical end pieces (herein previously called corner pieces), 6, 6, which when in final position interpose their stiff structure edgewise between the bottom and top surfaces 1 and 5 of the case, as shown in Fig. 3. These end pieces are also of such length preferably that their edges abut in the middle of the package; and the corner where they are attached to the side uprights 2, 2 constitutes practically a vertical hinge. The result of this structure is that the rectangular form cannot collapse into an oblique form without first causing the end portions 6 to buckle either inward or outward. The contents of the package prevent these from buckling inward and no harm would be done if they should swing inward on their hinges because they would still serve as struts to keep the top and bottom surface of the packages apart. The end upright 4 and top flap 5, which is fastened in place, prevent them from buckling outward by their tensile resistance. Hence, even if the case be supposed to be empty it will have a high degree of stiffness and rigidity to resist blows; while when actually in use, containing a book or other contents, the book then co-operates with the casing to prevent a blow, which may again be imagined to fall obliquely upon the point x , from doing injury to said book even though there be no padding. When a blow is received the tendency is to collapse the rectangle to oblique form, as explained above, and this can only be accomplished by bringing the top and bottom surfaces 5, 1 closer together. The first effect of an oblique blow is to tend to bring this about, but such motion is resisted by the presence of the book or other contents. This resistance is spread over the entire surface. The intensity of the blow

delivered is, therefore, disseminated over all parts of the surface of the book and is ultimately received by the book in a greatly reduced intensity and with correspondingly harmless effect. In other words, a blow delivered obliquely upon the point *x*, if the book were unprotected or if the casing were flexible, would be received by the book directly under said point *x* with approximately full intensity, whereas with the improved casing here described said blow, although delivered upon the casing at said point *x* without padding, would, owing to the stiffness of the material, be transmitted by the casing in all directions therefrom, and would be spread over a considerable area of the book, thus minimizing the intensity thereof and reducing correspondingly the likelihood of the book being injured thereby. It is assumed, of course, that the blow under discussion is not sufficient to crush the material composing the casing.

Another feature of the invention consists in the location and form of the fastener which I prefer to use for holding the external flaps in their final position. This fastener consists of a thin sheet of soft metal, capable of being bent without breaking, fastening the corner of each top flap to the side flap beneath it. The form of fastening which I prefer is that shown in Figs. 5 and 6, in which a piece of sheet metal 10 has prongs 11, 11, integral therewith, which are stamped from the interior of its body portion and bent downward, projecting through the side flap 3 and claspings it, while other prongs 12, 12 project from the end portions of said metal upward through the outer flaps and are bent down thereon. The net result is that by one fastener both outer flaps are bound to each other and also to the inner flap; and this fastening is so near the abutting edges of the outer flaps that there is no likelihood of their buckling upward and thus forming a loose place in which foreign bodies are liable to catch during transmission in the mail. Holes may be perforated through the corners at proper places to receive these prongs, thus facilitating the operation of folding the package and making sure that the person folding the same draws the top flaps tight. Thus, each pair of abutting corners of the external flaps are tied together, and at the same time tied down to the package. By this method of fastening, a package with a smooth exterior is provided, in which the places most likely to be disturbed in handling are doubly tied, *i. e.* are tied both horizontally and vertically. In practice, these fasteners may conveniently be inserted in the flaps 3, 3, at the time the blank is stamped, and the blanks may be shipped and sold with the fasteners in place; or, if desired, holes may

be provided, or places indicated, for insertion of these fasteners by the persons who fold the envelop into its final form. In the form shown in Fig. 4 each end of the metal piece has at one corner a prong 11', adapted to be bent down to clasp the flap 3, and at the other corner another prong 12' adapted to be bent upward to clasp the top flap 5, with like effect to the form above described.

It is obvious that the end flaps 5 might be folded down first, in which case the side flaps 3 would be the outer or upper flaps and the fastening applied through corners thereof; also the flaps do not need to be of equal length, and the construction here shown and described may be varied in other respects in practice without departing from the scope of the invention. Other forms of fastening may be used, and one such is shown in Fig. 8, in which one or more strings are employed; one, marked 14, being shown inserted through holes 13, 13, in the end uprights 4, 4. The central portion of this string lies within the package, upon the portion 1, having been inserted while the blank is flat, before use, and the outside parts thereof are adapted to be tied over the top flaps 5. Thus, the contents and end and top portions of the wrapper are inclosed by the string; while the bottom portion is not inclosed, as the string passes within it. This leaves the bottom surface free and clear for conveniently writing the address thereon.

It will be observed that the herein described envelop has no flaps requiring to be inserted through slits or otherwise folded within a flap already in place; but each flap when its turn for folding comes is folded in a simple manner upon the top of the package. By this means considerable time is saved in doing up the package, and by reason of the other features of the invention there is a saving in stock and cost of wrappers, and the package when completed has a neat appearance. The contents may easily be inspected without hurting the package, which will fold again in its original folds. By reason of the construction bracing the casing in all directions, and the fact that this device operates on the principle of resisting blows, not by padding but by distributing the stress over a large area, considerable material which is required in other forms of package for padding may be omitted, and the expense of postage on transmission of the contents is thereby materially reduced over any kind of package giving the same degree of protection.

I claim:

1. A blank for a packing-case, having flaps at its sides and ends adapted to be folded over the central portion, the edges of

the outer set of flaps when thus folded abutting together, and a metallic fastener for tying each corner of each outer flap to the adjacent corner of its abutting flap and to the adjacent inner flap.

2. An envelop, composed of a single piece of material having side and end flaps folded over the central portion, the side flaps not overlapping each other, in combination with

metallic fasteners detachably tying each side 10 flap directly to both end flaps.

In testimony whereof I have affixed my signature, in presence of two witnesses.

JEAN J. VANDERVEER.

Witnesses:

OLIVER P. SCHOONMAKER,
EVERETT E. KENT.
