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E. D. GILLAM

2,233,207

TRANSPARENT BOX

Original Filed April 29, 1937

Fig. 1.

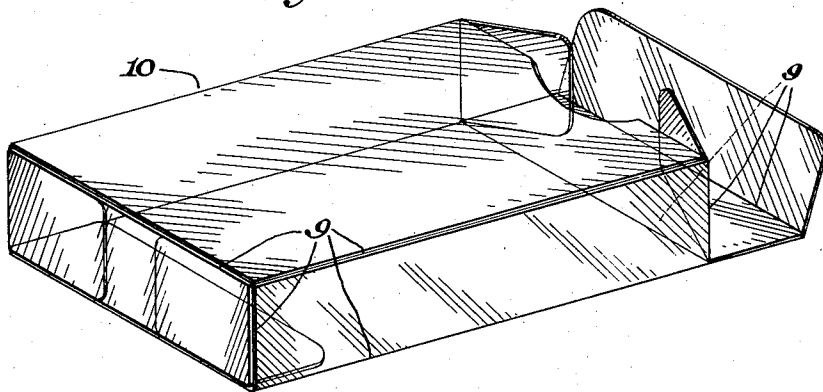


Fig. 2.



Fig. 3.

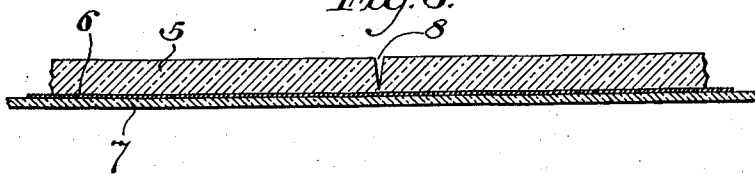
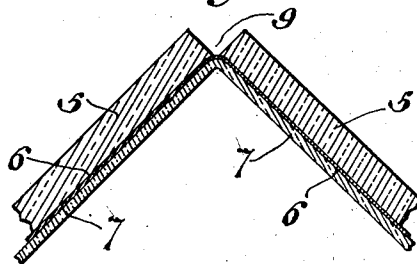


Fig. 4.



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UNITED STATES PATENT OFFICE

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TRANSPARENT BOX

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Refile for abandoned application Serial No.
139,645, April 29, 1937. This application December 15, 1939, Serial No. 309,321

6 Claims. (Cl. 229—3.5)

This invention relates to transparent boxes, and it relates more particularly to the manner of fabricating the same from sheets of regenerated cellulose, such, for example, as Cellophane or the like.

In the making of transparent boxes, particularly those of the folding type, difficulty is experienced when it is attempted to bend the sheet, from which the box is made, to form the edge portions. The material from which the box is made must, of course, be of sufficient stiffness to be at least self-sustaining, but when it is attempted to bend the material to form the edges, in order to make a fairly satisfactory crease, heat must be applied, and even then the results are far from satisfactory.

Attempts have been made to score the material at the places where the bends are to occur, but when this is done with material of sufficient stiffness to form a satisfactory box, the same will break through at the crease when the bend is made. Consequently, almost all of the transparent boxes, which are now being made, are formed up while the material is in a heated condition, whereby a more or less permanent set is obtained at the creases.

However, as the boxes are usually formed at a factory apart from the place where they are to be used, the creasing of the blanks interferes with the shipping of the same in a flat open condition, and furthermore the packing of the blanks tends to flatten out the creases so that the same will sometimes be eliminated when the user is ready to set up the boxes for use.

Furthermore, it is difficult to accurately position the creases in the blanks and to obtain definitely sharp and uniform edges at the bends, when the transparent boxes are fabricated by the method now most commonly used.

The principal object of the present invention is to provide a transparent box of material of sufficient stiffness for its intended purpose in which the edges will be accurately located, sharply defined, and free from danger of breaking at the bends while being set up or subsequently while being used.

A further object of the invention is to provide a box of the character aforesaid which may if desired be shipped in a flat condition, and which may thereafter be set up with the same ease and facility as that of setting up an ordinary paper box.

The nature and characteristic features of the present invention will be more readily understood from the following description, taken in

connection with the accompanying drawing forming part hereof, in which:

Figure 1 is a perspective view of a transparent box of the folding type embodying the main features of the present invention;

Fig. 2 is a transverse sectional view, enlarged, of the sheet material from which the box is made;

Fig. 3 is a similar view illustrating the preferred manner in which the material of the box is scored, wherever a bend is to occur in the blank; and

Fig. 4 is a similar view illustrating the bending of the blank.

It should, of course, be understood that the invention, while particularly adaptable for use in connection with folding paper boxes, is equally adaptable to other types of boxes which require bends to be made in the material of the blank for the fabrication of the box.

Referring now more particularly to Figs. 2, 3, and 4 of the drawing, there is there shown, in enlarged cross section, the material from which the boxes are made. The same comprises a relatively stiff and heavy sheet 5 of regenerated cellulose, or the like, such material being well known and readily available in the market, of which material Cellophane is an example of one that is widely used. The sheet 5 of relatively heavy material is secured by means of a suitable transparent adhesive 6, to a relatively thin light sheet of transparent regenerated cellulose 7, which should be of such thickness that the same will be quite flexible and may be easily bent without danger of fracture.

In the making of the boxes, the blanks are cut from the composite transparent sheet material, above described, in the ordinary manner, by means of suitably shaped dies, the shape, of course, depending upon the style of the box which is to be made.

At each place where a bend is to occur in the blank, the material is scored as at 8, Fig. 3, by means of suitable knives, the scoring extending entirely through, or nearly through, the heavier sheet 5 of the composite material hereinbefore described.

The scoring being entirely in the heavier sheet 5 of the material, and as this sheet is disposed on the face of the blank which is to form the outer surfaces of the box 10, the bends can be readily made without crowding of the edges of the heavier sheet at the bend.

The blanks may, if desired, be shipped in a flat condition and set up by the user at the place where the contents are to be placed therein. It

will be found that when the boxes are set up, the same may be easily bent as at 9, Fig. 4, at the scored portions, and even if the scoring does not extend entirely through the thicker sheet, the bends may be readily made notwithstanding, but in any event there will be no tendency of the lighter sheet of material to break along the line of the bend. The resulting box 10 will have sharply defined edges at the bends 9, and there will be no tendency to distortion due to internal and unequal stresses at the bends.

This application is refiled for abandoned application Serial No. 139,645, filed April 29, 1937, and allowed June 15, 1938.

I claim:

1. A box made of transparent regenerated cel-
lulosic sheet material sufficiently stiff to be self-
sustaining and composed of two sheets secured
to each other by a transparent adhesive, one of
said sheets being thin and sufficiently flexible to
bend without fracture, and the other of said
sheets being heavier and scored at the bends be-
tween adjacent wall portions of the box structure.

2. A box made of transparent regenerated cel-
lulosic sheet material sufficiently stiff to be self-
sustaining and composed of two sheets secured
to each other by a transparent adhesive, one of
said sheets being thin and sufficiently flexible to
bend without fracture, and the other of said
sheets being heavier, externally disposed and
scored at the bends between adjacent wall por-
tions of the box structure.

3. A box made of transparent regenerated cel-
lulosic sheet material sufficiently stiff to be self-
sustaining and composed of two sheets secured
to each other by a transparent adhesive, one of
said sheets being relatively light and bendable
without fracturing, and the other of said sheets

being relatively heavy, and the heavy sheet being
externally disposed and scored at the bends be-
tween adjacent portions of the box structure,
the scoring extending substantially through the
heavy sheet.

4. In the making of boxes of self-sustaining
material, the steps which consist of securing to a
transparent sheet of regenerated cellulose which
is sufficiently thin and flexible to bend without
fracture, another transparent relatively stiff and
heavy sheet of regenerated cellulose to provide
the self-sustaining material, and then scoring the
heavy sheet at the places where the bends are to
occur in the box between adjacent wall portions
thereof.

5. In the making of boxes of self-sustaining
material, the steps which consist of securing a
transparent sheet of regenerated cellulose which
is sufficiently thin and flexible to bend without
fracture to a relatively stiff and heavy sheet of
regenerated cellulose by a transparent adhesive
to provide the self-sustaining material, and then
scoring the heavy sheet at the places where the
bends are to occur in the box between adjacent
wall portions thereof.

6. The method of making boxes of transparent
self-sustaining material, which consists in secur-
ing a transparent sheet of regenerated cellulose
which is sufficiently thin and flexible to bend
without fracture to a relatively stiff and heavy
sheet of regenerated cellulose by a transparent
adhesive to provide the self-sustaining material,
then scoring the stiff and heavy sheet of mate-
rial at the places where the bends are to occur
in the box between adjacent wall portions there-
of, and setting up the box with the heavy scored
sheet disposed externally.

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