

Feb. 14, 1933.

H. T. BOWMAN ET AL

1,897,570

BOX AND METHOD OF MAKING THE SAME

Filed Aug. 13, 1931

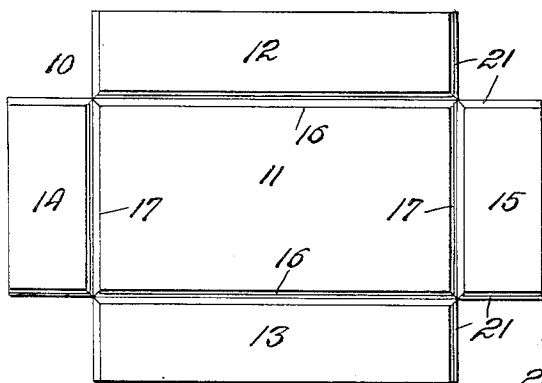


Fig. 1.

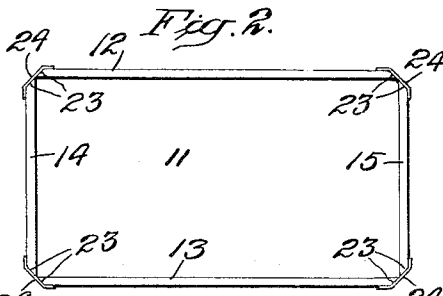


Fig. 2.

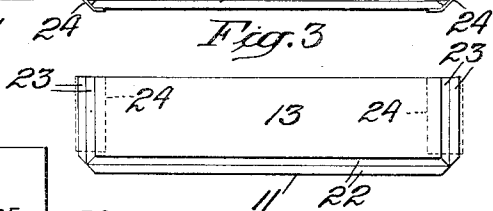


Fig. 3.

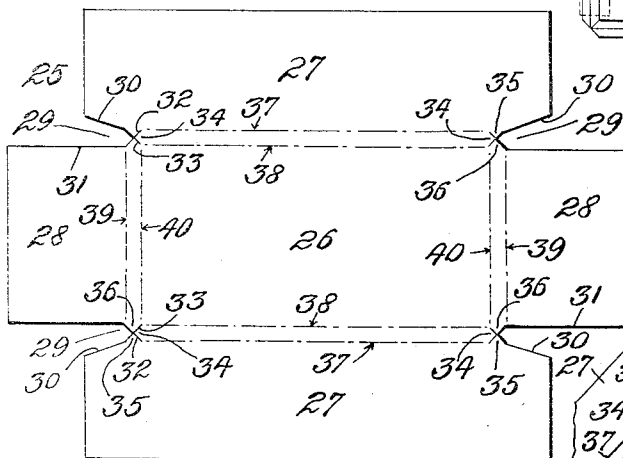


Fig. 4.

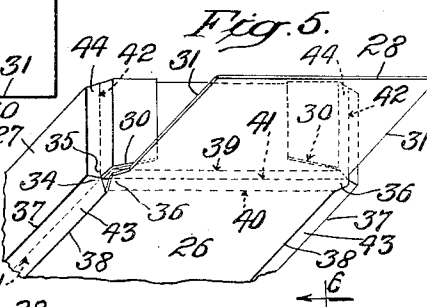


Fig. 5.

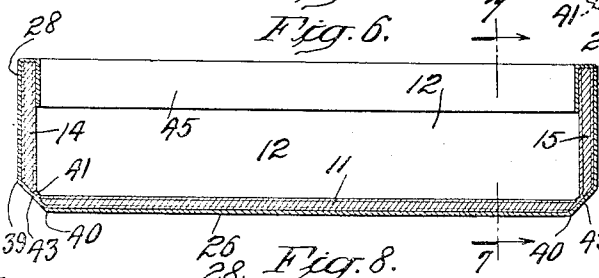


Fig. 6.

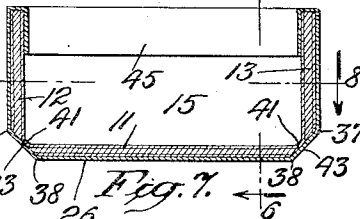


Fig. 7.

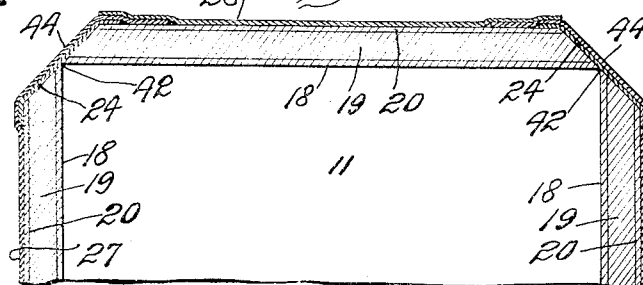


Fig. 8.

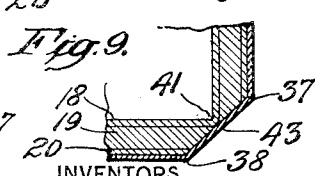


Fig. 9.

INVENTORS
HARVEY T. BOWMAN
WALTER L. GROH
BY *Geo. Wheelock*
ATTORNEY

UNITED STATES PATENT OFFICE

HARVEY T. BOWMAN AND WALTER L. GROH, OF LEBANON, PENNSYLVANIA, ASSIGNORS
TO THE GUARDIAN TRUST COMPANY, OF CLEVELAND, OHIO, A CORPORATION OF
OHIO, AS TRUSTEE

BOX AND METHOD OF MAKING THE SAME

Application filed August 13, 1931. Serial No. 556,784.

The present invention relates to special constructions of polyhedral boxes or the like wherein there are major outer surfaces which extend substantially at right angles to each other and a minor outer surface which extends at an obtuse angle thereto. Such special boxes are frequently used for holding jewelry, watches, strings of beads or for other special purposes. Preferably but not necessarily the invention relates to a polyhedral box body including major upward walls and a main wall which may be the bottom wall of the box body, these walls being arranged in angular relation and at least some of the walls being formed of laminated paper board, of which board the inner lamination, which is angularly bendable without breaking, is bent between the laminated walls and extends in a continuous sheet to provide the inner surfaces of such laminated walls, and the box body also including substantial combined thicknesses of the outer laminations which are outwardly beveled correspondingly at the edges of the walls so that corresponding bev-
els extend in substantially the same planes, whereby to provide outer minor wall surfaces which extend at obtuse angles to the laminated walls. Some such construction and particularly when made as recited herein is desirable to provide a box body which may be closed upon or by the closure wall of the box, so that a box is provided for special uses, which is strong and attractive and may be beautifully finished, the same being adapted to be made rapidly and economically.

The invention also preferably includes a suitable wrapper such as herein described, for example.

These being among the objects of the present invention, the same consists of a box body having certain features of construction and combinations of parts, together with a method of manufacture, as hereinafter described and claimed with reference to the accompanying drawing, illustrating a preferred embodiment of the invention, wherein

Figure 1 is a plan of a blank which may be used to produce the improved box body;

Fig. 2 is a plan of a box body formed from the blank;

Fig. 3 is a side elevation of the box body;
Fig. 4 is a plan of a blank for a wrapper of the box;

Fig. 5 is a perspective view of a portion of a complete box body, and showing how the wrapper of Fig. 4 may be applied thereto;

Fig. 6 is a longitudinal section of the wrapped box body on the line 6—6, Fig. 7;

Fig. 7 is a transverse section on the line 7—7, Fig. 6;

Fig. 8 is an enlarged end section of the wrapped box body on the line 8—8 of Fig. 7; and

Fig. 9 is an enlarged detail view showing the preferred construction of the adjacent walls of the box body.

Referring to Fig. 1 there is shown a preferred blank 10 for forming the box body. This blank is desirably formed from paper board having a great many laminations and which board is preferably a special board such as herein disclosed. Preferably one surface sheet of the board is composed of a tough and strong sheet which is colored or ornamented in any desired manner so that it may provide the inner skin or sheet 18 (see Fig. 8) of the walls of the box. The other surface of the board may be provided by an outer skin or sheet 20, as shown in Fig. 8, differing in appearance and quality from the sheet 18, while between the two sheets 18, 20 the board is made up of laminated material to provide a thick intermediate layer of many laminations, constituting the heart or core 19 of the board. Whether or not the finishing sheet 20 is provided, the board will have a heart or core of preferably inferior material to that of the lamination 18.

The blank 10 being preferably composed of paper material as stated, it has been pre-cut or formed so as to provide a main panel 11, side panels 12, 13 and end panels 14, 15. The adjacent edges of these panels are defined by parallel grooves or cuts 16 which extend in one direction and grooves or cuts 17 which intersect the grooves 16 substantially at right angles thereto. Inasmuch as the grooves 16, 17 are preferably of V-shape or right angular cross-section and are cut preferably to the relatively tough skin or lamination 18, the

latter lamination may be bent in the angles without danger of breaking it, so that the blank is preferably composed entirely of pre-cut and formed bendable paper board all in one piece. Hence the panels 12, 13, 14 and 15 are in the nature of flaps.

Further referring to Fig. 1 it will be seen that the parallel end edges of the panels 12, 13, 14 and 15 have bevel surfaces 21, which surfaces are provided by removing the waste portions of the blanks at the corners in such way as to leave one-half of each of the intersecting grooves 16, 17. Such a blank and a box made therefrom are shown, described and claimed in the prior application of George C. Snyder, Serial No. 304,424.

Referring now to Figs. 2 and 3, the blank of Fig. 1 has been shown as formed and set up to provide a box body. The same reference numerals are here employed in order to identify the walls of the box body with the panels of the blank. In setting up the box body the relatively tough and strong skin or sheet 18, Fig. 8, is bent in a direction away from the relatively much thicker material 19, 20 so as to provide a main, major, box wall 11 and other major walls 12, 13, 14 and 15, formed from corresponding panels of the blank of Fig. 1. By bending the finishing sheet 18 in the manner stated it provides the interior finish of the box body. In the specific construction it enables the interior finish to be made by one continuous sheet which was originally one of the laminations of the paper board from which the blank is preferably made. Referring to Figs. 2 and 3 it will be seen that the beveled surfaces which were provided by the grooves 16, 17 face outwardly of the box body so as to provide minor outward surfaces 22, the bevels as clearly shown in Fig. 6 extending in substantially the same plane at an obtuse angle to the outer or major surfaces of the thicker material of the paper board. The beveled edges 21 of the blank of Fig. 1 are brought together in setting up the box body so that when the same is set up it will have outer minor surfaces 23 which extend at obtuse angles to the major surfaces of the upright walls 12, 13, 14, 15 of the box body. It will be seen that when the blank is bent in the direction referred to, the bevel surfaces 21 of Fig. 1 are brought into the same plane and that the thinner edges of the upright walls are brought together at the joints. Corner stays 24 of thin material may, if desired, be used to hold the upright walls of the box body in their set-up angular relation, or lines of paste may connect the parts as the joints.

Referring to the specific construction of box body as shown in Figs. 2, 3, 6, 7 and 8, it will be seen that a box body is provided which is formed from a preformed blank of paper board having a rectangular main body and flaps, the flaps extending from the four

side boundaries of the main body or panel and joined together at the vertical edges of the box body to provide it with side walls 12, 13 and end walls 14, 15, such paper board including preferably laminated material 19 of many laminations, as will be understood without illustration, and which is relatively inferior in quality, but of substantial thickness at the outside of the box body and having a substantially complete finishing 18 of relatively slight depth at the inside of the box body, which is superficial material superior in toughness and strength to the laminated material, and which superficial material is bent at the inside of the box body on unbroken lines throughout the length of the interior corners of the body or edges of the rectangular main, major, wall 11, the laminated material having at the major main wall or body outer bevel surfaces 22 and at the meeting edges of the side walls 12, 13 and end walls 14, 15 similar bevel surfaces 23, the bevel surfaces 22, 23 providing the box body with minor wall surfaces which extend at obtuse angles to the major walls of the box.

Of course the entire box body need not necessarily be made from a single blank as the principle of the present invention may be inherent in a box body differently constructed of more than one piece of laminated paper board or one piece of laminated paper board and other pieces of suitable board secured together in any desired manner.

Referring to Fig. 4, there is shown a desirable wrapper 25 for the specific shape of box body herein disclosed. In other words, the wrapper 25 is composed of any suitable material for finishing the outside of the box body, and which may be differently colored and made in imitation of plush or otherwise; even of very thin paper strong enough to provide a wrapper. Wrapper 25 comprises a main body 26, two side flaps 27 and two end flaps 28 corresponding generally with the shape of the blank in Fig. 1, except that the side flaps 27 are longer and wider than the side flaps of the blank and the end flaps 28 are wider, that is transversely, than the transverse dimensions of the end flaps 14, 15 of the blank. Portions of the corners of the original material of the blank are cut away so that the combined lengths of body 26 and end flaps 28 are greater than the lengths of each of the side flaps 27, the end edges of the side flaps 27 terminating along lines which intersect the lengths of the flaps 28, so that portions of the ends of the side flaps 27 extend substantially beyond the inner edge portions of the flaps 28.

The so proportioned blank 25 is provided with four deep cuts or notches 29 which extend in pairs, one toward the other, so that there is a deep notch between adjacent portions of the side and end flaps. In other words, these deep notches 29 extend substan-

tially longitudinally of the blank, or longitudinally of the main body 26.

Edges 30 of the notches 29 which define adjacent portions of the ends of the flaps 27 are inclined from the inner ends of the notches outwardly away from the adjacent edges 31 of the flaps 28. The edges 31 are substantially parallel with each other. Slits 32, 33 are formed at the inner end of each notch 29 and inasmuch as the inner end of each notch forms substantially right angular edges and as the slits 32, 33 of each pair of notches converge so that the edges at the inner end of a notch are formed on the lines on which the slits 32, 33 extend, there are formed at the inner end of each notch three tabs 34, 35 and 36. These tabs are of triangular form, with two of them directly at the inner end of each notch and the third one beyond these two, so that there are three of these tabs at points where there meet adjacent corners of the main body 26, the flaps 27 and the flaps 28. When the wrapper 25 is applied onto the specifically illustrated box body there will be, in the wrapper, lines of bends 37, 38, 39 and 40 which are indicated in broken lines in Fig. 4. It is preferred not to slightly crease the wrapper along these lines of bending, but that can be done if desired. The lines 37, 38, 39 and 40 indicate the approximate lines on which the wrapper is bent or angularly formed to fit the box body. It will be seen that the paired lines of bends are about equal to the distance between the inner ends of the slits 32, 33 extending across those portions of the blank which connect the main body 26 with the flaps 27 and that the distance between the lines of bends 39, 40 is about equal to the widths of the tabs 35, 36.

Referring to Figures 5 to 9 inclusive, the box body is shown as wrapped by means of the wrapper shown in Fig. 4. Referring more particularly to Fig. 5 there is indicated in perspective the preferred way of applying the wrapper. Here it will be seen that the main body 26 of the wrapper, which has previously had a suitable adhesive applied thereto, covers the outer surface of the relatively thicker material outside the thin and tough sheet 18. The longitudinal side flaps 27 have been applied to the outer surfaces of the side walls of the box body. The bending lines of the flaps or panels of the box body are indicated at 41 in broken lines. The lines of joints formed by the meeting beveled edges of the flaps or panels of the box body are indicated at 42. The beveled surfaces of the box body therefore extend to each side of these lines 41, 42. The bevel surfaces of the box body will then be covered by those portions of the wrapper 25 which lie between the bending lines 37, 38, Fig. 4, and by those portions of the wrapper which include intermediate portions of the lengths of the lon-

gitudinal flaps 27. That is to say, the bevel surfaces which surround the main wall 11 of the box body will be covered over by those portions of the wrapper which are defined between the bending lines 37, 38, and 39, 40. In applying the wrapper to either end of the box body, the adjacent ends of the flaps 27 are bent around and caused to adhere to the end walls of the box body as shown in Fig. 5, and before either flap 28 is pasted to the box body, the tab 36 is inserted under the tab 35, when these portions of the wrapper are then pasted down. This means that the tabs 34 are not pasted down until tabs 35 and 36 have been pasted down and the tab 34 is then pasted over these tabs. The result is that the corners between the running bevel surfaces of the wrapped box will be finished nicely when the tabs have been pasted on the corners in the manner stated.

The described wrapped box body will therefore have angularly arranged major outward surfaces defining the main walls of the box body and the major surfaces will be joined by beveled surfaces 43 and 44 arranged in planes at obtuse angles to the major surfaces. To finish the box body the flap portions of the body of the wrapper, which has now been pasted down over the upright side walls of the box body, will be turned over the edges of the latter and pasted down by inturned edge portions 45. Thereby the box body is now completely wrapped. In Fig. 9 the preferred form of bend of the inner tough lamination 18 is shown to have a rather sharp curve so as to finish nicely the running corners within the box and which lie substantially in the plane of the main wall.

It will be seen that the improved box body whether wrapped or unwrapped may be used in connection with a suitable closure wall which usually forms the bottom of the complete box, the parts being fitted together in a well known manner.

It is obvious that the invention is susceptible to more or less modification without departing from the spirit of the invention as defined in the appended claims.

What we claim as new is:

1. A box body, including major upward walls and a main wall, the walls arranged in angular relation, and at least some of the walls being formed of laminated board, of which board the inner lamination is bent between the laminated walls and extends in a continuous sheet to provide the inner surfaces of such laminated walls, and substantial combined thicknesses of the outer laminations being outwardly beveled correspondingly at the edges of the walls so that corresponding bevels extend away from each other in substantially the same planes, whereby to provide outer minor wall surfaces arranged at obtuse angles to the laminated walls.

2. A box body, including major upward

walls and a main wall, the walls arranged in angular relation and the walls being formed of laminated board, of which board the inner lamination is bent between the laminated walls and extends in a continuous sheet to provide the inner surfaces of such laminated walls, and substantial combined thicknesses of the outer laminations being outwardly beveled correspondingly at the adjacent edges of the main wall and upright walls, so that corresponding bevels extend away from each other in substantially the same planes, whereby to provide outer minor wall surfaces arranged at obtuse angles to the laminated walls.

3. A box body, including major upward walls and a main wall, the walls arranged in angular relation and the walls being formed of laminated board, of which board the inner lamination is bent between the laminated walls and extends in a continuous sheet to provide the inner surfaces of such laminated walls, and substantial combined thicknesses of the outer laminations being outwardly beveled correspondingly at the adjacent edges of the main wall and upright walls, so that corresponding bevels extend away from each other in substantially the same planes, whereby to provide outer minor wall surfaces arranged at obtuse angles to the laminated walls.

4. A box body, including major upward walls and a main wall, the walls arranged in angular relation, and at least some of the walls being formed of laminated board, of which board the inner lamination is bent between the laminated walls and extends in a continuous sheet to provide the inner surfaces of such laminated walls, and substantial combined thicknesses of the outer laminations being outwardly beveled correspondingly at the edges of the walls, so that corresponding bevels extend away from each other in substantially the same planes, whereby to provide outer minor wall surfaces arranged at obtuse angles to the laminated walls, and a wrapper stuck upon the outer surfaces of such box body to finish it.

5. A box body, formed from a preformed blank of paper board having a rectangular main body and flaps, the flaps extending from the four side boundaries of the main body and joined together at the vertical edges of the box to provide the box with side walls and end walls, and the paper board including laminated material relatively inferior in quality but of substantial thickness and having a substantially complete finishing of relatively slight depth, at the inside of the box, which is of superficial material superior in toughness and strength to the laminated material, and which is bent on unbroken lines throughout the length of the edges of

the rectangular main body, the laminated material having, at the main body, outer beveled surfaces and at the meeting edges of the side and end walls similar beveled surfaces, such beveled surfaces providing the box with outer, minor wall surfaces at obtuse angles to the walls.

6. The method of making boxes, including, providing a box body blank composed of preformed laminated paper board, producing substantially V-shaped grooves through laminations of one side of the board approximately down to the surface lamination at the other side, the side walls of which grooves extend approximately at right angles to each other, and bending the surface lamination substantially at right angles in a direction away from the grooves along lines defined by the bottoms of the grooves, whereby to eliminate the grooves and provide major walls which are at substantially right angles to each other and outer, minor wall-surfaces which are at obtuse angles to the major walls.

7. The method of making boxes, including, providing fabricated solid paper board having relatively tough and strong surface material capable of being bent to an angle without breaking, forming a groove in the adjacent material of the board so as to produce complementary bevels arranged at substantially right angles, and bending the surface material at the bottom of the groove so as to position it inwardly and the adjacent material outwardly, whereby an outer, minor, wall surface is provided at an obtuse angle to the outer surfaces of the adjacent material.

8. A box body, comprising a main wall and walls extending around the main wall, all of the walls arranged in angular relation and including a single piece of board composed of laminated material, and the outer surfaces of the walls being joined by plane surfaces mutually extending in common planes at obtuse angles to such outer surfaces.

9. A box body, including major upward walls and a main major wall, the walls being arranged in angular relation, two or more adjacent walls thereof comprising thick laminated material, and the adjacent edges of the thick material being outwardly beveled at the outside of the body substantially in one plane and providing an outer minor wall surface extending as a whole at an obtuse angle to and continuous with the outer surfaces of such adjacent walls, and means for connecting such adjacent walls.

10. A box wrapper including a main body with side and end flaps, the wrapper being provided with deep notches which extend thereinto from between adjacent flaps, and the wrapper also having slits which converge in pairs, one pair at the inner end of each notch.

11. A box wrapper including a main body

with side and end flaps, the wrapper being provided with deep notches which extend thereinto from between adjacent flaps, the edge of the wrapper at the inner end of each notch being shaped right angularly, and the wrapper having inward slits which converge at each angle.

In witness whereof we have hereunto set our hands this 6th day of August, 1931.

HARVEY T. BOWMAN.
WALTER L. GROH.