Jan. 26, 1932. O. B. ANDREWS 1,842,379

TRAY

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FIG. 1

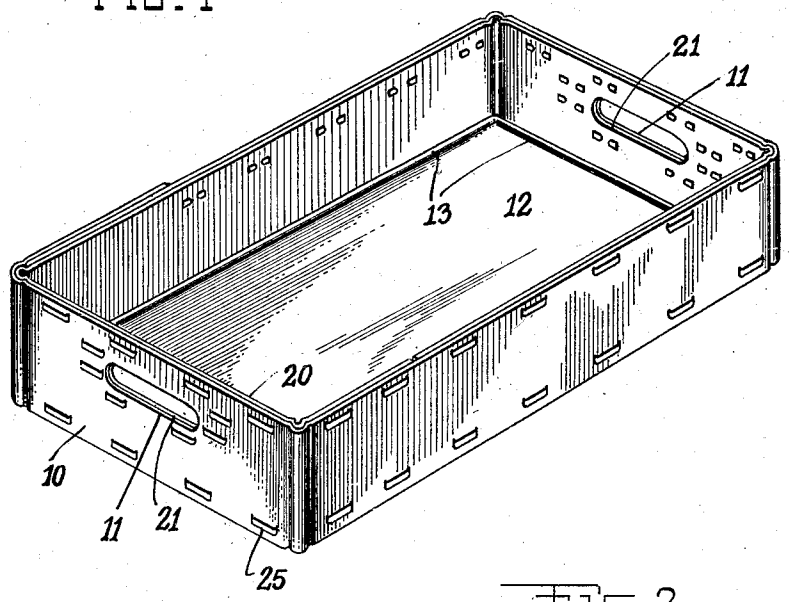

FIG. 2

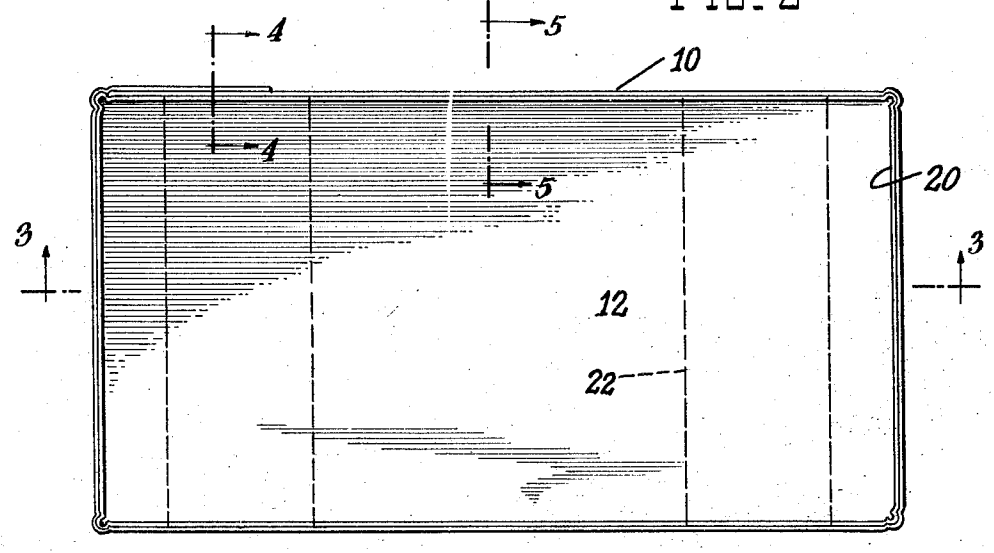

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FIG. 3.

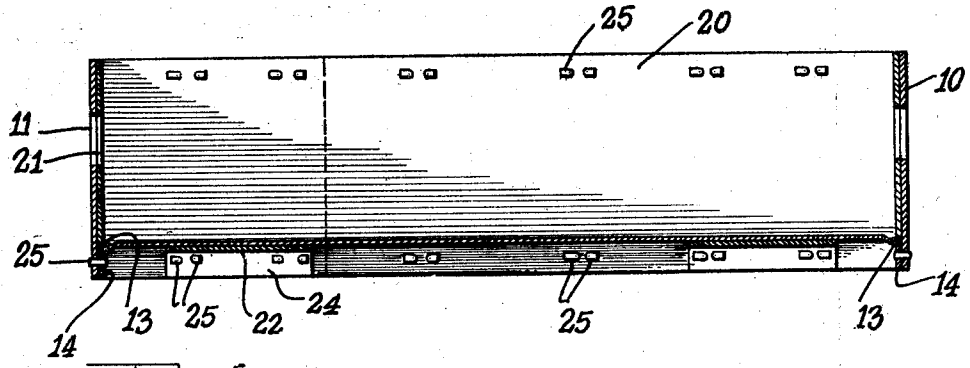


FIG. 6.

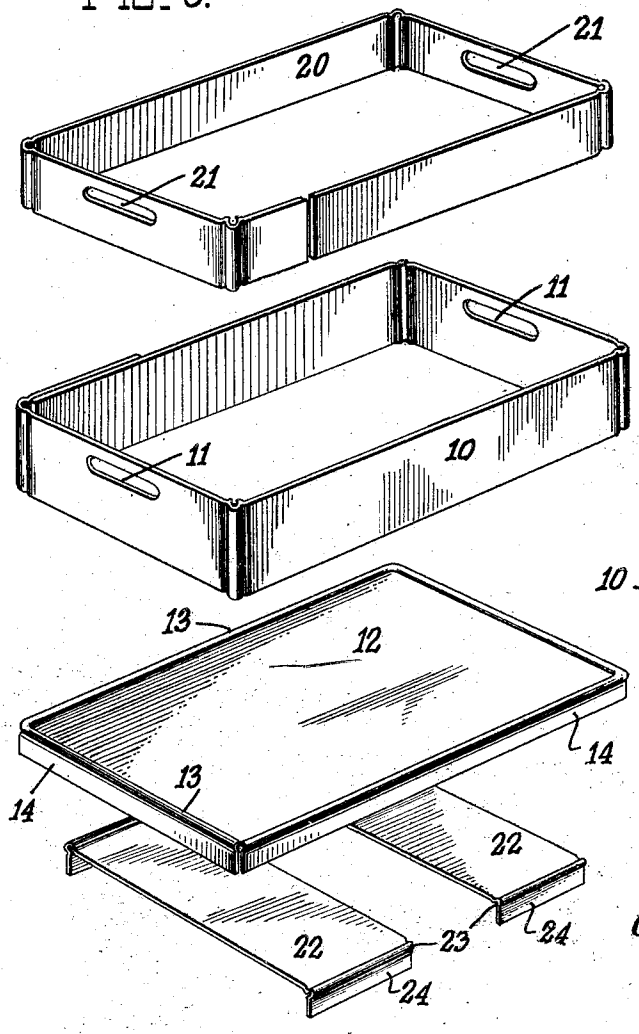


FIG. 4

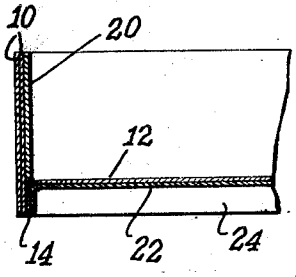
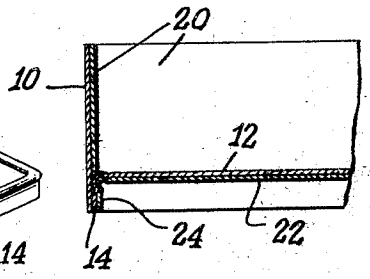


FIG. 5.



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Jan. 26, 1932. O. B. ANDREWS 1,842,379

TRAY

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FIG. 7

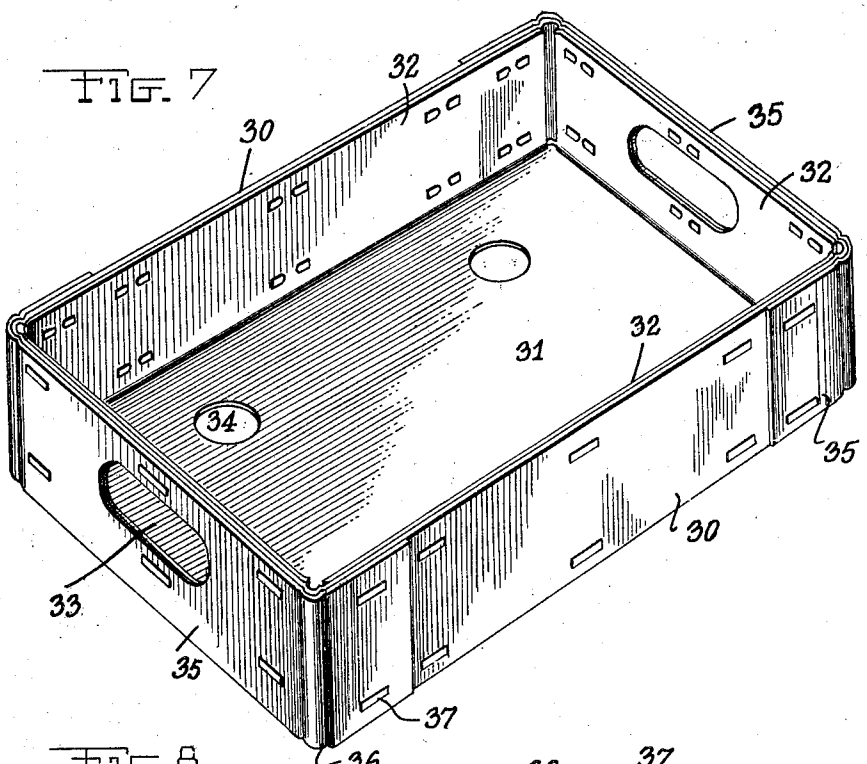


FIG. 8

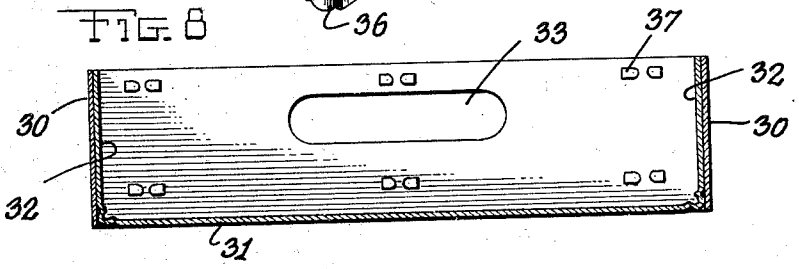
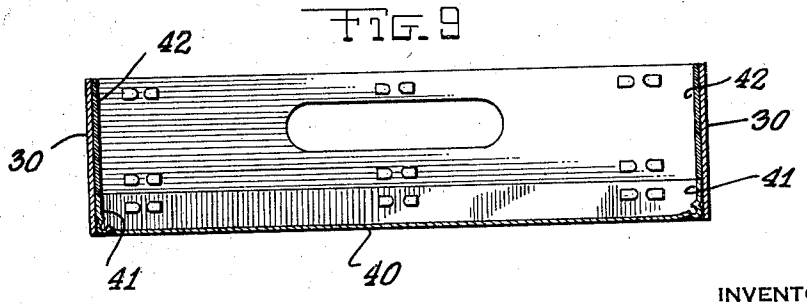


FIG. 9



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Patented Jan. 26, 1932

1,842,379

UNITED STATES PATENT OFFICE

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TRAY

Application filed November 26, 1929. Serial No. 409,779.

This invention relates to trays, and more particularly to a fiber tray which is sufficiently strong to be used in handling comparatively heavy articles, such as bottles.

The invention provides a rigid construction of tray which is simple and cheap to manufacture and which is capable of replacing wooden and metal trays.

In accordance with the present invention the fiber board, such as box board, which has been especially treated to render the same impervious to moisture is utilized for the sides and bottom of the tray. Special strengthening members may also be placed under the bottom of the tray when desired. Means is provided for securing the bottom to the side members in a simple and rigid manner and for causing the bottom to reinforce the side members. A further reinforcing means is also included to ensure a rigid construction.

The invention also consists in certain new and original features of construction and combinations of parts hereinafter set forth and claimed.

Although the novel features which are believed to be characteristic of this invention will be particularly pointed out in the claims appended hereto, the invention itself, as to its objects and advantages, the mode of its operation and the manner of its organization may be better understood by referring to the following description taken in connection with the accompanying drawings forming a part thereof, in which

Fig. 1 is a perspective view of the tray constructed in accordance with the present invention;

Fig. 2 is a plan view of the tray;

Fig. 3 is a section taken on the line 3—3 of Fig. 2;

Fig. 4 is a section taken on the line 4—4 of Fig. 2;

Fig. 5 is a section taken on the line 5—5 of Fig. 2;

Fig. 6 is a perspective view of the component parts of the tray in expanded positions;

Fig. 7 is a perspective view of a modified form of tray;

Fig. 8 is a vertical section thereof; and

Fig. 9 is a vertical section of a further modified form of tray.

Like reference characters denote like parts in the several figures of the drawings.

In the following description and in the claims parts will be identified by specific names for convenience, but they are intended to be as generic in their aplication to similar parts as the art will permit.

Referring to the drawings more in detail the tray is shown as formed of a side piece 10 which is suitably scored at the corners and bent in the form of an open rectangle shown in Fig. 6. Hand holes 11 are provided at the two ends thereof to permit the tray to be grasped when handling.

Bottom member 12 is preferably formed from a blank which is suitably scored as at 13 to permit the edges 14 thereof to be bent down and form positioning flanges. Bottom 12 is inserted in the rectangle formed by side piece 10 in the manner shown in Figs. 3, 4 and 5 with the side flanges in contact with the inner surface of side piece 10.

An insert 20 (Fig. 6) of strong fiber board may be formed in the manner similar to that of side piece 10, suitably scored and bent into the form of a rectangle, after which it is inserted in the upper part of the tray adjacent the inner surface of said side piece. Member 20 is provided with hand holes 21 which are aligned with hand holes 11 when the tray is assembled.

A pair of strengthening members 22 are formed of strips of fiber board which are scored as at 23 and provided with downturned flanges 24. Members 22 are inserted beneath bottom 12 and flanges 24 are brought into engagement with flanges 14.

After the various parts of the tray have been assembled the side walls and bottom are suitably joined as by rivets 25 (Figs. 1 and 3). These rivets are suitably distributed to secure the bottom and members 22 to side piece 10 and also to secure strengthening member 20 to said side piece. A plurality of said rivets may also be positioned around hand holes 11 and 21 to reinforce the portion of the tray to which stress is applied when the tray is lifted.

In the modified form of the invention shown in Fig. 7, the bottom member is provided with upturned flanges which serve as reinforcing means for the tray. In this form of the invention sides 30 are formed from a strip of heavy fiber board in a manner similar to sides 10 of Fig. 6. Bottom 31 is provided with upturned flanges 32 which extend substantially the entire depth of the tray and are secured to the inner face of sides 30. Hand holes 33 may be formed in the ends of the tray if desired. Perforations 34 may be formed in bottom 31 to provide for the escape of liquids, dirt or other extraneous materials that may be present in the tray. Strengthening members 35 may also be provided around the ends of said container, said members being forms of strips of fiber board and suitably scored, as at 36, to pass around the four corners of the tray. The various members above mentioned may be secured together by any suitable means, such as stitches 37, to provide a rigid construction.

In the modified form shown in Fig. 9, sides 30 are formed similar to sides 30 in Fig. 7. Bottom 40 is provided with narrow upstanding flanges 41 which are inserted within said sides 30. A strengthening member 42 is formed similar to strengthening member 20 of Fig. 6 and is inserted within the tray above flanges 41. Member 42 in conjunction with flanges 41 provide a double thickness entirely around the sides of the tray and provide a rigid construction similar to that of Figs. 7 and 8.

In the type of container shown in Figs. 7 to 9, the bottom member is located at the lowermost portion of sides 30 whereby the entire depth of the tray is available for articles to be transported. This type is found advantageous when the trays are to be stacked, as for example, during transportation. A smooth bottom surface is provided which facilitates the sliding of one tray over its support.

It is to be noted that the entire wall of the above described tray is of double thickness and the end wall to which the lifting force is applied may be of triple thickness. The flanges of the bottom member add to the strength of the side walls and also provide a convenient support, by means of which the bottom may be secured in the tray. It is obvious that the number and position of strengthening members 22 may be varied, as desired, to render the tray suitable for any particular use.

The above described tray may be formed of any strong fiber board, but is preferably formed of a fiber board which is impregnated on both sides with waterproofing solution, such as a paraffin solution. This solution imparts an impervious coating to the outside of the fiber board and prevents the same from being affected by moisture. Furthermore, the fiber board is stiffened and the effective strength thereof is increased. The various pieces of fiber board may be coated prior to assembly if desired, or the entire tray may be dipped or impregnated after it has been assembled. In either case a particularly strong tray is obtained which has many of the characteristics of a wooden tray and may be used as a substitute therefor. It is particularly useful for making deliveries, as for example, of milk of soda water.

While certain novel features of the invention have been shown and described and are pointed out in the annexed claims, it will be understood that various omissions, substitutions and changes in the forms and details of the device illustrated and in its operation may be made by those skilled in the art without departing from the spirit of the invention.

What is claimed is:

1. A fiber tray comprising a side member formed of a single strip of fiber board, scored and bent to form the walls of said tray, a bottom member of fiber board having flanges in contact with the inner surface of said walls, stitching means for securing said flanges to said walls, a strengthening member formed of a strip of fiber board and bent into conformity with the inner surface of said side member and in engagement therewith, stitching means for securing said strengthening means to said side member, and strengthening members comprising strips of fiber board having down-turned flanges positioned under said bottom, sad flanges being riveted to the flanges of said bottom and to said side walls, said member serving to assist the bottom of said tray in supporting a load.

2. A fiber tray comprising a side member formed of a single strip of fiber board, scored and bent to form the walls of said tray, a bottom member of fiber board having flanges in contact with the inner surface of said walls, stitching means for securing said flanges to said walls, a strengthening member formed of a strip of fiber board and bent into conformity with the inner surface of said side member and in engagement therewith, stitching means for securing said strengthening means to said side member, and strengthening members comprising strips of fiber board having down-turned flanges positioned under said bottom, said flanges being riveted to the flanges of said bottom and to said side walls, said member serving to assist the bottom of said tray in supporting a load, said assembly being impregnated with a paraffin solution, whereby a waterproofed surface is imparted thereto and whereby the rigidity of said tray is increased.

In testimony whereof I have hereunto set my hand.

OLIVER BURNSIDE ANDREWS.