

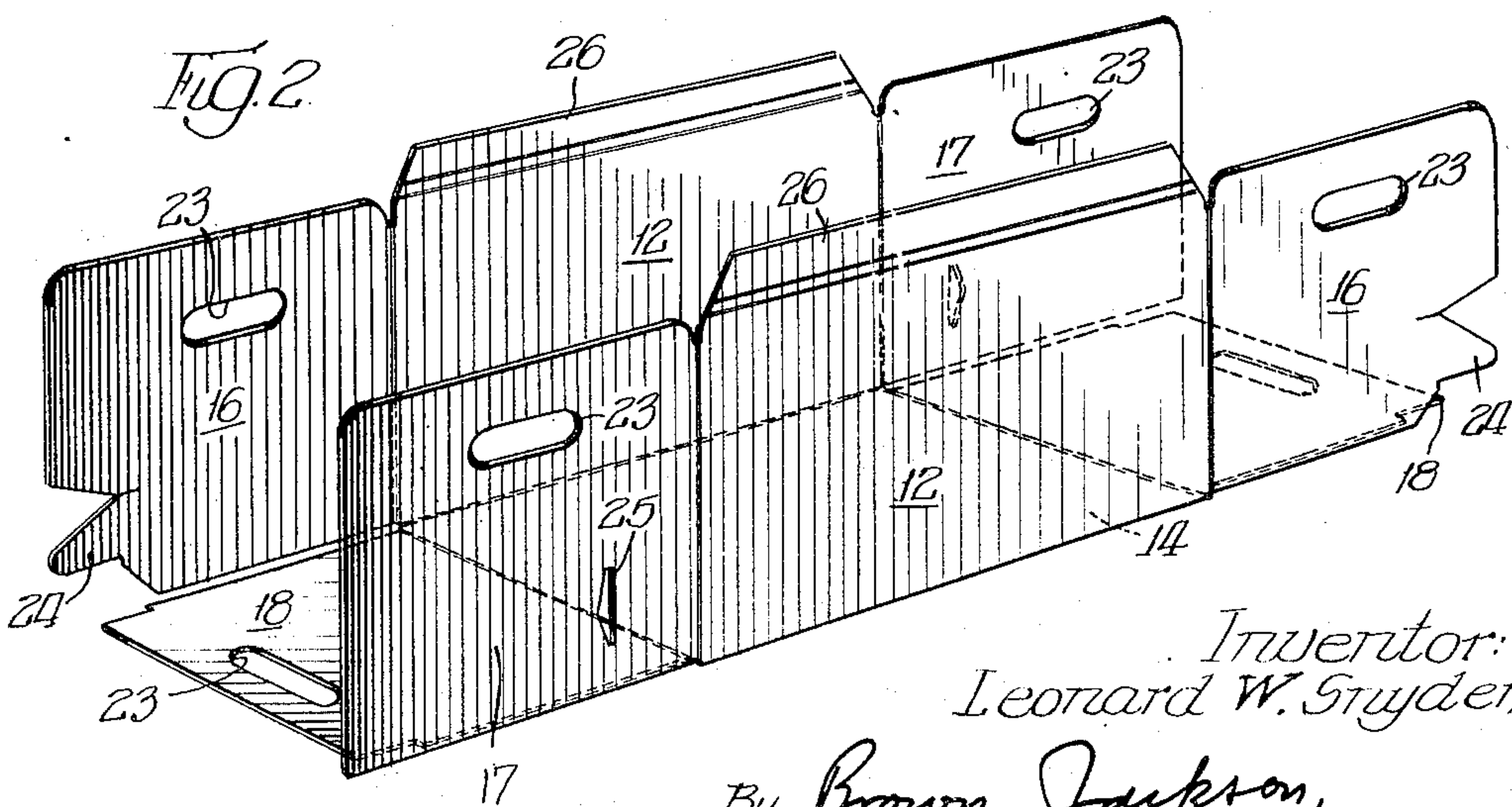
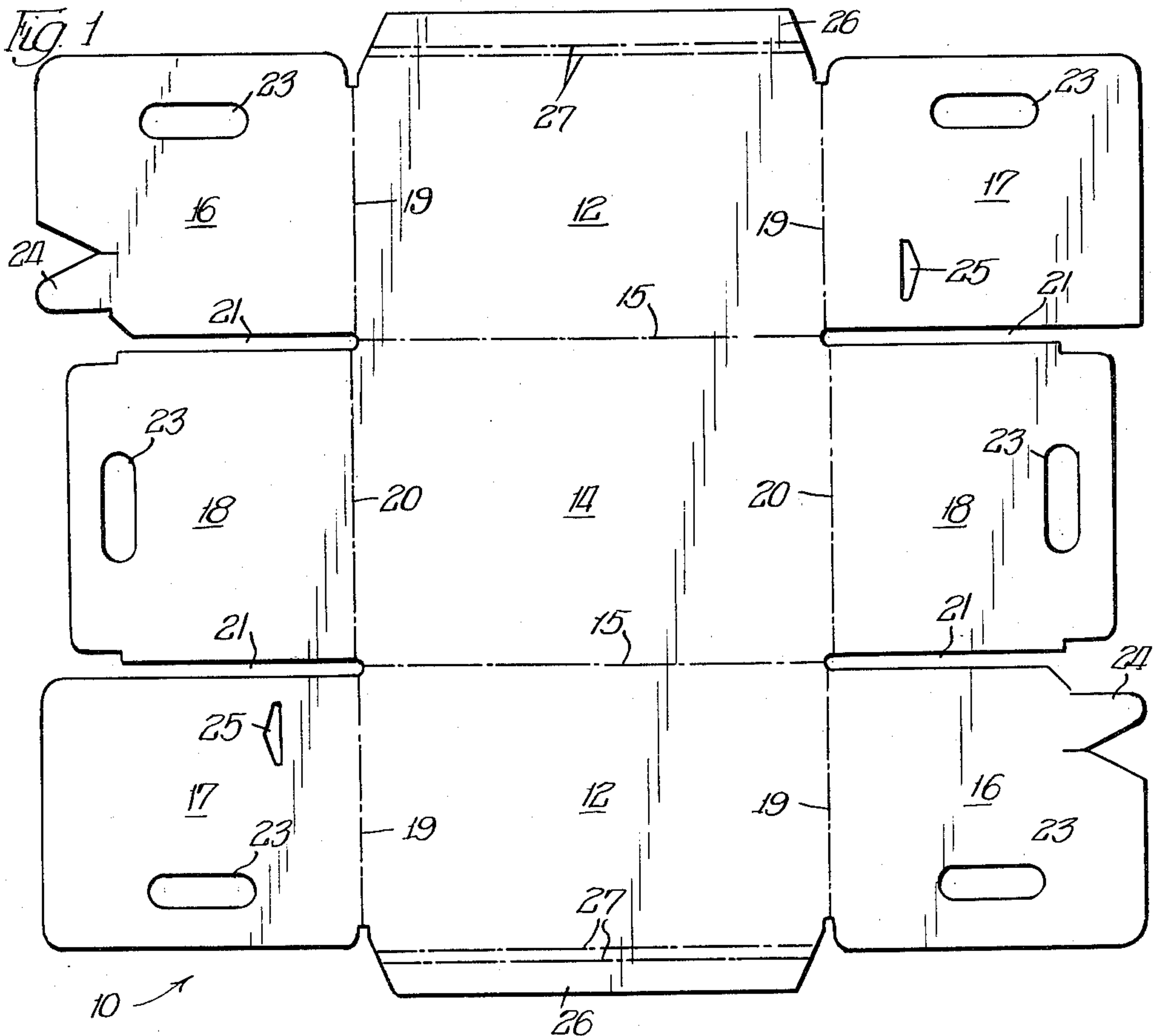
March 6, 1951

L. W. SNYDER  
REUSABLE CONTAINER

2,544,283

Filed April 20, 1948

3 Sheets-Sheet 1



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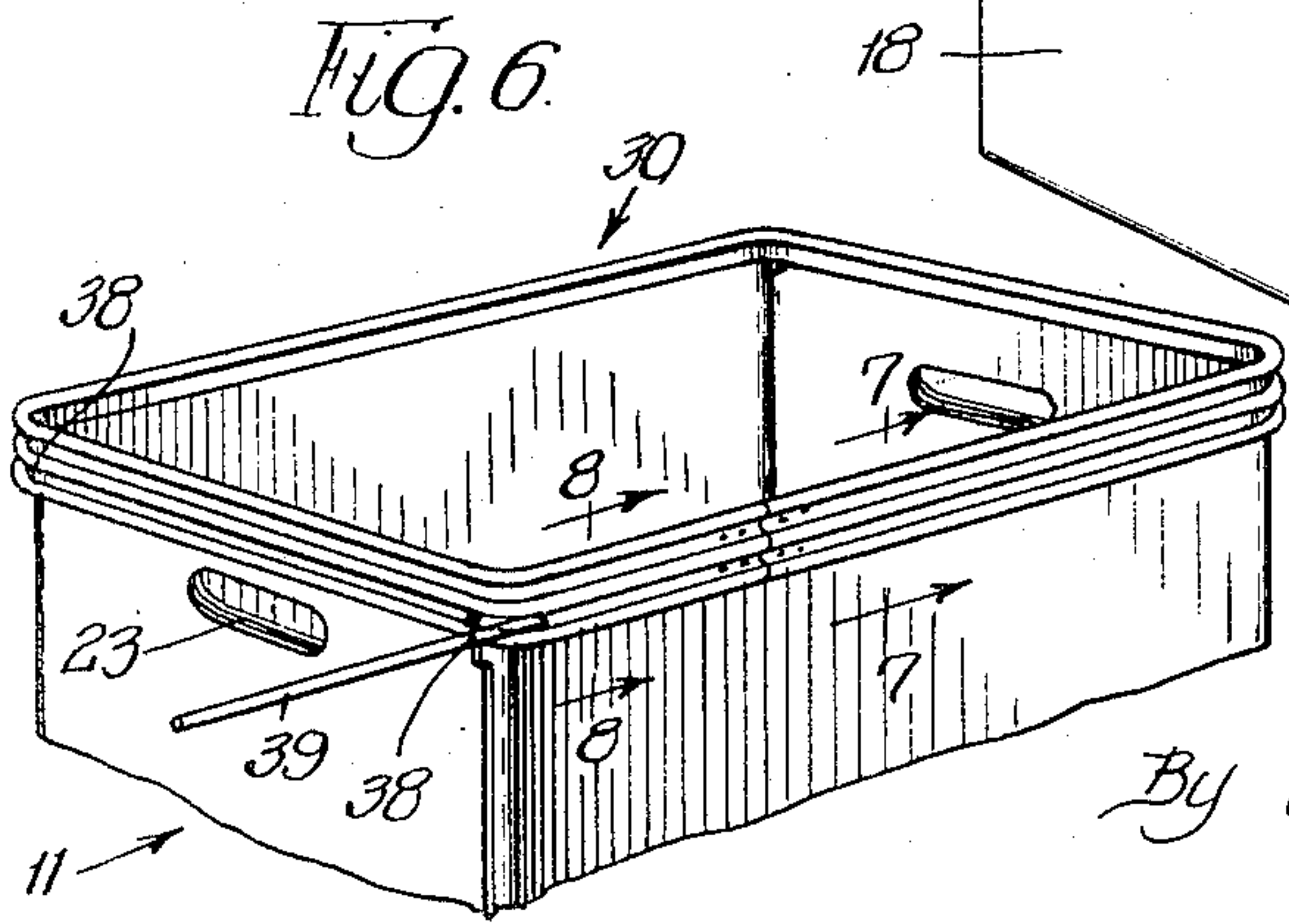
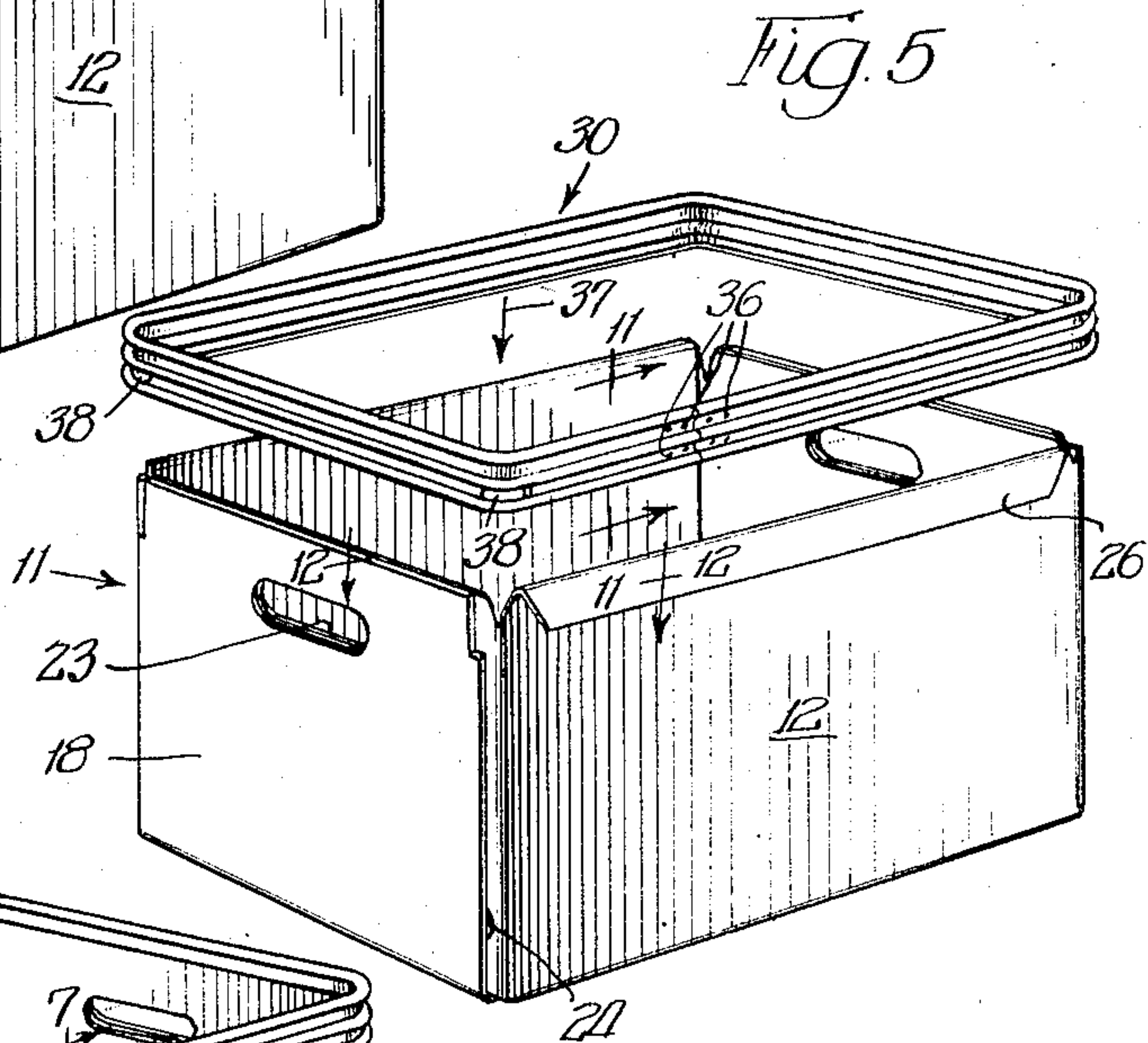
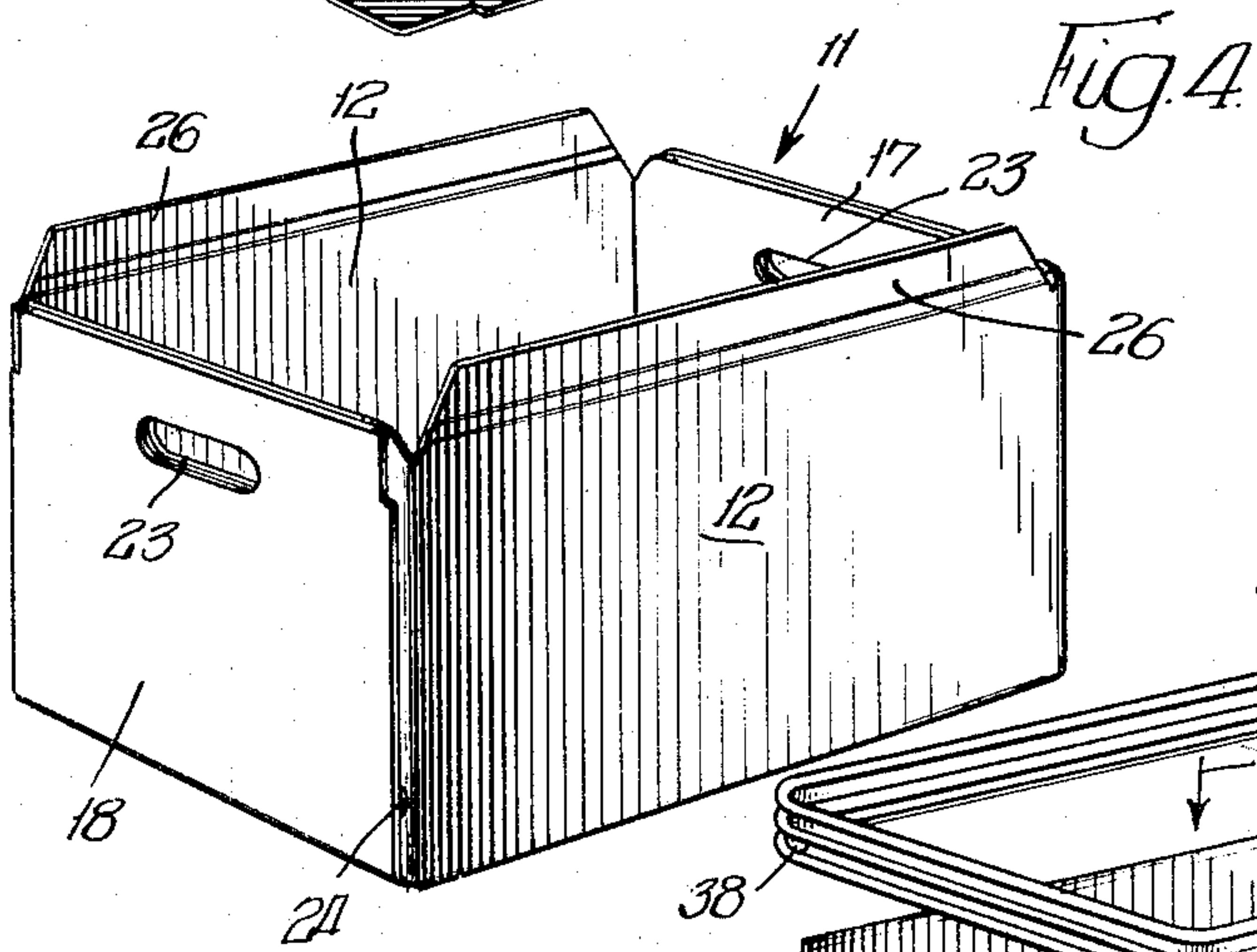
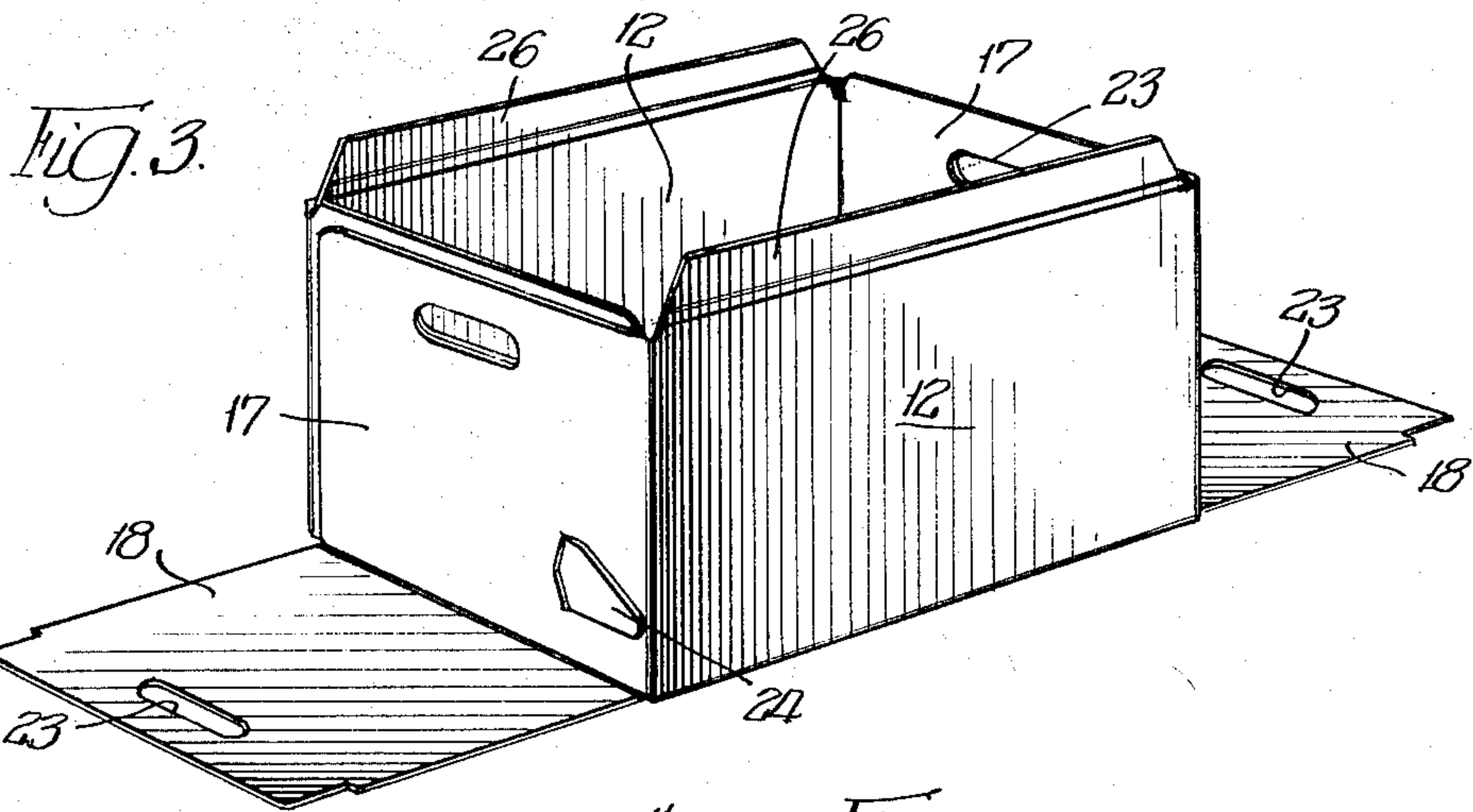
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L. W. SNYDER

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3 Sheets-Sheet 2



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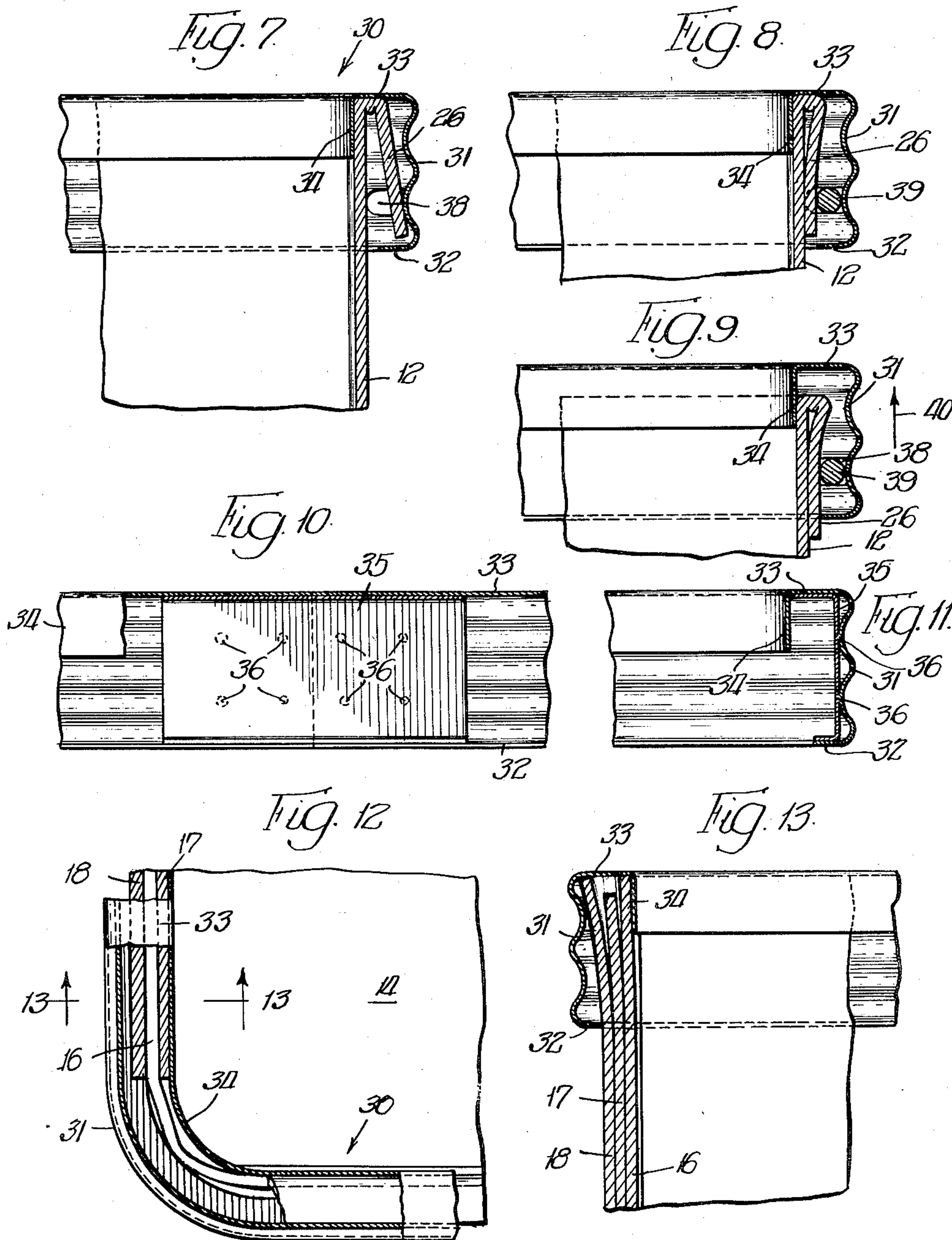
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L. W. SNYDER  
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3 Sheets-Sheet 3



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## UNITED STATES PATENT OFFICE

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## RE-USABLE CONTAINER

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8 Claims. (Cl. 229—32)

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This invention relates, generally, to containers, such as cases for soft drink bottles, boxes for bread, bananas, etc., tote boxes and the like, and it has particular relation to reusable containers for these purposes.

Among the objects of this invention are: To provide a reusable fibre board container; to employ a single blank of fibre board to form the same; to construct such a container so that it can withstand readily the strains and stresses likely to be encountered in handling and so that it can be easily and rapidly assembled; to hold the container in set up condition by a metallic rim around its upper edges with no other holding means, such as adhesive, stitching or the like being employed; to provide the container with integral locking flaps along its sides for interfitting with the metallic rim to prevent separation thereof; to form the rim with a lip on its under side and to bias the locking flaps away from the side walls of the container to interlock therewith; and to provide for insertion of a tool within the rim for depressing the locking flaps to permit removal of the rim for reuse with another container.

Other objects of this invention will, in part, be obvious and in part appear hereinafter.

This invention is disclosed in the embodiment thereof shown in the accompanying drawings and it comprises the features of construction, combination of elements and arrangement of parts which will be exemplified in the construction hereinafter set forth and the scope of the application of which will be indicated in the appended claims.

For a more complete understanding of the nature and scope of this invention, reference can be had to the following detailed description, taken together with the accompanying drawings, in which:

Figure 1 is a top plan view of a blank of fibre board which can be employed in practicing this invention;

Figures 2, 3 and 4 show successive steps which may be followed in setting up the container preparatory to receiving the reenforcing rim;

Figure 5 is a perspective view illustrating how the reenforcing rim can be moved into interlocking relationship with the container;

Figure 6 is a perspective view showing the reenforcing rim in place;

Figures 7 and 8 are detail sectional views, at an enlarged scale, taken along the lines 7—7 and 8—8 respectively of Figure 6;

Figure 9 is a view similar to Figure 8 but show-

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ing the reenforcing rim in the partially removed position;

Figure 10 is a sectional view of the reenforcing rim and showing how the clip can be spot welded to the juxtaposed ends thereof;

Figure 11 is a detail sectional view at an enlarged scale taken along the line 11—11 of Figure 5;

Figure 12 is a detail sectional view, at an enlarged scale, taken along the line 12—12 of Figure 5 and showing how the reenforcing rim with rounded corners interfits with a container having square corners to provide, in effect, a rounded corner construction; and

Figure 13 is a detail sectional view, at an enlarged scale, taken along the line 13—13 of Figure 12.

Referring now particularly to Figure 1 of the drawings, it will be observed that the reference character 10 designates a blank that may be formed of fibreboard. For illustrative purposes it is pointed out that the blank may be formed of fiber board having a thickness of .100 inch. Also it is pointed out that the blank 10 can be so proportioned as to provide a container, indicated generally at 11 in Figure 4, having a length of about sixteen inches, a width of about eleven inches and a depth of about nine and one-half inches. Of course it will be understood that these dimensions can be varied as desired and are mentioned for the purpose of conveying some idea of the size of the container 11. The container 11, as shown in the drawings, has been constructed to carry twenty-four twelve-ounce bottles of a particular brand of soft drink.

As shown in Figure 1, the blank 10 has side walls 12 and a bottom wall 14 which are joined along score lines 15. The side walls 12 have extensions 16 and 17 while the bottom wall 14 has extensions 18. The side wall extensions 16 and 17 are joined to the side walls 12 along score lines 19 while the extensions 18 are joined to the bottom wall 14 along score lines 20. The extensions 16 and 17 are severed from the extensions 18 along their juxtaposed edges as indicated at 21 to provide sufficient space for interfolding them so as to provide triple layer end walls for the container 11.

It will be observed that the extensions 16, 17 and 18 are provided with hand holes 23. When the container 11 is set up as shown in Figure 4, the hand holes 23 in the several extensions are in registry and provide sufficient surface for lifting the container 11 as will be understood readily.



With a view to constructing the triple layer end walls of the container 11 so that the three extensions making up each of them act as a unit, the extensions 16 are provided with locking tongues 24 which are arranged to interfit with openings 25 in the extensions 17. The manner in which this is accomplished is illustrated more clearly in Figure 3 of the drawings.

Along the upper edges of the side walls 12 locking flaps 26 are provided. They are joined to the side walls 12 along score lines 27. As will appear hereinafter the locking flaps 26 are arranged to be bent downwardly parallel to the side walls 12 for interfitting with a rectangular metallic reinforcing channel or rim which is indicated, generally, at 30 in Figure 5 of the drawings. The container, set up and assembled as above, comprises the substantially cubiform body and the rim 30 mounted thereon, as shown in Figure 6.

The channel or rim 30 is preferably formed of steel although it may be formed of aluminum if desired. It has a generally rectangular cross section which is uniform throughout. In order to make it more attractive it may be painted a bright color such as red. The contrast of this color with the brown fibre board employed for making the container 11 provides a pleasing and attractive appearance.

As illustrated in Figure 7 of the drawings, the channel or rim 30 has an intermediate portion 31 which is corrugated or ribbed lengthwise to increase its strength and it extends parallel to the side walls 12 adjacent thereto. It is sufficiently wide so that it is coextensive with the locking flap 26.

Along the lower edge of the intermediate portion 31 of the channel or rim 30 there is an in-turned lip 32 which, as shown in Figure 7, is arranged to fit underneath the lower edge of the locking flap 26 which, as shown, is biased outwardly against the intermediate portion 31. This arrangement locks the channel or rim 30 in position on the container 11 and thus provides a unitary construction.

Along its upper edge the intermediate portion 31 is provided with another lip 33 which is parallel to the lower lip 32 and which is arranged, as shown in Figure 7, to abut the upper edges of the side wall 12 and contiguous locking flap 26. The lip 33 limits the downward movement of the channel or rim 30. A flange 34 depends from the inner edge of the upper lip 33 and fits against the inside of the wall 12. It will be understood, of course, that the channel or rim 30 is of uniform cross section throughout and that the upper lip 33 bears against the upper edges of the side and bottom wall extensions 16 and 18 as shown in Figure 13. The flange 34 bears against the inner side of the side wall extension 16 near its upper edge as shown in Figure 13.

In order to hold the juxtaposed ends of the channel or rim 30 together in a butt joint a channel shaped clip 35 may be provided, as shown in Figures 10 and 11 of the drawings. The clip 35 may be secured to the intermediate portion 31 of the channel or rim 30 by spot welding as indicated at 36.

While the container 11 is generally rectangular, it is desirable for several reasons to provide it with rounded corners or at least to provide the upper portion of the same with the appearance of having rounded corners. As illustrated in Figure 12, such a construction is provided by the rounded corner construction of the reinforcing channel or rim 30. Thus, while the corners of the container

11 retain their generally rectangular configuration, the channel or rim 30 provides the desired rounded corner construction as shown.

The channel or rim 30 may be assembled onto the container 11 as illustrated in Figure 5. As there shown, the channel or rim 30 is moved downwardly, as indicated by the arrow 37. Suitable tools can be employed for guiding the inner edge of the lower lip 32 over the locking flaps 26 and the upper edges of the bottom wall extensions 18 so that no tearing of the fibre board of which the container 11 is formed takes place. The container 11 with the channel or rim 30 assembled thereon provides a pleasing appearance when it is constructed in the manner described hereinbefore. In addition it is strong and durable and will withstand a large number of trips between the store and the customer. Experience has shown that the container 11 may be reused for eight to ten times before it becomes unsuitable for further use. However, the channel or rim 30 ordinarily is undamaged and can be reused with a new container 11. Accordingly, it is desirable to provide simple and efficient means for removing the channel or rim 30 from the container 11 to permit its reuse.

For this purpose apertures 38 may be provided at one end of the channel or rim 30 as shown in Figures 5 and 6 of the drawings. The apertures 38 are provided at the corners of the channel or rim 30 and are arranged to receive a tool 39 in the form of a round rod. As shown in Figure 8, the tool 39, after insertion through the aperture 38, serves to force the locking flap 26 away from registry with the lower lip 32. This permits the channel or rim 30 to be moved upwardly as indicated by the arrow 40 in Figure 9 for removal from the container 11. Since there is a limited amount of flexibility in the side wall 12, the upper end of it is moved inwardly slightly after the flange 34 is moved upwardly out of its path so that the inner edge of the lower lip 32 can be moved past the upper edge of the locking flange 26.

As indicated, the channel or rim 30 may be formed of steel or aluminum. It is so proportioned that it is relatively rigid or stiff so that it is capable of withstanding severe stress and thus prevents distortion of the container 11 while permitting the same to carry heavy loads and to withstand severe handling. Preferably the channel or rim 30 is formed of cold rolled steel having a thickness of .0298 inch. It may be one and one-fourth inches wide at the intermediate portion 31 to accommodate locking flaps 26 having a width of one inch. The lip 33 may be three-eighths of an inch wide while the flange 34 may have a width of one-half inch. The lower lip 32 may be three-sixteenths inch wide.

When the container 11 is somewhat lower, one of the wall extensions 16, 17 or 18 may be omitted at each end to provide a double rather than triple end wall construction.

Since certain changes can be made in the foregoing construction and different embodiments of the invention can be made without departing from the spirit and scope thereof, it is intended that all matter shown in the accompanying drawings and described hereinbefore shall be interpreted as illustrative and not in a limiting sense.

What is claimed as new is:

1. A reusable rectangular fibre board container comprising, in combination, single layer side and bottom walls foldably interconnected at their ends by extensions thereof providing triple layer end walls, locking flaps folded downwardly from



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the upper edges of said side walls and biased away from their outer surfaces, and a rectangular metallic reinforcing channel of uniform cross section extending around the upper edges of said side and end walls and constituting the only means holding the same in set up condition, said reinforcing channel having an intermediate portion parallel to the adjacent side wall and coextensive with the adjacent locking flap, said intermediate portion having a lip along its under side extending underneath said locking flap for interlocking with the under edge thereof when it is biased toward said intermediate portion, said intermediate portion also having a lip along its upper side extending inwardly over the upper edges of said side and end walls, the last mentioned lip having a depending flange along its inner side extending parallel to the adjacent side and end walls, said intermediate portion of said metallic reinforcing channel being apertured to receive a tool between its inner surface and the adjacent locking flap to move the latter out of interlocking engagement with the first mentioned lip to permit removal of said channel for reuse in another container.

2. A reusable rectangular container comprising, in combination, single layer side and bottom walls foldably interconnected at their ends by extensions thereof providing triple layer end walls, locking flaps extending downwardly from the upper edges of said side walls and biased away therefrom, and a rectangular reinforcing channel extending along the upper edges of said side and end walls, said reinforcing channel having an intermediate portion coextensive with the adjacent locking flap with a lip along its under side extending underneath said locking flap and a lip along its upper side extending over the upper edges of said side and end walls having a depending flange, said locking flaps being urged away from their adjacent side walls and toward said intermediate portion whereby they are interlocked with said lip of said reinforcing channel extending underneath the same, said intermediate portion of said reinforcing channel being apertured to permit insertion of a tool between it and the adjacent locking flap to move the latter toward its side wall and out of interlocking engagement with the first mentioned lip to permit removal of said channel for reuse in another container.

3. A reusable container comprising, in combination, a rectangular box formed of interfolded fibre board panels providing a bottom and end and side walls, locking flaps extending downwardly from the upper edges of said side walls and biased away therefrom, and a rectangular metallic reinforcing channel having a rectangular cross section surrounding the upper edges of said side and end walls with a lower lip extending underneath said locking flaps and interlocking with the same, the intermediate portion of said channel being coextensive with the adjacent locking flaps and spaced away from the adjacent side walls substantially more than the thickness of said flaps to permit relative movement of said box and channel into interlocking engagement, said intermediate portion of said channel being apertured to permit insertion of a tool between it and the adjacent locking flap to move the latter toward its side wall and out of interlocking engagement with said lip to permit removal of said channel for reuse in another container.

4. Means for reinforcing and protecting the upper edges of a rectangular fibre board box

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formed by interfolding panels to provide single thickness side walls having locking flaps turned downwardly from their upper edges and triple thickness end walls comprising a metallic channel conforming to the rectangular box top configuration interfitting therewith and having a rectangular cross section, said channel having an intermediate portion arranged to be coextensive with the locking flaps with a lower lip for extending into interlocking relation underneath the same, said intermediate portion of said channel being apertured to permit insertion of a tool between it and the adjacent locking flap to move the latter toward its side wall and out of interlocking engagement with said lip to permit removal of said channel for reuse with another box.

5. Means for reinforcing and protecting the upper edges of a rectangular fibre board box formed by interfolding panels to provide single thickness side walls having locking flaps turned downwardly from their upper edges and triple thickness end walls comprising a metallic channel conforming to the rectangular box top configuration interfitting therewith and having a rectangular cross section, said channel having an intermediate portion arranged to be coextensive with the locking flaps with a lower lip for extending into interlocking relation underneath the same, said intermediate portion also having a lip along its upper side for extending over the upper edges of the side and end walls of the box, the last mentioned lip having a depending flange for extending parallel to the side and end walls of the box, said intermediate portion of said channel being apertured to permit insertion of a tool between it and the adjacent locking flap to move the latter toward its side wall and out of interlocking engagement with said lip to permit removal of said channel for reuse with another box.

6. A reusable container comprising a substantially cubiform fibre board body, locking flaps extending downwardly from the upper edges of the side walls of said body, and a substantially rectangular reinforcing channel member extending along the upper edges of the side and end walls of said body, said member having an intermediate portion substantially coextensive with the adjacent locking flap with a lip along its lower edge extending beneath said locking flap and a lip along its upper edge extending over the upper edges of said side and end walls and having a depending flange, said locking flaps being urged away from their adjacent side walls and toward said intermediate portion whereby they are interlocked with said lip of said reinforcing channel member extending underneath the same, said intermediate portion of said reinforcing channel being corrugated lengthwise and apertured for insertion of a tool between it and the adjacent locking flap to move the latter toward its side wall and out of interlocking engagement with said lower lip to permit removal of said channel member for reuse in another container.

7. A reusable container comprising a substantially cubiform fibre board body, locking flaps extending downwardly from the upper edges of the side walls of said body, and a substantially rectangular reinforcing channel member extending along the upper edges of the side and end walls of said body, said member having an intermediate portion substantially coextensive with the adjacent locking flap with a lip along its lower edge extending beneath said locking flap and a lip along its upper edge extending over the upper edges of said side and end walls and having a de-



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pending flange, said locking flaps being urged away from their adjacent side walls and toward said intermediate portion whereby they are interlocked with said lip of said reenforcing channel member extending underneath the same, said intermediate portion of said reenforcing channel being corrugated lengthwise and apertured at one end for insertion of a tool between it and the adjacent locking flap to move the latter toward its side wall and out of interlocking engagement with said lower lip to permit removal of said channel member for reuse in another container.

8. A reusable container comprising a substantially cubiform fibre board body, locking flaps extending downwardly from the upper edges of the side walls of said body, and a substantially rectangular reenforcing channel member extending along the upper edges of the side and end walls of said body, said member having an intermediate portion substantially coextensive with the adjacent locking flap with a lip along its lower edge extending beneath said locking flap and a lip along its upper edge extending over the upper edges of said side and end walls and having a depending flange, said locking flaps being urged away from their adjacent side walls and toward

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said intermediate portion whereby they are interlocked with said lip of said reenforcing channel member extending underneath the same, said intermediate portion of said reenforcing channel being corrugated lengthwise and provided at one end with an aperture aligned with a corrugation inwardly of said intermediate portion for insertion of a tool between it and the adjacent locking flap to move the latter toward its side wall and out of interlocking engagement with said lower lip to permit removal of said channel member for reuse in another container.

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