

Sept. 29, 1942.

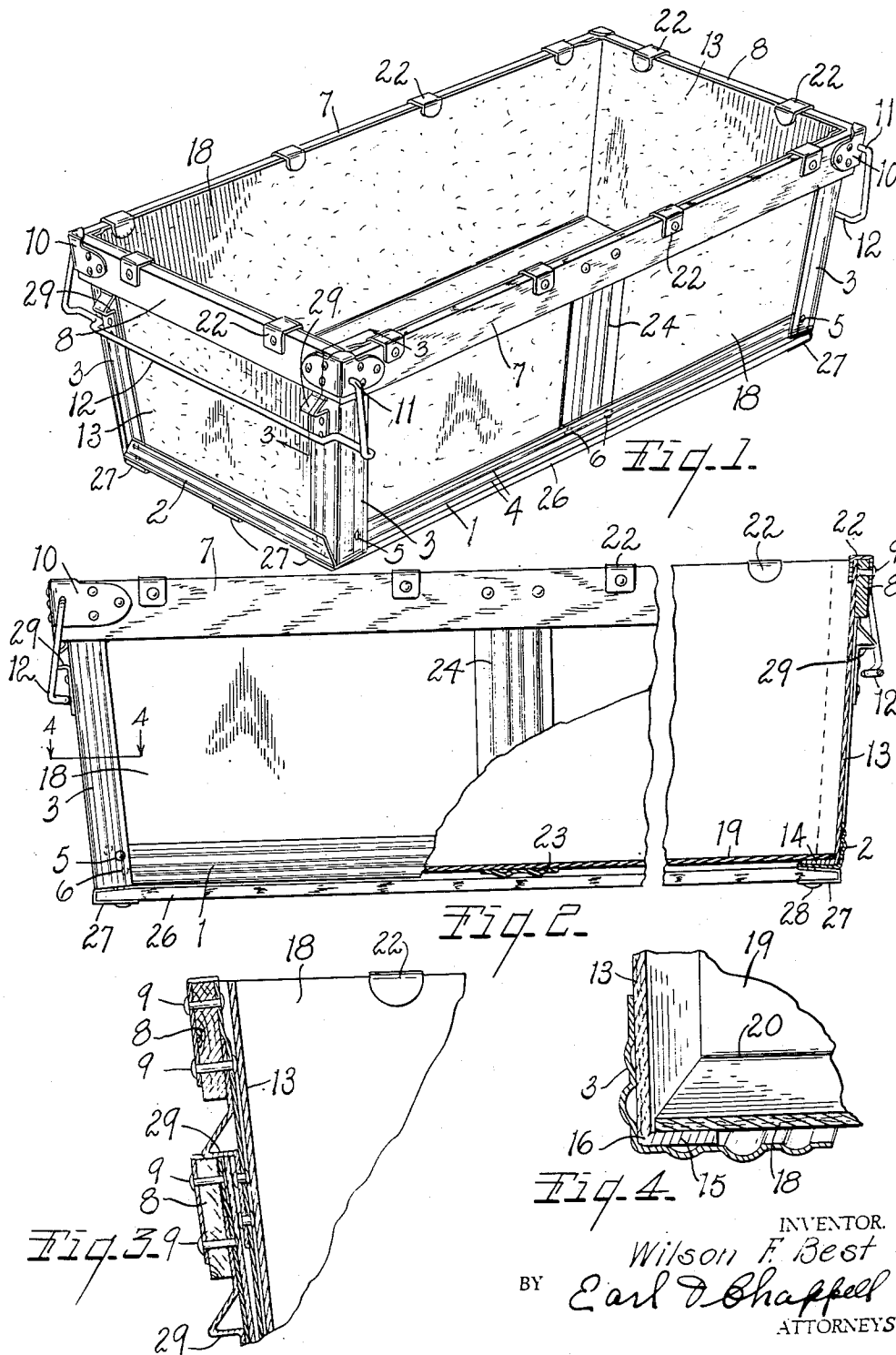
W. F. BEST

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RECEPTACLE

Filed Aug. 31, 1940

2 Sheets-Sheet 1



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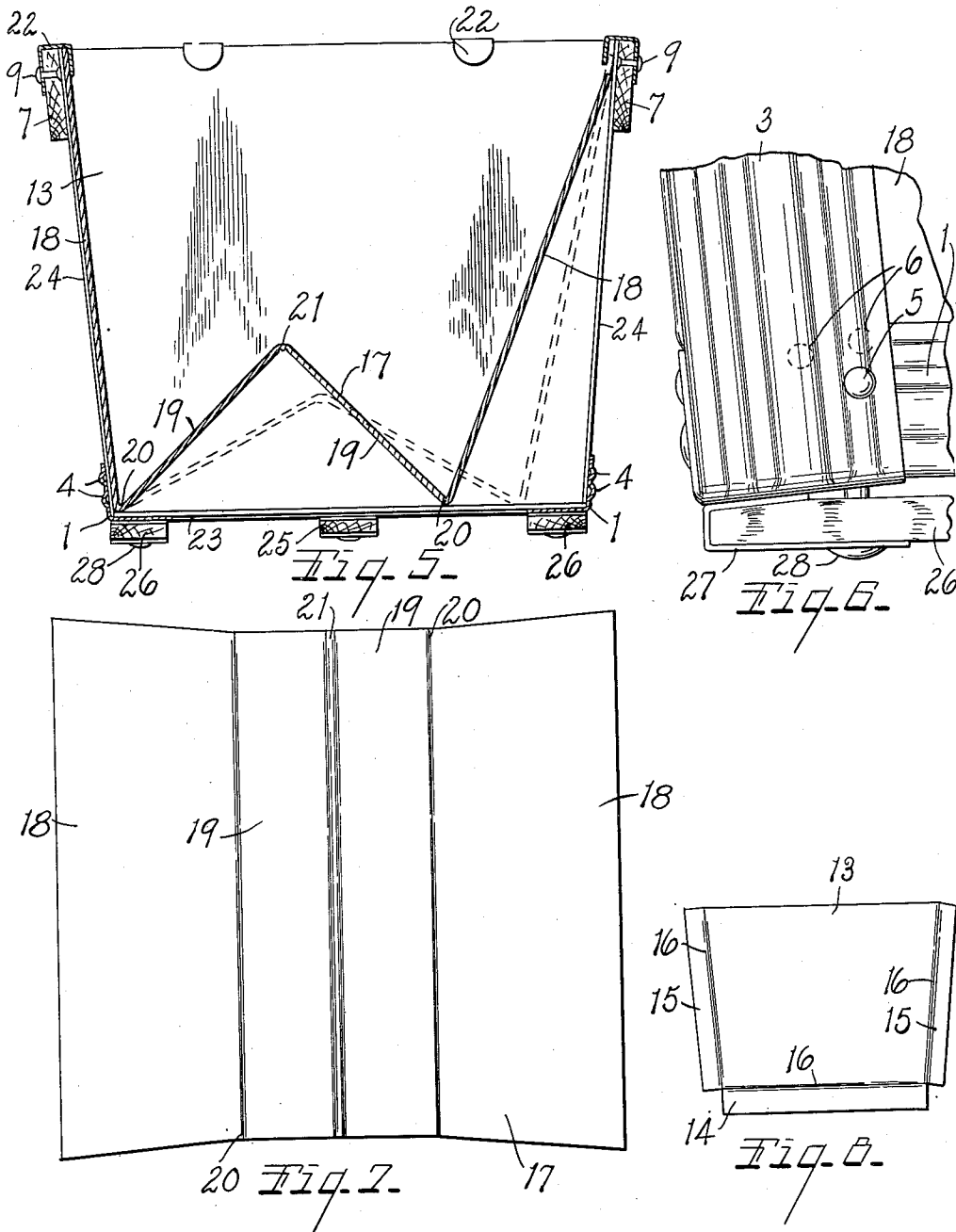
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UNITED STATES PATENT OFFICE

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RECEPTACLE

Wilson F. Best, Grand Rapids, Mich.

Application August 31, 1940, Serial No. 354,992

12 Claims. (Cl. 220-84)

This invention relates to improvements in receptacles.

The main objects of this invention are:

First, to provide a receptacle of the stacking nesting type in which the walls may be formed of light inexpensive material such as container board or the like, at the same time they are effectively supported for carrying relatively heavy loads and may be easily removed and replaced when they become damaged or soiled.

Second, to provide a structure having these advantages which is capable of resisting very rough usage and at the same time is quite light in weight.

Objects relating to details and economies of the invention will appear from the description to follow. The invention is defined and pointed out in the claims.

A preferred embodiment of the invention is illustrated in the accompanying drawings, in which:

Fig. 1 is a perspective view of a receptacle embodying the features of my invention with the stacking bails in collapsed position.

Fig. 2 is a fragmentary side view partially broken away and in longitudinal section.

Fig. 3 is an enlarged fragmentary section on line 3-3 of Fig. 1.

Fig. 4 is an enlarged fragmentary section on line 4-4 of Fig. 2.

Fig. 5 is a transverse section illustrating by full and dotted lines details of structure and also certain steps in the removal and assembling of the walls.

Fig. 6 is an enlarged fragmentary elevation showing the mounting of the runners or skids.

Fig. 7 is a plan view of the combined side wall and bottom unit extended.

Fig. 8 is a plan view of one of the end walls with its bottom and side flaps extended.

The invention of this application is an adaptation of certain features and in some respects an improvement upon the invention of my application for letters patent filed February 12, 1940, Serial No. 318,391. This embodiment of my invention is especially designed as a stacking box or receptacle adapted for handling of merchandise and the like such as groceries and fruit for transportation and storage.

The embodiment illustrated comprises a frame consisting of bottom side pieces 1, bottom end pieces 2, and corner uprights 3. These parts are of angle section and are formed of light angle iron, the members in commercial practice being formed up from sheet stock of suitable gauge.

They are preferably longitudinally corrugated or ribbed as indicated at 4 to increase the rigidity thereof and this also adds to the appearance, giving the appearance of weight and strength. These members are rigidly secured together by suitable rivets as indicated at 5 and spot-welding as indicated at 6, although of course either spot-welding or rivets may be utilized.

Top and end side pieces 7 and 8, preferably of wood, are arranged on the outer sides of the corner uprights and secured thereto as by the rivets 9.

Angled corner irons or brackets 10 are provided, these constituting effective securing means for the structure and also means for pivotally receiving the pintles 11 of the bail-shaped stacking irons 12, the stacking irons being thus supported so that they may be swung to collapsed position at the ends of the receptacle, as illustrated in Fig. 1, or swung to erected stacking position with the cross members of the stacking irons resting upon the upper edges of the side members of the top side pieces.

The replaceable walls or wall panels in this embodiment illustrated comprise the end walls 13 which have flaps 14 on their bottom edges and flaps 15 on their side edges, the flaps being flexibly connected to the body portion or wall as indicated at 16. This flexible connection may be formed by suitably scoring.

I also provide a combined side wall and bottom unit designated generally by the numeral 17 and comprising side walls 18 and bottom 19, the bottom being flexibly connected to the side walls at 20 and having a central flexing zone 21. These flexing connections or zones may be provided by scoring.

In the structure illustrated, the uprights are disposed in outwardly diverging relation to provide a tapering receptacle, permitting nesting therewith of like receptacles and it will be noted that the side walls and end walls are shaped to conform to the taper.

The side and end top pieces are provided with wall retaining means. In the embodiment illustrated, these are in the form of inverted U-shaped clips 22 which are secured by their outer arms to the outer sides of the side and end top pieces so that their inner arms extend downwardly at the inside of and in spaced relation to the top pieces, permitting the engagement of the top edges of the side and end walls with the clips as shown in the drawings.

The end walls 13 are first assembled in the supporting frame by engaging their upper edges

with the clips on the end top pieces and pushing the bottoms inwardly so that the edges of the end walls lie within the angles of the end uprights and the bottom end pieces with their flaps extending inwardly. The side wall member is then introduced and owing to its being foldable, the upper edges of the side walls may be engaged with the retaining clips on the top side members and the bottom pushed down to its flat or erected position in which position the side walls are securely retained in their erected position.

The bottom and the side walls overlap the flaps of the end walls and abut the end walls constituting effective retaining means therefor. This prevents any bulging stresses on the end walls disengaging them. The flaps also constitute effective closure means for the joints between the bottom side walls and end wall and there is a closed joint between the bottom and the side walls resulting from their being formed as a unit and this is a very desirable feature for certain uses. For some uses, the walls are perforated for ventilation purposes.

The side walls are further supported by the intermediate bottom crosspiece 23 and the side uprights 24 and the bottom is also supported against collapsing load at its flexing zone 21 by means of the intermediate longitudinal bottom bar 25.

Skids or runners 26 are preferably provided, these skids or runners being satisfactorily formed of strips of wood having nose pieces 27 of metal folded around their ends, retaining bolts 28 serving to retain these nose pieces and secure the runners to the frame pieces.

The nesting stops 29 are mounted on the outer sides of the corner uprights to extend endwise therefrom. These are adapted to engage the end top pieces of a receptacle within which a second receptacle is nested as shown in Fig. 3. They are of advantage in preventing the wedging of the receptacles together and the resultant difficulty of handling and the distortion that might result from such wedging.

The walls are preferably of relatively cheap material such as a suitable grade of container board or the like. They are very effectively supported to withstand the stresses of the load and protected from exterior damage in handling, and the walls are effectively retained in assembled relation to the frame.

I have illustrated and described my improvements in an embodiment which I have found highly satisfactory. I have not attempted to illustrate or describe certain other embodiments or adaptations which I contemplate as it is believed that this disclosure will enable those skilled in the art to embody or adapt my invention as may be desired.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent, is:

1. In a receptacle, the combination of a frame comprising side and end bottom pieces and corner uprights all formed of angle iron and disposed with their angles facing inwardly, side and end top pieces secured to said corner uprights at the upper ends thereof, a central longitudinal bottom bar extending between the end bottom pieces and secured thereto, U-shaped downwardly facing side and end wall retaining clips secured to the outer sides of said top side and end pieces with their inner arms extending down-

wardly and in spaced relation to the inner sides of said top pieces, end walls having bottom and side flaps on their edges disposed with their upper edges in engagement with said wall retaining clips of said end top members and with their flaps extending inwardly and in supported relation to said bottom end pieces and corner uprights, and a combined side wall and bottom unit, the bottom having hinged connection with the side walls and being hinged longitudinally to permit folding facilitating the engagement of the upper edges of the side walls with said side wall retaining clips, the bottom when extended acting to retain the sidewalls in engagement with said clips and the hinged portion of the bottom wall being above said longitudinal bottom member, the ends of said side walls and bottom being in overlapping relation to the flaps of said end walls and constituting end wall retaining members, said flaps constituting wall joint closure members.

2. In a receptacle, the combination of a frame comprising side and end bottom pieces and corner uprights all formed of angle iron and disposed with their angles facing inwardly, side and end top pieces secured to said corner uprights at the upper ends thereof, U-shaped downwardly facing side and end wall retaining clips secured to the outer sides of said top side and end pieces with their inner arms extending downwardly and in spaced relation to the inner sides of said top pieces, end walls having bottom and side flaps on their edges disposed with their upper edges in engagement with said wall retaining clips of said end top members and with their flaps extending inwardly and in supported relation to said bottom end pieces and corner uprights, and a combined side wall and bottom unit, the bottom having hinged connection with the side walls and being hinged longitudinally to permit folding facilitating the engagement of the upper edges of the side walls with said side wall retaining clips, the bottom when extended acting to retain the side walls in engagement with said clips, the ends of said side walls and bottom being in overlapping relation to the flaps of said end walls and constituting end wall retaining members, said flaps constituting wall joint closure members.

3. In a receptacle, the combination of a frame comprising side and end bottom pieces and corner uprights all formed of angle iron and disposed with their angles facing inwardly, side and end top pieces secured to the outer sides of said corner uprights at the upper ends thereof, side and end wall retaining clips on said top side and end pieces, end walls having bottom and side flaps on their edges disposed with their upper edges in engagement with said wall retaining clips of said end top members and with their flaps extending inwardly, and a combined side wall and bottom unit, the bottom having flexing portions connecting the same with the side walls and being foldable longitudinally medially of said portions to facilitate the engagement of the upper edges of the side walls with said side wall retaining clips, the bottom when extended acting to urge the side walls upwardly into engagement with said clips, the ends of said side walls and bottom being in overlapping relation to the flaps of said end walls and constituting end wall retaining members, said flaps constituting wall joint closure members.

4. In a receptacle, the combination of a frame comprising side and end bottom pieces and corner uprights all formed of angle iron and dis-

posed with their angles facing inwardly, side and end top pieces secured to the said corner uprights, a central longitudinal bottom bar extending between the end bottom pieces and secured thereto, side and end wall retaining clips on said top side and end pieces, end walls having bottom and side flaps on their edges disposed with their upper edges in engagement with said wall retaining clips of said end top members and with their flaps extending inwardly, and a combined side wall and bottom unit, the bottom having flexing portions connecting the same with the side walls and having a longitudinal flexing zone spaced transversely of said portions to facilitate the engagement of the upper edges of the side walls with said side wall retaining clips, the bottom when extended acting to urge the side walls upwardly into engagement with said side wall retaining clips, and the latter engaging the upper edge of the side walls to prevent further upward movement thereof, the ends of said side walls and bottom being in overlapping relation to the flaps of said end walls and constituting end wall retaining members, said bottom bar being below said bottom flexing zone when the bottom is in extended position.

5. In a receptacle, the combination of a frame comprising side and end bottom pieces and corner uprights of angle section disposed with their angles facing inwardly, side and end top pieces secured to the outer sides of said corner uprights at the outer ends thereof, side and end wall retaining means on said top side and end pieces, end walls having bottom and side flaps on their edges disposed with their upper edges in engagement with said wall retaining means of said end top members and with their flaps extending inwardly, a collapsible bottom, and side walls engageable with said side wall retaining means on said top side pieces, said bottom being hingedly connected to said side walls at the lower edges of the latter and being collapsibly foldable on a longitudinal line intermediate said walls, whereby to act when erected to operative flat condition to urge and retain the side walls in engagement with said wall retaining means, the ends of said side walls and bottom being in overlapping relation to the flaps of said end walls and constituting end wall retaining members, said flaps constituting wall joint closure members.

6. In a receptacle, the combination of a frame comprising side and end bottom pieces and corner uprights of angle section disposed with their angles facing inwardly, side and end top pieces secured to the outer sides of said corner uprights at the upper ends thereof, an intermediate longitudinal bottom bar extending between the end bottom pieces and secured thereto, side and end wall retaining means on said top side and end pieces, end walls disposed with their upper edges in engagement with said wall retaining means of said end top members and in supported relation to said bottom end pieces and said corner uprights, and a combined side wall and bottom unit, the bottom having flexing portions connecting the same with the side walls and having a zone in which it is upwardly foldable longitudinally in spaced relation to said portions to facilitate engagement of said side wall with said side wall retaining means, the bottom when extended acting to urge the side walls upwardly into engagement with said wall retaining means and the folding zone of the bottom wall being above said longitudinal bot-

tom member, the side walls and bottom constituting end wall retaining members.

7. In a receptacle, the combination of a frame comprising side and end bottom pieces and corner uprights of angle section disposed with their angles facing inwardly, side and end top pieces secured to said corner uprights at the upper ends thereof, end walls having bottom and side flaps disposed within the angles of the end bottom pieces and the corner uprights with their flaps extending inwardly, side walls disposed between and engaging said end walls in overlapping relation to the said side flaps thereof and acting to retain the end walls in erected position, and a bottom overlapping the bottom flaps of said end walls, said bottom comprising panels hingedly connected to said side walls and hingedly connected to one another on a longitudinal line between said side walls, whereby to be collapsible downwardly to erected flat condition and thereby constitute retaining means for said side walls, said side and end crosspieces being provided with retaining means for said side and end walls.

8. In a receptacle, the combination of a frame comprising side and end bottom pieces and corner uprights of angle section disposed with their angles facing inwardly, side and end top pieces secured to said corner uprights at the upper ends thereof, end walls disposed within the angles of the end bottom pieces and the corner uprights, and side walls disposed between and engaging said end walls and acting to retain the end walls in erected position, and a bottom overlapping the bottom flaps of said end walls, said bottom being hingedly connected to said side walls adjacent the lower edge thereof and being foldable on a longitudinal line between said side walls for erection from collapsed condition to flat erected condition so as to constitute retaining means for said side walls, said side and end crosspieces being provided with retaining means for said side and end walls.

9. In a receptacle, the combination of a frame comprising side and end bottom pieces and corner uprights of angle section disposed with their angles facing inwardly, side and end top pieces mounted on said uprights, side and end wall retaining means on said side and end top pieces, end walls engageable with the wall retaining means on the top end pieces, side walls engageable with the wall retaining means for the side walls, and a bottom hingedly connected to said side walls adjacent the lower edge thereof, comprising collapsible panels foldably connected to one another on a longitudinal line intermediate said side walls for erection to flat operative condition wherein said bottom constitutes retaining means for the side walls.

10. In a receptacle, in combination with a frame having side and end bottom pieces, side and end top pieces and corner uprights connecting corresponding ends of said bottom pieces to define opposed side and end wall supports, end walls disposed adjacent said end wall supports and an integrally connected combined side wall and bottom member separate from said end walls including side walls adapted to be disposed adjacent said side wall supports in erected condition and an intermediate bottom hingedly connected to said side walls on transversely spaced longitudinal lines, said bottom having a longitudinal folding zone intermediate said lines along which the bottom is upwardly collapsible for insertion and removal of said member in

said frame and downwardly erectable to relatively flat condition to position the side walls adjacent said side wall supports, said side and end top pieces having retaining elements engageable by the top of said side and end walls respectively in erected position thereof.

11. In a receptacle, in combination with a frame having side and end bottom pieces, side and end top pieces and corner uprights connecting corresponding ends of said bottom pieces to define opposed side and end wall supports, end walls disposed adjacent said end wall supports, a combined side wall and bottom member including side walls adapted to be disposed adjacent said side wall supports in erected condition and an intermediate bottom hingedly connected to said side walls on transversely spaced longitudinal lines, said bottom having a longitudinal folding zone intermediate said lines along which the bottom is upwardly collapsible for insertion and removal of said member in said frame and downwardly erectable to relatively flat

condition to position the side walls adjacent said side wall supports and means on said frame engaging and restraining said side walls in erected position thereof.

12. In a receptacle, in combination with a frame having side and end bottom pieces, opposed side and end wall supports, end walls disposed adjacent said end wall supports, a combined side wall and bottom member including side walls adapted to be disposed adjacent said side wall supports in erected condition and an intermediate bottom hingedly connected to said side walls on transversely spaced longitudinal lines, said bottom having a longitudinal folding zone intermediate said lines along which the bottom is collapsible for insertion and removal of said member in said frame and erectable to relatively flat condition to position the side walls adjacent said side wall supports and means on said frame engaging and restraining said side walls in erected position thereof.

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