Nov. 29, 1949 F. J. ULLRICH 2,489,470

STACKING BOX OR TRAY

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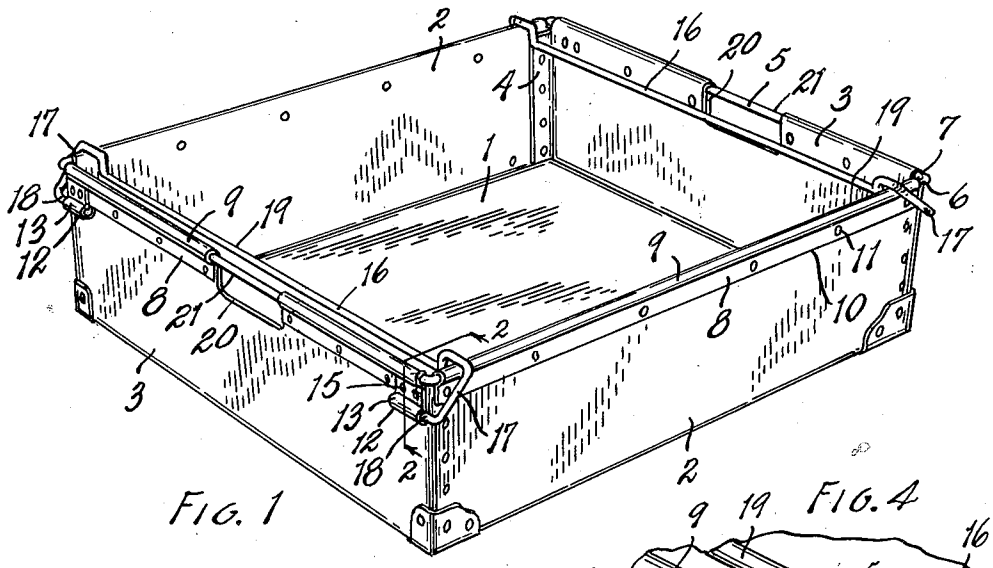


FIG. 1

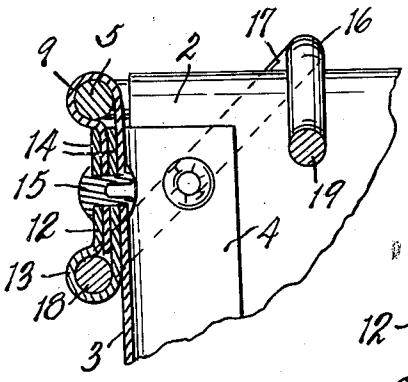


FIG. 2

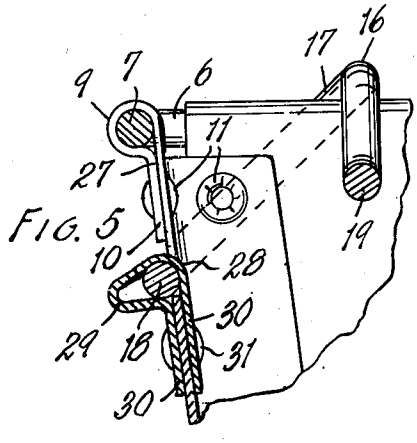


FIG. 5

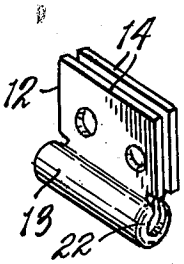


FIG. 3

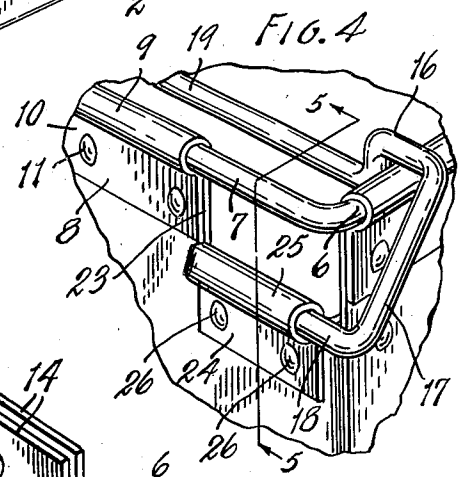


FIG. 4

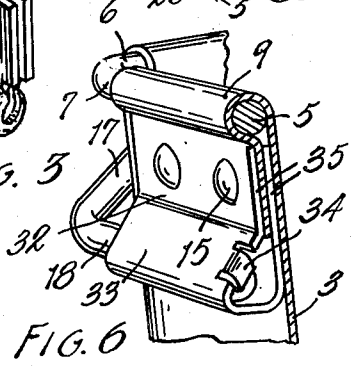


FIG. 6

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STACKING BOX OR TRAY

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18 Claims. (Cl. 220—97)

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This invention relates to improvements in stacking boxes or trays.

The main objects of this invention are:

First, to provide a stacking box or tray which may be formed of sheet metal stock or sheet fibreboard stock in which the walls are formed by a single sheet and at the same time provides a structure which is very strong and rigid.

Second, to provide a stacking and nesting box having few parts entering into the structure thereof which is adapted for a wide variety of uses.

Third, to provide a stacking box having these advantages which may be very economically produced.

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.

Preferred embodiments of the invention are illustrated in the accompanying drawing, in which:

Fig. 1 is a perspective view of a stacking box embodying the invention with the stacking bails in erected position.

Fig. 2 is an enlarged fragmentary view in section on line 2—2 of Fig. 1.

Fig. 3 is a perspective view of one of the combined pintle bearing members and stacking lugs.

Fig. 4 is an enlarged fragmentary perspective view of a modified form or embodiment of the invention.

Fig. 5 is an enlarged fragmentary perspective view of the form of the invention shown in Fig. 4 sectioned on a line that would correspond to line 5—5 of Fig. 4.

Fig. 6 is a fragmentary perspective view partially in vertical section of still another modification or embodiment of the invention.

In the embodiment of the invention illustrated in Fig. 1, the bottom 1, side walls 2, 2 and end walls 3, 3 are formed of an integral blank of bendable sheet stock, the end walls being provided with flanges 4 lapped upon the inner side and riveted to the ends of the side walls.

It will be understood that I use the terms "side" and "end" walls in the specification and in the claims as matters of convenience in designating parts and not in regard to dimensions.

I provide a top frame designated generally by the numeral 5 and comprising side members 6 and end members 7, this frame being formed integrally of rod stock or the members being integrally joined.

The upper edges 8 of the side and end walls

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are folded outwardly over the corresponding top frame members to closely embrace the same as shown at 9 and the downwardly projecting portion 10 of the out-turned upper edge is secured to the side and end walls by rivets 11 arranged below the top frame. The top frame is thus removably secured to the walls and constitutes reinforcing means for the upper edges of the walls and wall couplings at the corners thereof.

The pintle bearing members 12 are formed of strap metal or strips or, for some purposes, straps or strips of fibreboard may be used. These straps or strips are folded upon themselves, the bights of the folds being conformed to provide bearings 13. The arms or leaves 14 of the bearing members are disposed to embrace the down-turned edge or the flange portions 8 of the end walls and are secured thereto and to the end walls by means of the rivets 15. This provides a very secure connection for the bearing members and the bearings thereof constitute stacking lugs when a plurality of boxes are nested.

The stacking bails or irons 16 are provided with arms 17 having inturned pintles 18 at their ends engaging the pintle bearings. The horizontal reach 19 of the stacking bail is preferably downwardly offset so as to support a superimposed box within the upper edge of the lower box. The end walls are cut away at 20 to expose portions 21 of the top frame to provide handholds. When the stacking bails are collapsed they are suspended at the ends of the end walls. The inner ends of the pintle bearings are turned inwardly to provide stops 22.

In the embodiment of the invention shown in Fig. 4 the end walls have vertical slits 23 therein spaced from their ends, portions 24 of the end walls being turned outwardly and downwardly and conformed to provide pintle bearings 25. The rivets 26 through these downturned portions below the bearings securely retain the parts. This embodiment is adapted for many uses.

In the embodiment of the invention shown in Fig. 5, the end walls are provided with openings 27 below the top frame and at the corners thereof, the pintle bearing members 28 being formed of strips or straps of material folded upon itself and conformed to provide the pintle bearing and stacking lugs 29 more pronounced or extended than in the other embodiments, this being desirable where the boxes have a greater taper. In this embodiment, the arms 30 of the bearing members embrace the side walls at the lower edges or openings and are secured by rivets 31.

In the embodiment shown in Fig. 6, the pintle

bearing members 32 have outwardly offset portions 33 constituting extended stacking lugs and having inturned tongues 34 providing stops for the stacking lug pintles. These stops are of advantage in that they prevent lateral shifting movement of the stacking bails. The bails are always supported so that they may be readily swung to erected position and their arms do not engage the end walls. The arms or leaves 35 of the pintle bearing members 32 are arranged to embrace the downturned flange portions of the end walls and secured thereto and to the end walls by rivets 15 as is the case with the embodiment of Figs. 1 and 2. The top frame reinforces the upper edges of the side walls and ties them together at the corners, the parts being arranged so that they provide a strong rigid structure even when formed of relatively light sheet stock.

I have illustrated and described the invention in embodiments which are considered highly practical commercially. I have not attempted to illustrate or describe other embodiments or adaptations as it is believed that this disclosure will enable those skilled in the art to embody or adapt the invention as may be desired.

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

1. A stacking box comprising side and end walls of bendable sheet stock, a top frame of rod stock comprising integrally joined side and end members corresponding to the side and end walls, the upper edges of the side and end walls being folded outwardly and downwardly over and closely embracing corresponding side and end members of said top frame and lapped upon and riveted to their respective walls below said top frame, the top frame constituting reinforcing means for the upper edges of the walls and wall couplings at the corners thereof, pintle bearing members formed of strips of metal folded and conformed at the bights thereof to provide pintle bearings, the arms of said bearing members embracing the said downturned edge portions of the end walls below said top frame and being secured by rivets arranged through the end walls, the arms of the bearing members and the said downturned end wall edge portions, and stacking bails provided with arms terminating in inturned pintles engaging said bearing members, said bearing members having inturned pintle stop portions at their inner ends.

2. A stacking box comprising side and end walls of bendable sheet stock, a top frame of rod stock comprising integrally joined side and end members corresponding to the side and end walls, the upper edges of the side and end walls being folded outwardly and downwardly over and closely embracing corresponding side and end members of said top frame and lapped upon and riveted to their respective walls below said top frame, the top frame constituting reinforcing means for the upper edges of the walls and wall couplings at the corners thereof, pintle bearing members formed of strips folded and conformed at the bights thereof to provide pintle bearings, the arms of said bearing members embracing the said downturned edge portions of the end walls below said top frame and being secured thereto and to the end walls, and stacking bails provided with arms terminating in inturned pintles engaging said bearing members.

3. A stacking box comprising side and end walls of bendable sheet stock, a continuous rectangular top frame comprising side and end members, the upper edges of the side and end walls being folded over corresponding side and end members of said top frame, the top frame constituting reinforcing means for the upper edges of the walls and wall couplings at the corners of the box, pintle bearing members formed of strips folded and conformed at the bights thereof to provide pintle bearings, the arms of said bearing members embracing the down-turned edge portions of the end walls below said top frame and being secured thereto and to the end walls, and stacking bails provided with arms terminating in inturned pintles engaging said bearing members, said bearing members constituting stacking lugs when the boxes are nested.

4. A stacking box comprising side and end walls of bendable sheet stock, a continuous rectangular top frame comprising side and end members, the upper edges of the side and end walls being folded over corresponding side and end members of said top frame, the top frame constituting reinforcing means for the upper edges of the walls and wall couplings at the corners of the box, pintle bearing members formed of strips folded and conformed at the bights thereof to provide pintle bearings, the arms of said bearing members embracing the down-turned edge portions of the end walls below said top frame and being secured thereto and to the end walls, and stacking bails provided with arms terminating in inturned pintles engaging said bearing members.

5. A downwardly tapered stacking box comprising side and end walls of bendable sheet material, a top frame comprising connected side and end members secured to their respective walls, pintle bearing members formed of strap stock folded upon itself and conformed at the bight thereof to provide pintle bearings, arms of said bearings members being secured to the end walls with the pintle bearing below the top frame, and stacking bails provided with arms terminating in inturned pintles engaging said bearing members, and said bearing members constituting stacking lugs.

6. A downwardly tapered stacking box comprising side and end walls of bendable sheet material, a top frame comprising connected side and end members secured to their respective walls, pintle bearing members formed of strap stock folded upon itself and conformed at the bight thereof to provide pintle bearings, arms of said bearing members being secured to the end walls with the pintle bearing below the top frame, and stacking bails provided with arms terminating in inturned pintles engaging said bearing members, said bearing members having inturned portions at their inner ends constituting stops for said pintles.

7. A stacking box comprising side and end walls of bendable sheet stock, a continuous rectangular top frame comprising side and end members, the upper edges of the side and end walls being folded over corresponding side and end members of said top frame, the top frame constituting reinforcing means for the upper edges of the walls and wall couplings at the corners thereof, pintle bearing members having strap-like arms embracing portions of the end walls below said top frame and being secured thereto, and stacking bails provided with arms terminating in inturned pintles engaging said bearing members.

8. A stacking and nesting box comprising side and end walls of bendable sheet stock, a rectangular top frame comprising integrally connected

side and end members, the upper edges of said side and end walls being folded over the corresponding side and end members of said top frame and secured to their respective walls below said top frame, the top fame constituting wall couplings at the corners of the walls, the end walls having flanges at their ends secured to the inner sides of the side walls, the end walls having vertical slits adjacent the ends thereof, the corner portions defined by the slits being turned outwardly and downwardly to provide pintle bearings, the portions below the pintle bearings being riveted to the end walls, and stacking bails provided with arms terminating in inturned pintles engaging said bearing members.

9. A stacking and nesting box comprising side and end walls of bendable sheet stock, a rectangular top frame comprising integrally connected side and end members, the upper edges of said side and end walls being folded over the corresponding side and end members of said top frame and secured to their respective walls below said top frame, the top frame constituting wall couplings at the corners of the walls, the end walls having vertical slits adjacent the ends thereof, the corner portions defined by the slits being turned outwardly and downwardly to provide pintle bearings, and stacking bails provided with arms terminating in inturned pintles engaging said bearing members.

10. A stacking and nesting box comprising side and end walls of bendable sheet stock, a rectangular top frame comprising integrally connected side and end members, the upper edges of said side and end walls being folded over the corresponding side and end members of said top frame and secured to their respective walls below said top frame, the top frame constituting wall couplings at the corners of the walls, the end walls having vertical slits adjacent the ends thereof, the corner portions defined by the slits being turned outwardly and downwardly to provide pintle bearings, and stacking bails provided with arms terminating in inturned pintles engaging said bearing members, said bearing members constituting stacking lugs when the boxes are arranged in nested relation.

11. A stacking box comprising side and end walls of bendable sheet stock, a top frame comprising integrally connected side and end members, the upper edges of said side and end walls being folded over the corresponding side and end members of said top frame and secured to their respective walls below said top frame, the top frame constituting wall couplings at the corners of the walls, the end walls having flanges at their ends secured to the inner sides of the side walls, the end walls having corner openings below said top frame, pintle bearing members having strap-like arms embracing the end walls at the bottom edges of said openings and secured to the end walls, and stacking bails provided with arms having inturned pintles engaging said bearing members.

12. A stacking box comprising side and end walls of bendable sheet stock, a top frame comprising integrally connected side and end members, the upper edges of said side and end walls being folded over the corresponding side and end members of said top frame and secured to their respective walls below said top frame, the top frame constituting wall couplings at the corners of the walls, the end walls having corner openings below said top frame, pintle bearing members having strap-like arms embracing the end walls at the bottom edges of said openings and secured to the end walls, and stacking bails provided with arms having inturned pintles engaging said bearing members.

13. A stacking box comprising side and end walls of bendable sheet stock, a top frame comprising integrally connected side and end members, the upper edges of said side and end walls being folded over the corresponding side and end members of said top frame and secured to their respective walls below said top frame, the top frame constituting wall couplings at the corners of the walls, the end walls having corner openings below said top frame, pintle bearing members having strap-like arms embracing the ends walls at the bottom edges of said openings and secured to the end walls, said bearing members constituting stacking lugs when a plurality of boxes are nested, and stacking bails provided with arms having inturned pintles engaging said bearing members.

14. A stacking box comprising side and end walls, a rectangular top frame comprising integrally connected side and end members, the upper edges of the side and end walls being secured to corresponding side and end members of said top frame, the top frame constituting wall couplings at the corners of the flanges, the end walls having openings in the upper corners thereof below said top frame, pintle bearing members having strap-like arms embracing the end walls at the bottom edges of said openings and fixedly secured thereto, the bearing members constituting stacking lugs when a plurality of boxes are nested, and stacking bails provided with arms having inturned pintles engaging said bearing members.

15. A stacking box comprising side and end walls, a rectangular top frame comprising integrally connected side and end members, the upper edges of the side and end walls being secured to corresponding side and end members of said top frame, the top frame constituting wall couplings at the corners of the flanges, the end walls having openings in the upper corners thereof below said top frame, pintle bearing members having strap-like arms embracing the end walls at the bottom edges of said openings and fixedly secured thereto, and stacking bails provided with arms having inturned pintles engaging said bearing members.

16. A stacking box comprising side and end walls, a rectangular top frame comprising integrally connected side and end members, the upper edges of the side and end walls being secured to corresponding side and end members of said top frame, the top frame constituting wall couplings at the corners of the walls, pintle bearing members having strap-like arms lapped upon each side of portions of said end walls below said top frame and fixedly secured thereto, the bearing members constituting stacking lugs when a plurality of boxes are nested, and stacking bails provided with arms having inturned pintles engaging said bearing members.

17. A stacking box comprising side and end walls, a rectangular top frame comprising integrally connected side and end members, the upper edges of the side and end walls being secured to corresponding side and end members of said top frame, the top frame constituting wall couplings at the corners of the walls, pintle bearing members having strap-like arms lapped upon each side of portions of said end walls below said

top frame and fixedly secured thereto, and stacking bails provided with arms having inturned pintles engaging said bearing members.

18. A stacking box comprising side and end walls, a rectangular top frame comprising integrally connected side and end members, the upper edges of the side and end walls being secured to corresponding side and end members of said top frame, the top frame constituting wall couplings at the corners of the flanges, pintle bearing members having strap-like arms embracing portions of end walls below said top frame and fixedly secured thereto, and stacking bails provided with arms having inturned pintles engaging said bearing members, the bearing members having pintle stop portions at their inner ends.

FRED J. ULLRICH.

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