Feb. 26, 1957 J. M. GORDON 2,782,955

COLLAPSIBLE LUG BOX

Filed June 18, 1956 2 Sheets-Sheet 1

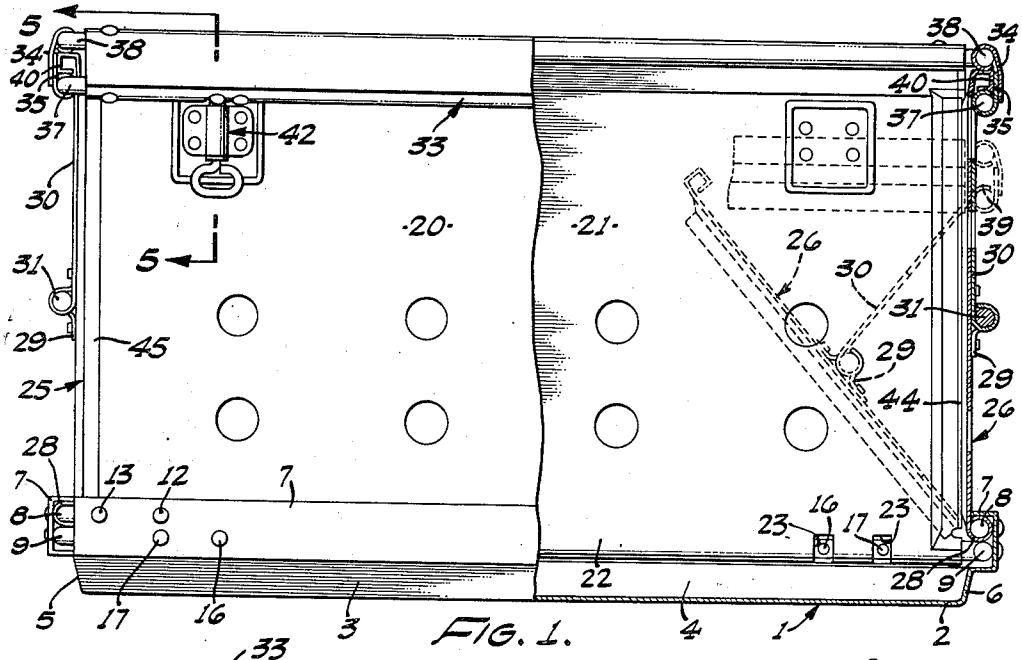


FIG. 1.

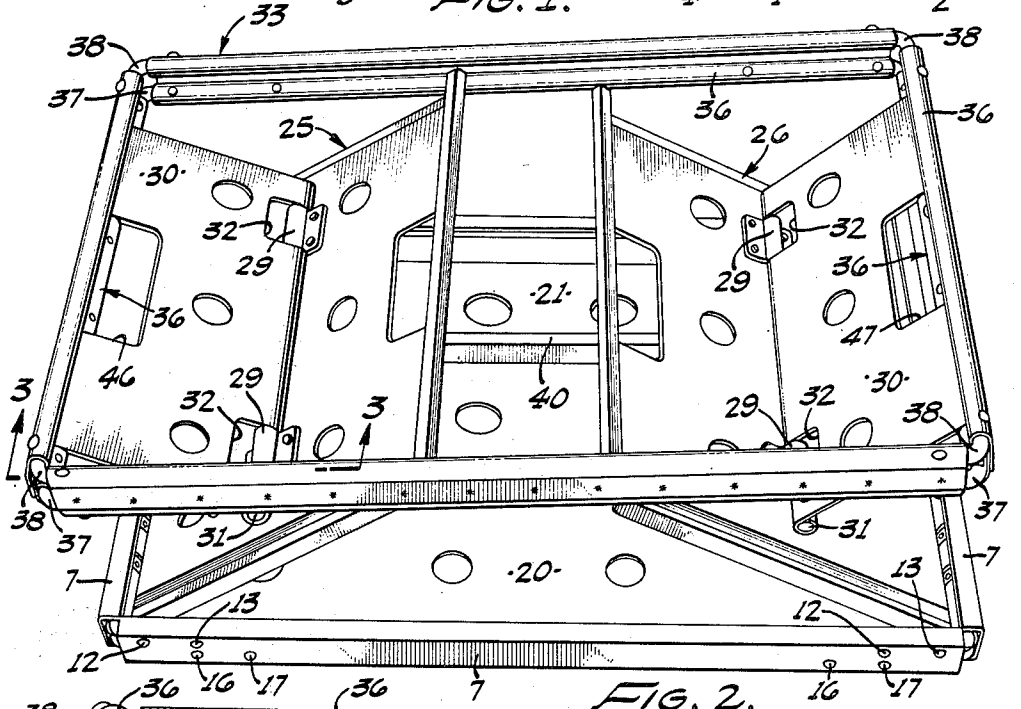


FIG. 2.

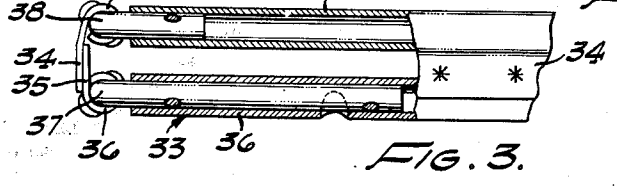


FIG. 3.

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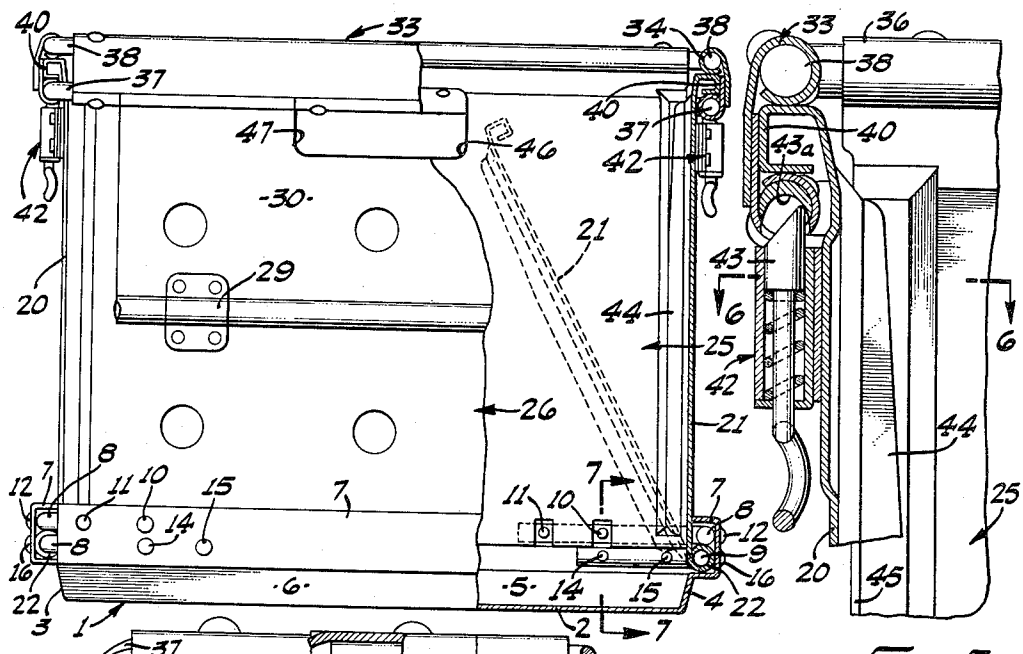


FIG. 4

FIG. 5.

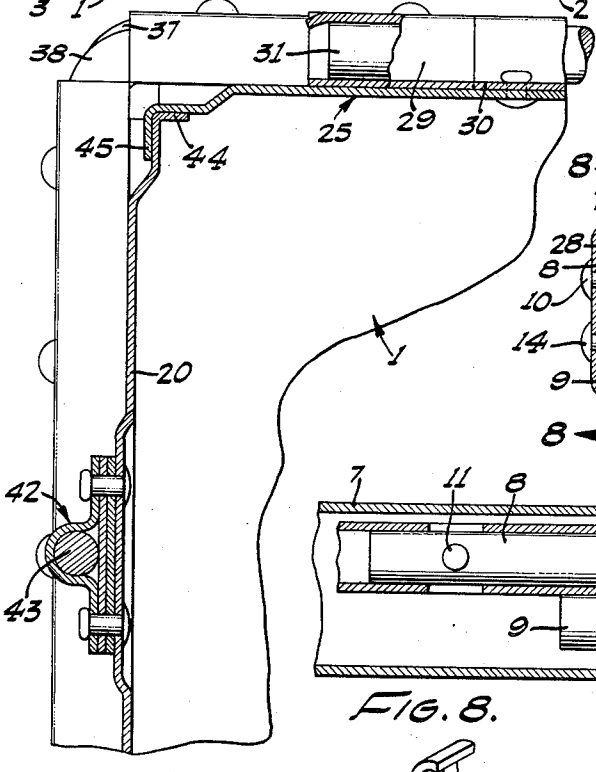


FIG. 6.

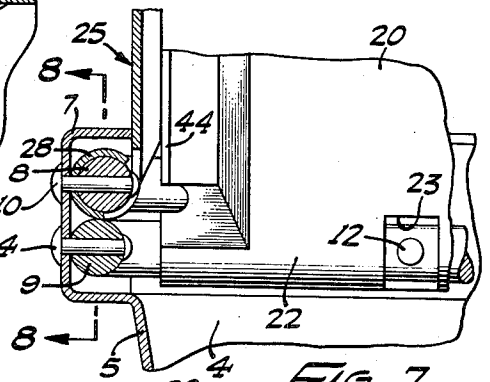


FIG. 7.

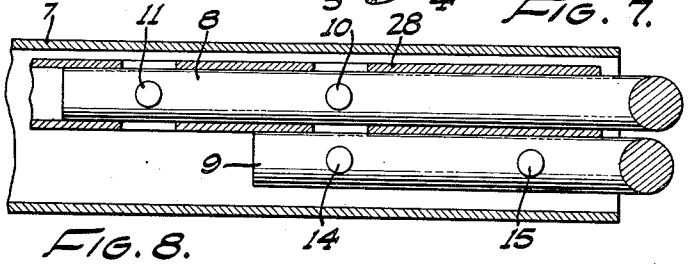


FIG. 8.



FIG. 9.

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2,782,955

COLLAPSIBLE LUG BOX

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Application June 18, 1956, Serial No. 592,160

8 Claims. (Cl. 220—6)

My invention comprises a collapsible lug box and more specifically a lug box formed of light weight metal such as aluminum, or the like, used to store and transport goods from warehouses to markets. Such a lug box must be light in weight, have large capacity and yet fold into a small package for empty transportation and storage.

Modern shipping methods comprise the shipping of cartons of milk, eggs and the like from a central distributing point to a market in an outer container such as the present lug box. It is desirable that these shipping containers or lug boxes be collapsible as many more collapsed lug boxes can be carried on a truck when they are empty than a rigid box; also, the storage of these lug boxes, both in the warehouse, market or truck consumes a large space.

It is, therefore, a specific object of my invention to provide a metallic, light weight lug box which can be folded to reduce its volume when empty.

Another object of my invention is to provide a collapsible lug box which will nest with other lug boxes of similar construction to further reduce storage space.

Another object of my invention is to provide a collapsible lug box which, when nested with another of its kind, has the weight distributed from one lug box to the other on rigid members.

Other objects and advantages of my invention will be apparent from the following description of the preferred embodiments thereof.

In the drawing:

Figure 1 is a side elevation partly broken away.

Figure 2 is a perspective showing my lug box in partially collapsed position.

Figure 3 is a section taken on line 3—3 of Figure 2.

Figure 4 is an end elevation partially broken away.

Figure 5 is a section taken on line 5—5 of Figure 1.

Figure 6 is a section taken on line 6—6 of Figure 5.

Figure 7 is a section taken on line 7—7 of Figure 4.

Figure 8 is a section taken on line 8—8 of our Figure 7.

Figure 9 is a perspective of a detail.

A lug box constructed in accordance with my invention comprises a hollow bottom 1, formed of a bottom plate 2, at the sides of which are walls 3 and 4 and at the ends, the end walls 5 and 6. At the upper edges of side walls 3 and 4 and end walls 5 and 6 are formed channels 7. At the corners formed by the channels 7 on the side walls and end walls, are positioned overlapping strengthening members 8 and 9. These members 8 and 9 comprise round bar stock bent at right angles to form corner braces.

As shown in Figure 8, the upper members 8 are riveted to the channels 7 on the end walls 5 and 6 by means of rivets 10 and 11 and to the channels on the side walls 3 and 4 by means of rivets 12 and 13. The members 9 are attached similarly to the channels rivets 14, 15, 16 and 17. It should be noted that the ends of the members 8 on the end walls extend further into the channels than the ends of the members 9, while on the side walls, the ends of member 9 extend beyond the ends of member 8. These strengthening members 8 and 9 connect the channels 7 at each corner.

Side panels 20 and 21 are formed of sheet metal with the lower edges rolled to form a tubular strengthening member 22. These tubular strengthening members 22 are also fitted over the ends of the strengthening members 9 and have slots 23 cut therein so as to form an aperture for the rivets 16 and 17 so that the tubular strengthening members 22 can rotate on the strengthening members 9 and form a hinge attachment of the side panels 20 and 21 to the hollow bottom 1.

It should be noted that with this type of construction the channels 7 provide a means for protecting the tubular member 22 from external crushing and to protect the hinging of the side panels to the hollow bottom. The side panels can thus be rotated on the hinge formed by the tubular member 22 and the strengthening member 9 so that the side panels 20 and 21 may lie flat in the hollow bottom on top of each other. The tubular strengthening members 22 form offsets so that when the side panels 20 and 21 are turned upwardly into a vertical plane the outer surfaces of the side panels engage the inner lip of the channel members 7.

The end panels 25 and 26 have a similar tubular strengthening member 28 in their lower edges as the side panels 20 and 21, which act also as hinge upon the strengthening member 8 and have similarly cut out portions to permit rotation without interference from the rivets. The end panels 25 and 26 have hinges 29 at approximately their midpoints. Upon these hinges 29 are attached auxiliary ends 30 formed of a sheet of metal having their lower edges rolled to receive hinge pins 31. So that the auxiliary ends 30 may lie flat against the end panels 25 and 26, cut outs 32 are formed to accommodate the hinges 29. The upper edges of the auxiliary ends 30 are rolled outwardly to form a tubular hinge 39 to pivotally attach an upper reinforcing frame 33.

The reinforcing frame 33 extends around the upper periphery of the entire lug box and is of the same external and internal dimension as formed by the channels 7.

The reinforcing frame 33 comprises overlapping plates 34 and 35 which are riveted together. Each plate has its opposite edge rolled to form a channel member 36. While I have described the reinforcing frame 33 as overlapping plates, it is possible to make this reinforcing frame a single sheet of metal with the channels rolled on both edges. At the corners of the reinforcing frame 33, I provide strengthening members 37 and 38 formed of round bar stock and overlapping each other and riveted to the plates 34 and 35 in the same manner as the strengthening members 8 and 9 join the channels 7. The lower members 37 form hinge pintles for the hinges 39 on the auxiliary ends 30.

It should be noted that the channel members 36 on the plates 34 and 35 are spaced apart. On the upper edges of the side panels 20 and 21 and the end panels 25 and 26 are formed channel members 40. These channels 40, when the box is in its elevated position, fit between the channel members 36 of the reinforcing frame 33 so that the channel members 36 and 40 are interlocked together to prevent distortion of either the reinforcing frame 33 or the side or end panels.

It should be noted that when the side panels 20 and 21 are folded into the hollow bottom 1, the end panels 25 and 26 can then be moved into position on the tops of these side panels 25 and 26 and the auxiliary ends 30 can also fold flat on the end panels 25 and 26. When my lock box has been folded the only vertical dimensions are the hollow bottom 1, the channels 7 and the reinforcing frames 33.

To prevent collapse of my lug box when it is in its extended position, I provide latch members 42 at the upper

edges of the side panels 25 and 26 which lock the side panels to reinforcing members by means of the spring loaded bolts 43 projecting into the slots 43*a* in the reinforcing frame 33.

To further strengthen my lug box, the edges of the side panels 20 and 21 and end panels 25 and 26 have the lips 44 and 45 respectively which overlap each other to form corners. To provide a handle for carrying my lug box the end panels 25 and 26 and auxiliary ends 30 have cut outs 46 and 47 formed therein which overlap each other and permit a hand grip on the reinforcing frame 33.

A feature of my invention is the manner in which lug boxes, constructed in accordance with this invention, can be nested either when the lug is expanded or folded. This is made possible by forming the outer dimensions of the hollow bottom 1 just slightly smaller and shallower than the inner dimensions of the upper reinforcing frame 33. When the lugs are nested, the channels 7 will then rest on the frame 33, preventing distortion of other parts of my lug box.

I claim:

1. A lug box comprising a hollow bottom, a strengthening channel extending around the upper edges of said bottom, side and end panels hinged within said channel, auxiliary end panels hinged to said end panels, an upper reinforcing member carried by said auxiliary end panels having approximately the same external and internal dimensions as said channel, said reinforcing member having spaced channel members extending inwardly, channels carried by said side and end panels adapted to fit between and interlock with said spaced channel members.

2. A lug box comprising a hollow bottom, a strengthening channel extending around the upper edges of said bottom, strengthening members joining said channel at the corners of said channel, said members providing pintles, side and end panels having their lower edges rolled to form hinges to attach said panels to said pintles, auxiliary end panels hinged to said end panels, an upper reinforcing member carried by said auxiliary end panels having approximately the same external and internal dimensions as said channel, said reinforcing member having spaced channel members extending inwardly, channels carried by said side and end panels adapted to fit between and interlock with said spaced channel members.

3. A lug box comprising a hollow bottom, a strengthening channel extending around the upper edges of said bottom, side and end panels hinged within said channel, auxiliary end panels hinged to said end panels, an upper reinforcing member carried by said auxiliary end panels having approximately the same external and internal dimensions as said channel, said reinforcing member having spaced channel members extending inwardly, strengthening members affixed in said spaced channel members at the corners providing pintles, said auxiliary end panels having their upper edges rolled to form hinges to attach said panels to said pintles in said strengthening member, channels carried by said side and end panels to fit between and interlock with said spaced channel members.

4. A lug box comprising a hollow bottom, a strengthening channel extending around the upper edges of said bottom, strengthening members joining said channel at the corners of said channel, said members providing pintles, side and end panels having their lower edges rolled to form hinges to attach said panels to said pintles, auxiliary end panels hinged to said end panels, an upper reinforcing member carried by said auxiliary end panels having approximately the same external and internal dimensions as said channel, said reinforcing member having spaced channel members extending inwardly, strengthening members affixed in said spaced channel members at the corners providing pintles, said auxiliary

end panels having their upper edges rolled to form hinges to attach said panels to said pintles in said strengthening member, channels carried by said side and end panels to fit between and interlock with said spaced channel members.

5. A lug box comprising a hollow bottom, a strengthening channel extending around the upper edges of said bottom, side and end panels hinged within said channel, auxiliary end panels hinged to said end panels, an upper reinforcing member carried by said auxiliary end panels having approximately the same external and internal dimensions as said channel, said reinforcing member having spaced channel members extending inwardly, channels carried by said side and end panels adapted to fit between and interlock with said spaced channel members, and overlapping lips carried by said side and end panels to strengthen the corners formed by said panels.

6. A lug box comprising a hollow bottom, a strengthening channel extending around the upper edges of said bottom, strengthening members joining said channel at the corners of said channel, said members providing pintles, side and end panels having their lower edges rolled to form hinges to attach said panels to said pintles, auxiliary end panels hinged to said end panels, an upper reinforcing member carried by said auxiliary end panels having approximately the same external and internal dimensions as said channel, said reinforcing member having spaced channel members extending inwardly, channels carried by said side and end panels adapted to fit between and interlock with said spaced channel members, and overlapping lips carried by said side and end panels to strengthen the corners formed by said panels.

7. A lug box comprising a hollow bottom, a strengthening channel extending around the upper edges of said bottom, side and end panels hinged within said channel, auxiliary end panels hinged to said end panels, an upper reinforcing member carried by said auxiliary end panels having approximately the same external and internal dimensions as said channel, said reinforcing member having spaced channel members extending inwardly, strengthening members affixed in said spaced channel members at the corners providing pintles, said auxiliary end panels having their upper edges rolled to form hinges to attach said panels to said pintles in said strengthening member, channels carried by said side and end panels to fit between and interlock with said spaced channel members, and overlapping lips carried by said side and end panels to strengthen the corners formed by said panels.

8. A lug box comprising a hollow bottom, a strengthening channel extending around the upper edges of said bottom, strengthening members joining said channel at the corners of said channel, said members providing pintles, side and end panels having their lower edges rolled to form hinges to attach said panels to said pintles, auxiliary end panels hinged to said end panels, an upper reinforcing member carried by said auxiliary end panels having approximately the same external and internal dimensions as said channel, said reinforcing member having spaced channel members extending inwardly, strengthening members affixed in said spaced channel members at the corners providing pintles, said auxiliary end panels having their upper edges rolled to form hinges to attach said panels to said pintles in said strengthening member, channels carried by said side and end panels to fit between and interlock with said spaced channel members, and overlapping lips carried by said side and end panels to strengthen the corners formed by said panels.

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