Dec. 8, 1964 T. Y. SMITH 3,160,305

METAL CRATE

Filed Feb. 13, 1963

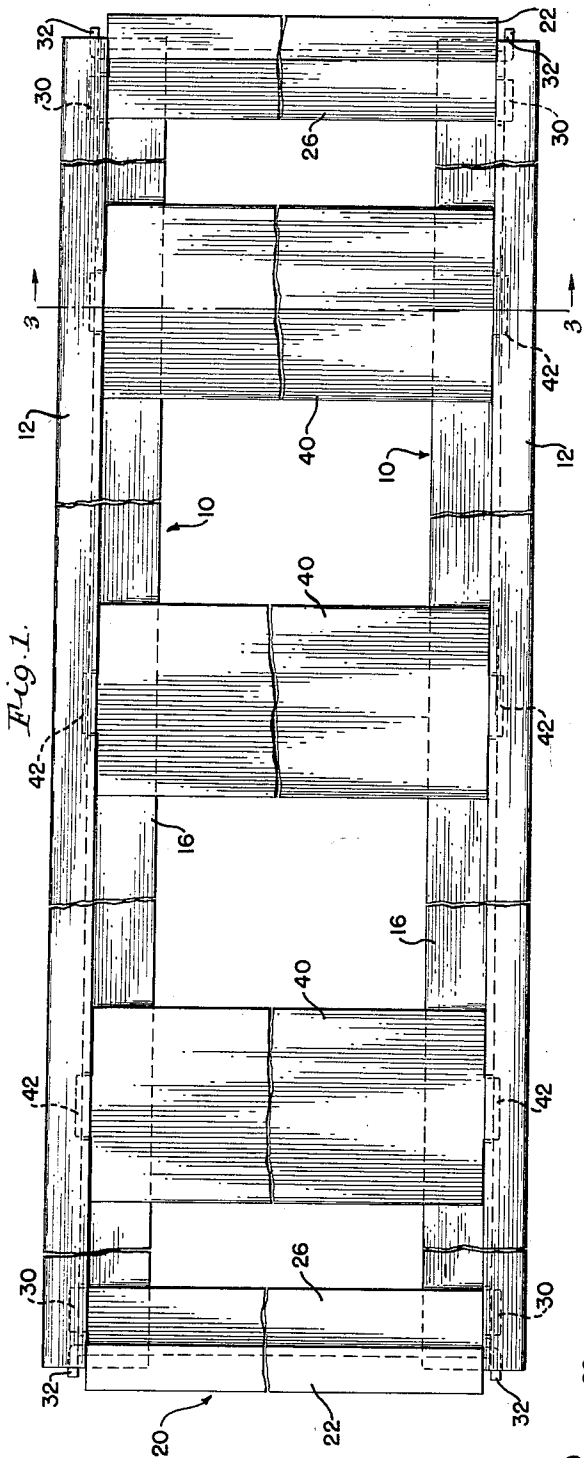


Fig. 1.

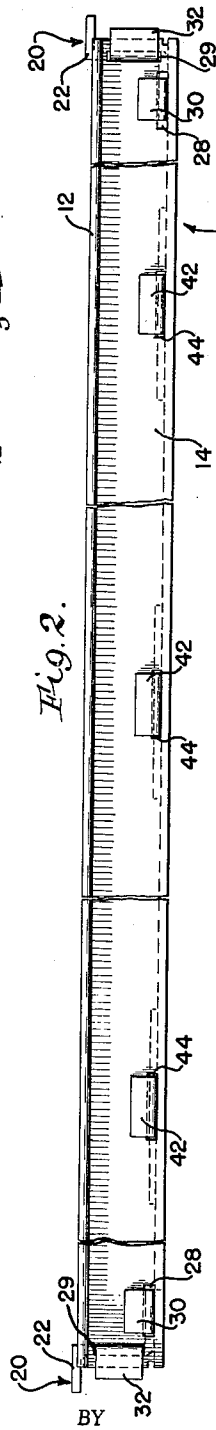


Fig. 2.

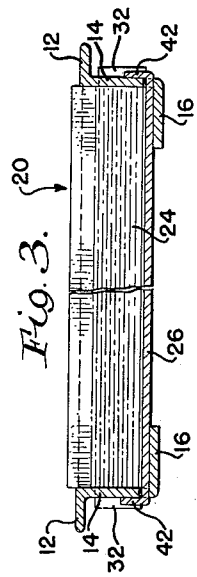


Fig. 3.

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METAL CRATE

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This invention relates to transport crates, and more particularly to an improved crate construction in which flat metal sheets or the like may be stacked for shipping or other transport or warehousing purposes.

A primary object of the present invention is to provide an all-metal crate fabrication adapted to receive a plurality of sheet-type stock pieces in vertically stacked relation therein; said crate being of improved weight-to-strength ratio compared to prior crate constructions; relatively easy and inexpensive to manufacture; and of improved durability and adapted to be hoisted and/or pallet-stacked and transported or otherwise handled with improved facility. Other more specific objects and advantages of the invention will appear from the specification hereinafter and the accompanying drawing wherein:

FIG. 1 is a compacted plan view of a crate of the present invention;

FIG. 2 is a side elevational view thereof; and

FIG. 3 is a sectional view taken along line 3—3 of FIG. 1.

As shown in the drawing herewith the crate construction of the invention is fabricated of metal stock pieces to comprise a pair of parallel disposed sill members **10**, **10**, which are of Z-sectioned form. Thus as shown in FIG. 3 each sill member includes a top flange portion **12**; a vertical side wall portion **14**; and an inturned bottom flange portion **16**. The sills **10—10** are interconnected at their opposite ends by end members **20—20** which are also conveniently fabricated of the same Z-sectioned metal stock, whereby each end member includes a top plate portion **22**; a vertical end wall portion **24**; and an inturned bottom flange **26**.

The connections between the sills **10—10** and the end members **20—20** are effected by punching slot-shaped apertures **28**, **29** through the side wall portions **14** of the sills, as best shown in FIG. 2. Whereas the main body portions of the end members **20—20** are dimensioned to fit between the sill side walls **14—14**, the end member are also formed with extending tab portions **30–32** which are dimensioned to slip-fit through the slots **28–29**, respectively. These tabs are then bent into snug fitting relation against the outside surfaces of the sill members as shown in the drawing herewith, whereby the sills and end members are firmly clamped together in such manner as to prevent any deflections of the end members relative to the sill members. It will be apparent that by virtue of this construction the frame structure so provided is firmly braced against any angular deflections of the end members relative to the sill members in any sense or direction.

Additional reinforcement and load support members designated **40** are provided to span the bottom of the crate structure at intervals longiutdinally thereof; said support members being conveniently provided of metal plate form dimensioned to span the space interiorly of the sills **10—10** and to rest at their opposite ends upon the bottom flanges **16—16** of the sills. Each support plate includes integral tab portions **42—42** extending from opposite ends thereof through appropriately located slots **44** formed through the side wall portions **14** of the sills; the tabs being then bent into locking relation against the side walls of the sills, as shown.

It will, of course, be appreciated that the planform dimensions of the crate construction will be dictated by the planform dimensions of the stock sheets to be crated,

and that after the sheets are loaded in the crate they may be strapped therein by any suitable metal band strapping procedure or the like, to provide a firmly locked-up crate-load unit; pluralities of which may be readily stacked for transport or warehousing, as may be required. The top flange portions of the sills and end members provide convenient hold devices for engagement by lift hooks, pallet lift truck forks or the like.

It is a particular feature of the present invention that by virtue of the simple and rugged all-metal construction thereof, the crate member may be fabricated of lightweight metal, such as any suitable aluminum alloy, or steel, or the like. This is due to the unusual strength and stiffness provided in the over-all structure through use of the Z-sectioned sill and end members; and the means for interconnection thereof as shown and described hereinabove. Through use of metal materials in the fabrication, very substantial weight savings are effected as compared to prior type wooden crates or the like, whereby a larger number of crates of stock sheets may with practicality be simultaneously stacked and/or transported.

For example, crates of the instant invention are presently finding commercial success in connection with the handling of copper and brass stock sheets measuring in the order of 4 feet by 6 feet, of various thicknesses. For this purpose my crate has proven in service to successfully withstand the rigors of usage while saving approximately 50 pounds per crate weight, compared to prior type wooden crates for the same purpose. Furthermore, my metal shipping containers, of any given specifications, are of uniform weight, compared to prior type wooden crates which are in fact always of substantially varying weights; thereby eliminating the necessity for a weighing operation when shipping, such as is requisite when using wooden crates. Still further, because wooden crates are relatively heavy, the use of my metal crates has in certain cases reduced the over-all tare weight per shipment approximately 80%, thereby effecting substantially shipping cost savings. Also, due to their lighter weight my shipping crates reduce the over-all cost of handling both the loaded and empty crates; and because of their ruggedness and durability they are returnable for reuse if desired; or in the alternative they may be scraped to good advantage because of their definite scrap value, as compared to used wooden crates which have no scrap value and in fact involve added disposal expense. Still another advantage of my create construction is that compared to wooden crates my crate is compact and "form-fitting" to the sheets being carried, and thereby saves substantial storage space whenever used.

It will of course be appreciated that whereas I have illustrated and described in detail only one specific form of my invention, various changes may be made therein if desired without departing from the spirit of the invention or the scope of the accompanying claims.

I claim:

1. A sheet-load transport crate comprising a pair of parallel side sills interconnected at their opposite ends by end sills, said side sills and said end sills comprising metal pieces of Z-sectioned form, whereby said side sills and end sills each include outwardly directed top horizontal flange portions, vertical side wall portions, and inwardly directed horizontal bottom flange portions, said side sill side wall portions being slotted adjacent their ends and said end sill side wall portions having tabs extending integrally therefrom through the adjacent slotted portions of said side sill members and bent therebeyond against the outer surfaces of said side sill members thereby firmly locking said sill members together in rectangular frame fashion, said side sill vertical wall por-

tions being also slotted horizontally at positions intermediately of the ends thereof, and bottom plate members extending transversely of the device and resting at their opposite ends upon the bottom flange portions of said side sill members and having integral tab portions extending through the associated intermediately slotted portions of said side sill members and bent therebeyond against the outer surfaces of said side sill vertical wall portions thereby locking said members together and cooperating to provide an over-all stabilized structure.

2. A sheet-load transport crate comprising a pair of parallel side sills interconnected at their opposite ends by end sills, said side sills and said end sills comprising metal pieces of Z-sectioned form, whereby said side sills and end sills each include outwardly directed top horizontal flange portions, vertical side wall portions, and inwardly directed horizontal bottom flange portions, said side sill side wall portions being slotted both in horizontal and vertical directions adjacent their ends and said end sill side wall and bottom flange portions having tabs extending integrally therefrom through the adjacent slotted portions of said side sill members and bent therebeyond against the outer surfaces of said side sill members thereby firmly locking said sill members together in rectangular frame fashion, said side sill vertical wall portions being also slotted horizontally at positions intermediately of the ends thereof, and bottom plate members extending transversely of the device and resting at their opposite ends upon the bottom flange portions of said side sill members and having integral tab portions extending through the associated intermediately slotted portions of said side sill members and bent therebeyond against the outer surfaces of said side sills thereby locking said members together and cooperating to provide an over-all stabilized structure.

References Cited by the Examiner

UNITED STATES PATENTS

584,313	6/97	Adams	220—76
1,662,280	3/28	Perritt	220—1

FOREIGN PATENTS

214,566	9/56	Australia.

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