Feb. 27, 1962 C. C. AVERILL 3,022,900

STACKING CRATES OR RECEPTACLES

Filed Jan. 11, 1960 2 Sheets-Sheet 1

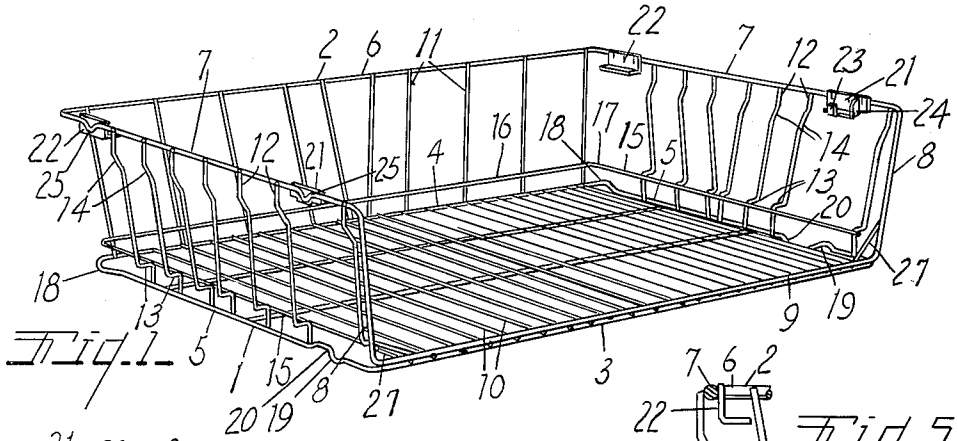


Fig. 1

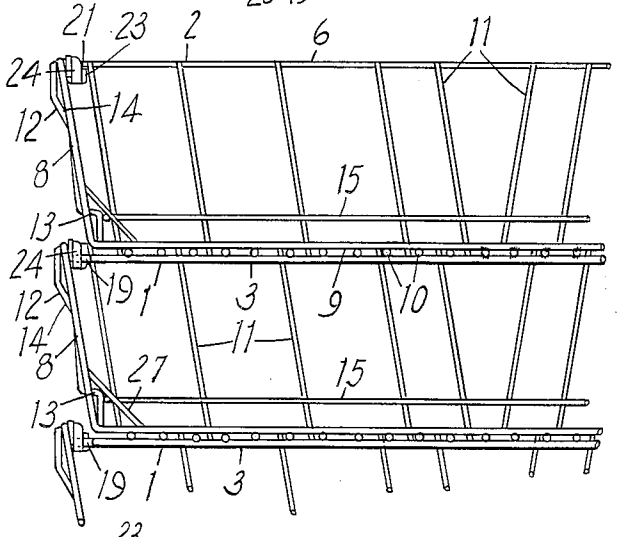


Fig. 3

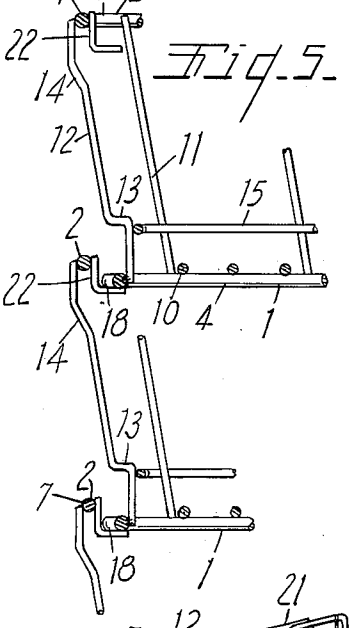


Fig. 5

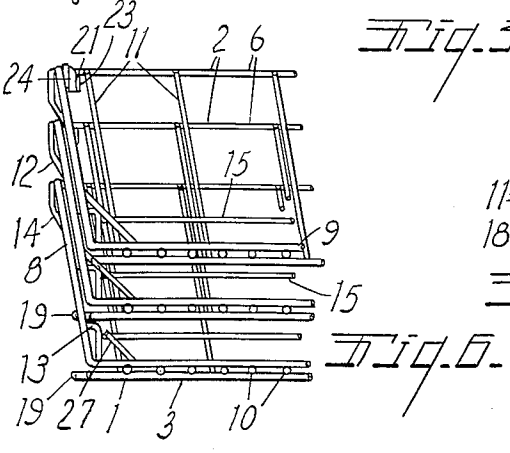


Fig. 6

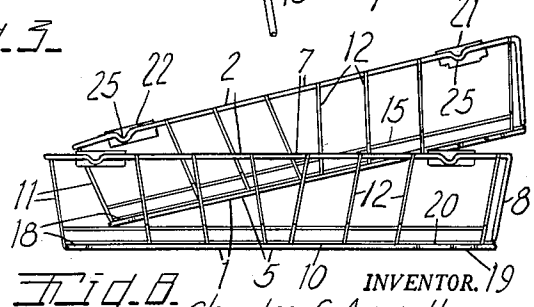


Fig. 8

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STACKING CRATES OR RECEPTACLES

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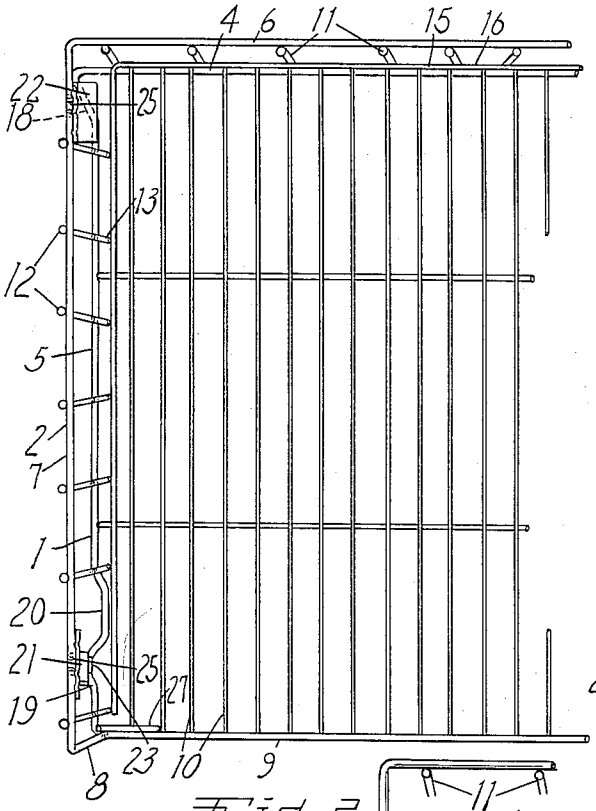


Fig. 2.

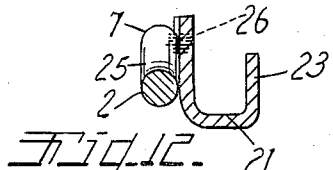


Fig. 12.

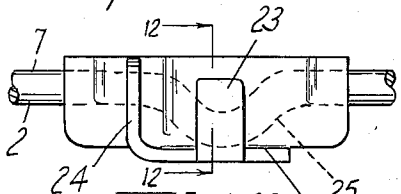


Fig. 11.

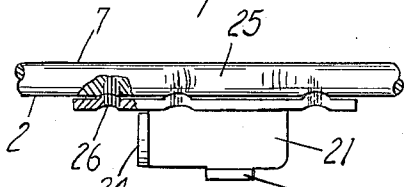


Fig. 10.

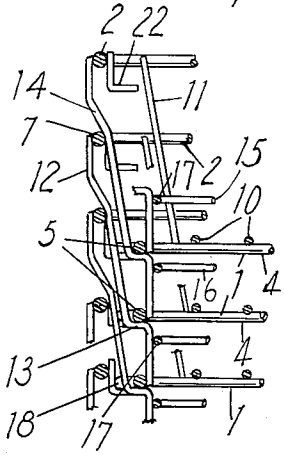


Fig. 7.

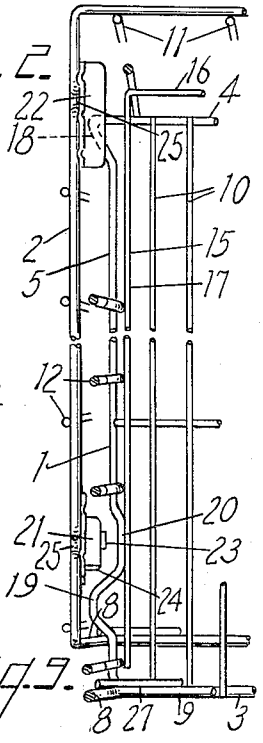


Fig. 9.

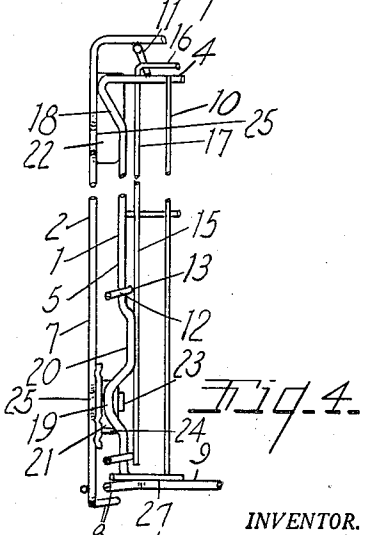


Fig. 4.

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3,022,900

STACKING CRATES OR RECEPTACLES

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Filed Jan. 11, 1960, Ser. No. 1,564
14 Claims. (Cl. 211—126)

This invention relates to improvements in stacking crates or receptacles.

The main objects of the invention are:

First, to provide stacking crates or receptacles which when stacked provide free access to the interior of the crates and which may be compactly nested for transportation and storage.

Second, to provide a stacking crate or receptacle, a plurality of which may be stacked and when stacked afford free access to the contents, and at the same time may be compactly nested.

Third, to provide a receptacle or crate having these advantages in which a superimposed crate serves as a bracing element for the walls on which it is superimposed.

Fourth, to provide a structure having these advantages which may be formed of relatively light stock and at the same time is capable of carrying relatively heavy loads.

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

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

FIG. 1 is a front perspective view of a crate or receptacle embodying my invention.

FIG. 2 is an enlarged fragmentary plan view of one of the receptacles.

FIG. 3 is a fragmentary front elveational view illustrating crates in stacked relation.

FIG. 4 is a fragmentary view partially in section illustrating certain details of the crates in stacked relation.

FIG. 5 is a fragmentary vertical sectional view further illustrating structural details with the crates in stacked relation.

FIG. 6 is a fragmentary front elevational view illustrating a plurality of the crates in stacked relation.

FIG.7 is a fragmentary vertical section further illustrating the relation of the crates in stacked relation.

FIG. 8 is a fragmentary side elevational view illustrating a step in the nesting or disassembling of the crates.

FIG. 9 is an enlarged fragmentary view partially in horizontal section illustrating structural details facilitating such nesting.

FIG. 10 is an enlarged fragmentary top view illustrating one of the front stacking seats.

FIG. 11 is an end side elevational view thereof.

FIG. 12 is a fragmentary view in section on a line corresponding to line 12—12 of FIG. 11.

In the embodiment of my invention illustrated, the crates or receptacles are formed entirely of wire or light rod stock, with the exception of the stacking lug seats. It should be understood that the various parts are welded together at their point of contact, but I have not illustrated the welds for the parts except for the stacking lug seats to their support members.

This invention is an improvement upon and an adaptation of certain features of my pending application, Serial No. 784,226, filed December 11, 1958, now Patent No. 2,950,825.

The crates or receptacles illustrated are well adapted for the handling of various products with the receptacles in stacked relation, the contents of each receptacle being accessible and the contents of the crates may be of the same general type or may be of varying types as desired.

The embodiment of my invention illustrated comprises the bottom border frame designated generally by the numeral 1 and the top border frame designated generally by the numeral 2. These frames are of generally rectangular shape, the bottom border frame being of such dimension relative to the top border frame that it may be inserted therethrough for nesting the receptacles. The bottom border frame comprises the front member 3, rear member 4 and side members 5, these being formed of wire or rod stock bent into shape, the ends of the rod not being illustrated.

The top border frame comprises the rear member 6 and side members 7. The side members 7 terminate in the downwardly projecting uprights 8 integral therewith and connected at their lower ends by the bar 9, which is superimposed upon and fixedly secured to the bottom slats 10 which are superimposed upon and secured to the front and rear members of the bottom border frame. The contacting parts are welded together, the welds however not being illustrated.

The rear slats 11 are preferably straight, but disposed in an inclined relation to facilitate nesting. The side slats 12 are secured at their lower ends to the inner sides of the side members of the bottom border frame and at their upper ends to the outer sides of the side members of the top border frame. These side slats have upwardly facing inner shoulders 13 and downwardly facing shoulders 14 adjacent their upper ends. These slats are reinforced by means of the intermediate frame member designated generally by the numeral 15 and comprising the rear member 16 and side members 17, these being arranged on the inner sides of and fixedly secured to the rear slats and to the side slats. They serve not only as reinforcing members, but as slides for the rear tacking lugs 18 facilitating nesting, as is illustrated in FIG. 8. The bottom border frame side members are bowed outwardly to provide front supporting lugs 19 and are looped inwardly at 20 to provide clearance for the front stacking lug seats 21 which are adapted to receive the stacking lugs 19 when the receptacles are stacked. The rear stacking lugs seats 22 are of such length that the stacking lugs 18 may be slidably engaged therewith to facilitate stacking, that is, the rear lugs of the receptacle may be slidably engaged with the lug seats 22 and moved rearwardly until the loop-like front stacking lugs 19 are above the upwardly projecting detents 23 and lowered thereover or into locking engagement therewith, as is illustrated in FIG. 4. The front stacking lug seats are also provided with stops 24 at their front ends which serve the double purpose of stops limiting the forward movement of the superimposed crate and as guide members for the front stacking lugs as the superimposed crate is lowered into position, see FIG. 4. With this arrangement, the superimposed crates are very securely retained in their stacked relation and when in stacked relation each crate or receptacle is open at the front.

The braces 27 extending between the upright members 8 and the horizontal cross member 9 serve to support the front end of the crate sides. However, inasmuch as the detents 23 are engaged by the loop-like stacking lugs 24 when the receptacles are in stacked position, the superimposed receptacle serves as a tie member for the front ends of the side walls. The side members 17 of the intermediate frame 15 are positioned relative to the shoulders 13 so that they serve as ways for the rear lugs, thereby facilitating the nesting of the receptacles. The end members being in supported relation to the shoulders 13 when the receptacles are nested prevents their becoming wedged. The shoulders 14 being in supported engagement with the top frame end members as is illustrated in FIG. 7 prevents substantial lateral shifting of the stacked receptacles relative to each other. With this arrangement of parts,

the receptacles may be very easily and quickly assembled in stacked relation and may be easily separated. As stated, when stacked they are securely retained in their stacked relation which permits their being handled as a stacked group or as a nested group.

The top border frame end members 7 are, in the embodiment illustrated, provided with downward offsets 25 which serve as thrust abutments for the stacking lugs so that twisting strain on the welds 26, see FIGS. 10, 11 and 12, is substantially reduced. This is of substantial importance inasmuch as the contents of the crate are frequently heavy.

I have illustrated and described my invention in a highly desirable commercial embodiment thereof. I have not attempted to illustrate 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 the invention, what is claimed as new and desired to secure by Letters Patent is:

1. In a receptacle, a bottom comprising rear, front and side border frame members and slats mounted on the upper sides of the front and rear members and fixedly secured thereto, a top border frame comprising rear and side members, the side members terminating at their front ends in downwardly projecting uprights which are connected at their lower ends by an integral crossbar superimposed upon and fixedly secured to the front ends of said bottom slats, laterally spaced side wall slats fixedly connected at their ends to the bottom and top border frame side members, said side wall slats having inward offsets adjacent their lower ends providing upwardly facing inner shoulders and having outward offsets adjacent their upper ends, an intermediate frame member comprising rear and side members disposed on the inner sides of and secured to said rear and side slats respectively, the side members being secured to the side slats below the said upwardly facing shoulders thereof, said bottom frame side members having outward offsets therein merging into said rear border member and providing rear stacking lugs, and outwardly projecting loop-like offsets adjacent their front ends providing front stacking lugs, and upwardly facing front and rear stacking lug seats mounted on and projecting inwardly from said top border frame side members and spaced to receive the corresponding front and rear stacking lugs of a superimposed crate, the rear stacking lug seats being elongated permitting sliding movement of the coacting stacking lugs of a superimposed crate thereby facilitating engagement and disengagement of the stacking lugs with the stacking lug seats, the front stacking lug seats having upwardly projecting stacking lug stops at their front ends and upwardly projecting detents over which the loop-like front stacking lugs of a superimposed crate are engageable.

2. In a receptacle, a bottom comprising rear, front and side border frame members, a top border frame comprising rear and side members, laterally spaced side wall slats fixedly connected at their ends to the side bottom and top border members, said side wall slats having inward offsets adjacent their lower ends providing upwardly facing inner shoulders and having outward offsets providing downwardly facing shoulders adjacent their upper ends, an intermediate frame member comprising rear and side members disposed on the inner sides of and secured to said rear and side slats respectively, the side members being secured to the side slats below the said upwardly facing shoulders thereof, said bottom frame side members having outward offsets therein merging into said rear border member and providing rear stacking lugs, and outwardly projecting loop-like offsets adjacent their front ends providing front stacking lugs, and upwardly facing front and rear stacking lug seats mounted on and projecting inwardly from said top border frame side members and spaced to receive the corresponding front and rear stacking lugs of a superimposed crate, the rear stacking lug seats being elongated permitting sliding movement of the coacting stacking lugs of a superimposed crate thereby facilitating engagement and disengagement of the stacking lugs with the stacking lug seats, the front stacking lug seats having upwardly projecting stacking lug stops at their front ends and upwardly projecting detents over which the loop-like front stacking lugs of a superimposed crate are engageable.

3. In a receptacle, a bottom comprising rear, front and side border frame members, a top border frame comprising rear and side members, laterally spaced side wall slats fixedly connected at their ends to the side bottom and top border members, said side wall slats having inward offsets adjacent their lower ends providing upwardly facing inner shoulders and having outward offsets providing downwardly facing shoulders adjacent their upper ends, said bottom frame side members having outward offsets therein merging into said rear border member and providing rear stacking lugs, and outwardly projecting loop-like offsets adjacent their front ends providing front stacking lugs, and upwardly facing front and rear stacking lug seats mounted on and projecting inwardly from said top border frame side members and spaced to receive the corresponding front and rear stacking lugs of a superimposed crate, the rear stacking lug seats being elongated permitting sliding movement of the coacting stacking lugs of a superimposed crate thereby facilitating engagement and disengagement of the stacking lugs with the stacking lug seats, the front stacking lug seats having upwardly projecting stacking lug stops at their front ends and upwardly projecting detents over which the loop-like front stacking lugs of a superimposed crate are engageable.

4. In a receptacle, a bottom comprising rear, front and side border frame members, a top border frame comprising rear and side members, laterally spaced side wall slats fixedly connected at their ends to the side bottom and top border members, said side wall slats having inward offsets adjacent their lower ends providing upwardly facing inner shoulders and having outward offsets providing downwardly facing shoulders adjacent their upper ends, said bottom frame side members having outward offsets therein merging into said rear border member and providing rear stacking lugs, and outwardly projecting loop-like offsets adjacent their front ends providing front stacking lugs, and upwardly facing front and rear stacking lug seats mounted on and projecting inwardly from said top border frame side members and spaced to receive the corresponding front and rear stacking lugs of a superimposed crate, said intermediate frame side members constituting rails with which said rear stacking lugs may be slidably engaged to facilitate nesting of the receptacles, the front stacking lug seats having upwardly projecting stacking lug stops at their front ends and upwardly projecting detents over which the loop-like front stacking lugs of a superimposed crate are engageable, said bottom border frame side members having inward offsets therein providing clearance for said front stacking lugs facilitating nesting of the receptacles.

5. In a receptacle, a bottom comprising rear, front and side border frame members and slats mounted on the upper sides of the front and rear members and fixedly secured thereto, a top border frame comprising rear and side members, the side members terminating at their front ends in downwardly projecting uprights which are connected at their lower ends by an integral crossbar superimposed upon and fixedly secured to the front ends of said bottom slats, laterally spaced side wall slats fixedly connected at their ends to the bottom and top border members and having upwardly facing inner shoulders adjacent their lower ends, said bottom frame side members having outwardly projecting rear and front stacking lugs, the front stacking lugs being recessed, and upwardly facing front and rear stacking lug seats mounted on and projecting inwardly from said top border frame side mem-

bers and spaced to receive the corresponding front and rear stacking lugs of a superimposed crate, the front stacking lug seats having upwardly projecting stacking lug stops at their front ends and upwardly projecting detents over which the recessed front stacking lugs of a superimposed crate are engageable.

6. In a receptacle, a bottom comprising rear, front and side border frame members, a top border frame comprising rear and side members, laterally spaced side wall slats fixedly connected at their ends to the bottom and top border members nad having upwardly facing inner shoulders adjacent their lower ends, said bottom frame side members having outwardly projecting rear and front stacking lugs, the front stacking lugs being recessed, and upwardly facing front and rear stacking lug seats mounted on and projecting inwardly from said top border frame side members and spaced to receive the corresponding front and rear stacking lugs of a superimposed crate, the front stacking lug seats having upwardly projecting stacking lug stops at their front ends and upwardly projecting detents over which the recessed front stacking lugs of a superimposed crate are engageable.

7. In a receptacle, a bottom comprising rear, front and side border frame members, a top border frame comprising rear and side members, laterally spaced side wall slats fixedly connected at their ends to the bottom and top border members and having upwardly facing inner shoulders adjacent their lower ends, said bottom frame side members having outwardly projecting rear and front stacking lugs, the front stacking lugs being recessed, and upwardly facing front and rear stacking lug seats mounted on and projecting inwardly from said top border frame side members and spaced to receive the corresponding front and rear stacking lugs of a superimposed crate, the rear stacking lug seats being elongated permitting sliding movement of the coacting stacking lugs of a superimposed crate thereby facilitating engagement and disengagement of the stacking lugs, the front stacking lug seats having upwardly projecting stacking lug stops at their front ends and upwardly projecting detents over which the recessed front stacking lugs of a superimposed crate are engageable.

8. In a receptacle, a bottom comprising rear, front and side border frame members, a top border frame comprising rear and side members, laterally spaced side wall slats fixedly connected at their ends to the bottom and top border members and having upwardly facing inner shoulders adjacent their lower ends, said bottom frame side members having outwardly projecting rear and front stacking lugs, the front stacking lugs being recessed, and upwardly facing front and rear stacking lug seats mounted on and projecting inwardly from said top border frame side members and spaced to receive the corresponding front and rear stacking lugs of a superimposed crate, the rear stacking lug seats being elongated permitting sliding movement of the coacting stacking lugs of a superimposed crate thereby facilitating engagement and disengagement of the stacking lugs, the front stacking lug seats having upwardly projecting stacking lug stops at their front ends and upwardly projecting detents over which the recessed front stacking lugs of a superimposed crate are engageable, said bottom border frame side members having inward offsets therein providing clearance for said front stacking lugs facilitating nesting of the receptacles.

9. In a receptacle, a bottom comprising rear, front and side border frame members and slats mounted on the upper sides of the front and rear members and fixedly connected thereto, a top border frame comprising rear and side members, the side members terminating at their front ends in downwardly projecting uprights which are connected at their lower ends by an integral crossbar superimposed upon and fixedly secured to the front ends of said bottom slats, and side wall slats connected at their ends to the rear and side bottom and top border members, the bottom border frame side members being provided with outwardly projecting stacking lugs, the top border frame side members being provided with inwardly projecting stacking lug seats, front stacking lugs being provided with upwardly projecting detents, the front stacking lugs being recessed to receive said detents, the rear stacking lug seats being elongated permitting sliding movement of coacting stacking lugs of a superimposed crate thereby facilitating the engagement and disengagement of said front stacking lugs with said front stacking lug seats and the detents thereof.

10. In a receptacle, a bottom comprising rear, front and side border frame members and slats mounted on the upper sides of the front and rear members and fixedly connected thereto, a top border frame comprising rear and side members, the side members terminating at their front ends in downwardly projecting uprights which are connected at their lower ends by an integral crossbar superimposed upon and fixedly secured to the front ends of said bottom slats, and side wall slats connected at their ends to the rear and side bottom and top border members, the bottom border frame side members being provided with outwardly projecting stacking lugs, the top border frame side members being provided with inwardly projecting stacking lugs seats, front stacking lugs being provided with upwardly projecting detents, the front stacking lugs being recessed to receive said detents.

11. In a receptacle, a bottom comprising rear, front and side border frame members and slats mounted on the upper sides of the front and rear members and fixedly connected thereto, a top border frame comprising rear and side members, the side members terminating at their front ends in downwardly projecting uprights which are connected at their lower ends by an integral crossbar superimposed upon and fixedly secured to the front ends of said bottom slats, and side wall slats connected at their ends to the rear and side bottom and top border members, the bottom border frame side members being provided with outwardly projecting stacking lugs, the top border frame side members being provided with inwardly projecting stacking lug seats, front stacking lugs being provided with upwardly projecting detents, the front stacking lugs being recessed to receive said detents, the bottom border frame side members having outwardly facing recesses therein providing clearance for said front stacking lugs facilitating the nesting of the receptacles.

12. In a receptacle, a bottom comprising rear, front and side border frame members and slats mounted on the upper sides of the front and rear members and fixedly connected thereto, a top border frame comprising rear and side members, the side members terminating at their front ends in downwardly projecting uprights which are connected at their lower ends by an integral crossbar superimposed upon and fixedly secured to the front ends of said bottom slats, and side wall slats connected at their ends to the rear and side bottom and top border members.

13. In a receptacle, a bottom including a border frame comprising rear, front and side members, a top border frame comprising rear and side members, laterally spaced side wall slats fixedly connected at their ends to the side bottom and top bottom frame members and having offsets adjacent their lower ends providing substantially horizontal upwardly facing inner shoulders, horizontally disposed side members constituting slide rails disposed on the inner sides of said side wall slats and secured thereto in substantial alignment with said shoulders, said bottom frame member having outward offsets therein constituting rear stacking lugs which are slidably engageable with said rails to facilitate nesting of like receptacles, outwardly projecting loop-like offsets adjacent their front ends providing front stacking lugs, and upwardly facing front and rear stacking lug seats projecting inwardly from said top border frame end members, the front stacking lug seats having upwardly projecting stacking lug stops at their front ends and upwardly projecting

detents over which the loop-like front stacking lugs of a superimposed crate are engageable, the superimposed crate constituting a strut connecting the front ends of said top border frame members.

14. In a receptacle, a bottom including a border frame comprising rear, front and side members, a top border frame comprising rear and side members, laterally spaced side wall slats fixedly connected at their ends to the side bottom and top bottom frame members and having offsets adjacent their lower ends providing substantially horizontal upwardly facing inner shoulders, horizontally disposed side members constituting slide rails disposed on the inner sides of said side wall slats and secured thereto in substantial alignment with said shoulders, said bottom frame member having outward offsets therein constituting rear stacking lugs which are slidably engageable

with said rails to facilitate nesting of like receptacles, outwardly projecting loop-like offsets adjacent their front ends providing front stacking lugs, and upwardly facing front and rear stacking lug seats projecting inwardly from said top border frame end members.

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