Oct. 9, 1934. O. J. KUENHOLD 1,975,900

KNOCKDOWN RECEPTACLE

Original Filed Oct. 19, 1929 2 Sheets-Sheet 1

Fig. 1.

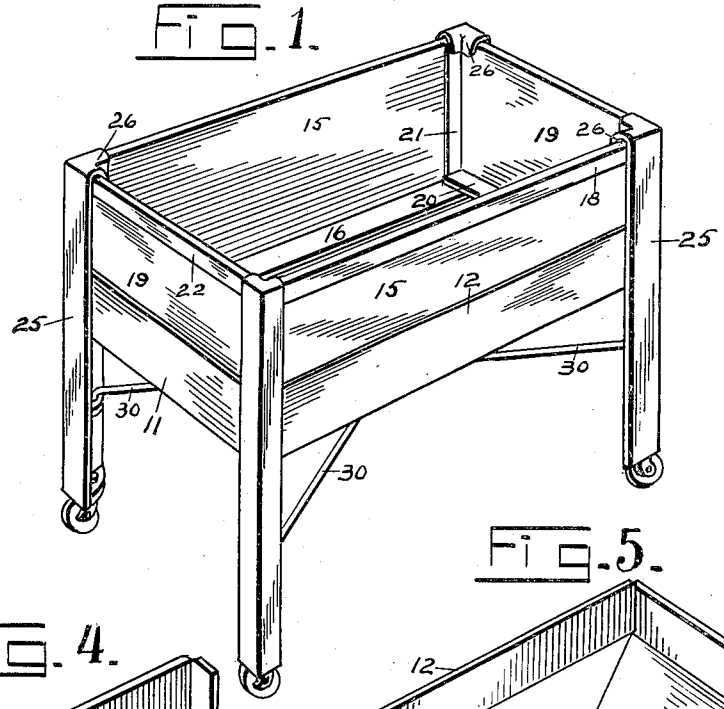


Fig. 5.

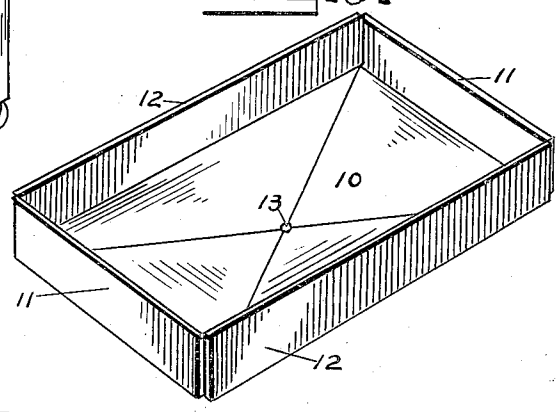


Fig. 4.

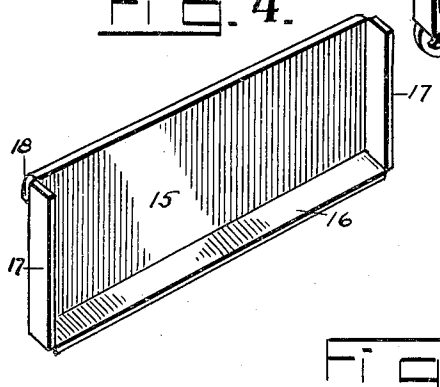
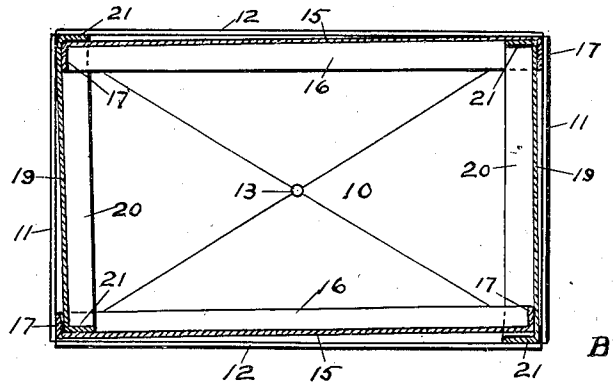


Fig. 6.



INVENTOR,
Otto J. Kuenhold,
BY F. K. Fassett,
ATTORNEY.

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Fig. 8.

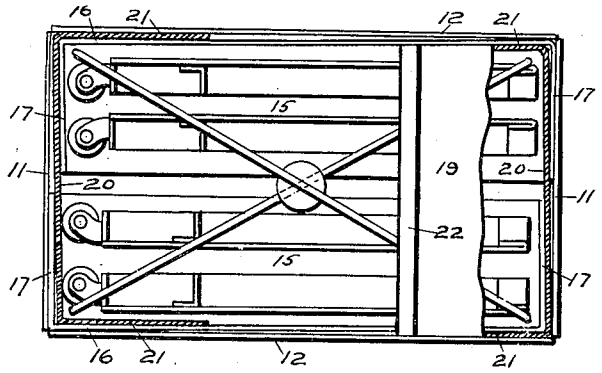


Fig. 2.

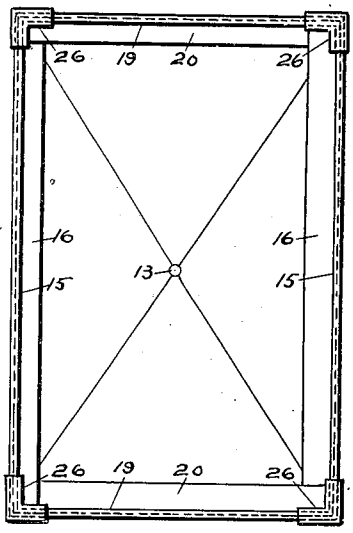


Fig. 3.

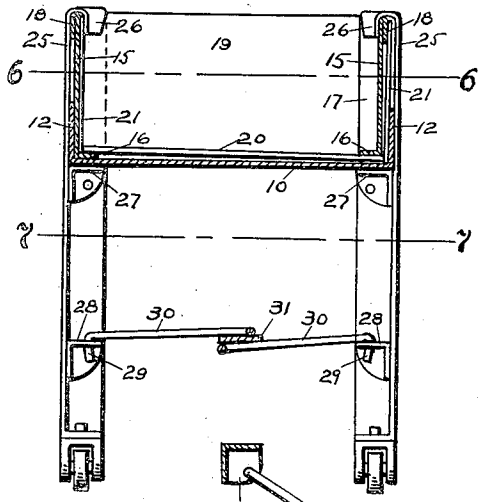
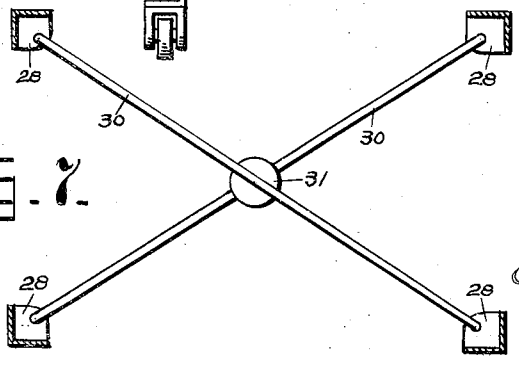


Fig. 7.



INVENTOR,
Otto J. Kuenhold,
BY F. K. Fassett,
ATTORNEY.

Patented Oct. 9, 1934 1,975,900

UNITED STATES PATENT OFFICE

1,975,900

KNOCKDOWN RECEPTACLE

Otto J. Kuenhold, Cleveland, Ohio

Application October 19, 1929, Serial No. 400,841
Renewed March 9, 1931

5 Claims. (Cl. 211—126)

The invention relates to knock-down receptacles of a type the parts of which, when disassembled, can be arranged in a very compact bundle for storage or transportation.

While my receptacle is adapted to various uses I have especially in mind domestic laundries, where it takes the place of the old fashioned clothes basket. Briefly stated it consists of a metal tray or box having legs mounted on casters. One object of my invention is to so proportion and correlate the various members of the apparatus that all can be packed in the member which constitutes the bottom of the tray. Another object is to enable the apparatus to be assembled without the use of tools, and without screws or bolts, and when assembled to be very firm and quite free from loose parts which might vibrate or rattle as the tray is rolled from place to place. The object of the knock-down construction is to permit the whole outfit, when packed in the bottom of the tray, to be enclosed in a paper carton, or light wooden box, in which form it can be shipped at low cost, and a large number of them can be stored in a small space.

Other objects and merits will appear or be pointed out as the device is described in detail, with the assistance of the accompanying drawings, in which,

Fig. 1 is a perspective view of the device assembled and ready for use;

Fig. 2 is a view looking downward into the tray;

Fig. 3 is a sectional end view;

Fig. 4 is a perspective view of one side wall of the tray. It is to be noted that both side walls are alike, and that the end walls are just like the side walls, save that they are shorter;

Fig. 5 is a perspective view of the tray bottom;

Fig. 6 is a plan view similar to Fig. 2, but shown in a section on line 6—6 of Fig. 3;

Fig. 7 is a plan view on line 7—7, Fig. 3 and

Fig. 8 is a plan view of the tray bottom with all of the other parts packed in it.

Referring first to Fig. 5, the tray bottom, indicated generally by numeral 10, is a single piece of comparatively thin sheet metal, for example galvanized iron. Each of the four edges of the bottom is bent upward to form a flange, the end flanges being indicated at 11—11 and the side flanges at 12—12. In this and other views the thickness of the sheet metal is much exaggerated. In practice the metal will usually be less than $\frac{1}{32}$'' thick. If desired a drainage hole 13 may be formed in the bottom, and in order to insure complete drainage the bottom will be divided into quadrants all of which slope slightly toward the hole.

The side plate shown in Fig. 4, is indicated generally by the numeral 15. At its lower edge the plate has a flange 16, and at each end a flange 17. The upper edge is folded over on itself, outwardly as at 18. The end plates being like the side plates, except in length, a separate view of an end plate is not shown, and it suffices to say that each end plate, indicated generally by numeral 19, has a bottom flange 20, a flange 21 at each end, and a fold-over 22 at its upper edge.

Fig. 6 shows clearly the manner of assembling the side and end plates in the bottom. It is there seen that each lower flange lies on the bottom, and that one end of each plate, side or end, is outside of an abutting plate. Thus each plate is positively held in an upright position by another plate.

I shall now describe the legs 25, and as they are all alike it will be sufficient to give a detailed description of one. Preferably the leg is made of standard angle iron. At the upper end, the flanges are doubled in on themselves to form a hook 26 adapted to embrace an upper corner of the tray. That is, the hook embraces one side and one end plate, together with their respective end flanges, thus tying the upper edges of the side and end plates together. The leg is provided with a lug or shelf 27 upon which the corner of the tray rests. See Fig. 3. When the leg is being hooked on the tray at its upper end the leg is held in an outwardly inclined position; then the leg is swung inward to a vertical position, thus bringing the lug 27 into position under the tray. At a point between the lug 27 and its lower end the leg carries a lug 28, having a hole to receive the downwardly bent end 29 of a tie rod 30. The rods 30 are of such length that to hook the ends 29 into the lugs the lower ends of the legs must be sprung diagonally inward. The legs bear against the corners of the bottom member 10 and thus the upper ends of the legs are forced outward, with the result that the upper edges of the side and end plates are put in tension. At the point where they cross, the rods 30 are secured to a plate or gusset 31. The ends 29 are inclined inward slightly (see Fig. 3) to prevent their slipping out of the holes. Each leg is provided with a swiveled caster.

The tie rods serve another purpose than that of putting the structure in tension. The rods are stiff enough to serve as compression members or struts, so that if when the structure is being rolled along the floor one of the leading castors strikes an obstruction which tends to bend that

leg inward, the rod connected to that leg communicates the shock to the other three legs, so that the obstructed leg receives the assistance of other legs in resisting the shock. Instead of the tie-rod construction a metal plate may be employed. At each corner a stud would be set in the plate to drop into the holes in the lugs 28. Thus a shelf would be formed which could be used for various purposes. As such a change could easily be made from this description it is deemed unnecessary to illustrate this variant.

Because of the thickness of the sheet metal members of the tray being so much exaggerated in the drawings the structure looks somewhat clumsy, and large spaces are seen between the parts. In practice, however, with the parts made of thin sheet metal, there are none of these gaps and the structure is very neat and sightly. Because of the parts being in tension, as described, there is no rattling or vibration as the apparatus is rolled from place to place.

Referring now to Fig. 8, I shall describe the manner of packing the parts in the tray bottom. First the two side plates are laid in the bottom with their flanges extending upward and their upper edges adjacent each other. Then the legs are laid on the side plates. Then the unit consisting of the rods 30 and gusset 31 is laid on top of the legs, with the ends 29 extending downward. Lastly the end plates are put in with their flanges extending downward. At the right hand end of Fig. 8 a portion of the plate is broken away to show how its lower flange 20 is placed inside of the flange 17 of one side plate and outside of the flange 17 of the other side plate. At the left hand end of the figure all of the body of the end plate is broken away, leaving only its lower flange 20 and end flanges 21. In this case also the flange 20 is outside of the end flange 17 of one side plate and inside of the end flange 17 of the other side plate. Furthermore, the flanges of the end plates are alternately inside and outside of the lower flanges of the side plates. In a word, the same plan of nesting the plates is employed as is used in assembling the tray. Thus the entire structure is packed in the bottom of the tray and ready to be slid into a paper or wood container.

Inasmuch as these trays are designed to be shipped knocked-down directly to the user, it is important that the user be able to readily understand how to assemble the parts. While a few simple directions should ordinarily suffice, I can make the matter still more simple by leaving certain areas of the exterior unpainted. That is, the parts of the side and end members which are covered by the flanges of the bottom, and by the flanges of the side and end members, are left unpainted. In other words, it is as though the tray were assembled (without the legs) and the exterior then painted. The covered parts would receive no paint.

In order to reduce shipping weight, particularly if the outfits are shipped by express or parcel post, it is desirable to make all parts as light as possible. With the construction above described this can be done without sacrifice of strength or durability. The flanges on the bottom member stiffen the member and enable it to withstand the strain of serving as a reaction for the tension members. The side and end members being in tension protects their upper edges from becoming distorted notwithstanding they are made of thin metal.

While I have described what I now regard as the preferred embodiment of my invention it is not to be understood that I limit myself to the specific details of construction described. On the contrary, the scope of my invention is only limited by my claims, which are as follows:

1. A knock-down legged tray, comprising a rectangular bottom member and four separate side members, the lower edges of which side members substantially coincide with the plane of said bottom, a leg at each corner of the tray thus formed, the upper end of which leg is attached to the upper edge of each contiguous side member, means below said bottom whereby diagonal inward strain is imposed on each leg, and means intermediate said upper ends and said points of inward stress whereby a reaction is set up, to the end that the tendency of the upper ends of the legs to move diagonally outward puts the upper edges of the side members in tension.

2. A knock-down legged tray, comprising a rectangular bottom member and four separate side members, the lower edges of which side members substantially coincide with the plane of said bottom, a leg at each corner of the tray thus formed, the upper end of which is attached to the upper edge of each contiguous side member, means below said bottom whereby diagonal inward stress is imposed on each leg, each leg having a bearing against the tray in the vicinity of said bottom, which, serving as a reaction, causes the upper ends of the legs to tend to move diagonally outward, thereby putting the upper edges of the side members in tension.

3. A knock-down legged tray, comprising a rectangular bottom member and four separate side members, the lower edges of which side members substantially coincide with the plane of said bottom, a leg at each corner of the tray thus formed, the upper end of which is attached to the upper edge of each contiguous side member, a member below said bottom to which said legs are attached, and means intermediate said attachment and the upper ends of the legs serving as a reaction, and means whereby said lower member imposes an inward strain on the legs, thereby putting the upper edges of the side members in tension, said lower member together with its attachment to the legs also serving as a strut whereby the legs are enabled to meet unitedly shocks or strains from the outside tending to bend them inward.

4. A knock-down legged tray, comprising a rectangular bottom member and four separate side members, the lower edges of which side members substantially coincide with the plane of said bottom, a leg at each corner of the tray thus formed, the upper end of which is secured to the upper edge of each contiguous side member, tension members connected to the legs below said bottom, and reacting means at about the level of said bottom, whereby the upper portions of said side members are maintained in tension.

5. A knock-down legged tray, comprising a rectangular bottom member and four separate side members, the lower edges of which side members substantially coincide with the plane of said bottom, a leg at each corner of the tray thus formed, the upper end of which is secured to the upper edge of each contiguous side member, tension members connected to the legs below said bottom, and means for causing the tension thereby imposed to react with said tray at about the level of the bottom, and thereby imposing tension on the upper edges of said side members.

OTTO J. KUENHOLD.