Aug. 20, 1963 O. B. COCHRAN, JR 3,101,226

KNOCKDOWN METALLIC RECEPTACLES

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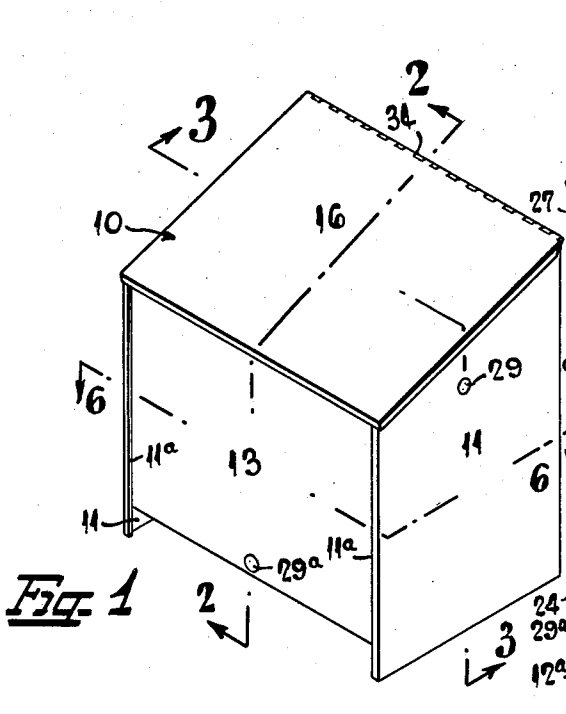


Fig. 1

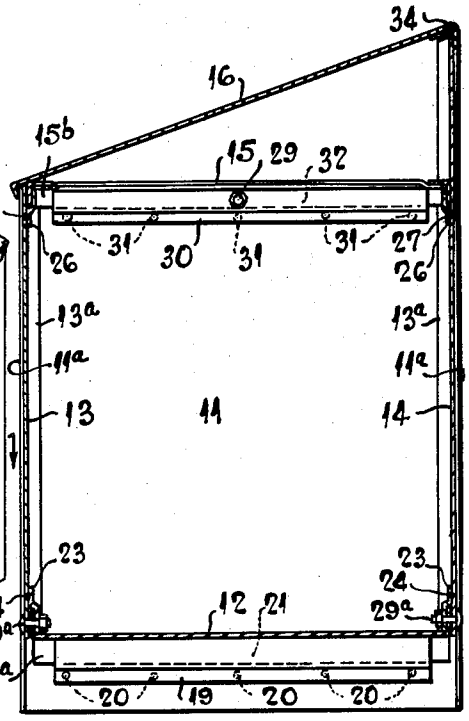


Fig. 2

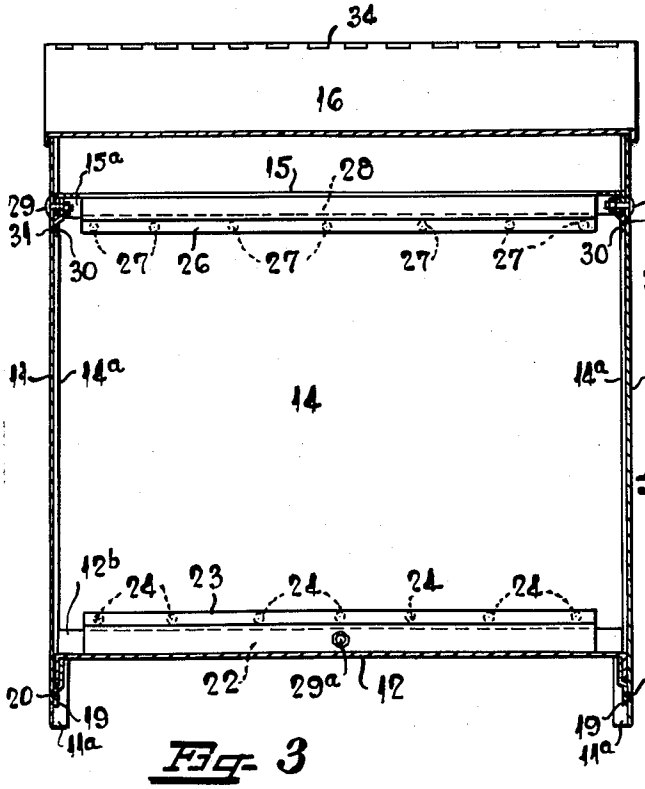


Fig. 3

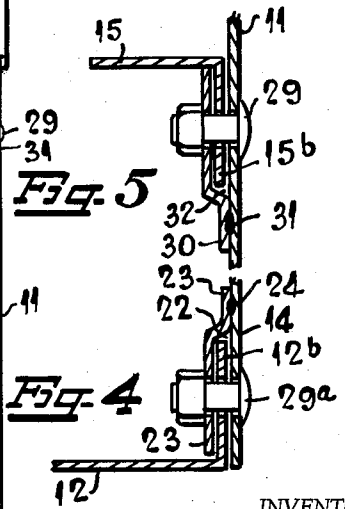


Fig. 4

Fig. 5

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Fig. 6

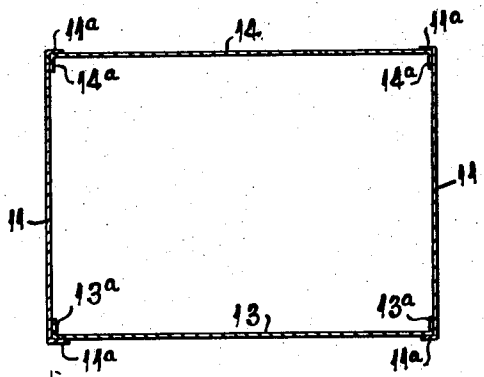
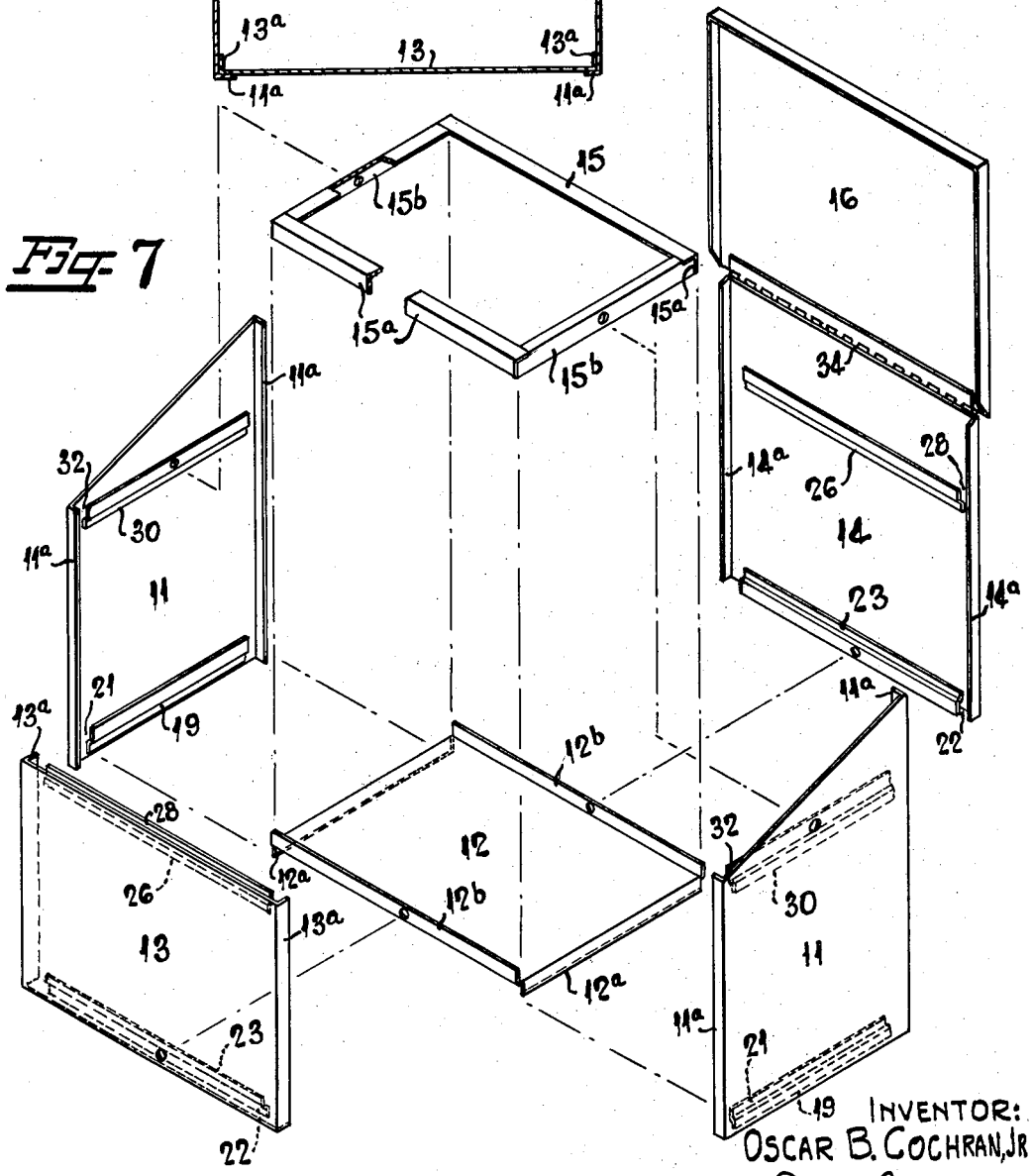


Fig. 7



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KNOCKDOWN METALLIC RECEPTACLES

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This invention relates to deposit and collection receptacles and more especially to a metallic box which can be quickly knocked down or put together. Receptacles of this type are generally used for storage of most solid substances, and especially for outdoor storage of articles such as newspapers, sand, wood, toys and implements.

It is an object of this invention to provide a knockdown metallic receptacle wherein the constituent parts, when dismantled, are substantially flat and capable of being packaged or stored together in a minimum amount of space.

It is a further object of this invention to provide a knockdown polygonal receptacle composed of a series of interconnected members or group of members and in which each said member or members of the series locks an adjacent succeeding member or members in position. This principle is illustrated in the drawings by a box in which the series comprises two side walls, a bottom, a front and rear wall, and an open frame near the top of the box, which frame serves as a key to the series. All of the members are connected in a series, with the key member. In order to dismantle the receptacle, the key member is first removed, after which the remaining members may be successively detached by proceeding to the side walls, bottom, and front and rear walls in the order named.

It is another object of this invention to provide a metallic knockdown receptacle characterized by its exceptional light weight, strength, rigidity and structural simplicity.

Some of the objects of the invention having been stated, other objects will appear as the description proceeds when taken in connection with the accompanying drawings, in which—

FIGURE 1 is an isometric view of a receptacle constructed in accordance with the invention;

FIGURE 2 is a sectional view taken along line 2—2 in FIGURE 1;

FIGURE 3 is a sectional view taken along line 3—3 in FIGURE 1;

FIGURE 4 is an enlarged detail view showing the connection between the bottom of the receptacle on one hand and the front and rear walls on the other;

FIGURE 5 is an enlarged detail view showing the connection between the key frame on one hand and the two side walls of the receptacle on the other;

FIGURE 6 is a sectional plan view taken along line 6—6 in FIGURE 1, and

FIGURE 7 is an exploded isometric view of the receptacle.

Referring more particularly to the drawings, the numeral 10 designates broadly my improved receptacle which is composed of two trapezoidal side walls 11, a rectangular bottom 12, a rectangular front wall 13, a rectangular back wall 14, a rectangular key frame or bracket 15, and a rectangular cover 16.

The proximate faces of side walls 11 each has secured thereto a horizontally disposed bracket 19 by suitable means such as spot welds 20. Brackets 19 have their respective upper edge portions spaced from the side wall faces so as to provide horizontally disposed and substantially U-shaped grooves 21, said grooves being adapted to telescopically receive downwardly extending flanges 12*a* of bottom 12.

The bottom 12 has upwardly extending flanges 12*b* which telescopically fit into inverted U-shaped grooves 22 formed between the respective lower edge portions of brackets 23 and the wall faces to which the brackets are attached. The upper edge portions of brackets 23 are secured respectively to the proximate faces of the front wall 13 and back wall 14 by spot welds 24 or the like.

The proximate faces of the front and back walls 13 and 14 respectively, also have brackets 26 secured thereto by suitable means such as spot welds 27. The upper edge portions of brackets 26 are spaced from the respective proximate faces of the front and back walls to thereby provide grooves 28 for telescopically receiving the vertical flanges 15*a* of key bracket 15.

Similarly, the proximate faces of side walls 11 have brackets 30 respectively secured thereto by spot welds 31 or the like, and these brackets are positioned horizontally at the same elevation as that of brackets 26. The upper edge portions of brackets 30 are spaced from the respective proximate side wall faces to provide substantially U-shaped horizontal grooves 32 for telescopically receiving vertical flanges 15*b* of bracket 15.

It can be observed from the drawings and the above detailed description that the constituent members of the receptacle form an interconnected series in which each member or group of members are detachably locked in position by an adjacent succeeding member or group of members so that, upon removal of a key member of the series, each succeeding member or group of members of the series can be successively detached in a predetermined order. More specifically, the first of the series in the order of assembly comprises a pair of side wall members 11, 11; the second of the series, a bottom member 12; the third of the series, a second pair of side wall members 13, 14; and the fourth of the series, the key or frame member 15.

The bottom portions of first members 11, 11 are releasably connected to the second member 12 by a first fastening means including vertical flanges 12*a*, 12*a* which telescopically fit in grooves 21, 21; the second member 12 is releasably connected to the third members 13, 14 of the series by a second fastening means including vertical flanges 12*b*, 12*b* which telescopically fit in grooves 22, 22; and the third members 13, 14 of the series are releasably connected to the fourth member 15 of the series by a third fastening means including vertical flanges 15*a*, 15*a* which telescopically fit in grooves 28, 28. The fourth member 15 of the series is also releasably connected to the upper portions of first members 11, 11 by a fourth fastening means including flanges 15*b*, 15*b* which telescopically fit in grooves 32, 32.

In assembled position, the first telescopic fastening means 12*a*, 12*a*, 21, 21 is held in locked position by the bottom 12 and the second telescopic fastening means 12*b*, 22, 22; and the second telescopic fastening means 12*b*, 12*b*, 12*b*, 22, 22, in turn, is held in locked position by the second pair of side walls 13, 14 and the third telescopic fastening means 15*a*, 15*a*, 28, 28. The third telescopic fastening means 15*a*, 15*a*, 28, 28 and the fourth telescopic fastening means 15*b*, 15*b*, 32, 32 are releasable simultaneously at the beginning of a dismantling of the receptacle.

Dismantling of the receptacle must be effected in the reverse order of its assembly, by first removing member 15, then the first pair of side walls 13, 14, and then the bottom 12. Thus, the key member 15 is lifted to unlock the third fastening means 15*a*, 15*a*, 28, 28 during which the second pair of side walls 13, 14 are lifted. Then the bottom member 15 may be lifted to unlock the first fastening means 12*a*, 12*a*, 21, 21 and to complete the dismantling operation.

It will be noted that the lifting of key member 15

during the first dismantling step, also releases the fourth fastening means **15***b*, **15***b*, **32**, **32** which serves solely as a lateral support for the upper portions of the first pair of side walls **11**, **11**. Therefore, the release of the fourth fastening means will not change the upright positions of side walls **11**, **11** which then support the bottom and other walls.

In FIGURES 1–6 of the drawings, the four side walls and bottom are shown in assembled position, in which position the above-mentioned telescopic fastening means are contracted, that is, the flanges **12***a*, **12***b*, **15***a* and **15***b* are completely inserted in grooves **21**, **22**, **28** and **32** respectively. When dismantling the receptacle, these contracted telescopic fastening means are extended vertically and separated as shown in FIGURE 7.

It can be further observed from the description above and from FIGURE 7 of the drawings that the tongue and groove fastening means or connections **12***a*, **21** and **15***b*, **32** lie in planes parallel with their associated side walls **11**, **11** and that tongue and groove fastening means or connections **12***b*, **22** and **15***a*, **28** lie in planes parallel to their associated side walls **13** and **14**. Since each side wall **11**, **11**, **13** and **14** and each of its respective fastening means lie in vertical planes as shown, the plane of each fastening means will therefore be parallel to a vertical axis parallel to the planes of the other fastening means or connections.

Suitable bolts **29** and **29***a* may be provided as supplementary securing means for eliminating any objectionable play at the top and bottom members **15** and **12** of the series. Bolt **29**, when secured in position as shown, will also lock the key member which, in turn, will prevent any of the remaining interlocked members of the series from becoming detached. Bolt **29***a* serves a somewhat similar function with respect to the connection between members **12**, **13**, **14** but will not be necessary for the purpose of preventing the latter members from becoming detached unless and until the key member **15** is removed from the closed series.

In order to dismantle the receptacle while resting upon a flat surface, the bolt **29** is first removed to permit the removal of key member **15**. Then members **13**, **14**, member **12**, and members **11**, **11** may be detached in the order named.

The above-described interlocked series of detachable members provides a rigid connection between the side walls **11**, **11** and front and back walls **13** and **14** on one hand, and the horizontally disposed and vertically spaced bottom and key members **12** and **15**. The vertical walls **11**, **13** and **14** are not otherwise secured one to the other; however, the wall edge portions are overlapped at the four corners of the receptacle (FIGURE 6). In other words, the front vertical inturned flanges **11***a* and the adjacent edge portions of side walls **11** provide an angular pocket for the reception of a similarly shaped angular portion formed by flange **13***a* at the opposite vertical edges of front wall **13**. Similar angular pockets are provided at back flanges **11***a* for receiving angular portions or flanges **14***a*.

The top edges of side walls **11**, **11** are sloped forwardly and downwardly so that cover **16**, when closed, will shed rain or condensation if the container is used for outdoor storage. The cover **16** is hingedly secured to the top edge of back wall **14** as at **34**.

Although the present invention has been illustrated and described in association with a receptacle having four vertical side walls, it is to be understood that the same principle may be employed in connection with polygonal receptacles generally without departing from the spirit of the invention.

The wide range of receptacle shapes to which the present invention is applicable is apparent from the tongue and groove or telescopic connections between the various parts. It is of especial importance to note that each of these telescopic connections is releasable in a

direction substantially parallel to the direction each of the other connections is releasable. Specifically, the bottom **12** is telescopically mounted upon and vertically releasable from the side walls **11**, the front and back walls **13** and **14** are telescopically mounted upon and vertically releasable from the bottom **12**, and the key frame **15** is telescopically mounted upon and vertically releasable from the upper portions of all of the walls.

In the drawings and specification a preferred embodiment of the invention has been disclosed, and although specific terms are employed they are used in a generic sense and not intended for the purpose of limitation, the scope of invention being set forth in the following claims.

I claim:

1. A knockdown receptacle comprising a pair of laterally spaced vertically disposed side walls, a second pair of laterally spaced vertically disposed side walls arranged transversely of said first pair, a quadrilateral bottom arranged transversely of both of said pairs of side walls, a first means for telescopically securing opposite edges of said bottom respectively upon the lower portions of the first pair of side walls, a second means including a telescopic connection between the lower portions of the second pair of side walls and the other opposite edges of the bottom for releasably locking the first means in secured position, and a third means telescopically secured to the upper portions of the second pair of side walls for releasably locking said second means in secured position, said third means including a rectangular frame having an opening therein for permitting access to the interior of the receptacle and each of said telescopic securing means including a tongue and groove connection, said second and first telescopic means being vertically movable and successively releasable upon release of said third means.

2. A knockdown receptacle comprising a horizontally disposed polygonal bottom, a vertical side wall for each side of said bottom, means for telescopically securing the lower portion of at least one of said walls to an edge of said bottom, a second means including a telescopic connection between the lower portions of the other of said side walls and the other of said bottom edges for releasably locking said first means in secured position, and a third means telescopically connected to the upper portions of said other side walls for releasably locking said second means in secured position, said third means including a rectangular frame having an opening therein for permitting access to the interior of the receptacle and each of said telescopic securing means including a tongue and groove connection, said third, second and first telescopic securing means being vertically movable and successively releasable in the order named.

3. A knockdown receptacle comprising a pair of vertically disposed and laterally spaced side walls, a horizontally disposed quadrilateral bottom, means for releasably fastening the lower portions of said pair of side walls respectively to opposite edges of said bottom, a second pair of vertically disposed and laterally spaced side walls, a second means for releasably locking said first means in fastened position and for releasably fastening the lower portions of the second pair of side walls respectively to the other opposed edges of said bottom, and a third means releasably engageable with the upper portions of said second pair of side walls for releasably locking said second means in fastened position, said third means including a rectangular frame having an opening therein for permitting access to the interior of the receptacle and said first, second and third means each including a telescopic tongue and groove connection engageable and disengageable along a plane substantially parallel to an axis parallel to the planes of engagement of the other telescopic connections.

4. A knockdown receptacle comprising a pair of laterally spaced vertical side walls, a second pair of laterally spaced vertical side walls arranged transversely of said first pair, a quadrilateral bottom arranged trans-

versely of both of said pairs of side walls, vertically extensible telescopic means releasably fastening the lower portions of said first pair of side walls respectively to opposite edges of said bottom, a second vertically extensible telescopic means releasably fastening the lower portions of said second pair of side walls to the other opposite edges of said bottom, locking means including said second fastening means for securing said first telescopic fastening means in contracted position, a third vertically extensible telescopic means releasably fastening the upper portions of said first and second pairs of side walls in fixed relative positions, and a second locking means including said third fastening means for securing said second telescopic fastening means in contracted position, whereby upon release of said third fastening means the release of said second and first fastening means may be successively effected in the order named by said second and first locking means respectively.

5. A knockdown receptacle comprising a pair of laterally spaced vertically disposed side panels, a horizontally disposed quadrilateral bottom panel having its opposite edges telescopically mounted in contracted position respectively upon the lower portions of said side panels, a second pair of laterally spaced vertically disposed side panels arranged transversely of said first pair, the lower portions of said second pair of side panels being telescopically mounted in contracted position respectively upon the other opposite edges of said bottom, and a second horizontally disposed quadrilateral panel having its edges telescopically mounted in contracted position respectively upon the upper portions of said first and second pairs of side panels, each of said telescopic mounts being vertically extensible and releasable whereby the receptacle may be knocked down by successively lifting said quadrilateral second panel, said second pair of side panels, and said quadrilateral bottom panel in the order named.

6. A knockdown receptacle comprising a pair of vertically disposed side panels, a horizontally disposed polygonal bottom panel having two edges thereof telescopically mounted in contracted position respectively upon the lower portions of said side panels, at least one other vertically disposed side panel, the lower portion of said other side panel being telescopically mounted in contracted position upon another edge of said polygonal bottom panel, and a second horizontally disposed polygonal panel having its edges telescopically mounted in contracted positions respectively upon the upper portions of said side panels, each of said telescopic mounts being vertically extensible and releasable whereby the receptacle may be knocked down by successively lifting said polygonal second panel, said other side wall, and said polygonal bottom panel in the order named.

7. A knockdown receptacle as defined in claim 6 wherein said upper polygonal panel comprises a frame having an opening therein for permitting access to the interior of the receptacle.

8. A knockdown receptacle as defined in claim 5 wherein said second quadrilateral panel comprises a frame having an opening therein for permitting access to the interior of the receptacle.

9. A receptacle as defined in claim 4 wherein said first, second and third fastening means each comprises a tongue and groove connection, each of said connections being releasable respectively in planes substantially parallel to a common axis.

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