Feb. 6, 1951 C. G. STATES 2,540,698

COMBINATION RECEPTACLE AND BIN

Filed Oct. 21, 1946

Fig 1

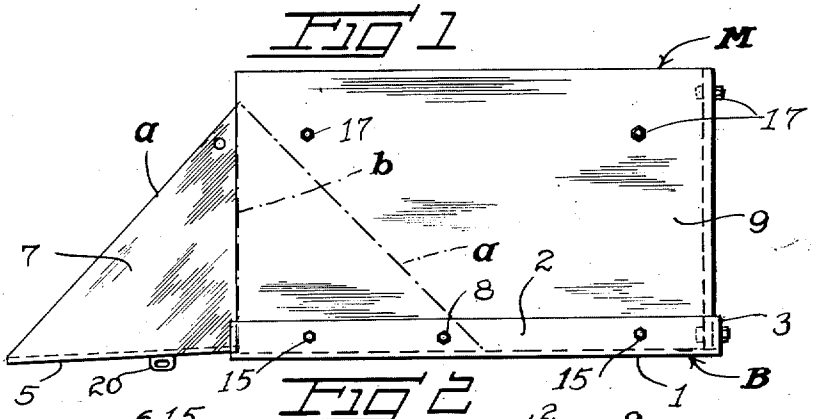


Fig 2

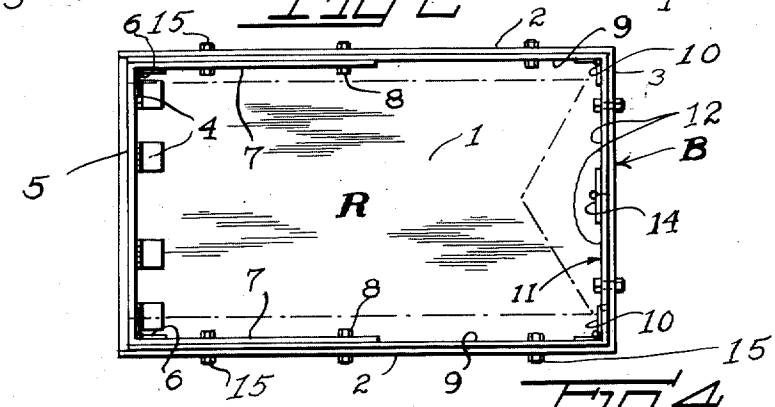


Fig 3

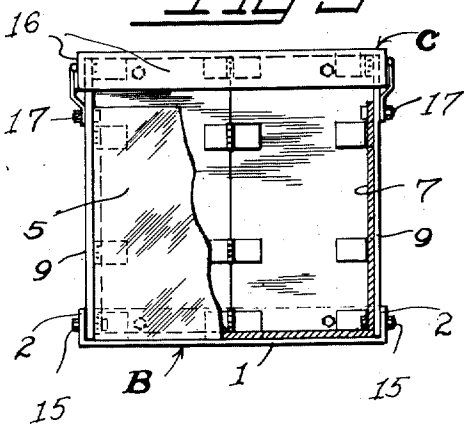
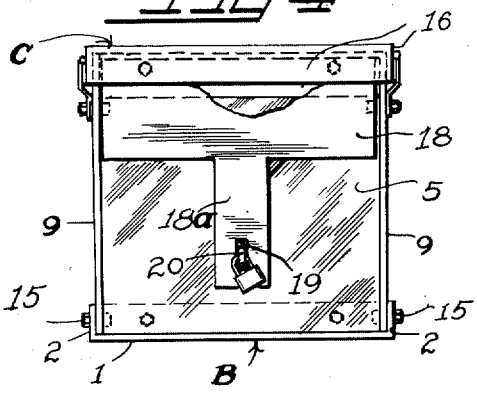


Fig 4



Inventor

Charles G. States

By Wilfred E. Lawson

Attorney

Patented Feb. 6, 1951 2,540,698

UNITED STATES PATENT OFFICE

2,540,698

COMBINATION RECEPTACLE AND BIN

Charles G. States, Cedaredge, Colo.

Application October 21, 1946, Serial No. 704,657

2 Claims. (Cl. 220—1.5)

1

This invention relates to a portable receptacle and it is primarily an object of the invention to provide a device of this kind especially designed and adapted for use in the transportation of coal or other heavy commodities, and wherein the receptacle is of a character to permit the same at its point of destination to be readily and conveniently employed as a bin.

Furthermore, it is an object of the invention to provide a device of this kind which is collapsible, whereby the same after completing its mission, can be readily compacted within a relatively small area to facilitate either return shipment or storage.

An additional object of the invention is to provide a receptacle of this kind wherein one of its walls constitutes a closure member which can be readily moved from open to closed position and wherein such wall, when in open position, operates to provide a medium to facilitate dispensing of the commodity within the receptacle.

The invention consists in the details of construction and in the combination and arrangement of the several parts of my improved receptacle whereby certain important advantages are attained, as will be hereinafter more fully set forth.

In order that my invention may be better understood, I will now proceed to describe the same with reference to the accompanying drawings, wherein:

Figure 1 is a view in side elevation of a portable receptacle constructed in accordance with an embodiment of the invention, an end wall being lowered;

Figure 2 is a view in top plan of the device as illustrated in Figure 1 with the swinging end walls raised and the cover removed;

Figure 3 is a view in elevation with a portion broken away of a receptacle as herein embodied with the closure plate omitted; and

Figure 4 is a view in end elevation similar to Figure 3 with the closure plate applied.

In the embodiment of the invention, the receptacle generally designated R, comprises a base member B, embodying a bottom wall 1 of desired dimensions preferably rectangular and which is provided along its side marginal portions with the upstanding flanges 2 and across one end with the flange 3. The end of the bottom wall 1 remote from the transverse or cross flange 3 has hingedly connected therewith, as at 4, an end wall 5 of required dimensions. The dimensions of this end wall 5 are determined by the size of the receptacle R when assembled for use.

2

The side margins of the end wall 5 have hingedly engaged therewith as at 6, the wings 7, each of which is of right triangular form, with the hypotenuse *a* of each of such wings outwardly disposed and the base *b* at right angles to the end wall 5.

Each of these side wings 7 is of a length at its base *b* substantially equal to the width of the end wall 5 so that when compacting or collapsing the base member, these wings may be swung inwardly in opposite directions across the inner face of the end wall 5 and in overlapping relation. When the wings 7 are in this folded adjustment, the end wall 5 can be readily swung inwardly down upon the upper surface of the bottom 1 of the base member B.

When the end wall 5 is in raised or working position, the wings 7 are swung outwardly against the inner faces of the side walls 9 of the member M and in close contact therewith. The wings when so adjusted are also securely held to the side walls 9 by the removable bolts 8 or otherwise as may be preferred.

Opposite from the end wall 5 is the end wall 11 hinged at opposite sides to the adjacent walls 9 as at 10. This wall 11 is made up of two duplicate wall sections 12 and the wall sections 12 have adjacent edges hingedly connected as at 14. These wall sections 12 are of such dimensions as to assure the proper spacing of the side panels or walls 9 when applied upon the plate 1 of the base member B to allow the lower marginal portions of said walls 9 to have close contact with the inner sides of the side flanges 2.

The overlapping lower marginal portions of the side wall panels 9 and flanges 2 are rigidly held to each other by the removable bolts 15 or otherwise as may be preferred.

As is clearly illustrated in the accompanying drawings, the panels or walls 9 are each of a length substantially equal to the length of the bottom 1 of the base member B and when the end wall 5 is swung upwardly into working position, the wings 6 preferably have close contact with the inner adjacent face portions of the panels or walls 9 and the removable bolts 8 are also disposed through the panels or walls 9 for maintaining the desired assembly.

When the parts B and M are in working assembly, a receptacle of pre-determined dimensions is provided having its top face open, whereby is permitted the ready filling of the receptacle with the applied commodity, such as coal. After the receptacle has been filled, the open top face is closed, by the application of the cover member

C which includes the marginal depending flanges 16 which overlie the adjacent marginal portions of walls 5, 9 and 12. These flanges 16, after the cover member C has been applied, are securely connected as at 17, to the walls 5, 9 and 12.

The receptacle as herein embodied is primarily intended to be used in the shipment in large quantities of coal or other commodities to the ultimate consumer. These receptacles also are preferably filled at the mine and in most instances will have a capacity of one ton, although, of course, this may be varied as the requirements of practice may prefer.

The hinged end wall 5 is of a length less than the width of the panels or walls 9 so that in the assembled receptacle the top margin of the raised wall 5 will be slightly below or substantially flush with the adjacent marginal flange 16 of the cover member C so that when the bolts 8 are removed, the weight of the contents of the receptacle will automatically throw the wall 5 downwardly to its lowermost position.

However, during the filling operation of the receptacle, the applied bolts 8 will hold this wall 5 against such downwardly swinging movement. To eliminate liability of the contents of the receptacle passing out over the top of the raised wall 5 and the adjacent flange 16, a plate 18 is inserted between the upper portion of the raised wall 5 and the adjacent flanges 16, said plate being of a length to bridge the space between the raised side panels or walls 9 and to extend down below the flanges 16. The central portion of this plate 18 is provided with a depending arm 18a having a slot 19 through which extends an outstanding staple 20 carried by the wall 5 so that upon the application of the plate arm to the staple 20, the plate 18 will be effectively maintained in desired working position.

When the filled receptacle reaches its destination, it is only required by the ultimate consumer that the plate 18 be removed, together with the bolts 8, and after the content of the receptacle has been entirely removed, the cover C is removed and also the member M. The end wall 5 is then swung downwardly to overlie the bottom 1 of the base member B and after which the compacted member M is applied within the base member.

The cover member C is then applied to the base member. This results in the receptacle being knocked down or collapsed in a manner to occupy a minimum of space to facilitate either its return shipment or storage.

While the various walls and parts of the receptacle as herein contained may be of such material desired, it is preferred that they be of sheet metal, preferably steel, of about ⅛ inch thickness. In view of the foregoing, it is believed to be obvious that the device as herein embodied not only provides an effective receptacle for shipment but also constitutes a bin for convenient storage and handling of the content of the receptacle by the ultimate consumer.

With the modern hoisting facilities now available, both at the mines and on trucks, the filled receptacles can be readily loaded upon a truck and unloaded therefrom, and it is believed to be obvious that the lowered end wall 5 during the dispensing of the coal by the consumer materially facilitates the shoveling or other mode of removal.

The receptacle as herein embodied is of particular advantage in connection with the shipment of coal direct from the mine to the ultimate consumer, with the elimination of intermediate storage in yards as is now the general practice.

From the foregoing description it is thought to be obvious that a receptacle constructed in accordance with my invention is particularly well adapted for use by reason of the convenience and facility with which it may be assembled and operated.

I claim:

1. A shipping receptacle comprising a base portion, an end wall secured to the base portion for swinging movement on an axis extending transversely of such portion, side walls resting upon the base portion, means detachably securing the side walls at their bottom edges to the base portion, an opposite end wall comprising two vertical sections, hinge means coupling the adjacent edges of the sections together, hinge means coupling the outer vertical edges of said sections to the adjacent side walls, wing members hingedly connected with the vertical side edges of the first mentioned end wall to move in planes paralleling the side walls with the swinging of first mentioned end wall, to position against the inner sides of the side walls when the said first mentioned side wall is in closed position, a cover adapted to position over the top of the receptacle and having side flanges adapted to extend downwardly against the outer sides of the side and end walls, the first mentioned end wall being of a height whereby its top edge will be positioned to swing under the adjacent cover flange whereby the first mentioned end wall can swing to open position without removing the cover, and a plate member adapted to position against the outer side of the first mentioned end wall to cover the space between the top edge of the first end wall and the adjacent cover flange.

2. A shipping receptacle comprising a base portion having a bottom plate and upstanding flanges along two sides and across one end, upstanding side walls positioned upon the bottom portion upon the inner sides of the side flanges, means securing the side walls to said side flanges, an end wall disposed between the side walls and consisting of two members in edge to edge relation, the lower end of the end wall being positioned upon the bottom wall and upon the inner side of the cross flange, hinges connecting the vertical side edges of the end wall with the adjacent side walls whereby the end wall portions may swing inwardly, hinge means connecting the opposing edges of the end wall portions, a shiftable wall disposed at the opposite end of the receptacle upon the bottom wall, hinge means securing the shiftable wall to the bottom wall whereby the shiftable wall may be swung to a vertical position between the adjacent ends of the side walls, triangular wing members carried by the opposite side edge portions of the shiftable wall and adapted to swing inwardly against the inner sides of the adjacent side walls when the shiftable wall is swung to vertical closed position, the shiftable wall being of a height materially less than the height of the side and end walls, a cover overlying the receptacle and including a top portion and depending flanges, said shiftable end wall when in closed position having its top edge below the bottom edge of the adjacent flange of the cover whereby the shiftable end wall may swing to open position while the cover remains in position over the receptacle, means coupling the side walls and the triangular wings of the shiftable end wall, to maintain the shiftable end wall in closed posi-

tion, and means detachably secured to the outer side of the shiftable end wall for covering the space between the top edge of the shiftable end wall and the adjacent cover flange, said last means comprising a plate and means for locking the plate to the shiftable end wall, the top edge of the plate extending across the inner side of the adjacent cover flange.

CHARLES G. STATES.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
68,772	Meredith et al.	Sept. 10, 1867
381,070	Henizer	Apr. 10, 1888
528,072	Bukenhofer et al.	Oct. 23, 1894
920,496	Schreiber	May 4, 1909
1,207,208	Phillips	Dec. 5, 1916
1,237,281	Behringer	Aug. 21, 1917
1,451,468	Olshan	Apr. 10, 1923
1,617,852	Kirchner	Feb. 15, 1927

FOREIGN PATENTS

Number	Country	Date
7,020	Denmark	Oct. 15, 1904