

April 2, 1963

C. B. COLEMAN

3,083,879

DISPENSING BIN

Filed March 20, 1959

3 Sheets-Sheet 2

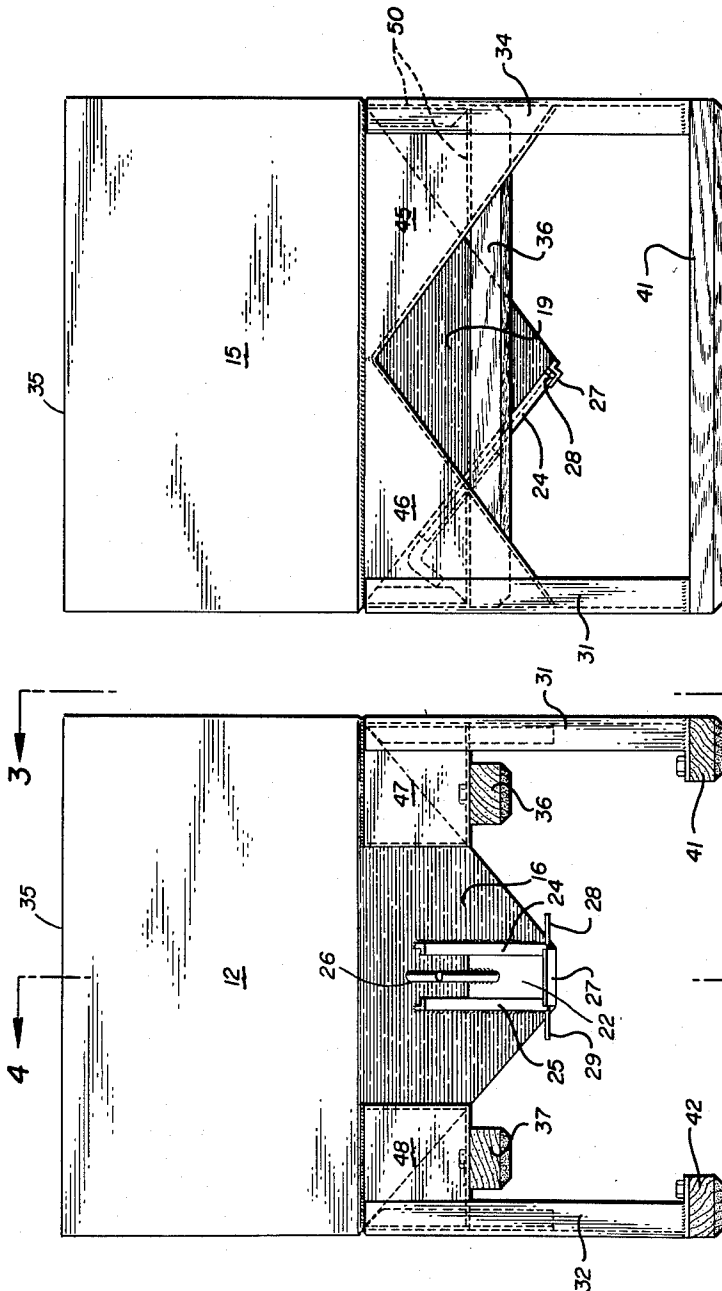


Fig. 3

Fig. 2

INVENTOR.
Clarence B. Coleman
BY *Manfred M. Harren*
His Attorney

April 2, 1963

C. B. COLEMAN
DISPENSING BIN

3,083,879

Filed March 20, 1959

3 Sheets-Sheet 3

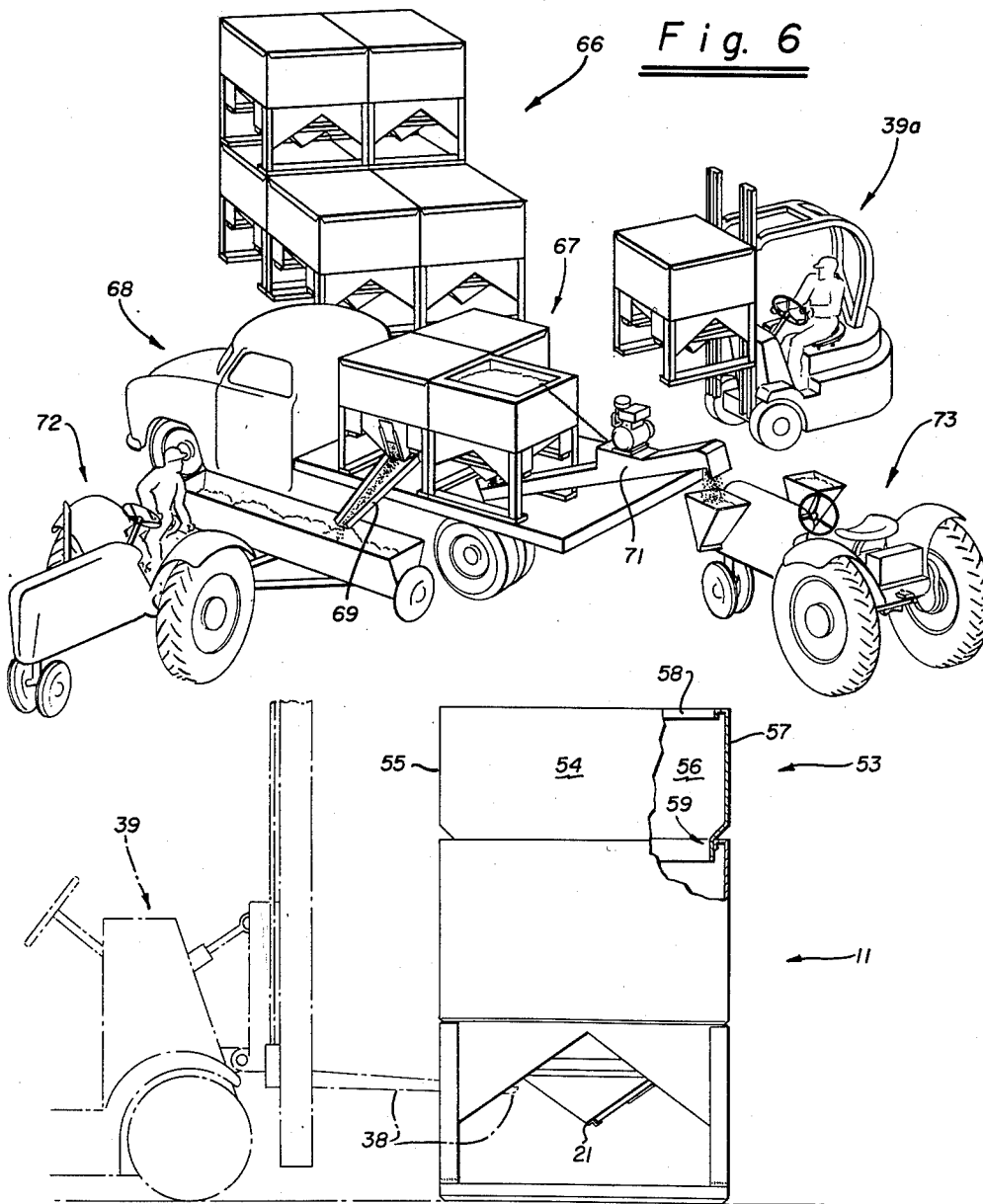


Fig. 5

INVENTOR.
Clarence B. Coleman
BY
Manfred S. Harren
His Attorney

1

3,083,879

DISPENSING BIN

Clarence B. Coleman, 5530 Fernhoff Road,
Oakland, Calif.

Filed Mar. 20, 1959, Ser. No. 890,865

Claims priority, application Mexico Mar. 24, 1958

5 Claims. (Cl. 222-143)

This invention relates to storage and dispensing bins for fluid and particulate materials, and particularly to transportable and stackable bins of this class.

An object of this invention is to provide a bin for storing fluid and particulate materials and for dispensing such materials by gravity discharge, the bin of the invention also being easily movable from place to place and being compactly arrayable and stackable with other of such bins side-by-side and one atop another in an efficient use of available storage space.

Another object of the invention is to provide a bin of the class described that is particularly designed to be lifted and transported by a standard fork-lift truck, the design of the bin being arranged to provide this feature without impairing the other advantageous handling, dispensing and storing features above noted.

A further object of the present invention is to provide a bin of the character described which is designed for relatively low cost mass production in modular sizes best suited for mounting on standard size truck beds and railroad cars, and which may be used in conjunction with auxiliary enclosures for increasing the vertical storage capacity of the bin as desired, the design also providing for convenient access to the discharge opening of the bin for the location of chutes, conveyors and the like.

The invention possesses other objects and features of advantage, some of which of the foregoing will be set forth in the following description of the preferred form of the invention which is illustrated in the drawings accompanying and forming part of the specification. It is to be understood, however, that variations in the showing made by the said drawing and description may be adopted within the scope of the invention as set forth in the claims.

Referring to said drawings (3 sheets):

FIGURE 1 is a perspective view of a bin constructed in accordance with the present invention with the top cover raised.

FIGURE 2 is a front elevation of the bin without the top cover.

FIGURE 3 is a side elevation of the bin, the view being taken along lines 3-3 of FIGURE 2.

FIGURE 4 is a cross-sectional view of the bin taken along lines 4-4 of FIGURE 2.

FIGURE 5 is a side elevation of the bin on a somewhat reduced scale incorporating an extension member forming part of the present invention and being shown in operative association with a standard fork lift.

FIGURE 6 is a perspective view as a montage showing a variety of uses and applications of the bin including its stackable handle and dispensing qualities.

A bin of the present invention is generally characterized by its transportable, stackable and dispensing characteristics and consists briefly of a container 11 having a side wall, here composed of walls 12, 13, 14 and 15, and downwardly converging bottom walls, here depicted by walls 16, 17, 18 and 19 formed with a dispensing port 20 at the lowermost portion, a removable cover 22 for the port 20, a plurality of legs 31, 32, 33 and 34 depending from side walls 12-15 in laterally spaced relation to the bottom walls 16-19 and supporting the dispensing port 20 for discharge of the contents of the bin, a pair of fork lift bearing members 36 and 37 carried by the

2

container and mounted in parallel relation on opposite sides of the bottom walls and in the lateral spaces between the bottom walls and the legs and placed above the lower ends of the legs for insertion of prongs 38 of the fork lift 39 beneath the bearing members 36 and 37, and a pair of skid runners 41 and 42 mounted under and secured to the lower ends of the legs 31-34 and mounted in parallel relation to each other and to the fork lift bearing members 36 and 37. As a feature of the present invention the skid runners 41-42 particularly dimensioned in length for spanning the top of the bin so as to facilitate vertical stacking of the bins as generally depicted in FIGURE 6 and the top wall 35 of the container is particularly formed for receiving the skids 41 and 42 and for carrying the load of the superimposed bin or bins. As here shown, the side walls 12-15 are formed with an integral inturned peripheral inverted top channel 40 providing a top opening 52 and a flat planar horizontal face defining the top 35 of the bin.

In the preferred form of the invention the bottom walls 16-19 all converge mutually towards one another to meet in a horizontal rectilinear joint 21 and the dispensing port 20 is here formed in bottom wall 16 at this bottom joint so as to provide full and automatic self-discharge and complete drainage of the bin. Cover 22 may be mounted in siderails 24 for sliding reciprocation across port 20 and may carry a handle 26 for manual engagement and displacement to and from an end stop 27. A pair of rods 28 and 29 here extend horizontally from the opposite sides of the port for the mounting of the upper end of a trough or conveyor apparatus, see FIGURE 6.

As a further feature of the present invention, the bearing members 36 and 37 are formed as elongated beams supported only at their ends, and the members are formed of suitable material such as wood for limited flexing under load to accommodate minor nonplanar misalignment of the fork-lift prongs 38. The bearing members 36-37 are designed somewhat longer than the fork-lift prongs 38 so that the tip ends of the prongs will be positioned to bear against mid-points of the beams 36-37 where flexing under load is permitted. Very commonly the fork-lift prongs are out of alignment so that they do not lie in the same plane. The beams 36-37 of the present invention are automatically self-accommodating to such misaligned prongs and provide a solid multipoint support for the loaded bin.

For the purpose of stacking and compact arranging of the bins and also in the interest of economical mass production of the bins, the latter are preferably fashioned in rectangular modules with the side walls 12-15 rectangularly related, and with the four legs 31-34, extended from the four corners of the rectangle formed by the side walls 12-15. Corner brackets 43, 44, 45, 46, 47, 48, 49 and 50 are here secured to and reinforce the adjacent side walls 12-15 and legs 31-34 and provide the end supports for the beams 36 and 37, the beam 36 being particularly fastened at the ends to the brackets 47 and 50 and the beam 37 being particularly fastened at the ends to the brackets 48 and 49.

As shown in FIGURES 1 and 5, the bin has a top opening 52 extending for substantially the full width and breadth of the side walls 12-15; and the bin is provided with a bin extending member 53 having side walls 54, 55, 56 and 57 defining top and bottom openings 58 and 59 for the bin extending member, the openings 58 and 59 corresponding and conforming to the peripheral form of the bin top opening 52. In the illustrated form of the invention the bottoms of all of the bin extending member side walls 54-57 are angled inwardly and downwardly for resting upon and for telescopically interfitting with the upper ends of the bin side walls 12-15, so that

3

the bin extending member 52 is enabled to sit surmounting the bin and providing a vertical extension of the enclosed volume. A cover member 61 is provided for the bin and is proportioned to cover either the top opening 52 of the bin or the top opening 58 of the bin extending member 53; and the cover member 61 as provided with downwardly extending flanges 62, 63, 64 and 65 for securing the cover member 61 against lateral motion when it is in covering position on the bin or the bin extending member.

A variety of uses and applications of the bin are depicted in FIGURE 6. A storage array 66 is illustrated with a plurality of bins illustrated in stacked and compact side by side relation with their covers in place. Another bin is illustrated in elevated supporting position on a fork lift 39a. Preferably the bins are made in modules of 4' x 4' so that they may be arranged in side by side relation across the normal width of a standard truck bed as provided by truck 68. Another desirable module is 4' x 5' so as to accommodate the bins to the standard 10' width of railroad cars. A variety of dispensing means may be used in conjunction with the bins such as a downwardly extending trough 69, and upwardly extending conveyor 71 such as illustrated in FIGURE 6 in association with feed spreaders 72 and 73.

In the use of a fork-lift truck it is common practice for the operator of the fork-lift to approach the bin as generally depicted in FIGURE 5 until contact with the face of the bin is established and the operator can see the bin move. Normally this displacing of the bin will cause flexing and premature failure of the legs. However, in the present construction the legs 31-34 are rigidly reinforced by the attachment of the bottom skid runners 41 and 42 and of equal importance these skid runners are orientated parallel to the direction of approach of the fork-lift and parallel to the fork-lift bearing members 36 and 37 so as to provide a harmless sliding displacement of the bin when contacted by the fork-lift without unusual strain on the legs. Preferably these bottom skid runners 41 and 42 are formed of dimensioned lumber similar to the bearings 36 and 37 so as to provide some flexibility in accommodating the bin when set down on uneven terrain.

I claim:

1. A transportable storage and dispensing bin for use with a fork lift comprising, a polygonal container having side walls joined at vertically extending corners, and downwardly converging bottom walls depending from said side walls and being formed with a dispensing port, a plurality of legs depending from said side walls at said corners and supporting said container and said dispensing port in an elevated position, a plurality of brackets secured to and reinforcing the intersections of said side

4

walls and legs at said corners, a pair of fork lift bearing members secured to said brackets intermediate the height of the legs and mounted in relatively elevated horizontally extending parallel relation for resting on and for lifting by a fork lift, and a pair of skid runners secured to the lower ends of said legs and mounted in parallel relation to each other and to said fork lift bearing members, the dispensing port being at an elevation between the bearing members and the skid runners.

2. A transportable storage and dispensing bin as characterized in claim 1 wherein said container is formed with an integral inturned inverted top channel providing a top opening and a top planar surface, and said skid runners are of a length dimensioned for spanning said top surface to provide vertical stacking of a plurality of said bins.

3. A transportable and stackable storage and dispensing bin as characterized in claim 1, wherein the length of said skid runners is dimensioned for spanning the top of said container to facilitate vertical stacking of a plurality of bins.

4. A transportable stackable storage and dispensing bin as characterized in claim 1 wherein said fork-lift bearing members are beams supported only at their ends and are formed for limited flexing under load to accommodate minor non-planar misalignment of the fork lift prongs.

5. A transportable stackable storage and dispensing bin as characterized in claim 1 wherein said container is formed with a top opening extending for substantially the full width and breadth of said side walls, and a bin extending member having side walls defining top and bottom openings conforming to the peripheral form of said container top opening, the bottom of said bin extending member being formed for resting upon and for interfitting with the upper ends of said container side walls with said extending member surmounting said container and providing a vertical extension of the enclosed volume, and a cover member formed for optionally mounting upon the upper ends of said side walls for closing said top openings.

References Cited in the file of this patent

UNITED STATES PATENTS

2,293,160	Miller et al. -----	Aug. 18, 1942
2,652,174	Shea et al. -----	Sept. 15, 1953
2,690,277	Shea et al. -----	Sept. 28, 1954
2,702,140	Momyer -----	Feb. 15, 1955
2,775,270	McKillop -----	Dec. 25, 1956
2,803,363	Hutchinson -----	Aug. 20, 1957
2,827,206	Shea et al. -----	Mar. 18, 1958