Aug. 13, 1957 D. C. McCRAY 2,802,603

MATERIAL HANDLING APPARATUS

Filed Nov. 19, 1954 2 Sheets-Sheet 1

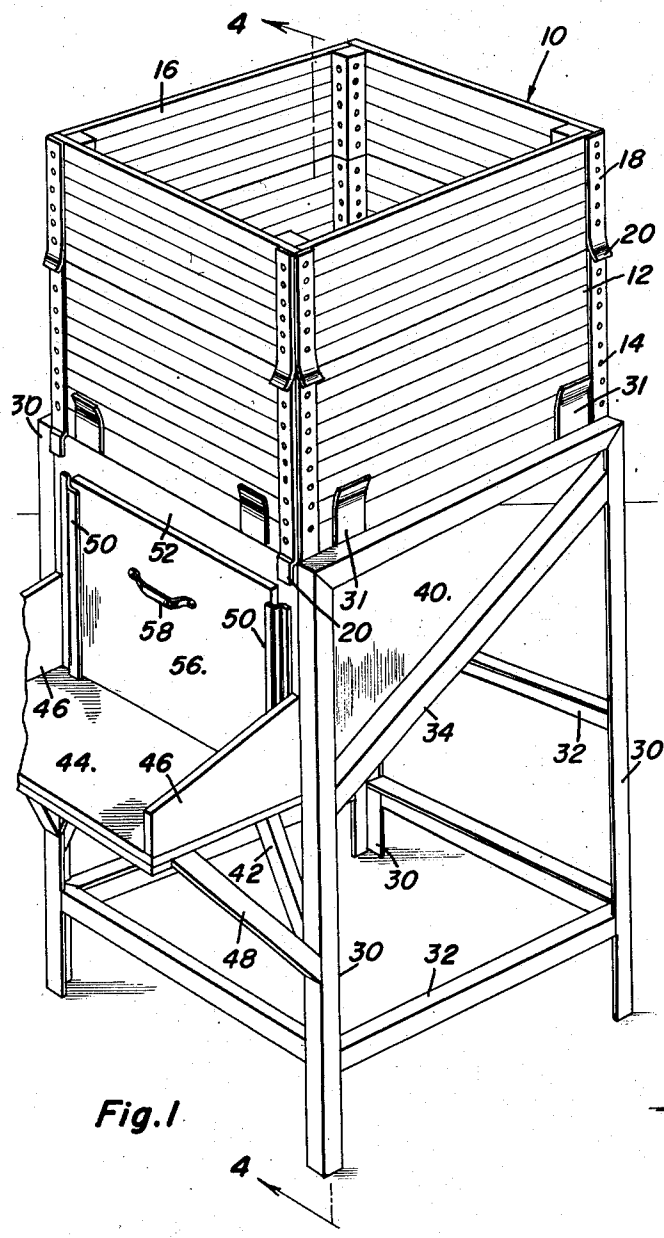

Fig. 1

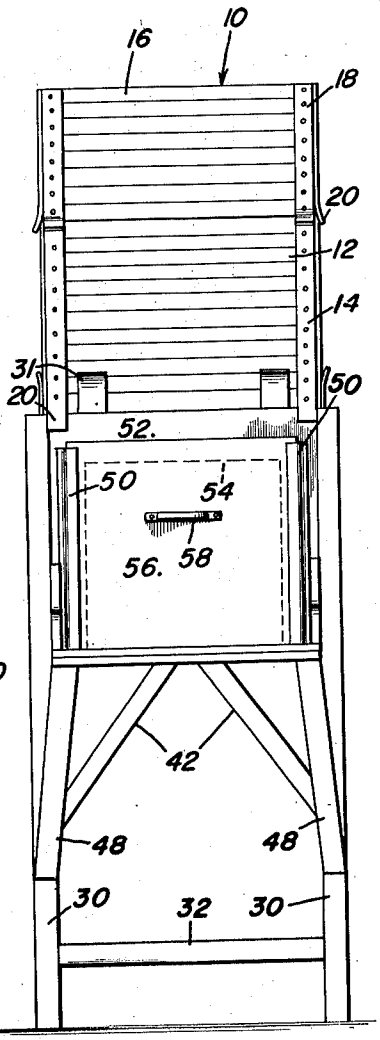

Fig. 2

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Filed Nov. 19, 1954 2 Sheets-Sheet 2

Fig. 3

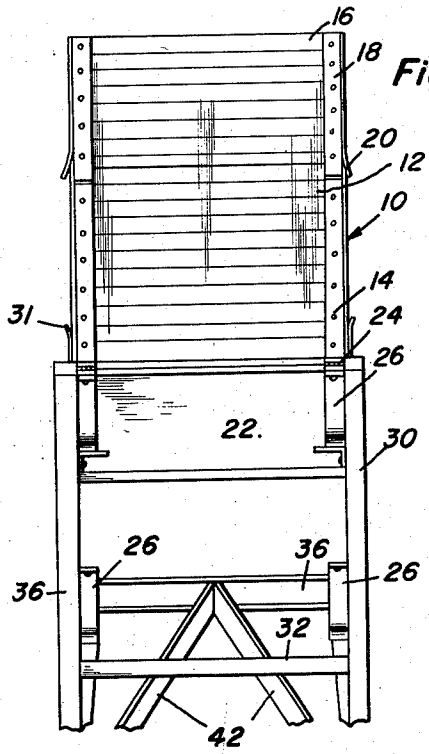


Fig. 4

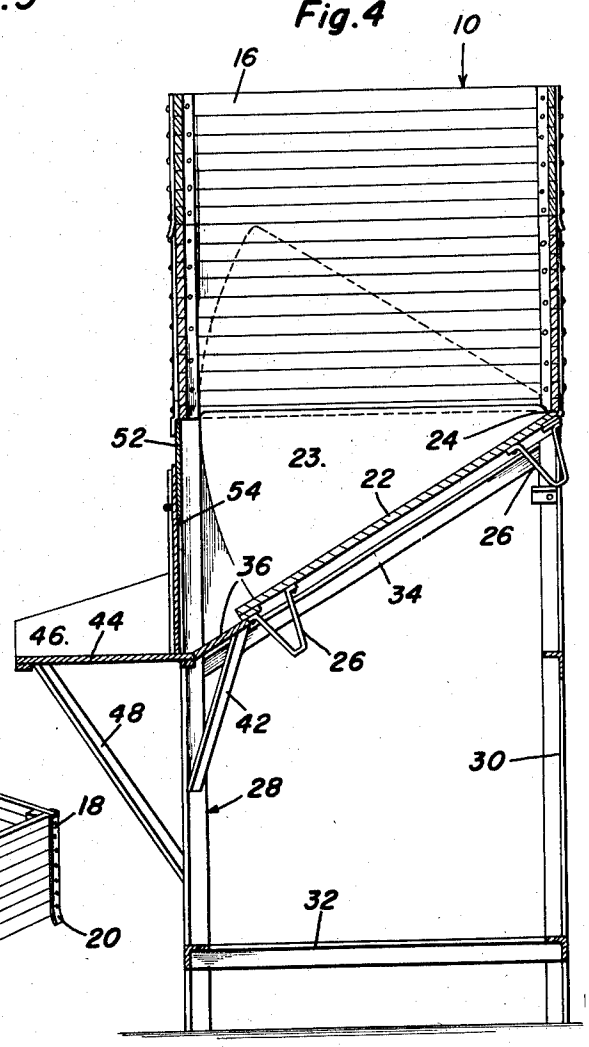
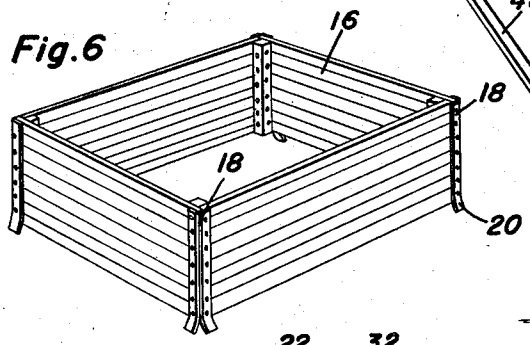


Fig. 6



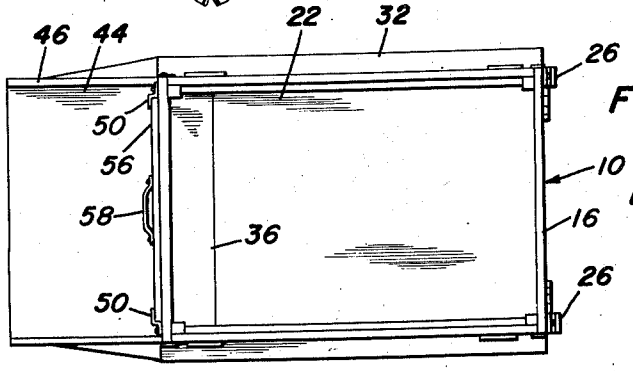


Fig. 5

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MATERIAL HANDLING APPARATUS

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1 Claim. (Cl. 222—185)

This invention relates to a material handling apparatus and more specifically provides a device for economically and efficiently handling material adapted to be dispensed from hoppers and that are adapted to be stored in containers or boxes.

An object of this invention is to provide material handling apparatus including a dumping box adapted to be moved by a fork lift truck together with a stand for permitting controlled discharge of the material from the dumping box or container.

Another object of the present invention is to provide a material handling apparatus including a container having removable side sections for providing a container of various sizes wherein the container may be handled with a fork lift truck and positioned on a dumping stand wherein the bottom of the container is pivoted downwardly to an open position thereby permitting the material to be discharged into a suitable chute.

A further object of the present invention is to provide a material handling apparatus conformable to the preceding objects wherein the chute is provided with a discharge opening together with a closure for the opening thereby providing a control for the discharge of the material from the dumping container.

Yet another important object of the present invention is to provide a material handling apparatus that is simple in construction, efficient in operation, versatile in utility, well adapted for its intend purposes and relatively inexpensive to manufacture.

These, together with other objects and advantages which will become subsequently apparent reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming a part hereof, wherein like numerals refer to like parts throughout, and in which:

Figure 1 is a perspective view showing the material handling apparatus of the present invention;

Figure 2 is a front elevational view showing the control door for controlling the discharge of material from the material handling apparatus of the present invention;

Figure 3 is a rear elevational view showing the relation of the container and the stand therefor;

Figure 4 is a vertical, longitudinal sectional view taken substantially along section line 4—4 of Figure 1 showing the details of construction of the dumping container together with the chute and the control means therefor;

Figure 5 is a top plan view of the construction of the present invention; and

Figure 6 is a perspective view showing a side extension member for positioning on the upper end of the container wherein the vertical height of the container may be lengthened if desirable.

Referring now specifically to the drawings, the numeral 10 generally designates the material handling apparatus of the present invention. The apparatus 10 generally includes a rectangular container 12 having vertically extending side walls joined by reinforcing brackets 18. The

corner brackets 18 and the corner brackets 14 are outwardly flared at the lower ends thereof as indicated by the numeral 20 for stacking relation onto similar containers 12 or extensions 16. The container 12 is provided with a hinged bottom 22 that is attached along one edge to the side wall of the container 12 by hinge means 24. The bottom 22 is of such a size that it will pivot into and out of the container 12 substantially as indicated by the dotted line as shown in Figure 4. The underside of the bottom 22 is provided with a plurality of inverted U-shaped support legs 26 for supporting the bottom 22 in spaced relation to a supporting surface.

When the container 12 along with the extension 16 is positioned on a supporting surface, the legs 26 engage the supporting surface and supports the bottom 22 and the container 12 in stable horizontal position. A fork lift truck (not shown) may be utilized for lifting the container 12 and positioning the container 12 on the stand 28 wherein the stand 28 includes a plurality of vertical members 30 joined by a plurality of horizontal spacers 32. The end horizontal spacers 32 receive the outwardly flared lower end 20 of the corner brackets 14 thereby positioning the container 12 on the supporting stand 28. A pair of downwardly inclined side members 34 are joined at their lower ends by a transverse plate 36 and triangular side members 40 form an enclosure with the plate 36 forming a chute. The plate 36 is braced by braces 42 and engages and supports the free end of the bottom 22 when it is pivoted downwardly such as when the fork lift truck is withdrawn from supporting relation to the bottom 22 of the container 12. In this position, the bottom 22 lies alongside the closure members 40 and the plate 36 cooperates therewith to form a downwardly inclined chute for discharging the material from the container 12. Positioned exteriorly of the stand 28 and extending forwardly therefrom is a horizontal plate 44 secured to vertical end plates 46 thereby forming a discharge ramp for material from the container 12. Suitable brace members 48 are provided for supporting the ramp in position.

Positioned vertically on the face of the stand 28 is a pair of vertical right angular members 50 mounted in opposition to each other and secured to a plate 52 having an enlarged opening 54 therein thereby forming a discharge opening for the material discharged from the container 12. A vertically sliding closure door 56 is slidably mounted in the elongated right angular members 50 and the door 56 is provided with an operating handle 58 wherein the door 56 may be raised thereby opening a portion of the openings 54 for controlling the discharge of the material from the container 12 onto the discharge ramp 44.

In operation, the container 12 and the extension 16 are positioned on a supporting surface and the supporting legs 26 supports the bottom 22 thereof in spaced relation to the supporting surface. The fork lift of a power or manual fork lift truck are positioned under the bottom 22 thereby raising the bottom 22 along with the container 12 and extension 16 for positioning them on the supporting stand 28 with the lowermost offset portions 20 engaging forward and rear transverse members 32. The forward transverse member is in the nature of a plate 52 having an enlarged opening 54 in the bottom thereof and as the fork lifts are withdrawn from beneath the bottom 22, the bottom 22 pivots downwardly about hinges 24 until the free end thereof engages the upper surface of the plate 36. The plate 36 along with the side members 40 form an enclosure in the nature of an inclined chute for guiding and discharging the material from the container onto a discharged ramp 44 positioned forwardly of the aperture 54. A control door 56 is vertically slidable in guideways formed by the elongated right angle members 50 for vertical sliding movement thereby opening and closing the

enlarged aperture **54** thereby controlling the discharge of material from the container **12** onto the discharge ramp **44**. When the container **12** and extension **16** are empty, the procedure may be reversed by employing a fork lift truck to engage the bottom **22** and pivot it upwardly and then engage the upper surface of the container **12** for lifting the container **12** along with the bottom **22** and the extension **16** off of the stand **28** for reloading the stand **28** in the usual manner.

The stand **28** is provided with a plurality of upstanding outwardly flared guide lugs **31** and the bottom **22** may be provided with upstanding side members **23** for preventing loss of small parts from the sides of the bottom **22** when the bottom is in its open position.

Obviously, the various components of the present invention may be constructed of any readily obtainable members such as angle irons and the like. The container **12** may be provided with any suitable structural details as to the sides and the angle brackets. Further, the container **12** may be utilized for storage or transporting of material or small articles from one place to another wherein the controlled discharge of the material is desired.

From the foregoing, the construction and operation of the device will be readily understood and further explanation is believed to be unnecessary. However, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction shown and described, and accordingly all suitable modifications and equivalents may be resorted to, falling within the scope of the appended claim.

What is claimed as new is as follows:

A material handling device comprising a vertically disposed supporting stand having a vertical plate adjacent the upper end thereof, said plate having an enlarged aperture therein, a movable closure for said aperture, a downwardly inclined wall on said stand and connected to the vertical plate at the lower end thereof and extending upwardly therefrom, side walls extending vertically from the side edges of said plate, a discharge ramp positioned exteriorly of said aperture, a plurality of upstanding outwardly flared lugs on the upper end of said stand, a container disposed on said stand, said container including a plurality of side walls interconnected by corner brackets, said corner brackets projecting below the bottom edges of said walls in outwardly flared relation, said lugs on the stand and projecting corner brackets acting to position the container on the stand, a bottom pivotally connected to one of said side walls for free swinging movemen from a horizontal closed position, said bottom having its free end resting on said inclined plate when in a dumping position, a plurality of supporting legs depending from said bottom and forming a support therefor, an extension wall mounted on each container wall, said extension walls being interconnected by corner members with depending outwardly flared lower ends for engaging the container walls and aligning the extension walls therewith.

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