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BOTTOM DUMPING CONTAINER

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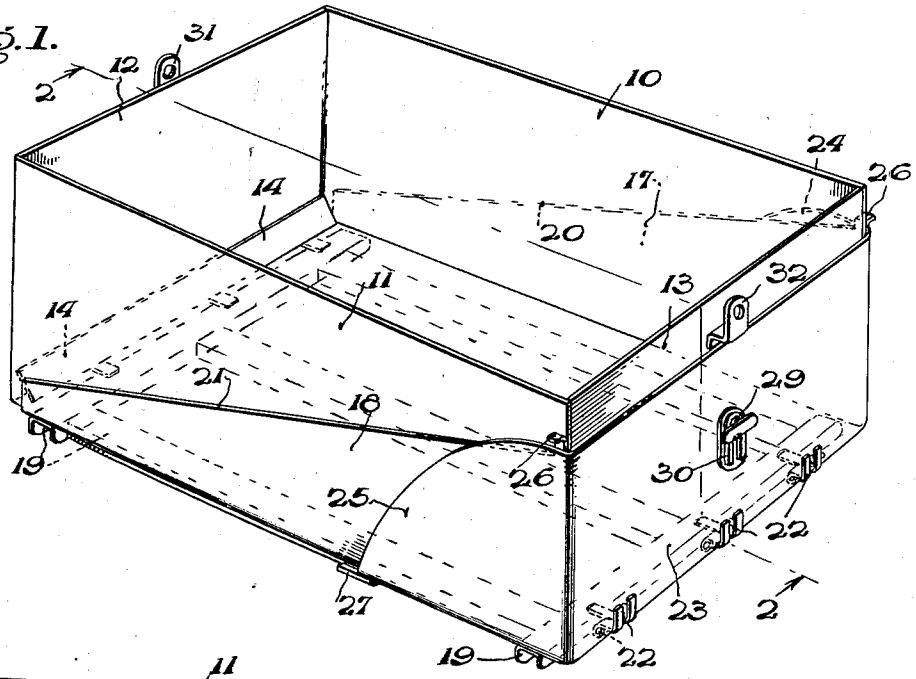
Fig. 1.



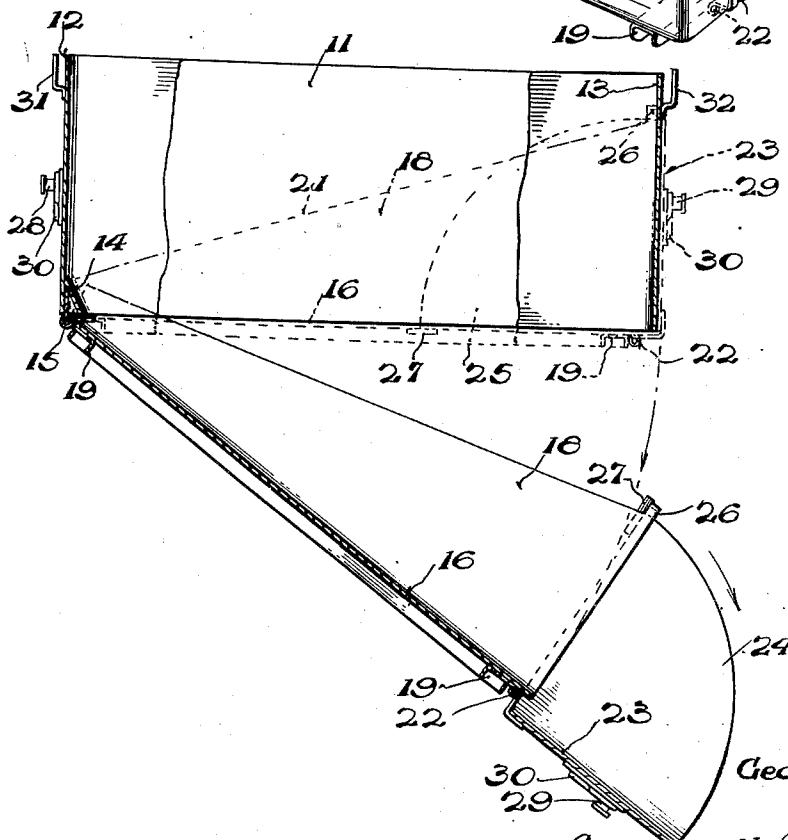


Fig. 2.

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BOTTOM DUMPING CONTAINER

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4 Claims. (Cl. 294—69)

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This invention relates to an improved container of the type adapted to transport a load to a point of discharge and there effect dumping of the load. While, in its broader aspects, the invention has utility as applied to dumping containers applicable to a wide variety of services, as will be apparent to those skilled in the art, the invention has particular utility when applied to containers of the type that are picked up and transported by a truck-carried rig, such for example as disclosed in the patent to George R. Dempster, No. 2,179,779, granted November 14, 1939, for Transporting and Dumping Vehicle.

In dumping containers of the character referred to it has been customary to provide for the dumping of the container rearwardly of the truck-carried rig. This requires that the truck be backed up to the point of discharge. There are conditions, however, wherein it is desirable that such a container be capable of dumping to the side of the truck-carried rig. To illustrate, in building a shoulder on a road it is desirable, instead of dumping a load of gravel at one point with the necessity of thereafter transporting the gravel along the trench in which the shoulder is being built, to deliver the gravel progressively along the trench as the truck-carried rig moves parallel thereto. There are also instances wherein, in discharging a load into a bin or other receiving space, there is inadequate space for maneuvering the truck for rear dumping and it is therefore desirable to dump the load from a truck drawn up along side of the bin or other receiving space instead of being backed into position.

It is an object of this invention to provide an improved dumping container which will effect dumping laterally of the direction in which the container is being transported.

Another object of this invention is to provide an improved container of the type characterized which facilitates progressive discharge of the load so that the load may be distributed for some distance along the direction of travel.

Another object of this invention is to provide an improved container of the type characterized which will enable the load to be discharged at a substantial distance away from the side of the container without increasing the sidewise dimension of the container in transportation to and from the point of discharge.

Another object of this invention is to provide an improved container of the type characterized which is simple in construction, inexpensive to fabricate, and highly efficient in service.

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Other objects of the invention will appear as the description of the invention proceeds.

Briefly stated, an improved container embodying the present invention, which may be of any suitable size, shape and construction, is provided with a bottom dumping section hinged to one side of the container and provided with two pairs of lifting pins, brackets, or the like, by which the container may be elevated. One member of each of said pairs is disposed on the side of the container to which the bottom dumping section is hinged, while the other members of said two pairs are respectively mounted on the dumping section and on the body of the container above said dumping section at the side of the container opposite to that of the first referred to members. The bottom dumping section is preferably so constructed as to constitute a chute, and in the preferred embodiment said bottom dumping section includes a pivoted extension, also preferably in the form of a chute, which may either be swung against the end of the container so as not to increase the transverse dimension of the container or be moved to constitute an extension of the main portion of the bottom dumping section.

The invention is capable of receiving a variety of mechanical expressions only one of which has been illustrated on the accompanying drawing, and it is therefore to be expressly understood that the drawing is for purposes of illustration only and is not to be construed as a definition of the limits of the invention, reference being had to the appended claims for that purpose.

Referring in detail to the accompanying drawing, wherein the same reference characters are employed to designate corresponding parts in the figures,

Fig. 1 is a perspective view of an improved container embodying the present invention; and

Fig. 2 is a side view of said container, partly in section on line 2—2 of Fig. 1, to a somewhat smaller scale, to illustrate the dumping provisions in closed and open position.

A container embodying the present invention may be of any suitable size, shape and construction. In the embodiment illustrated the container is of generally rectangular construction and comprises front and rear walls 10 and 11 as viewed from the direction in which the container would normally be transported, and lateral walls 12 and 13, said walls 10, 11, 12 and 13 defining the sides of the container. Lateral wall 12 as illustrated extends for the full depth of the container and at its lower edge may be suitably re-

enforced, as by bending the portion of the wall backwardly on itself as shown at 14.

Mounted at the lower edge of and supported from said lateral wall 12 by any suitable number of hinges 15 of any suitable construction is the main or body portion of a bottom dumping section which also includes a pivotal extension to be described. The body portion of the bottom dumping section comprises a bottom wall 16 and upstanding walls 17 and 18 at the front and rear edges thereof. Bottom wall 16 may be provided with any suitable re-enforcing members, such as indicated diagrammatically at 19, so as to give adequate rigidity thereto. As shown the walls 17 and 18 telescope exteriorly over the front and rear walls 10 and 11, which are illustrated as extending the full depth of the container, walls 17 and 18 having upper edges 20 and 21 which are inclined to the bottom wall 16. The body portion of the bottom dumping section 16, 17, 18 thus takes the form of a chute of progressively greater depth away from the hinge axis 15.

Pivotally mounted on the bottom wall 16 by any suitable number of hinges 22 of any suitable construction is an extension of the body portion of the bottom dumping section, said extension being composed of a wall 23 at the front and rear edges of which are angularly extending walls 24 and 25. As illustrated, wall 23 is formed to lie against the wall 13, which also extends the full depth of the container, and the walls 24 and 25, which are here shown as having arcuate edges although such is not necessary, are so disposed as to telescope over the walls 17 and 18 when wall 23 is moved into face contact with the wall 13. The hinges 22 may be friction hinges of any suitable construction so that the extension 23, 24, 25, when moved to the desired angle with respect to the body portion of the bottom dumping section 16, 17, 18, will remain at said angle during the dumping operation as hereinafter explained or, if preferred, said hinges may be so constructed that the extension 23, 24, 25 will move under the weight of the load to the position shown in Fig. 2 when the container is raised and the body portion of the bottom dumping section is tilted as hereinafter explained. In order to limit the extent of movement of the extension with respect to the body portion of the bottom dumping section the front and rear walls 10 and 11 may be provided with stop members, here shown as angle pieces 26 suitably secured thereto, and the walls 24 and 25 of the extension may carry suitable projecting pieces 27 for engagement with said angle pieces 26 when the extension has moved through an angle of approximately 90°. In this latter position it will be observed that the walls 24 and 25 of the extension constitute extensions in laterally contiguous planes of the walls 17 and 18 of the body portion of the bottom dumping section, with wall 23 projecting as an approximate continuation of wall 16, said extension 23, 24, 25 also being in the form of a chute which constitutes an extension of the chute provided by the body portion of the bottom dumping section.

The container so far described is provided with two pairs of lifting means which may take the form of pins, brackets, or the like, of any suitable construction. As illustrated, one pair of lifting pins 28 and 29 are mounted in any suitable way, as by bracket plates 30, on the lateral wall 12 and on wall 23 of the extension 23, 24, 25. A second pair of lifting pins or the like, here shown

as in the form of apertured brackets 31 and 32, are secured in any suitable way to the side walls 12 and 13 above the body portion of the bottom dumping section. While conventional lifting pins have been shown at 28 and 29 and apertured brackets at 31 and 32, it is to be understood that the lifting pins may be used at all of these localities or brackets may be used at these localities or any other suitable lifting provisions may be supplied instead.

With the container resting on its bottom and the extension 23, 24, 25 in the position shown in Fig. 1, with its wall 23 in face contact with the wall 13, a conventional rectangular container is provided which may be filled with any suitable load in any suitable way. By attaching cables, chains or the like, provided with any suitable attaching means such as hooks, to the lifting pins 28 and 29, the container with its load may be lifted onto a truck chassis, as for example by means of a rig such as disclosed in the aforesaid Dempster patent. During the lifting of the container the body portion of the bottom dumping section is held telescoped with respect to walls 10 and 11, closing the bottom of the container, and the extension on the body portion of the bottom dumping section is held in its position with wall 23 held against wall 13 as shown in Fig. 1, because the container with its load is being lifted by a lifting pin on the dumping section at its extension as well as by one on the body of the container.

When the transported load reaches the point of delivery the cables, chains or the like are detached from the lifting pins 28 and 29 and attached to the pins, brackets or the like at 31 and 32. If now the container is elevated above the chassis of the truck, the weight of the load on the body portion of the bottom dumping section 16, 17, 18 causes the latter to move around its hinge axis 15, the end of the body portion of the bottom dumping section toward the extension resting on the side of the truck chassis. The extension 23, 24, 25 can be moved around its pivot axis 22 to the desired angularity, in which position the extension constitutes a prolongation of the chute provided by the body portion of the bottom dumping section 16, 17, 18. When friction hinges are provided at 22 the angularity between the extension and the body portion of the bottom dumping section may be maintained as so set, or if preferred the extension may be moved by the weight of the load bearing on the wall 23, as soon as the tilting of said body portion exposes wall 23 to the load, until the extension moves through 90°, in which position the extension will be stopped by the engagement of the pieces 27 with the angle pieces 26. Having regard for the rate of flow of the material constituting the load, the rate at which the load will be discharged from the chute provided by the body portion of the bottom dumping section and its extension can be nicely predetermined by the amount to which the container is elevated and therefore the angle of inclination of the body portion of the bottom dumping section and its extension.

It will therefore be perceived that the present invention provides a container which can be dumped laterally with respect to the direction of transportation and at a rate determined by the inclination of the bottom dumping section in its entirety. By properly determining the vertical dimension of the wall 23 the extent to which the load may be discharged away from the side of the truck can also be predetermined. When the ex-

tension 23, 24, 25 is in its closed position, however, the transverse dimension of the container is not increased substantially, so that a container in conformity with the present invention provides for discharge of the load well beyond the side of the truck without increasing the transverse dimension of the container. By reason of its manner of operation the container provides for a lateral discharge of the load at a rate which can be nicely controlled, so that a load can be distributed along a substantial distance as the truck moves along a desired line. At the same time if it is desired that there be a rapid discharge of the load into a bin or other receiving space at the side of the truck, this may readily be effected by lifting the container so that a maximum rate of flow therefrom can be obtained. As both the body portion of the bottom dumping section and its extension are in the form of chutes the discharging load is guided in the desired direction with minimum opportunity for lateral escape. At the same time, a container in conformity with the present invention can be inexpensively fabricated out of a relatively simple parts.

While the embodiment of the invention illustrated on the drawing has been described with considerable particularity, it is to be expressly understood that the invention is not limited thereto, as the same is capable of receiving a variety of mechanical expressions, some of which will now readily suggest themselves to those skilled in the art, while changes may be made in the details of construction, size, arrangement, shape, etc., without departing from the spirit of this invention. It is also to be understood that certain features of the invention are not limited to containers for dumping sidewise with respect to the direction of transportation. Reference is therefore to be had to the appended claims for a definition of the invention.

What is claimed is:

1. In a device of the character described, a container including opposed lateral walls, a bottom dumping section hingedly mounted at the lower edge of one of said lateral walls to form a laterally discharging chute, a pair of lifting means mounted respectively on the lateral wall at the hinged end of said bottom dumping section and on a wall of said bottom dumping section, and a second pair of lifting means respectively mounted on said two lateral walls above said bottom dumping section.

2. In a device of the character described, a container including opposed lateral walls, a bottom dumping section having opposed lateral edges hingedly mounted at one of said lateral edges to

the lower edge of one of said lateral walls and including an extension pivotally mounted thereon at the other lateral edge and movable from a position adjacent the other lateral wall to a position in which it forms an extension for the bottom dumping section, a pair of lifting means mounted respectively on the lateral wall at the hinged end of said bottom dumping section and on a wall of said extension, and a second pair of lifting means respectively mounted on said two lateral walls above said bottom dumping section.

3. In a device of the character described, a container including opposed lateral walls, a bottom dumping section hingedly mounted at the lower edge of one of said lateral walls, said bottom dumping section including a bottom wall and a pair of upstanding walls forming a chute, an extension pivoted to the edge of said bottom wall opposite the hinge of the bottom dumping section of a depth to close the end of said chute, angularly extending walls on said extension adapted to telescope over said upstanding walls, a pair of lifting means mounted respectively on the lateral wall at the hinged end of said bottom dumping section and on said extension, a second pair of lifting means respectively mounted on said two lateral walls above said bottom dumping section, and means for predetermining the extent of movement of said extension with respect to the container.

4. In a device of the character described, a container including a plurality of walls defining the sides of the container, a bottom dumping section hingedly mounted at the lower edge of one of said sides, said bottom dumping section including a body portion having a bottom wall and a pair of walls extending upwardly from said bottom wall to form a chute, and an extension pivotally mounted on said bottom wall and movable from a position adjacent one of the side walls of the container to a position in which the extension constitutes an extension for said chute.

GEORGE R. DEMPSTER.

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