Oct. 25, 1938. F. B. RAY 2,134,643

CONCRETE CONVEYING BUCKET

Filed June 27, 1936 3 Sheets-Sheet 1

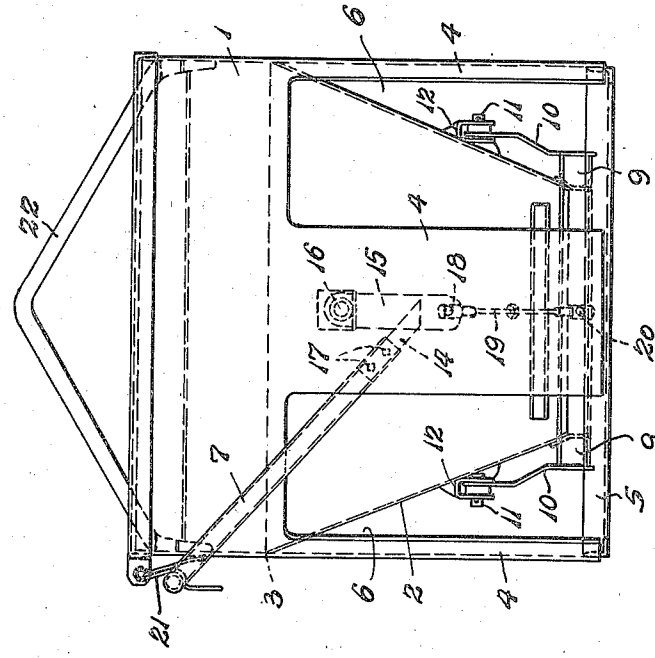

FIG. 2.

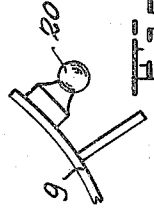

FIG. 3.

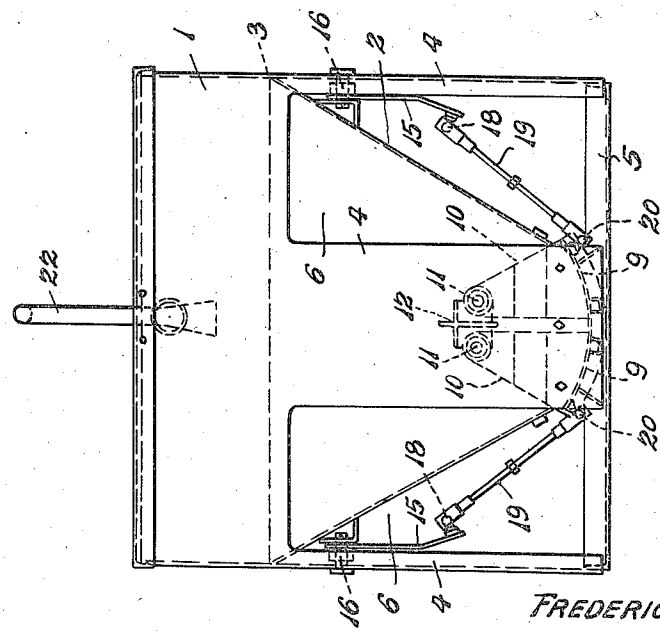

FIG. 1.

Inventor

FREDERICK B. RAY.

By Robbins & Cobb

Attorneys

Oct. 25, 1938. F. B. RAY 2,134,643

CONCRETE CONVEYING BUCKET

Filed June 27, 1936 3 Sheets-Sheet 2

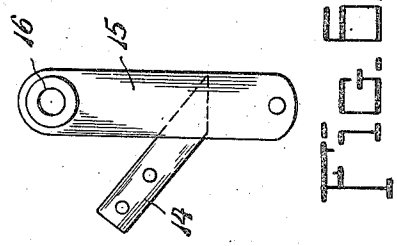

FIG. 6.

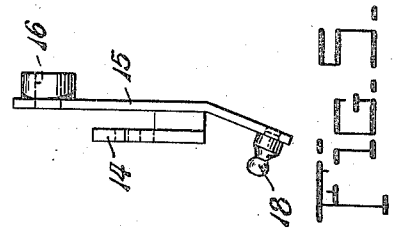

FIG. 5.

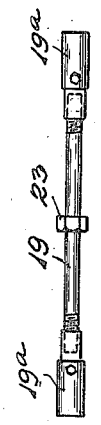

FIG. 7.

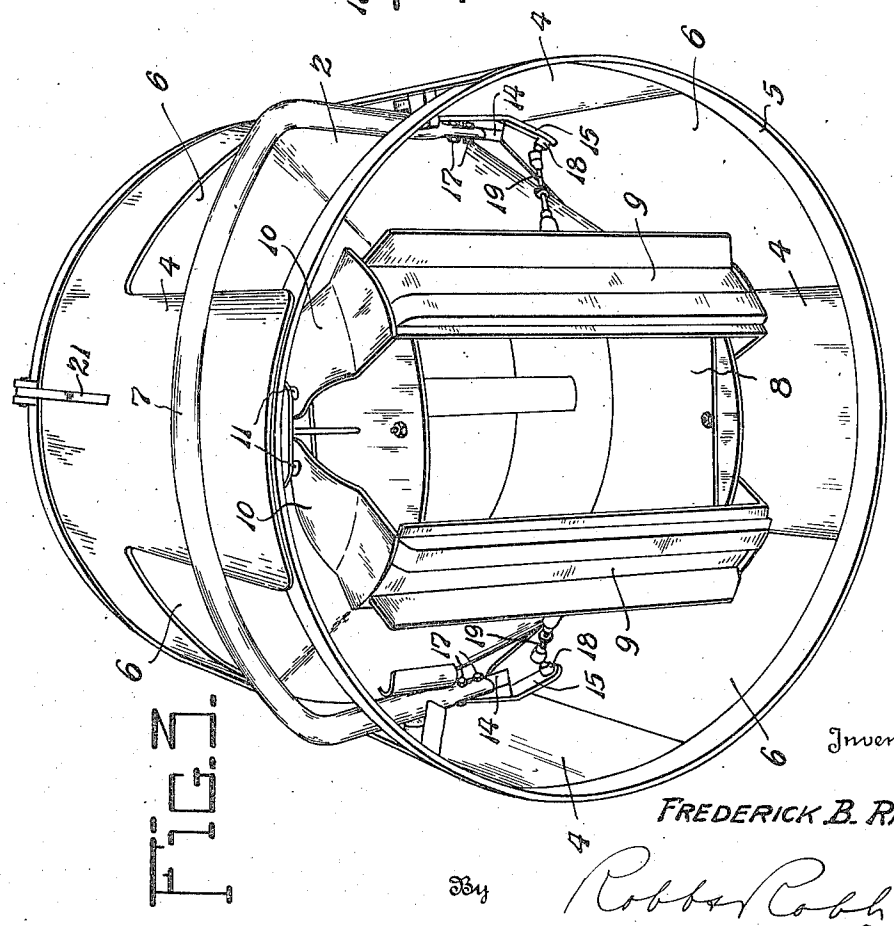

FIG. 4.

Inventor

FREDERICK B. RAY.

By Robbins & Cobb

Attorneys

Oct. 25, 1938. F. B. RAY 2,134,643

CONCRETE CONVEYING BUCKET

Filed June 27, 1936 3 Sheets-Sheet 3

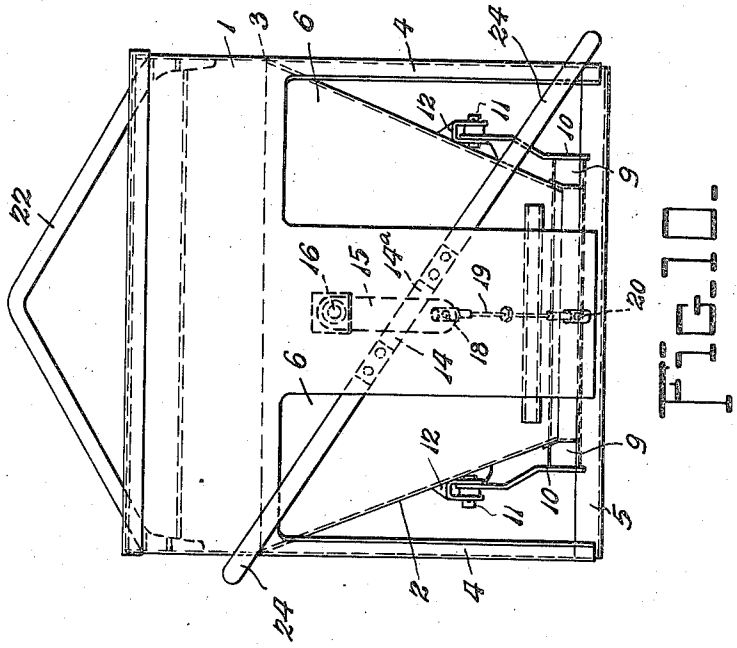

FIG. 10.

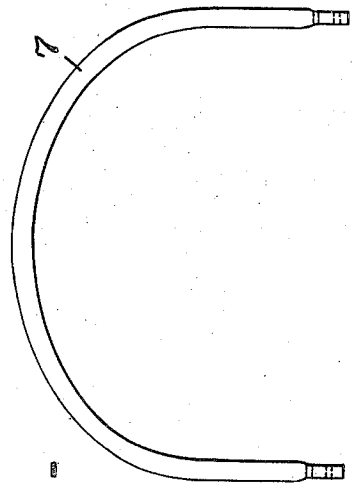

FIG. 9.

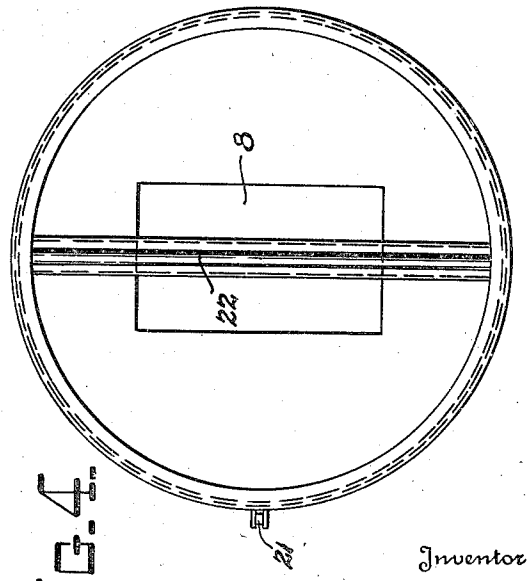

FIG. 4.

Inventor

FREDERICK B. RAY.

By Robbins Robbins

Attorneys

Patented Oct. 25, 1938 2,134,643

UNITED STATES PATENT OFFICE

2,134,643

CONCRETE CONVEYING BUCKET

Frederick B. Ray, Indianapolis, Ind., assignor to Insley Manufacturing Corporation, Indianapolis, Ind., a corporation

Application June 27, 1936, Serial No. 87,773

8 Claims. (Cl. 294—71)

The present invention embodies a novel construction of bucket or receptacle designed for conveying concrete from one place to another, and of the type particularly adapted to receive the concrete or whatever other material is being handled from a mixer or the like and equipped with means for hoisting the bucket to carry the same to a suitable point where its contents are to be emptied. The bucket is of a construction adapted to employ a narrow gate or gates for use in restricted formwork, or the outlet or discharge opening at the bottom may be large for a discharge of mass concrete, as well known in the art.

The invention lies primarily in the provision of novelly constructed and arranged discharge gates in conjunction with operating handle means therefor so that the gates are positively controllable at any stage of discharge, whereby the gates may be very easily operated by manual power. Additionally, a special method of connecting the handle means with the gates, such that the sides of the handle or bail member which forms the handle are attached to the central portions of the pivoted gates or discharge doors is used. The object of this latter construction is to utilize the handle member in a manner pivoted to swing in a direction at right angles to the swinging of the doors or gates, thereby permitting a single connection involving a universal link arrangement for connecting each side of the handle directly to the central portion of the door.

The foregoing, together with other detail features of construction of the invention, will be understood more readily upon reference to the following description and accompanying drawings, in which—

Figure 1 is a side view of a bucket embodying the invention, the discharge doors or gates being shown in dotted lines.

Figure 2 is a view like Figure 1, but taken at right angles thereto.

Figure 3 is a perspective view looking toward the underside or bottom portion of the bucket, with the handle or bail member in its downwardly operated position to move the doors or gates to their open positions.

Figure 4 is a top plan view of Figure 2.

Figure 5 is a side view of one of the actuating links for opening and closing the discharge gates or doors, and the offset arm thereof to which one side of the handle is secured.

Figure 6 is a side view of the construction of Figure 5, taken at right angles thereto.

Figure 7 is a view of the lower adjustable link for actuating the discharge gates or doors.

Figure 8 is a view of a portion of one of the gates, together with parts of the universal connection for interconnecting the gate with its cooperating link.

Figure 9 is a view in elevation of the handle or bail member.

Figure 10 is a side view of a bucket embodying a modified construction of handle device operable from opposite sides of the bucket.

Describing the invention specifically, my bucket comprises the upper portion 1 and the tapering lower portion 2. At the point where the upper portion 1 begins to taper downwardly, as shown at 3, there depends from the said upper portion 1 a skirt 4 at the lower end of which is a base or supporting ring 5 affording a broad bearing base member upon which the bucket may rest when its contents are being disposed therein, for instance. The skirt portion 4 of the bucket is cut away to provide openings 6 for the purpose of affording a reduction in the amount of material needed to fill the bucket and for the additional purpose of affording access to the parts which support and actuate the discharge gates or doors of the bucket. Two of said openings are availed of to permit the proper mounting of the handle or bail member 7 by which the discharge gates are actuated and the connection of the sides of said handle member 7, to actuating parts to permit the opening and closing of the discharge gates at will.

With the above in view, it is noted that at the lowermost portion of the tapering section 2 of the bucket, a discharge opening is provided and this discharge opening may be a narrow restricted area if desired, especially when the bucket is used to deposit concrete or like material in restricted form work, or the discharge opening may be quite large and equipped with square instead of elongated gates, where a large opening for mass discharge of concrete is desirable to be used. The opening at the bottom of the bucket as illustrated is shown at 8 in Figure 4, and this opening is adapted to be closed normally by means of a pair of oppositely swinging gates or doors 9, as shown best in Figures 1 and 3. The gates 9 are hung by means of hanger plates or end wings 10 which extend upwardly from the ends of the gates and are pivoted at 11 to suitable brackets 12 carried by the skirt section 2 of the bucket. The radius of each gate 9 is such that it can be easily opened or easily closed in case a portion only of the contents of the bucket is to be discharged.

The inside radius of each gate is constant except that the center of the radius is offset toward the center of the bucket approximately one-third the distance from the hinge pin to the center of the bucket.

The operating means for the gates 9 comprises the U-shaped handle 7 or bail member, as it might be termed, the sides of this handle 7 at the ends being attached to offstanding arms 14 welded or otherwise secured at an upward angle to dependent hanger or link members 15 which are pivoted at 16 to the skirt portions 4 of the bucket on the inner sides of said skirt portions. The handle 7 is riveted or otherwise fastened to the arms 14 as shown at 17, and universal or ball and socket joint means 18 are employed to connect the lower member of each handle or link member 15 with a cooperating link member 19. The lower ends of the two link members 19 are correspondingly connected by ball and socket or universal connections 20 to the gates 9, there being one of the members 19 for each gate, and the connection between each member 19 and the gate being located approximately at the center of the latter. It will be seen that the handle 7 is disposed at right angles to the swinging doors and that each side of the handle 7 has a connection with one of the doors only.

Obviously, according to the construction described, a downward movement of the handle 7 will rock the hangers or link members 15 laterally, and this will create an upward pull upon their associated links 19 directly attached to the doors. In this way the doors may be readily opened incident to said downward shifting of the handle, and the handle affords a control for the doors permitting each opening to be as great as desired to thus control the amount of the stream of material which will pass from the bucket to the point where it is to be deposited.

A spring latch member 21 near the upper end of the bucket may be utilized to interengage with the cross portion of the handle 7 in order to hold the handle upraised and thus substantially lock the discharge gates or doors 9 in closed positions.

At the upper end of the bucket is a supporting crossbar 22 with which block and tackle may be connected for hoisting the bucket, or any other support attached by which the bucket is to be transported from one place to another.

I may make the link member 19 of end members 19*a* into which the body portion of the link members 19 may screw at the ends. I may also form at the central portion of the body of each link 19 a poly-sided member 23 for application of a wrench, and, by turning the central body portion of the link 19 relatively to the parts 19*a*, adjustment of the links may be obtained so as to make easy the maintenance of the doors or gates 9 in closed positions even after a considerable amount of wear may have been caused thereon.

According to the construction of the invention in Figure 10, I utilize a double handle 24 comprising an upper U-shaped portion attached to arms 14 such as before described, and a lower U-shaped portion attached to other arms 14*a* in alignment with the arms 14 but extended opposite from the angle members 15 as regards the direction of extension of the arms 14. The lower handle members 24 are thus in alignment but disposed at opposite sides of the bucket. In this way the bucket discharge doors or gates may be readily operated by a person standing on either of opposite sides of the receptacle. In one instance the upwardly and normally disposed handle 24 will be pushed downwardly and in the other instance the lower normally disposed handle 24 will be pulled upwardly. If desired, a catch or latch device may be utilized to lock the handle members 24 in their positions in which they maintain the bucket doors or gates closed.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent of the United States, is:

1. In a bucket of the class described, in combination, a body having a discharge opening at its lower portion, a gate movably mounted on the body and normally having closing action in relation to said opening, a handle pivoted to the body and disposed with its axis at a right angle to the axis of the gate, and linkage connection between said handle and the gate whereby on movement of the handle the gate may be carried to open and closed positions at will, said linkage connection comprising a hanger member pivotally connected to the body and a link connecting said hanger member with the discharge door, the connection between said linkage connection and the handle comprising a rigid member attaching the handle to said hanger member.

2. In a concrete bucket, in combination, a body having a discharge opening at its lower end, oppositely swinging discharge gates normally closing said opening and mounted on said body, an actuating connection between each gate and the body consisting of a hanger member pivoted to the body, and a link connecting the hanger member to the gate, and handle means pivoted to the body with its axis at a right angle to the axes of the gates and connected to said actuating connection for shifting the same to cause opening and closing movements of the gates.

3. In a concrete bucket, in combination, a body having a discharge opening at its lower end, oppositely swinging discharge gates normally closing said opening and mounted on said body, an actuating connection between each gate and the body whereby said gates may be moved to open or closed position upon actuation thereof, consisting of a hanger member pivoted to the body, and a link connecting the hanger member to the gate, and a handle member comprising a U-shaped body the sides of which are rigidly attached to the hanger members of said actuating connections, whereby on movement of the handle member opening and closing movements of the gates may be produced.

4. In a concrete bucket, in combination, a body having a discharge opening at its lower end, oppositely swinging discharge gates normally closing said opening and mounted on said body, an actuating connection between each gate and the body consisting of a hanger member pivoted to the body, and a link connecting the hanger member to the gate, and a handle member comprising a U-shaped body the sides of which are rigidly attached to the hanger members of said actuating connections, whereby on movement of the handle member opening and closing movements of the gates may be produced, said handle member being disposed to swing at right angles to the direction of swinging movement of the gates, and the links of the actuating connections being attached to the central portions of the gates, the said actuating connections being further disposed in a plane centrally bisecting the body.

5. A bucket substantially as claimed in claim 2, wherein the hanger member of each actuating connection has a universal joint connection with its link and wherein each link of the actuating

connection has a universal connection with its associated gate.

6. In a bucket such as described, a body having a discharge opening at its bottom, a gate adapted to assume a position in closing relation to the opening, supporting means permitting movement of the gate to open and closed positions, actuating means for opening and closing the gate, said actuating means comprising a connection between the gate and the body and handle means extending from said actuating connection to opposite sides of the body of the bucket for operation from such opposite sides, said actuating connection comprising a hanger pivoted to the body and a link connecting the hanger to the gate, an upwardly inclined handle rigid with the hanger member and extending to one side of the bucket, and a second handle member extending from said hanger member to the opposite side of the bucket from that at which the first handle member is disposed.

7. In a bucket of the class described, in combination, a body having a discharge opening, oppositely swinging gates pivoted at their ends to said body and normally having closing relation to said opening, a U-shaped handle pivoted to the body at opposite sides thereof, and linkage connection between each end of the handle and the adjacent gate attached to said gate intermediate the pivoted ends of the latter.

8. A bucket of the class described, comprising, in combination, a body having a discharge opening at its lower end, a gate pivoted to said body and adapted to assume a position in closing relation to the opening, a swinging handle pivoted to the body and disposed with its axis at a right angle to the pivotal axis of the gate, and linkage connection between said handle and the gate whereby on movement of the handle the gate may be carried to open and closed positions at will.

FREDERICK B. RAY.