

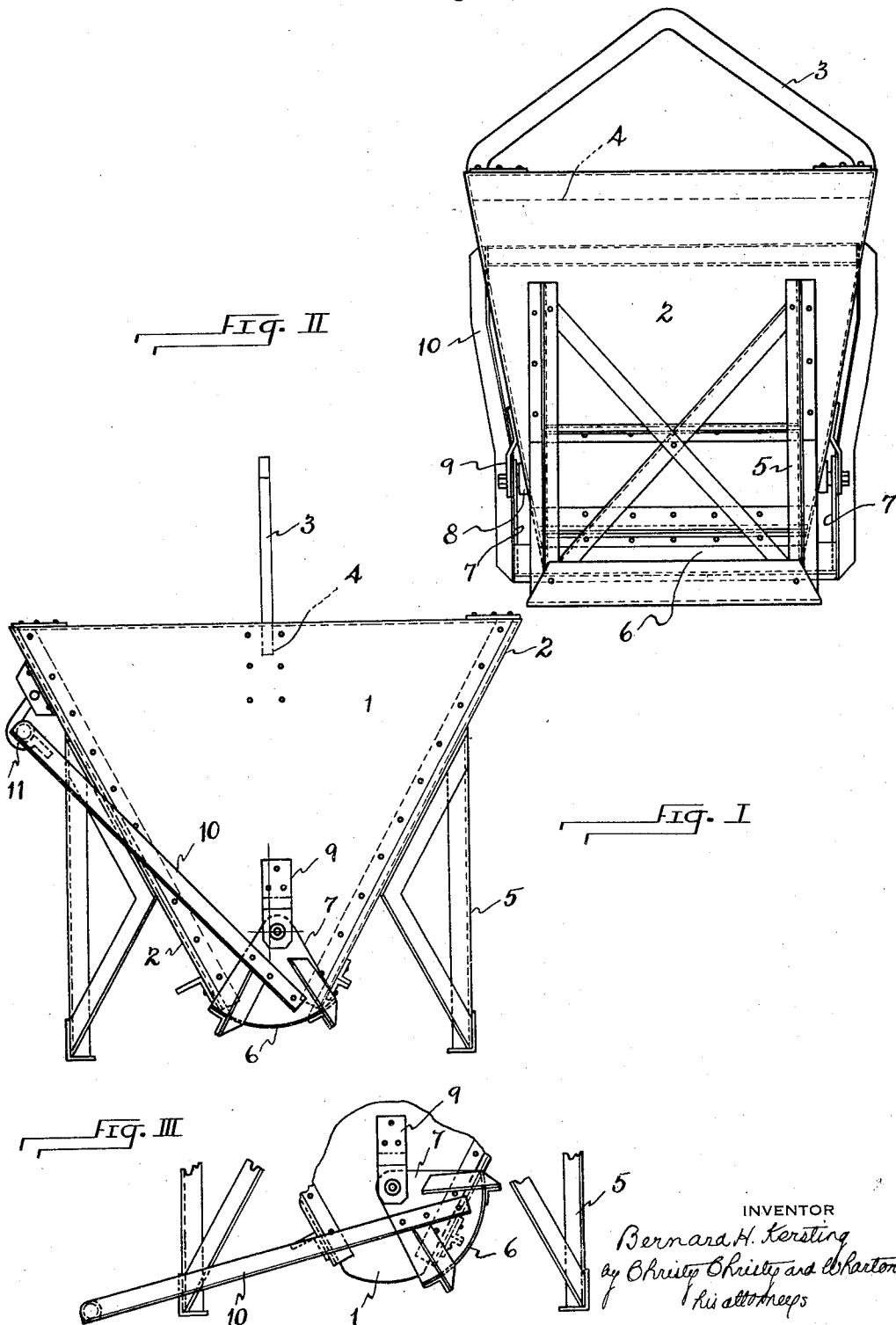
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CONCRETE BUCKET

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CONCRETE BUCKET

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This invention relates to concrete buckets, and consists in structure such as to give to the bucket increased durability and increased facility of use. Specifically the bucket is of the type known as the bottom-dump concrete bucket. It is illustrated in the accompanying drawing, in which Fig. I is a view of the bucket when in closed position, seen in side elevation. Fig. II is a view of the bucket in end elevation. Fig. III is a fragmentary view, showing in side elevation the lower discharge end of the bucket when in open position.

The bucket is of essentially hopper shape, including side walls 1 and end walls 2, the opposite walls tapering, as will be seen on comparing Figs. I and II. The walls taper to a nether central orifice, through which orifice dumping is effected. The bucket is equipped with a triangular-shaped lift bar 3, a shape which assures the carrying of the bucket in level position, since the crane hook by which the bucket ordinarily is lifted must slide upon the lift bar to the central high point before the crane will pick the bucket up. A strut, indicated at 4, at the base of the lift bar, prevents distortion of the bucket and splitting at the corners because of lifting stresses.

Strongly trussed legs 5 are provided, upon which the bucket may stand upon a horizontal surface, and they are widely spaced, to allow for dumping of the bucket.

The gate which controls the bottom discharge orifice of the bucket consists of a plate 6, of curved configuration, constituting conveniently a fractional part of a cylindrical shell, and arranged beneath the bucket orifice in upwardly concave position. This shell is carried upon end plates 7, spaced apart at an interval greater than the width of the bucket, and pivoted externally upon the side walls of the bucket. The pivot pins upon which the closure so constituted is hung are supported at both ends: at their inner ends in blocks 8, secured externally to the bucket walls, and at their outer ends in brackets 9, anchored to the walls, and in consequence of this particular structure, the pins cannot sag and the gate

cannot drop nor jam. The point of pivoting of the gate is eccentric with respect to the curvature of the plate 6. As seen in Fig. I, the center of curvature is to the left of, and not higher than, the center of pivotal turning, and, in consequence, as in opening the gate swings counter-clockwise on its pivotal axis, the plate 6 will at every point recede downwardly and to the right, away from the edges of the discharge orifice of the bucket.

As is well shown in Fig. I, the plate 6, when the bucket is new, extends at the two edges upwardly beyond the horizontal plane in which the plate most closely approaches and substantially touches the edges of the side walls 2. In consequence of this, the gate may continue to be effective through longer periods of time, as in the course of use the edges of the discharge orifice of the bucket gradually wear away. As the edges wear it is only necessary, in making closure, that the gate swing further in clockwise direction, as seen in Fig. I, to maintain a continuing effective closure.

The dumping device includes, in addition to the gate which has been described, a yoke 10. This yoke is, in shape, three sides of a rectangle. Its otherwise free ends are rigidly secured to the plates 7 of the gate. The yoke in the assembly external to the bucket end surrounds the bucket on one side. When the assembly is complete and the gate is closed the yoke occupies the upwardly-inclined position shown in Fig. I, in which position it may be secured, as by the hook 11. When the bucket is to be emptied the yoke is released from the hook, or the hook is slipped to one side, and then, by the swinging of the yoke from the position shown in Fig. I to the position shown in Fig. III, the gate is swung counter-clockwise to the position shown in Fig. III, where, as will be seen, it is withdrawn entirely, and the discharge orifice of the bucket is perfectly free and unobstructed.

This dumping device is controllable from every point on three sides of the bucket. When the gate is open the yoke affords counterbalance effective to maintain the gate

open. With respect to the length of the arms of the yoke, the gate swings on a relatively short radius, and the leverage which the yoke affords is very powerful, to afford easy dumping. Dumping may be effected at any desired speed, and the escape of concrete (that being the usual commodity) may be shut off at any time. The gate in its manufacture may be very carefully matched to the discharge orifice of the bucket, and in consequence the bucket will be practically leak proof, and, as has been explained above, this closeness of fit will, in consequence of the eccentric feature of the curvature, continue effective while the bucket in service is subjected to wear. The design of the gate is such as to permit of the use of heavy plates for the body of the bucket, and consequently a structure of great durability may be produced.

The operation of the bucket is manifest from what has been said. It is shown in Fig. I in closed position, and in that position it is filled, picked up, as by a crane, transported, and brought to position for dumping. When in position for dumping, the hook 11 is swung, and then the dumping device is operated by turning the whole on the pivotal axis described. As the yoke 10 comes to the horizontal position shown in Fig. III, the plate 6 recedes. When the bucket then has discharged all of its contents, or as much of its contents as is desired, the dumping device is swung again on the pivotal axis, to effect closure. As has been said, the wearing away of the edges of the discharge orifice of the bucket does not cause leakage. The extension of the plate 6 beyond the edges of the discharge orifice makes it possible to maintain tight closure merely by swinging the plate farther in clockwise direction, to compensate for wear.

It will be perceived that if the gate be swung to an intermediate position between the position shown in Figs. I and III, it will itself serve as a spout for directing the contents of the bucket as they are discharged.

I claim as my invention:

1. A bottom-dump bucket provided with opposite walls downwardly inclined to a central discharge orifice, a gate consisting of an upwardly concave closure plate arranged beneath the discharge orifice and pivoted on an axis which intersects the opposite bucket walls and which is eccentric with respect to plate curvature, whereby on the swinging of the plate from closed position its heel rises and its toe descends and at every point it recedes from the edges of the bucket orifice, the said plate and its heel extending upwardly beyond the horizontal plane in which, when the bucket is new, it meets the bucket wall, whereby com-

ensation for wear is afforded, and the gate continues effective during prolonged use.

2. A bottom-dump bucket provided with opposite walls downwardly inclined to a central discharge orifice, and a dumping device consisting of an upwardly concave closure plate shaped to a fraction of a cylindrical shell, pivoted on an axis eccentric with respect to plate curvature, whereby on the swinging of the plate from closed position it recedes at every point from the edges of the bucket orifice, the said dumping device including also a yoke rigidly secured at its ends to the closure plate at its ends, surrounding the bucket at one side, constituting the means for swinging the closure plate, and when the plate is in open position constituting a counterbalance therefor.

3. A bottom-dump bucket provided with opposite walls downwardly inclined to a central discharge orifice, a gate consisting of an upwardly concave closure plate arranged beneath the discharge orifice and pivoted on an axis eccentric with respect to plate curvature, whereby on the swinging of the plate from closed position it recedes at every point from the edges of the bucket orifice, together with a yoke rigidly secured at its ends to the closure plate at its ends, surrounding the bucket at one side, constituting the means for swinging the closure plate, the closure plate with the yoke tending to swing in response to gravity from closed to open position.

In testimony whereof I have hereunto set my hand.

BERNARD H. KERSTING.