

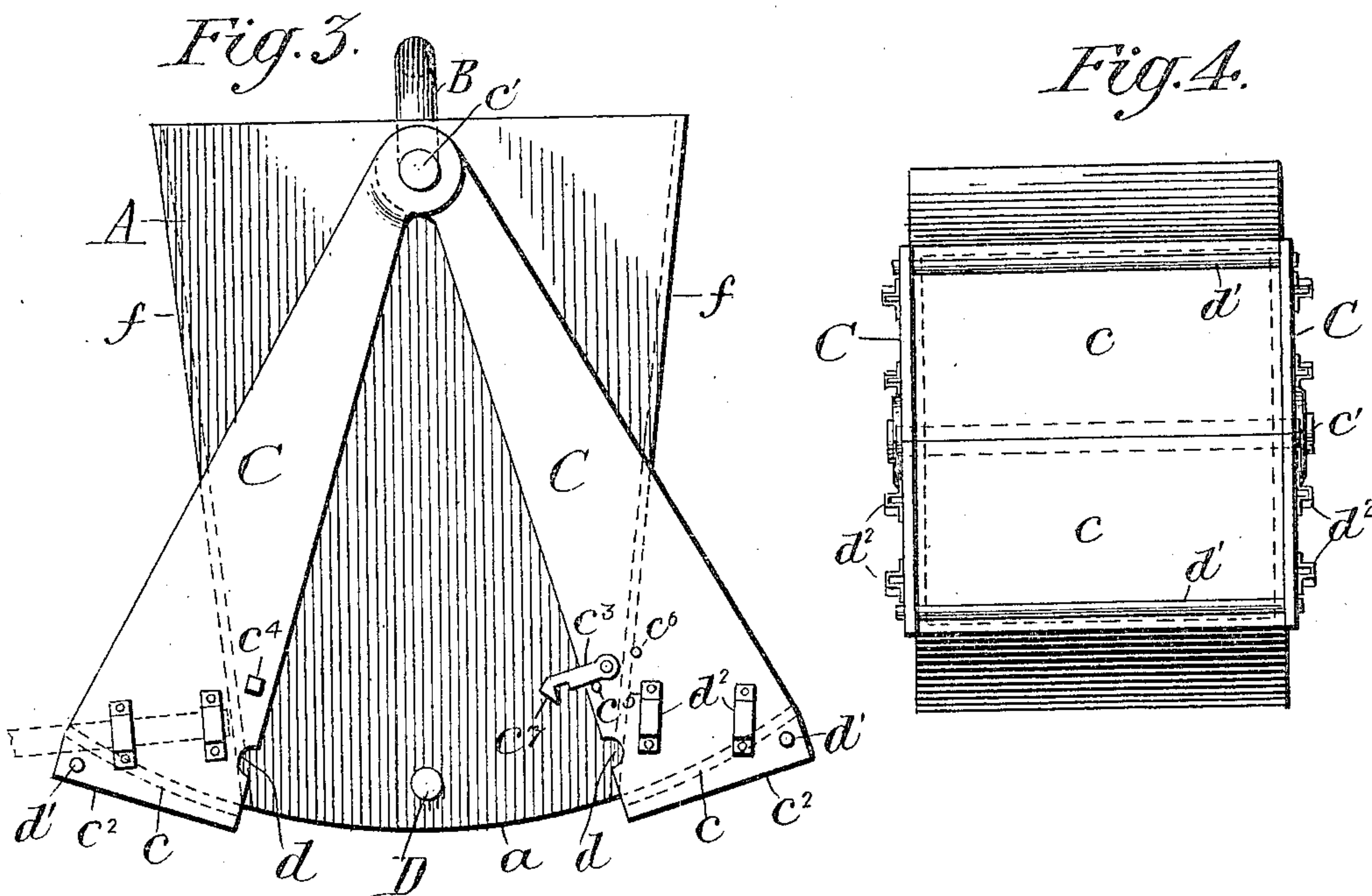
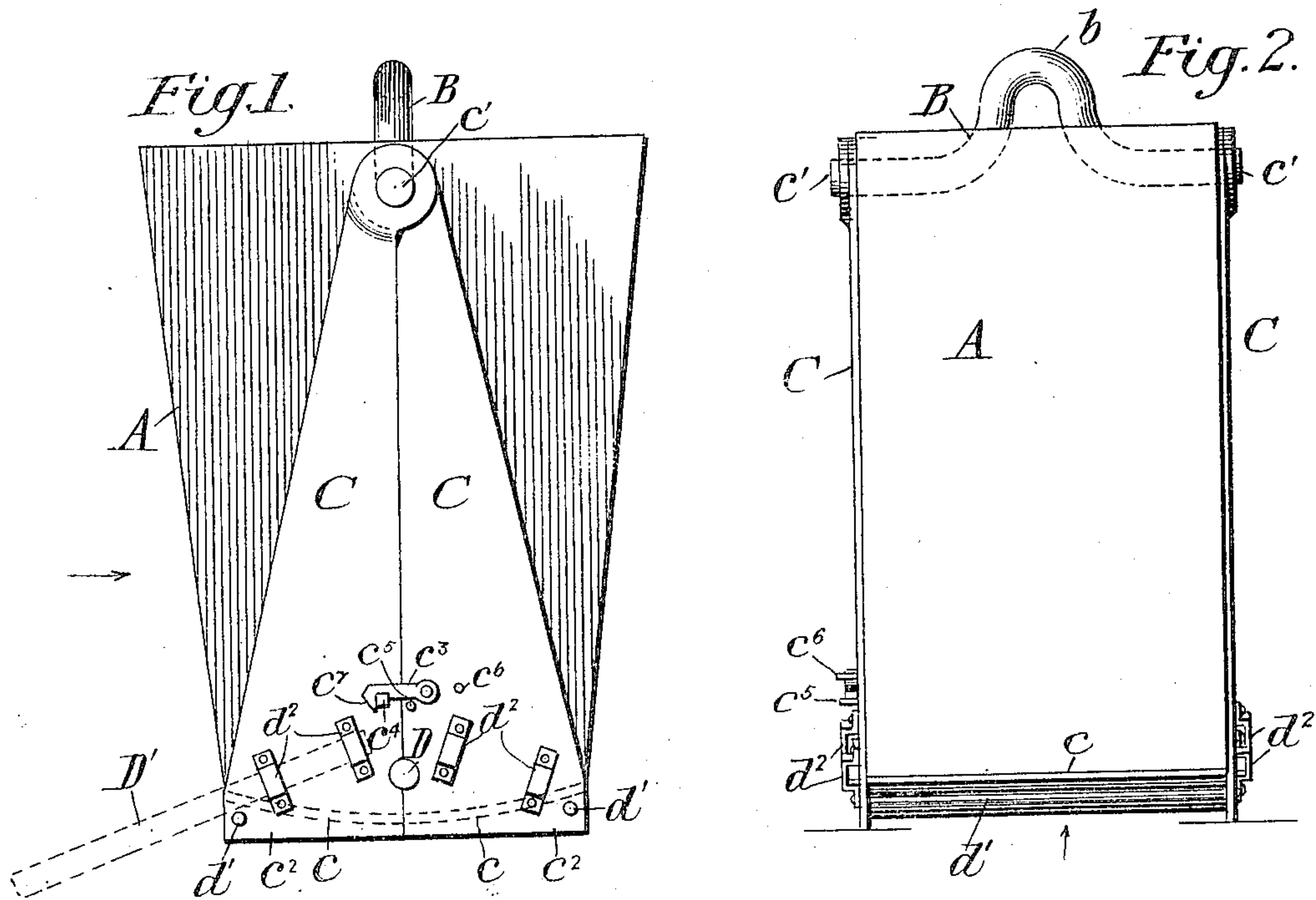
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PATENTED NOV. 14, 1905.

P. C. HAINS, JR.

BOTTOM DUMPING AND HANDLING BUCKET.

APPLICATION FILED AUG. 14, 1905.



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UNITED STATES PATENT OFFICE.

PETER C. HAINS, JR., OF WASHINGTON, DISTRICT OF COLUMBIA.

BOTTOM-DUMPING AND HANDLING BUCKET.

No. 804,221.

Specification of Letters Patent.

Patented Nov. 14, 1905.

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To all whom it may concern:

Be it known that I, PETER C. HAINS, Jr., a citizen of the United States, residing at Washington, in the District of Columbia, have invented certain new and useful Improvements in Bottom-Dumping and Handling Buckets, of which the following is a specification.

The invention to be hereinafter described relates to concrete-handling buckets employed to contain, transport, and deliver heavy masses of concrete. In such devices it is desirable that means be provided for enabling all or only a part of the bucket contents to be delivered, according to the necessities of use, and that the bucket be so constructed that it may rest upon a support, such as the ground or flatcar, without liability of injury to the dumping mechanism. Owing to the mass and weight of concrete contained in such a bucket it is also a desideratum that the bottom-dumping means shall be so contrived that the strains shall be properly transmitted to the suspending means when such bucket is raised by derrick or otherwise.

With these general considerations in view the object of the present invention is to provide a concrete-handling bucket with bottom-dumping doors of simple yet efficient construction, which shall be easily operated to discharge all or any portion of the bucket contents, as desired, and in which means shall be provided for enabling the bucket to rest upon a support or be suspended from a derrick or other means, the weight at such times being distributed through the bottom-dumping doors to enhance the life and utility of the entire structure.

The invention having these general objects in view consists of the parts and combinations to be hereinafter described and then definitely pointed out in the claims.

In the drawings, Figure 1 is a side view of a bottom-dumping bucket embodying one form of the present invention. Fig. 2 is a view of the bucket at right angles to that of Fig. 1 looking in the direction of the arrow, Fig. 1. Fig. 3 is a view similar to Fig. 1, showing the bottom-dumping doors fully opened; and Fig. 4 is a bottom plan looking in the direction of the arrow, Fig. 2.

The body A of the bucket may be of any desired material, form, and dimensions, that in the drawings being shown as having two of the side walls converging slightly from top to bottom. Extended transversely of the body

A, near the top thereof, is the suspending or handling bail B, the center portion of which may be provided with a loop or bent portion *b* of suitable form for engagement with the usual hook or like device of the hoisting apparatus.

Pivotaly connected to the sides of the body A, preferably upon the extended ends *c' c'* of the suspending or handling bail B, are the bottom-dumping gates or doors comprising in the form of the invention selected for illustration the side plates C C of somewhat triangular shape, the two plates on opposite sides of the bucket-body A being connected near their lower portions by the plate *c*, which, as well as the lower edges *a* of side walls of the body, are preferably curved on the arc of a circle having its center at the pivotal point of the gates or doors. By this simple construction it will be noted that when the gates or doors are closed the plates *c c* form the bottom of the bucket and sustain the weight of material within, and when they are opened more or less these plates are withdrawn from under the material and permit the same to flow from the bucket.

The side plates C C of the gates or doors are extended somewhat beyond the bottom plates *c c*, as at *c²*, so that when the gates or doors are closed these extended portions form a base or extended flange by which the bucket may be stood upon a support, such as the ground or a flat car, as will be obvious. (See Figs. 1 and 2.)

In order to maintain the doors in closed position, a lock of suitable type may be provided, that selected for illustration comprising a latch *c³*, pivoted to one gate or door and a keeper *c⁴*, secured to the other gate or door, suitable pins *c⁵ c⁶* being provided to prevent overmovement of the latch *c³*, the pin *c⁵*, when the doors are opened, sustaining the latch in such position that its inclined edge *c⁷* will ride over the keeper *c⁴* and enable the latch to automatically engage the keeper, as will be clear.

Since the doors are pivotaly connected to the body A of the bucket at the same points, some oscillation of the bucket-body with respect to the doors might take place when the bucket is standing by its sustaining-flanges upon a support, and to prevent this a limit-stop D is fixed to the body A and is adapted to be engaged by suitable recesses or slots *d* in the edges of side pieces C C. These limit-stops serve not only to steady the bucket-

body and prevent relative movement of such body and doors when the latter are in locked or closed position, but also act to determine the proper closed position of each.

5 In a concrete-bucket subject to rough handling by inexperienced workmen it is necessary that some simple and ready means be provided for opening the doors and dumping the contents. In the present form of the invention the cross-bars d' d' are provided, extending between the flanges c^2 and near the lower edges of the side pieces C of each gate or door, and these cross-bars serve as hand-rails, which may be seized by the workmen in order to draw the doors from their closed position. Owing to the weight of the material that rests upon the bottom plates of the doors it is desirable that some more effective means for moving them be provided, and in the present case straps d^2 d^2 are secured upon the side plates C of each door and into the loops of these straps, as shown in Figs. 1 2, a suitable hand-lever D' may be inserted, thus giving any desired length of leverage for opening the doors when the locking device or latch C³ is thrown back.

From the construction described it will be noted that by reason of the doors being pivotally connected to the body of the bucket upon the extended ends of the handling or suspending bail B when the bucket is lifted by means of the bail B substantially the entire body of the bucket contents resting upon the bottom plates of the doors is sustained directly from the bail B, thus distributing the strains incident to the weight of the material in the most economical way and direct manner to the suspending means. From the construction of the doors described also and by reason of their extensions below the bottom plates c a proper base is afforded to the bucket for standing it upon a support while filling the bucket or transporting it from place to place, and while in such position the limit-stop D effectively prevents all relative swinging movement between the body A and the doors of the bucket. It will be noted also that as the doors of the bucket swing about their pivotal connection the bottom plates c are carried in the arc of a circle past the lower edge of the side walls f f , Fig. 3, and such lower edge of said side walls acts as a scraper to remove from the bottom plate c any material that might otherwise cling thereto.

55 In the form of invention selected for illustration the bottom closure or door element of the device is shown composed of two parts pivotally connected to the body of the bucket or the extended ends of the handling or suspending bail B; but it is to be understood that variations in such construction may be made within the spirit of the present invention, which contemplates the provision of a transversely-swinging bottom closure which

is also provided with instrumentalities where- 65 by it may provide a base or pedestal upon which the entire bucket and its contents may be placed in upright position upon a support.

An important consideration in the present form of concrete-handling bucket is the fact 70 that the doors thereof may be operated so as to dump the whole or only a portion of the bucket contents. This characteristic is of especial value in some forms of concrete construction, where less than the entire bucket 75 contents are desired at any one spot.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. A bottom-dumping concrete - handling 80 bucket comprising a body portion, a bottom closure pivotally connected to said body portion, said bottom closure being provided with means for sustaining the bucket upon a support. 85

2. A bottom-dumping bucket comprising a body portion, a bottom closure pivotally connected to said body portion, and adapted to swing transversely thereof to dump all or a part of the bucket contents, and flanges connected to said bottom closure for sustaining the bucket upon a support. 90

3. A bottom-dumping bucket comprising a body portion, doors pivotally connected to the body portion and provided with bottom plates, said doors having extensions projecting beyond the bottom plates for sustaining the bucket upon a support. 95

4. A bottom-dumping bucket comprising a body portion, doors pivotally connected to the body portion and provided with bottom plates, said doors having extensions projecting beyond the bottom plates for sustaining the bucket upon a support and means for locking the doors in closed position. 100

5. A bottom-dumping bucket comprising a body portion, two doors pivotally connected to the body portion at the same pivotal point and having bottom plates, and a base connected to said doors for sustaining the bucket upon a support. 105

6. A bottom-dumping concrete-handling bucket, comprising a body portion, a bottom closure pivotally connected to said body portion, said bottom closure being provided with means for sustaining the bucket upon a support, and a steadying-pin secured to the body portion to prevent relative movement between the body portion and closure when the bucket is sustained upon a support. 110

7. A bottom-dumping bucket comprising a body portion, two doors pivotally connected to the body portion at the same pivotal point and having bottom plates, a steadying-pin secured to the body portion and adapted to be engaged by said doors to prevent relative movement of such body portion and doors when the bucket is sustained upon a support, 115 120 125

and a base connected to said doors for sustaining the bucket upon a support.

5 8. A bottom-dumping bucket comprising a body portion, a handling or suspending bail secured thereto and having extended ends, doors provided with bottom plates and hung upon the extended ends of said bail, whereby when the bucket is suspended the weight of material therein is transmitted direct from
10 the bottom of the bucket to the suspending means.

9. A bottom-dumping bucket comprising a body portion, a handling or suspending bail secured thereto and having extended ends,
15 doors provided with bottom plates and hung upon said extended ends, said doors having a

base portion projecting beyond the bottom plates to sustain the bucket on a support.

10. A bottom-dumping bucket comprising a body portion, doors comprising side plates 20 and a bottom plate uniting said side plates, said side plates being pivotally connected to the body portion and having portions extending beyond the bottom plates to provide a base for sustaining the bucket upon a support. 25

In testimony whereof I affix my signature in presence of two witnesses.

PETER C. HAINS, JR.

Witnesses:

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