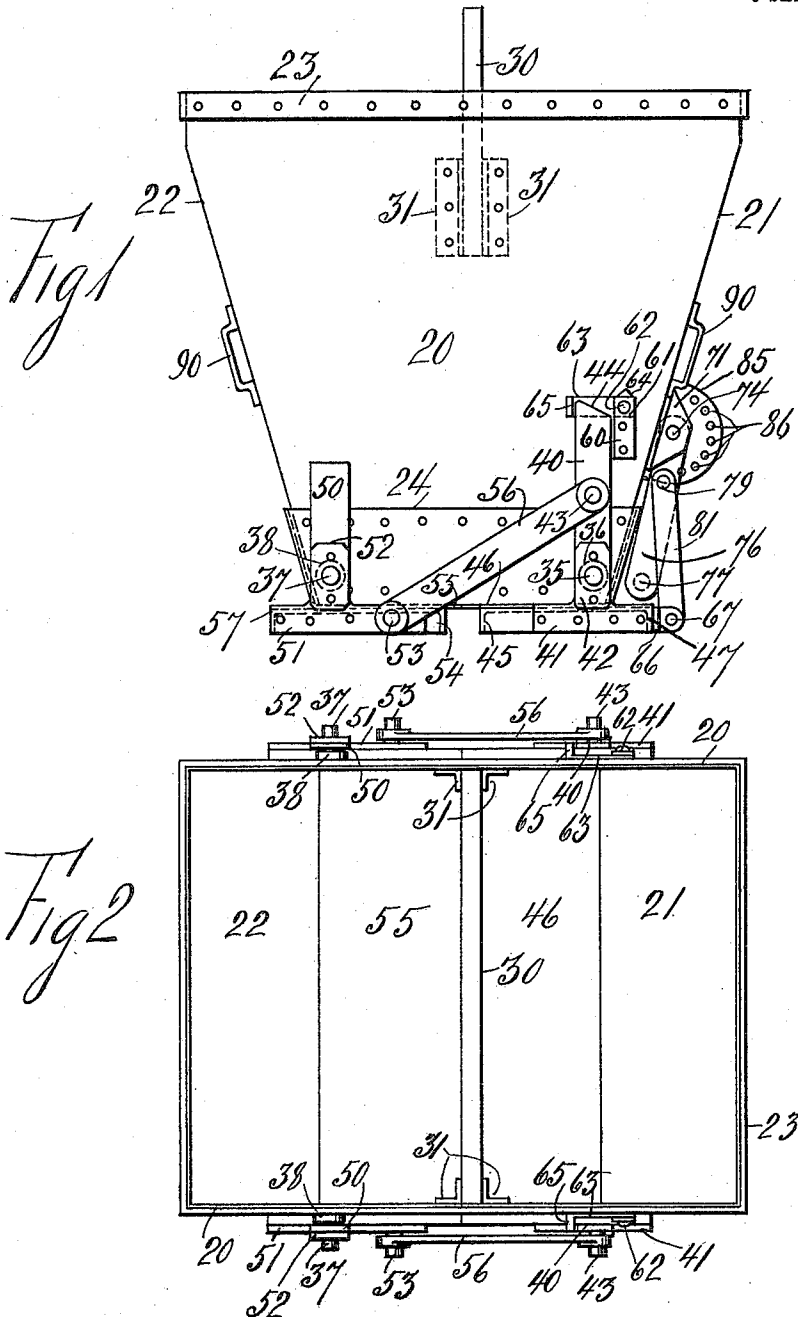


G. L. STUEBNER.
 BOTTOM DUMPING BUCKET.
 APPLICATION FILED SEPT. 14, 1909.

986,101.

Patented Mar. 7, 1911.

3 SHEETS—SHEET 1.



Witnesses
 Martin Zimansky.
 John J. Millin

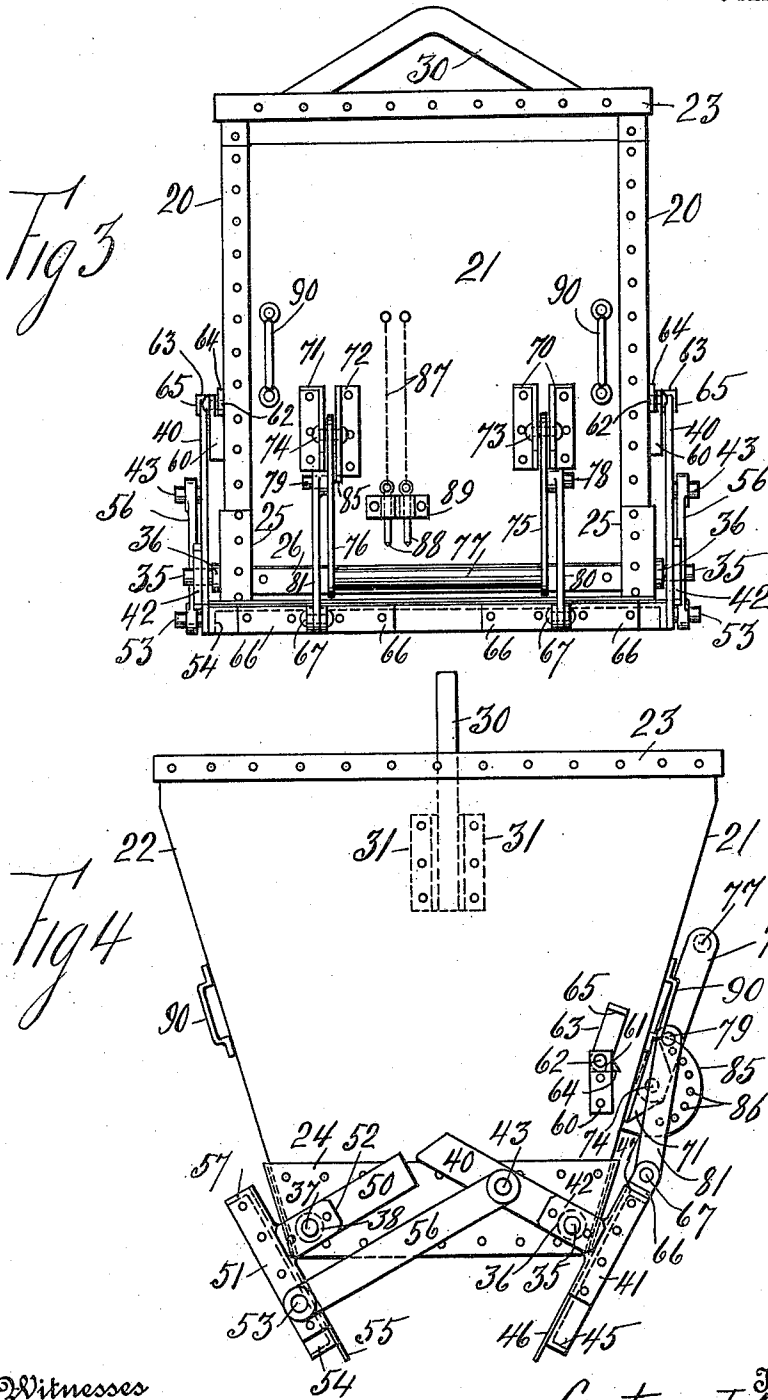
Inventor
 Gustavus L. Stuebner
 By his Attorney
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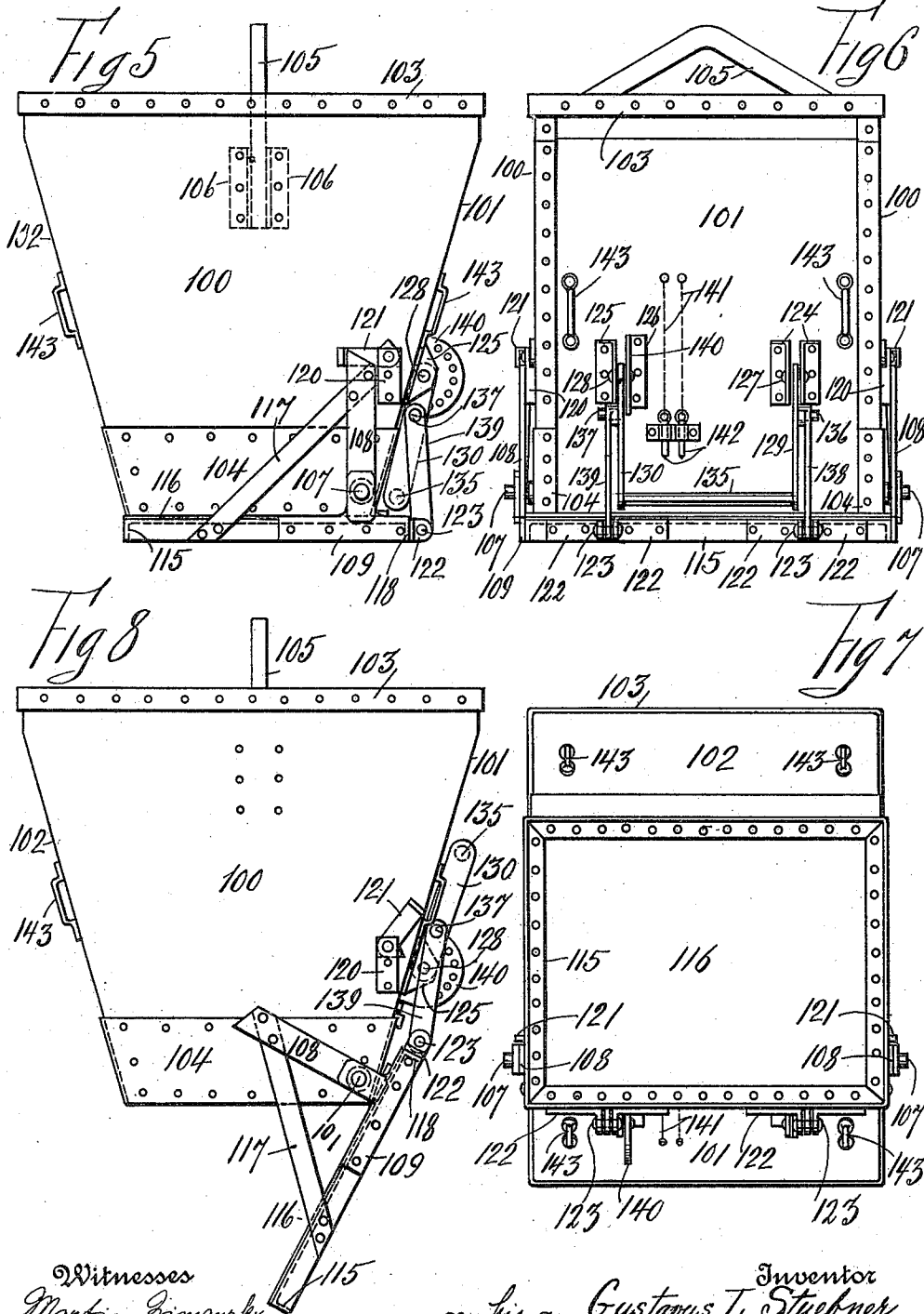
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3 SHEETS-SHEET 3.



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UNITED STATES PATENT OFFICE.

GUSTAVUS L. STUEBNER, OF FLUSHING, NEW YORK.

BOTTOM-DUMPING BUCKET.

986,101.

Specification of Letters Patent.

Patented Mar. 7, 1911.

Application filed September 14, 1909. Serial No. 517,549.

To all whom it may concern:

Be it known that I, GUSTAVUS L. STUEBNER, a citizen of the United States, and a resident of Flushing, in the county of Queens and State of New York, have invented certain new and useful Improvements in Bottom-Dumping Buckets, of which the following is a specification.

This invention relates to bottom dumping buckets and its object is to produce a bucket with either one or two bottom swinging doors, which have connected thereto a main locking device, obtained by linked connections between one of the said swinging doors and the operating arms of the bucket.

A second or safety locking device comprises latches which lock the legs of brackets of one of the bottom swinging doors.

A third feature of the invention comprises means to regulate the amount of the opening of the bottom door or doors, to secure different angles of inclinations for said door or doors when dumping the charges from the bucket. The bottom swinging doors of the bucket are preferably extended beyond the lower edges of the ends of the body thereof to constitute extensions or feet for the said body, when the bucket is placed on a support. The main locking device is preferably connected up between one of the ends of the body of the bucket and the extended end of one of the swinging doors. The novel feature of the said main locking device consists in the upward force exerted by the extended end of one of the swinging doors, which force tends to maintain one or a pair of parallel locking links against one or a pair of operating arms. The locking links by being held stationary prevent the swinging door or doors from opening or swinging down. When the position or positions of the said arm or arms are changed so that the locking links are no longer locked, the said door or doors are dropped. The operating arms and locking links might be attached to the sides of the bucket and still the spirit of the invention contained in the main locking device would be the same.

In the accompanying drawings Figure 1 represents a side view of a bucket exemplifying one form of the invention, Fig. 2 shows a top plan view of Fig. 1, Fig. 3 is a right hand end view of Fig. 1, Fig. 4 is a view similar to Fig. 1 with the movable elements in changed positions, Fig. 5 represents a side view of a second form of the in-

vention, Fig. 6 shows a right hand end view of Fig. 5, Fig. 7 represents a bottom plan view of Fig. 6, and Fig. 8 is a view similar to Fig. 5 with the moving elements in changed positions.

Referring particularly to Figs. 1 to 4 the bucket is shown with a body having the sides 20, ends 21, 22, reinforcing band 23 at the upper edge thereof, and reinforcing plates 24 at the lower portions of the said sides 20, with their ends 25 bent over the corners of the said sides and ends. Reinforcing plates 26 are fastened to the lower portions of the ends 21, 22, of the bucket and extend between the said ends 25. A bail 30 is fastened to the sides 20 of the bucket by means of the angle irons 31. Pivots 35 having the collars 36 and pivots 37 having the collars 38 extend from the lower portions of sides of the bucket, the said collars 36 and 38 bearing on the plates 24.

The pivots 35 support a bottom swinging door which comprises two swinging brackets that each have a vertical leg 40 and a horizontal leg 41. Each leg 40 carries a reinforcing block 42 to thicken the bearing for its pivot 35. The said legs 40 also carry a pivot 43 and each has its upper end 44 chamfered to easily lock with its latch to be described. An inverted box shaped frame 45 connects the inner accompanying faces of the legs 41, and a door plate 46 is fastened to the frame 45 between said legs 41. The pivots 37 support a bottom swinging door, which comprises two swinging brackets that each have a vertical leg 50 and a horizontal leg 51, the weights of the legs 50 assisting the lowering of their door when it is in a tilted position. Each leg 50 carries a reinforcing block 52 to thicken the bearing for its pivot 37, and each leg 51 carries a pivot 53. An inverted box shaped frame 54 connects the inner accompanying faces of the legs 51, and a door plate 55 is fastened to the frame 54 between the said legs 51. Connecting links 56 on each side of the bucket connect the pivots 43 and 53. The legs 41 and frame 45 extend beyond the lower edge of the end 21, and the legs 51 and frame 54 extend beyond the end 22 to form respectively the extended ends 47 and 57 for the doors of which they form parts. The doors when in their closed positions constitute feet for the bucket. Hinge stop blocks 60 with the horizontal bearing surfaces 61 are secured to the sides 20, in the paths of the

legs 40 and carry the pivots 62 on which latter are pivoted the latches 63 for said legs 40. An end bearing face 64 on the latch 63 registers with the bearing surface 61 when the latch is thrown up, and a nose 65 is formed at the other end of each latch.

On the outer end portion of the frame 45 are fastened two pairs of angle brackets 66 that carry the pivots 67. A pair of angle brackets 70 and 71, 72, are fastened to the end 21 of the bucket. A pivot 73 is secured in the brackets 70 and a pivot 74 is secured in the brackets 71, 72. An operating arm 75 is pivoted on the pivot 73, and an operating arm 76 is pivoted on the pivot 74. An operating bar 77 connects the swinging ends of the arms 75 and 76. Pivots 78 and 79 respectively on the arms 75 and 76 carry respectively the upper ends of the locking links 80, 81, the lower ends of which latter are pivoted on the pivots 67. Bearing plates 82 are secured to the end 21 for the arms 75 and 76. The bracket 72 has formed therewith the segmental member 85 with the holes 86. Chains 87 fastened to the end 21 carry the stop pins 88 normally supported in the pin holder 89 fastened to said end 21. One of the stop pins 88 is inserted into one of the holes 86 in the path of the arm 76 to control the angularity of the doors when open or in their lowered positions. Two stop pins are provided so that the second one can be inserted in one of the holes 86 when the first one is in place, and then the operator by bearing down on the operating bar can detach the first pin and allow the operating arm 76 to bear up against the said second pin. The two stop pins may be simultaneously used to bear on opposite sides of an operating arm to lock the doors. Handles 90 are fastened to the ends 21 and 22 for handling the bucket.

In the modification shown in Figs. 5 to 8 the bucket is shown with a body having the sides 100, ends 101, 102 reinforcing band 103 at the upper edge thereof, and the reinforcing plate 104 at the lower portions of said sides and ends. A bail 105 is fastened to the sides 100 of the bucket, by means of the angle irons 106. Pivots 107 similar to 35 extend from the lower portions of the sides of the bucket. The said pivots 107 support a bottom swinging door which comprises two brackets, that each have a vertical leg 108 and a horizontal leg 109, similar to the legs 40 and 41 respectively. An inverted box shaped frame 115 connects the inner faces of the legs 109 and a door plate 116 is fastened to the frame 115 between said legs 109 and of large enough area to close the bottom of the bucket without any accompanying door. Braces 117 tie the legs 108 with the frame 115, and the door has an extended end 118 beyond the end 101. Hinge stop blocks 120 similar to the stop

blocks 60 are secured to the sides 100, in the paths of the legs 108, and have pivoted thereto the latches 121, similar to the latches 63. On the extended end or extension 118 of the door are fastened two pairs of angle brackets 122, similar to 66 and which carry the pivots 123.

A pair of angle brackets 124 and 125, 126 are fastened to the end 101. A pivot 127 is secured in the brackets 124 and a pivot 128 is secured in the brackets 125, 126. An operating arm 129 is pivoted on the pivot 127 and an operating arm 130 is pivoted on the pivot 128, and bearing plates 131 are fastened to the end 101 for said arms. An operating bar 135 connects the arms 129 and 130. Pivots 136 and 137 respectively on the arms 129 and 130 carry respectively the upper ends of the locking links 138, 139 the lower ends of which latter are pivoted on the pivots 123. The bracket 126 has formed therewith a segmental member 140 similar to 85. Chains 141 with stop pins 142 similar to 88 are fastened to the end 101 of the bucket, and the handles 143 are fastened to the ends of the bucket.

Referring to Figs. 1 to 4 and to charge the bucket with the material to be handled, the operating arms 75, 76 and locking links 80, 81 are brought to their locked positions which maintain both the swinging doors closed with the body of the bucket. When the charge is to be dumped the operator raises the operating bar 77, which raises the operating arms, 75, 76, the locking links 80, 81, and swings down the legs 40, lowering thereby the door with which the latter are connected. With the swinging down of the legs 40 the connecting links 56 lower, which causes the other door of the bucket to lower. The lowering of the doors discharges the load from the bucket.

The latches 63 with their arms 108 constitute respectively safety locking devices for their respective swinging doors. The moment of force produced by the weight of the door having the legs 40 with respect to the axial center of the pivots 35, transmits force to the pivots 78 and 79, and forces the said legs 40 against the noses 65 of the latches 63.

It will be noted that when the swinging doors are closed up against the body of the bucket that the axial centers of the pivots 78, 79 are nearer the end 21, than the horizontal distance from said end 21 of a line drawn through the axial centers of the pivots 73, 74 and the pivots 67, thereby maintaining the operating arms 75 and 76 lowered and adjacent to said end 21, producing a locking device with the said operating arms 75, 76, and the locking links 80, 81, for the swinging bottoms of the bucket. It will be noted that in the locking device just above described, that forces are transmitted

from the pivots 67 through the links 80, 81, to the pivots 78, 79 on the operating arm 75, 76. This force increases with increased weight of the swinging bottoms, and the greater the latter the greater will be the forces tending to maintain the said operating arms 75, 76 in their lowered position, and consequently the efficiency of the locking device for the doors increases with the increase of the weights of the charges in the buckets.

The operations of the modified bucket shown in Figs. 5 to 8 are similar to the operations of the bucket shown in Figs. 1 to 4. The safety locking devices formed with the latches 63 and 121 are used when there is danger of the other or main locking devices becoming unlocked, as would result if their operating arms 75, 76, 129, 130 or their operating bars 77, 135 were raised, by coming in contact with some obstruction, or were accidentally raised. They are also useful if the pivots with their connections of the main locking devices become worn, and which might prevent the pivots 78, 79 and 136, 137 being forced sufficiently close to the bodies of the buckets to lock the members of the main locking devices in locked positions.

The bucket shown in the drawings have ends which are inclined to each other, but they may be parallel and in fact the bucket may be made of any suitable form.

Having described my invention what I desire to secure by Letters Patent and claim is:

1. In a bottom dumping bucket the combination of a body, a bottom swinging door pivoted to said body, a latch on each side of the said body, a pair of legs on said bottom in the path of said latches, a pair of operating arms pivoted to one end of the bucket, a pivot on each arm, a pair of pivots on the said door and a pair of locking links connecting the latter pivots with the pivots on the arms.

2. In a bottom dumping bucket the combination of a body, a pair of bottom swinging doors pivoted to said body, a pair of legs connected up with one of said bottoms a pair of latches on the body of the bucket coacting with said legs, two pairs of brackets extending from the body of the bucket, an operating arm pivoted to each pair of brackets, a member for one of said brackets having holes, a stop pin for said holes to maintain the operating arm coacting therewith in different positions, a pair of locking links connecting said operating arms with the door adjacent thereto and connecting links joining the said legs of the swinging door with the other door of said bucket.

3. In a bucket the combination of a body, a bottom swinging door pivoted to said body with an extension beyond said body when in a closed position, an operating arm pivoted

to one of the ends of the body adjacent to said extension and a locking link with one end pivoted to said extension of said door and the other end pivoted to the said operating arm, the weight of the door when in its closed position forcing the locking link against the operating arm and the latter bearing against the said end of the bucket.

4. In a bucket the combination of a body, a bottom swinging door pivoted to said body and an extension of the door extending beyond one of the ends thereof when in a closed position, a pair of operating arms pivoted to said end of the body of the bucket, two pairs of angle brackets extending from said extension, a pivot carried by each pair of brackets, a pair of locking links with one end of each supported on one of said pivots and the other ends of said links pivoted to the operating arms forming locking devices therewith, and an operating bar connecting the swinging ends of the operating arms.

5. In a bucket the combination of a body, a bottom swinging door pivoted to said body and an extension of the door extending beyond one of the ends thereof when in a closed position, a pair of operating arms pivoted to said end of the body of the bucket, two pairs of angle brackets extending from said extension, a pivot carried by each pair of brackets, a pair of locking links with one end of each supported on one of said pivots and the other ends of said links pivoted to the operating arms forming locking devices therewith, an operating bar connecting the swinging ends of the operating arms, and a secondary locking device connected up between the swinging door and the body of the bucket.

6. In a bucket the combination of a body, a bottom swinging door pivoted to said body and an extension of the door extending beyond one of the ends thereof when in a closed position, a pair of operating arms pivoted to said end of the body of the bucket, two pairs of angle brackets extending from said extension, a pivot carried by each pair of brackets, a pair of locking links with one end of each supported on one of said pivots and the other ends of said links pivoted to the operating arms forming locking devices therewith, an operating bar connecting the swinging ends of the operating arms, and a latch connected up between the said door and the body of the bucket.

7. In a dumping bucket the combination of a pair of bottom swinging doors pivoted thereto, the doors extending beyond the said body when in their closed positions to form feet therefor, connections between the doors, a pair of operating arms pivoted to one of the ends of the bucket and locking devices connected up between the extended portion of one of the doors and the said operating arms.

8. In a bucket the combination of a body, a pair of swinging doors pivoted thereto, the outer ends of the doors extending beyond the ends of the said body and forming feet
5 for the body of the bucket when the doors are in their closed positions, a pair of links joining said doors, a pair of operating arms pivoted to one of the ends of the bucket, two
10 pairs of brackets extending from the said extended end, a pivot carried by each pair of brackets and a locking link with one end supported on one of said pivots and the other ends of the links pivoted to the operating
15 arms forming locking devices therewith and an operating bar connecting the swinging ends of the operating arms.

9. In a bucket the combination of a body, a pair of bottom swinging doors pivoted thereto, the outer ends of the doors extending
20 beyond the ends of the said body and forming feet for the body of the bucket when

the doors are in their closed positions, a pair of links joining said doors, a pair of operating arms pivoted to one end of the bucket, two pairs of brackets extending from the
25 said extended ends, a pivot carried by each pair of brackets and a locking link with one end supported on one of said pivots and the other ends of the links pivoted to the operating
30 arms forming locking devices therewith an operating bar connecting the swinging ends of the operating arms, and a latch on each side of the body of the bucket coacting with one of said doors.

Signed at the borough of Manhattan in
the county of New York and State of New
York this 7th day of September A. D. 1909.

GUSTAVUS L. STUEBNER.

Witnesses:

A. A. DE BONNEVILLE,
MARTIN ZIMANSKY.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
Washington, D. C."
