G. FOCHT.

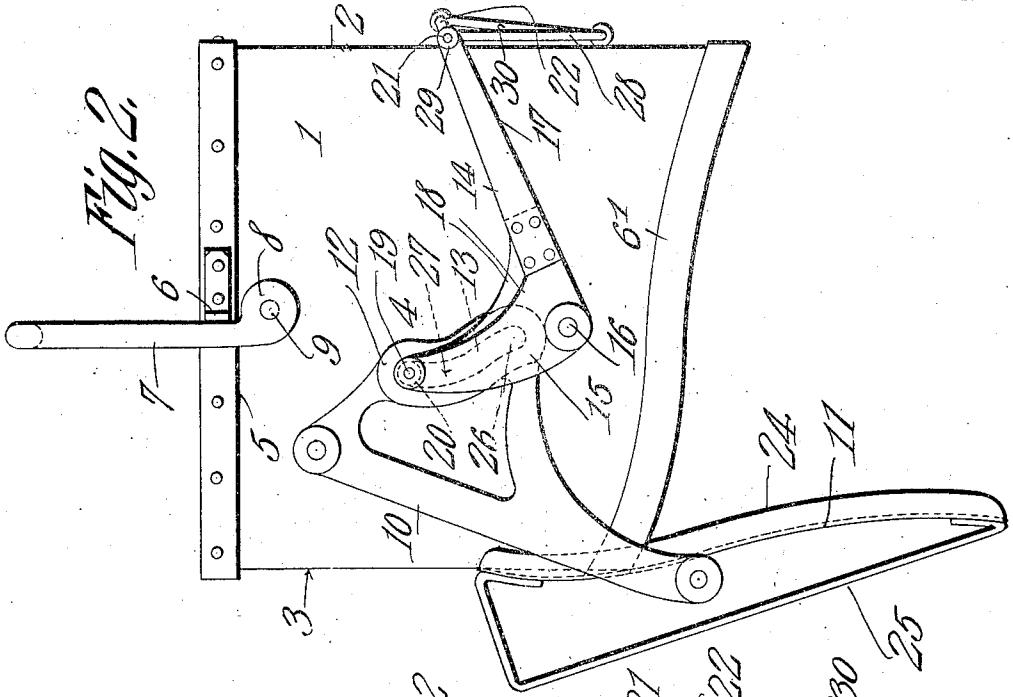
BOTTOM DUMP BUCKET.

APPLICATION FILED AUG. 21, 1908.

946,726. Patented Jan. 18, 1910.

2 SHEETS—SHEET 1.

Fig. 2.



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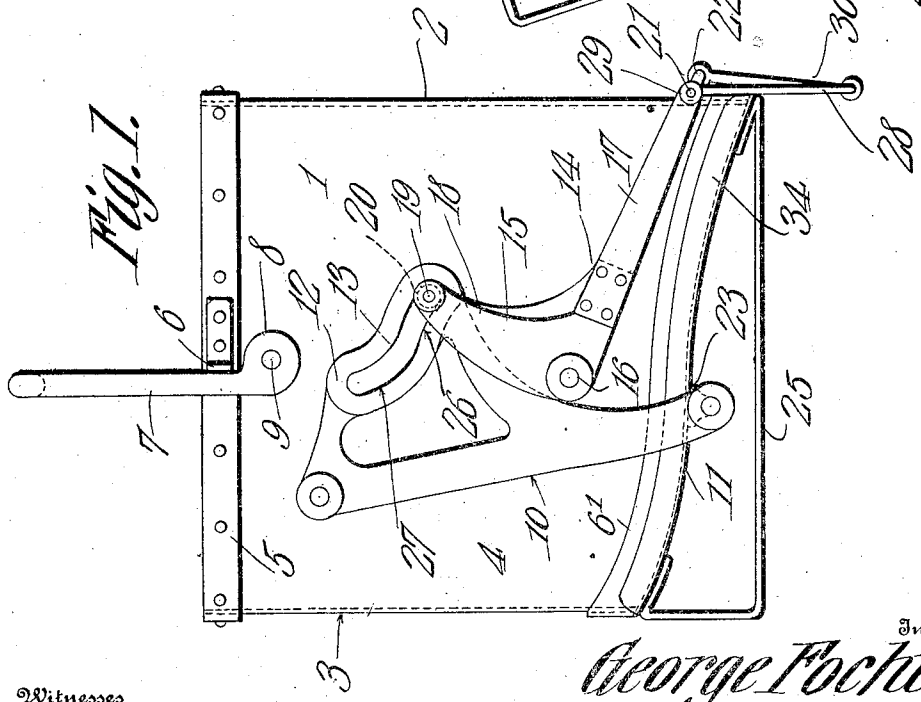

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2 SHEETS—SHEET 2.

Fig. 4.

Fig. 5.

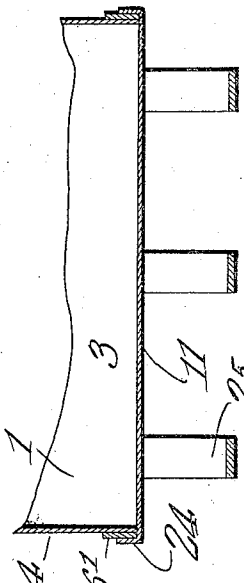
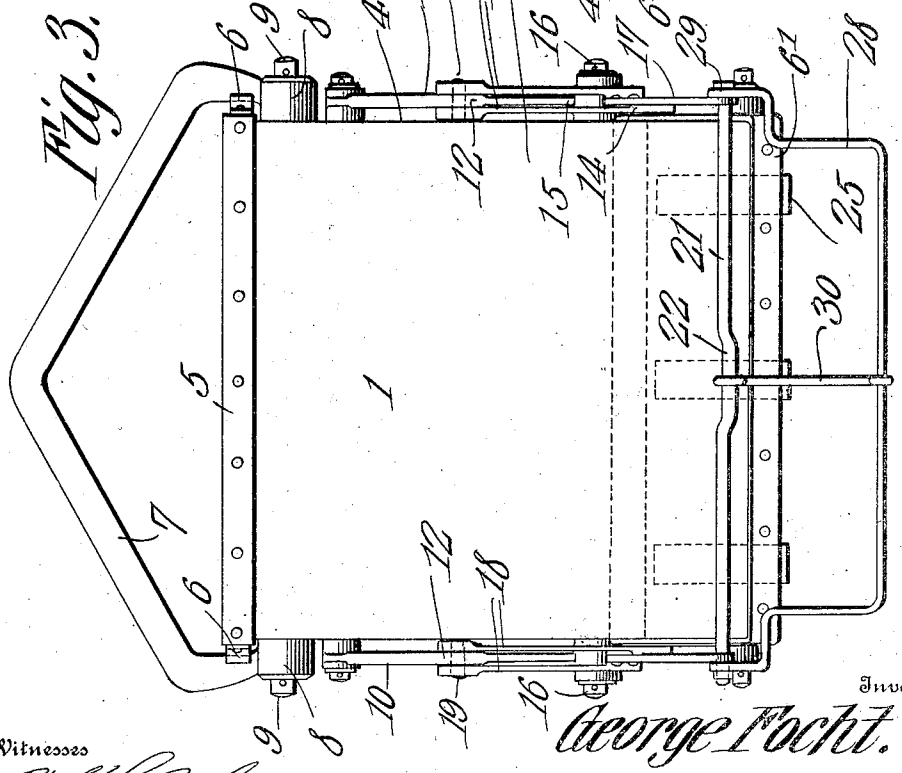


Fig. 3.



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UNITED STATES PATENT OFFICE.

GEORGE FOCHT, OF HOBOKEN, NEW JERSEY.

BOTTOM-DUMP BUCKET.

946,726. Specification of Letters Patent. Patented Jan. 18, 1910.

Application filed August 21, 1908. Serial No. 449,676.

To all whom it may concern:

Be it known that I, GEORGE FOCHT, a citizen of the United States, residing at Hoboken, in the county of Hudson and State of New Jersey, have invented a new and useful Bottom-Dump Bucket, of which the following is a specification.

This invention has relation to bottom dump buckets, and it consists in the novel construction and arrangement of its parts, as hereinafter shown and described.

The object of the invention is to provide a bucket of the character indicated in which, during the act of dumping, the bottom first moves laterally with relation to the body of the bucket, and then swings at one edge away from the body whereby sufficient space is cleared in order to permit the free passage of the contents of the bucket from the same and between the lower edge of the body of the bucket and the bottom thereof.

A further object of the invention is to so connect the bottom with the body that during the act of dumping the lower edge of one of the sides of the body will scrape and clear a certain area of the bottom of the bucket whereby the said area is cleaned of the material, and, when the said bottom again assumes its position in closing the body, it is freed of material which might otherwise interfere with the proper seating of the bottom of the bucket against the lower edge of the body.

A further object of the invention is to provide a bucket of the character indicated with a bottom of peculiar configuration, by reason of which the material is readily shed or liberated from the said bottom when it is swung into dumping position.

A further object of the invention is to provide means whereby the bucket may be automatically dumped, or the bottom thereof swung to dumping position when the bucket approaches the bottom of a foundation, or a bottom which is submerged.

With these objects in view, the invention consists, primarily, of a bucket which is substantially rectangular in horizontal sections, and to the opposite sides of which is attached coöperating links and levers. The said levers are fulcrumed to the sides of the bucket and the links are pivotally connected at their upper end portions to the sides of the bucket, while the bottom is pivotally connected to the lower ends of the links, and is adapted, when closed, to lie transversely under the lower edge of the bucket. A tripping or push mechanism may be attached with the power ends of the levers which project slightly beyond the forward edge of the side of the bucket, or the said tripping or push mechanism may be dispensed with as desired. A bail of peculiar configuration is pivotally connected with the upper portion of the body of the bucket, and stops are located at the upper edge of the bucket and are adapted to coöperate through the said bails for the purpose of limiting the swing of the same toward the forward side of the bucket.

In the accompanying drawings:—Figure 1 is a side elevation of the bucket, showing the bottom thereof closed. Fig. 2 is a similar view of the bucket, showing the bottom thereof swung into open position. Fig. 3 is a front elevation of the bucket, with the bottom thereof closed. Fig. 4 is a longitudinal sectional view of the bottom of the bucket. Fig. 5 is a transverse sectional view of the lower portion of the body of the bucket, showing the bottom thereof closed against the same.

The bucket consists of the substantially rectangular body 1, having a front 2, a back 3, and the sides 4. The said body is bounded at its upper edge by a reinforcing strip 5, and at its lower edge by a strip 6'. The lower edges of the sides 4 of the body of the bucket describe ogee curves which are inclined from the back 3 toward the front 2. The stops 6 are mounted upon the strips 5, upon those portions that lie upon the sides 4. The bail 7 is provided at its ends with the laterally disposed extremities 8, which are pivoted upon the pins 9, which in turn are mounted upon the sides 4 and are located in the same vertical plane as the center of gravity of the body 1 and its attachments. The stops 6 are located in the path of movement of the bail 7, and the ends of the said stops are so positioned that the major portion of the said bail may assume a vertical position, but cannot swing from such a position toward the front 2, but is free to swing upon the pins 9 toward the back 3 of the body 1. By such an arrangement it is impossible for the bail 7 to swing toward the front of the body and thereby interfere with loading of the said body, and, at the same time, when the body is lifted by the bail the said body will hang vertically.

The links 10 are pivotally connected at

their upper ends with the sides 4 of the body 1, and at their lower ends are pivotally connected with the bottom 11, the configuration and construction of which will be hereinafter explained. Each link 10 is provided with a laterally disposed bracket 12, and each bracket is provided with an ogee shaped slot 13. A lever 14 is fulcrumed upon each of the sides 4 of the body 1, and each lever is built up and consists of a working end portion 15, which is fulcrumed upon the pin 16, and a power-end portion 17, which is attached at one end to the working-end 15, and at its opposite end projects beyond the front 2 of the body 1. The working-end 15 consists of the binary members 18, which are integrally joined together and which lie upon opposite sides of the bracket portion 12 of the links 10. The cross-pin 19 connects the extremities of the members 18 together, and the friction roller 20 is journaled upon the pin 19 and lies within the ogee shaped slot 13 provided in the bracket 12. The front extremities of the power-end portions 17 of the levers 14 are connected together in front of the side 2 of the body 1 by the cross-rod, 21, which is provided at an intermediate point with the laterally disposed portion 22, which affords a handle or grip.

The lower ends of the links 10 are pivotally connected with the lugs 23, which are mounted upon the under side of the bottom 11 of the bucket. The bottom of the bucket 11 is ogee shaped to conform with the ogee configuration of the lower edges of the sides 4 of the body 1. And, the said bottom 11 is provided at its sides with the upwardly disposed flanges 24, which are adapted to overlap the lower edges of the strip 6′. The angle-irons 25 are attached to the lower side of the bottom 11 and are of such configuration that their intermediate portions are substantially parallel with the upper edge of the body 1 when the said bottom 11 is in closed position against the lower edge of the said body. The front and rear edges of the bottom 11 are devoid of flanges or other obstructing protrusions.

The mechanism above described includes all of the parts necessary to effectually operate the bucket at the surface of the ground for handling concrete and similar materials, and the bucket may be operated as follows: When the bottom 11 is closed against the lower edge of the body 1, the bucket may rest upon the irons 25 in an upright position, and the bail 7 may be swung back toward the rear side 3 of the body 1. While in such position the body 1 may be filled with concrete or other material, and, while in this position, it will be observed that the roller 20 carried between the binary members 18 of the working-end portion 15 of the lever 14 will be at the end of the anticlinal section 26 of the ogee slots 13, and when in this position the said roller 20 will be located in advance of or nearer the front side 2 than a line drawn through the pivotal connection between the lower ends of the links 10 and the fulcrum pin 16 of the lever 14. Consequently the weight which is applied to the bottom 11 will act as a lock for holding the said bottom in a closed position. When the body 1 is filled it may be lifted by means of the bail 7 in a vertical position as above described, and when it is desired to empty the body 1 an operator grasps the grip 22 of the rod 21 and moves the said rod vertically along the front 2 of the body 1. Such movement of the rod 21 will swing the levers 14 upon the fulcrum pins 16, and the initial movement of the said levers will carry the rollers 20 along the anticlinal section 26 of the ogee slots 13 provided in the brackets 12 of the links 10. Thus the said rollers 12 are moved from a locked position as above described into an unlocked or a position which is behind a line extending through the pivotal connection between the links 10 and the fulcrum pins 16.

By referring to the drawings it will be seen that the pivotal connection between the links 10 and the bottom 11 is located behind the center of gravity of the bottom 11. Consequently when the rollers 20 move in the position last above described the preponderance of weight is lying upon or resting upon that portion of the bottom 11 which occurs between the pivotal connection of the links 10 therewith and the front edge of the said bottom. Consequently the front edge of the said bottom will have a tendency to swing down. When the rollers 20 enter the synclinal sections of the ogee slots 13 of the brackets 12 the lower ends of the links 10 are relieved of support and may swing down, describing an arc about the pivot upon which the upper ends of the said links are connected with the sides 4 of the body 1. At the same time, the bottom 11 will continue to tilt down at its forward edge upon the pivotal connection between the lower ends of the links 10 and the said bottom, and, in so doing, the upper surface of the rear portion of the bottom 11 will scrape or wipe along the rear side 3 of the body 1, and thus the lower edge of the said rear side 3 of the body 1 will scrape any material from the upper surface of the rear portion of the said bottom 11. When the lower ends of the links 10 have swung down and rearwardly to their fullest extent the bottom 11 will assume the position as substantially shown in Fig. 2 of the drawings, when the bottom will be entirely removed from the lower edge of the body 1 and the material contained therein is free to flow or pass out of the said body. When however it is desired to deposit the material contained within the body 1 in a foundation where the space for operating the bucket is

limited, or when it is desired to empty the bucket below the surface of water or in other submerged positions, an attachment is applied to the rod 21, as hereinafter described. The said attachment consists of a U-shaped rod 28 which is provided at its ends with the eyes 29. The end portions of the said rod 28 are sprung laterally and the eyes receive the ends of the cross-rod 21. The rod 30 is hooked at its upper end upon the laterally disposed grip 22 of the cross-rod 21 and at its lower end the said rod 30 is hooked upon the intermediate portion of the said U-shaped rod 28, and inasmuch as the ends of the said U-shaped rod 28 connect with the ends of the cross-rod 21 and the said rod 30 with the laterally disposed portion 22 of the said cross-rod 21, the ends of the rod 28 and the rod 30 are disposed at an angle, and, by reason of this angular disposition, the U-shaped rod 28 cannot swing pivotally upon the cross-rod 21. The intermediate portion of the U-shaped rod 28 normally lies below the bottom 11, and is in such position when the body 1 is filled. Consequently when the body 1 containing material is lowered into an excavation or below the surface of water, and the intermediate portion of the U-shaped rod 28 comes in contact with the bottom of the excavation or the bottom of the water, the bucket 1 will continue to descend and the rod 28 is brought to a state of rest, which will force the working-end portions 27 of the levers 14 up, and the unloading operation, as above described, will be accomplished.

To close the bottom 11 against the under or lower edge of the body 1 it is obvious that it is simply necessary to grasp the laterally disposed portion 22 of the cross-rod 21 and swing the power-end portions 17 of the levers 14 down, when through the instrumentality of the rollers 20 operating in the ogee slots 13 of the brackets 12 carried by the links 10, the said links are swung at their lower end portions toward the front side 2 of the body 1, and at the same time the said bottom 11 is swung into a substantially inclined position under the lower edge of the body 1 and is closed against the lower edge of the said body.

Thus it will be seen that a bucket is provided which may be conveniently used for handling concrete and similar material, and that by applying the attachment as described the bucket may be automatically dumped in excavations or in submerged places. It will also be seen that by reason of the fact that the rear edge portion of the bottom 11 scrapes against the lower edge of the rear side 3 of the body 1 at each dumping operation that the rear upper surface of the said bottom 11 is freed of material and that when the said bottom 11 returns to a closed position there is no material left thereon which may intervene between the said bottom and the lower edge of the body 1 and thereby prevent proper fitting of the parts together. It will also be seen that the shape of the bottom 11 is such as to offer no obstruction to the free egress of the material from the interior of the body 1, and that by reason of the fact that the bottom 11 is ogee shaped the anticlinal portion thereof will have a tendency to cause the material to flow from the body 1 and to deposit in a pile and not unduly scattered at that place at which it is dumped.

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

1. A bucket comprising a body having sides provided with ogee shaped edges, and a bottom of ogee configuration adapted to fit against the lower edge of the bucket.

2. A bucket comprising a body having sides provided with ogee shaped lower edges, a bottom movably connected with the body and being of ogee configuration to conform with the ogee shape of the lower edges of the sides of the body.

3. A bucket comprising a body having sides provided at their lower edges with ogee shaped configurations, a bottom adapted to close against the lower edges of the body and being of ogee configuration and having at its side edges upstanding flanges adapted to overlap the lower edges of the sides of the body.

4. A bucket comprising a body having sides provided with ogee shaped lower edges, an ogee shaped bottom adapted to fit against the lower edge of the body and irons attached to the bottom and adapted to serve as supports for the bucket.

5. A bucket comprising a body, links pivotally connected with the sides of the body, said links having laterally disposed ogee-slotted brackets, a bottom pivotally connected to the links, levers fulcrumed to the sides of the body and carrying parts which operate with the ogee slots of the brackets and a rod operatively connecting the power ends of the said levers together.

6. A bucket comprising a body, links pivotally connected to the sides of the body, brackets attached to the links and having ogee shaped slots, a bottom pivotally connected to the lower ends of the links, levers fulcrumed to the sides of the body, said levers having at their working ends binary members lying upon opposite sides of the said brackets, rollers journaled for rotation between said members and lying in the ogee slots of the brackets, and a cross-rod operatively connecting the power ends of the said levers together.

7. A bucket comprising a body, links pivotally connected at their upper end portions with the sides of the body, said links having

laterally disposed brackets provided with ogee slots, a bottom pivotally connecting the lower end portions of the said links together, levers fulcrumed upon the sides of the body and carrying rollers which engage the said ogee slots of the brackets, a cross-rod connecting the power ends of the said levers together, said cross-rod having at an intermediate point a handle grip.

8. A bucket comprising a body, links pivotally connected with the sides of the body, a bottom pivotally attached to the lower end portions of the said links, levers fulcrumed upon the sides of the body and being operatively connected with the said links, a cross-rod connecting the power ends of the said levers together, a U-shaped rod detachably mounted upon the ends of the cross-rod.

9. A bucket comprising a body, links pivotally connected at their upper end portions to the sides of the body, a bottom pivotally connected to the lower ends of the said links, levers fulcrumed to the sides of the body and being operatively connected with the links, a cross-rod connecting the power ends of the said levers together, and a U-shaped rod detachably connected at its ends with the said cross-rod and a rod connected to the intermediate portion of the U-shaped rod at its lower end, and at its upper end connected to a laterally disposed portion of the said cross-rod.

10. A bucket comprising a body, a link pivotally connected with the side of the body, a bottom pivotally connected to the link, and a lever fulcrumed to the side of the body and slidably engaging the link.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

GEORGE FOCHT.

Witnesses:
WALTER J. NEUBAUER,
THEODORE VOGT.