A. J. ALBRECHT & S. H. CONKLIN.

GRAB BUCKET.

APPLICATION FILED NOV. 2, 1911.

1,043,749.

Patented Nov. 5, 1912.

2 SHEETS—SHEET 1.

Fig. 2.

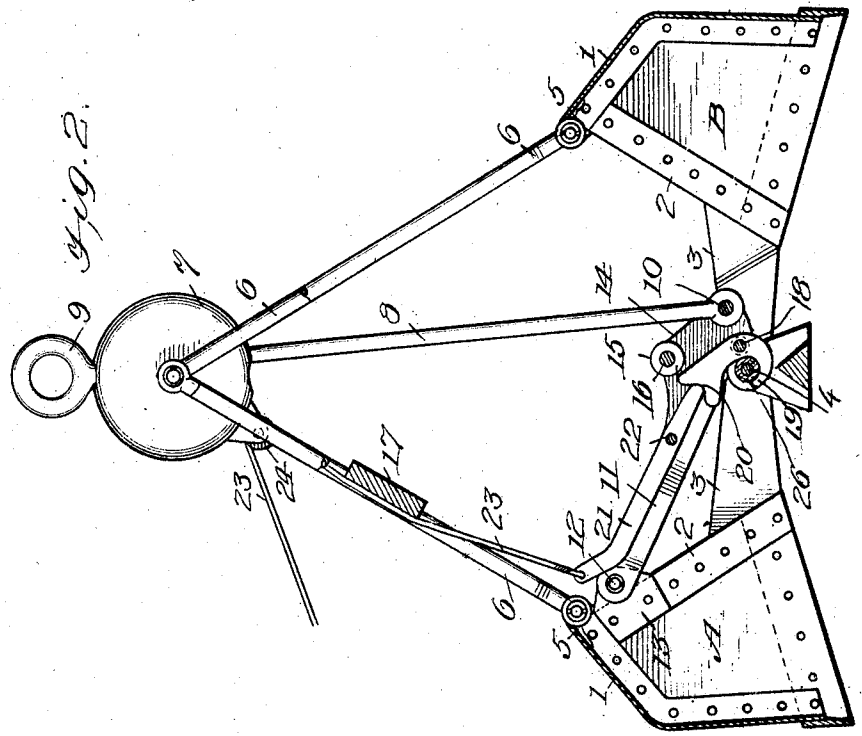
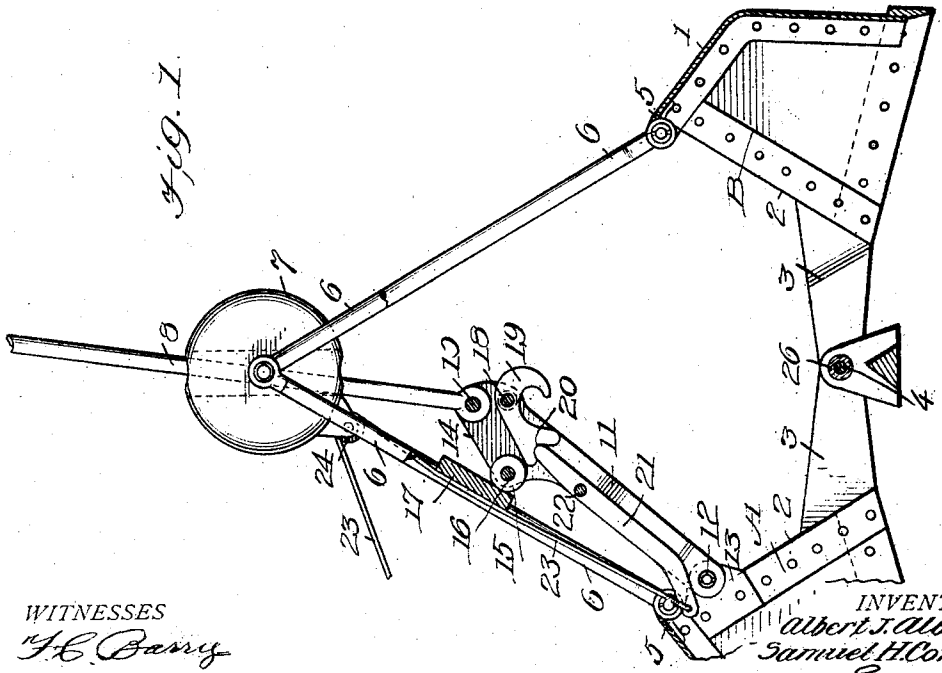


Fig. 1.



WITNESSES

F. C. Barry

M. Bangert

INVENTORS

Albert J. Albrecht

Samuel H. Conklin

By Victor J. Evans

ATTORNEY

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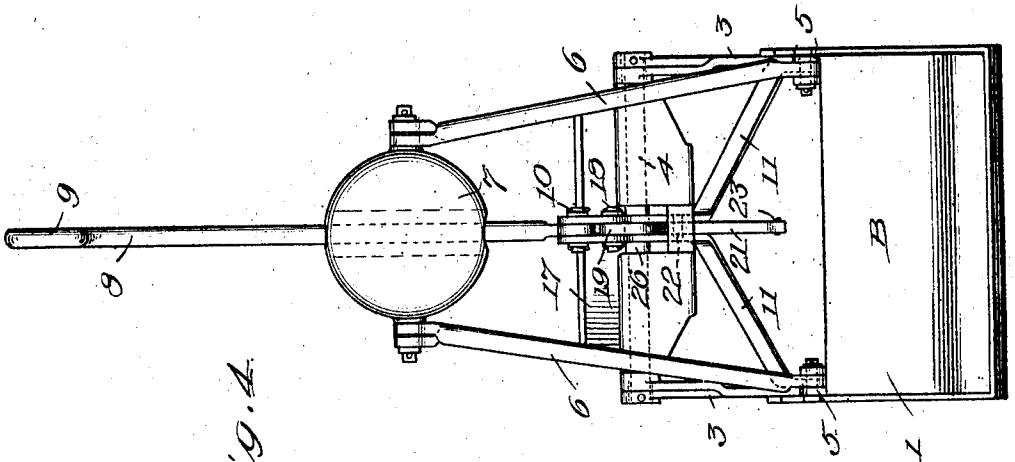

Fig. 4.

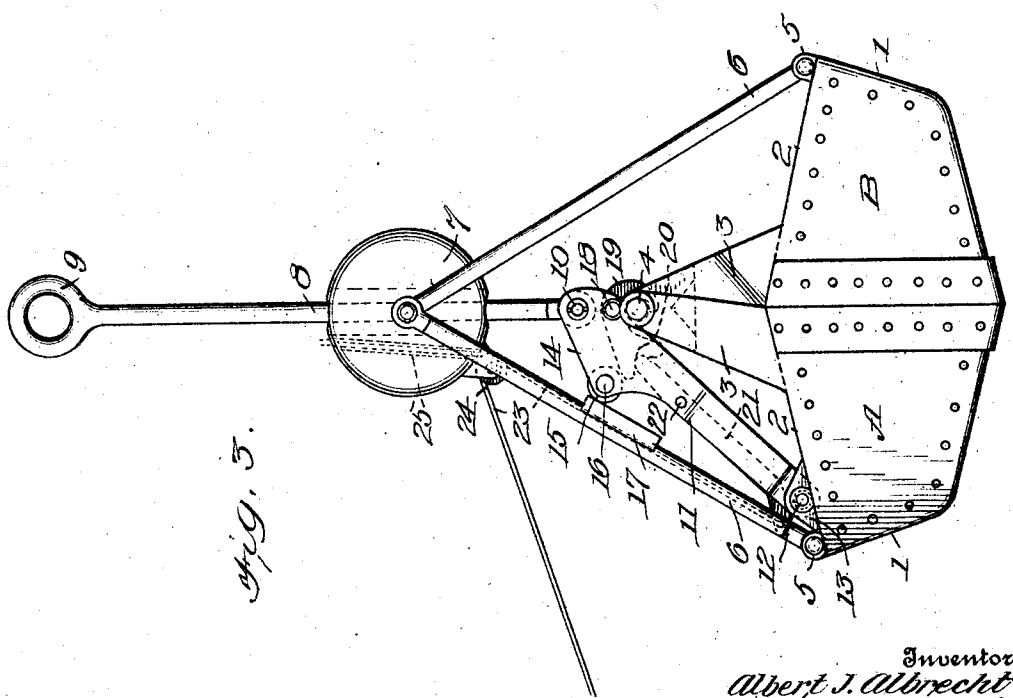

Fig. 5.

Witnesses

H. C. Barry

J. M. Bagger

Inventors

Albert J. Albrecht

Samuel H. Conklin

By Victor J. Evans

Attorney

UNITED STATES PATENT OFFICE.

ALBERT J. ALBRECHT AND SAMUEL H. CONKLIN, OF FLORENCE, NEW JERSEY.

GRAB-BUCKET.

1,043,749. Specification of Letters Patent. Patented Nov. 5, 1912.

Application filed November 2, 1911. Serial No. 658,131.

To all whom it may concern.

Be it known that we, ALBERT J. ALBRECHT and SAMUEL H. CONKLIN, citizens of the United States, residing at Florence, in the county of Burlington and State of New Jersey, have invented new and useful Improvements in Grab-Buckets, of which the following is a specification.

This invention relates to grab buckets, and it has for its object to produce a single or double rope grab bucket of simple construction which may be quickly and efficiently operated.

A further object of the invention is to produce a grab bucket which, in the act of filling the same, shall not be liable to tilt or turn over sidewise, thereby interfering with the efficiency of the operation.

A still further object of the invention is to produce a grab bucket which shall possess itself of superior advantages in point of simplicity, durability and general efficiency.

With these and other ends in view which will readily appear as the nature of the invention is better understood, the same consists in the improved construction and novel arrangement and combination of parts which will be hereinafter fully described and particularly pointed out in the claims.

In the accompanying drawings has been illustrated a simple and preferred form of the invention, it being, however, understood that no limitation is necessarily made to the precise structural details therein exhibited, but that changes, alterations and modifications within the scope of the claims may be resorted to when desired.

In the drawings,—Figure 1 is a side elevation, partly in section, showing the improved grab bucket in position for filling. Fig. 2 is a similar view showing the bucket with the operating lever in position for closing the bucket. Fig. 3 is a similar view showing the bucket closed and in position for hoisting. Fig. 4 is an end view showing the bucket closed and in position for hoisting.

Corresponding parts in the several figures are denoted by like characters of reference.

The jaws or scoops A, B of the improved device, which are constructed of sheet metal or other suitable material and which include the curved end members 1 and the flat vertically disposed side members 2, may be constructed, strengthened and reinforced in any convenient manner. Said jaws or scoops are provided at their upper inner or proximate corners with hinge arms 3 extending upwardly from the side members thereof, said arms being pivotally mounted on the hinge shaft 4. The jaws or scoops are provided at their upper outer corners with lugs 5 for the pivotal attachment of the lower ends of links 6, the upper ends of which are pivotally connected, in pairs, with diametrically opposite sides of a weight 7 which is slidably mounted on the hoisting rod 8, the latter being provided at its upper end with an eye 9 for the attachment of the rope or cable by means of which the device is hoisted, lowered and otherwise manipulated. It is to be understood, however, that when two ropes are utilized for operating the device, the hoisting and lowering rope may be connected with the hinge shaft 4 and the holding rope with the eye 9 of the rod 8.

Pivotally connected with the lower end of the rod 8 by means of a fulcrum pin 10 is one end of a link or operating lever 11, the other end of which is pivotally connected by means of a pin 12 with a casting 13 upon one of the jaws, A, near the upper edge of the latter. The link or lever 11 is provided with an offset 14 which is recessed to accommodate a roller 15 journaled upon a pin or shaft 16, said roller being adapted to contact with and ride over a plate 17 which is suitably secured and supported upon the links 6 that connect the jaw 8 with the slide or weight 7. Suitably associated with the link 11 by means of a pivot member 18 is a trip hook 19, the shank of which has a recess 20 adapted to be engaged by one end of a trip lever 21 which is fulcrumed by means of a pin 22 upon the link or lever 11. To the other end of the trip lever 21 is attached one end of the trip rope 23, which latter may be guided over a suitably arranged pulley 24 to a point within convenient reach of the operator. Under some circumstances the trip rope is to be guided in an upward direction, and when such is the case the sliding weight 7 may be provided with an aperture 25 for the passage of the trip rope, it being also understood that any additional guiding means that may be required are to be provided for said rope.

The hinge shaft 4 is preferably provided with an anti-friction roller 26 adapted to be engaged by the trip hook 19, thereby facili-

tating the operation of tripping the device to dump the load.

In the operation of the improved device, the same may be used in connection with hoisting means, such as a crane or derrick of any suitable and approved construction. When the bucket is tripped for the purpose of dumping the load, the jaws will swing outward apart from each other to the position shown in Fig. 1, the hinge arms being brought to an approximately horizontal position with the axis of the hinge shaft slightly below the dead center, thereby maintaining the jaws or scoops in a separated position. When the jaws thus swing open, the links 6 will push the sliding weight a short distance in an upward direction on the hoisting rod 8, as will be seen by comparison between Figs. 3 and 1 of the drawings where the respective positions are indicated. This limited movement in an upward direction of the weight 7 causes said weight to operate in the nature of a shock absorber by counterbalancing the weight of the jaw members and preventing excessive strain on the parts of the device. Now, when the device is lowered upon the pile of material from which a load is to be taken, the jaws or scoops will engage the material in a position ready to dig into the same. The rod 8 is now lowered through the slide 7, thus swinging the end of the link or lever 11 carrying the trip hook in the arc of a circle until the trip hook engages the anti-friction roller on the hinge shaft, the trip being in turn engaged by the trip lever, whereby it is held in engagement with the roller or the hinge shaft. Draft in an upward direction is now applied to the hoisting rod 8, thus pulling upon the hinge shaft and causing the jaws or scoops to dig into the material and to move in the direction of each other until they close together, this operation being assisted and facilitated by the action of the weight or slide 7 which moves in a downward direction, pushing upon the outer upper edges of the jaws and forcing the same into the material, thus filling the bucket. To trip the bucket, the trip lever 21 is actuated to disengage the trip hook 19 from the roller 26 on the hinge shaft. The roller 15 associated with the link or lever 11 will now engage the plate 17, taking the weight of the jaws or scoops and the load, while at the same time the sliding weight 7 moves in an upward direction, thus absorbing the shock of the jaws as they swing open to discharge the load.

The improved grab bucket may be utilized in different ways and for different purposes which will readily suggest themselves to those skilled in the art to which it appertains. It may be made of any desired dimensions according to the use for which it is intended. When made on a small scale it will constitute a convenient tool for retail coal dealers to be utilized in loading wagons. The device may also be used for excavating and other similar purposes.

Having thus described the invention, what is claimed as new, is:—

1. In a device of the character described, a pair of jaws provided at their upper inner corners with upwardly extending hinge arms, a shaft on which said arms are pivoted, an anti-friction roller on said shaft, a rigid rod constituting a hoisting element, a slidable weight guided on the rod, links connecting the outer edges of the jaws with the sliding weight, a link connecting one jaw with the lower end of the rigid hoisting element, a trip hook pivotally associated with said link and adapted to engage the anti-friction roller on the hinge shaft, and means for actuating the trip hook.

2. In a device of the character described, a pair of jaws having hingedly connected arms, a hoisting member pivotally connected with the hinge, a weight slidable upon the hoisting member, links connecting the weight with the jaws, a link connecting the lower end of the hoisting member with one of the jaws, a trip device associated with said last mentioned link to engage the hinge shaft, a roller associated with the trip carrying link, and a buffer plate supported in the path of said roller.

In testimony whereof we affix our signatures in presence of two witnesses.

ALBERT J. ALBRECHT.
SAMUEL H. CONKLIN.

Witnesses:
C. CHARLES PARKER,
FRANK S. ABSALOM.