

No. 808,630.

PATENTED JAN. 2, 1906.

A. E. BROWN.
GRAB BUCKET.

APPLICATION FILED AUG. 2, 1905.

3 SHEETS—SHEET 1.

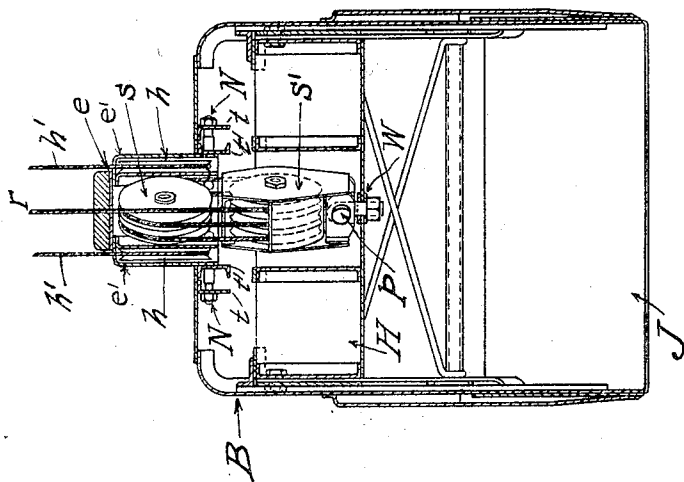


Fig. 2.

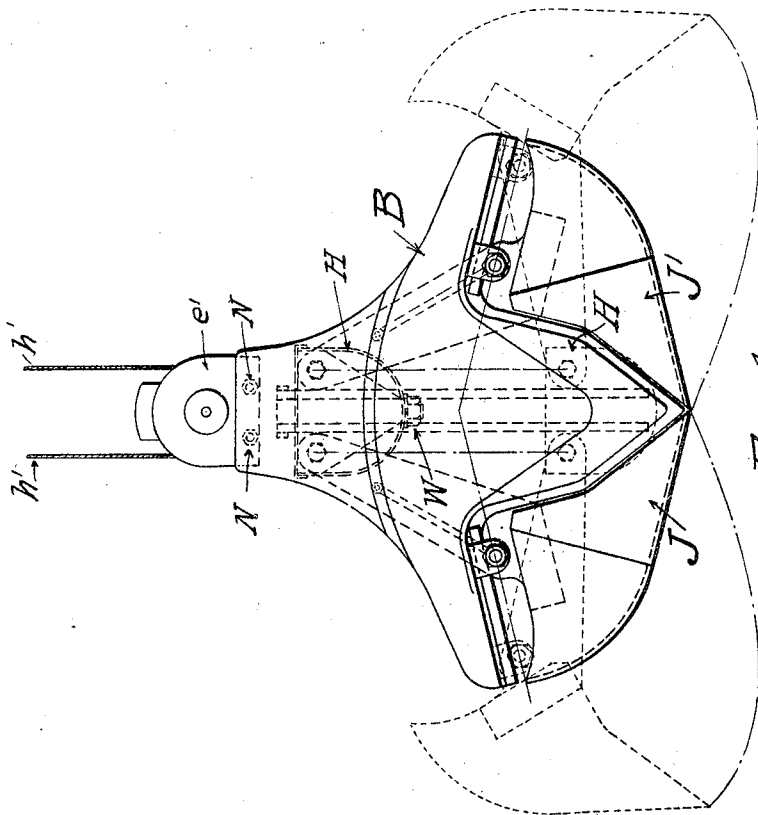


Fig. 1.

WITNESSES:

Louis Philip Lepps.
A. M. Manyweather

INVENTOR.

Alexander E. Brown
BY Leon C. Wing
his ATTORNEY.

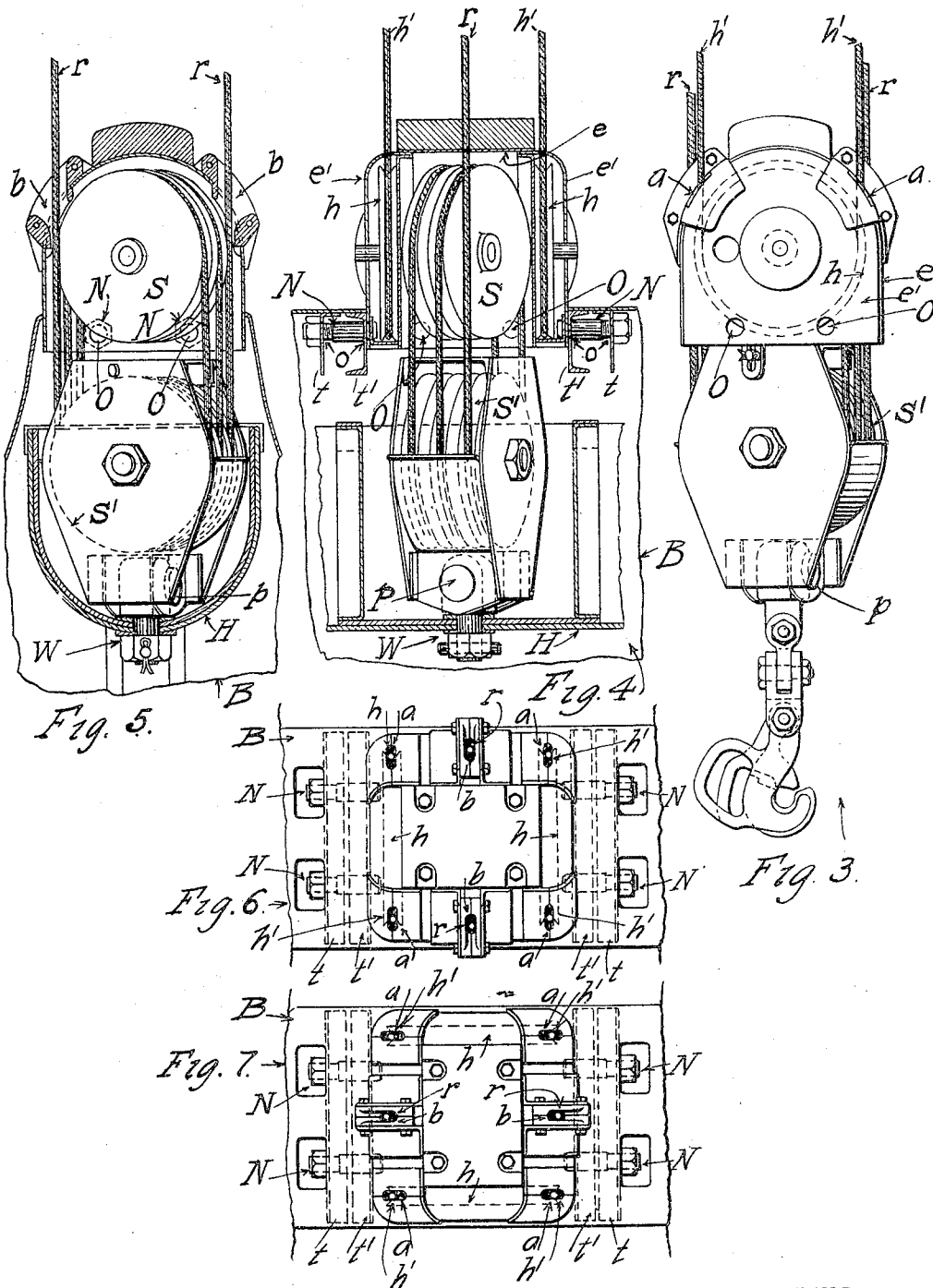
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WITNESSES:
Louis Philip Lipp
A. M. Munnweather

INVENTOR.
Alexander E. Brown
BY George C. Wing
his ATTORNEY.

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3 SHEETS—SHEET 3.

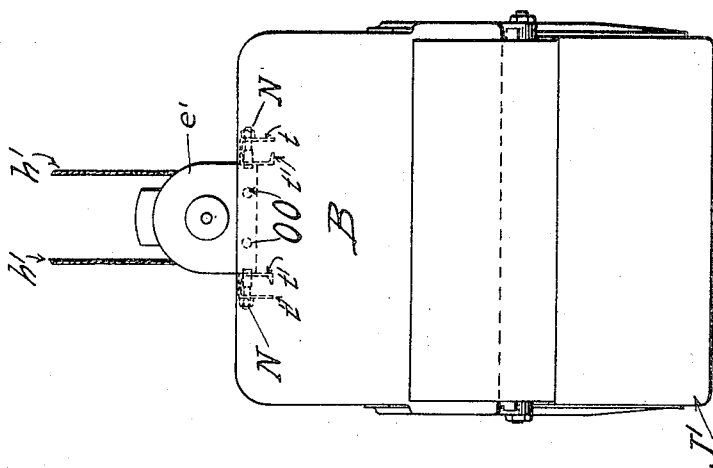


Fig. 9.

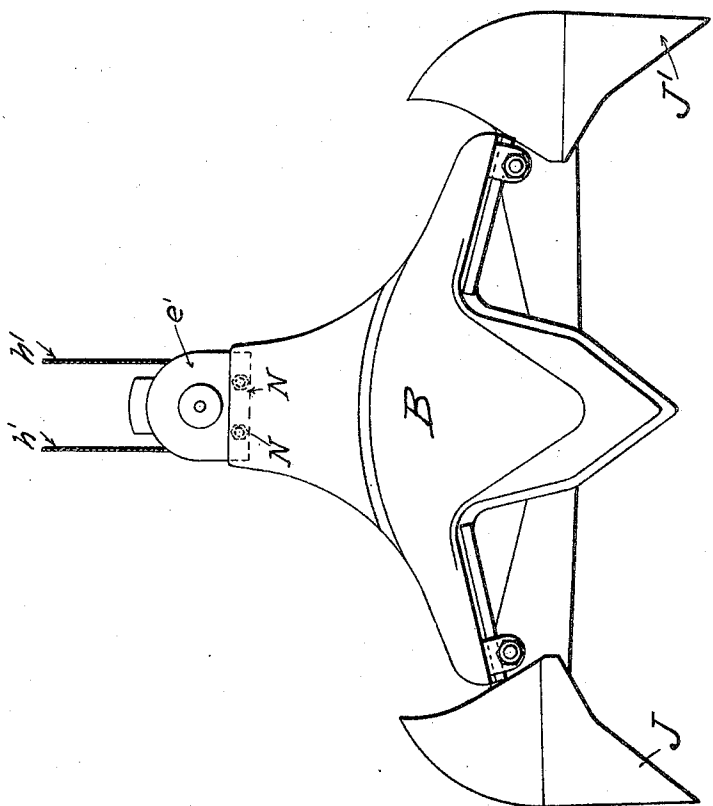


Fig. 8.

WITNESSES:
Louis Philip Lippe.
A. M. Menzies.

INVENTOR.
Alexander E. Brown
BY *George C. Wing*
his ATTORNEY.

UNITED STATES PATENT OFFICE

ALEXANDER E. BROWN, OF CLEVELAND, OHIO, ASSIGNOR TO THE BROWN
HOISTING MACHINERY COMPANY, OF CLEVELAND, OHIO.

GRAB-BUCKET.

No. 808,630.

Specification of Letters Patent.

Patented Jan. 2, 1906

Application filed August 2, 1905. Serial No. 272,362.

To all whom it may concern:

Be it known that I, ALEXANDER E. BROWN, a citizen of the United States, residing at Cleveland, Ohio, have invented a new and useful Improvement in Grab-Buckets, of which the following, in connection with the drawings accompanying and making a part of this application, is a full, clear, and exact description.

My said invention belongs to the class of buckets in general use for the transfer of ore, coal, and similar gross material from boat or car to dock or stock-pile, and vice versa, by means of a bucket-carrying trolley adapted to be traversed along an overhead-bridge tramway that spans the space in which the handling of the material is to be effected.

A form of grab-bucket extensively used in the above connection is what is characterized as the "two-rope" type of bucket, from the fact that the operation of raising and lowering and of opening and closing the same is dependent upon and accomplished by the manipulation, respectively, of so-called "hoisting" and "operating" ropes or cables connected with a source of power. As is well understood by those familiar with the art, these ropes are reeved around sheaves that are fixed in the upper part of the bucket in such relation that by letting out said ropes or winding them in they will in turn effectuate the several functions for which they are intended.

In the prevailing type of construction referred to the "hoisting-rope," so called, is reeved around sheaves in a top or upper block of a main block required for the purpose, and the "operating-rope," so called, the rope whereby the jaws of the bucket are brought together, is reeved around sheaves in both the upper and lower members of said main sheave-block of said bucket. In this manner said bucket is suspended, hoisted, lowered, and generally operated by the respective sets of strands of the hoist-rope and operating-rope that lead off from the opposite sides of their sheaves. The bucket itself in its ascent from or descent to the point of the load-supply or dump must consequently always tend to assume and maintain such a position that its median line will be in the same plane as said opposite strands. It follows that the bucket cannot be lowered into or hoisted out of a hatch or car when the latter is crosswise of such plane without a special manipulation at each operation. This of course involves the

expense of stationing an attendant at the hatch or car for the sole purpose of rotating the bucket by hand in order that its longitudinal dimension shall be made to correspond with that of the hatch and a free passage there-through insured.

It is the object and aim of my present invention to accordingly improve existing types of the two-rope grab-bucket that the top or suspension block in the same may be detached at will and reset, as described, in a different plane than that of the buckets spread, all in a manner and by an arrangement that, furthermore, allows said block when detached to be utilized, if desired, as or in the place of a special hook for grappling a chain, eye, or sling in hoisting operations requiring the same.

In the drawings, Figure 1 is a side view of a bucket embodying my invention when closed. Fig. 2 is a transverse section of such bucket through its center with the blocks attached to the same, the view being from a point ninety degrees from the point of view of Fig. 1. Fig. 3 is an enlarged view of the blocks when disconnected from the bucket. Fig. 4 is a like view of the same when related as in Fig. 2, and Fig. 5 is a sectional view ninety degrees from the point of view of Fig. 4. Fig. 6 is a top view of the top block, and Fig. 7 a like view ninety degrees from the point of view of Fig. 6. Fig. 8 shows the top block when related to the bucket as in Fig. 1, and Fig. 9 when the bucket is connected thereto at ninety degrees from its position in Fig. 8.

B is the bucket proper. It is made up of an exterior housing or frame flaring at its lower portion to the front and rear, with oppositely-related jaws J J', adapted to be closed and opened against each other as the cross-head H, to which the inner ends of the jaws J J' are pivoted, is raised or lowered centrally through the bucket. Said cross-head H is made up of a plate bent upwardly in U-shaped section and transversely seated in said housing or frame in any suitable manner, as in opposite upright grooves or guides, (not shown,) so as to permit the same to slide or be oscillated up and down within said frame.

At the upper part of the bucket B is located a top block made up of the upper and lower sheaves, respectively, S S', and the necessary housing or frame by which they are secured to the bucket. This housing is composed of

a plate *e*, bent downwardly in U-shaped section and having its sides closed by two vertical exterior plates *e' e'*, firmly riveted thereto, and thereby completing, with the plate *e*, a four-sided hood-like compartment, within which are duly journaled the hoisting-sheaves *h h* and the upper sheave *S*. The top of said housing is pierced with suitable apertures *a a* for the passage of the hoisting-ropes *h' h'* to the sheaves *h h* and *b b* for the passage of the operating-ropes *r r* to the sheaves *S* and *S'*. Said housing penetrates the top of the bucket and is there detachably affixed to the transverse beams *t t'* by means of the nut-bolts *N*, that pass through holes *o o* in said beams and holes *O O* in the lower part of the four sides of said housing for the purpose.

The block containing the sheave *S'* is removably connected to a swivel *W* in the sliding cross-head *H* by means of a pin *p*. In Fig. 3 is shown a hook and double-clevis attachment that may be hung to the block of said *S'* through the pin *p* where it is desired to use the top block independently of the bucket for handling structural or other material by means of slings or chains.

It is obvious that by reason of the sets of holes *O O* in each pair of sides of said housing or frame within which the sheaves *S* and *S'* are journaled and of the means shown whereby said sheaves may be rotatably or swivelly connected to the cross-head *H* said bucket may be operatively attached to said top block in the first instance and, if occasion requires, may thereafter at any time by removing said nut-bolts *N* and rotating the bucket around the swivel *W* be again firmly bolted to said top block, but at an angle with the same ninety

degrees from the first position. In this manner the bucket may be used continuously with its spread either in the same plane or in one at right angles to the plane of the opposite strands of the hoisting-rope, and special manipulation in order to lower into or raise from a car or hatch that is transverse of the plane of said strands may be entirely dispensed with.

What I claim as new, and desire to secure by Letters Patent, is—

1. A two-rope grab-bucket connectively related to its top block in such manner that the spread of the bucket-blades shall tend to coincide with or to be opposite to that of the strands of the hoist-rope as may be predetermined.

2. A two-rope grab-bucket detachably connected to its top block with the plane of the spread of the blades or jaws coincident with or opposite to that of the hoist-rope, substantially as shown and described.

3. The combination of a two-rope grab-bucket, having its top block rotatively connected with the sliding cross-head of the same, and suitable means of detachably uniting said block and bucket together when the planes of the hoist-rope, and the bucket's jaws are either coincident, or opposite, substantially as shown and described.

4. The combination of a two-rope grab-bucket and a top block connectively related to the cross-head of said bucket or to a separate hook or clevis, substantially as shown and described.

ALEXANDER E. BROWN.

In presence of—

M. MILLARD,

A. M. MERRYWEATHER.