

(No Model.)

W. G. THOMPSON.

GRAPPLING BUCKET.

No. 321,159.

Patented June 30, 1885.

Fig. 1.

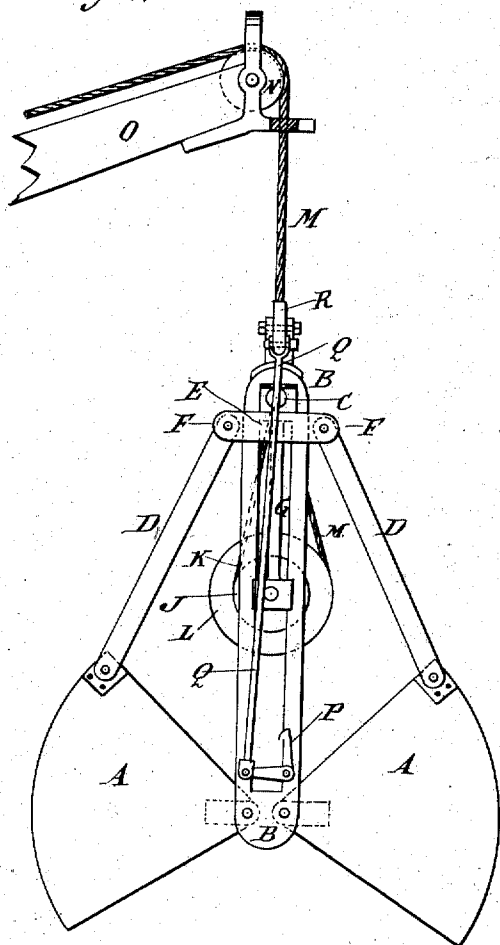


Fig. 2.

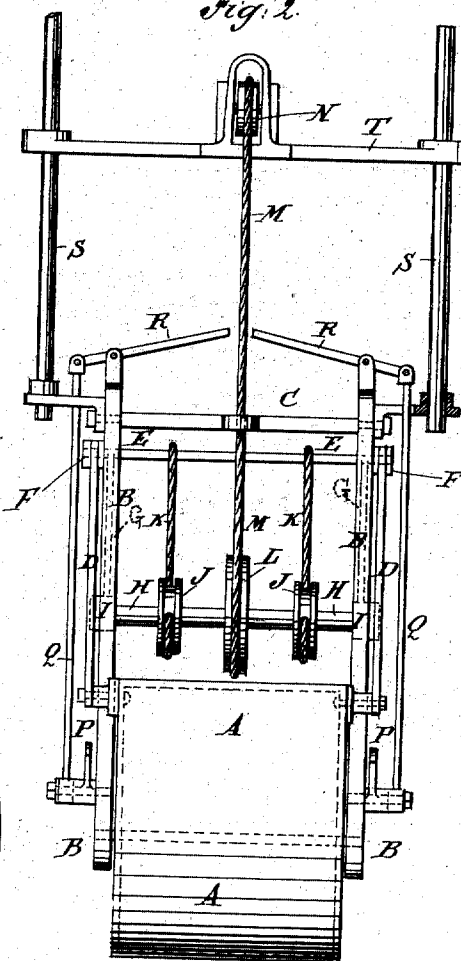
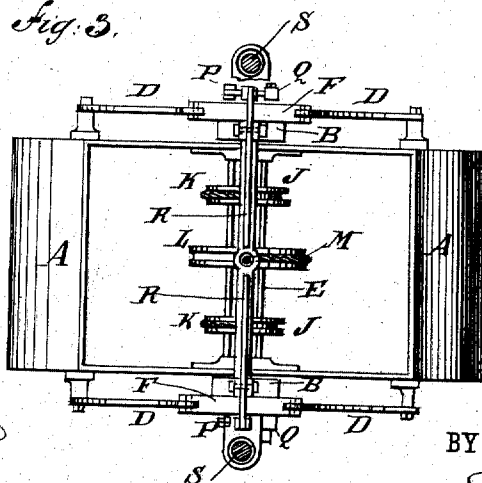


Fig. 3.



WITNESSES:

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INVENTOR:

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ATTORNEYS.

UNITED STATES PATENT OFFICE.

WILLIAM G. THOMPSON, OF BROOKLYN, NEW YORK.

GRAPPLING-BUCKET.

SPECIFICATION forming part of Letters Patent No. 321,159, dated June 30, 1885.

Application filed March 9, 1885. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM G. THOMPSON, of Brooklyn, in the county of Kings and State of New York, have invented a new and useful Improvement in Grappling-Buckets, of which the following is a full, clear, and exact description.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a side elevation of one of my improved grappling-buckets, partly in section. Fig. 2 is a front elevation of the same, partly in section. Fig. 3 is a plan view of the same, partly in section.

The object of this invention is to provide grappling-buckets constructed in such a manner that they will be opened and closed automatically, and can be operated by a single rope or chain, and which will be simpler in construction and less expensive in manufacture than buckets made and operated in the ordinary manner.

This invention relates to a grappling-bucket, constructed with the shaft that carries the pulleys to which the short ropes or chains and the hoisting rope or chain are attached, arranged to slide in the slots of the side bars, and provided with stop-bars to prevent the said shaft from coming in contact with the sliding cross-bar that carries the bucket-arms. When the sliding shaft moves downward, it is caught automatically and held by pivoted angular hooks connected by rods with levers pivoted to the upper ends of the slotted side bars, to come in contact with the derrick-arm and disengage the catch-hooks as the bucket reaches the upper limit of its movement, as will be hereinafter fully described and then claimed.

A are the buckets or scoops, which are hinged to and between the lower ends of two bars, B. The upper parts of the bars B are connected and held in proper relative positions by a cross-bar, C. To the upper outer corners of the buckets A are hinged the lower ends of connecting-arms D, the upper ends of which are hinged to the ends of a cross-bar, E, or to the ends of short cross-heads F, attached to the ends of the said cross-bar E.

The cross-bar E slides up and down in slots in the side bars, B, and its downward movement is limited by its coming in contact with the upper ends of the stop-bars G, the lower ends of which are connected with the shaft H or its bearings I. The bearings I of the shaft H slide up and down in the slots of the side bars, B. To the end parts of the shaft H are attached two small pulleys, J, to which are attached the lower ends of two short ropes or chains, K. The ropes or chains K are wound around the pulleys J and their upper ends are attached to the cross-bar E. To the center of the shaft H is attached a large pulley, L, to which is attached the lower end of the hoisting rope or chain M. The hoisting rope or chain M is wound around the pulley L in the opposite direction from the ropes or chains K, passes up through a guide-hole in the center of the cross-bar C, passes over a guide-pulley, N, connected with the end of the derrick-arm O, and passes thence to the drum of the hoisting-engine.

P are two elbow catch-hooks, one or both of which can be used, and which are pivoted at their angles to the lower parts of the bars B at one side of the slots of the said bars. The shanks of the hooks P cross the slots of the bars B, and to their ends are pivoted the lower ends of the connecting-rods Q, the upper ends of which are pivoted to the outer ends of levers R. The levers R are pivoted to supports formed upon or attached to the upper ends of the side bars, B, and their inner arms extend nearly to the hoisting rope or chain M, so that when the inner ends of the levers R are moved downward their outer ends will raise the rods Q and disengage the hooks P from the bearings of the shaft H. If desired, the ordinary guide-poles S can be used to keep the bucket in place as it moves up and down. The guide-poles, S, are secured to supports attached to the upper parts of the side bars, B, and pass through guide-holes in the ends of a guide-bar, T, attached to the derrick-arm O.

In using the bucket it is lowered with the various parts in the position shown in Fig. 1, and when the buckets A come in contact with the material to be grappled and the descent is stopped, the shaft H continues to descend

by its own weight, winding the rope or chain M upon the pulley L and unwinding the ropes or chains K from the pulleys J until the bearings of the said shaft pass and are caught and held by the catch-hooks P. When the rope or chain M is drawn upward, the first effect is to unwind the said rope or chain M from the pulley L, which winds the ropes or chains K upon the pulleys J and draws the cross-bar E downward until it strikes against and is stopped by the upper ends of the stop-bars G. The downward movement of the cross-bar E forces the arms D downward, forcing the buckets A into and through the material to be grappled and closing the said buckets. When the downward movement of the cross-bar E is stopped by the bars G, the bucket and its load will be drawn up together and will be swung over the scow or other receiver. When the inner ends of the levers R come in contact with the derrick-arm O or its attachments, the said levers will be operated to disengage the catch-hooks P and allow the side bars, B, to descend, opening the bucket and discharging its contents.

This improvement adapts the bucket to be operated by a single rope.

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

1. In a grappling-bucket, the combination, with the slotted side bars, B, the sliding cross-bar E, the short ropes or chains K K, the hoisting rope or chain M, and the pulleys J J L, of the sliding shaft H and the stop-bars G, together with means for locking or holding the said shaft H during the closing of the scoops, substantially as herein shown and described, whereby the said shaft is free to move downward and is kept from being raised against the sliding cross-bar, as set forth.

2. In a grappling-bucket, the combination, with the buckets or scoops A, connected by arms D to cross-bar E, slotted side bars, B, and the sliding shaft H, of the angular hooks P, the connecting-rods Q, and the levers R, substantially as herein shown and described, whereby the said sliding shaft will be caught automatically and held as it reaches the lower limit of its movement, and will be released automatically as the bucket approaches the derrick-arm, adapting the bucket to be operated by a single rope, as set forth.

WILLIAM G. THOMPSON.

Witnesses:

JAMES T. GRAHAM,
EDGAR TATE.

It is hereby certified that Letters Patent No. 321,159, granted June 30, 1885, upon the application of William G. Thompson, of Brooklyn, New York, for an improvement in "Grappling-Buckets," should have issued to the said William G. Thompson *and Emma L. Hayward, assignee of a part interest in said invention*; that the proper corrections have been made in the files and records pertaining to the case in the Patent Office, and should be read in the Letters Patent to make the same conform thereto.

Signed, countersigned, and sealed this 11th day of August, A. D. 1885.

[SEAL.]

H. L. MULDROW,
Acting Secretary of the Interior.

Countersigned:

M. V. MONTGOMERY,
Commissioner of Patents.