(No Model.) 2 Sheets—Sheet 1.

G. H. MILLER & C. GOYETTE.

HOISTING BUCKET.

No. 302,152. Patented July 15, 1884.

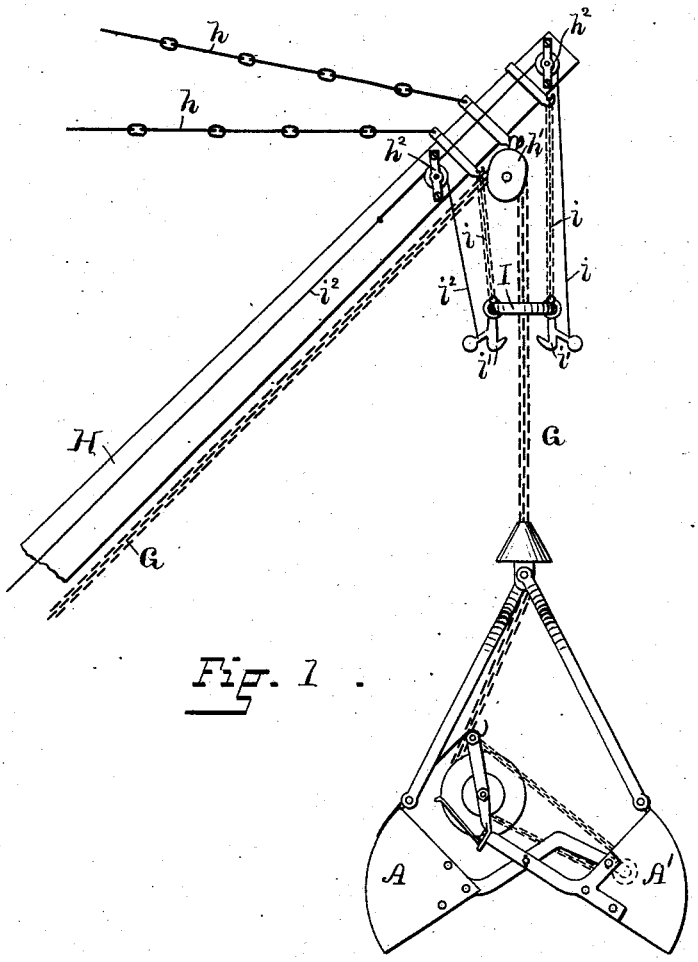

Fig. 1.

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Fig. 2.

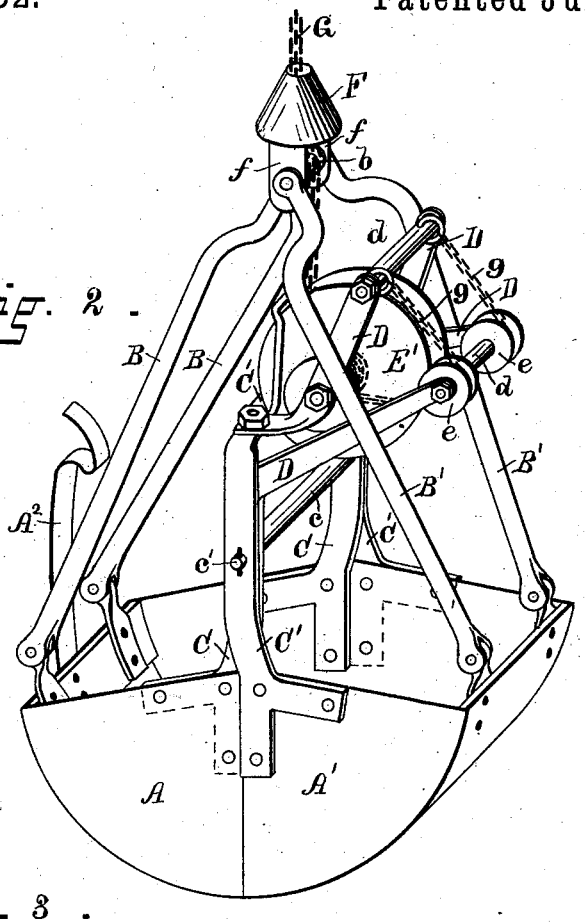
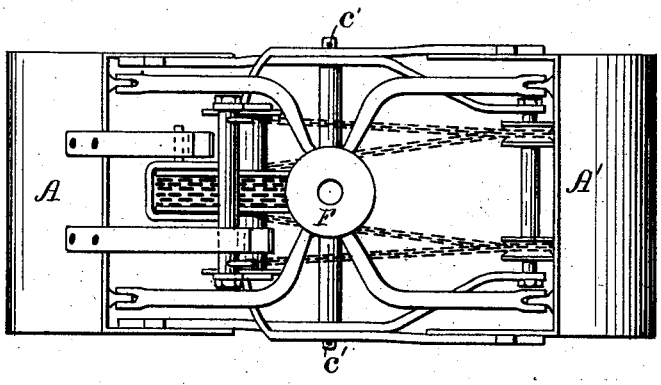


Fig. 3.



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UNITED STATES PATENT OFFICE.

GEORGE H. MILLER AND CASIMIR GOYETTE, OF PAWTUCKET, RHODE ISLAND.

HOISTING-BUCKET.

SPECIFICATION forming part of Letters Patent No. 302,152, dated July 15, 1884.

Application filed June 3, 1884. (No model.)

To all whom it may concern:

Be it known that we, GEORGE H. MILLER and CASIMIR GOYETTE, of Pawtucket, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Hoisting-Buckets, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

Our invention relates to buckets for loading and unloading coal and similar bulky substances from vessels or vehicles to the wharves or other places of deposit; and the object of our invention is to facilitate the opening and closing and also the raising and lowering of the bucket.

To the above ends our invention consists in certain peculiar features of construction and arrangement of the bucket and certain of its operating connections, as hereinafter described and claimed.

In order that our invention may be fully understood, we will proceed to describe it with reference to the accompanying drawings, in which—

Figure 1 is a general side view of our improved bucket and its operative connections. Fig. 2 is a perspective view of the bucket in closed position. Fig. 3 is a top view of the same in open position.

In the said drawings, A A′ designate the two halves of the bucket. From the outer side of the section A extend upwardly the two movable arms B B, each of which is connected pivotally at its lower end to the side of the section, while at their upper ends said arms are pivoted to a cross-bar, *b*. From the inner side of the section A extend upwardly two rigid arms, C C, which are pivotally connected by the cross-bar *c*. From the outer side of the section A′ extend upwardly two movable arms, B′ B′, the lower end of each of which is pivotally connected to the side of the section, while their upper ends are attached pivotally upon the cross-bar *b*. From the inner side of the section A′ extend upwardly two rigid arms, C′ C′, which are pivotally connected to the cross-bar *c*. The arms C′ are in reality a single bar of iron, which is bent in U form, and the ends of which are secured rigidly to the inner sides of the section A′. The points *c′* of the bar *c*, upon which the arms C C′ are pivoted, are in reality the hinges upon which the two sections of the bucket move when the bucket is opened or closed. The upper end of each of the arms C is bent laterally, as shown at D, and the outer ends of the two extensions D are connected by a cross-bar, *d*, which carries two pulleys, *e*. Upon the arms C′ are mounted two bars or brackets, D′, the upper ends of which are connected by the cross-bar *d′*, and these brackets carry the drum E, which consists of a central section separated from an outer section upon either side by two circular flanges, as shown in Fig. 3.

F designates a conical stop-piece, which is hollow and provided with an aperture in its top. The stop F is also provided with two downwardly-extending pieces, *f*, through the lower ends of which the cross-bar *b* passes.

G designates the hoisting-line, which passes downward through the stop F, and thence around the central portion of the drum E, to which the lower end of the line is secured.

g g designate the two winding-lines, each of which is attached at its upper end to the cross-bar *d*, and passes thence over one of the pulleys *e*, and thence to one of the outer portions of the drum E, where the lower end of the chain is secured.

H designates the derrick-boom, the outer end of which is held to the derrick-mast by the usual stays, *h h*. At its outer end the boom H carries a pulley, *h′*, over which the hoisting-line G passes to the hoisting apparatus.

I designates a ring which is suspended horizontally from the boom H by the chains or cords *i*, and this ring carries the freely-swinging catch-hooks *i′ i′*, two or more of which may be employed. The catches *i′* are connected by a branched line, i^2, which passes over pulleys h^2, secured to the boom, and this line passes downward along the boom and mast to the station of the operator. The catches *i′* may be weighted, as illustrated in Fig. 1, so as to insure their retention in proper position and their effective operation.

A^2 designates a catch, which is in the form of a spring-arm secured to the outer side of the section A, and bent and curved in such

manner that when the bucket is opened the catch shall engage with the cross-bar d' and hold the bucket in open position.

The operation of the above-described mechanism is as follows: For the purposes of this description let it be supposed that the parts are in the positions shown in Fig. 1, the bucket having discharged its load and being held in open condition by the catch A^2. The bucket is lowered by paying out upon the line G until it (the bucket) strikes the mass of coal to be hoisted. The catch is now thrown off of the cross-bar d' and the line G is hauled in, whereby the bucket is closed in consequence of the revolution of the drum E, produced by the line G and the winding of the lines $g\ g$ upon said drum. After having been thus closed the bucket is hoisted up in closed condition by the line G till the stop F has passed between the catches i', which will then automatically engage beneath the lower edge of the stop F. The line G is then paid out and the bucket will open, owing to the reverse movement of the drum E, the bucket being held suspended by the stop F and catches i'. As soon as the bucket assumes the wide open condition illustrated in Figs. 1 and 3 the catch A^2 grasps the bar d' and holds the bucket open. The bucket is now raised a little by hauling on the line G, when the branched line i^2 is hauled upon, so as to separate the catches i' from the stop F. The line G is now paid out and the bucket descends again to the pile of material, after which the above-described operations are repeated.

We do not wish to be understood as confining ourselves to the precise details of construction and arrangement above described, because our invention contemplates various modifications of such details. For instance, the form of the catch A^2, as shown, is only indicative of its function, and we propose to employ any form of catch which will hold the bucket open and permit of being released at the proper time. We also intend, if desired, to substitute for the ring I a conical piece similar to the piece F, so that no defect in the operation of the catches i' may occur, and we contemplate other modifications of details. Therefore we refer to the claims for an ascertainment of our invention.

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

1. The combination, with a hoisting-bucket constructed substantially as described, and provided with a stop, of a catch or catches attached to the boom, and arranged to automatically grasp the stop, so as to hold the bucket in suspended condition during the opening of the same, and connections for releasing the catches from the bucket when the same is to be lowered, substantially as set forth.

2. The combination, with the bucket having the stop, and the catch arranged to hold the bucket in open condition, of the catches attached to the boom and arranged to hold the bucket suspended, and the connections for separating the catches and releasing the bucket, substantially as specified.

3. The combination of the ring I, the catches i', and the branched line i^2, substantially as set forth.

4. The combination, with the derrick-boom carrying the pulleys h^2, of the ring I, carrying the catches i', the chains i, and the branched line i^2, substantially as described.

5. The bucket-section A, provided with the arms B C and the cross-bars $b\ c$, in combination with the section A′, provided with the arms B′ C′ and the extension D, the brackets D′, the cross-bars $d\ d'$, and the drum E and pulleys e, substantially as specified.

6. The bucket-section A, having the catch A^2 and the arms B C, and cross-bars $b\ c$, in combination with the section A′, having the arms B′ C′, the extension D, the brackets D′, and the cross-bars $d\ d'$, substantially as set forth.

7. The combination, with the bucket having the arms B B′ C C′, the extension D, the brackets D′, and the cross-bars $b\ c\ d\ d'$, of the stop F, having the extensions f and the drum E and pulleys $e\ e$, substantially as described.

8. The combination of the boom carrying the pulleys $h'\ h^2$, the ring I, having the catches i', the chains i, the branched cord i^2, and the bucket constructed as described, and having the stop F, catch A^2, drum E, pulleys $e\ e$, and line G and chains g, as set forth.

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