

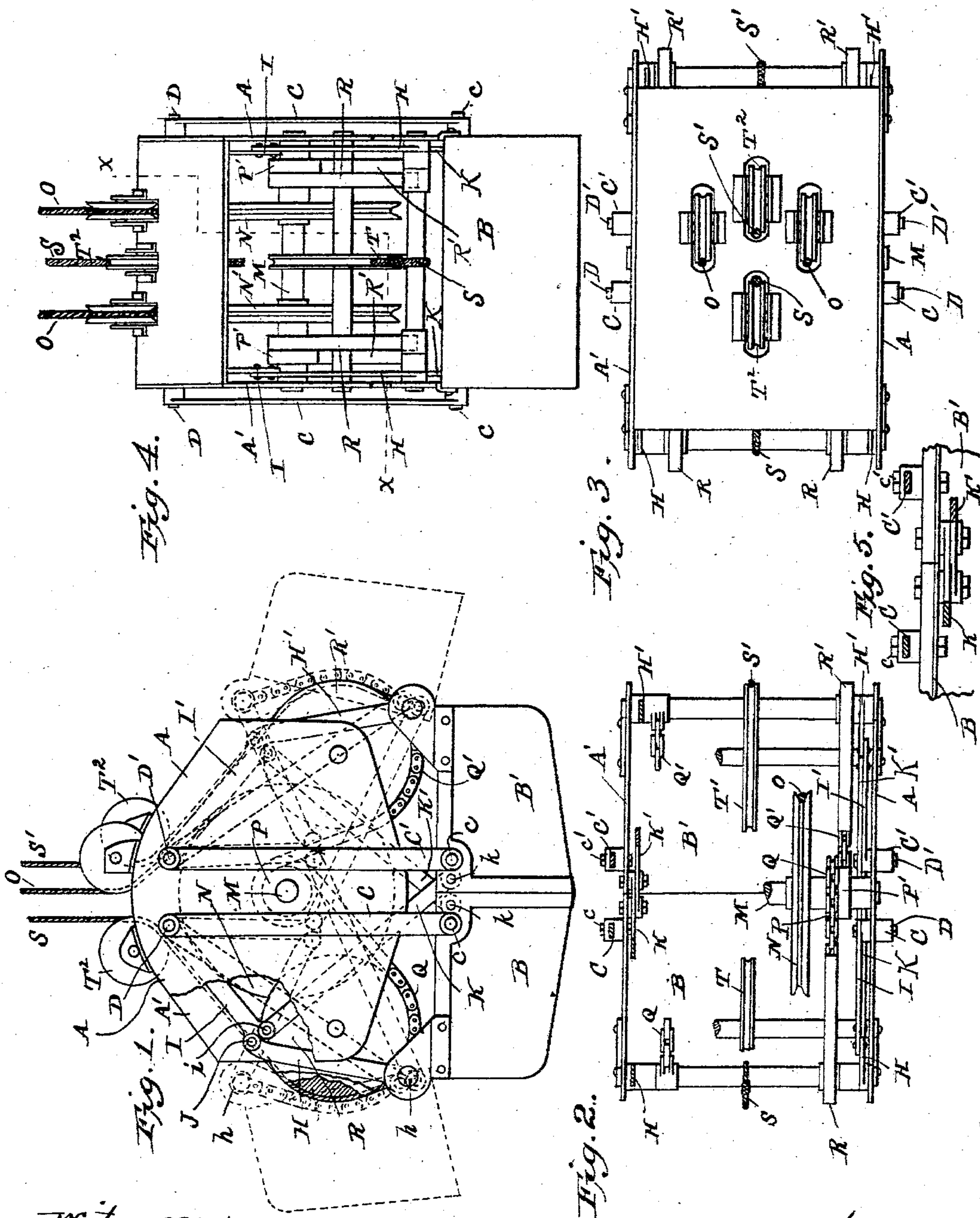
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J. C. SLOCUM.
CLAM SHELL BUCKET.

APPLICATION FILED JULY 13, 1903.

NO MODEL.



Witnesses:
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CLAM-SHELL BUCKET.

SPECIFICATION forming part of Letters Patent No. 751,955, dated February 9, 1904.

Application filed July 13, 1903. Serial No. 165,381. (No model.)

To all whom it may concern:

Be it known that I, JOHN C. SLOCUM, a citizen of the United States, residing at Columbus, in the county of Franklin and State of Ohio, have invented certain new and useful Improvements in Clam-Shell Buckets, of which the following is a specification, reference being had therein to the accompanying drawings.

Figure 1 is a side elevation of a lifting-bucket embodying my improvements. Fig. 2 is a horizontal section on the line $x x$, Fig. 2. Fig. 3 is a top plan view. Fig. 4 is an end elevation. Fig. 5 is a sectional detail.

In the drawings I have shown a framework of one of the sorts which can be used in constructing the bucket, the one shown having plates or bars $A A'$, which may be joined together and braced by any suitable devices. From this frame are suspended the buckets or scoops and the devices which support them. They are indicated, respectively, by $B B'$. Each is at its front end suspended by a vertical link or arm, one shown at C and the other at C' . Each bucket has two sets of supporting and operating devices, one at each end, and as the four sets are substantially similar to each other it will not be necessary to describe in detail more than one, and I will refer to the parts which support the bucket B at its right-hand end when viewed as in Fig. 4. Its principal arm or link C is connected to a pivot or pin D , which is mounted in the upper part of the framework. At its lower end it is pivotally connected at c to the inner or toe end of the bucket. At the rear or heel end there is an arm or link H , connected pivotally to the bucket, as shown at h . It extends upward to and is connected to a secondary link or rocking arm I , which is secured to the aforesaid pivot D , mounted in the framework. These arms or links H and I are connected by a pivot at J . K is a pitman or connecting-rod pivotally connected to these arms or links H and I , preferably to the latter at its lower end at j , and extending downward and across the central transverse vertical plane of the machine and pivotally connected independently of the principal arms C to the inner side of the opposite bucket B' .

M is a power-shaft mounted on the frame on a horizontal line in the central plane of the mechanism. N is a rope-wheel secured to this power-shaft M , and O is the power-rope, which extends downward from the point of suspension to and around the power-wheel N , to which its end is fastened.

P is a winding drum or spool on the power-shaft, and to this one end of the closing rope or chain Q is connected, the chain extending therefrom to the heel of the bucket, being secured to the pivot-bar at h . An antifriction-guide for the rope is shown of a sort more or less common in the art, it being a wheel at R . It is not connected to the rope or to the bucket, but merely provides an antifriction-guide for the rope. Both of these parts (the rope and the bucket) are suspended entirely independently of this wheel.

As above stated, it is to be understood that for each bucket there can be at each side a set of the above-described parts. Those at the end of the bucket B opposite to that seen in Fig. 1 are indicated by letters the same as those above set forth.

When the weight of the mechanism is allowed to exert itself upon the ropes O , it causes the turning of the wheels N and of the power-shaft M in the frame, which results in the rotating of the drums P , and the latter wind up and draw upon the closing chains or ropes Q , and this draws the bucket B from its outermost position toward the inner closed position.

S is an opening-rope for drawing the bucket B from its innermost to its outermost position, this rope extending from the bucket-heel around the antifriction-guide at T and thence under a guide-wheel at T^2 and thence upward to the point of suspension.

The other bucket, B' , is shown as having corresponding parts—that is to say, the front or toe arm C' , a heel link or arm H' , a rocking arm I' , a pitman or link K' , a winding-drum P , a closing chain or rope Q' , an antifriction-guide R' for the chain or rope, an opening-rope S' , and guide T' .

When it is desired to discharge the contents of the buckets and to bring them to their

open positions, it is done by relieving the ropes O of strain and suspending the mechanism by the ropes S and S'. Thereupon the buckets are moved to the position shown by the dotted lines in Fig. 1. The buckets are again brought into their closed position in the manner above described—that is to say, the opening-ropes S and S' are relieved of strain and the weight of the buckets and the attached parts is thrown upon the ropes O. While the buckets are closing the pitmen or links K K' shift the upper axes of the links or arms H in such way as to compel the rear ends to travel through a peculiar and advantageous path as the buckets are closing.

I am aware that it has been heretofore proposed to combine with the outer or heel end of the bucket a link or arm pivotally connected to a second link or arm, as shown in Patent No. 603,143 to J. A. Joyce, of April 26, 1898, and also to combine with the front end of the bucket a nut-and-screw-thread mechanism for rectilineally drawing inward upon that end; but in the earlier mechanisms referred to the parts were so constructed and related that the upper end of the second link just mentioned had to be mounted upon a sliding shaft, and such supplemental links were required for the purpose of thrusting this shaft up and down in the frame. I aim to produce as short a mechanism vertically as is possible and to impart movements to the buckets and apply the power thereto in an essentially different manner. I secure the power rope or chain to the heel of the bucket and apply power thereto on lines approximately parallel to the bottom of the bucket, causing a superior cutting or penetrating action. I avoid the necessity of having any sliding parts, which are objectionable for reasons well known to engineers, and effect the thrusting out of the heel of each bucket by motion and power derived from the opposite bucket.

The secondary link I, although pivoted on the same axis as its principal link or arm C, is nevertheless independent thereof and may be regarded as connected to the framework independently of the part C. By arranging this in the way shown I simplify and cheapen the construction and at the same time provide for an approximately theoretically-correct movement for the heel of the bucket. It will also be seen that the thrust-link K is connected to the opposite bucket independently of the principal lever-arms, it rocking about an axis different from that upon which either of the principal arms is pivoted. The positions of the several axes are such that the vertical or principal arms insure the proper movement of the front end of the bucket and the thrust-links insure the proper movement of the secondary link and the heel-link on the opposite bucket.

What I claim is—

65 1. The combination of the frame, the two

oppositely-arranged scoops or buckets, the principal link or arm for the front of each bucket, the secondary link for each bucket, the heel-link pivoted to the frame and to the secondary link, and the link or bar pivotally connected to the secondary link of one bucket and pivoted to the body of the opposite bucket independently of the principal links, substantially as set forth.

2. The combination of the frame, the two oppositely-arranged scoops or buckets, the principal links for the front ends of the buckets, the secondary links pivoted to the frame, the heel-links connecting the buckets respectively to the secondary links, and the thrust-links respectively connected to the secondary link of one bucket and pivotally connected to the opposite bucket independently of the principal links and of the heel-links, substantially as set forth.

3. The combination of the frame, the two oppositely-arranged scoops or buckets, the principal links for the front ends of the buckets, respectively, the links suspending the heels of the buckets, the stationary pivots connecting the heel-suspending links to the frame, and the thrust-links each pivotally connected to a bucket independently of the principal links and each pivotally connected to the heel-suspending links of the opposite bucket, substantially as set forth.

4. The combination of the frame, the two oppositely-arranged scoops or buckets, the two principal links or suspending-bars for the front ends of the buckets, respectively, pivotally connected to the frame independently of each other, the secondary links pivoted to the frame by stationary hinges at the axes of the principal links, the heel-links respectively connected to the secondary links, and the thrust-links each pivoted to a bucket independently of the principal links and pivotally connected to the secondary link and heel-link of the opposite bucket and adapted to thrust the last-said links outward as the heel of their bucket moves down, substantially as set forth.

5. The combination of the frame the two oppositely-arranged scoops or buckets, the power mechanism, the winding chains or ropes each connected to the heel of a bucket, the guide-wheels for the chains or ropes, the principal links or arms for the front ends of the buckets, the heel-suspending links pivotally connected to the frame by stationary hinges, and the thrust-links each pivotally connected to a bucket and pivotally connected to the heel-suspending links of the opposite bucket, substantially as set forth.

6. The combination of the frame, the power mechanism in the frame, the winding ropes or chains actuated by the power mechanism, the guide-wheels for the winding-chains, the two oppositely-arranged scoops or buckets supported independently of the said guide-wheels, the principal links or arms pivoted to

the frame and suspending the front ends of the buckets, the heel-suspending links, and the thrust-links one for each bucket and adapted to thrust the heel-suspending links outward
5 as the bucket is moved inward, substantially as set forth.

7. The combination of the frame, the power mechanism mounted in the frame, the winding ropes or chains actuated by the power
10 mechanism, the guide-wheels for said winding-chains mounted on stationary axes in the frame, the two oppositely-arranged scoops or buckets supported independently of the said

guide-wheels, the principal links or arms for the front ends of the buckets, the heel-sus- 15 pending links supported at the axes of the principal arms, respectively, and the thrust-links each connected to a bucket and pivotally connected to the heel-suspending links of the opposite bucket, substantially as set forth. 20

In testimony whereof I affix my signature in presence of two witnesses.

JOHN C. SLOCUM.

Witnesses:

E. R. MERRILL,
J. M. FURNAS.