

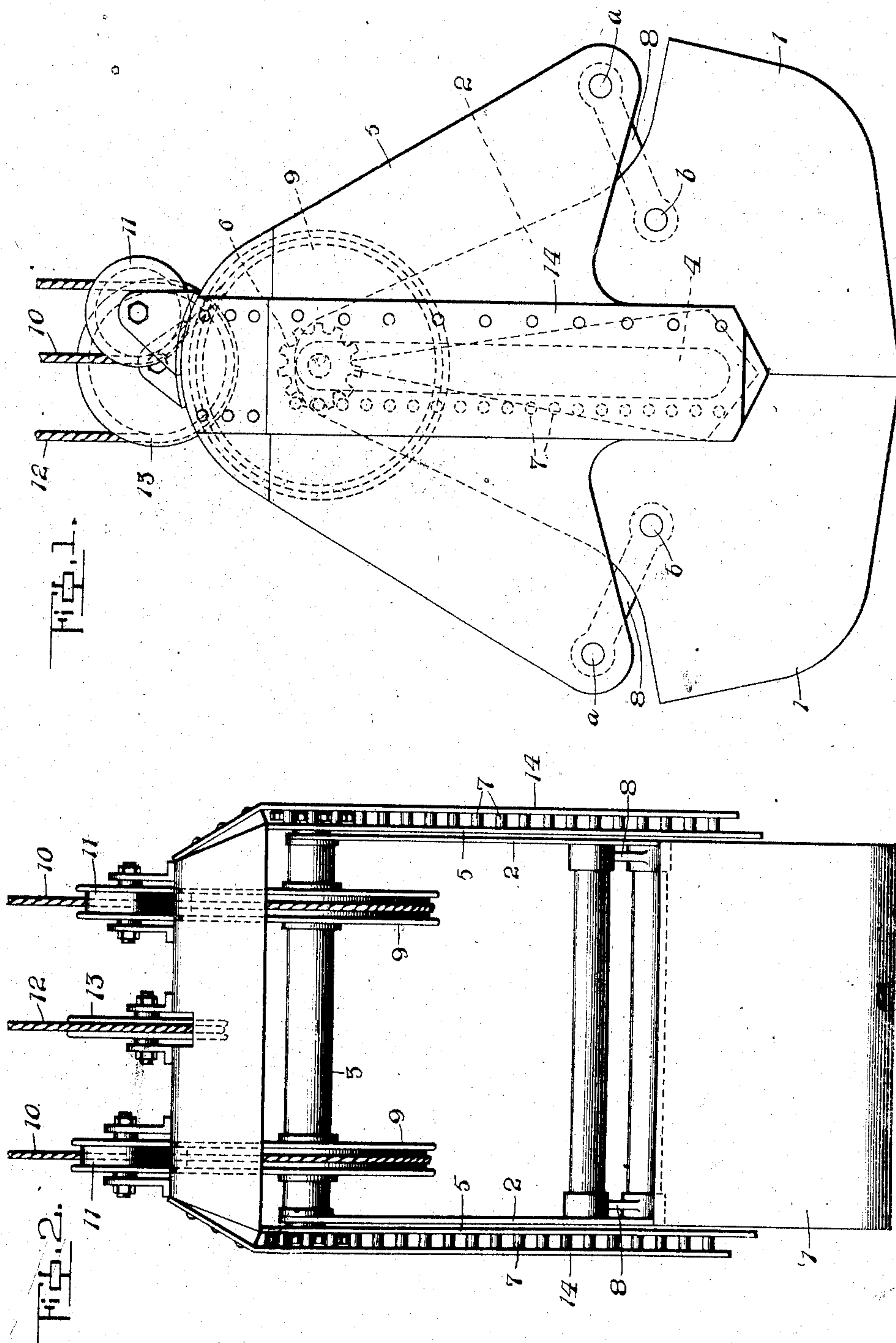
No. 864,278.

PATENTED AUG. 27, 1907.

C. S. WILLIAMSON.
HOISTING BUCKET.

APPLICATION FILED JAN. 8, 1906. RENEWED JAN. 2, 1907.

2 SHEETS—SHEET 1.



WITNESSES:

J. H. Rogers
Herbert Bradley

INVENTOR

Charles S. Williamson,
by Christie & Christie, Atty's

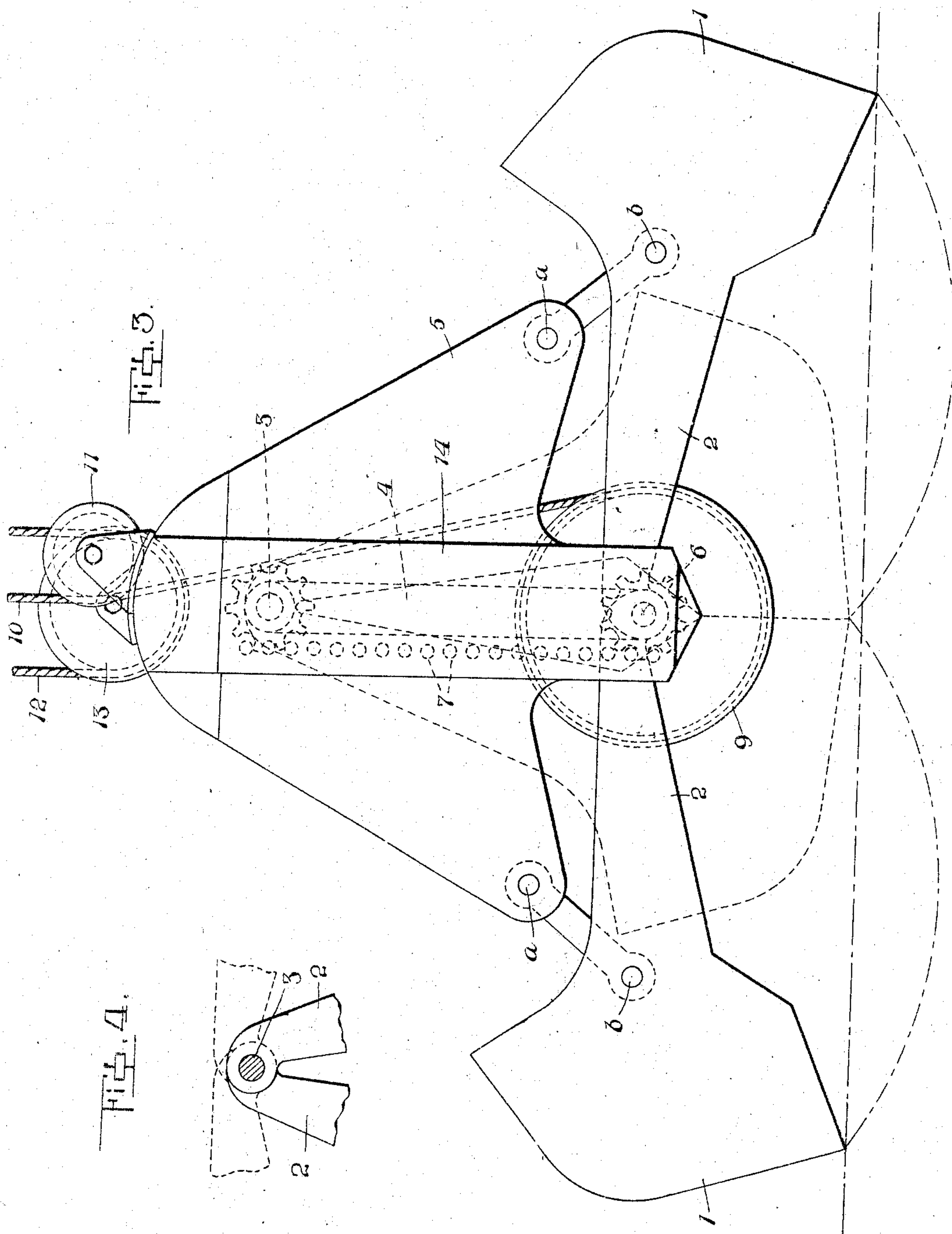
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J. B. Hughes
Herbert Bradley

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UNITED STATES PATENT OFFICE.

CHARLES S. WILLIAMSON, OF PITTSBURG, PENNSYLVANIA.

HOISTING-BUCKET.

No. 864,278.

Specification of Letters Patent.

Patented Aug. 27, 1907.

Application filed January 8, 1906, Serial No. 295,061. Renewed January 2, 1907. Serial No. 350,432.

To all whom it may concern:

Be it known that I, CHARLES S. WILLIAMSON, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, a citizen of the United States, have invented or discovered certain new and useful Improvements in Hoisting-Buckets, of which improvements the following is a specification.

The invention described herein relates to certain improvements in grab buckets for the removal, transfer and deposition of material from one point to another.

The sections or halves of the buckets and their operating mechanism are generally so constructed that the advance edges of the sections must either be forced deeply into the material necessitating the employment of great power for that purpose or the sections must be given an upward movement simultaneous with their movement towards each other.

The invention has for its object such a construction of bucket and operating mechanism that the advance or penetrating edges of the buckets will have when closing only sufficient dip or downward movement to gather up an amount of material necessary to fill the bucket, such movements being approximately horizontal so that only the material on the surface or nearly adjacent thereto will be collected. This surface gathering is especially desirable as requiring less power.

It is a further object of the invention to provide for the greatest application of power at the beginning of the closing movement. When the advance edges must be forced into the material and at the end of the closing movement in order to crush any lumps caught between the meeting edges and thus insuring a tight closing of the sections.

The invention is hereinafter more fully described and claimed.

In the accompanying drawings forming a part of this specification, Figure 1 is a side elevation of my improved bucket with the sections in closed position. Fig. 2 is a front elevation of the same; Fig. 3 is a view similar to Fig. 1 showing the bucket in open position and Fig. 4 is a detail view showing the manner of connecting the bucket arms to the traveling shaft.

In the practice of my invention the bucket sections 1 are provided with arms 2 which may be formed integral with the sides of the sections or suitably secured thereto. The ends of these arms are connected to a traveling shaft 3, preferably by forming eyes in the arms through which the ends of the shaft project. The ends of the shaft project through slots 4 formed in the side plates 5 of the supporting frame, and are provided with toothed wheels 6 preferably secured to the portions of the shaft outside of the plates 5. These toothed wheels inter-

mesh with racks or two series of teeth or projections preferably formed by series of pins 7 secured to plates 5 parallel with the slots 4. By the rotation of the shaft the toothed wheels will be caused to move up and down carrying with them the ends of the arms 2.

The sections 1 in closing and opening have a swinging and a rotary movement, one a swinging movement around points *a* on the side plates 5 and the other a rotary movement around axes indicated at *b* passing through the buckets. These centers of movements are connected by links 8. By reference to Fig. 3 it will be seen that at the beginning of the closing movement the bucket sections will be moved inwardly towards each other by the upward movements of the shaft 3. During these inward movements of the sections the links 8 move from slightly inclined to vertical positions, presenting the greatest resistance to distortion, the stress being in the direction of their length. Again as the sections approach each other the points *b* on the sections are drawn towards a plane passing through the points *a* so that the links will operate as members of toggle joints. By reason of this toggle-joint construction, the meeting edges of the sections will be approximately parallel with each other shortly before they come together.

For the rotation of the shaft, drums 9 are secured thereon and one end of operating ropes 10 are secured thereto said ropes passing up alongside of guide pulleys 11 secured to the supporting frame. These ropes may be employed not only for closing the sections but also for hoisting them when closed.

In order to support the bucket when the ropes 10 are slackened to permit the sections to swing out a hoisting rope 12 is passed around a pulley 13 secured to the frame, or otherwise attached to the frame.

In order to prevent any bending or distortion of the pins 7, it is preferred that their outer ends should be secured to straps 14 having their upper ends attached to the side plates 5, as shown in Fig. 2.

I claim herein as my invention:

1. In a hoisting bucket the combination of a supporting frame, a vertically movable shaft, bucket sections provided with arms having their ends loosely mounted on said shaft, and links connecting the sections to the frame, substantially as set forth.

2. In a hoisting bucket the combination of a supporting frame, provided with vertically arranged pins or projections, a vertically movable shaft, pinions mounted on the shaft and engaging the pins or projections, bucket sections provided with arms connected to the shaft, links connecting the bucket sections to the supporting frame and means for rotating the shaft.

3. In a hoisting bucket the combination of a supporting frame provided with vertically arranged pins or projec-

tions, pinions arranged to intermesh with the pins or projections, means for rotating the pinions, bucket sections provided with arms connected to the pinions, and links connecting the sections to the supporting frame.

4. In a hoisting bucket the combination of a supporting frame provided with series of pins or projections, pinions intermeshing with the pins or projections, bucket sections provided with arms connected to the pinions, the buckets having pivotal connections to the supporting frame and means for rotating the pinions.

5. In a hoisting bucket the combination of a supporting frame, bucket sections having a movable pivotal axis, and having swinging connections to fixed points on the frame, said points being outside of the plane of movement of the movable axis.

In testimony whereof, I have hereunto set my hand.

CHARLES S. WILLIAMSON.

Witnesses:

CHARLES BARNETT,
FRIEDA E. WOLFF.