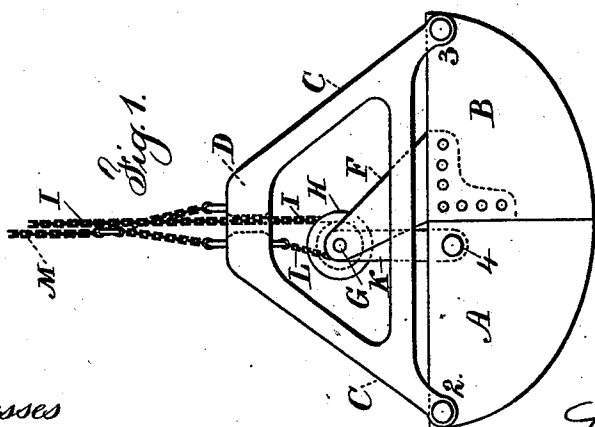
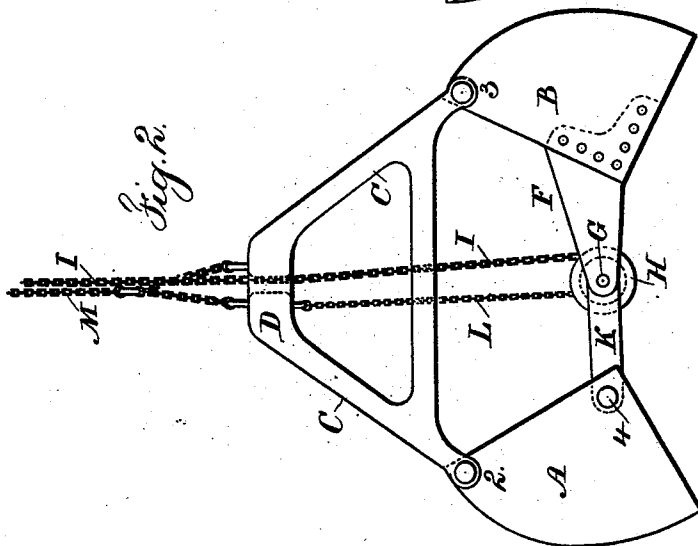
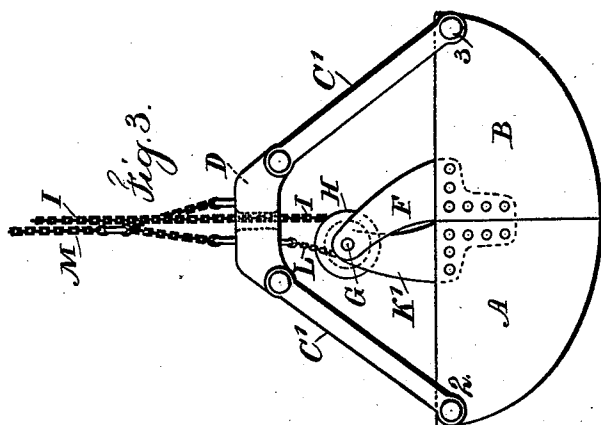


(No Model.)

C. W. HUNT.
EXCAVATING OR DREDGING BUCKET.

No. 512,827.

Patented Jan. 16, 1894.



Witnesses

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UNITED STATES PATENT OFFICE.

CHARLES W. HUNT, OF WEST NEW BRIGHTON, NEW YORK.

EXCAVATING OR DREDGING BUCKET.

SPECIFICATION forming part of Letters Patent No. 512,827, dated January 16, 1894.

Application filed May 29, 1893. Serial No. 475,932. (No model.)

To all whom it may concern:

Be it known that I, CHARLES W. HUNT, a citizen of the United States, residing at West New Brighton, in the county of Richmond and State of New York, have invented an Improvement in Excavating or Dredging Buckets, of which the following is a specification.

This improvement relates to that class of excavating devices in which two chains are employed, one for closing the dredge or bucket and raising the same, and the other for opening the bucket and by which such bucket is lowered, and the present invention applies to scoops having segmental buckets that close together and also to grapples having teeth that are brought together for grasping and raising stones or other substances.

In dredging and excavating apparatus of the general character before mentioned, the hoisting drum around which the chain is wound, and which drum is rotated for the closing of the bucket, has been upon a frame to which the inner edges of the bucket or grapple are hinged, the outer edges of such bucket or grapple being connected to a head-block by swinging links, but difficulty has heretofore arisen in placing the drum for the hoisting chain in such a position that the hoisting chain has passed vertically and centrally of the apparatus and usually has been deflected in its upward course and passed through an opening in the head-block.

By my present improvement the construction of the apparatus is very much simplified and the hoisting chain is caused to pass from the drum vertically and centrally or nearly so to the entire apparatus.

With this object in view the two parts forming the bucket or grapple are not hinged together in a plane passing vertically between such two parts, but the arms at the ends of one part of the bucket or grapple rise upwardly and extend over the other part of the bucket or grapple sufficiently for the connecting pivots to be at one side of a plane passing vertically between the two parts of the grapple or bucket, and the hoisting drum and its shaft or axis are in line with these pivots and between the pairs of arms, so that the hoisting chain is in line or nearly so with a vertical plane passing centrally between the buckets, in order that the closing and hoist-

ing action may be direct and uniform and that the buckets may open equally, or nearly so.

In the drawings, Figure 1 is an elevation endwise of the bucket. Fig. 2 is a similar view with the parts in the position they assume when the bucket is open, and Fig. 3 represents a modification.

The parts A and B illustrate the two halves of a segmental bucket or the two halves of a grapple or other submarine excavating device, and C is a frame that is triangular in its general form and to which the head-block D is connected; and it is to be understood that usually there are two of these frames C, one near each end of the apparatus, and the shape and character of these frames and head-block will vary according to the character of the excavating apparatus and to the buckets or grapple connected with such frame and head-block, and the buckets or grapples A B are connected at 2 and 3 to the frame C so that the parts can swing upon such pivot in opening and closing. The arms F are formed with or rigidly connected to the half bucket B and they extend out diagonally and partially over the half bucket A, and at their upper ends they receive the main shaft G upon which is the drum H for the hoisting and closing chain I, and there are links K pivoted at their upper ends to the arms F or upon the shaft G and at their lower ends at 4 to the half bucket A; and there are to be chains or other suitable connections L between the shaft G and the head-block D as usual in buckets of this character; and it will be observed that the chain I passes in a vertical plane that is central or nearly so to the apparatus. Hence it can pass freely through an opening provided for it in the head-block D, and when the lowering chain M is actuated and the chain I is slackened, the drum H is rotated and the chain I wound thereon at the same time that the chain L is unwound from the shaft G, and the buckets A B descend and open, and in so doing the links K swing upon the pivots 4 and upon the shaft G until the contents of the bucket are discharged, the arms F and links K acting similar to toggles in opening the buckets; and when the chain I is drawn upon, the drum H and shaft G are rotated and the chains L are wound upon the shaft G and the head-

block D and frame C are drawn down until the bucket or grapple is effectually closed upon the article to be lifted, and when this has been accomplished the further pull upon the chain I raises the whole apparatus and the contents of the buckets or grapples A B, and in effecting this operation the hoisting chain I remains substantially central to the apparatus and such apparatus is balanced so as to hang properly by the chain I.

In Figs. 1 and 2 the frame C is shown as rigid, but when the frame is made with links C' pivoted at their upper ends as well as being pivoted at their lower ends to the buckets, then a frame K' can be used in place of the links K, such frame K being fastened to the bucket A, and as the parts swing and the buckets open the links C' will swing at their upper ends to allow for the spreading movement consequent upon the toggle action as the pivotal points come into line with each other, and the benefit derived from the hoisting chain I being central is obtained the same in this modification as in the devices shown in Figs. 1 and 2.

I claim as my invention—

1. In an excavating or dredging apparatus, the two-part bucket or grapple having arms upon one part or section extending upwardly and over the other part or section, and pivotal connections between such arms and the other section, the pivots at the upper ends of the arms being at one side of a plane passing vertically between the two sections of the bucket or grapple, in combination with a drum and shaft supporting the drum, such

shaft extending between the arms at the respective ends of the bucket and forming or being in line with the pivots at the ends of the arms, and a hoisting chain attached to the drum, the parts being constructed so that such hoisting chain is in a vertical plane passing centrally between the two halves of the bucket or grapple, or nearly so, substantially as set forth.

2. The segmental buckets A and B, in combination with the frame C and head-block D to which said segmental buckets are pivoted, arms F extending from the segmental bucket B and over the segmental bucket A, the shaft G carried by such arms F, the drum H upon the shaft G, a hoisting chain I passing through the head-block, and links K pivoted at the shaft G and upon the segmental bucket A, substantially as set forth.

3. The combination with the bucket or grapple formed of sections pivoted near their outer edges, of arms rising from the ends of one half bucket or grapple and extending over the other half bucket or grapple with pivots and links pivoted at their upper ends to the arms and at their lower ends to the half bucket or grapple, a shaft and drum axially on line or nearly so with the pivots on the arms and a hoisting chain that is in a plane passing centrally between the two halves or nearly so, substantially as specified.

Signed by me this 25th day of May, 1893.

CHAS. W. HUNT.

Witnesses:

GEO. T. PINCKNEY,
A. M. OLIVER.