A. E. HALL.

DREDGING-BUCKET.

No. 187,005 Patented Feb. 6, 1877.

Fig. 2.

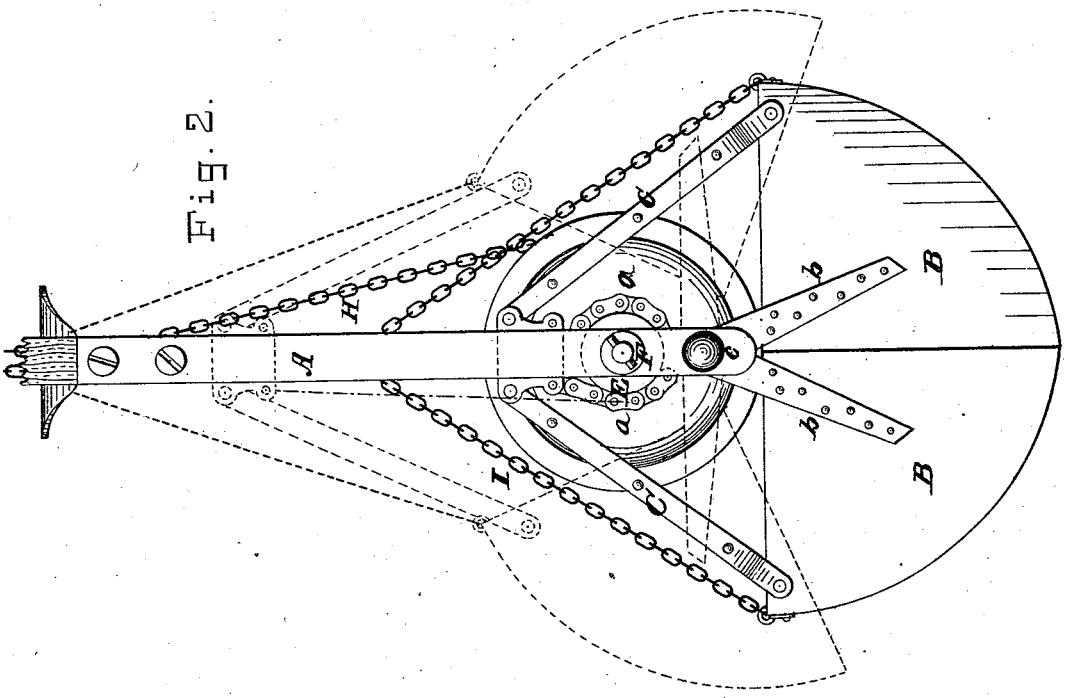
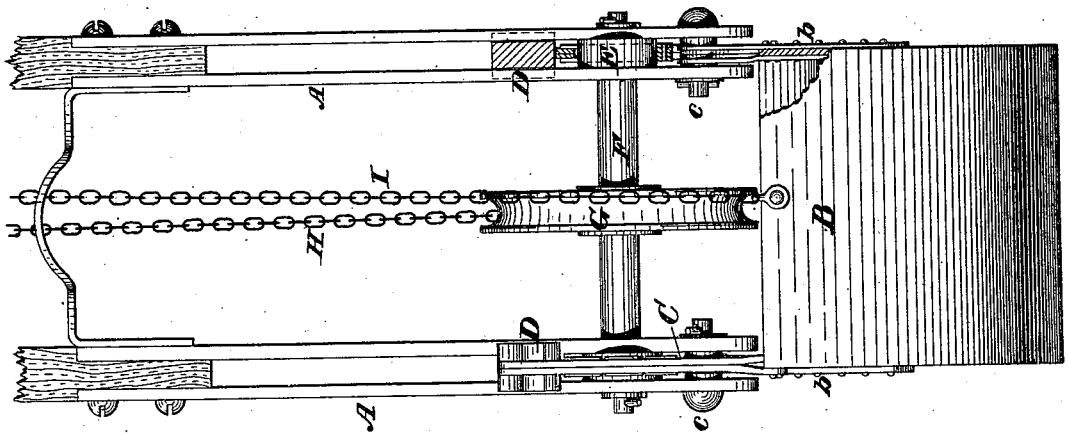


Fig. 1.



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UNITED STATES PATENT OFFICE.

ALBERT E. HALL, OF PROVIDENCE, RHODE ISLAND.

IMPROVEMENT IN DREDGING-BUCKETS.

Specification forming part of Letters Patent No. **187,005**, dated February 6, 1877; application filed January 6, 1877.

To all whom it may concern:

Be it known that I, ALBERT E. HALL, of Providence, in the county of Providence and State of Rhode Island, have invented certain Improvements in Dredging-Scoops and Grapples, of which the following is a specification:

My improvements relate to the scoop or grapple now in common use, consisting of two jaws or buckets hinged in an upright frame, and arranged to be opened and closed by means of two suspensory chains from a boom-derrick and suitable winding-drums.

The essential elements of the present invention consist in the novel construction of the frame, the hinging of the buckets or jaws thereto, and the various combinations of parts, which will be hereinafter set forth.

In the drawings, Figure 1 is a side elevation of a dredging-scoop provided with my improvements, and Fig. 2 is an end view of the same. The first-named figure is partly broken away and sectioned, so as to more fully illustrate my improvements.

In general, let A A represent the uprights of the frame, to which are hinged the buckets or jaws B B. Toggle-bars C C connect the buckets with sliding blocks D D, the latter being also connected, by means of chains *a a*, with chain-pulleys E E, keyed or otherwise rigidly fixed to a cross-shaft, F, which has suitable bearings in the uprights A A. This shaft bears also a larger chain sheave or pulley, G, rigidly keyed thereon. To this sheave is attached the closing-chain H, and to the buckets or jaws are attached the branches of the opening-chain I.

The full lines in both figures show the buckets closed, and the broken or dotted lines in Fig. 2 show the position of the parts when the buckets or jaws are open.

In the operation, when the scoop or grapple is lowered the weight is thrown upon the chain I, which opens the jaws or buckets B B, as shown in the dotted lines in Fig. 2. When it reaches the bottom, or the object to be grappled, the strain is thrown off the chain I, and the whole is lifted by the chain H, which, acting through the chain-sheaves G E, chains *a a*, sliding blocks D D, and toggle-bars C C, tends to close the jaws or buckets with great power.

Heretofore, in the construction of grapples, &c., with toggle-bars, it has been customary to slot the uprights A A parallel to the axis of the hinged jaws or buckets, and arrange a cross-bar between the uprights, the ends playing in the said slots. To this cross-bar the toggle-bars are hung.

In my construction, I form each standard of two plain straight pieces of metal, preferably wrought-iron, arranged parallel, and at a sufficient distance apart to form a slot at right angles to the axis of the hinged jaws or buckets, for the reception of the sliding blocks D D, which are provided with suitable flanges and jaws to receive the upper ends of the toggle-bars C C and chains *a a*. The minor chain-sheaves E E are mounted on the shaft F, at such points that they will rest between the plates of the uprights in the before-mentioned slots, and have a bearing on both sides. The hinges *b b* are each formed of two plates of metal, so arranged (see Fig. 1) that the double plate of one bucket may rest between the opened plates of the opposite bucket, the whole resting between the lower ends of the upright frame-plates, where they hang upon the hinge-pins *c c*, as shown.

It is found in practice that the greatest lateral strain upon the uprights is in a plane at right angles to the hinging-axis of the jaws or buckets, or in a plane parallel to Fig. 2. To meet this strain most successfully, and to cheapen the construction at the same time, I form the uprights of the paired plates as shown, thus arranging them to take the strain edgewise, and to form a convenient space for the play of the sliding blocks D D, for the chain-sheaves E E, and for the hinges *b b*.

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

1. In a dredging apparatus, substantially as described, the uprights A A, each constructed of two parallel plates, arranged to form an intermediate slot at right angles to the plane of the hinging-axis, in combination with sliding blocks D D, toggle-bars C C, and buckets or jaws B B, all substantially as herein set forth.

2. The combination of the minor sheaves E E on the shaft F, and between the plates form-

ing the uprights A A, so as to be in the same vertical plane as the sliding blocks D D, and connected therewith by chains *a a*, substantially as set forth.

3. The combination, in a dredging apparatus, of the slotted uprights A A, constructed and arranged as set forth, the sliding blocks D D, the chain-sheaves E E, chains *a a*, and sheave G, all arranged to operate substantially as herein set forth.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

ALBERT E. HALL.

Witnesses:
JOHN C. PURKIS,
GILMAN E. JOPP.