A. E. HALL.

Dredging Apparatus.

No. 211,153. Patented Jan. 7, 1879.

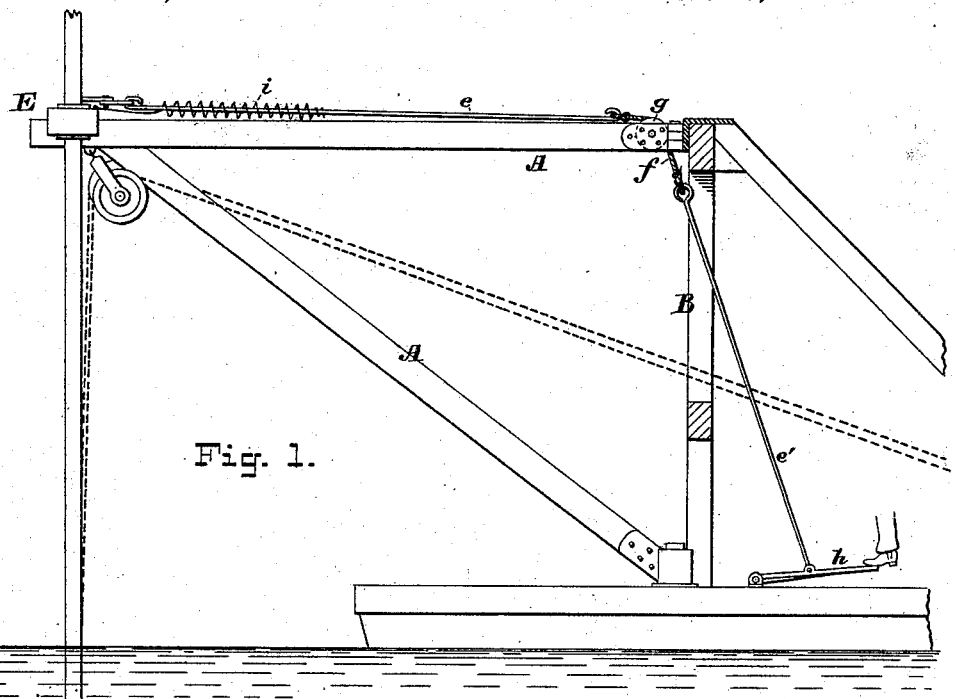
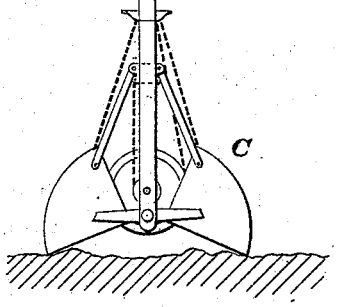


Fig. 1.



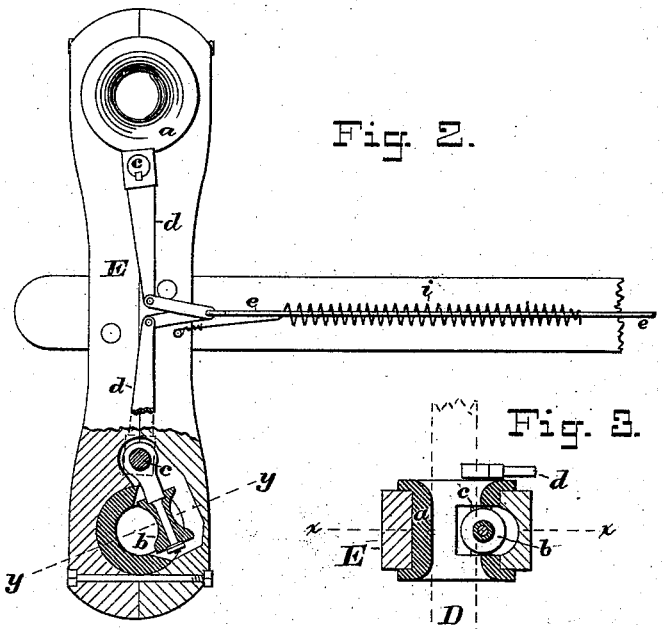


Fig. 2.

Fig. 3.

ATTEST:

Joseph Goodrich

Geo. H. Fraser

INVENTOR:

Albert E. Hall,

By his Attorneys

Burke, Fraser & Connett

UNITED STATES PATENT OFFICE.

ALBERT E. HALL, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN DREDGING APPARATUS.

Specification forming part of Letters Patent No. **211,153**, dated January 7, 1879; application filed October 5, 1878.

To all whom it may concern:

Be it known that I, ALBERT E. HALL, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain Improvements in Dredging Apparatus, of which the following is a specification:

This invention relates to that class of dredging-machines in which the grapple is provided with guiding poles or rods playing in eyes in some portion of the crane; and it consists in an improved device for clamping the poles at the point where they pass through the eyes, so as to keep the grapple down to the bottom while the jaws are closing, all of which will be more fully hereinafter set forth.

In the drawings, Figure 1 is a side view of a dredging apparatus provided with my improvement. Fig. 2 is a plan of a portion of the same, partly in section, taken on the line *x x* in Fig. 3. Fig. 3 is a detail view in section, taken on the line *y y* in Fig. 2.

A is a swinging crane, of the usual kind, hinged to a post, B. C is the grapple or scoop, operated by chains in the ordinary way; and D D are the poles or rods for guiding the grapple in its ascent and descent. These pass through eyes in the cross-piece E, fixed to the outer extremity of the crane.

So far as above described the apparatus is constructed in the usual manner.

In the operation of dredging with a grapple or scoop which descends with open jaws upon the bottom, it is sometimes found that the bottom is hard, and that the scoop will lift without biting in. This may also happen in attempting to grapple a log or stone.

I provide against the lifting of the scoop or grapple by clamping the guiding-poles, in their passage through the eyes, at the moment the jaws of the scoop commence closing.

The metallic bush *a*, which forms the eye for the passage of the pole D, is cut away at the side to permit the play of a friction-roller, *b*, which is mounted on an arm of a clamping-lever, *d*. A vertical spindle, *c*, having bearings in some portion of the cross-piece E, forms the fulcrum of this lever. To the free end of the lever *d* is linked an operating-rod, *e*. This latter connects with another similar rod, *e'*, by a flexible connection, *f*, which passes over a sheave at *g* in the crane-beam.

The lower extremity of the rod *e'* may be linked to a lever or treadle, *h*, as shown.

With the precise construction and arrangement shown, the operation is as follows: When the open grapple or scoop reaches the bottom the operator places his foot upon the treadle *h*, and by pressing it down causes the lever *d* or its friction-roller *b* to press against the pole D and clamp it fast in the eye. This will enable the scoop to take a full bite and prevent its lifting.

As two poles, D D, are generally used, a clamp will be required at each, as shown in Fig. 2, and both levers *d* may connect with the same rod *e* by means of a shackle.

When the treadle is released the friction-roller will be retracted by a spring, *i*, arranged in any good and operative manner.

The clamp as constructed does not provide a positive bite on the guide-pole; nor is this desirable, as a sudden upward strain might break the pole. I prefer, therefore, to use a roller and frictional resistance to the lift, so that the grasp may yield to undue pressure.

I claim as my invention—

1. In a dredging apparatus, the combination of the guide-pole D, arranged to play longitudinally in an eye in some portion of the crane, with a roller, *b*, on a radial arm from the spindle *c*, and adapted to have its periphery pressed against the said guide-pole, in the manner and for the purpose herein specified.

2. As a clamp for the poles of a dredging apparatus, the metal bushing *a*, forming an eye for the passage of the pole D, recessed in one side to receive a friction-roller, *b*, which is mounted upon a radial arm, and adapted to be moved into the eye, and thereby to reduce its diameter and embrace the pole, substantially as shown and described.

3. A clamping-lever, *d*, fulcrumed to the cross-piece E, and arranged to clamp the pole of the scoop, operated through the rod *e*, and retracted by a spring, *i*, substantially as described.

4. The combination of the guide-pole D, arranged to play longitudinally in an eye in some portion of the crane, with a roller, *b*, on an arm of the lever *d*, the lever or treadle *h*, and a suitable connector, all constructed and arranged to operate substantially as set forth.

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

ALBERT E. HALL.

Witnesses:

ARTHUR HODGES,

T. WILL: HARRIS.