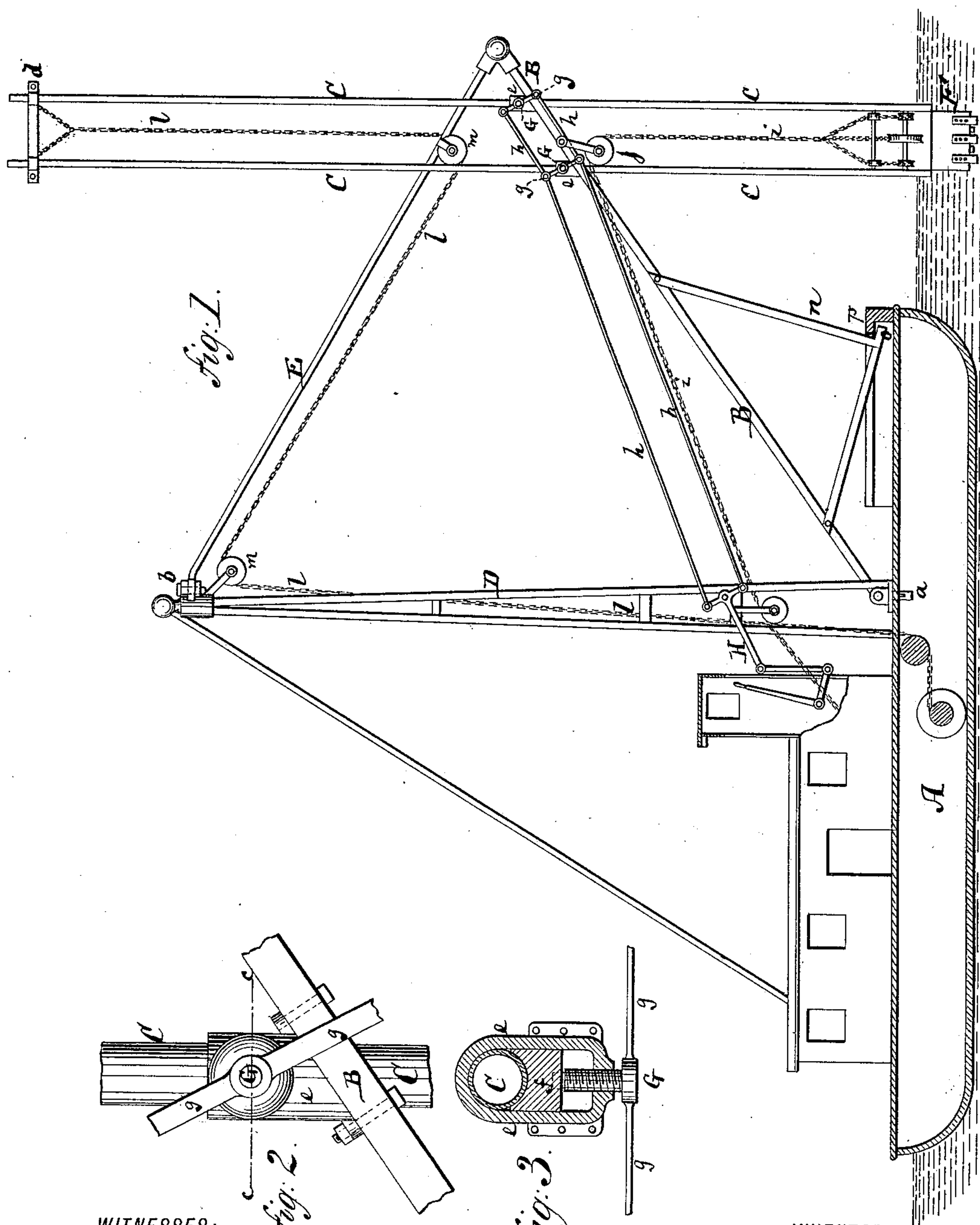


(No Model.)

J. McCULLOUGH.
DREDGING MACHINE.

No. 336,248.

Patented Feb. 16, 1886.



WITNESSES:

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JAMES McCULLOUGH, OF JERSEY CITY, NEW JERSEY.

DREDGING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 336,248, dated February 16, 1886.

Application filed August 25, 1885. Serial No. 175,326. (No model.)

To all whom it may concern:

Be it known that I, JAMES McCULLOUGH, a resident of Jersey City, in the county of Hudson and State of New Jersey, have invented an Improved Dredging-Machine, of which the following is a full, clear, and exact description, reference being made to the accompanying drawings, in which—

Figure 1 is a side elevation, partly in section, of my improved dredging-machine. Fig. 2 is an enlarged side view of one of the clamps for the bucket-frame. Fig. 3 is a section of the same on the line *cc* in Fig. 2.

The object of this invention is to suspend the bucket of a dredging-machine in such manner that it cannot yield in an upward direction in case it strikes hard bottom.

In dredging I find that when the bucket strikes a layer of shells—such as oyster-shells—it is apt, instead of digging into them, to move upward from this hard bottom, and thus become ineffective.

By the use of my invention it is intended to have the bucket effective in any kind of soil in which it can be of any use at all.

My invention consists in combining the bucket-frame with a holding-down chain, which will prevent its moving upward, with certain clamps for locking it to the supporting-boom, and with a lock by which it is held to the deck of the vessel or sustaining-frame.

In the drawings, the letter A represents a dredge-boat or other support for the dredging apparatus. The boat, by a vertical swivel, *a*, carries the boom B, from which the bucket-frame C is suspended. The boat A also carries a mast or post, D, which at its upper part has a vertical swivel, *b*. With this vertical swivel *b* is connected a brace, E, that joins said mast or post D with the outer end of the boom B. The swivels *a* and *b* are in line, as shown, so that the boom B and its brace E can swing in a horizontal direction around said swivel-pins. The bucket-frame C is by preference made of two parallel metal tubes, which at their lower parts carry a bucket, F, while at their upper ends they are connected by a brace, *d*. The upper tubes of this frame C are guided in sleeves *ee*, that are carried by the boom B. Figs. 2 and 3 show enlarged views of one of these sleeves *e* on the boom B. Each sleeve *e* contains on the outer side of the tube

C, that passes through it, a follower, *f*, the concave face of which can be pressed against the outer side of the tube by means of a screw, G. Fig. 3 clearly shows the follower *f* crowded against the tube C within the sleeve *e*. It is clear that by this means the bucket-frame C can be locked at any height to the boom. The screws G G have long crank-handles *g g*, one projecting in a direction diametrically opposite to the other, as shown in Fig. 2. These crank-handles are connected by rods *h* with an elbow-lever, H, which is located near the engineer's post. By swinging this elbow-lever H in one direction the screws G G will be turned and will crowd the followers *ff* against the tube C, thereby locking the bucket-frame; but when the elbow-lever H is moved in the opposite direction the screws G will be loosened and the bucket-frame allowed to slide up and down in the sleeves *e* of the boom. A suitable chain, *i*, leads from the engine, which is not shown, over a sheave, *j*, that hangs on the boom B, to the lower end of the bucket-frame C. By means of this chain *i* the bucket-frame and bucket may be raised and lowered at will. Another chain, *l*, leads over the sheaves *m* from the upper part of the bucket-frame C to the winding mechanism. By means of this chain *l*, when it is drawn taut, the bucket-frame is held down and prevented from moving upward should a shell bottom or one as hard as a shell bottom be struck. The boom B has a downwardly-projecting brace, *n*, on which is a hook, *o*, that engages beneath a semi-annular lip, *p*, which is affixed to the boat A. The brace *no*, by its connection with this lip *p*, holds the boom B down, but allows it, nevertheless, to swing around the vertical pivot *a*.

It will be perceived from the foregoing description that I have provided the bucket-frame with two specific means for holding it down—namely, first, the chain *l*, and second, the clamps *e, f*, and G—and that the boom B is held rigid and prevented from having its outer end lifted by means of its brace E and also by the lock *no p*. Thus double security against an upward movement of the bucket-frame on the boom and also against an upward movement of the bucket-frame with the boom is provided.

I claim as my invention—

1. In a dredging apparatus, the combination of the boom B with the sleeves *e*, followers *f*, screws G, bucket-frame C, and bucket F, substantially as and for the purpose herein shown and described.

2. In a dredging apparatus, the combination of the boom B with the sleeves *e*, followers *f*, screws G, bucket-frame C, bucket F, rods *h*, and actuating-lever H, substantially as and for the purpose herein shown and described.

3. In a dredging apparatus, the combination of the boom B with the bucket-frame C, which is carried by said boom, and with the

downwardly-projecting brace *n*, hook *o*, and fixed semi-annular lip *p*, substantially as herein shown and described. 15

4. In a dredging apparatus, the combination of the swivel-boom B and its brace E with the sleeves *e*, followers *f*, screws G, bucket-frame C, holding-down chain *l*, hoisting-chain *i*, and locking-brace *n o* and lip *p*, all substantially as herein shown and described. 20

JAMES McCULLOUGH.

Witnesses:

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