

A. J. GOVE.
Improvement in Dredging-Machines.
No. 131,608. Patented Sep. 24, 1872.

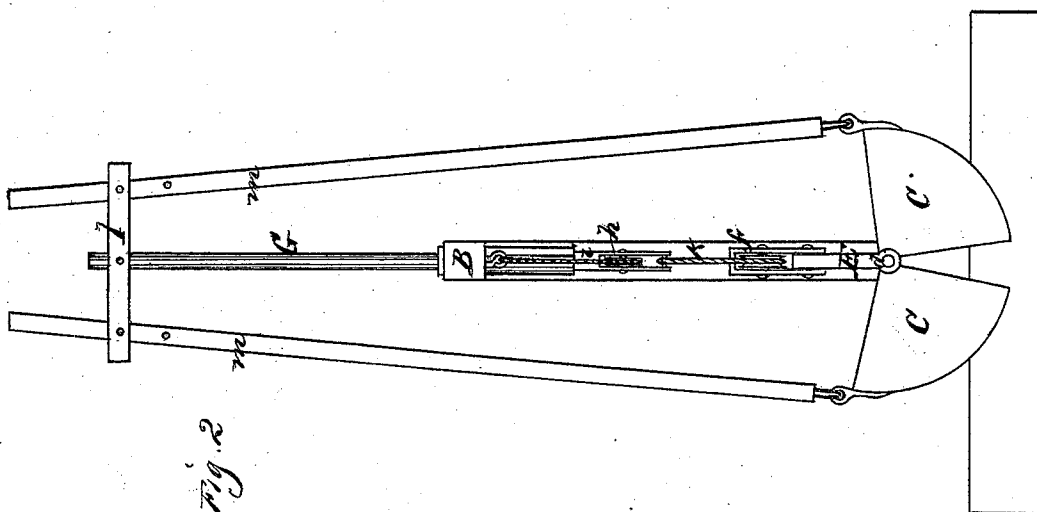


Fig. 2

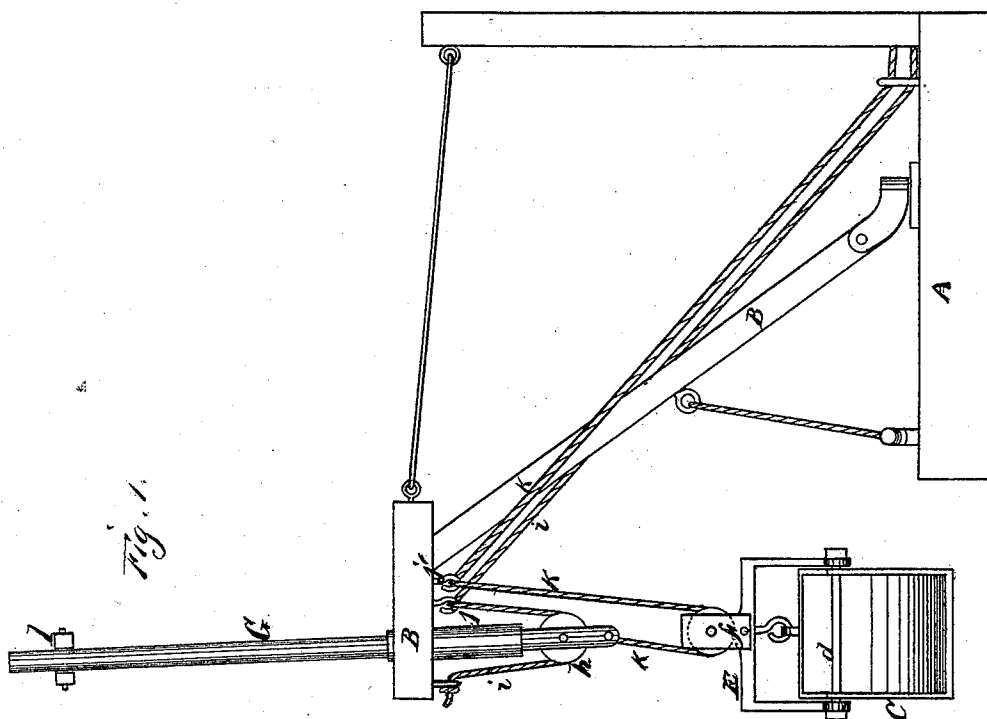


Fig. 1

Witnesses

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ANDREW J. GOVE, OF SAN FRANCISCO, CALIFORNIA.

IMPROVEMENT IN DREDGING-MACHINES.

Specification forming part of Letters Patent No. 131,608, dated September 24, 1872.

To all whom it may concern:

Be it known that I, ANDREW J. GOVE, of city and county of San Francisco, State of California, have invented an Improved Submarine Dredger and Excavator; and I do hereby declare the following description and accompanying drawing are sufficient to enable any person skilled in the art or science to which it most nearly appertains to make and use my said invention or improvement without further invention or experiment.

My invention relates to that class of submarine dredging-machines in which a bucket made in two sections, and united by a joint at the upper corner of their meeting edges, so as to open and shut, is used. This class of machines is more commonly known as the clam-shell dredging-machine.

My improvement consists of a novel arrangement for suspending and operating these jointed buckets by which they can be more easily controlled, and by which they are rendered more effective than by the means at present used.

In order to explain my improvements so that others will understand their application and use, reference is had to the accompanying drawing forming a part of this specification, in which—

Figure 1 is a side view of my machine, and Fig. 2 is a front view, showing the side of the buckets.

Let A represent the scow or other vessel or support from which the dredge is operated, and B the swinging crane, at the end of which the dredger is supported. C C are two sections of a bucket, the side view of each of which represents the form of a quadrant. The two sections are united together at the upper corner of their meeting edges by a bolt, *d*, which, for the purpose of strength, I extend entirely across the buckets, so that its opposite ends will bolt the opposite sides together. A yoke or bail, E, has its opposite ends also secured to the bolt *d* outside of the buckets, and to its middle, directly over the center, is pivoted a pulley-block, *f*. G is the guiding-mast which passes down through a hole in the end of the crane B, and has at its lower end a pulley, *h*. A rope or chain, *i*, is secured to the end of the crane outside of the mast G,

and passes down beneath the pulley *h* and thence up over a pulley or eye, *j*, which is secured to the crane on the opposite side of the mast, whence it passes into the engine-room, and by means of which the mast is raised or lowered, as desired. The pulley-block *f* which is pivoted to the bail E can, if desired, be provided with one or more guiding-bars, which can move in ways in the lower end of the mast; but this device I have not shown. A rope or chain, *k*, is attached to the lower end of the mast and passes down around the pulley in the block *f*, thence up over a pulley or eye, *j'*, beside the pulley *j*, and from thence also leads to the engine-room and serves to open or close the buckets. To the upper end of the mast G a cross-head, *l*, is secured, at each end of which the upper end of a long bar or rod, *m*, of the required strength is secured by a bolt or pin. These bars or rods extend down, one upon each side of the mast and crane, and their lower ends are connected by a loose joint to the middle of the end of each bucket; or four of these rods can be used, in which case one would be connected to each corner of the bucket.

When the bucket is being raised the chain *k*, having a central point of attachment to the bucket C, co-operates with the weight of the beams *m m* on the outer edges of the bucket to keep it closed. When the chain *i* is tightened so as to take the weight of the bucket off the chain *k*, the point of support of the buckets is transferred from its center to its outer edges by means of the connection of the beams *m m* with the mast G at the cross-bar *l*, and the sections of the bucket are forced open by the weight of the load and the tendency of the loosely-fastened beams to assume a perpendicular position. When the mast is lowered the bucket, still being supported by the beams *m m*, remains open until the lower edges of its sections come in contact with the ground. The weight of the beams on the outer edges of the sections of the bucket tend to force the two sections together, when the center is raised, and thus aid in closing the bucket after the tension is brought on the bail E by the chain *k* which raises the bucket. Thus it will be seen that I utilize the weight of the beams in opening the bucket to deliver

the load, in keeping it open while descending, and in closing the bucket to scoop up a load, and the bucket will be closed while it is yet resting on the bottom and before it begins to ascend.

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

1. The dredging-bucket consisting of two sections, in combination with the beams or rods *m m*, mast *G*, and rope or chain *i*, substantially as set forth.

2. The bucket *C*, beams or rods *m m*, mast *G* with its pulley *h*, and rope *i*, in combination with the rope *k*, pulleys *j' f*, and bail *E*, substantially as described.

3. The chain *k*, pulleys *j' f*, and bail *E*, in combination with the bucket, for lifting it when filled, as described.

4. The rods or beams *m m* pivoted to the cross-head or bar *l*, and loosely connected at their lower ends with the sides of the bucket, whereby I am able to utilize their weight, both in opening and closing the bucket, as described.

In witness whereof I hereunto set my hand and seal.

ANDREW J. GOVE. [L. S.]

Witnesses:

J. L. BOONE,

C. M. RICHARDSON.