

W. T. STACKPOLE.
Dredging-Apparatus.

No. 156,260.

Patented Oct. 27, 1874.

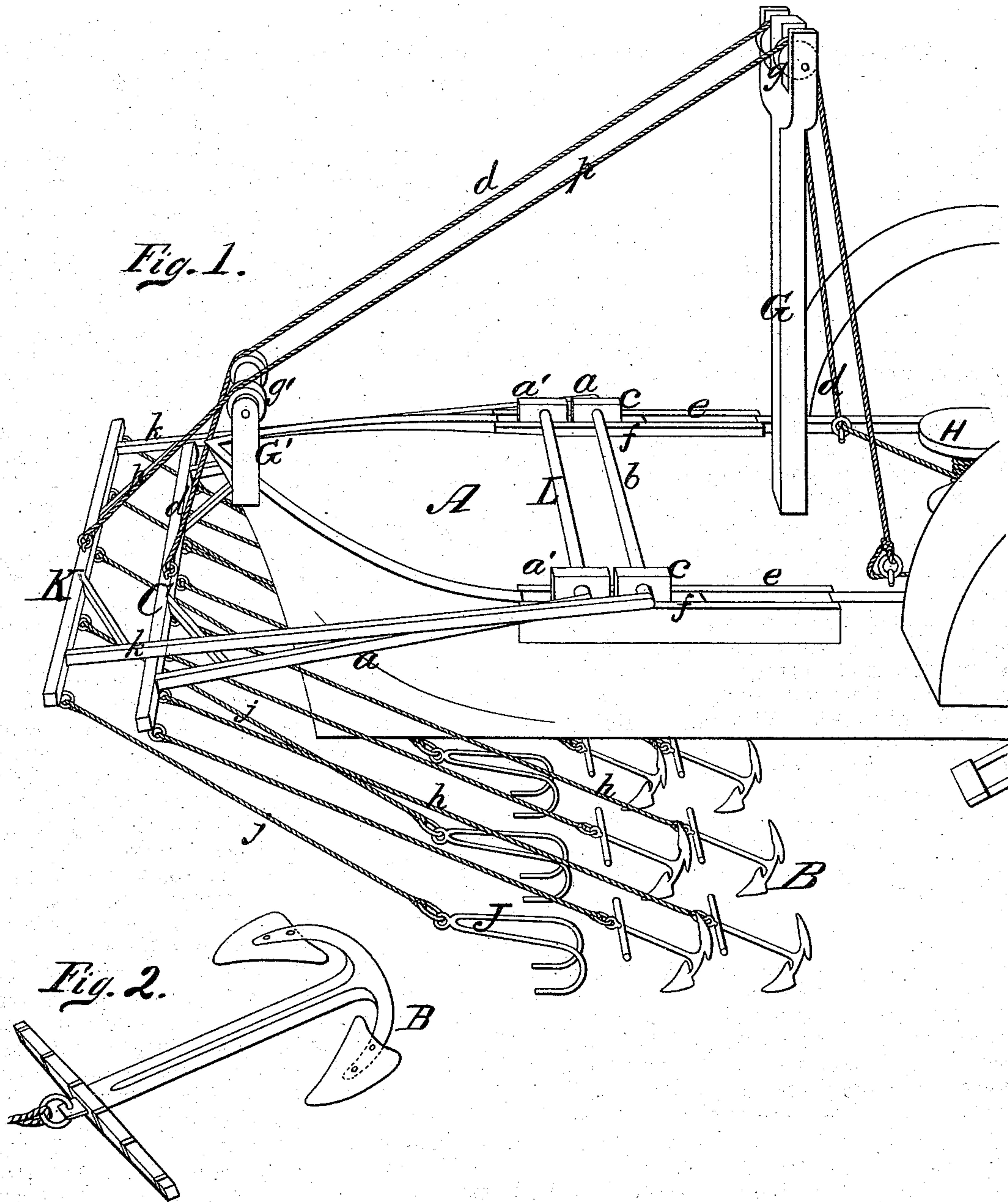


Fig. 2.

WITNESSES
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By

INVENTOR
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UNITED STATES PATENT OFFICE.

WILLIAM T. STACKPOLE, OF FAIRBURY, ILLINOIS, ASSIGNOR OF ONE-HALF
HIS RIGHT TO ALLAN A. BURTON.

IMPROVEMENT IN DREDGING APPARATUS.

Specification forming part of Letters Patent No. **156,260**, dated October 27, 1874; application filed
March 3, 1874.

To all whom it may concern:

Be it known that I, WILLIAM T. STACKPOLE, of Fairbury, in the county of Livingston and State of Illinois, have invented a new and Improved Device for Reducing Sand, Mud, or Gravel Bars on the waters of the Mississippi and tributaries, or at their mouths, or any other waters, and of deepening the water in creeks, rivers, harbors, estuaries, or shoals in lakes, sea, rivers, &c., of which the following is a specification:

The object of this invention is to deepen rivers, harbors, and other water-ways, and to reduce "bars" of sand, mud, or gravel, which may be formed therein, by the attachment to a vessel, which is propelled by steam or other motive power, of gangs of marine plows or "drags" of suitable construction, which will form channels in the bars or beds and loosen the material of which they are composed, so that it will be loosened and carried off by the natural tides and currents, or by the commotion of the water produced by the wheels used to propel the vessel. My object is also to remove "snags" and other obstructions which may lie upon the surfaces of the bars, or be embedded therein, by the employment, in combination with the marine plows or drags, of one or more gangs of grappling-hooks suitably attached to a hoisting apparatus, as will be hereinafter explained.

The following is a description of my improvements:

In the annexed drawings, A designates the forward part of a side-wheel steamer having my improvements applied over the bow, but in carrying my invention into effect I contemplate its application to any of the well-known vessels which are propelled by side wheels or stern wheels. B designates a gang of anchor-shaped plows, which are suitably yoked together and respectively connected to a strong beam, C, by means of ropes or chains *h*. The beam C is rigidly braced to two vertically-vibrating arms, *a a*, which are secured to the ends of a rock-shaft, *b*, that has its bearings in blocks *c c*. These blocks *c c* are held down in place in grooved ways *e e*, constructed on the gunnels of the vessel, and are allowed end-wise adjustment in the ways. In rear of the

bearing-blocks *c c* I apply blocks of india-rubber or other suitable springs, indicated by letters *f f*, the object of which springs is to allow the blocks to yield in the event of the plows B meeting with any great obstruction, which would be liable to break them or derange the machinery. To the beam C a chain, *d*, is attached, which is carried over one of two pulleys, *g*, at the upper end of a substantial standard, G, and thence passed around a windlass, H. By these means the plows B can be raised and depressed and hauled inboard. At the bow of the vessel I shall also erect a standard, G', with pulleys *g'* on its upper end, over which I shall carry the chain *d*, as shown in the drawing. Each one of the anchors B I shall construct with two broad shovel-shaped flukes, which will form channels in the bars and loosen up the earthy deposits; and these anchors B I shall connect together by means of steel yokes or short ropes, applied either to their eyes, their stocks, or their flukes or shovels, for the purpose of keeping the channels formed by them parallel to each other and at even distances apart. In other words, the yokes referred to keep the anchors from spreading or being directed out of their true course. Gangs of anchor-shovels may be applied, as above described, to both ends of a boat and to the sides thereof, in which case the boat can be moved forward and backward over a bar without having to turn the boat around, thus saving time and labor.

During the operation of plowing up the earthy deposit and stirring the same, the paddle-wheels which propel the vessel will materially aid in removing the deposit and suspending it in the water, to be carried off by the natural currents. When the water is very deep the vessel should be so freighted or ballasted with water, or other ballast, that the paddle-wheels or propeller will be brought very near the shoal or bar being dredged. The drag may be made on the principle of the harrow or plow. If of the latter, I retain the anchor principle, as described, and if of the former, the teeth or scarifiers may be secured to a suitable frame, properly loaded to keep it down to its work. When the bottom is supposed to be obstructed with sunken logs,

(snags,) or other bodies embedded in the earthy deposit, I employ a gang of hooks, J, of suitable construction, which are connected together by means of metal rods or rope-ties *j*, and which are, respectively, attached to a strong beam, K, on the ends of vertically-vibrating arms *k k*. These arms *k k* are secured to the extremities of a rock-shaft, L, which has its bearings in the ways *e e*, and which may have springs applied to them, as described, for the blocks *c c*. The beam K with its grappling-hooks J can be raised or depressed by means of a chain or a rope, *p*, which is carried over a pulley on each one of the standards G G', and attached to a capstan or windlass, like the chain or rope *d*. The grappling-hooks will precede the plows and clear the way of obstructions, and as often as a load of snags is gathered the said hooks will be elevated and the load deposited in the vessel A, or in a flat-boat drawn by the same.

In deep-water dredging—with still deeper water on each side of the bar or shoal—the anchor plow-beam may be brought under the vessel's bottom and made to rest solidly against the keel, and there held by means of a cable fastened to a ring-bolt on the deck.

The anchor-plow and grappling-hook beams, if worked under water, will tend to materially

increase the swell caused by the passage of the vessel, and thus the reflux of water will greatly aid the motion the machinery has induced in removing the newly-plowed earth, and in holding the loosened particles in solution for outflowing tides and currents to bear away.

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

1. The combination, with an elevating-frame and its operating mechanism, of one or more gangs of submarine drags, B, flexibly connected, and independently applied to the said elevating-frame, substantially as described.

2. One or more gangs of grappling-hooks, J, combined with one or more gangs of submarine plows, B, and with an elevating apparatus, substantially as and for the purposes herein described.

3. Spring-cushions *f f* in the grooved ways *e e*, in combination with the rock-shaft blocks *c c* of the apparatus for elevating the gang of submarine plows B.

WILLIAM T. STACKPOLE.

Attest:

C. W. FAWKNER,
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