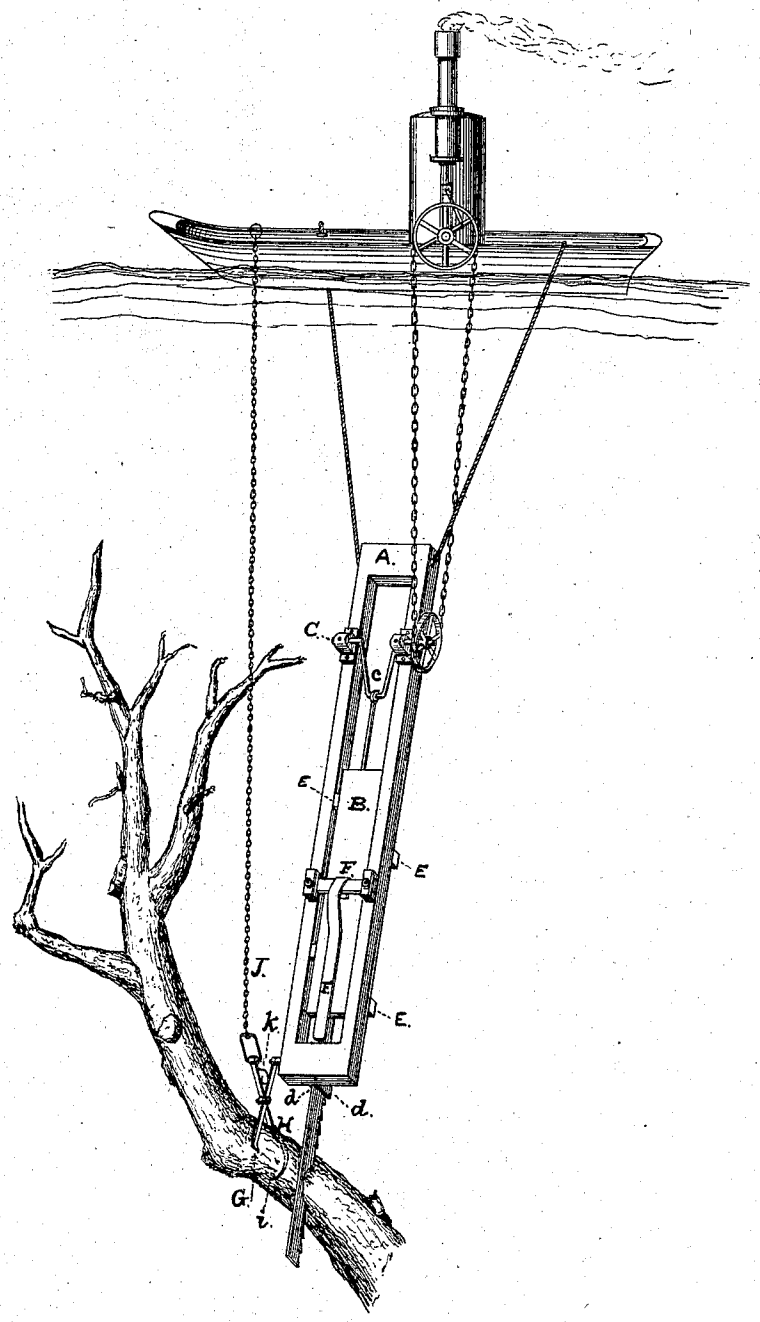
(No Model.)

J. W. SWALES.

Drag Saw for Cutting Snags.

No. 241,749. **Patented May 17, 1881.**



Witnesses

W. Foit

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Inventor:

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UNITED STATES PATENT OFFICE.

JOHN W. SWALES, OF SAN FRANCISCO, CALIFORNIA.

DRAG-SAW FOR CUTTING SNAGS.

SPECIFICATION forming part of Letters Patent No. 241,749, dated May 17, 1881.

Application filed August 17, 1880. (No model.)

To all whom it may concern:

Be it known that I, JOHN W. SWALES, of the city and county of San Francisco, in the State of California, have made and invented a new and useful Drag-Saw for Cutting Snags Under Water; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of my said invention, reference being had to the accompanying drawing.

My invention has reference to a device for cutting off logs, snags, and other obstructions under water, and is designed for use in clearing the channel or the beds of rivers and navigable waters of such dangerous obstacles.

It consists in a novel construction of mechanism for grappling and attaching a saw frame and carriage to a log, snag, or similar obstruction, combined with means for operating the saw and applying it in proper position to the article to be cut, all as more particularly set forth hereinafter.

In the said drawing I have shown a general view of my improved machine and the mode of applying and operating it.

The machine consists, essentially, of a frame, A, in which is arranged a saw-carriage, B, having a reciprocating movement and also a slight vertical motion in the frame. The reciprocating movement I produce by the crank *c*, crank-shaft C, and chain or band extending up to and actuated by a driving-pulley situated above water. The saw is secured to the lower end of the reciprocating carriage B and works between the guides *d d*. It can be detached and replaced when it requires repairing or renewing. The saw-carriage B, constructed preferably of a heavy plate of metal, to give proper stability and even action to the saw, is held in the frame A between guide-pieces E projecting from the under side of the frame and inwardly under the carriage B supporting it; and the part of the carriage that bears and works against these guides E may be provided with friction-rollers let into recesses in the side of the plate, if required. The vertical movement of the carriage within its frame is obtained both by the weight thereof and by the action of a spring, F, applied upon the top part of the carriage. The lower part of the frame being secured to the log or snag when the machine is in operation, these parts hold the saw down to its work and cause it to feed into the wood as fast as the cutting progresses.

The frame, when at work, is held in a position more or less inclined, or else vertically, above the log to be cut, and while its lower end is attached to a part of the log its upper end is kept in position by guy-ropes from the boat or other place where the power is located. The grapple for making fast the lower end consists of a fixed hook, G, bolted to the side of the frame and projecting forward, and the pivoted jaw H, having a barb, *i*, to enter the wood. The rear end of this jaw is carried back far enough to give sufficient leverage, and is connected to an operating chain or line, J, extending up to the top of the water. A spring, *k*, serves to hold these jaws G H in open position to grapple when the frame A is lowered.

As thus constructed, my machine is applied from a boat, scow, or other situation, and is readily held in position to the work required of it. It can be operated by hand-power or steam, and it furnishes a strong, simple, cheap, and effective means, particularly applicable to this kind of work and operation. It is worked entirely from above the surface, and no divers or other expensive apparatus are required to apply it.

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

In a machine for cutting and removing snags or other similar obstructions under water, the frame A, having the guides E, the reciprocating carriage B, having the saw and spring F, and the grapple H *k*, with one arm connected to the frame A, and having a chain or rope, J, attached to its other arm, in combination, substantially as and for the purpose set forth.

Witness my hand and seal.

JOHN W. SWALES. [L. S.]

In presence of—

WM. F. CLARK,

EDWARD E. OSBORN.