

J. H. McLean.

Tredger.

N^o 66,608.

Patented Jul. 9, 1867.

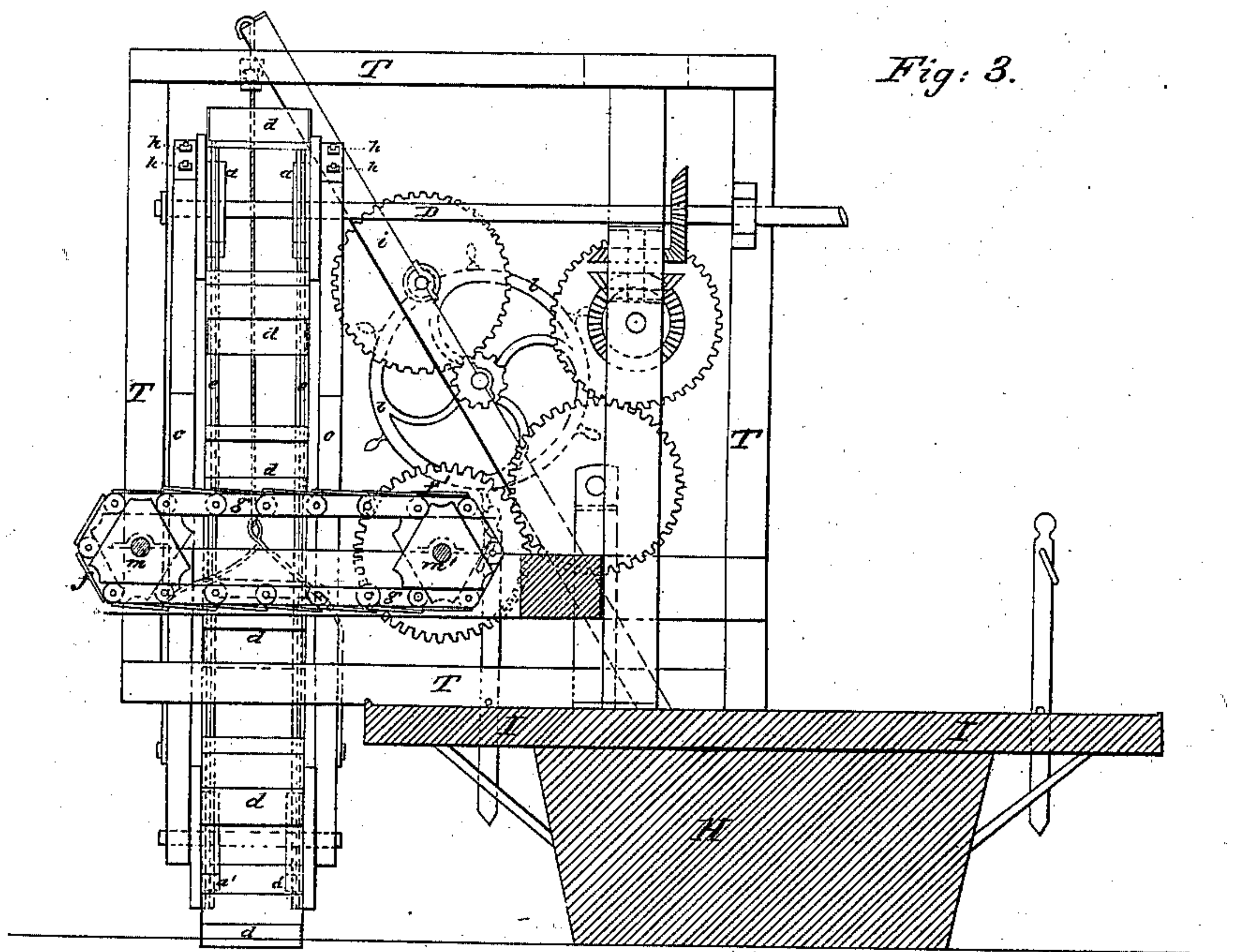


Fig. 3.

Witnesses:

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United States Patent Office.

JAMES H. McLEAN, OF ST. LOUIS, MISSOURI.

Letters Patent No. 66,608, dated July 9, 1867.

IMPROVED DREDGING MACHINE.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, JAMES H. McLEAN, of St. Louis, in the county of St. Louis, and State of Missouri, have invented certain new and useful improvements in Dredging Machines; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the annexed drawing, making part of this specification, in which—

Figure 1 is a side elevation.

Figure 2 a plan or top view, showing one side of the deck of the boat broken off; and

Figure 3 is a transverse section taken on the line A B of fig. 2, and showing also a rear elevation of the machine.

A dredging machine should possess, first, a ready and secure means of being moored or anchored in a given place, so that the work may be carried on at the requisite point; and, second, it should possess a dredger which is certain in its operation, and which can be readily raised and lowered to its work without injury to itself; and, third, it should possess a ready and efficient means of discharging itself and of conveying away the mud or sand brought up by the dredger.

The object of my invention is to provide a machine which more thoroughly fulfills these conditions, and it consists of a novel and improved method of making, applying, controlling, and regulating the various parts of a dredging machine with respect to each other and to the vessel upon which they are placed.

To enable those skilled in the arts to which this invention appertains to make and use my improvements, I will proceed to describe the construction and operation thereof.

Similar letters of reference represent corresponding parts of the machine in the different figures shown in the drawing.

In fabricating my improved machine I take a steamboat hull of the ordinary construction, and upon the deck, I, thereof I erect a frame, T, for the purpose of carrying the main driving-shaft D and the upper end of the dredging-frame C and chain e, upon which latter the buckets or scoops d are fixed. The shaft D, it will be seen, is arranged in suitable bearings near the upper part of the frame T, and serves as a support, about which the dredging-frame swings as a centre, the frame T being made to project far enough over the sides of the deck to allow the dredging-frame to swing clear of the vessel. This dredging-frame, C, I make of two long, straight strips of timber, framed together parallel with each other, similar to the two sides of a ladder, and on the upper end of each of said pieces of timber I arrange an adjustable bearing, shown by b, which bearing I adjust by means of the screws h h, and in the lower end of each of said sticks of timber I arrange an anti-friction bearing, consisting of a bracket and two rollers, shown by V, and a strap passed over the end of the frame-pieces to hold the journals of the carrying-wheels a', which are made square to match the links of the chain e, with a flange on the out ends to keep the chain from running off. I next arrange a pair of square driving-wheels, a a, upon said main shaft D, which wheels I also make with a flange on their out ends, to prevent the dredging chain from running off at the side, in the manner shown in the drawing. I next make the dredging chain e e, which consists of alternate single and double links riveted together, and equal in length, clear of the joints, to the length of the squares of said driving-wheels. Having constructed the dredge chains as aforesaid, I make the buckets or scoops d d equal in length to the distance between the chains, and fix one upon every alternate link, or fix them upon the chain as far apart as circumstances may seem to require. These buckets, it will be observed, are made of a peculiar form, their end plates being convex above the plane of the nose and cutting edge, as represented by the dotted line x, the edge of said end plates being made thin and sharp to cut in the earth at the ends of the scoop before the excavating edge thereof strikes it.

Having completed the construction of the dredging-chains and applied the scoops thereto, I swing the end of the dredging-frame on the main driving-shaft D by-disuniting the adjustable journal-boxes b, so as to admit the shaft, arranging the two driving-wheels between the two sides of the dredging-frame; but before putting the shaft in said journal-boxes I put the dredging-chain in its place on the driving-wheels a a. The dredging-frame and chain being thus arranged on the driving-shaft, I arrange the chain on the carrying and driving-wheels, and adjust the screws h h until the chain has about the tension required, the distance between the driving and carrying shafts being regulated by these screws, which thus regulate the tension of the dredging-chain, the

deflection of which is taken up by a roller, *f*, supported in brackets *J*, bolted or otherwise fixed to the dredge-frame *C*. This completes a description of the manner of making the dredger and of applying it to the driving-shaft.

Now to regulate the dip of the dredger and to raise and lower it to and from its work, I erect a derrick upon the deck of the vessel, consisting of two sticks of timber, *i i*, united at the top, and fitted with a wheel and axle, *k l*, from which there is a rope or fall leading from a block secured at the top of the derrick and reaching down to and connecting with the dredger by means of a link, *z*, which spans it from one side to the other, as shown in the drawing. After having constructed and arranged the dredger and derrick as aforesaid, I proceed to construct the receiver and discharger, which consists of a broad, endless apron, composed of two endless chains, *g g*, made of alternate single and double links, riveted together, and stretched over chain-wheels *m m*, which are made to match in the outside and inside of the chain links, thus uniformly disposing the strain upon the chain and wheels, and securing great certainty of action in the operation of the receiver and discharger, for by this construction of chain-wheels it is impossible for the chain to slip or run off the wheels. Having thus constructed the chains and wheels, and arranged them in respect to each other, as aforesaid, I unite the said chains by means of plates *f'* which reach from one chain to the other, and are in width equal to the length of the chain-links, to which they are secured in any effectual way, so that the edge of one laps a little over the edge of the preceding one. This receiving and discharging apron is made of considerable width, and is arranged directly under the upper end of the dredge, or thereabouts, so that the scoops can discharge their contents in the centre thereof. And said aprons may be made of great length, so as to deposit the mud, sand or dirt on the banks, in case the stream be narrow, or in a flat-boat, when the machine is used in a bay or large river. Said apron is supported in brackets bolted to the main frame *T*, and in which the chain-wheel shafts *o o* have their bearing. The power to operate said apron is conveyed thereto from the main shaft *D* through the agency of a series of cog-wheels, as shown in the drawing, and which are of the ordinary construction, and may be arranged in any convenient manner to bring about the desired power, direction, and velocity of motion. Thus much for the operative parts of the machine.

Now, to anchor or moor the vessel securely at any given point, I cut holes through the guard-deck of the vessel and insert therein pins, *L*, which are fitted with rings to raise and lower them by, and pins to keep them up when raised out of the mud or sand, as shown by the drawing. There may, of course, be as many of these pins through the guards as may be necessary to securely hold the vessel in the desired position.

Having now described the construction and operation of my improved dredging machine, I claim and desire to secure by Letters Patent—

1. The dredger, the receiving and discharging apron, and the derrick, for raising and lowering the dredger, when these respective parts are combined, constructed, and operated in relation to each other substantially as described; and

2. I claim, in combination with the dredging vessel, the pins *L*, for the purpose of mooring the same, substantially as described.

JAMES H. McLEAN.

Witnesses:

JNO. G. TAYLOR;

JAMES JACKSON.