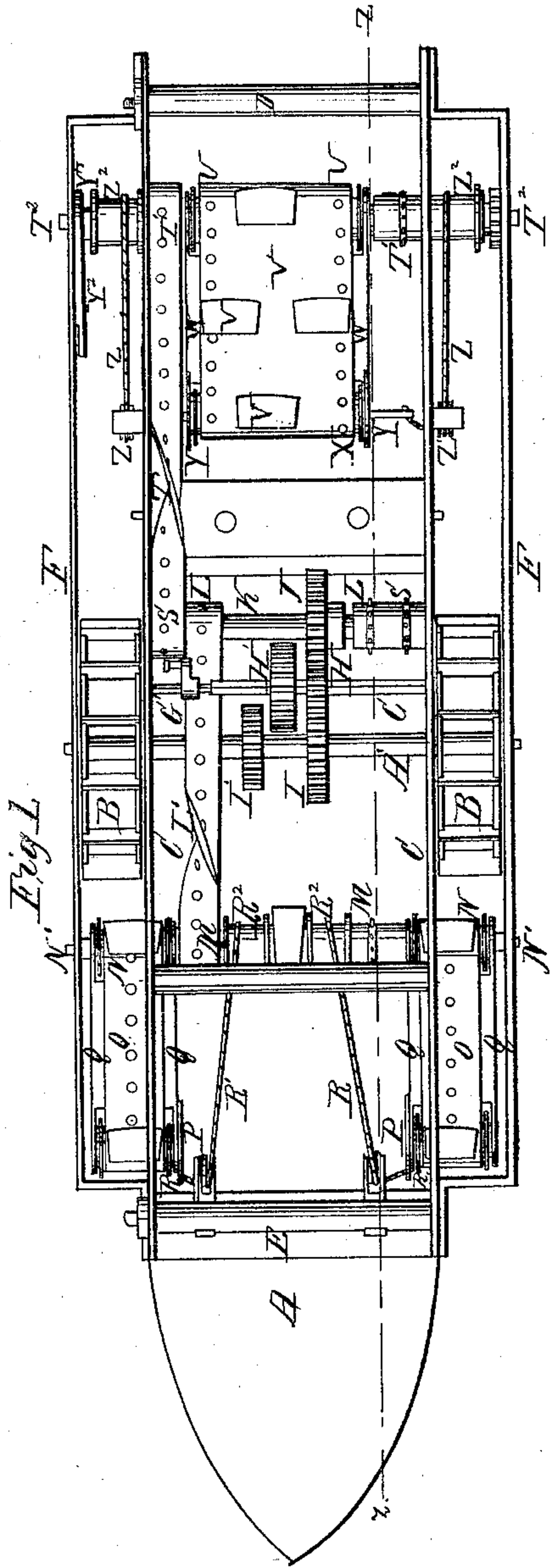


*J. Stewart*

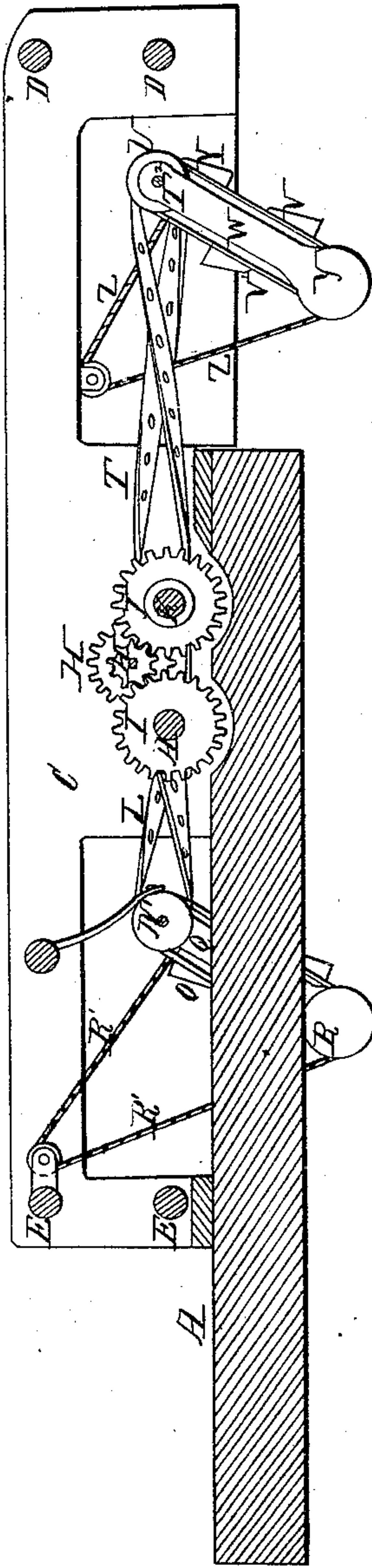
*Dredger.*

*No 22,458.*

*Patented Dec. 28, 1868.*



*Fig. 2.*



*Witnesses,  
J. D. ...  
J. F. Callum*

*Inventor  
James Stewart*



# UNITED STATES PATENT OFFICE.

JAMES STEWART, OF NEW LONDON, CONNECTICUT.

## DREDGING-MACHINE.

Specification of Letters Patent No. 22,458, dated December 28, 1858.

*To all whom it may concern:*

Be it known that I, JAMES STEWART, of the city and county of New London and State of Connecticut, have invented certain  
5 new and useful Improvements in Dredging-Machines; and I do hereby declare that the same are described and represented in the following specification and drawings.

To enable others skilled in the art to make  
10 and use my improvements I will proceed to describe their construction and operation referring to the drawings in which the same letters indicate like parts in each of the figures.

15 Figure 1, is a plan or top view of a steamboat with my dredging apparatus applied to it. Fig. 2, is on the line *z, z*, of Fig. 1, showing the dredging apparatus in a working position.

20 The nature of my improvements in dredging machines consists, in so constructing and arranging the dredging machinery as to clear a channel the whole width of the boat and wheels, which propels the boat that carries and works the dredging machinery.  
25 Also in feeding the dredging buckets up to their work, by the side paddle wheels which propel the boat. Lastly, in arranging the windlass barrels which raise the dredging  
30 apparatus out of the water, on the same shaft that operates the dredging chains so that they may be locked to the shaft to raise the dredging apparatus without stopping the engine or machinery.

35 In the accompanying drawings A, is the hull of a flatbottomed side wheel steamboat, which may be made like the common side wheel steamboats of the Mississippi River, as my improved dredging machinery may be  
40 applied to the hulls of such boats without altering them materially.

A', is the main shaft carrying the paddle wheel B, B, to propel the boat when dredging and passing from one place to another.

45 C, C, are two strong frames arranged right over the two sides of the boat, and made to extend some distance beyond the stern of the boat, and their rear ends are connected by the bars D, D, and their front ends by the  
50 bars E, E.

The frames F, F, are arranged outside of the wheels B, B, as shown in Fig. 1, and may be firmly connected to the frames C, C, as shown in the drawing or otherwise.

55 G is a square shaft arranged to turn in proper bearings and provided with a crank

G', for the link of the piston rod of the steam engine which is to propel the boat and operate the dredging machinery. The gears H, and H', are fitted to traverse on the shaft  
60 G, and may be fastened together so as to be traversed both at once when desirable. The gear H, when placed between the gear I, on the main shaft A', and the gear J, on the shaft K, operates the dredging machinery,  
65 and turns the paddle wheel B, B, at a proper speed to move the boat, so as to feed the dredging machinery up against the bar or obstruction being removed, and at the same time operate it (the dredging machinery) to  
70 remove the bar or obstruction to be acted upon. Whenever it is desirable to stop the dredging machinery, and apply the whole power of the engine to propel the boat to escape squalls, bad weather, make a harbor  
75 or tow a vessel in distress, the gears H, and H', may be traversed on the shaft G, so as to release the gear H, from the gears I, and J, and bring the large gear H' into gear with the small gear I', on the shaft A', and stop  
80 the dredging machinery and turn the paddle wheels with the full power of the engine until it is wanted to operate the dredging machinery again.

The shaft K, has two sprocket wheels L, L,  
85 for the belts or chains L', to the sprocket wheels M, M, on the shaft N' which shaft is arranged to turn in boxes in the outside frames F, F, and carry the sprocket wheels N, N, which propel the belts or chains of  
90 dredging buckets, O, O, arranged each side of the boat, before the wheels as shown in the drawing. The links Q, Q, are made to vibrate freely on the shaft N', to carry the pulley P, P, arranged to turn in the oppo-  
95 site or lower ends of the links Q, Q, for the belts or chains of dredging buckets O, O, to run under when taking up the mud or sand of the bar being removed. These links Q, Q, are firmly connected to one another by a  
100 strong frame or otherwise between the sprocket wheels N, and the pulleys P, so as to vibrate together when the buckets are working. R, is a broad plate of metal fastened to the lower ends of the inside links  
105 Q, Q, to cut into the bar of mud or sand and steady the dredging machine and guide or keep the boat in a direct course through the bar, so as to excavate a straight channel through the bar worked upon.  
110

The rope or chain R', is fastened to the plate R, to raise, lower or hold the links and



dredging buckets in the position required. This rope R', passes over a pulley in a block fastened to the bar E, and is fastened to the windlass barrel R<sup>2</sup>, on the shaft N', and is  
 5 arranged to traverse and turn freely on the shaft N', and is provided with a clutch at one end to lock it to the sprocket wheel M, to turn it by the engine and wind up the rope R', and raise the links and dredging buckets  
 10 out of the water into a horizontal position as shown in Fig. 1. After they are raised the windlass may be unlocked from the wheel M, and held by a pawl arranged for that purpose in some convenient position.  
 15 As the buckets O, O, turn or pass over the sprocket wheels N, N, they empty themselves into a chute or inclined trough, fastened to the side of the boat or to the scow which receives the mud from the chute.  
 20 There are two sprocket wheels, S, S, on the shaft K, for the belts or chains T, to the sprocket wheels T' on the shaft T<sup>2</sup>, which turns in bearings fitted for it in the frames F, F. The shaft T<sup>2</sup>, carries the sprocket  
 25 wheels U, U, for the belt or chain V', which carries a series of dredging buckets V, V, arranged to take up the ridge of mud or sand remaining between the two channels cut by the buckets O, O, so as to make a channel  
 30 at once as wide as the boat and wheels which propel it. The links W, W, are made to vibrate freely on the shaft T<sup>2</sup>, and carry the pulley or roller X, between their lower ends for the belt or chain V' to run under or  
 35 around when the buckets V, V, are taking up mud or sand, etc. The links W, W, are firmly connected to one another between the sprocket wheels U, U, and pulley X, by a strong frame or otherwise so as to make  
 40 them both vibrate together and each of these links are provided with a broad plate of metal Y, at their lower ends to pass each side of the ridge of mud or sand being excavated, or taken up by the buckets V, V,  
 45 so as to steady and guide the dredging machinery and boat, straight through the bar of mud or sand being excavated. The buckets V, V, empty themselves as they turn over the sprocket wheels U, U, and a scow  
 50 may be towed behind the boat, to catch the mud and sand as it falls from the buckets when they empty themselves. The ropes

or chains Z, Z, are fastened to the plates Y, Y, and pass over the pulleys Z' Z', fastened to the frames C, C, and are wound  
 55 around the windlasses Z<sup>2</sup>, Z<sup>2</sup>, on the shaft T<sup>2</sup>, to hold the links and dredging buckets in a proper position while at work and to raise them out of the water when desirable. The windlasses Z<sup>2</sup>, Z<sup>2</sup>, are made to turn  
 60 freely on the shaft T<sup>2</sup>, and are provided with a clutch at one end to lock them to the sprocket wheels T', whenever it is desirable to raise the dredging machinery out of the  
 65 water by the power of the engine into a horizontal position as shown in Fig. 1. These windlasses are also provided with ratchet wheels Y', and a pawl Y<sup>2</sup>, fastened to the frame F, to hold them after the rope Z is wound up and the clutch unlocked from the  
 70 wheel T'.

Some of the advantages of my dredging machine are as follows: It may easily be applied to the common flat bottomed side wheel steamboats; it excavates a channel the whole  
 75 width of the boat and wheels. That part of the power of the engine used to operate the dredging machinery may be applied to turn the paddle wheels and propel the boat, when not dredging, so that the boat may be  
 80 used as a tug boat to tow vessels when not wanted for dredging.

I believe I have described and represented my dredging machine, so as to enable any person skilled in the art to make and use it.  
 85

I will now state what I desire to secure by Letters Patent:

1. I claim the arrangement of the three series of dredging buckets in the same dredging machine substantially as described and  
 90 shown for the purpose of excavating a channel in the earth throughout the entire width of the boat.

2. I claim arranging the windlass barrels which raise the dredging apparatus out of  
 95 the water, on the same shaft that operates the dredging chains, so that they may be locked to the shaft to raise the dredging apparatus, without stopping the chains of dredging buckets, substantially as described.  
 100

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Witnesses:

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