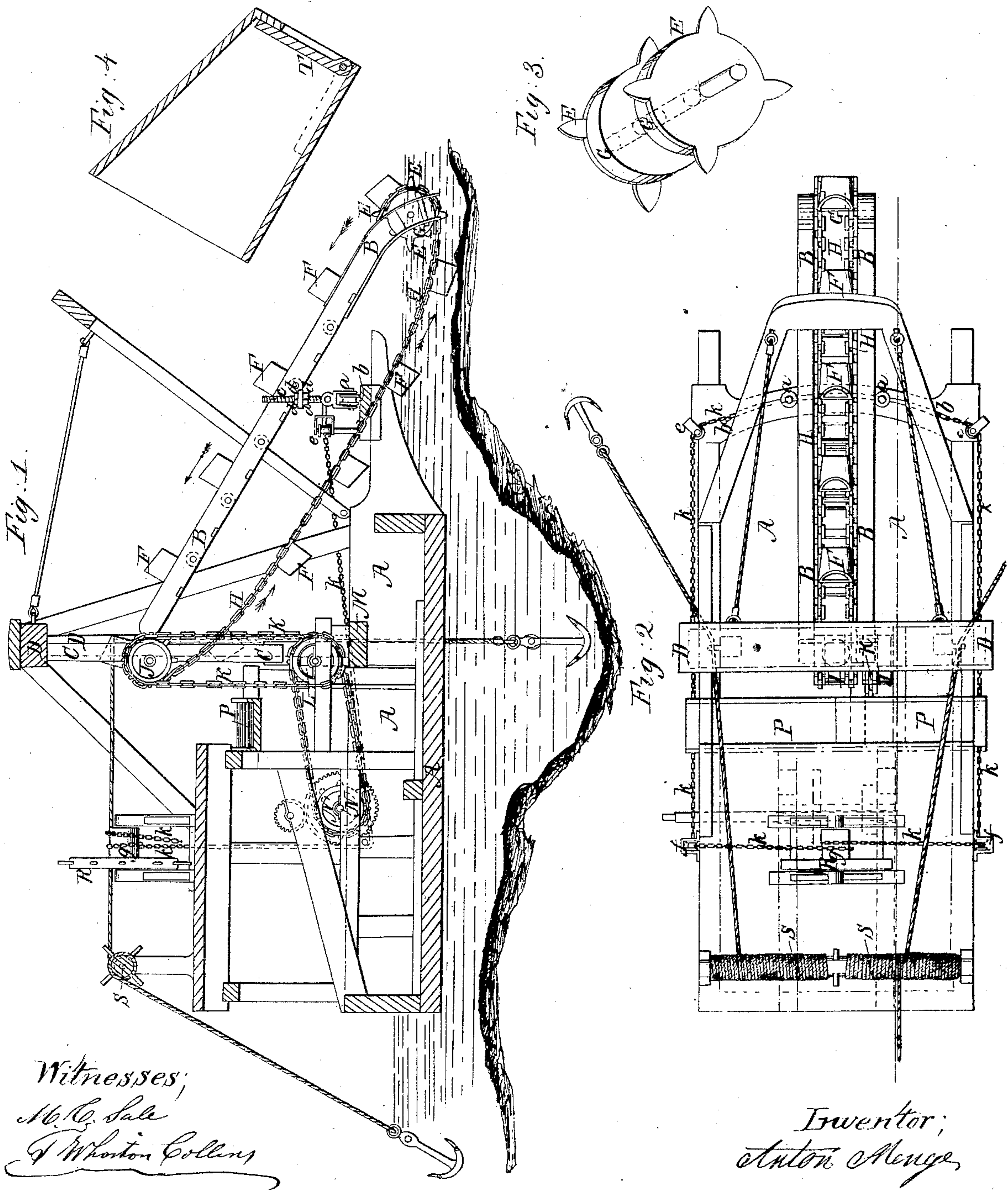


A. Menye.

Dredger.

N^o 24,750.

Patented Jul. 12, 1859.



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ANTON MENGE, OF POINTE A LA HACHE, LOUISIANA.

IMPROVEMENT IN DREDGING-MACHINES.

Specification forming part of Letters Patent No. 24,750, dated July 12, 1859.

To all whom it may concern:

Be it known that I, ANTON MENGE, of Pointe a la Hache, parish of Plaquemine, State of Louisiana, have invented certain new and useful Improvements in Excavators; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

Figure 1 is a vertical longitudinal section taken through the red line *xx* of Fig. 2. Fig. 2 exhibits a plan of the excavator, showing the several parts in position for operation. Fig. 3 is a perspective and enlarged view of the revolving cutters detached from the machine. Fig. 4 is a horizontal section through the bucket, showing the jointed back in two positions.

This invention relates to that class of machinery for digging ditches and canals and for dredging the same.

The principal feature of my invention consists in arranging the bucket or cutter frame in an inclined position in front of the boat and constructing it so that it can be readily slewed from right to left of the boat by proper machinery adapted to this purpose; also, in an improved bucket, which acts as a cutter and is provided with a hinged bottom in order to open and cause by allowing pressure of the air upon the hinged bottom the earth or mud to fall at the proper place of discharge, and in connection with this peculiar bucket are arranged revolving cutters, which are situated on the extreme end of the swinging frame and made to operate so as to cut and loosen the earth on each side of the buckets, while the same are digging or excavating and conveying it to be discharged into a barge or any convenient place for receiving it, described as follows:

The mud is discharged from open mouth of buckets. The machinery about to be described is to be operated by a small steam-engine. This is placed in the hold of the boat A, and the machinery is all arranged above it. The crane or bucket frame B is swung by hooks and eyes from a vertical shaft C, having its bearings in an upright frame D. This bucket-frame B is inclined from the point where it is hinged to shaft C and extends down in an inclined position, projecting out some distance

from the front of the boat, reaching the bottom of the river or canal. This end of the frame B is supported by two caster-wheels *a a*, and has a vertical adjustment upon these wheels so as to raise and lower it to the various depths of canals to be dug. These caster-wheels *a a* are grooved on their periphery and rest upon a circular track *b*, which may be simply a curved T-rail bent up at its extreme ends so as to prevent the wheels from running off in swinging the frame. The vertical adjustment of the frame B is accomplished by two screw-shafts *c c*, which project up from the caster-wheels *a a* and pass through a metal plate fixed to the frame, and receive above and below this plate screw-nuts *d d*. The frame, being composed of two pieces B B, carries on its lowermost end two revolving cutters E. (Represented more distinctly by Fig. 3 of the drawings.) These cutters are projecting plates, which extend out from the periphery of the chain-barrel G on either side of the same and cut the earth vertically, while the buckets F dig out the earth thus loosened and convey it up to the place of discharge. These cutters E and chain-barrel G have their bearings in journal-boxes in each arm of the frame B, and are revolved by the chains and buckets H F, the links of the chains H passing over the projecting teeth on the ends of the chain-barrel, as is common to chain and barrel gearing. These chains H, with the buckets, are carried up on the upper and lower side of the inclined frame and pass over another chain-barrel I similar to the one just described, but without cutters, which is placed in a line with the frame B, but has its bearings in the slotted oscillating shaft C. The shaft of this barrel I projects through one side of the shaft C and receives a chain-pulley J, over which passes a chain K, which is carried down and passed over a double chain-pulley L, having its bearings in pillow-blocks upon the timber M and being independent of the oscillating shaft C. This pulley is operated by a chain passing over a similar pulley N', fixed to a shaft N, to which a system of gearing is connected from the motive power, by which, through the medium of the wheels just described, motion is given to the chains and buckets in the direction of the arrows, and as the earth is loosened by the revolving cut-

ters in the manner explained the buckets are alternately sunk into the earth and convey the same up along the inclined frame until they reach the barrel I, when in passing over this barrel the earth falls from each bucket into two inclined troughs P, from whence it passes off each side of the boat in the proper receivers.

The inclined bucket-frame D is made to move from right to left in front of the boat, in order to excavate a path the width of the boat, while the boat may remain stationary, thus avoiding the loss of time and labor in moving the boat, except in a straightforward direction to the work. This is effected in the following manner: Two tiller-chains *k* are connected to the vertical screw-shafts *c* of casters-wheels *a a*, and are passed around pulleys *ee*, placed at each end of the circular T-rail, and are passed around the pulleys *ff* and carried up and around the shaft *g* of the tiller-wheel R. Now by turning this wheel as in steering a boat the bucket-frame is swung from right to left of the boat, resting at the same time upon the circular track above referred to. This can be done while the machinery is in operation without affecting the motions thereof.

In rear of the tiller-wheel is placed a windlass S, which operates three cables, to which are attached anchors. These may be cast—two ahead of the machine—at any desirable distance, so as to pull the boat forward as the excavation advances and the other off the stern, so as to keep the boat steady, or to back her.

The buckets F each have a hinged bottom T, as represented by Fig. 4, in order to open and let the earth fall out the moment the buckets reach the highest point of the frame and are overturned, as described.

The boat's bottom may rest on the ground, and it may slide as a sleigh to dig new canals.

This machine is found exceedingly useful and economical in digging ditches for draining land, or for excavating or dredging purposes in making canals, and by a proper management of it three men can cut six hundred feet of canal fifteen feet wide by three feet deep in ten hours, consuming in this time less than a cord of wood. The boat is thirteen feet and six inches wide by sixty long, and may be made in larger or smaller proportion as the occasion demands.

What I claim as new, and desire to secure by Letters Patent, is—

1. The bucket-frame B when resting upon adjustable casters or friction-rollers and operated so as to be swung from right to left of the boat upon a circular track *b*, in combination with the oscillating shaft C, all arranged and operating substantially in the manner and for the purposes herein set forth.

2. The buckets F, having a hinged back T, arranged and operating for the purposes specified.

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