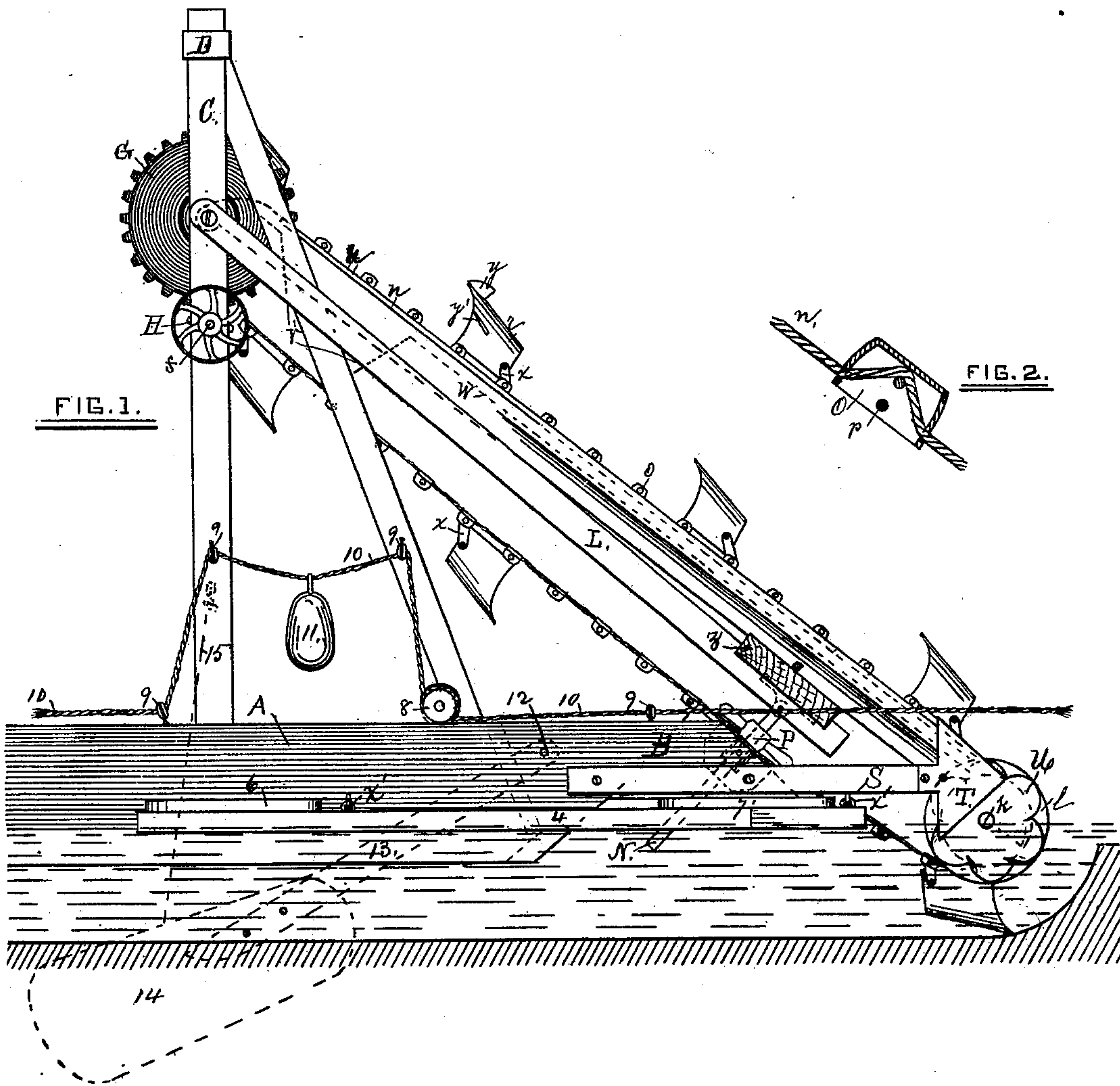


J. MENGE.
Dredging Machine.

No. 229,730.

Patented July 6, 1880.



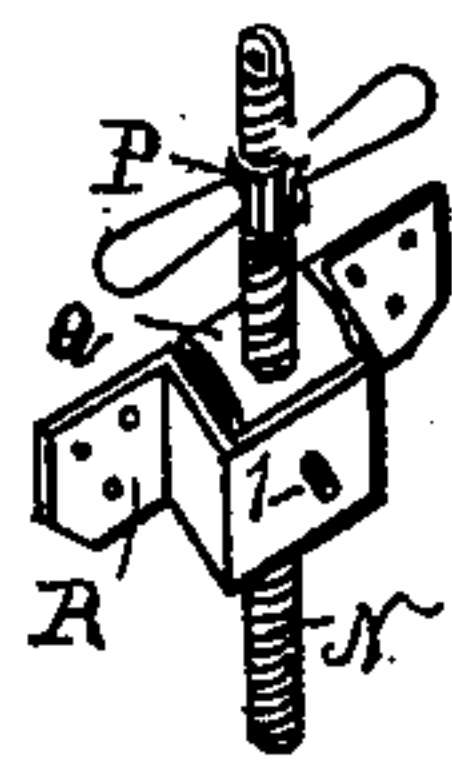
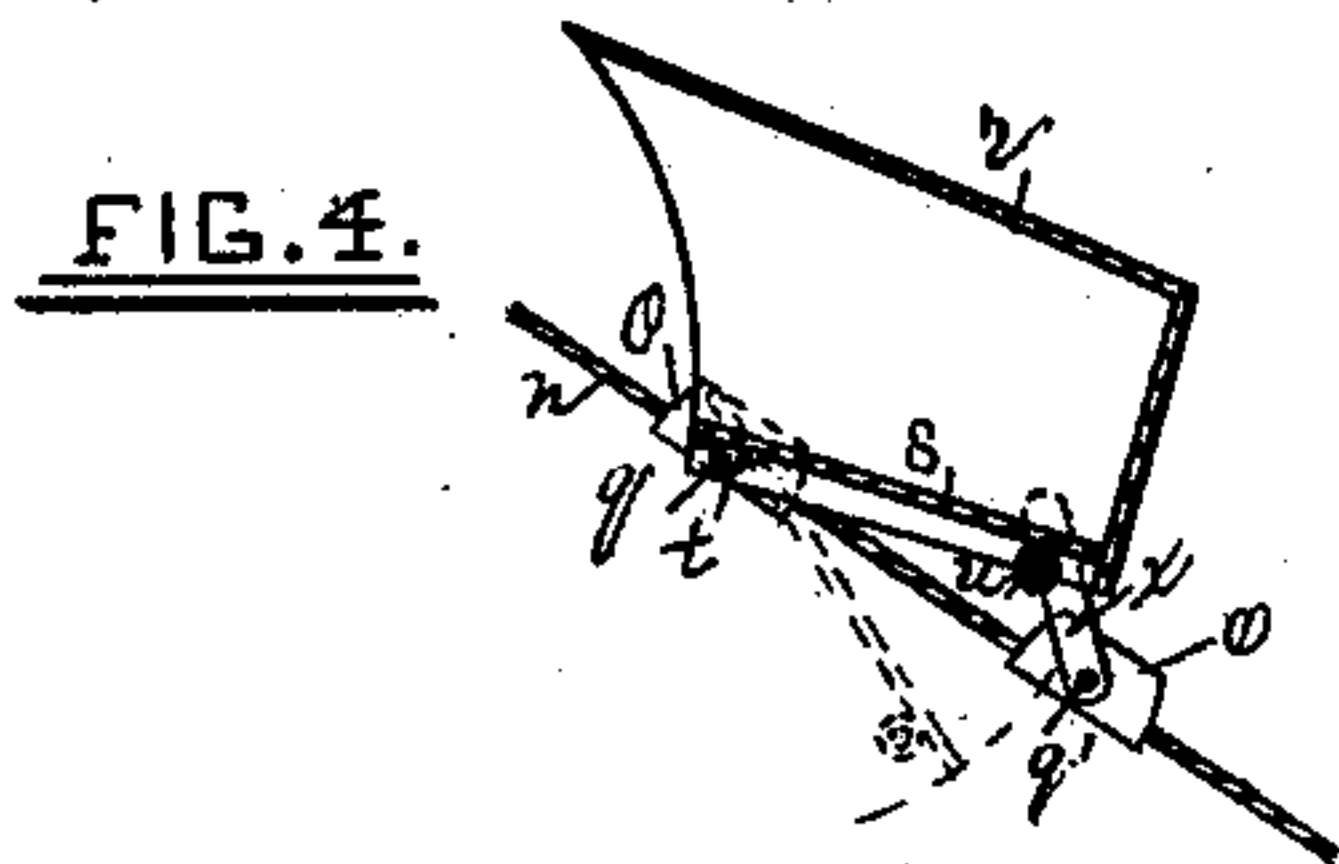
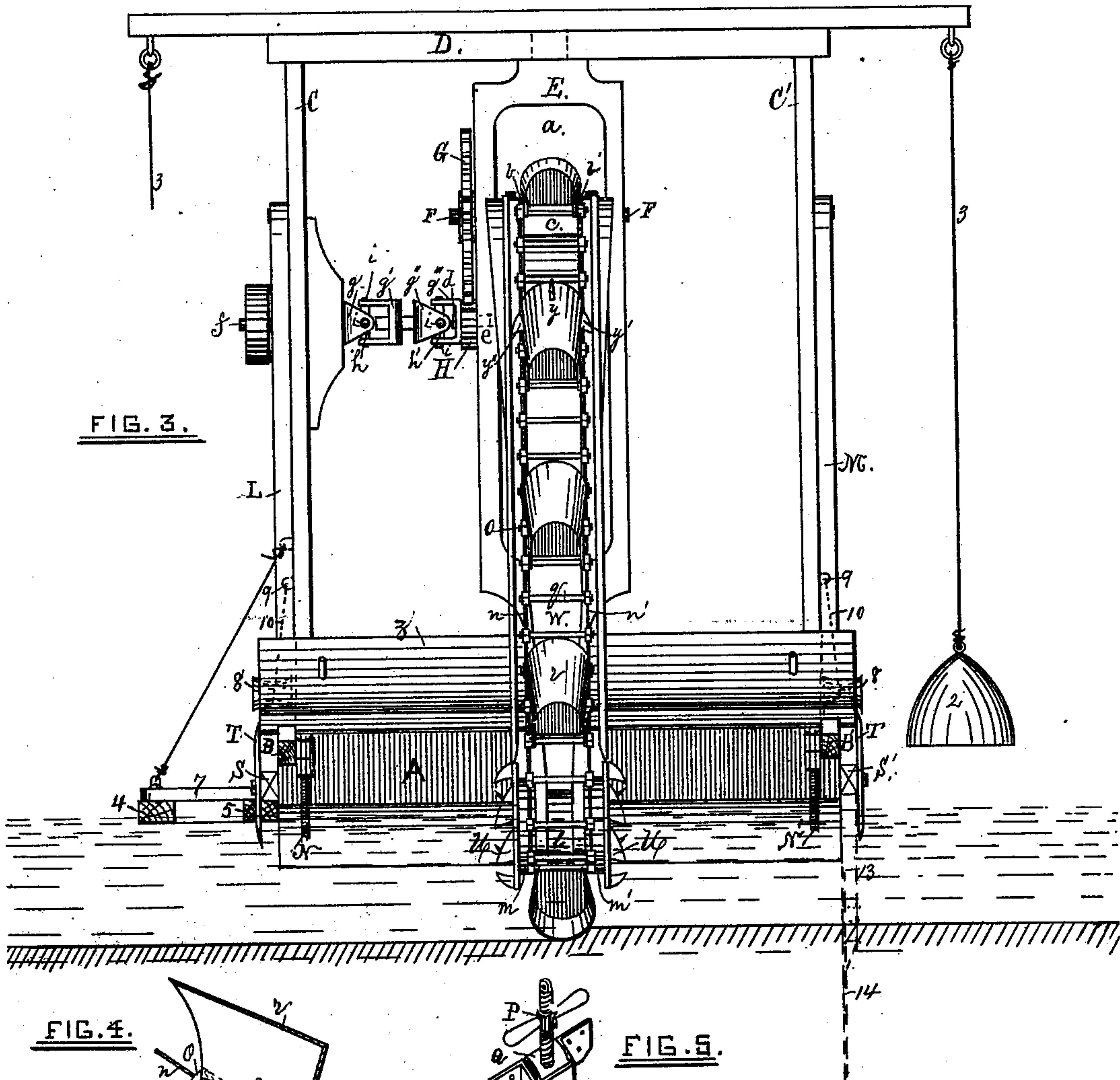
WITNESSES.
P. J. Finney
J. C. Hubbell

INVENTOR.
Joseph Menge
BY *H. A. Jenkins*
ATTORNEY.

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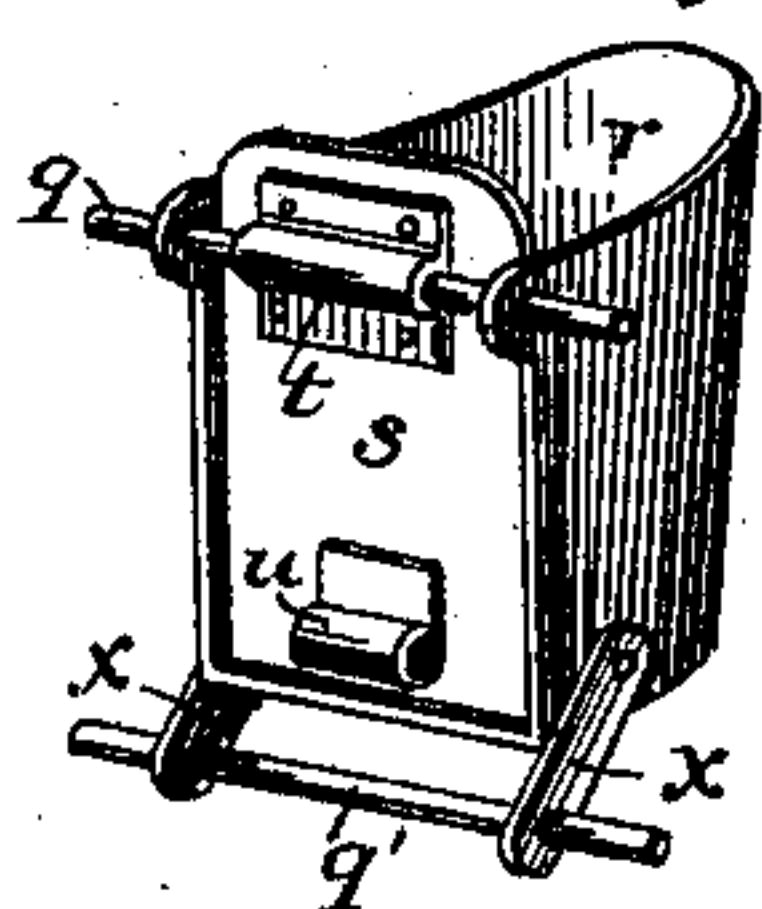
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WITNESSES.

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FIG. 6.



BY

INVENTOR

Joseph Menge
H. K. Jenkins

ATTORNEY.

UNITED STATES PATENT OFFICE.

JOSEPH MENGE, OF POINT MICHEL, LOUISIANA.

DREDGING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 229,730, dated July 6, 1880.

Application filed August 30, 1879.

To all whom it may concern:

Be it known that I, JOSEPH MENGE, a resident of Point Michel, parish of Plaquemine, and State of Louisiana, have invented a certain new and useful Improvement in Dredging Machinery; and I do hereby declare the following to be a full, clear, and correct description of the same, reference being had to the annexed drawings, making a part of this specification.

Figure 1, Sheet 1, represents a side view of a dredge-boat provided with my improvements. Fig. 2 shows the manner in which the bucket-rods are connected to their operating wire ropes. Fig. 3, Sheet 2, is an end view of the boat and dredging machinery. Fig. 4 is a longitudinal section of one of my improved dredging-buckets; and Fig. 5, one of a pair of elevating devices, whereby the lower end of the bucket-frame is adjusted at any desired height. Fig. 6 is a rear perspective view of the bucket, showing the attachments more fully.

On the drawings, A represents a boat, the forward end of which is provided with projecting timbers B B' and a frame composed of two or more vertical pieces, C C'. Across the tops of the latter is secured a horizontal piece, D, having a bearing at or about its center for the reception of the upper journal of a swinging frame, E, the lower journal of the latter operating in a step that is securely fitted in the bottom of the boat. A certain portion of the swinging frame is made open, as at *a*, to permit of the operating therein of a pair of chain-wheels, *b b'*, and drum *c*, that are keyed or otherwise secured on a horizontal shaft, F, the latter having one of its ends to project outward from the frame sufficiently far to have fitted thereupon a cog-wheel, G, the teeth of which mesh into a pinion, H, that is fitted to a shaft, *d*, which has its bearing in one side of the frame, as shown at *e*. This shaft is connected with the driving-shaft *f* by means of a double universal joint, which is composed of four yokes, *g g' g'' g'''*, and two frames, *h h'*, the two latter provided with pins *i*, which project from the four sides thereof, and which operate in bearings made in the outer ends of the yokes, as shown. This joint admits of

the swinging of the frame in any desired direction while the machinery is in operation.

The swinging frame on each side of the opening therein, and on a line with the shaft F, is recessed or slotted, to permit of the introduction therein of the upper ends of the bucket-frame, which, by means of suitable bearings, is connected with the aforesaid shaft. The lower ends of the bucket-frame are provided with bearings, in which operates a shaft, *k*, upon which is keyed a drum, *l*, and chain-wheels *m m'*, similar to those on the upper shaft. Over these operate the wire ropes *n n'*, upon which are secured, as shown in Fig. 2, a number of lugs or blocks, O, through which holes *p* are made for the reception of the ends of the bucket-rods *q*.

The buckets which I employ in this machine are made in two parts, *r s*, the former rolled or bent in the form of a wagon-cover, the rear of which is afterward closed by means of a plate that is riveted or otherwise secured thereto. The sides near their lower forward edges are perforated to receive one of a pair of rods, *q*, by which this end of the bucket is secured to the operating ropes or chains, and to this rod is connected, by eyes or straps *t*, the forward end of the second part, *s*, so that the latter may automatically open or close the lower side of the bucket whenever the nature of the work may render the same necessary. The opening and closing of this part is effected through the instrumentality of rollers or lugs *u*, that are fitted to the rear of the said part, so as to be brought, at certain stages of the operation, in contact with the drums *c l*, or that portion of the bucket-frame which is closed by a central plate, W. The latter extends upward and forms near the top a chute, V, on reaching which the bottoms *s* of the buckets, for want of support, swing outward, and the buckets are thus made to discharge their contents therein. Beneath the aforesaid chute a second chute or carrier may be constructed to carry off the material in any desired direction.

To secure a free movement of the buckets around the drums, as well as on a straight line, their rear ends are connected with the

rods q' by means of links, as shown at x , and to facilitate their working, especially in clay or other hard soil, the sides and crown of each are provided with spurs or cutting-edges, as at $y y' y''$.

The lower end of the bucket-frame rests upon and is supported by a frame composed of an inclined plate, z , that is secured to the lower ends of the inclined side pieces, $L M$, the upper ends of which are pivoted to the vertical pieces $C C'$ on a line with the axis of the upper drum, c , as shown, so that the lower portion, together with the corresponding part of the bucket-frame, may be raised or lowered, whenever necessary, by means of a pair of screws, N , the upper ends of which are provided with eyes and secured by staples or otherwise to the under side of the plate z . These screws operate in nuts P and in smoothly-bored oscillating boxes Q , the latter furnished with side pins, 1 , which are journaled in bearings made in the sides of the boxes R , that are rigidly secured to the sides of the projecting timbers $B B'$, so that, by means of the handles with which the nuts are provided, the bucket-frame may be readily adjusted to the requisite depth.

On the outer sides of the projecting timbers $B B'$ are secured extra pieces $S S'$, which extend forward to about a line with the front part of the bucket-frame, at which point they are furnished with triangular cutting-plates T , the edges of which are made sharp for the purpose of cutting, during the forward or rocking motion of the boat, the grassy surface which is usually found in all prairie or marshy lands.

Side cutters, N , are also constructed on the ends of the lower drum, l , for the purpose of digging into the banks in the event of the said part of the machinery being accidentally or designedly brought in contact therewith during the working of the same.

In order to guard against the listing of the boat, the main frame is furnished with outriggers, from the extremities of which weights 2 are suspended by means of ropes or chains, as shown at 3. These ropes are arranged so as to be lengthened or shortened at pleasure, and act as follows: Should the bucket-frame be swung to one side, the weight upon the said side will be brought in contact with the bank, while the rope on the other side will have a tendency to raise its weight, and thus act as a counter-balance.

If desired, the weights may consist of timbers, which can be arranged to float alongside of the boat. Thus provided, the boat could only be listed by raising the opposite weight clear of the water.

As a means whereby the boat may be operated in lines parallel with one edge of the canal and be held, as the work may require, at certain distances from the same, I connect, by means of staples or eyebolts x' , to the sides of

the boat, at or about the water-line thereof, a frame composed of two parallel pieces of timber, 4 5, connected together by pivoted strips 6 7, so that the same may be worked as an ordinary parallel ruler, the pieces 4 5 being secured at any desired distance apart by means of ropes or chains secured to pins or cleats constructed on the said pieces.

To hold the boat up to its work, as well as to enable it to be moved forward in a direct line, I provide each side of the boat or frame with a capstan, 8, and with a series of blocks, 9. Each side is furnished with a rope or chain, 10, running over the front and rear of the boat and connected with anchors. Weights 11 are hung upon the aforesaid ropes, as shown, so as to take up all slack therein.

As an additional means whereby the boat may be held in any desired position, I secure to each side thereof, by means of pivots 12, shores 13, having secured to their lower ends blades, as shown at 14, so that they may, by reason of their form and weight, bury themselves in the ground. When not required for use, the shores are raised clear of the water and secured in said position by ropes, as shown at 15.

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

1. A dredge-bucket provided with a pivoted bottom that is held closed while being drawn up to the discharging-chute by means of lugs or rollers, it being supported by the upper side of the bucket-frame or its central plate, W , as described, and for the purpose set forth.

2. The improved means herein shown and described for attaching the buckets to their wire ropes, the same consisting of the shafts $q q'$, links x , and blocks O , applied to the chains or wire ropes in the manner set forth, substantially as and for the purpose described.

3. In a dredging-machine, the combination of capstan 8, blocks 9, rope 10, and weight 11, whereby the boat is held up to its work or moved forward thereto, substantially as described.

4. The improved means herein described for raising and lowering the lower end of the bucket-frame, the same consisting of screws N , nuts P , boxes Q , having side pins, 1, journaled in boxes R , that are secured to the sides of the boat or the projecting frame B , for the purpose set forth.

5. In a dredging-machine, the arrangement of outriggers, from the extremities of which weights 2 are suspended, for the purpose set forth.

6. The improved means herein described for operating the boat in parallel lines with one side of the bank, the same consisting of a floating frame one edge of which is secured by eyebolts or staples x' to the side of the boat, said frame consisting of two parallel

timbers, 4 5, connected by pivoted strips 6 7, as described, and for the purpose set forth.

5 7. In a dredge-boat, the projecting pieces S S, having cutters T secured to the outer extremities thereof, as described, and for the purpose set forth.

8. A dredge-boat provided with pivoted side shores or spars, 13, the lower ends of

which are furnished with blades 14, as described, and for the purpose specified.

In testimony whereof I have hereunto signed my name.

JOSEPH MENGE.

In presence of—

J. C. CLARKE,
DANL. J. GOOS.