J. MENGE.

Dredging-Machine.

No. 199,305. Patented Jan. 15, 1878.

FIG. 1.

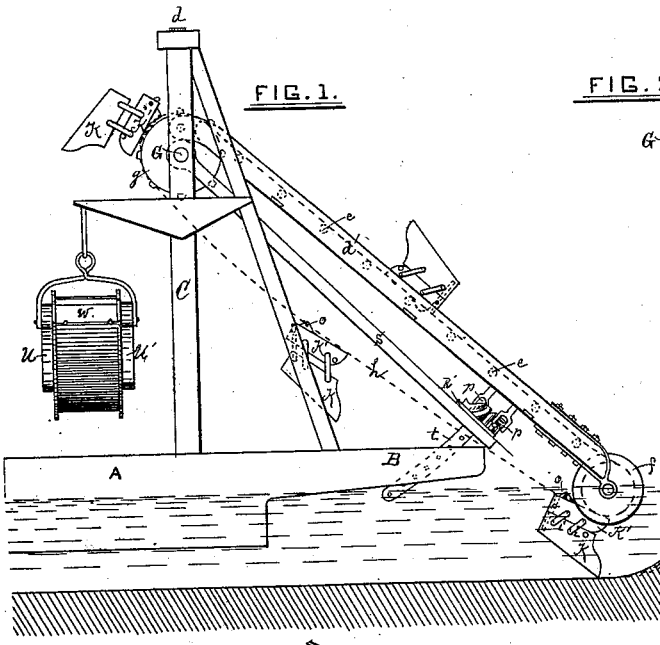
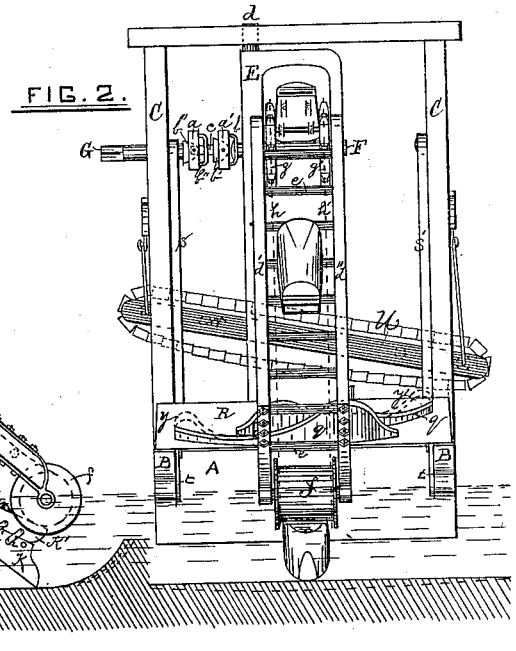


FIG. 2.



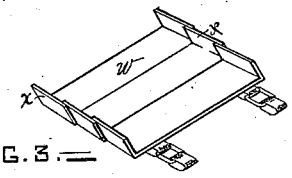
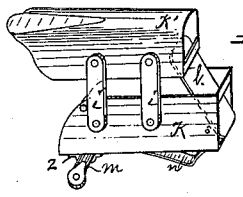


FIG. 3.

FIG. 4.



WITNESSES.

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JOSEPH MENGE, OF POINT MICHEL, LOUISIANA.

IMPROVEMENT IN DREDGING-MACHINES.

Specification forming part of Letters Patent No. **199,305**, dated January 15, 1878; application filed October 1, 1877.

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-Machines; 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.

This invention relates to certain new improvements in dredging-machines, the nature of which will be readily understood by referring to the accompanying drawings, in which—

Figure 1 represents a side elevation of a boat provided with my improvements. Fig. 2 is an end elevation thereof; Fig. 3, a section of the discharge-carrier, and Fig. 4 a detached view of one of my improved buckets.

On the drawings, A represents a boat with outward-projecting timbers B and frame C. The bottom of the former and top piece of the latter form bearings for the reception of the vertical journals *d* of a swinging frame, E, in which is journaled a horizontal shaft, F, with outward-projecting end, which is connected, by means of a double universal joint, with a driving-shaft, G. The aforesaid joints consist in a pair of metal frames, *a a'*, and of four yokes, *b b' b'' b'''*, the former, *b*, secured to the projecting end of the shaft F, and the latter to the inner end of the driving-shaft G, the connection being made by a square shaft, *c*, that is constructed on the yoke *b'*, and which is made to fit in a square hole in the center of the yoke *b''*.

Pivoted to the sides of the swinging frame E, on a line with its shaft F, or a little above the same, is a bucket-frame formed of two pieces, *d' d''*, with rollers *e* between, and with a drum, *f*, journaled at the bottom thereof. Between the upper ends of this frame, and keyed or otherwise rigidly secured to the shaft F, is a pair of chain-wheels, *g g'*, over which is operated the endless chains *h h'*, provided with a series of improved buckets, the same consisting of sections K K', connected on each side by links *i i'*, and provided with a pivoted bottom, *l*, which is tilted forward by the opening of the sections, as shown in Fig. 4, the object being to avoid the formation of a vacuum in the rear of the excavations, and hence facilitate the discharge of the same.

In addition to the aforesaid improvement, this bucket possesses two other important features, one being in the flattening of a certain portion of the cutting-edge, as shown, in order that when operating in stiff ground the same may be the more readily freed, owing to its tendency to ride upward on the curved surfaces of the bucket.

The third novel feature relates to the manner in which the buckets are secured to their chains, the forward ends being provided with two or more straps for the reception of a round bar, *m*, the ends of which are flattened and perforated, in order that they may be secured to the operating-chains. The rear ends are connected, by a couple of straps, *n*, to a connecting-bar, *o*, the said straps made sufficiently long to permit the bar to move freely back and forth therein, thus obviating the otherwise hard and stiff working of the chains, and allowing the buckets to move with perfect freedom around the periphery of the drum and chain-wheels.

In order that the listing of the boat caused by the swinging of the bucket-frame to either side may not result in a greater depth of digging nearer the sides than center of the canal, I secure to the side pieces of the bucket-frame a pair of standards, and provide the lower ends of each with friction-rollers *p*, for operating on the curved tracks *q* of a plate, *r*, the latter secured to the lower ends of a pair of levers, *s s'*, which are pivoted on a line with the prolongation of the center of the driving-shaft. The lower ends of these levers are provided with curved plates *t*, which are either perforated, as shown, so as to be held in a given position by means of pins, or else provided with racks, so that the same may be raised or lowered by means of a pinion or train of gearing.

U is a carrier for conveying the excavations as rapidly as they drop thereupon to one side of the boat, and depositing the same in a barge or on an embankment, as the exigencies of the case may require. This carrier consists of a frame, the sides of which are connected by braces and by rollers *v*. Over the latter operates a pair of endless chains, on which are se-

cured a number of overlapping plates, *w*, each with turn-up edges or, rather, ends *x*, so as to prevent the material from running over the same.

By reason of the overlapping of the plates, as above described, the carrier is rendered almost, if not perfectly, water-tight; and, as it is suspended in an inclined position, the gravity of the material deposited thereupon will be sufficient to operate it without the aid of any connecting machinery.

For the purpose of digging a canal with curved bottom, the deepest portion of which shall be in the center thereof, it is only necessary to give the outer ends of the tracks an upward curve, as shown in dotted lines at *y*.

I do not here claim the construction of the universal joints described, as the same will be made the subject of a separate application for Letters Patent.

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

1. A dredge-bucket provided on one side with a triangularly-shaped flattened surface, two of the sides of which terminate in the rounded portion of the bucket, while the remaining side forms the cutting-edge thereof, substantially as described, and for the purpose set forth.

2. The improved means herein described for attaching the buckets to their chains, the same consisting of the straps *z* and rounded shaft *m*, and of the elongated straps *n*, in which is fitted a cross-bar, as and for the purpose specified.

3. In a dredging-machine, the tracks *q q*, curved in reverse directions, over which the bucket-frame operates, as described, and for the purpose set forth.

4. The discharge-carrier, composed of frame U, provided with rollers *v*, over which operate two or more endless chains provided with overlapping-plates *w*, as described, and for the purpose set forth.

JOSEPH MENGE.

Witnesses:
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