(No Model.) 4 Sheets—Sheet 1.

J. MENGE.

DREDGING MACHINE.

No. 288,094. Patented Nov. 6, 1883.

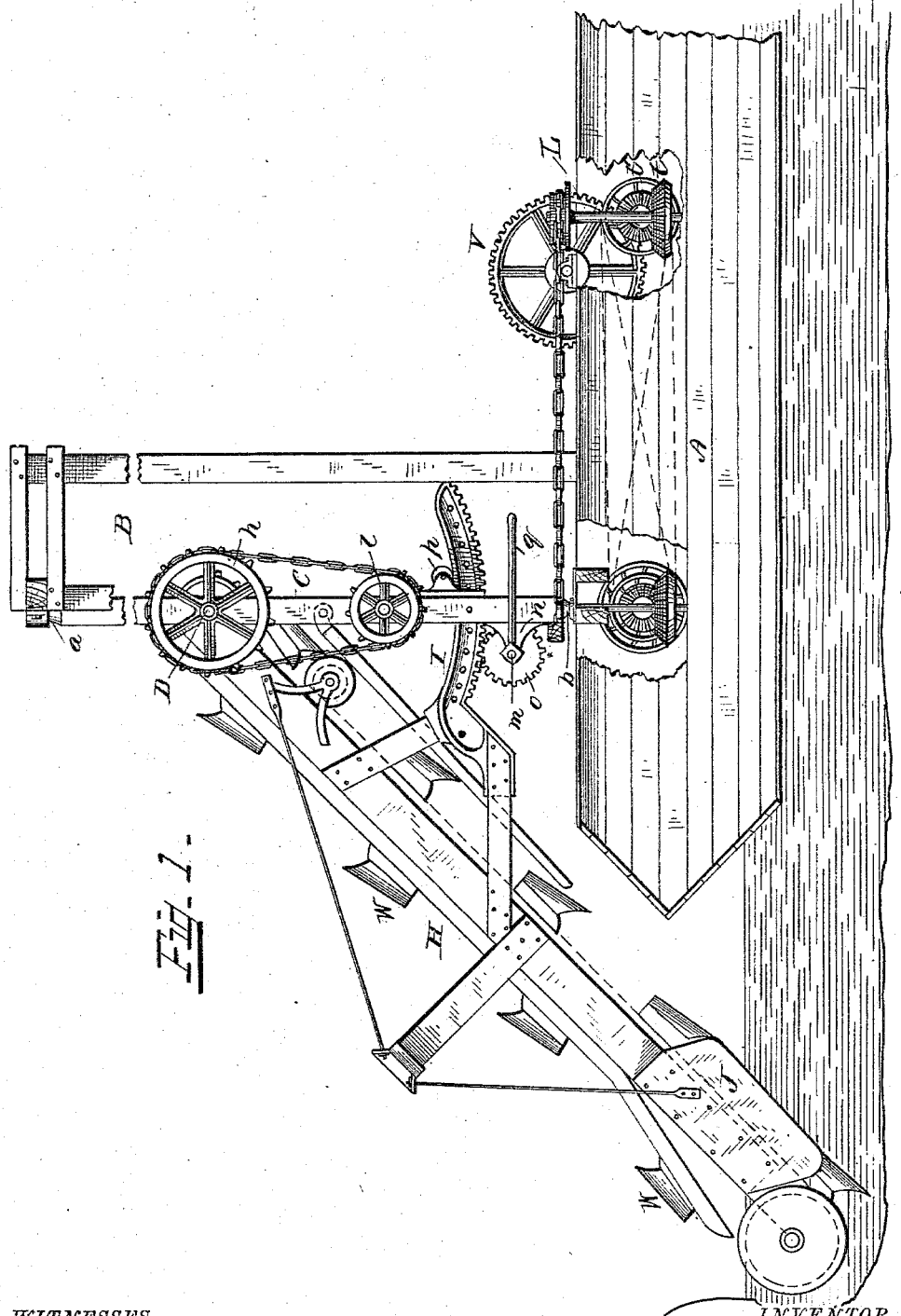

Fig. 1.

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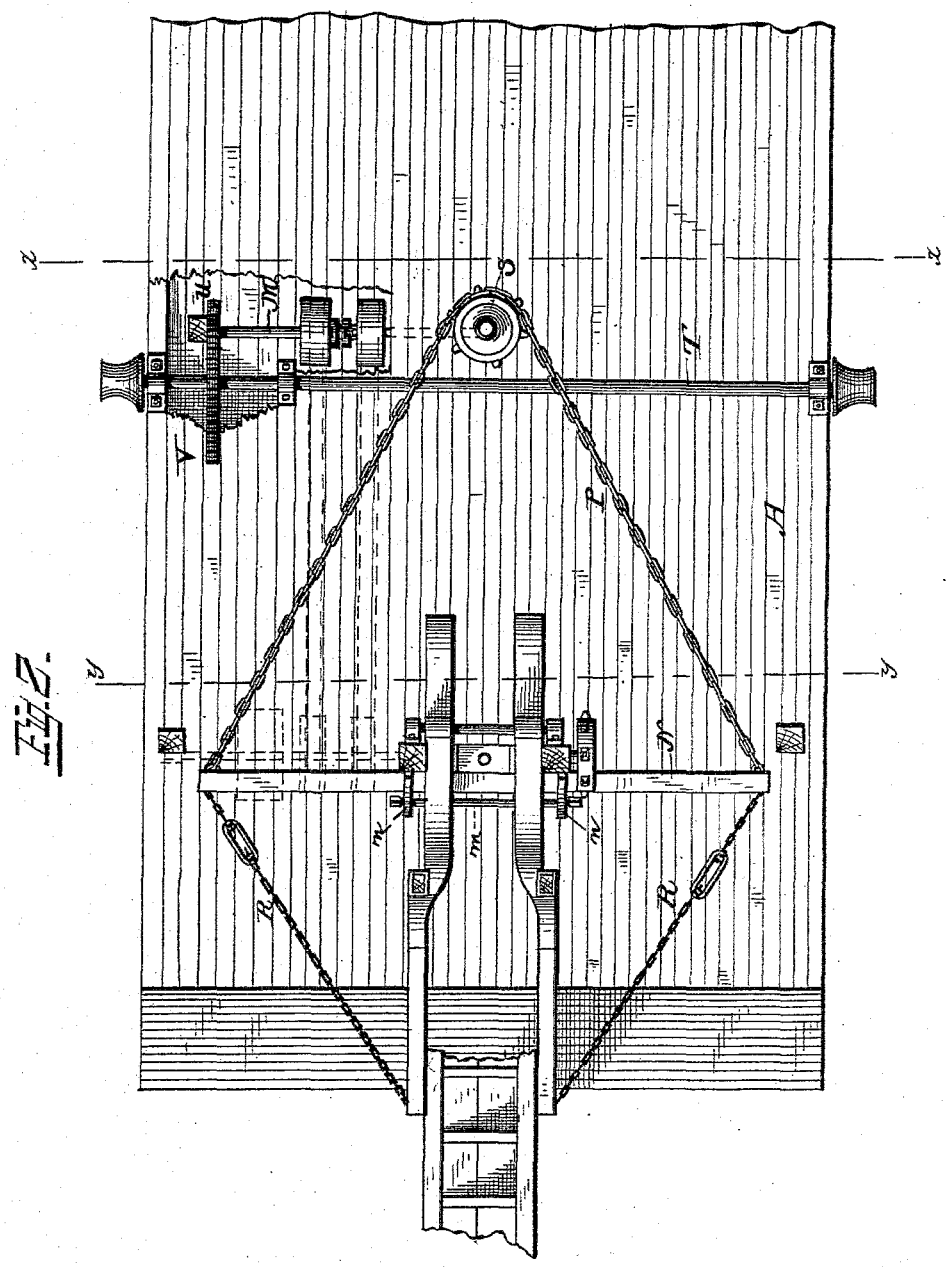

Fig. 2.

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Fig. 4

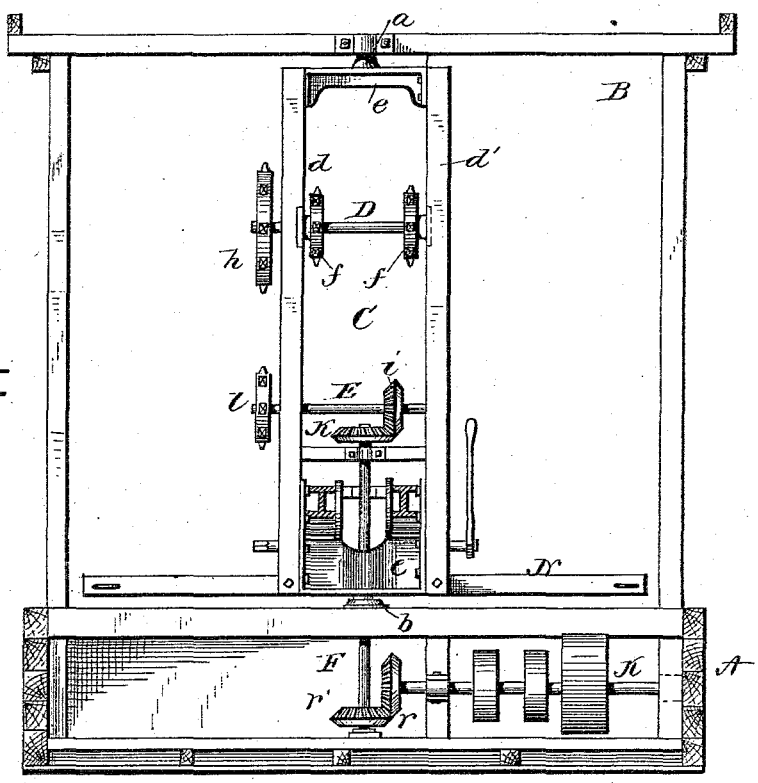
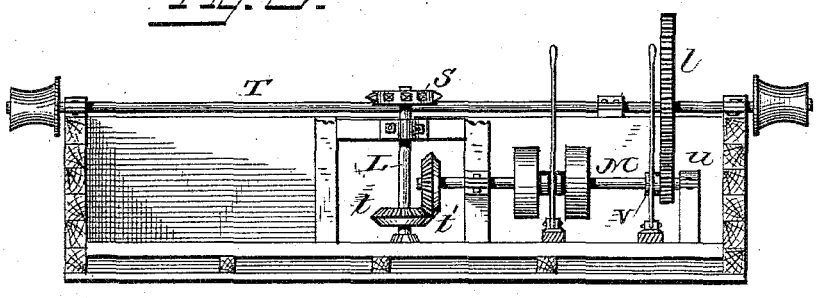


Fig. 3.



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DREDGING MACHINE.

No. 288,094.

Patented Nov. 6, 1883.

Fig. 5.

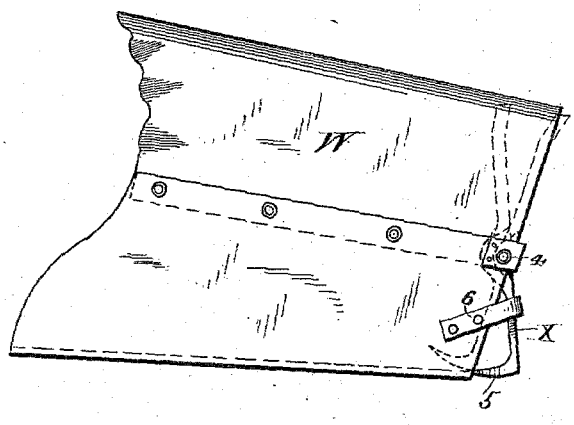


Fig. 7.

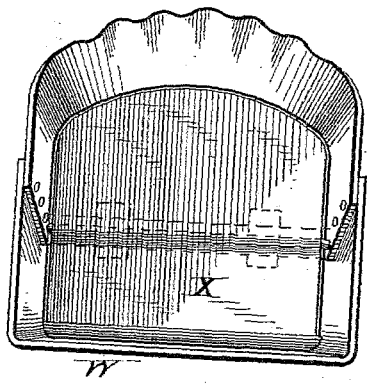


Fig. 6.

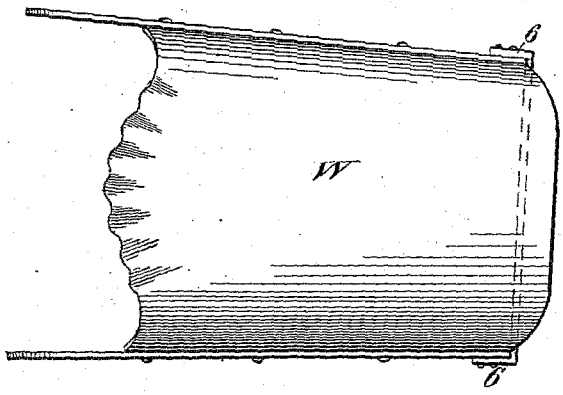
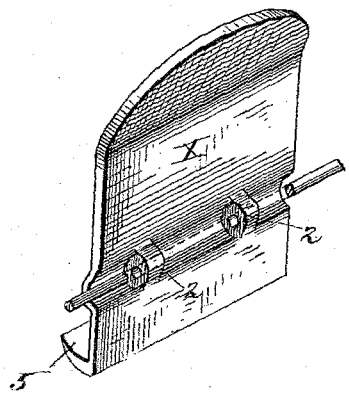


Fig. 8.



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UNITED STATES PATENT OFFICE.

JOSEPH MENGE, OF NEW ORLEANS, LOUISIANA.

DREDGING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 288,094, dated November 6, 1883.

Application filed February 21, 1883. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH MENGE, a citizen of the United States of America, residing at New Orleans, in the parish of Orleans and State of Louisiana, 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 of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The present invention, which relates to improvements in steam dredging-machines, consists in novel means for swinging the pivoted frame with the attached bucket-frame.

It also consists in the novel construction of the scoop-bucket, as will be hereinafter more fully set forth.

It also consists in the combination and arrangement of parts, as will be hereinafter more fully set forth.

In the accompanying drawings, Figure 1 is a side view, partly in section, of the forward part of a dredging-boat with my improvements applied. Fig. 2 is a plan view of the same. Fig. 3 is a transverse sectional view taken through the line *x x* of Fig. 2. Fig. 4 is another transverse sectional view taken through the line *y y* of Fig. 2. Figs. 5, 6, and 7 are different views of the scoop-bucket, and Fig. 8 is a perspective view of the bucket-bottom.

In the annexed drawings, A represents the forward portion of a dredging boat or vessel, having erected thereon a suitable frame, B, within which is arranged a swinging frame, C, rotating on the axial bearing *a b* at the top and bottom, as seen in Fig. 4 of the drawings. The swinging frame consists of the side uprights, *d d'*, and the end castings, *e*, constructed with the axial bearing bolted or otherwise attached to the uprights. The lower casting, *e*, is, preferably, hollow for the passage of a vertical shaft, as seen. This frame has suitably journaled near its upper end a transverse shaft, D, provided with two sprocket-chain wheels, *f*, to receive and communicate positive motion to the endless sprocket-chains to which the scoop-buckets are attached, and is also provided with another sprocket-chain wheel, *h*, arranged on the extended portion of the shaft outside of the frame. The frame is also provided with another transverse shaft, E, suitably journaled, and having keyed thereon a miter-gear, *i*, engaging with the miter-gear *k*, mounted on the end of the vertical shaft F, as shown in Fig. 4 of the drawings.

To the extended end of the shaft E is keyed a sprocket-chain wheel, *l*, for establishing a power-connection with the sprocket-chain wheel *h*, arranged immediately above, through the agency of a sprocket-chain. To this frame C is also attached the transverse shaft *m*, journaled in the bracket *n*, carrying the two gear-wheels, *o*, and at a higher point, but on the opposite sides of the uprights, are arranged the anti-friction rollers or wheels *p*. (Only one shown in Fig. 1 of the drawings.)

The bucket-frame H of any well-known construction, is suspended at its upper end upon the transverse shaft D of the swinging frame, so as to work on a center and move therewith in the side movements. This bucket-frame is provided at or about midway of its length, on opposite sides, with the sector-racks I, suitably connected and braced to engage with the gear-wheels *o*, mounted on the shaft *m*, and sustained in gear-contact by the anti-friction wheels *p*, as indicated in Fig. 1 of the drawings. By means of these sector-racks attached to the bucket-frame and the gear-wheels engaging therewith, in conjunction with the lever *q*, adjusted on either end of the shaft *m*, the adjustment of the bucket-frame carrying the train of scoop-buckets is accomplished, so that either deep or shallow cutting can be made. At the lower end of this frame H are secured the side pieces, J, serving as guides for the endless chains and buckets.

The letter K (see Fig. 4) represents a horizontal shaft, suitably journaled below the deck, provided with the miter-gear *r*, engaging with the miter-gear *r'* on the vertical shaft F, and the driving-pulleys in communication with the power-source for communicating motion to the train of scoop-buckets through the intermediate gearing.

The letter L (see Figs. 1 and 3) represents a vertical shaft, properly journaled, provided at its upper end with a sprocket-chain wheel, *s*, around which passes a sprocket-chain, as will be hereinafter described, and with a miter-gear, *t*, receiving motion through the miter-gear *t'* on the horizontal driving-shaft M. This horizontal shaft M is provided with loose pul-

leys and a shifting-clutch between them, working on a feather or key, and a pinion, *u*, with an adjacent clutch, *v*. These clutches are engaged and disengaged by the usual shifting-levers.

The letter N (see Figs. 2 and 4) represents a cross or transverse bar connected to the end of the swinging frame, and provided at its outer ends with hooks or eyes for the attachment of the sprocket-chain P, passing around the sprocket-wheel *s* and the tension-chain R, attached to the sides of the bucket-frame, as seen in Fig. 2 of the drawings. These chains, attached to the cross-bar of the swinging frame, in connection with the mechanism for operating the sprocket-chain P, are for swinging or shifting the swinging frame and the connected bucket-frame with its train of buckets to either the right or left for widening the cut of the canal or stream.

The letter T (see Figs. 2 and 3) represents a transverse shaft working in suitable journals, and provided with the gear-wheel V, engaging and receiving motion from the pinion *u*, mounted on the shaft M, and also provided with the end drums for the draw and pay-off ropes or chains. The operative connection and disconnection of this shaft is made by a lever and clutch, substantially as indicated in Fig. 3 of the drawings.

The letter W (see Figs. 1, 5, 6, 7, and 8) represents the scoop-bucket, made of sheet metal, and with a bottom or end working on an axis. The body of this bucket is preferably made of two pieces riveted together at the sides, the upper part being within the lower part to reduce the diameter to permit the material within this section to fall loosely into the lower section, of larger diameter, and be easily discharged from the bucket. The bottom or end X of the bucket is formed or provided with the perforated lugs 2 for the reception and passage of the pivot-rod 3, which is riveted at its ends to the sides of the bucket at 4, and is also formed at the inner end with the inward projection or heel 5, to keep the bottom of the bucket practically closed. To the sides of the bucket, near the inner end of the bottom, are arranged the little brackets 6, acting as stops to prevent the bottom in discharging the load from swinging or moving beyond a given point. The forward or upper portion of the bottom is made heavier than the lower portion in rear of the pivot, for the purpose of assisting to force out the material, when the bucket assumes a horizontal position, or nearly so. The front upper portion of the bucket, it will be observed, is corrugated or formed with gouge-shape cutting-edge, for the purpose of cutting readily and easily in heavy sticky soil, and obviating the tendency of the soil to stick or adhere to this portion of the bucket in the digging.

I reserve the right to vary the construction and arrangement of parts, and also to apply the improvements to cars for land excavation, without departing from the spirit of the invention.

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

1. In a dredging-machine, the combination, with the swinging frame, with the journal-bearing above and below, of the vertical shaft passing through the lower casting of the frame, and the gearing for operating the said frame, substantially as described.

2. In a dredging-frame, the combination, with a swinging frame having at or near its base a cross-bar, and carrying a bucket-frame, of the sprocket and tension chains attached to the swinging and bucket frames, and operating mechanism for shifting the position of the said frame, substantially as described.

3. A scoop-bucket for a dredger, the body of which is made of two shaped pieces of different diameters in a transverse cross-section, firmly united, the upper part being of lesser diameter than the lower part, as described, and for the purpose set forth.

4. A scoop-bucket for a dredger, the body of which is made of two shaped pieces of different diameters in cross-section, and firmly united, a tilting bottom, and stop device, substantially as described.

5. A scoop-bucket for a dredger having the upper edge of the upper portion corrugated or formed with a gouge-shape cutting-edge, substantially as described, and for the purpose set forth.

6. The improved bucket for a dredger, consisting of the body having the lower portion of larger diameter than the upper, and the upper cutting-edge corrugated and provided with the tilting bottom and side stops, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

JOSEPH MENGE.

Witnesses:
EDWIN LAIZER,
ALFRED INGRAHAM.