

(No Model.)

4 Sheets—Sheet 1.

J. MENGE.
DREDGING MACHINE.

No. 288,092.

Patented Nov. 6, 1883.

Fig. 4.

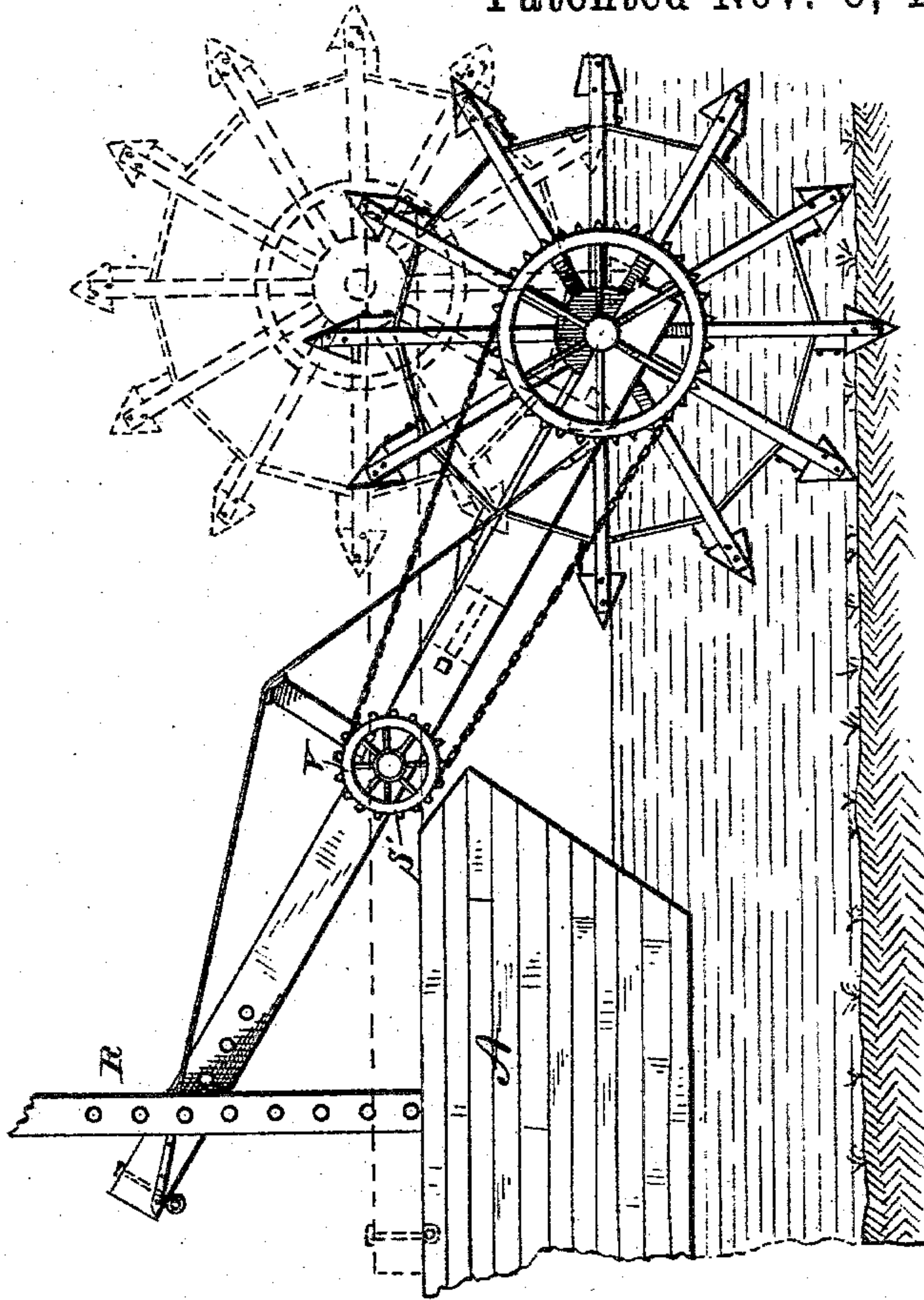
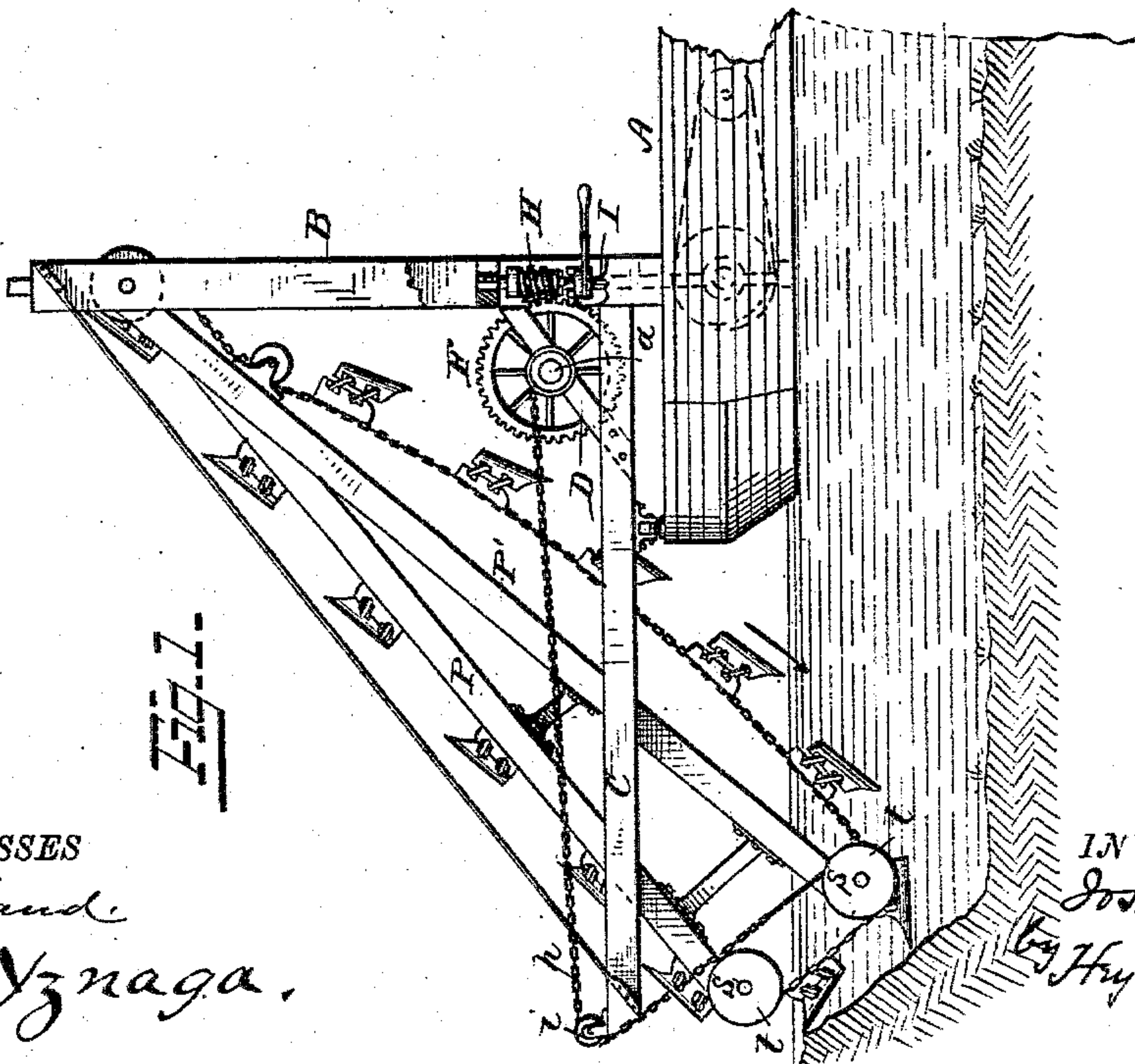


Fig. 1.



WITNESSES
F. L. Curran.
J. M. Szaga.

INVENTOR
Jos. Menge.
By Hyman H. Kane
Attorneys.

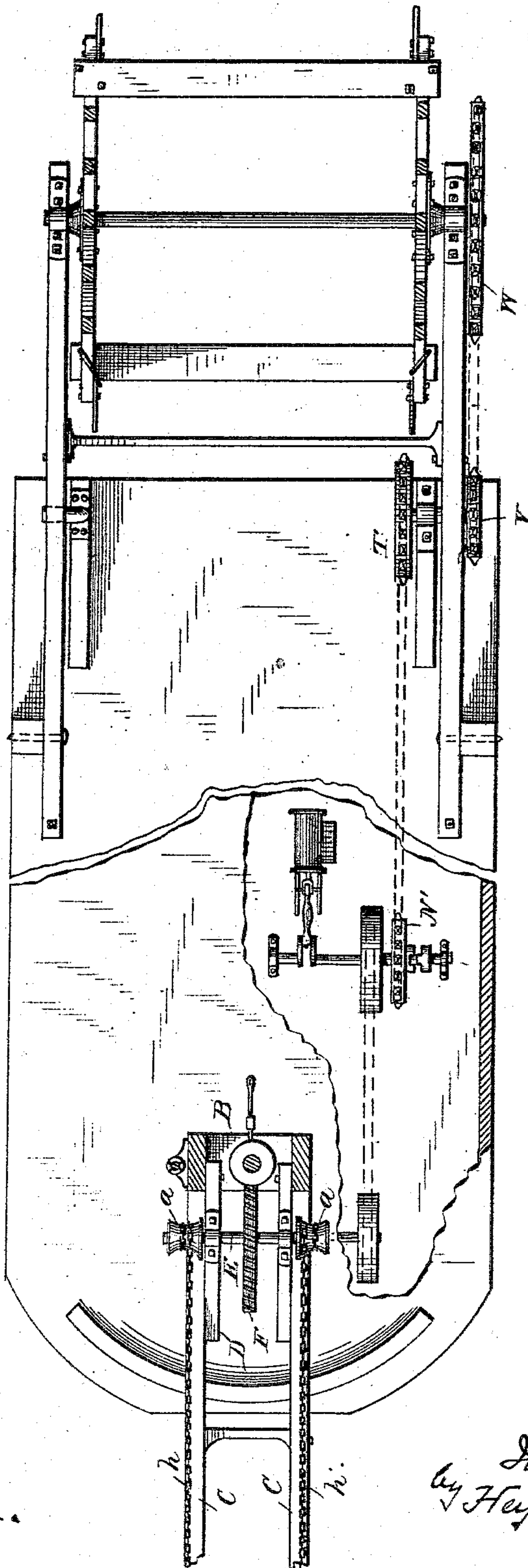
(No Model.)

4 Sheets—Sheet 2.

J. MENGE.
DREDGING MACHINE.

No. 288,092.

Patented Nov. 6, 1883.



277

WITNESSES
F. L. Curran.
J. M. Yznaga.

INVENTOR
Jos. Menge.
by Heylmann & Kane,
Attorneys.

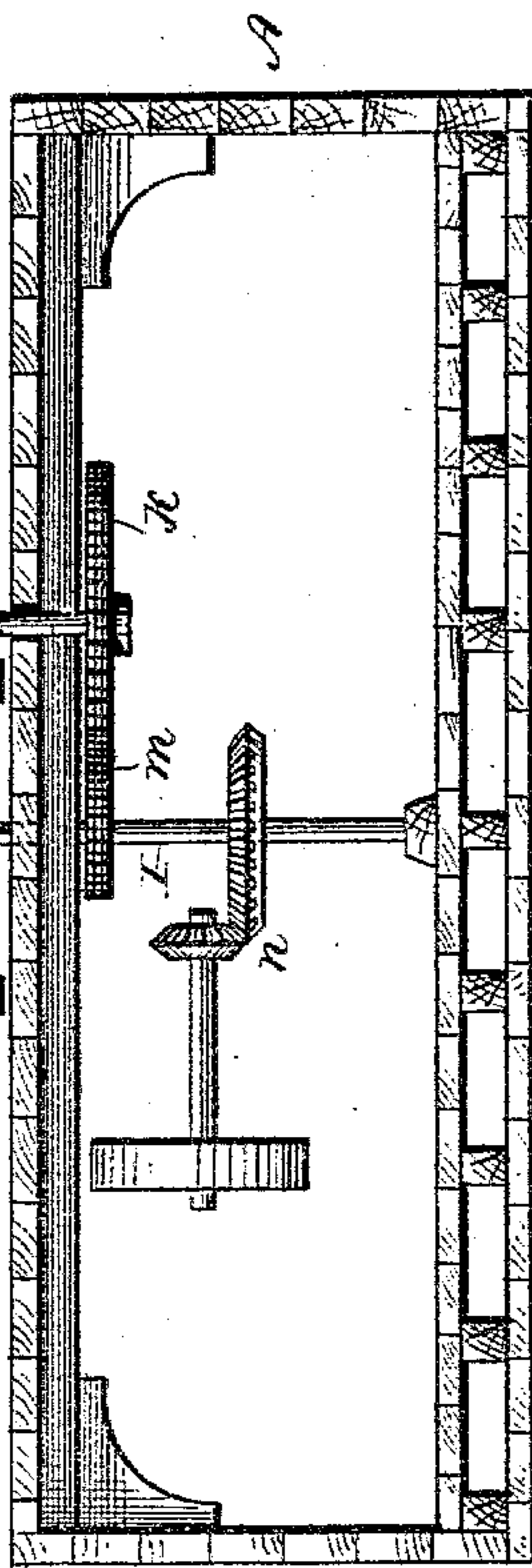
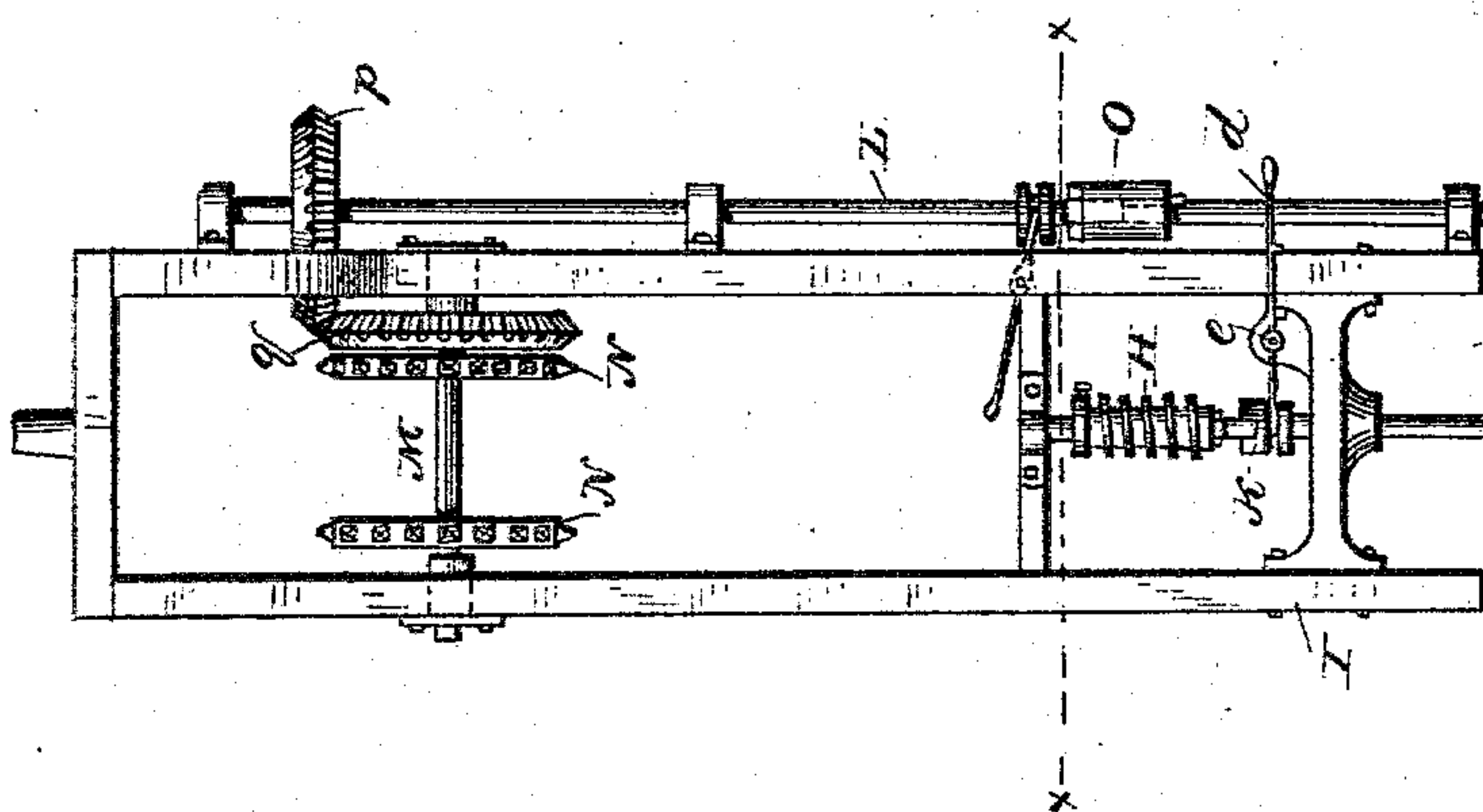
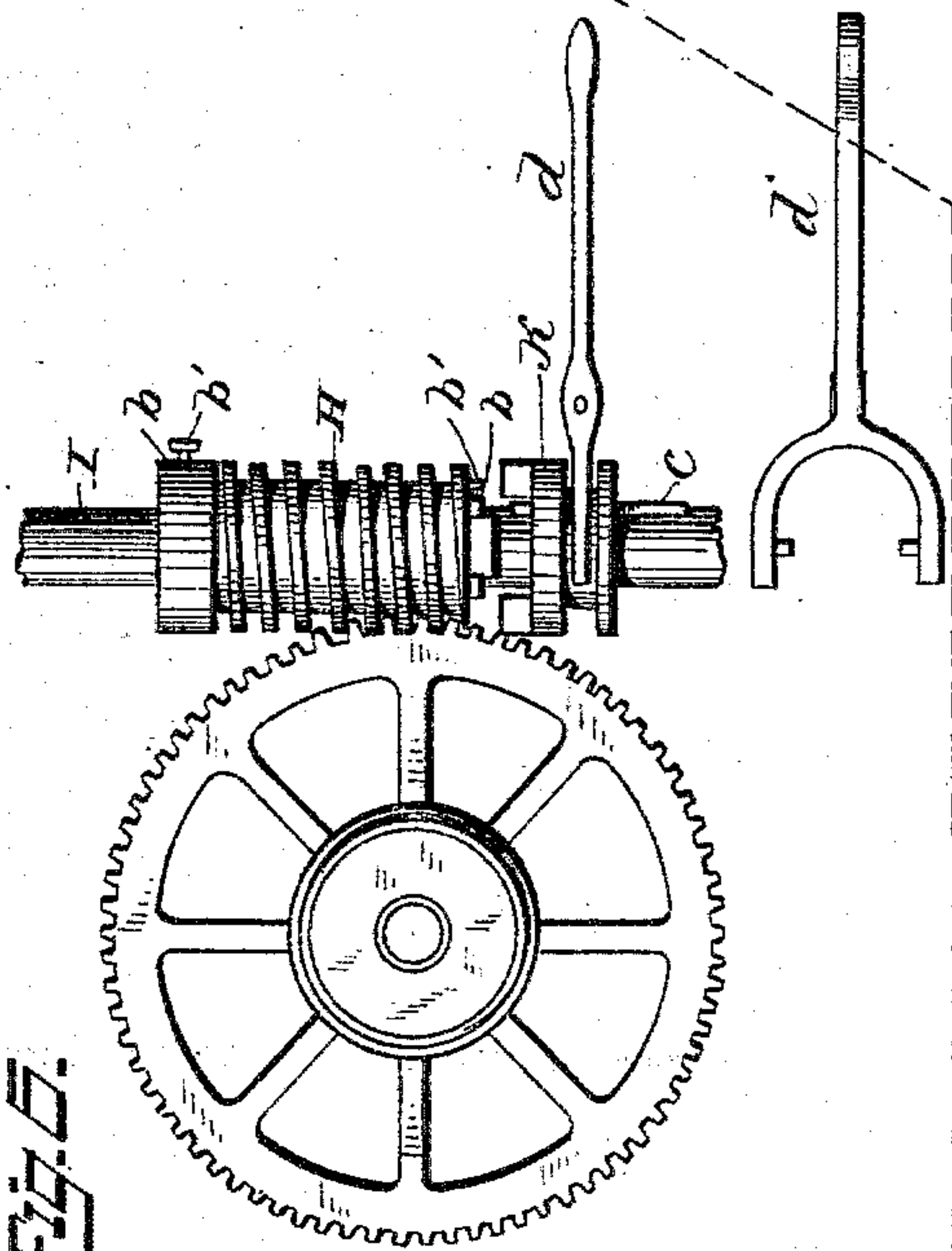
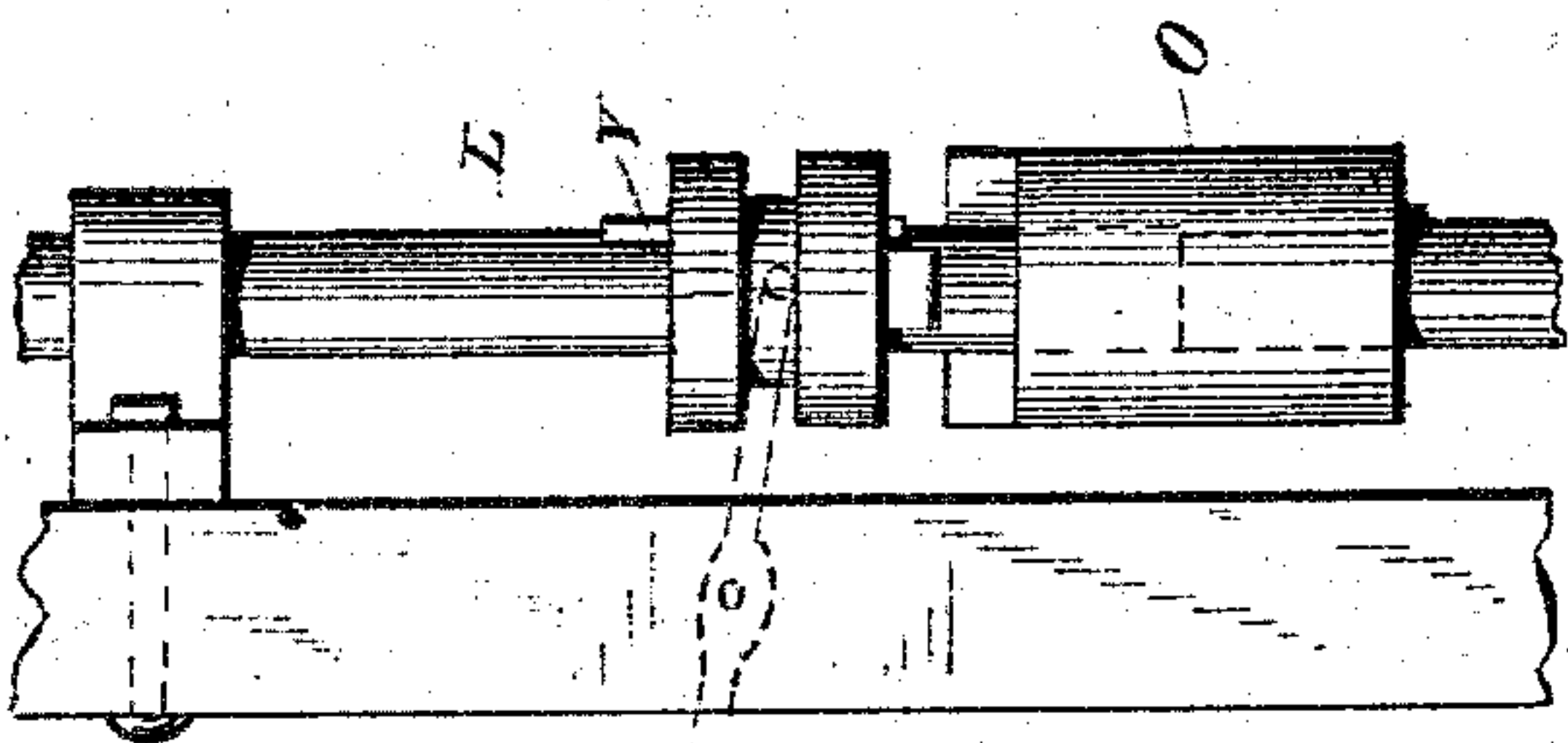
(No Model.)

4 Sheets—Sheet 3.

J. MENGE.
DREDGING MACHINE.

No. 288,092.

Patented Nov. 6, 1883.



WITNESSES

F. L. Curran

J. M. Vznaga

INVENTOR

Jos. Menge
by Hyblum & Kane
Attorneys.

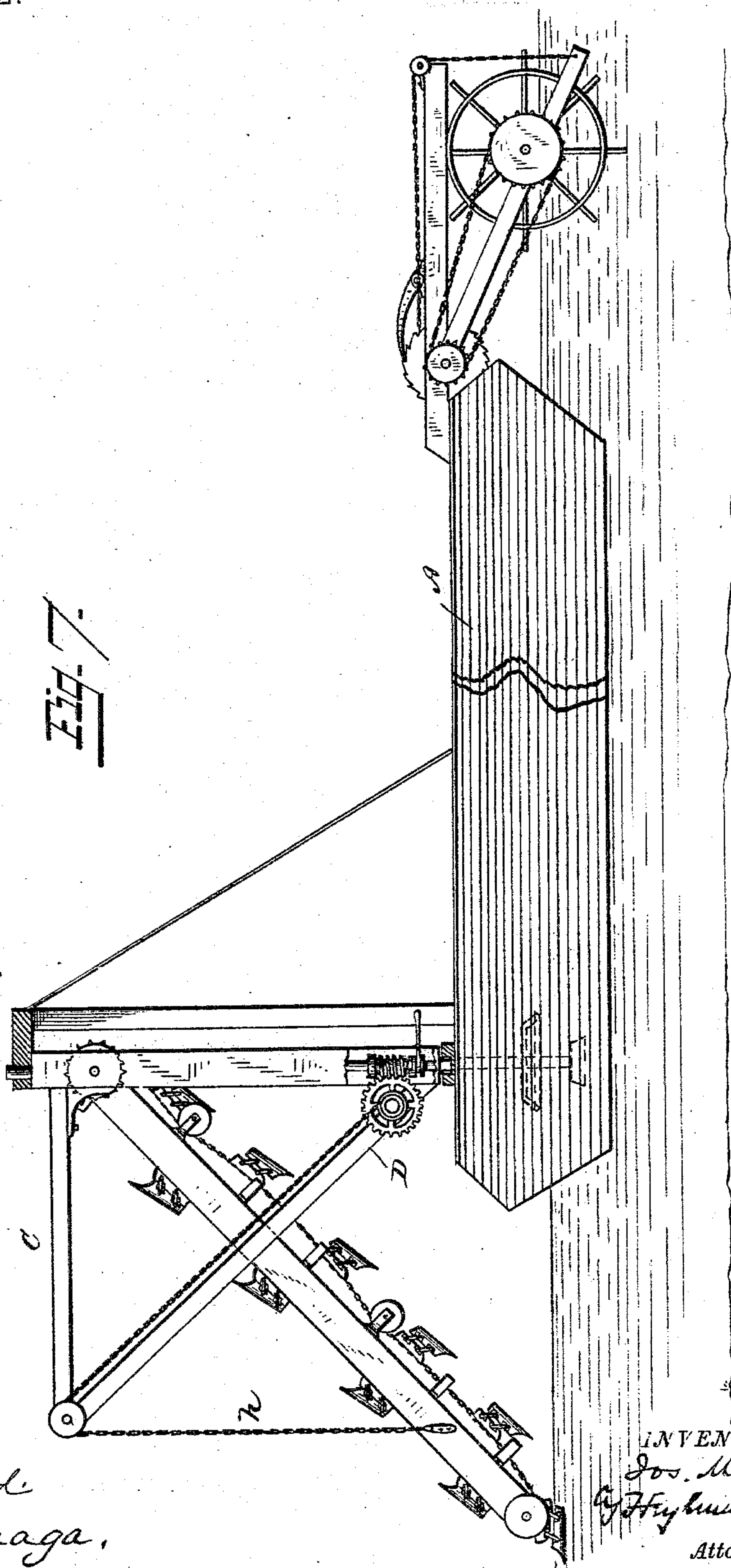
(No Model.)

4 Sheets—Sheet 4.

J. MENGE.
DREDGING MACHINE.

No. 288,092.

Patented Nov. 6, 1883.



WITNESSES

F. L. Curand
J. M. Vznaga

INVENTOR

Jos. Menge
By Hyman Kane
Attorneys.

UNITED STATES PATENT OFFICE.

JOSEPH MENGE, OF NEW ORLEANS, LOUISIANA.

DREDGING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 288,092, dated November 6, 1883.

Application filed January 16, 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.

This invention relates to certain improvements in steam dredging-machines of that class employing a succession of scoop-buckets on traveling chains.

My improvement consists in the novel construction and combination of parts, as will be hereinafter more fully set forth.

In the accompanying drawings, Figure 1 is a side view of a front portion of a dredging-boat with my improved dredging apparatus attached thereto. Fig. 2 is a plan view, partly in section, of a dredging-boat with my improvements applied thereto. Fig. 3 is a transverse sectional view of a dredging-boat with a front view of the swinging frame and its attachments. Fig. 4 is a side view, enlarged, of the rear portion of the dredging-boat with the propelling-wheel attached thereto. Figs. 5 and 6 are enlarged detail views of the clutch devices and worm-gear, and Fig. 7 is a view showing modifications of my improvements.

In the annexed drawings, A indicates a dredging boat or vessel constructed according to any of the improved patterns. Upon the forward portion of the boat is erected a suitable frame, within which is arranged a swinging frame, B, rotatable on axial bearings arranged above and below. This frame, near its base, is provided with the horizontal arms or jibs C, jointed to the vertical side beams of the swinging frame and properly braced to each other, and the diagonally-arranged short braces D. To these brace-bars is suitably journaled a transverse shaft, E, carrying a centrally-arranged worm-wheel, F, and winch-barrels *a a*, located at its ends, as shown in Figs. 1 and 2 of the drawings. The worm-wheel F engages with a worm, H, mounted loosely on the vertical shaft I, arranged within the swinging frame, and this worm is sustained in position

by means of two adjustable collars, *b b*, with set-screws *b' b'*, as seen in Fig. 6; also, mounted on this shaft I, below the worm, is a movable clutch, K, working on the feather *c* of the shaft, and adapted to be actuated by the lever *d*, having its fulcrum on the lug *e* of the cross-tie *f*, as shown in Fig. 3 of the drawings. It will be observed that the lower end of the worm H is formed or provided with projections or extensions, forming a clutch-face for engagement with the corresponding clutch-face of the clutch K, and by means of this clutch-connection a positive motion is given to the worm, and by reason of the engagement between the worm-gear and worm a like motion is given to the worm-gear shaft and its winch-barrels, to which the bucket-frame elevating and lowering chains *h* are attached. These chains *h* (see Figs. 1 and 2) extend forward over the horizontal jibs C, thence over the grooved pulleys *i*, located at the ends of the jibs, and thence downward, making a firm connection with the opposite sides of the lower ends of the bucket-frame, thus making an elevating and a lowering connecting attachment between the bucket-frame and winches, whereby, through the agency of the worm-gearing, the traveling buckets of the bucket-frame can be adjusted for shallow or deep cutting.

To one of the vertical side beams of the swinging frame B is journaled the vertical shaft L, (see Fig. 3,) made in two sections and united at their meeting ends by a coupling-collar, O, with a clutch-face. A curved slot is made in the deck for the passage and the movement of the shaft with its frame. The lower end of this shaft is provided with a gear, *k*, meshing with the pinion *m*, keyed to the shaft I, the latter receiving rotary motion through the bevel-gearing *n* from the source of power. The upper end of this vertical shaft is provided with a keyed bevel-gear, *p*, which passes through an opening in the side beam, and engages with a similar bevel-gear, *q*, keyed on the transverse shaft M, arranged in suitable bearings near the upper end of the swinging frame, and, by the rotation of the shaft and the co-operating gearing, motion is communicated to the transverse shaft M and its sprocket-chain wheels N, over which the sprocket-chains carrying the train of scoop-buckets pass.

The bucket-frame consists of the oppositely-arranged side beams, P and P', properly joined at or near their upper ends, and properly braced at or near their lower ends and at intermediate points, substantially as seen in Fig. 1 of the drawings, to form a triangular-shaped frame. This frame is suspended at its upper end upon the transverse shaft M of the swinging frame, and is adjusted for duty, as already stated, by the side chains extending back to the winches or windlasses. To the lower ends of this frame are suitably journaled two transverse shafts, S, with end chain-wheels, t, over which pass the endless chains carrying the buckets. By this construction of a triangular-shaped frame and the train of scoop-buckets passing upward at the lower end of the frame, it will be noticed that the buckets are presented and run upward at an angle instead of describing the arc of a circle, as in other styles of dredgers, and consequently a sloping cut is made; and when the dredging apparatus is swung around or shifted to the sides for operation the side banks of the canal or ditch will be made sloping, as indicated by dotted lines in Fig. 3, which make better finished side banks, and in a measure prevent washing away and caving in of the banks. To stop the working of the dredging-train of buckets, the movable clutch working on the feather v on the upper section of the vertical shaft L is moved upward and away from the lower clutch fixed on the lower section of the shaft by a lever pivoted to the frame, and this disconnection stops further communication of motion to the driving mechanism of the dredging apparatus.

To the stern of the boat (see Fig. 4) is connected a propelling-wheel arranged within a frame having an adjustable fulcrum on the vertical perforated posts R, attached to the rear portion of the boat. This frame, supporting the propelling-wheel, is provided through one of its side beams (see Figs. 2 and 4) with a shaft, S', having on its inner end a sprocket-chain wheel, T, in communication with another sprocket-chain wheel, N', on the engine-shaft, and also provided on its outer end with another sprocket-chain wheel, V, in communication with the sprocket-chain wheel W on the axle of the propelling-wheel. Through the agency of these sprocket-chain wheels and sprocket-chains the desired motion is given to the propelling-wheel to propel the boat. The ends of the paddle-blades are formed V-shaped, for

the purpose of digging into the bottom of the canal when the wheel is lowered and the machine at work. By this construction of the propelling-wheel adapted to engage with the bottom of the canal and the connecting driving means, the boat is moved forward to meet the requirements of the dredging apparatus.

I reserve the right to vary the construction and arrangement of parts 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 suspended triangular-shaped bucket-frame, with the parallel transverse chain-wheel shafts at its lower end, of scoop-buckets, the worm-gearing, connected windlass-chains and clutch devices for elevating and lowering the inclination of the suspended bucket-frame, the combination being and having the mode of operation substantially as hereinbefore set forth.

2. In a dredging-machine, the combination, with a swinging frame having suspended from its upper end a bucket-frame carrying a train of scoop-buckets driven by power, of a worm mounted in the swinging frame, a worm-gear mounted on the said frame and engaging with the said worm, connected windlass-chains, and a clutch device for engaging and disengaging the operation of the worm-gearing, the combination being and having the mode of operation substantially as hereinbefore set forth.

3. In a dredging-machine of the class described, a transverse shaft, E, with centrally-arranged worm-wheel F and end winch-barrels, a worm, H, with a clutch-face mounted loosely on a vertical shaft, I, arranged within the swinging frame B, a movable clutch, K, and a lever for actuating the said clutch, substantially as described.

4. In a dredging-machine, the combination, with a swinging frame provided with gearing for operating the sprocket-wheels over which the bucket-chains pass, of a vertical sectional shaft attached to one side of the swinging frame, and having engaging gearing, and a clutch means attached to the said sectional shaft for coupling and uncoupling the same, substantially as described.

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

JOSEPH MENGE.

Witnesses:

A. L. GRABFELDER,
W. O. HART.