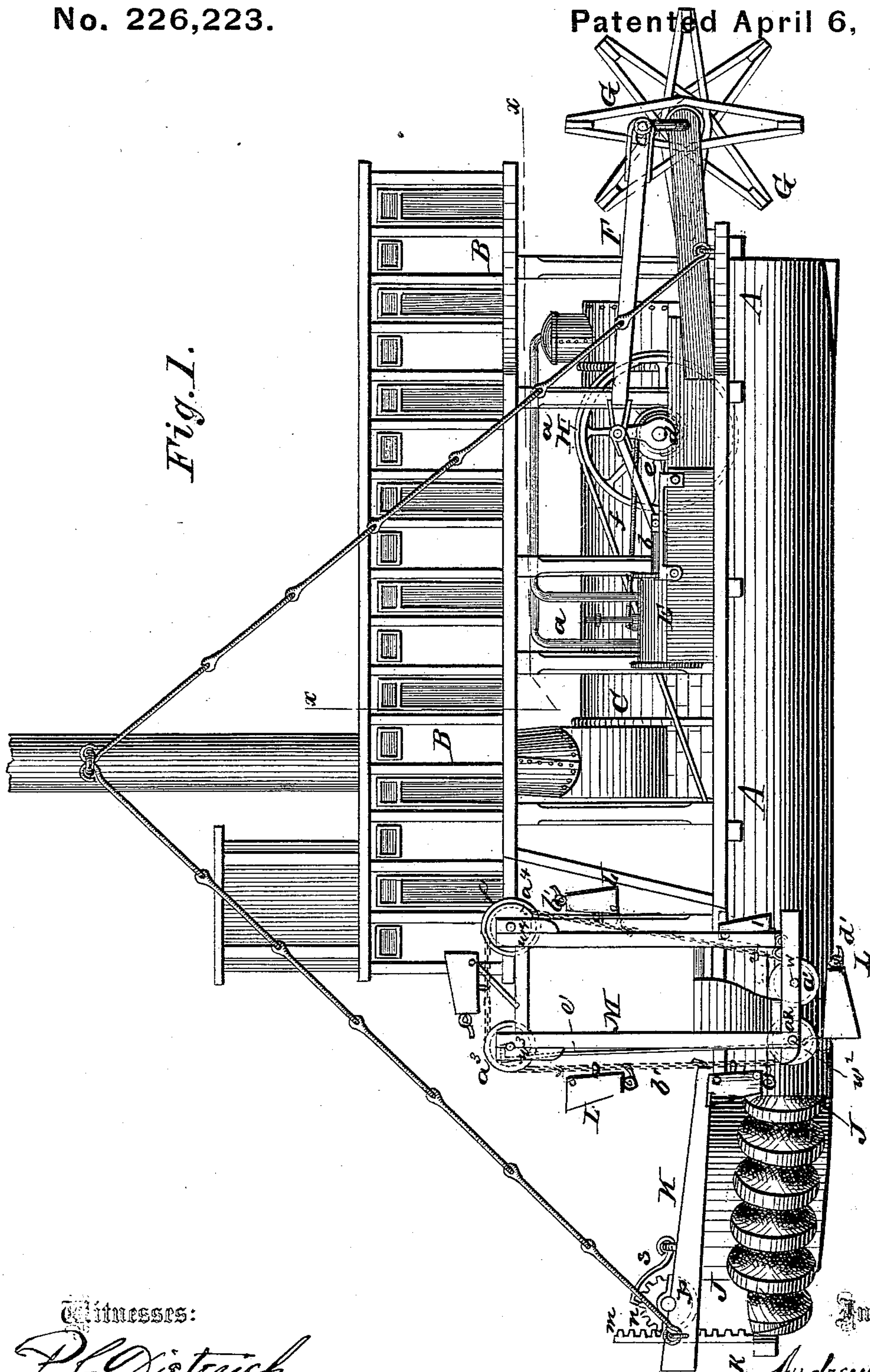


A. J. COOK.
Dredging-Machine.

No. 226,223.

Patented April 6, 1880.



Witnesses:

P. C. Dietrich
Wm. Supperman.

Per *C. H. Watson & Co*

Inventor

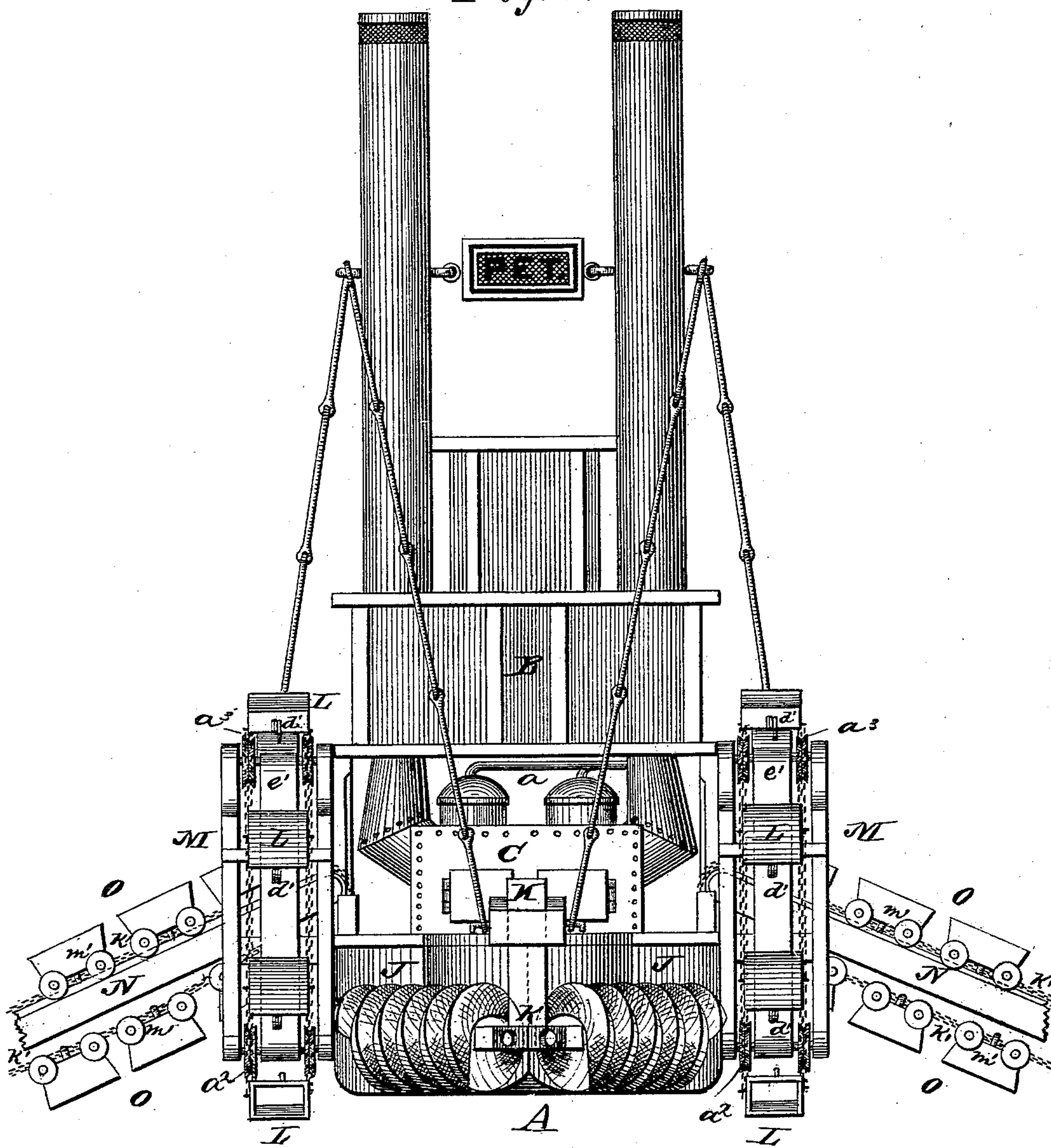
Andrew Cook.
Attorneys.

A. J. COOK.
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Fig. 3.



Witnesses:

P. C. Dietrich
Wm. H. Upman.

Inventor

Andrew J. Cook

Per *C. H. Watson & Co.* Attorneys.

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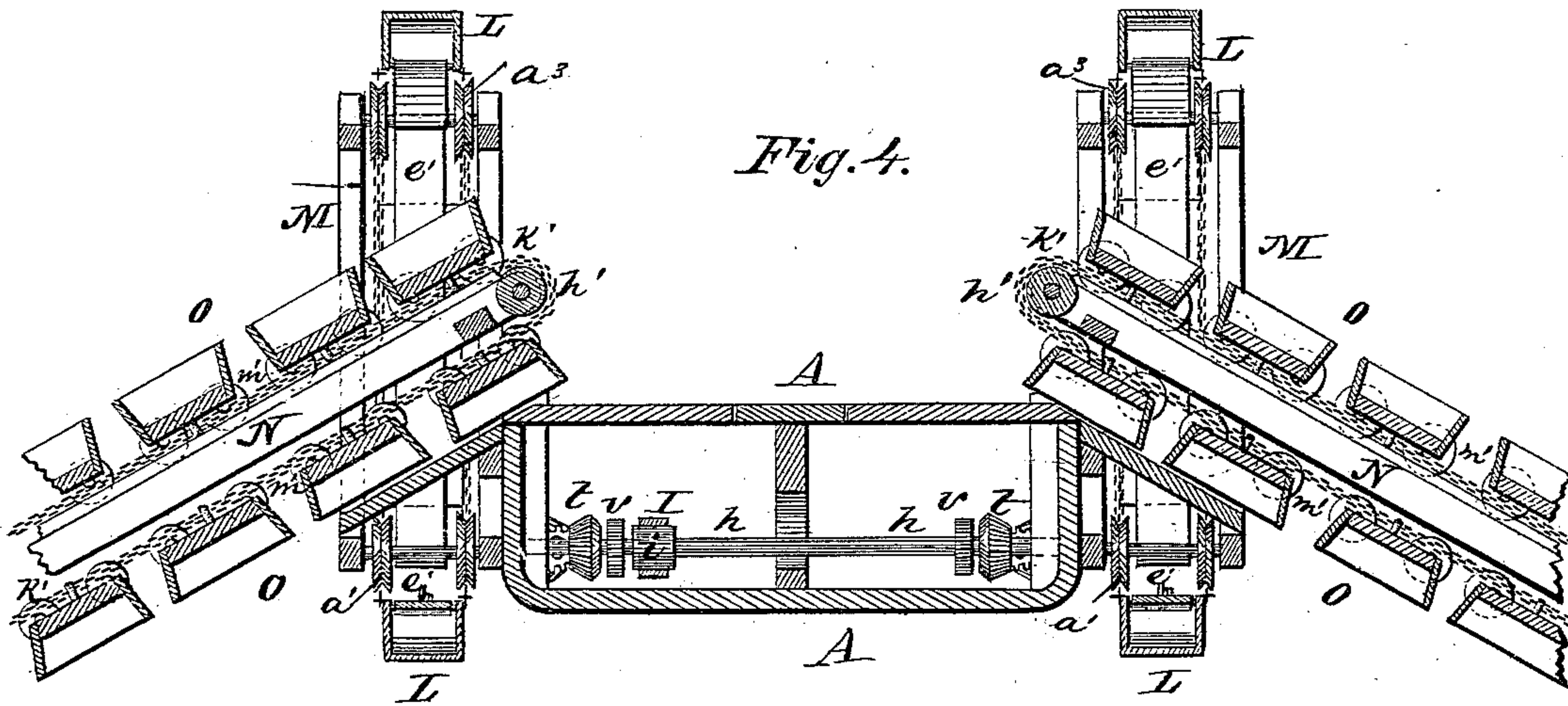


Fig. 5.

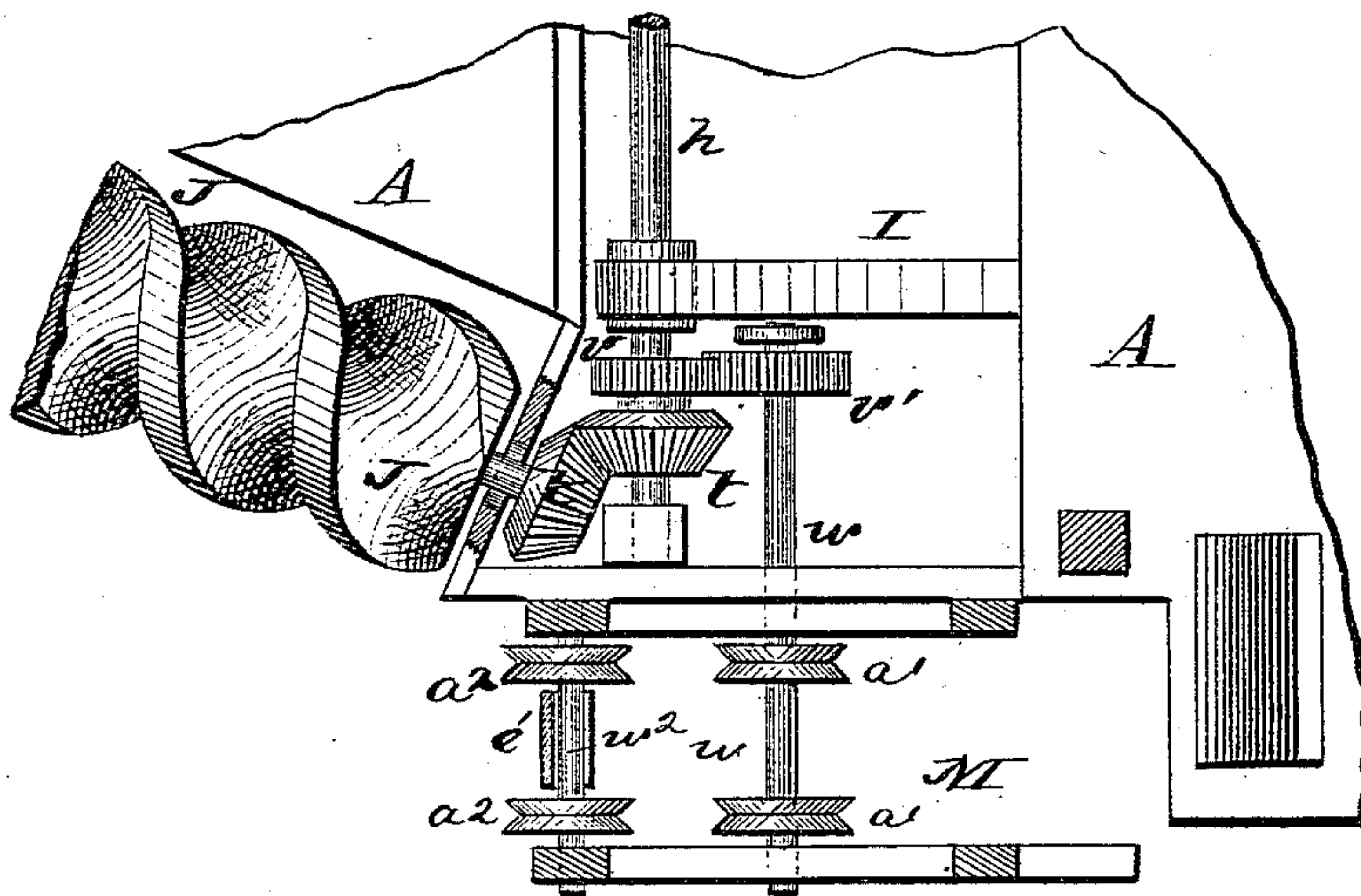
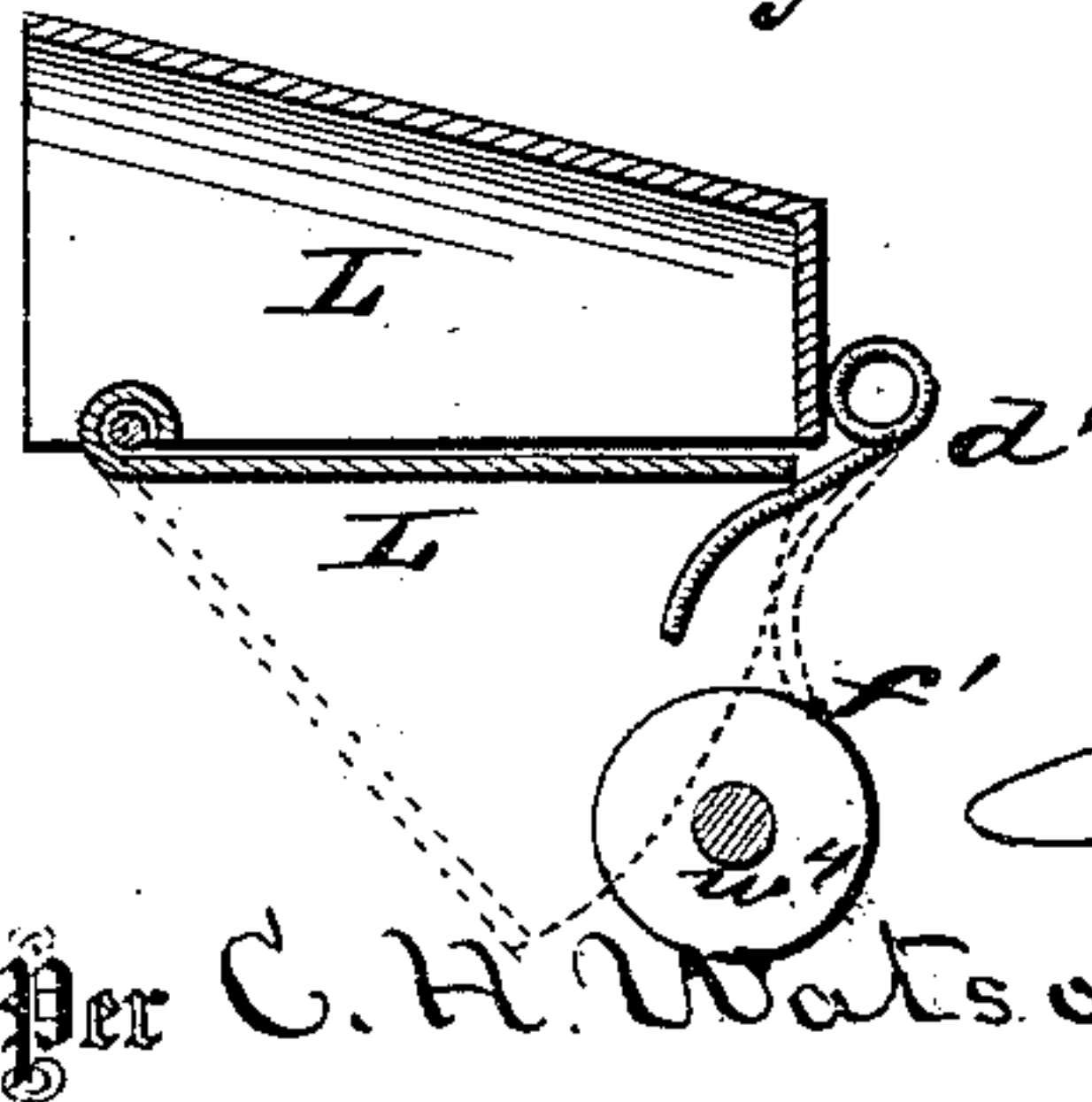


Fig. 6.



Witnesses:
P. C. Dieterich.
Wm. Shipperman.

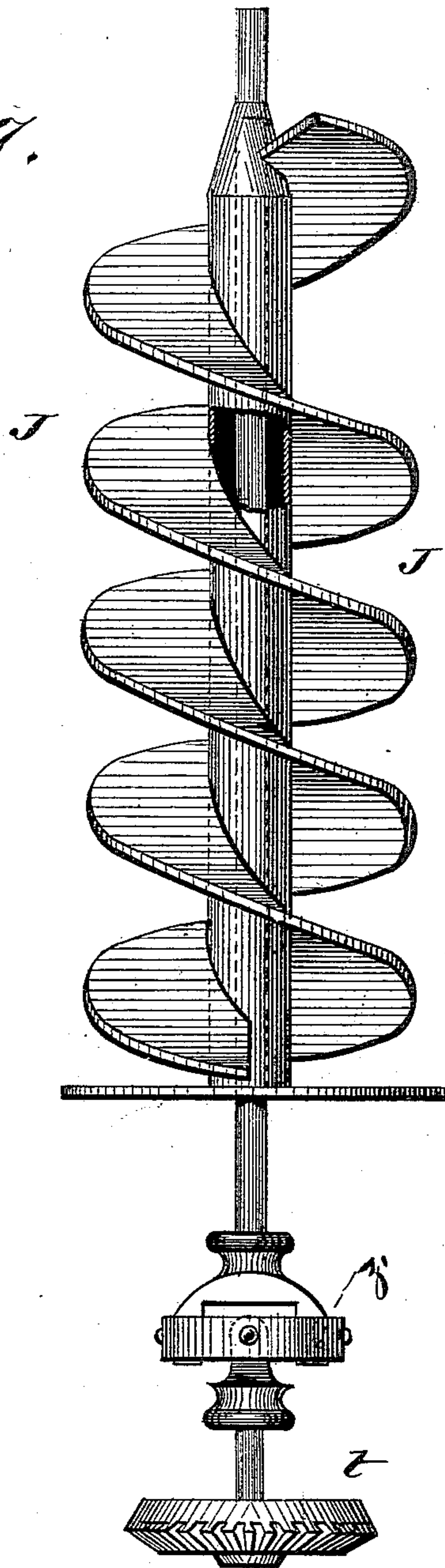
Inventor
Andrew J. Cook.
Per *C. H. Watson & Co.* Attorneys.

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Fig. 7.



Witnesses:

P. C. Dietrich.
Wm. Supperman.

Inventor

Andrew J. Cook.

Per *C. H. Watson & Co.*

Attorneys.

UNITED STATES PATENT OFFICE.

ANDREW J. COOK, OF WICHITA, KANSAS.

DREDGING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 226,223, dated April 6, 1880.

Application filed September 23, 1879.

To all whom it may concern:

Be it known that I, ANDREW J. COOK, of Wichita, in the county of Sedgwick and State of Kansas, have invented certain new and useful Improvements in Dredging-Machines; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

The nature of my invention consists in the construction and arrangement of a dredging-machine attached to channel and freight boats designed to cut a channel or way through bars or shoals in navigable rivers, and to cut out a narrow channel in broad sandy streams and make them navigable where there is sufficient water to navigate if the channel were contracted, as will be hereinafter more fully set forth.

In the annexed drawings, which fully illustrate my invention, Figure 1 is a side elevation. Fig. 2 is a plan view, partly in section, as shown by line *xx*, Fig. 1. Fig. 3 is a front elevation. Fig. 4 is a vertical section on line *yy*, Fig. 2. Fig. 5 is an enlarged detail view of the mechanism for operating the spiral wheels. Fig. 6 is an enlarged sectional view of one of the buckets, and Fig. 7 is a modification of the spiral wheel.

A represents the hull of a steamboat, with upper works, B, constructed in any of the known and usual ways. C is the steam-boiler, connected by pipes *a a* with the valve-chest D of the engine E, in which the piston works. *b* is the piston-rod, attached to the pitman F, which works the stern-wheel G. The pitman F is also connected to a crank on the end of a shaft, *d*, which shaft is provided with the usual eccentric *e*, for operating, by means of a rod, *f*, the valve in the chest D. On the shaft *d* is a wheel, H, which, by an endless chain or belt, I, is connected with a pulley, *i*, on a cross-shaft, *h*, in the bow of the boat, whereby said shaft obtains a rotary motion.

On each side of the boat, at the bow, is a large elongated spiral wheel or screw, J, which runs at an angle from the bow to the side, as shown. The front ends of these wheels J J

have their bearings in a double box, *k*, connected to a rack-bar, *m*, which passes upward through a beam, K, secured at the bow of the boat. (See Fig. 1.) This rack-bar *m* meshes with a cog-wheel, *n*, on a short shaft, *p*, having suitable bearings on the beam K, and on this shaft is also secured a ratchet-wheel, *r*, into which takes a pawl, *s*. (See Fig. 2.) By this means the front ends of the screws J may be adjusted up and down as required, according to the depth it is desired for the screws to work. The rear ends of the screws have their bearings in the frame-work of the hull A, and are connected, by means of bevel-gears *t t*, with the cross-shaft *h*, from which said spiral wheels obtain their motion.

The shaft *h* is, near each end, provided with a cog-wheel, *v*, which meshes with a similar cog-wheel, *v'*, on a short shaft, *w*. (See Figs. 2 and 5.)

In Fig. 7 is shown a modified form of spiral wheel, provided with gear-wheel *t*, secured on one end of the shaft. Near the said gear-wheel is a universal joint, *z'*, to allow the spiral to assume different positions and still keep the gear-wheel *t* in proper position for operation. This wheel may be made, as shown, with a solid rod running through the spiral, the same being secured thereon or in any other suitable manner.

The shaft *w* on each side extends outward into a vertical frame-work, M, attached to the side of the boat, and on this shaft are secured two sprocket or picket wheels or pulleys, *a' a'*. In the frame-work M are arranged three other shafts, *w² w³ w⁴*, as shown, carrying, respectively, grooved or sprocket wheels *a² a³ a⁴*. Around these wheels are passed endless chains *b' b'*, to which is attached a series of buckets, L, each bucket being provided with a hinged door, L', held in place by means of a spring-catch, *d'*. As the buckets pass over the rollers *a³* on the front top shaft, *w³*, the catch *d'* on each bucket strikes a projection, which allows the door to swing open, and the load will drop into the dump-cars below. As the bucket then turns over the rear top shaft, *w⁴*, a smooth roller, *f'*, on said shaft closes the door.

In each vertical frame-work M is secured an inclined frame, N, extending outward at the side, and in each end of this inclined frame is a shaft, *h'*, with rollers, around which are passed

two endless chains, *k'*. To these chains are attached dump-cars O O, which have wheels *m'*, that run upon the side bars of the frame N.

5 The spiral wheels and dredging arrangement as above described may be attached to any freight-boat and used only when desired to cut its channel or way through bars or shoals in navigable rivers, and to cut out a narrow chan-
10 nel in broad sandy streams, and make them navigable when there is sufficient water to navigate if the channel were contracted.

The screws J will be about three and one-half to four feet in diameter, and will be re-
15 volved one hundred to one hundred and twenty revolutions per minute, more or less, as experience may dictate, cutting out the sand, gravel, or mud, carrying it to the right and
20 left, where the elevator or dredge buckets carry it up over the dump-cars. At this point the buckets empty, as described, into the cars, and

these cars, resting on the inclined plane, are kept in motion by the load carried off, which is then deposited twenty or twenty-four feet from each side of the boat.

Having thus fully described my invention, 25 what I claim as new, and desire to secure by Letters Patent, is—

A dredging mechanism adapted to be applied to any steamboat, and consisting, essentially, of two rotating screws, arranged in V 30 form, and a series of elevating-buckets and a series of dump-cars on each side of the boat, substantially as herein set forth.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in 35 presence of two witnesses.

ANDREW J. COOK.

Witnesses:

WALLACE S. WOODMAN,
GEO. M. BUCK.