

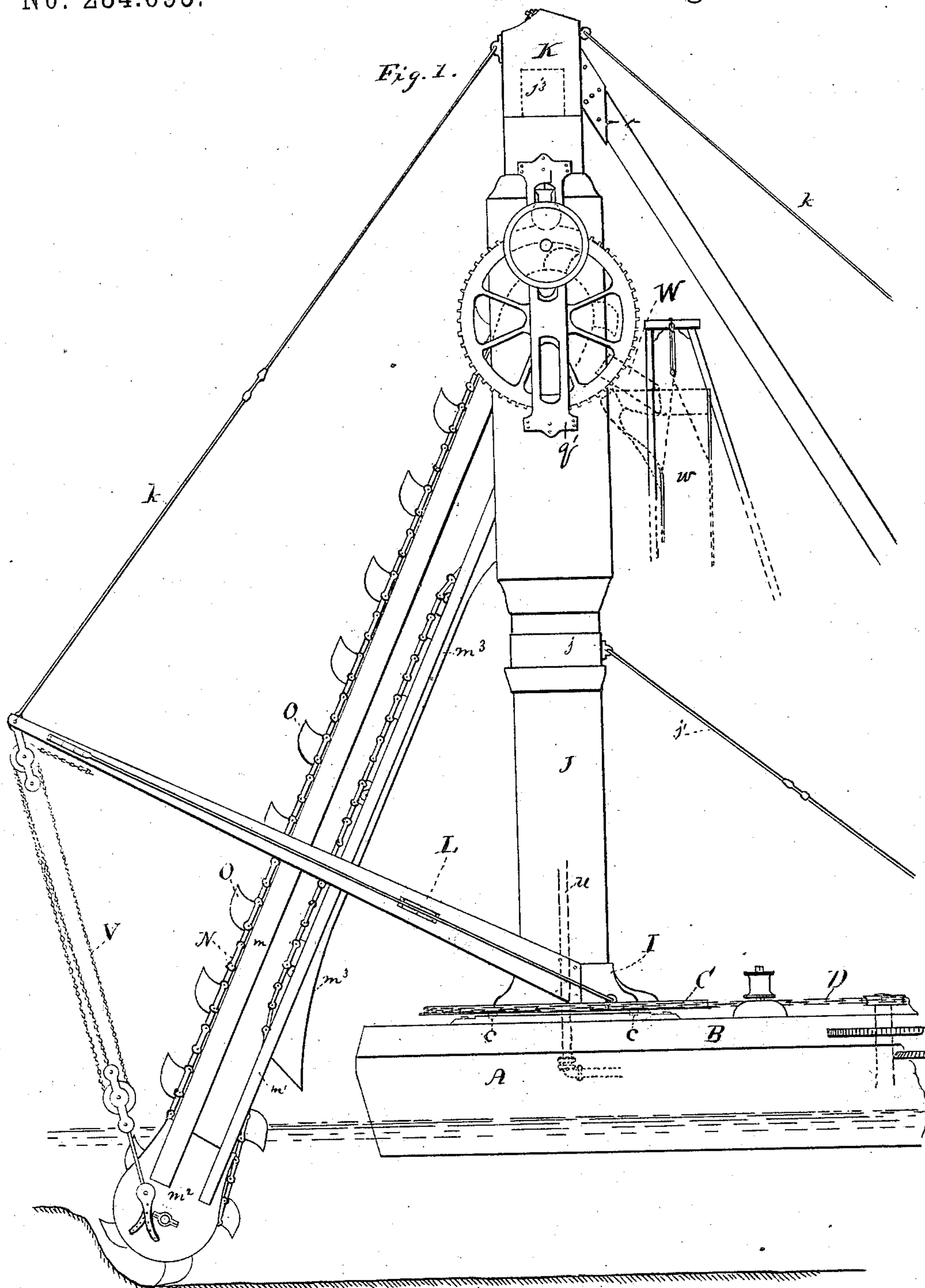
(No Model.)

5 Sheets—Sheet 1.

J. VAN PATTEN.
DREDGING MACHINE.

No. 284.095.

Patented Aug. 28, 1883.



Witnesses

H. Turner
R. Robertson

Inventor

John Van Patten
By J. W. Robertson
Attorney

(No Model.)

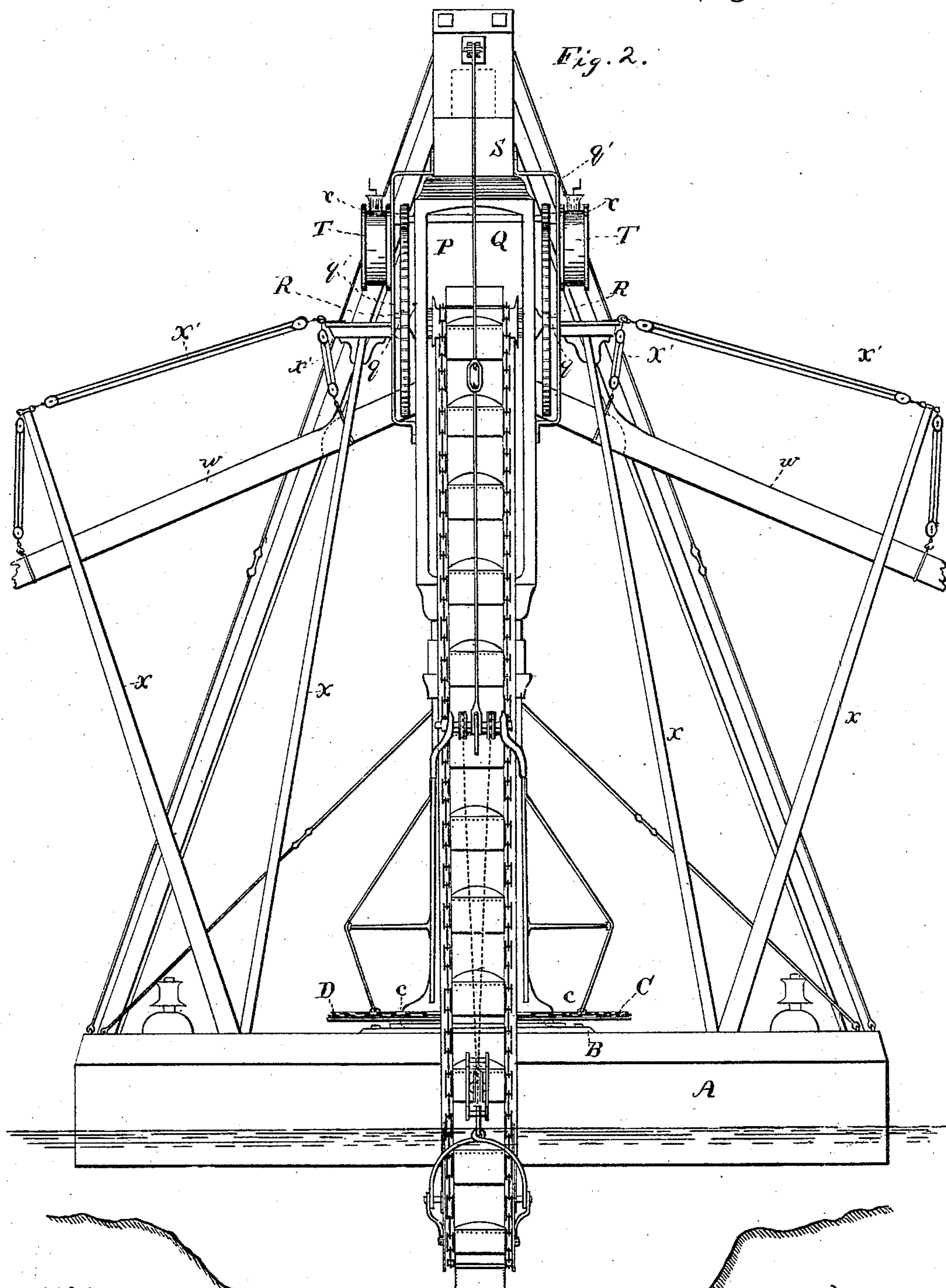
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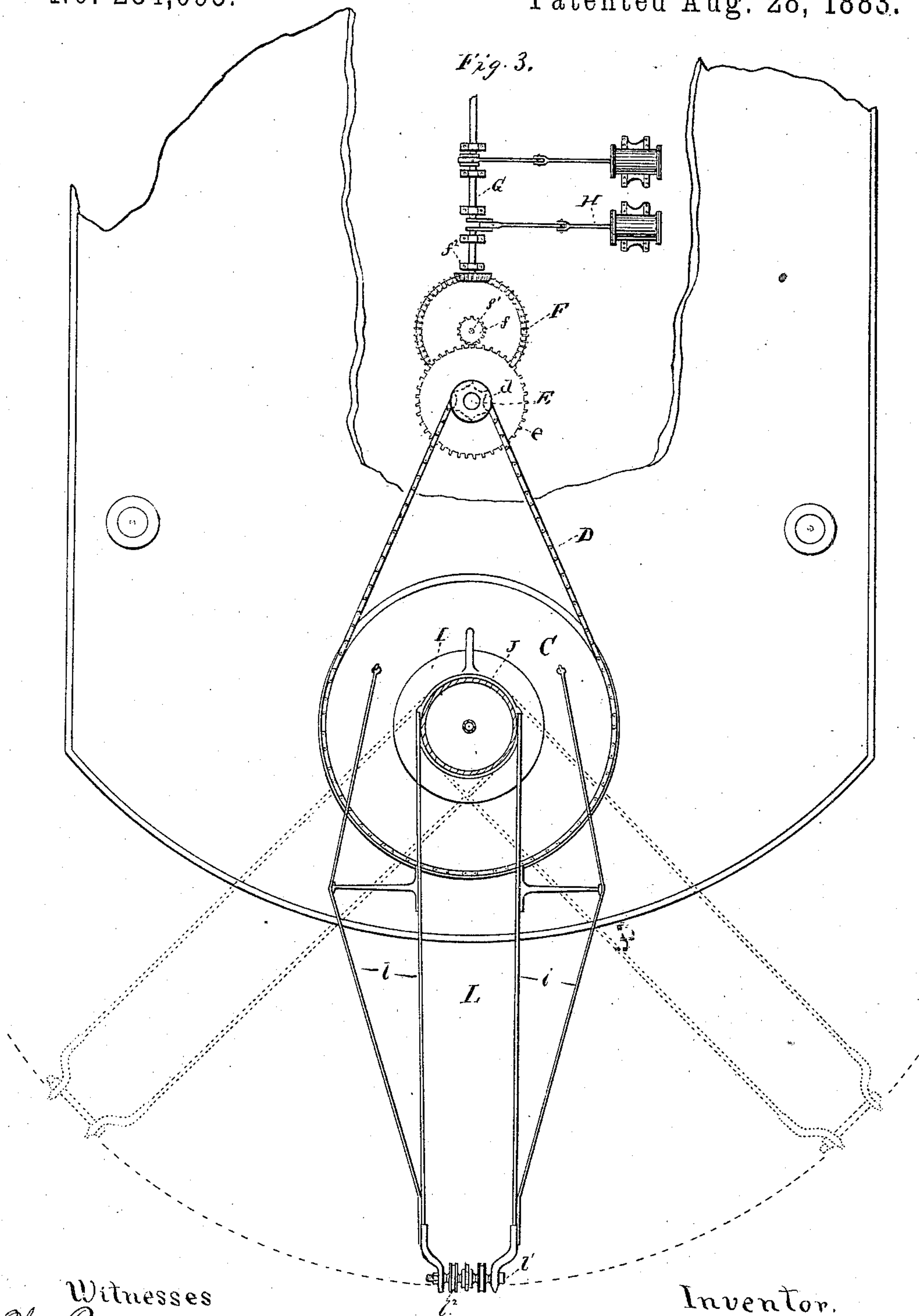
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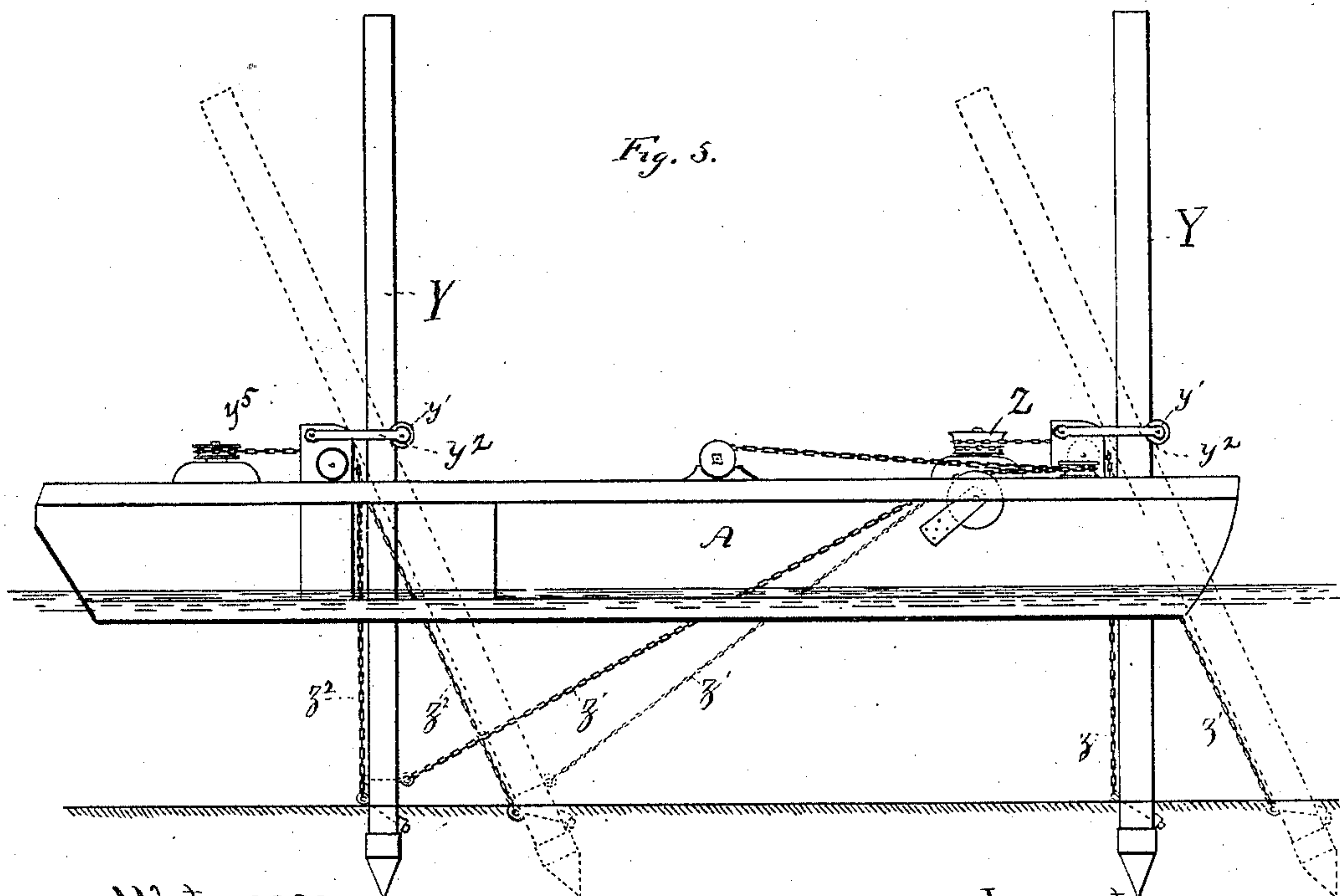
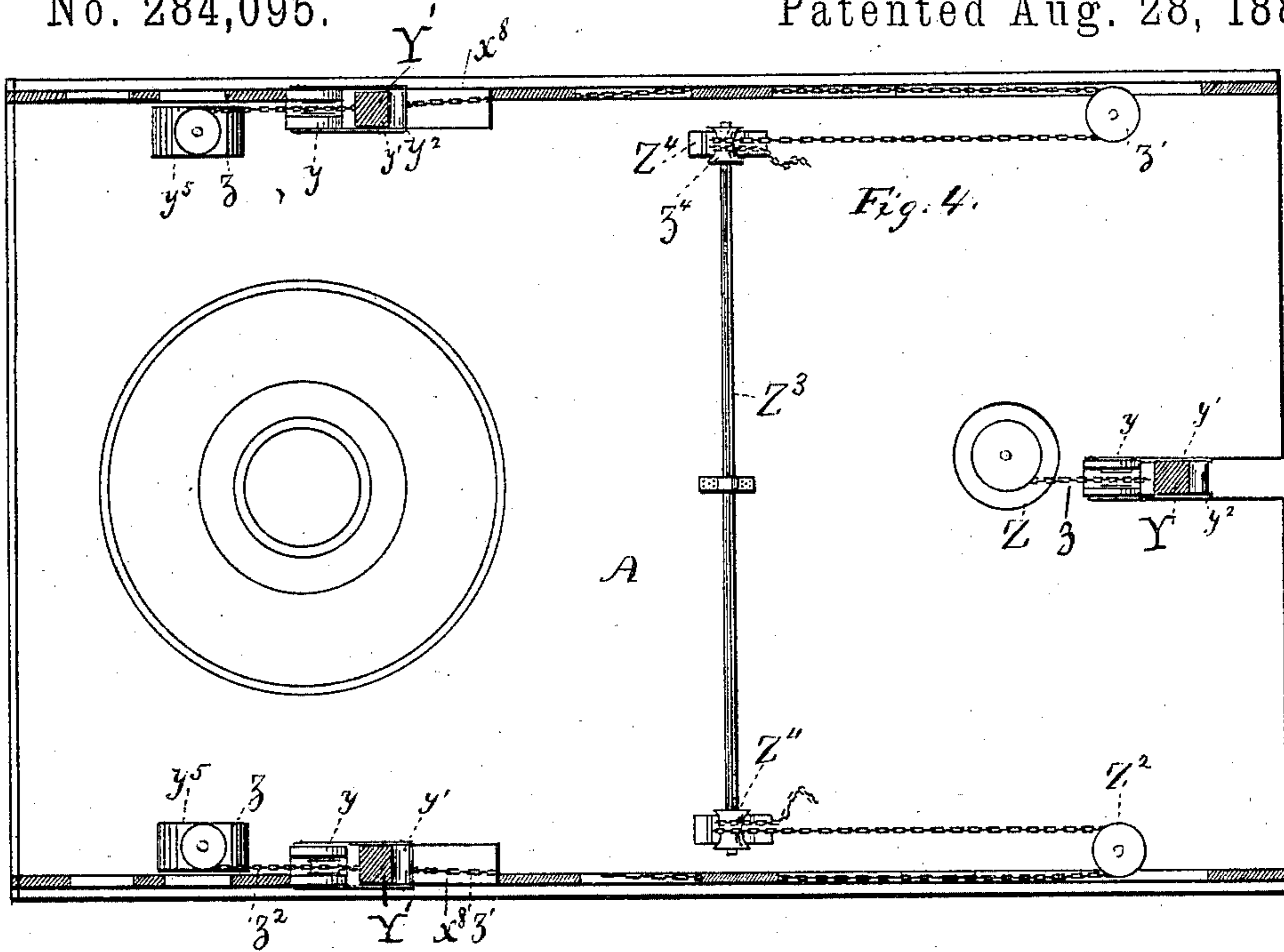
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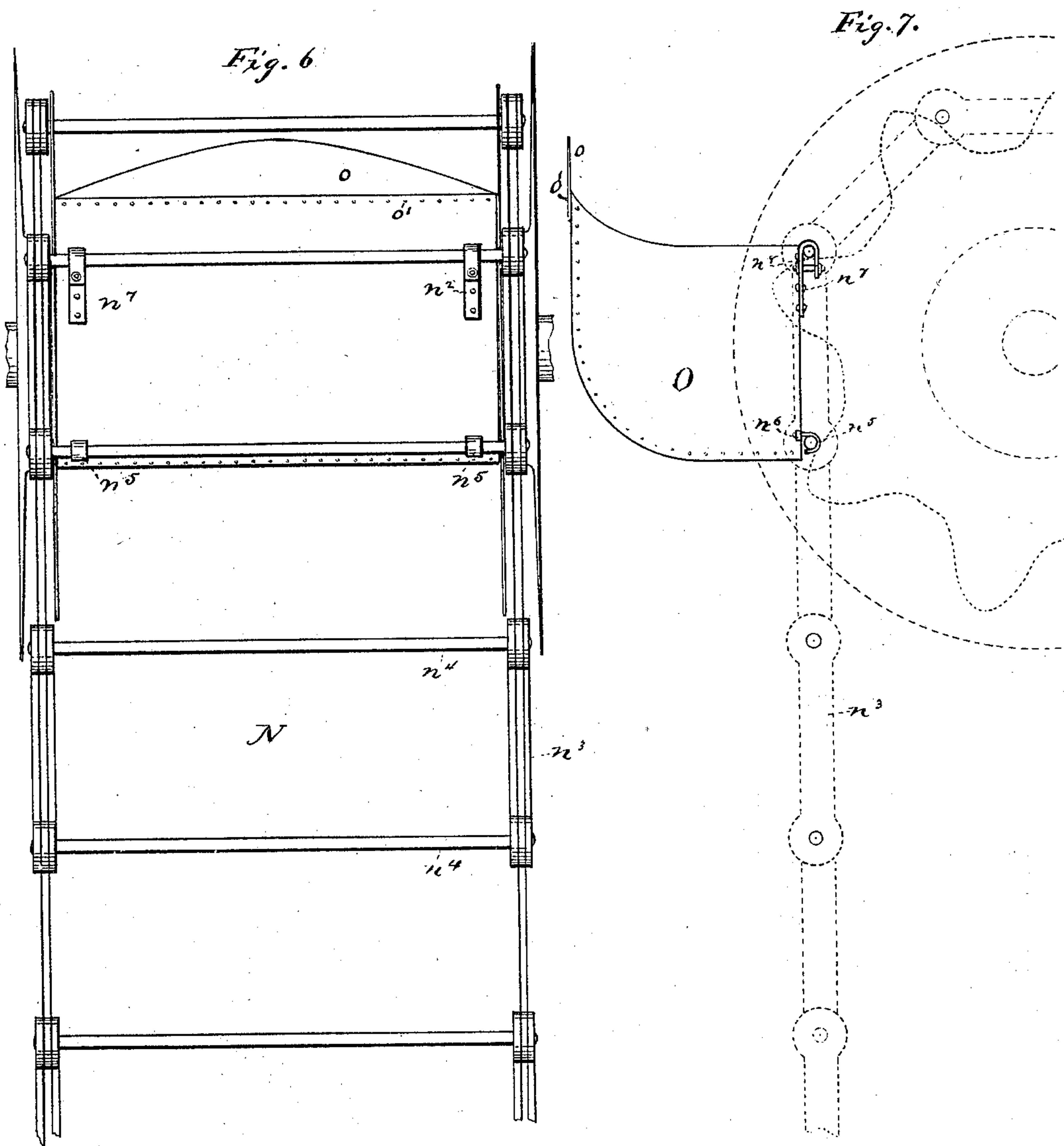
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UNITED STATES PATENT OFFICE.

JOHN VAN PATTEN, OF WASHINGTON, DISTRICT OF COLUMBIA.

DREDGING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 284,095, dated August 28, 1883.

Application filed May 26, 1883. (No model.)

To all whom it may concern:

Be it known that I, JOHN VAN PATTEN, a citizen of the United States of America, residing at Washington, in the District of Columbia, have invented certain new and useful Improvements in Dredging-Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to that class of excavating-machines in which excavating buckets or scoops are secured upon an endless chain or band.

The objects of the invention are to improve the general structure of machines of this class, whereby the operation and manipulation of the endless bucket-carrier will be facilitated and conveniently regulated, to provide devices for anchoring and moving the scow or other boat to which the excavating mechanism is secured, and to provide improved means for securing the buckets to the endless chain.

The improvements consist in the features of construction and combinations of parts hereinafter fully described, and pointed out in the claims.

In the drawings, Figure 1 represents a side elevation of a portion of a scow provided with my improvement. Fig. 2 is a front elevation of the same. Fig. 3 is a plan view, partly in section, with the endless chain and buckets removed. Figs. 4 and 5 illustrate my improved devices for anchoring and moving the scow, said devices being omitted from the main figures to insure clearness of the other parts. Fig. 6 is a rear elevation, and Fig. 7 a side view, of a portion of the endless chain, showing the manner of securing the buckets thereto.

A represents a scow, upon which is secured a bed-plate, B, for a turn-table, C, suitable anti-friction rollers, *c*, being interposed between said turn-table and bed-plate, and mounted in bearings of the latter. The periphery of the turn-table C is formed with teeth to receive a horizontally-arranged endless chain, D, which passes around a toothed pinion, *d*, mounted upon the shaft E of a spur-wheel, *e*, the latter in turn meshing with a spur-pinion, *f*, secured upon the shaft *f'* of a bevel-gear wheel, F. The latter is operated by a bevel-gear pinion, *f''*, mounted upon a crank-shaft, G, driven from the engine H or other suitable power.

Upon the table C is rigidly secured a casting, I, serving as a step for a rotating hollow cylinder or tube, J, which is also supported by a stationary collar, *j*, braced to the scow by a rod or stay, *j'*. The cylinder J extends above the collar *j* and terminates at its upper end in a journal, *j''*, having bearing in a recessed block or cap, K, the latter being secured by braces *k* and suitable supporting-framing.

L represents a jib consisting of frames *ll*. The inner ends of the inner bars of the jib-frames are rigidly secured to the lower end of the cylinder J, while the inner ends of the outer bars of said frames are secured to the turn-table C, as clearly shown in Fig. 3. The outer ends of the jib-frames *ll* support a shaft, *l'*, carrying pulleys *l''*.

M represents the frame for the endless chain N, carrying the buckets O. Said frame consists of two parallel bars or stretchers, *m m'*, secured at their upper ends to the cylinder J, and at their opposite ends to a casing, *m''*, inclosing a drum around which the chain passes. The inner side of the bar *m'* is provided with a casing, *m'''*, within which the chain and buckets travel, said casing serving as a guard to prevent the dropping of mud or dirt upon the scow. The hollow cylinder J is open at opposite sides, near its upper end, to form a chamber, P, within which is mounted a drum, Q, carrying the endless chain. This drum Q is formed with lateral extensions *q q*, whose outer ends bear in brackets *q' q'*, secured on opposite sides of the cylinder J. These extensions *q q* form shafts, upon which are mounted gear-wheels R R, driven by pinions *r r*, mounted upon a shaft, S, supported by the cylinder J and brackets *q' q'*, and driven by rotary engines T T, arranged on each side of the cylinder J, and supplied with steam by a pipe, *u*, extending through a central opening of the turn-table C, and up through the cylinder J, (see Fig. 1,) and connected with a suitable boiler carried by the scow. The drum-casing *m''*, at the lower end of the frame M, is connected with the outer end of the jib L by a tackle, V, whose chain extends rearwardly to the scow and affords a means for raising and lowering the frame M, which carries the endless chain and buckets.

W represents a discharge-chute secured to the

rear side of the chamber P of the cylinder J, to receive the contents of the buckets, which latter are then delivered to discharge-troughs w , supported by the rods X and flexible supports X'.

From the construction thus far described it will be apparent that the frame M, carrying the endless chain and buckets, may be readily raised and lowered; that the constant and uniform revolution of said chain and buckets is effected by the gearing and rotary engines, and that any desired lateral adjustment of the endless chain may be obtained through the turntable C and its operating devices.

In Figs. 4 and 5 I have illustrated devices for anchoring and moving the scow A, consisting of a series of spuds, Y Y', supported within recesses $x^8 x^8$, formed in the sides of the scow, and supported by posts y and pivoted bails y' , having friction-roller y^2 mounted thereon. The lower end of the rear spud, Y, is connected by a chain, z , to a capstan, Z, said chain passing over a roller mounted in the upper end of the post y . The forward spuds, Y' Y', each have two chains, $z' z^2$. The former pass around drums Z^2 , and are extended to a shaft, Z^3 , mounted upon the scow A, and provided at the ends with drums Z^4 , upon which said chains are wound. The chains z^2 pass over rollers of the posts $y y$ and around capstans $y^5 y^5$. These spuds are designed to enter the bed of the river or other stream being excavated, as shown by the full lines in Fig. 5, to anchor the scow, and are dislodged by means of their chains, (dotted lines, Fig. 5,) thus forcing the scow forward.

In Figs. 6 and 7 are illustrated a portion of the endless chain N and one of the buckets O. Said chain consists of the links n^3 and cross-rods n^4 , to which latter the buckets are secured by means of hook-bolts n^5 , held by nuts n^6 on the inner side of the buckets, and by bent straps n^7 , bolted to the rear side of the buckets, near the upper edge of the latter. Thus the buckets may be readily removed from the chain for repair by simply removing the nuts n^6 and withdrawing the bolts n^8 of the straps n^7 .

Each of the buckets O is provided with a blade, o , secured to the bucket by rivets o' or other means. These blades constitute the scoop-edges of the buckets, and may be removed when broken or unduly worn.

It will be apparent that my machine is susceptible of many alterations and modifications

in its details; hence I do not limit myself to the precise construction shown and described, but reserve the right to make all such changes in form and construction as may properly fall within the scope of my invention.

What I claim as new is—

1. The combination, with a scow, the turntable C, and cylinder J, having an opening, P, and provided with journal j^3 , of the collar j , brace j' , and cap K, substantially as described.

2. In an excavating-machine, the combination, with the scow and turn-table, of a hollow cylinder supported on said table, an endless chain, and gearing for operating the latter, a steam-engine, and a steam-pipe extending from the boiler in the hull up through the lower center of the turn-table and upwardly within the cylinder to the engine, substantially as set forth.

3. In an excavating-machine, the combination, with the scow, of a spud provided with a chain connected to the bottom of said spud, and operating mechanism constructed to draw said chain to the rear of the scow and incline the spud forward, substantially as and for the purposes specified.

4. In an excavating-machine, the combination, with the revolving cylinder, having a chamber, P, near its upper end, of the drum Q, the gearing, and rotary engines, a frame, M, bucket-chain, discharge-chute W, and movable discharge-troughs w and w , substantially as set forth.

5. In an excavating-machine, the combination, with a series of spuds supported by pivoted bails, and chains secured near the lower end of the spuds, of capstans or other winding devices for operating said chains, substantially as set forth.

6. The combination, with an endless chain of an excavating-machine, said chain consisting of side links and cross-rods, of an excavating-bucket, secured to one of said rods by hook-bolts and nuts and to the next adjacent rod by bent straps and bolts, substantially as set forth.

In testimony whereof I affix my signature, in presence of two witnesses, this 26th day of May, 1883.

JOHN VAN PATTEN.

Witnesses:

T. J. W. ROBERTSON,
F. O. McCLEARY.