

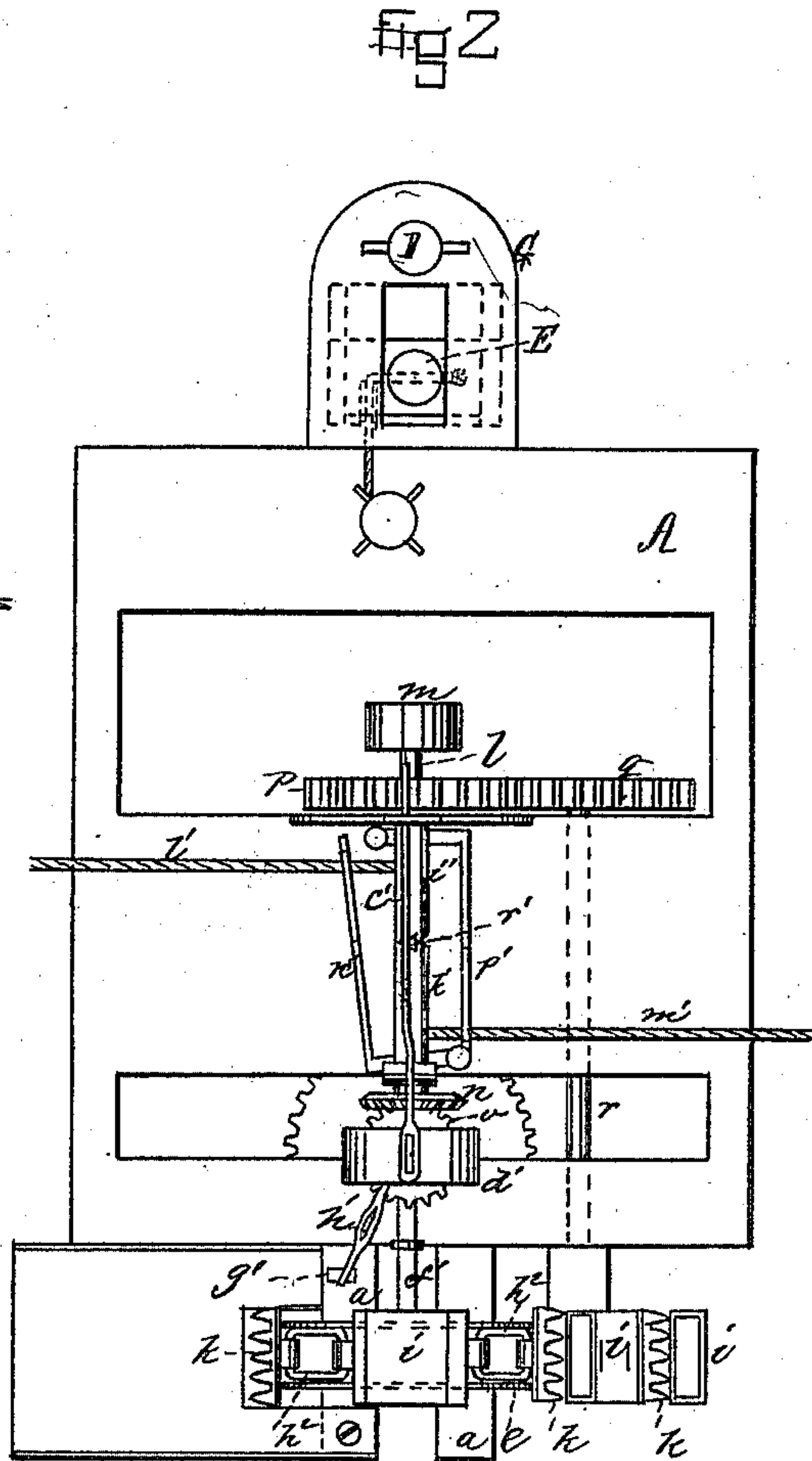
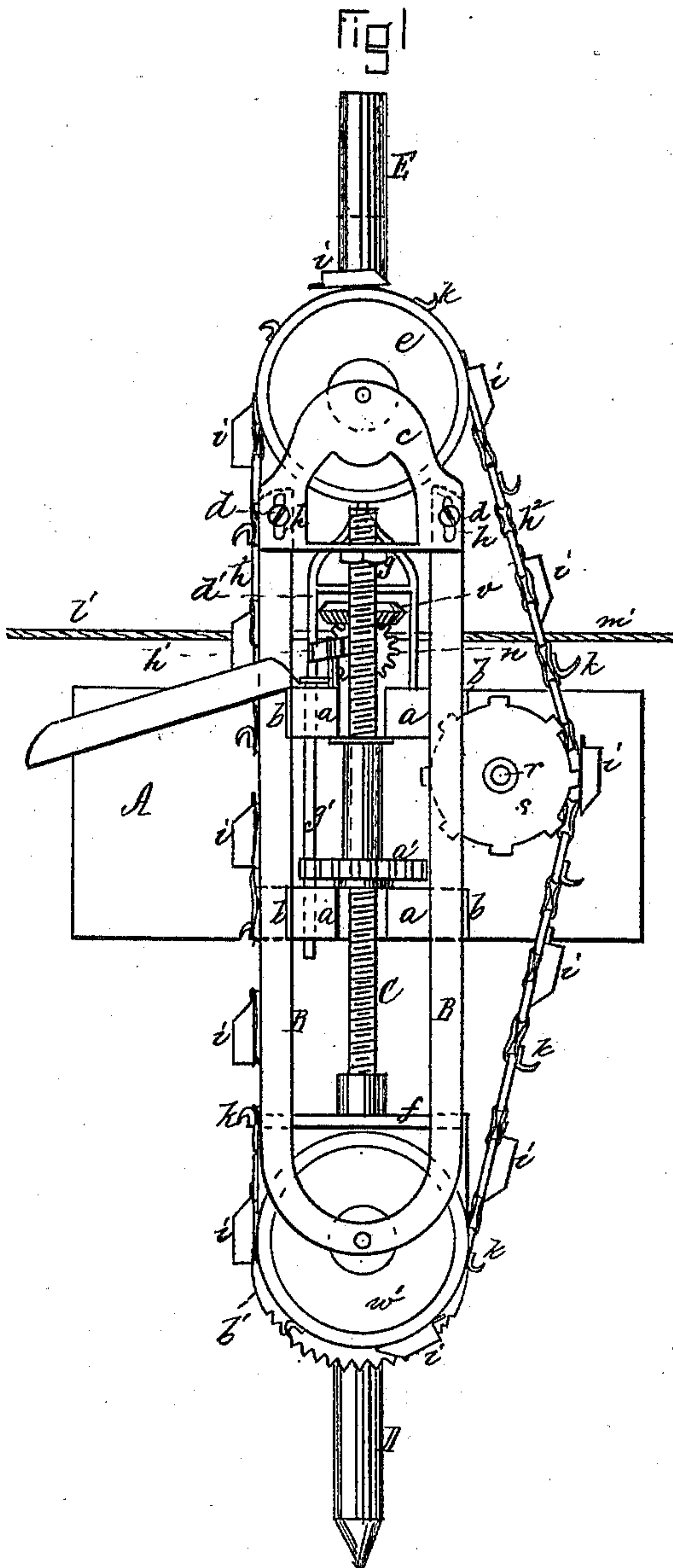
(No Model.)

2 Sheets—Sheet 1.

J. CALL.
DREDGING MACHINE.

No. 301,209.

Patented July 1, 1884.



WITNESSES
W. J. Lambbridge
C. Byron

INVENTOR
James Call

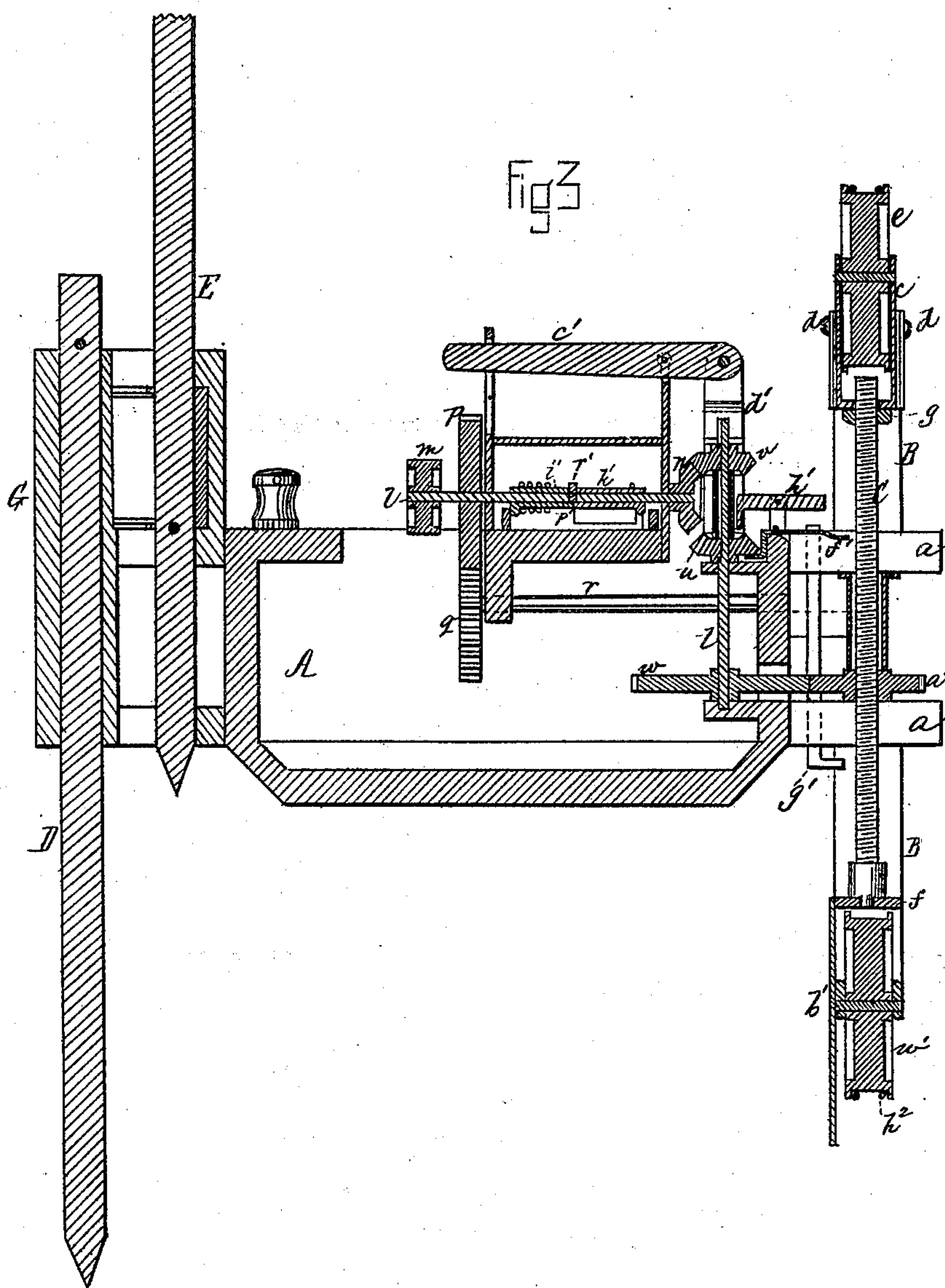
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UNITED STATES PATENT OFFICE.

JAMES CALL, OF BOSTON, MASSACHUSETTS.

DREDGING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 301,209, dated July 1, 1884.

Application filed March 17, 1884. (No model.)

To all whom it may concern:

Be it known that I, JAMES CALL, a citizen of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented certain Improvements in Dredging-Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is an end elevation of a dredging-machine constructed in accordance with my invention. Fig. 2 is a plan of the same. Fig. 3 is a longitudinal section through the center of the same.

My invention has for its object to produce a dredging-machine that will perform its work in a rapid and economical manner; and it consists in certain details of construction and combinations of parts, as will be hereinafter more fully set forth and specifically claimed.

In the drawings, A represents a scow of ordinary construction, from one end of which project beams *a*, these beams being provided with projections *b*, within which slides a frame, B, of the form seen in Fig. 1, this frame being curved at its lower end, and supporting a grooved wheel, *w'*, while its upper end is open and provided with a plate, *c*, which is secured thereto by screws *d*, this plate supporting the upper grooved wheel, *e*.

Just above the lower wheel, *b*, and within the frame B, is a brace, *f*, to which is permanently secured the lower end of a screw-shaft, C, this screw-shaft being provided near its upper end with a screw-nut, *g*, which bears against the under side of the plate *c*, which supports the upper grooved wheel, *e*, the plate *c* being provided with vertical slots *h*, through which pass the screws *d*, to permit the tightening of a chain, *h'*, to which, at equal distances apart, are secured buckets or tubs *i* and cultivators *k*, these cultivators being placed in advance of the buckets or tubs for the purpose of loosening up the soil or earth, so as to enable the buckets to be filled, as desired.

Within suitable bearings in the scow A revolves a shaft, *l*, to one end of which is secured a pulley, *m*, driven by a belt, (not shown,) by any suitable power.

To the opposite end of this shaft is secured a bevel-gear, *n*, for a purpose presently to be explained.

On the shaft *l*, near the pulley *m*, is secured a gear, *p*, which engages with a gear, *q*, on the end of a shaft, *r*, supported in bearings in the scow A, the opposite end of this shaft *r* being provided with a sprocket-wheel, *s*, which engages with the links of the chain *h'*, and by which the chain carrying the buckets or tubs *i* and cultivators *k*, is revolved.

t is a vertical shaft, which has its bearings in the scow A, and has splined upon it two bevel-gears, one, *u*, below the bevel-gear *n*, and the other, *v*, above the bevel-gear *n*, for a purpose to be presently explained. To the lower end of this shaft *t* is permanently secured a gear, *w*, which engages with a gear, *a'*, provided on its interior with a screw-thread, which engages with the vertical screw-shaft C, and by which the shaft is moved up and down, this gear being prevented from riding up or down on the vertical shaft C by a loose sleeve, which surrounds the shaft and bears between the beams *a* and the gear *a'*, the lower side of the gear *a'* having a boss or projection which rests upon the lower beams, *a*.

b' is a plate, which is secured to the rear of the frame B at its lower end, and projects down a little in advance of the buckets *i*, for the purpose of cutting its way down when the dredging-machine is first set in operation, its lower edge being provided with teeth or cutting-edges to assist in the operation; and after the buckets have removed the earth down to the required depth and the buckets moved forward a distance equal to their width to form a new channel, the plate *b'* serves the purpose of preventing the earth from falling back into the channel previously made. The screw-shaft C being up when it is desired to commence operations, a shipper-lever, *c'*, pivoted to the upper end of a frame; *d'*, is moved so as to bring the teeth of the upper bevel-gear, *v*, into contact with the teeth of the bevel-gear *n*, and thus through the gears *w a'* the screw-shaft is lowered to the required depth, or until the nut *g* comes into contact with the end of a lever, *f'*, which is then tilted down, the opposite end of this lever bearing upon the under

side of the bevel-gear *u*, which is by this means raised, carrying with it the upper gear, *v*, which is then disconnected from the gear *n*, thus stopping the rotation of the screw-shaft

5 C. When it is desired to raise the screw-shaft, the shipper-lever *c'* is moved in the opposite direction, which brings the gears *n u* into contact, when, by the gears *w a'*, the shaft C is rotated in the opposite direction until the
10 brace *f* near the lower end of the frame B comes into contact with a rod, *g'*, which is thus raised until its upper end strikes the end of a lever, *h'*, which in turn is rocked upon its pivot, when its opposite end will strike the
15 upper side of the gear *u*, which is thereby carried down, thus disconnecting it from the gear *n* and stopping the further rotation of the screw-shaft.

D E are two posts or spars which slide
20 within a frame, G, at the rear of the scow. The rear post, D, being down, and it being desired to make a new cut, the scow is moved forward a distance equal to the width of the buckets or tubs in the following manner: The
25 post E is first driven down, and the post D is then hauled up by means of suitable tackle, (not shown,) and the scow hauled forward, suitable guides and ways being formed in the frame G to permit of this movement. The post
30 D is then driven down and the post E hauled up and slid forward on its ways into the position seen in Fig. 3. It will thus be seen that the post D holds the scow from moving forward or back, but will permit the scow to
35 move in the arc of a circle.

In order to dredge either to the right or left, I have provided the shaft *l* with two sleeves or drums, *i' k'*, to each of which are attached the ends of ropes *l' m'*, one anchored to the
40 right and the other to the left of the scow, these ropes being each provided with a knot or other projection, which is brought up against shipper-levers *n' p'*, each provided with a slot equal to the length of the sleeve *i'* or *k'*, around
45 which the ropes are wound. These knots serve the purpose of moving the shipper-levers so as to bring them into contact with a

projection on the end of each of the sleeves or drums, in order that they may be brought into contact with a pin or projection, *r'*, on the
50 shaft *l*, and thereby be revolved. While one sleeve is in contact with the pin its rope is being wound thereon, while the other rope is being unwound from its sleeve and paying out, thus moving the scow in the proper direc-
55 tion, a simple and convenient means being thus afforded for dredging in the arc of a circle with the post D for a pivot.

What I claim is as follows:

1. In a dredging-machine, the frame B, with
60 its grooved wheels *e w'*, in combination with the screw-shaft C, operated by the gear *a'*, substantially as and for the purpose set forth.

2. In a dredging-machine, the endless chain
65 *h*, provided with alternate buckets and cultivators, and means for rotating the same, the frame B, and screw-shaft C, operated by the gear *a'*, all constructed and arranged to operate substantially as and for the purpose set forth.

3. In a dredging-machine, the frame B,
70 screw-shaft C, gear *a*, with its internal thread, in combination with the shipper-lever *c'*, and mechanism connected therewith for operating the gear on shaft C first in one direction and
75 then in the other, all constructed and arranged to operate in the manner and for the purpose described.

4. In a dredging-machine, the posts D E,
80 operating substantially as described, for the purpose of moving the scow the required distance to form a new channel, in combination with suitable guides and ways for the post E, as and for the purpose set forth.

5. In a dredging-machine, the shaft *l*, with
85 its pin *r'*, sleeves *i' k'*, operated by the shipper-levers *n' p'* and ropes *l' m'*, and the post D, whereby the machine may swing in the arc of a circle, substantially in the manner and for the purpose described.

JAMES CALL.

In presence of—

W. J. CAMBRIDGE,
C. BYRON.