

No. 771,597.

PATENTED OCT. 4, 1904.

E. F. ATHERTON.
AUTOMATIC BUCKET.

APPLICATION FILED JAN. 13, 1904.

NO MODEL.

3 SHEETS—SHEET 1.

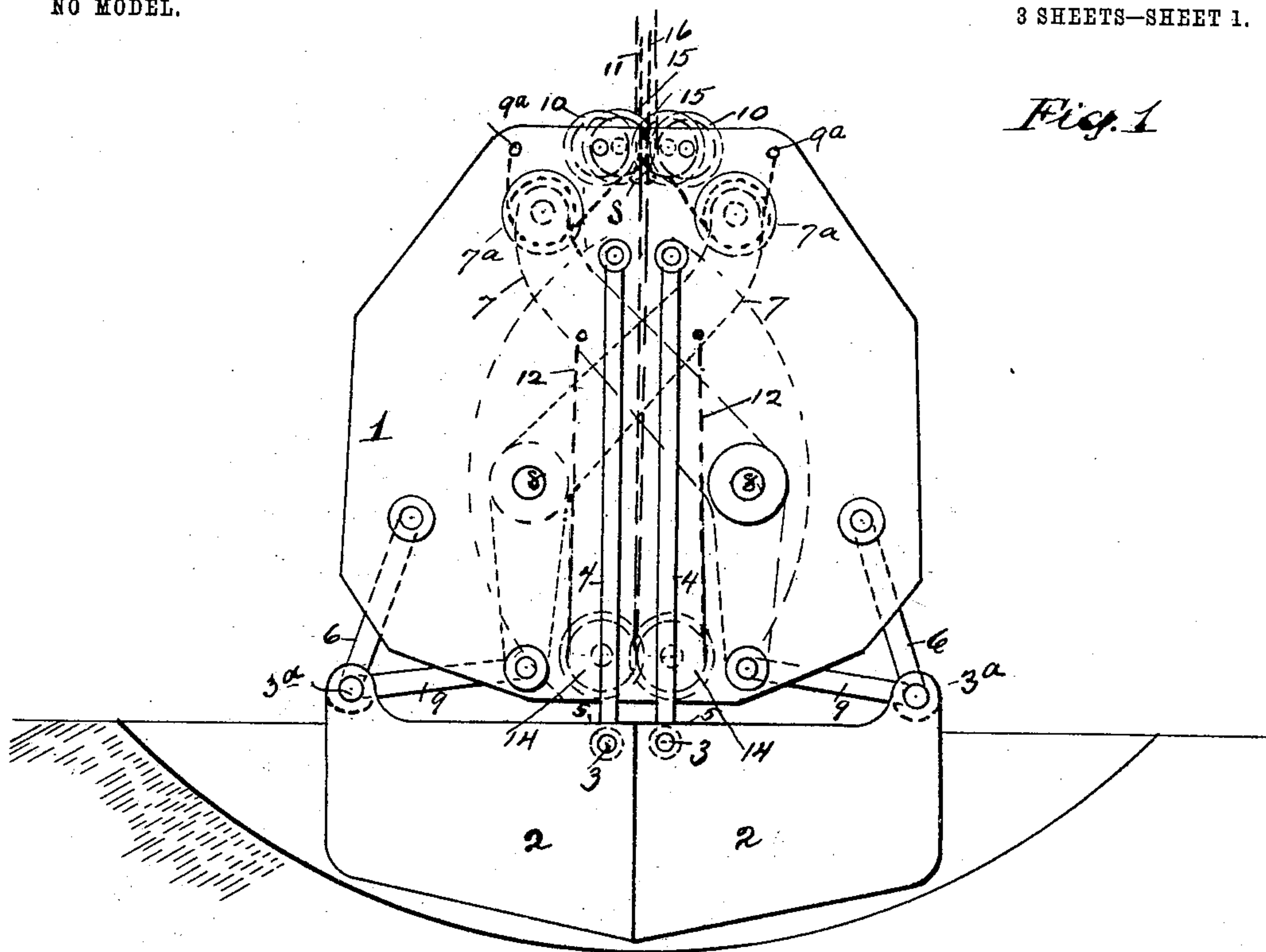


Fig. 1

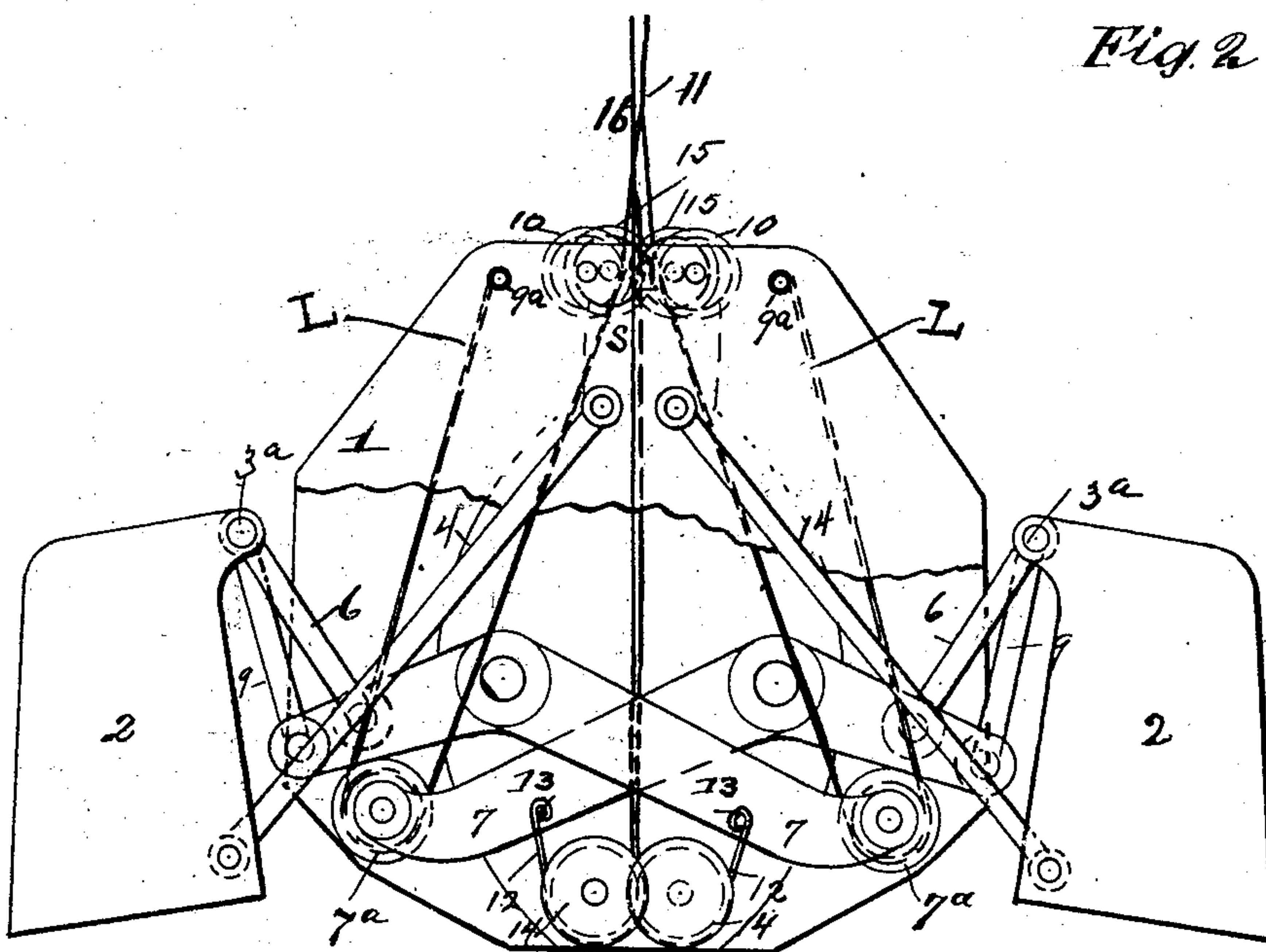


Fig. 2

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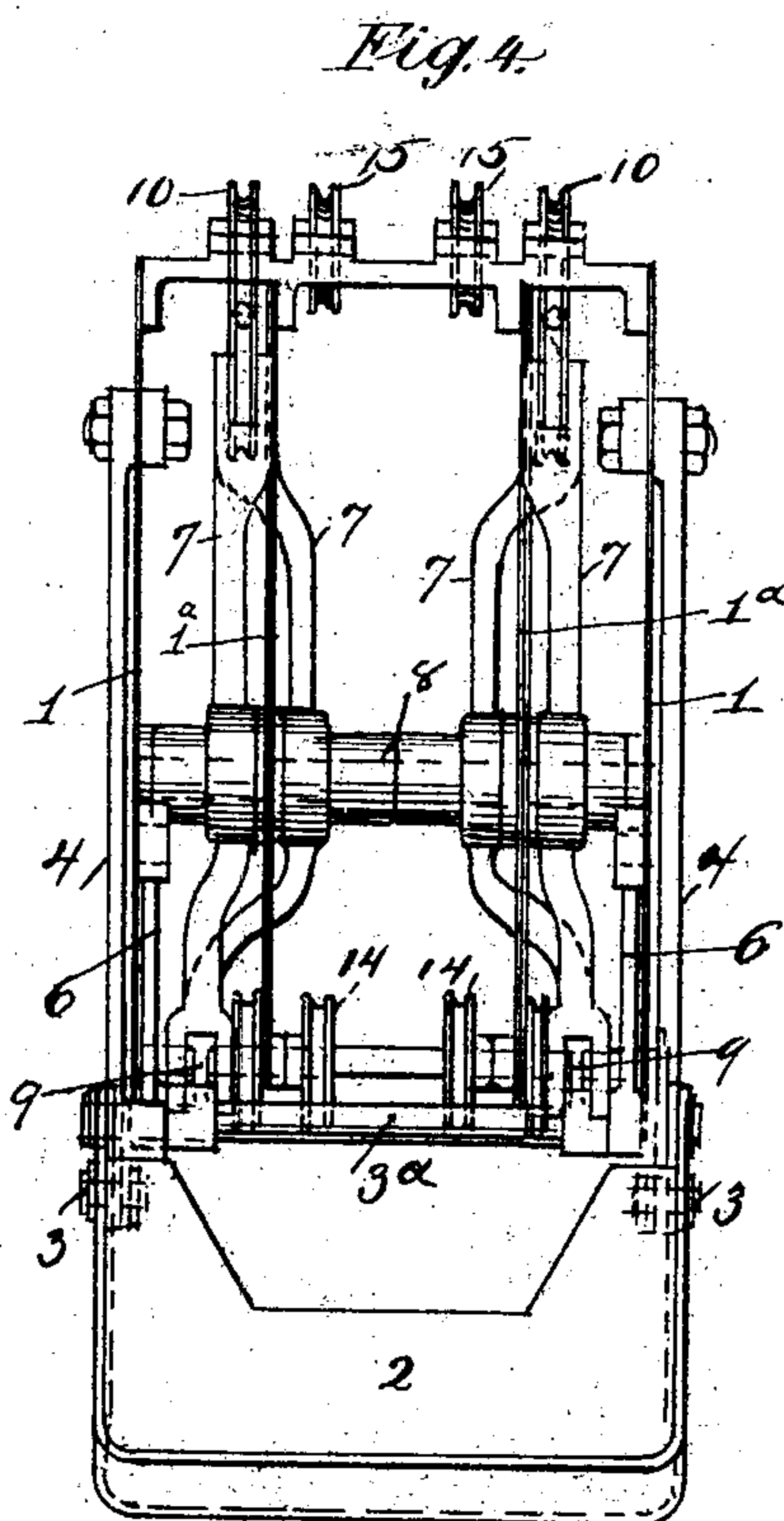
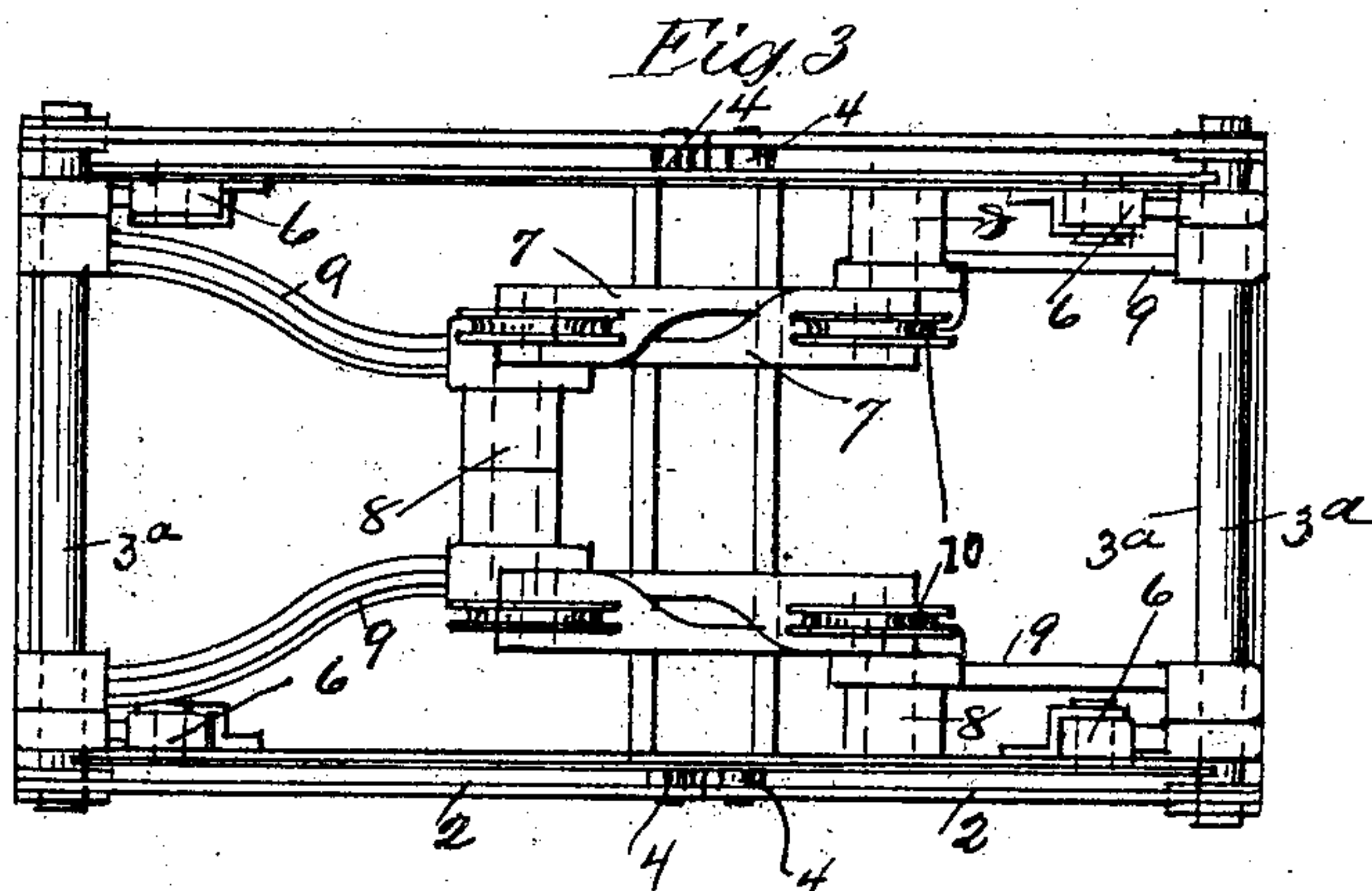
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3 SHEETS—SHEET 2.



Witnesses.

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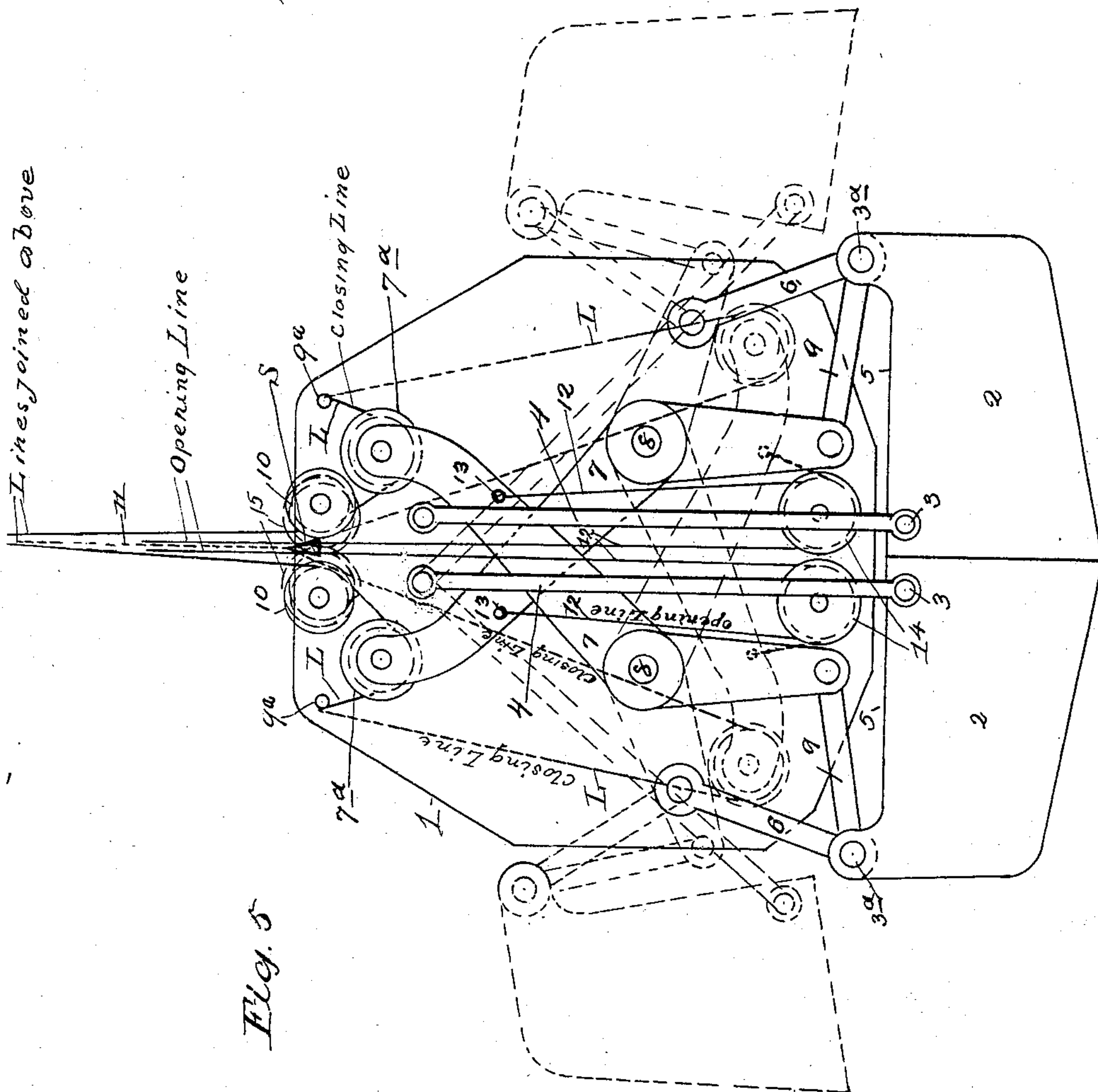
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3 SHEETS—SHEET 3.



Witnesses
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UNITED STATES PATENT OFFICE.

EDMOND F. ATHERTON, OF CLEVELAND, OHIO.

AUTOMATIC BUCKET.

SPECIFICATION forming part of Letters Patent No. 771,597, dated October 4, 1904.

Application filed January 13, 1904. Serial No. 188,846. (No model.)

To all whom it may concern:

Be it known that I, EDMOND F. ATHERTON, a citizen of the United States, and a resident of Cleveland, county of Cuyahoga, State of Ohio, have invented certain new and useful Improvements in Automatic Buckets, of which I hereby declare the following to be a full, clear, and exact description, such as will enable others skilled in the art to which it ap-
 10 pertains to make and use the same.

The invention has for its objects to provide an automatically-operating ore-bucket of the class in which two scoop portions are brought forcibly together through the ore and are then
 15 raised in the closed position to the desired level to drop the inclosed ore.

The invention consists in the frame and separate bucket-divisions which are connected with the frame by means of links of different lengths, so that great freedom of movement can be obtained to swing the separate portions apart and yet afford a compact form of construction and an easy sliding movement of the bucket-divisions toward one another.

25 The invention further consists in the operating levers and links and combination and arrangement therewith of the simple forms of tackle for operating the same, with the details of construction and combination of parts, as hereinafter described, shown in the accompanying drawings, and specifically pointed out in the claims.

In the accompanying drawings, Figure 1 is a side elevation of the complete bucket, showing the scoop closed. Fig. 2 is a similar view showing the scoops thrown apart and upward ready to engage the ore. Fig. 3 is a plan view of the bucket, and Fig. 4 is an edge view thereof. Fig. 5 is a diagrammatic view of mechanism showing how each pair of lines is
 40 joined above in one line and the stop over which the lines rest to limit their downward movement.

In the views, 1 is the frame, shown as provided with partitions to afford bearings for the various shafts.

22 are the divisions or scoops of the bucket, which are suspended from the frame at their inner ends at 3 by means of the links 4, which

are long enough to permit the upper edges 5 of the bucket-divisions to pass the frame without touching when they are drawn back.

6 represents short links connecting the outer edges of the bucket-divisions and the frame. The divisions are swung backward and forward by means of the bell-crank levers 7, pivoted at 8 in the frame, which are connected with the outer edges of the bucket-divisions by means of links 9, whereby considerable freedom of movement is given the bucket, and it is less liable to become cramped or broken if ore is unevenly caught between the edges of the divisions. The outer ends of the levers 7 are proportioned to a multiple of the lower ends in length as two to one, so that a great leverage can be obtained and tackle mechanism is provided to operate the levers, to pull down the outer ends of the levers when it is desired to separate the bucket-divisions, and to raise the outer ends of the levers to close the bucket-divisions together. This tackle mechanism is shown to consist in a pulley in the extremity of the long division of each lever, over which passes the line L, secured at one end to the dead-point 9^a. Each line passes over a guide-pulley 10, and since the levers are arranged in pairs, one pair on each side of the frame, the pairs of lines on each side are joined above the frame, so that only one pair of lines 11 is necessary for the manipulation of all the lines for raising the levers to close the divisions of the bucket together. An increase of power of two to one is also obtained by means of the pulley and dead-point, so that a total of four to one of power is provided for closing the bucket. The pair of lines described thus become the hoisting-cables when the load is raised.

The bucket is opened by means of lines 12, secured to the several levers at 13, and passing over pulleys 14 in the bottom of the frame rise in pairs, as in the case of the closing-lines, through guide-pulleys 15 at the top of the frame, where the several pair of lines are joined into one pair of lines 16, by means of which the divisions of the bucket are separated. When it is desired to fill the bucket, the lines which hold it open are employed in

lowering it until the tips of the divisions encounter the ore. Then the lines which hold the divisions apart are loosened and the closing-lines are tautened, bringing the sections
5 together. The bucket is then raised and positioned for dumping, the closing ends loosened, and the overhauling-lines tightened, thus dumping the load. Stops S are placed in the upper part of the frame to engage the angle
10 formed by the union of the ropes and prevent their falling too far.

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

15 1. An ore-bucket, comprising separable divisions, in combination with a frame, a long pair of links connecting the inner edges of each bucket-division with the frame, a short pair of links connecting the outer edges of each
20 bucket-division with the frame, and lever-and-link mechanism substantially as described upon the frame and connected with the link-pivots on the outer edges of the divisions and tackle mechanism for operating the said levers,
25 substantially as described.

2. The combination with a frame and separable divisions of an ore-bucket, of pairs of links of unequal length sustaining the outer and inner edges of said divisions upon said
30 frame, pairs of levers having long and short arms on said frame, a link connecting the short arm of each lever with the outer edge of the corresponding bucket-division, means for separating said bucket-divisions, consisting
35 of a pulley in each long arm of the lever, a dead-point on the frame for each pulley, a line secured to each dead-point and passing over its corresponding pulley, guide-pulleys for said lines, and means for closing together
40 said bucket-divisions consisting of lines secured to the long arms of said levers, guide-pulleys in the lower part of the frame over

which the said lines pass, and guide-pulleys for said lines, in the upper part of the frame.

3. The combination with the separable divisions of an ore-bucket, of a frame, links
45 connecting the inner and outer edges of the said divisions, with the frame and supporting the same thereon, the inner links being longer than the outer links, levers having
50 long and short arms, pivoted on the frame, links connecting the short arms of the levers and the outer edges of the bucket-divisions, tackle mechanism for raising the long arms of the said levers to close the bucket-divi-
55 sions together, and tackle mechanism for opening said bucket-divisions together, substantially as described.

4. In combination with the frame and separable divisions of an ore-bucket, of mechanism
60 for operating the same, consisting of long and short links pivoted at their respective upper and lower ends to said frame and bucket-divisions, levers arranged in pairs on either
65 side of the frame and having long and short arms, links connecting the respective short arms with the outer ends of the bucket-divisions, a pulley on each long arm of a lever,
lines passing over said pulleys, one for each pulley, and secured to dead-points in the
70 frame, guide-pulleys in the top of the frame for said lines, a single pair of lines to which said lines are attached in pairs, and pairs of lines secured to said long arms of the levers,
75 guide-pulleys therefor at the bottom and top of the frame, and a pair of lines to which said last-mentioned pairs of lines are secured, substantially as described.

In testimony whereof I hereunto set my hand this 29th day of December, 1903.

EDMOND F. ATHERTON.

Witnesses:

WM. M. MONROE,

GEO. O. WILLET.