

956,137.

E. MURREY.
CLAM SHELL BUCKET.
APPLICATION FILED FEB. 1, 1909.

Patented Apr. 26, 1910.
5 SHEETS—SHEET 1.

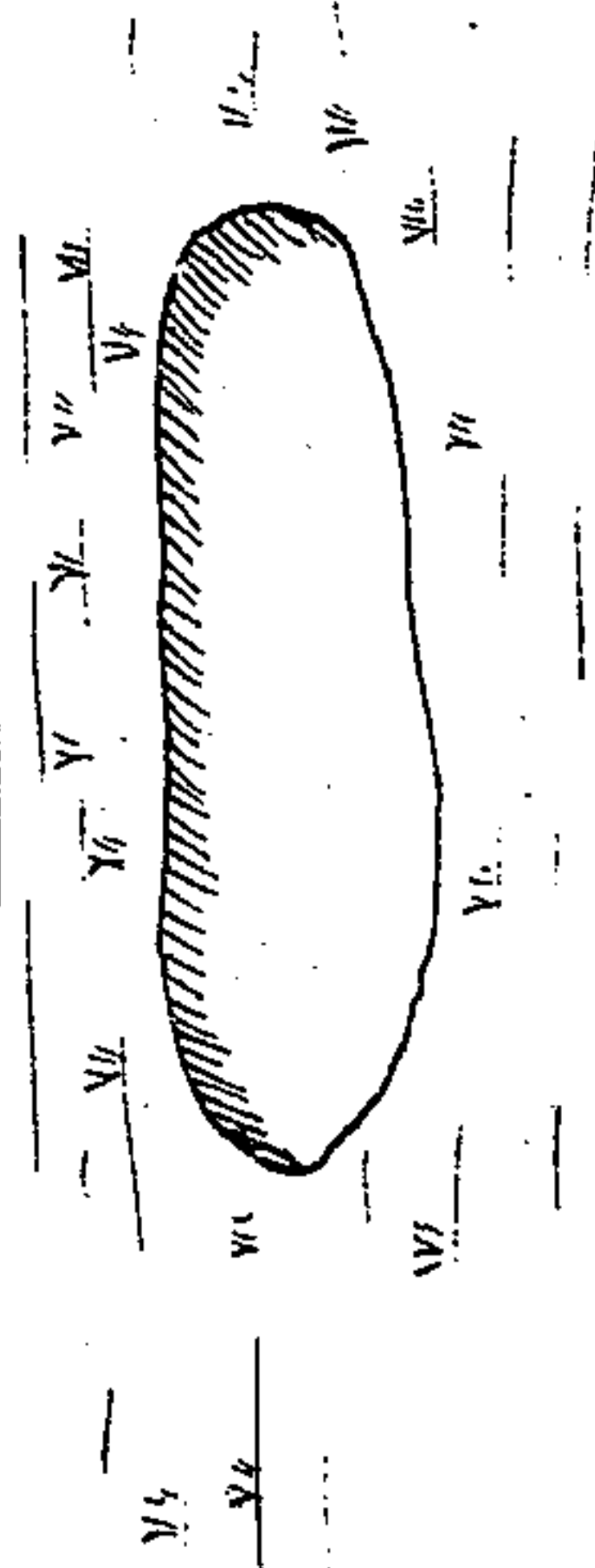
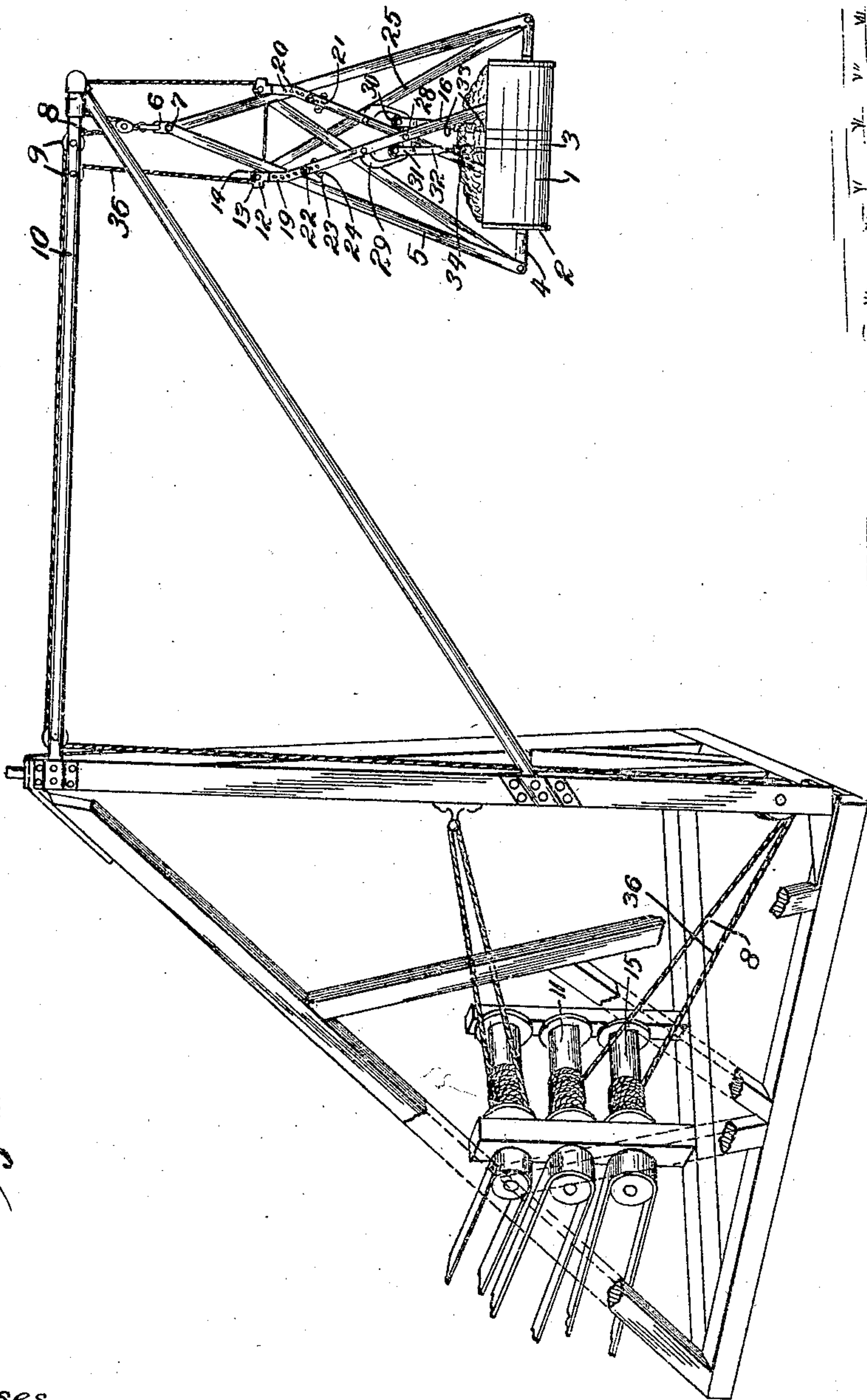


Fig. 1.

Witnesses.
Ed Cahill.
Myrtle H. Jackson.

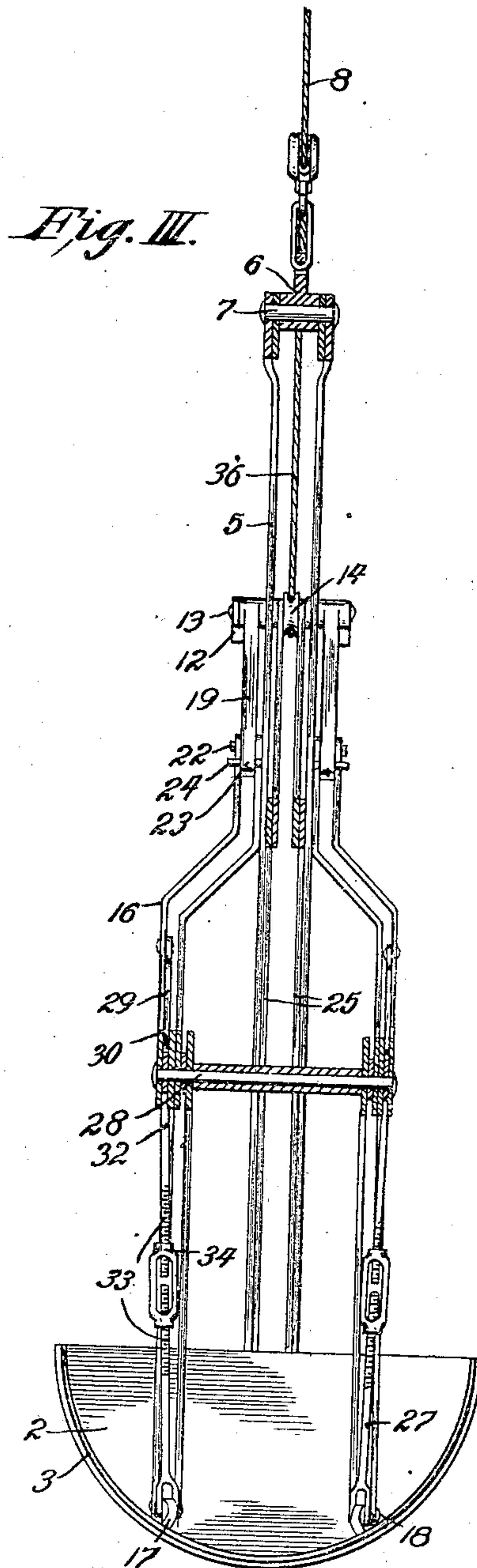
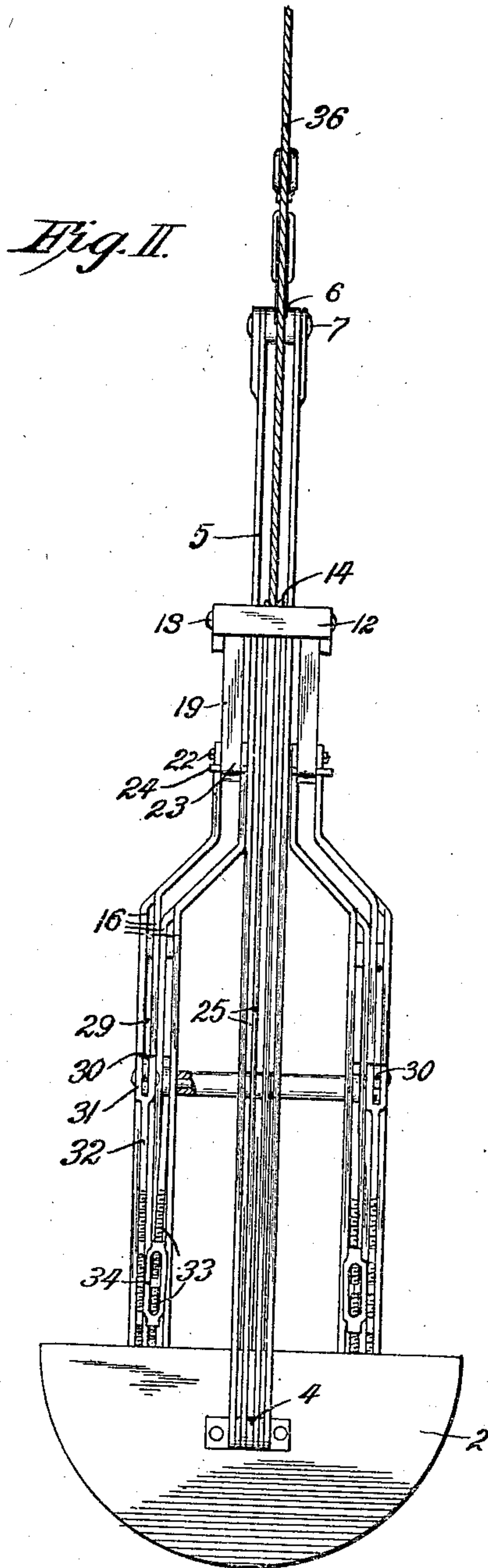
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5 SHEETS—SHEET 2.



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5 SHEETS—SHEET 3.

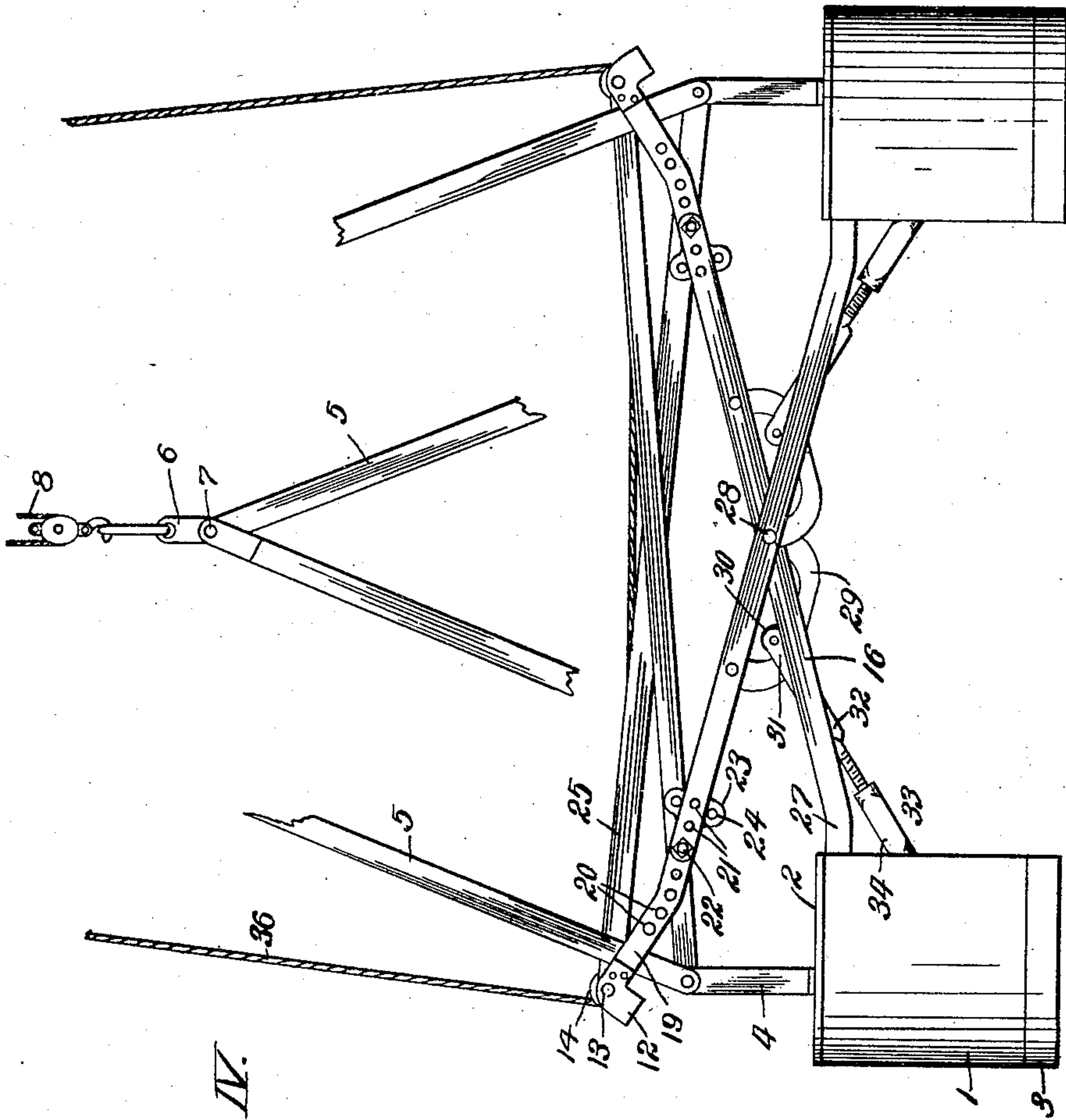


Fig. IV.

Witnesses.
E. H. Hill
Myrtle M. Jackson

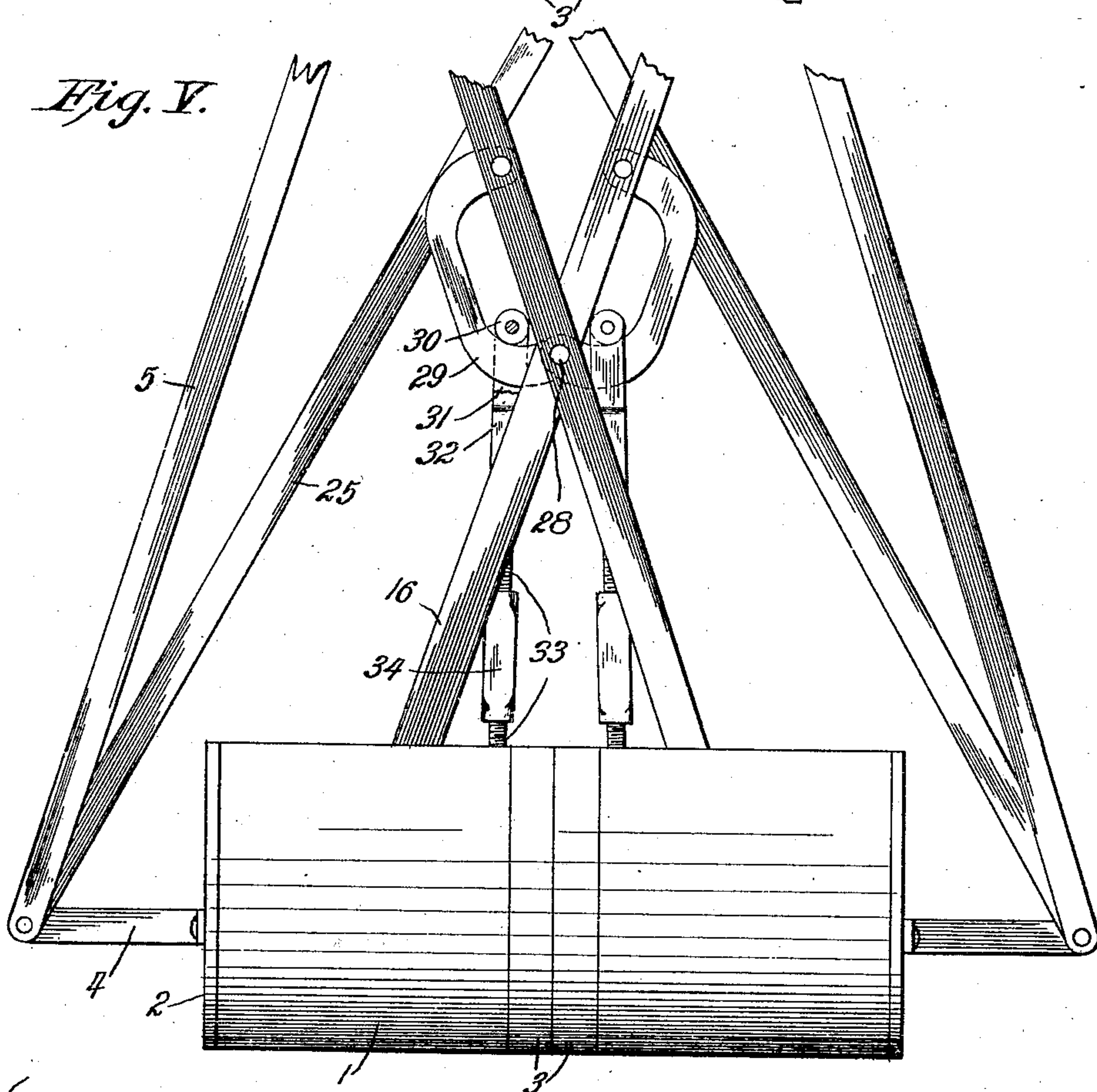
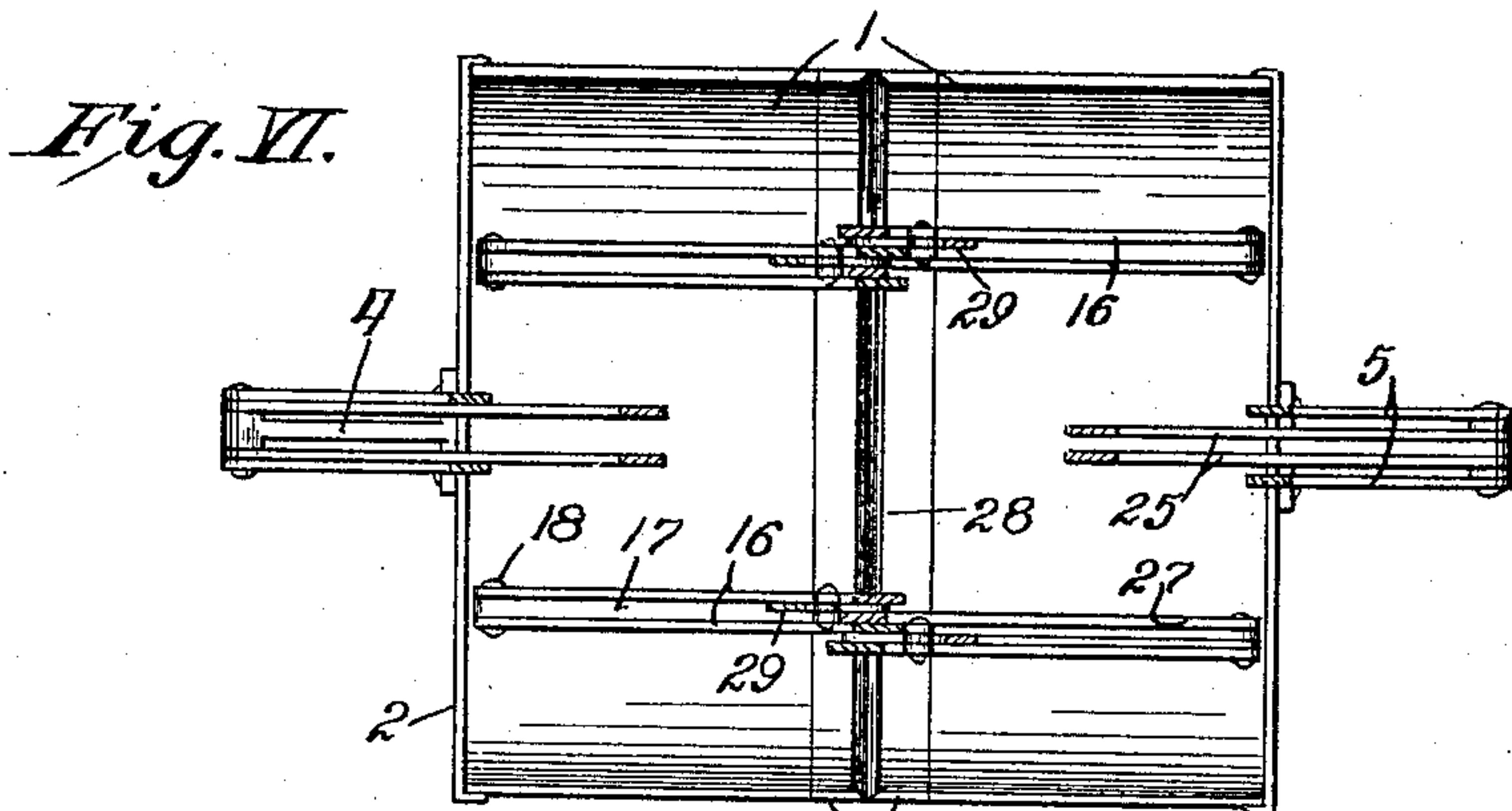
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5 SHEETS—SHEET 4.



Witnesses.
E. Cahill.
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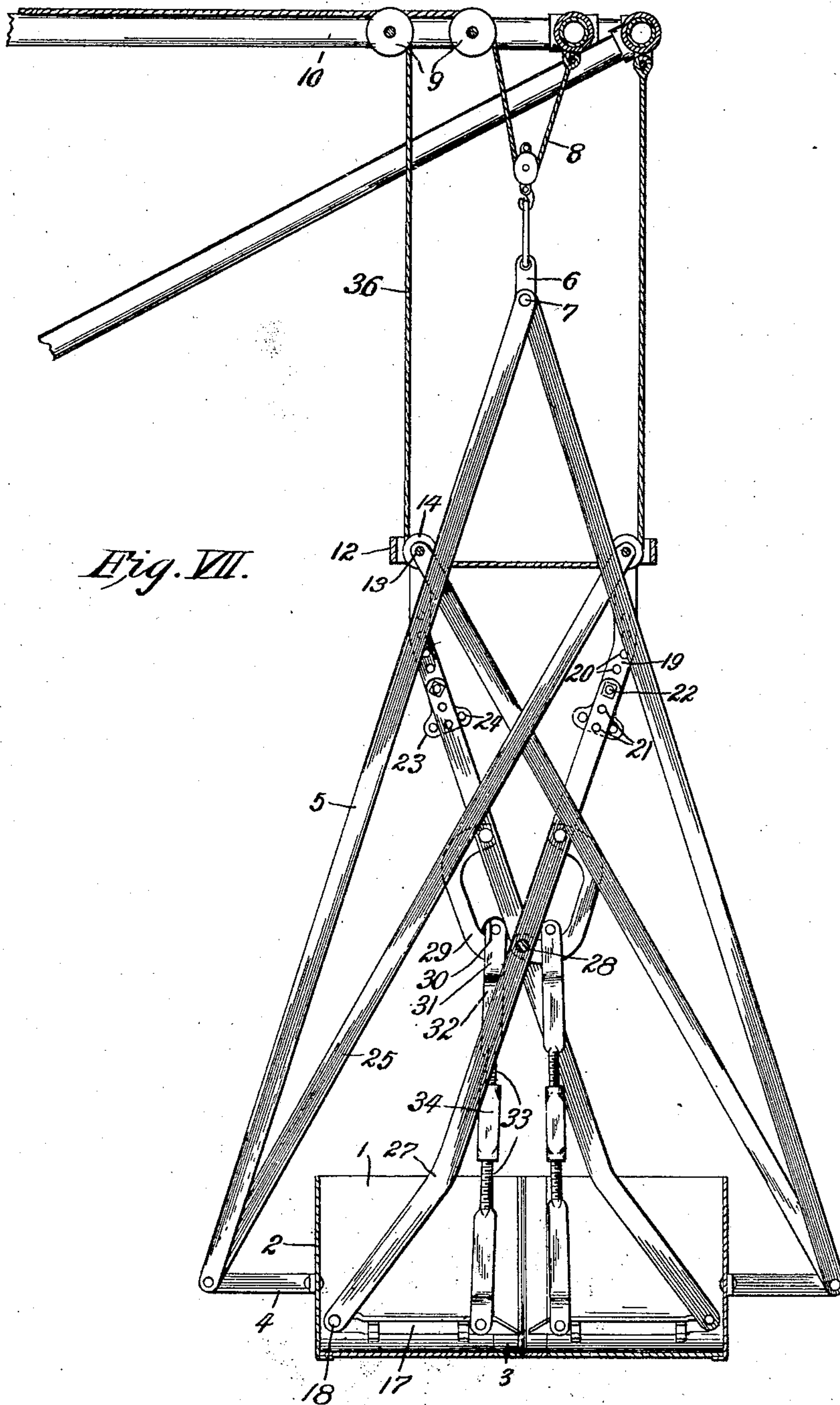
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5 SHEETS—SHEET 5.

Fig. VII.



Witnesses.
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UNITED STATES PATENT OFFICE.

ED MURREY, OF KANSAS CITY, MISSOURI.

CLAM-SHELL BUCKET.

956,137.

Specification of Letters Patent.

Patented Apr. 26, 1910.

Application filed February 1, 1909. Serial No. 475,496.

To all whom it may concern:

Be it known that I, Ed MURREY, a citizen of the United States, residing at Kansas City, in the county of Jackson and State of Missouri, have invented certain new and useful Improvements in Clam-Shell Buckets; and I do 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, reference being had to the accompanying drawings, and to the numerals of reference marked thereon, which form a part of this specification.

My invention relates to a clam shell bucket and has for its principal object to provide a bucket of that class in which a leverage is applied to the mouth of each bucket shell in order to secure a positive downward movement of the shells during the bucket closure.

It is a further object of my invention to provide a simple and economical apparatus which will embody the improved details of structure presently described and pointed out in the claims, reference being had to the accompanying drawings in which like reference numerals refer to like parts throughout the several views, in which:—

Figure I is a perspective view of a bucket constructed according to my invention, and mounted on a preferred form of derrick. Fig. II is an enlarged front view of a closed bucket, and a portion of its tackle. Fig. III is a sectional view of same. Fig. IV is a front view of the bucket in its open position. Fig. V is an enlarged detail view of same in closed position. Fig. VI is a horizontal sectional view of Fig. V. Fig. VII is a sectional view of the closed bucket and a portion of its tackle, looking from the front.

Referring more in detail to the parts:—1 designates the bucket shells, which are preferably curved to a half round formation, and have the back members 2 for inclosing the outside of the shells, when the parts are closed, the free edges of the shells being provided with a cutting blade 3, which may be replaced when necessary.

Rigidly secured to and extending from the end of each of the shells is a lever bracket 4 on which a spreading lever 5 is pivotally mounted.

6 designates a hanger, having an axle 7 on which the upper ends of the spreading levers

5 are mounted, the hanger being suspended from a cable 8 which is run over pulleys 9 on a derrick 10, and is fixed, at one end, to the derrick and operatively connected, at the opposite end, with a drum 11, so that the spreading levers may be raised when the rope 8 is wound on its drum.

12 designates hanger brackets, each of which is provided with a shaft 13, upon which a pulley 14 is mounted.

Fixed at its respective ends to the derrick body and to the drum 15, is a rope 36 which is run over the pulleys 14 so that, when the drum 15 is operated, the rope is wound thereon and the hanger brackets raised.

Pivoted to the body of each of the bucket shells, near the back, are the closing levers 16, each of which preferably comprises a pair of body members that extend on opposite sides of a lug 17 that is carried by the shell body and has the pin 18 extended therethrough.

Extending between the members of each lever pair, and pivotally mounted on the shaft 13 of the opposite bracket 12, is an extension arm 19, which is adapted to slide between the lever members and has a number of apertures 20 through which and through the apertures 21 in the lever members, a pin 22 is projected for the purpose of uniting each lever pair to its extension arm.

23 designates wings which extend from the inner ends of the arms 19, and have the laterally projecting pins 24 which bear against opposite edges of the lever members for the purpose of firmly uniting such extension arms and lever members.

The closing levers are preferably four in number, each lever being secured to the side of its shell near the bottom and extending across to an opposite hanger bracket 12, so that the levers cross above the shells, each lever being provided with an offset portion 27, at its lower end, in order that the brackets may turn to the horizontal open position shown in Fig. IV, without binding against the lever arms.

28 designates a shaft which extends through apertures in the levers 16, to pivot same above the center of the bucket, in order that the shells may open and close from the same fulcrum, when the bucket is in use.

Pivotally mounted on the shaft 13, of each hanger frame, are the lever arms 25

which extend to, and are pivotally mounted on the lever brackets 4 which extend from the ends of the buckets, each of the levers 25 extending from its hanger shaft 16 to the opposite bracket 4, so that they cross above the bucket shells and tend to push on the brackets 4 when the hanger brackets 12 are raised.

Fixed on each of the lever arms 16 is a slide bracket 29, which is preferably U shaped and spread from the arm upon which it is mounted, sufficiently to provide free travel of the pulleys 30 thereon.

Pulleys 30 are mounted in yokes 31 on the upper members 32 of the draw bars 33, which yokes straddle the brackets 29 to enable the pulleys to travel on and be supported by said brackets. The lever members 33 of the draw bars are pivotally connected with the bucket shells near the cutting edges thereof and both the inner and outer members have threaded shanks which are adjustably connected by the turn buckles 34.

When the rope 36 is let out and the bucket is supported by the rope 8, through its hanger and the levers 5, the bucket shells will be spread apart until the back pieces 2 are in a horizontal position (Fig. IV).

While the bucket shells are being spread, the lever arms 16 are moved toward a horizontal position and the pulleys on the draw bars 33 made to travel over their brackets until they are adjacent to the upper ends of the brackets. The bucket, in its open condition, is then lowered to the ground, or to a pile of material which it is desired to lift, and the rope 36 is wound on the drum 15 to raise the hangers 12, and rock the levers 16 and 25. When the upper ends of these levers are raised, as described, the levers 16 turn on their fulcrum shaft 28 so that their lower ends are moved downwardly and toward each other, the levers 25 acting simultaneously on the brackets 4 to push the shells together, so that the edges of the bucket shells are moved into and through the ground, or the material, to close under a load of material.

While the weight of the bracket will tend to hold the shells in the ground or material during their closing action, a direct downward pull is secured through the medium of the draw bars 33, which positively forces the shells downwardly into the ground or material when the shells are moved toward each other, so that a direct downward draft is had at the cutting edges that insures a load and lessens the tendency of the metal to buckle during the cutting action.

It is readily apparent that the first action of the rope 36 will tend to straighten the closing levers and draw bars, so that the shells will be moved toward each other to

loosen the ground and to fill the bucket with earth or other material, and that as soon as the bucket is closed it will be raised by further winding of the rope on its drum, and the derrick turned to move the bucket to unloading position.

To dump the bucket, the rope 36 is let out until the weight of the bucket is carried by the rope 8 and spreading levers 5, then the levers 16 and 25 are moved toward their horizontal positions, and the bucket shells drawn apart because of the spreading leverage of the parts 5 and 25. After the load has been dumped, the bucket is moved back to its excavating or loading position and let down for another load, the buckets being closed against the earth or material, as previously described.

When it is desired to empty the bucket at an elevation materially higher than the loading point, it is apparent that both of the ropes 36 and 8 may be wound on their drums, in order that the spreading parts may be operated at the proper elevation.

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

1. A clam shell bucket comprising shells adapted for movement toward and from each other, levers connected with and adapted for closing said shells, and adjustable draw bars carried by said levers and connected with said shells.

2. A clam shell bucket comprising shells, levers, pivoted together and each connected with one of said shells, a draw bar movably mounted on each of said levers above the pivotal point and connected with one of said shells, and means connected with the free portions of said levers for raising and lowering said bucket.

3. A clam shell bucket comprising shells adapted for movement toward and from each other, each shell being open at the end facing the opposite shell, a lever pivoted to each shell near its closed end, said levers being crossed above the bucket and pivotally connected, a slide bracket carried by each of said levers above the pivotal point, a draw bar slidably mounted on each of said brackets and pivotally connected with the opposite shell, near the open mouth thereof, means for actuating said levers, and means for spreading said shells.

4. A clam shell bucket comprising shells, each having its outer end closed and its inner end open, levers connected with said shells and pivotally connected together above said shells, draw bars carried by said levers and connected with said shells, spreading levers connected with said shells, and means for actuating said levers.

5. A clam shell bucket comprising shells, each closed at one end and open at the other, closing levers pivotally connected with said

shells and pivotally connected together above said shells, draw bars connecting said closing levers and shells, a bracket on the closed end of each of said shells, a spreading lever connected with each of said brackets and pivotally connected together above said bucket, means connecting said brackets with the free ends of said closing levers, and means for actuating said closing and spreading levers.

6. A clam shell bucket comprising shells, each open at one end and closed at the other, closing levers pivotally connected with said shells and crossed thereabove, means pivotally connecting said levers between their ends, draw bars carried by said levers and connected with said shells near the open mouths thereof, an independent hanger bracket for each closing lever, a lever bracket connected with and projecting from the closed end of each of said shells, a spreading lever pivotally connected with each of said brackets and pivoted together at their upper ends, an arm pivotally connected with each lever bracket and with the opposite hanger bracket, a rope running over both hanger brackets and adapted for raising and lowering the bucket, and means for raising or lowering said spreading levers, substantially as set forth.

7. A clam shell bucket comprising shells, each open at one end and closed at the other, closing levers connected with said shells and each comprising a pair of bars and means for spreading same to form a channel therebetween, an extension arm adapted to move in the channel, in each lever unit, and provided with apertures adapted for registration with apertures in said lever bars, a pin adapted for projection through said apertures, wings on said extension arms adapted for projection beyond the edges of said lever bars, lugs on said wings adapted for engaging said lever bars, a rod extending through and pivotally connecting all of said lever units, draw bars carried by said levers and connected with said shells, hanger brackets connected with said levers, a rope running over said hanger brackets, spreading levers connected with said shells, arms connecting said spreading levers with said hanger brackets, and separate means for actuating said hanger rope and spreading levers for the purpose set forth.

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

ED MURREY.

Witnesses:

MYRTLE M. JACKSON,
ARTHUR C. BROWN.