

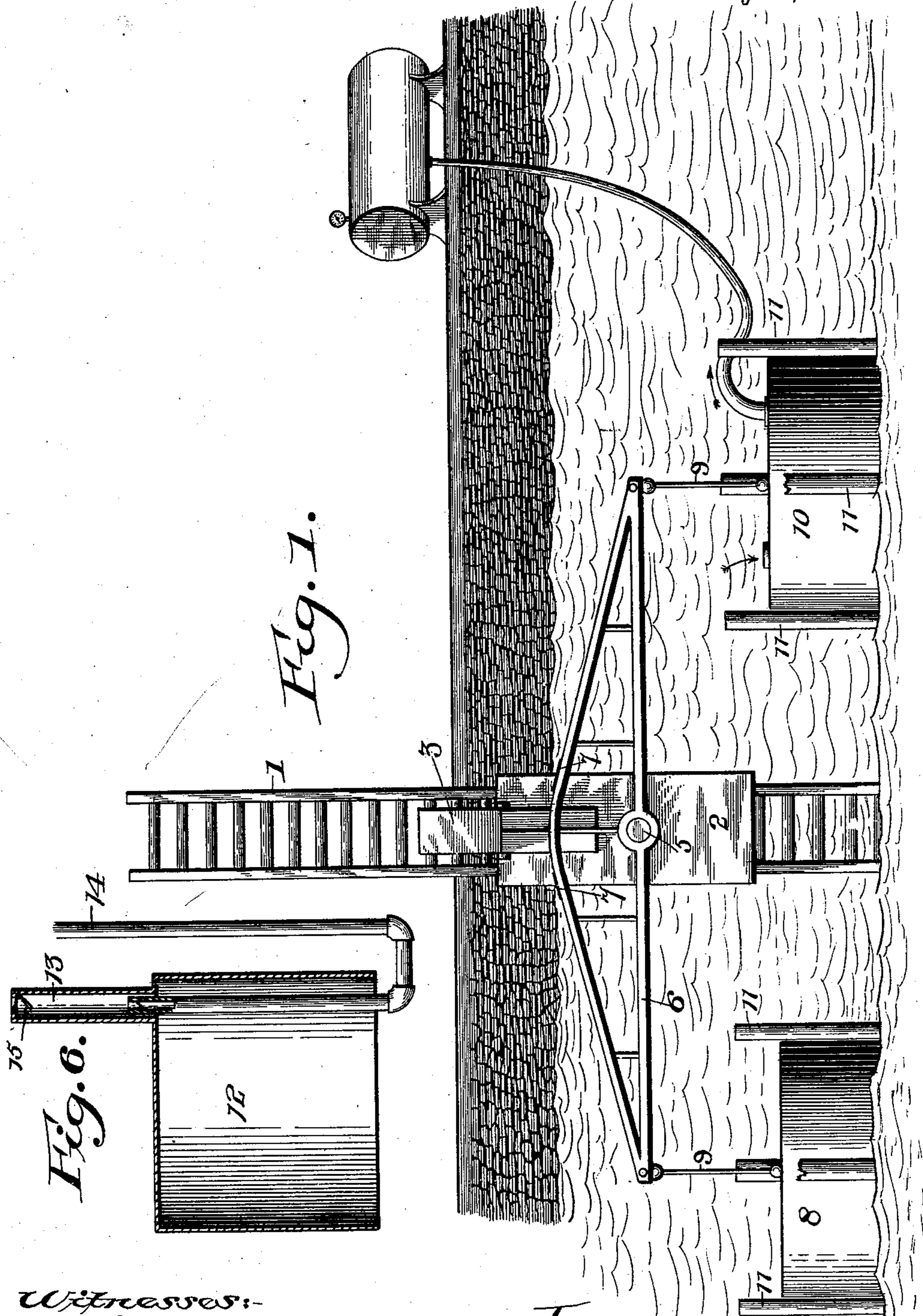
(No Model.)

2 Sheets—Sheet 1.

A. A. BROWN.
TIDE AND WAVE MOTOR.

No. 603,314.

Patented May 3, 1898.



Witnesses:-

A. R. Appleman
H. Caldwell

Inventor:
Haron A. Brown.

By Appleman & Caldwell Attys

(No Model.)

2 Sheets—Sheet 2.

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Fig. 2.

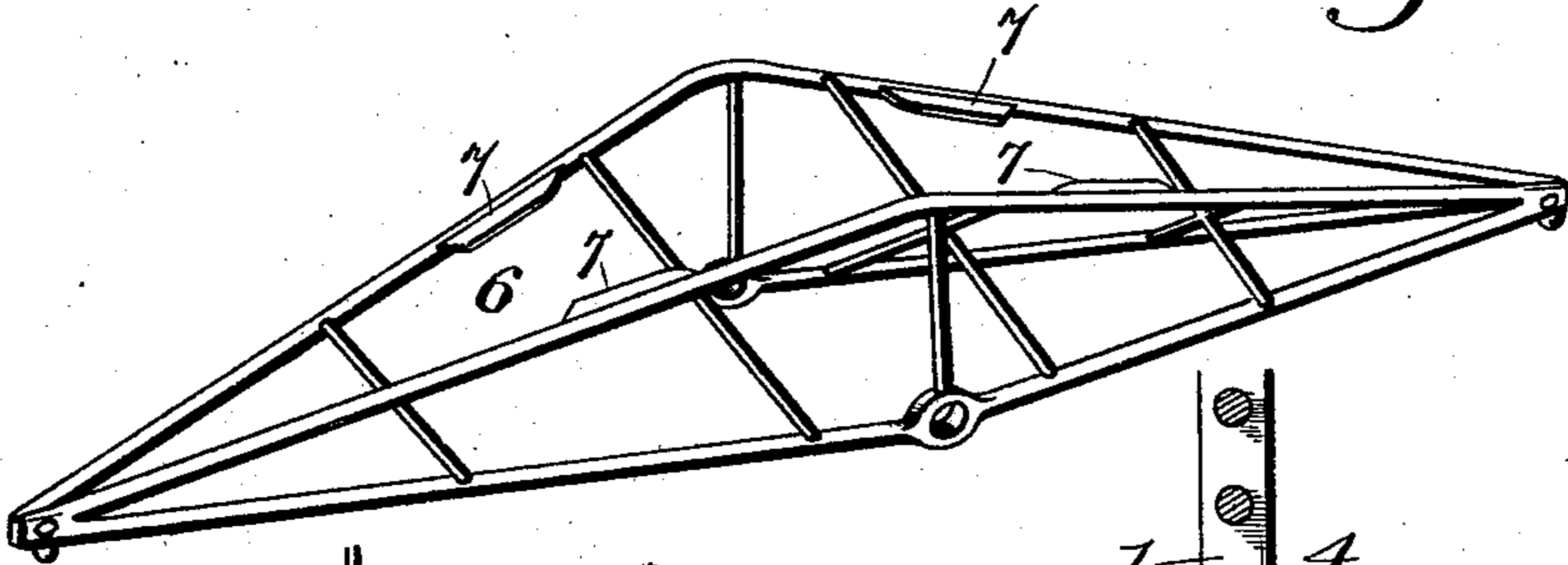


Fig. 3.

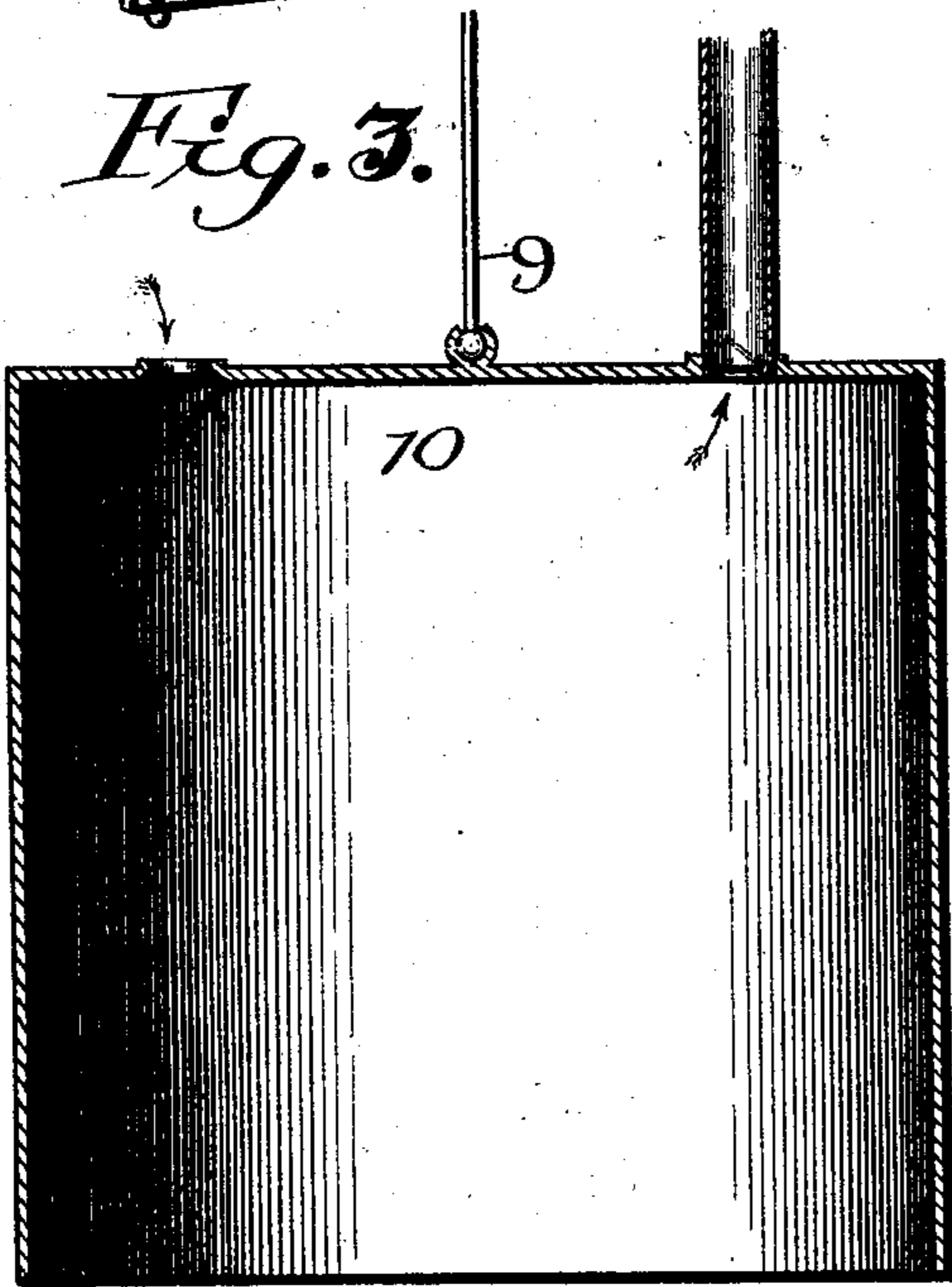


Fig. 4.

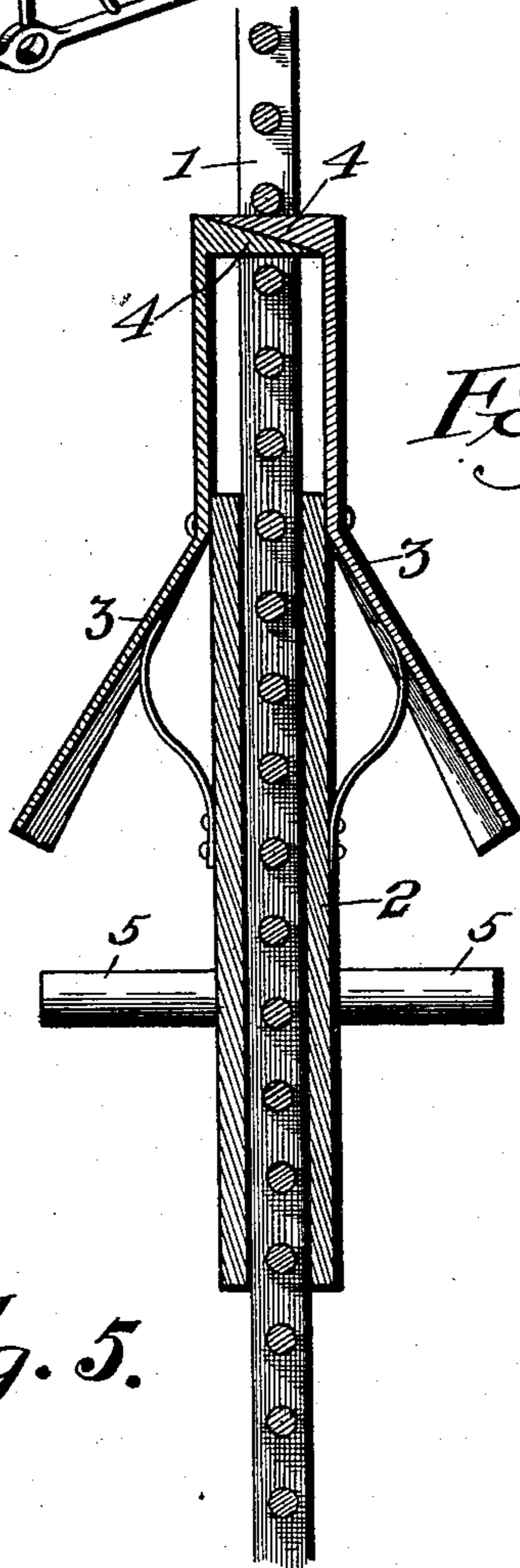
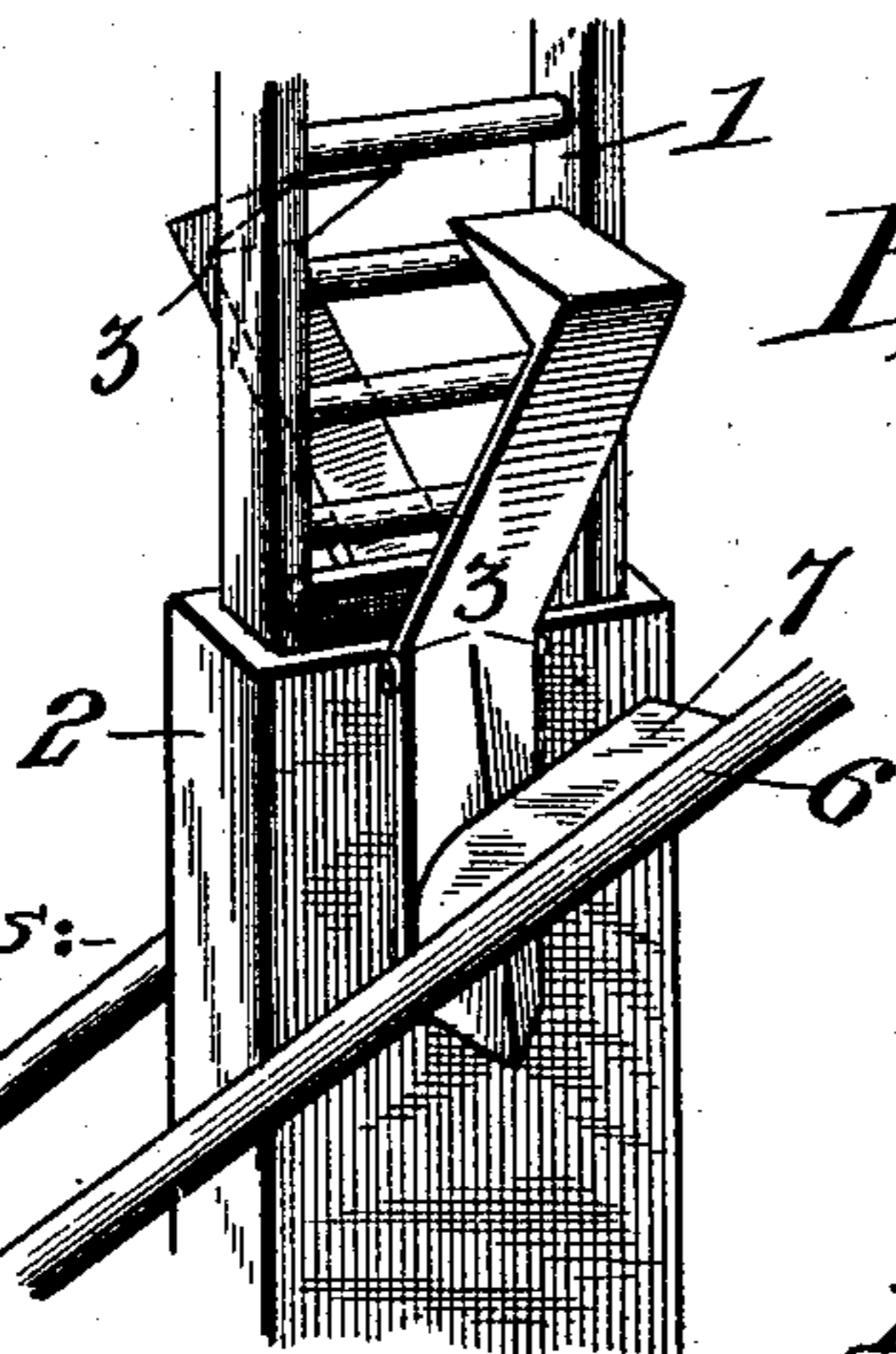


Fig. 5.



Witnesses:
A. R. Appleman
H. Caldwell.

Inventor:
Aaron A. Brown.
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UNITED STATES PATENT OFFICE.

AARON A. BROWN, OF BALTIMORE, MARYLAND.

TIDE AND WAVE MOTOR.

SPECIFICATION forming part of Letters Patent No. 603,314, dated May 3, 1898.

Application filed July 8, 1897. Serial No. 643,841. (No model.)

To all whom it may concern:

Be it known that I, AARON A. BROWN, a citizen of the United States of America, residing at Roland Park, in the city of Baltimore and State of Maryland, have invented certain new and useful Improvements in Tide and Wave Motors, of which the following is a specification, reference being had therein to the accompanying drawings.

10 This invention relates to certain new and useful improvements in tide and wave motors, and has for its object to produce a device which will utilize the motion of water to compress air for any suitable purpose.

15 A further object of this invention is to provide means for automatically shifting the position of the working parts of the device for accommodating them to the various tide-levels, so as to operate with the greatest efficiency at all times.

20 A still further object of my invention is to so time the downward movements of the air-compressor as to take place against an upward movement of water, and thereby combine the effects of both movements.

25 With these and other objects in view my invention finally consists in the novel details of construction and combination of parts, to be more fully described in the following specification and clearly set forth in the claims.

30 Referring to the accompanying drawings, forming a part of this specification, in which like characters of reference indicate like parts, Figure 1 is a front elevation of my invention in operation. Fig. 2 is a perspective view of the walking-beam detached. Fig. 3 is a vertical sectional view of the compression-chamber. Fig. 4 is a central vertical sectional view of the catch, and Fig. 5 is a perspective view of the catch in operation. Fig. 6 is a sectional view of a modified form of compressing-tank and connection.

35 In the drawings, 1 indicates a standard having rounds forming steps for a purpose hereinafter described, and this standard is securely ballasted in the bed of the water-body. A sleeve 2 slides on the standard and has pivoted thereto the spring-pressed catch-levers 3, which have tapering noses 4 to normally overlap each other between the rounds of the standard, as clearly shown in Fig. 4.

The tail ends of these catch-levers are flared outwardly and beveled on their outer faces. Trunnions 5 project from the sides of the sleeve and have journaled thereon the walking-beam 6, which is constructed of a pair of sides suitably braced throughout and joined together at the ends. On the top rods of the walking-beam are cam-plates 7, so disposed as to slide against and depress the tail ends of the catch-levers when the swing of the walking-beam reaches a certain angle, (preferably an angle of forty-five degrees to the horizontal.) A float 8, consisting of an airtight hollow cylinder, is joined to one end of the walking-beam by means of a connecting-rod 9, having ball-and-socket connections. To the other end of the walking-beam is similarly joined a compression chamber or tank 10, having an open bottom and provided on its top with an inlet-valve and a valved flexible outlet-pipe leading to a reservoir on the shore. Guide-ports 11 are secured around the float and compression-chamber to prevent any side movement.

From the foregoing it will be seen that on the rising of the water either by wave or by tide the float, although of about the same dimensions as the compression-tank, will be elevated and the compression-tank will be lowered because of the decreased buoyancy of the compression-tank, due to the escape of air through the air-outlet. Thus it will be seen that the force with which the air in the compression-tank would be compressed, due to the rising of the water alone, is added to by reason of the downward movement of the compression-tank.

If no adjustment of the sleeve were provided for, an extreme high tide might submerge the entire apparatus, or at least the compression-tank, and thereby render the device inoperative, or an extreme low tide might leave the compression-tank suspended above water, which would render it equally inoperative; but with an adjustment which will automatically raise and lower the sleeve with the tide these possibilities are precluded. I have provided for such automatic adjustment by having the cam-plates engage the catch-levers when the walking-beam reaches a predetermined angle. This will release the

noses of the catch-levers from engagement with the rounds of the standard and the sleeve will be free to move up or down.

When the tide becomes too high, the float
5 will be so much higher than the compression-tank that the cam-plates on the float side will release the catch-levers and the sleeve will be forced upward by the buoyancy of the float and compression-tank. When the tide be-
10 comes too low, the tank is so much higher than the float that the cam-plates on the tank side will release the catch-levers and the sleeve will drop downward by reason of the weight of the parts.

15 In the modification shown in Fig. 6 the compression-tank 12 has a cylindrical projection 13 on its top which is adapted to slide over the upper end of a valved outlet 14, which extends downward beneath the com-
20 pression-tank to any suitable receiver. An inlet-valve 15 is located on the upper end of the projection 13.

It is obvious that changes may be made in the construction and design without depart-
25 ing from the spirit of my invention.

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

1. In a device of the character described, a
30 walking-beam suitably pivoted, a float attached to one end thereof and a compressor-chamber attached to the other end, as and for the purpose described.

2. In a device of the character described, a
35 walking-beam suitably pivoted, a float attached to one end thereof and an air-compressor having an open bottom attached to the other end, as and for the purpose described.

3. In a device of the character described, a 40 walking-beam suitably pivoted, a float attached to one end thereof, a compressor attached to the other end and means for automatically raising and lowering the pivotal point of the walking-beam, as and for the pur- 45 pose described.

4. In a device of the character described, a standard, a sleeve slidable thereon, a walk-
ing-beam carried by the sleeve, spring-pressed levers pivoted on the sleeve and adapted to 50 engage the standard and means for operating the levers, as and for the purpose described.

5. In a device of the character described, a standard, a sleeve slidable thereon, spring-
pressed levers pivoted to the sleeve and adapt- 55 ed to engage the standard, a walking-beam pivoted to the sleeve and cam-plates on the walking-beam to operate the levers, as and for the purpose described.

6. In a device of the character described, a 60 standard having a number of rounds, a sleeve slidable thereon, spring-pressed levers pivoted to the sleeves, tapering noses on the levers to engage the rounds of the standard, a walk-
ing-beam pivoted to the sleeve cam-plates on 65 the walking-beam to operate the levers, a float attached to one end of the walking-beam, a compression-tank attached to the other end of the walking-beam having an open bottom and an air inlet and outlet and guides for the 70 float and tank, as and for the purpose described.

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

AARON A. BROWN.

Witnesses:

RICHARD S. C. CALDWELL,
HARRY C. CALDWELL.