

No. 678,273.

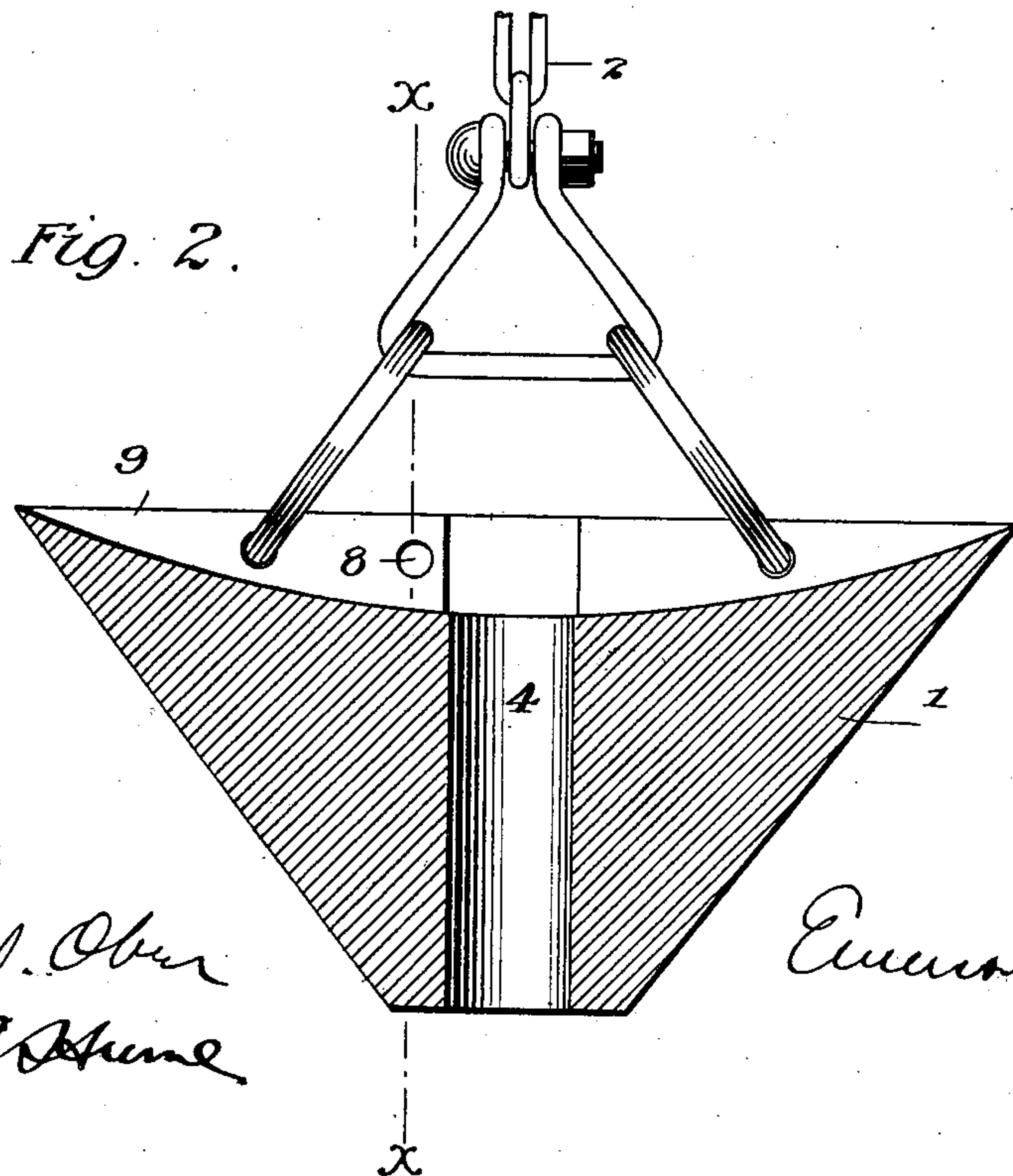
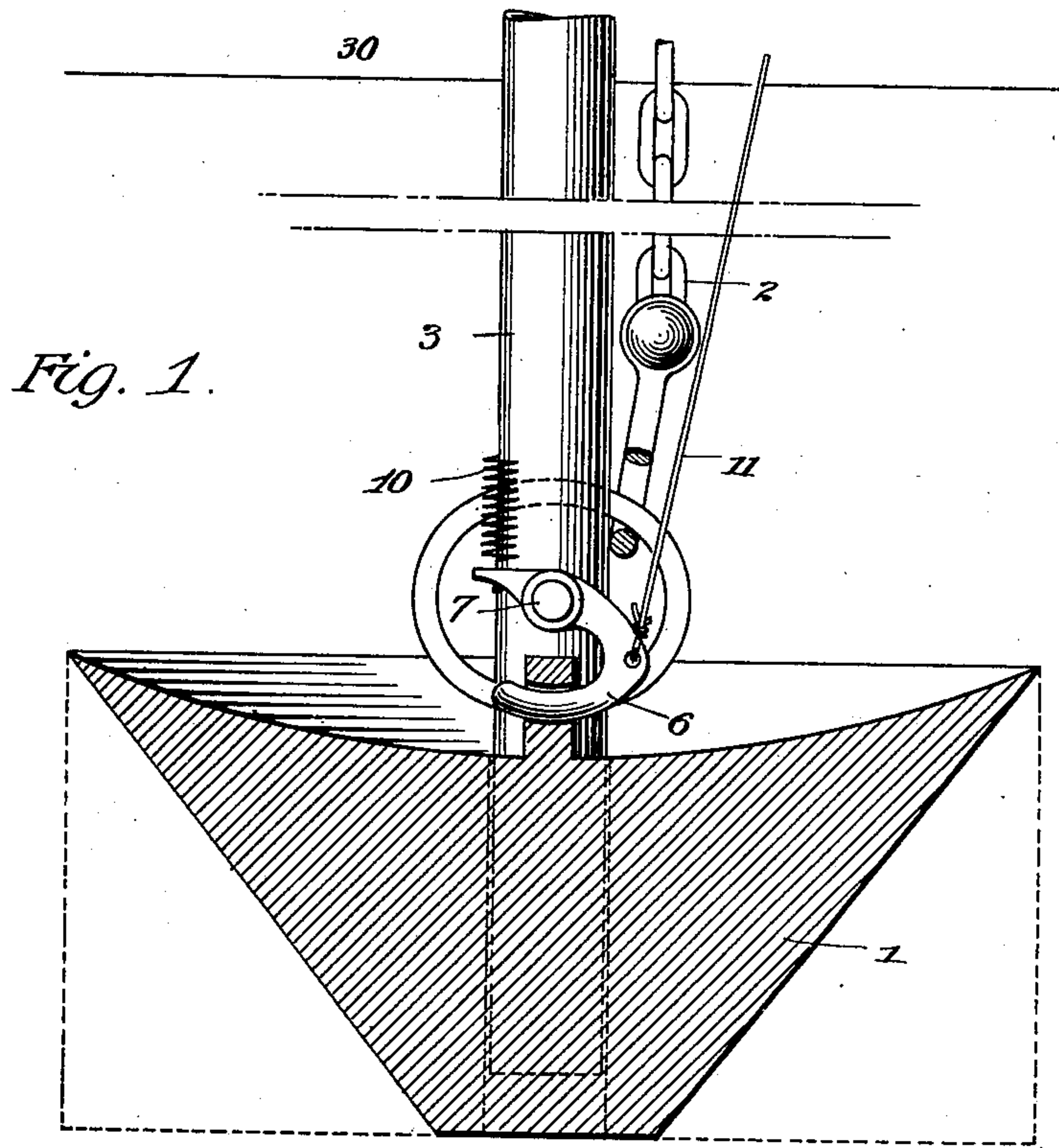
Patented July 9, 1901.

E. R. NEWELL.
MOORING DEVICE.

(No Model.)

(Application filed Apr. 25, 1901.)

2 Sheets—Sheet 1.



WITNESSES:

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E. R. Newell

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2 Sheets—Sheet 2.

Fig. 3.

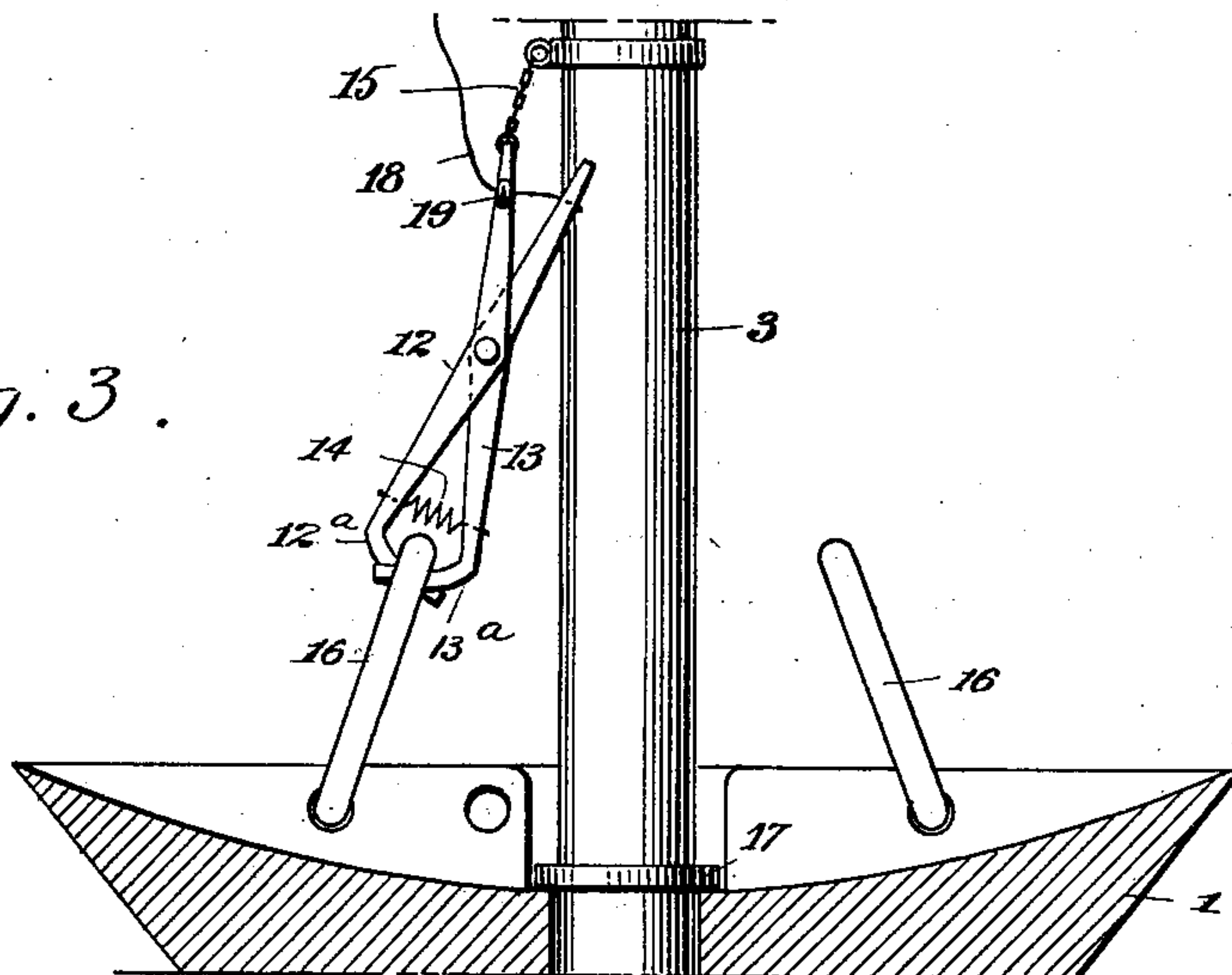


Fig. 4.

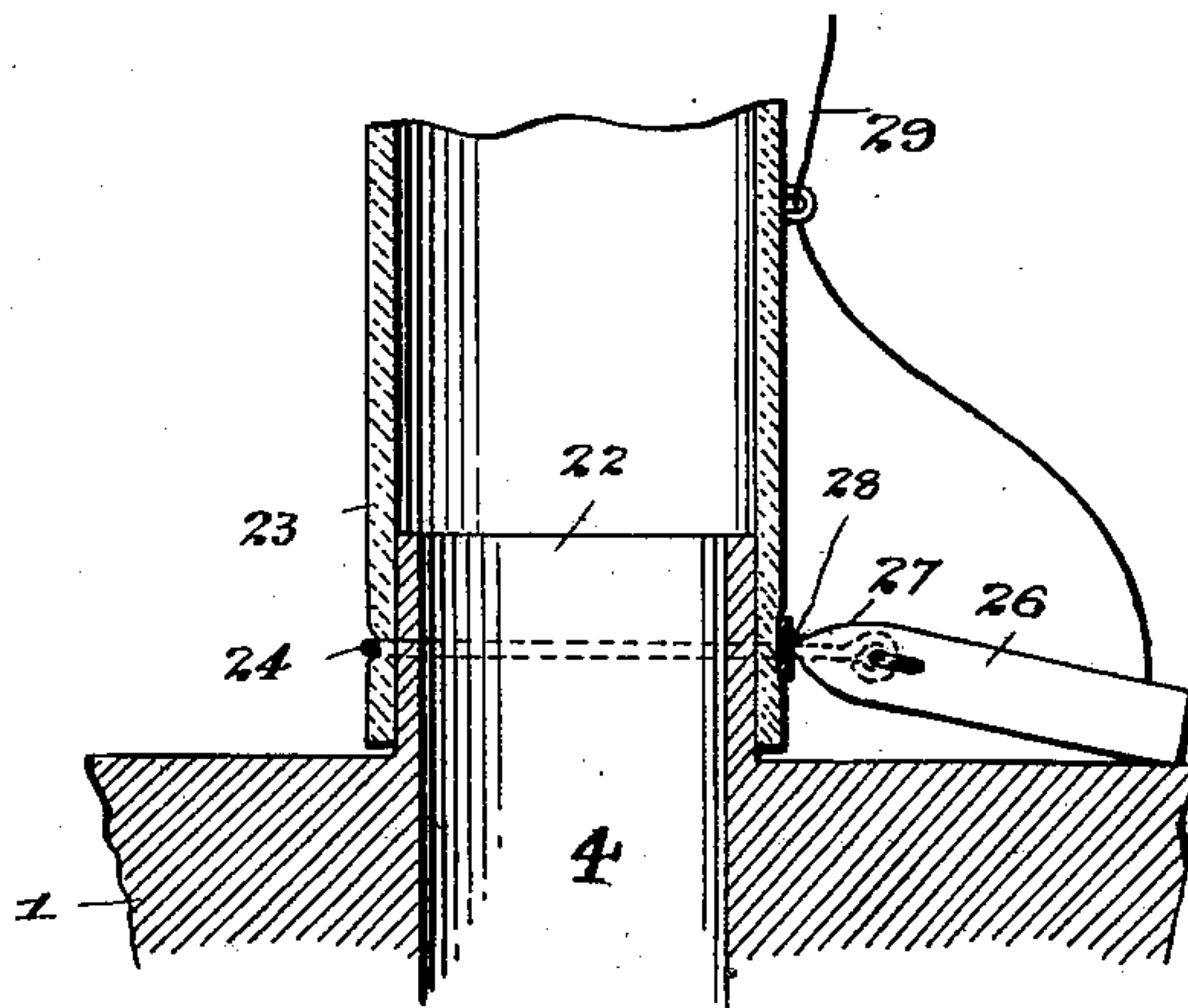
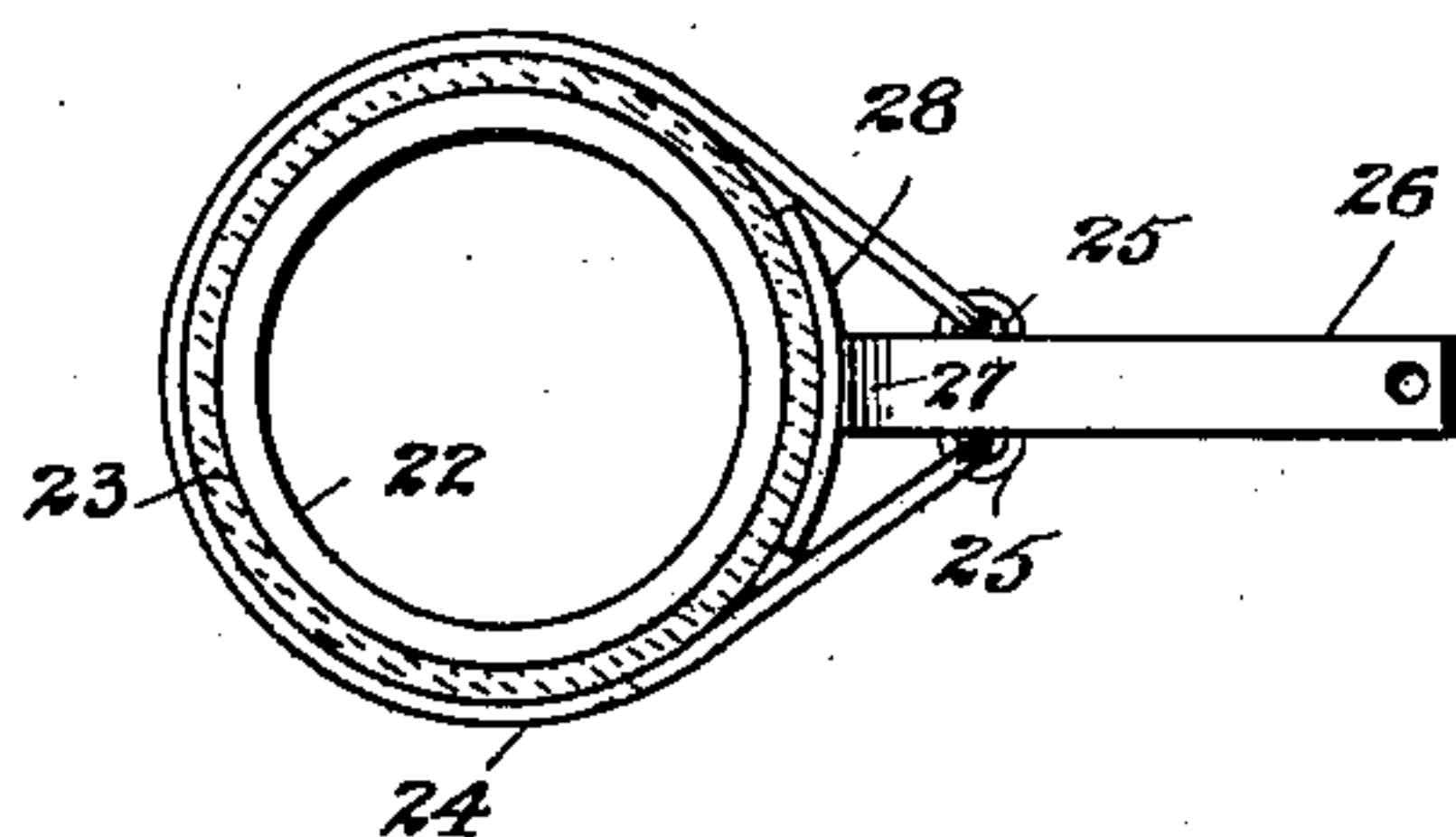


Fig. 5.



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UNITED STATES PATENT OFFICE.

EMERSON R. NEWELL, OF NEW YORK, N. Y.

MOORING DEVICE.

SPECIFICATION forming part of Letters Patent No. 678,273, dated July 9, 1901.

Application filed April 25, 1901. Serial No. 57,423. (No model.)

To all whom it may concern:

Be it known that I, EMERSON R. NEWELL, a citizen of the United States, residing at New York, State of New York, have invented certain new and useful Improvements in Mooring Devices, of which the following is a clear, full, and exact description.

My invention relates in general to a mooring device and devices for sinking the same, and particularly to a construction which may have a head or anchor with a hole therethrough and which is adapted to be sunken in the mud or sand of the bottom by means of a stream of water forced or drawn through a pipe detachably connected with the anchor and adapted to direct a stream of water or other fluid through the hole in the anchor into the sand or mud beneath the anchor to stir up the same and allow the anchor to sink down in the bottom. In order to hold the pipe in position with reference to the anchor, I preferably provide a locking device which secures the pipe to a part of the mooring device, and a suitable connection from said locking device adapted to pass up to the surface of the water for tripping the same and releasing the detachable pipe, so that it may be easily removed from the anchor after it has been sunken to the required depth in the bottom.

My invention will be defined in the claims.

In the drawings showing preferred embodiments of my invention, Figure 1 shows a sectional view on line $x x$ of Fig. 2 of an anchor of a generally conical shape with the detachable pipe in the hole through the anchor and showing the preferred embodiment of locking device in elevation. Fig. 2 is a side elevation of the anchor shown in Fig. 1, taken at a right angle to the view illustrated therein, the pipe and locking device having been removed. Fig. 3 shows an alternative construction of the locking device, and Figs. 4 and 5 are side and plan views of a second modification of the locking device.

In the drawings, 1 is an anchor having no shank, and 2 a part of the mooring-cable attached thereto, which together form a mooring device.

3 is the detachable pipe, through which a fluid—for example, water, steam, or air—may be forced from a suitable pump (not

shown) and directed through the hole 4 in the anchor.

When I say that the fluid “may be forced” through the pipe, I do not limit myself to a device in which the fluid is forced out of the pipe, as it will be obvious that the water and displaced mud may be drawn upward through the pipe without any change in the apparatus claimed.

Although I may make the anchor in the shape shown in dotted lines in Fig. 1, it is preferably in the form of a solid cone, as shown in full lines, having the hole centrally therethrough from the larger to the smaller end. This shape of the anchor has several advantages. The length of the hole forms a long bearing for the detachable pipe, and when the pipe is located therein it will be securely supported therein and held in the proper position to direct the jet of fluid through the anchor. As the fluid passes out of the hole 4 it will stir up and loosen the sand or mud of the bottom and flow upwardly around the anchor, carrying with it the displaced material and allow the anchor to settle down in the hole so made. The conical shape of the anchor tends to cause the fluid and displaced material to flow evenly around the anchor and thus to cause the anchor to settle down evenly and without tipping from its horizontal position, which tipping would direct the jet to one side and tend to further displace the anchor. The conical shape and consequent weight of the anchor also tends to keep the anchor in its proper horizontal position while sinking through the mud whether the water is being forced out of the tube or not, and it will sink in the bottom much more easily than a mushroom anchor of the usual shape. The end of the jet-pipe being preferably inclosed in the anchor and not extending below the same is also protected from damage from coming in contact with objects at the bottom.

After the anchor has been sunk to the desired depth in the bottom the pipe 3 may be drawn out of the hole and removed, leaving the anchor in place. It will be obvious that in sinking the anchor the pipe is liable to be accidentally detached from the anchor, and I have therefore provided a locking device to secure the pipe in position, and a connection

therefrom (preferably not a part of the pipe itself) extending above the surface 30 of the water, by which the locking device may be tripped, thus releasing the pipe and allowing it to be easily removed. I prefer to have the locking device carried by the detachable pipe, and in the drawings I have shown it attached thereto. My preferred embodiment of locking device is shown in Figs. 1 and 2, in which it consists of a hook 6, pivoted to the pipe at 7 and engaging a part of the mooring device—such, for example, as an aperture 8 in a rib 9 on the anchor. A spring 10 may be provided for keeping the hook in the locking position shown; but this may be omitted, if desired. I prefer to make the hook curved on a circle having the pivot as a center, so that pressure downward or a pull upward on the pipe will not displace the hook from the locking position. The hook thus forms a stop in both directions to hold the pipe in position. 11 is a rope forming a flexible connection from the hook to the surface of the water, which will trip the hook when pulled and allow the pipe to be raised.

In Fig. 3 I have shown an alternative construction of locking device. In this embodiment instead of a hook I have provided a pair of arms 12 13, pivoted together and having bent ends 12^a and 13^a, preferably sloping toward each other, as shown, and drawn together by spring 14. The locking device may be attached to pipe 3 by a chain 15, if desired, and is adapted to engage a part of the mooring device—such, for example, as a link 16 of the mooring-cable. A collar 17 may be provided as a stop to prevent the pipe from passing too far through the hole in the anchor. A line 18 extending above the surface may be attached to one leg of the locking device and pass through an eye 19 on the other leg, which line when pulled will draw the upper ends of the legs together, and consequently separate ends 12^a and 13^a, thus tripping the device and allowing the pipe to be removed.

In Figs. 4 and 5 I have shown another form of locking device. It is often desirable to use a flexible hose-pipe for sinking the anchor instead of a long rigid pipe. In said figures I have shown the anchor having the hole 4 therethrough and a short tube 22 projecting from the same. The flexible pipe 23 may be slipped over the same, and in order to detachably secure the pipe in place I have provided a locking device consisting of a band 24, of spring-wire, passing around the outside of the lower end of the pipe and connected to ears 25 25 on a lever 26, whose short end has a cam-face 27 thereon, resting against a curved metal plate 28 on the hose-pipe 23. When the long end of lever 26 is pressed down toward the anchor, the cam-face 27 will press against the face 28 and clamp the band 24 around the pipe, and as the toe of said cam passes the line of horizontal pull in reaching the position shown it will act as a toggle and be locked in

that position. A line 29 extending above the surface may be provided for tripping the locking device by a pull thereon.

I am aware that many variations may be made from the constructions described and illustrated without departing from the scope of my invention as claimed, and I therefore do not limit myself to the particular embodiments herein disclosed.

What I claim is—

1. In combination with a mooring device including an anchor having a hole therethrough, a detachable pipe through which a fluid may be forced, a locking device outside of said pipe to secure said pipe to a part of said mooring device and hold said pipe in position whereby a stream of fluid may be caused to pass through said hole in said anchor to stir up the bottom underneath the anchor, and means adapted to extend above the surface of the water for tripping said locking device and thereby releasing said pipe.

2. In combination with a mooring device including an anchor having a hole therethrough, a detachable pipe through which a fluid may be forced, a locking device carried on the outside of said pipe to secure said pipe to a part of said mooring device and hold said pipe in position whereby a stream of fluid may be caused to pass through said hole in said anchor to stir up the bottom underneath the anchor, and means adapted to extend above the surface of the water for tripping said locking device and thereby releasing said pipe.

3. In combination with a mooring device including an anchor having a hole therethrough, a detachable pipe through which a fluid may be forced, a pivoted hook carried by said pipe to secure said pipe to a part of said mooring device and hold said pipe in position whereby a stream of fluid may be caused to pass through said hole in said anchor to stir up the bottom underneath the anchor, and means adapted to extend above the surface of the water for tripping said pivoted hook and thereby releasing said pipe.

4. In combination with a mooring device including an anchor having a hole therethrough, a detachable pipe through which a fluid may be forced, a locking device outside of said pipe to secure said pipe to a part of said mooring device and hold said pipe in position whereby a stream of fluid may be caused to pass through said hole in said anchor to stir up the bottom underneath the anchor, and a flexible connection adapted to extend above the surface of the water for tripping said locking device and thereby releasing said pipe.

5. In combination with a mooring device including an anchor having a hole therethrough, a detachable pipe through which a fluid may be forced, a locking device to secure said pipe to a part of said mooring device and hold said pipe in position whereby a stream of fluid may be caused to pass through

said hole in said anchor to stir up the bottom underneath the anchor, and means outside of said pipe and adapted to extend above the surface of the water for tripping said locking device and thereby releasing said pipe.

6. In combination with a mooring device including an anchor having a hole there-through, a detachable pipe through which a fluid may be forced, a locking device outside of said pipe and above said anchor and adapted to secure said pipe to a part of said mooring device and hold said pipe in position whereby a stream of fluid may be caused to pass through said hole in said anchor to stir up the bottom underneath the anchor, and means adapted to extend above the surface of the water for tripping said locking device and thereby releasing said pipe.

7. In combination with a mooring device including an anchor of a conical shape and having a hole therethrough, a detachable pipe through which a fluid may be forced, a locking device carried by said pipe to secure said pipe to a part of said mooring device and hold said pipe in position whereby a stream of fluid may be caused to pass through said hole in said anchor to stir up the bottom underneath the anchor, and a flexible connection adapted to extend above the surface of the water for tripping said locking device and thereby releasing said pipe.

8. An anchor having a conical shape and provided with an open hole through the same from the larger to the smaller end, which hole is adapted to receive a jet-pipe, in combination with a flexible mooring-cable connected therewith, and means for detachably holding the jet-pipe in place.

9. In combination with a mooring device including a conical-shaped anchor having a hole therethrough forming a long bearing, a detachable pipe through which a fluid may

be forced, said pipe being located in and supported by said long bearing, whereby a stream of fluid may be directed through said hole and out of the smaller end of said anchor to stir up the bottom beneath said anchor and cause said anchor to sink down in said bottom.

10. In combination with a mooring device including an anchor having a hole there-through, a detachable pipe through which a fluid may be forced, a pivoted locking device outside of said pipe and adapted to secure said pipe to a part of said mooring device and hold said pipe in position whereby a stream of fluid may be caused to pass through said hole in said anchor to stir up the bottom underneath the anchor, and means also outside of said pipe and adapted to extend above the surface of the water for tripping said locking device and thereby releasing said pipe.

11. In combination with a mooring device including an anchor and a flexible mooring-cable attached thereto, a detachable pipe through which a fluid may be forced, a locking device adapted to hold said pipe is position with relation to said anchor so that a stream of fluid passed through said pipe will be directed below said anchor to stir up the bottom underneath the anchor and allow the same to settle down in the bottom, said locking device being located outside of said pipe and operative from the surface of the water to free said pipe from said anchor and allow of the removal of the same when said anchor has been sunk to the desired depth in the bottom.

Signed at New York, N. Y., this 24th day of April, 1901.

EMERSON R. NEWELL.

Witnesses:

ARTHUR C. HUME,
JOSEPH E. DIAMOND.