

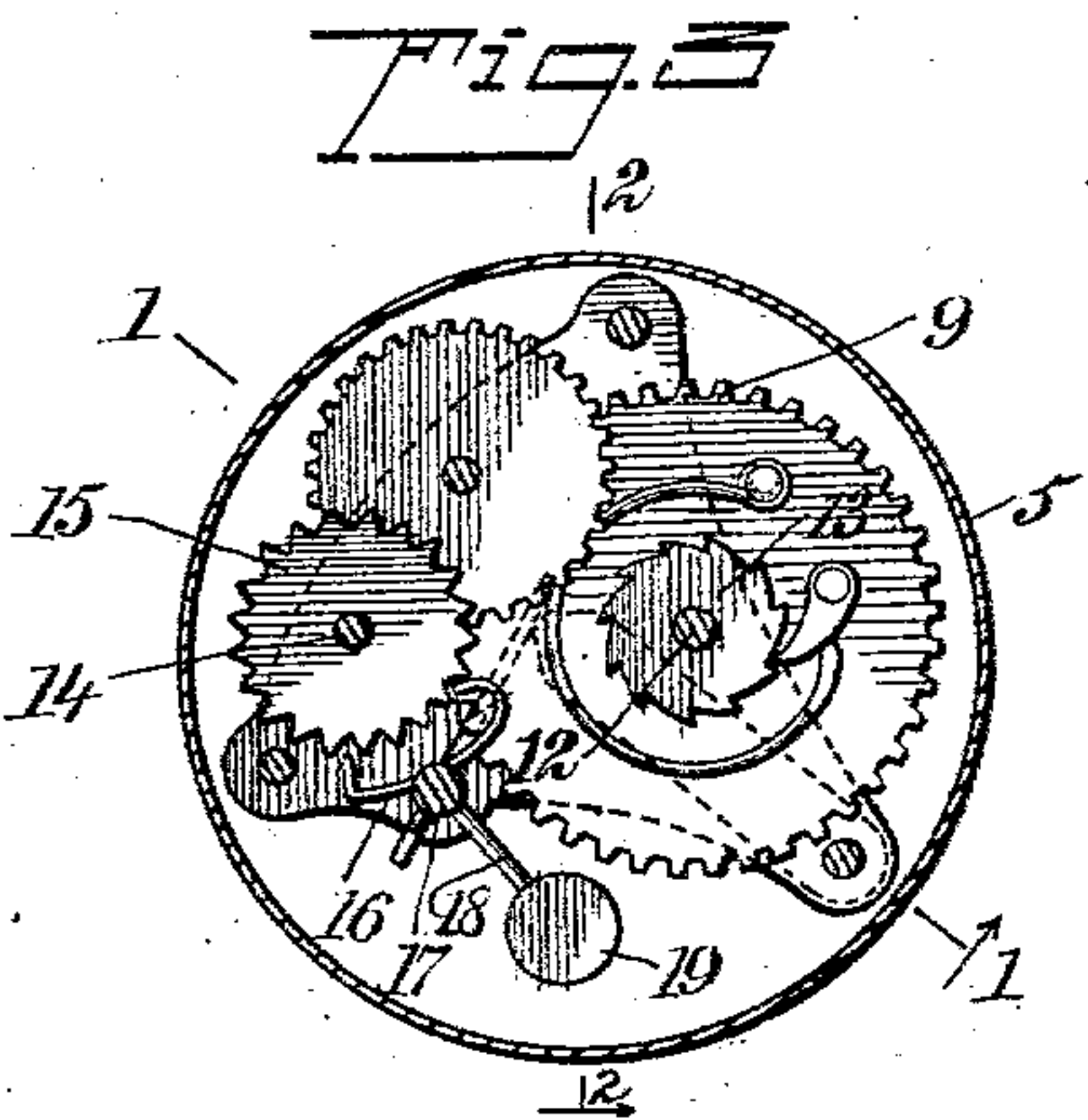
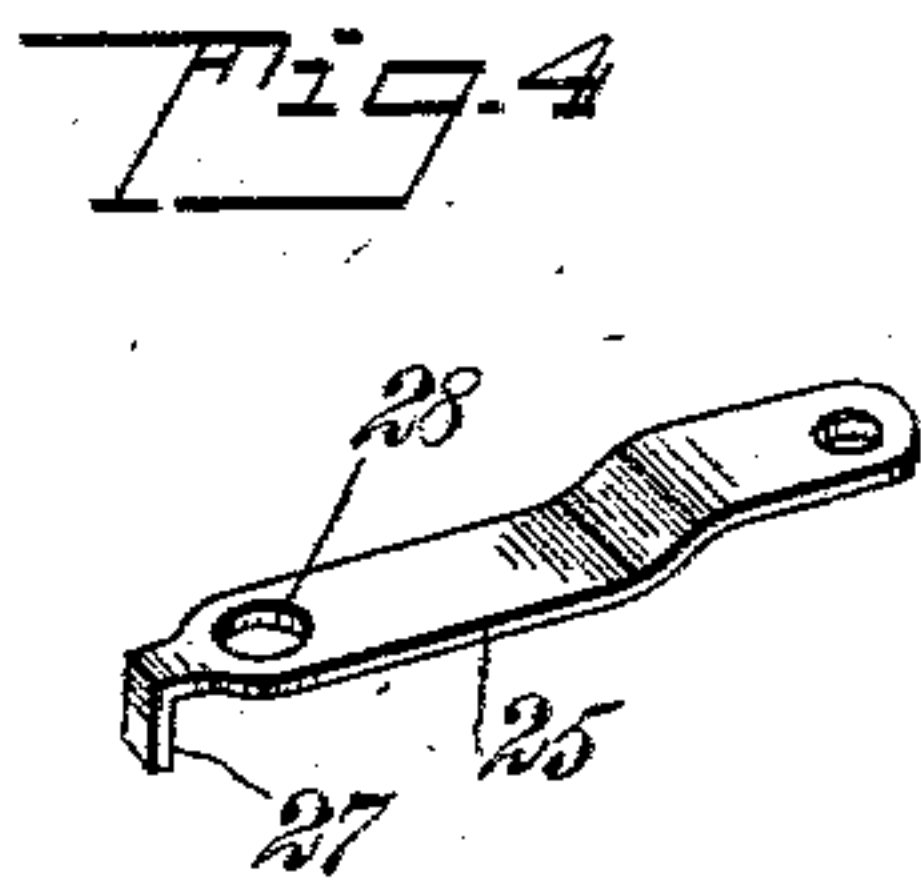
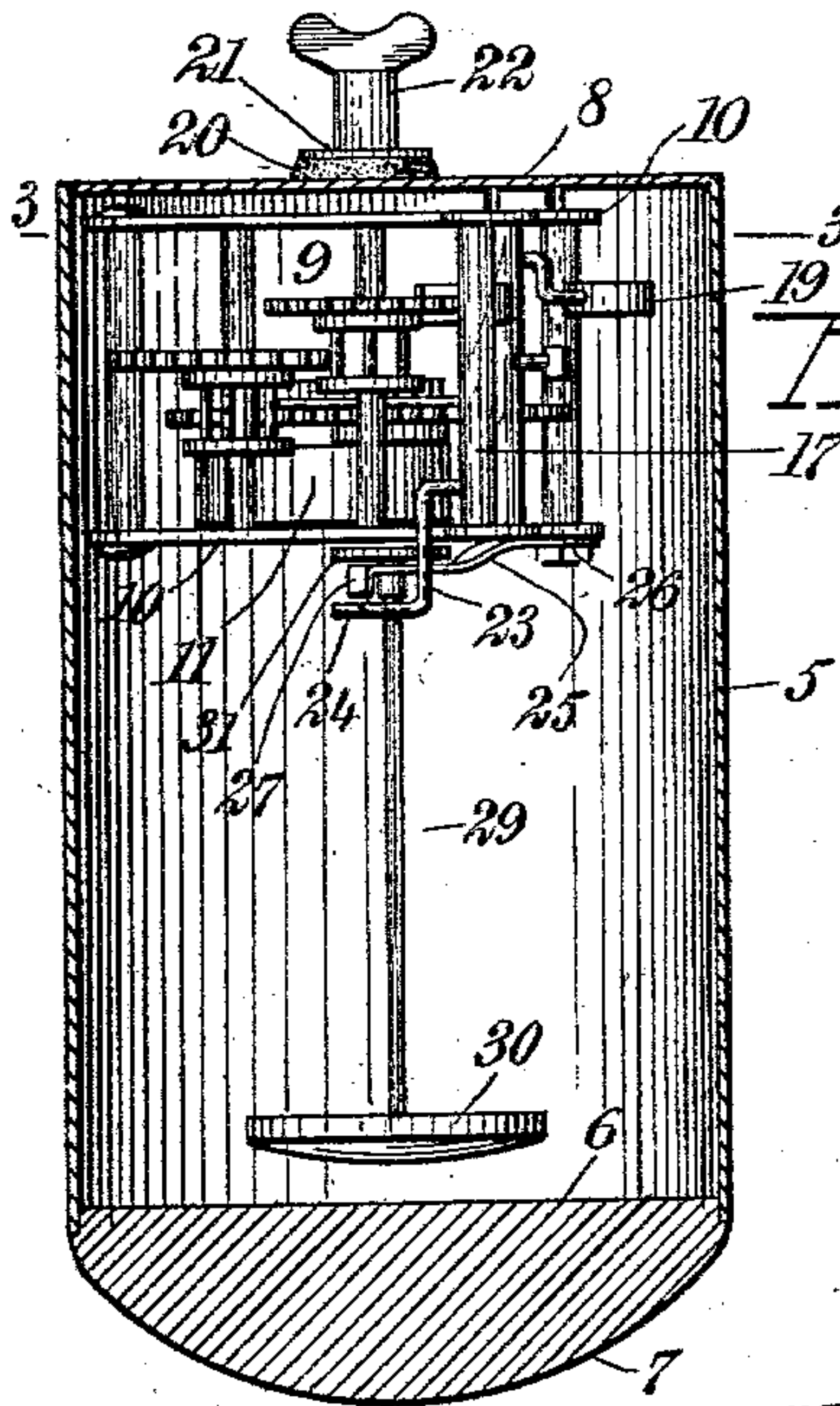
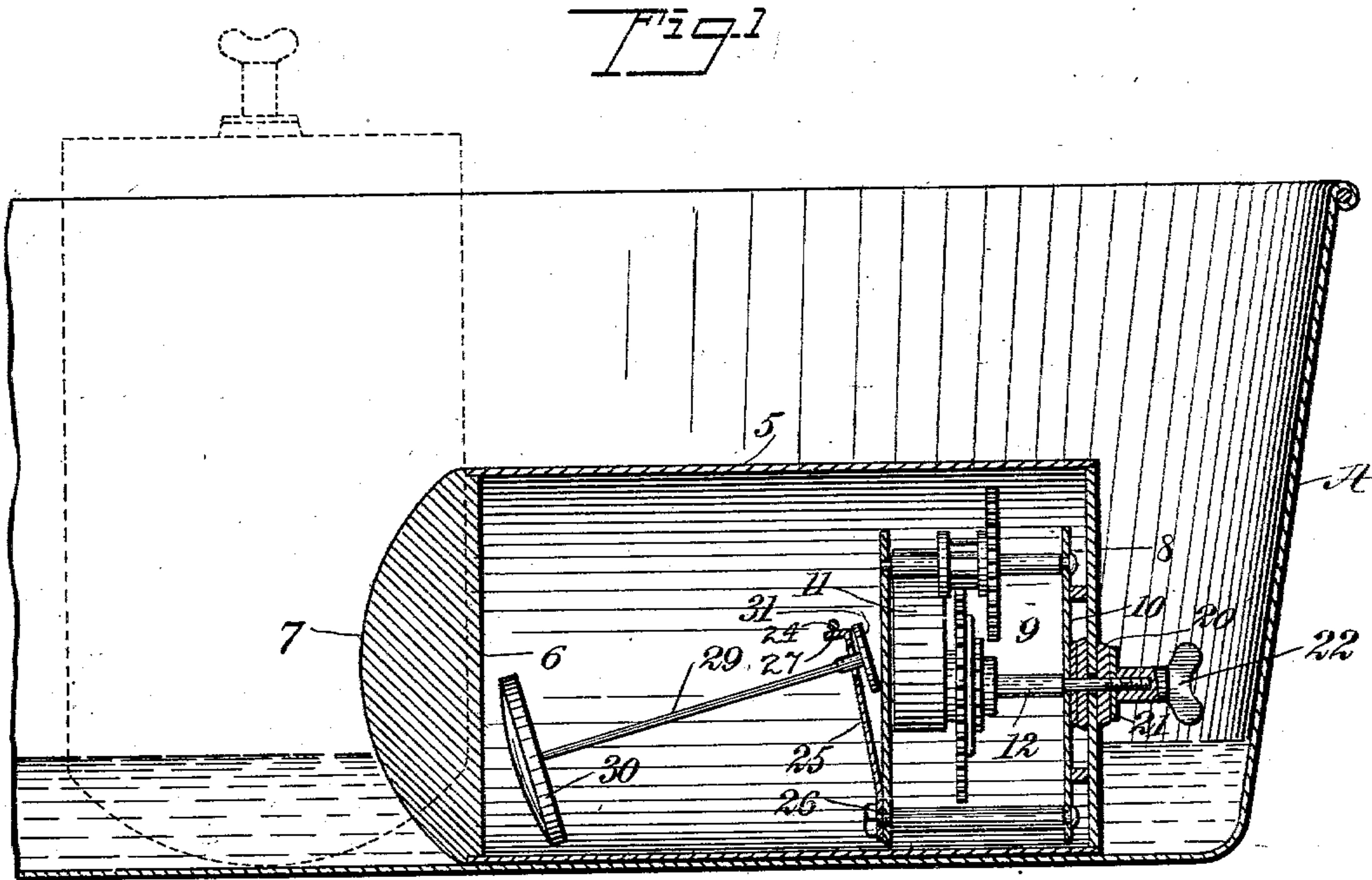
No. 730,572.

PATENTED JUNE 9, 1903.

G. H. ROWLAND.
OVERFLOW ALARM.

APPLICATION FILED DEC. 2, 1902.

NO MODEL.



WITNESSES:

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UNITED STATES PATENT OFFICE.

GEORGE HUGH ROWLAND, OF NEW YORK, N. Y.

OVERFLOW-ALARM.

SPECIFICATION forming part of Letters Patent No. 730,572, dated June 9, 1903.

Application filed December 2, 1902. Serial No. 133,563. (No model.)

To all whom it may concern:

Be it known that I, GEORGE HUGH ROWLAND, a citizen of the United States, and a resident of the city of New York, borough of Brooklyn, in the county of Kings and State of New York, have invented a new and Improved Overflow-Alarm, of which the following is a full, clear, and exact description.

My invention relates to overflow-alarms, the same being adapted for use in refrigerator-pans to automatically indicate the accumulation of water therein up to a certain level and to notify a housekeeper or other person that the pan requires attention, thus preventing the overflow of water and damage to carpets, &c.

Although I have mentioned the specific adaptation of the alarm to refrigerator-pans, it is evident that it may be used in any kind of a receptacle to indicate the rise of liquid therein to a predetermined level.

In my present invention I aim to produce a self-contained alarm which is adapted to be placed in a suitable vessel without attaching said device in any way to the vessel. The device is equipped with a poise that counterbalances the weight of the casing and the contained alarm mechanism, and said device is movable to two positions, preferably, by a tilting movement due to the buoyancy of a certain part of the device. In connection with the alarm mechanism I employ a locking and releasing device which is controllable by the position and movement of the device as an entirety, said locking and releasing device serving to arrest the alarm mechanism in one position of the casing or frame and to automatically set free the alarm mechanism when the casing approaches or assumes its other or raised position.

Further objects and advantages of the invention will appear in the course of the subjoined description, and the novelty will be defined by the annexed claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a sectional elevation through a self-contained overflow-alarm constructed in accordance with my invention and shown in one position by full lines within a refrigera-

tor-pan, the plane of the section being indicated by the dotted line 1 1 of Fig. 3 and the alarm in its entirety being shown by dotted lines in its other position, wherein an audible alarm will be automatically sounded. Fig. 2 is a longitudinal sectional elevation taken in the plane of the dotted line 2 2 of Fig. 3 and showing the device in its raised position, wherein the alarm mechanism is automatically released. Fig. 3 is a horizontal sectional plan view on the line 3 3 of Fig. 2, and Fig. 4 is a detail perspective view of a movable locking and releasing element.

In carrying my invention into practice I employ a casing or frame which is movable to two positions, one of which is determined by gravity and the other by a certain amount of buoyancy possessed by the device, and this frame or casing contains the alarm mechanism and the controlling and releasing devices arranged to normally restrain the alarm mechanism from action and adapted to set the latter in motion when the casing or frame assumes a certain position owing to the rise of the level of liquid contained in a suitable vessel in which the entire device is placed.

As shown by the drawings, the casing 5 is of elongated cylindrical form, and one end of this casing is closed by a weighted base 6, having a rounded or convex exposed surface 7. The other end of the casing is closed by a head 8, which is united to said casing in a way to effectually exclude the admission of liquid thereto. The preferred form or shape of the casing and its base is not material; but I find it advantageous to employ an elongated casing having a weighted curved base at one end adapted to serve as a counterpoise for the mechanism, which is preferably mounted in the other portion of the casing or frame and is inclosed within said casing.

The motor mechanism is indicated in its entirety at 9, the same having a suitable frame 10, which is attached to the head 8 of the casing. This motor mechanism may be of any suitable pattern; but in the example illustrated by the drawings it is shown in the form of a train of gearing having a mainspring 11, adapted to be placed under tension by the rotation of an arbor 12, having a suitable pawl-and-ratchet mechanism 13. On one arbor 14 of the train of gearing is secured a pallet-

wheel 15, with which is adapted to engage the escapement-pallet 16, that is carried by the escapement-shaft 17, and this shaft is also provided with the arm 18, that carries the hammer 19, adapted to strike against the inside of the casing, although any equivalent means may be employed in connection with the vibratory hammer to give an audible alarm. The mainspring-arbor 12 is extended or prolonged through one end of the frame 10 and a suitable opening in the head 8 of the casing, and around this extended end of said arbor are placed the packing-disks 20 and the metallic washers 21. A winding-key 22 is screwed on the protruding end of the arbor 12, said key being arranged to impinge one of the washers 21 and to compress the packing layer or layers 20 in a way to form a tight joint around the opening in the head 8 of the casing, thereby effectually excluding liquid or moisture from entering the casing 5 and obtaining access to the alarm mechanism. The arbor 17 of the escapement is furthermore provided with a cranked arm 23, which extends beyond the inner end of the frame 10 and is provided with a toe-piece 24. With this toe-piece is arranged to cooperate a locking and releasing member 25, the same being shown in the form of a leaf-spring, which is secured firmly at one end, as at 26, to the inner side of the frame 10. (See Figs. 1 and 2.) This leaf-spring lies at one side of the frame, and at or near the free end of said member 25 is provided a lip 27, adapted to engage with the toe 24 of said arm 23 on the escapement-arbor. The member 25 is also provided with an enlarged opening 28, through which loosely passes an end portion of a trip-rod 29, the latter being provided at one end with a weight 30 and at its other end with a washer 31, said washer lying between the inner side of the frame 10 and the free portion of the member 25.

From this description it will be seen that the alarm mechanism and its controlling and locking devices are housed or contained within the casing, so as to be protected thereby from the action of liquid and moisture. The alarm mechanism is set in condition for use by rotating the key 22 in a way to turn the spring-arbor 12 and place the spring under tension, the pawl and ratchet devices 13 keeping the spring from running down. The alarm and its contained parts may be placed in a refrigerator-pan or any other vessel, such as A; but to prevent the alarm mechanism from acting the device must be placed on its side, as shown by full lines in Fig. 1. In this position of the casing the trip-rod 29 is moved to an inclined position by the gravity of the weight 30, and the head 31 of said trip-rod acts against the member 25 in a way to press the lip 27 into engagement with the toe 24 of the arm 23, thus holding the arbor 17 in a stationary position. An increase in the quantity of liquid which may accumulate in

the pan A up to a predetermined level will lift the end of the casing or frame 5 which contains the motor mechanism; but the device will not float bodily on the surface of the liquid, owing to the provision of the weighted base 7 at one end of the casing. As the end of the casing containing the motor mechanism rises the base 7 holds the other end of the casing down and in contact with the bottom of the refrigerator-pan, said base 7 counterbalancing one end of the casing, while the other end is buoyant to a certain extent. The device moves or tilts as the volume of water increases and its level rises, so that it is capable of a tilting movement from a horizontal to a vertical position, or substantially so, and this tilting movement is facilitated by rounding the exposed face of the base, as indicated at 7 in the drawings. When the casing approaches a vertical position, the trip or pendulum rod 29 gradually moves toward a vertical position for the weight 30 to lie over the base 6, and when said device assumes a certain position, substantially such as indicated by dotted lines in Fig. 1 and by full lines in Fig. 2, so that the washer or head 31 is made to lie flat upon the member 25 and the elasticity of said washer lifts the rod 29 and withdraws the lip 27 from the toe 24 of the cranked arm 23, thereupon the spring 11 reacts and drives the train of gearing to impart vibratory motion to the escapement, the arbor 17, and the hammer 19, the latter rapping against the casing 5 and giving the audible alarm.

It will be observed that my device is self-contained—that is to say, the alarm mechanism and its controlling and releasing devices are all housed within a closed casing.

The device does not depend for its operation or utility upon the employment of devices adapted to be supported on a refrigerator-pan or other vessel and to be released by a separate float, as in some prior devices with which I am familiar; but owing to the peculiar action of the hollow casing 5, having the balanced base at one end, and to the operation of the gravity locking and releasing devices, the alarm will be automatically given by the movement of the casing itself under the rise in the level of the liquid.

The device may be placed in or removed from the pan, as desired, and the alarm mechanism can be easily and quickly wound by merely turning the key.

The article is simple in construction. It consists of few parts, which enables it to be manufactured and sold at a reasonable cost, and it is entirely automatic in action as well as efficient and reliable.

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

1. An overflow-alarm mechanism comprising a water-tight casing movable to two positions by the buoyancy of a liquid, an alarm mechanism within said casing, and means

for locking and automatically releasing said alarm mechanism by the movement of the casing.

2. An overflow-alarm having a casing provided with a counterbalance at one end and adapted to tilt from one position to another by the buoyancy of a part of the device, an alarm mechanism, and an automatic locking and releasing device for said alarm mechanism, operable by the tilting movement of said casing.

3. An overflow-alarm mechanism comprising a casing movable to two positions, an alarm mechanism movable with said casing, a locking device for said alarm mechanism, and a releasing device for said locking device, said releasing device being movable with the casing and also having a movement independently of the casing to free the alarm mechanism from restraint by the locking device.

4. An overflow-alarm comprising a watertight casing movable by the buoyancy of a liquid, to two positions by a tiltable movement, an alarm mechanism movable with said casing, and a locking and releasing mechanism in operative relation to the alarm mechanism and also movable with the casing, said locking and releasing device also having a movement independently of the casing and adapted to release the alarm mechanism on the tiltable movement of said casing.

5. A self-contained overflow-alarm having a frame or casing movable to two positions, an alarm mechanism, a locking device for said alarm mechanism, and a trip device connected with said locking device to normally hold the alarm mechanism at rest and releasable automatically therefrom by a tiltable rising movement of the casing.

6. A self-contained overflow-alarm having a frame or tiltable casing, an alarm mechanism at one portion of the frame or casing, a counterbalance at the opposite portion of the frame or casing, and means for locking and

releasing said alarm mechanism on the movement of the casing.

7. In an overflow-alarm, a hollow tiltable casing having a counterbalance at one portion and buoyant at its other portion, combined with an alarm mechanism, and a locking and releasing device for said alarm mechanism controllable by the tiltable movement of the casing.

8. In an overflow-alarm, a hollow frame or casing provided at one portion with a counterbalance having a curved face and buoyant at its other portion, in combination with an alarm mechanism, and a locking and releasing device for said alarm mechanism, controllable by the movement of said casing.

9. In an overflow-alarm, the combination with a tiltable casing, of an alarm mechanism movable with said casing, a locking-arm, a locking member arranged to engage with the locking-arm, and a trip device to control the locking member on the movement of the frame or casing to one position.

10. In an overflow-alarm, the combination of a tiltable frame or casing, an alarm mechanism mounted thereon and having one of its arbors provided with an arm, a locking member normally engaging with said arm, and a pendulum-rod connected with said locking member.

11. In an overflow-alarm, the combination of a tiltable casing, an alarm mechanism, a yieldable locking member normally having engagement with a part of said alarm mechanism, and a pendulum-rod provided with a counterpoise and connected with said locking member to automatically control the latter on the movement of the casing.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

GEORGE HUGH ROWLAND.

Witnesses:

NETTIE E. ROWLAND,

FRANK W. ROWLAND.