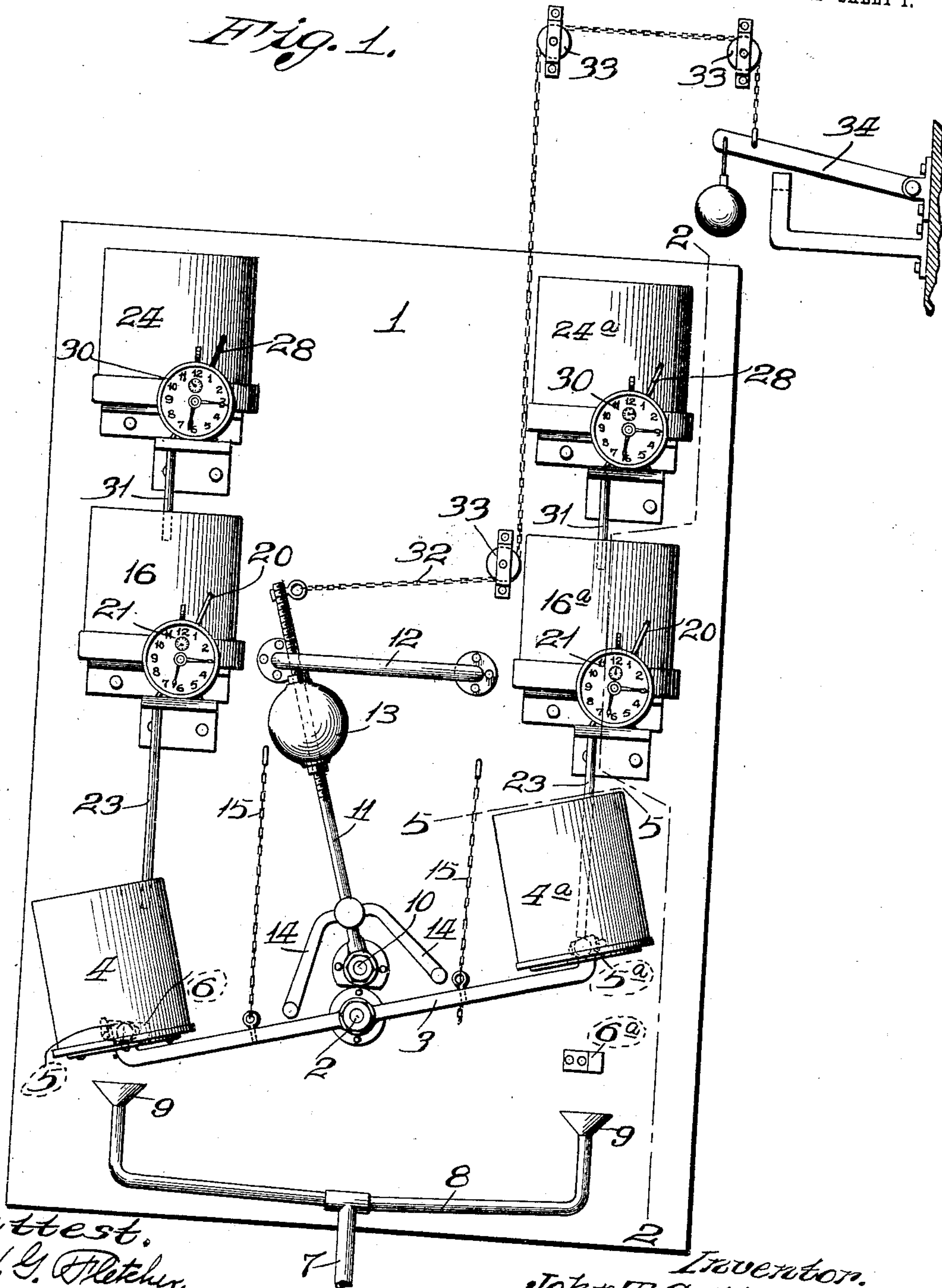


922,256.

J. T. CALLAWAY.
TIME CONTROLLED APPARATUS.
APPLICATION FILED AUG. 1, 1908.

Patented May 18, 1909.
2 SHEETS—SHEET 1.

Fig. 1.



attest.
A. G. Fletcher.
M. P. Smith

Inventor.
John T. Callaway.
By Nigdon Langdon.
Attys.

J. T. CALLAWAY.
TIME CONTROLLED APPARATUS.
APPLICATION FILED AUG. 1, 1908.

922,256.

Patented May 18, 1909.

2 SHEETS—SHEET 2.

Fig. 2.

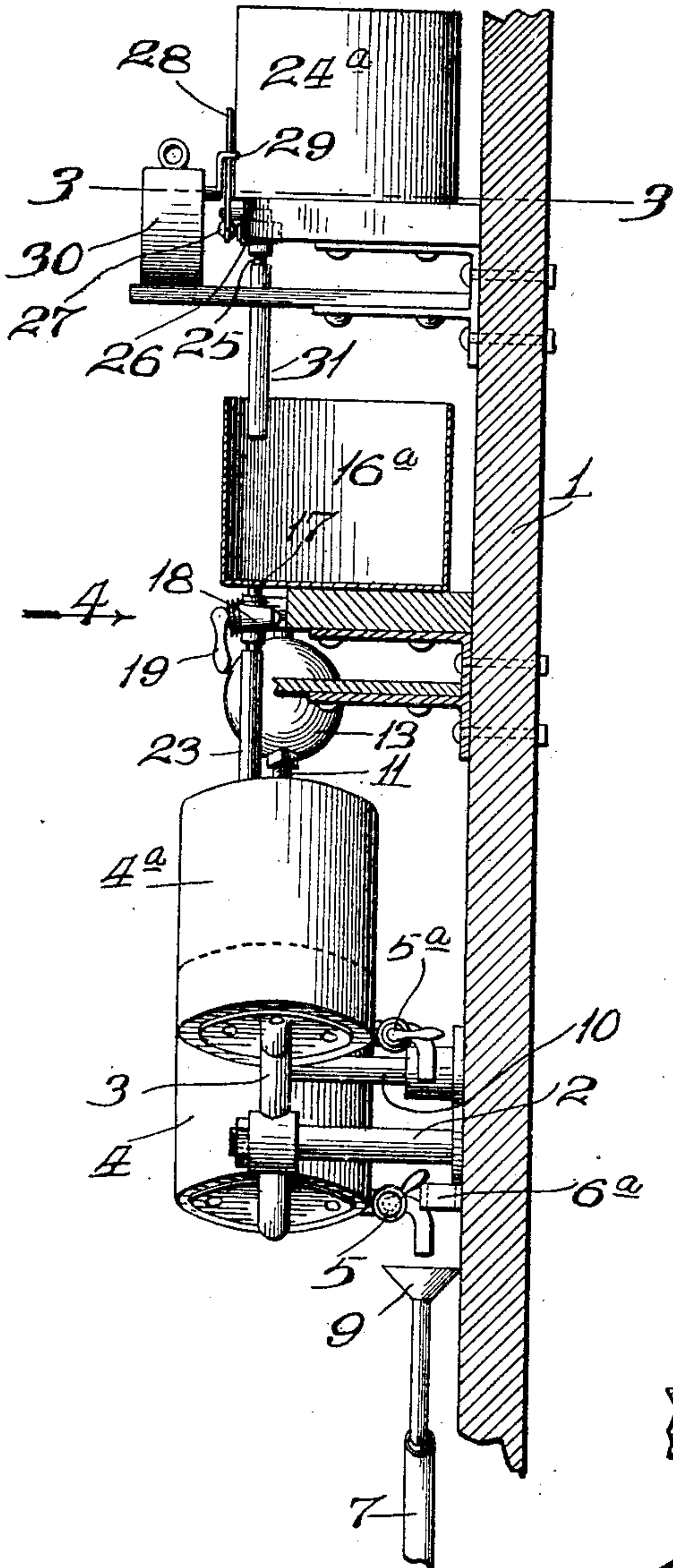


Fig. 3.

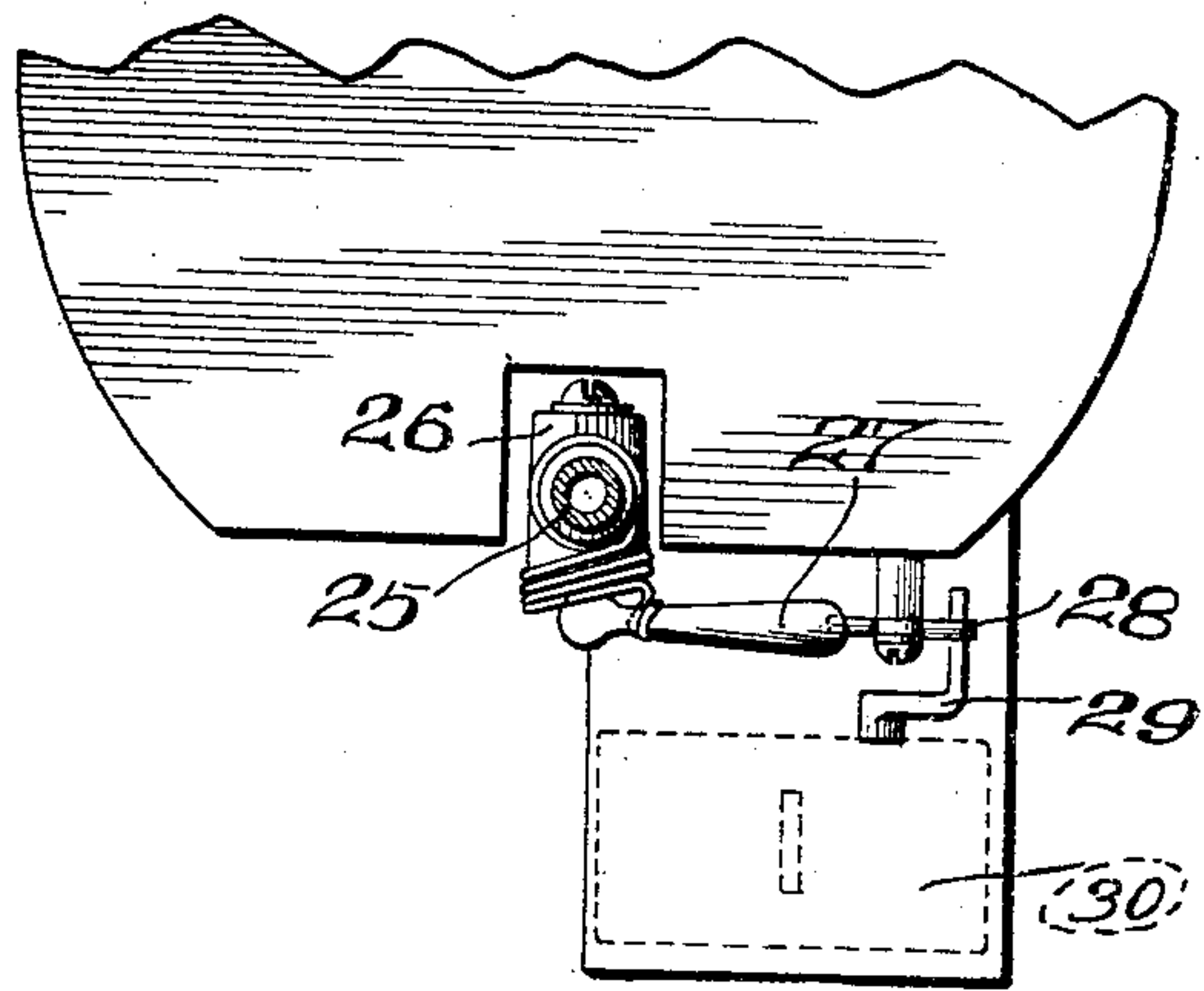


Fig. 4.

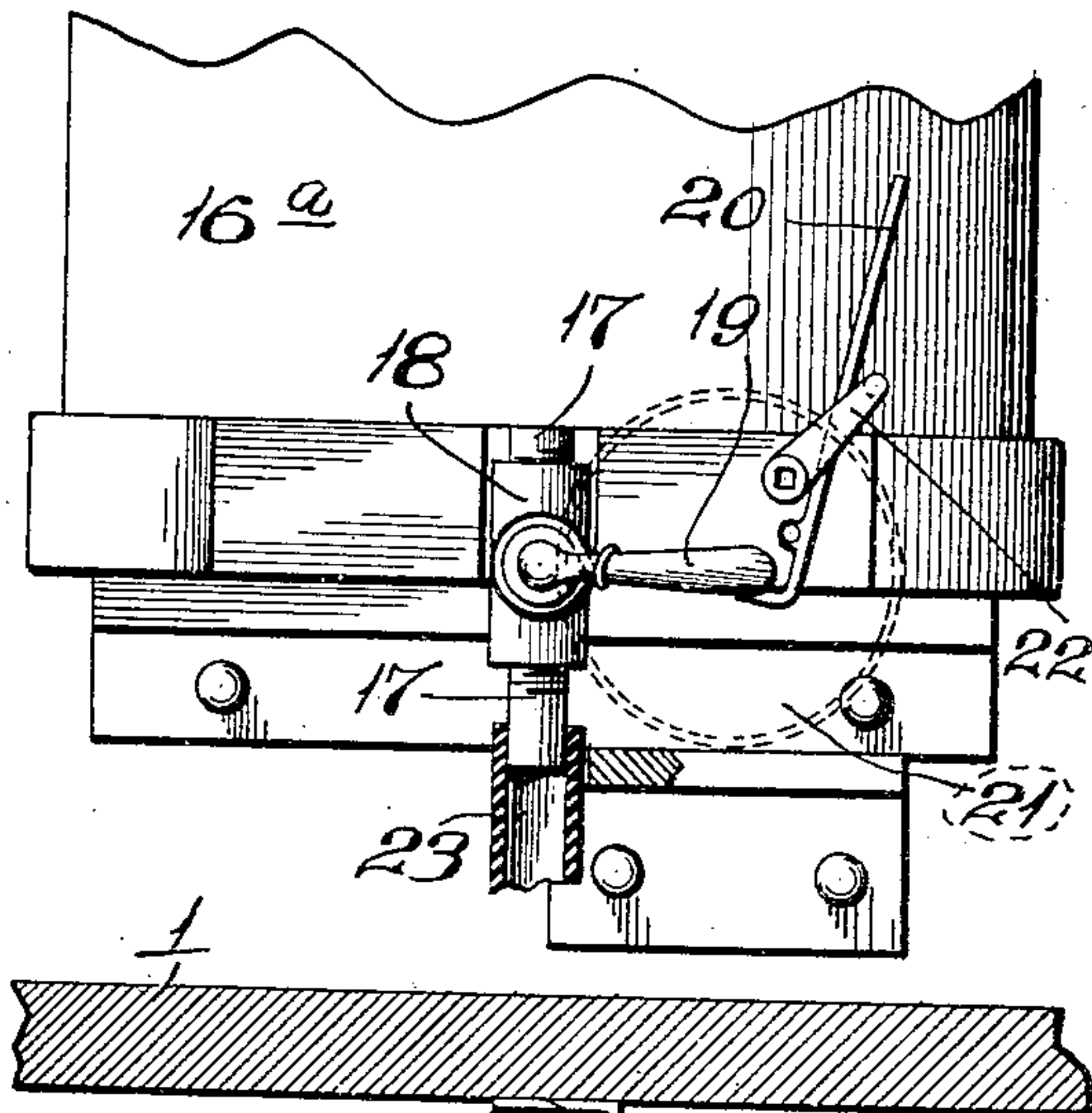
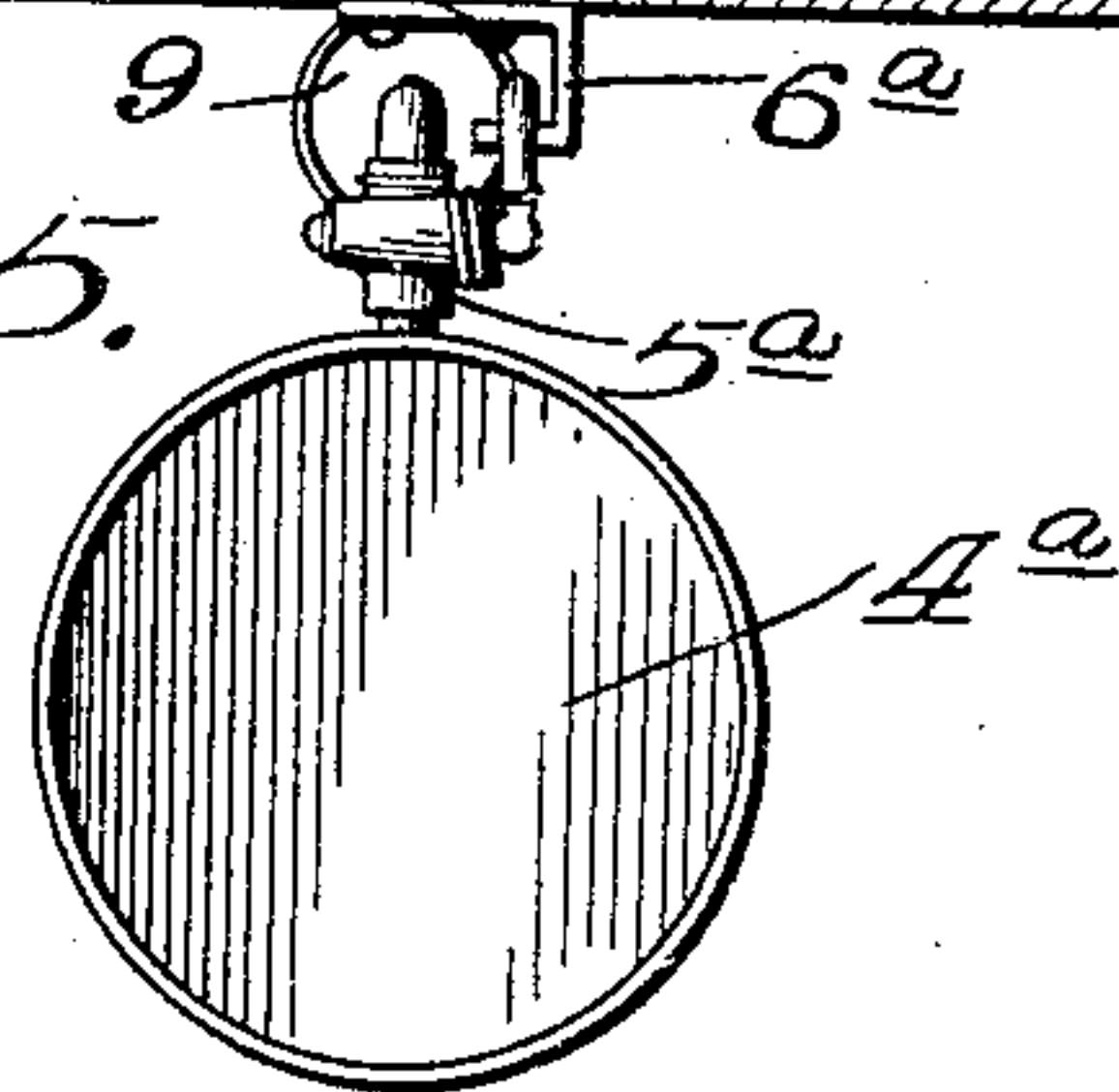


Fig. 5.



Attest.
L. G. Fletcher.
M. P. Smith

Inventor.
John T. Callaway.
By Nigam Lougan.
Attys

UNITED STATES PATENT OFFICE.

JOHN T. CALLAWAY, OF GREENFIELD, ILLINOIS.

TIME-CONTROLLED APPARATUS.

No. 922,256.

Specification of Letters Patent.

Patented May 18, 1909.

Application filed August 1, 1908. Serial No. 446,428.

To all whom it may concern:

Be it known that I, JOHN T. CALLAWAY, a citizen of the United States, and resident of Greenfield, Illinois, have invented certain new and useful Improvements in Time-Controlled Apparatus, of which the following is a specification, containing a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

My invention relates to a time controlled apparatus particularly adapted for performing some mechanical operation, such as the throwing of an electric switch, the opening or closing of a damper, or for performing a like operation at a predetermined time or for causing said operation to be repeated at different periods of time.

The object of my invention is to provide a simple, inexpensive mechanism which will accurately and positively perform its operation after the chronometric devices in the form of clocks have been properly set, and my invention consists in a series of tanks or containers having outlets from one to another, and which outlets are controlled by clocks or like chronometric devices, and a pair of tanks or containers being arranged to oscillate in order to bring about the movement of the switch, damper, or other mechanical appliance which is operated by my improved apparatus.

My invention further consists in certain novel features of construction and arrangement of parts, which will be hereinafter more fully set forth, pointed out in the claims, and illustrated in the accompanying drawings, in which:

Figure 1 is a front elevation of an apparatus of my improved construction, showing an electric switch connected to the apparatus and adapted to be operated thereby; Fig. 2 is a vertical section taken on the line 2—2 of Fig. 1; Fig. 3 is an enlarged horizontal section taken on the line 3—3 of Fig. 2; Fig. 4 is an elevation of the parts as seen looking in the direction indicated by the arrow 4, Fig. 2; and Fig. 5 is a horizontal section taken on the line 5—5 of Fig. 1.

Referring by numerals to the accompanying drawings: 1 designates an upright plate which forms the base of my improved apparatus, and journaled on a pin 2, projecting forward from the lower portion of said plate, is an oscillating rod 3, on the ends of which are fixed the small tanks or con-

tainers 4 and 4^a, which are uniform in size and construction, and arranged on the lower ends of these tanks and projecting rearward therefrom, are self closing faucets 5 and 5^a.

Fixed to the plate 1 and projecting forward therefrom in such positions as to engage the handles of the faucets 5 and 5^a when the same occupy their lowermost positions are lugs 6 and 6^a, and arranged on the lower portion of the plate 1 is a waste pipe 7, provided with branches 8, the ends of which are provided with funnels 9, which are so positioned as to receive the water or other liquid as it discharges from the faucets 5 and 5^a.

Journaled upon a pin 10, located immediately above the pin 2, is the lower end of an upright oscillating rod 11, the upper portion of which operates behind a keeper 12, fixed on the face of the plate 1, and the upper portion of this rod is threaded and receives a suitable weight 13.

Fixed to the lower portion of the rod 11 and depending therefrom on opposite sides thereof are arms 14, the lower ends of which are adapted to be engaged by the oscillating rod 3, as the same shifts from one position to another.

Chains 15, or like flexible members, are fixed at their upper ends to the plate 1, and at their lower ends to the arm 3, and are for the purpose of limiting the oscillation of the rod 3 and parts carried thereby.

Held in any suitable manner on the plate 1 and above the tanks 4 and 4^a is a pair of tanks 16 and 16^a, from the bottoms of which lead downward short tubes 17, in which are located self opening valves 18, provided with handles 19, and pivotally mounted on the brackets which support these tanks are levers 20, the lower ends of which are bent laterally and are so arranged as to engage the ends of the handles 19 when the valves 18 are closed.

Held in any suitable manner immediately in front of the handles 19 and levers 20 are clocks 21, or similar chronometric devices, the same being provided with fingers 22, which are adapted to be set and moved at a certain time, and the ends of which fingers are adapted to engage the levers 20 to shift the same from their set positions, or from the positions they occupy when engaging the ends of the handles 19.

Carried by and leading downward from the tubes 17 into the tanks 4 and 4^a are flexible tubes 23, which provide means for con-

veying the water or other liquid from the tanks 16 and 16^a to the tanks 4 and 4^a. Suitably held on the plate 1 immediately above the tanks 16 and 16^a is a third set of tanks 5 24 and 24^a, in the bottoms of which are arranged tubes 25, provided with self opening valves 26, the handles 27 of which are adapted to be engaged and held in open positions by the laterally bent lower ends of 10 levers 28, which are adapted to be engaged by fingers 29, actuated by clocks 30, or like chronometric devices.

Attached to the tubes 25 and leading downward therefrom into the tanks 16 and 15 16^a are short flexible tubes 31. Connected to the upper end of the rod 11 is one end of a chain or cable 32, which extends around suitably located pulleys 33, and the opposite end being connected to the self closing member 34, of a knife blade electric switch.

While I have shown an electric switch connected to and adapted to be operated by my improved apparatus, it will be readily understood that the chain or cable 32 may be 25 connected to any lever, damper, or other device which it may be desired to move at a predetermined time or periodically.

Assuming that the parts of the apparatus are in the positions seen in Fig. 1, and it is 30 desired that the switch or other mechanical device be operated at 12 o'clock, the self opening valve 18 on the tank 16^a is closed and the handle of said valve is engaged by the corresponding lever 20, the clock 21, 35 immediately adjacent the tank 16^a is set to actuate the finger 22 at 12 o'clock, and the tank 16^a is filled with water or other liquid. When the clock 21 marks the stated time, 12 40 o'clock, the finger 22 will be actuated in such a manner as to shift the lever 20, thus releasing the handle of the self opening valve 18, and the water or other liquid within the tank 16^a will discharge through the tube 17 and flexible tube 23 into the tank 4^a. The 45 weight of the water delivered to the tank 4^a will gradually oscillate the rod 3 upon the pin 2, and as a result one of the arms 14 will be engaged by that portion of the rod 3 which is moved upward, and the weighted 50 rod will be gradually moved into a vertical position, and when said rod moves past a vertical line drawn through the center of the pin 10, the weight 13 on said rod 11 will cause said rod to quickly shift to the oppo- 55 site end of the keeper 12, and this movement so shifts the rod 3 as that the tank 4 is elevated and the tank 4^a is moved downward. This movement of the rod 11 loosens or slackens the chain or cable 32, and the elec- 60 tric switch or other mechanical device will thus be actuated. As the rod 3 is shifted upon the pin 2 and the tank 4^a moves downward, to its limit of movement, the handle of the self closing faucet 5^a will strike 65 against the corresponding lug 6^a, thus open-

ing said faucet, and the water or other liquid in the tank 4^a will discharge into the corresponding funnel 9 on the end of the branch pipe 8 which leads to the waste pipe 7. If it be desired to open the switch or damper 70 after a period of time or at a later hour, for instance, at 6 o'clock, then the clock 21 adjacent the tank 16 is set to actuate the corresponding finger 22 at 6 o'clock, and the self opening valve 18 of said tank is closed, 75 and so held by the corresponding lever 20, and said tank 16 is filled with water or other liquid.

At the expiration of the six hours, the clock 21 adjacent the tank 16 will actuate 80 the corresponding finger 22, and the corresponding lever 20 will be actuated to release the handle 19 of the corresponding self opening valve 18, and as said valve is opened the water in the tank 16 will discharge 85 through the corresponding tubes 17 and 23 into the tank 4, which has been elevated, as hereinbefore described, and the weight of the water delivered into said tank 4 will cause a reversal of the movements previ- 90 ously described, and as a result the tank 4 will be moved downward to its limit of movement and the tank 4^a will be elevated, which action opens the switch or damper connected to the chain or cable 32, and as 95 the tank 4 moves downward to its limit of movement, the handle of the self closing valve 5 carried by said tank 4 will strike against the lug 6, thus opening said faucet, and the water contained in said tank 4 will 100 discharge into the corresponding funnel 9 and through the branch pipe 8 to the waste pipe 7.

Subsequent intermittent actuations of the apparatus are brought about by providing 105 the tanks 24^a and 24, which are equipped with self opening valves 26, which are held closed by the levers 28 and fingers 29, and which fingers are set to operate at the expiration of predetermined periods of time 110 corresponding to the time at which the clocks 30 are set to actuate the fingers 29, and when the handles of the self opening valves 26 are released, the water in the tanks 24^a and 24 discharges into the tanks 16^a and 115 16, and in turn discharges into the tanks 4^a and 4, to shift the position of the rod 3, and thus obtain the proper movement to actuate the switch, damper, or other mechanical device. An apparatus of my improved con- 120 struction is simple, inexpensive, is easily set for use, and will positively and accurately operate at the expiration of predetermined intervals of time, and thus provides simple means for actuating an electric switch, 125 damper, ventilator, or like mechanical appliance.

In some instances, fine sand or shot may be utilized in my improved apparatus in the place of water, or like fluid.

I claim:

1. In an apparatus of the class described, an oscillating rod, tanks mounted on the ends of said rod, self closing valves arranged in the lower ends of the tanks, fixed means for engaging said valves to open the same, a movable member actuated by the oscillating rod, a tank arranged above one of the first mentioned tanks, and chronometrically actuated mechanism for permitting the contents of the second mentioned tank to discharge into one of the first mentioned tanks.

2. In an apparatus of the class described, an oscillating rod, tanks mounted on the ends of said rod, self closing valves arranged in the lower ends of the tanks, fixed means for engaging said valves to open the same, a movable member actuated by the oscillating rod, a pair of tanks arranged above the first mentioned tanks, and an independently operating chronometric mechanism for permitting the discharge of the contents of the second tanks into the first mentioned tanks.

3. In an apparatus of the class described, an oscillating rod, tanks mounted on the ends of said rod, self closing valves arranged in the lower ends of the tanks, fixed means for engaging said valves to open the same, a movable member actuated by the oscillating rod, a plurality of tanks arranged above each one of the first mentioned tanks, there being an outlet formed in the bottom of each tank, self opening valves located in said outlets, and chronometric means for normally holding said valves closed.

4. In an apparatus of the class described,

an oscillating rod, containers mounted on the ends of said rod, a movable member actuated by the oscillating rod, liquid containers arranged above the first mentioned containers, tubes leading from the liquid containers to the first mentioned pair of containers, valves located in said tubes, and adjustable chronometric mechanism for controlling the opening of said valves.

5. In an apparatus of the class described, an oscillating rod, containers mounted on the ends thereof, self closing valves arranged in the lower ends of the tanks, fixed means for engaging said valves to open the same, a movable member actuated by the oscillating rod, and chronometrically actuated mechanism for delivering liquid to either one of the containers.

6. In an apparatus of the class described, an oscillating rod, tanks mounted on the ends thereof, a movable member actuated by the oscillating rod, a plurality of tanks arranged above each one of the first mentioned tanks, there being an outlet formed in the bottom of each tank, self opening valves located in said outlets, and adjustable chronometric mechanism for normally holding said valves closed.

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

JOHN T. CALLAWAY.

Witnesses:

STANHOPE FLEMING,
CHAS. FLEMING.