

No. 860,351.

PATENTED JULY 16, 1907.

E. M. COGHLAN & G. W. FIFE.

TRICK LUNG TESTER.

APPLICATION FILED APR. 15, 1907.

2 SHEETS—SHEET 1.

Fig. 1.

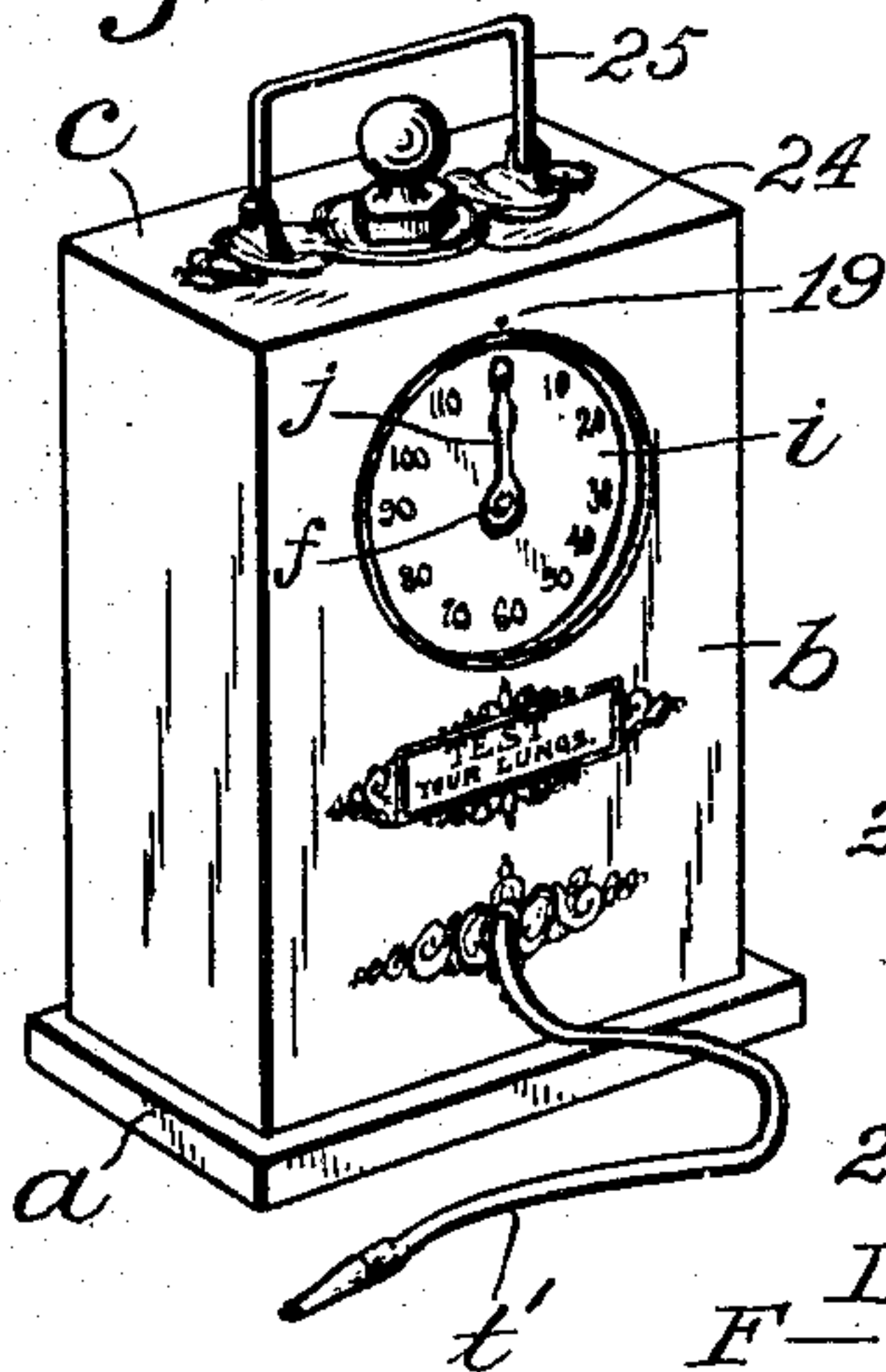


Fig. 2.

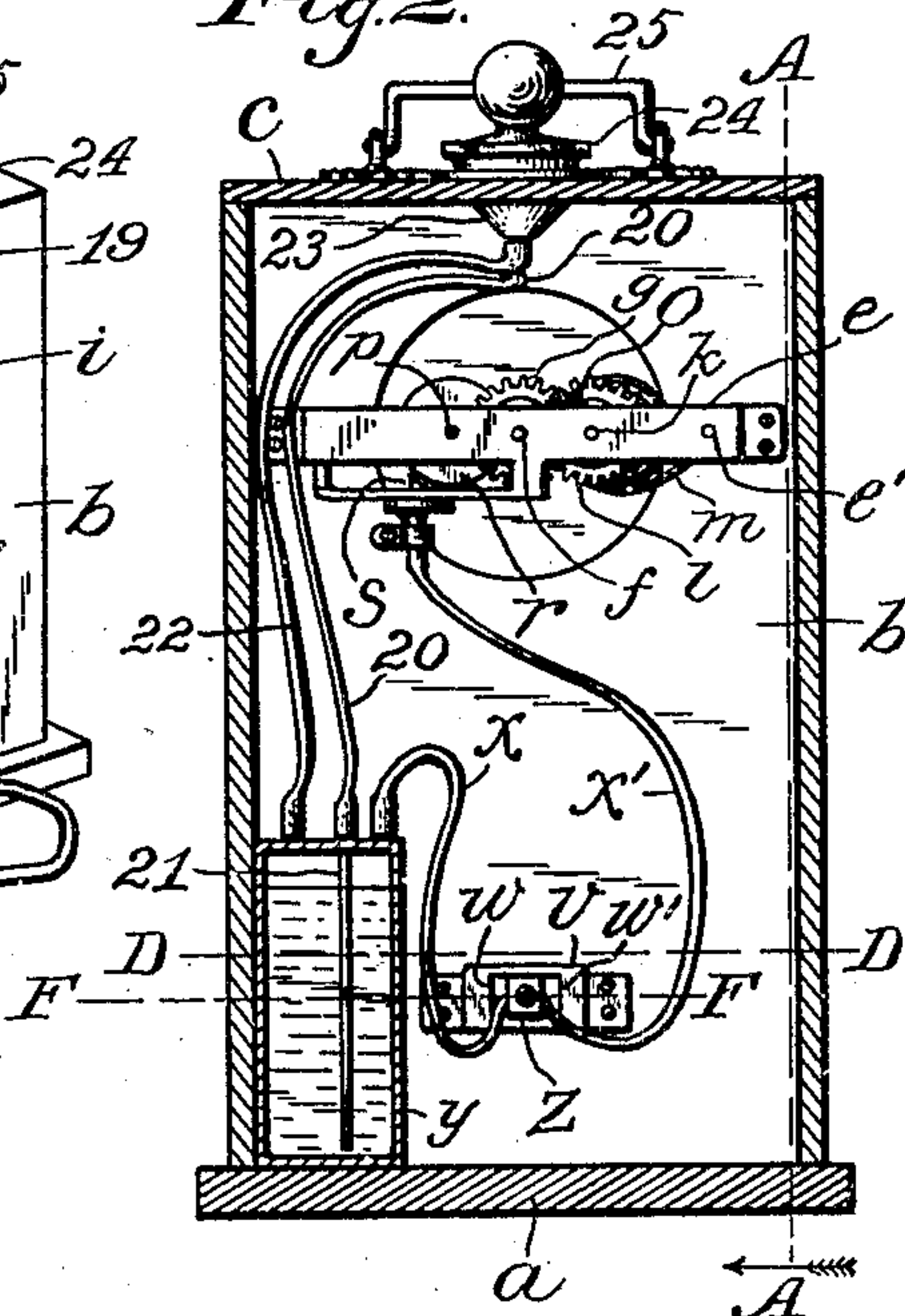


Fig. 3.

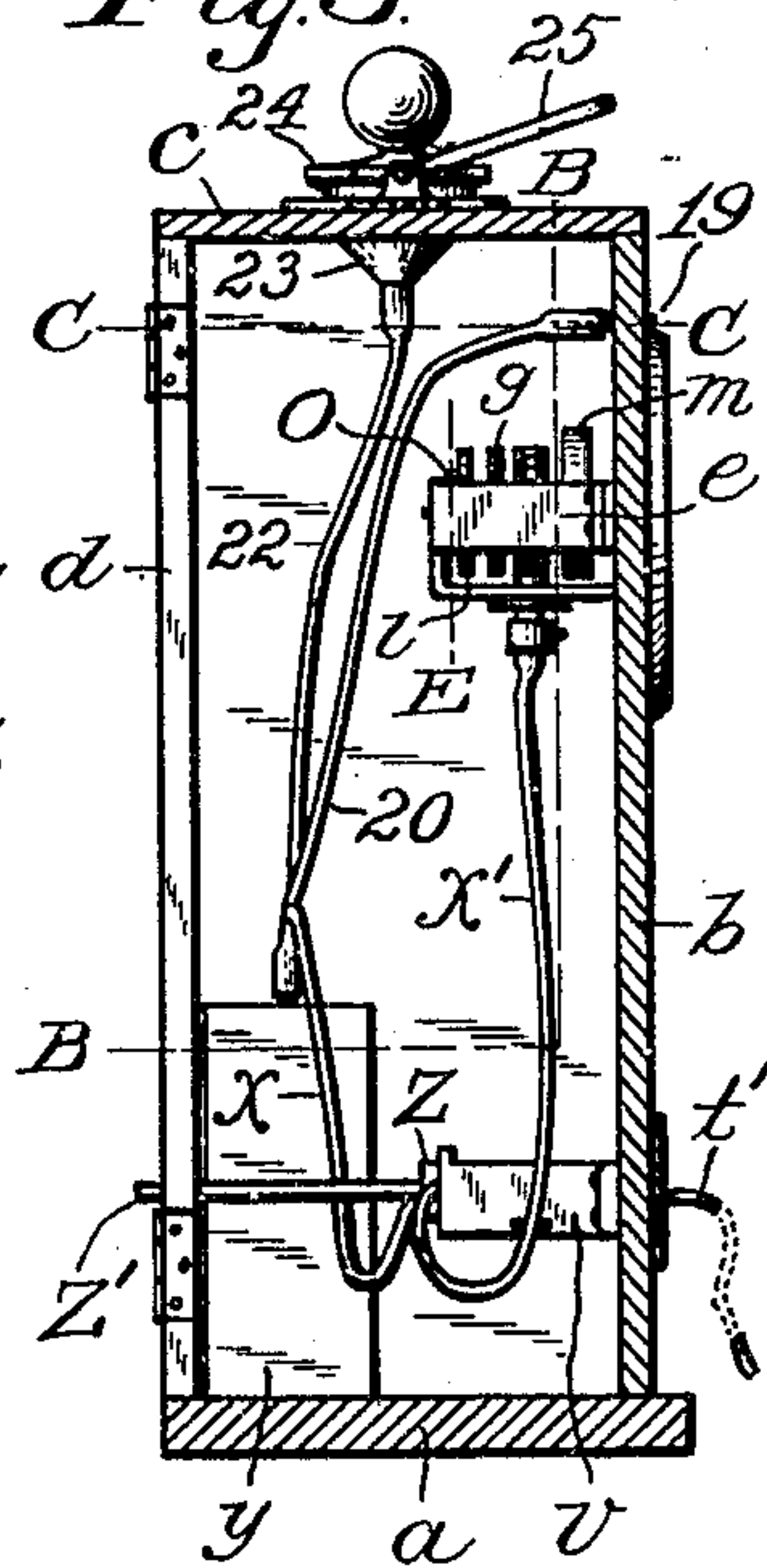


Fig. 4.

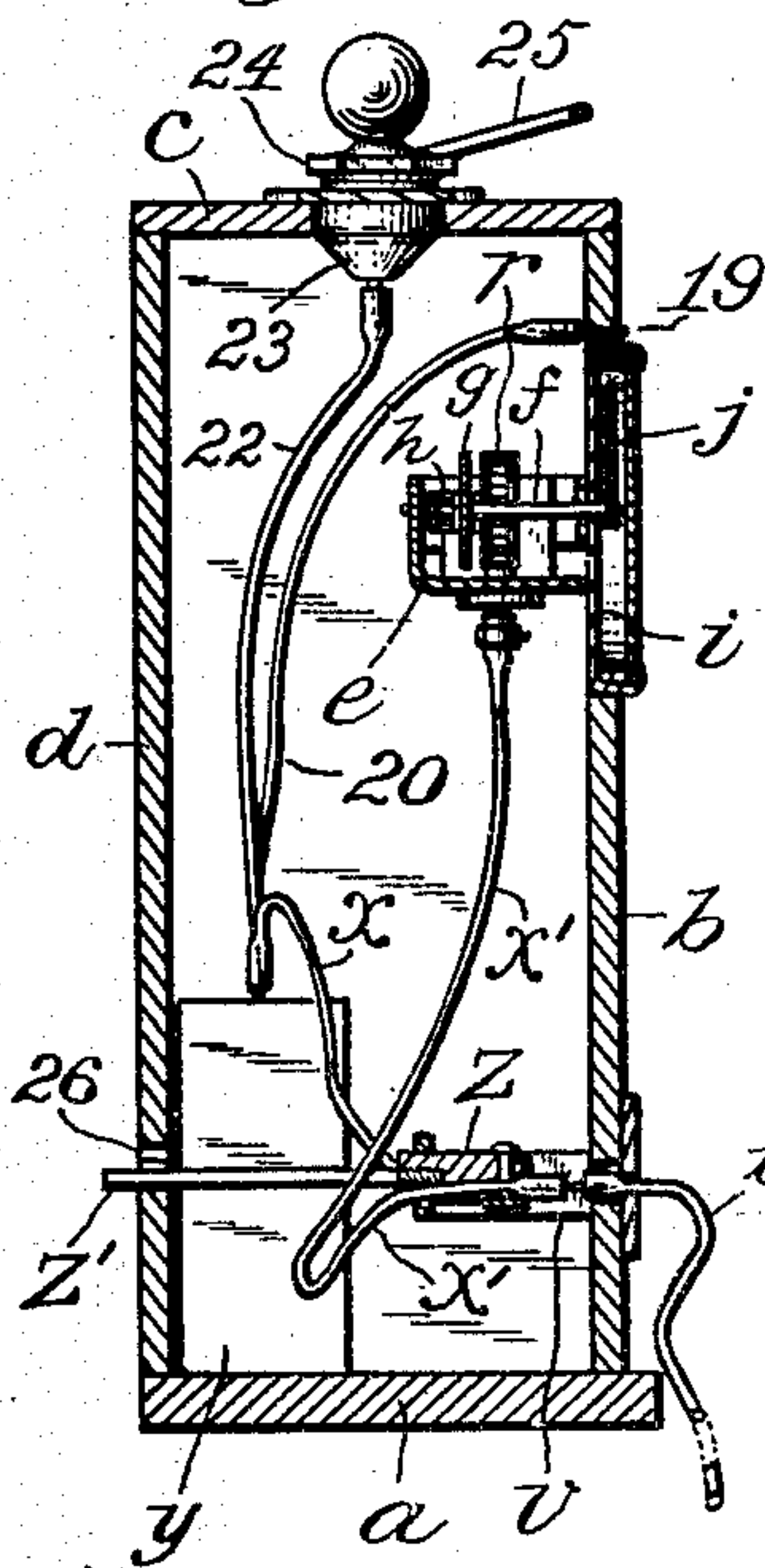


Fig. 5.

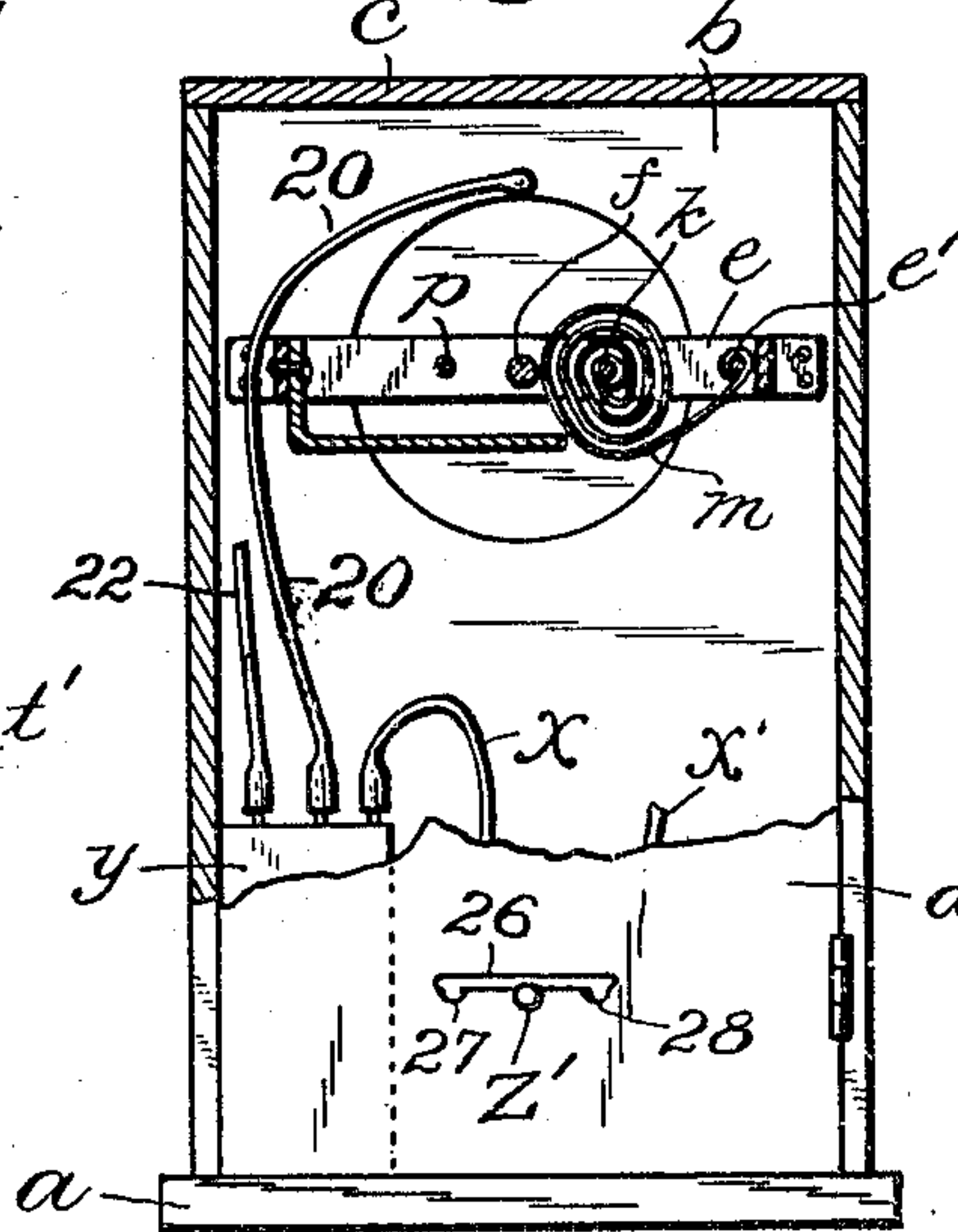
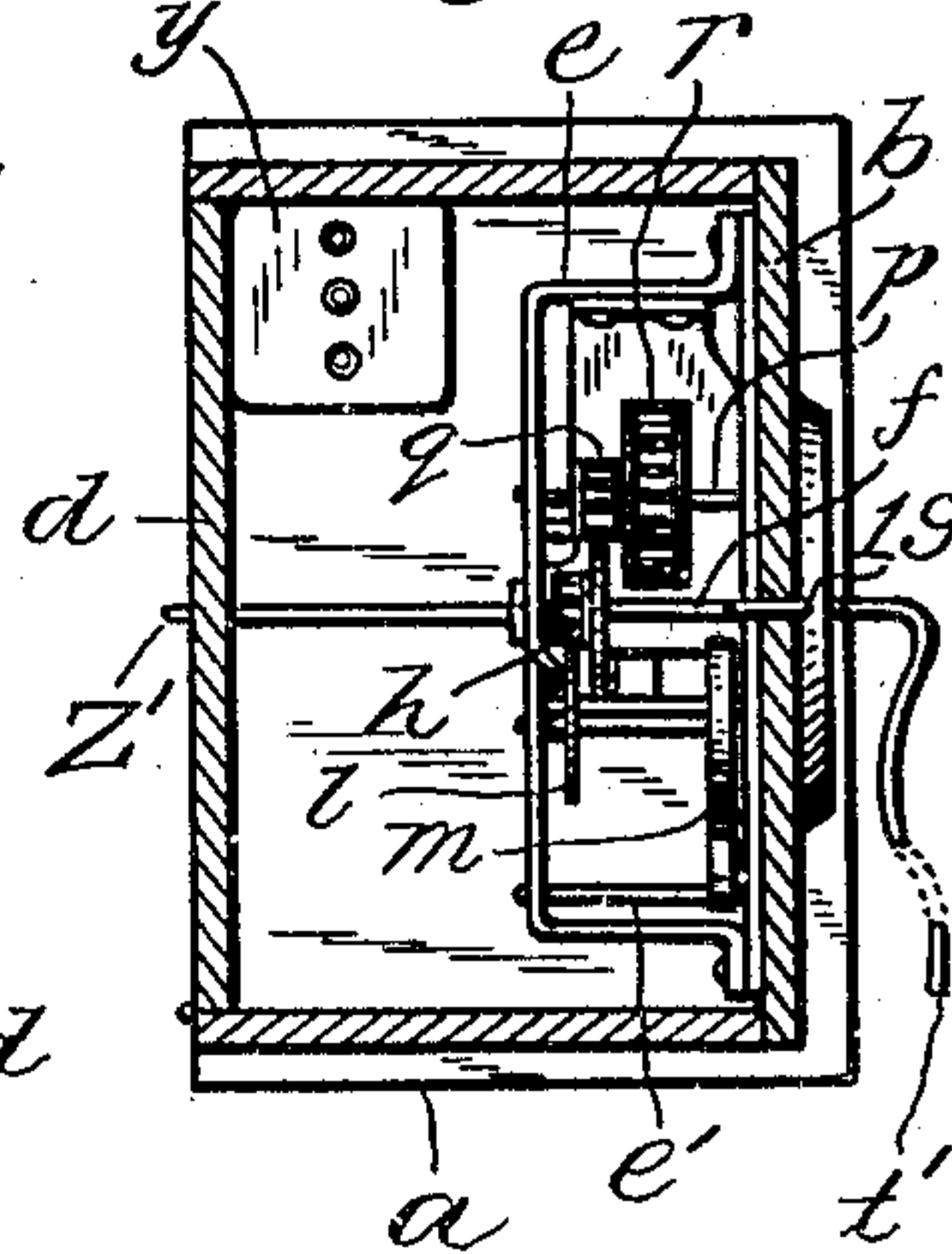


Fig. 6.



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2 SHEETS—SHEET 2.

Fig. 7.

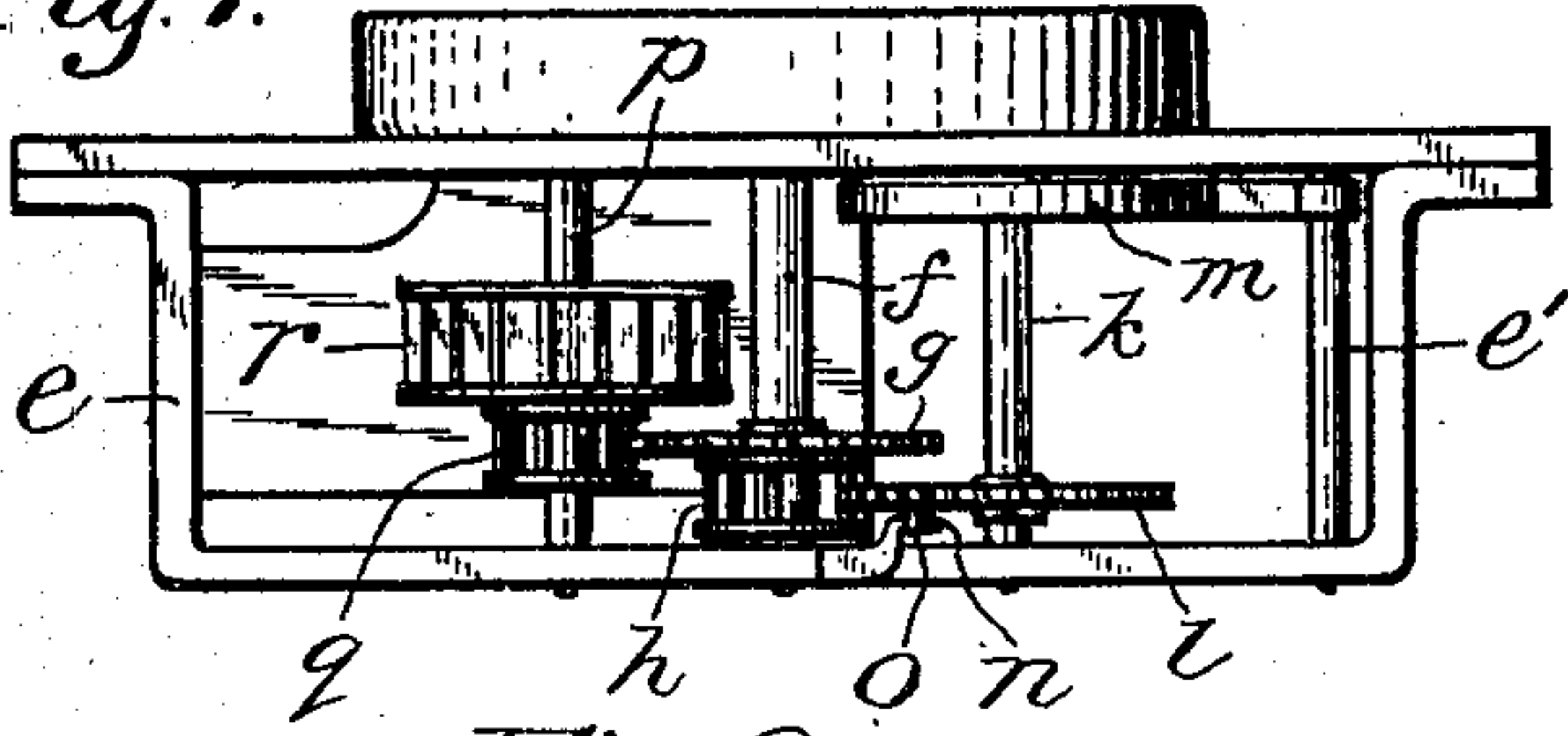


Fig. 8.

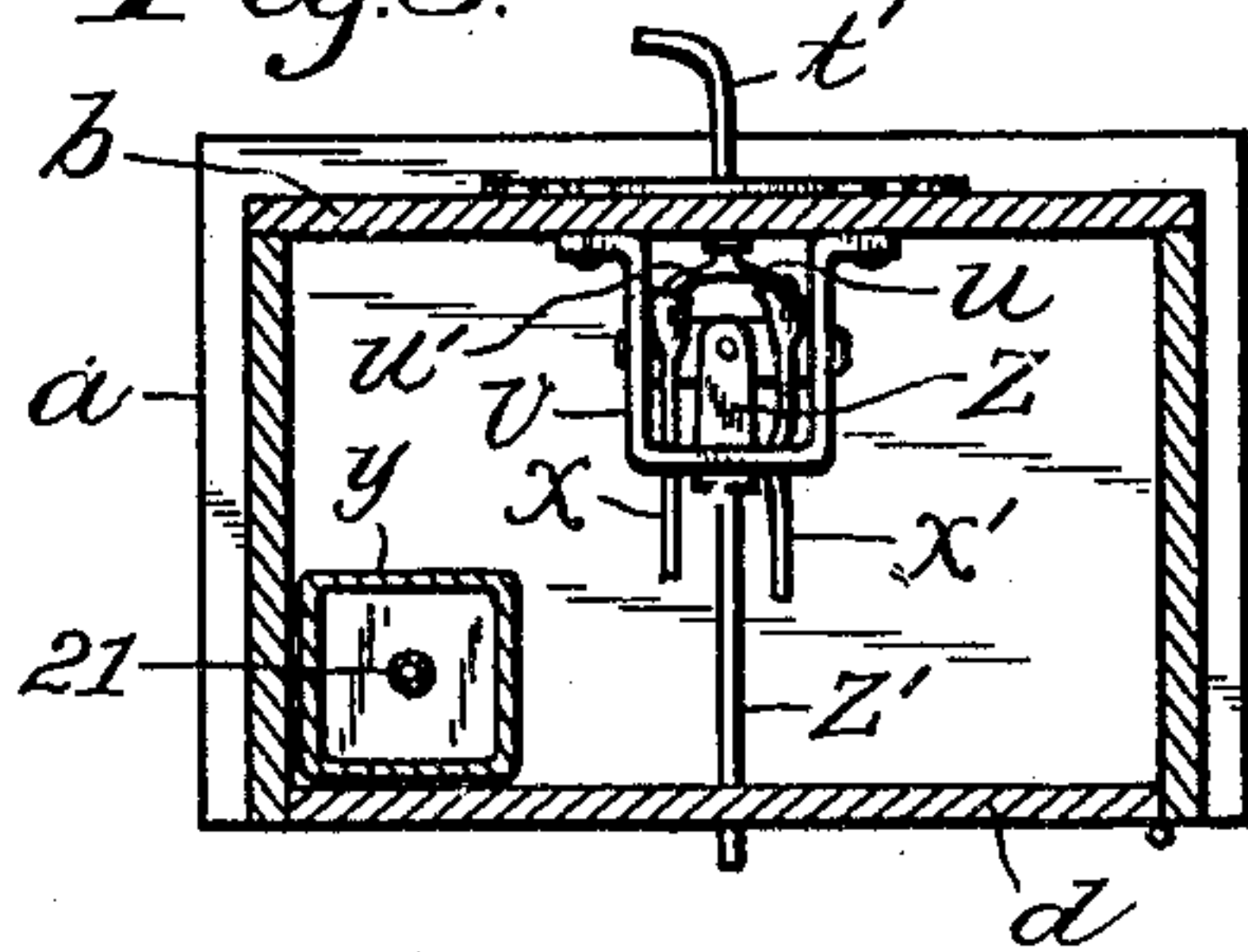


Fig. 9.

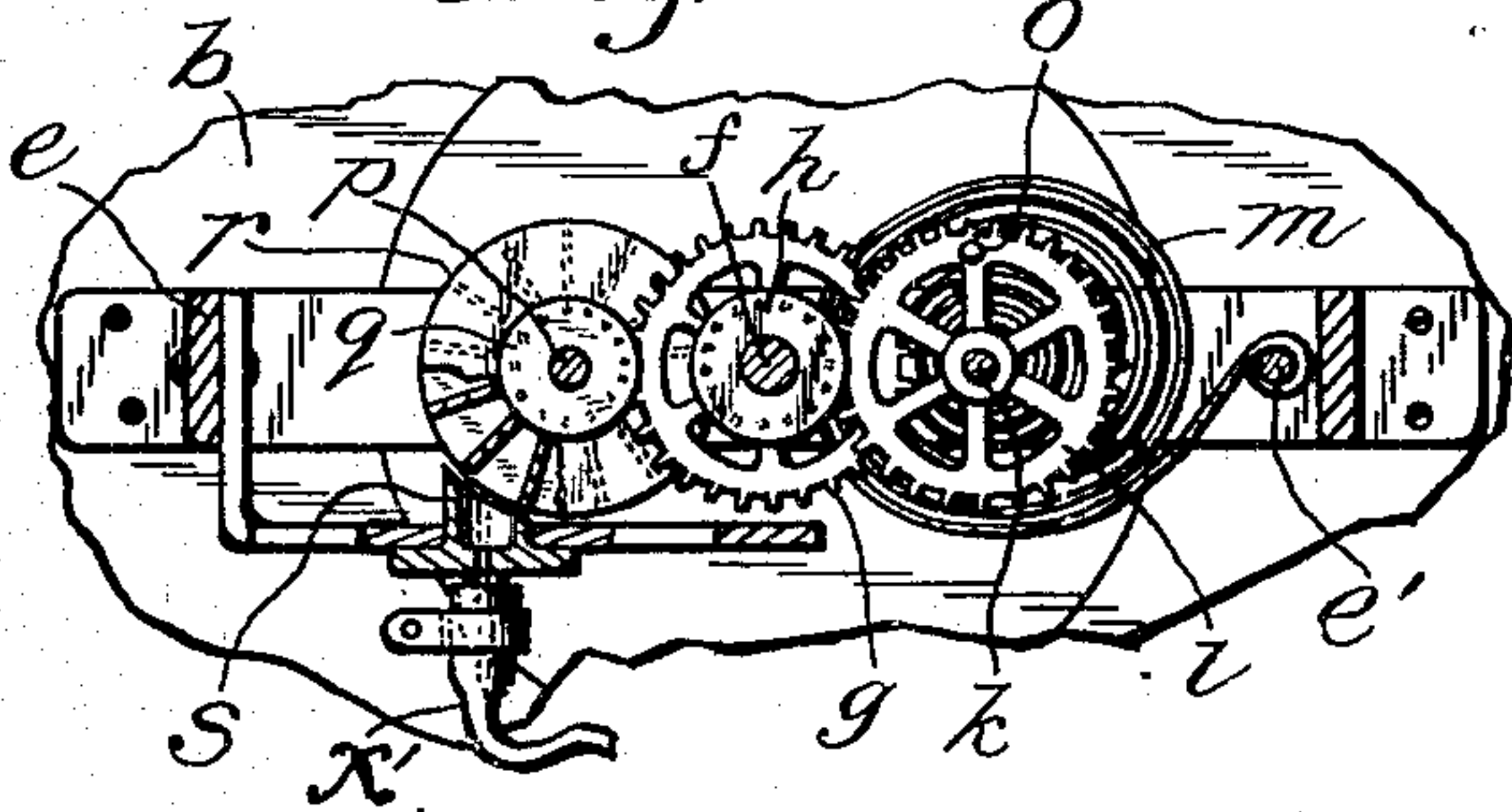


Fig. 10.

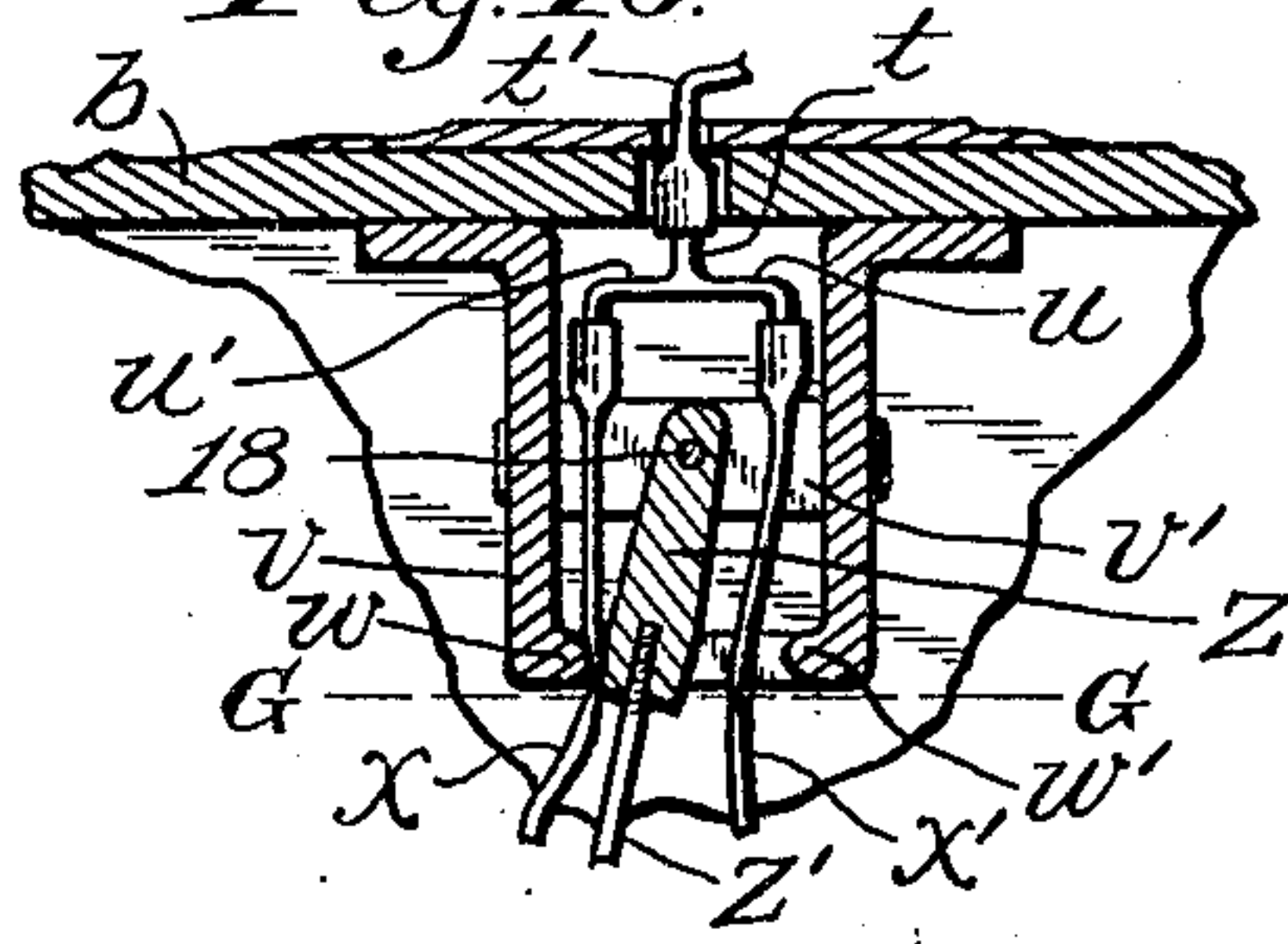


Fig. 12.

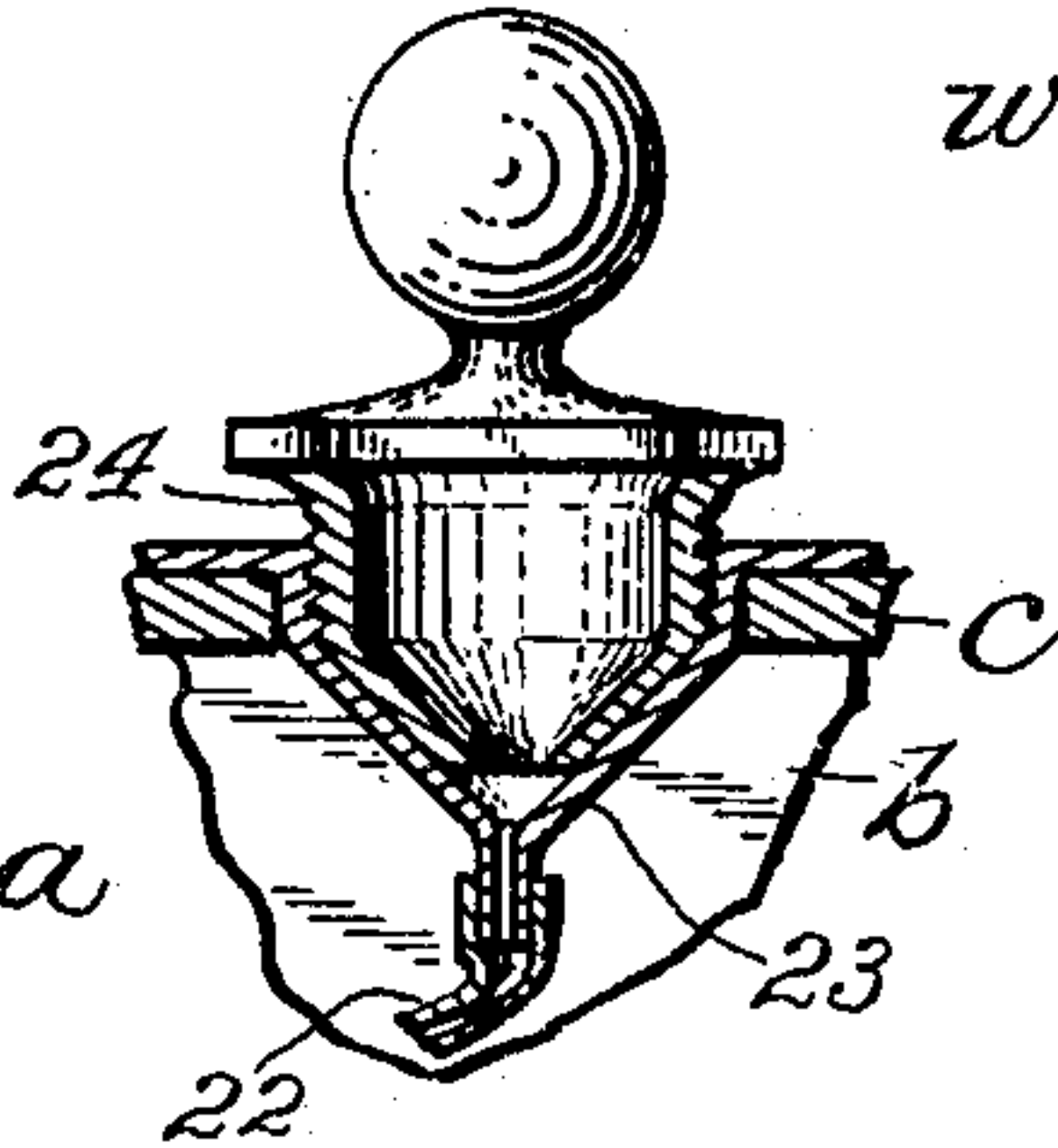


Fig. 11.

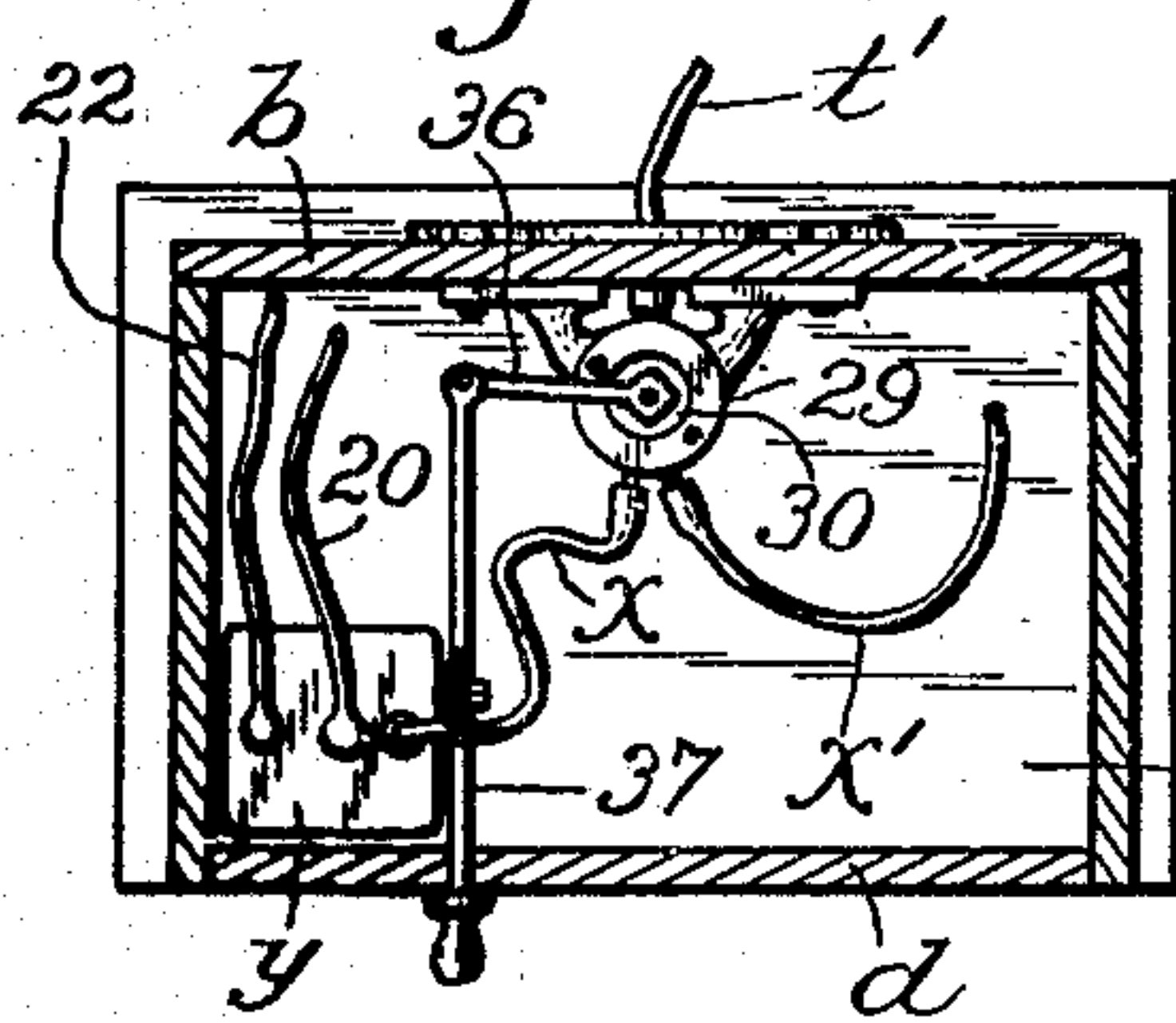


Fig. 13.

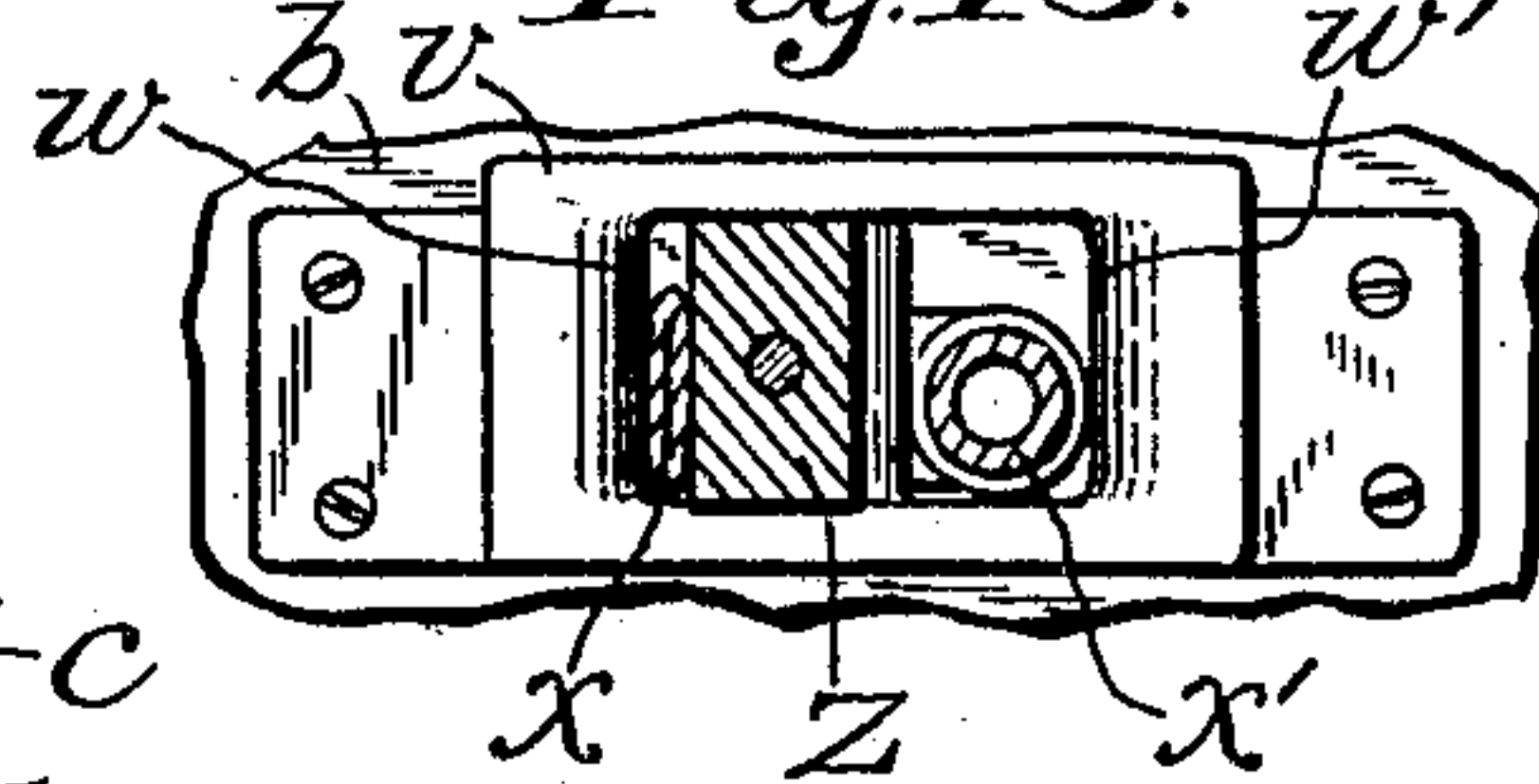


Fig. 16.

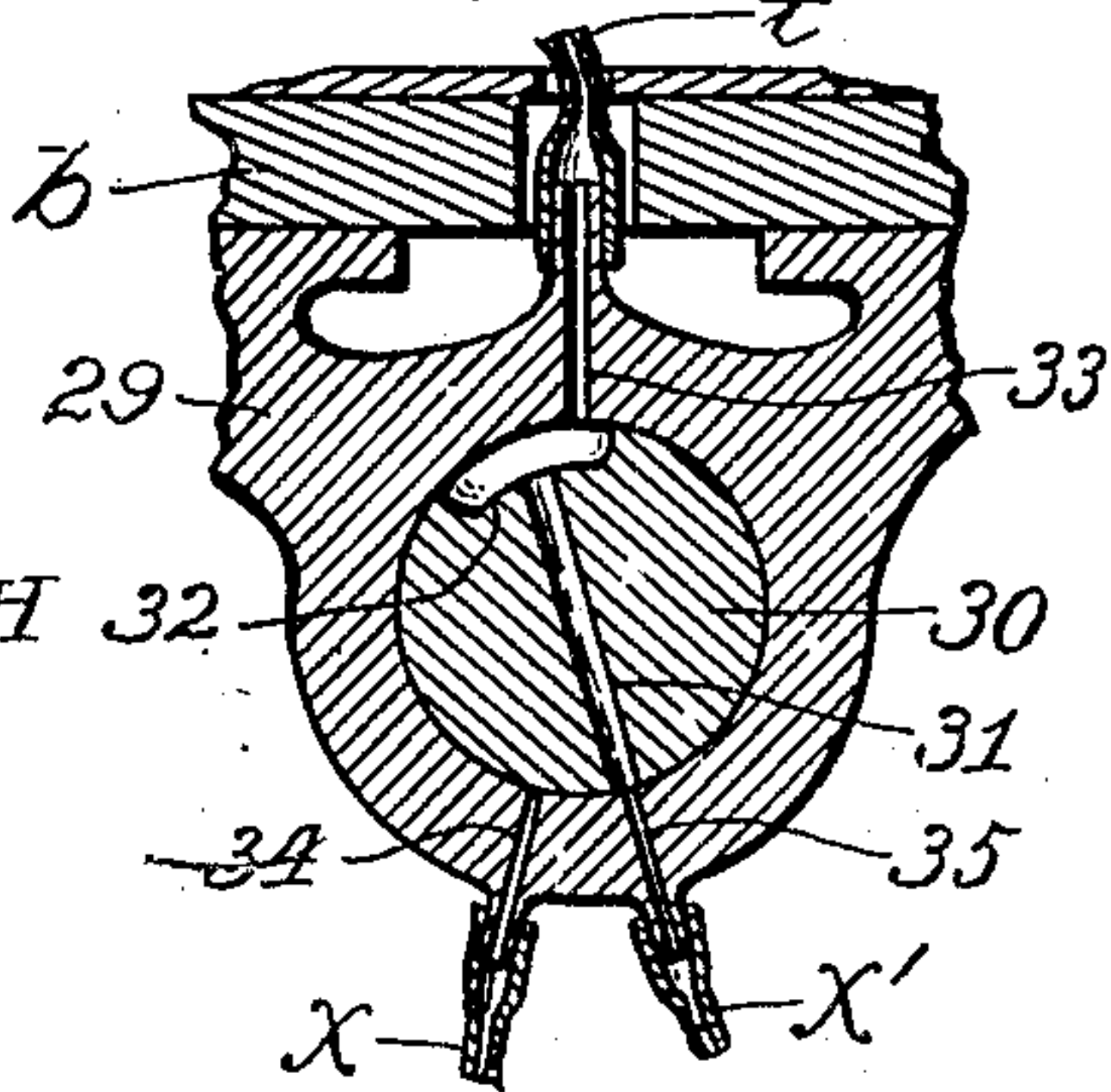


Fig. 15.

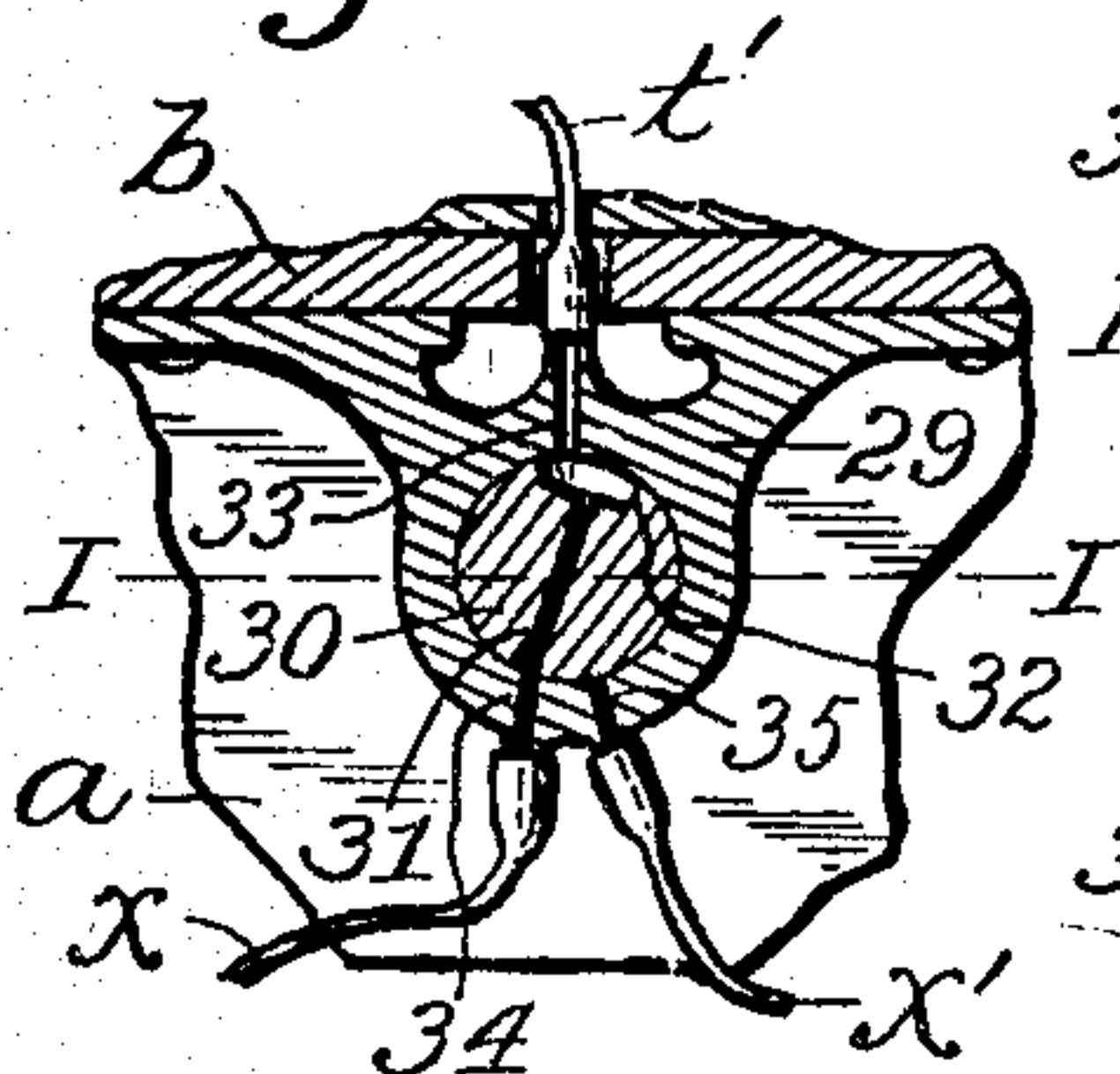


Fig. 14.

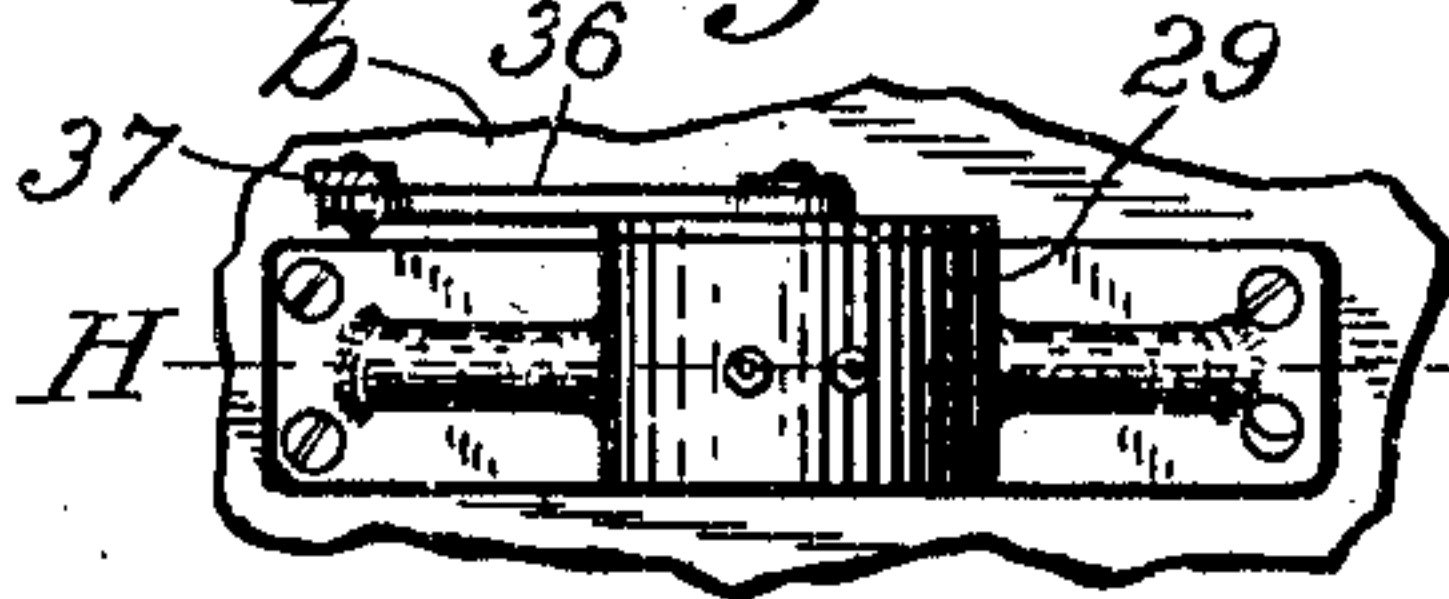
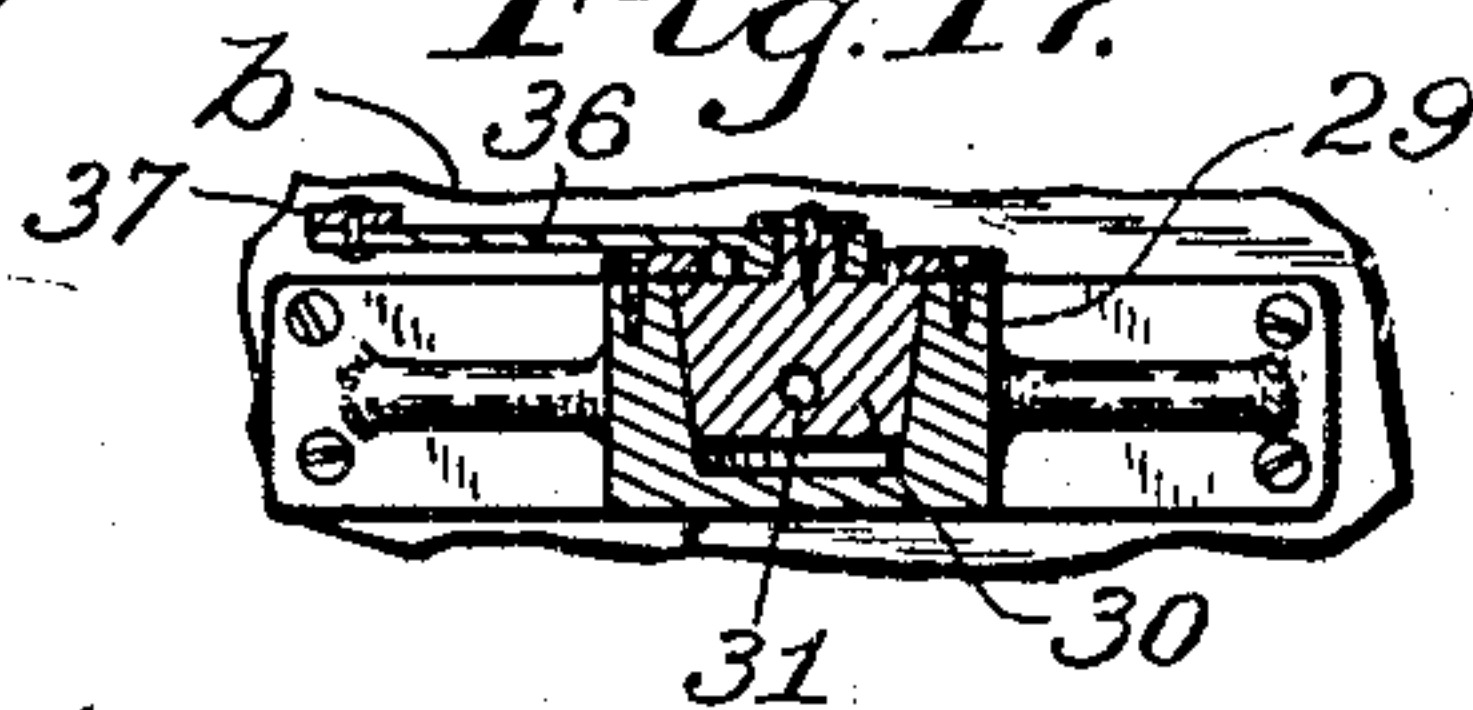


Fig. 17.



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UNITED STATES PATENT OFFICE.

EDWARD M. COGHLAN AND GEORGE W. FIFE, OF INDIANAPOLIS, INDIANA.

TRICK LUNG-TESTER.

No. 860,351.

Specification of Letters Patent.

Patented July 16, 1907.

Application filed April 15, 1907. Serial No. 368,283.

To all whom it may concern:

Be it known that we, EDWARD M. COGHLAN and GEORGE W. FIFE, citizens of the United States, residing at Indianapolis, in the county of Marion and State of Indiana, have invented certain new and useful Improvements in Trick Lung-Testers; and we do declare the following to be a full, clear, and exact description of the invention, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

This invention relates to a machine that is designed for the amusement of persons who may ascertain approximately what capacity they may have for blowing forcibly, and is intended to be used more particularly by groups of persons in amusing contests in a display of strength and skill in blowing to operate an indicator which is supposed to indicate the relative strength of their lungs, the machine having reference also to apparatus whereby a trick may be played to the discomfiture of one of the contestants who may blow into the machine, whereby a jet of water may be blown or forced from the machine into his face.

The object of the invention is to provide a machine of the above-mentioned character which will afford healthful amusement and entertainment, and whereby innocent and harmless tricks may be performed for the amusement of the company.

With the above-mentioned and minor objects in view, the invention consists in a trick lung tester comprising an inclosing case provided with a dial and indicating pointer, a wind-wheel and connecting mechanism whereby the pointer may be actuated, means for retracting the pointer to the zero mark or its normal position, a conduit connected with the wind wheel and extending out through the case so as to be accessible to the operator, a vessel in the case for containing water or similar liquid, a conduit leading from the vessel through the front of the case, a tube for filling the vessel, and means whereby communication may be opened either between the conduit into which the operator blows and the wind-wheel, or between the conduit into which the operator blows and the vessel. And the invention consists further in the novel parts and in the combinations and arrangements of parts as hereinafter particularly described and defined in the appended claims.

Referring to the drawings Figure 1 is a perspective view of the improved trick lung tester; Fig. 2, a vertical sectional view taken at a plane through the case near the back or rear part thereof; Fig. 3, a vertical

transverse sectional view approximately on the line A A in Fig. 2; Fig. 4, a vertical central transverse sectional view; Fig. 5, a fragmentary rear elevation broken away and shown in vertical section approximately on the line B B in Fig. 3; Fig. 6, a horizontal sectional view on the line C C in Fig. 3; Fig. 7, a top plan of the pointer-operating mechanism separate from the case; Fig. 8, a horizontal sectional view on the line D D in Fig. 2; Fig. 9, a fragmentary vertical sectional view on the line E E in Fig. 3, showing parts of the mechanism in which a portion of the conduit leading to the wind wheel is shown in section on a different plane; Fig. 10, a fragmentary horizontal sectional view approximately on the line F F in Fig. 2; Fig. 11, a horizontal sectional view showing a modified construction for changing the air current to or from the wind-wheel or the vessel taken at a plane above the vessel; Fig. 12, a fragmentary sectional view showing the stopper for the filling tube of the vessel; Fig. 13, a fragmentary vertical sectional view on the line G G in Fig. 10; Fig. 14, a front view of the valve comprising part of the modifications shown in Fig. 11; Fig. 15, a fragmentary horizontal sectional view on the line H H in Fig. 14; Fig. 16, a sectional view similar to Fig. 15 but with the position of the valve plug changed; and Fig. 17, a fragmentary vertical sectional view on the line I I in Fig. 15.

Similar reference characters in the several figures of the drawings designate corresponding elements or features of construction.

The present invention comprises in construction an inclosing case which may be variously constructed, being preferably composed of a bottom *a*, a front *b* and suitable sides together with a top *c*, and a hinged door *d* forming the back of the case. A suitable frame *e* is secured to the upper portion of the front *b* in the interior of the case, and a spindle *f* is mounted rotatively in the frame so as to extend through the forward part of the frame, the spindle having a gear wheel *g* and also a pinion *h* secured thereto near the inner end thereof. A dial *i* is mounted in the front of the case and a pointer *j* is secured to the outer end of the spindle *f* at the front of the dial. A rock-shaft *k* is journaled also in the frame *e* and has a gear wheel *l* secured thereto in engagement with the pinion *h*, a spring *m* being mounted on the rock-shaft and having one end secured thereto, and an end connected to a rod *e'* of the frame *e* for the purpose of retracting the pointer *j* to the zero mark on the dial after having been operated. The frame *e* is provided with a stop finger *n* that projects near the wheel *l*, and the latter is provided with a pin

o to engage the finger for stopping the pointer at the zero mark when said wheel is rotated, by means of the tension of the spring *m*, the pin *o* being moved away from the finger during operation of the pointer. A drive-shaft *p* is mounted rotatively also in the frame *e* and has a pinion *q* and also a suitable wind wheel *r* secured thereto, the pinion being in engagement with the wheel *g* for operating the pointer *j*. A blast pipe nozzle *s* is mounted on the frame *e* so as to direct the air currents to the blades of the wind-wheel in order to rotate the wheel, and thus utilize the force of the air current produced by the blowing of the operator.

A pipe connection *t* is mounted at the inner side of the lower portion of the front *b*, and a blow pipe *t'* which is preferably flexible, as a rubber tube, is connected thereto, the connection having two branches *u* and *u'*. A housing *v* is suitably supported in the case and has a pivot bar *v'* and also a guide opening, at two opposite sides of which are rounded abutments *w* and *w'*, two air tubes *x* and *x'* extending through the opening close to the abutments and connected to the branches *u* and *u'*. The air tube *x* is connected to a vessel *y* which is suitably supported in the case and is normally closed except for the connecting tubes or conduits. The air tube *x'* is attached to the blast pipe connection *s* and a tube-closer *z* of bar shape is connected at one end thereof by a pivot 18 to the pivot bar *v'* and extends through the opening in the housing between the air tubes *x* and *x'*, and is provided with an operating arm *z'* which extends through the case at any suitable point but preferably as hereinafter described. The tubes *x* and *x'* are rubber so that they may collapse, and the purpose of the tube-closer *z* is to press either tube against the abutment adjacent thereto so as to flatten the tube and thus prevent air from passing through it, all operating substantially as a valve for changing the direction of the air currents either to the wind wheel or to the vessel.

In the upper portion of the front *b* is a minute nozzle 19 so arranged as to not readily be observed by the operator, and a tube 20 connects the nozzle with the vessel *y*, the tube having an extension 21 from the top nearly to the bottom of the vessel so that a jet of water may be ejected from the vessel out of the nozzle 19 into the face of the operator. A filling tube 22 is connected to the vessel and has a funnel shaped top 23 mounted in the top *c* of the case, the funnel serving as a valve seat to which a valve shaped stopper 24 is connected removably so that the vessel may be readily filled when the stopper is removed, the latter having a disguising ornamental shape so as to not be noticeable as a filling plug. The top of the case is preferably provided with a carrying handle or bail 25.

As preferably constructed the door *d* has a horizontal slot 26 therein through which the arm *z'* extends, there being notches 27 and 28 at the sides of the slot into which the arm may be latched to retain it in the desired position.

In some cases the modifications above referred to may be employed which comprise a valve body 29 suitably supported in place of the housing *v*, there being a valve plug 30 mounted rotatively in the valve body, the plug having a transverse port 31 extending there-

through, there being a recess 32 in the plug at one end of the port, this recess being in constant communication with a port 33 that extends through the valve body and with which the blow pipe *t'* is connected. The opposite side of the valve body has two ports 34 and 35, and the port 31 may be put into communication with either one of these ports. The air tube *x* is connected with the port 34 and the air tube *x'* is connected with the port 35, so that by shifting the valve plug 30 the blow pipe *t'* may have communication with either one of the air tubes *x* or *x'*. The valve plug is provided with an operating lever 36 to which is connected an operating rod 37 that extends through the rear door *d* so that if the rod 37 be drawn outwardly the valve will be set as in Fig. 16, and the operator may blow to the wind wheel *r*, and the rod 37 may be quickly pushed inwardly so as to set the valve as in Fig. 15, thus changing the current from the tube *x'* to the tube *x*, and therefore direct the current to the vessel *y*.

In practical use one may blow forcibly through the blow pipe *t'* when the tube-closer *z* is in mid-position and the blast will be divided partly to the wind wheel and partly to the vessel *y* with the result that the pointer *j* will move but slightly while there will not be sufficient pressure to expel water from the vessel. Then the arm *z'* may be shifted so as to close the tube *x* and the operator may be urged to greater effort with the result that the pointer *j* will move farther than before, and when desired the arm *z'* may be shifted so that the tube *x'* will be closed against the abutment *w'* with the result that if air now be forced through the blow pipe *t'* air pressure will be created in the vessel so as to force water therefrom out of the nozzle 19. Other operations and results will be readily understood from the preceding descriptions.

Having thus described the invention, what is claimed as new is:

1. A trick lung tester including an upright case, a dial on the case, a spindle rotative in the case and having a gear wheel secured thereto, a pointer secured to the spindle at the front of the dial, a shaft mounted rotatively in the case and having a wind-wheel and a pinion secured thereto, the pinion engaging the gear wheel, a blow-pipe extending from the exterior of the case to the wind-wheel, and a retracting device for the spindle.

2. A trick lung tester including an upright case, a dial on the front of the case, a spindle rotative in the case and having a gear wheel secured thereto, a pointer secured to the spindle at the front of the dial, a shaft mounted rotatively in the case and having a wind-wheel and a pinion secured thereto, the pinion engaging the gear wheel, a liquid vessel in the case, a blow-pipe extending from the exterior of the case to the wind-wheel, an air tube extending from the vessel, means for connecting the air tube with the blow-pipe and closing communication between the blow-pipe and the wind-wheel, a conduit extending from the vessel through the front of the case, and a retracting device for the spindle.

3. A trick lung tester comprising an upright case having an opening in the back thereof, a dial on the front of the case, a spindle rotative in the case and having a gear wheel and a pinion secured thereto, a pointer secured to the spindle at the front of the dial, a shaft mounted rotatively in the case and having a wind-wheel and a pinion secured thereto, the pinion engaging the gear wheel, a rock-shaft mounted in the case and having a gear wheel secured thereto in engagement with the pinion of the spindle, a spring secured to the rock-shaft and also to a stationary element in the case, a vessel in the case, a

5 filling-tube extending from the vessel to the top of the case and provided with a funnel-shaped orifice, a stopper for the orifice, a blow-pipe extending from the exterior through the front of the case, an air-tube leading from the wind-wheel near to the blow-pipe, an air-tube leading from the vessel near to the blow-pipe, means for effecting communication between the blow-pipe and either one of said air-tubes and having operating means extending through the opening in the case, and a conduit extending

from the vessel through the front of the case adjacent to 10 the dial.

In testimony whereof, we affix our signatures in presence of two witnesses.

EDWARD M. COGHLAN.
GEORGE W. FIFE.

Witnesses:

WM. H. PAYNE,
E. T. SILVIUS.