

No. 896,841.

PATENTED AUG. 25, 1908.

J. M. LATIMER.
PRESSURE TANK ALARM.
APPLICATION FILED SEPT. 1, 1906.

2 SHEETS—SHEET 1.

Fig. 3.

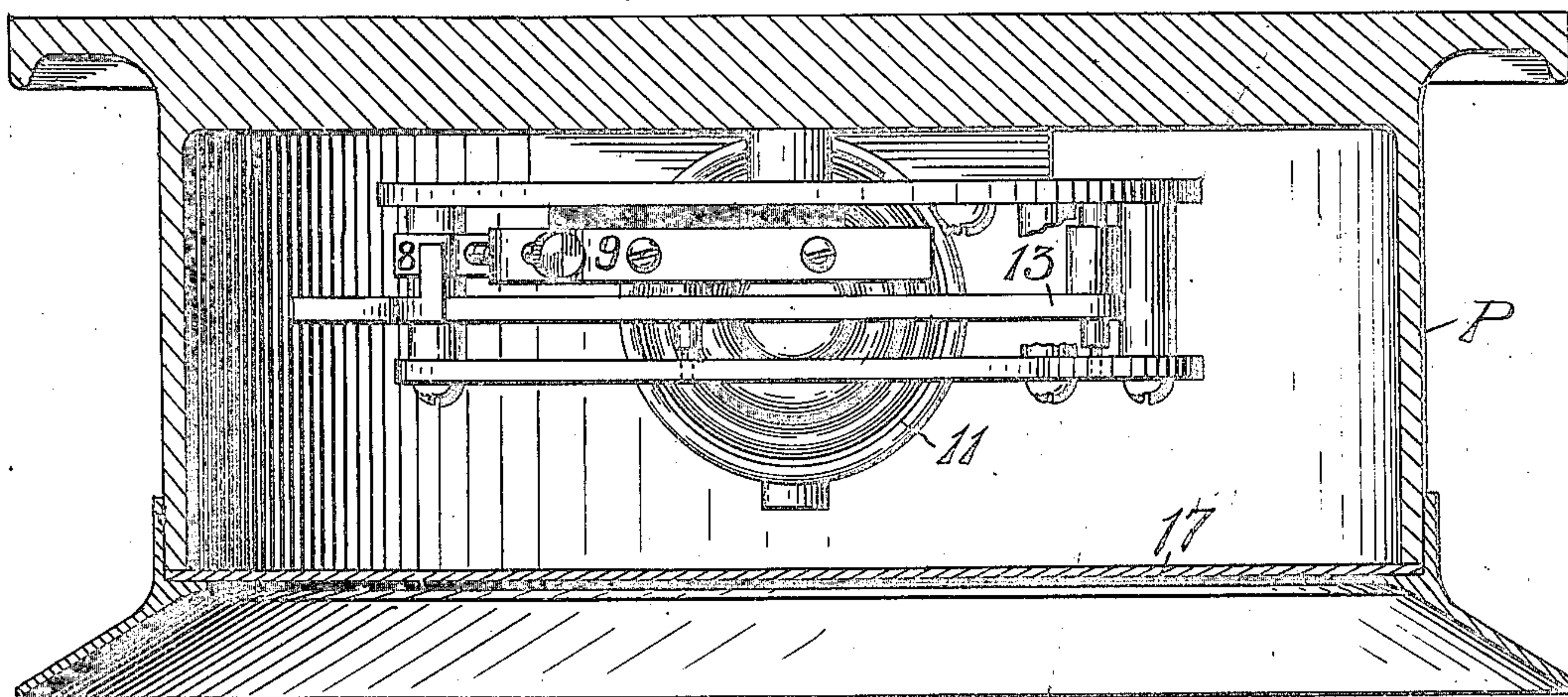
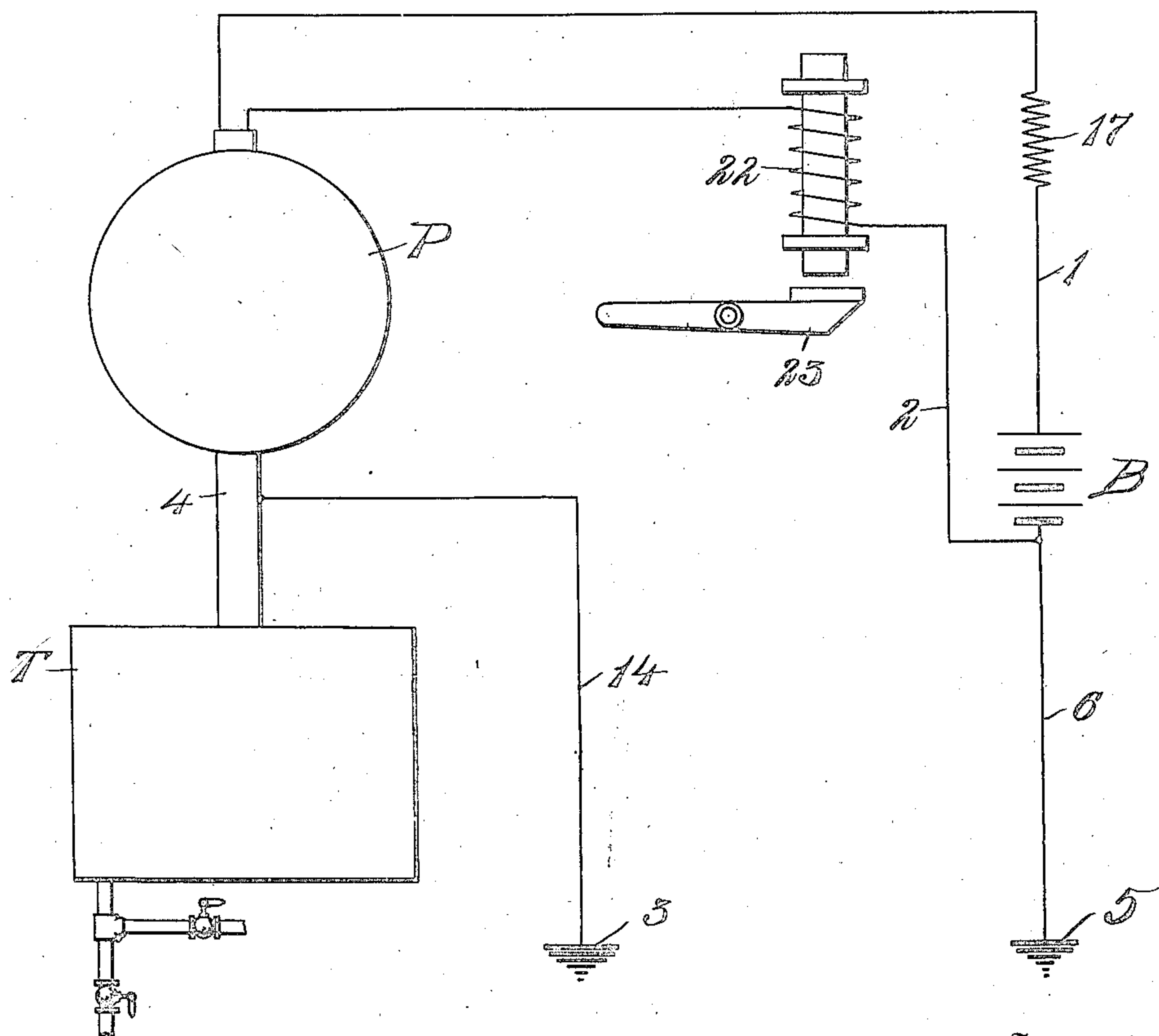


Fig. 1.



Witnesses

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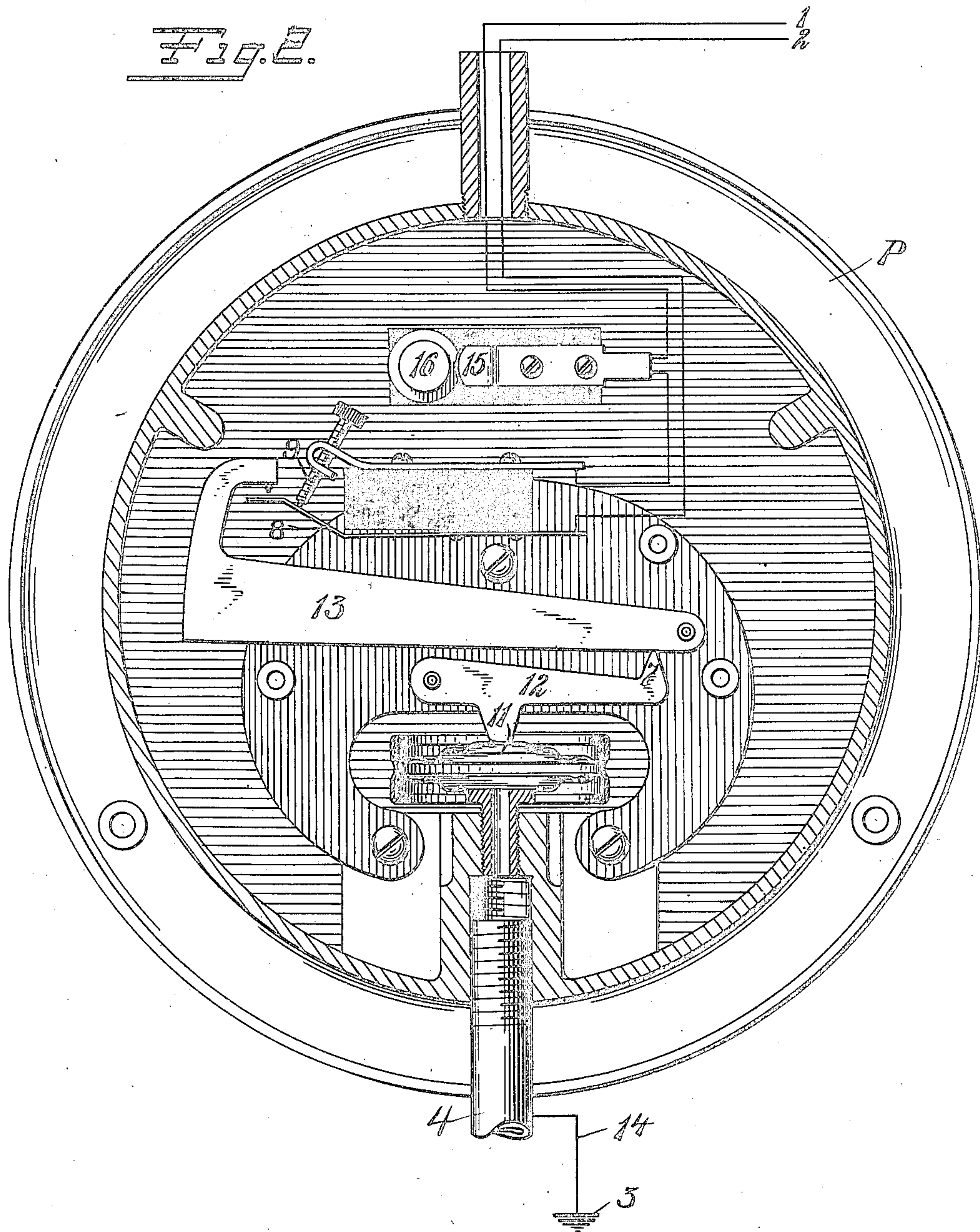
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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

JOHN M. LATIMER, OF FLUSHING, NEW YORK, ASSIGNOR TO CONSOLIDATED FIRE ALARM COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

PRESSURE-TANK ALARM.

No. 896,841.

Specification of Letters Patent.

Patented Aug. 25, 1908.

Original application filed September 18, 1905, Serial No. 278,883. Divided and this application filed September 1, 1906. Serial No. 333,029.

To all whom it may concern:

Be it known that I, JOHN MORRIS LATIMER, a citizen of the United States, residing at Flushing, Queens county, Long Island, New York, have invented certain new and useful Improvements in Pressure-Tank Alarms, of which the following is a full, clear, and exact description.

My invention relates to improvements in systems and apparatus for the automatic supervision of pressure conditions in tanks, for instance, for the supply of water for fire protection, and is a division from application Serial No. 278,883, filed September 18, 1905.

The object of the invention is to provide a simple and reliable system and mechanism for automatically affecting a main alarm circuit so as to notify a central station upon variation in the pressure in the supply tank.

Another object is to provide, in conjunction with such an apparatus, means for sending in an alarm in case the pressure alarm attachment is interfered with.

The invention consists in improvements, the principles of which are illustrated in the accompanying two sheets of drawings.

Briefly considered, the system comprises a circuit with a battery connected through a resistance with the alarm attachment, and an alarm transmitting relay, all normally in series. One member of the alarm attachment and the side of the battery adjacent the relay are grounded. The pressure attachment consists of an expansion chamber normally sustaining a pair of multiplying levers out of contact with circuit points.

Figure 1 is a diagram of a circuit and apparatus embodying the improvements of my invention, Fig. 2 is a full-sized vertical sectional view of the attachment or mechanism connected to the pressure tank for starting the alarm, Fig. 3 is a horizontal sectional view of the same.

The tank T is supplied with water under pressure, and from it extend the distributing pipes of the sprinkler, or other fire protection system. In communication with the tank is the alarm starting apparatus P. To this is connected the local circuit having branches 1 and 2, and the battery B. The casing or frame of the pressure attachment P is grounded at 3, as, for instance, by wire 14 connected to the pipe 4 communicating between the tank T and the pressure chamber

11. The battery B is grounded at 5, as by wire 6.

The battery circuit is normally closed through the spring contact finger 8 and the adjustable contact screw 9, which are in contact with each other. A resistance 17 is interposed in branch 1 of the local circuit between the battery B and contact screw 9. The relay coil 22 is interposed in branch 2 of the local circuit between the battery and the spring finger 8. The relay is normally energized and holds up the armature 23. Details of the preferred form of relay mechanism for the transmission of the local alarms to a central receiving apparatus are more fully shown and described in my application No. 333,028 filed herewith.

The short pivoted lever 12 rests upon the tip of the elastic or flexible expansion chamber 11, whose upper and lower walls are corrugated disks. The long pivoted lever 13 rests upon the tip 7 of lever 12 at a point near its own axis thus constituting a compound leverage contact controlling device. The normal pressure in the tank T holds the chamber 11 expanded to such a degree that levers 12 and 13 are held in the position shown in Fig. 2, the extreme tip of lever 13 being in this position just above but out of contact with the end of the spring finger 8. Both of the levers and the expansion chamber, as well as the casing of the attachment P, are all grounded at 3.

In case the pressure in the tank falls below a predetermined minimum, the chamber 11 collapses and lets down lever 12 and by gravity the lever 13 falls so that its tip engages the finger 8. This immediately short-circuits the relay coil 22, so that its armature 23 falls and starts the transmitting mechanism. In case the decrease of pressure is only momentary, the short-circuit will be immediately removed by the upward swinging of lever 13 caused by the expansion of chamber 11. In case the low pressure continues, the lever 13 will continue to fall and its weight is sufficient to pull down the spring finger 8 from its engagement with contact 9. This opens the battery circuit.

The spring 15 is connected to branch 1 of the local circuit, while the spring-pressed plunger 16 is grounded through the casing P. Normally the plunger 16 is held by the cover 17 out of engagement with spring 15, but in

case the cover is tampered with, the plunger is released and contacts with spring 15, so as to ground the circuit and deenergize the relay and send in an alarm.

5 What I claim is:

1. The combination of a local circuit, a relay and source of current therein, a pressure alarm attachment comprising a pressure chamber, a grounded system of levers controlled by said pressure chamber and normally kept out of engagement with said circuit, a pair of contacts in said circuit adapted to be engaged and separated by said system of levers, a casing inclosing and protecting all
10 of said parts and having a removable cover, and a contact device normally held by said cover from engagement with said circuit, said contact device being connected to ground.

2. An alarm starting device comprising a
15 casing containing a pressure chamber having a movable wall, a lever supported thereby, a second lever moving in one direction under

the action of gravity supported by said first lever, a pair of contacts normally closed so as to complete a local circuit, said second lever being grounded and adapted to separate said contacts and ground said circuit when free to move upon reduction of pressure within said chamber.

3. In an alarm system, a local circuit including a pair of contacts normally in engagement, a pressure chamber, a contact controlling device actuated by said pressure chamber and adapted to separate said contacts when the pressure becomes abnormal, said contact-controlling device being grounded and normally out of engagement with said circuit but adapted to make electric engagement therewith when the pressure becomes abnormal.

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Witnesses:

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