

(No Model.)

P. C. HOWE.
THERMOSTAT ACTUATED FIRE ALARM.

No. 570,892.

Patented Nov. 3, 1896.

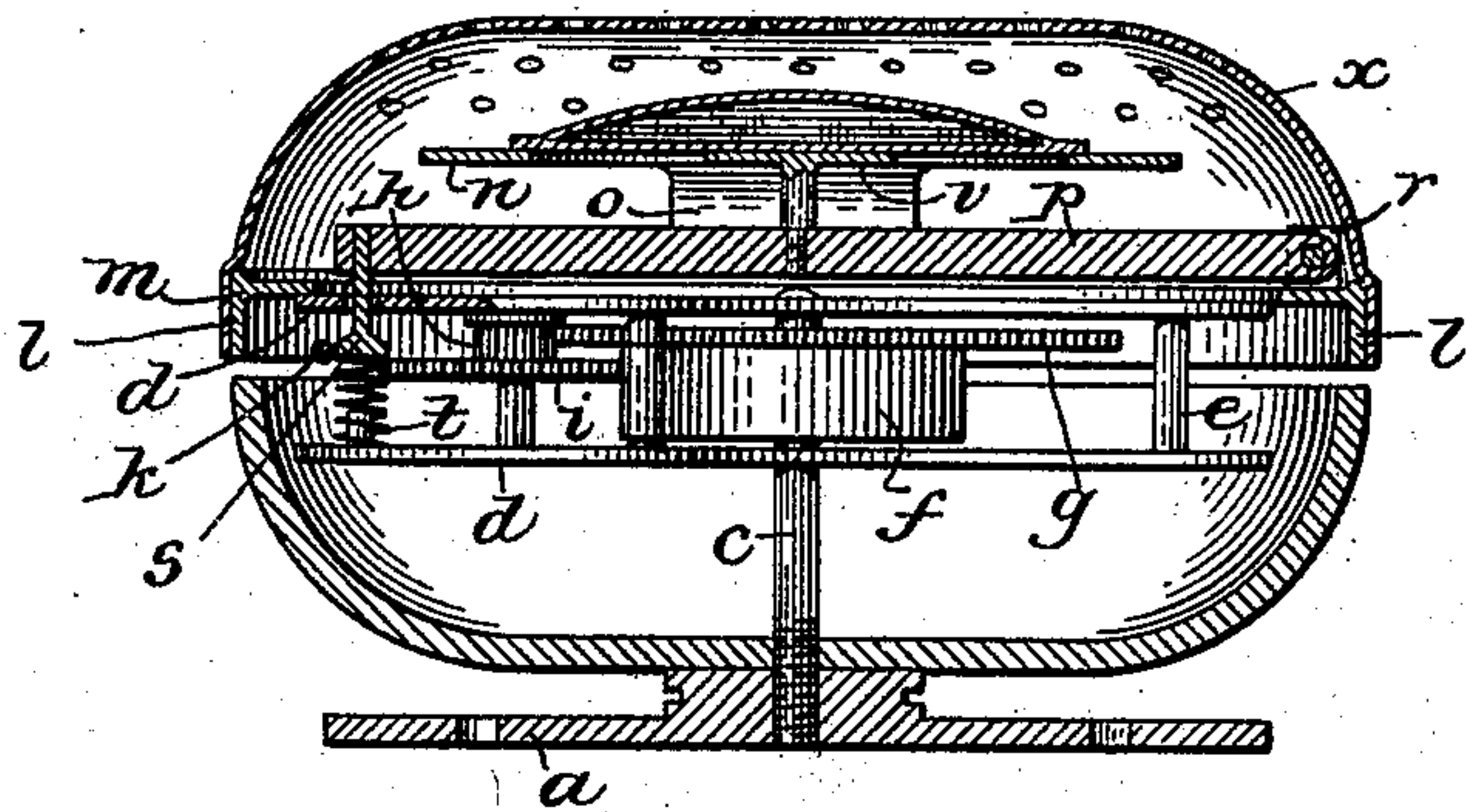


Fig: 1.

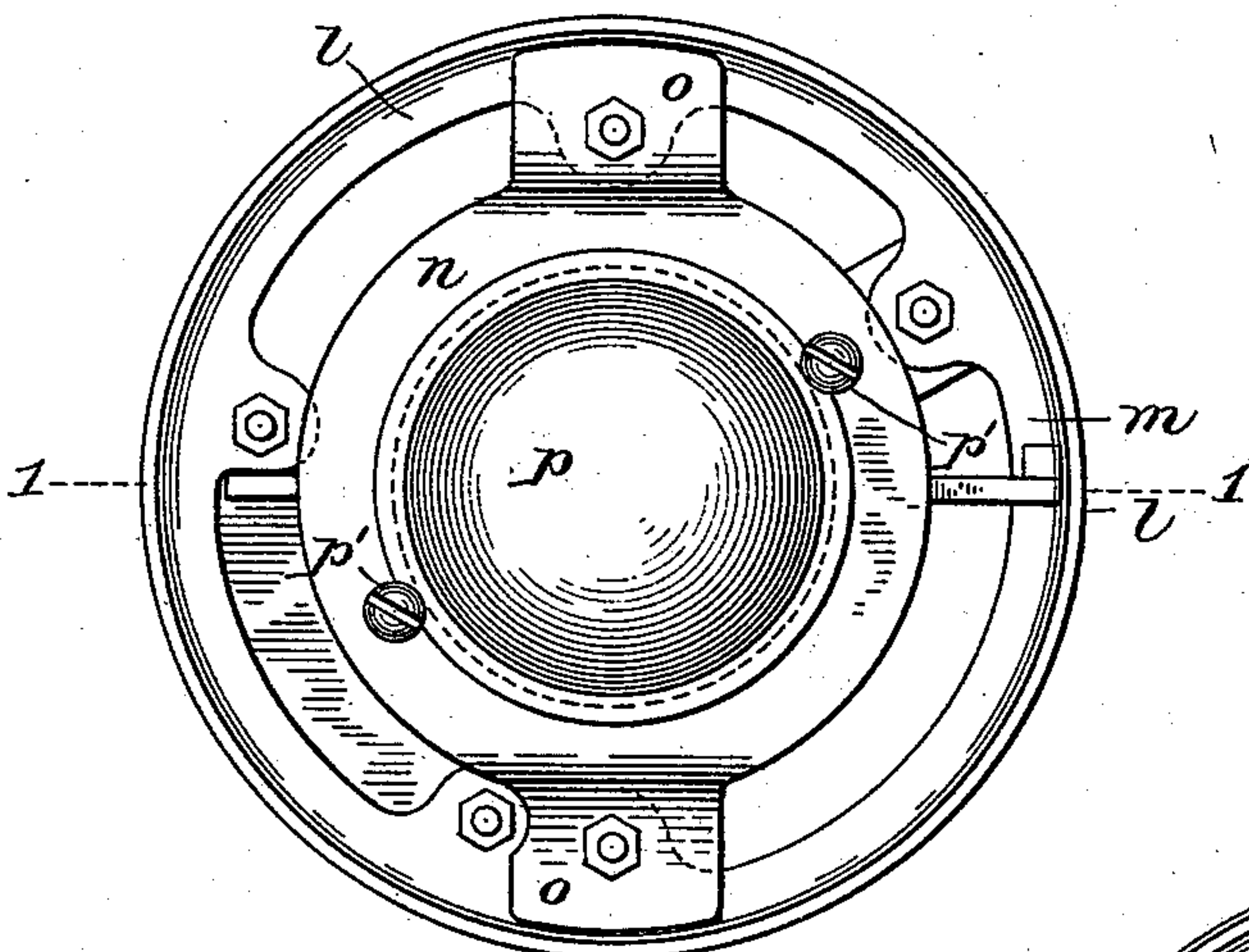


Fig: 2.

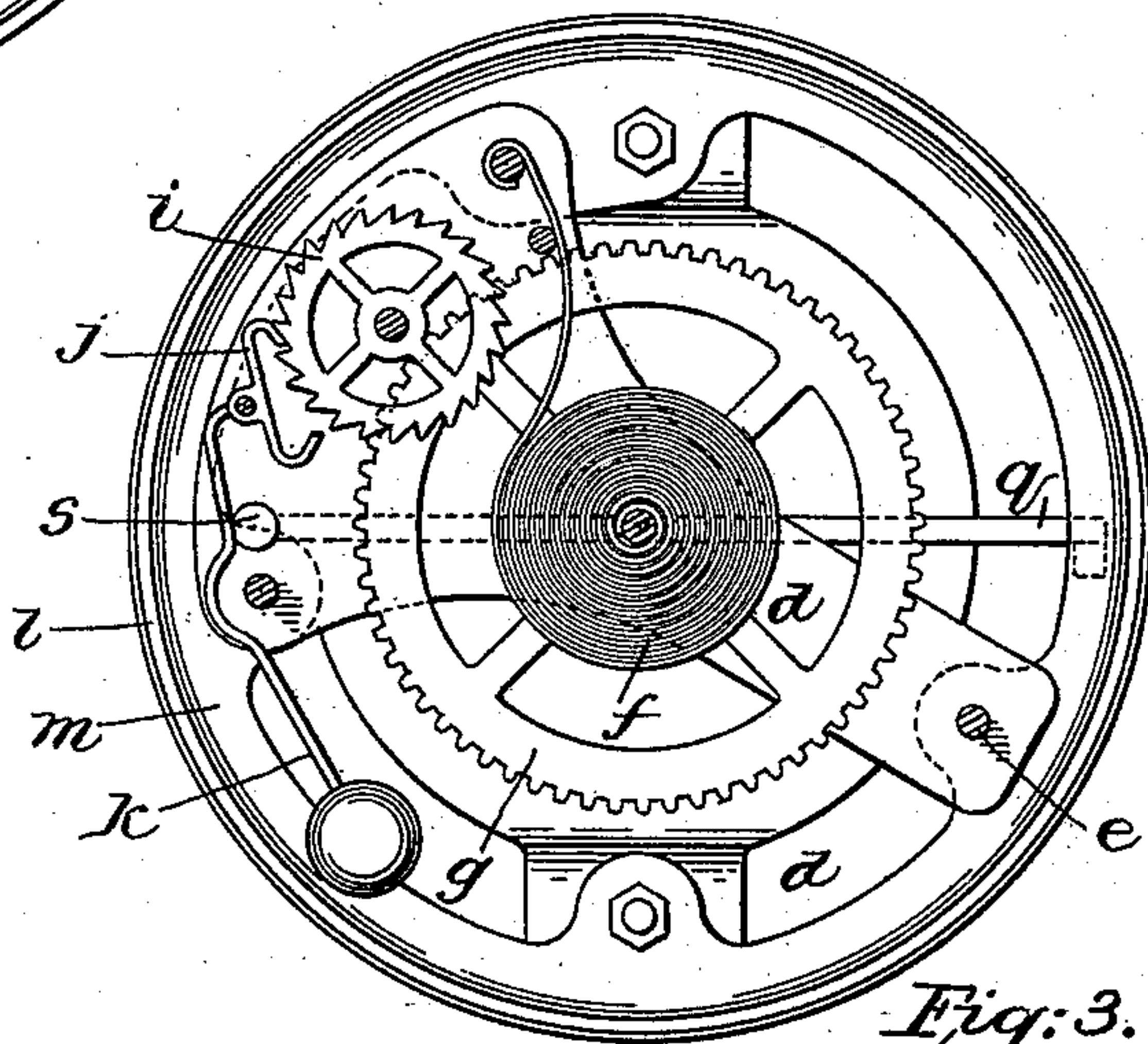


Fig: 3.

Witnesses:

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UNITED STATES PATENT OFFICE.

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THERMOSTAT-ACTUATED FIRE-ALARM.

SPECIFICATION forming part of Letters Patent No. 570,892, dated November 3, 1896.

Application filed March 28, 1896. Serial No. 585,304. (No model.)

To all whom it may concern:

Be it known that I, PERCY C. HOWE, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Automatic Fire-Alarms, of which the following is a specification.

This invention relates to automatic fire-alarms, and has for its object to provide a portable device of convenient size which shall sound an alarm, so as to notify the occupant of an apartment that a dangerous degree of temperature has been reached.

Another object of the invention is to provide an alarm of the character mentioned which shall be structurally simple and at the same time be highly sensitive to thermal changes and be so constructed as to work without fail in case of a fire.

To these ends the invention consists of a fire-alarm comprising in its construction a gong or sounder, spring-actuated gearing, or clockwork, a striker for the gong actuated thereby, and a thermostat arranged to check the action of the clockwork, except when the temperature of the apartment is such as to disengage the thermostat from the clockwork and allow the latter to actuate the striker, the gearing, the striker, and the clockwork being all confined within the gong, so as to have no projecting parts.

It likewise consists of a mechanically-actuated alarm provided with a gong and a casing arranged to form a chamber, within which the operative parts are mounted, and the whole so constructed and arranged as to be carried in the pocket or in any other convenient place.

My invention also consists of a portable alarm of the character described provided with other improvements of greater or less importance, as I shall now proceed to describe with particularity and set forth in the appended claims.

Reference is to be had to the annexed drawings, and to the letters marked thereon, forming a part of this specification, the same letters designating the same parts or features, as the case may be, wherever they occur.

Of the drawings, Figure 1 is a central vertical section through my fire-alarm, showing the internal construction of the same. Fig. 2 is a plan view of the same with the casing

removed. Fig. 3 is a plan view of the alarm reversed so as to have its bottom uppermost, the gong being removed.

In carrying out my invention I employ a base-plate *a*, which is provided with apertures, whereby it may, if desired, be screwed or otherwise fastened to a wall or to any other suitable place.

c is a vertical standard which supports the operative parts of the device, it being threaded at its lower end so as to be maintained in position upon the base-plate, which has a central internally-threaded aperture to receive it.

d d are substantially triangular plates, through which the standard passes, they being secured together by bars *e e*. Between these plates I mount a clockwork, consisting in this case of a spring *f*, having one end secured to the standard (which also acts as a main arbor) and its other end fastened to one of the bars *e*, a main gear-wheel *g*, rigidly secured to the standard or arbor, a pin-wheel *h*, geared therewith, and an escapement-wheel *i* on the arbor of the pin-wheel. These constitute what I have chosen to term "clockwork" or "spring-actuated gearing," and they may be varied as occasion may require.

j indicates an escapement, to which a striker *k* is secured, so that when the wheel *i* is rotating the striker is actuated, as will be clearly understood.

l is a ring which is secured to the plates *d*, and upon the inwardly-extending flange *m* of which is mounted a bridge which is ring-shaped at *n*, with downwardly-extending supports *o*, secured by rivets or bolts to the ring *l*.

Upon the bridge or ring *n* I secure a thermostat *p*, which consists of a tank, circular in plan view, with a thin metallic flat bottom and a thicker metallic top which is segmental in section. The edges of the top and bottom plates are secured together, and the tank thus formed is filled with some chemical or liquid which is highly sensitive to thermal changes. The top plate being relatively thick the bottom plate is forced downward by the expansion of the contents of the tank.

The tank is detachably held in place on the ring by set-screws *p*, the heads of which are arranged to impinge upon its edges.

The thermostat is employed to release the clockwork when a predetermined temperature is reached through the following devices:

q is a bar pivoted at one end to a stud r on the supporting-ring l , and having its other end connected with a check or stop s , which check or stop is held by a spring t when in normal position to impinge against the striker and prevent it and the clockwork from moving. When the bar q is depressed, however, the check or stop s is moved out of the path of the striker, so that it may be actuated.

The bar q is provided with an upright pin or stud u , upon which a cap v is adjustably mounted. When the bottom plate of the thermostat is forced downward by the expansion of the contents of the latter, the bar q , through the cap v and pin u , is depressed and the stop is moved out of engagement with the striker. The cap may be adjusted so as to be engaged by the thermostat at any certain temperature, but for ordinary purposes I find it desirable to arrange the parts so that the bar will be depressed when the temperature is at about 105° Fahrenheit.

The parts above described are confined within and protected by an inverted concavo-convex gong w , which is screwed on the standard c , and a concavo-convex perforated casing x , which is supported upon the ring l . The casing and the gong are equal in diameter, so that their edges coincide and form a chamber, the said edges being slightly separated so as not to interfere with the vibratory quality of the bell or gong.

From the foregoing it will be seen that I provide an automatic alarm which is simple in structure, with but few parts, and which may be carried on the person. The operative parts are all contained within a chamber, the walls of which afford ample protection to them.

The actuating-spring for the gearing is connected, as said, with the standard, so that when it is desired to wind up the former the casing is grasped with one hand and the base-plate with the other and the two parts are rotated relatively to each other, and when the check or stop is moved out of engagement with the striker the striker is being actuated and the casing will revolve around the standard. Thus it will appear obvious that I provide simple means for winding the spring.

As I have hereinbefore stated, my alarm is portable. That is to say, it is so constructed as to have all its movable parts contained within the gong, whereby it may be packed in a valise or placed in the pocket, so as to be carried from place to place by traveling men.

Instead of having any parts projecting out beyond the gong which would be liable to be bent or broken or which would be likely to tear the clothes or make the alarm difficult to carry about, I, on the contrary, not only cover all the parts by an armor, but also confine them within a practically continuous containing-wall composed of the gong and the casing.

By inverting the gong and employing the

casing, which is perforated, as shown, I am enabled to mount all the operative parts in such way that they can perfectly perform their functions, and likewise allow free access to the heated air to enter the chamber so as to act on the thermostat.

Having thus explained the nature of the invention and described a way of constructing and using the same, though without attempting to set forth all of the forms in which it may be made or all the of modes of its use, it is declared that what is claimed is—

1. As a new article of manufacture, a portable fire-alarm comprising in its construction, a gong, a standard, and a concavo-convex casing all secured together, whereby the gong and casing form a closed chamber, said gong and said casing being rotatable relatively to each other, in combination with a striker, clockwork for actuating said striker, a spring-held pivoted detent normally locking the striker against movement, and a thermostat connected with said detent for moving it to release the striker when a predetermined temperature is reached.

2. A portable fire-alarm, comprising a supporting-ring, a clockwork supported on said ring, a standard rotatably connected with the said ring, a casing secured to the ring, and an inverted gong secured to the standard, forming with the casing an inclosing chamber, in combination with a striker in said chamber operated by the clockwork, and a thermostat supported on the ring for releasing the striker when a predetermined temperature is reached.

3. A portable fire-alarm comprising in its construction a base, a standard, a gong, a supporting-ring connected to said standard, and a perforated casing, in combination with a striker supported by the ring, clockwork for actuating the striker, a spring-held rod pivoted to the ring and normally engaging the striker to hold it against movement, a bridge mounted on the ring, and a thermostat secured to the said bridge and in operative relation to said rod, to move it and release the striker when a predetermined temperature is reached.

4. A portable fire-alarm comprising a striker, clockwork for actuating the striker, a pivoted detent for the striker, a thermostat for actuating said detent at a given temperature, a supporting-ring on which the said parts are all supported, a casing mounted on said ring, and an inverted gong connected to said ring, and forming with said casing a chamber in which all the foregoing parts are completely confined.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 30th day of December, A. D. 1895.

PERCY C. HOWE.

Witnesses:

MARCUS B. MAY,
ARTHUR W. CROSSLEY.