

A. & E. FONTAINE.

Fire Alarm.

No. 69,648.

Patented Oct. 8, 1867.

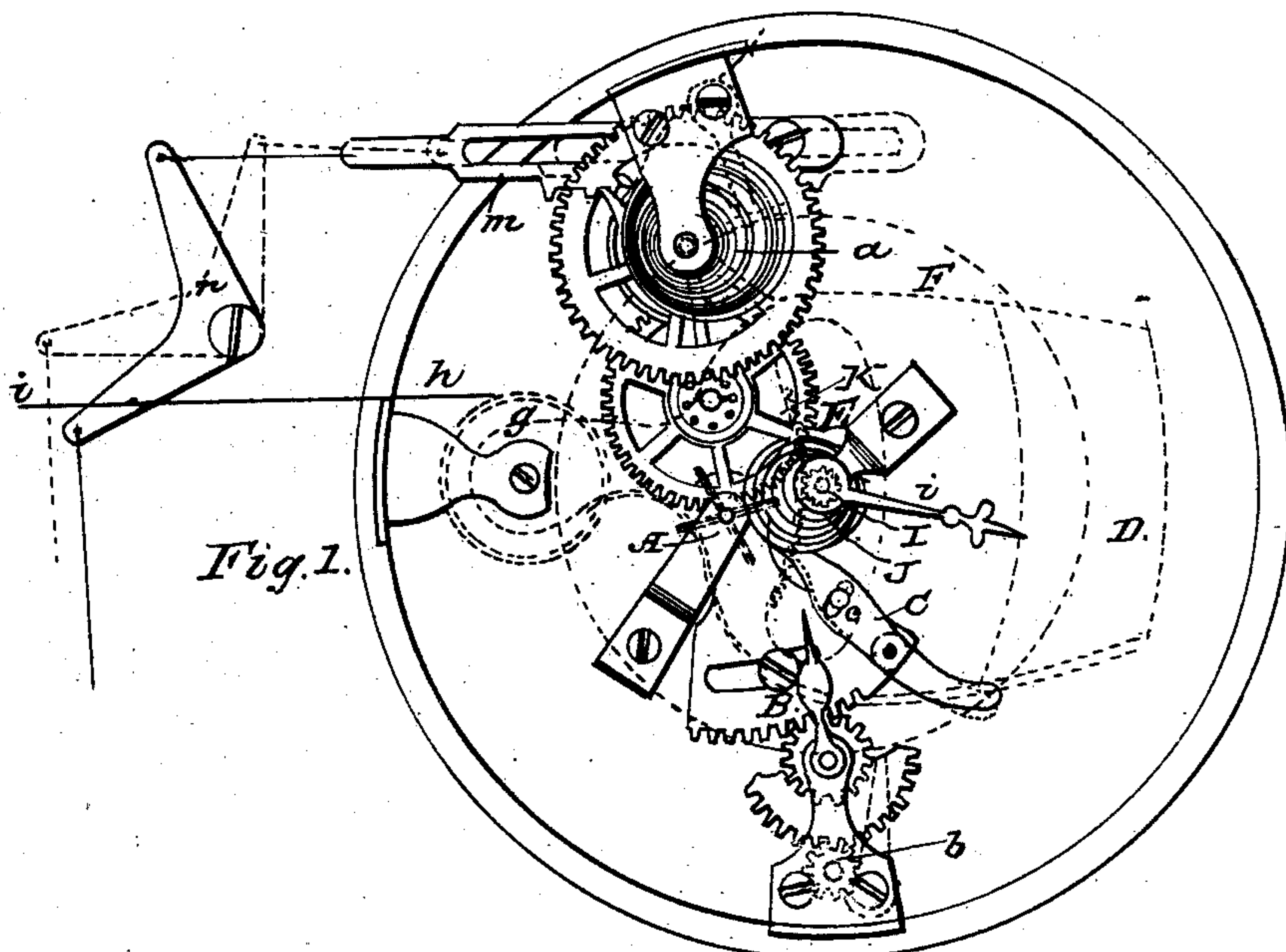
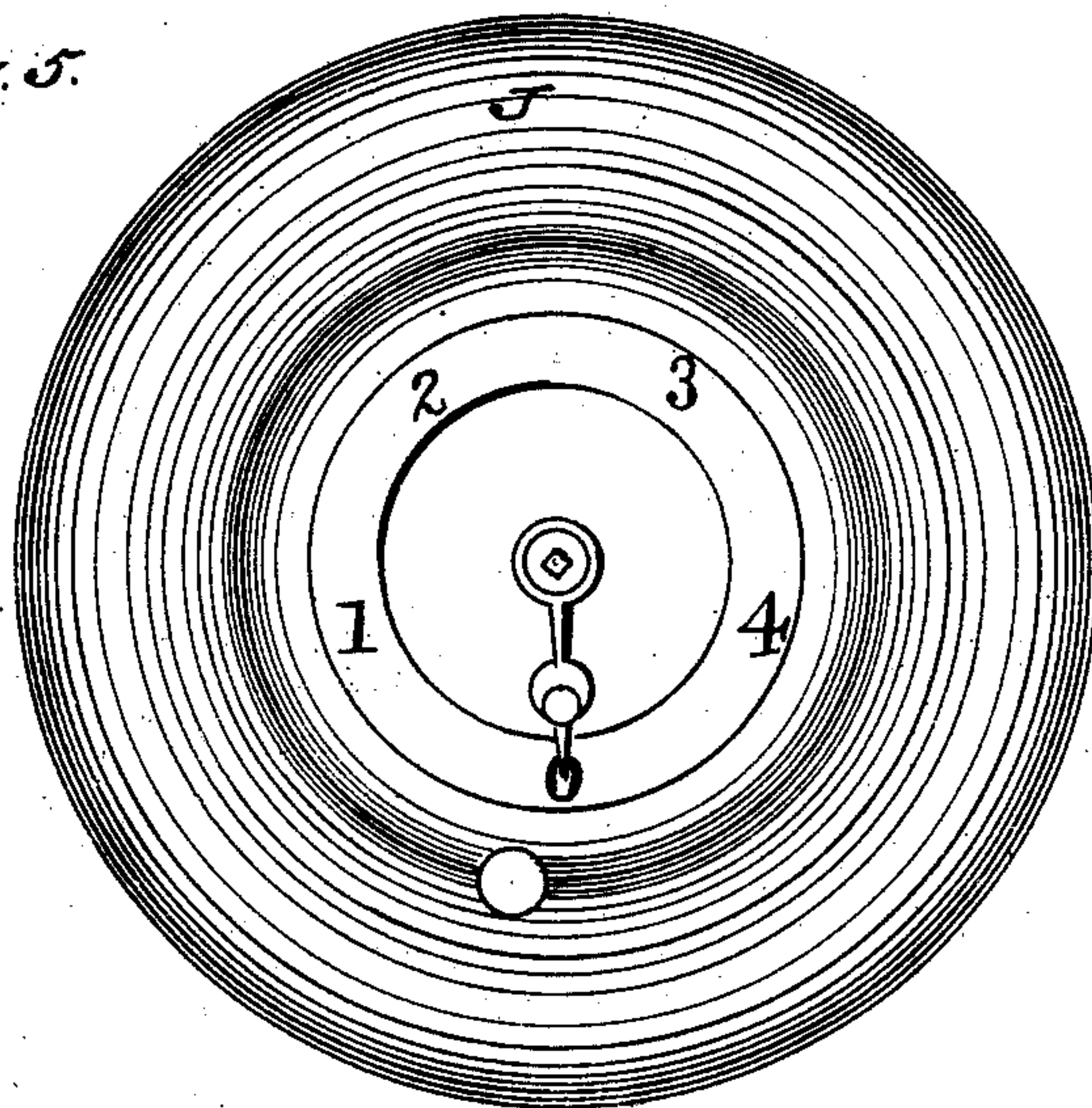


Fig. 5.



Witnesses

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2 Sheets—Sheet 2.

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Fig. 2.

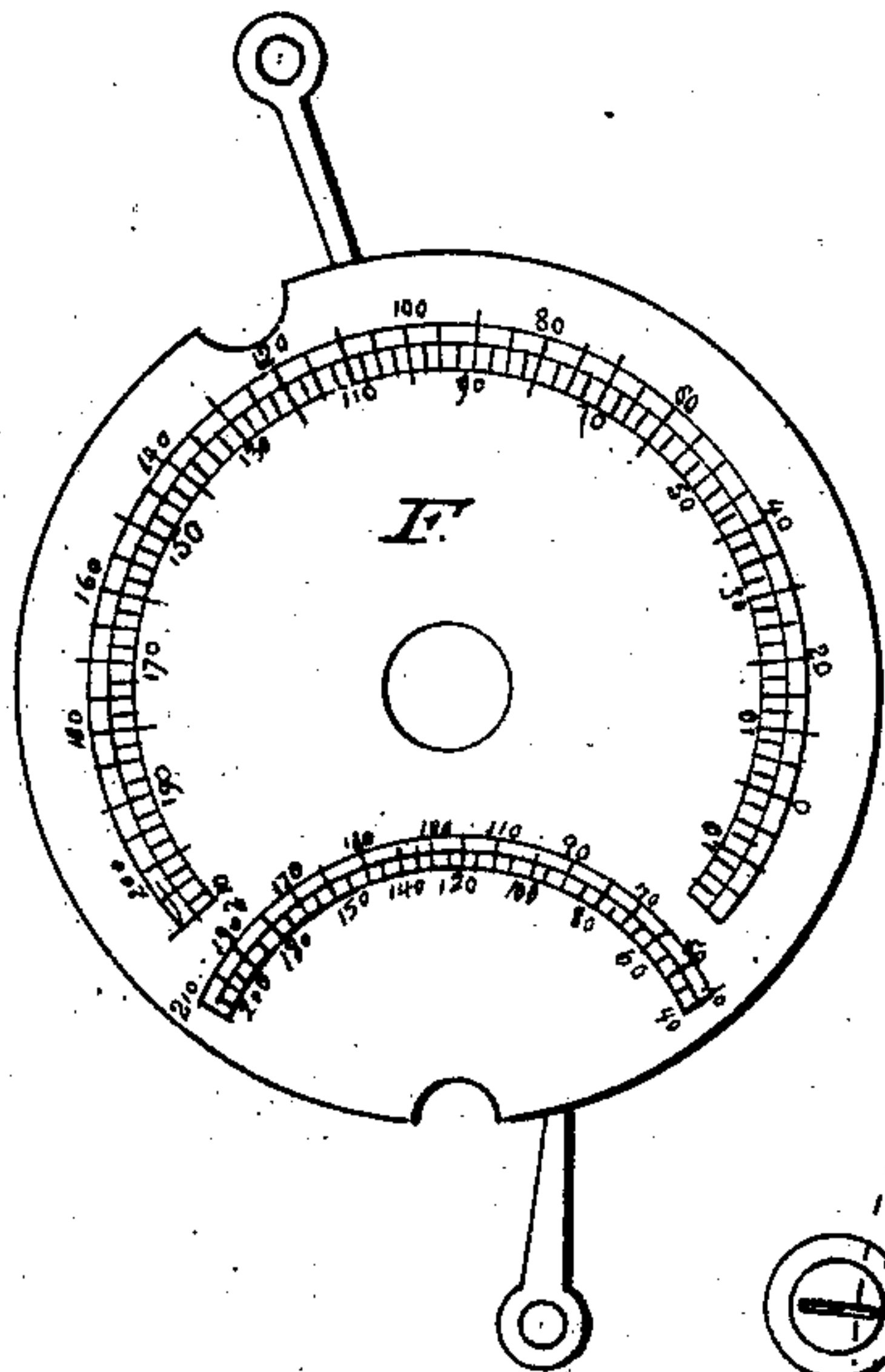


Fig. 3.

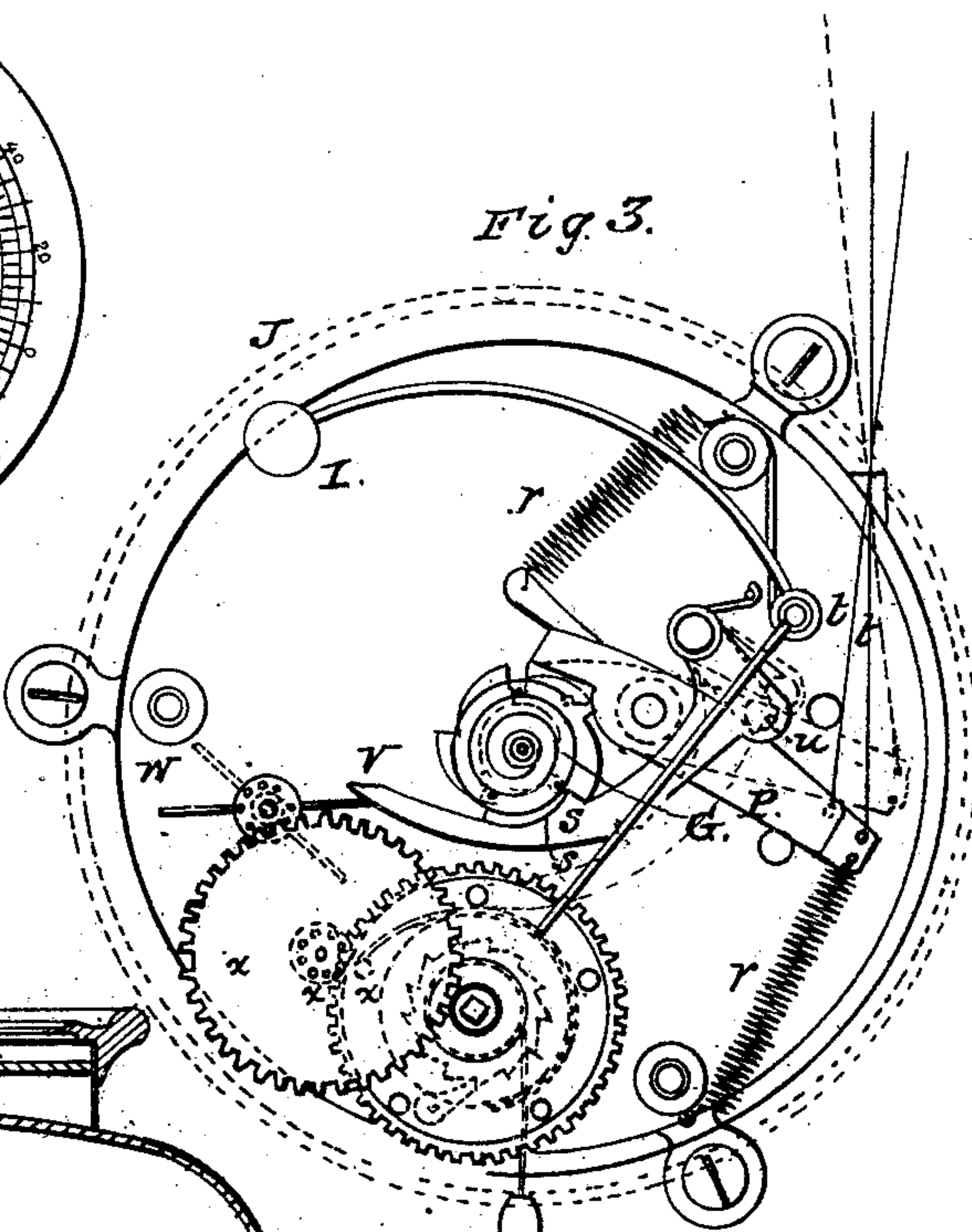
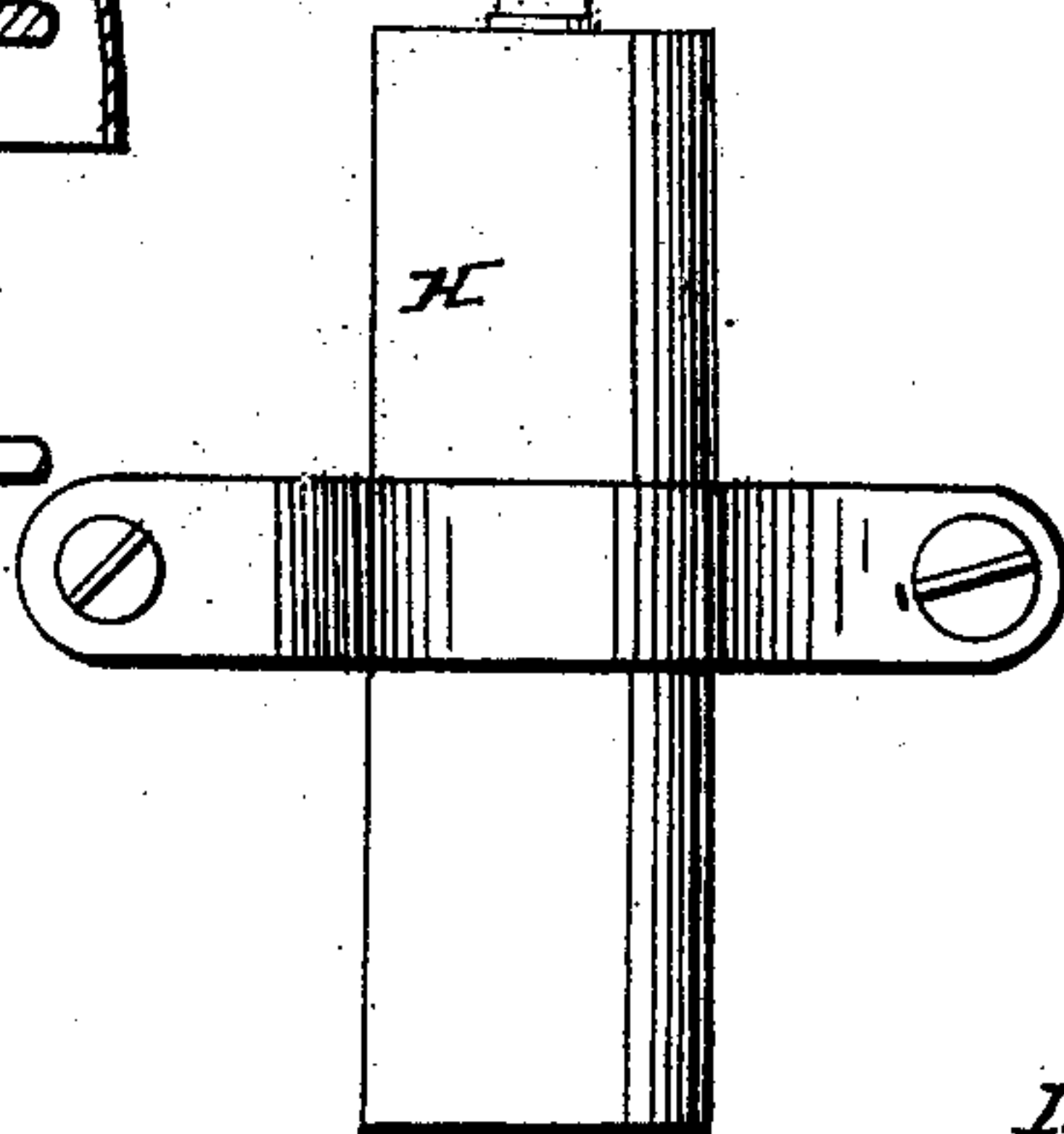
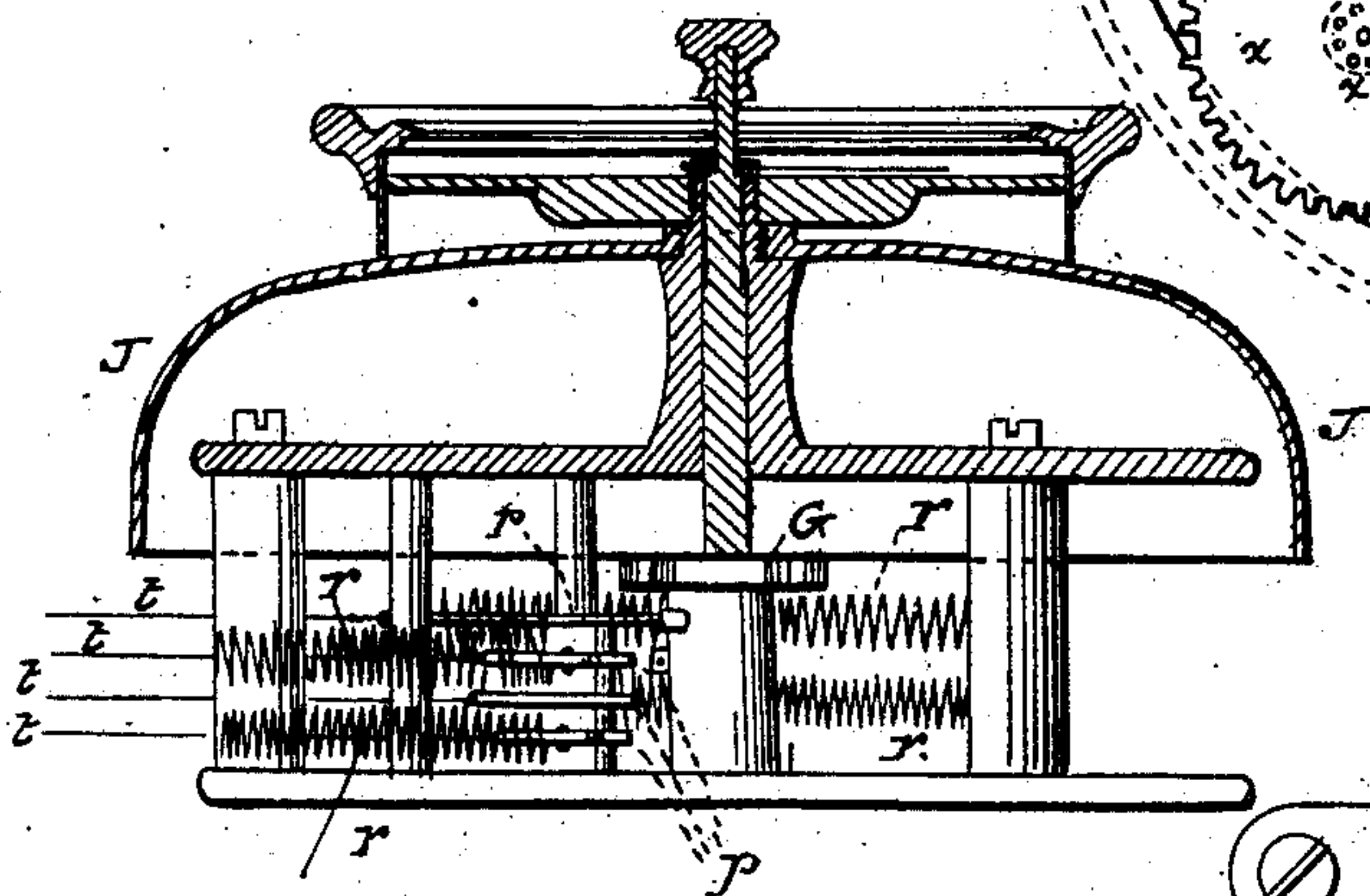


Fig. 4.



Witnesses.

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AMEDEE FONTAINE AND EUGENE FONTAINE, OF FORT WAYNE, INDIANA.

Letters Patent No. 69,648, dated October 8, 1867.

IMPROVED ANNUNCIATING FIRE-ALARM.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that we, AMEDEE FONTAINE and EUGENE FONTAINE, of Fort Wayne, in the county of Allen, and State of Indiana, have invented certain new and useful Improvements in Annunciating Fire-Alarms; and we do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

The nature of our invention consists in the arrangement and combination of a series of devices for the purpose of giving an alarm in case a fire breaks out in a building, and also indicating and annunciating the number of the room where said fire originates.

To enable others skilled in the arts to make and use our invention, we will now proceed to describe its construction and operation.

A represents a rotating fan, which is secured to an axle secured in suitable bearings, and is provided with a pinion, into which a driving-wheel takes, said driving-wheel being one of a train which connects the said fan to a helical spring, *a*, from which a rotary motion is derived. B represents a segmental wheel, the centre of which is identical with that of fan A. This segmental wheel is operated by a train of wheels, which connect it with pinion-driver *b*. C represents a stop-lever, which is secured at its fulcrum to the segmental wheel B. The upper end of this lever extends diagonally upward, and rests against one of the wings of the fan A. *c* represents a spring, which actuates said lever, and keeps it in position to stop the rotary motion of the fan, except when relieved, as will be more fully described. This lever has a vibrating motion, as seen in red lines, Figure 1, which motion serves to relieve the fan A, and thus set the apparatus in motion. D represents a weighted lever, which is secured at its fulcrum, as seen in fig. 1. The short arm, *g*, of this lever is represented in the form of a pulley, to which is secured a flexible metallic bar, *h*, the other end of which is secured to an expansive wire, *i*. The long arm of lever D is constructed in the form seen in the drawings, and is heavily weighted, so as to impart a strong tension to the expansive wire *i*. E represents an axle, which is actuated by means of a helical spring. Upon this axle a pinion, *j*, is formed, which is rotated by means of a segmental wheel, *k*, which is secured to lever D, as seen in fig. 1. The slightest vibration imparted to the lever D gives to the said pinion and axle E a rotating motion. Upon this axle a hand, *l*, is also mounted, which serves to indicate the temperature of the atmosphere of the room in which the apparatus is situated, as will be hereinafter fully described. F represents a dial-plate, which is placed in position in front of the apparatus, and is divided into degrees indicating thermometrically the exact temperature of the atmosphere when pointed out by the hand *l*. Another thermometrical scale is drawn upon the lower edge of the same dial, by which the operator is enabled to set the apparatus to so nice an adjustment that an alarm will be sounded should the temperature of the room be raised above that indicated upon the dial-plate. The helical spring *a* imparts motion to the train and rotating fan A, and also serves to operate the bell-pull *m*, which consists of a slotted bar, having on its under surface a rack into which the teeth of a pinion take, and thus carrying said bar in the direction and to the position seen in red lines, fig. 1. In so moving said bar *m*, bent lever *n* is acted upon to cause the alarm.

The operation of this portion of the apparatus, which acts in connection with another, which will be fully explained, is as follows:

In setting the apparatus (one of which is placed in each room) for use, we place a key upon the axle of pinion *b*, and turn the same until the hand points on the lower scale on the face the desired degree of temperature above that of the apartment where the apparatus is situated. In doing this, the train is put in motion, connecting the same with the rotating fan, and thus the segmental wheel is moved in the desired direction, carrying with it the stop-lever C, which at all points bears the same relative position to the fan A. Let the said segmental wheel be adjusted to any point of its vibration. The helical spring being first wound up, and the apparatus adjusted as above, and the temperature of the room is increased to a point or degree higher than that indicated on the dial-plate, the expansion wire, which already sustains a great tension, expands, and in so expanding relieves or lets the weighted lever fall to the position seen in the dotted lines, and in so falling, the lever strikes or bears upon the lower end of stop-lever C, and so moves it to the position seen in the red lines. In this position the lever is held, and the fan A, being relieved, is allowed to rotate freely, and thus the force in

the helical spring *a* is put in motion, which so acts as to carry the slotted bar or bell-pull backward, and thus give the alarm. At the same time the downward movement of the weighted lever causes the segmental wheel thereon secured to act upon the pinion and hand, as before described, and causes them to rotate in such a manner and to such an extent as to exactly and with mechanical accuracy to indicate, by the figures upon the dial-plate, the temperature of the room. Thus, by this device, we are enabled to adjust the apparatus so nicely that the slightest atmospheric change will be sufficient to spring the alarm. Or a different adjustment may be readily made that will require any desired increase of heat to give the alarm, as will be readily understood.

The construction of the apparatus and its attachments for sounding the alarm and annunciating the number of the room where the fire may occur, is as follows:

G represents a ratchet, which is provided with a number of teeth, exceeding by one the number of rooms contained in the building: Thus, if the building contained four rooms, the ratchet should have five teeth. The axle of this ratchet is provided with short lugs, *o*, each of which answers the number of a room. These projections, *o*, are so positioned that when a rotary motion is imparted to the axle, the pins are carried forward to a certain point, and there stopped by being obstructed by a stop-lever, *p'*. A hand, moving upon a dial-plate, is mounted upon this axle, and is thus carried around until the axle is stopped, which also stops the hand opposite the figure indicating the number of the room. *p* represents a series of stop-levers, which are arranged upon an axle forming their fulcrum, and are acted upon by means of spiral springs *r*, as seen in Figure 3. These stop-levers, when the machine is set for operation, are relieved from the projection *o* in such a manner that the said axle could turn freely were it not for another lock that secures it in position, in the form of a hooked pawl, *s*, which takes into the ratchet, as seen in fig. 3. To relieve the ratchet and set it in motion, tension is applied to either of the wires *t* which connects the stop-levers with the apparatus described in the first part of this specification. By said applied tension, the outer end of said lever is elevated, and the opposite end is depressed, so as to bring it into a position where its end will come in contact with and interrupt in its rotation the lugs or projections *o*, and the axle and ratchet, together with the hand, which is so timed that it stops directly over the numeral indicating the number of the room. The raising of the stop-lever, as described, brings its outer end in its upward movement directly in contact with a projection, *u*, on the pawl *s*, which so raises it as to withdraw the catch from the ratchet, and thus relieve the same, which, being acted upon by a helical spring, revolves instantaneously until the lug *o* is brought in contact with the end of the stop-lever, as before described, and the number of the room is indicated by the hand on the dial-plate. Simultaneous with this movement, an arm, *v*, on the end of the pawl, is forced downward, and so relieves fan *w* and train *x* that it is set in motion by means of the weight H, and thus the hammer I of the bell is operated, as will be readily understood. J represents the bell, which may be placed as seen in the drawing, or in any other suitable manner.

The operation of the last-mentioned device, in connection with the first, is as follows:

The first-described apparatus is placed in the room where danger is apprehended, or one may be placed in the different rooms of the building. They should be secured firmly to the upper portion of the wall. The expansion wires are suspended about the room in any desirable manner, one end of which is firmly anchored to the wall or other solid fixture of the room, while the other is connected to the weighted lever, as seen in fig. 1, by means of a flat flexible bar attached to the short arm thereof, as described. The weighted lever creates a strong tension on the expansion wire, said wire suspending its weighted arm. Now, when heat is applied to the wire, the effect is the expansion and elongation of the same, this elongation or expansion having the effect to lower or drop down the weighted end of the lever, and the result is that the different devices, the operation of which has been described, are put in operation and operate the two apparatus in the manner and for the purposes hereinbefore described.

What we claim as new, and desire to secure by Letters Patent, is—

1. The combination of expansive wire *i*, the weighted lever D, the fan A, the segmental wheel B, the stop-lever C, the segmental wheel *k*, pinion *j*, and hand *l*, each of which is constructed and operated for the purpose and in the manner specified.
2. The combination of segmental wheel B and train operated thereby, and pinion-driver *h*, for the purpose of so setting thermometrically the apparatus, substantially in the manner and for the purpose described.
3. The segmental wheel B, constructed in the manner specified, in combination with the stop-lever, for the purpose of maintaining the same relative position of the upper end of said stop-lever to the fan A, the same being operated substantially as set forth.
4. The stop-lever C, the fan A, and the helical spring *a* and train, in combination with the bell-pull or slotted bar or rack *m*, the same being constructed in the manner and for the purposes specified.
5. The combination of the alarm with the annunciator, the same being constructed in the manner and for the purposes substantially as specified.
6. The ratchet G, pawl *s*, lugs *o*, stop-levers *p*, the projection *u* on pawl *s*, the same being constructed, combined, and operated in the manner and for the purposes specified.
7. The arm *v* on pawl *s*, and fan *w*, for the purpose of locking and relieving the train, the whole being constructed and combined in the manner substantially as specified.

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Witnesses:

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