

(No Model.)

C. J. SPIKE & H. V. McLEOD.
FIRE ALARM REGULATOR.

No. 427,711.

Patented May 13, 1890.

FIG. 1.

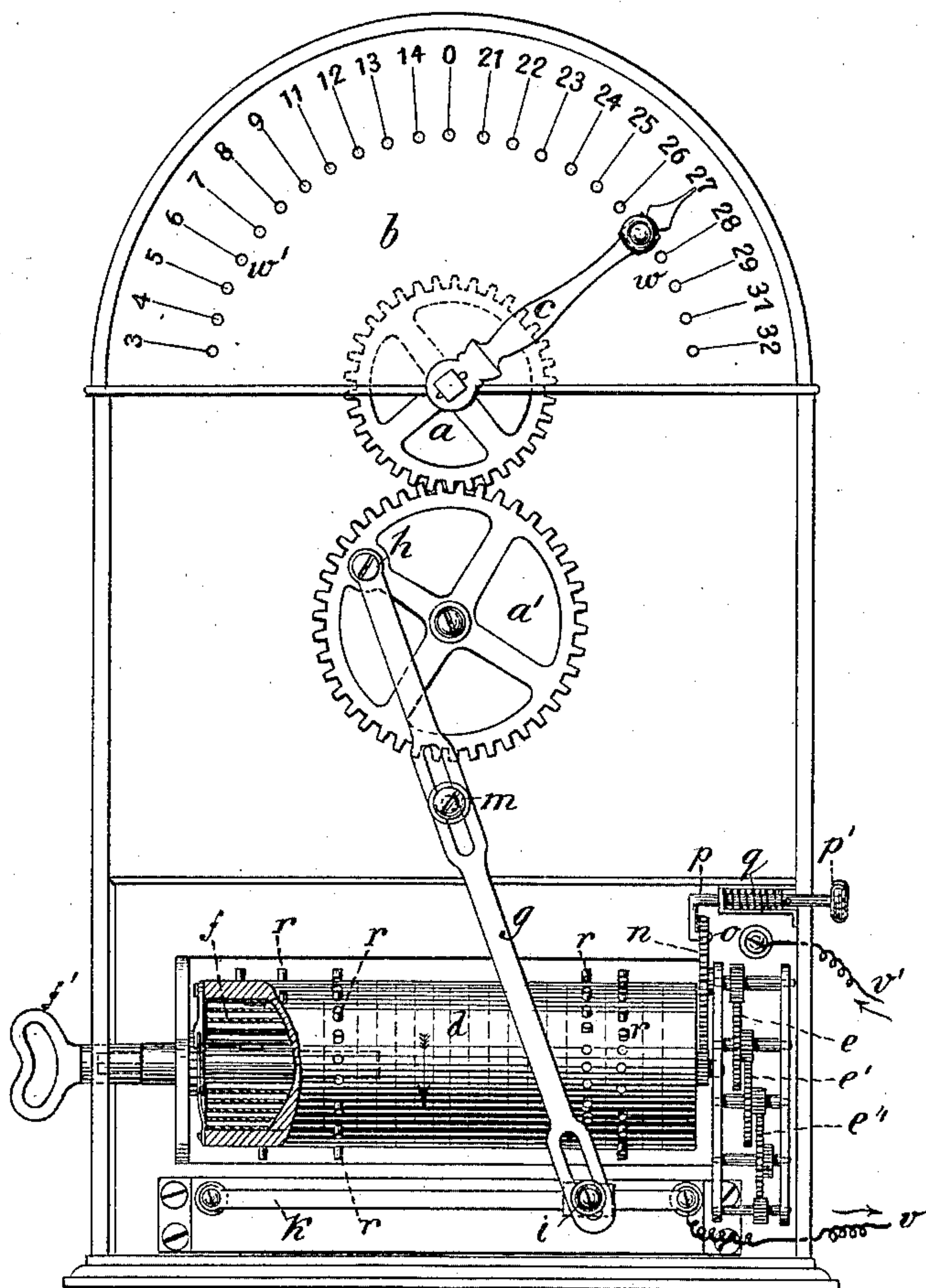


FIG. 2.

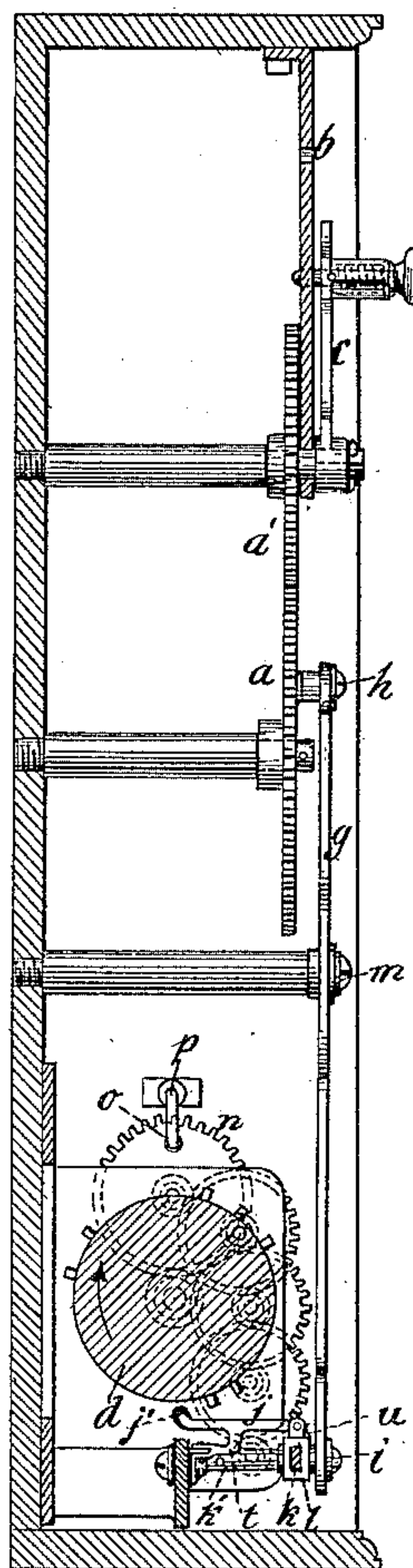


FIG. 3.

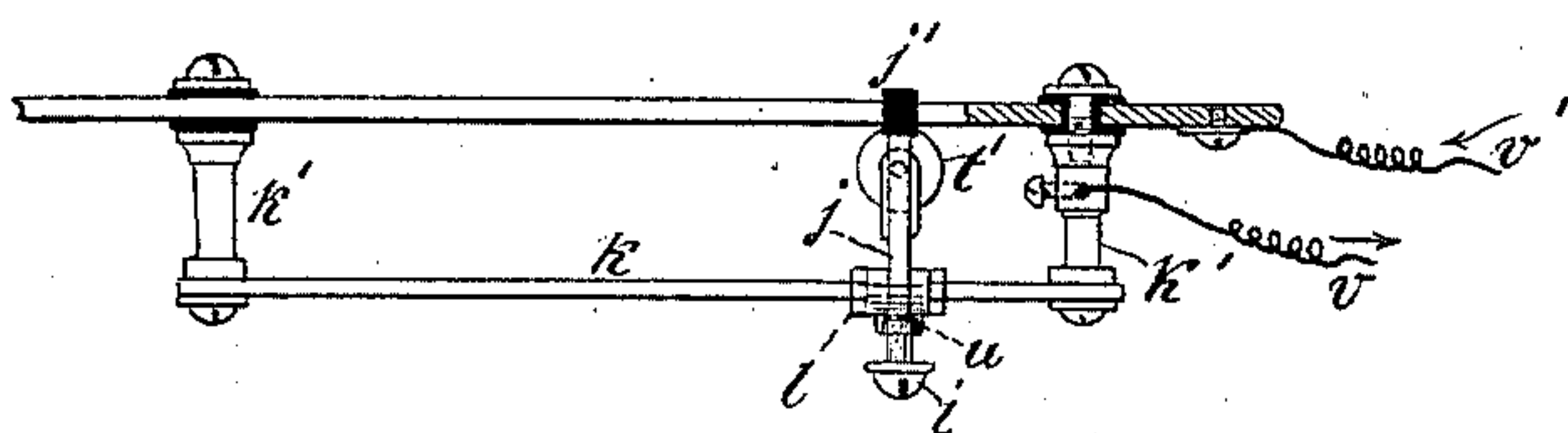
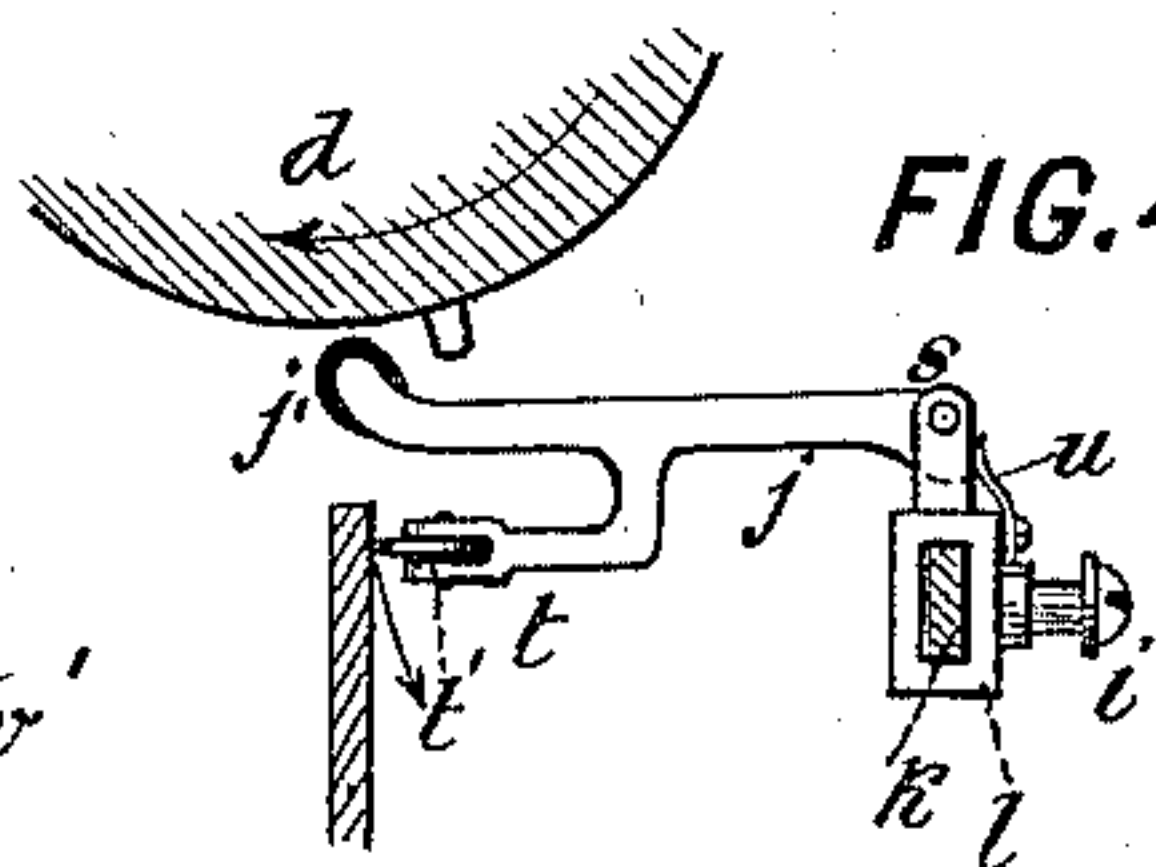


FIG. 4.



WITNESSES:

A. W. [Signature]
Peter Cummings

INVENTORS:

Clarence J. Spike
Hedley V. McLeod

UNITED STATES PATENT OFFICE.

CLARENCE J. SPIKE AND HEDLEY V. McLEOD, OF HALIFAX, NOVA SCOTIA,
CANADA, ASSIGNORS OF ONE-HALF TO ARTHUR C. HAWKINS, OF SAME
PLACE.

FIRE-ALARM REGULATOR.

SPECIFICATION forming part of Letters Patent No. 427,711, dated May 13, 1890.

Application filed November 19, 1889. Serial No. 330,875. (No model.)

To all whom it may concern:

Be it known that we, CLARENCE J. SPIKE and HEDLEY V. McLEOD, of Halifax, in the county of Halifax, in the Province of Nova Scotia, Canada, have invented certain new and useful Improvements in Fire-Alarm Regulators; and we do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings.

This invention relates to an apparatus by which an alarm or number of alarms can be given automatically from a central station over the whole circuit. It is more especially adapted to be used in a central telephone-office, where the operator is on duty day and night, and where, if an alarm of fire is given, it can be sounded on the regulator as if from the box nearest the locality of the fire. Thus connected with the telephone system, it is an advantage in that any number of imaginary boxes could be located where the telephone system extends beyond the fire-alarm circuit, thus giving a city the advantage of a large percentage of additional boxes and of more definitely locating a fire.

The invention consists in the devices hereinafter described and claimed, to be used for the above-mentioned purposes.

In the drawings, Figure 1 is a front view of our fire-alarm regulator. Fig. 2 is a side view of the same. Fig. 3 is a view of the slide-bar, slide, or circuit-breaker detached from the regulator. Fig. 4 is a view of the slide or circuit-breaker, also detached from the regulator.

$a a'$ are two cog-wheels geared together, surmounted by a dial-plate called b . On the pinion of the cog-wheel a is placed an index-finger c .

d is a cylinder placed in the lower portion of the frame-work, surrounding the whole mechanism of the regulator. At one end of this cylinder and on its axis is placed a train of wheels $e e' e''$ to retard its motion in revolving. In the other end of this cylinder is placed a spring f , which can be wound up by means of the projecting handle f' , in order to give motion to such cylinder.

g is a connecting-lever, the upper end of which is secured to the crank-pin h on gear-wheel a' . Its lower end is slotted and is secured to the pin i on the slide and circuit-breaker j . This slide j has motion along an insulated bar k by means of the sleeve l traversing said bar. The connecting-lever g is slotted a little above its central portion, so as to permit of its having sufficient adjustable motion on the fulcrum-pin m .

n is a large cog-wheel geared to a cog on the axis of the cylinder d . It has four times as many teeth as the cog-wheel to which it is geared on the shaft of such cylinder. Through this wheel, near its periphery, is a hole o .

p is a hooked rod attached to the shank of a push-button p' . On the body of this rod, at q , is placed a spiral spring, so as to cause the hooked end of the rod p to engage with the hole in the cog-wheel n , thus keeping the wheel n locked, excepting when the push-button p releases it, and thereby permits of this cog-wheel n making one entire revolution before it is again locked.

The bar k is placed on pillars $k' k'$, which pillars are insulated at their base by india-rubber or other suitable material. On the cylinder d are projecting pins $r r$, suitably arranged and so spaced as to correspond with the numbers marked on the dial b , and containing the necessary pauses. These metallic pins can be introduced in the cylinder in the usual manner—namely, by drilling holes and driving the pins in firm, leaving a sufficient projection beyond the face or periphery of the cylinder to operate on the end j' of a slide or circuit-breaker j . The slide j is pivoted at s to the sleeve l on the bar. A short bent arm t projects from the underneath portion of the slide j , in the bifurcated end of which is placed horizontally a small wheel t' . A spring u is attached at the lower side of the slide to the sleeve l , pressing upward against the lower portion of the arm t , so as to bring the wheel t' into contact with the frame of the regulator after each depression of the end j' by any of the pins on the periphery of the cylinder d .

$v v'$ are current-wires, one, v , being at-

tached to one of the posts k' of the insulated roll k , the other, v' , being connected to the metallic case or back of the regulator. It will thus be seen that when the small wheel t' is in contact with the metallic case of the regulator, the arm of the slide j being in its normal position, the current will pass from wires v v' across the arm j of the slide. Whenever the arm j is depressed by the points r r , &c., on the cylinder d , the wheel t' will be thrown out of contact with the metallic case or wall of the regulator, and the current will then be interrupted or broken.

On the dial is shown a series of numbers up to 32. Any other series of numbers can, however, be adopted, the projecting points r r , &c., on the periphery of the cylinder d being made to accord therewith. The enlarged portion of the index-finger c , near the point, may be provided with a spring-bolt w , which engages with holes w' , &c., in order to keep said index-finger in position when set.

The operation of the device is as follows: The index-finger c is moved to any number on the dial representing the district or block where the fire is known to be. This rotates the cog-wheels a a' , which in turn causes the arm g to shift the slide j along the insulated bar k until it reaches and is in line with a corresponding row of projecting pins on the cylinder d' . The regulator is then in a position by which a signal can be sent to any number of stations in the circuit. The push-button p' is then pressed, on which is released the hooked end p from the hole o in the cog-wheel n . Thus released, the cylinder d will rotate four times before the hooked end p will arrest the movement of the cog-wheel n . As it rotates, the projecting pins r r , &c., will depress the end j' of the slide j , such end being insulated with rubber, and thus break the contact of the wheel t' with the case of the regulator, causing a break in the circuit-wire, and the number of breaks will determine the signal to be given, which will correspond with the number at which the index c points on the dial b . The connection is here broken and the alarm sounded, as will be seen by the moving arm j , insulated at its end j' , acting as a circuit-breaker. The circuit is thus opened and closed. The cylinder d rotating thus four times on every pushing in of the push-button p' , it is evident that four distinct

alarms will be given. The hooked end p , being locked into the hole o of the cog-wheel n , terminates the revolution of the cylinder d , so that if the alarm is to be repeated the push-button p' must be again operated. It is evident that the train e e' e'' serves to reduce the motion of the cylinder d . It is also evident that instead of four any other series of alarms may be arranged for by making the necessary change in the train of wheels. In the operation of the device from the central office, the location in which the fire occurs being telephoned to the central station, the person in charge merely sets the index-finger to the number of block, or ward, or district and presses in the push-button p' , when the instrument will be set in motion (the spring of the cylinder d being wound up by its winding mechanism) and the series of alarms will be instantly sounded over the whole circuit.

We claim—

1. In an electric fire-alarm regulator, the combination of a dial-plate and its index-arm, connected by the cog-wheels a a' and lever g to a bar k , with the cylinder containing a series of pins or other corresponding signals indicating an alarm, and with means for transmitting such signals automatically, substantially as described.

2. In an electric fire-alarm regulator, the combination of a dial-plate b and index-arm c , cog-wheels a a' , arm g , connected to slide j , and insulated bar k , with the cylinder d , its train of wheels, and the push-button p' and its mechanism, substantially as described.

3. In an electric fire-alarm regulator, the circuit-breaker j , traveling on an insulated bar k and arranged between the cylinder d and the frame of the regulator, in combination with the cylinder and frame, substantially as described.

4. In an electric fire-alarm regulator, the circuit-breaker j , hinged to a sleeve l and traveling on the insulated bar k , so as to be operated upon by the projections of the cylinder d , in combination with the cylinder d and its pins r r , substantially as described.

CLARENCE J. SPIKE.
HEDLEY V. MCLEOD.

Witnesses:

A. W. STURNEY,
PETER CUMMINS.