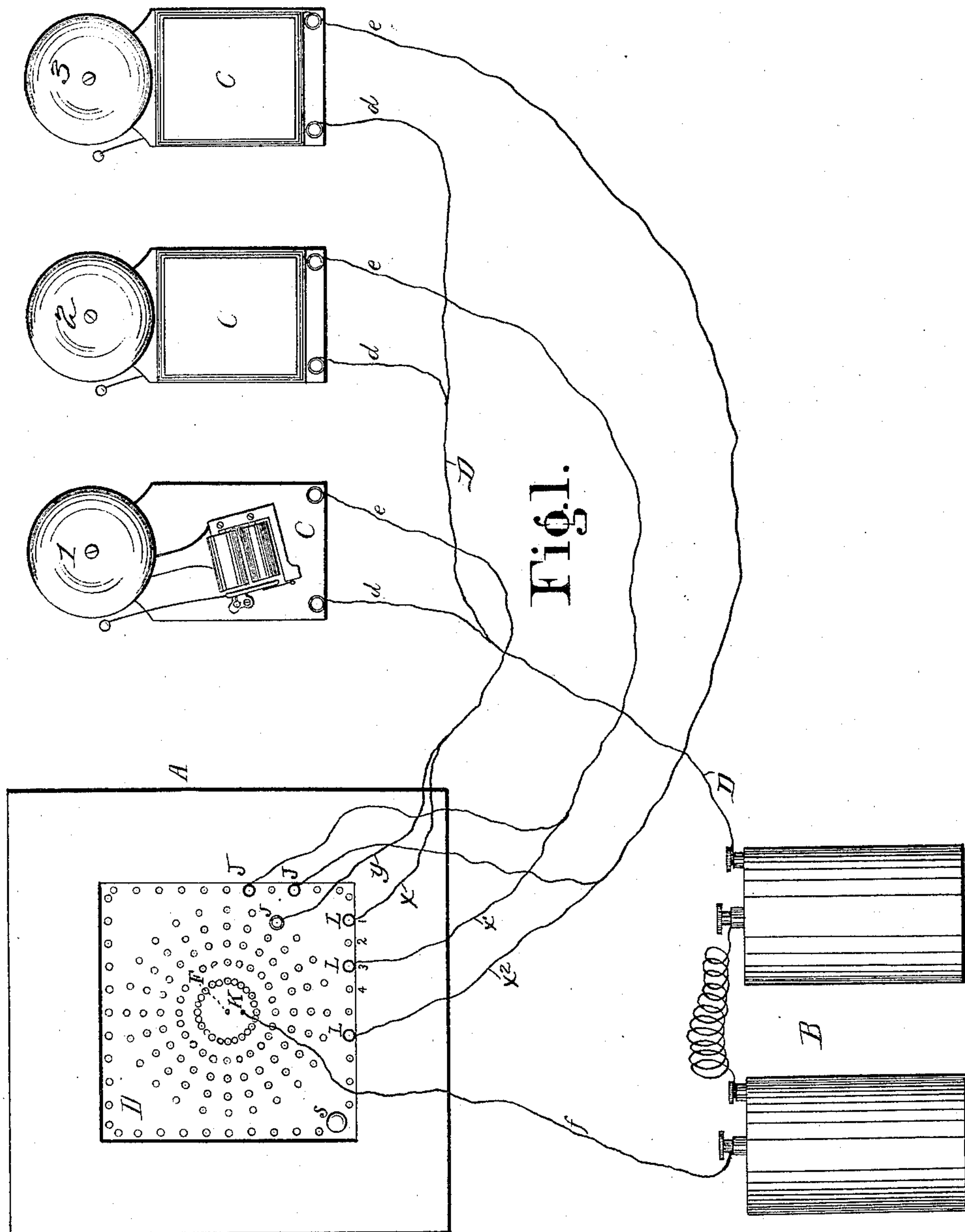


C. J. VINING.
ELECTRIC FIRE ALARM AND NIGHT CALL.

No. 433,584.

Patented Aug. 5, 1890.



WITNESSES
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Henry Ford

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Fig. 2.

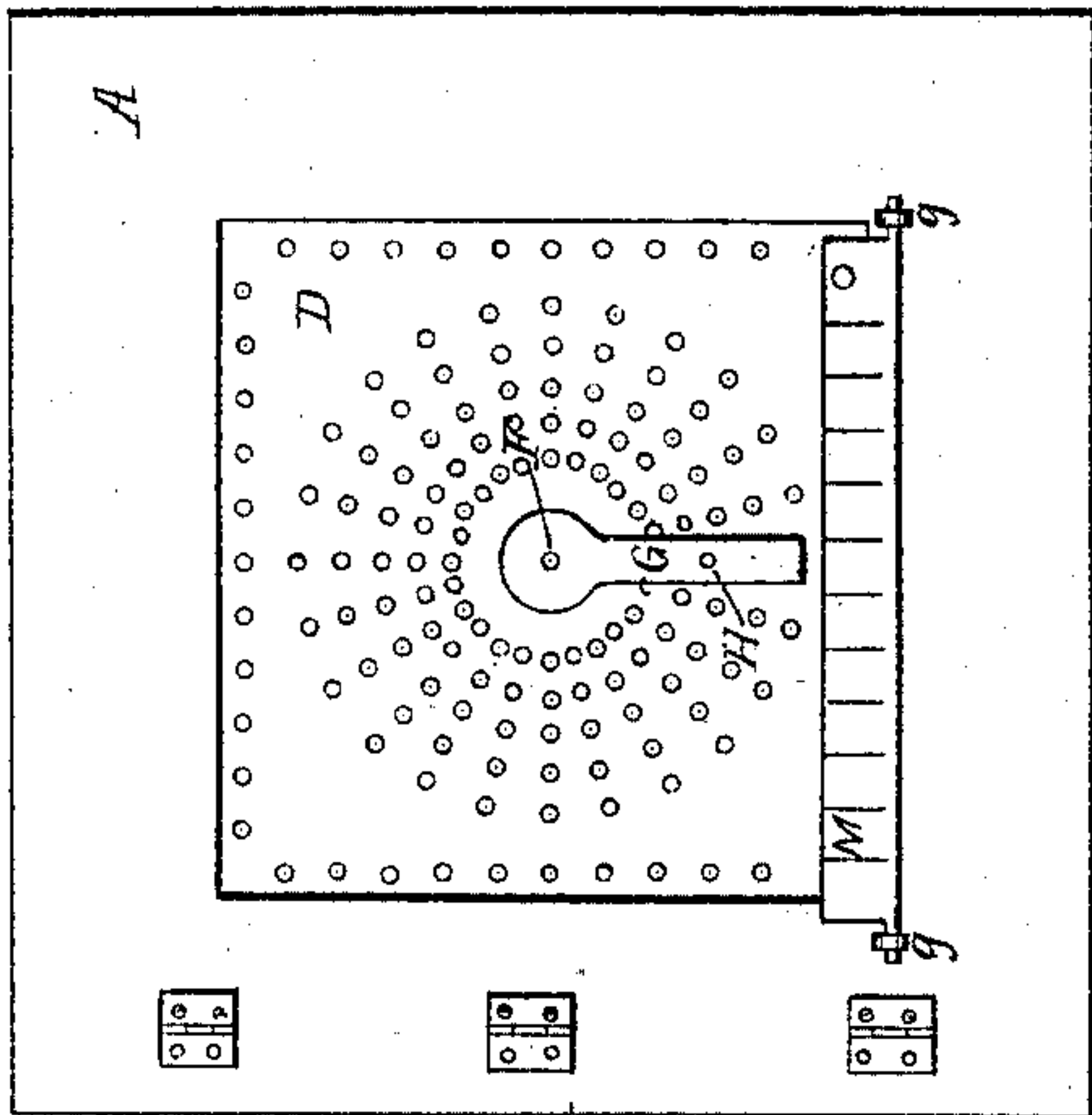


Fig. 3.

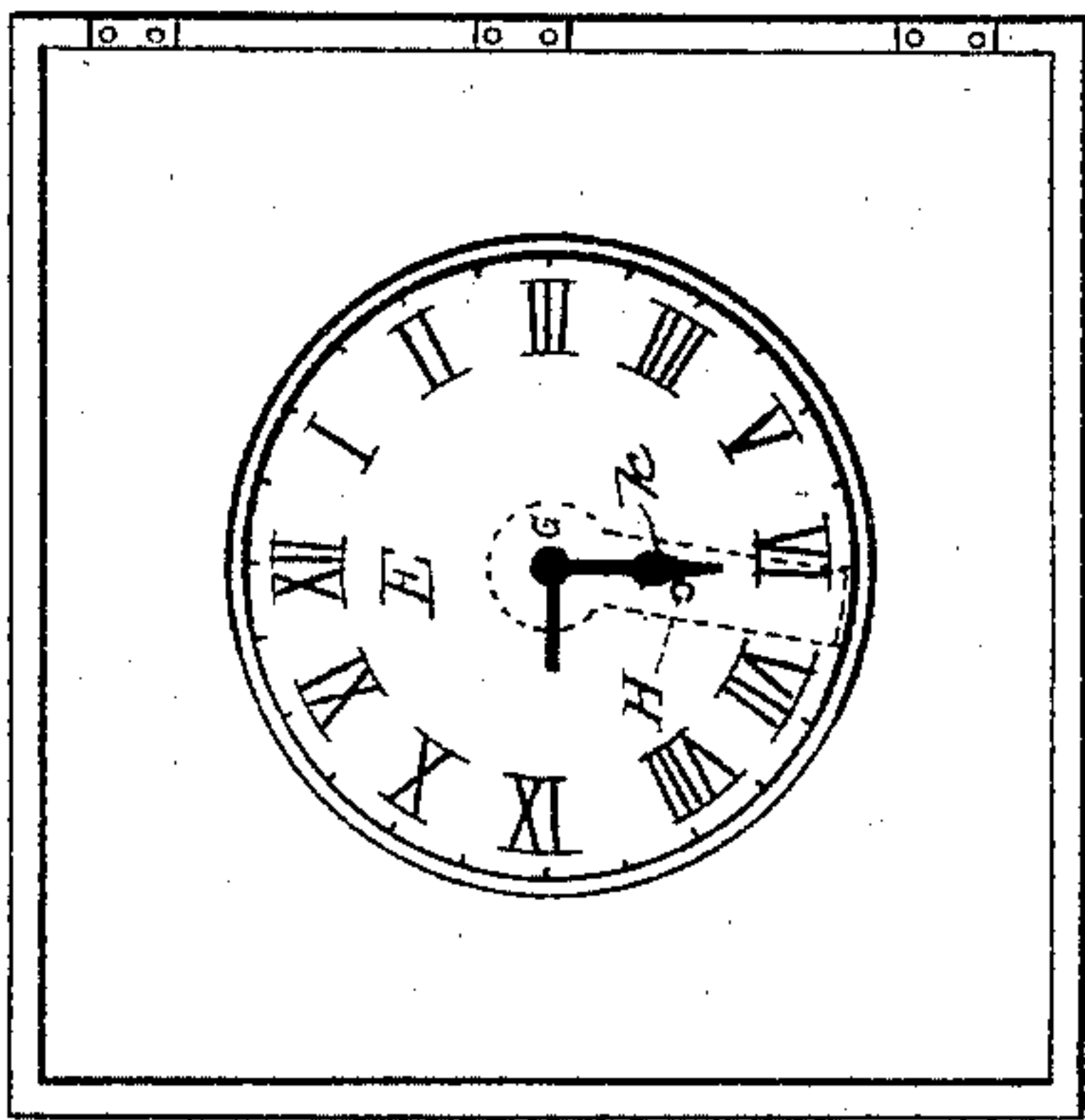


Fig. 5.

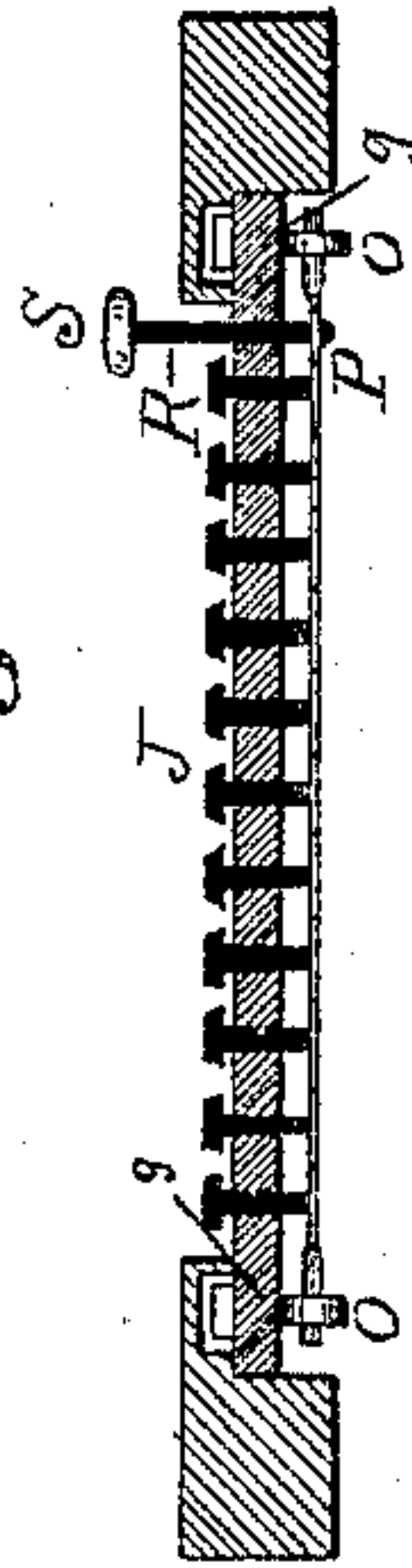


Fig. 6.

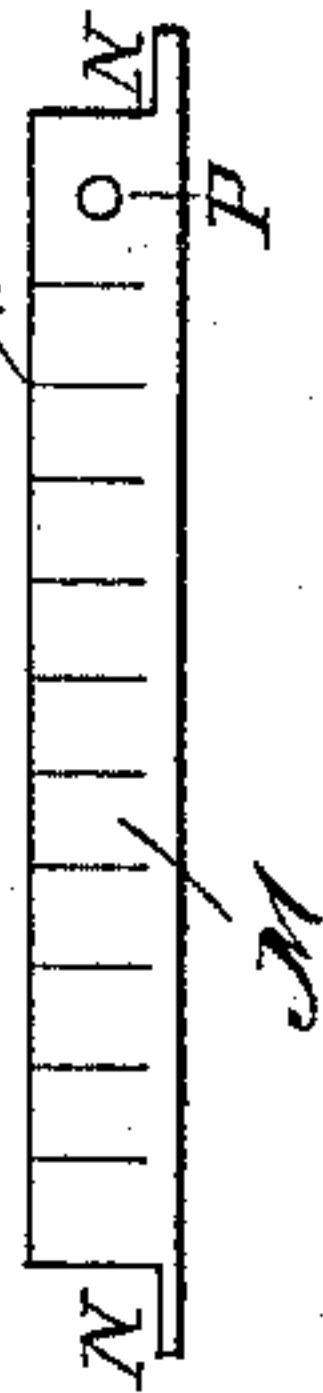
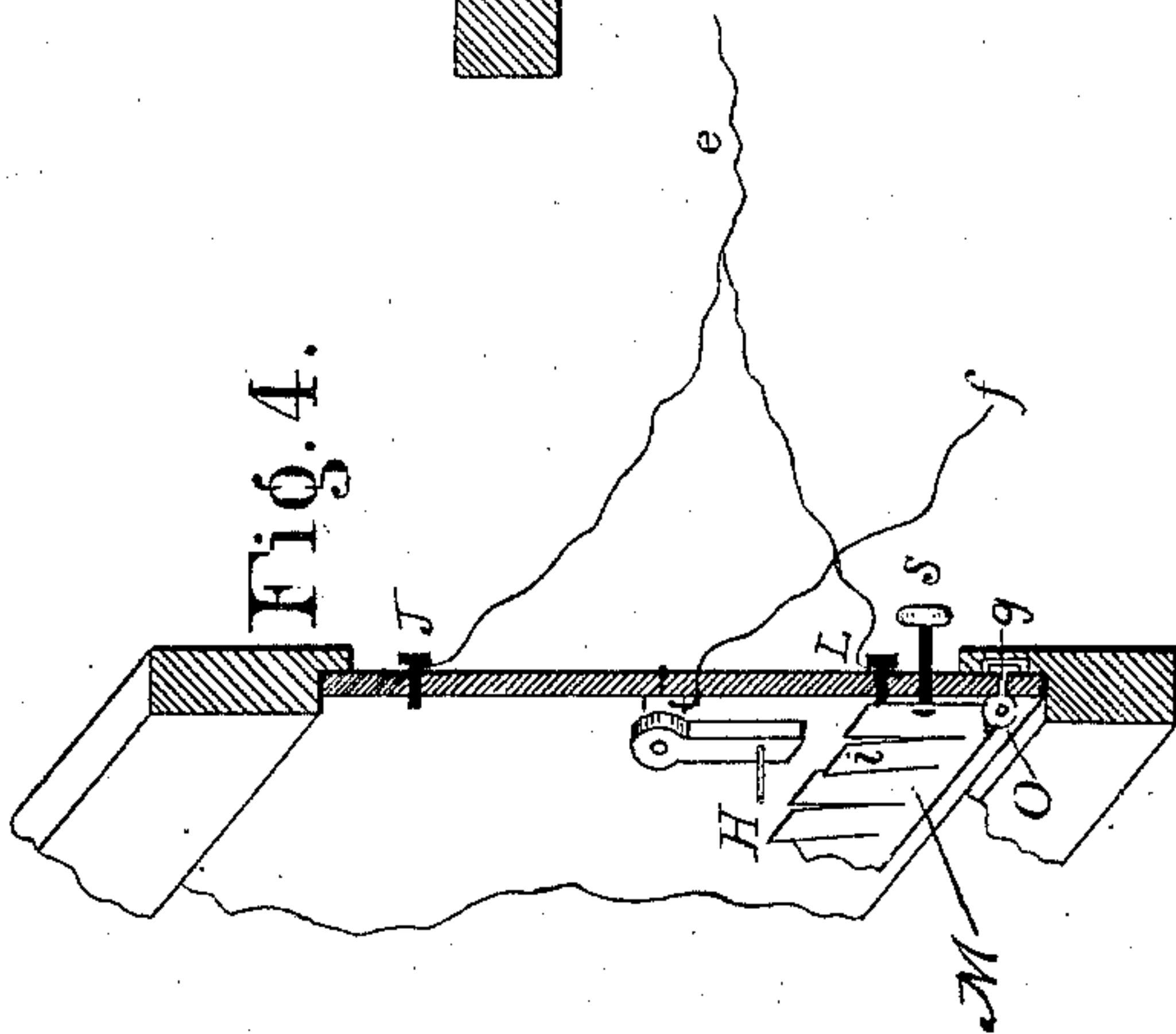


Fig. 4.



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UNITED STATES PATENT OFFICE.

CHARLES J. VINING, OF CLEVELAND, OHIO, ASSIGNOR TO LEWIS C. MERRIFIELD AND HENRY J. FARWELL, BOTH OF SAME PLACE.

ELECTRIC FIRE-ALARM AND NIGHT-CALL.

SPECIFICATION forming part of Letters Patent No. 433,584, dated August 5, 1890.

Application filed December 2, 1889. Serial No. 332,299. (No model.)

To all whom it may concern:

Be it known that I, CHARLES J. VINING, a resident of Cleveland, in the county of Cuyahoga and State of Ohio, a citizen of the United States, have invented a certain new and Improved Electric Fire-Alarm and Night-Call; and I do hereby declare that the following is a full, clear, and complete description thereof.

The nature of my improvement in electrical fire and burglar alarms and night-calls relates to the apparatus which is in connection with a clock, and by the arrangement of a number of movable plugs or pins in the indicator forming part of the electric circuit any required number or the entire number of alarms may be sounded for the required purpose at any time, as hereinafter shown.

That the said invention may be seen and fully understood, reference will be had to the following specification, and to the annexed drawings, making part of the same, in which—

Figure 1 is a front view of the apparatus, A being the indicator, B the batteries, and C the alarm-bells. *d d d* and *f* are the wires of the return-current. *e e e* are the wires of the induced current. Fig. 2 is an interior view of the dial D of the indicator A, which dial, with its frame, is hinged to the indicator. Fig. 3 is also an interior view of Fig. 1, showing the clock, which is directly back of the dial D, arranged to operate conjointly therewith, and the pins and lines. Figs. 4, 5, and 6 are detached sections of my improved apparatus.

Similar letters refer to similar parts throughout the several views and specification.

The center portion of the dial D of the indicator A is made of hard rubber or the equivalents thereof. In the dial is a series of concentric circles of holes, so placed that they will correspond with the hours and half-hours of the clock E. Around the edge of the dial D is another series of holes. These holes last specified are numbered so as to correspond with the numbers of the rooms in which the alarms C, Fig. 1, are placed. On the back of the dial D and revolving on a pivot F is an arm G, Fig. 2, to which is attached a stem H, which is engaged by the hour-hand *k* of the clock E, and causes the arm G to revolve

with the hour-hand until the arm G comes in contact with one of the pins J, which is attached to one of the induction-wires *e* and placed in the hole of the dial D to correspond with the hour on the clock E at which it is desired to sound the alarm in the room designated. Passing through the dial at K and brought in contact with the arm G is the return-circuit wire *f*. Therefore when the arm G, which is continually in contact with the return-wire *f*, is brought in contact with one of the pins J the circuit is closed and the alarm is sounded in the room the number of which corresponds to the number of the hole in which the pin L is placed. The pin L is connected with the same wire as the pin J. This pin L represents a series, all of the series being arranged over the plate M. Every return-wire on the end next the dial has two branches, as shown in Fig. 1, and also the pins L are always in position opposite the common switch-plate M, hereinafter described. The other pin J is either in the marginal hole numbered to correspond with the number of the room or is in the hole corresponding to the hour at which the alarm is required to strike.

At the back of the dial D is a metallic switch-plate M, of the shape of Fig. 6, which is attached to the dial D by means of the pivots N, turning in the insulated supports O and forming an insulated pivotal switch-plate at *g*, Figs. 4 and 5. Attached to the switch-plate M at the point P is a stem R, which passes through the indicator A. On the end of the stem R is a knob S, of hard rubber or any other non-conductor of electricity. It will be seen that by pulling on the knob S the switch-plate M will be brought in contact with all the pins in the holes in the edge of the dial D, and by placing the pin J in one of the holes so that it will come in contact with the arm G a general and simultaneous alarm will be sounded in all the rooms having a connecting-bell.

The switch-plate M is made of thin metal cut or slit part way through at intervals *h*, forming the same number of leaves or springs as the terminals of the pins in the edge of the dial D, so that in case one or several of the pins project farther through the dial than

the others the leaves or springs brought in contact with them will spring, as shown at *i*, Fig. 4, and allow the remaining leaves to come in contact with their respective pins.

5 The alarm-bells may be of the ordinary kind with the common spools or coils, attached to which is the ordinary armature arranged to operate conjointly with the said apparatus.

10 If it is desired to ring the alarm in room No. 1 at four o'clock, the pin L is placed in the hole No. 1 and the pin J is placed in the hole that corresponds with "4" on the clock E. The arm G, being engaged by the hour-
15 hand of the clock, will come in contact with the pin J at the same time that the hour-hand points to "4." The circuit is thus closed through the following connections and the alarm is sounded: from battery B through
20 wire D, branch *d*, through the alarm, returning through wire *e* and branch *y* thereof to pin J, and thence through arm G and wire *f* to battery.

In giving a general alarm the pin J is placed
25 in the hole corresponding to the desired time and the knob S is pulled to bring the plate M in contact with the pins L. The bells are in multiple arc, as shown, and the course of the current for the general alarm is from
30 the battery over the wire D and its branches *d* to the bells, that portion of the current from the left-hand bell No. 1 going directly to the pin J over the return-wire *e* and its branch *y*, while the portions of the current from the
35 other bells go to plate M over the several return-wires *e* and their respective branches

x' x². These currents unite on said plate, and thence pass through the branch *x* of the first return-wire *e*, and thence to the pin J, over branch *y* and to the battery through the arm G and wire *f*.

I claim as my invention—

1. In combination with a clock and an hour-hand thereon, a perforated dial arranged in front thereof, an arm pivoted at the center of
45 said dial, a projection upon said arm with which the hand engages, pins removably fitted in the perforations of said dial for making contact with said arm, and an electrical circuit including an alarm and having
50 its terminals connected, respectively, with the pivoted arm and pins, for the purpose set forth.

2. In combination with a clock and an hour-hand thereon, a perforated dial arranged in front thereof, an arm pivoted at the center of
55 said dial, a projection upon said arm with which the hand engages, pins removably fitted in the perforations of said dial for making contact with said arm, and an electrical circuit including an alarm and having
60 its terminals connected, respectively, with the pivoted arm and pins, a switch M on the said dial, and connections between said switch and the main circuit, substantially as described. 65

In testimony whereof I affix my signature in presence of two witnesses.

CHARLES J. VINING.

Witnesses:

W. H. BURRIDGE,
L. S. GRISWOLD.