2 Sheets—Sheet 1.

P. ERNWEIN.

Switch for Combined Electric Alarms and Annunciators.

No. 208,161. Patented Sept. 17, 1878.

Fig. 1.

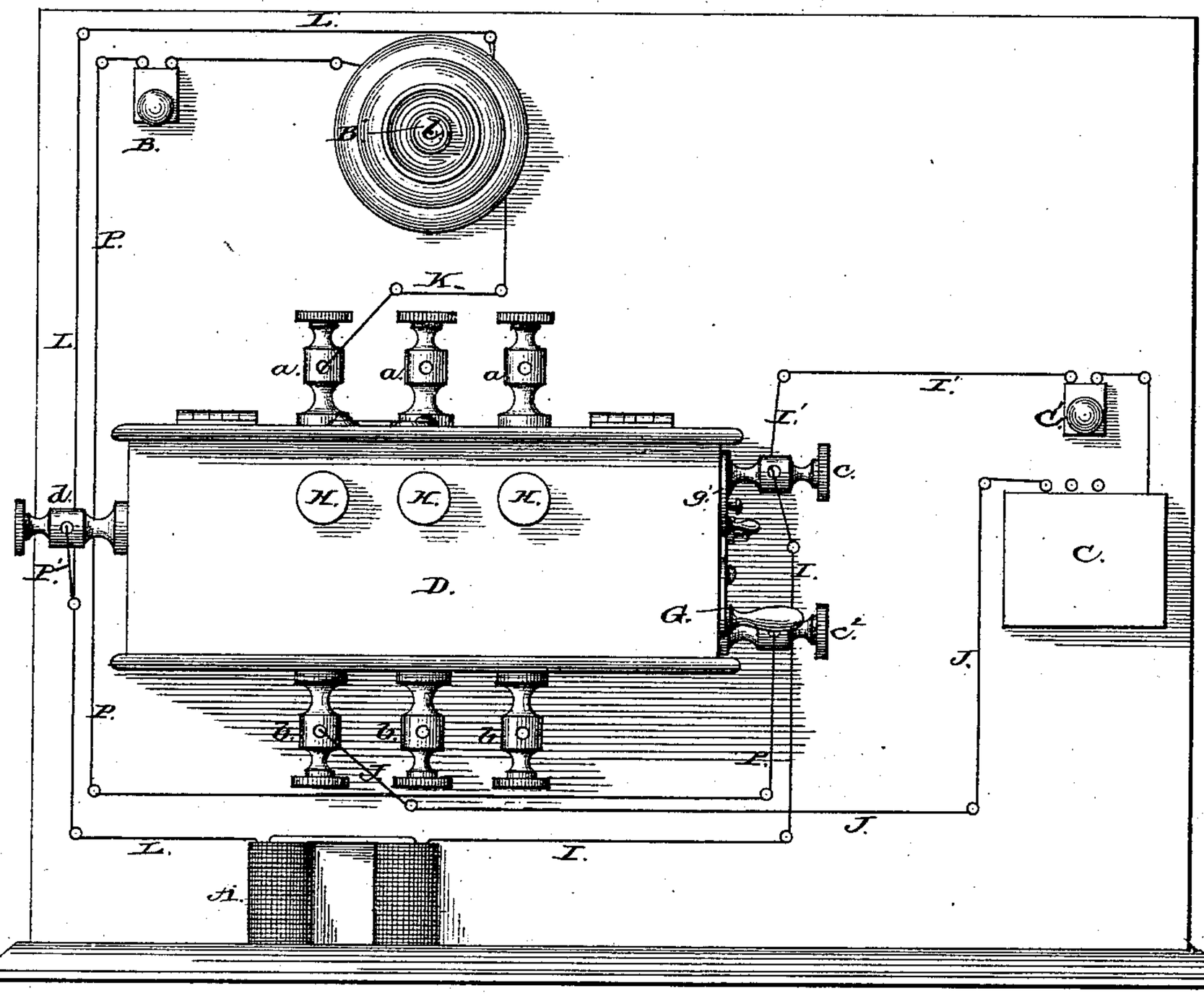
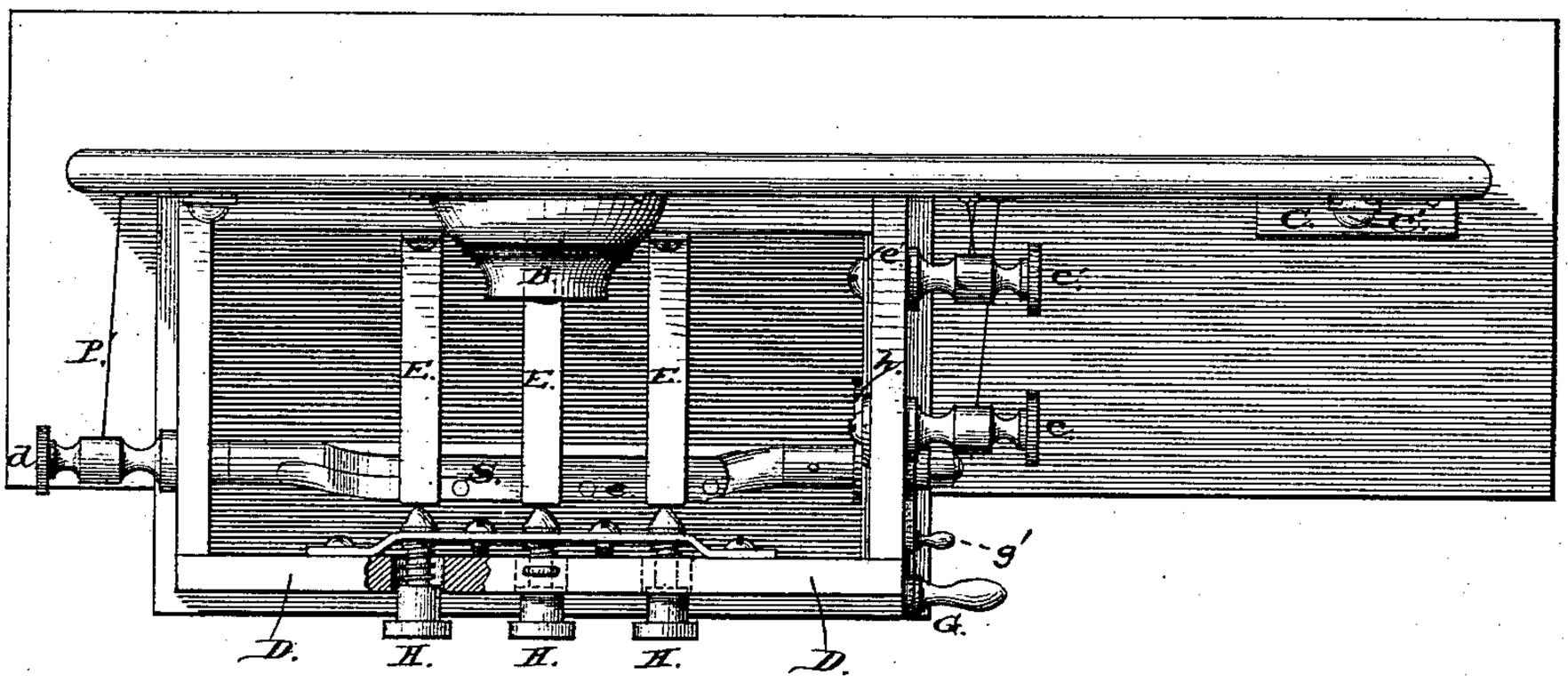


Fig. 2.



Attest:

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2 Sheets—Sheet 2.

P. ERNWEIN.

Switch for Combined Electric Alarms and Annunciators.

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Fig. 3.

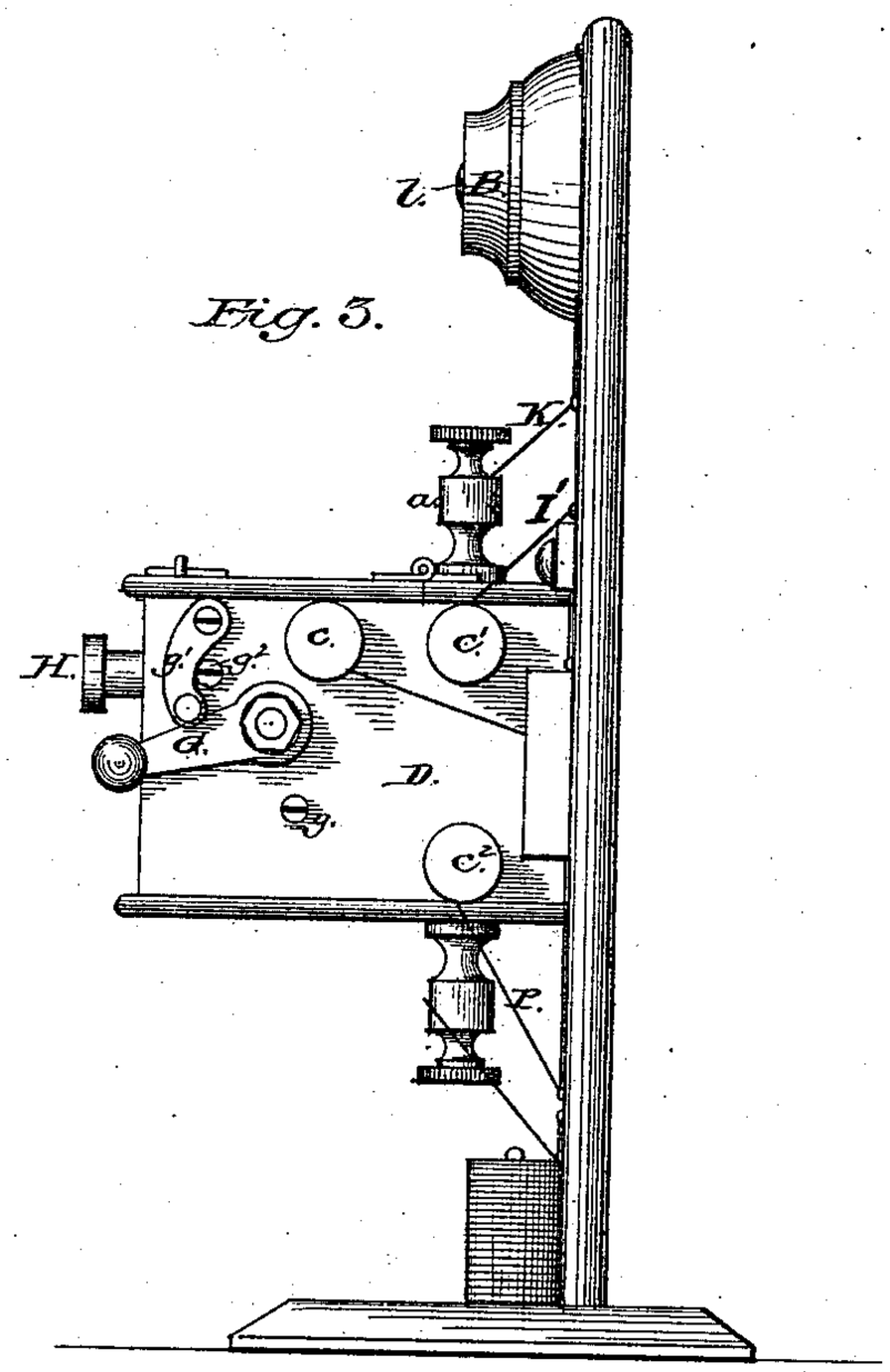


Fig. 4.

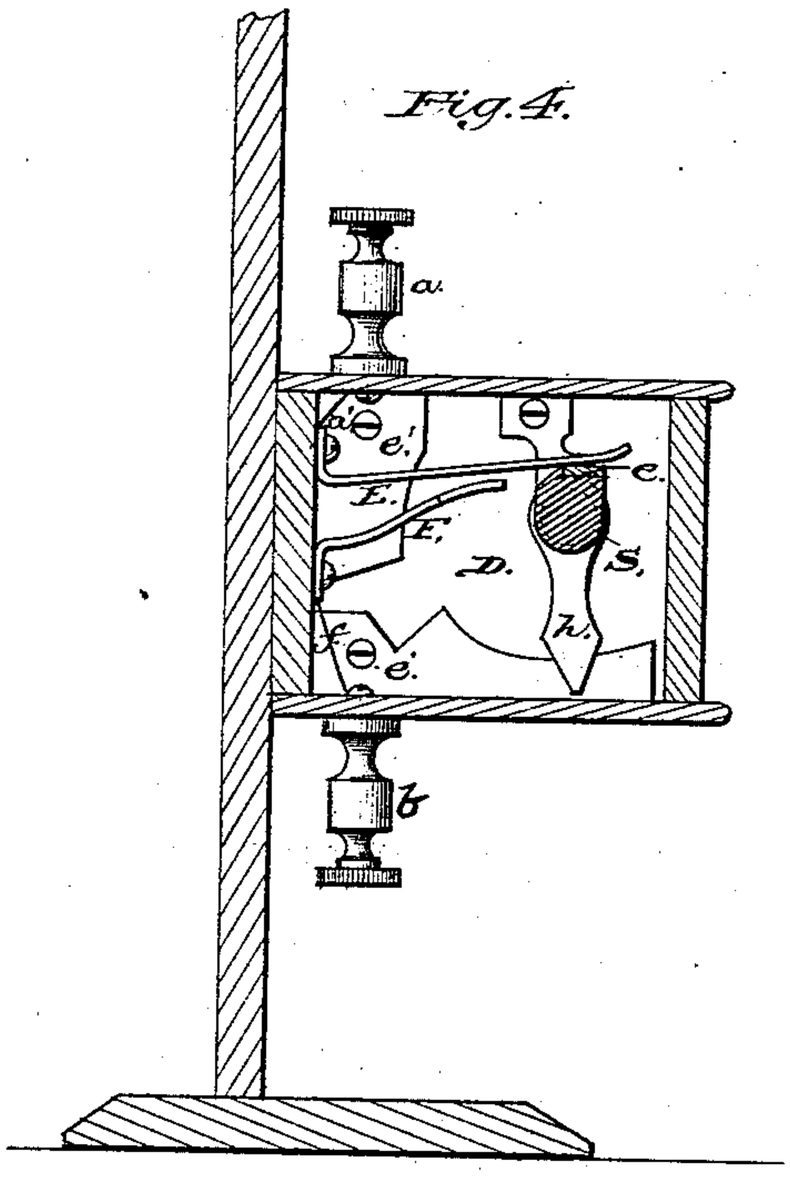
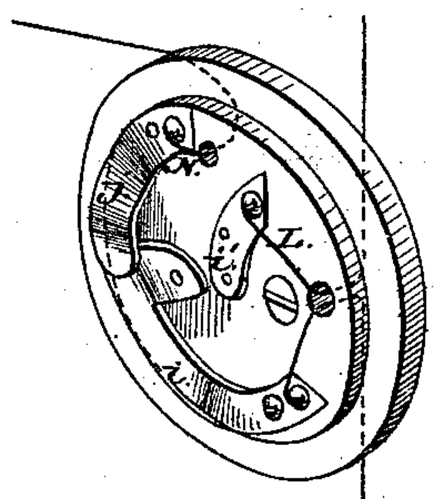


Fig. 5.



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UNITED STATES PATENT OFFICE.

PETER ERNWEIN, OF LOUISVILLE, KENTUCKY, ASSIGNOR TO JAMES F. CALLAWAY, OF SAME PLACE.

IMPROVEMENT IN SWITCHES FOR COMBINED ELECTRIC ALARMS AND ANNUNCIATORS.

Specification forming part of Letters Patent No. **208,161,** dated September 17, 1878; application filed June 8, 1878.

To all whom it may concern:

Be it known that I, PETER ERNWEIN, of Louisville, in the county of Jefferson and State of Kentucky, have invented a new and valuable Improvement in Combined Electric Alarm and Annunciator; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawings is a representation of a front view of my improved electric alarm and annunciator. Fig. 2 is a top view of the same with the top of the key-box removed. Fig. 3 is an end view thereof. Fig. 4 is a vertical transverse section of the key-box, and Fig. 5 is a detail view of call-bell-circuit breaker.

This invention has for its object to improve Letters Patent No. 201,991, dated April 2, 1878.

The object of the invention is to utilize the wires of an ordinary hotel-annunciator in connection with the alarm mechanism described in the said Letters Patent, and thus to dispense with a double set of wires.

The nature of the invention consists in certain novel means whereby the annunciator may be cut off and the wires employed in sounding the alarm, or the alarm cut off and the annunciator used, as will be hereinafter more fully explained.

In the annexed drawings, the letter A designates an electric battery of suitable strength; B, an electric bell; B′, a press-button, one of which is located in each room or cabin of a vessel; C, the annunciator, and C′ an electric bell appertaining thereto. The annunciator and its bell are located in the office in any convenient position.

D indicates a box, of any suitable form, having on its top a number of posts, *a*, equal to the number of rooms. It has at its bottom an equal number of posts, *b*, at its end adjacent to the annunciator the three posts *c* c^1 c^2, and at its remaining end a single post, *d*. Within the box is an eccentric-shaft, S, of any suitable non-conductor of electricity, the journals of which are connected to the end posts *c* and *d*. The journals of this shaft are metallic, and it is provided upon one of its faces with a metallic strip, *e*, that is in connection with the post *d*, but not with the post *c*. The posts c^1 c^2 are connected each to a metallic plate or bearing, *e′*, upon the inside of the box, for a purpose hereinafter set forth.

The posts *a* are each connected by a wire, *a′*, to a horizontal spring, E, rigidly secured to the back of the box, and projecting out therefrom beyond the eccentric-shaft. Underneath springs E are other springs, F, that are in contact with said springs E, and are connected with the posts *b* by means of the wires *f*. The shaft S is rotated by a crank-arm, G, whose vibrations are limited by the stops *g* g^1 to an arc of ninety degrees, or thereabout; but by throwing up the stop g^1, which is pivoted to the box for this purpose, the said crank may be thrown up to a fixed stop, g^2, thus bringing all of the springs E in contact with the strip *e*, and disconnecting them from the springs F. In this position a switch, *h*, on the journal of the eccentric-shaft adjacent to the crank-arm is in contact with the plate *e′* of post c^2, as it also is when the said crank-arm is in contact with the movable stop g^1. In this case, however, the springs E are not in contact with the strip *e* of the eccentric, the circuit being completed by means of the push-buttons H, which have barbed inner ends, that are in contact both with the said springs and strip when the said buttons are pushed in. These latter are retracted by means of a suitable spring.

The circuit-wire I is secured to one of the poles of the battery, and is carried to the post *c*, to which it is properly secured. A second wire, I′, starts from the post *c′*, and is connected at its other end to the annunciator-bell. From each of the posts *b*, upon the under side of the box, a wire, J, starts, and, being carried to the annunciator, terminates at the bell. The posts *a* are each connected by means of a wire, K, to a metallic circuit-closing spring, *i*, rigidly secured at one end to the base-plate of a call-bell button, B, and overhanging with its free end a fixed metallic plate, *i′*, that is connected by a wire, L, to the other pole of the

battery. The spring *i* is not in contact with the plate *i'*, but is in contact with a second spring, *j*, connected by means of a wire, N, to the alarm-bell. Spring *i* is thrust into contact with plate *i'* and out of contact with the spring *j* by pushing in the button *l*. The post c^2 is connected with the alarm-bell by means of a wire, P, and the post *d* with the wire L by a short branch wire, P'.

The operation is as follows: When the crank-arm is drawn forward to the stop g^1, the switch *h* is moved into engagement with the bearing-plate *e'* of post c^2, to which the circuit-wire to the alarm-bells is secured. At the same time the eccentric-shaft raises the springs E, that are connected through the posts *a*, wires K, the springs *i j* of the call-bells in the rooms, and the wires N out of contact with the springs F, that connect with the annunciator through wires *f* J and posts *b*, thus cutting off the annunciator completely, but preserving the circuit of the alarm. Hence the alarm in any room can be sounded by pushing in the button corresponding thereto; or, if a general alarm be required, it may be had by throwing up the stop g^1, and bringing the crank-arm into contact with the fixed stop g^2, thus bringing the springs E into connection with the strip *e*, closing the circuit and causing the desired result as often as the circuit is opened and closed. In this case the circuit is from one pole of the battery through wires L P' to post *d;* thence through strip *e* to springs E; thence, through buttons *a*, wires K, springs *i j*, and wires N, to the alarm-bell; thence through wire P to post c^2; thence through bearing *e'* of the said post and the switch *h* to post *c*, and thence through wire I to the other pole of the said battery. By throwing the crank-arm back against stop *g*, the switch *h* is brought into engagement with the bearing *e'* of post c^1, and the springs E lowered into contact with the springs F and the non-conducting portion of the eccentric-shaft.

The alarm is then cut off completely and the annunciator rendered operative, the circuit being from one pole of the battery through wire I to post *c;* thence, through switch *h*, plate *e'*, post c^1, and wire I', to the annunciator-bell; thence through wire R to the annunciator; thence through wire J to posts *b;* thence, through wire *f*, springs F E, wire *a'*, posts *a*, and wires K, to the spring *i;* thence, when the said spring is depressed into contact with plate *i'*, thereby closing the circuit through wire L, to the other pole of the battery.

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

1. The combination, with an electric alarm and annunciator and the circuit-wires common to both, of the insulated eccentric-shaft S, provided with the metallic plate *e*, electrically connected to post *d*, the switch *h*, and plate *e'*, the latter being in electric connection with the post c^2, and the springs E E E F F F, and posts *a a a* and *b b b*, whereby the circuit may be thrown simultaneously through all of the alarms or through the annunciator, substantially as specified.

2. The combination, with an electric alarm and annunciator common to both, of the eccentric-shaft S, provided with the plate *e*, secured thereto, the horizontal springs E, and the lifting push-button having barbed inner ends that are in contact with said springs and plate, whereby the circuit may be thrown through any desired alarm, substantially as specified.

3. In combination with the eccentric-shaft, its plate *e*, and springs E E E F F F and buttons H H H, the crank G and stops g^1 and g^2, for regulating the rotation of said shaft, substantially as specified.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

PETER ERNWEIN.

Witnesses:

E. A. BARBER,

GEO. S. ALLISON.