

No. 654,967.

Patented July 31, 1900.

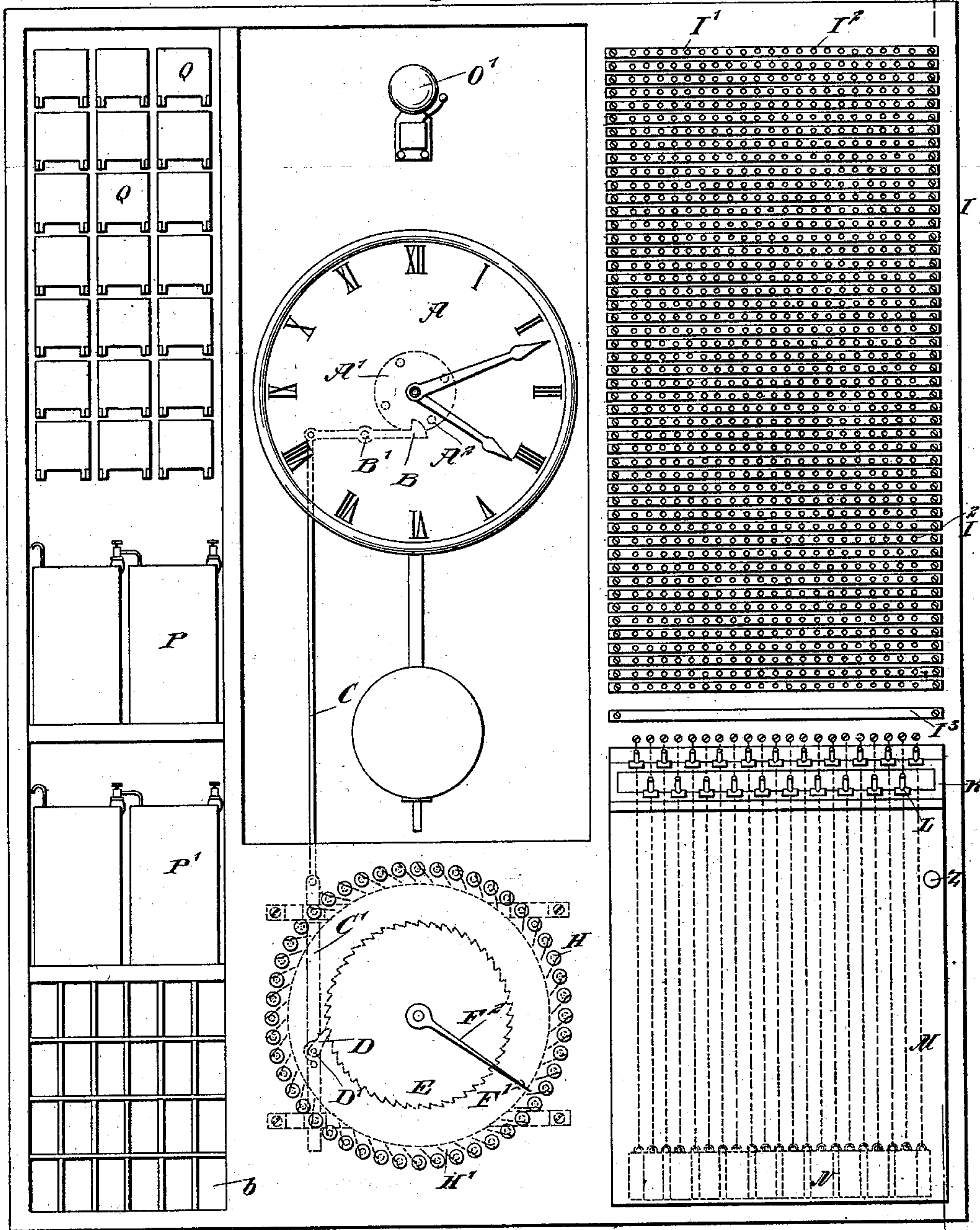
D. GEYWITS & W. STILL.
ELECTRIC SIGNAL AND FIRE ALARM.

(Application filed Feb. 16, 1900.)

(No Model.)

3 Sheets—Sheet 1.

Fig. 1.



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3 Sheets—Sheet 2.

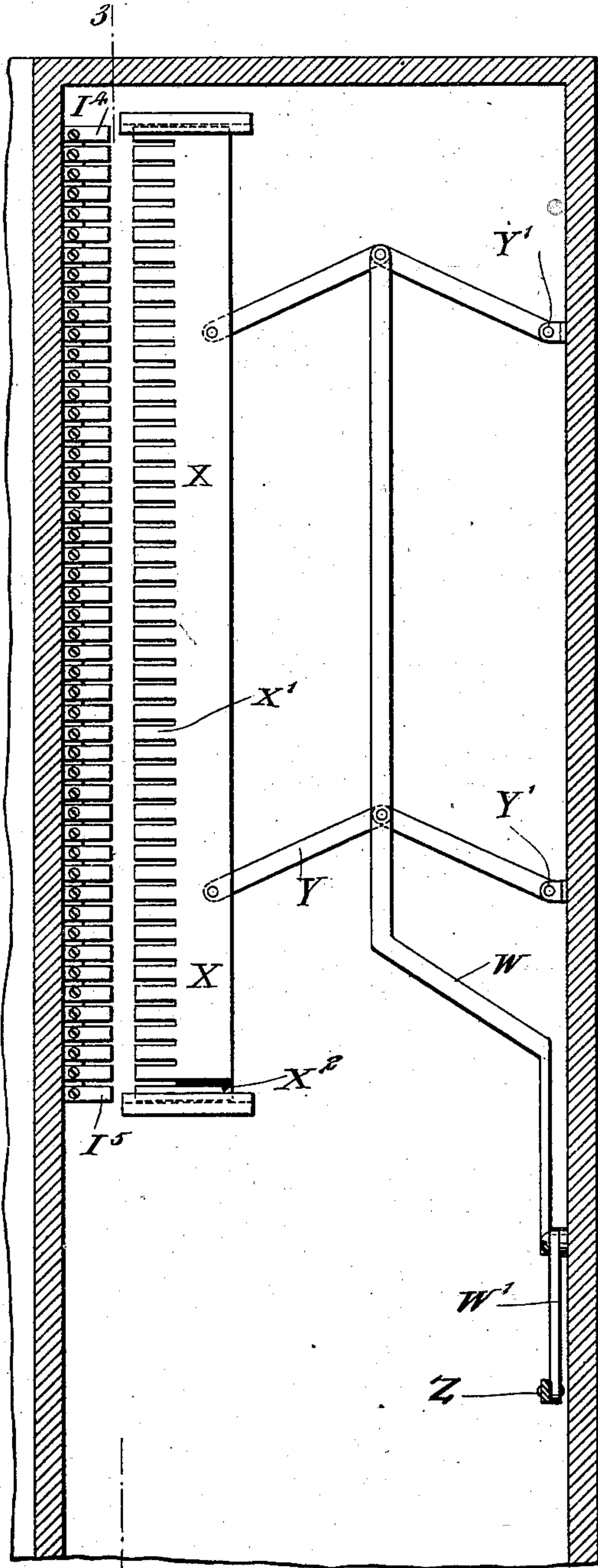


Fig. 2.

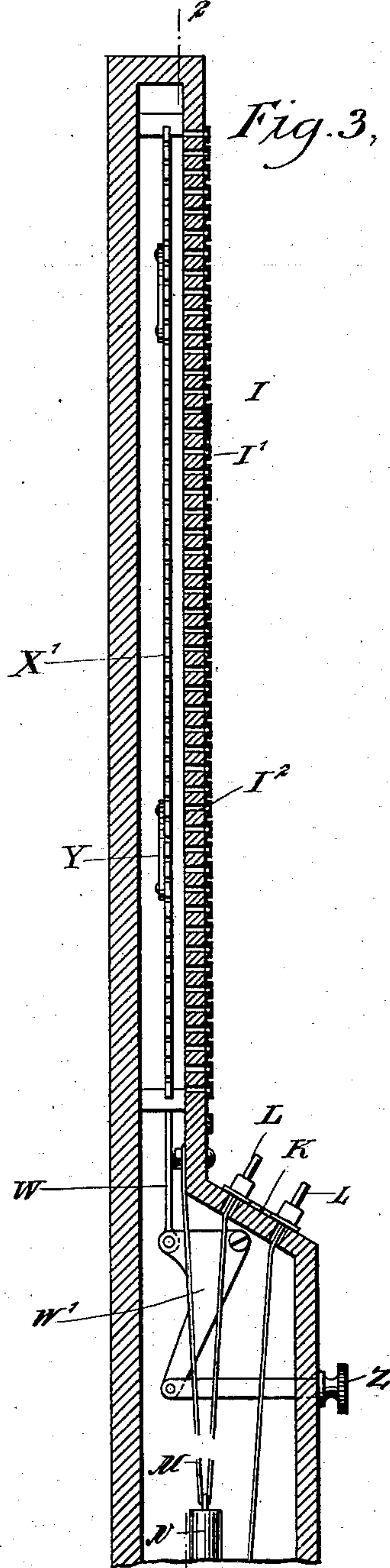


Fig. 3.

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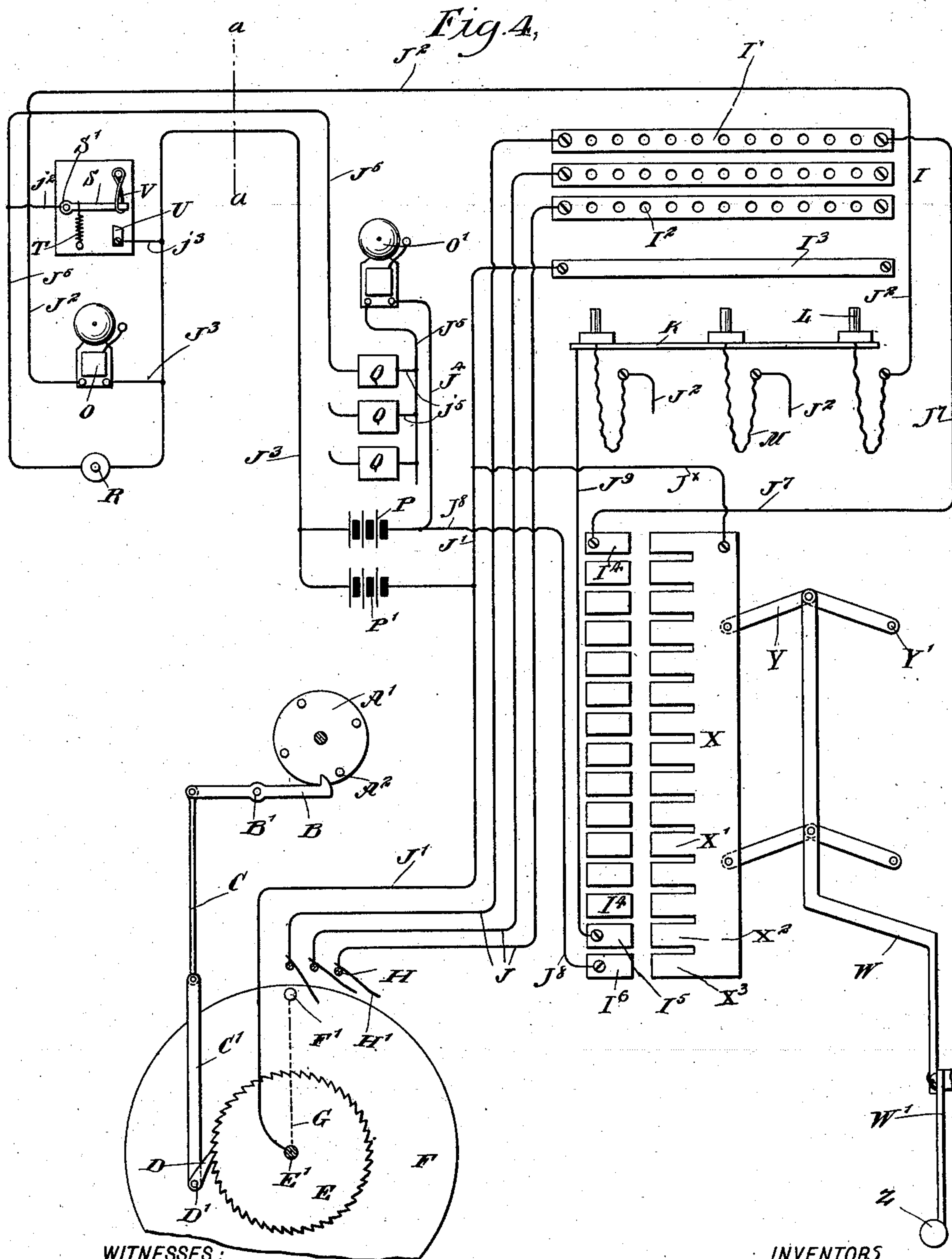
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3 Sheets—Sheet 3.



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UNITED STATES PATENT OFFICE.

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ELECTRIC SIGNAL AND FIRE-ALARM.

SPECIFICATION forming part of Letters Patent No. 654,967, dated July 31, 1900.

Application filed February 16, 1900. Serial No. 5,458. (No model.)

To all whom it may concern:

Be it known that we, DAVID GEYWITS, residing at Rome, and WILLIAM STILL, residing at Utica, in the county of Oneida and State of New York, citizens of the United States, have invented a new and Improved Electric Signal and Fire-Alarm, of which the following is a full, clear, and exact description.

The invention relates to electric devices for calling guests in hotels, apartment-buildings, stores, and the like at any desired time, and also comprises means for giving an alarm in each room in case of a fire.

The object of our invention is to provide a comparatively-simple and reliable apparatus of the above-indicated class, in which provision will be made for calling several persons at the same time and for giving each of them an opportunity of answering the call to the office, so that the clerk in attendance may ascertain at a glance whether the call has been effective and so that there will also be evidence that the guest has answered the call.

The invention will be fully described hereinafter and the features of novelty pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a face view of that part of the apparatus which is located in the office or other central point. Fig. 2 is a sectional elevation of a portion of the said device, taken on the line 2 2 of Fig. 3. Fig. 3 is a sectional elevation on the line 3 3 of Fig. 2, and Fig. 4 is a diagrammatic elevation illustrating the entire apparatus.

At the office or other central point is located the clock A, of any suitable construction and having mounted to turn thereon with the minute-hand a wheel A', provided with four pins A², located at regular intervals. These pins are adapted to depress one end of a lever B, fulcrumed at B' and connected by a rod C and slide-bar C' with a pawl D, pivoted at D'. It will be obvious that every quarter of an hour one of the pins A² will engage and operate the lever B, causing the rod C and pawl D to travel upward.

The pawl is held in engagement with a toothed wheel E, adapted to be rotated by the upward movement of the pawl, but allowing the pawl to slide freely over the teeth when it moves downward. The rod C and pawl D return to their lowermost position either by gravity or under the influence of a spring. (Not shown.) The wheel E is connected rigidly with a disk F, carrying a projecting pin F', which is in electrical connection with the shaft E' by means of a wire G. Around the rotary disk F are arranged a series of knobs or pins H, normally stationary, but capable of being manually turned on their axes. Each of these pins carries a conducting blade or spring H'. These blades are normally out of the path of the pin F', but may be turned so as to come into the path of said pin, as illustrated in Fig. 4, for the last blade at the left. The number of blades is forty-eight when, as shown, the clock operates the lever B four times an hour. Of course if the lever was operated only every half-hour the number of blades H' would be reduced to twenty-four.

At the right-hand portion of Fig. 1 appears a switchboard I, which consists of a series of conducting-bars I', each provided with a number of perforations I². There are as many of these bars I' as there are conducting-blades H'—that is, forty-eight in the particular example shown. There is, besides, at the bottom a separate bar I³. Each of these bars I' is connected with one of the blades H' by a wire J. The bar I³ is connected with a battery P' by a wire J', which also leads to the shaft E'.

Below the switchboard I is located an inclined conducting-table K, having openings for receiving connecting-plugs L. Each of these plugs is attached to the cord M, carrying a weight N, and each of the plugs is connected by a wire J² with one of the rooms or apartments in which an alarm or other signal is to be operated.

The wire J², as shown in Fig. 4, leads to a bell O, from which a return-wire J³ leads to a battery P, located at the office. From this battery wire J⁴ leads to a bell O', connected by wires J⁵ with as many annunciators Q as there are different bells O. In Fig. 4 only

the circuit of one annunciator has been shown complete for the sake of clearness, and it will be understood that the parts to the right of the dotted line $\alpha \alpha$ are located at the office, while the parts to the left of said line are situated in one of the rooms. From each annunciator Q a wire J^6 leads to a push-button R, also connected with the wire J^3 .

In each room is located a fire-alarm adapted to close a circuit in any suitable way. For instance, a conducting-bar S may be pivoted, as at S', and attracted by a spring T toward a stationary contact U, the pivot S' and contact U being connected with the wires J^6 and J^3 , respectively, by wires $j^2 j^3$. A fusible wire V normally holds the bar S in the position shown. In case of fire the wire V will melt, causing the bar S to close the circuit in the well-known manner.

To each of the bars I' is secured at one end a conducting projection or contact-plate I⁴ in direct electrical contact with its bar I'. In Fig. 4 we have for the sake of clearness shown the projections I⁴ separated from the bars I', and have indicated the electrical connection by the wire J⁷. It will of course be understood that this construction—viz., a wire connection instead of the direct contact—might be adopted in practice. Adjacent to these projections I⁴ is mounted a conducting-slide X, having teeth or prongs X', arranged correspondingly to the projections I⁴ and adapted to come in contact therewith. This slide is electrically connected with the wire J' by a wire J^x. The movement of the slide is effected by means of toggle-links Y, having their stationary fulcrum at Y' and connected at their joints with an operating-rod W, attached to a lever W', adapted for operation by the pull-rod Z.

In addition to the projections I⁴ (of which for the sake of clearness only thirteen are shown in Fig. 4) there is a separate contact I⁵, connected with the table K by a wire J⁹ and adapted to be engaged by a tooth X² of the slide X, and another contact I⁶, connected by the wire J⁸ with the same pole of the battery P with which the wire J⁴ is connected. It will be seen that the slide X and the contact I⁶ are connected with like poles of the batteries P P'.

The operation is as follows: It will be understood that the clock A periodically rotates the wheel E and disk F, so that every quarter of an hour the pin F' passes from registry with one of the knobs H into registry with the adjacent knob. As long as the said pin F' does not engage the blades H' no alarm will be operated. Therefore, to bring about the operation of the bell in any room it is necessary that the clerk should turn one or more of the blades H' into the path of the pin F'. If this is done, the pin F' will at a predetermined time come into engagement with such blade, and will therefore be in electrical connection through the wire J with one of the bars I'. The timing of the alarm will

thus be readily understood, and it will also be seen that each of the bars I' corresponds to a certain time. The plugs L each correspond to one of the rooms—that is, to one of the bells O—and to complete the circuit the proper plug L is inserted into one of apertures I² of the corresponding bar I'—that is, for instance, if the guest in room 9 desires to be called at 5.30 o'clock the plug belonging to room No. 9 will be inserted into the bar I' corresponding to 5.30. In this case at 5.30 the pin F' would come in contact with the blade H' corresponding to 5.30, and the circuit would be closed as follows: pin F', the blade H', the wire J, the bar I', the plug L, the wire J², the bell O, the wire J³, the battery P', the wire J', the shaft E', and the wire G, thus ringing the bell O in the room desired. As there are several apertures I² in each bar I' it will be obvious that the clerk may insert several plugs L in the same bar I', and thus call several guests at the same time. After the guest has been called he is supposed to answer by pressing the push-button R. This closes the following circuit: from push-button R through wire J⁶ to the bell O' and the annunciator Q at the office and through the wires j^5 , J⁵, and J⁴ to the battery P and back through the wire J⁸ to the push-button R. The return-signal will therefore cause the bell O' to be rung and the annunciator Q of the respective room to be dropped. The clerk will therefore receive an audible answer to the call and at the same time the drop of the annunciator will show by its changed position that the guest has answered the call, thus avoiding disputes. It will be understood that one bell O' will do for all the annunciators. Should the clerk desire to call a guest independently of the time-call arrangement, he will simply take the plug L corresponding to that guest's room and hold it on the bar I³. This will close the following circuit: from the plug L through the bar I³, a portion of the wire J', battery P', the wire J³, the bell O, and wire J² and back to the plug L. This will enable the clerk to repeat the call in case the guest fails to answer, or the arrangement may be used as a call for general purposes.

Should fire break out in any of the rooms, the circuit will be closed by the melting of the wire V, and an alarm will be given at the office as follows: from the bar S the current will flow to the contact U, the wire j^3 , the wire J³, the battery P, the wire J⁴, the bell O', the wires J⁵ j^5 , the annunciator Q, and wires J⁶ j^2 back to the bar S, thus ringing the bell O' and at the same time operating the annunciator Q of that room. The clerk will thus know in what room the fire has started, and can then give a general alarm by pulling out the rod Z, so as to shift the slide X into contact with the projections I⁴ and the teeth X² X³ into contact with the projections I⁵ I⁶, respectively. This will close two electric circuits for each room to operate the alarm-bell, one of the circuits for one room being as fol-

lows: from the slide X through the tooth X² to the projection I⁵, the wire J⁹, the table K, the plug L, the wire J², the bell O, the wire J³, the battery P', and the wire J^x back to the slide X. The other circuit will be as follows: from the tooth X³ to the projection I⁶, wire J⁸, battery P, wire J³, bell O, wire J², plug L, table K, wire J⁹, projection I⁵, tooth X², back to tooth X³—that is, the full current of both batteries P P' will be utilized when sending the general alarm to all the rooms, so that each bell will receive a current of sufficient strength.

It will be seen that the slide X when in contact with the projections I⁴ I⁵ I⁶ is in connection with like poles of both batteries. It will also be observed that for the operation of the general alarm, as above described, the connecting-wires J⁷ appear to be superfluous. The reason for using these wires is as follows: The description given above is based upon the assumption that all the plugs L are inserted in the table K. In practice, however, it will often occur that some of the plugs are inserted in the bars I'. In each case the current from both batteries, passing respectively to the slide X through the wires J' J⁴ (for the battery P') and through the wire J⁸, projection I⁶, and tooth X³, (for the battery P,) will pass farther from the teeth X' through the wires J⁷ to those of the bars I', with which plugs L are in contact, and from these plugs through the corresponding wires J² to the bells O, the wire J³, and the other poles of both batteries.

It will thus be seen that the apparatus provides ready means for calling a person by a clock-operated arrangement at a predetermined time or at any time desired, and also makes provision for an answering signal by the guest, for the sounding of a fire-alarm at the office from each room, and for the transmission of an alarm-signal from the office to all the rooms, thus fulfilling in a high degree the requirements of convenience and safety both for the guests or employees and for the landlord or employer.

In Fig. 1 we have shown a hand F², connected with the disk F and indicating the position of the pin F', so that it will be easy to ascertain at any time whether the device is properly adjusted.

The wire J³ may obviously be common to all rooms, and by reference to Fig. 4 it will be seen that only two additional wires (J² and J⁶) are required for each room.

The frame containing those parts of the apparatus which are located at the office may be provided with pigeonholes b.

Various modifications may be made without departing from the nature of our invention. Thus it will be obvious that the connections of the parts I⁶ X X² may be reversed—that is, the wire J^x might lead from the battery P' to the projection I⁶ and the wire J⁸ from the battery P to the slide X.

The blades or springs H' instead of being

arranged in a single circle, as shown, might be disposed in several circles, in which case the disk F would have a plurality of pins F'. 70

Having thus described our invention, we claim as new and desire to secure by Letters Patent—

1. The combination of a movable contact-piece and a clockwork for operating the same, with a series of normally-stationary contact members adjustable to pass into or out of the path of said contact-piece, a switchboard having a series of conducting members each connected with one of the said contact members, and an additional conducting member not so connected, a series of movable circuit-closers, such as plugs, adapted for engagement with said conducting members, a series of circuits in which are included the said circuit-closers and the said contact-pieces, so that the engagement of the contact-piece with one of the contact members will close a circuit through the conducting member connected with said contact member, when said conducting member is engaged by one of the circuit-closers, and a permanent electrical connection from the additional conducting member to each of said circuits, so that said circuits may be closed, independently of the contact-piece and contact members, by an engagement of the circuit-closers with the additional conducting member. 80 85 90 95

2. The combination of a source of electricity, a series of conducting members and a series of contact members, each connected with one of the conducting members, an additional conducting member connected directly with one pole of the said source of electricity, a time-operated contact-piece connected with the same pole of the source of electricity and adapted for engagement with the contact members, a series of circuit-closers, such as plugs, adapted to engage the said conducting members, a series of circuits each connected with one of the said circuit-closers and with the other pole of the source of electricity and an electrically-actuated mechanism included in each of said circuits. 100 105 110

3. The combination of a movable contact-piece and a clockwork for operating the same, with a series of normally-stationary contact members adjustable to pass into or out of the path of said contact-piece, a switchboard having a series of conducting members, each connected with one of the said contact members, a series of movable circuit-closers, such as plugs, adapted for engagement with said conducting members, a conducting plate or base for normally receiving said plugs, a source of electricity, a connection from one pole thereof to said conducting-plate, a circuit-closer in said connection, another connection from the same pole to the clock-operated contact-piece, and a series of electric signals each of which has one terminal connected with the other pole of the source of electricity, and the other terminal connected with one of the plugs. 115 120 125 130

4. The combination of a movable contact-

piece and a clockwork for operating the same, with a series of normally-stationary contact members adjustable to pass into or out of the path of said contact-piece, a switchboard having a series of conducting members each connected with one of the said contact members, a series of movable circuit-closers such as plugs, adapted for engagement with said conducting members, a conducting plate or base for normally receiving said plugs, a source of electricity consisting of two batteries connected in parallel at one pole, a series of electric signals, each of which has one terminal connected with the common pole of said source of electricity, and the other terminal connection with one of the said plugs, a circuit-closer comprising a movable member connected with the other pole of one of the batteries, and a series of contact-plates adapted to be engaged by said movable member, sundry of said contact-plates being connected individually with the conducting members of the switchboard, one of the remaining contact-plates being connected with the conducting-plate receiving the plugs, and the other with the free pole of the other battery, and a connection from said free pole to the clock-operated contact-piece.

5. The combination of a movable contact-piece and a clockwork for operating the same, with a series of normally-stationary contact members adjustable to pass into or out of the path of said contact-piece, a switchboard having a series of conducting members each connected with one of the said contact members, a series of movable circuit-closers such as plugs, adapted for engagement with said conducting members, a conducting plate or base for normally receiving said plugs, a source of electricity consisting of two batteries connected in parallel at one pole, a series of electric signals, each of which has one terminal connected with the common pole of said source of electricity, and the other terminal connected with one of the said plugs, a circuit-closer comprising a movable member connected with the other pole of one of the batteries, and a series of contact-plates adapted to be engaged by said movable member, sundry of said contact-plates being connected individually with the conducting members of the switchboard, one of the remaining contact-plates being connected with the conducting-plate receiving the plugs, and the other with the free pole of the other battery, a connection from said free pole to the clock-operated contact-piece, a series of push-buttons each located in proximity to one of the signals, a connection from one terminal of each push-button to the wire connecting the corresponding signal with the common or connected pole of the two batteries, an annunci-

ator and a bell, located at the central office in series with each other and connected with the other terminal of the push-button and with the same pole of the first-named battery which is connected with the main section of the circuit-closer, and a connection from the like pole of the other battery to the clock-operated contact-piece.

6. The combination of a movable contact-piece and a clockwork for operating the same, with a series of normally-stationary contact members adjustable to pass into or out of the path of said contact-piece, a switchboard having a series of conducting members each connected with one of the said contact-members, a series of movable circuit-closers such as plugs, adapted for engagement with said conducting members, a conducting plate or base for normally receiving said plugs, a source of electricity consisting of two batteries connected in parallel at one pole, a series of electric signals, each of which has one terminal connected with the common pole of said source of electricity, and the other terminal connected with one of the said plugs, a circuit-closer comprising a movable member, connected with the other pole of one of the batteries, and a series of contact-plates adapted to be engaged by said movable member, sundry of said contact-plates being connected individually with the conducting members of the switchboard, one of the remaining contact-plates being connected with the conducting-plate receiving the plugs, and the other with the free pole of the other battery, a connection with said free pole to the clock-operated contact-piece, a series of push-buttons each located in proximity to one of the signals, a connection from one terminal of each push-button to the wire connecting the corresponding signal with the common or connected pole of the two batteries, an annunciator and a bell, located at the central office in series with each other and connected with the other terminal of the push-button and with the same pole of the first-named battery which is connected with the main section of the circuit-closer, a connection from the like pole of the other battery to the clock-operated contact-piece, and a series of thermostatic circuit-closers, one for each signal, and each having its ends or terminals connected respectively with the wires leading to the two terminals of the corresponding push-button.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

DAVID GEYWITS.
WILLIAM STILL.

Witnesses:

WILLIAM R. JONES,
JOHN L. PLUNKETT.