(No Model.) 2 Sheets—Sheet 1.

F. C. JORDAN.

ELECTRIC ALARM AND CALL BELL.

No. 588,997. Patented Aug. 31, 1897.

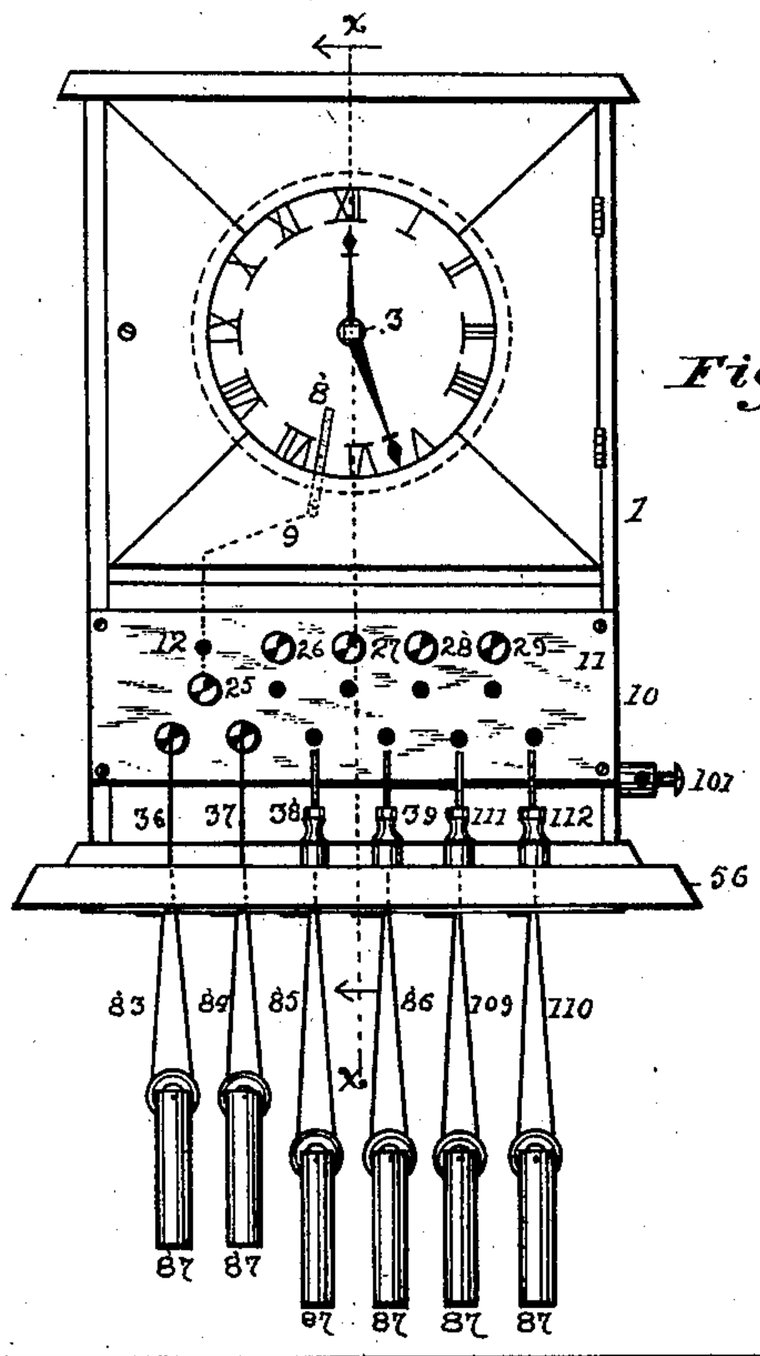

Fig. 1.

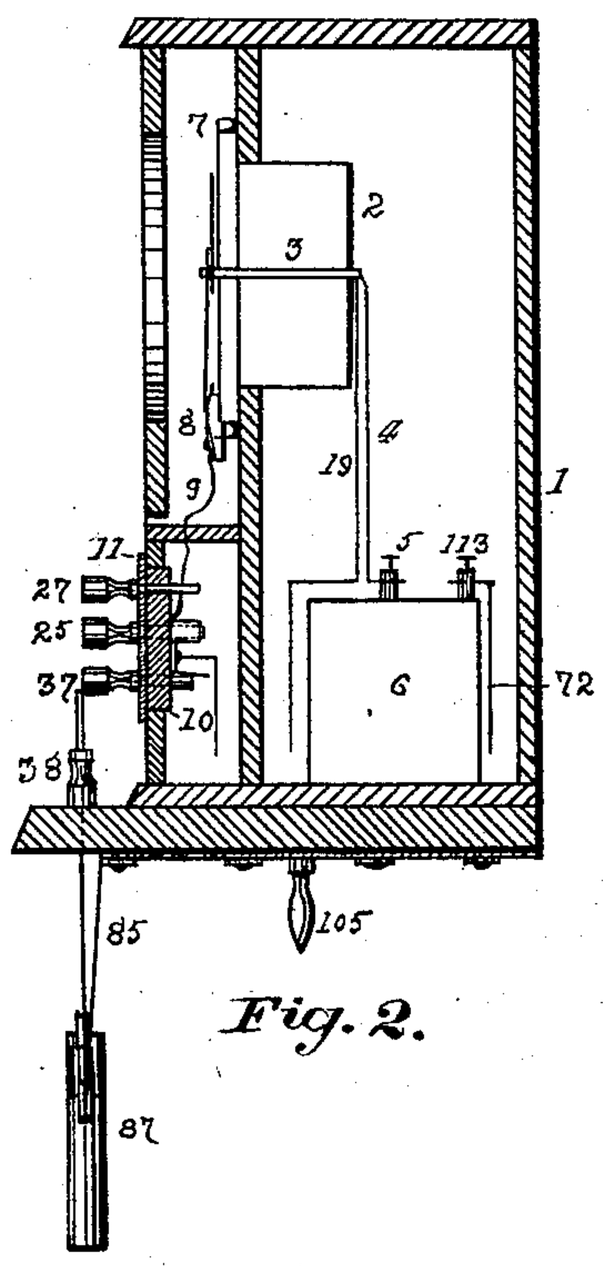

Fig. 2.

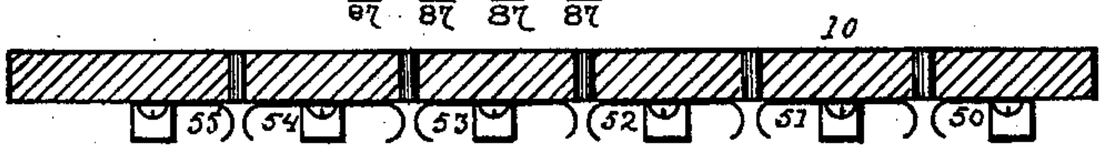

Fig. 4.

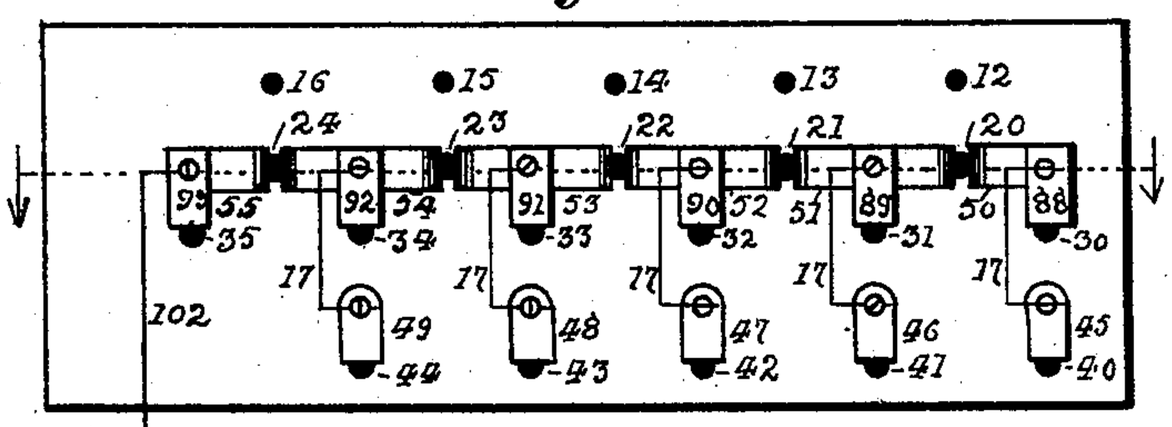

Fig. 3.

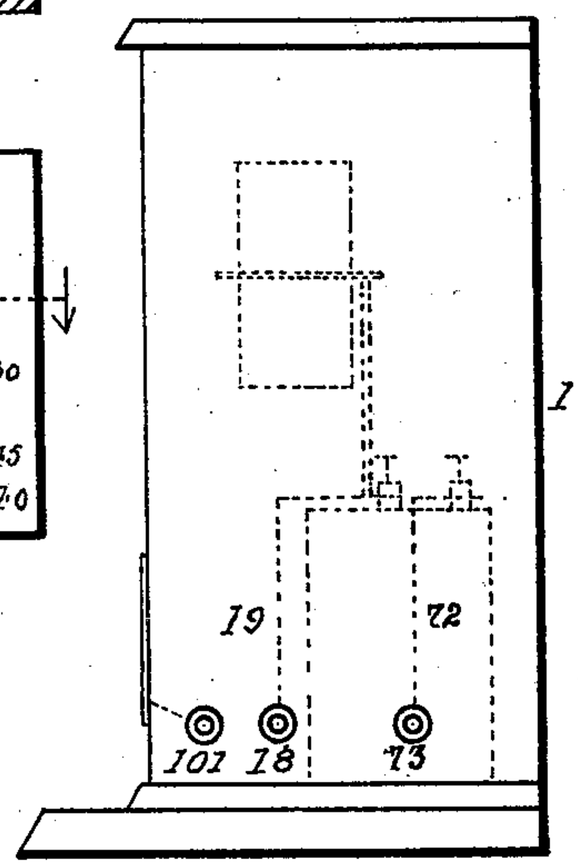

Fig. 5.

Witnesses:
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F. H. Stuart

Inventor:
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his Attorneys.

(No Model.) 2 Sheets—Sheet 2.

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ELECTRIC ALARM AND CALL BELL.

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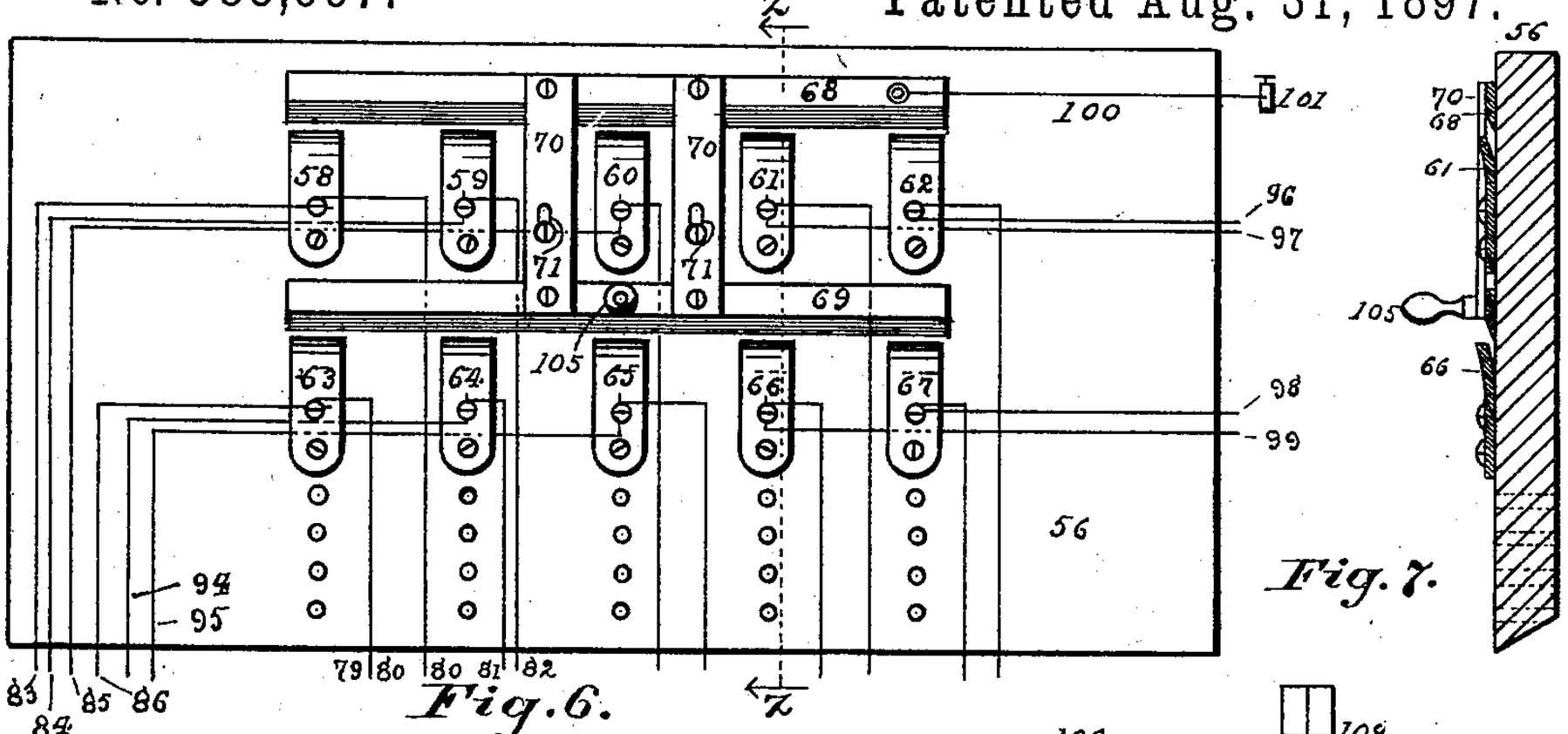

Fig. 6.

Fig. 7.

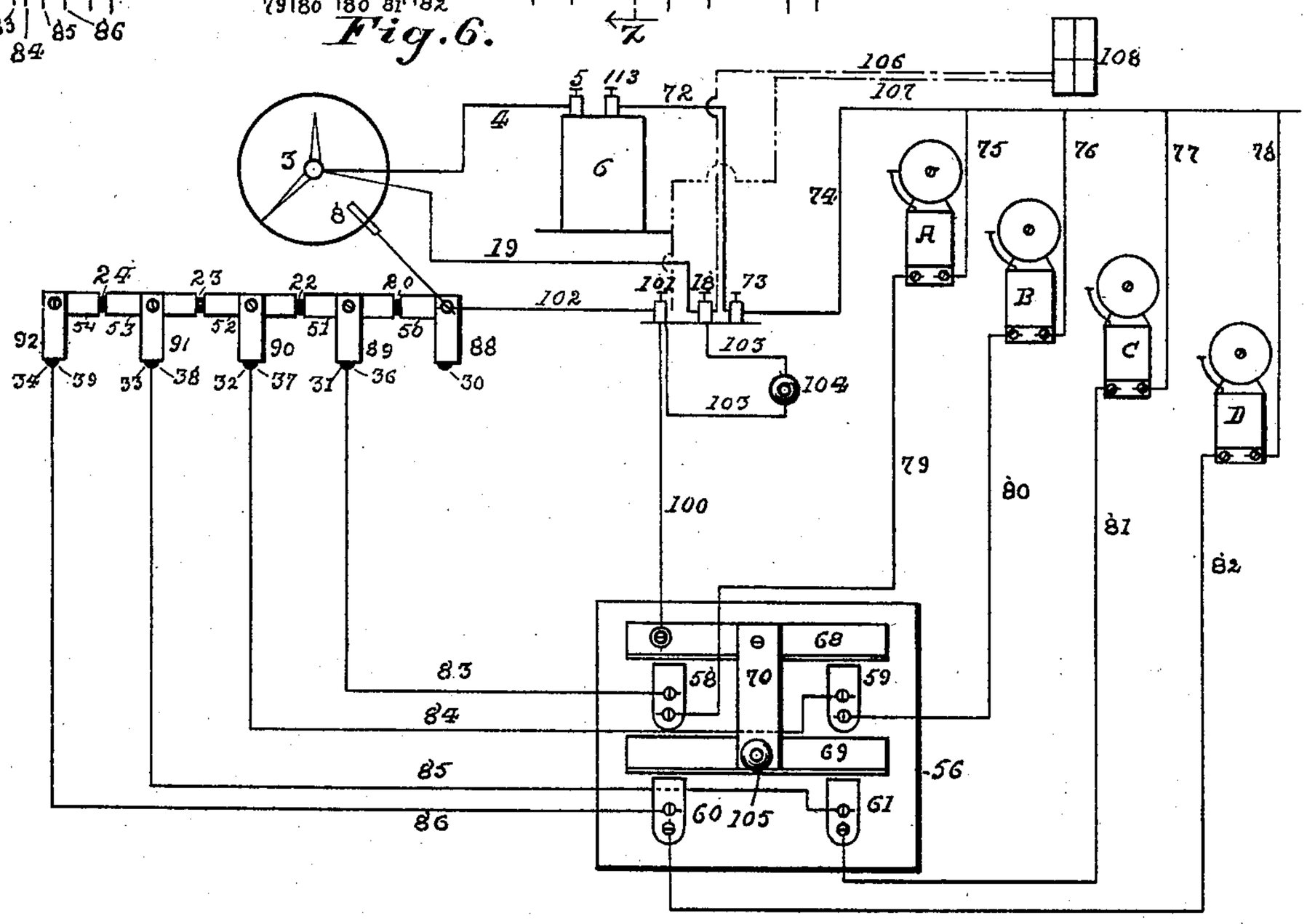

Fig. 8.

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H. F. Fowler
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UNITED STATES PATENT OFFICE.

FRANK C. JORDAN, OF WADSWORTH, OHIO.

ELECTRIC ALARM AND CALL-BELL.

SPECIFICATION forming part of Letters Patent No. 588,997, dated August 31, 1897.

Application filed January 11, 1897. Serial No. 618,806. (No model.)

To all whom it may concern:

Be it known that I, FRANK C. JORDAN, a citizen of the United States, residing at Wadsworth, in the county of Medina and State of Ohio, have invented a certain new and useful Improvement in Electric Alarms and Call-Bells, of which the following is a specification.

My invention has relation to improvements in electric alarms and call-bells, and it is an improvement and elaboration of the device for which I was granted Letters Patent of the United States No. 560,096 on May 12, 1896.

The objects of my invention are to provide improved devices whereby the connection of the contact-finger with the hour-hand may be utilized to ring a desired series of different bells at determinate places simultaneously, to provide means by which the bell in any selected room may be readily arranged as a burglar-alarm for all parts of the house, and to still further provide that an alarm may be simultaneously given by all bells at a determinate time, and, finally, giving a general alarm on all bells in cases of emergency without disturbing the previously-arranged parts.

To the aforesaid objects my invention consists in the peculiar and novel construction, arrangement, and combination of parts hereinafter described and then specifically pointed out in the claims, reference being had to the accompanying drawings, which constitute a part of this specification.

In the accompanying drawings, in which similar reference letters and numerals indicate like parts in the different views, Figure 1 is a front elevation of a clock provided with my invention; Fig. 2, a vertical section of the same at the line *x x* of Fig. 1; Fig. 3, a back elevation, enlarged, of the switchboard for connecting different bells with the contact-finger or other signaling apparatus; Fig. 4, a section of the same at the line *y y* of Fig. 3; Fig. 5, a side elevation of the clock-case to show the relation of certain binding-posts and wires to other parts; Fig. 6, an inverted plan of the switchboard for giving a general alarm; Fig. 7, a section of the same at the line Z Z of Fig. 6, and Fig. 8 a diagrammatic view of the line connections.

Referring to the drawings, 1 is the clock-case containing the clock-train 2, the hour-hand shaft 3 of which is connected by a wire 4 with one pole 5 of a battery 6. About the clock-dial is a sheet-metal rim 7, which preferably extends beyond the plane of the clock-dial and is adapted to receive contact-fingers 8, each of which consists of a block of insulating material having on the bottom jaws to grasp the rim 7 and a projecting strip of metal adapted to lie in the path of and lightly touch and make electrical connection with the hour-hand as it passes, and each finger has its metal strip connected by a wire cord 9 with a contact-plate of a switchboard 10, hereinafter described. Thus far the apparatus is substantially the same as that described in my former patent, hereinbefore referred to.

The switchboard, which for compactness and convenience is attached to the front of the clock-case, consists of a non-conducting board 10, faced for convenience of attaching it to the case by a metallic plate 11, and is provided with series of plug-holes, the number of which will depend upon the requirements of the clock.

In the illustrations there are three series of plug-holes 12 13 14 15 16, 20 21 22 23 24, 30 31 32 33 34 35 in Figs. 1 and 2 and four series 12 13 14 15 16, 20 21 22 23 24, 30 31 32 33 34 35, 40 41 42 43 44 in Figs. 3 and 4, the upper series 12 13 14 15 16 in each having no electrical connection, but simply serve as a rack for plugs 25 26 27 28 29 when they are not in use, and these plugs have no other connection.

It will be noticed in Fig. 3 that series 30 31 32 33 34 35 are placed intermediately between series 20 21 22 23 24 for a purpose to be stated.

On the back of the board 10 between the series of holes 20 21 22 23 24 are fastened a series of plates 50 51 52 53 54 55, the ends of each plate except the end half-plates being curved outward to lie in the path, but without touching each other, of a plug when inserted in the hole and thus be electrically connected by the plug. In the center of each plate 50 51 52 53 54 55 is also fastened a short transverse plate 88 89 90 91 92 93, with its free end turned outward to lie in the path of a plug inserted in an adjacent hole in the series 30 31 32 33 34 35, which is the object of arranging the holes as just stated, and below this series another set of plates 45 46 47 48 49, bearing the same relative position to the holes 40 41 42 43 44 and for a similar purpose, and each

plate 45 46 47 48 49 is connected with its adjacent plate 88 89 90 91 92 93 by a wire 17.

The multiplying-board 56, which for convenience and compactness I prefer to place under the clock as a shelf, consists of a board 56, of non-conducting material, on which at selected distances are attached strips 58 59 60 61 62 63 64 65 66 67 of sheet metal, fastened at one end and with their free ends slightly bent outward, and to this board are connected two sliding bars 68 69, having beveled edges to slide under and engage the strips 58 to 67, inclusive, these bars being united by metallic cross-pieces 70, provided with slots 71, through which pass screws to retain them. This frame of bars 68 69 and cross-pieces 70 is provided with a handle 105, by which it may be moved forward to bring the bars 68 69 simultaneously into contact with their respective sets of strips 58 to 67, inclusive, and returned to break the contact.

The wire connections are as follows: The hour-hand shaft 3 is connected with one pole, 5, of the battery 6 by a wire 4, and by a second wire 19 with the central binding-post 18 at the side of the clock. From the opposite pole, 113, of the battery 6 a wire 72 runs to the right binding-post 73, from which a wire 74, by means of branch wires 75 76 77 78, connects severally with one binding-post of each of the bells A B C D. From the opposite posts of these bells wires 79, 80, 81, and 82 run separately to one of the plates 58, 59, 60, and 61 of the multiplying-board 56, and from the same plates separate electric cords 83 84 85 86 run to plugs 36 37 38 39 through holes in the board 10 of less diameter than the plug-handles, so that when not in use the plugs will stand on the board 10, as shown in Figs. 1 and 2, and the slack of these cords is taken up by pulley-weights 87 below the board.

To each plate 50 51 52 53 54 55, Fig. 3, is attached a wire cord and a contact-finger similar to the one shown for plate 50, but as they are all the same the one shown is believed to be sufficient.

Now supposing that it is desired to ring bell A at three o'clock, bell B at four o'clock, bell C at five o'clock, and bell D at six o'clock, I proceed first to remove the plugs from the holes 20 22 23 24. Then I place the contact-finger of plate 51, Fig. 8, at three o'clock on the clock-face, the contact-finger for plate 52 at four o'clock, the contact-finger for plate 53 at five o'clock, and the contact-finger for plate 54 at six o'clock. Now when the hour-hand reaches three o'clock the circuit will be closed through bell A as follows: From pole 5 of battery 6 through the following: wire 4, hour-hand 3, contact-finger at three o'clock to plate 51, plate 89, plug 36, wire 83, plate 58, wire 79, bell A, wire 75, wire 74, post 73, wire 72 to battery. This will ring bell A only and at the hour decided on, and when the hour-hand reaches four o'clock the circuit will be closed through bell B as follows: from battery-post 5, wire 4, hour-hand shaft 3, contact and cord on plate 52, plate 90, plug 37, cord 84, plate 59, wire 80, bell B, wire 76, wire 74, post 73, wire 72 to battery. This will ring bell B only at four o'clock, and at five o'clock the same thing will be repeated for bell C and at six o'clock for bell D, and this is the only way separate bells can be rung separately. In order to ring bells A and B at, say, three o'clock, place the contact-finger for either plate 51 or plate 52 at three o'clock on the clock-face and insert a plug in hole 21 and the current will pass through both bells simultaneously, and this may be carried to any extent by plugging into holes 20 21 22 23 24.

The entire upper series may be connected by unconnected plugs 25 26 27 28 29 in the holes 20 21 22 23 24 and connected plugs 36 37 38 39 111 112 in the holes 30 31 32 33 34 35, or selected bells from the upper series may be rung by connecting the intermediate plates 50 51 52 53 54 55 56 by unconnected plugs 25 26 27 28 29 and placing connected plugs 36 37 38 39 in the holes adjacent to the corresponding plates 88 89 90 91 92 93, or selected bells from series 30 31 32 33 34 35 and 40 41 42 43 44 may be simultaneously rung from one contact-finger by connecting plates 50 51 52 53 54 55 by plugs 25 26 27 28 29 to the desired bells and placing connected plugs 36 37 38 39 in the holes adjacent to the plates corresponding to the selected bells, the upper connection between the series 30 31 32 33 34 35 and 40 41 42 43 44 of the contact-plates being secured by the wire 17, hereinbefore referred to.

By combining all plates in the series 50 51 52 53 54 55 and placing connecting-plugs in the holes 30 31 32 33 34 35 and 40 41 42 43 44, Fig. 3, all bells may be rung simultaneously by the clock at a definite previously-arranged time. To accomplish this latter object and to avoid the necessity of placing all plugs in position—a matter of some labor when there is a great number of rooms—the device shown in Figs. 6 and 7 is employed. The wire connections of the plates 58 59 60 61 of this board are, as already explained, each connected by a wire 79 80 81 82 with one binding-post of one of the bells A B C D.

The sliding frame, composed of bars 68, 69, and 70, is connected by a wire 100 with the binding-post 101 on the clock-case, which in turn is connected by a wire 102 with the plate 88 and this latter, as hereinbefore stated, with the contact-finger 8.

By sliding the plates 68 69 into contact with the plates 58 59 60 61 all the bells will be in the circuit and all will ring when the hour-hand touches the contact-finger 8.

When it is desired to simultaneously ring all the bells at a time not previously arranged, as in cases of emergency, when a general alarm is necessary, the same device shown in Figs. 6 and 7 is used. The binding-posts 18 and 101 are connected by a wire 103, broken between its ends and arranged to be closed by a push-button 104. Hence when it is desired to give a general alarm the plates 68 69

are drawn into contact with the plates 58 59 60 61, and the button 104 pressed, thus sending the current directly through the bells without the use of the switchboard.

To utilize the apparatus as a burglar-alarm, two wires 106 and 107 are run from the post 18 and 101 to a window or door, as illustrated in Fig. 8, in which 108 represents a window, and are connected to a device that will close the circuit if the window is raised or the door opened.

When the window is opened, the current will pass from the pole 5 through wire 4 to the shaft 3, thence through line 19, post 18, and line 106 to the circuit-closer at the window 108, and return through line 107, post 101, line 102, plate 88, plug in hole 20, plate 51, plate 89, plug 36, line 83, plate 58, line 79 to the bell A, and thence by line 75, post 73, line 72, to pole 113 of the battery.

Having described the operation of burglar-alarm with bell A, let us select bell D and show that that bell may be utilized as a burglar-alarm, so that the occupant of that room may be notified by the closing of the circuit at the window. It may be done in two ways, first by inserting plug 39 in hole 30, and then the circuit would be as follows: one side of circuit-breaker at the window through wire 107, post 101, wire 102, plate 50, plate 88, plug 39, line 86, plate 60, wire 82, bell D, wire 78, wire 74, post 73, wire 72, battery 6, wire 4, wire 19, post 18, wire 108 to window-circuit breaker. Or it may be done as follows: Insert plug 39 in hole 34, remove the plugs 38 37 36 from holes 33 32 31 and insert plugs 25 26 27 28 in holes 20 22 23 24, and then the circuit would be from window by wire 107, post 101, wire 102, plate 50, plug 25, plate 51, plug 26, plate 52, plug 27, plate 53, plug 28 to plate 54 to plate 92, wire 86 and back to window, as just described in the former method.

To ring all bells on closing the circuit at the window, insert plugs 36 37 38 39 in holes 31 32 33 34 and all bells will ring in the same manner as was just described for bell D.

I claim as my invention—

1. The combination with a clock, having its hour-hand in connection with one pole of a battery; of contact-fingers adapted to make connection with said hour-hand, and connected with a switchboard; a series of contact-plates severally connected with said switchboard and one post of a series of bells; the other posts of said bells connected with the opposite pole of said battery; and sliding plates to simultaneously connect said contact-plates, to cause all of said bells to ring by the contact of said hour-hand and any of said fingers, substantially as shown and described.

2. The combination of a clock, having its hour-hand in connection with one pole of a battery, of contact-fingers adapted to make connections with said hour-hand, a series of transverse plates each connected with a contact-finger, a series of detached plugs adapted to connect said plates, a series of dependent plates connected with said transverse plates, a series of plugs each connected with one pole of a bell and adapted to connect with said dependent plates, a series of independent bells connected with said last-named plugs and with the opposite pole of said battery, substantially as shown and described.

3. The combination of a clock and battery, the clock having its hour-hand in connection with one pole of the battery, a series of electric bells each having one pole in connection with the opposite pole of the battery, a multiple switchboard consisting of a perforated non-conducting base 10, a series of independent plates 50, 51, 52, 53, 54, on said base connected severally with contact-fingers adapted to make connection with said hour-hand, said plates arranged to be connected by plugs, a number of series of plates as 88, 43; 89, 46; 90, 47; 91, 48; 92, 49; each of these series as 91, 48; and one of said independent plates as 53, being all electrically connected together, and plugs 36, 37, 38, 39, 111, 112, arranged to connect with any of said plates, said plugs being connected with said bells substantially as shown and described.

In testimony that I claim the above I hereunto set my hand.

FRANK C. JORDAN.

In presence of—

C. E. HUMPHREY,

C. P. HUMPHREY.