(No Model.)

M. LEIBECKE.

ELECTRIC TIME ALARM CLOCK.

No. 538,686. Patented May 7, 1895.

Fig. 1.

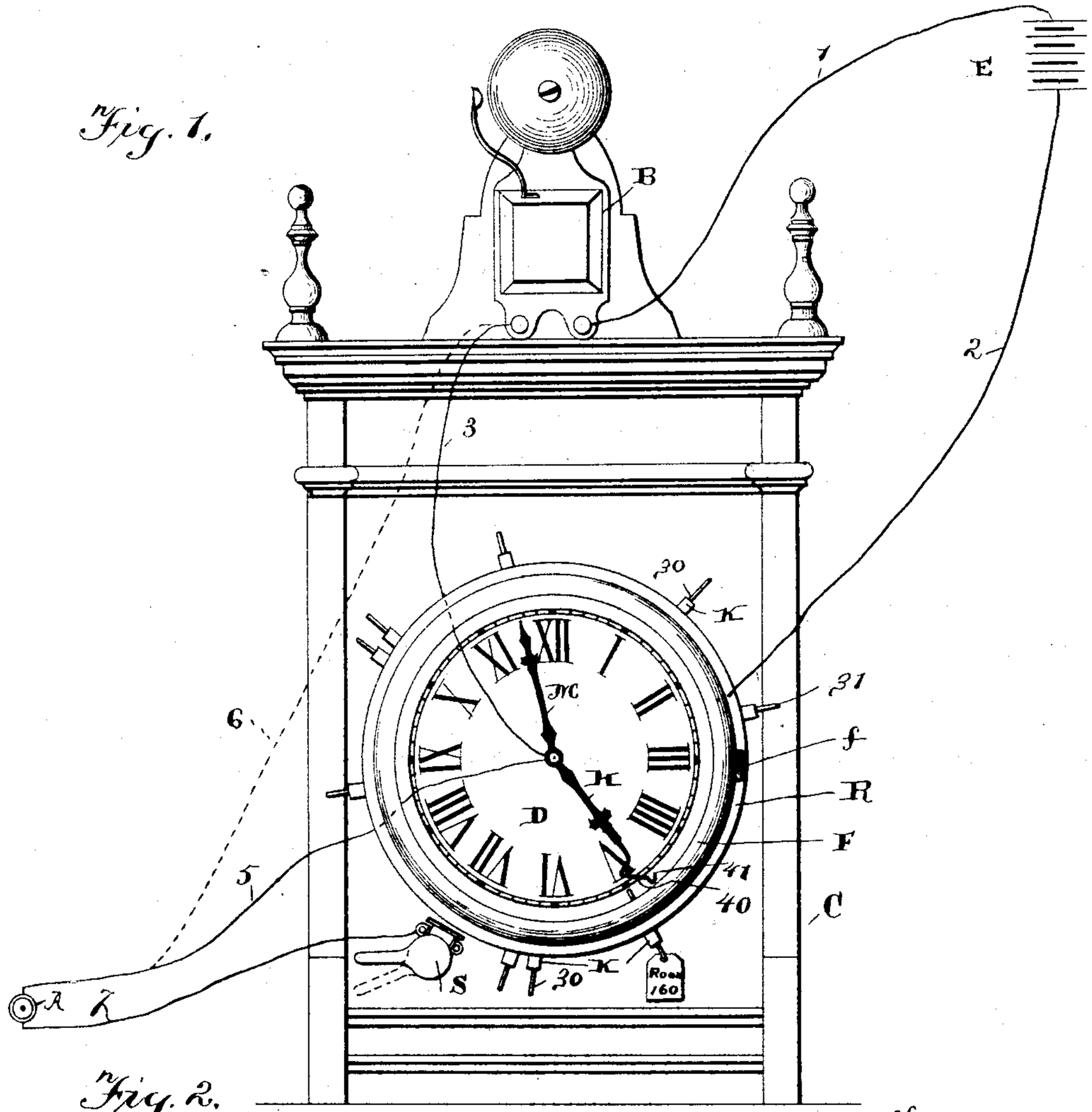

Fig. 2.

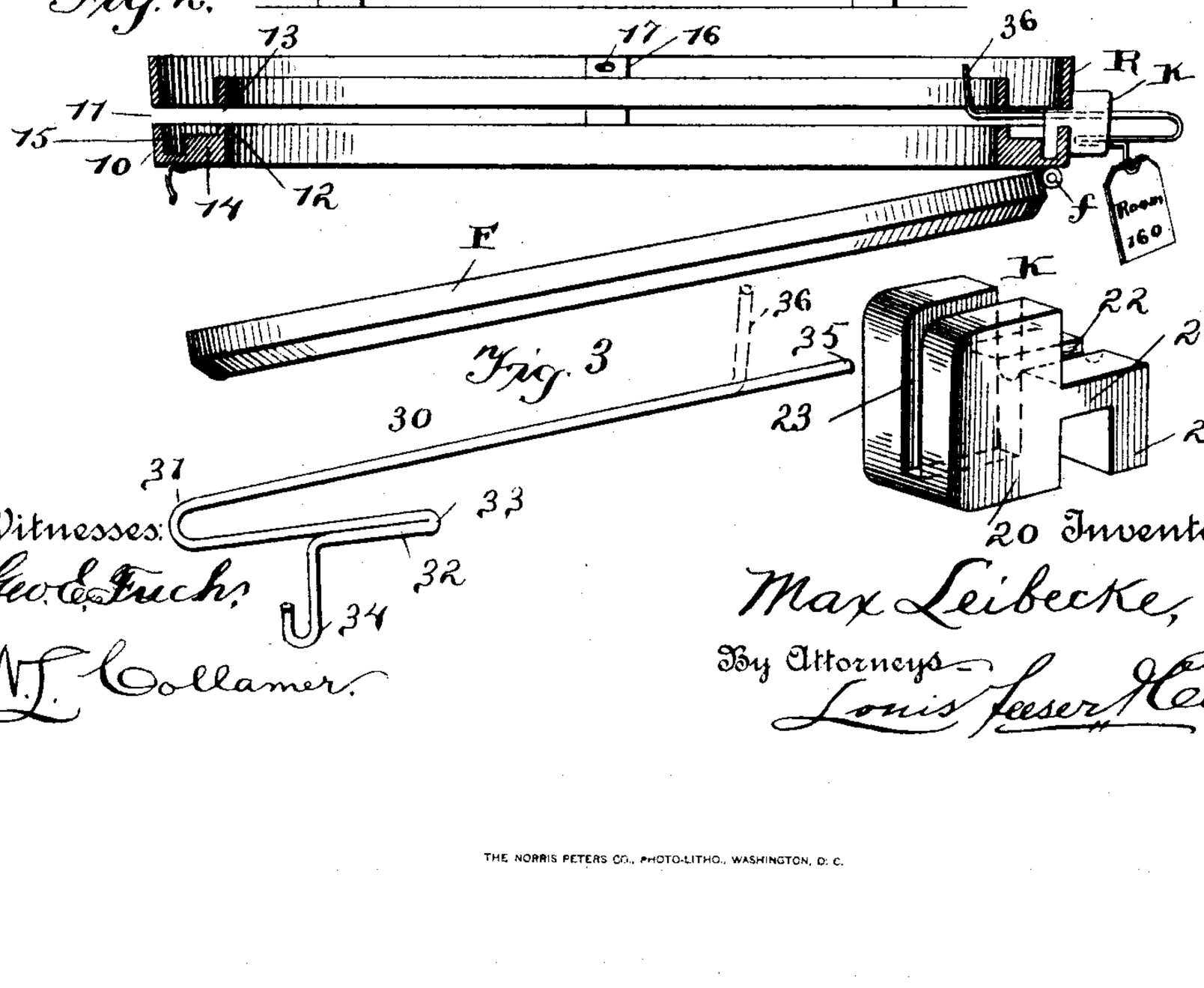

Fig. 3

Witnesses:
Geo. E. Fuchs.
N. L. Collamer.

Inventor:
Max Leibecke,
By Attorneys—
Louis Fesser & Co.

UNITED STATES PATENT OFFICE.

MAX LEIBECKE, OF ST. PAUL, MINNESOTA.

ELECTRIC TIME-ALARM CLOCK.

SPECIFICATION forming part of Letters Patent No. 538,686, dated May 7, 1895.

Application filed February 28, 1895. Serial No. 539,966. (No model.)

To all whom it may concern:

Be it known that I, MAX LEIBECKE, a citizen of the United States, residing at St. Paul, Ramsey county, and State of Minnesota, have invented a new and useful Time and Burglar Alarm Clock, of which the following is a specification.

This invention relates to horology, and more especially to that class thereof known as time alarms.

Heretofore alarm clocks have been constructed wherein the hour-hand formed one terminal of an electric alarm circuit, and the other terminal thereof was a ring surrounding the dial of the clock. This ring has been provided with contact pins arranged at equal distances apart and adapted to be set so as to make contact with a spring on the hour-hand when the latter passed the pin which was set; and in one patent of which I am aware there were blocks movable circumferentially upon the ring and each carrying a sliding pin for this purpose; but said blocks were covered by the face plate or door of glass over the dial, and the door had to be opened before they could be set.

The object of the present invention is to arrange such blocks so that their sliding pins can be set without opening the door.

A further object is to arrange a burglar alarm or circuit closer in connection with this device, and a switch to throw the burglar alarm mechanism into or out of operation.

To this end the invention consists in the specific details of construction hereinafter described, and as illustrated in the accompanying drawings, wherein—

Figure 1 is a front elevation of this improved time and burglar alarm clock complete, the electric connections being shown in diagram. Fig. 2 is a horizontal section through the ring surrounding the dial and showing the face-plate or door slightly open. Fig. 3 is an enlarged perspective detail of one of the blocks which slide in the ring shown in Fig. 2, together with a detached view of the wire or pin which slides within the block, the inner end of the pin being shown in full lines as straight, so as to pass through the block, and in dotted lines as having been bent to the position it assumes in operation.

Referring to the said drawings, the letter C designates the casing of a clock having the usual dial D, minute-hand M, and hour-hand H, both hands being connected with the ordinary clock mechanism not shown and which forms no part of the present invention. Within said casing and in rear of the dial is preferably located a dry battery or other battery of any approved type, and an annunciator bell B is also mounted either within the casing or upon the same in the position shown.

Surrounding the dial of the clock and secured to the face of the casing C is a metallic ring R further described below, and to this ring is hinged at one side as at *f* the face plate or door F, while a suitable catch at the other side holds the same in closed position.

The electrical connections between the parts are, of course, hidden by preference, but are shown in Fig. 1 in diagram for the sake of clearness. From the bell B a wire 1 leads to the battery or other source, E, of electric energy; and from this battery a wire 2 leads to the metal ring R. From the clock mechanism (and hence in electrical connection with the hour-hand) a wire 3 leads to the other binding post of the bell. Arrangement is made for a burglar alarm or circuit closer not shown except by a button A but whose mechanism is indicated by that letter, and which, if a burglar alarm, will be attached to the doors or windows of the building in the usual manner so as to make electrical contact when such doors or windows, or any of them, are opened at improper times; or, if a button or other circuit closer, may be located in any of the hotel rooms for the convenience of the guests. From a window so provided or from the push button, one wire 5 leads to the clock mechanism and thence through the wire 3 to the bell, or it may lead direct to the bell as seen at 6 in dotted lines; and from the window or push button another wire 7 leads to a switch S located upon the face of the clock casing C in proximity to the ring. This switch may be of any approved pattern, but is of such construction that in the day time it is thrown out of contact with the ring, and at night it is thrown into contact with the same so as to complete the circuit from the wire 7, through the ring R, wire 2, battery E, wire 1, bell B, wire 3, and wire 5 back to the window provided with the alarm. Hence when this

window is raised the annunciator bell will ring provided the switch is at that time so set as to make contact with the ring.

Referring now to Figs. 2 and 3, the metallic ring R which is secured in any suitable manner to the face of the casing C, is of substantially U-shape, its radially outer wall 10 having a slot 11 and its radially inner wall 12 having a slot 13, the two slots standing in alignment in a plane at right angles to the shaft of the hour-hand H. Between these two walls and in the bend or the U-shaped body is formed a block 14 leaving a shallow groove 15 adjacent the outer wall 10. These slots 11 and 13 are continued entirely around the ring and hence divided into inner and outer halves, and said halves are connected at suitable points by blocks or lugs 16 which may have holes 17 for the passage of screws that extend into the casing C and hold the ring in place.

The letter K designates contact blocks of which there are several, and two or more are arranged so as to slide within each arc of the ring between any two contiguous lugs 16. These contact blocks are of the shape best shown in Fig. 3; that is to say, the body 20 is of approximately rectangular contour having at the center of one side a projecting arm 21 of a size to pass through the outer slot 11 in the ring, and depending from the outer end of this arm is a foot 25 of a size to slide within the groove 15 in the ring. The body 20 of the block is almost completely bifurcated by a deep slot 23, which slot is continued across the upper side of the arm 21 in a groove 22.

30 designates a contact pin consisting of a piece of spring wire whose body is bent at its outer end in a spring as at 31 so as to return for a short distance in a finger 32, then makes a sharp bend 33 upon itself and extends for a short distance outward again, and finally makes a depending hook 34. The tip 35 of this contact pin is passed through the slot 23 in the body 20 of the block, then along the groove 22 in the arm 21 where it passes through the slot 11 in the outer wall of the ring, then inwardly through the slot 13 in the inner wall of the ring, and finally is bent as indicated at 36 into a point which stands at right angles with the body of the pin and parallel with the shaft of the hour-hand. During such insertion of the pin, the sharp bend 33 of the finger has been passed into the bottom of the slot 23 of the block and rests therein, so that the resilience of the spring 31 presses this finger 32 down upon the bottom of the slot 23 and hence raises the body 30 of the pin slightly out of the shallow groove 22 and causes it to rest with some friction against the rear side of the slot 11 in the outer wall of the ring.

Attached to the end of the hour-hand H is a spring contact 40 of any approved shape and pattern, but preferably having a tip 41 which is bent outward so that it will not hang on any of the points 36 of the contact pins.

All parts of this device are of the desired sizes, shapes, proportions, and materials, except in so far as the latter are required to be of metal for the purpose of effecting proper electric communication between the parts. It is not absolutely necessary that the switch S shall be employed nor that the same shall make contact with the ring, for the circuit closer A could be thrown into connection with the bell and battery by any other suitable switch or at any other proper point and is not necessarily used in conjunction with the clock mechanism. However, I prefer to employ it as shown.

With the above construction of parts, the operation of this device is as follows: The clock is wound and set in motion in the ordinary manner; the circuit closer may be in a circuit at all times, but if it is a burglar alarm mechanism it is cut in at night and cut out in the morning by use of the switch S; and all of the contact pins 30 are withdrawn by being slid outwardly in their respective blocks K so that their points 36 are radially beyond the reach of the spring contact 40 on the hour-hand. The clock then performs its usual function and no alarm will be given. Supposing, now, this clock to be in use in a hotel office, and a guest desires to be called at six a. m. the clerk grasps one of the blocks K and slides it around the ring R until it is exactly opposite "VI" on the dial, then he slides the contact pin 30 inward by pushing it through the block until its point 36 stands in the path of the tip 41 of the spring contact on the hour-hand H. It follows that when said hour-hand reaches this point the tip 41 will close the circuit and give an alarm. The hook 34 on the contact pin is for the reception of a card or slip of paper bearing the number of the room or the name of the guest who is to receive a call when the bell rings at that hour. The contact being made, the bell will ring for some considerable time or until the tip 41 drags over the point 36 of the pin, and the messenger or clerk who grasps the contact pin to slide it outward through its block out of contact with the tip 41 on the hour-hand and stop the ringing of the bell, must of necessity take hold of the card which hangs on the hook 34—thus serving the very object of this invention, which is to place directly into the operator's hands at the proper moment the name or room number of the guest who is to be called. If it is some other attention that he desires, it is written on the card; and for this purpose the invention may be useful in livery stables, hospitals, or other places where at an exact moment some message or order is to be delivered to an employé.

With the construction above described, it is obvious that the blocks can be moved to any point around the dial and the contact pins can be shoved inward so that their points 36 will be in position to close the circuit at any moment desired. With the constructions heretofore in use it was only possible gener-

ally to give an alarm at certain fixed times according to the location of the several contact pins; and even in the patent above referred to, where the alarm may be sounded at any moment, it was necessary to open the face plate or door F in order to get at the blocks K. By my improved construction it is obvious that the blocks can be adjusted and the pins moved in or out without opening the face plate at all.

What is claimed as new is—

1. In an alarm clock, the combination with the clock mechanism, the hands, the dial, and the face plate; of a metal ring surrounding said dial and divided in a plane at right angles to the axis of the hands into outer and inner halves having a slot between them, blocks sliding in said slot, contact pins sliding through said blocks radial to the shaft and having their inner ends turned at right angles to their bodies, and a spring carried by the hour-hand and adapted to make electrical contact with the inner end of any pin which is moved inward, as and for the purpose set forth.

2. In an alarm clock, the combination with the clock mechanism, the hands, the dial, and the face plate; of a metal ring surrounding said dial and divided into outer and inner halves having a slot between them, said face plate being connected with the outer half and the halves being connected at intervals by lugs, blocks radial to the shaft of the hands and sliding in said slot, contact pins sliding through said blocks also radial to the shaft, and a spring carried by the hour-hand and adapted to make electrical contact with the inner end of any pin which is moved inward, as and for the purpose set forth.

3. In an alarm clock, the combination with the clock mechanism, the hands, the dial, and the face plate; of a metal ring surrounding said dial and of substantially U-shaped section with the bend of the U remote from the dial, the inner and outer walls of said U being provided with aligned slots dividing the ring into inner and outer halves and said slots standing radial to the shaft of the hands, a series of contact blocks each having its body arranged at the outer side of said ring and having an arm projecting through the outer slot and provided at its inner end with a lateral foot, a contact pin sliding through each block radial to said shaft, and a spring on the hour-hand adapted to make electrical contact with the inner end of the pin, as and for the purpose set forth.

4. In an alarm clock, the combination with the clock mechanism, the hands, the dial, and the face plate; of a metal ring surrounding said dial and of substantially U-shaped section with the bend of the U remote from the dial, the inner and outer walls of said U being provided with aligned slots dividing the ring into inner and outer halves and said slots standing radial to the shaft of the hands, a series of contact blocks each having its body arranged at the outer side of said ring and having an arm projecting through the outer slot and provided at its inner end with a lateral foot, said body of the block being provided with a deep slot continued into a groove along one face of its arm, a contact pin whose body passes through said slot in the block and extends through both slots in the ring and whose outer end is provided with an inwardly bent finger resting in the bottom of the slot in the block-body, and a spring on the hour-hand adapted to make electrical contact with the inner end of any pin which is pushed inward, as and for the purpose set forth.

5. In an alarm clock, the combination with the clock mechanism, the hands, the dial, and the face plate; of a metal ring surrounding said dial and of substantially U-shaped section with the bend of the U remote from the dial, the inner and outer walls of said U being provided with aligned slots dividing the ring into inner and outer halves and said slots standing radial to the shaft of the hands, a series of contact blocks each having its body arranged at the outer side of said ring and having an arm projecting through the outer slot and provided at its inner end with a lateral foot, said body of the block being provided with a deep slot continued into a groove along one face of its arm, a contact pin whose body passes through said slot in the block and groove in its arm, extends through both slots in the ring, and has its inner end turned at right angles to its body, the outer end of said body being formed into a spring-bend, then extending into the bottom of the slot in the body of the block, then extending again out of said slot, and terminating in a hook for the purpose set forth, and a spring carried by the hour-hand and adapted to make contact with the inner end of any pin that is pushed inward, as and for the purpose set forth.

6. In an alarm clock, the combination with the clock mechanism, the hands, the dial, a face plate, a metal ring surrounding the dial, a series of adjustable blocks movable in said ring to desired points, contact pins passing radially through the blocks, and a spring on the hour-hand adapted to make electrical contact with any one of said pins which is pushed inward; of an annunciator bell and battery in circuit respectively with the hour-hand and the ring, a circuit closer one terminal of which is connected with said hour-hand, and a switch in connection with the other terminal of said circuit closer, the switch being mounted on the casing of the clock adjacent said ring and adapted to be pressed into contact therewith when desired, as and for the purpose set forth.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

MAX LEIBECKE.

Witnesses:

LOUIS FEESER, Jr.,

JOHN F. BRUGGEMANN.