

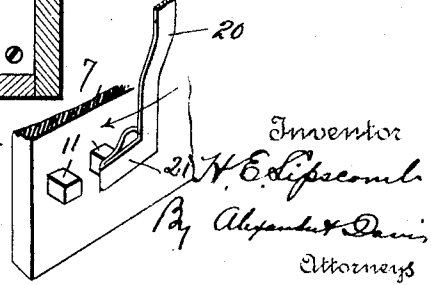
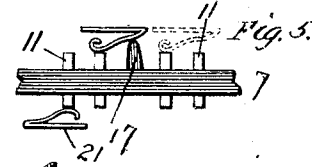
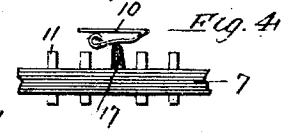
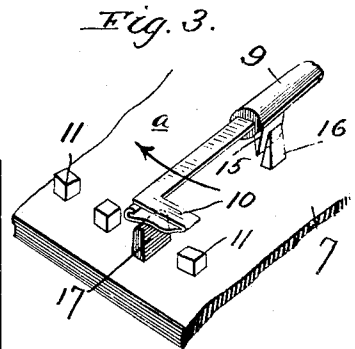
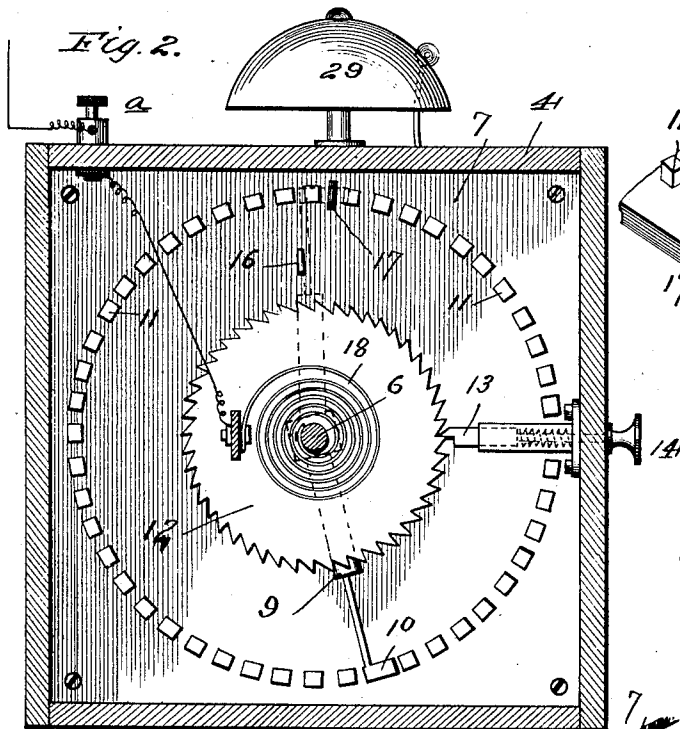
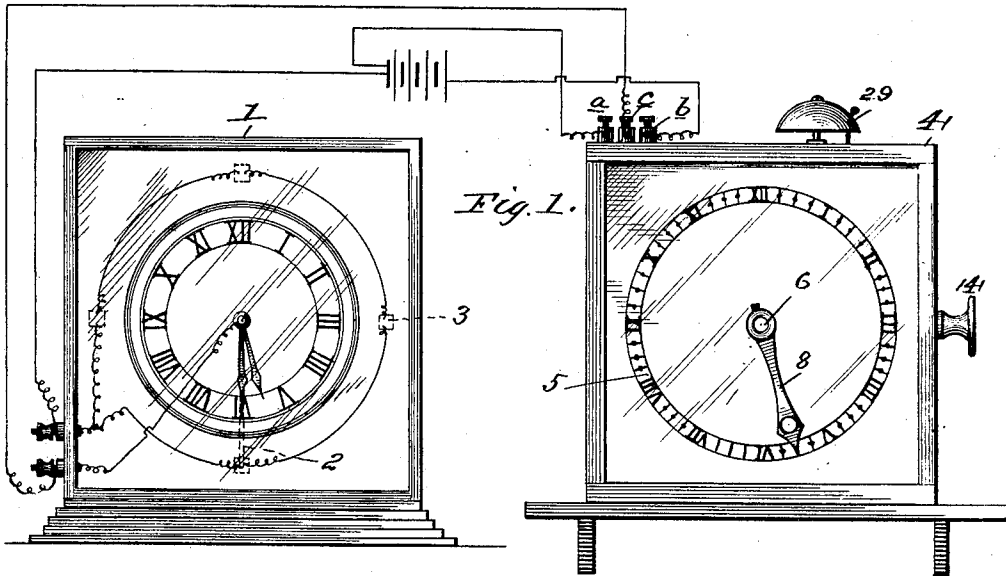
(No Model.)

2 Sheets--Sheet 1.

H. E. LIPSCOMB.
ELECTRIC TIME ALARM.

No. 565,761.

Patented Aug. 11, 1896.



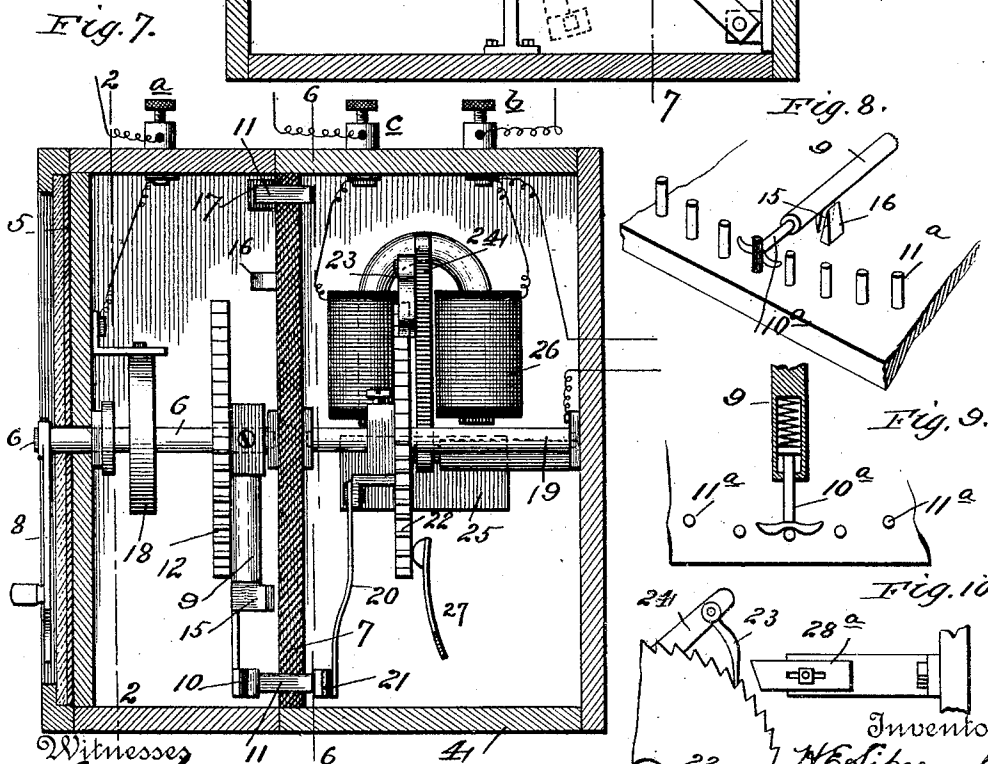
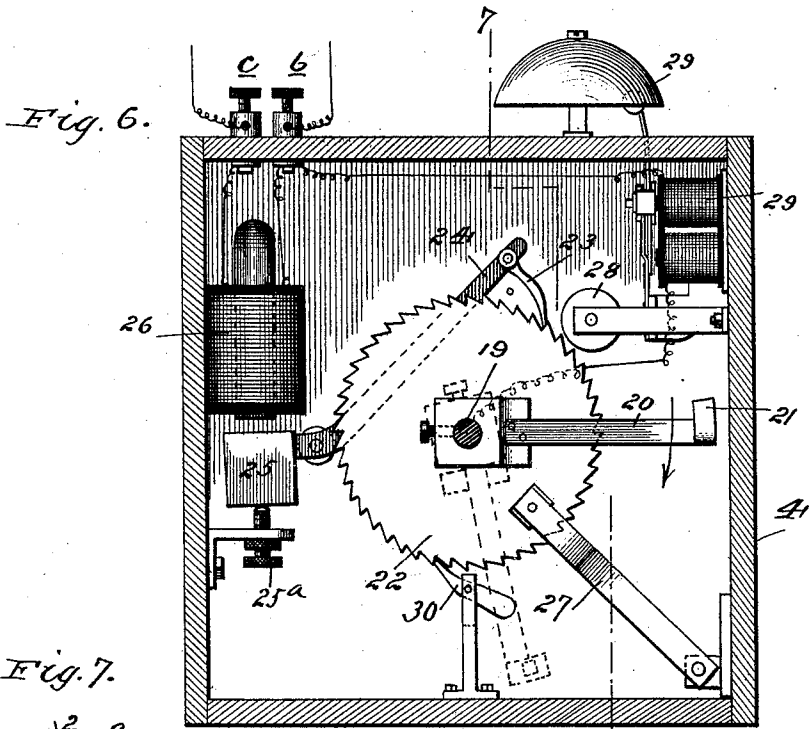
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UNITED STATES PATENT OFFICE.

HERBERT E. LIPSCOMB, OF RICHMOND, VIRGINIA.

ELECTRIC TIME-ALARM.

SPECIFICATION forming part of Letters Patent No. 565,761, dated August 11, 1896.

Application filed June 18, 1896. Serial No. 596,027. (No model.)

To all whom it may concern:

Be it known that I, HERBERT E. LIPSCOMB, a citizen of the United States, residing at Richmond, in the county of Henrico and State of Virginia, have invented certain new and useful Improvements in Electric Time Alarms, of which the following is a specification, reference being had therein to the accompanying drawings, in which—

Figure 1 is a face view of the circuit-closing clock and the alarm mechanism. Fig. 2 is a vertical sectional view of the alarm mechanism, taken on line 2 2 of Fig. 7. Figs. 3, 4, 5, and 5^a are details of the contact-arms of the alarm mechanism. Fig. 6 is a vertical sectional view taken on line 6 6 of Fig. 7. Fig. 7 is a vertical cross-sectional view on line 7 7 of Fig. 6. Figs. 8 and 9 are details of a modification of one of the contact-arms. Fig. 10 is a detail of a modification of an adjustable stop, which will be hereinafter described.

The object of the invention is to provide a simple and durable electric time alarm especially adapted for use in hotels and similar places, the devices being so constructed and arranged that an independent alarm mechanism may be placed in each room and all of said alarms be operated from a main clock in the office or other suitable place, the alarm mechanism being adapted to permit the occupant of each room to set it to ring at any desired time, and thereby relieve the hotel clerk of the responsibility of calling guests, and also eliminate the possibility of mistakes because of forgetfulness of the employees.

The invention consists of a suitable circuit-closing clock or other device and an alarm mechanism which is placed in any suitable place and is electrically connected to the clock.

Referring to the various parts by numerals and letters, 1 designates a suitable clock, which may be provided with any suitable circuit-closing attachment. For instance, the arbor of the minute-hand may be provided with a contact-arm 2, which engages contact-plates 3 placed at the quarter-hours or at such other intervals as are required by the construction of the alarm mechanism, so that the circuit will be closed every fifteen minutes, or as often as desired. These contact-plates and

the contact-arm carried by the minute-hand are connected to a source of electrical supply and to the alarm mechanism, as will fully hereinafter appear.

The alarm mechanism consists of a box 4, of suitable dimensions, which is provided on its face with a clock-dial 5, having quarter hour divisions. This dial may be provided, of course, with other hour-divisions if found most desirable. A horizontal shaft 6 passes through the clock-dial, its inner end being journaled in a bearing secured to a vertical plate 7, of insulating material, said plate forming a partition in the box 4 and dividing it into two compartments. Mounted rigidly upon the outer end of shaft 6 is a hand 8, which points to the hours on the dial, and by movement of which to the desired position the shaft is made to correspondingly revolve. Upon the shaft 6 near its inner end is secured a radial arm 9, which carries at its outer end a spring contact-plate or trailer 10, which contacts with a series of pins or blocks 11, which are of such material as will permit the free passing of electrical current and are secured in and pass through the insulating-plate 7. These blocks are at equal distance apart and are arranged in a circle, and are of such number as to provide one block for each and every division on the clock-dial 5. The hand 8 and the arm 9 on shaft 6 are directly in line with each other, so that when the hand 8 points to a certain division in the dial the contact-plate 10 rests on the block 11 directly opposite to and corresponding with the said division on the dial.

A ratchet-wheel 12, having a tooth for every block 11, is rigidly secured on shaft 6, and a spring-pressed bolt 13 engages said ratchet and holds it in its set position. An operating-knob 14, secured on the end of said bolt, extending outside of the casing, permits the ratchet to be released. A convolute spring 18 is secured at one of its ends to the shaft 6, and at its other end to a stationary plate carried by the casing, said spring acting to hold the engaged tooth of wheel 12 firmly against bolt 13 to insure perfect registering of plate 10 with the pin on which it rests and also to return hand 8 and arm 9 to their normal positions when bolt 13 is released. From the inner side of the arm 9 projects a knife-edge

stop 15, which, when the arm 9 is in its normal position, abuts against a similar stop 16 projecting forward from the plate 7.

Between the blocks or pins 11, which correspond with the twelve-o'clock and the next division on the dial to the right of the twelve-o'clock division, is a forwardly-projecting insulating or non-conducting block 17, upon which the spring contact-plate 10 rests when the hand 8 returns to its normal position, thus preventing any contact between plate 10 and any block 11. The contact-plate 10 is connected to a source of electrical supply through the shaft 6 and spring 18, as shown in Fig. 2.

In the rear compartment of box 4 is mounted a shaft 19, which is axially in line with the shaft 6 and is thoroughly insulated from same by plate 7, one of its ends being journaled in a bearing secured on the rear side of said plate. Upon this shaft is mounted a radial arm 20, which carries at its outer end a spring contact-plate 21. This plate 21 contacts with the rear ends of the pins or blocks 11, which extend through plate 7, as is clearly shown in Fig. 7.

A ratchet-wheel 22, having a tooth for every block 11, is rigidly mounted upon the shaft 19 and is engaged by a pawl 23, which is carried by the upper end of the longer arm of a pivoted lever 24, the lower shorter arm of said lever carrying an armature 25. This armature is actuated by an electromagnet 26, which is in the circuit of the circuit-closing clock, and is magnetized at each closing of the circuit by said clock. Each time the said magnet is magnetized the armature is drawn up and the ratchet-wheel 22 is revolved one tooth by pawl 23, and the contact-plate 21 is advanced one pin 11, said plate being moved in the direction corresponding to the movement of the hands of the circuit-closing clock. Upon the circuit being again opened, the armature returns to and rests upon set-screw 25^a and is in position for proper movement by the next closing of the circuit by the circuit-closing clock. In order to prevent a too free movement of the wheel 22, a friction-brake 27 is provided, said brake consisting of a spring-arm carrying a contact-block at its free end, said block bearing on the vertical face of wheel 22. In order to prevent the pawl 23 from moving the wheel 22 more than one tooth, a stop 28 is provided. This stop consists of a wheel mounted adjacent the wheel 22, and it is so arranged that after the pawl has moved the wheel 22 one tooth, if it continues its revolution, the pawl will be raised against the wheel 28 and further movement of the wheel 22 will be prevented. In Fig. 10 is shown a modification of this device. In this form a laterally-adjusted plate 28^a is employed in the place of the wheel 28.

To prevent ratchet-wheel 22 from returning with pawl 23 when it is drawn back by lever 24, a pawl 30 is mounted in suitable bearings

and engages the teeth of said wheel, as shown in Fig. 6. The pawl is formed with a weighted lower end, so that its upper tooth-engaging end will be by gravity held lightly against the teeth of the wheel 22.

To sound the alarm, an electric-bell mechanism 29 is electrically connected to the shaft 19 and to the source of electrical supply.

Instead of the blocks 11, pins 11^a, as shown in Fig. 8, may be employed. In this form the spring-pressed shoe 10^a would be employed. This shoe is formed with the central depressed portion to receive the pins and the two curved end portions to permit it to pass the pins in either direction.

The operation is as follows: The hand 8 is placed to indicate the hour at which it is desired the alarm should sound. This places the plate 10 on the corresponding pin 11, as described. The main clock completes the circuit at fixed intervals, and the magnet 26 attracts armature 25, and ratchet-wheel 22 is revolved one tooth at each completion of the circuit. The wheel 22 and shaft 19 are thus intermittently revolved, carrying with them the arm 20 and contact-plate 21 until said plate contacts with the pin upon which contact-plate 10 is bearing. The alarm-circuit is then completed, the current passing in through post *a* through spring 18, shaft 6, arm 9, through pin 11 to plate 21, thence through shaft 19 to bell 29, as shown in Fig. 6, and thence to post *b* and to source of supply. When the alarm-circuit is thus completed, the bell will sound until the plate 21 is moved to the next adjacent pin by the operation of the circuit-closing clock, which in the device shown would be fifteen minutes, unless the bolt 13 be withdrawn. If this bolt is withdrawn, the spring 18 operates to revolve shaft 6 until stop 15 on arm 9 contacts with stop 16, carried by plate 7, and plate 10 rests upon insulating-block 17, the arm 9 being then in its normal position. When the parts are in this position, the arm 20 may be revolved without operating the alarm. The current to operate the magnet 26 passes in through post *c* and out through post *b*, as shown in Fig. 7.

The alarm may be located at any desired point, while the box containing the mechanism is placed in convenient position for manipulation.

A peculiar advantage of this invention lies in the fact that a guest, should he at any time desire to rest for a short period of time, may set the alarm himself, without the necessity of going to the hotel office and then depending on the employees to arouse him.

Having thus fully described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In an electric time-alarm the combination of a circuit-closing clock, and an alarm mechanism, said mechanism consisting of a casing, a dial thereon, a revoluble shaft, a contact-arm carried by said shaft, a hand

carried by said shaft and adapted to travel around the dial, a series of pins in the path of the contact-arm, said pins being insulated from each other, an alarm-circuit connected to said arm, another shaft, contact-arm carried thereby, said arm being adapted to bear on the other ends of the series of pins, means electrically connected to the circuit-closing clock for intermittently revolving this shaft, an alarm-circuit connected to this latter contact-arm and to a source of supply, substantially as described.

2. The combination of a circuit-closing clock and an alarm mechanism, said alarm mechanism consisting of a suitable casing, a dial, a series of pins to correspond to the divisions on the dial, said pins being insulated from each other, means for electrically connecting an alarm-circuit with any one of the series of pins, a shaft, means carried by said shaft for automatically connecting an alarm-circuit to each of the said series of pins in succession, an alarm in said circuit, and electrically-operated means connected to the circuit-closing clock for intermittently revolving said shaft, substantially as described.

3. The combination of a circuit-closing clock, and an alarm mechanism, said mechanism consisting of a casing, a dial, a shaft, an indicating-hand on said shaft, a contact-arm carried by said shaft, a series of contact-pins carried by an insulating-plate, said pins being in the path of the contact-arm, a spring secured to the shaft for returning the contact-arm to its normal position, means for securing the contact-arm in its adjusted position and for releasing it, a second shaft axially in line with the first shaft, means carried by said shaft for automatically connecting an alarm-circuit to each of the said series of pins in succession, an alarm in said circuit, and electrically-operated means connected to the circuit-closing clock for intermittently revolving said shaft, substantially as described.

4. The combination of a circuit-closing clock and an alarm mechanism, a circular series of pins, a shaft, an arm carried by said shaft, a spring contact-plate carried by said arm and adapted to bear upon the pins, means for returning said arm to its normal position, an insulating-block between two of the said pins, said block being adapted to raise the spring contact-plate above the pins when the arm is in its normal position, substantially as described.

5. The combination of a circuit-closing clock and an alarm mechanism, said mechanism consisting of a casing, a dial thereon, a series of pins insulated from each other and arranged to correspond with the divisions in the dial, means for connecting an alarm-circuit to any one of said pins, means for connecting the other ends of said pins with the other wire of the alarm-circuit, said means consisting of a shaft, a contact-arm carried thereby and arranged to bear upon said pins in succession, a ratchet-wheel rigidly mounted upon said shaft, electrically-controlled means for intermittently revolving said wheel said means being operated by the circuit-closing clock, substantially as and for the purpose described.

6. A contact mechanism for an electric alarm consisting of a shaft, an arm carried thereby, a spring-shoe carried by said arm at its outer end, said shoe having a central depressed portion and two curved end portions, and a circular series of pins insulated from each other and upon which said shoe is arranged to bear, substantially as described.

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

HERBERT E. LIPSCOMB.

Witnesses:

ED. WHITLOCK,
CHAS. H. CREW.