

H. W. HERWIG.
BELL SYSTEM.
APPLICATION FILED JUNE 10, 1909.

961,351.

Patented June 14, 1910.

2 SHEETS—SHEET 1.

Fig. 1

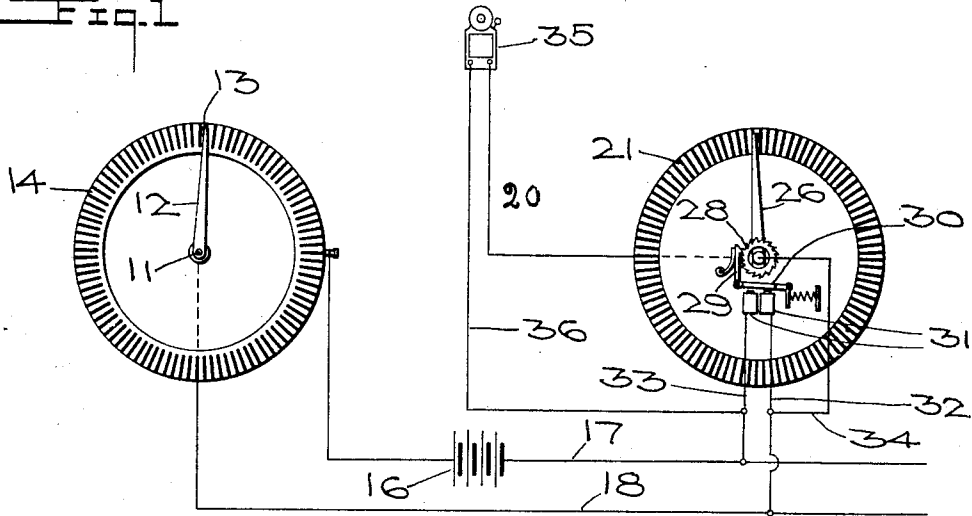


Fig. 2

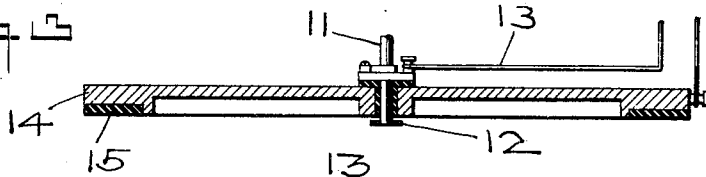
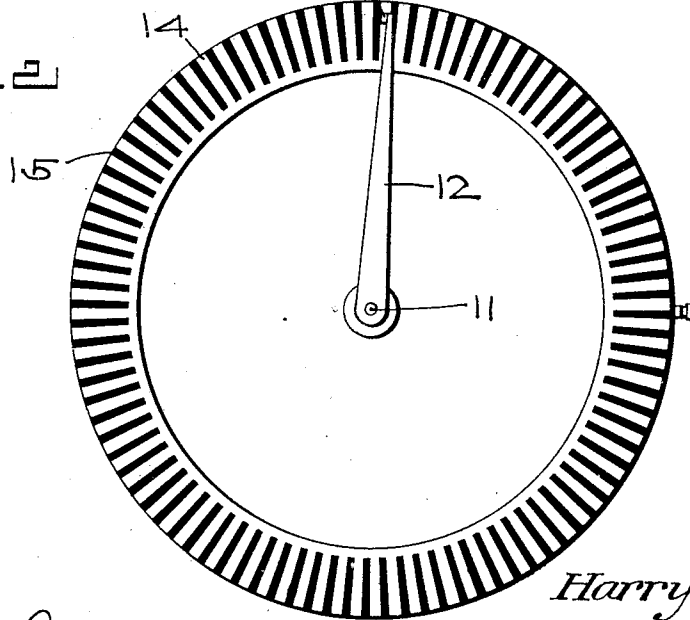


Fig. 3



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2 SHEETS-SHEET 2.

Fig. 4

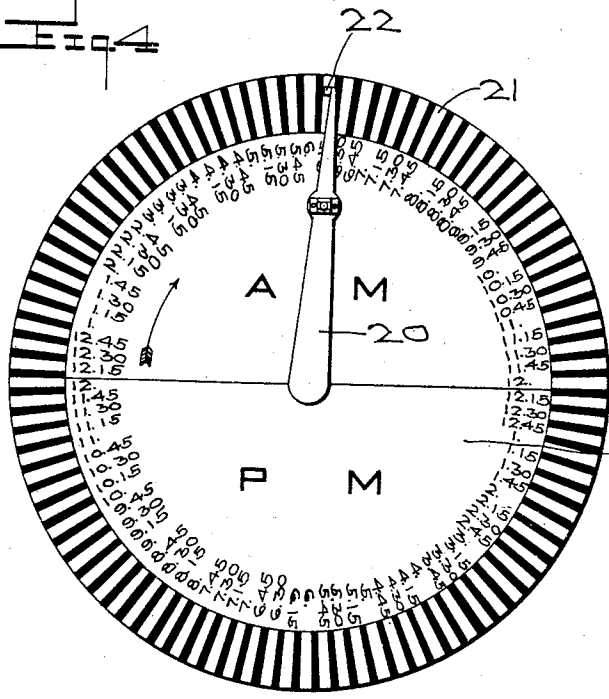


Fig. 5

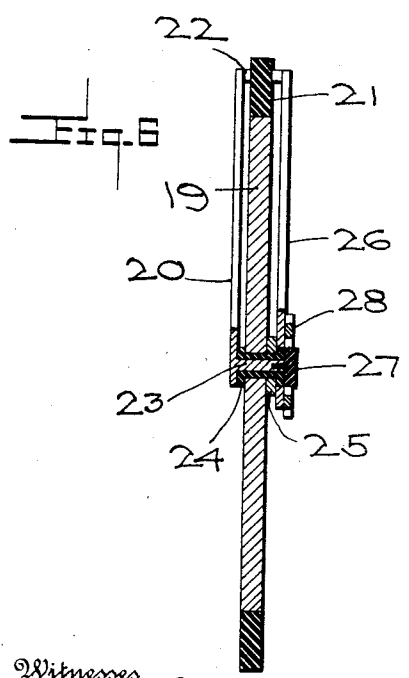
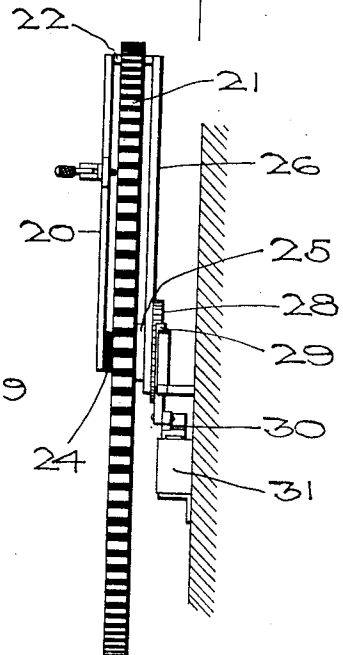
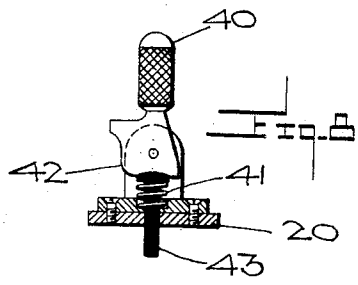
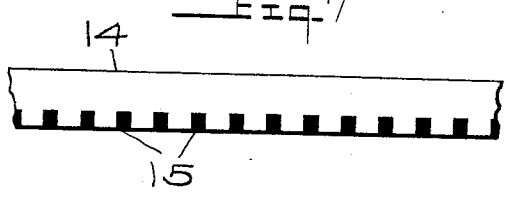


Fig. 7



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BELL SYSTEM.

961,351.

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Application filed June 10, 1909. Serial No. 501,242.

To all whom it may concern:

Be it known that I, HARRY WILLIAM HERWIG, a citizen of the United States, residing at Portsmouth, in the county of Rockingham and State of New Hampshire, have invented certain new and useful Improvements in Bell Systems, of which the following is a specification.

This invention relates to alarms and has special reference to a bell system to be installed in hotels and the like for sounding a bell at given times in the separate rooms thereof.

An object of the invention is the provision of a device of this character which is so constructed that the occupant of each room is enabled to set his individual alarm to ring at any time desired.

The invention has for another object the provision of a device of this character in which is employed a simple electric circuit system and which comprises but few working parts so as to produce a device which is economical to manufacture and which will be less liable to get out of order than devices of this class heretofore constructed.

The invention further designs a device so constructed that the alarm may be sounded at intervals of fifteen minutes either during the morning or the evening.

Other objects and advantages will be apparent from the following description and it will be understood that changes in the specific structure shown and described may be made within the scope of the claims without departing from the spirit of the invention.

In the drawings forming a portion of this specification, and in which like numerals of reference indicate similar parts in the several views, Figure 1 is a diagrammatic view of the system, Fig. 2 is a detailed view of the main operating switch, Fig. 3 is a horizontal section through the center of the same, Fig. 4 is a front elevation of one of the individual switches employed in connection with the system, Fig. 5 is an edge elevation of the same, Fig. 6 is a vertical central sectional view of one of the individual switches employed, Fig. 7 is a fragmentary view showing the edge of the central switch. Fig. 8 is a detail of the cut-out key.

Referring to the drawings, there is shown

a shaft 11 which is intended to be rotated by any suitable mechanism to produce one rotation in twenty-four hours. The shaft 11 is provided with a radially extended arm 12 which is positioned over the face of the commutator 14 and carries a spring contact 13 for slidable engagement upon the commutator. The commutator comprises a metallic ring concentrically disposed about the shaft 11 and which is provided upon its outer face with ribs 15 which are so disposed as to admit of the contacting of the arm 12 with the ring 14 ninety-six times to the complete revolution. The commutator 14 is connected to one pole of a battery 16 which supplies the current for the operation of the device, from the opposite pole of which leads directly to the main line 17. The arm 12 is connected to the opposite main line wire 18 which is disposed through the halls of the building. The individual alarm apparatus and switch which is disposed in each of the rooms of the building comprises a dial 19 which is divided off into twenty-four hours and quarters thereof making a total of ninety-six divisions. A hand 20 is centrally mounted upon the dial 19 and is adapted for engagement upon a commutator 21 disposed about the edge of the dial 19. The commutator 21 comprises a plurality of metallic sections which are insulated from each other and which are secured about the periphery of the dial 19. The arm 20 is provided with a contact 22 for engagement over the commutator 21 for conducting a current through an engaged section. The arm 20 is provided upon its inner extremity with a rearwardly projected stud 23 which is passed through an aperture centrally formed in the dial 19 within a bushing 24 formed of insulating material. The inner extremity of the stud 23 is provided with a washer 25 which abuts against the rear face of the dial 19 and against which is loosely mounted a sliding contact 26 which is disposed upon the bushing 24 and held thereon by means of an insulated cap 27 secured upon the inner extremity of the stud 23. The sliding contact 26 carries a ratchet 28 which is concentrically disposed about the cap 27 and which is engaged by a pawl lever 29 which is carried by an armature 30 disposed upon the rear face of the dial 19.

A pair of magnets 31 are disposed adjacent the armature 30 and are energized by the current passing through the wires 32 and 33 which are branched from the main line wires 18 and 17. The sliding contact 26 is connected to the wire 32 by the wire 34 for the purpose of conveying the current through the arm 26 to the commutator 21 when the arm 20 registers therewith. The arm 20 is provided with a wire 20' which leads directly to a bell 35 which is connected by a wire 36 to the branch wire 33.

The operation of the device is as follows: As the arm 12 is rotated the contact 13 is brought into engagement intermittently with the commutator 14 causing the circuit to be formed and broken successively to actuate the magnets 31 and reciprocate the pawl lever 29 to move the sliding contact 26. This action is continuous and if the occupant of the room desires the alarm to ring at a given time the loosely mounted arm 20 is rotated into the desired position upon the dial 19 causing the contact 22 to engage with the commutator 21 and thus admitting of the forming of a circuit through the alarm 35 when the sliding contact 26 engages a segment of the commutator 21 upon which the contact 22 is positioned. When the apparatus is in this position the current passes from the wire 34 through the sliding contact 26 into the segment of the commutator 21 and out through the arm 20 to the alarm 35. From the alarm 35 the current travels through the wire 36 to the branch wire 33 back into the main circuit. The alarm 35 is actuated continuously during the movement of the arm 12 over one segment of the main dial 14 which requires several minutes time. Practically any number of dials 19 may be actuated by the main switch by branching the same from the main line wires 17 and 18.

Carried intermediately of the arm 20, there is a releasing key 40 pivoted upon a supporting bracket 41 and having the cam portion 42 adapted for engagement against the head of a spring supported pin 43, engaged slidably through the base of the bracket and the arm 20, for impingement against the surface of the dial 19 to lift the contact member 22 out of engagement with the commutator. By this means when it is desired that the branch clock should not operate at all, they may be thrown into inoperative position. The bracket 41 is approximately L-shaped, one arm being secured against the arm 20 and the other being perforated and having a suitable pivot pin engaged therethrough upon which the key 40 is carried.

As the commutator 14 and switch arm 12 comprise simply a switch means, making the circuit intermittently, these members may be referred to as "intermittent switches".

What is claimed is:—

1. A device of the class described comprising a commutator, an arm mounted concentrically of said commutator and adapted for rotative movement thereover, a main line wire extended from said commutator, a main line wire projected from said arm, a dial, a commutator disposed about said dial, a means carried by said dial and connected to said main wires to intermittently rotate said arm, said arm being adapted to slidably engage said commutator, a second arm disposed upon the face of said dial for slidable engagement over the face of said commutator for registration at times with said arm upon the rear face of said dial for closing a circuit and an alarm connected with said main wires through said arms and said commutator.
2. A device of the class described comprising a commutator, a contact member adapted for slidable rotation over said commutator, a second commutator, a second contact member for engagement over said second commutator, magnets disposed in said circuit for actuating said second contact member, series connections between the magnets, first commutator and contact member, an adjustable contact member engageable upon the opposite face of said commutator and an alarm disposed in a circuit passed through said arms and said commutator.
3. A device of the class described comprising a commutator, an arm concentrically mounted in the face of said commutator for engagement over said commutator, a circuit extended upon said arm and said commutator, a dial, a commutator disposed about said dial, a bushing centrally disposed through said dial, an arm, a stud on said arm for engagement in said bushing, a washer disposed about the rear extremity of said bushing, a sliding contact rotatably disposed about said bushing against said washer, a cap mounted in the extremity of said stud for holding said sliding contact in position, a ratchet disposed on said sliding contact concentrically about said cap, a pair of magnets disposed upon the rear face of said dial, an armature pivotally mounted adjacent said magnets, a pawl lever carried by said armature for engagement with said ratchet for actuating said sliding contact and an alarm disposed in juxtaposition to said dial connected to the main circuit through said arms and said commutator.
4. A device of the class described comprising a main intermittent switch, a circuit extended from said switch, a second intermittent switch actuated by said main switch, a contact member for registering engagement with points on said switch and an alarm disposed in circuit with said switches and said contact member.
5. A device of the class described comprising

ing a main circuit, means adapted to be operated to transmit impulses thereover at intervals, a plurality of commutator portions, independently movable contact members engageable with the commutator portions, a
5 signal device in circuit with the contact members, and means operated by impulses in the main circuit to move one of said contact members into successive engagement with the commutator portions. 10

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

HARRY WILLIAM HERWIG.

Witnesses:

W. H. ALLEN,

R. F. FOGBAUSER, Jr.