No. 887,681. PATENTED MAY 12, 1908.

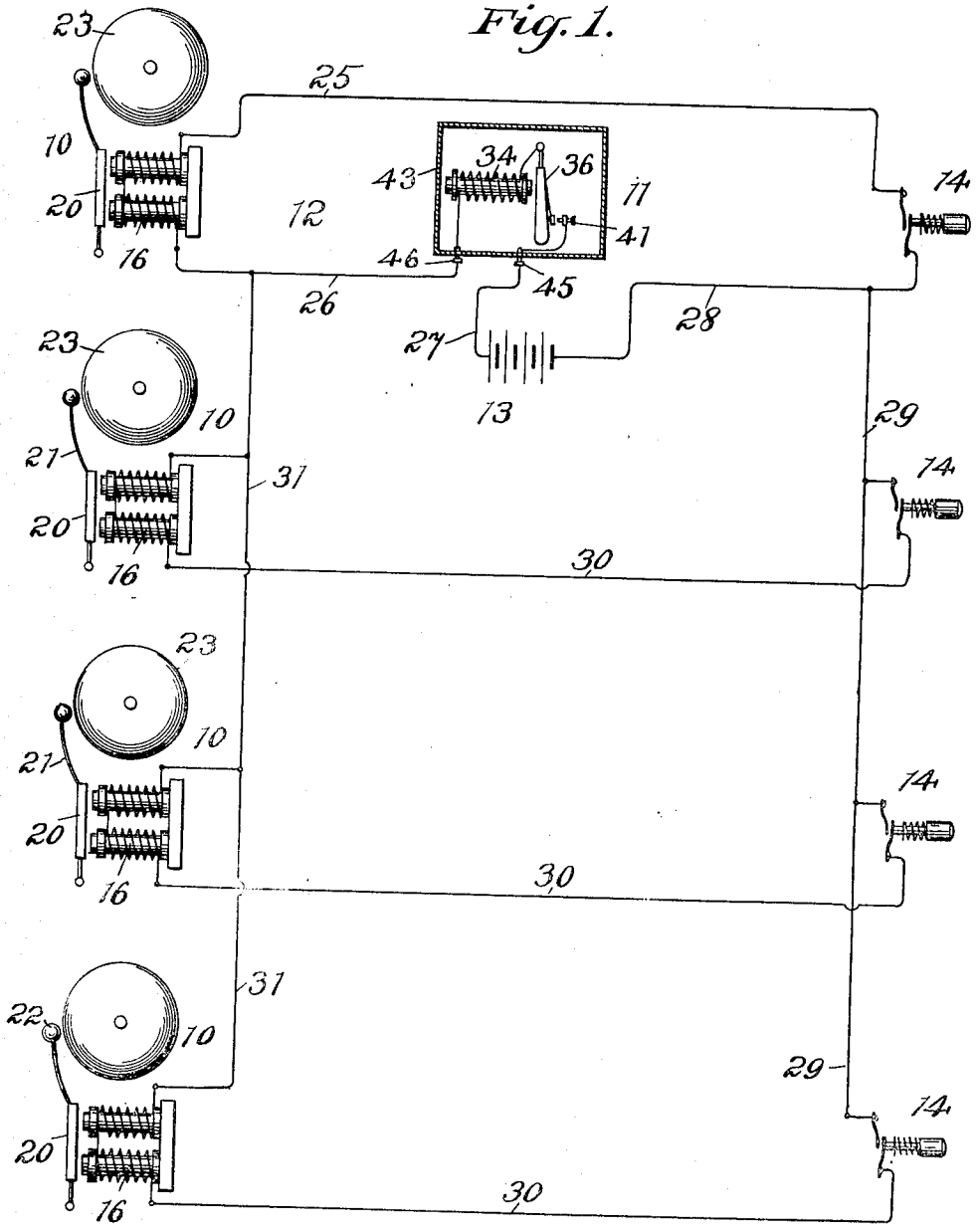
F. W. MAXSTADT & F. W. MAXSTADT, JR.

ELECTRIC SIGNALING.

APPLICATION FILED MAY 10, 1907.

2 SHEETS—SHEET 1.

Fig. 1.



Witnesses:
L. H. Lundin
H. Linehan

Inventor
F. W. Maxstadt and F. W. Maxstadt Jr.
By their Attorney
Criswell & Criswell

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2 SHEETS—SHEET 2.

Fig. 2.

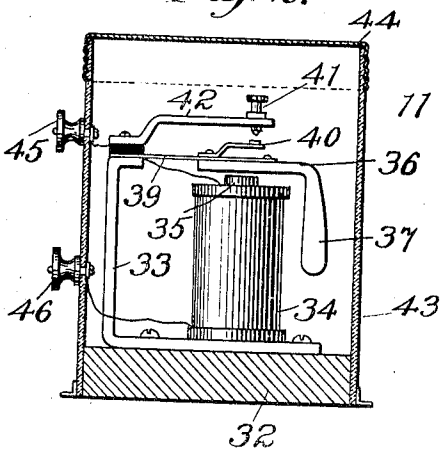


Fig. 3.

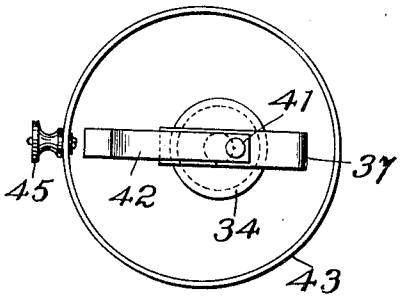


Fig. 4.

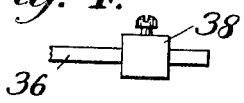


Fig. 5.

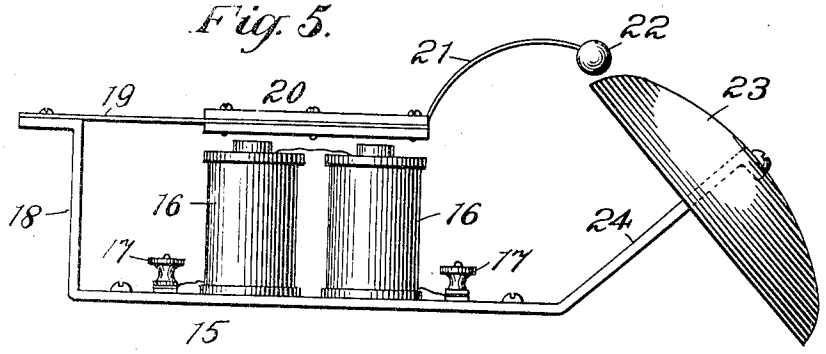
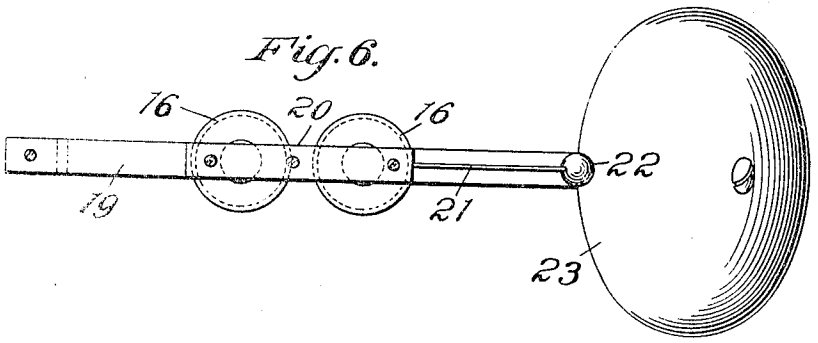


Fig. 6.



Witnesses:
L. C. Linehan
H. Linehan

Inventors:
F. W. Maxstadt
F. W. Maxstadt Jr.
By their Attorney
Criswell & Criswell

UNITED STATES PATENT OFFICE.

FRANCIS W. MAXSTADT AND FRANCIS W. MAXSTADT, JR., OF NEW YORK, N. Y.

ELECTRIC SIGNALING.

No. 887,681. Specification of Letters Patent. Patented May 12, 1908.

Application filed May 10, 1907. Serial No. 372,886.

To all whom it may concern:

Be it known that we, FRANCIS W. MAXSTADT and FRANCIS W. MAXSTADT, JR., citizens of the United States, and residents of New York, county of New York, and State of New York, have invented certain new and useful Improvements in Electric Signaling, of which the following is a full, clear, and exact description.

This invention relates more particularly to alarms in which a bell is included in the electric circuit.

Heretofore, so far as we are aware, in the ordinary construction of the electric bell it has been impossible within a reasonable cost to make the same entirely dust and moisture proof, as well as prevent an explosion where there is an escape of gas or the like. This is caused by the fact that the bells each have a make-and-break contact, and this contact is subject to dust, moisture and corrosion, and is liable to become short-circuited by reason of dust, moisture, insects and the like interfering with the make-and-break in the circuit, and thus prevent the successful operation of the bell, thereby causing constant trouble and annoyance.

The primary object of the invention is to overcome the objections named and to provide a call or alarm system for apartments, hotels and the like, in which the bell and the means for operating the same are thoroughly protected in such a way that the bell cannot be short-circuited, and in which everything is dust, fire, corrosion, insect and moisture proof, thereby overcoming many of the objections incident to the use of the ordinary electric bell.

Another object of the invention is to provide means whereby the bell is non-sparking and may be used in mines and powder mills so as to avoid explosions, and which is less liable to get out of order than the usual form of device employed for the same purpose.

A further object of the invention is to provide means which may be employed in various connections; which is simple in construction; which may be manufactured at a comparatively small cost, and in which the adjustment of the bell or bells always remains the same.

The invention will be hereinafter more particularly described with reference to the accompanying drawings, which form a part of this specification, and will then be pointed out in the claims at the end of the description.

In the drawings, Figure 1 is a diagrammatic view, showing the electric connections of one means embodying our invention. Fig. 2 is a vertical section of the circuit-breaker, illustrating how the same may be hermetically sealed. Fig. 3 is a plan view with the cover of the sealing casing removed. Fig. 4 is a fragmentary view showing a slightly different form of armature for the device shown in Fig. 2. Fig. 5 is a side elevation of the bell or alarm; and Fig. 6 is a plan view of the bell.

In Fig. 1 is shown a plurality of bells or other alarms 10 and a single circuit-breaker or device 11 included in the electric circuit 12, and in said circuit is a battery 13 and an independent push button or other device 14 one for each bell or alarm employed, though it will be understood that only one bell may be used with the circuit-breaker, and that these various parts may be arranged in any suitable location, and in any relation with respect to each other.

The bell 10 has a base plate or bracket 15, and to the base plate 15 are held the electro magnets 16 of the usual construction, and which are preferably inclosed by a suitable water-proof casing or covering, and to the base or bracket 15 are the binding posts 17 to which the wires are fastened for connection with the electric circuit and said magnets. The base 15 has an upright or standard 18, to the upper part of which is held a yielding strip or plate 19 of a resilient nature, as hard or spring brass, and to this spring plate 19 is held the armature 20. This armature 20 comprises two plates held on opposite sides of the plate or strip 19, and is adapted to be attracted by the magnets 16 when the latter are energized by the electric current in the usual way. An arm 21 projects outward from the armature, and on this arm is a hammer 22 which is arranged adjacent to a bell 23, and said bell is held on an arm or upright 24, which projects at an angle from the base 15, so that as the armature 20 is drawn toward the magnets, the hammer will engage the edge of the bell 23 and ring the same, the spring plate 19 serving to normally force the hammer 22 away from said bell. A wire 25 connects one of the magnets to one of the contacts of the push button 14, and a second wire 26 leads to the circuit-

breaker 11, and from the circuit-breaker a wire 27 leads to the battery 13, and from the battery a wire 28 leads to the other contact of the push button 14, so that when the contacts of the push button or other device, as a switch, are moved so as to close the circuit through the battery 13, circuit-breaker 11, and the electric bell 10, the latter will be operated to produce the necessary sound and will continue to ring until the circuit is again opened by the release of the device 14.

There may be any number of bells used in connection with a single circuit-breaker, though only one may be employed if desired, and the wiring may be arranged in any suitable manner. As shown in Fig. 1 each of the other bells 10 has one contact of its push button 14 connected with a wire 29, and a wire 30 connecting the other contact with the coils of the magnets of the bells. The other end of the magnet wire connects with the wire 26 leading to the magnet of the circuit-breaker 11. If either of the push buttons is operated, the circuit will be completed through the wire 30, electric bell, wire 31, wire 26, circuit-breaker 11, battery 13, wire 28, and wire 29, so that the bell will ring until the push button is released.

For the purpose of preventing the bells from being short-circuited and to make the bell dust, moisture, and fire proof, we provide a circuit-breaker in the circuit which is thoroughly protected. This circuit-breaker 11 has a base 32 which is adapted to be secured to any support, and to the base is held a bracket 33, to which is secured an electro magnet 34. This magnet 34 may be inclosed by suitable material, and has its core 35 arranged adjacent to an armature 36. This armature 36 is weighted, as at 37, to make the same sluggish, and this weighting of the armature is of such a character that the electric bells 10 will all be attuned so as to work in unison therewith, the weight 37 being such that any movement of the armature 36 will cause a like response from the armatures 20 of the electric bells 10. This weight 37 may be made as in Fig. 2, or the armature may be extended and an adjustable weight 38 provided on the armature as shown in Fig. 4. The armature 36 is held to a brass or other plate 39, which is securely held to the upright portion of the bracket 33, and on the plate or strip 39 is a contact 40. This contact moves in the path of an adjustable contact screw 41 which is held to the end of an arm or bracket 42, the latter being supported at one end by the bracket 33, and suitably insulated from the plate 39. A casing 43 is provided so as to entirely inclose the circuit-breaker, and this casing may be of glass, metal or any suitable material, and may be provided with means for fastening it to a suitable support. The casing 43 may be of any desired shape, and may be closed and hermetically sealed by a cover 44 or in any other desired way, and said inclosing casing may have the air exhausted therefrom, so that the circuit-breaker may be in vacuum. The casing is provided with two binding posts 45 and 46, to one of which the wire 26 is connected, and to the other the wire 27 which leads to the battery 13. From the binding post 46 a wire leads to the electro magnet 34, and from the magnet to the plate 39. A wire leads from the posts 45 to the bracket or arm 42, so that when the circuit is closed through the battery 13, the circuit-breaker or device 11 will cause a make-and-break in the circuit, and will cause either one of the bells 10 to produce a sound according to which push button 14 is operated. By this means all danger of exposed sparking is eliminated, and the make-and-break contacts are removed from the bell proper and entirely closed within a sealed casing, and as there is no make-and-break contact on the electric bells, the latter cannot get out of order through being short-circuited, either by corrosion, dampness or insects, which would tend to make the bell as ordinarily constructed inoperative.

From the foregoing it will be seen that simple and efficient means is provided whereby one or more bells may be made so that they are not liable to become short-circuited, and in which the bell is dust and moisture proof, and is not liable to become corroded; and that the bell may be very cheaply made and installed and adapted for uses to which the ordinary form of electric bell cannot be employed.

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

1. In electric signaling, a circuit-breaker comprising a bracket and an electro magnet, a base supporting the bracket, a spring plate secured to the bracket and carrying an armature, a weight carried by the armature, an arm held to the bracket and carrying a contact thereon, a contact movable with the armature, electric connections for the contacts and electro magnet, and a cylindrical transparent sealing casing entirely inclosing the parts of the circuit-breaker, and a screw-threaded cap fitting the casing and serving to hermetically seal the circuit-breaker within the casing.

2. In electric signaling, a bell comprising a bracket having an upright arm, an angularly disposed arm, electro magnets carried by the bracket, a spring plate held at one end to the upright part of the bracket, an armature comprising a plurality of plates carried by the spring plate, an arm carrying a hammer held to the armature, and a bell secured to the angularly disposed arm and having its body arranged in the path of the arm.

3. In electric signaling, the combination

with a plurality of bells each having an armature, a hammer and magnets, of a circuit-breaker having an armature attuned to work in unison with the armature of the electric bells, a battery, an independent push button for each bell, and means whereby one of the bells will respond to the armature of the circuit-breaker according to which push button is operated.

4. In electric signaling, the combination with a plurality of alarms each having an armature and magnets, of a circuit-breaker attuned to work in unison with the armature of the alarms, a battery, an independent push button for each alarm, and means whereby one of the alarms will respond to the armature of the circuit-breaker according to which push button is operated.

5. In electric signaling, the combination with a plurality of bells each having an armature, a hammer and magnets without make-and-break contacts, of a circuit-breaker having an armature and weighted and attuned to work in unison with the armature of the electric bells, a battery, an independent push button, and means whereby one of the bells will respond to the armature of the circuit-breaker according to which push button is operated.

This specification signed and witnessed this 9th day of May A. D. 1907.

FRANCIS W. MAXSTADT.
FRANCIS W. MAXSTADT, JR.

Witnesses:
M. TURNER,
L. H. LUNDIN.