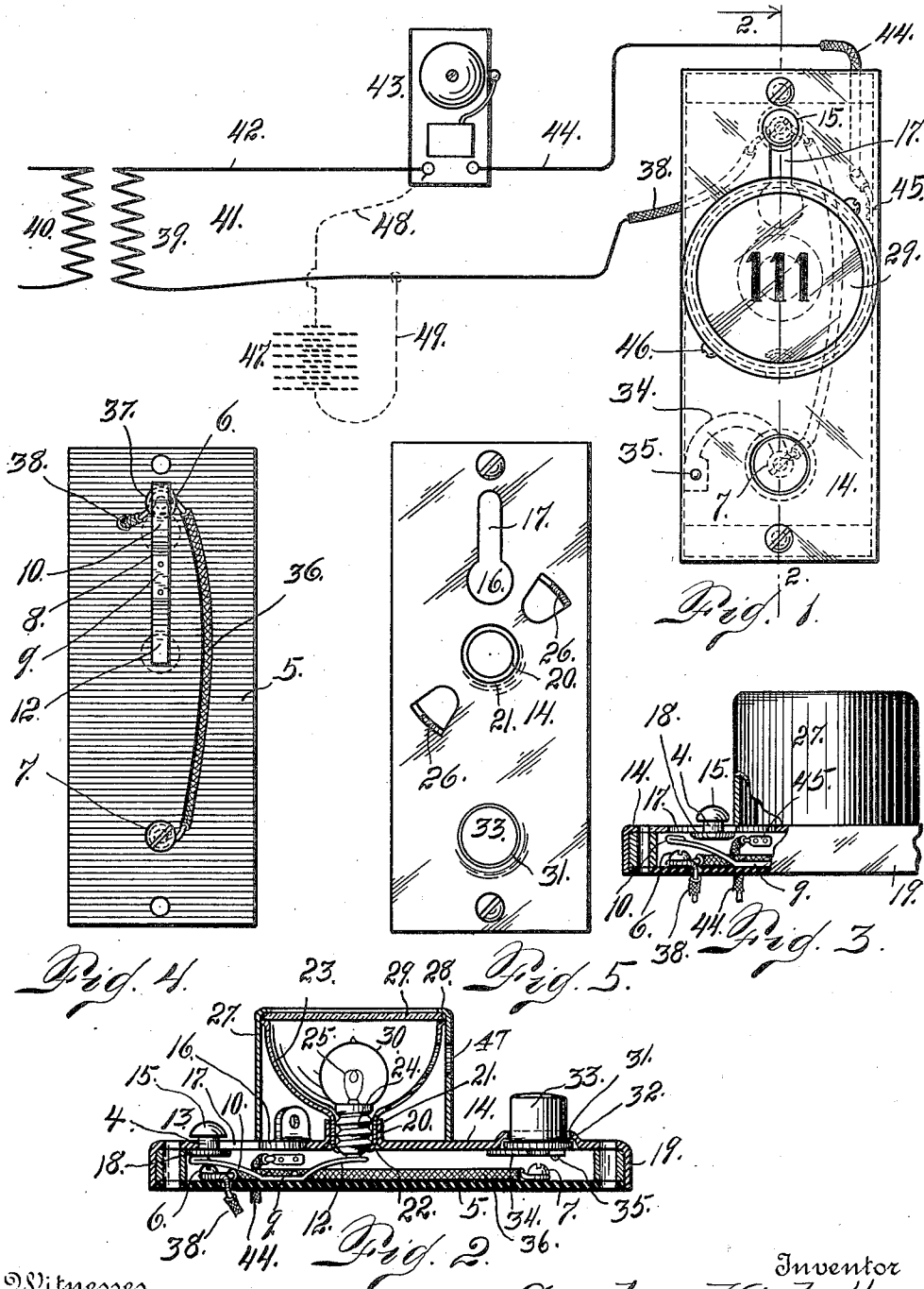


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 COMBINED PUSH BUTTON CONTROLLED DOOR BELL AND ILLUMINATING SIGN.
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UNITED STATES PATENT OFFICE.

GORDON KIMBALL, OF OURAY, COLORADO.

COMBINED PUSH-BUTTON-CONTROLLED DOOR-BELL AND ILLUMINATING-SIGN.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, GORDON KIMBALL, a citizen of the United States, residing at Ouray, county of Ouray, and State of Colorado, have invented certain new and useful Improvements in Combined Push-Button-Controlled Door-Bells and Illuminating-Signs; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the characters of reference marked thereon, which form a part of this specification.

My invention relates to a combined push button-controlled door bell and illuminating sign. In my improved construction, I connect the bell and illuminating means of the sign in series in the same circuit, and provide a current therefor of insufficient strength to ring the bell and energize the illuminating means simultaneously, which current however, is of sufficient strength to operate either singly. The push button is so connected that when it is actuated, the illuminating means will be extinguished and the bell sounded; the lamp in this event will be short-circuited and no longer in series with the bell. Under these circumstances, the total resistance of the circuit is less than normal, and furthermore, the whole current is free to pass to the bell alone and cause it to operate.

My improved construction makes it practicable to so arrange the street number of any house that a person visiting the house in the night will have no difficulty in reading the sign number, since the same will be conspicuous through a transparent disk mounted in a casing in front of a reflector in which the lamp is located, the street number being formed on the transparent disk which is preferably roughened by grinding or otherwise prepared, to prevent the light from dazzling the eyes and at the same time, making the sign clearly distinguishable. Other matter may be formed upon the disk if desired, as the name of the person residing in the house.

Having briefly outlined my improved construction, I will proceed to describe the same in detail, reference being made to the accompanying drawing, in which is illustrated an embodiment thereof.

In this drawing,—Figure 1 is a front view

of my improved device, the door bell and the electric circuits being also illustrated. Fig. 2 is a section taken on the line 2—2, Fig. 1, looking toward the right. Fig. 3 is a fragmentary view similar to Fig. 2, a portion only, however, being sectioned. In this view, the adjustable device for making and breaking the circuit is shown in the circuit-breaking position. Fig. 4 is a plan view of the insulating base plate forming a part of the apparatus, the body of the structure being removed. Fig. 5 is a plan view of the external metallic plate, showing the screws for maintaining the device in place. In this view, all other detachable elements are removed.

The same reference characters indicate the same parts in all the views.

Let the numeral 5 designate a base composed of insulating material and upon which two screws 6 and 7 and a bow-shaped spring 8 are mounted. The central portion 9 of this spring is secured to the insulating base, while its extremities 10 and 12 project upwardly therefrom and form yielding contacts which are adapted to be respectively engaged by one branch of the lamp circuit, and the adjustable make and break device 13 composed of insulating material. This make and break device is originally applied to the metal plate 14 by passing its head 15 upwardly through an opening 16 formed in the plate 14 and of sufficient size for the purpose. The neck 4 of this device is then moved through a slot 17 in communication with the opening 16 at one extremity, the movement in the slot being sufficient to bring the base or lower enlargement 18 of the make and break device in contact with the extremity 10 of the spring 8. The head 15 of the make and break device, while of a sufficient size to pass freely through the opening 16, is too large to pass through the slot 17 and by virtue of this construction, the make and break device is held securely in place when the parts are assembled.

The metal plate 14 is provided with an inwardly turned flange 19 extending entirely around the same and inclosing the insulating base 5 which is entirely concealed by the metallic plate, thus giving a finished, ornamental appearance to the article.

The plate 14 is provided with a relatively large perforation 20, and a collar 21 surrounding the said perforation and projecting outwardly from the exterior surface of

the plate. This collar is adapted to receive the yielding nipple 22 of an approximately semi-spherical reflector 23, which is securely held in place when the nipple is inserted in the collar. This nipple is yieldable to
 5 tightly engage and form a socket for the part 24 of an incandescent lamp 25 of very small voltage, a single candle power lamp being sufficient for the purpose. Inclosing
 10 this reflector and applied to the base plate by means of lugs 26, is a cylindrical casing 27, which is interiorly flanged at its outer extremity as shown at 28, whereby a semi-transparent disk 29 is held in place between
 15 this flange and the outer extremity of the reflector. Upon the inner surface of this disk the street number or other matter which it is desired to expose, is formed.

The bulb 30 of the lamp is inclosed by the
 20 reflector and disk 29, thus completely protecting it from injury. Furthermore, by virtue of its arrangement, its efficiency as an illuminating device may be utilized to the best advantage. Within the plate 14 is
 25 also formed an opening 31, the plate being flanged around this opening as shown at 32 to hold a push button 33 in place, the said button being normally held at its outer limit of movement by a contact spring 34, whose
 30 outer free extremity engages the push button and whose opposite extremity is secured to the metal plate 14 as shown at 35. This spring 34 is of such length that when the push button is moved inwardly, the extremity
 35 engaging the push button will be brought in contact with the screw 7 applied to the insulating plate as heretofore explained. This screw 7 is connected with the
 40 screw 6 of such base by means of an electric conductor 36. Also connected with the screw 6, is one extremity 37 of a conductor 38 which leads to a transformer 39 interposed between the main or heavier voltage
 45 circuit 40, and the relatively low portion of the circuit 41, in which my improved device is located. From the transformer 39 leads a return conductor 42 to an electric bell 43, and from this bell leads a conductor 44, its
 50 opposite extremity being secured as shown at 45 to the metal plate 14. In this way, the plate 14 is placed in a circuit and through its instrumentality, the current may be passed through the lamp and the bell mechanism, or through the bell mechanism
 55 alone, depending on the conditions. For instance, normally, or when the push button is at its outward limit of movement, and when the make and break device 13 is in position to engage the extremity 10 of the contact spring 8, the lamp will be lighted, since though the current is passing through the coils of the bell magnet, it is not sufficient to set the bell in operation. Under such circumstances, the sign or matter represented on the disk 29 is clearly visible.

However, as soon as the push button 33 is actuated, whereby the push button extremity of the spring 34 is brought into engagement with the screw 7, the lamp will be short-circuited, and the current will pass
 70 directly through the conductor 36, the screw 6 and the conductor 38 to the transformer, and thence by way of the conductor 42 to the bell, and thence from the latter through the conductor 44, to the plate 14. In this
 75 case, the lamp will be extinguished and the bell will be operated.

It should be explained that one branch of the lamp circuit is in electrical engagement with the plate 14, while the other branch is in engagement with the extremity 12 of the
 80 spring 9, so that, assuming that the make and break device is in the circuit-closing position, the lamp is always in position to be operated; but when the push button is
 85 actuated, the lamp is extinguished by virtue of the fact that it is short-circuited as the shorter path for the circuit is through the bell, in which event, the current is strong enough to operate the bell.
 90

When the parts of the device are assembled, the opening 16 in the plate 14 is concealed by the casing 27, whereby it becomes impossible to move the make and break device 13 to such a position that its head may
 95 pass through the said opening. In assembling the parts, the make and break device is put in place by introducing its head from the inside into the opening, and then moving it outwardly through the slot 17, to its
 100 normal position. This slot, however, is of sufficient length to make it practicable to break the circuit, by moving the make and break device into the position shown in Fig. 3, when it is not desired to illuminate the
 105 lamp as during the day time. In this event, the electrical bell is in the circuit and the house is therefore, equipped in the same manner for door bell operating purposes, as where my improvement is not employed.
 110

In the construction illustrated in Fig. 1, it is assumed that the voltage of the house circuit 40 is, for instance, 110. This necessitates the use of the transformer 39, whereby voltage of the circuit 41 of my improved
 115 device is made suitable for the purpose. It is found in practice that an electromotive force of six volts is sufficient for my improved device.

When the casing 27 is applied to the plate 120 14, it engages the lugs 26 closely and screws 46 are inserted in openings formed in the casing and threaded into the said lugs for holding the casing in place. This casing is provided with a perforation 47 on the side
 125 toward the push button, in order to illuminate the latter, and enable a person to readily find the push button.

From the foregoing description, the advantages of my improvement will be readily

understood, and need not be explained further in detail.

Having thus described my invention, what I claim is,—

5 1. In combination, an electric circuit, a lamp and a bell located therein, an insulating base, an exterior metallic plate in the circuit, said plate inclosing the base and having an opening in which the lamp plug is inserted, a reflector surrounding the lamp, a casing mounted on the said plate and surrounding the reflector, a semi transparent disk located at the extremity of the casing and carrying a sign to be illuminated, the circuit including a bow-shaped contact spring mounted on the insulating base, one extremity of which is in electrical communication with one end of the lamp filament, the other extremity of the filament being in electrical communication with the metallic plate, a normally open shunt circuit bridged around the lamp and manually operable, means for temporarily closing the shunt circuit; the strength of the current and the resistances of the lamp and the bell magnet being such that when the shunt circuit is open, the lamp will be lighted and the bell inactive, while when the shunt circuit is closed, the lamp will be extinguished and the bell will be rung.

2. In combination, an electric circuit, a lamp and a bell included therein, an insulating base, an exterior metallic plate located in the circuit, said plate inclosing the base and having an opening, the lamp plug being inserted in said opening, a reflector mounted on the plate and surrounding the lamp, a casing surrounding the reflector, a semi transparent disk mounted at the outer extremity of the casing in front of the lamp, said disk carrying a sign to be illuminated, the circuit including a spring mounted on the insulating base, one extremity of said spring being in electrical communication with one end of the lamp filament, a make and break device slidable on the metallic plate and adapted to engage said spring when properly adjusted, a normally open shunt circuit bridged around the lamp, and manually operable means for temporarily closing the shunt circuit, the strength of the current and the resistances of the lamp and bell magnet being such that when said shunt circuit is open, the lamp will be lighted, and the bell inactive, while when the shunt circuit is closed, the lamp will be extinguished and the bell rung.

3. In combination, an electric circuit, a lamp and a bell located therein, an insulat-

ing base, an exterior metallic plate in the circuit, said plate inclosing the base and having an opening in which the lamp plug is inserted, a casing mounted on the said plate, a semi transparent disk located at the extremity of the casing and carrying a sign to be illuminated, the circuit including a contact spring mounted on the insulating base, one extremity of which is in electrical communication with one end of the lamp filament, the other extremity of the filament being in electrical communication with the metallic plate, a normally open shunt circuit bridged around the lamp and manually operable, means for temporarily closing the shunt circuit; the strength of the current and the resistances of the lamp and the bell magnet being such that when the shunt circuit is open, the lamp will be lighted and the bell inactive, while when the shunt circuit is closed, the lamp will be extinguished and the bell will be rung.

4. In combination, an electric circuit, a lamp located therein, an insulating base, an exterior metallic plate located in the circuit, said plate inclosing the base and having an opening the lamp plug being inserted in said opening, a casing surrounding the lamp, the circuit including a spring mounted on the insulating base, one extremity of said spring being in electrical communication with one end of the lamp filament, and a make and break device mounted on the metallic plate and adapted to engage and disengage said spring for the purpose set forth.

5. In combination an electric circuit, a lamp included therein, an insulating base, an exterior metallic plate located in the circuit, said plate inclosing the base and having an opening, the lamp plug being inserted in said opening, a reflector mounted on the plate and surrounding the lamp, a casing surrounding the reflector, a semi transparent disk mounted at the outer extremity of the casing in front of the lamp, the circuit including a spring mounted on the insulating base, one extremity of said spring being in electrical communication with one end of the lamp filament and a make and break device slidable on the metallic plate and adapted to engage said spring when properly adjusted.

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

GORDON KIMBALL.

Witnesses:

MAZE KIRBY,

A. EBERT O'BRIEN.