May 9, 1939. J. H. McCANN ET AL 2,157,772

COMBINED PUSH BUTTON AND ILLUMINATED HOUSE NUMBER DEVICE

Filed March 15, 1938

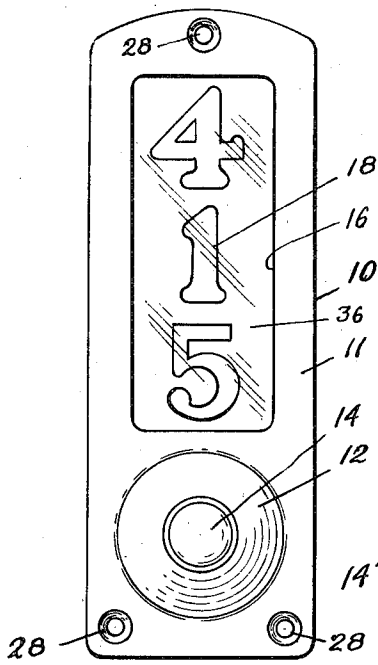

Fig. 1.

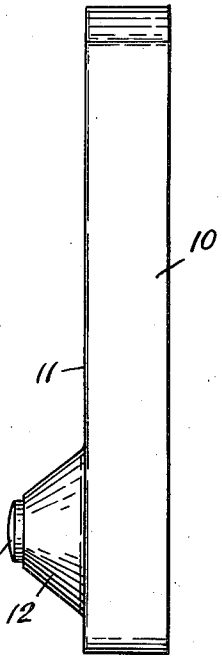

Fig. 2

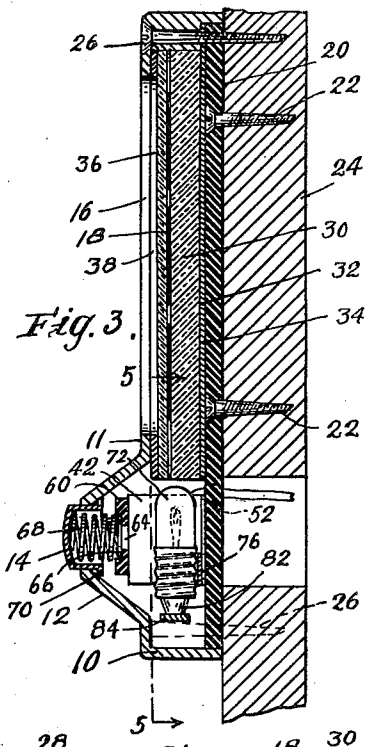

Fig. 3.

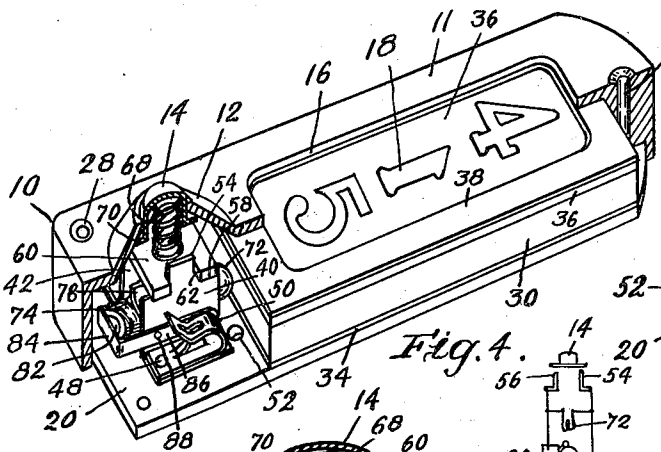

Fig. 4.

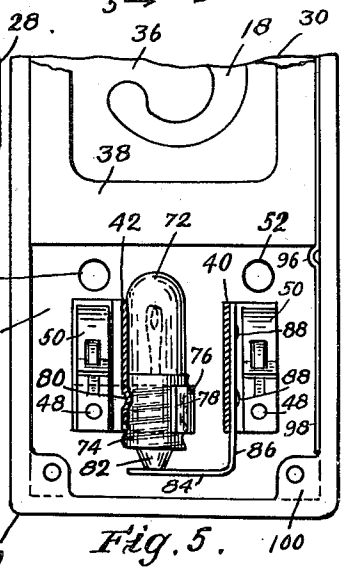

Fig. 5.

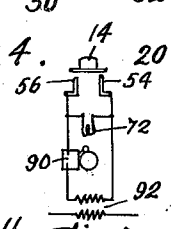

Fig. 7.

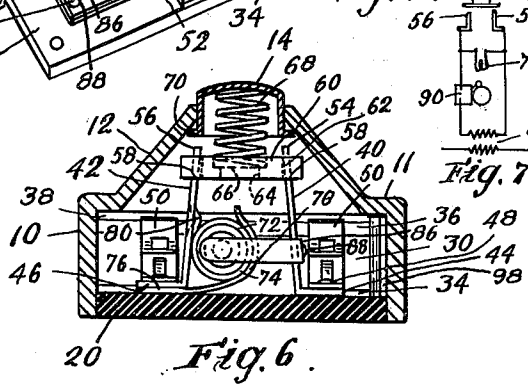

Fig. 6.

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COMBINED PUSH BUTTON AND ILLUMINATED HOUSE NUMBER DEVICE

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Application March 15, 1938, Serial No. 195,984

12 Claims. (Cl. 40—130)

This invention relates to illuminated house number plates and particularly to a combined door bell push button and illuminated number plate.

One of the objects of the present invention is the provision of a simple and reliable construction of push button and illuminated number plate in which the electric light that displays the house numbers derives its energy from the push button circuit.

A further object of the invention is a combined push button and electric light socket and especially one wherein the push button structure constitutes at least in part the light socket structure.

Another object of the invention is the provision of combined push button and illuminated house number structure wherein the electric light that illuminates the house number is located between the contact terminals of the push button and is electrically connected therewith.

A further object of the invention is generally to improve the construction of combined push buttons and illuminated house number plates.

Fig. 1 is a plan view of the combined push button and illuminated house number structure embodying the invention.

Fig. 2 is a side elevation of the structure of Fig. 1.

Fig. 3 is a section taken along the longitudinal axis of Fig. 1.

Fig. 4 is a perspective view of the structure partly in section.

Fig. 5 is a sectional detail taken along line 5—5 of Fig. 3.

Fig. 6 is an end view of the push button contact structure with the casing illustrated in section.

Fig. 7 is a diagram of the electric circuit connections.

The invention includes an elongated outer casing 10 having at the bottom part of the front wall 11 thereof an upstanding dome 12 with a central aperture in which a hollow metal push button 14 is located. The front wall in the upper part thereof has a generally rectangular opening or window 16 in which the house numbers 18 are exposed. A separate back plate 20, preferably of suitable insulating material, is provided which fits within the cover or casing 10 and is attached by screws 22 to the house structure 24.

The casing is separately attached to the house structure by screws 26 passing through the screw holes 28 of the front wall of the casing.

The house numbers 18 are opaque and are preferably adhesively affixed to the outer face of a thick rectangular strip of plate glass 30 which has a light reflecting rear surface 32 made in any suitable manner as by grinding, etching, sand blasting. The reflecting rear face of the glass plate is placed in contact with a white reflecting sheet 34, as an asbestos sheet, upon which the back plate 30 rests. Said sheet 34 enhances the reflecting ability of the face 32 and also forms a cushion for the glass plate. A transparent window plate 36 overlies the house numbers and traverses the window 16. A weather tight packing 38 of suitable material is in contact with the glass window plate and the inner face of the front wall of the casing and surrounds the open window therein.

The push button structure comprises generally vertical contact plates 40 and 42 having oppositely outstanding feet 44 and 46 secured by rivets 48 to the front face of the insulating back plate 20. Terminal connectors 50 of the spring or "Fahnestock" type are disposed upon the feet 44 and 46 and are secured thereto by one or more of said rivets 48 and are adapted to be engaged by the conductors of the bell circuit which pass into the casing through holes 52 in the back plate 20.

The contact plates 40 and 42 are each provided with upstanding contact members 54 and 56 and shoulders 58 on each side of the contact members. An insulating plate 60 rests upon said shoulders and the ends thereof are provided with notches 62 in which the contact members are located and which hold said insulating plate in position. Said plate is provided with an aperture 64 in the middle thereof, which aperture is enlarged in the upper face of the plate to provide a shoulder 66 in which one end of a helical compression spring 68 is seated. The upper end of the spring is located within the push button 14 and bears thereagainst and holds the push button yieldingly in elevated position. The push button has an outstanding conducting flange 70 which normally engages the inner face of the drum 12 to define the upper position of the push button. The annular flange is disposed above the contact members 54 and 56 and is moved into electrical engagement or bridging relation with said contact members when the push button is sufficiently depressed.

The electric light bulb 72 for illuminating the house numbers is located between the contact plates 40 and 42 of the push button structure and preferably under the aperture 64 in the plate 60 whereby to illuminate the push button when

said button is made in part of translucent material. The screw shell socket 74 of the bulb is located against one of the contact plates 42 and between it and a resilient socket plate 76 which has a curved upstanding resilient end portion 78 located within the contact plates to resiliently engage the screw shell and press it against the plate 42. The socket plate is located under and against the contact plate 42 and is secured to the base by the aforesaid rivet 48. The plate 42 has a projection 80 which overlies and engages the threads of the screw shell to hold the bulb against endwise movement. The center contact 82 of the bulb is engaged with a resilient strip 84 the free end of which traverses the axial line of the bulb socket and which has a reflexed end part 86 that lies upon and is secured to the contact plate 40 by suitable means as rivets 88. The bulb thus is connected between the push button terminals, as illustrated in Fig. 7, in series with the bell or buzzer 90 and the power source 92 herein illustrated as a bell ringing transformer. The bulb is of such electrical resistance that while it is illuminated at all times except when the push button is depressed the current consumption is so low that the bell 90 is not operated.

The end of the bulb is located approximately in line with the number carrying glass plate 30 in the median line thereof and preferably close to or in actual contact with the bottom end 94 of the glass plate. The light from the bulb thus is transmitted endwise into the glass plate and illuminates the reflective back face 32 thereof evenly so that the opaque numbers stand out prominently at night. The glass plate is held against movement towards the bulb by an inwardly directed projection 96 which overlies the end of the plate and is formed in a metal strip 98, the lower end of which abuts against a lug 100 of the casing.

We claim:

1. In an illuminated sign, a transparent glass plate, opaque numbers confronting the clear front face of said plate, means providing said plate with an etched light diffusing and reflecting back face which when illuminated glows brightly through the front face of said plate, and a source of illumination for said light reflecting face disposed and arranged to direct light edgewise of said plate thereinto.

2. An illuminated sign comprising a casing having a window therein, a transparent cover plate under said window, a thick glass plate under said cover plate having a clear front face, opaque numbers between said window plate and clear front face of said glass plate, said glass plate having an etched light diffusing and reflecting back face which when illuminated glows brightly through the front face of said plate, a back plate behind said glass plate, and an electric light at an edge of said glass plate disposed in position to direct light edgewise of said glass plate thereinto to illuminate said light reflecting surface.

3. A combined push button and illuminated house number device comprising a casing having a window, a glass plate behind said window having a clear front face, opaque numbers confronting said window in front of said clear face of said glass plate, said glass plate having an etched light diffusing and reflecting back face which when illuminated glows brightly through the front face of said plate, a push button structure in said casing beside said window having contact terminals normal to said glass plate, and an electric light disposed within said casing between said terminals in line with said plate in position to transmit light edgewise of said plate thereinto to illuminate said back face, and means connecting the terminals of said light with said contact terminals.

4. In a combined push button and illuminated house number device, a number plate, a push button structure including contact terminals, and an electric light bulb positioned to illuminate said number plate and located between and connected with said contact terminals.

5. In a combined push button and illuminated house number device, a supporting plate, a pair of spaced contact plates carried by and upstanding above said plate, bridging means for said contact plates disposed thereabove, an electric light bulb disposed under said bridging means and between said contact plates, means connecting the terminals of said bulb separately to said plates, and a number plate disposed in position to receive illumination from said bulb.

6. In a combined push button and illuminated house number device, a supporting plate, a push button structure including spaced contact plates carried by and upstanding above said supporting plate, bridging means for said plates located thereabove, a lamp socket structure located under said bridging means and between said plates adapted to receive an electric light bulb, and a number plate disposed in position to receive edgewise illumination from said bulb.

7. In a combined push button and illuminated house number device, a base plate, a push button structure mounted on said base plate, comprising a pair of spaced contact plates carried by said base plate and upstanding thereabove, bridging means for said contact plates, a socket plate electrically connected with one of said contact plates and provided with socket means located between said contact plates and under said bridging means for receiving an electric light bulb, a lamp terminal member, cooperating with said socket and connected electrically with said other contact plate, and a number plate disposed in position to receive illumination from a light bulb in said socket.

8. In a combined push button and illuminated house number device, a supporting plate, a pair of spaced contact plates carried by and extended upwardly from said supporting plate, a socket plate electrically connected with one of said contact plates and having socket forming means located between said contact plates adapted to receive a light bulb, a center contact terminal plate confronting the bulb socket and electrically connected with said other contact plate, and a number plate positioned to receive illumination from a light bulb in said socket.

9. In a combined push button and illuminated house number device, a supporting plate, a pair of spaced contact plates carried by and upstanding above said supporting plate, means providing a socket for an electric light bulb between said contact plates including a socket plate electrically connected with one of said contact plates and having a resilient curved part located between said plates and shaped to engage the terminal shell of a light bulb and hold it against said contact plate, said contact plate having means engageable with the terminal shell to hold the bulb against axial movement, said other contact plate having an extension which overlies the space between said contact plates and con-

stitutes a center contact terminal for the light bulb, push-button bridging means for said contact plates, and a number plate disposed in position to receive illumination from a light bulb in said socket.

10. In a combined push button and illuminated house number device, a back plate, a casing having a window in the front face thereof and an upstanding dome at one side of the window, a thick glass plate in said casing under said window, opaque numbers located under said window in confronting relation with the front face of said glass plate, said glass plate having a light reflecting back face, spaced push button terminal plates carried by and upstanding above said back plate under said dome, an insulating plate on said contact plates, a plate-bridging push button in said dome, a spring bearing against said push button and said insulating plate, means including one of said contact plates constituting a socket for an electric light bulb located between said plates under said push button, a contact terminal for the light bulb cooperating with said socket and connected with the other one of said plates, said socket being in the approximate line of said glass plate whereby the illumination of a light bulb in said socket is transmitted endwise into said plate to illuminate the reflecting face thereof.

11. In a combined push button and illuminated house number device, an elongated casing having a window therein, a thick rectangular number plate of plate glass in said casing under said window, said number plate having an etched reflecting background, push button contact terminals in said casing near one edge of said plate glass, means providing a socket located between said contact terminals in the approximate line of said plate glass adapted to receive an electric light bulb which illuminates said light reflecting background, and a strip holding member interposed between said casing and a side edge of said plate glass having a projecting part overlying the end edge of said plate glass between said edge and said contact terminals.

12. In a combined push button and illuminated sign, an electric light for illuminating the sign, and push button contact members having a space between them in which said electric light is adapted to be located, and light holding means in said space constituting also terminal contact members for said electric light.

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