Nov. 27, 1934. E. H. SCHMITT 1,982,457

DIAL ILLUMINATING MEANS FOR TELEPHONES

Filed Feb. 2, 1931 2 Sheets-Sheet 1

Fig 1

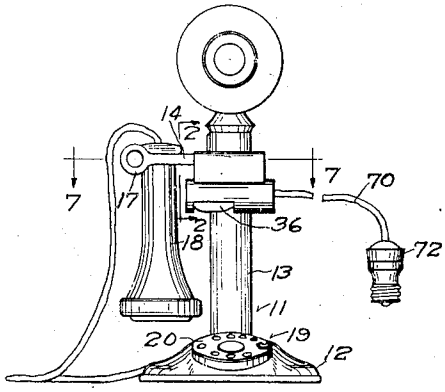


Fig 2

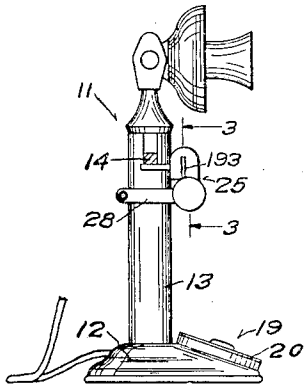


Fig 3

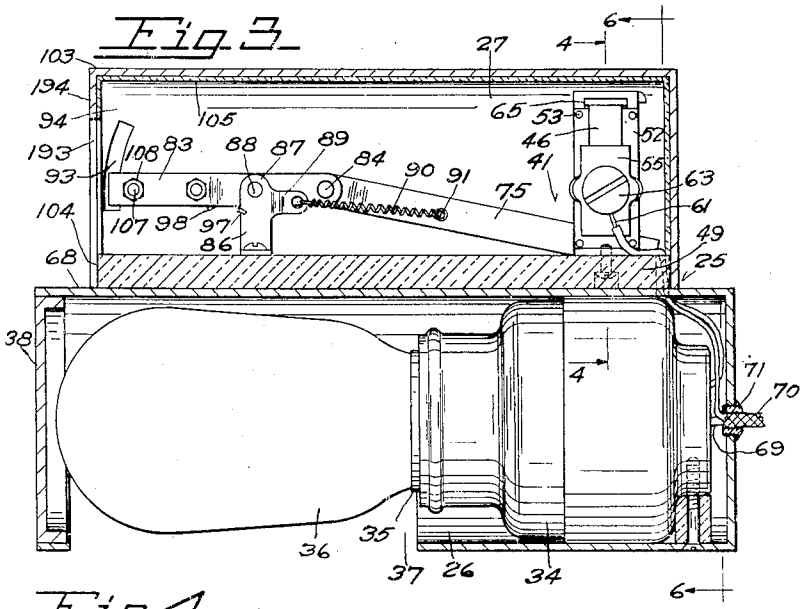


Fig 4

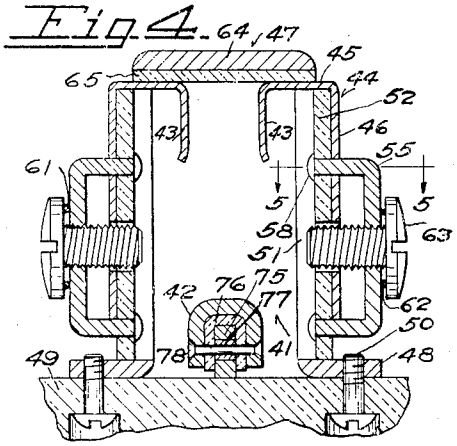
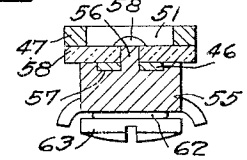


Fig 5



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DIAL ILLUMINATING MEANS FOR TELEPHONES

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Fig. 6

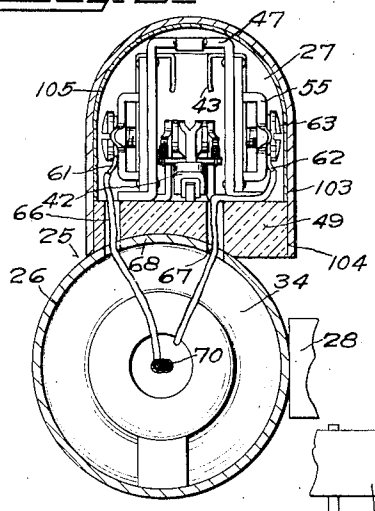


Fig. 10

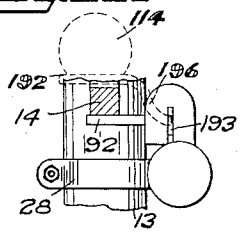


Fig. 7

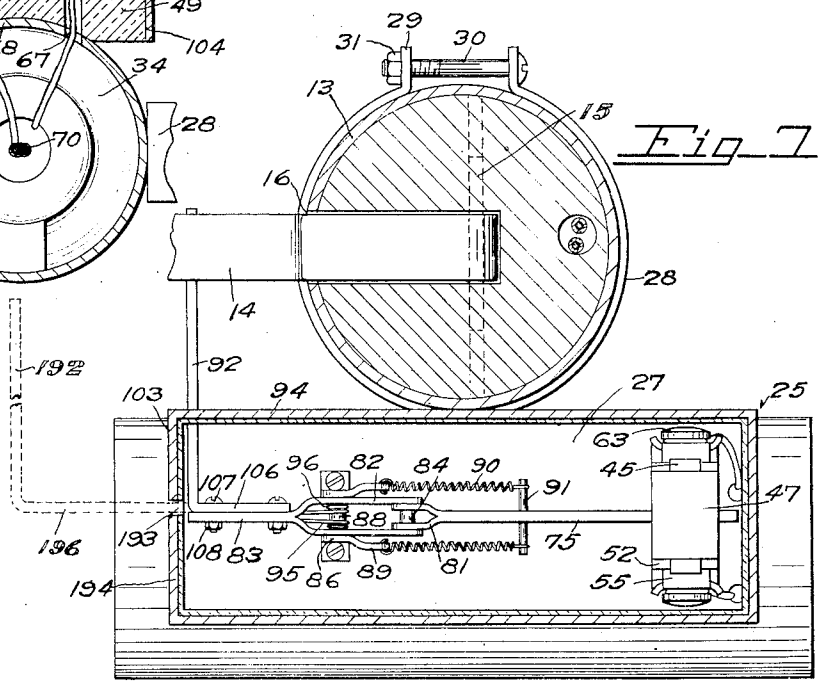


Fig. 8

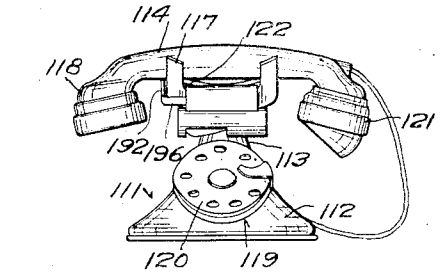
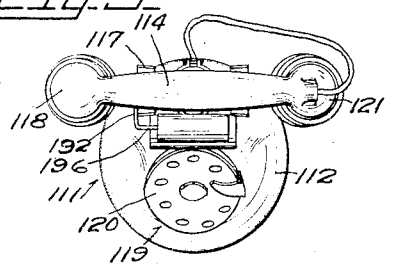


Fig. 9



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UNITED STATES PATENT OFFICE

1,982,457

DIAL ILLUMINATING MEANS FOR TELEPHONES

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Application February 2, 1931, Serial No. 512,947

5 Claims. (Cl. 240—2.17)

It is the object of my invention to provide novel means whereby upon raising the receiver of a dial telephone instrument a light is automatically lit for illuminating the dial, so that a person may see and operate the dial even if the telephone instrument is in an otherwise dark location or in a dark alcove, or if the instrument is used in the night time in the absence of other sufficient light.

It is the object of my invention, further, to provide novel illuminating means for the purpose mentioned which may be mounted on the stand of the telephone instrument and have electrical connection for instance with the house wiring distinct and entirely dissociated from the wiring and the electric connections of the telephone; and, further, to provide novel means whereby the light of my improved device may be automatically lit upon the raising of the receiver when using the instrument and automatically extinguished when the receiver is replaced upon the instrument.

The invention will be further readily understood from the following description and claims and from the drawings, in which latter:

Fig. 1 is a front elevation of a dial telephone instrument having my invention applied thereto.

Fig. 2 is a side elevation of the same, partly in section on the line 2—2 of Fig. 1.

Fig. 3 is a vertical longitudinal section of my improved device, taken on the line 3—3 of Fig. 2.

Fig. 4 is a cross-sectional view, illustrating the switch mechanism of my improved device, taken in the plane of the line 4—4 of Fig. 3, and partly broken away.

Fig. 5 is a detail sectional view, taken in the plane of the line 5—5 of Fig. 4.

Fig. 6 is a cross-section of my improved device, taken in the plane of the irregular line 6—6 of Fig. 3, and partly broken away.

Fig. 7 is a cross-section of my improved device in connection with the telephone instrument, taken on the line 7—7 of Fig. 1, and partly broken away, and showing an additional contact arm for use with a so-called French telephone intrument or hand telephone set.

Fig. 8 is a front elevation of a French telephone instrument having my improved device applied thereto.

Fig. 9 is a plan view of the same; and,

Fig. 10 is a detail view showing my improved device applied to a regular telephone instrument in full lines, partly in section on the line 2—2 of Fig. 1, and showing the frame of the receiver of a French telephone instrument and contact arm therefor in dotted lines in association with my improved device.

A standard telephone instrument is shown at 11. It has a base 12 and a post 13 extending upwardly therefrom. (Figs. 1, 2 and 7). An arm 14 is pivoted inside the post on a pivot 15 and extends through a slot 16 in the post. This arm has a hook 17 thereon, on which the telephone receiver, indicated at 18, is supported when not in use. The arm 14 is therefore a weighted arm. The telephone dial is shown at 19 on the base of the telephone stand. It comprises a rotatable disk 20 arranged to be manipulated in suitable manner for initiating electric connections when the user desires to call his own number for communication with the party with whom he desires to speak.

In using the dial, the receiver 18 is first removed from the hook 17, whereby the arm or support 14 automatically rises for making the proper electrical connections in the telephone preparatory to use of the dial. The object of the present invention is to provide illuminating means arranged to automatically illuminate the dial so that a person can correctly manipulate the dial.

I have shown these means as an attachment arranged to be secured to the telephone instrument, and having electrical connections distinct and apart from the electrical connections of the telephone instrument, and provided with a contact part arranged to be operated by the weight of the receiver for extinguishing the light and to automatically rise when the receiver is raised for using the telephone.

A supporting casing 25 has a lamp compartment 26 and a switch compartment 27. A clamp 28 is fixed to the casing and is received about the post 13 of the telephone instrument. This clamp may be received about the post and have rear flanges 29 connected by a clamp screw 30 and clamp nut 31 threaded thereto. The clamp is arranged to be adjustably placed in such position on the telephone instrument as to be in correct position for automatic actuation of the switch by means of the receiver.

A suitable lamp socket 34 is secured in the lamp compartment. The socket is arranged to receive the plug 35 of an electric light bulb 36. The socket and plug may be of any suitable or usual construction. The lamp compartment is provided with an opening 37 presented downwardly, through which the rays of light from the bulb illuminate the dial. A telephone directory and suitable memorandum pad may also be illuminated thereby. The lamp compartment is pro-

vided with a releasable end 38 for forming said compartment open ended for insertion or removal of the bulb in affixing or renewing the bulb.

There is an electric switch 41 in the switch box. This switch is normally open. The switch contains a movable part 42 and complementary stationary parts 43 between which the movable part is arranged to be received for closing the electric circuit for the lamp bulb. It is desirable that the opening and closing of the switch shall take place with a snap movement to minimize arcing.

The switch exemplified comprises the contact parts 43, which are shown as downwardly bent ends of electric conducting strips 44 having laterally extending portions 45 and downwardly extending portions 46. A U-frame 47 has feet 48 fixed to an insulating block 49 by screws 50. This frame has openings 51 at its sides through which the laterally extending portions 45 are received. Insulating plates 52 span these openings and are fixed to the walls of the openings, as by rivets 53.

U-clips 55 have stems 56 extending therefrom received through holes in the downwardly extending portions 46 and the insulating plates 52, the downwardly extending portion and the insulating plate being located between shoulders 57 at the outer end of the stem, the inner end of the stem being upset upon the insulating plate as shown at 58.

The electric conducting wires 61, 62, are secured to said U-clips under the heads of screws 63 threaded to said U-clips. The U-frame 47 comprises an upper cross-piece 64 between which and the laterally extending portions 45 an insulating plate 65 is located. This construction insulates the switch contacts 43 and the wiring from the supporting means for the switch contacts.

The wires 61, 62, are electrically insulated beyond their connections with the U-clips and pass through holes 66, 67, in the insulating block 49 and through holes in the partition 68 between the lamp compartment and the switch compartment respectively to the socket 34 and a suitable source of electric power, the wire 61 and a wire 69 forming a cable 70 passing through an insulating ferrule 71 to a suitable plug 72 arranged to be connected with any suitable socket of house wiring.

The contact part 42 is mounted on and insulated from a lever 75. (Figs. 4 and 6). It is shown as a U-shaped clip insulated from the lever by an electric insulating lining 76 and tube 77, through which a rivet 78 securing the parts together passes. The swinging end of the contact arm normally rests on the insulating block 49 when the switch is open.

The lever 75 has a fork 81 at its inner end received in a fork 82 of a lever 83, the fork ends being connected by a pivot pin 84 for pivoting said levers together. (Figs. 3 and 7).

Stands 86 are fixed to the insulating block 49 and have bearings 87, a pivot pin 88 being located in said bearings and the fork 82 for pivoting the lever 83 to the insulating block. These stands are provided with lugs 89. Spiral springs 90 have one of their ends connected to these lugs, the other ends of these springs being connected with a cross pin 91 fixed to the lever 75.

The lever 83 is provided with a contact arm 92 arranged to be depressed by the weight of the receiver of the telephone instrument. The lever 83 is automatically urged for raising its contact arm, as by means of a spring 95 having a coil 96 about the pivot pin 88, one end of the spring having a hook 97 about one of the edges of the stand 86 for anchoring said end of the spring, the other end of the spring having a hook 98 under the lever 83 for normally raising the outer end of the lever. The spring is shown as a duplex spring.

These parts are arranged to impart a snap movement to the lever 75 and the electric contact 42 thereon.

Movement of the axis of the pivot 84 past the axes of the helical springs causes a snap movement of the lever 75 in opposite directions for opening and closing the switch 41 with a snap movement.

The lever 83 has the contact arm 92 thereon arranged to be depressed by the weight of the receiver. It is shown extending through a slot 93 in the side wall 94 of the cover 103 of the switch compartment. This cover has slip connection at 104 with the insulating block 49 and may be removed for inspection and attention to the switch parts and their actuating mechanism and readily replaced. It has an insulating lining 105. The contact arm 92 is provided with a bent portion 106 releasably secured to the lever 83 by screws 107 and nuts 108.

If desired, my attachment may be attached to a so-called French telephone instrument or hand telephone set as shown in Figs. 8 and 9 and indicated in Fig. 10. Such an instrument 111 comprises a base 112 from which a post 113 extends upwardly, the post being provided with hooks 117 on which the bar 114 of the receiver head 118 is located. The bar forms a support for the receiver head at one of its ends and has a transmitting head 121 at its other end. When the bar is placed on the hooks it actuates a movable part 122 for neutralizing certain of the electric connections in the instrument, which are placed in connecting relation when the receiver bar is raised.

My improved attachment is arranged to be applied to such a French telephone instrument by having its clamping arms 28 received about and clamped to the post 113 by the clamping screw 30 received through the flanges 29 of said arms and the clamping nut 31 threaded to said screw.

The dial is represented at 119, and as in the case of the regular telephone instrument, comprises a rotatable disk 120 arranged to be rotated by the user for calling his own number.

When using my improved device on a French telephone instrument, a contact arm 192 is provided and connected with the lever 83, as by providing said contact arm with a bent portion 196 connected with the lever 83 by the clamp screws 107 and clamp nuts 108. The bent portion 196 extends through a slot 193 in the end wall 194 of the cover 94 of the switch compartment.

When the head bar 114 is raised, the contact arm rises automatically for oscillating the lever 83 on its pivot and thereby actuating the lever 75 with a snap movement. When the head bar is replaced upon the hooks 117, it contacts the contact arm 192 which is depressed by the weight of the bar for automatically moving the levers in opposite directions and opening the switch 41 with a snap movement.

The relative positions of the contact arms 92 and 192 respectively, for being depressed by the supports of the receiving heads of the telephone instruments, are indicated in Figs. 7 and 10. The parts are so arranged that either contact arm may be fixed to the lever 83, the balance of my improved device being the same, so that my improved attachment may be used either on a usual

telephone instrument or on a French telephone instrument by merely substituting one of said contact arms for the other.

In my improved device lighting of the electric light and its extinguishment are entirely automatic and the source of electricity for illuminating the bulb is distinct and apart from all the electrical connections of the telephone so as not to interfere with the latter, and in my improved device, further, the levers including their contact arms and all their operating parts are entirely outside of the telephone instrument so as not to interfere with any of the electric connections or operation of the latter.

My improved device takes advantage of the weight of the receiver and its support for automatically extinguishing the light so as to save electricity and disconnect the current when the user replaces the receiver on the telephone instrument, the weight of the receiver being sufficient to cause depressing movement of the contact arm of my improved device without detriment to the functioning of the telephone.

The light of my improved device is automatically lit upon raising the receiver by the user, so as to illuminate the dial.

My improved device is simple, is economically made, has no detrimental effect upon the usual operation of the telephone, and is automatic in its functioning.

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

1. In a device of the character described, the combination with a dial telephone instrument, comprising a post, a receiver to be lifted when using the instrument, and a support for the latter, of an attachment comprising a switch compartment and a bulb compartment for an electric light bulb, an electric light bulb in said bulb compartment, an electric switch in said switch compartment for said bulb, a pair of levers in said switch compartment, said levers having a pivot between them, one of said levers having a pivot pivoting it to said switch compartment, the other of said levers having a contact part for closing said switch, a helical spring having its respective ends connected respectively with said other of said levers and a part distanced therefrom at the respective sides of said first-named pivot and arranged to move said other of said levers with a snap movement when said spring crosses the axis of said first-named pivot, said one of said levers comprising a contact arm depressed by the weight of said receiver and extending outside said switch compartment, said levers located wholly outside said instrument, and means acting on said one of said levers automatically raising said contact arm for moving said other of said levers with a snap movement for closing said electric switch and illuminating said bulb upon raising said receiver, and the weight of said receiver when replacing said receiver on its support depressing said contact arm for causing snap movement of said other of said levers and snap opening of said switch for darkening said bulb.

2. A dial illuminating device for attachment to a telephone instrument having a receiver, a movable receiver supporting element and a vertical standard, said illuminating device comprising connected elongated switch and lamp housings disposed in parallel relationship, an electrical lamp in the lamp housing, an electrical switch in the switch housing and comprising a pair of levers, said levers having a pivot between them, one of said levers having a pivot pivoting it to said switch housing, the other of said levers having a contact part for closing said switch, a spring having its respective ends connected respectively with said other of said levers and a part distanced therefrom at the respective sides of said first-named pivot and arranged to move said other of said levers with a snap movement when said spring crosses the axis of said first-named pivot, said one of said levers comprising a contact arm depressed by the weight of the receiver and extending outside said switch housing, said levers located wholly outside said instrument, means acting on said one of said levers automatically raising said contact arm for moving said other of said levers with a snap movement for closing said electrical switch and illuminating said bulb upon raising said receiver, the weight of said receiver when replacing said receiver on its support depressing said contact arm for causing snap movement of said other of said levers and snap opening of said switch for darkening said bulb, and means for attaching the housings to the standard of the telephone in horizontal position.

3. A dial illuminating device for attachment to various types of telephone instruments having a receiver, a movable receiver supporting element and a vertical standard, said illuminating device comprising an apertured elongated housing one aperture being in a side and another being in the end of said housing, an electrical switch in the housing, a movable lever associated with the switch said lever being provided with means for supporting an actuating arm extendable through either of the aforesaid apertures to a position adjacent to the receiver supporting element and adapted for movement with said receiver supporting element for actuation of the switch, a lamp supported by the elongated housing, an electrical circuit including the switch and the lamp, and a clamp on the housing for attachment of the device in a horizontal position to the vertical standard of both the hand set and standard desk types of telephone instruments.

4. A dial illuminating device for attachment to various types of telephone instruments having a receiver, a movable receiver supporting element and a vertical standard, said illuminating device comprising an elongated lamp housing, an apertured elongated switch housing disposed above and in parallelism with the lamp housing and one aperture of which is in a side wall and another in an end wall of the switch housing, an electrical switch in the switch housing, a movable lever associated with the switch said lever being provided with means for supporting an actuating arm extendable through either of the aforesaid apertures to a position adjacent to the receiver supporting element and adapted for movement with said receiver supporting element for actuation of the switch, a lamp supported in the lamp housing, an electrical circuit including the switch and the lamp, and a clamp on one of the housings for attachment of the device in a horizontal position to the vertical standard of both the hand set and standard desk types of telephone instruments.

5. A dial illuminating device for attachment to various types of telephone instruments having a receiver, a movable receiver supporting element and a vertical standard, said device comprising in combination an elongated lamp housing, a substantially circular clamp secured to the back of the elongated housing, the major axis of

the housing being disposed perpendicularly to the axis of the substantially circular clamp, the clamp being of a reduced width such as permits attachment thereof to the short standard of a hand set telephone and to the long standard of a desk type telephone, with the axis of the elongated housing thereby disposed horizontally intermediate the upper and lower limits of the hand set instrument when applied thereto, a lamp in the housing, and electrical switch means for the lamp including a member adapted to be actuated upon removal of the telephone receiver from the receiver support.

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