

No. 780,525.

PATENTED JAN. 24, 1905.

C. D. REEVE.
TELEPHONE DIAL.
APPLICATION FILED JUNE 9, 1904.

2 SHEETS—SHEET 1.

Fig. 1.

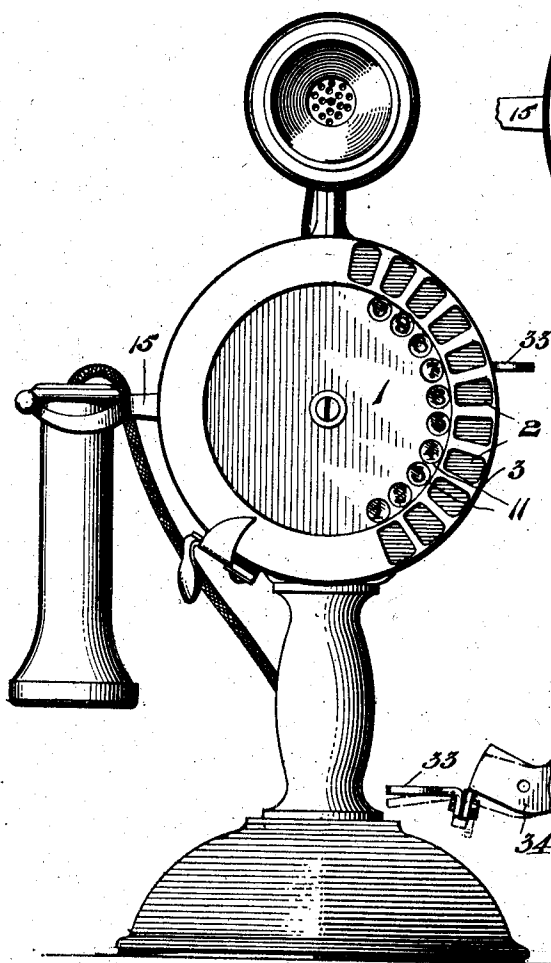


Fig. 2.

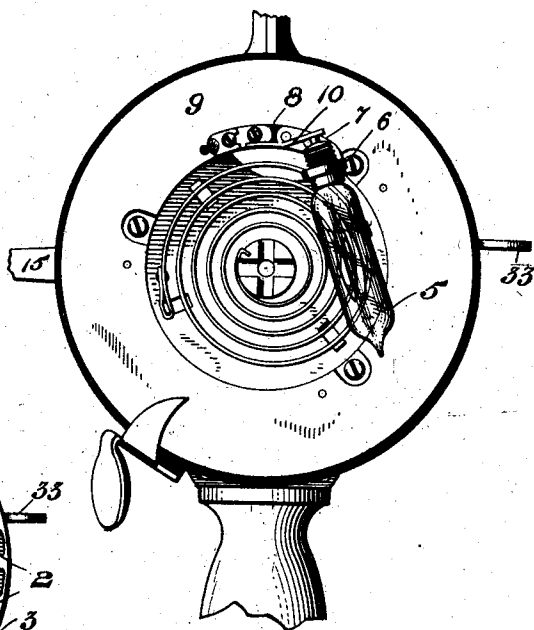
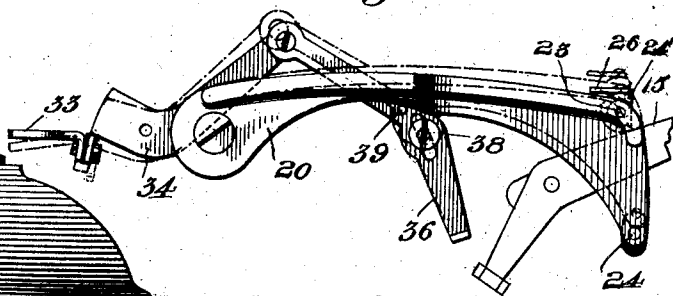


Fig. 5.



Witnesses
E. J. Howard
J. E. Parker

Charles D. Reeve,
Inventor.
by *Chas. D. Reeve*
Attorneys

C. D. REEVE.
TELEPHONE DIAL.
APPLICATION FILED JUNE 9, 1904.

2 SHEETS—SHEET 2.

Fig. 3.

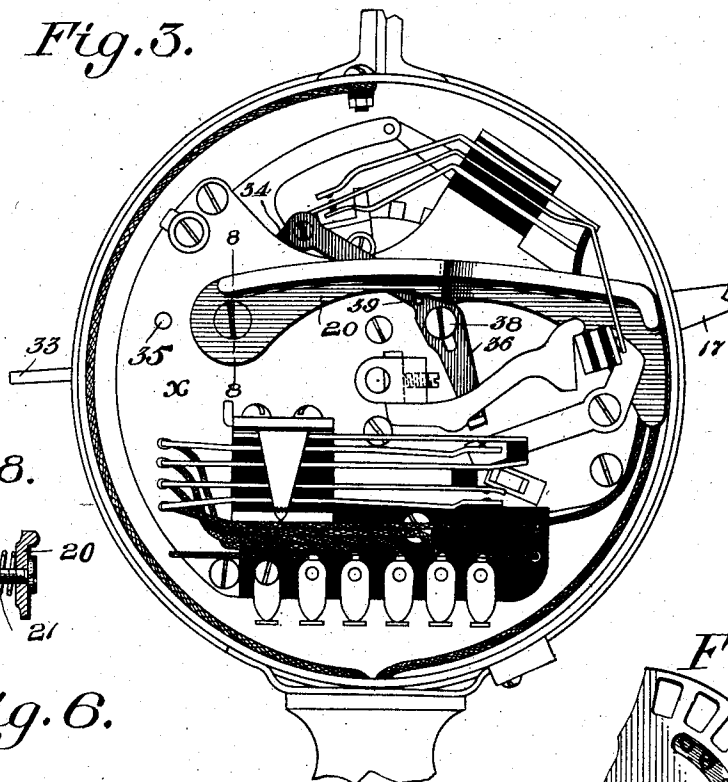


Fig. 8.

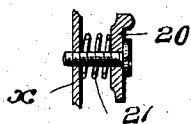


Fig. 6.

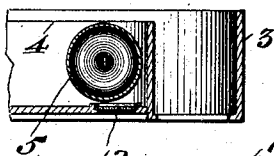


Fig. 7.

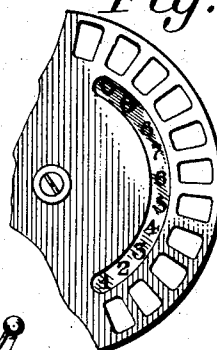
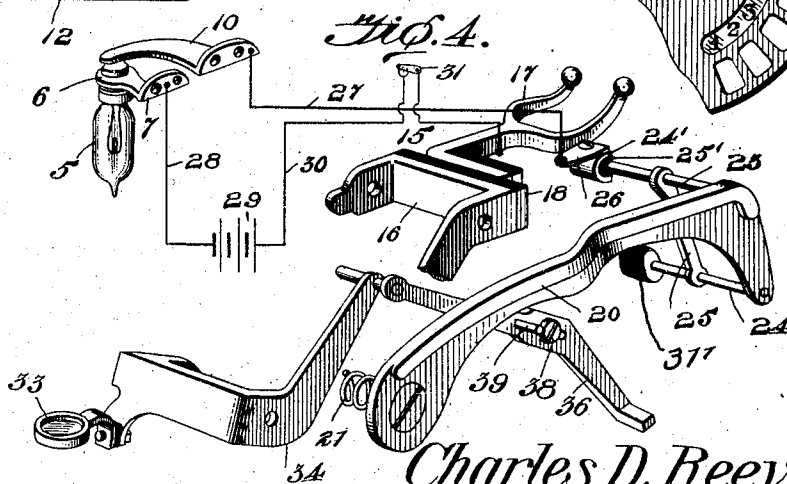


Fig. 4.



Witnesses

E. J. Howard
Jno E. Parker

Charles D. Reeve,
Inventor.

by

Chas. Snow & Co.
Attorneys

UNITED STATES PATENT OFFICE.

CHARLES D. REEVE, OF GRAND RAPIDS, MICHIGAN.

TELEPHONE-DIAL.

SPECIFICATION forming part of Letters Patent No. 780,525, dated January 24, 1905.

Application filed June 9, 1904. Serial No. 211,864.

To all whom it may concern:

Be it known that I, CHARLES D. REEVE, a citizen of the United States, residing at Grand Rapids, in the county of Kent and State of Michigan, have invented a new and useful Telephone-Dial, of which the following is a specification.

The principal object of the present invention is to provide means for illuminating the dial of an automatic variable-signal transmitter, especially in telephones of that class which require manual manipulation in making the necessary connections and which cannot ordinarily be operated in the dark.

A further object of the invention is to provide for the automatic illumination of the dial of the signal-transmitter as soon as the receiver is removed from the hook, and, further, to provide means whereby the lamp will be extinguished immediately after the switching operation has been completed, so that there will be no waste of current.

A still further object of the invention is to provide a dial-illuminating lamp that is arranged in a circuit under the control of the receiver-hook.

A still further object of the invention is to provide a switch-dial having its numbers arranged on a translucent panel or panels in connection with a lamp arranged behind the dial in order that the numbers may be made visible.

With these and other objects in view, as will more fully hereinafter appear, the invention consists in the novel construction and arrangement of parts hereinafter fully described, illustrated in the accompanying drawings, and particularly pointed out in the appended claims, it being understood that various changes in the form, proportions, size, and minor details of the structure may be made without departing from the spirit or sacrificing any of the advantages of the invention.

In the drawings, Figure 1 is a front elevation of a desk-telephone of the automatic type provided with an illuminated dial in accordance with the invention. Fig. 2 is a front elevation of the switch-box with the front dial removed and illustrating the position of the

lamp. Fig. 3 is an elevation of the switch-box with the cap removed. Fig. 4 is a detail perspective view of the several parts for controlling the lamp-circuit. Fig. 5 is a rear elevation showing the relative positions of such parts. Fig. 6 is a sectional plan view of a portion of the dial, illustrating the relative positions of the lamp and the translucent numeral-bearing panel. Fig. 7 illustrates a slight modification of the invention, wherein a single translucent panel carries all of the numerals. Fig. 8 is a detail sectional view on the line 8 8 of Fig. 3.

Similar numerals and letters of reference are employed to indicate corresponding parts throughout the several figures of the drawings.

In automatic exchange telephone systems—such as, for instance, those of the Strowger class—each local telephone is provided with a switching means that is manually operable, so that any subscriber by manipulating the switch may connect his telephone to any other telephone in the system. These switching means generally are of such character as to require the insertion of the finger opposite the selected numerals and the movement of an indicating-dial by the finger.

In carrying out the present invention provision is made for illuminating the dial or switchboard, so that it will not be necessary to illuminate the room in which the telephone is situated before making the connections.

The telephone 1 is provided near one edge with an arcuate series of finger-receiving openings 2, and opposite such openings are numerals indicating the openings into which the fingers must be inserted to effect the desired connection. The dial is formed of sheet metal or cast metal and has a flanged edge 3 and an auxiliary inner flange 4, the space between the two flanges serving for the insertion of the tips of the fingers in operating the dial, and within the inner flange 4 is a recess for the reception of a small electric lamp 5, said flange 4 serving as a guard or shield to prevent the light-rays from illuminating the finger-receiving openings. The lamp is screwed in a socket 6, carried by a small bracket 7, that is mounted on an insulated block 8, carried by the front cap 9 of the switch-box, and said front cap

further carries an insulated arm 10, that connects with the second terminal of the lamp, the socket, as usual, forming the other terminal.

The lamp is arranged directly in the rear of an arcuate row of openings 11, there being as many openings as there are finger-receiving openings, and in each opening is a translucent panel 12, formed of glass or other suitable material and bearing a numeral corresponding to the number of the finger-receiving opening with which it is in alinement, and when the electric lamp is glowing these numerals will all be plainly visible, so that the operator may readily insert his finger in the proper openings and manipulate the dial and switching mechanism for the operation of the automatic exchange at the central station.

Pivoted within the casing is a two-part receiver-hook 15, comprising an inner section 16, that operates in the usual manner on the closing of the talking-circuit when the receiver is removed from the hook. The outer section 17 is provided with the usual receiver-fork and is insulated from the inner section by a block of insulating material 18.

To the rear of the main frame *a* of the switching mechanism is pivoted an arm 20, and a spring 21 is interposed between the arm and the adjacent face of the frame, so that when the arm is adjusted to any position it will tend to remain in that position by reason of the friction exerted by said spring. The free end of the arm carries two pins 23 and 24, that extend inward from the rear portion of the switch-box and are arranged one above and one below the receiver-hook, and said arms are connected together by means of a cross-bar 25 in order to add to the strength of the structure. To the upper pin 23 is secured a small sleeve or collar 24', that is insulated from the pin by a small block 25', formed of insulating material, and to this collar is secured a plate 26, that is connected by a wire 27 to the contact-arm 10 leading to the electric lamp. From the second lamp terminal or socket 6 leads a wire 28 to a battery or other source of electrical energy 29, preferably arranged at a distance from the lamp, and from the opposite pole of the battery leads a wire 30, that is electrically connected to the outer portion 17 of the receiver-hook. The wire 30 is further led to a switch 31, placed at any convenient point, so that during daylight hours the circuit may be positively broken at a point outside the telephone.

The parts are so arranged that when the receiver-hook is moved upward after the removal of the receiver the outer portion 17 of such receiver-hook will engage the metallic collar 24', and a circuit will thereupon be established between the battery 29, wire 30, receiver-hook collar 24', plate 26, wire 27, arm 10, the lamp-socket 6, and wire 28 to battery. The lamp will thereupon glow and the numerals on the dial will be made visible, so

that the proper finger-receiving openings may be readily selected. When the receiver is again placed on the hook, the latter is moved down in the usual manner, and its under side engages a block 31', formed of insulating material, said block being carried by the pin 24, thus depressing the arm 20 and restoring the parts to initial position.

In telephones of the type to which this invention is applied the receiver is first removed from the hook and then the dial is turned to accomplish the operation of the automatic mechanism at the central station. After the selecting operation a button 33 is depressed and operates in the ordinary manner to close the calling-circuit and notify the called subscriber that his line has been connected. The button 33 has a two-part lever 34, that is pivoted on a pin 35, carried by the frame, and to one end of lever 34 is connected a slidable bar 36, that is in part guided by a pin or screw 38 and carried by the frame, this mechanism, however, being that in ordinary use in the commercial Strowger telephone and requiring no further explanation. To this slidable bar is secured a pin 39, that projects outward under the pivot-arm 20, and the arrangement of parts is such that after the selecting operation has been accomplished, the lamp-circuit being meantime closed, the downward movement of the button 33 may elevate the bar 36, and its pin 39 by engagement with the under side of the arm 20 will elevate the latter for a short distance and move the collar 24' slightly above and out of contact with the receiver-hook, thus breaking the lamp-circuit after the connection has been made complete and when the light is no longer needed. The extent of this circuit-breaking movement is shown in Fig. 5, where in the full lines indicate the position of the parts after the receiver has been raised to close the circuit and the dotted lines the position of the button for closing the calling-circuit and position of the arm 20 after the calling-circuit has been closed.

It will thus be seen that the lamp-circuit is closed only during the calling operation and the lamp and its battery or batteries will last for a considerable length of time without renewal.

In some instances the numerals may be printed on a single curved strip of translucent material, as indicated in Fig. 7, or they may be printed or otherwise marked on separate small panels, as shown in Fig. 1.

Having thus described the invention, what is claimed is—

1. In telephony, a variable-signal transmitter including a dial, an electric lamp for illuminating the dial, a pivotally-mounted circuit-closing lever having a pair of projecting pins, one of which forms one of the terminals of the lamp-circuit, a receiver-hook playing between the pins and carrying the second

terminal of the lamp-circuit, and an auxiliary means independent of the receiver-hook for moving said lever to circuit-breaking position.

2. The combination with a variable-signal transmitter of the dial type, of an electric lamp for illuminating the same, a pivotally-mounted lever having frictional contact with its pivotal support, a pair of projecting pins carried by the lever, one of said pins forming one terminal of the lamp-circuit, a receiver-hook playing between the pins and carrying the second terminal of the lamp-circuit, a push-button, a lever connected thereto and having a projecting pin or lug for engaging the first lever.

3. In telephony, the combination with a variable-signal transmitter, of a dial including a flanged disk having an arcuate series of finger-openings, a translucent numeral-bearing panel having a numeral in radial alinement with an opening, a lamp having a fixed support within the dial, a lamp-circuit, and a receiver-hook switch controlling said lamp-circuit.

4. The combination with a variable-signal transmitter, including a dial having a marginal flange and an auxiliary inner flange,

there being finger-tip-receiving openings between the two flanges, translucent numeral-bearing panels formed in the dial within the inner flange, a lamp arranged within the inner flange, and means for automatically closing the lamp-circuit.

5. The combination with a telephone, of a dial for controlling an automatic switching system, transparent numeral-bearing panels carried by the dial, an electric lamp to the rear of the dial, a two-part receiver-hook switch of which the two parts are insulated from each other, the outer part being connected in the lamp-circuit, a pivotally-mounted arm, a lamp-circuit terminal carried by the arm and adapted to be engaged by the receiver-hook, and a source of electrical energy also included in the lamp-circuit, substantially as specified.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

CHARLES D. REEVE.

Witnesses:

GEORGE F. SINCLAIR,
EDWARD L. KNAPP.