A. E. KEITH.

TELEPHONE SYSTEM STATION INSTRUMENT.

APPLICATION FILED DEC. 10, 1909.

1,077,225. Patented Oct. 28, 1913.

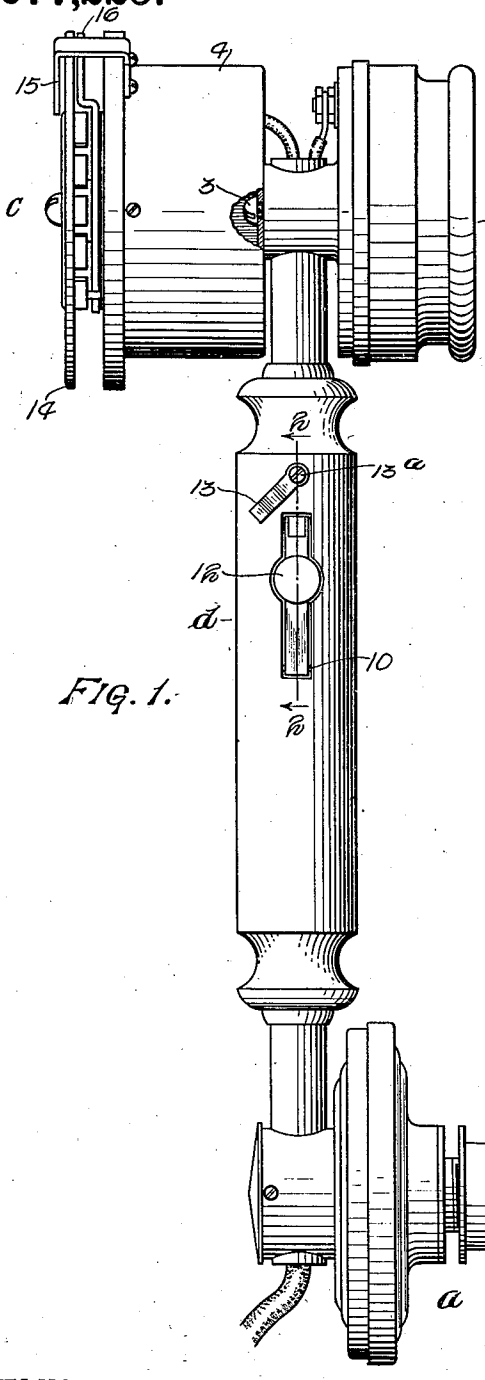


FIG. 1.

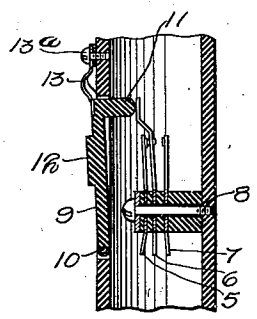


FIG. 2.

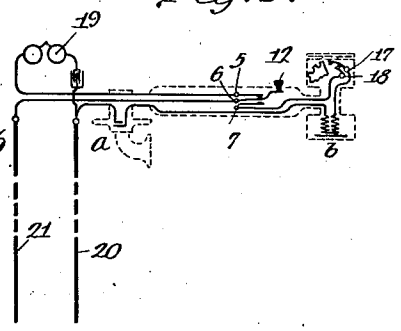
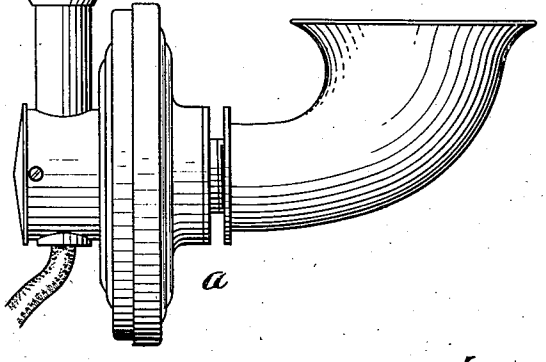


Fig. 3.



WITNESSES

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UNITED STATES PATENT OFFICE.

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TELEPHONE-SYSTEM STATION INSTRUMENT.

1,077,225. Specification of Letters Patent. Patented Oct. 28, 1913

Application filed December 10, 1909. Serial No. 532,423.

To all whom it may concern:

Be it known that I, ALEXANDER E. KEITH, a citizen of the United States of America, and resident of Hinsdale, Dupage county, Illinois, have invented a certain new and useful Improvement in Telephone-System Station Instruments, of which the following is a specification.

My invention relates to telephone substation apparatus of that kind in which a calling mechanism, such, for example, as the ordinary and well-known rotatable dial, is employed for controlling suitable switching apparatus at the exchange or central station. My invention contemplates an apparatus of this kind in which the transmitter and receiver and calling mechanism are combined and embodied in one unitary or portable structure involving a structural connection between all three of said elements. In the ordinary desk telephone there is, of course, an electrical or cord connection between the receiver and the standard upon which the transmitter and hook switch are mounted. In such case there is, however, as is obvious, no structural connection between the receiver and the remaining portions of the desk set, the ordinary flexible cord being the only medium of connection between the said receiver and the balance of the telephone set. My invention, however, as contemplated, comprises a structural connection between the receiver and transmitter, and between these elements and the calling mechanism, which structural connection is preferably in the nature of a rigid handle whereby the transmitter may be held to the mouth and the receiver to the ear This handle also serves as the means whereby the calling mechanism may be held in one hand while the subscriber operates it with the other hand, as will hereinafter more fully appear.

To the foregoing and other useful ends my invention consists in matters hereinafter set forth and claimed.

In the accompanying drawings Figure 1 is a side elevation of a transmitter, calling device and receiver combined, illustrating the principles of my invention. Fig. 2 is a front elevation of a section on line 2—2 of Fig. 1, showing the arrangement of the push-button and the springs controlled thereby. Fig. 3 shows diagrammatically a substation equipped with my combined transmitter, receiver and calling device.

The receiver *b*, transmitter *a* and calling device *c* are mounted upon the ends of a tube *d* composed of any suitable material. Besides forming a support for the receiver, transmitter and calling device, the tube *d* forms a convenient handle or portion by which the apparatus may be grasped when in use. The transmitter, receiver and calling device may be of any suitable or approved type, a convenient type of the last two being disclosed in my prior application Serial No. 488,598, filed April 8, 1909, for improvement in telephone system calling devices. As here shown, the transmitter *a* and receiver *b* are each provided with a cylindrical portion attached to the back thereof and provided with a diametrical opening to fit the ends of the tube *d*. This form of mounting is not essential, however, as any suitable means for attaching these devices to the tube may be used without departing from the spirit of my invention.

The calling device is attached to the projection on the back of the receiver by a screw 3 which passes through the back of the frame 4. Mounted upon the inside of the tube *d* is a group of springs 5, 6 and 7 which are held in place by the screw 8. Opposite the springs 5, 6 and 7 is an opening in the side of the tube to receive the lever 9. One end of the lever 9 is pivoted to the walls of the tube at 10, while the other end is provided with a right-angled projection 11 which engages the end of spring 6. Upon the upper side of the lever 9 is a circular projection 12 forming a push button. When the button 12 is pressed the projection 11 forces the spring 6 away from the spring 5 (with which it is normally in engagement) and into contact with the spring 7. This push-button 12 with the springs 5, 6 and 7 performs the functions of the usual hook switch—that is, in its normal position it bridges the ringer 19 across the line conductors 20 and 21, and in its operated position it disconnects said ringer and establishes the circuit through the transmitter, receiver and calling device. The push-button may be locked in its depressed position by moving the catch 13 over the top of the lever 9. The catch 13 is pivotally secured to the tube *d* by the screw 13ª. In order to

make a call with this device the button 12 is depressed and locked; then the finger is inserted in an opening of the dial 14 corresponding to the first digit of the number of the desired line. The dial is then rotated until the finger strikes the finger stop 15. The rotation of the dial winds up a spring inside the calling device, which spring is released by the finger striking the trigger 16 just before it reaches the stop 15. The unwinding of the spring causes the rotation of a cam which separates a pair of impulse springs 17 and 18 (Fig. 3) a number of times, corresponding to the digit called. The operation of the dial 14 is repeated for each of the digits of the desired number. After the conversation is completed the button 12 is simply unlocked and allowed to return to normal position.

From the foregoing it will be seen that I provide substation instruments for an automatic telephone structure in which the transmitters and receivers and calling mechanisms are embodied in structurally unitary instruments or devices. The subscriber holds the calling mechanism in one hand while he operates it with the other hand. The hand that holds the calling mechanism also holds the transmitter and receiver. Thus, I provide an automatic switching apparatus of any suitable character which is responsive to a calling mechanism held in the hand of the calling subscriber, and which is structurally connected with the transmitter and receiver associated therewith. In this way the subscriber may with one and the same hand, and without releasing the grasp, hold in position for operation the mechanism for controlling the automatic switching apparatus, as well as the instrumentalities for talking and listening. In other words, there is a handle which is common to the calling mechanism and transmitter and receiver, and by which all of these instrumentalities are held in position for use by the calling subscriber.

What I claim as my invention is:—

1. In a telephone system, a receiver, a calling mechanism back of said receiver structurally connected therewith, the said receiver and calling mechanism facing in opposite directions, a handle for one end thereof suitably connected between the receiver and calling mechanism, and a transmitter suitably mounted at the other end of said handle.

2. In a telephone system, a receiver, a calling mechanism back of said receiver structurally connected therewith, the said receiver and calling mechanism facing in opposite directions, a handle for one end thereof suitably connected between the receiver and calling mechanism, a transmitter suitably mounted at the other end of said handle, and a push button on said handle for controlling a circuit through the transmitter and calling mechanism.

Signed by me at Chicago, Cook county, Illinois, this 29th day of November, 1909.

ALEXANDER E. KEITH.

Witnesses:
EDWARD D. FALES,
ARTHUR J. RAY.