

APPLICATION FILED AUG. 3, 1907.

Patented Oct. 27, 1908.

Fig. 1.

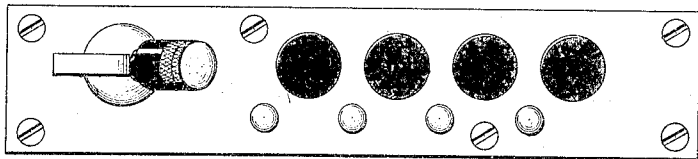


Fig. 2.

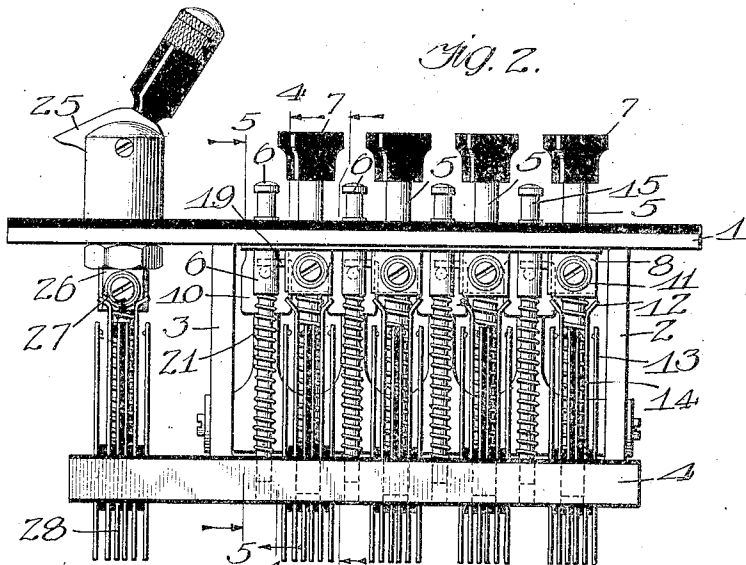


Fig. 3.

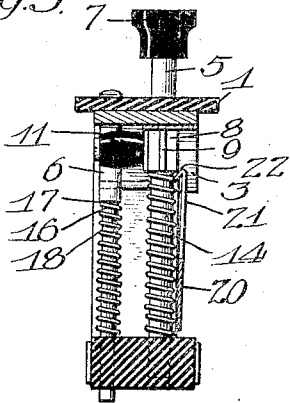


Fig. 4. 3

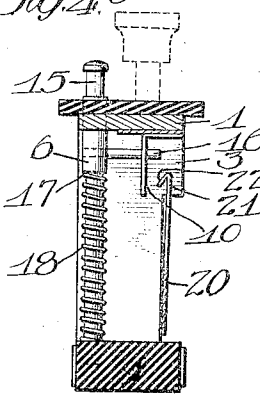
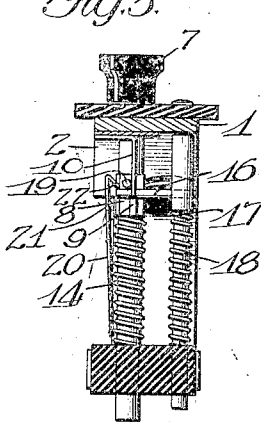


Fig. 5.



Witnesses:
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UNITED STATES PATENT OFFICE.

CHARLES S. WINSTON, OF CHICAGO, ILLINOIS, ASSIGNOR TO KELLOGG SWITCHBOARD AND SUPPLY COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

FOUR-PARTY-LINE INDICATING RINGING KEY

No. 902,866.

Specification of Letters Patent.

Patented Oct. 27, 1908.

Application filed August 3, 1907. Serial No. 386,896.

To all whom it may concern:

Be it known that I, CHARLES S. WINSTON, a citizen of the United States, residing in Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Four-Party-Line Indicating Ringing Keys, of which the following is a specification.

My invention relates to indicating keys for use in connection with telephone party lines. In telephone systems equipped with more than one substation upon a single line it is desirable for the telephone operator to have some means of readily ascertaining the last party signaled without it being necessary for the operator remembering which subscriber was last called.

The object of my invention is to produce a key which shall have a simple and positive means for giving the operator the desired indication.

Another object of my invention is to produce a device which shall be simple and inexpensive to manufacture, and which shall be durable in its operation.

Other objects will appear in the following description and claims.

My invention is illustrated in the accompanying drawing, in which,

Figure 1 is a top view of an indicating key adapted for four party selective ringing; Fig. 2 is an elevation of the key of my invention; Fig. 3 is a section on the line 3—3 of Fig. 2 showing the key in the position hereafter called the indicating position; Fig. 4 is a section on the line 4—4 of Fig. 2 showing the key in its normal position, and Fig. 5 is a section on the line 5—5 of Fig. 2, showing the key in its actuated position.

The frame of the key is composed of the top plate 1, to which are secured the vertical pillars 2 and 3 supporting the spring mounting strip 4. The strip 4 is preferably made of vulcanite or other insulating material and has holes drilled therein in alinement with the holes in the top plate 1, through which pass the actuating plungers 5 and the indicating plungers 6. Upon the upper end of these actuating plungers are the buttons 7, these buttons preferably being of different colors to distinguish the different substations of the telephone line. The actuating plungers 5 have the enlarged portions 8 which abut the lower side of the top plate 1, these enlarged portions being provided with

vertical grooves 9 which are engaged by the guide plates 10 to prevent the plungers 5 from rotating.

Upon the one side of the plunger and secured to the enlarged portions 8, are the rubber knobs 11 adapted when the plunger is depressed to spread the middle switch springs 12 so that they make contact with the outside switch springs 13. Encircling each operating plunger is a spring 14 which rests at its lower end upon the rubber mounting strip 4 and engages at its upper end the lower side of the enlargement 8. This spring is normally under compression and is adapted to hold the plunger 5 in its uppermost position when the plunger is released.

The auxiliary or indicating plunger 6 is provided with the portion 15 normally above the plate and preferably whitened with enamel or celluloid. This plunger carries the pin 16 which passes through a slot in the guide plate 10 in such manner as to prevent the pin 6 from rotating. This pin has the shoulder 17 against which the coil spring 18 abuts to normally hold the plunger in its uppermost position. The pin 19 is secured to the enlargement 8 of actuating plungers 5 and extends above the end of the pin 16, so that when the plunger 5 is depressed the pin 19 presses upon the upper side of the pin 16 and carries the plunger 6 down simultaneously.

Extending entirely along one side of the key and pivoted upon posts 2 and 3 is the catch plate 20 having the extensions 21, each provided with an inwardly turned projection 22 adapted to pass above the end of the pin 16 when the plunger 6 is depressed to its lower position. When the pin 16 of one of the plungers engages the projection 22 in its downward stroke, the plate 20 is slightly rocked upon its pivots so that any other plunger which was at that time engaged by the projection 22 of another extension 21 would be released, allowing it to come back to its normal position, while the auxiliary plunger last depressed would be held down to indicate that the actuating button associated with this latter plunger was the last button depressed. It is usual to mount an operator's listening key upon the same strip with a ringing key of this type and such a key is represented at the left hand of Fig. 2, though this forms no part of my present invention. This key is provided with the cam

25 adapted when moved to its vertical position to force the plunger 26 down such that roller 27 will actuate the listening key springs 28. This key may be of any other
5 character or may be entirely omitted from the frame of the indicating key.

While I have shown and described my invention with respect to certain details it is to be understood that I do not wish to be unduly limited thereto, many variations from the present disclosure being possible without in any way departing from the spirit or scope of my invention.

What I claim is:

15 1. In an operator's indicating key, the combination with a suitable supporting frame, of a plurality of switch actuating plungers, a plurality of auxiliary plungers, one associated with each of the actuating plungers
20 adapted by their positions to indicate the last actuating plunger depressed, substantially as described.

2. In an operator's indicating key, the combination with a suitable supporting frame, of a plurality of switch actuating means, a plurality of reciprocating plungers, one associated with each of said means and adapted by their positions to indicate the last of said means actuated, substantially as described.
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3. In an operator's indicating key, the combination with a plurality of switch actuating plungers having normal and actuating positions, of a plurality of auxiliary plungers, one associated with each of the actuating plungers and having normal and indicating positions, means to place the auxiliary plunger in its indicating position when an actuating plunger is moved to its actuating
35 position, and means to return said indicating plunger to its normal position when another actuating plunger is moved to its actuating position, substantially as described.

4. In an operator's indicating key, the combination with a plurality of switch actuating plungers, of a plurality of auxiliary plungers, one associated with each of the actuating plungers, a spring for each actuating plunger, and a spring for each indicating plunger normally holding the plungers in their uppermost positions, means for forcing the indicating plunger to its lower position when the actuating plunger is forced to its actuating position, and means for retaining the indicating plunger in its lower position after the actuating plunger has returned to its normal position, the retaining means being actuated by the depression of any other
45 50 55

actuating plunger, whereby the first indicating plunger is released and allowed to return to its normal position, substantially as described. 60

5. In an operator's indicating key, the combination with a suitable supporting frame, of a plurality of switch actuating plungers, a plurality of auxiliary indicating plungers, one associated with each of the actuating plungers and mounted in said frame, a pivoted catch plate, means carried upon each of the auxiliary plungers engaged by said catch plate when the auxiliary plunger is depressed to its lower position, means to depress the auxiliary plunger to its lower position when its associated plunger is depressed to its actuating position, and means to move the catch plate to release said auxiliary plunger when any other actuating plunger is moved to its actuating position, substantially as described. 65 70 75

6. In an operator's indicating key, the combination with a suitable supporting frame, of a plurality of actuating plungers supported in the frame, switch springs associated with each of the plungers and actuated by the depression of the plungers, auxiliary plungers, one associated with each of the actuating plungers and having a portion visible from the face of the key, said auxiliary plungers having normal and indicating positions, engaging means upon the actuating plunger and its associated indicating plunger for carrying the indicating plunger to its indicating position when the actuating plunger is moved to its actuating position, a movable catch for retaining the indicating plunger in its indicating position after the actuating plunger has returned to its normal position, and means for moving said catch to release the said indicating plunger when any other actuating plunger is moved to its actuating position, substantially as described. 80 85 90 95 100

7. In an operator's indicating key, the combination with a plurality of switch actuating means, of a plurality of longitudinally reciprocating members, one associated with each of said means and adapted by their positions to indicate the last of said means actuated, substantially as described. 105

Signed by me at Chicago, county of Cook, and State of Illinois, in the presence of two witnesses. 110

CHARLES S. WINSTON.

Witnesses:

CLIFFORD C. BRADBURY,
MARJORIE E. GRIER.