

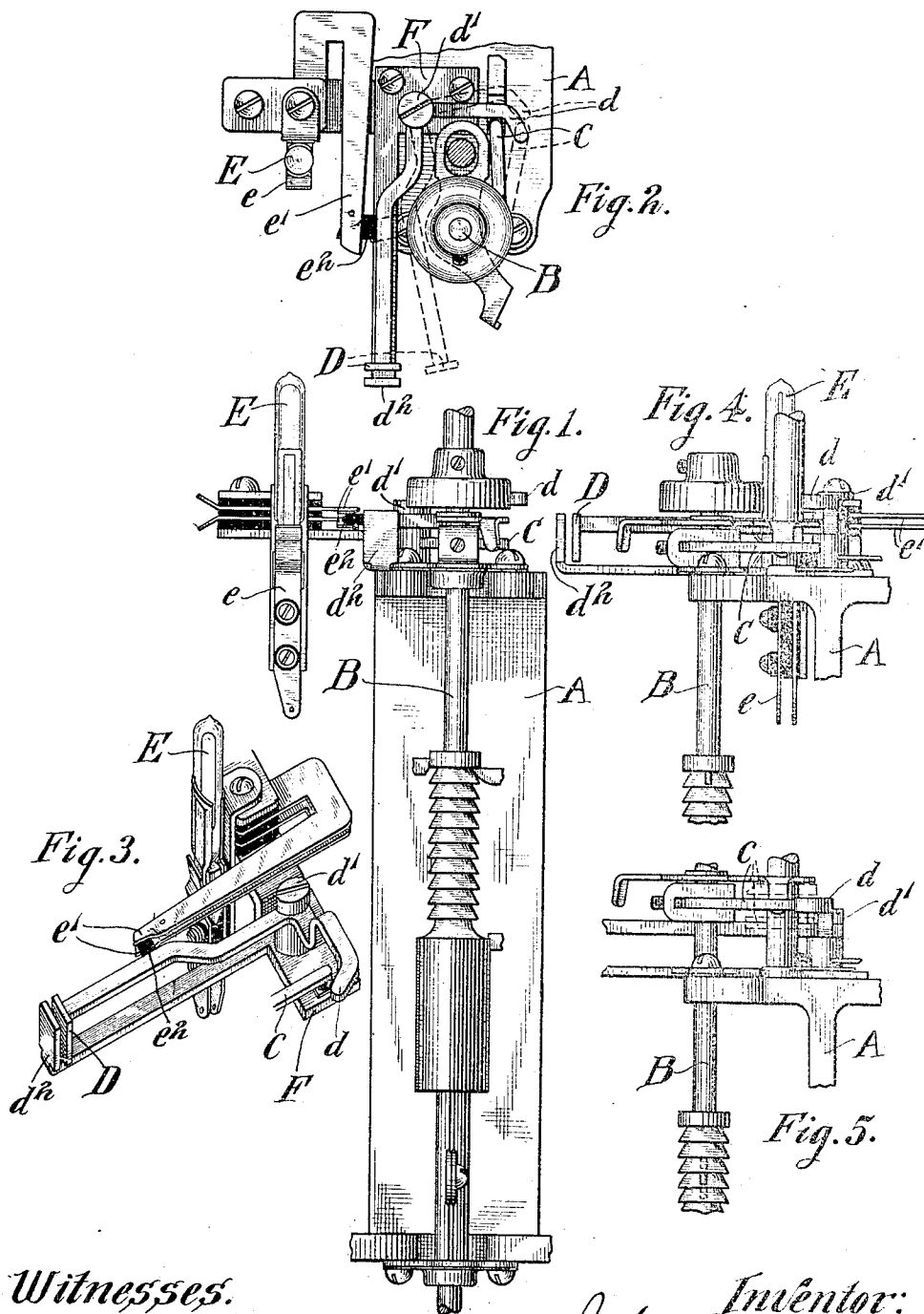
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J. ERICKSON.

INDICATING DEVICE FOR AUTOMATIC TELEPHONE SWITCHES.

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Witnesses:

R. H. Burford  
A. Anderson

Inventor:  
John Erickson  
By Bulley & Durand  
Attorneys.

# UNITED STATES PATENT OFFICE.

JOHN ERICKSON, OF CHICAGO, ILLINOIS, ASSIGNOR TO AUTOMATIC  
ELECTRIC COMPANY, OF CHICAGO, ILLINOIS.

## INDICATING DEVICE FOR AUTOMATIC TELEPHONE-SWITCHES.

No. 819,050.

Specification of Letters Patent.

Patented May 1, 1906.

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*To all whom it may concern:*

Be it known that I, JOHN ERICKSON, a citizen of the United States of America, and a resident of Chicago, Cook county, Illinois, have invented a certain new and useful Improvement in Indicating Devices for Automatic Telephone-Switches, of which the following is a specification.

My invention relates to automatic telephone systems of that character in which some provision is made by which any subscriber may, by calling a special or predetermined number, cause the so-called "first-selector switch" of such subscriber's line to establish connection with a so-called "special connector-switch," and thereby simultaneously connect the subscriber's line with several fire-alarm stations, so that the subscriber may in the event of a fire simultaneously give the alarm to several different fire-alarm stations.

Generally stated, the object of my invention is to provide an improved construction and arrangement for preventing, or at least minimizing, the transmission through the system of false fire-alarm signals.

A special object is to provide a construction and arrangement of such character that the said first-selector switch of each subscriber or other individual switch mechanism cannot be employed for establishing a fire-alarm connection without leaving a record or indication that it has been thus employed by the subscriber—or by some one at the substation—to whom said switch is allotted.

Another object is to provide the said first-selector switch or other individual switch mechanism with a device or arrangement of such character that the shaft of the switch cannot be raised or adjusted to the position necessary for establishing a fire-alarm connection without leaving a record or indication of the fact that such has been done.

A further object is to provide the said first-selector switches with indicating devices of such character that the switchboard-attendant, when making an inspection of the switches, can readily locate those which have been used to establish fire-alarm connections, and may thus always be in a position to keep a careful record of the different substations from whence fire-alarm connections are brought about, either properly or otherwise.

An additional and important object of the

invention is to provide for the making of an indication or record of the use of the switch for fire-alarm purposes without in any way interfering with its restoration to its normal condition and use for other purposes—that is to say, without in any way interfering with its restoration and use by the subscriber in the usual and well-known manner.

It is also an object to provide certain details and features of construction tending to increase the general efficiency and serviceability of an indicating device of this particular character.

In the accompanying drawings, Figure 1 is a front elevation of a portion of a so-called "first-selector switch" and showing an indicating device embodying the principles of my invention. Fig. 2 is a plan of the devices shown in Fig. 1. Fig. 3 is a perspective of my indicating device, the same being shown in the form of an attachment for the said switch. Fig. 4 is a side elevation of the upper portion of the structure shown in Fig. 1. Fig. 5 is a view similar to Fig. 4, but shows the switch-shaft stepped up or elevated to the position necessary for establishing a fire-alarm connection.

In Fig. 1 are shown the body or frame A and the vertical switch-shaft B of a well-known form of automatic telephone-switch. It will be readily understood that the said shaft, when the said switch is employed for use as a first-selector switch, is normally under the control of the subscriber to whose station or telephone the said switch is allotted. Also it will be understood that in a switch of this character any suitable means are employed for enabling the subscriber to subject the said shaft to a step-by-step vertical motion and a step-by-step rotary motion. In this way the shaft may be elevated or stepped up to one level or another, according to the character of the connection desired. Such being the case, any particular level in the vertical adjustment or motion of the said shaft may be appropriated or set aside for fire-alarm purposes. Thus, for example, as illustrated, the fourth level or fourth vertical position of the shaft is allotted to fire-alarm purposes. In accordance with the well-known construction the upper portion of the said shaft is provided with a so-called "normal post-arm" C. Although I do not limit my invention to any particular form or construction of first-selector or individual switch, it will be seen

that enough is shown in the drawings to readily identify the switch as being of a particular and well-known form.

In connection with a switch of the foregoing character I provide an indicating device of such nature that it will invariably leave a record or indication whenever the switch-shaft is employed for establishing a fire-alarm connection. Preferably and as a simple and effective arrangement the said indicating device comprises either a semaphore D or a lamp E, or both. In any event, however, the indicating device is preferably operated by the so-called "normal post-arm" C, and it will be seen that such operation can only occur when this arm C is lifted or stepped up to a certain level and then rotated with the shaft. This is due to the fact that the arm *d* of the said semaphore is positioned at some distance above the normal position of the arm C and can thus only be engaged by the said arm C when the shaft is raised to a certain level. As illustrated, the semaphore and its rigid arm *d* are pivoted at *d'*, and with this arrangement the said semaphore, which is normally concealed or covered by the plate *d''*, is swung to the right when the arm C engages the arm *d*, as shown in Fig. 2. In this way when the switchboard attendant finds a switch with its semaphore operated or swung into view he will understand that a fire-alarm has been sent in from the substation to which the switch is allotted, or at least that some one at the said substation has either intentionally or unintentionally thrown the switch-shaft into position to connect the substation with the different fire-alarm stations, and of course it is evident that the subscriber can, even after using the switch for establishing a fire-alarm connection, then restore it to its normal condition in the usual manner and employ it for establishing any other desired connections; but whatever is done it is absolutely certain that the telltale indication of the use of the switch for fire-alarm purposes will remain. The said semaphore constitutes a visual indicator and is sufficient for the purpose. The lamp E, however, serves as an additional means for readily locating any switch which has been used for fire-alarm purposes. As shown, the said lamp consists of the usual miniature incandescent lamp and is adapted to be inserted in a suitable lamp-jack *e*. The circuit of said lamp is controlled by and includes the two normally separated spring-contacts *e'*. While the semaphore retains its normal position the said contacts remain separated by reason of the presence between them of a piece of insulation *e''*. This piece of insulation is carried by the forward arm of the semaphore D and is consequently withdrawn from between the two contacts as soon as the semaphore is operated by bringing about the proper condition of the switch-shaft. In this way either the semaphore or the lamp

can be employed, or both, as may be desired. The lamp of course can be located and discerned more readily than the semaphore. With the arrangement shown these two visual indicators or signals are carried by a bracket-plate F, the said plate being adapted for attachment to the upper part of the switch structure. In this way my improved telltale-indicator can be applied as an attachment to the existing form of switch.

Preferably and regardless of the form of indicating device employed the arrangement is, as previously stated, of such a character that the proper indication or record will always be made, while at the same time the subscriber will be free after the making of such record or indication to then restore the switch and employ it for other purposes. Moreover, the telltale indication made by the device under certain circumstances is not liable to effacement by the subscriber.

Obviously the signal or indicating device is individual to a single subscriber and is also individual to a certain one of the different connections which the selector or other switching mechanism is capable of establishing. When once operated, the signal or indicating device is non-controllable by the subscriber—that is to say, the subscriber cannot then restore the signal or indicating device and cannot control it in any manner whatever. In this way the signal or indicating device serves as a telltale for giving a sure and definite registration or record of a certain act.

The selector herein referred to and in connection with which I have elected to illustrate my invention may be of the general type disclosed in Patent No. 815,321, issued March 13, 1906.

What I claim as my invention is—

1. An individual switch for automatic telephone systems, said switch being provided with an operative part under the control of the subscriber, and adapted to be given a plurality of positions, one of said positions being appropriated solely for the purpose of transmitting alarms or special signals, and an indicating device responsive to said appropriated position, and adapted to remain operated until manually restored and without interfering with the natural restoration and further use of said switch.

2. An individual switch for automatic telephone systems, comprising an operative part under the control of the subscriber, and adapted to be given various positions, according to the character of the connection desired, one or more of said positions being appropriated solely for the purpose of giving alarms or special signals, and an indicating device responsive to said appropriated position, and adapted to remain operated until manually restored and without interfering with the natural restoration and further use of said switch.

3. An individual switch for automatic tele-

phone systems, comprising means under the control of the subscriber for establishing any one of a number of possible connections, and an indicating device adapted, only when a connection of a special or particular character is made, to produce a telltale visual signal without interfering with the natural restoration and further use of said switch, and whereby the restoration and further use of the switch by the subscriber is unaccompanied by a restoration of said signal, whereby the particular act necessary for making such indication cannot be committed without discovery thereof.

4. A "first-selector switch" for automatic telephone systems, comprising a rotary and endwise-movable shaft, said shaft being adapted to be given various positions, according to the character of the connection desired, and an indicating device adapted, when a connection of a certain character is established, to produce a telltale signal without interfering with the natural restoration and further use of said switch.

5. A switch for automatic telephone systems, comprising means under the control of the subscriber for establishing any one of a number of possible connections, and means adapted, only when a connection of a special or particular character is established, to leave a telltale indication thereof not liable to effacement by the subscriber, and without interfering with the natural restoration and further use of the said switch, whereby the particular act necessary for making such indication cannot be committed without discovery thereof.

6. An individual switch for automatic telephone systems, comprising an operative part under the control of the subscriber, and adapted to be given various positions, according to the character of the connection desired, and a visual indicator associated with said switch, and adapted to be operated thereby only upon the establishment, by the subscriber, of a connection of a particular character, and adapted to remain operated without interfering with the natural restoration and further use of said switch.

7. The improved telltale indicating device for automatic telephone-switches, adapted to leave a telltale indication not liable to effacement by the subscriber, whereby the particular act necessary for making such indication cannot be committed without discovery thereof, said device when once operated being non-controllable by the subscriber.

8. In a telephone trunk-selecting switch mechanism, a switch-shaft adapted to be moved to a plurality of positions for connecting purposes, and a visual signal associated with said shaft, together with connecting means by which the shaft operates the signal only when it is moved to a certain one of said positions.

9. In a device of the class specified, the combination of subscriber-operated means for making any one of a number of possible connections, and a signal adapted to be operated only by the establishment of a certain one of said connections, said signal when once operated being non-controllable by the subscriber.

10. In a device of the character described, the combination of subscriber-operated means for making any one of a number of possible connections, and indicating means adapted to be operated only by the establishment of a certain one of said connections, said indicating means when once operated being non-restorable and non-controllable by the subscriber.

11. Automatic telephone switching apparatus comprising subscriber-controlled means for establishing any one of a number of possible connections, and signaling or indicating means responsive only to the establishment of a certain one of said connections.

12. The combination of automatic switching means adapted to establish any one of a number of possible connections, a lamp-signal mounted on said automatic switching means, and normally open switch-contacts controlling the circuit of said lamp-signal and adapted to be closed only by the establishment of a certain one of said connections.

13. In automatic telephone switching apparatus, the combination of a switch-shaft adapted to be moved to a plurality of positions for establishing different connections, a lamp-signal individual to one of said positions, and means operated by the shaft for controlling the said lamp-signal.

14. The combination of a subscriber's automatic telephone-switch for establishing any one of a number of possible connections, a signal or indicating device individual to the subscriber and also individual to one of said connections, and means operated by the switch for controlling the said signal or indicating device.

15. A telephone first selector provided with a lamp-signal which is individual to a single subscriber and which is also individual to a certain one of the different connections which the selector is capable of establishing.

16. A telephone subscriber's individual trunk-selecting switch mechanism provided with a visual signal or indicating device which is individual to the subscriber and which is also individual to a certain one of the different connections which the switch is capable of establishing.

Signed by me at Chicago, Cook county, Illinois, this 1st day of December, 1904.

JOHN ERICKSON.

Witnesses:

W. LEE CAMPBELL,  
R. C. GIFFORD.

It is hereby certified that in Letters Patent No. 819,050, granted May 1, 1906, upon the application of John Erickson, of Chicago, Illinois, for an improvement in "Indicating Devices for Automatic Telephone-Switches," errors appear in the printed specification requiring correction, as follows: In line 33, page 1, the letters "im-" should be *em-*; line 40, page 2, the word "is" should read *its*, and line 78, page 2, the article "a" should be stricken out; and that the said Letters Patent should be read with these corrections therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 12th day of June, A. D., 1906.

[SEAL.]

F. I. ALLEN,  
*Commissioner of Patents.*