H. E. BEANE.

TELEPHONE INDICATOR.

APPLICATION FILED AUG. 12, 1914.

1,162,899.

Patented Dec. 7, 1915.

2 SHEETS—SHEET 1.

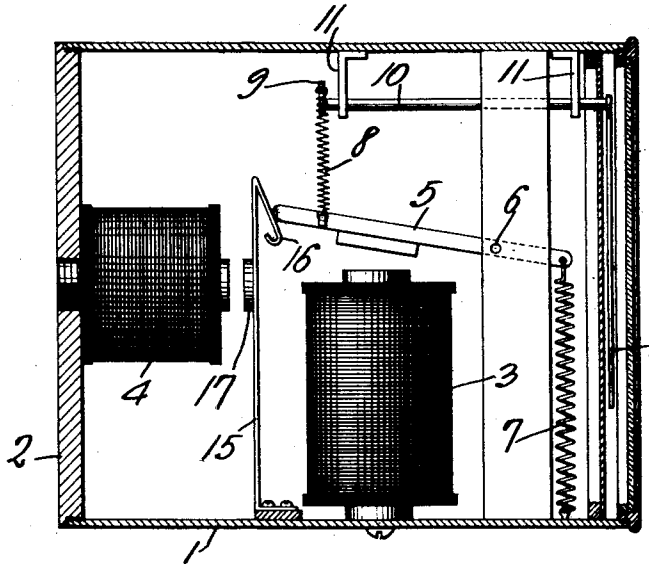


Fig. 1.

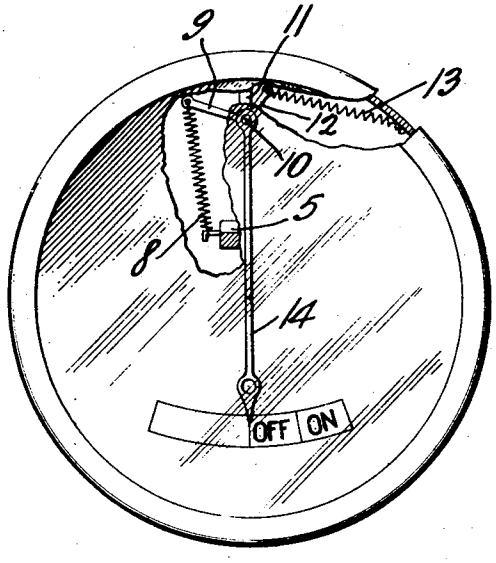


Fig. 2.

Witnesses

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2 SHEETS—SHEET 2.

Fig. 3.

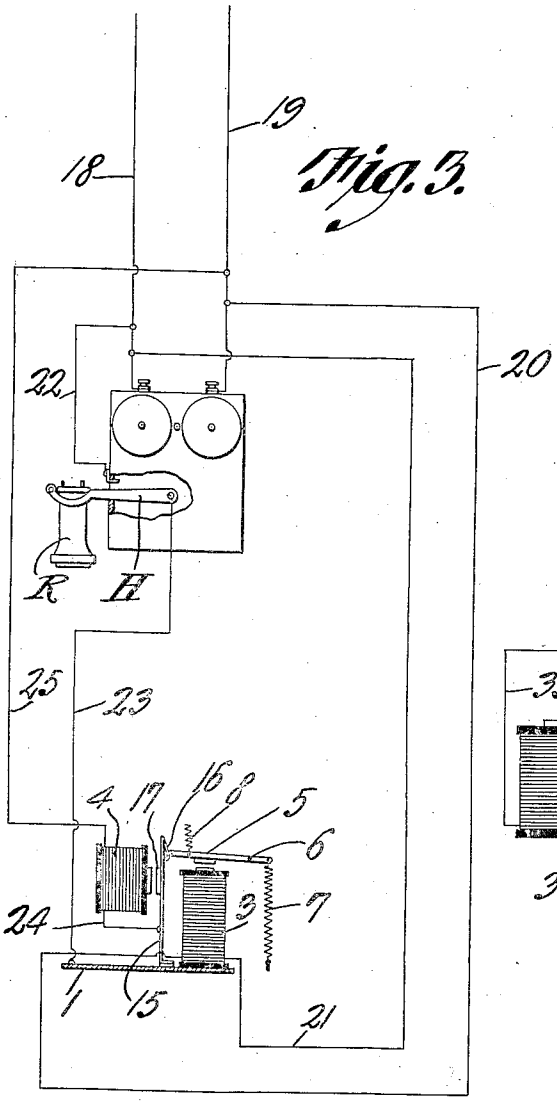
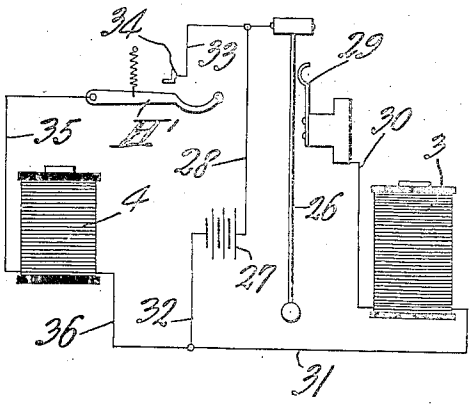


Fig. 4.



Witnesses

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UNITED STATES PATENT OFFICE.

HARRY E. BEANE, OF BOWLING GREEN, KENTUCKY.

TELEPHONE-INDICATOR.

1,162,899. Specification of Letters Patent. Patented Dec. 7, 1915.

Application filed August 12, 1914. Serial No. 856,452.

To all whom it may concern:

Be it known that I, HARRY E. BEANE, a citizen of the United States, residing at Bowling Green, in the county of Warren and State of Kentucky, have invented a new and useful Telephone-Indicator, of which the following is a specification.

The present invention relates to improvements in telephone indicators, one object of the invention, being the provision of an indicator adapted to be connected to an instrument at a substation to indicate that the subscriber has been called, the same being especially adapted for use where several telephone companies are operating in the same locality and where a subscriber uses both telephones, it sometimes being impossible to ascertain by the ringing of the call-up alarm which telephone has been operated.

A further object of the present invention, is the provision of an indicator of this character, which will be provided with two electromagnets, one of which is energized by the call-up alarm current to indicate that the substation has been called, while the other is energized to release the indicator lock when the receiver is removed from the hook.

A still further object of the present invention, is the provision of a telephone indicator, which is only momentarily energized to move the indicator from indicating position to calling position in which position it is locked while the electromagnet releasing the lock is energized only for an instant when the receiver is removed from the hook.

With the foregoing and other objects in view which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of the invention herein disclosed can be made within the scope of what is claimed without departing from the spirit of the invention.

In the drawings—Figure 1 is a longitudinal sectional view through the complete indicator showing the parts in normal position. Fig. 2 is a front elevation of the casing, the forward plates being broken away to indicate the relative position of the indicator operating arms. Fig. 3 is an electrical diagram showing the present invention applied to a common battery telephone system. Fig. 4 is an electrical diagram of the present device used with a local battery telephone system.

Referring to the drawings, the numeral 1 designates a cylindrical casing having the sealing member 2, there being mounted within the casing two electromagnets 3 and 4 arranged at an angle with one another. The armature 5 which is pivoted or fulcrumed at 6 is disposed to be attracted by the electromagnet 3, the spring 7 being connected to one end thereof and to the casing to normally hold the armature away from the electromagnet 3. Connected to the free end of the armature 5 is a coiled spring 8, whose other end is connected to the arm 9 connected to operate the rock shaft 10. The rock shaft 10 is journaled in the two brackets 11, as illustrated in Figs. 1 and 2, and is further provided with an arm 12, which is connected by a spring 13 with the armature 5, these springs normally holding the indicating member or pointer 14 in the "off" position, as shown in Fig. 2. It will thus be seen that when the electromagnet 3 is energized, the armature 5 will be attracted thereto and through the spring 8 rock the shaft 10 to move the indicator 14 to the word "On".

In order to provide a means for locking the armature 5 in its lowermost position with the pointer or indicator 14 indicating "on", the metal plate or spring catch 15, which is provided with the locking end or cam element 16 normally has a tension toward the free end of the armature 5, so that when the armature 5 is pulled downwardly, the same will ride upon the locking end 16 and therebelow to be thus held in its lowermost position.

The electromagnet 4 when energized attracts the core 17 of the locking member 15 and thus releases the end 16 from the armature 5 so that the same will return to its normal position and the indicator or pointer 14 will be moved to "Off". The catch or plate 15 is arranged at an angle with the armature 5.

As shown in Fig. 3, the present indicating device is installed with a common battery telephone system, and is so arranged that the electromagnet 3 will be energized by the call-up alarm current to attract the armature 5 and thus move the indicator to "on" or called position, while the electromagnet 4 will be energized by the talking current when the receiver is moved from the

hook so as to release the armature 5 and permit the pointer to indicate the "off" position. In this diagram, the conductors 18 and 19 are the main conductors which lead in the common battery current and also the call-up alarm current, there being branched therefrom, the conductor 20, which leads to the electromagnet 3, the conductor 21 being led therefrom and connected to the main line conductor 18. It will thus be seen that when the call-up alarm of the subscriber's instrument is energized, that the current will flow from the main line 19 through the conductor 20, the electromagnet 3 and the conductor 21 back to the main line conductor 18, thus energizing the electromagnet 3 and attracting the armature 5 to indicate that the telephone has been called by moving the indicator 14 to the "on" position. The indicator will be locked by the locking member 15 in "on" position after the bell is rung until the subscriber responds to the call. The elevation of the receiver R from the hook H, will close the circuit from the conductor 18 through the conductor 22, the receiver hook H, the conductor 23, the casing 1, the locking member 15 grounded thereto, the conductor 24, the coil 4 and the conductor 25 which is connected to the line wire 19. Thus the electromagnet 4 will be energized and the locking member 15 will be attracted, to release the hooked end 16 from the free end of the armature 5 which is elevated due to its spring 7 to permit the pointer 14 to indicate the "off" position.

Where the present device is used in connection with a local battery system, the bell clapper 26 of the call-up alarm when energized will vibrate and close the local circuit, which includes the battery 27, the conductor 28, the bell clapper 26, the spring contact 29, the conductor 30, the coil 3 and the conductors 31 and 32. Thus the coil 3 will be energized through the vibration of the bell clapper 26 at the time that the call-up alarm is energized and will thus operate the armature 5 to indicate the "on" position. Upon the removal of the receiver from the hook H', the following circuit will be closed to energize the releasing electromagnet 4. This circuit includes the battery 27, the conductor 28, the conductor 33, the contact 34, the receiver hook H', the conductor 35, the electromagnet 4, and the conductors 36 and 32.

From the foregoing it is evident that the present device may be readily attached to telephone systems now in use, either of the wall or the desk type, and that the respective coils 3 and 4 will be selectively operated due to the position of the receiver hook to properly indicate which telephone has been called.

The present device placed upon a single telephone where two telephones are employed will indicate at a glance upon the actuation of the audible call-up alarm which telephone is operated. The present device is also adapted to be used in connection with any form of audible alarm, so as to prevent confusion and to indicate at a glance which apparatus has been actuated.

The contact connected to the conductor 22 is in the path of the receiver hook and is only engaged momentarily as the hook rises.

What is claimed is:

An indicator embodying a casing, two electromagnets mounted therein at an angle with one another, a spring pressed armature pivoted within the casing and coöperating with one electromagnet, a spring catch secured within the casing at an angle with the armature and having an armature cooperating with the other electromagnet, the catch having a cam element to engage the free end of the first mentioned armature, a rock shaft mounted within the casing and having a pointer and an arm, and a spring connecting said arm and first mentioned armature.

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

HARRY E. BEANE.

Witnesses:
J. K. Cole,
J. L. Hanes.