

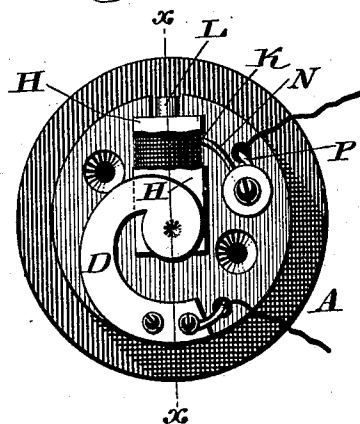
(No Model.)

B. F. RITTENHOUSE.  
INDICATOR.

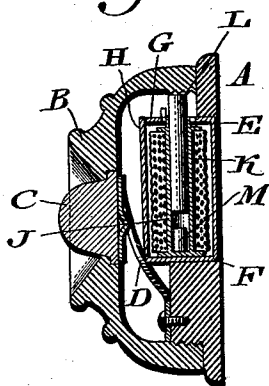
No. 545,726.

Patented Sept. 3, 1895.

*Fig. 1.*



*Fig. 2.*



Witnesses  
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# UNITED STATES PATENT OFFICE.

BENJAMIN FRANKLIN RITTENHOUSE, OF PHILADELPHIA, PENNSYLVANIA,  
ASSIGNOR OF ONE-HALF TO HENRY E. F. BORZELL, OF SAME PLACE.

## INDICATOR.

SPECIFICATION forming part of Letters Patent No. 545,726, dated September 3, 1895.

Application filed April 13, 1896. Serial No. 545,660. (No model.)

*To all whom it may concern:*

Be it known that I, BENJAMIN FRANKLIN RITTENHOUSE, a citizen of the United States, residing in the city and county of Philadelphia, State of Pennsylvania, have invented a new and useful Improvement in Indicators for Electric-Bell Circuits, which improvement is fully set forth in the following specification and accompanying drawings.

My invention consists of a novel construction of indicator for electric-bell circuits, which is adapted to be arranged in relation to a push-button of usual construction, whereby the person operating the button is enabled to ascertain at once whether the bell, which is usually located at a distance, rings or not, the fact that the bell does or does not ring, by reason of any short circuit, bad connection, or other difficulty with the line, being at once made apparent by the failure of the vibrator to operate.

It further consists of novel details of construction, all as will be hereinafter set forth.

Figure 1 represents a front view of the interior of an indicator for electric-bell circuits and its adjuncts embodying my invention. Fig. 2 represents a section on line *x x*, Fig. 1, the push-button and its cap being shown in position.

Similar letters of reference indicate corresponding parts in the two figures.

Referring to the drawings, A designates the base of a push-button, and B the cap attached thereto, C the push-button, and D the curved spring-plate by means of which the circuit is made and broken, said plate D having a suitable connection to an electric battery or its equivalent.

E designates a protecting casing, having the end portions F and G and the face-plate H, which is attached to the end F, the latter being at the bottom and serving to support the tube J, around which is wound the coil of wire K, with its inner terminal bared and fastened to the shell J, and the outer terminal N, leading to the connector or bell-wire P.

L designates a stationary soft-iron core, which is located within said tube J in the upper portion, the lower portion thereof being

occupied by the soft-iron vibrator M, said tube J thus serving as a guide and support for the latter.

The operation is as follows: When the circuit is closed by pressing the button, the current of electricity passing through the coil of wire K magnetizes the soft-iron core L, which in turn attracts and lifts the soft-iron vibrator M, which as soon as the circuit is broken drops back by gravitation to its normal position, as seen in Fig. 2, which action is repeated as often as the bell makes and breaks the circuit, thereby producing a clicking noise which is distinctly audible to any one within reach of the push-button, the vibrator answering to the vibrations of the bell and ceasing to operate at the same time that the bell does, thus instantly apprising the operator if anything is wrong in the circuit.

It will be seen from the foregoing that my invention is applicable to any ordinary push-button, thus possessing an important advantage over the devices heretofore produced for a similar purpose, which have been of such shape, size, and nature as to prohibit their use in many places without the entire re-organization of the apparatus to which they are attached.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In an indicator for electrical bell circuits, a tube, a coil surrounding said tube, a stationary core within the upper portion of said tube, a vibrator within the lower portion of said tube, a seat for said vibrator, and a push-button, substantially as described.

2. In an indicator for electrical bell circuits, a casing E, having the ends F, G, and the cover H, a coil, the tubes supporting the same, the core L, and the vibrator M thereunder, in combination with a push button, and suitable contact devices, substantially as described.

BENJAMIN FRANKLIN RITTENHOUSE.

Witnesses:

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