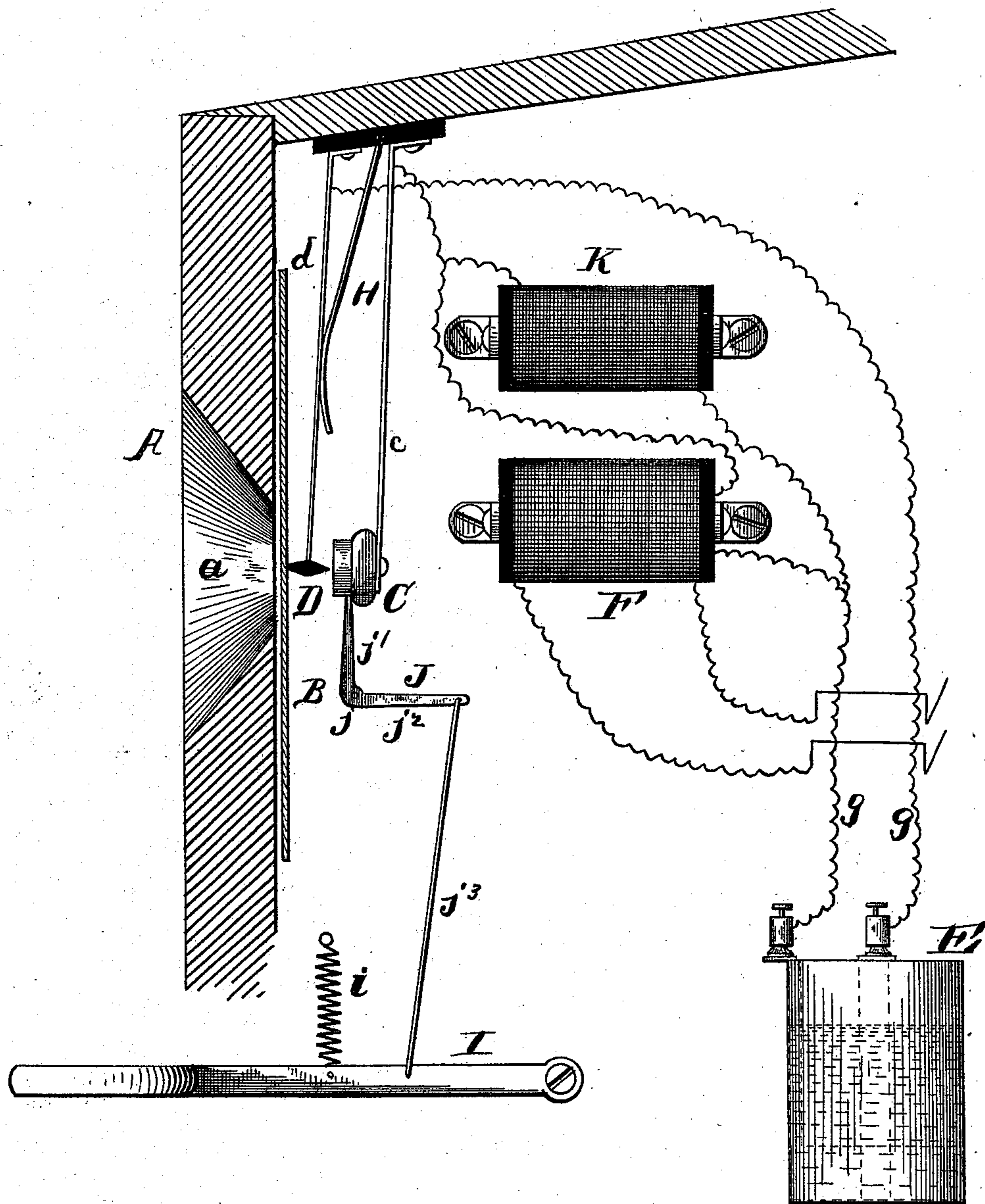


(No Model.)

E. A. WOELK.  
TELEPHONE.

No. 402,121.

Patented Apr. 23, 1889.



Witnesses:  
J. B. McGirr.  
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# UNITED STATES PATENT OFFICE.

EDWARD A. WOELK, OF BELLEVILLE, ILLINOIS.

## TELEPHONE.

SPECIFICATION forming part of Letters Patent No. 402,121, dated April 23, 1889.

Application filed July 7, 1888. Serial No. 279,273. (No model.)

*To all whom it may concern:*

Be it known that I, EDWARD A. WOELK, a citizen of the United States, residing at Belleville, in the county of St. Clair and State of Illinois, have invented certain new and useful Improvements in Telephones, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to improvements in the transmitters used in connection with telephones, and is intended to provide means for effectually and readily opening and closing the local circuit, which forms part of such device.

Heretofore it has been customary to depend upon the telephone—that is, the part of the instrument which is taken in the hand of the operator—to effect the closing and opening of the local circuit when the device is to be thrown into or out of operation; but I have found that considerable trouble has been experienced with telephones whose parts are arranged to operate in this way, owing to the uncertainty incident to making proper contact when the telephone is taken down and it is attempted to speak over the line. I, instead of breaking the circuit at a point distant from the mouth-piece of the transmitter—as, for instance, by means of the hand-telephone in the ordinary way—effect the opening of the circuit at the carbon button generally employed in these mechanisms.

My invention can be carried out in any one of numerous ways.

In the drawing I have shown one form of device, but wish it to be understood that I do not limit myself to all of the details of the form here selected for illustration.

The figure shows a sufficient portion of the parts of a telephone to exhibit the novel features of construction and arrangement, some of them being illustrated conventionally; but the whole will readily be understood by those acquainted with mechanisms of the class to which the invention pertains.

A represents the part of the mouth-piece, into which the voice is directed, as usual, there being an aperture at *a*. Behind this lies the usual diaphragm, B, also of the ordinary or of any preferred character. In rear of that is placed a carbon button, C, suspended on a spring, *c*, there being a contact-piece, D,

of platinum or other material between the diaphragm and the carbon. The platinum is supported on a flat spring, *d*.

At E is situated the battery, of one or more cells, for supplying the local circuit, the wire part of the latter being indicated by *g g*, and there being in said circuit an induction-coil at F, also of any suitable character.

I represents a pivoted lever, such as is now used for supporting the hand-telephone when not in use, it having a retracting-spring, *i*.

In telephones as heretofore made and used it has been customary to have the carbon button C permanently in contact with the platinum point D, the circuit being broken when the hand-telephone is placed in the hook on the lever I. When the telephone is taken down, the lever moves and is intended to make contact with two spring-terminals of the local circuit; but it is well known that this latter operation is frequently effected very imperfectly. I dispense with the parts usually employed for this purpose and employ a positively-acting mechanism for opening the circuit at the carbon.

J represents a bell-crank lever pivoted at *j* to any suitable support. The arm *j'* engages with the carbon button C and is adapted to withdraw it from the platinum D. The other arm, *j''*, can be drawn by a cord or link, *j'''*, either directly grasped by the hand or connected to some movable part—as, for instance, the lever I—in the way shown. When the telephone is hanging on the lever, its weight draws down on the link or cord *j'''*, rocking the bell-lever J and the arm *j'*, pushing the carbon C back, and the circuit is broken. When the telephone is taken off from the lever, the spring draws the latter up, and the carbon again comes in contact with the platinum, closing the circuit.

At H a spring is shown, it being arranged in such way as to bear against the support the platinum and prevent it from moving back with the carbon.

To prevent sparking when the platinum and carbon separate, I introduce a coil, K, in the circuit, of such resistance that it is adapted to accomplish that purpose.

The contact C being supported upon an elastic holder will be forced away from the contact D against the tension of such elastic

support; but still that tension can be adjusted as delicately as desired, as the elasticity of this part is not necessary to push the lever J out of the path of the contact, such movement of that lever being effected by means of the spring *i*.

I believe myself to be the first to have combined with the two independently-movable contacts, stops—one for each contact—and adapted to hold them separated when they are out of operation. As shown, the spring H constitutes one of said stops and the other is provided by the lever J, arm I, and link *j*<sup>3</sup>; these stopping or preventing any movement of the contact C toward the contact D after separation.

What I claim is—

1. In a telephone, the combination, with the diaphragm and the two separable contacts supported independently of each other and each movable toward and from the other, of a movable stop for the first of said contacts with which it engages when the contacts are separated, and a stop for the other contact limiting its movement, substantially as set forth.

2. In a telephone, the combination, with the diaphragm, of the two contacts movable inde-

pendently of each other and of the diaphragm, a stop limiting the movement of one of said contacts toward the other, and a lever connected with the other contact for positively withdrawing it from the first, substantially as set forth.

3. In a telephone, the combination, with the diaphragm and the two contacts movable independently of each other, of a yielding stop for one of said contacts, a spring or elastic support for the other contact, and a stop which holds the last said contact away from the first against the tension of the spring, substantially as set forth.

4. In a telephone, the combination, with the diaphragm and the contacts D and C, of the spring-stop H, adapted to engage with the contact D, and a pivoted lever, J, connected to the other contact, C, for withdrawing it from the contact D, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

EDWARD A. WOELK.

Witnesses:

F. A. MCCONAUGHY,

FRED J. PARO.