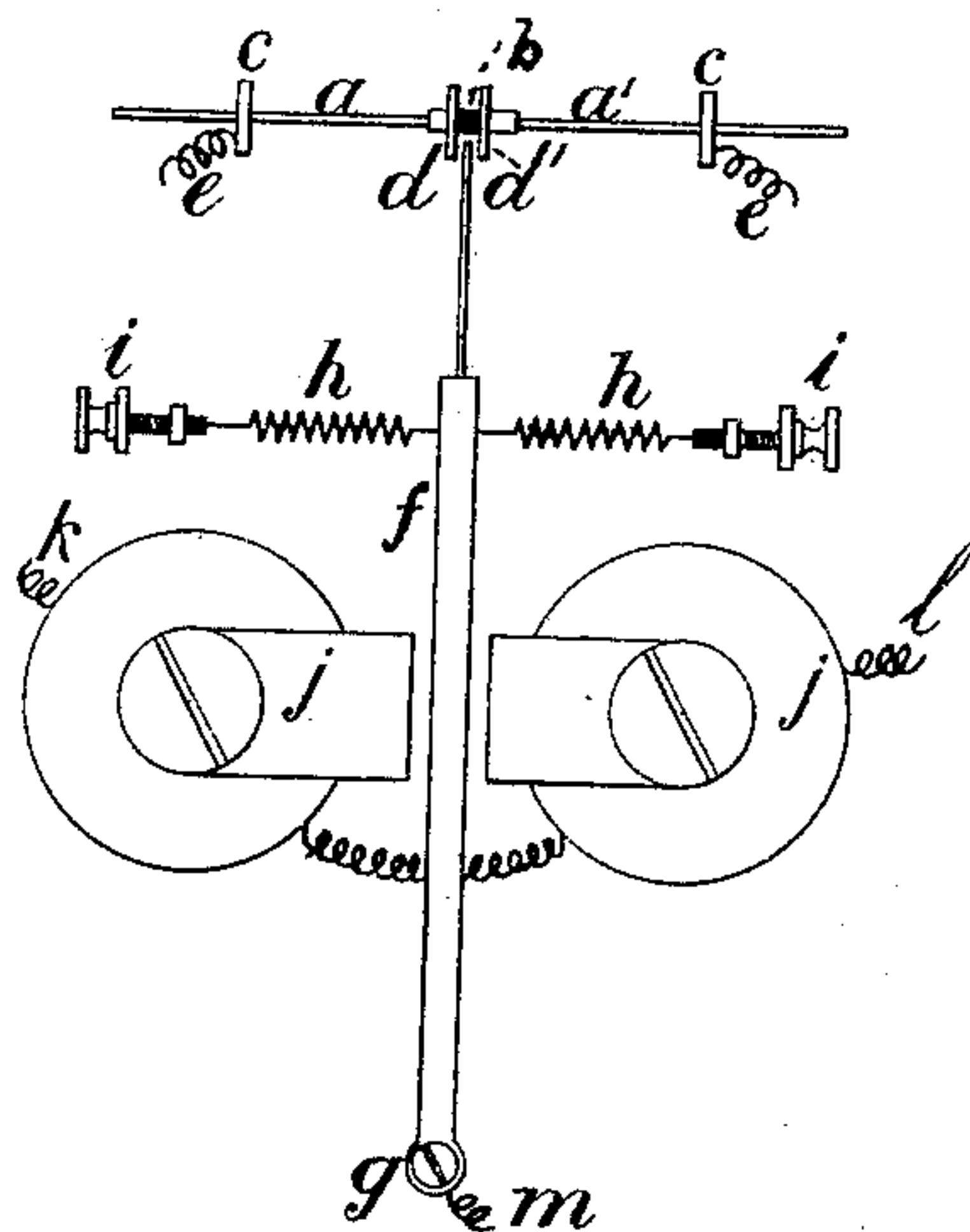


G. ALLAN & J. W. BROWN.

TELEGRAPH-RELAY.

No. 178,580.

Patented June 13, 1876.



Witnesses.

*Henry A. Heaver*  
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Inventors:  
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their Att'y.

# UNITED STATES PATENT OFFICE.

GEORGE ALLAN AND JAMES WALLACE BROWN, OF LONDON, ENGLAND.

## IMPROVEMENT IN TELEGRAPH-RELAYS.

Specification forming part of Letters Patent No. **178,580**, dated June 13, 1876; application filed May 31, 1875.

*To all whom it may concern:*

Be it known that we, GEORGE ALLAN and JAMES WALLACE BROWN, of London, England, have invented an Improved Relay or Pecker, of which the following is a specification:

The object of the said invention is to record dots and dashes transmitted through a submarine cable, or other difficult circuit—it may be a land line—by closing and breaking local circuit on any of the well-known recorders, either chemical or otherwise, at a superior rate of speed.

As means for effecting the above object we construct a relay or pecker to act with a compound motion by giving the contact maker or armature and the receiver each a simple motion. Equilibrium-springs are preferably applied to the contact maker or armature.

By the above means a fall or rise of potential in the actuating current will serve as effectually to make or break circuit as if the current were reversed.

The view hereunto annexed is illustrative of our said invention.

The receiver, or as we call it, the movable contact, is constructed of two platina or metal bars, *a a'*, insulated from each other by the piece *b*, and supported in bearings *c*. *d d'*, contact-disks, preferably of platina. The said disks are in electrical contact with the bars *a a'*, respectively. The movable contact *a a'* is free to move longitudinally in its bearings. *e e* are the local-circuit wires, and *f* the contact-maker or armature, free to vibrate on the center *g*, and kept in equilibrium by the springs *h*. *i i* are the tension adjusting-screws; *j*, the magnets for actuating the armature *f*; *k*, the line-wire; *l*, the earth-wire; *m*, the local wire. The wires *e m* are connected to the recording

instrument in any ordinary or convenient manner.

In practice when a current is transmitted through the line-wire to give a signal the armature *f* is moved over to make contact with one of the disks—say *d*. If the armature is acted upon by a greater force than is necessary to make contact it will cause the movable contact *a a'* to slide in its bearings until equilibrium is produced by the action of the springs *h*. If, now, there is a diminution of potential in the current the equilibrium-springs cause a retrograde motion of the armature, and contact with *d* is at once broken. When the diminution of potential is sufficient, or the current is reversed, not only is contact with *d* broken, but the armature is carried over against the disk *d'*, and the movable contact *a a'* is caused to slide in the direction of motion of the armature.

Having now described our invention so that others will be enabled to understand the same, we claim—

1. The combination, in a relay or pecker, of an armature or contact-maker, *f*, working on a fixed center, *g*, with a movable receiver or contact, *a a' b d d'*, working in bearings *c*, and operating substantially as and for the purpose set forth.

2. The arrangement and combination of the armature and movable contact with the equilibrium-springs *h*, substantially as and for the purpose set forth.

G. ALLAN.

JAMES WALLACE BROWN.

Witnesses:

E. T. HUGHES,

J. E. WRIGHT.