

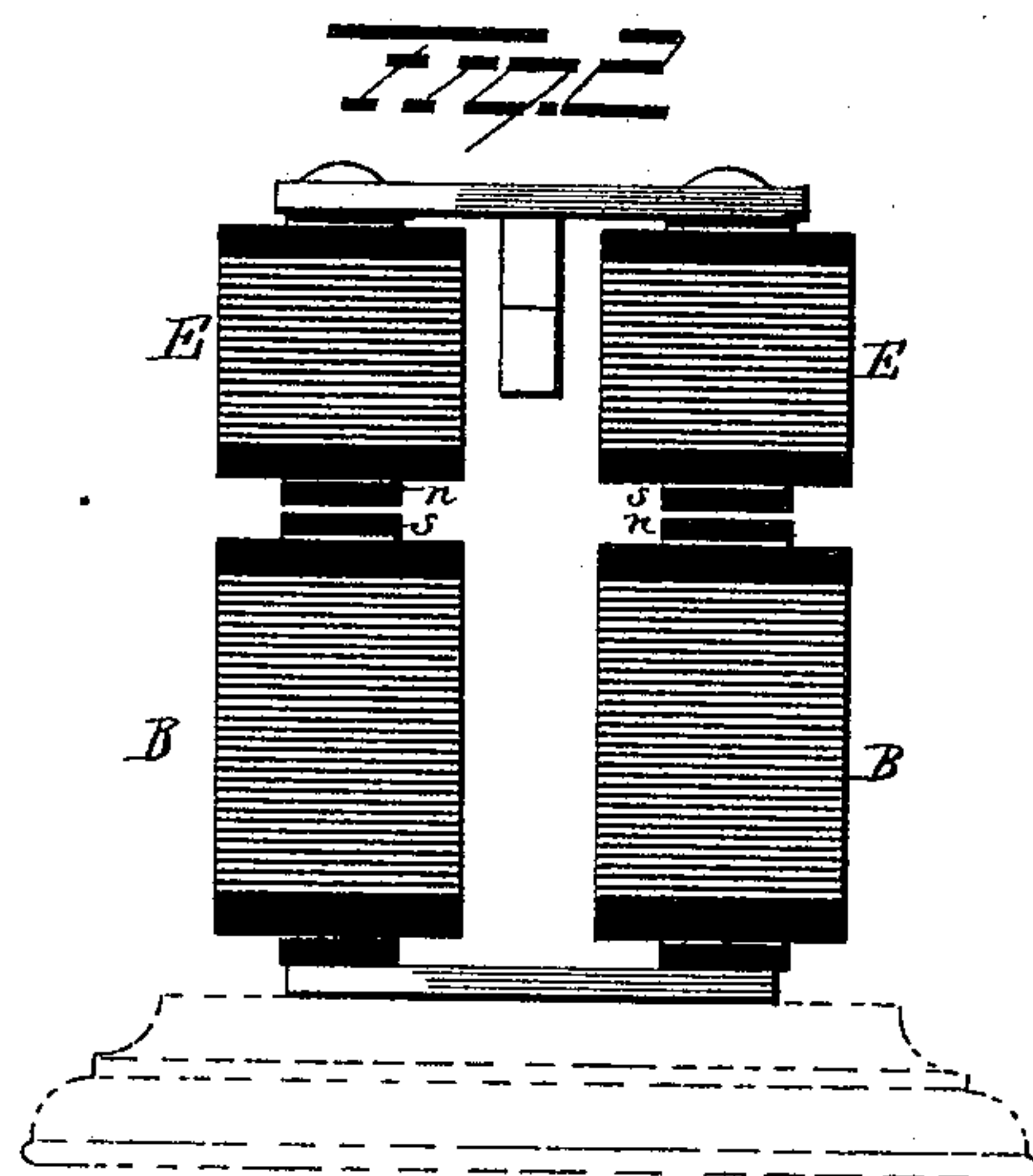
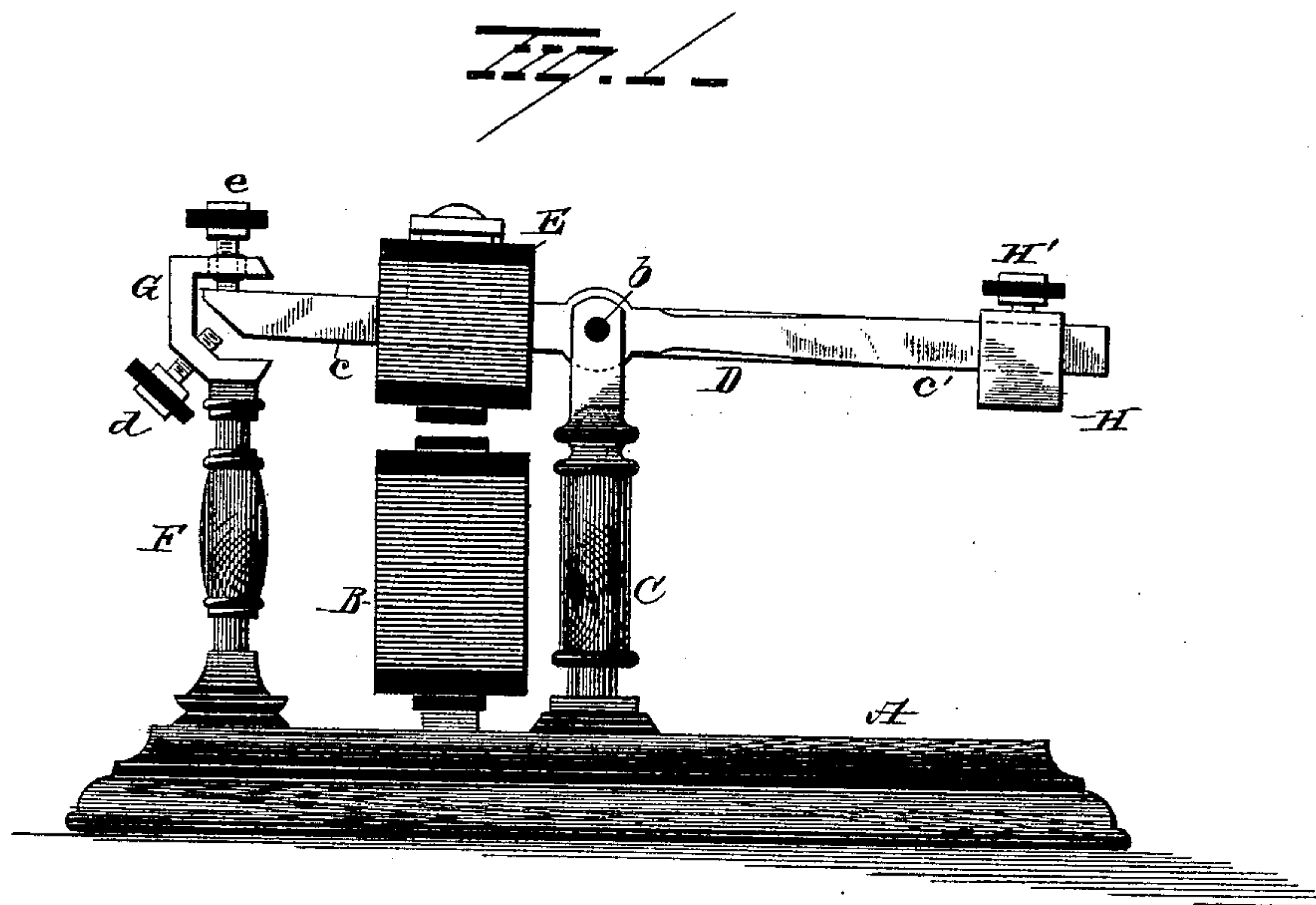
(No Model.)

F. STITZEL & C. WEINEDEL.

TELEGRAPH RELAY.

No. 389,337.

Patented Sept. 11, 1888.



Witnesses.

*E. J. Nottingham*  
*G. F. Downing*

Inventor,  
*Frederick Stitzel and*  
*Charles Wededel,*  
By his Attorney  
*H. A. Seymour.*

# UNITED STATES PATENT OFFICE.

FREDERICK STITZEL AND CHARLES WEINEDEL, OF LOUISVILLE, KENTUCKY,  
ASSIGNORS TO THE AMERICAN SEMAPHORE COMPANY, OF SAME PLACE.

## TELEGRAPH-RELAY.

SPECIFICATION forming part of Letters Patent No. 389,337, dated September 11, 1888.

Application filed February 28, 1888. Serial No. 265,632. (No model.)

*To all whom it may concern:*

Be it known that we, FREDERICK STITZEL and CHARLES WEINEDEL, of Louisville, in the county of Jefferson and State of Kentucky, have invented certain new and useful Improvements in Telegraph-Relays; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

Our invention relates to an improvement in telegraphic relays.

The object of our present invention is to provide a relay which shall be simple in construction and sensitive in operation.

With this object in view our invention consists in certain novel features of construction and peculiar combinations and arrangements of parts, as will be hereinafter set forth, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a side elevation of our improved relay. Fig. 2 is an end view of the electro-magnets.

A indicates a base-block, of wood or other suitable material, having electro-magnets B mounted thereon, preferably near one end. Fixed upon the base-block A, adjacent to the magnets B, is an upright or standard, C, which projects somewhat above the magnets B, and preferably bifurcated at its upper end for the reception and support of a lever, D. This lever D is pivoted at a point between its ends in the bifurcated upper end of the standard C, a pin, b, passing through the standard and lever, serving as the fulcrum for said lever.

Secured upon the arm c of the lever D is a pair of electro-magnets, E, these magnets being so placed upon the lever that their poles will be directly over the poles of the magnet B and within attracting distance thereof.

It will of course be understood that the magnets B E will be so arranged relatively to each other that the north pole of the magnet B will be in proximity to the south pole of the magnet E and the south pole of the magnet B within attracting distance of the north pole of the magnet E, so that when one or both magnets are energized the magnet E will be attracted to the magnet B.

Mounted upon a suitable post or standard, F, is an arm or bracket, G, into which one end

of the lever D projects. Adjusting-screws d e are passed through screw-threaded perforations in the bracket G, one above and the other below the end of the lever D, with which said lever is adapted to make electrical contact alternately, the screw d being in electrical connection with the bracket G and the screw e insulated therefrom in any suitable manner.

The lever D is provided in rear of its fulcrum with an adjustable counterbalancing-weight, H, adapted to have a sliding movement on the arm c' of the lever and be secured at any desired point thereon by means of a binding-screw, H'. The approach of the magnet E to the magnet B may be regulated by means of the adjusting-screw d.

By constructing a relay as above set forth, in which the armature is an electro-magnet, the device is rendered very sensitive and certain of operation, the tension of the armature and its carrying-lever being regulated by sliding the weight H toward or away from the fulcrum-point of the lever. The coils of both magnets will be placed in the main circuit, and therefore both magnets will be magnetized by the same current.

If the instrument be used as a single contact-relay, the local circuit-wires are attached to the lever D and to one of the adjusting-screws d e; but when a double contact is desired there will be a wire of the local circuit attached to both adjusting-screws d e and to the lever D, suitable binding-posts being employed for making the several connections, if desired.

It is evident that this device may be used as a telegraph-sounder by simply connecting the local battery-wires to the coils of the magnets B E.

Instead of employing the magnets B E in pairs, single magnets may be used, as desired.

Slight changes might be made in the constructive details of our invention without departing from the spirit thereof or limiting its scope; hence we do not wish to limit ourselves to the precise details of construction herein described; but,

Having fully described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. In a relay, the combination, with a sta-



tionary magnet and a pivoted lever, of a weight  
on said lever at one side of its fulcrum and an  
electro-magnetic armature on the opposite side  
of said fulcrum, and having its pole in a plane  
5 with the pole of the stationary magnet, sub-  
stantially as set forth.

2. In a relay, the combination, with an elec-  
tro-magnet and a pivoted lever, of an adjust-  
able weight on said lever at one side of its ful-  
10 crum and an electro-magnetic armature car-

ried by the lever at the opposite side of its  
fulcrum, substantially as set forth.

In testimony whereof we have signed this  
specification in the presence of two subscrib-  
ing witnesses.

FREDERICK STITZEL.  
CHARLES WEINEDEL.

Witnesses:

H. WARD S. BROWN,  
GEO. V. LEBY.