

919,578.

G. H. HILL.  
RELAY.

APPLICATION FILED SEPT. 28, 1908.

Patented Apr. 27, 1909.

Fig. 1.

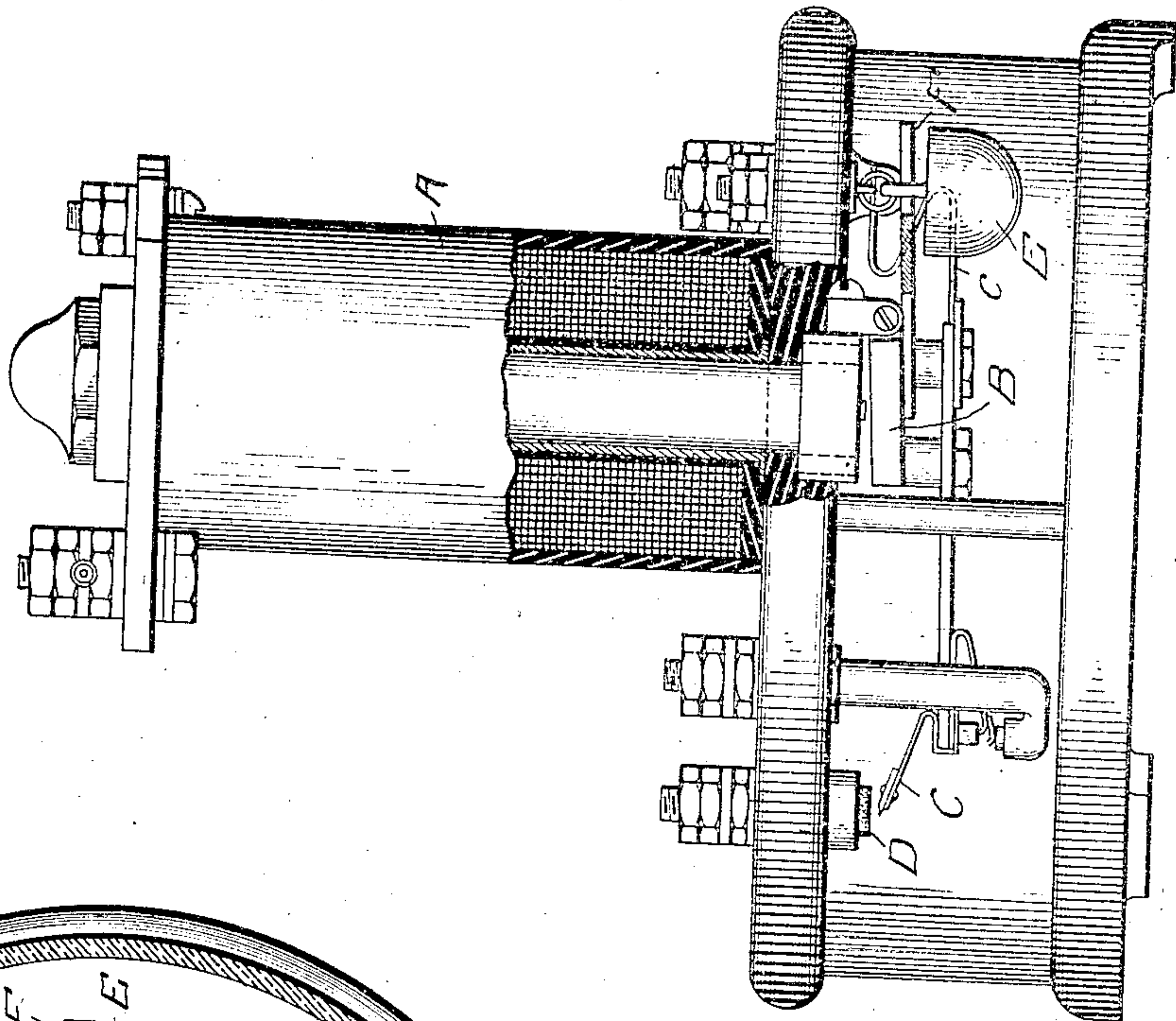


Fig. 2.

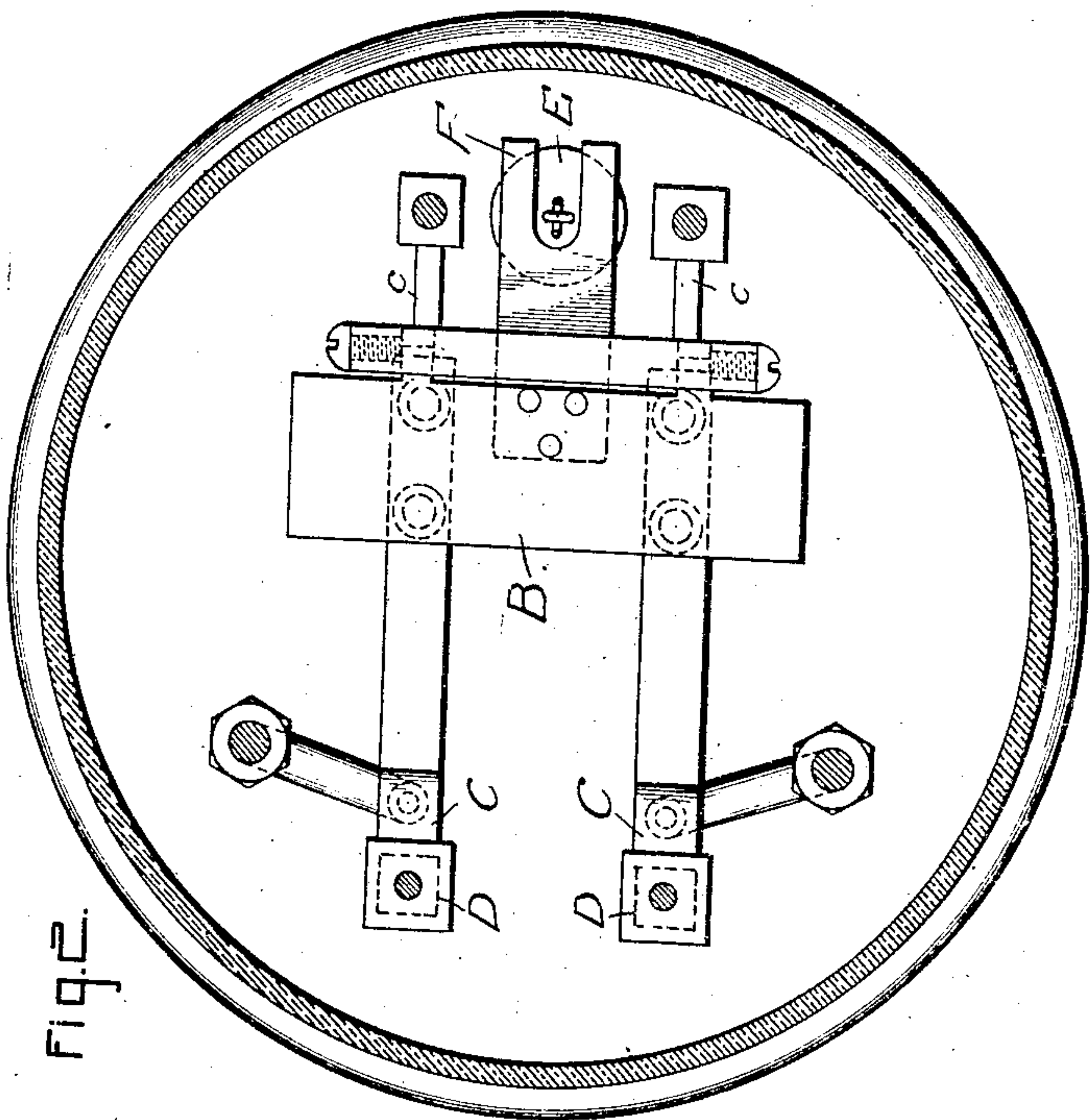
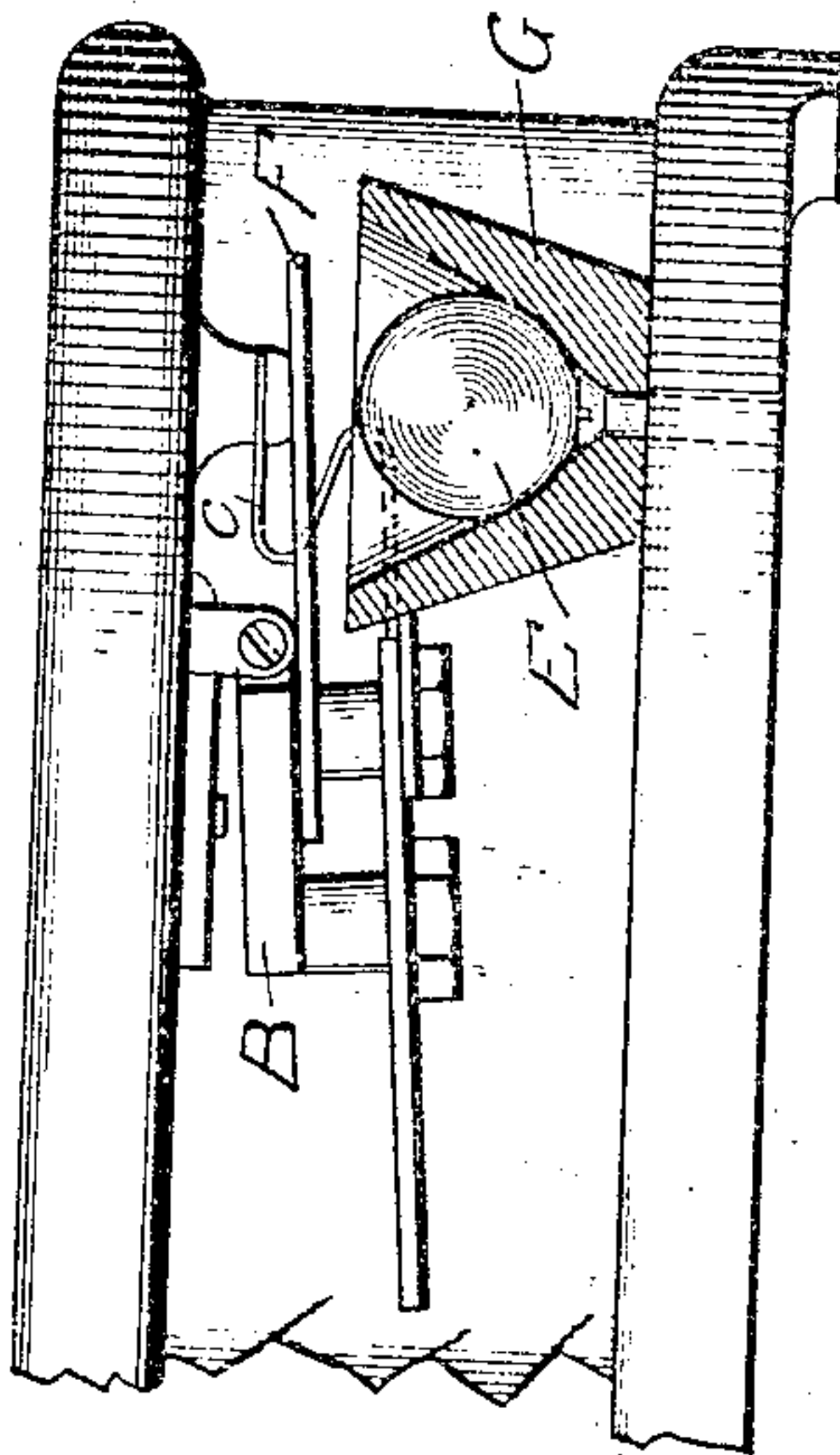


Fig. 3.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

GEORGE H. HILL, OF SCHENECTADY, NEW YORK, ASSIGNOR TO GENERAL ELECTRIC COMPANY, A CORPORATION OF NEW YORK.

RELAY.

No. 919,573.

Specification of Letters Patent.

Patented April 27, 1909.

Application filed September 28, 1903. Serial No. 455,143.

*To all whom it may concern:*

Be it known that I, GEORGE H. HILL, a citizen of the United States, residing at Schenectady, county of Schenectady, State of New York, have invented certain new and useful Improvements in Relays, of which the following is a specification.

My invention relates to relays for use in connection with railway signal systems and its object is to guard against a false indication caused by a relay being tipped over.

Relays for railway signal work are ordinarily so arranged that the armature is moved to one position by the magnet coils when energized and to another position by gravity when the magnet coils are deenergized. Gravity is effective to move the armature away from the magnet coils only as long as the relay stands in an upright position. Cases have occurred where a relay has been tipped over either by wanton mischief or by an accident, such, for instance, as by heavy snow being forced against the relay box by a snow plow. In such a case the armature may be left in the position to which it is moved by the magnets, even though the magnets are deenergized, and a false clear signal may result.

My invention consists in providing means normally inoperative for moving the armature, if the relay is tipped over, to the position to which it is normally moved by gravity. More specifically stated, I provide a weight supported out of engagement with the armature but arranged to be moved into engagement with the armature if the relay is tipped over.

My invention will best be understood by reference to the accompanying drawings, in which—

Figure 1 shows a side elevation, partly in cross-section, of a relay arranged in accordance with my invention; Fig. 2 shows a plan view of the same with the magnet coils and the upper part of the casing removed, and Fig. 3 shows a modification of the structure.

In the drawings, A represents the magnet coils, and B the armature, which is pivoted to the pole pieces of the magnet coils. The armature carries the contacts C, which are connected through the flexible leads c to suitable binding posts, and which, when the magnet coils are energized to attract the armature, are moved into engagement with the stationary contacts D. When the magnet

coils are deenergized the armature and contacts are returned by gravity to the position shown. The relay, armature and contacts are inclosed as usual in a suitable casing.

It will be seen that if the relay were tipped over onto its side the weight of the armature and contacts would no longer be effective to move the armature away from the magnet coils. To prevent a false clear indication which might otherwise arise from this cause, I provide a weight E, which, in Figs. 1 and 2, is shown freely suspended from the top of the casing.

F is a strap secured to the armature B and extending over, but out of engagement with, the weight E. If the relay should be tipped over, the weight E would swing on its support so as to engage the strap F and force the armature and contacts into the position to which they are normally moved by gravity.

In Fig. 3 the weight E, instead of being suspended from the top of the casing, is supported from the bottom of the casing in a cup G, adapted to allow the weight to roll against the strap F if the relay is tipped over.

I do not desire to limit myself to the particular construction and arrangement of parts shown, but aim in the appended claims to cover all modifications which are within the scope of my invention.

What I claim as new and desire to secure by Letters Patent of the United States, is,—

1. In combination with a relay comprising magnet coils, armature, and contacts, a device normally inoperative but adapted to engage and move said armature if the relay is tipped over.

2. In combination with a relay comprising magnet coils, an armature arranged to be moved to one position by said coils when energized and to another position by gravity when said coils are deenergized, and contacts actuated by said armature, means for moving said armature, if the relay is tipped over, to the position to which it is normally moved by gravity.

3. In combination with a relay comprising magnet coils, armature, and contacts, a weight supported out of engagement with said armature but movable into engagement therewith if the relay is tipped over.

4. In combination with a relay comprising magnet coils, an armature arranged to be moved to one position by said coils when energized and to another position by gravity



when said coils are deenergized, and contacts actuated by said armature, a weight supported out of engagement with said armature but movable into engagement therewith if the relay is tipped over and adapted to move said armature to the position to which it is normally moved by gravity.

In witness whereof, I have hereunto set my hand this 26th day of September, 1908.

GEORGE H. HILL.

Witnesses:

BENJAMIN B. HULL,  
MARGARET E. WOOLLEY.