

(No Model.)

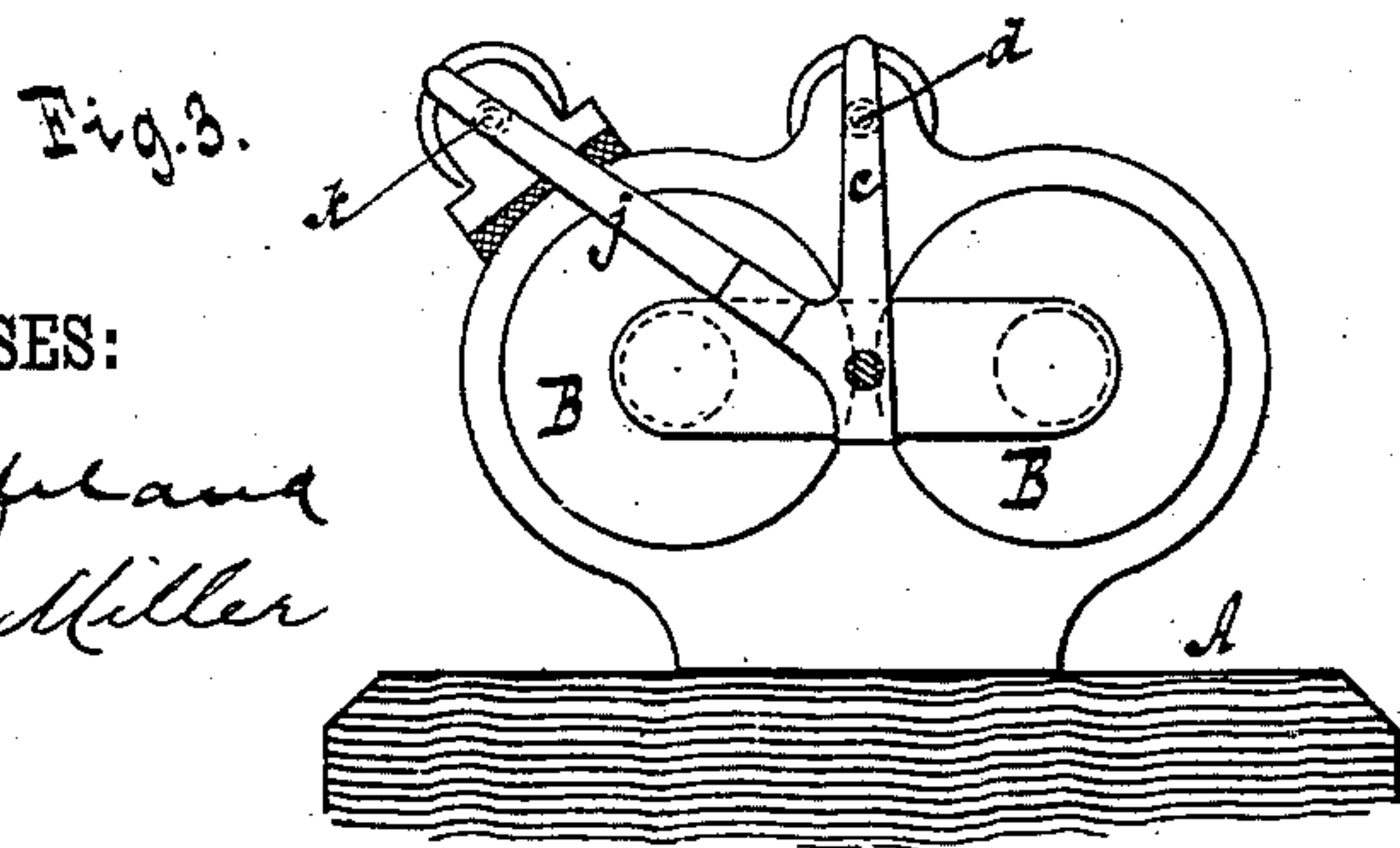
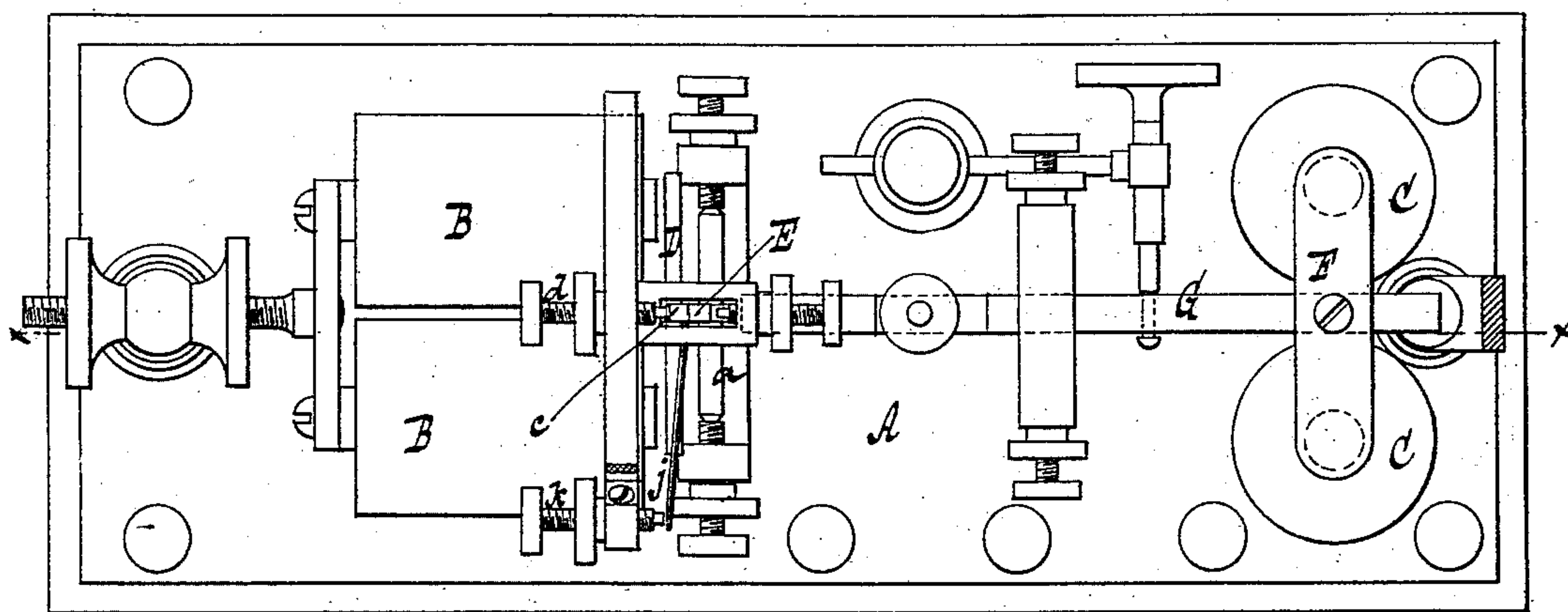
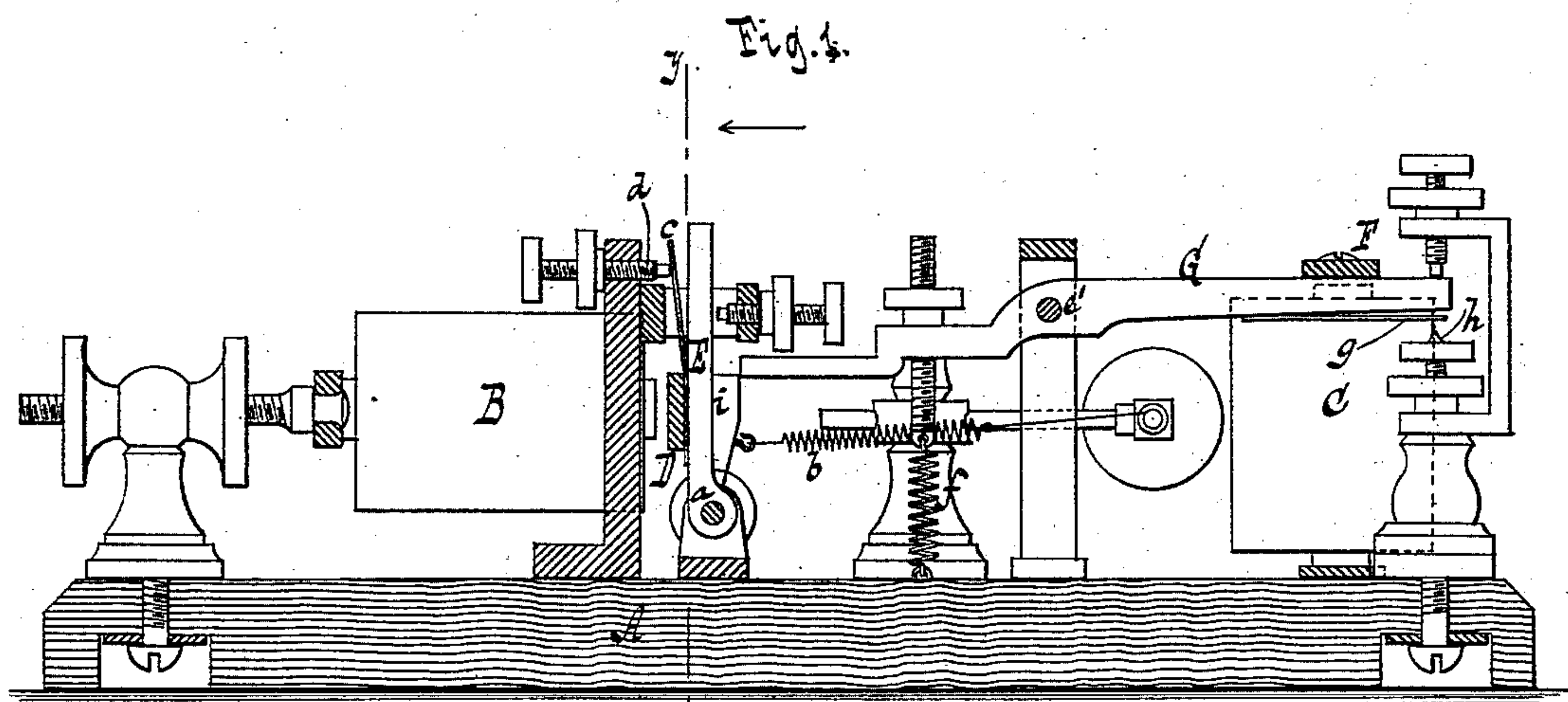
2 Sheets—Sheet I.

J. WEIS.

CIRCUIT INSTRUMENT FOR ELECTRIC RAILWAY SIGNALS.

No. 277,390.

Patented May 8, 1883.



WITNESSES:

Otto Hupfand
William Miller

INVENTOR

Joseph Weis

BY Van Santwood & Hauff

ATTORNEYS

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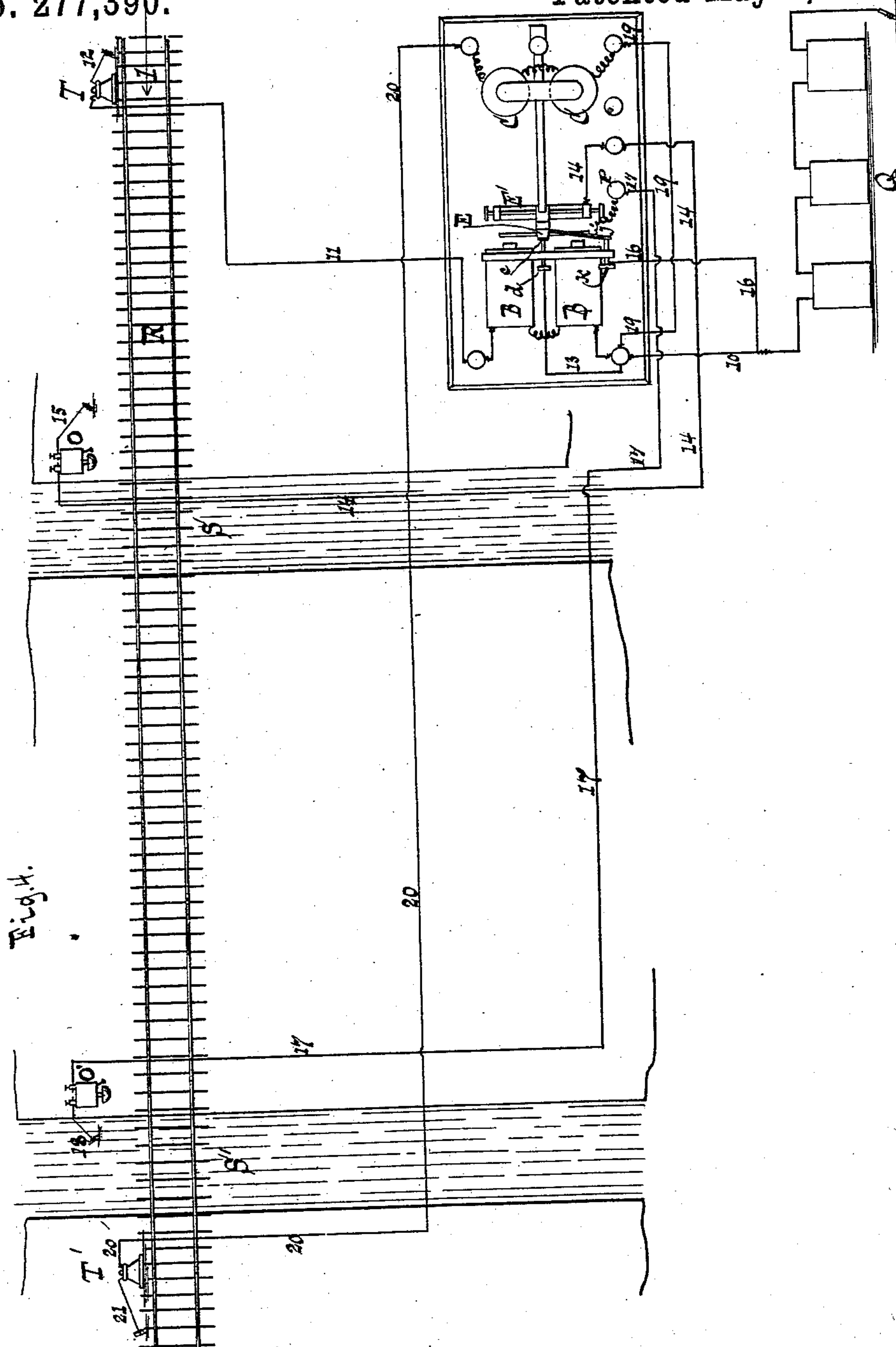
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WITNESSES:

Etto Aufhäuser
William Miller

INVENTOR

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BY *Van Lintwood & Smith*

ATTORNEYS

UNITED STATES PATENT OFFICE.

JOSEPH WEIS, OF JERSEY CITY, NEW JERSEY.

CIRCUIT-INSTRUMENT FOR ELECTRIC RAILWAY-SIGNALS.

SPECIFICATION forming part of Letters Patent No. 277,390, dated May 8, 1883.

Application filed August 16, 1882. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH WEIS, a citizen of the United States, residing at Jersey City, in the county of Hudson and State of New Jersey, have invented new and useful Improvements in Circuit-Instruments for Electric Railroad-Signals, of which the following is a specification.

The object of this invention is to ring two or more bells at two or more different street-crossings, by the action of one and the same battery, for such a length of time as may be desirable. The peculiar construction of the devices which I use for that purpose is pointed out in the following specification.

In the accompanying drawings, Figure 1 represents a longitudinal vertical section in the plane $x x$, Fig. 2. Fig. 2 is a plan or top view. Fig. 3 is a transverse vertical section in the plane $y y$, Fig. 1. Fig. 4 is a diagram showing the connections.

Similar letters indicate corresponding parts.

In the drawings, the letter A designates a base, of wood or other bad conductor of electricity. On this base are secured two pairs of electro-magnets, B B, C C. The armature D of the electro-magnets B B is secured to a vertical lever, E, which has its fulcrum on a rock-shaft, a , and is retracted by a spring, b . On the face of this armature-lever is secured a contact-spring, c , and when the armature D is attracted this spring comes in metallic contact with a screw, d . The armature F of the electro-magnets C is secured to a horizontal lever, G, which has its fulcrum on a rock-shaft, e' , and is retracted by a spring, f . On its face is secured a contact-spring, g , and when the armature F is attracted this spring comes in metallic contact with a screw, h . On the back of the armature-lever E is secured a block, i , and if the armature D is attracted the end of the armature-lever G of the electro-magnet C drops behind this block, (see Fig. 1,) and the metallic contact between the spring c and screw d is maintained, even when the circuit through the electro-magnet B is broken, until the electro-magnets C are vitalized and the armature F is attracted. As soon as the rear end of the armature-lever G rises the armature-lever E drops back and the block catches beneath the lever G, so as to maintain the metallic contact between the spring g and the screw h . On the

armature-lever E are secured additional contact-springs, insulated from each other, to close additional circuits through additional set-screws. In the drawings I have shown one additional contact-spring, j , and a corresponding contact-screw, k . This contact-screw is insulated from the contact-screw d , and if a larger number of such screws and springs are used they must all be insulated one from the other.

In applying my instrument for operating alarm-bells on street-crossings the connections are made as shown in Fig. 4. In this figure the letter R designates a railroad, and S S' are street-crossings, close to which are placed the bells O O'. T T' are two track-instruments, one for closing and the other for reversing the circuit. These track-instruments are actuated or acted on by the wheels of a passing train, and they may consist of insulated track-sections, or of levers, or any other mechanism suitable for the purpose. Q is the battery, which, together with my circuit-instrument, is placed in a suitable house. One pole of the battery is grounded, and the other pole connects by a wire, 10, with one end of the helix of electro-magnets B. The other end of this helix connects by a wire, 11, with one end of the track-instrument, and the other end of this track-instrument connects by a wire, 12, with the ground. If a train passes in the direction of arrow 1, the two ends of the track-instrument T are brought in metallic contact by the wheels of the passing train, the circuit through electro-magnet B is closed, and the armature D is attracted. The springs $c j$ are brought in contact with the screws $d k$, respectively, and retained in that position by the action of the armature-lever G on the block i . By the contact of the spring c and screw d the circuit through the bell O is closed as follows: from the battery, through wires 10 and 13, to screw d , through this screw to spring c , armature E, and the metallic frame E', in which this lever is mounted, thence through wire 14 to the bell mechanism, and wire 15 to the ground. The bell O will ring, therefore, as long as the spring c is retained in contact with the screw d . A second circuit will be closed from the battery Q through wire 16, screw h , spring j , post P, and through the mechanism of bell O' and wire 18 to the ground, and the bell O' will ring as

long as the spring *j* remains in contact with screw *k*. By applying additional contact-springs additional circuits will be closed. After the train has passed several street-crossings, *SS'*, it passes the reversing track-instrument *T'*, and a circuit is closed through the electro-magnets *CC*, as follows: from the battery, through wires 10 and 19, helix of electro-magnets *CC*, and wire 20, to the track-instrument *T'*, and through this track-instrument and wire 21 to the ground. By this circuit the electro-magnets *CC* are vitalized, the armature *F* is attracted, the armature-lever *G* releases the block *i*, and the armature-lever *E* drops back, so as to throw the springs *cj* out of contact with the screws *dk* and stop the action of the bells *OO'*. It is obvious that instead of bells other visual or audible signals can be used in connection with my circuit-instrument.

I am aware that circuit-instruments have been made heretofore in which the armature-lever of one electro-magnet is locked in its

closing position by the armature-lever of another electro-magnet. Such, therefore, I do not claim as my invention.

I do not claim anything shown or described in the patent of W. Robinson, No. 109,549, dated November 22, 1870.

What I claim as new, and desire to secure by Letters Patent, is—

The combination, with the two electro-magnets *BC*, their armature-levers *EG*, block *i*, secured to lever *E*, contact-springs *cj*, and contact-points *dk*, insulated from each other, of the single battery *Q*, bells *OO'*, track-circuit-closing instruments *TT'*, and the specified electrical connections having said battery as a common terminus, as set forth.

In testimony whereof I have hereunto set my hand and seal in the presence of two subscribing witnesses.

JOSEPH WEIS. [L. S.]

Witnesses:

W. HAUFF,

E. F. KASTENHUBER.