

(No Model.)

A. W. HALL.
AUTOMATIC SIGNAL FOR RAILWAY CROSSINGS.

No. 444,700.

Patented Jan. 13, 1891.

Fig. 2.

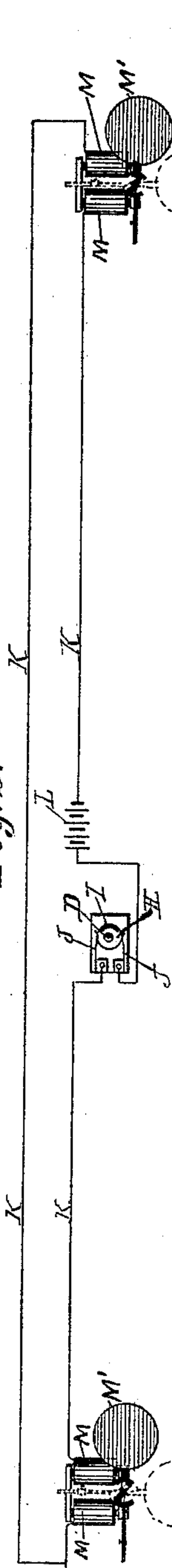


Fig. 1.

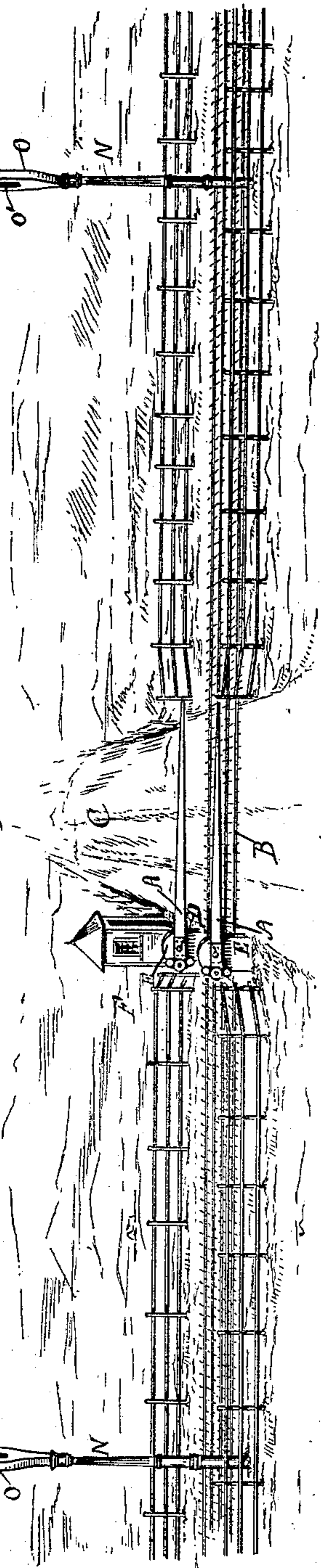


Fig. 4.

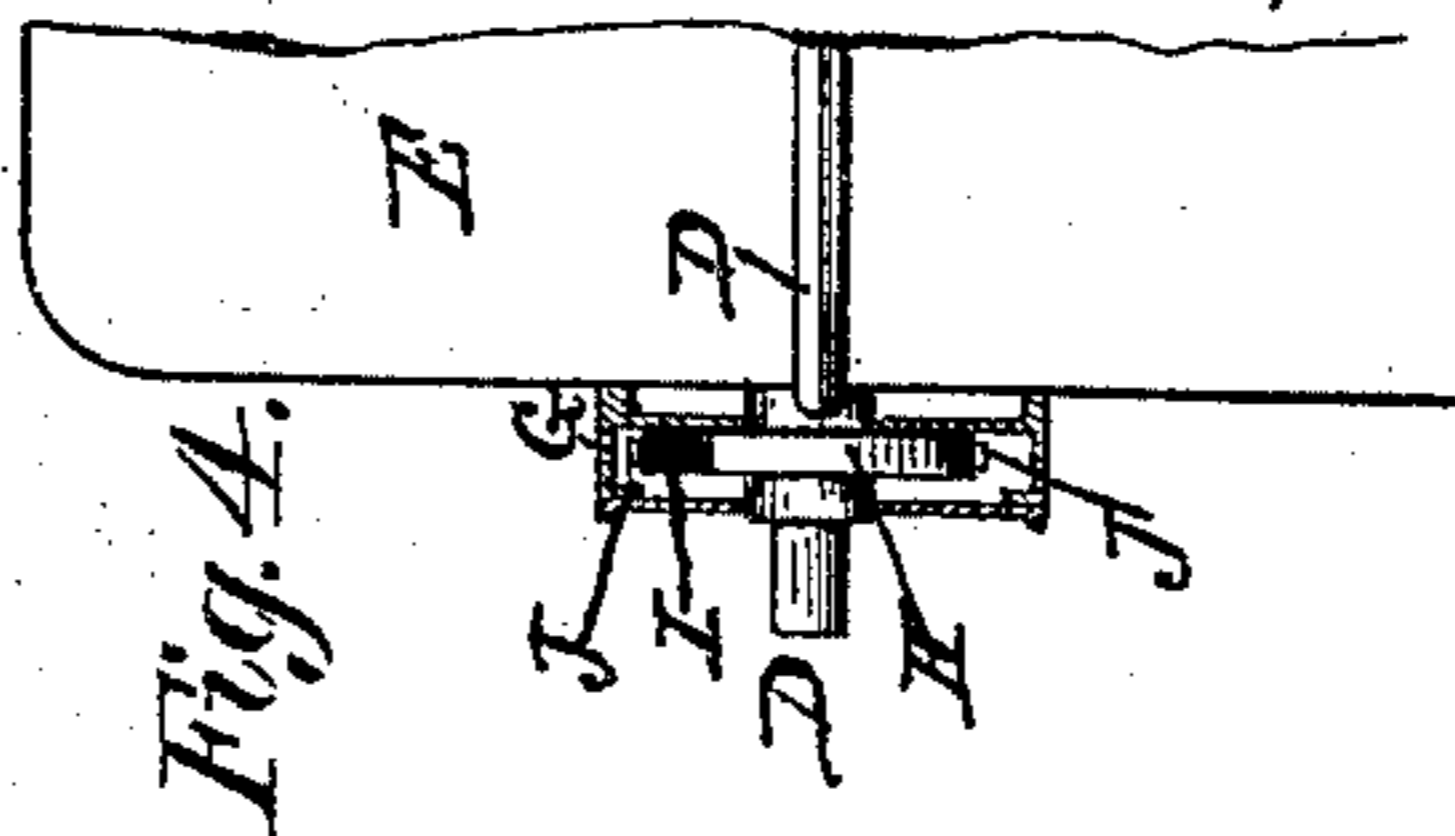


Fig. 3.

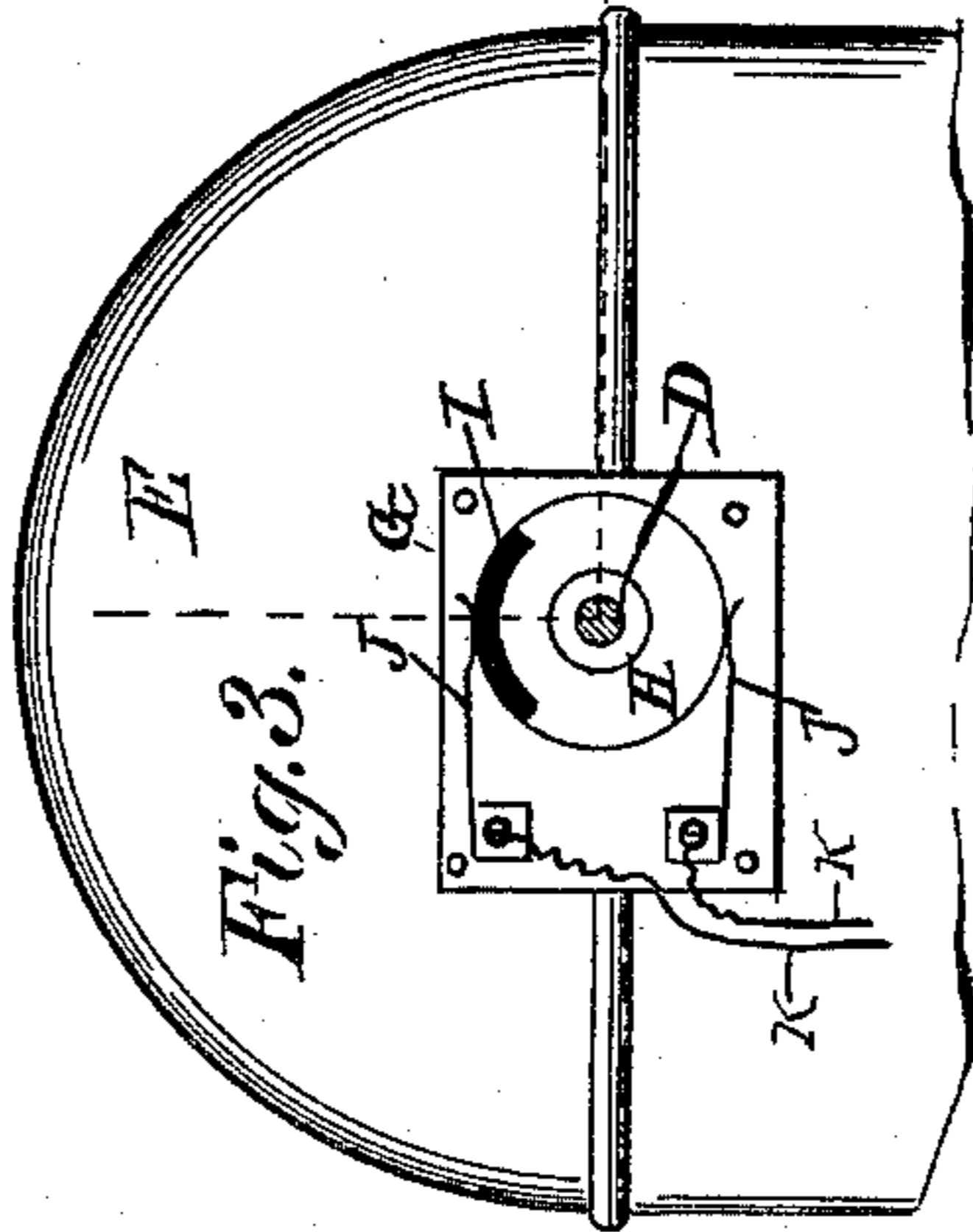
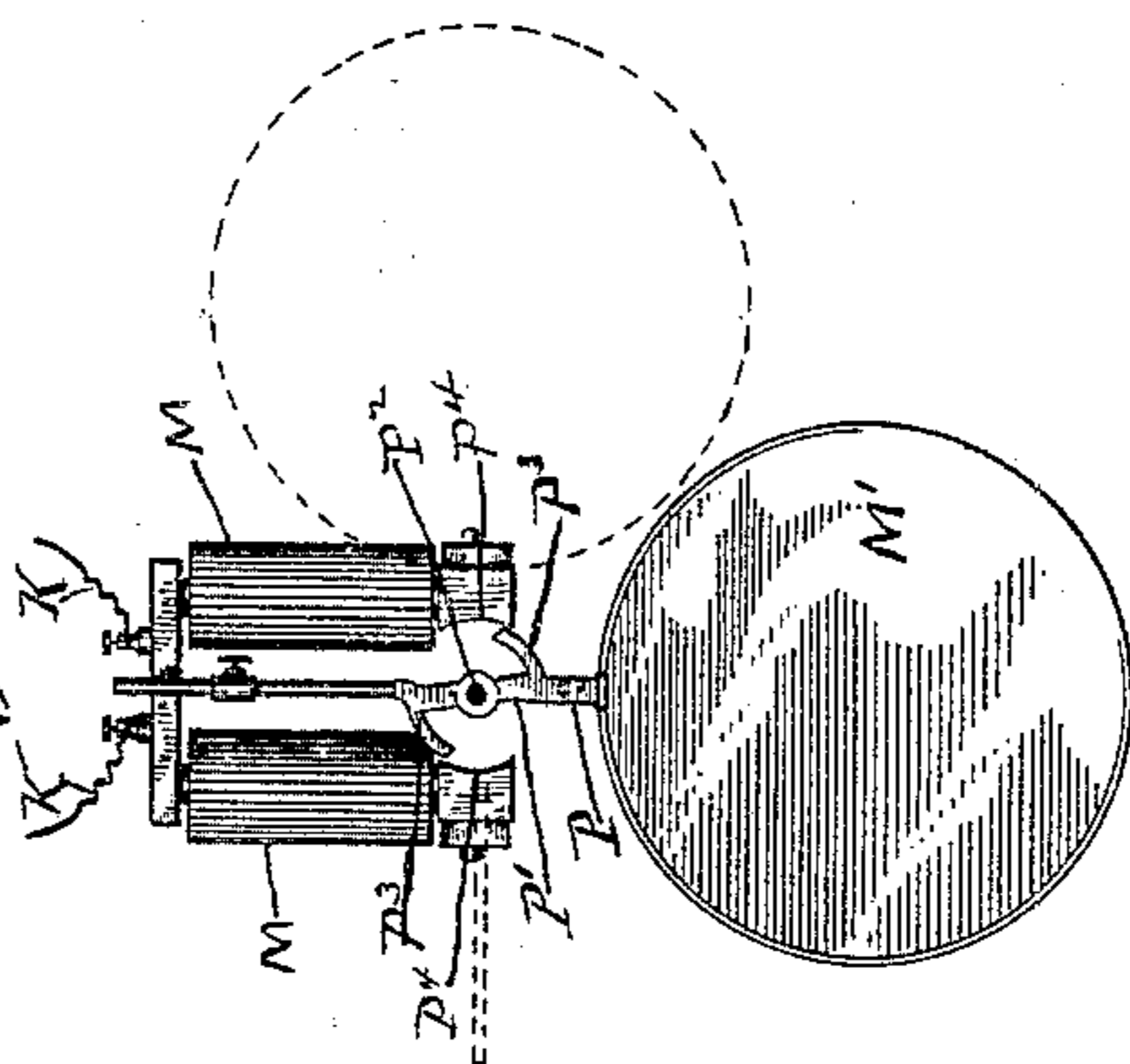


Fig. 5.



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UNITED STATES PATENT OFFICE.

ALVAH W. HALL, OF NEW YORK, N. Y.

AUTOMATIC SIGNAL FOR RAILWAY-CROSSINGS.

SPECIFICATION forming part of Letters Patent No. 444,700, dated January 13, 1891.

Application filed July 26, 1890. Serial No. 360,004. (No model.)

To all whom it may concern:

Be it known that I, ALVAH W. HALL, of New York, in the county of New York and State of New York, have invented a new Improvement in Automatic Signals for Railway-Crossings; and I do hereby declare the following, when taken in connection with accompanying drawings and the letters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this specification, and represent, in—

Figure 1, a perspective view of a surface-railway crossing provided with gates and signals arranged and connected in accordance with my invention; Fig. 2, a view in the nature of a diagram, showing the electric circuit, the magnets, and semaphore-disks of the two signals, the circuit-breaker, and the battery; Fig. 3, an enlarged broken view in side elevation, showing the upper end of one of the gate-boxes and the circuit-breaker. Fig. 4 is a view thereof in vertical section; and Fig. 5 is an enlarged detached view, in side elevation, of the magnet and semaphore-disk of one signal.

My invention relates to an improvement in automatic signals for railway-crossings, the object being to produce a simple, reliable, and effective apparatus for indicating to the trainmen whether or not the crossing-gates are open or closed.

With these ends in view my invention consists in certain details of construction and combinations of parts, as will be hereinafter described, and pointed out in the claims.

As herein shown; the gates A A of the railway-crossing are of ordinary construction, and consist of two long counterbalanced arms arranged parallel with and on opposite sides of the tracks B and at a right angle with the highway C, which they extend across when closed or depressed into their horizontal positions. These gates are respectively hung on short shafts D D, mounted in boxes E E, located on opposite sides of the tracks and containing mechanisms connected under the track and coupling the two gates together for their simultaneous operation from the gate-house F in the usual manner. The said mechanisms and their operating-connections are

of ordinary construction and do not need detailed description here.

A small case G, applied to the box of one of the gates, contains a circuit-breaker composed of a wheel H, mounted on the shaft D of the gate and carrying an insulating-strip I and two contact-fingers J J, respectively engaging with the edge of the wheel at opposite points thereon and connected at their outer ends with the wires of an electric circuit K, which includes a battery L and the magnets M M of the respective signals, as shown by the diagram, the said magnets controlling semaphore-disks M' M'. The said signals, which may be of any approved construction, are respectively located on opposite sides of the highway and up and down the track therefrom for such distances as shall be found to give ample opportunity for stopping a train clear of the highway when they show "danger." As shown herein, they consist of posts N N, carrying at their upper ends hollow heads O O, in which the respective magnets and disks, before mentioned, are contained, the heads being provided with circular openings O' O', through which the disks are displayed to indicate "danger." Each of the disks is made of colored silk of very light weight stretched over a light rim, which is attached to an arm P of a rotative armature P', mounted on a center P² and having two segmental fingers P³ P³, respectively operated upon by the concaved extensions P⁴ P⁴ of the poles of the magnet with which the disk is combined.

Having described in detail the construction of my improved apparatus, I will now proceed to set forth the method of its operation. The circuit being normally closed, the current, acting on the peculiar armatures, will draw them into line with the extensions of the poles of the magnets, and thus hold the disks in their retired positions within the signal-heads, indicating that the gates are closed. When, however, the gates are opened, the wheel of the circuit-breaker is rotated and the circuit broken, whereby the armatures, being no longer held in line with the poles of the magnets, are rotated under the weight of the disks, which drop down into the positions in which they are shown by broken lines in Fig. 2 of the drawings, and are displayed through the open-

ings in the signal-heads and to the train-men indicate "danger" and that the gates are opened.

5 If desired, the apparatus may be operated on an open circuit, although I prefer the closed circuit, as being safer. If desired, also, the particular construction of gates, signals, and connections may be varied from the construction herein shown. I would therefore have it
10 understood that I do not limit myself to the exact construction and arrangement of parts shown and described, but hold myself at liberty to make such changes and alterations as fairly fall within the spirit and scope of my
15 invention.

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

20 1. In an automatic signal for railway-crossings, the combination, with the crossing-gates, of a circuit-changer combined therewith and operated thereby, two signals respectively located up and down the track on opposite sides of the gates, and each including a magnet
25 and a semaphore-disk controlled thereby, and

an electric circuit including the signal-magnets, the circuit-changer, and a battery, whereby when the gates are opened they will operate the circuit-changer, and thus influence the signal-magnets in allowing the semaphore-
30 disks to take the positions in which they indicate "danger," substantially as described.

2. In an automatic signal for railway-crossings, the combination, with the crossing-gates, of a circuit-breaker combined therewith and
35 consisting of a wheel and two contact-springs, two signals respectively located up and down the track on opposite sides of the gates, and each including a magnet and a semaphore-disk operated thereby, and a normally-closed
40 electric circuit including the signal-magnets, the circuit-breaker, and the battery, whereby when the gates are opened the circuit will be broken and the semaphores allowed to take
45 the positions in which they indicate "danger," substantially as described.

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Witnesses:

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