

No. 713,741.

Patented Nov. 18, 1902.

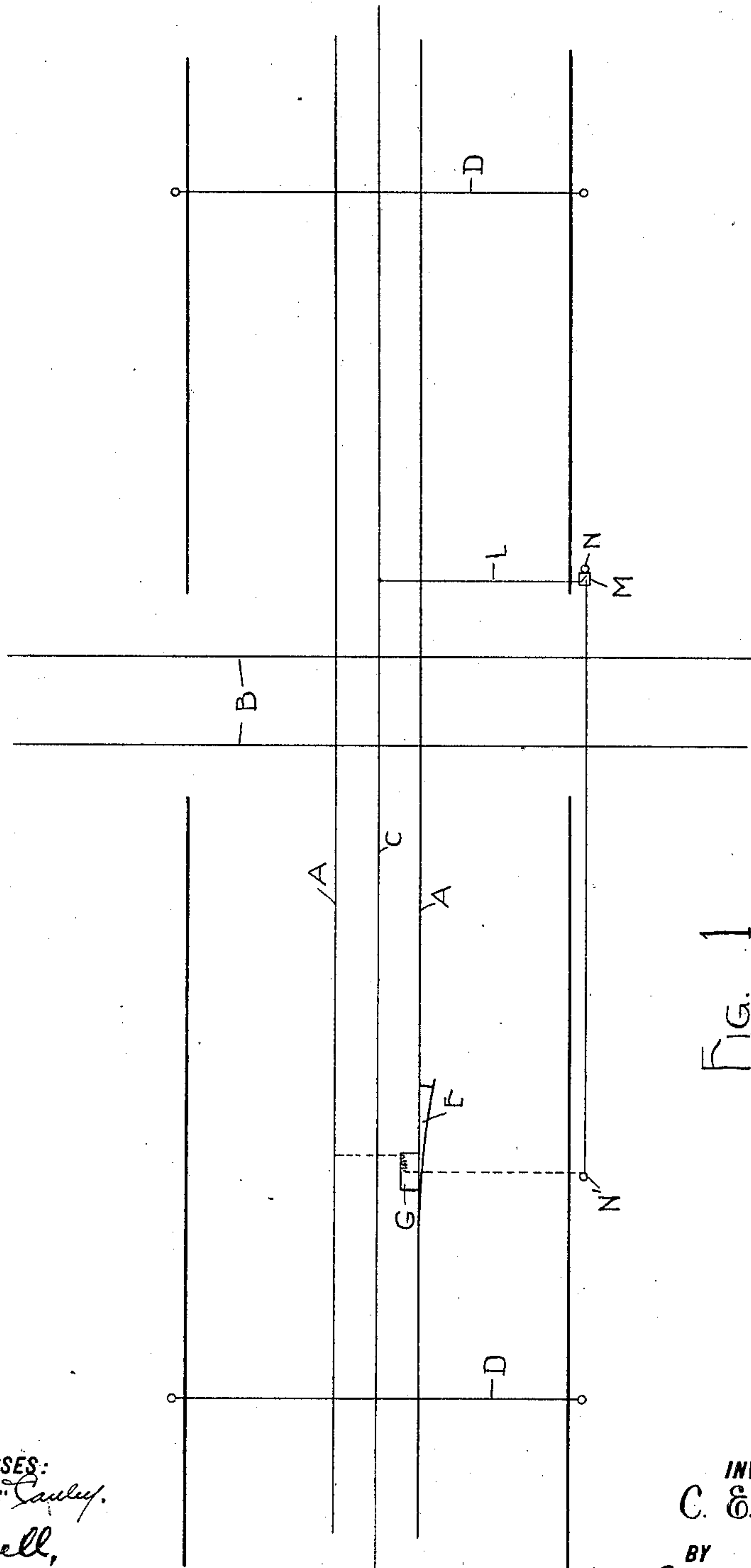
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MEANS FOR PREVENTING ACCIDENTS AT RAILWAY CROSSINGS.

(Application filed Apr. 16, 1902.)

(No Model.)

2 Sheets—Sheet 1.



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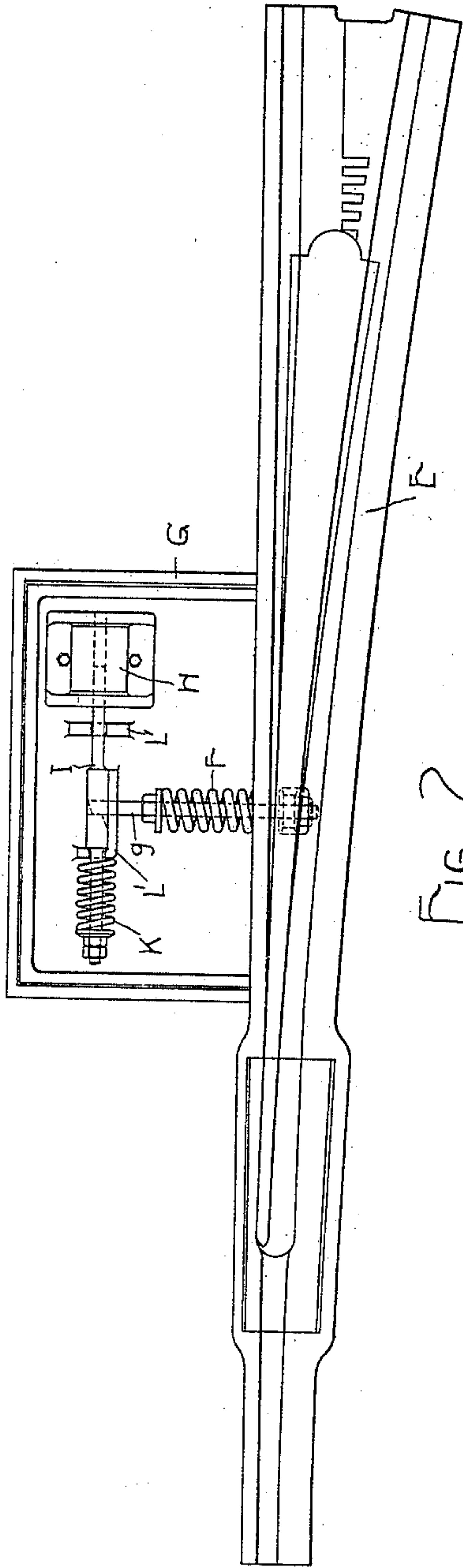


Fig. 2

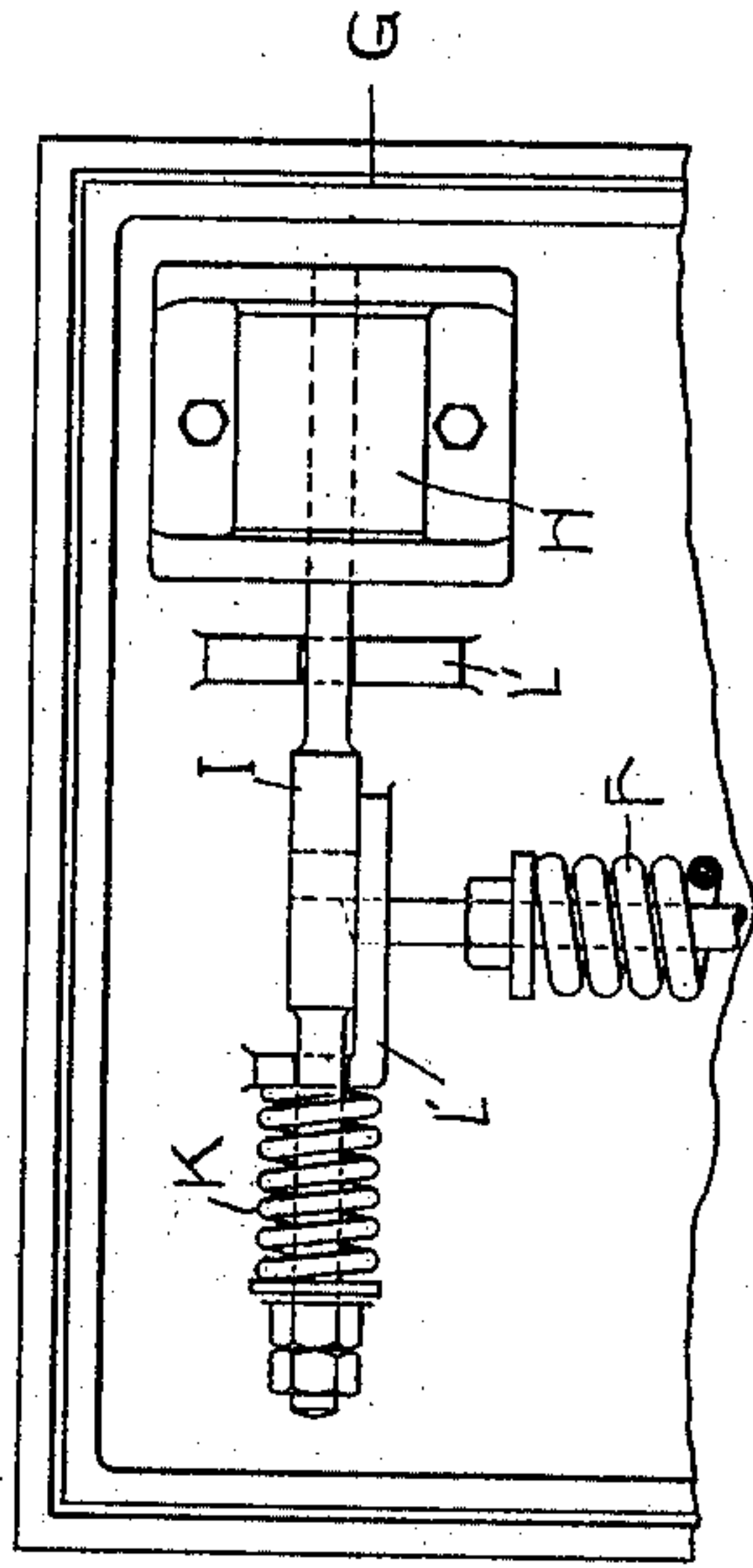


Fig. 3

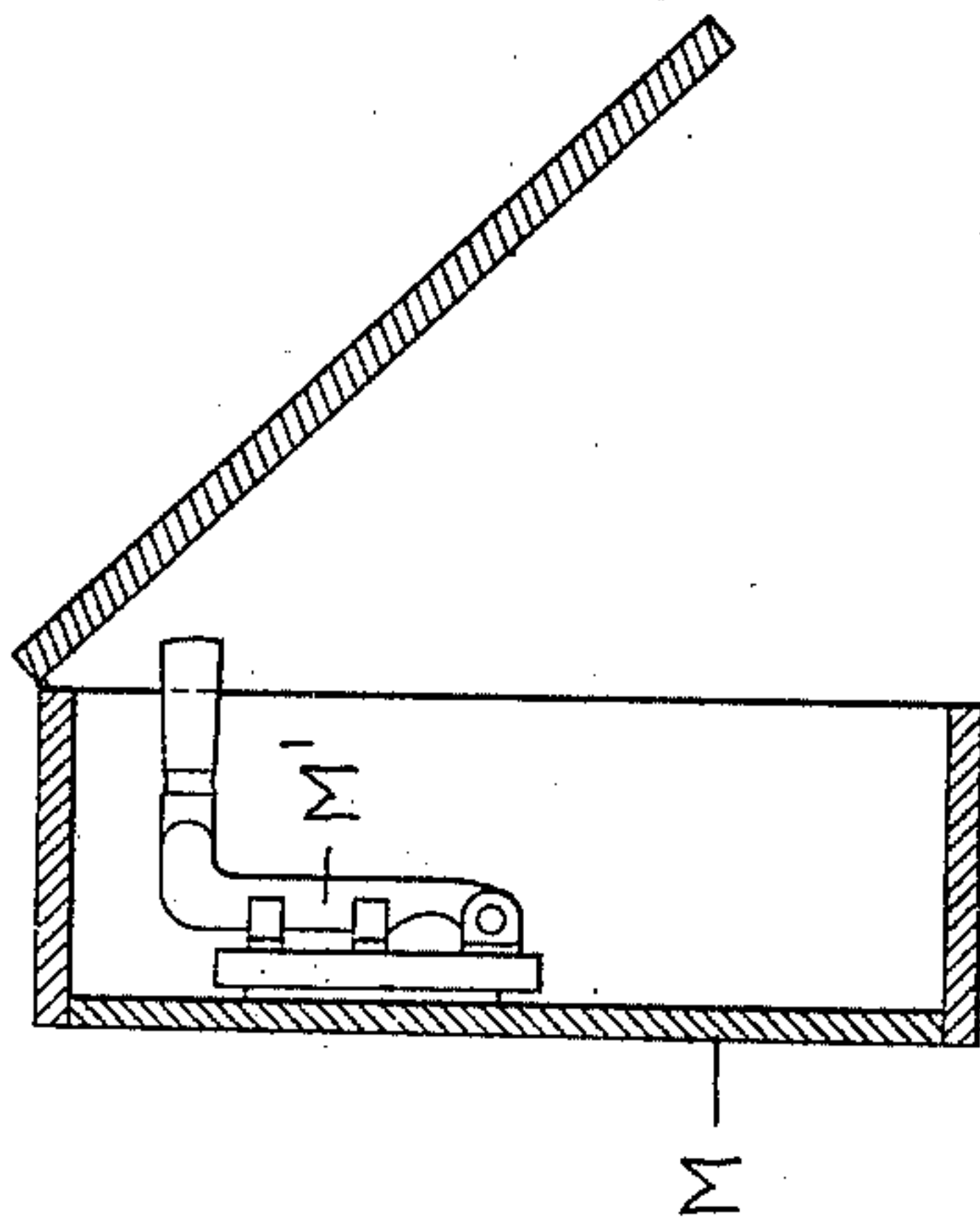


Fig. 4

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UNITED STATES PATENT OFFICE.

CYRUS E. BROWN, OF JOHNSTOWN, PENNSYLVANIA, ASSIGNOR TO THE
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MEANS FOR PREVENTING ACCIDENTS AT RAILWAY-CROSSINGS.

SPECIFICATION forming part of Letters Patent No. 713,741, dated November 18, 1902.

Application filed April 16, 1902. Serial No. 103,160. (No model.)

To all whom it may concern:

Be it known that I, CYRUS E. BROWN, of Johnstown, in the county of Cambria and State of Pennsylvania, have invented a new
5 and useful Improvement in Means for Preventing Accidents at Railway-Crossings, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, which form a part of
10 this specification.

My invention has relation to certain new and useful improvements in means for preventing accidents at railway-crossings, and is designed to provide means of simple character which will prevent a car or train on one
15 road from crossing another road until it has been ascertained that it is safe for it to do so.

The invention is particularly adapted for use where an electric-railway line crosses a
20 steam-line and will be described in that connection, although it may be adapted for use wherever two railway-lines cross, no matter what motive power may be used on such lines.

My invention consists in the combination
25 with an obstruction placed in one of the intersecting lines adjacent to the crossing arranged to normally prevent a car or train from proceeding over the crossing and adapted to be manually operated to clear the line
30 and a spring acting in opposition to such manual operation of an electromagnetically-operated locking device arranged to prevent the action of said spring and means for controlling the action of said locking device situated
35 upon the opposite side of the crossing from the obstruction. A car or train on approaching the crossing is stopped by the obstruction, and the latter is moved by the motorman to clear the line. Owing to the action
40 of the spring, however, the line cannot be kept clear to permit the car or train to proceed until the magnetic lock is brought into action. The conductor or other employee is therefore obliged to proceed in advance of
45 the car or train to the opposite side of the crossing and close the circuit of said locking device before the car or train can proceed.

My invention also consists in the novel construction, arrangement, and combination of
50 parts, all substantially as hereinafter de-

scribed, and pointed out in the appended claims, reference being had to the accompanying drawings, in which—

Figure 1 is a diagram illustrating the invention; Fig. 2, a plan view of the derailing-
55 switch, its spring, and locking device; Fig. 3, a similar view showing the said device in locking position; Fig. 4, a detail sectional view showing the switch which controls the circuit of the locking device. 60

The letter A designates the rails of an electric railway, and B the rails of a crossing-line of steam-road.

C is a trolley-wire supported from the usual
65 span-wires D.

E is a derailing-switch which is placed in one of the rails A a short distance from the crossing. In the present instance the switch consists of an ordinary pivoted tongue, which is normally held in position to open the main
70 line by means of a spring F. The spring-box G is made larger than the ordinary spring-box, and placed therein is a solenoid H. The movable core of this solenoid is formed by one end portion of a rod I, which is mounted
75 to slide in suitable guides L' and which is formed with an opening or slot through which normally extends the projecting end of the spring-rod g of the switch-tongue, as shown in Fig. 2. A spring K acts on the rod I in
80 opposition to the solenoid. The coil of the solenoid is included in a branch circuit L between the trolley-wire and the return side of the circuit, the resistance of said circuit and coil being sufficient to prevent short-circuit-
85 ing of the line.

The branch circuit L leads through a switch-box M, which is situated at the opposite side of the crossing from the derailing-switch and which contains a simple make-and-break
90 switch M'. The conductor which forms the branch circuit L may be carried from the trolley-wire C to a pole N, to which the switch-box M is secured, thence to a second pole N' to the derailing-switch, and thence under-
95 ground to the spring-box G.

When a car approaches the steam-crossing, it must, of course, stop on reaching the derailing-switch. The motorman takes his bar and throws the switch-tongue over into the 100

main line, where he holds it while the conductor, who has in the meanwhile preceded the car to the opposite side of the crossing, closes the switch M'. This sends the current through
 5 the solenoid-coil, which acts to move the rod I to the position shown in Fig. 3, in which it forms a lock to hold the switch-tongue in the main line. The engaging surfaces of the rods
 10 g and I are preferably beveled, as indicated in Figs. 2 and 3, or other means are provided for reducing the friction of such engagement, in order that when the magnet is deenergized the spring k may readily return the rod I to
 15 its normal position. As shown in Fig. 4, the door of the switch-box M cannot be closed until the switch is opened. This door is preferably provided with a suitable lock, and the rules of the road should require the conductors in all cases to lock the box before re-
 20 turning to their car. As soon as the switch M' is opened the spring K returns the rod I to its normal position and releases the lock for the switch-tongue, which is thereupon immediately returned to its derailing position
 25 by its spring.

Where the invention is used in connection with roads which do not employ electricity as a motor-power, the current required to energize the solenoid may be taken from any conven-
 30 ient source.

My invention is not limited to the employment of a derailing-switch of the type shown, since I may use any other suitable type of switch and even an obstruction of an entirely
 35 different character. I do not, therefore, wish to limit myself to the particular embodiment of my invention which I have herein shown and described.

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

1. As a means for preventing accidents at railway-crossings, the combination with an obstruction placed in one of the intersecting
 45 lines adjacent to the crossing and arranged to be manually operated to clear the said line, and a spring acting upon said obstruction in opposition to manual efforts, of an electromagnetically-operated locking device, a cir-
 50 cuit therefor, and means for controlling said

circuit situated at the opposite side of the crossing from the obstruction.

2. The herein-described means for preventing accidents at railway-crossings, composing a derailing-switch in one of the intersecting
 55 lines adjacent to the crossing, a spring normally holding said switch at its derailing position, a locking device for holding the switch against the action of the spring, and electro-
 60 magnetic means controlled from the opposite side of the crossing for moving said locking device into operative position.

3. The herein-described means for preventing accidents at railway-crossings, comprising a derailing-switch in one of the intersecting
 65 tracks, a spring normally holding said switch at its derailing position, a solenoid, a locking member actuated by the solenoid, and a switch for controlling the circuit of the solenoid, said
 70 switch being located on the opposite side of the crossing from the derailing-switch.

4. The herein-described means for preventing accidents at railway-crossings, comprising a derailing-switch in one of the intersecting
 75 tracks, a spring acting to normally hold said switch at its derailing position, a movable locking member for said switch, electromagnetic means for actuating said locking member in
 80 one direction, a spring for actuating it in the opposite direction, and a switch for controlling the circuit of the electromagnetic actuating means, said switch being located at the
 opposite side of the crossing from the derailing-switch.

5. In means for the purpose described, the
 85 combination with means for normally obstructing a railway-track, and electromagnetically-operated locking mechanism for the obstructing device, of a switch for controlling
 90 the circuit of said electromagnetic means, a box inclosing said switch, and having a door portion and means whereby said door portion cannot be closed except when the switch is
 in position to open the circuit.

In testimony whereof I have affixed my sig-
 95 nature in presence of two witnesses.

CYRUS E. BROWN.

Witnesses:

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 H. W. SMITH.