

910,596.

F. M. SPAID & F. F. GREEN.
TROLLEY CUT-OUT.

APPLICATION FILED FEB. 27, 1907.

Patented Jan. 26, 1909.
2 SHEETS—SHEET 1.

Fig. 1.

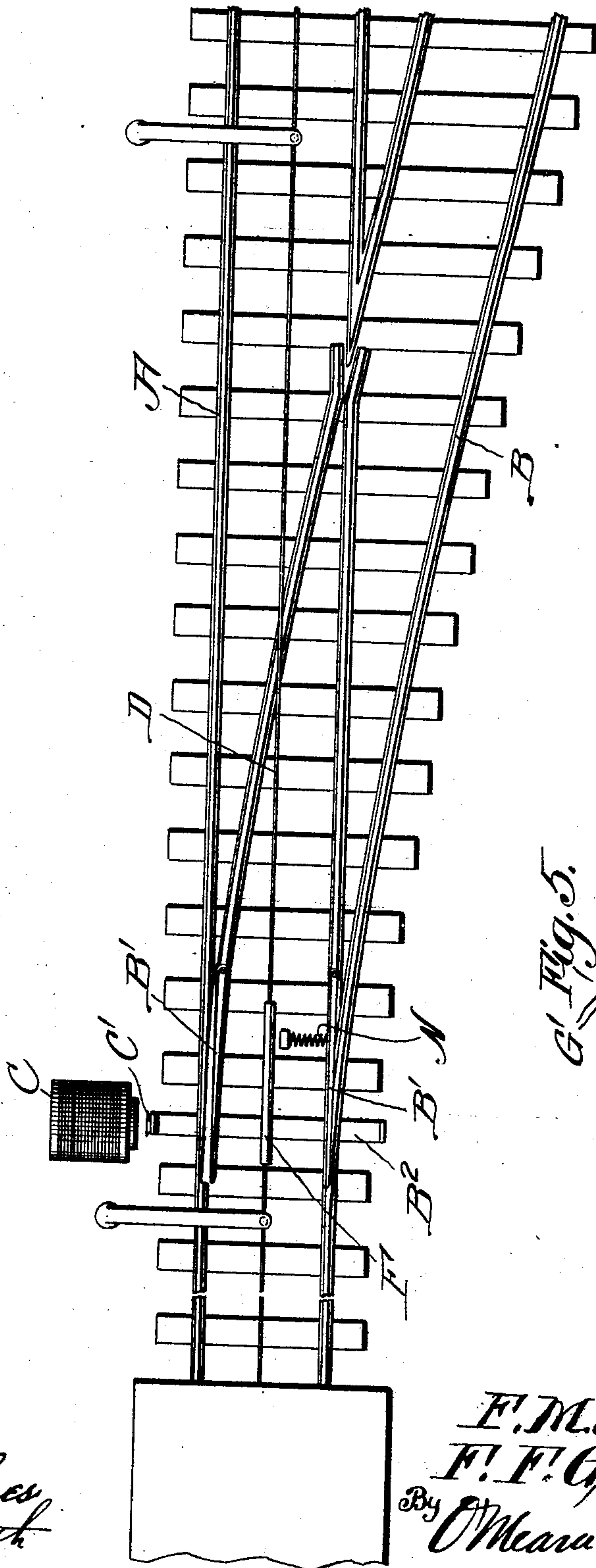
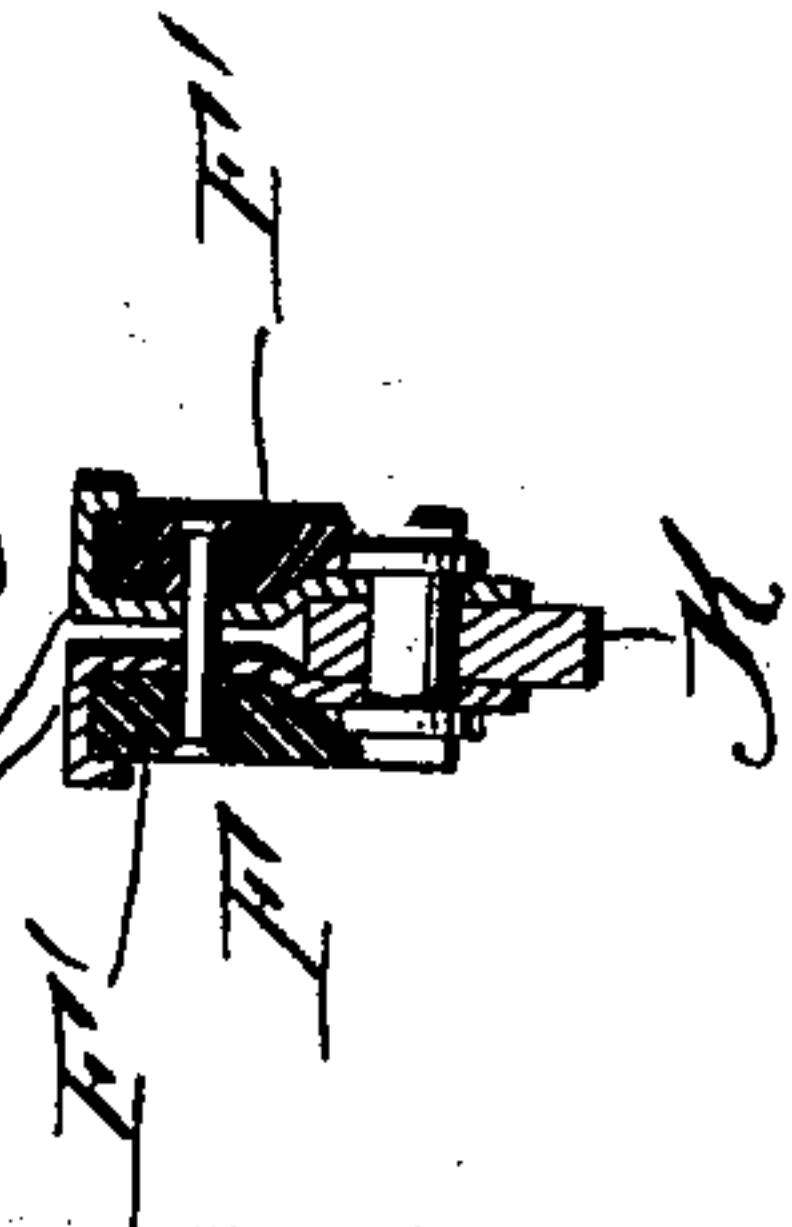


Fig. 5.



Witnesses

Oliver H. Holmes
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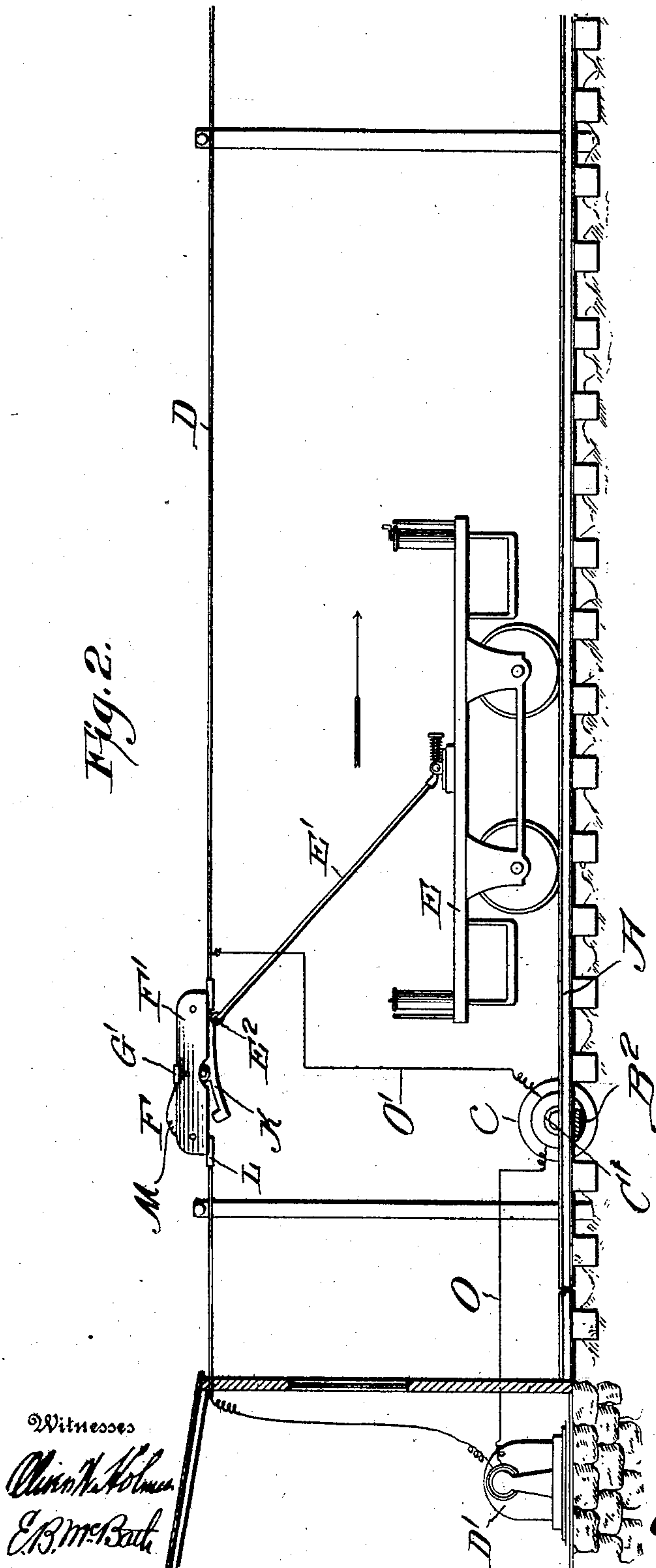
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2 SHEETS—SHEET 2.

Fig. 2.



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Fig. 4.

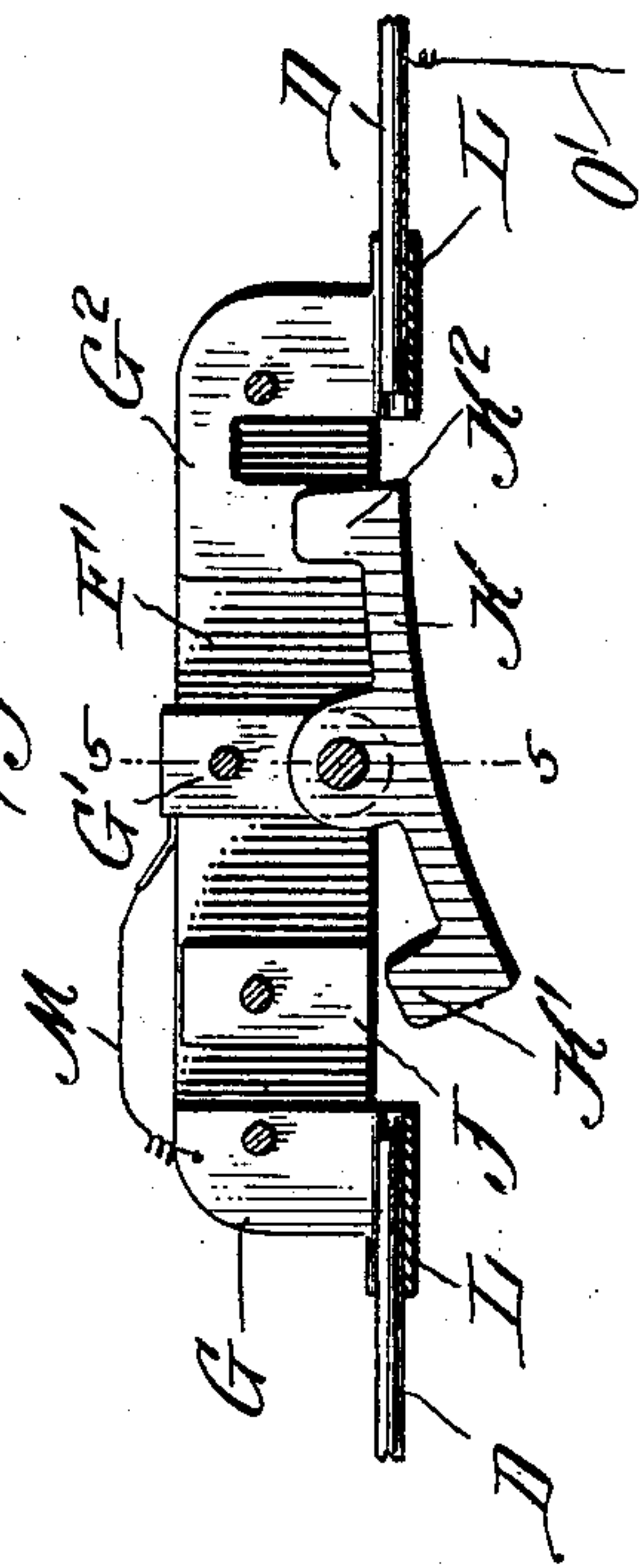
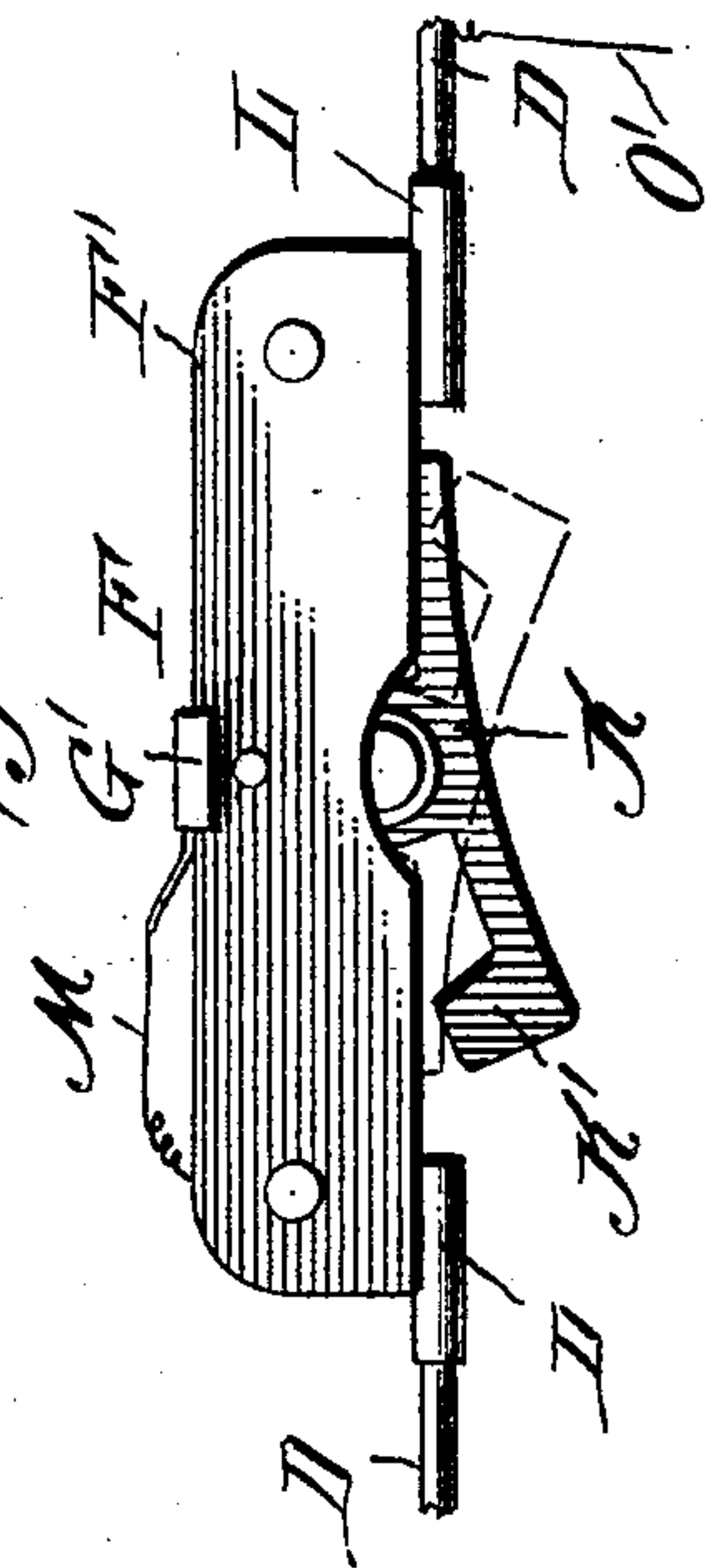


Fig. 3.



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UNITED STATES PATENT OFFICE.

FRANCIS M. SPAID AND FRED F. GREEN, OF BUFFALO, OHIO.

TROLLEY CUT-OUT.

No. 910,596.

Specification of Letters Patent.

Patented Jan. 26, 1909.

Application filed February 27, 1907. Serial No. 359,621.

To all whom it may concern:

Be it known that we, FRANCIS M. SPAID and FRED F. GREEN, citizens of the United States, residing at Buffalo, in the county of Guernsey and State of Ohio, have invented a new and useful Improvement in Trolley Cut-Outs, of which the following is a specification.

This invention relates to a trolley cut-out and while not limited to, is especially designed for employment in mines, and has for its object the automatic throwing of the switch into open position, immediately after the passage of a motor-car in order to permit detached following cars to take the switch.

It is customary in mines to provide a side track adjacent the mine's opening or shaft, and the mine cars are hauled by motor-cars which are uncoupled when the switch leading to the side track is approached, and the motor-car continues on the main track while the mine cars running under momentum or positively by gravity, are let through the switch upon the side track. The switch is then closed and the motor-car returns for a new train of mine-cars. It has been common to employ an operator to open and close the switch and as the distance between the motor-cars and the train of mine-cars is often very short, the switch is not always opened quick enough, resulting in the derailing of some of the cars. We overcome this difficulty by providing an electrically operating switch which is operated by a cut-out actuated by the passage over it of a trolley wheel of the motor-cars. This not only operates the switch at precisely the proper time, but also obviates the necessity of employing a switch tender at this point.

The invention consists of an electric-magnet adapted to operate the switch point, and of a pivoted cut-out switch inserted in the trolley line wire and thrown into opposite positions by passage over it of the trolley wheel in the opposite directions, thus alternately energizing and deenergizing the magnet operating the switch point, according to the direction of movement of the motor-car.

In the drawings forming a part of this specification:—Figure 1 is a plan view of a track and switch provided with my device. Fig. 2 is a side elevation of our cut-out and switch operating device, the switch point bar

being shown in section and a portion of a power house being also shown in section. Fig. 3 is a side elevation of a cut out arranged in the trolley line. Fig. 4 is a longitudinal section taken through the cut-out. Fig. 5 is a section on the line 5—5 of Fig. 3.

In these drawings A represents the main track, B a switch, and B' switch points which are thrown into open or closed position by longitudinal movement of a switch point bar B² in the ordinary manner.

Adjacent an end of the bar B² is arranged a magnet C and the adjacent end of the bar B² is provided with an armature C', which is attracted to the magnet when the switch is to be opened.

D represents the usual trolley line receiving an electrical current from a suitable dynamo D'.

E represents a motor power of any desired type provided with a trolley pole E' and a trolley wheel E².

A cut-out F is inserted in a portion of the trolley line D, from which connection has been cut and this cut-out is constructed in the following manner. Two side pieces F' of a non-conducting material are arranged parallel to each other and placed between these sides are plates of conducting material G, G' and G². Between the plates G and G' is arranged a plate J which may be of any desired material, and it will be understood that the plates G, G' and G² are arranged in pairs, slightly spaced apart. In Fig. 4 we have shown one of each pair of these plates. A cut-out switch K is slightly curved and intermediate its ends is pivotally mounted between the pair of plates G'. The ends of this switch K are angled as shown at K' and K². The plates G and G² are provided with oppositely extending sleeves L, which receive the ends of the two sections of the trolley line. The contact plates G and G' are connected by a conducting wire M.

The operation of the switch is as follows:—As the motor-car approaches the switch it is closed and held in such a position by a spring N. As the truck of the motor-car passes the switch points and immediately after clearing said point, the trolley wheel E² contacts with the slightly curved cut-out switch K. This switch at the time it is engaged by the trolley wheel, is in the position shown in dotted lines in Fig. 3 and the magnet C, which is in cir-

cuit with the motor D' and trolley line D, through the wires O and O' respectively, is deenergized. As, however, the trolley wheel travels along the switch K and after passing the pivoted point of the said switch forces the switch into the position shown in full lines in the drawings, and an electrical circuit is established as follows:—from the source of power through the line O, through the magnet C, the line O', the trolley wire D, the sleeve L carried by the plates G², the plates G², the angled end K², the switch K, plates G', wire M, plates G, the second sleeve L, and back to the source of power along the trolley line D. As soon as the magnet is energized the armature C' is attracted, the switch thrown into open position, and the train of cars take the switch and enter the siding. As the motor car runs back for another train of cars, a trolley wheel automatically throws the cut-out switch K into the position shown in dotted lines in Fig. 3, breaking the contact between the end K² and the plates G, the end K' being thrown into engagement with the neutral plates J, and the breaking of the circuit between K² and G², deenergizes the magnet C and the spring N returns the switch to its normal position.

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

1. In a device of the kind described comprising a sectional trolley line, a switch centrally pivoted between sections of said line, contact plates provided with sleeves to receive end portions of the line sections, a conducting wire connecting one of said plates with the switch, and an insulated plate, the end portions of the switch alternately engag-

ing a contact plate and said insulated plate, as and for the purpose set forth.

2. A device of the kind described comprising an electro-magnet a switch power forming an armature for said magnet, a trolley line having a cut-out portion, a pivotal switch making and breaking electrical connection between the two portions of the line, the said magnet being in circuit with a portion of the line and with the source of electrical power, the said cut-out switch being movable in opposite positions by passage of a trolley wheel in opposite directions.

3. A device of the kind described comprising a trolley-line cut into two sections, a switch pivotally mounted between said sections, and adapted to be engaged by a trolley wheel, the trolley wheel throwing the switch into open and closed position according to direction of travel of the wheel, and a switch operating magnet placed in a circuit when the switch is in closed position.

4. A device of the kind described comprising a switch operating magnet in circuit with a source of power and with a section of trolley line, said trolley line section being cut between the magnet and source of power, and a pivoted switch movable in alternate directions by passage of a trolley wheel across it in opposite directions, said switch being interposed in the cut out portion of the trolley wheel, and completing the trolley line circuit when in one position and breaking it when in the other position.

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Witnesses:

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