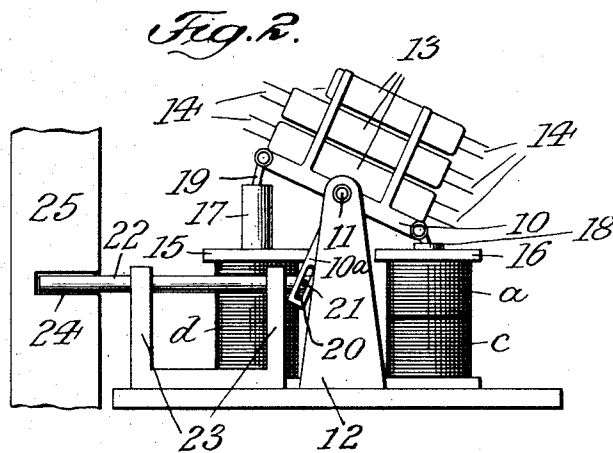
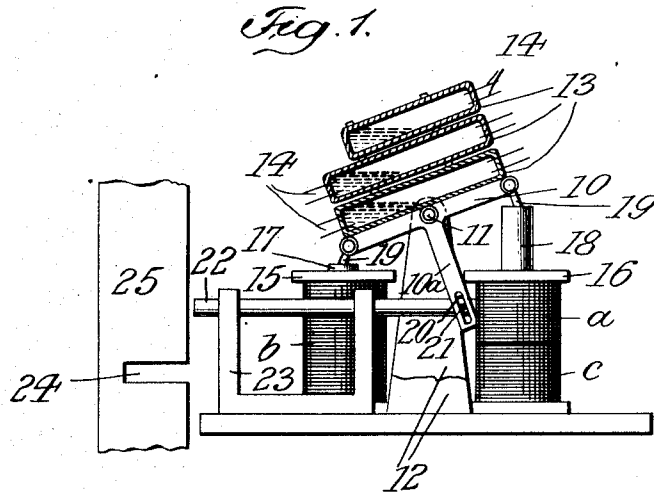


E. UNVERRICHT.
 AUTOMATIC SAFETY DEVICE FOR RAILWAYS.
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1,045,463.

Patented Nov. 26, 1912.



Witnesses:
Julius H. Hart
Daniel Holmgren

Inventor
Eduard Unverricht
 By his Attorney,
Prescott & Granger

UNITED STATES PATENT OFFICE.

EDUARD UNVERRICHT, OF HAMBURG, GERMANY.

AUTOMATIC SAFETY DEVICE FOR RAILWAYS.

1,045,463.

Specification of Letters Patent.

Patented Nov. 26, 1912.

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To all whom it may concern:

Be it known that I, EDUARD UNVERRICHT, a citizen of Germany, and a resident of Hamburg, Germany, have invented a new and useful Automatic Safety Device for Railways, of which the following is a specification.

This invention relates to an automatic safety device for railways, and more particularly to a novel circuit changer used in conjunction with devices such as described in a co-pending patent application filed by me October 30th, 1909, under Serial No. 525,413. According to the invention described in said co-pending application, a plurality of circuit changers are distributed along the track to be protected which circuit changers cooperate with a corresponding number of track stops or other means for protecting the trains located in the safety zones covered by said circuit changers. Each of the latter comprises essentially a tiltable circuit closing member actuated by a plurality of electromagnets which are in turn in circuit with the circuit closing members of the circuit changers protecting the flanking safety zones. With my present invention the tiltable or rocking circuit closing member is operatively connected to locking or bolting means that cooperate with movable links, etc., such links forming part of the operative mechanism of the track stops, rail switches, etc., controlled by the corresponding circuit changers.

In the accompanying drawing: Figure 1 is a diagrammatic side elevation partly in section of a circuit changer embodying my invention, and Fig. 2 a similar view showing the parts in different positions.

The numeral 10 indicates a rocking beam or support pivoted at 11 to a pair of standards 12 and carrying a plurality of glass tubes 13, three of such tubes being illustrated in the drawing. Into the ends of tubes 13 are fused pairs of contact wires 14, while the tubes are partly filled with mercury so as to conductively connect said wires in accordance with the dip which the tubes may temporarily assume. It is not deemed necessary to describe in detail the various circuits which are closed upon the rocking of tubes 13, such circuits being fully described in my above cited patent application. Beam 10 is influenced by a pair of electromagnets or solenoids 15, 16 which are shown

to be respectively provided with windings *b* and *a*, *c*. The cores 17, 18 of solenoids 15, 16 are operatively connected to the ends of beam 10 by links 19. From beam 10 extends downwardly a central arm 10^a slotted as at 20 for the reception of a pin 21 projecting from a shipping rod or bolt 22, guided in bearings 23. Rod 22 is adapted to enter a notch 24 formed in a link or similar motion transmitting means 25 that constitutes part of the operating mechanism of the track stops, rail switches, etc., hereinabove referred to. It will be seen that the beam 10 and the circuit closing means connected thereto are maintained by gravity in the position to which they have been set. In this way, it is only necessary to impart a short impulse by the electromagnets to member 10, 10^a for swinging the same beyond the dead center, whereupon the mercury, by flowing from one end of the tubes to the other end thereof will not only assist the electromagnets in their function, but will also maintain the member in the position to which it has been set without requiring springs, closed circuit current, etc.

From Fig. 1 it will be seen that if solenoid 15 should be energized by a current sent through windings *a* or *c*, the rocking member 10, 10^a could nevertheless not be tilted as long as an unutilized section of link 25 is located opposite bolt 22. By these mechanic means the circuit or circuits adapted to be closed by the right hand contacts 14 of tubes 13 cannot be closed, and the signals, etc., controlled thereby cannot be given. If however, the notch 24 of link 25 has assumed a position opposite to bolt 22 while solenoid 16 is energized, the rocking of member 10, 10^a may take place to establish the desired circuits. It is further obvious that after the parts have assumed the position illustrated in Fig. 2 to give the desired clear track signal, etc., the position of the track stops, rail switches, etc., operatively connected to member 25 cannot be changed, until the train has passed, owing to the locking of said member by bolt 22.

I claim:

1. In a device of the character described, a pair of electrically energizable devices, a movable member adapted to be reciprocated by said devices and carrying circuit closing means, said member being maintained by gravity in either of its extreme positions, and

mechanical means for locking said member against movement when in one of said positions.

2. In a device of the character described, 5 a pair of electrically energizable devices, a tiltable member adapted to be oscillated by said devices and carrying circuit closing means, said member being maintained by gravity in either of its extreme positions, 10 and mechanical means for locking said member against movement when in one of said positions.

3. In a device of the character described, 15 a pair of electrically energizable devices, a tiltable first member adapted to be oscillated by said devices and carrying circuit closing means, said member being maintained by gravity in either of its extreme positions, a bolt operatively connected to said member, 20 and a movable second member adapted to lock said bolt against movement.

4. In a device of the character described,

a pair of electrically energizable devices, a tiltable first member adapted to be oscillated by said devices and carrying circuit closing 25 means, said member being maintained by gravity in either of its extreme positions, a bolt operatively connected to said member, and a notched second member adapted to be engaged by said bolt. 30

5. In a device of the character described, a pair of electrically energizable devices, a tiltable support adapted to be oscillated by said devices and carrying circuit closing 35 means, said member being maintained by gravity in either of its extreme positions, an arm projecting from said support, a bolt pivoted to said arm, and a movable notched member adapted to be engaged by said bolt.

EDUARD UNVERRICHT.

Witnesses:

ALFRED O. DILLON,
ALFRED NUTTING.