W. W. TAYLOR.

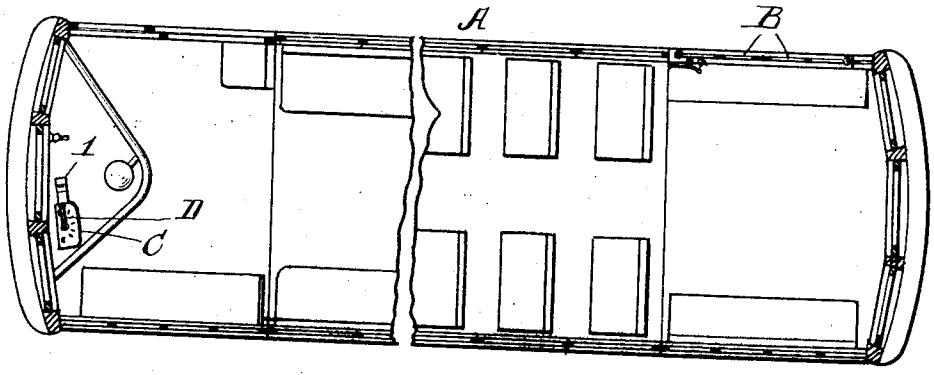
SAFETY APPLIANCE.

APPLICATION FILED JULY 23, 1917.

1,302,101.

Patented Apr. 29, 1919.

FIG. 1.



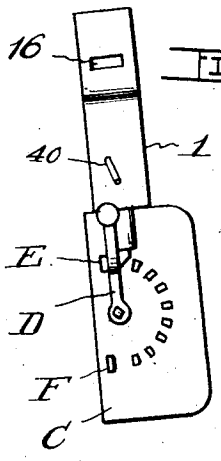
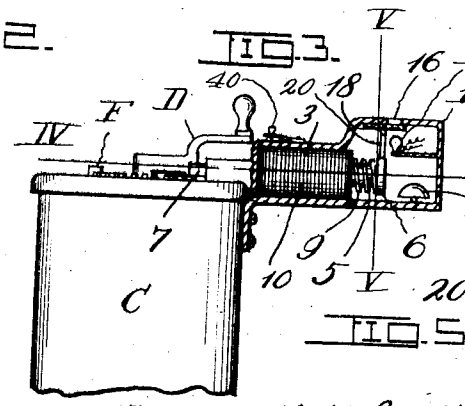


FIG. 2.

FIG. 3.



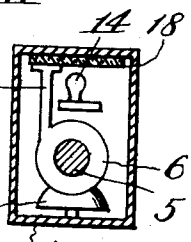


FIG. 5.

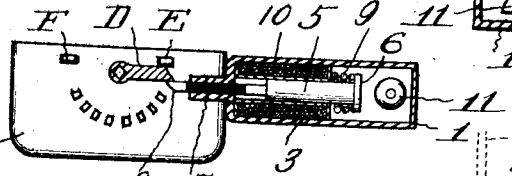


FIG. 4.

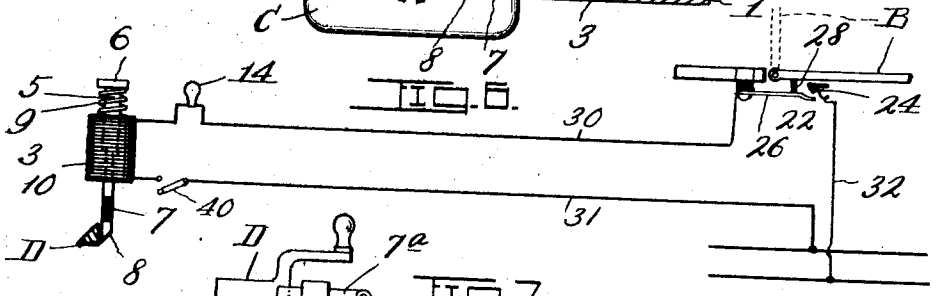


FIG. 6.

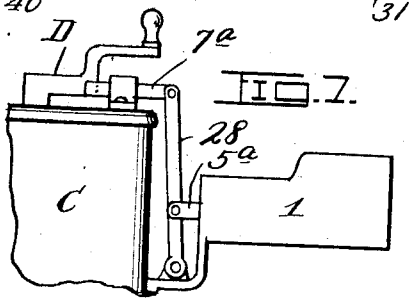


FIG. 7.

Witness:

R. S. Hamilton.

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ATTORNEY

UNITED STATES PATENT OFFICE.

WILLIAM W. TAYLOR, OF KANSAS CITY, MISSOURI.

SAFETY APPLIANCE.

1,302,101. Specification of Letters Patent. Patented Apr. 29, 1919.

Application filed July 23, 1917. Serial No. 182,334.

To all whom it may concern:

Be it known that I, WILLIAM W. TAYLOR, a citizen of the United States, residing at Kansas City, in the county of Jackson and State of Missouri, have invented certain new and useful Improvements in Safety Appliances, of which the following is a specification.

My invention relates to improvements in safety appliances, and my principal object is to provide means for preventing motormen from starting cars until the doors thereof have been closed, thus preventing accidents due to the motorman starting his car while passengers are boarding or alighting.

Other objects will hereinafter appear, and in order that the invention may be fully understood, reference will now be made to the accompanying drawing, in which:

Figure 1 is a horizontal, sectional view of an electric car equipped with my safety appliance.

Fig. 2 is a plan view of the car controller and that portion of the safety appliance supported by said controller.

Fig. 3 is a broken elevation of the controller with a portion of the safety appliance in vertical, longitudinal section.

Fig. 4 is a horizontal section on line IV—IV of Fig. 3.

Fig. 5 is a vertical cross section, enlarged, on line V—V of Fig. 3.

Fig. 6 is a diagram of the safety appliance, its circuit, and associated parts.

Fig. 7 is an elevation of a controller with a modified form of appliance supported thereby.

A designates an electric car provided with the customary rear doors B, which open outwardly as indicated by the dotted lines, Fig. 6. Said car A is provided at its forward end with the usual electric controller C, which is manually actuated through the intermediacy of the customary handle D, adapted to be rotated through an arc limited by lugs E and F, projecting upwardly from the top of the controller C. All of the foregoing is of usual construction.

In carrying out my invention, I employ a case 1 which is secured to one side of the controller C, so as not to be in the way of the motorman. Within the case 1 is a solenoid 3, provided with a core 5, having a marginal flange 6 at one end and a stop 7 at its opposite end. The stop 7 has a beveled outer terminal 8, to allow the handle D to move to off position when said stop is out in the path of said handle. A spring 9 is interposed between the flange 6 and the adjacent end of the solenoid coil 10 to quickly retract and hold the core 5 and the stop 7, in inoperative position when the solenoid coil 10 is deënergized.

11 designates a signal bell within the case 1 and arranged in the path of the core 5, in order to be sounded thereby when the solenoid is deënergized.

14 designates a signal lamp arranged in the case 1 beneath a sight opening 16 in the top of said case. A small pane of glass 18 in the case 1 is interposed between the signal lamp 14 and the sight opening 16. One-half of the glass 18 is, preferably, colored red and the other half green for a purpose which will hereinafter appear. An arm 20, secured to the flange 6 of the solenoid core 5, carries the glass 18 to shift the same beneath the sight opening 16, to alternately display the red and green colors of said glass.

22 designates a circuit closer controlled by the rear doors B of the car. Said circuit closer 22 consists of a contact point 24 and a spring contact 26, secured to the framework of the car adjacent one of the doors B, which latter is provided with a block of insulation 28, to hold the contact 26 out of engagement with the point 24 when the car doors B are in closed position. The circuit closer 22, the lamp 14, and the solenoid 3 are in a circuit consisting of wires 30, 31 and 32. The wires 31 and 32 are connected to any suitable source of electrical energy, such as a battery or the trolley of the car.

Should the conductor for any reason open the doors B while the car is in motion, the motorman can, if he desires, throw the handle D to the off position, as said handle on striking the beveled end 8 of the stop 7, will force the latter back out of the way.

In practice, the green portion of the glass 18 is normally exposed at the sight opening 16 to indicate that the doors B are closed and the motorman may proceed with safety. The stop 7 is also out of the path of the controller handle D, so that the same may be rotated to the right and left as desired. However, when the car is stopped to allow passengers to board or alight, the opening of the doors B allows the spring contact 26 to

engage the point 24 and close the circuit through the wires 30, 31 and 32. This energizes the solenoid coil 10, whereupon the resistance of spring 9 is overcome as the core 5 carries the stop 7 forwardly into the path of the handle D and secures the same in off position. Movement of the core 5 brings the red portion of the glass 18 in coincidence with the sight opening 16, which is illuminated by the lamp 14 to provide a visual signal which indicates to the motorman that the doors B are open and that no attempt should be made to start the car. After the passengers have safely boarded or alighted the doors B are closed. This operation opens the circuit closer 22 and interrupts the circuit through the wires 30, 31 and 32. Interruption of the circuit extinguishes the lamp 14 and deënergizes the solenoid 3, allowing the spring 9 to retract the core 5 and withdraw the stop 7 from in front of the controller handle D, so that the same may be rotated to the left to start the car. As the spring 9 retracts the solenoid core 5, the latter strikes the bell 11, thus signaling to the motorman to start the car. Retraction of the core 5 also shifts the glass 18 until its green or safety portion appears beneath the sight opening 16, thereby indicating that the doors B are closed. In certain instances it may be necessary or desirable to impart a longer movement to the stop 7, to throw it in and out of the path of the controller handle B. In such cases, I attain the desired movement by interposing a lever 28 (Fig. 7) between the stop 7^a and the solenoid core 5^a.

On other occasions, such, for instance, as when the conductor leaves the car to throw a switch, it is desirable to start the car while the rear doors are open. This may be done after deënergizing the solenoid by opening a manual switch 40 connected to the circuit wire 31.

From the foregoing description it is apparent that I have produced a simple, inexpensive, and efficient appliance whereby accidents due to motormen starting cars before the rear doors are closed, have been fully overcome, and while I have shown a preferred arrangement of the appliance, it is apparent that changes in arrangement, location, and combination of parts may be effected within the spirit and scope of the claims.

Having thus described my invention, what I claim and desire to secure by Letters Patent, is:

1. In combination with a car and its controller, a member to hold the controller handle in off position, a case mounted on the controller and provided with a sight opening, electrically-controlled means within said case for actuating the member to hold the controller member in off position, a two colored signal glass arranged to be shifted beneath the sight opening in the case by said electrically-controlled means, a circuit for energizing said electrically-controlled means, and means for opening and closing said circuit.

2. In combination with a car and its controller, a stop to hold the controller handle in off position, a core fixed at one end to said stop, an arm carried by said core, a two colored signal glass carried by said arm, a case inclosing the stop, the core and the signal glass and provided with a sight opening, a spring to normally hold the stop out of the path of the controller handle and expose one color of the glass at the sight opening, a coil surrounding the core, a circuit to energize said coil, cause the core to move the stop in the path of the controller handle and expose the other color of the glass at the sight opening, a circuit closer to close said circuit, and means on the car door to open said circuit closer when the door is closed.

In testimony whereof I affix my signature, in the presence of two witnesses.

WILLIAM W. TAYLOR.

Witnesses:
F. G. FISCHER,
L. J. FISCHER.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."