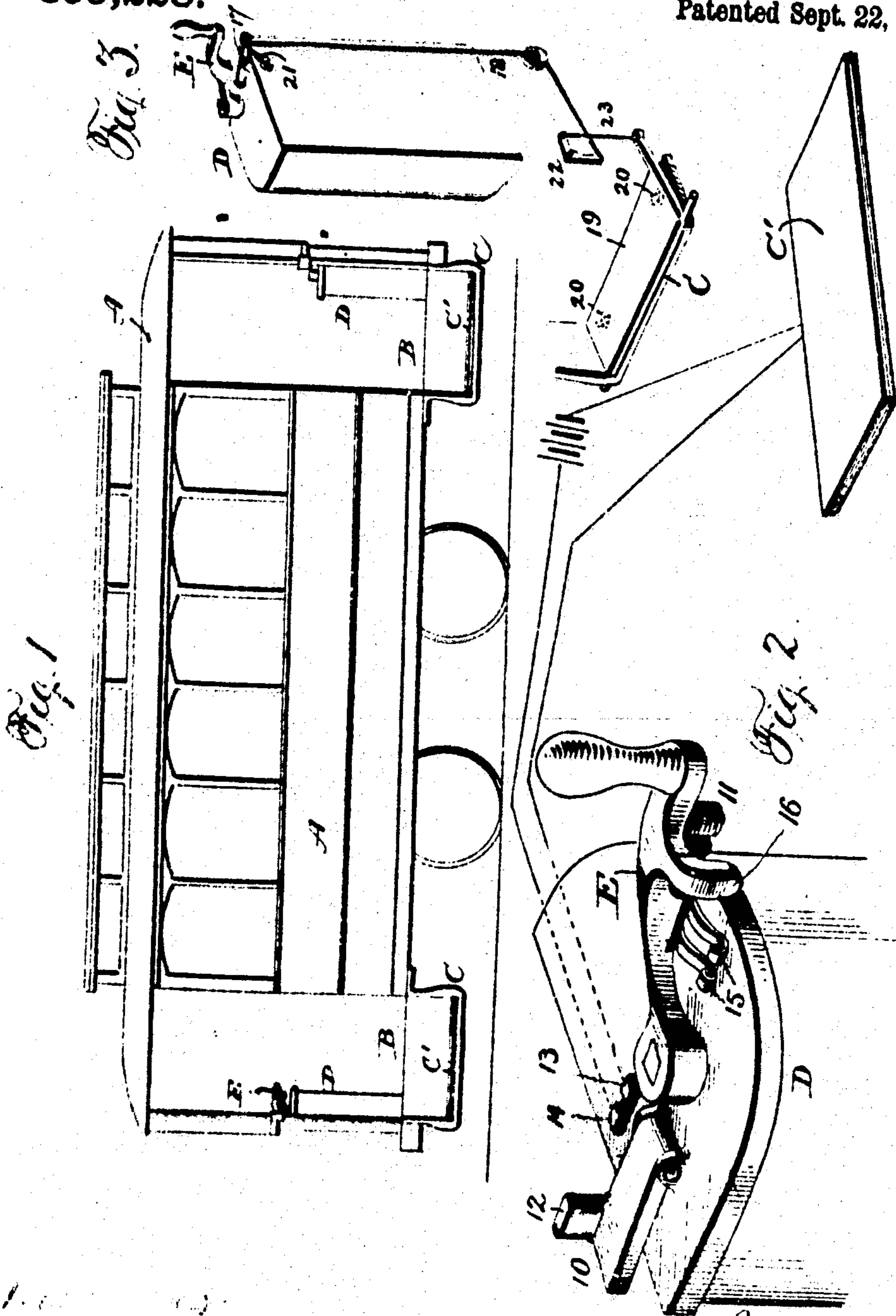


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SAFETY APPARATUS FOR CARS.
APPLICATION FILED MAR. 17, 1908.

899,228.

Patented Sept. 22, 1908.



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UNITED STATES PATENT OFFICE.

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SAFETY APPARATUS FOR CARS.

No. 899,228.

Specification of Letters Patent.

Patented Sept. 22, 1908.

Application filed March 17, 1906. Serial No. 421,671.

To all whom it may concern:

Be it known that I, THEODORE A. MAYER, a citizen of the United States, residing at Washington, in the District of Columbia, having invented certain new and useful Improvements in Safety Apparatus for Cars, hereby declare that the following is a full clear, and exact description thereof.

In the drawings, Figure 1 is a side elevation of an electric car equipped with my invention; Fig. 2 a perspective view of the apparatus, including the controller shown detached from the car; and Fig. 3 a view illustrating an embodiment of my invention in which the handle latch or bolt is operated by mechanical means.

The object of my invention is to prevent the premature starting of cars, and especially electrically propelled cars, while a passenger is in the act of boarding or alighting from the car.

As is well known, a frequent cause of accidents on street cars, is the premature starting of the car while the passenger stands, or partially stands on the car step in the act of getting on or off the car. It will be seen that if it be impossible for the motorman, on, say an electric car, to operate the controller to turn on the current, so long as a passenger has his foot on the car step, accidents to passengers from this cause will be prevented. I have produced a safety apparatus of this description. An apparatus so operated, however, to be practical, must necessitate as little interference with the operation of the car as possible, and in making my invention I have borne this in mind, so that, for example, with my apparatus, while the current is on and the car is in motion, should a person stand on the car step, it will not interfere with the operation of the controller.

I illustrate my invention as applied to an electric car, but I do not restrict myself to its use on a car driven by any particular kind of motor, and I also illustrate it as embodied in an electrically operated mechanism, but I do not restrict myself to mechanism that is operated by electricity.

Referring to the drawings, A designates an ordinary electric car of the closed type, having at each end a platform B and step C, and having on each platform a controller D with a detachable operating handle E.

Mounted on the controller in any suitable way, as for instance, by being slidably or pivotally supported at the top thereof, is a

latch or locking bolt 10 which normally is in such position as not to interfere with the absolute freedom of movement of the handle, but which when the handle is turned to the position to cut off the current, may engage the handle to lock or hold it from being moved in the direction required to again turn on the electricity. For lifting the latch or bolt into handle-engaging position, when the handle is turned to the point where it cuts out the motor, I attach to the handle on the under side thereof, an electro-magnet 11, which when its cores are above the latch or bolt (which latter, of course, is of iron or other magnetic metal) will lift the latch or bolt to cause its handle-engaging part or projection 12 to be interposed in the path of rotation of the handle in the direction to cut in the motor; and will hold it in such position so long as the magnet is energized. Upon the deenergizing of the magnet, the lock or bolt will be released and will drop out of position to interfere with the rotation of the handle. The magnet forms a part of a circuit that includes a circuit closer secured to each of the car steps, and if desired, the current may be taken from the usual bell-ringing battery provided on electric cars, or a separate battery may be provided for this circuit.

The circuit closer may be made of the well known mat used in electric burglar alarms, each step of the car being provided with a mat or pad C' of suitable size, to make sure that a person stepping or standing upon the car step will close the circuit, and one terminal of one of the conductors or wires is attached either directly to the controller casing, or to a contact piece or plate 13 fastened to the top of the controller, and a terminal of the other wire or conductor is attached to a similar contact piece or plate 14 secured to the top of the controller, the two contact pieces being in such position as to be respectively engaged by two spring contacts or shoes 15 that are attached to the controller handle, and, respectively, are electrically connected with the magnet, so that when said contact pieces or shoes rest upon the contact plates 13 and 14, and a person is standing upon one of the car steps, the circuit will be closed and the magnet energized. The contacts or plates 13 and 14 are of such size and are so located that the spring contacts or shoes engage them only at the time the magnet is above the latch or bolt, when the controller

handle is in the cut out position, and therefore it will be seen that even though a person is standing upon the car step and closes the circuit at that point, this condition will in no degree affect the operation of the controller handle so long as it is in a position where it will not cut out the car motor. This feature of my invention is one of special importance and value to the railroad company, because should a person be injured while on the car step, by reason of the movement of the car, it will be evident that the person was in fault or guilty of contributory negligence, since my apparatus after the car has been brought to a stand-still by the cutting off of the motor current, cannot be put in motion by the motorman so long as a person is standing upon the car step. It will require but little time and attention on the part of the motorman and conductor to see that the passenger does not remain standing on the step after the car is ready to start.

It will be evident that with the contact devices described, including the spring shoes on the handle, the handle may be removed from one controller to be applied to the other, or for any other purpose, with no trouble whatever, and that as soon as the handle is reappplied to the controller, the parts are instantly ready for operation without any manipulation or adjustment whatever.

For use on summer or open cars, which are provided with a running board at each side of the car, a circuit closer is applied adjacent to the end of each seat, or the mat form of circuit closing device may be extended from end to end of the running board. In those cases where in addition to the motor car, a trailer car is employed, it is necessary merely to employ a suitable electrical coupling device to place the circuit closers on the steps of a trailer in circuit with the bolt-operating mechanism of the controller.

I may utilize my latch or bolt as the stop for arresting the movement of the controller handle when it is turned to position to utilize all the current available for the motor, by providing on the handle a lug or projection that projects downward far enough to strike the latch or bolt on the side opposite that which has the handle-engaging projection 12.

As shown in Fig. 3, instead of a set of electrical devices for operating the latch or bolt, it may be operated by purely mechanical devices. Thus the latch or bolt may be in the form of a lever 17, pivoted to the controller so that one arm of the lever may be swung into and out of the path of the controller handle, and the other arm connected by a rod or wire 18 to a plate 19 pivoted to the car step on the upper side thereof. The plate 19 is held yieldingly raised by one or more springs 20, and a spring 21 pressing

against one arm of the lever 17, holds it yieldingly out of position to engage the handle E. The wire 18 is connected to a bell crank lever 22, and a link 23 connects the bell crank lever with the plate 19.

The importance to passengers in preventing injury to life and limb, and the value to railroads in avoiding the costly litigations which result from accidents due to the premature starting of cars, need no elaboration.

My invention not only involves a minimum of interference with the perfect freedom of operation of the car, but the devices necessary are exceedingly simple and inexpensive, and free from liability to accidental derangement.

What I claim is—

1. In a safety apparatus for cars, the combination of a movable handle or device for controlling the movement of the car, an automatically operated lock for said movable device or handle, and means on the car step for causing the operation of said lock when a person is on the step.

2. In a safety apparatus for cars, the combination of a motor controller having an operating handle or device, a locking means, and means on the car step for causing the operation of the locking means when a person is on the car step.

3. In a safety apparatus for cars, the combination of a motor controller having an operating handle or device, a locking means, and means for causing the operation of the locking means, including an electric circuit closer on the car step.

4. In a safety apparatus for cars, the combination of the handle or operating device of a motor controller, a latch or bolt to engage said handle, an electro-magnet carried by the handle, and means for energizing said magnet to attract said latch or bolt.

5. In a safety apparatus for cars, the combination of the movable handle or operating device of a motor controller, a latch or bolt to engage said handle, an electro-magnet carried by the handle, means for energizing said magnet to attract said latch or bolt, and means for opening and closing the circuit connected to the handle.

6. In a safety apparatus for cars, the combination of the removable handle or operating device of a motor controller, a latch or bolt to engage said handle, an electro-magnet carried by the handle, means for energizing said magnet to attract said latch or bolt, and means for opening and closing the circuit connected to the handle, including a circuit closer on the car step.

7. The combination of a motor controller for cars, and means actuated by a person on the step of the car for preventing the operation of the motor by the controller.

8. In a safety apparatus for cars, the combination of a motor controller, a controller

locking means, and means on the car step for causing the operation of said locking means when a person is on the step.

9. In a safety apparatus for cars, the combination of a motor controller, a locking means therefor for locking the controller only when it is in a motor-stopping position, and means on the car step for causing the operation of the locking means when a person is on the step.

10. In a safety apparatus for cars, the

combination of a motor controller having an operating handle or device, a locking means, and means on the car step for causing the operation of said locking means only when the controller is in a motor-stopping position.

In testimony that I claim the foregoing I have hereunto set my hand.

THEODORE A. MAYER.

Witnesses:

CHAS. J. WILLIAMSON,
M. L. PUGH.