

UNITED STATES PATENT OFFICE.

IRBY EUGENE WORK, OF ST. LOUIS, MISSOURI.

FARE-REGISTER.

932,082.

Specification of Letters Patent.

Patented Aug. 24, 1909.

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To all whom it may concern:

Be it known that I, IRBY EUGENE WORK, citizen of the United States, residing at St. Louis, State of Missouri, have invented certain new and useful Improvements in Fare-Registers, of which the following is a specification.

The present invention relates to a novel means for automatically actuating registers of that type which are commonly employed in connection with street cars or other conveyances to register the number of persons riding upon the same, and while the device has been particularly designed for use upon street cars it might be employed wherever it may be desired to register the number of persons passing over a given point or through a certain door-way or opening.

The object of the invention is the provision of an electrically operated device of this character which is simple and inexpensive in its construction and which generates its own current and does not require the use of batteries or similar members which would require continuous replacing or repairing and which would render the device inoperative when not in working condition.

For a full understanding of the invention and the merits thereof and also to acquire a knowledge of the details of construction and the means for effecting the result, reference is to be had to the following description and accompanying drawings, in which:

Figure 1 is an end view of a car having the registering device applied thereto, and Fig. 2 is a side elevation of the permanent magnet which is provided at its poles with bobbins, and the foot plate which constitutes an armature for the permanent magnet and is movably mounted so as to produce a current within the bobbins when stepped upon.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawings by the same reference characters.

For the purpose of illustration the invention is shown as applied to a car 1 which is of the conventional construction and is provided at one end with a door-way 2. Disposed substantially on a level with the floor of the car and either within the door-way 2 or adjacent thereto so as to be pressed downwardly by a person passing through the door-way, is a movable foot plate 3. The opposite ends of this foot plate are provided with the downwardly projecting guide

sleeves 4 which loosely receive pins 5 projecting upwardly from a fixed base plate 6. It will thus be obvious that the foot plate 3 is mounted so as to have an up and down vertical movement, springs 7 which surround the pins 5 and are interposed between the movable plate 3 and the fixed plate 7 serving to normally hold the movable plate in an elevated position at the upper limit of its movement. Stud 8 project laterally from the pins 5 so as to operate within slots 9 in the guide sleeves 4 and cooperate with these slots to limit the downward movement of the foot plate.

Passing through the base plate 6 and projecting into the space between the same and the foot plate 3, are the two poles of a U-shaped permanent magnet 10, the said poles being each provided with a bobbin 11 of insulated wire and the terminals of the bobbins being connected to the wires 12 which lead to a polarized electro-magnet 13 mounted upon one side of the register 14 for actuating the same. The foot plate 3 may either constitute an armature for the permanent magnet 10 or carry such an armature and when the armature is moved downwardly toward the poles of the permanent magnet by a person stepping upon the foot plate, the field of the permanent magnet is changed and lines of force are caused to cut the bobbins so as to produce an electric current therein. When the pressure upon the foot plate 3 is released and the foot plate is again forced upwardly into normal position by the spring 7, the armature of the fixed magnet is moved away from the poles thereof and a current is caused to flow through the bobbins in a reverse direction. It will thus be obvious that each person passing through the door-way 2 of the car, will step upon the foot plate 3 and in this manner send two reverse currents or an alternating current through the wires 12.

The fare register 14 may be of the usual construction and it is designed to be operated by a lever 15 pivotally mounted upon one side thereof, the free end of the lever being connected to a rod 16 which passes into the casing of the register and is connected to the mechanism therein. The polarized electro-magnet 13 comprises a permanent bar magnet 13^a and a solenoid 13^b surrounding the permanent magnet and having the terminals thereof connected to the wires 12. One of the poles of the bar magnet 13^a

is located opposite the lever 15 which serves as an armature therefor and normally tends to swing the lever in such a direction as to actuate the register. A spring 17 however
 5 which connects the lever and register and serves to swing the lever back into its original position after it has been moved to actuate the register, is of sufficient strength to overcome the action of the permanent
 10 magnet 13^a. When a current is passed through the solenoid 13^b in such a direction that the magnetic poles of the solenoid correspond to the poles of the permanent magnet, the two magnets will reinforce each
 15 other and their combined strength will overcome the action of the spring 17 and move the lever 15 to operate the register. However, when a current is passed through the solenoid in the opposite direction the magnetic poles thereof will be arranged in a reverse direction to those of the fixed magnet and the two magnets will tend to neutralize each other and will not move the lever 15. It will thus be obvious that the device will
 25 operate automatically to register the number of passengers passing through the doorway 2 of the car since each passenger must step upon the foot plate 3 and thereby as has been previously explained send an alternating current through the wire 12, the said alternating current operating upon the polarized electro-magnet 13 to actuate the register.

Having thus described the invention, what
 35 is claimed as new is:

1. In a device of the character described, the combination of a doorway, a permanent magnet arranged in the doorway, a bobbin upon the permanent magnet, a movable foot
 40 plate also arranged in the doorway so as to be operated by a person passing through the same, the said foot plate being provided

with an armature for the fixed magnet so that a current is produced in the bobbin when the foot plate is moved, a register, and
 45 means actuated by the current produced in the bobbin for operating the register.

2. In a device of the character described, the combination of a doorway, a fixed plate arranged in the doorway, a permanent magnet carried by the fixed plate, a bobbin upon the permanent magnet, a movable foot plate mounted upon the fixed plate and provided with an armature for the permanent magnet so that a current is produced in the bobbin when the foot plate is moved, a register, and means actuated by the current produced in the bobbin for operating the register.

3. In a device of the character described, the combination of a doorway, a fixed plate arranged within the doorway, a permanent magnet carried by the fixed plate, a bobbin upon the permanent magnet, a movable foot plate mounted upon the fixed plate and provided with an armature for the permanent magnet so that a current is produced in the bobbin when the foot plate is moved, a register, a polarized electro-magnet in series with the bobbin upon the permanent magnet, a lever having an operative connection with the register and forming an armature for the polarized electro-magnet, and a spring holding the lever against the action of the polarized electro-magnet until a current is sent therethrough in such a direction as to reinforce the same, the spring then yielding to admit of the lever moving to actuate the register.

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

IRBY EUGENE WORK.

Witnesses:

EVAN A. SMITH,
 CHAS. H. FRANCK.