

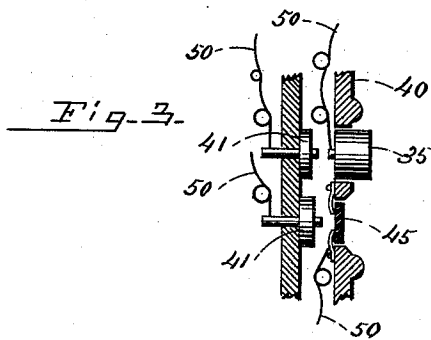
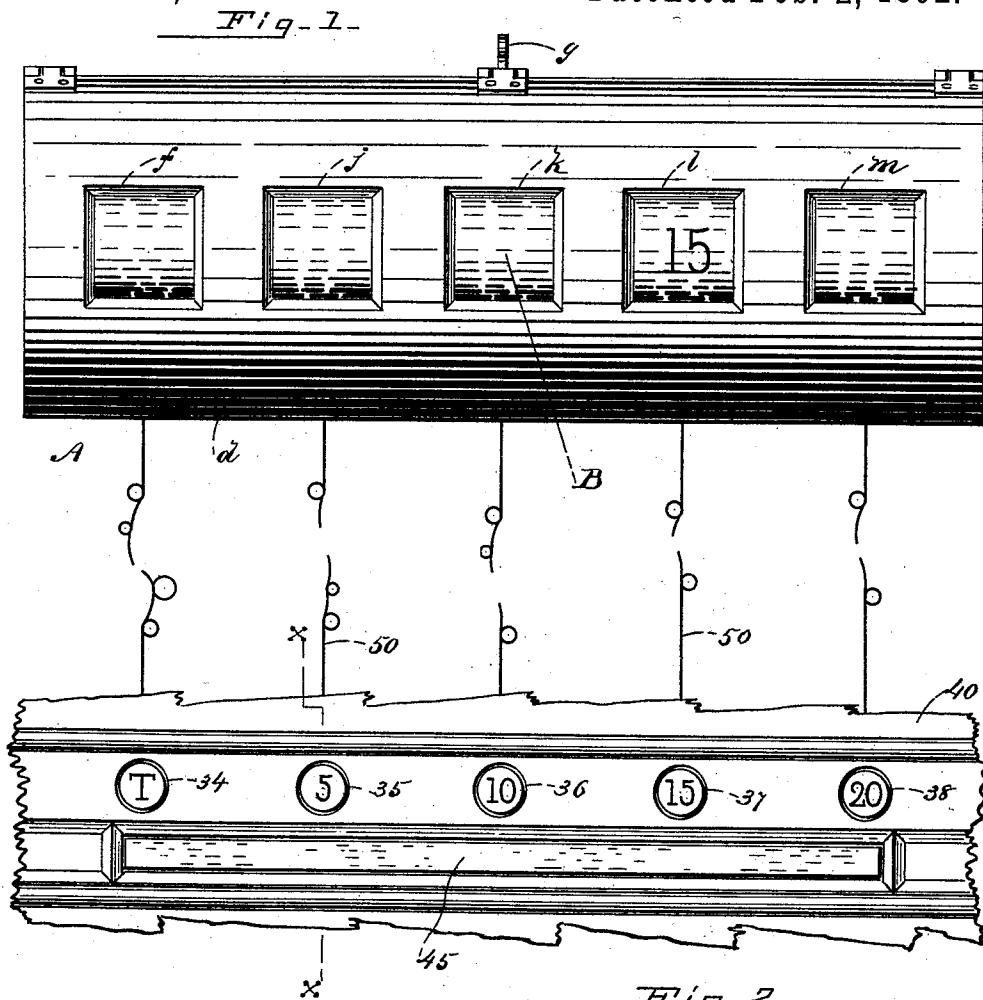
(No Model.)

2 Sheets—Sheet 1.

W. H. GILMAN.  
ELECTRIC FARE REGISTER.

No. 468,172.

Patented Feb. 2, 1892.



WITNESSES:  
Dwight T. Gay,  
M. Dwyer

INVENTOR=  
William H. Gilman,  
PER *C. A. Shawles*  
ATTY-S.



# UNITED STATES PATENT OFFICE.

WILLARD H. GILMAN, OF BOSTON, ASSIGNOR TO EDWARD P. SHAW AND RICHARD S. DODGE, OF NEWBURYPORT, FRED. P. HARLOW, OF MEDFORD, AND CHARLES FOLLEN ADAMS AND EMERY O. BICKNELL, OF BOSTON, MASSACHUSETTS.

## ELECTRIC FARE-REGISTER.

SPECIFICATION forming part of Letters Patent No. 468,172, dated February 2, 1892.

Application filed December 1, 1890. Serial No. 373,134. (No model.)

*To all whom it may concern:*

Be it known that I, WILLARD H. GILMAN, of Boston, in the county of Suffolk, State of Massachusetts, have invented certain new and useful Improvements in Electric Fare-Registers, of which the following is a description sufficiently full, clear, and exact to enable any person skilled in the art or science to which said invention appertains to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a front elevation of my improved register; Fig. 2, a sectional elevation showing an arrangement of push-buttons for actuating the register; Fig. 3, a transverse section taken on line *x x* in Fig. 2; Fig. 4, a top plan view of the register, a portion of the case being broken away to show the operating mechanism; Fig. 5, a vertical transverse section taken on line *y y* in Fig. 4, and Fig. 6 an elevation of the indicator-plate.

Like letters and numerals of reference indicate corresponding parts in the different figures of the drawings.

My invention relates especially to an electrically-operated device for registering fares in railway-cars; and it consists in certain novel features hereinafter fully set forth and claimed, the object being to produce a simpler, cheaper, and more effective device of this character than is now in ordinary use.

The nature and operation of the improvement will be readily understood by all conversant with such matters from the following explanation.

In the drawings, A represents the case of the register, which consists, preferably, of a rectangular box having a hinged cover *b* and a vertically-curved front wall *d*, provided with a series of glazed openings *f j k l m*, through which numerals are exposed representing the amount registered. The case is designed to be mounted in any convenient position in the car. The cover is provided with a key *g* or other locking device. Within the case a horizontal shaft *h* is mounted, said shaft being arranged longitudinally opposite the openings *f j k l m*. On the shaft opposite

each of said openings there is a loose sleeve *p*, said sleeves being separated by pins *q*. A ratchet-wheel *r*, provided with two teeth *t v*, (see Fig. 5,) is fast on one end of each sleeve. A loose peripherally-numbered register-wheel *w* is disposed on each sleeve adjacent to the ratchet *r* and are respectively provided on their hubs with a ratchet 15. A radial arm 16 is fast on each sleeve and bears a pawl 17, engaging the corresponding ratchet 15.

The indicator-plate B projects laterally from the outer or free end of the arm 16 across the edge of the corresponding register-wheel *w*, its face being exposed in the adjacent glazed opening. Said plate-face is divided into a blank upper space 20 (see Fig. 6) and a numbered or imprinted lower space 21.

The plates opposite the different openings *f j k l m* are respectively designed to indicate fares of different amounts—as, for example, at the opening *j* a five-cent fare is indicated, in the opening *k* a ten-cent fare, in the opening *l* a fifteen-cent fare, and so on consecutively—as many of said openings being employed as desired. The lower space 21 on the plates B are respectively numbered to correspond to said openings. The register-wheels *w* are spaced and numbered consecutively in amounts increasing by the amount of their respective plates B, the spaces on the wheel *w* opposite the opening *l*, for example, being numbered beginning at zero and increasing by fifteen the numeral on the corresponding indicator B.

Adjacent to each wheel *w* a registering-wheel 25 is journaled and numbered peripherally in dollars, said numbers increasing consecutively by the largest numeral on the companion cent-wheel *w*. Each wheel 25 is provided on one face with a ratchet 26, which is engaged by a stud 27 on its companion wheel *w*, actuating said wheel 25 one space for each complete revolution of said wheel *w*.

An electro-magnet C is mounted on a stand 67 at the rear of each wheel *w*. A vertical lever 28, pivoted by its lower end to the bottom of the case, forms an armature for said magnet. An actuating-pawl 29 is pivoted to the upper end of said lever, its point entering

the tooth *v* on the ratchet-wheel *r*. At the rear of each magnet C an electro-magnet D is mounted. A locking-pawl 31, pivoted to the cover *b*, has its point in the tooth *t* of the ratchet *r*, the opposite arm of said pawl forming an armature for said magnet. Each lever 28 is connected with the bottom of the case by a spring 33, tending to draw said lever away from its magnet C. The magnets are arranged in a suitably-disposed electric circuit.

Push-buttons 34, 35, 36, 37, and 38 are disposed in the car in position to be readily manipulated by the conductor, preferably being arranged in the molding 40 in the sides of the car. The buttons bear numerals on their face corresponding, respectively, to the numerals on the plates B, and each button is adapted to close the electric circuit and charge a corresponding magnet C. Any suitable form of button and contact-plate 41 may be employed connected by wires 50 with the circuit-wires of the magnets. The button 34 is imprinted with a letter "T" and is connected with the magnet operating the plate in the opening *f*, designed to be employed when a ticket is used instead of money. A "return" button or bar 45 is arranged in the molding below the push-buttons and is adapted to close the circuit and charge the magnets D.

In the use of my improvement the operator depresses a push-button corresponding to the amount of fare taken, as the button 37 when a fifteen-cent fare has been received. The corresponding magnet C is thereby charged, attracting its armature 28 and carrying the pawl 29, hinged thereto, to move the ratchet *r* a like distance. The pawl 31 rides over the tooth *v* thereof, locking said wheel against backward movement. In their normal position the blanks 20 of the plates B are exposed in the glazed openings. The wheel *r* as it is thus moved, being fast on the sleeve *p*, throws the corresponding plate B, secured to the sleeve by the arm 16, upward, exposing the lower space 21, in this instance bearing the numeral "15," in the opening *l*. Said plate is sustained in this position by the locking-pawl 31 described, and the numeral remains exposed until a succeeding fare is registered. As the plate B was thus elevated the pawl 17 on its arm 16, in engagement with the ratchet 15, caused the registering-wheel *w* to move a corresponding distance, showing the numeral "15," or a multiple thereof, at the top of said wheel. At a complete revolution of said wheel its stud 27 moves the wheel 25 one space, increasing the number exposed at the top by the highest numeral on the wheel *w*. It will be understood that the registering and adding wheels may be concealed by a suitable cover having

a slot to expose only one numeral thereon in the usual manner of registering mechanisms of this class. To register another fare, the operator closes the circuit by the return-bar 45, charging the magnet D, which attracts the pawl 31, freeing the ratchet *r* therefrom. The plate B immediately falls, exposing its blank 20 in the opening *l*, the pawl 17 clicking on the ratchet 15, leaving the registering-wheel *w* in its assumed position. The return of the plate rotates the ratchet *r* until its tooth *v* engages the actuating-pawl 29, the locking-pawl dropping into the tooth *t* when the button is released to break the circuit. The parts are now in position to again record, as described.

Having thus explained my invention, what I claim is—

1. In a fare-register, the combination of a case provided with an opening, a pivoted indicator-plate exposed in said opening, an electro-magnet, a pivoted armature, and a pawl hinged to said armature and actuating a ratchet on the pivot of said plate, substantially as and for the purpose set forth.

2. In a fare-register, the combination of a pivoted indicator-plate, a ratchet on the pivot thereof, a locking-pawl in engagement with said ratchet, an electro-magnet, a pivoted armature, an actuating-pawl hinged thereto in engagement with the ratchet, and an electro-magnet for moving said locking-pawl to release said plate, substantially as described.

3. In a fare-register, the combination of a case provided with an opening, a pivoted indicator-plate exposed in said opening, an electro-magnet, a pivoted armature, a pawl hinged to said armature and actuating a ratchet on the pivot of said plate, and a registering mechanism actuated by the movement of said indicator-plate.

4. In a fare-register, the combination of a case provided with an opening, a shaft supported in said case, a sleeve loose on said shaft opposite said opening, a radial arm on said sleeve, an indicator-plate attached to said arm and provided with a numeral, a ratchet-wheel also attached to said sleeve, an actuating-pawl, an electro-magnet for actuating said pawl, an electric circuit for charging said magnet, a locking-pawl, an electro-magnet for actuating said pawl, an electric circuit for charging the second magnet, a registering-wheel fixed on said shaft, a ratchet-wheel connected with said registering-wheel, and a pawl on said arm engaging said ratchet-wheel.

WILLARD H. GILMAN.

Witnesses.

A. M. BROWN,  
N. F. WALTON.