(No Model.) 3 Sheets—Sheet 1.

E. CHESTERMAN.

FARE REGISTER.

No. 264,440. Patented Sept. 19, 1882.

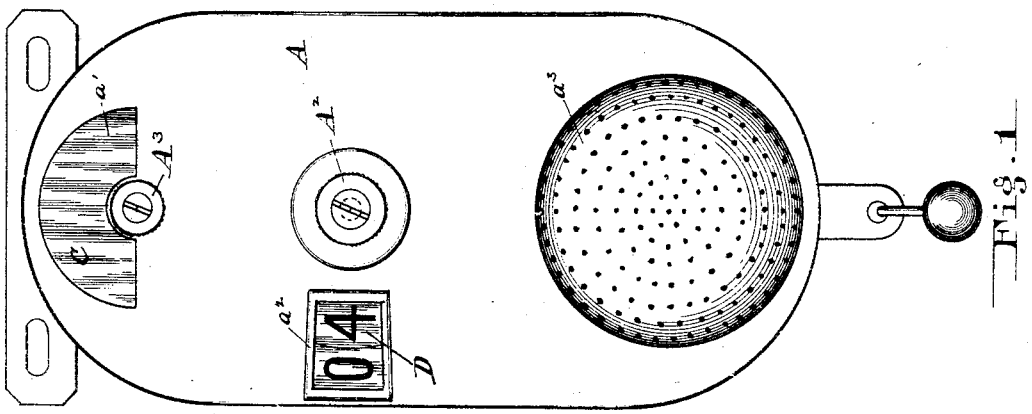

Fig. 1

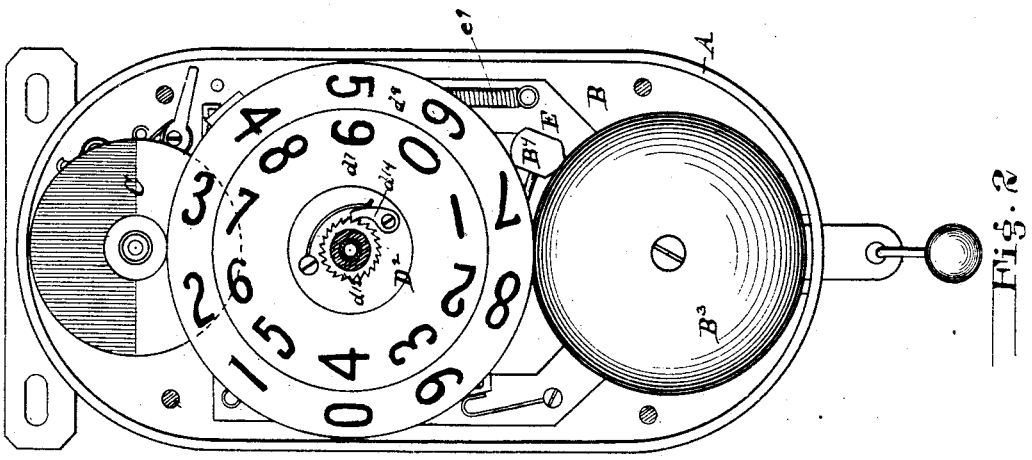

Fig. 2

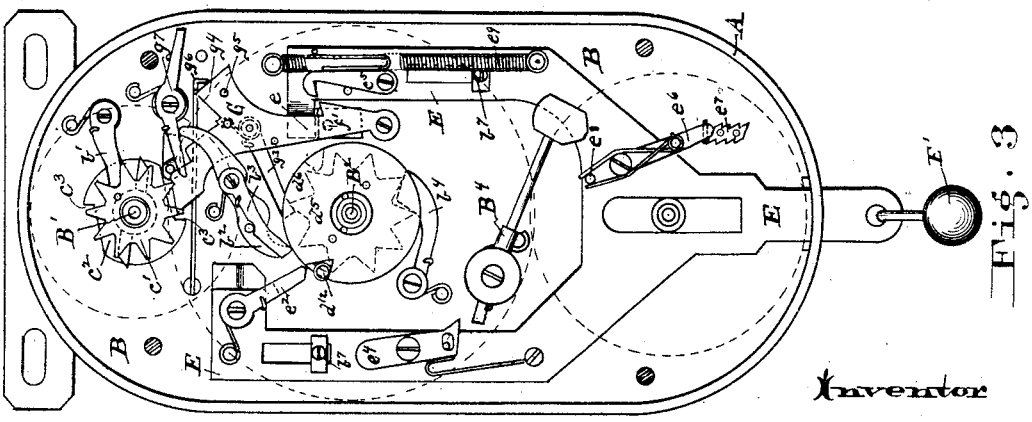

Fig. 3

Witnesses
Louis J. Mitrop.
F. B. Chesterman.

Inventor
Edwin Chesterman

(No Model.) 3 Sheets—Sheet 2.

E. CHESTERMAN.

FARE REGISTER.

No. 264,440. Patented Sept. 19, 1882.

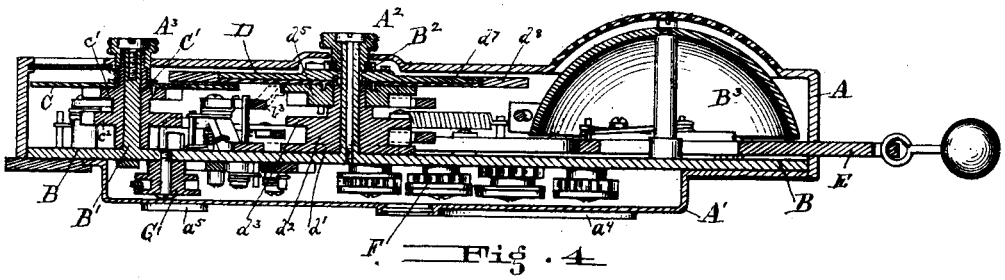

Fig. 4

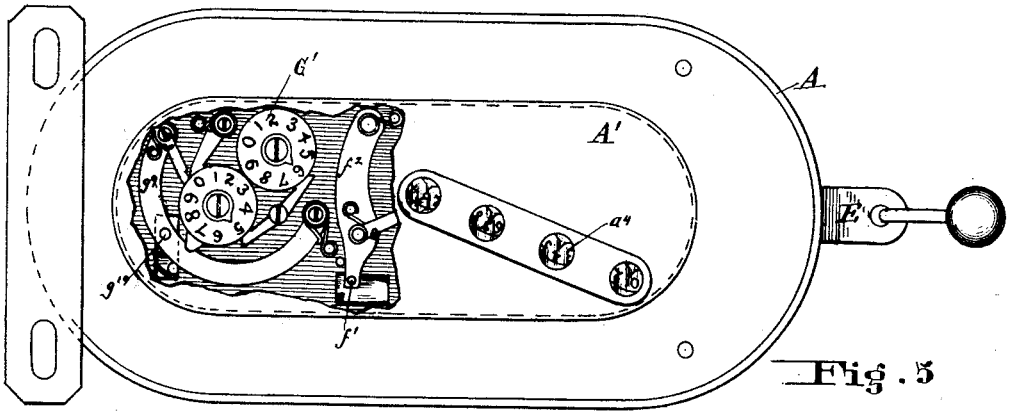

Fig. 5

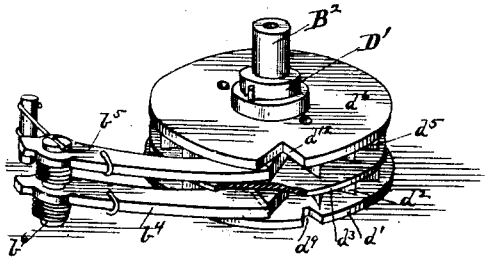

Fig. 6

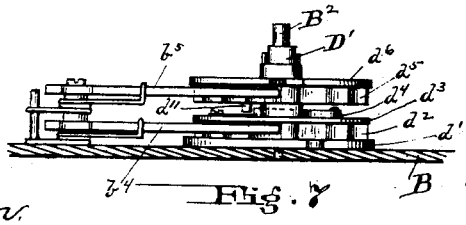

Fig. 7

Attests:
Louis J. Matos.
F. E. Chesterman.

Inventor
Edwin Chesterman

(No Model.) 3 Sheets—Sheet 3.

E. CHESTERMAN.

FARE REGISTER.

No. 264,440. Patented Sept. 19, 1882.

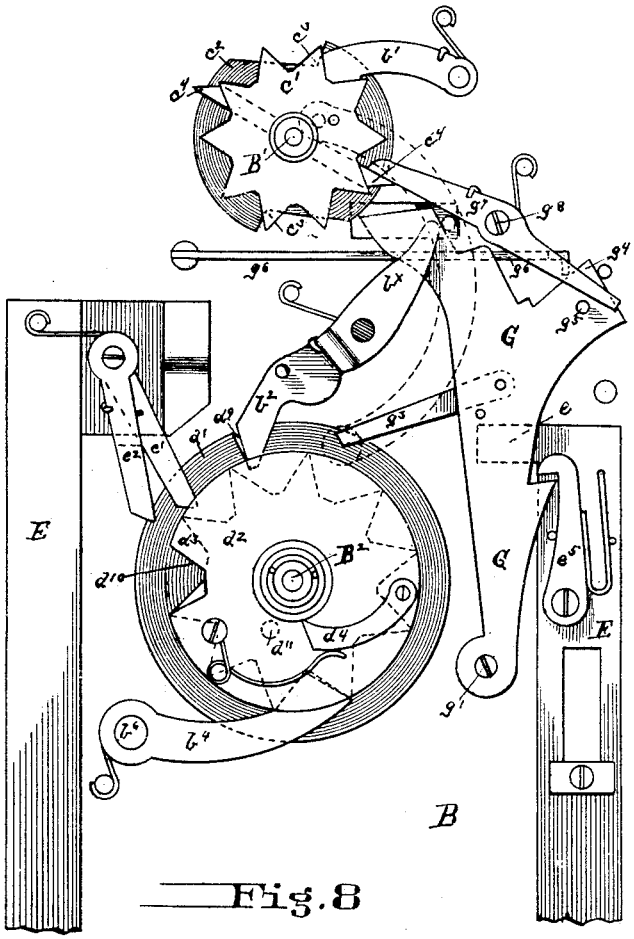

Fig. 8

Attests:
Louis J. Matos.
F. E. Chesterman.

Inventor
Edwin Chesterman

UNITED STATES PATENT OFFICE.

EDWIN CHESTERMAN, OF PHILADELPHIA, PENNSYLVANIA.

FARE-REGISTER.

SPECIFICATION forming part of Letters Patent No. 264,440, dated September 19, 1882.

Application filed June 16, 1882. (No model.)

To all whom it may concern:

Be it known that I, EDWIN CHESTERMAN, of Philadelphia, Pennsylvania, have invented certain Improvements in Fare-Registers, of which the following is a specification.

The improvements are shown in an organization having a general or continuous register, a trip or set-back register, mechanism to lock prime mover, a register to record the actuations of said mechanism, an alarm mechanism, and a trip-signal.

The object is to insure that the register be set back to zero at the end of each trip. If the signal is not changed, the proper officer would notice it, and if it is changed the register must be turned back to zero before it can be again used to register fares.

The invention consists in the combination of a trip-signal, a trip or set-back register, a lever actuated by the register to lock its actuating-handle by turning said register backward, and mechanism actuated by the trip-signal when the register is at zero to release said actuating-handle by turning said trip-signal to a fresh indication, as will be more particularly set forth in the following specification and accompanying drawings, in which—

Figure 1 is a front view of the register. Fig. 2 is a plan with the case removed. Fig. 3 is a plan with the dials and bell removed. Fig. 4 is a vertical section. Fig. 5 is a back view with part of case broken away to show the mechanism for actuating the general register and the register to locking mechanism. Figs. 6 and 7 are details of the trip-register; and Fig. 8 is an enlarged plan of the mechanism, showing more particularly the invention herein claimed.

A is the case in which the mechanism is inclosed. It is composed of two parts, fitting the one into the other, and secured together by screws or other devices. The front part has two glazed openings—a', through which the trip-signal is seen, and a^2, through which the trip-register is seen. a^3 is a projection over the bell. The back part of the case has a projection, A′, to cover the general register. It is provided with glazed openings a^4, through which the figures of said register may be seen, and a^5, through which the figures of the register actuated by the locking mechanism are seen.

B is the base-plate on which the working parts of the register are supported. The front and back parts of the case are fastened to the base-plate by screws.

C is the trip-signal, the face of which is of two colors, working around the post B′.

c' is a ratchet-wheel, and c^2 is a cam having notches c^3 c^3 on its periphery. The signal-dial, cam, and ratchet-wheel are all fastened rigidly to the sleeve C′, and are actuated by knob A^3, attached to the sleeve C′, from outside the case. A pawl, b', prevents backward movement of the trip-signal.

D is the trip-register working around the post B^2.

d^2 is the units ratchet-wheel, which, together with notched cams d' and d^3, are rigidly fastened to sleeve D′. Unit-dial d^7 is fitted to and turns with said sleeve. Cam d' has a notch, d^9, which engages a pawl, b^2, and prevents backward movement beyond zero of the register. (See Figs. 6 and 8.) Cam d^3 has a notch, d^{10}, to permit actuating-pawl c^2 to engage the ratchet-wheel d^5 at each tenth movement of ratchet-wheel d^2. On the upper side of cam d^3 is pivoted a spring-pawl, d^4, which engages a pin, d^{11}, on the under side of tens ratchet-wheel. (See Fig. 8.)

d^5 is the tens ratchet-wheel, to which is rigidly fastened notched cam d^6, and which is loosely arbored on sleeve D′.

d^8 is the tens-dial, fitted to and turning with tens-ratchet.

Cam d^6 has a notch, d^{12}, which engages a pawl, b^3, and prevents backward movement beyond zero. (See Fig. 3.)

b^4 b^5 are steadying-pawls centered on post b^6, and are held by springs into engagement with ratchet-wheels d^2 d^5, respectively.

D^2 is a device for setting the trip-register back to zero. It consists of a knob, A^2, ratchet-wheel d^{13}, and spring-pawl d^{14}. The spring-pawl is pivoted to the units-dial, and the ratchet-wheel is fitted upon the inner end of knob A^2.

E is the actuating-slide. Its upper ends are fitted over guide-posts b^7, and its lower end projects outside the case and has a knob, E′, attached.

e' is a spring-pawl to actuate the unit ratchet-wheel, and spring-pawl e^2 is to actuate the tens ratchet-wheel.

e^4 is a spring-pawl to actuate the bell-hammer.

e^6 is an oscillating detent, fitted to engage with ratchets e^7, and provided with springs resting against a post, e^8, when the actuating-slide is at either end of its movement, but when the slide is drawn out the detent passes down and engages one side of the ratchet, and will not permit a return until a full outward movement is had, when the detent passes to the other side of the ratchet, and, as the slide is drawn inward, engages the other side of the ratchet and will not permit a return until a full inward movement has been had.

e^9 is a spring to return the actuating-slide.

F is the general register, placed upon the under side of the base-plate. It is actuated by tappet e on the upper end of actuating-slide, which engages a pin, f', projecting upward from pawl-carrier f^2 each time the trip-register is actuated by the actuating-slide.

The mechanism above described is well known in instruments of this class, and requires no more particular description.

I will now describe the parts relating more especially to my present invention.

G is a lock-lever pivoted at g'. It extends upward, and is fitted to engage with notches in cam c^2 of the trip-signal. Near the middle of this lever, on its under side, is a spring-pawl, g^3, which engages the unit ratchet-wheel of the trip-register, and near the upper end of said lever is a projection, g^4, beveled both ways. Extending upward from the face of this projection is a pin, g^5. A spring, g^6, is fitted to engage with either face of the beveled end g^4. A rocking lever, g^7, is centered on post g^8. A spring holds or returns it to its bearing on the upper end of pawl b^2. This pawl b^2 (which prevents the trip-register being turned backward beyond zero) has an arm, $b^\times$, extending upward. (See Figs. 3 and 8.) In the present case a register, G′, is placed on the under side of the base-plate. It is actuated by a pawl on pawl-carrier g^9. A pin, g^{10}, extends upward and engages with lever G and records the number of times the actuating-slide has been locked. (See Fig. 5.) e^5 is a spring-pawl on slide E. It engages with lever G to lock the actuating-slide. The notched cam c^2 of the trip-signal is provided with two tappets, c^4 c^4, whose function is (when the register is at zero) to engage the rocking lever g^7, and, when rotated, to cause it to trip the lever G and release the actuating-slide. (See Figs. 3 and 8.)

From this description of my invention it will be seen that when the register is used for registering fares the pawl g^3 on the lock-lever G rises and passes over the teeth of the ratchet-wheel d^2, and the pawls b^2 b^3 rise out of the notches in cams d' d^6 and permit a free forward movement of the trip-register. (See Fig. 3.) Therefore the mechanism described performs no function; but when the register has been used to register fares and one trip has been completed, it is desired to return the register to zero. This is done by turning the knob A^2 to the right, when the pawl g^3 engages the unit ratchet-wheel d^2, and, being rigid in that direction, the lever G is turned upon its center. The spring g^6 rises on the outer incline, g^4, of lever G, passes the apex, and down the inner incline, and throws said lever outward until the notch on its edge engages with the hook-pawl e^5 and locks the actuating-slide. The upper end of lock-lever G engages the pin in the pawl-carrier g^9 of register G′ and records the locking movement. The backward movement being continued, the pawls b^2 b^3 ride on the periphery of cams d' d^6 until the register is at zero, when both pawls fall into their respective notches in said cams and prevent a further backward movement. The upper end of pawl b^2 is raised, and, coming in contact with the inner end of rocking lever g^7, raises it into the pathway of the tappets c^4 c^4 on the cam c^2 of the trip-signal. (See Fig. 8.) If the trip-signal be now turned to another indication, one of the tappets c^4 will turn the rocking lever g^7 on its center and cause its outer end to engage pin g^5 in the lock-lever and carry said lock-lever inward until its upper end passes into one of the notches of cam c^2. The reversing-spring passes to the other side of the incline g^4, and the notch in the lock-lever passes out of engagement with hook-pawl e^5 and releases the actuating-slide. (See Fig. 3.)

It will also be seen that if the trip-signal is changed when the register is not at zero, the cam c^2 will raise the upper end of the lock-lever until the reversing-spring g^6 passes to the other side of the incline g^4, and the notch in the edge of the lever engages the hook-pawl e^5 and locks the actuating-slide in the same manner as described when starting the trip-register backward; but, the register not being at zero, the upper end, $b^\times$, of pawl b^2 does not raise the rocking lever g^7 into the pathway of the tappets c^4. Therefore the rocking lever is not actuated by the rotation of the trip-signal to release the actuating-slide; but if the trip-register be then turned backward to zero and the trip-signal turned to another indication, the rocking lever will be actuated by the tappets and the actuating-slide be released in the same manner as described when the register was at zero.

The operation is as follows: The trip-signal being at one of its indications and the trip-register at zero, to register a fare the actuating-slide E is pulled outward; the pin on the oscillating detent e^6 engages the teeth on the outer side of ratchet e^7, (and prevents a return movement of the slide E until a full outward movement has been had;) the pawl e^4 engages a tooth on the bell-hammer B^4 and raises said hammer; the pawl e^2 slides upon the periphery of cam d^3, and is thereby prevented from engaging the tens ratchet-wheel of the trip-register; pawl e' engages the unit ratchet-wheel of the trip-register and turns it one tooth, in which position it is held by retaining-pawl b^4; the tappet e on the slide engages pin f' on the

pawl-carrier f^2 of the general register and actuates it. The pull on the handle being continued, the pawl e^4 passes out of engagement with the bell-hammer, which, under the influence of its spring, strikes the bell, and the oscillating detent passes down out of engagement with the ratchet e^7. The pull on the handle being released, it is drawn inward by spring e^9. The oscillating detent now engages the inner teeth of the ratchet e^7 and prevents a return movement until a full inward movement has been had; the tappet e passes out of contact with the pawl-carrier f^2 of the general register, which, under the influence of its spring, re-engages the unit-wheel of the general register; the pawl e^2 slides upon the periphery of cam d^3, the pawl e' re-engages the units ratchet-wheel, the pawl e^4 re-engages the tooth of the bell-hammer, the oscillating detent passes up out of engagement with the ratchet e^7, and the machine is ready to register another fare. At each tenth movement of the actuating-handle the pawl e^2, instead of sliding on the periphery of cam d^3, will fall into the notch of said cam and engage a tooth in the tens ratchet-wheel of the trip-register and turn it one tooth. A retaining-pawl, b^5, holds said ratchet-wheel in position. When the trip is finished the trip-register is set back to zero by turning the knob A^2 to the right, when a tooth of the unit ratchet-wheel comes in contact with pawl g^3 on the under side of lock-lever G and turns it on its center, the reversing-spring g^6 rises on the outer incline and passes down the inner incline, g^4, the notch of the lever engages the hook-pawl e^5 and locks the actuating-slide, (see Fig. 8,) and the upper end of lock-lever engages the pin in pawl-carrier g^9, actuates the register G', and records the movement of the locking mechanism. The turning of the knob being continued, the pawl d^4 on unit-cam d^3 engages pin d^{11} on the tens ratchet-wheel, (see Figs. 7 and 8,) and the units-ratchet and the tens-ratchet are turned back together until the zero of the register is reached, when the pawls b^2 b^3 will fall in the notches in cams d' d^6, respectively, and prevent further backward movement; the upper end, $b^\times$, of pawl b^2 will raise the inner end of rocking lever g^7 into the pathway of the tappet e^4 on the cam of the trip-signal. The trip-signal is changed to another indication by turning the knob A^3 to the left, when one of the tappets e^4 will engage the inner end of rocking lever g^7 and turn it on its center. The outer end of said lever will engage pin g^5 on the face of the lock-lever and turn it upon its center, the reversing-spring g^6 will pass up the inner and down the outer incline, g^4, the upper end of the lock-lever will pass into one of the notches in the cam of the trip-signal, and the notch in the lock-lever pass out of engagement with hook-pawl e^5 and release the actuating-slide just when the signal-dial shows a new indication. (See Fig. 8.) If the trip-signal be changed when the trip-register is not at zero, the upper end of lock-lever will be raised out of the notch of cam of trip-signal and the reversing-spring will pass up the outer and down the inner incline, g^4, and the notch in the lock-lever will engage the hook-pawl e^5 and lock the actuating-slide in the same way as described in turning the trip-register backward; but pawl b^2 will not be in the notch of cam d^3, and consequently the upper end, $b^\times$, of said pawl will not raise the rocking-lever into the pathway of the tappets e^4, and the actuating-slide cannot be released until the trip-register has been turned to zero, when changing the trip-signal to a fresh indication will release the actuating-handle, as before described.

I claim as of my invention—

1. The combination of a trip-signal, a trip or set-back register, a lever actuated by the register to lock its actuating-handle by turning said register backward, and mechanism actuated by the trip-signal to release said actuating-handle when the trip-signal is turned to a fresh indication, substantially as set forth.

2. The combination of a trip-signal, a trip or set-back register, a lever actuated by the register to lock its actuating-handle by turning said register backward, and mechanism actuated by the trip-signal when the register is at zero to release said actuating-handle by turning said trip-signal to a fresh indication, but which mechanism will not release said actuating-handle unless the register is at zero, substantially as set forth.

EDWIN CHESTERMAN.

Witnesses:
G. M. STREETER,
JABEZ WOOD.