

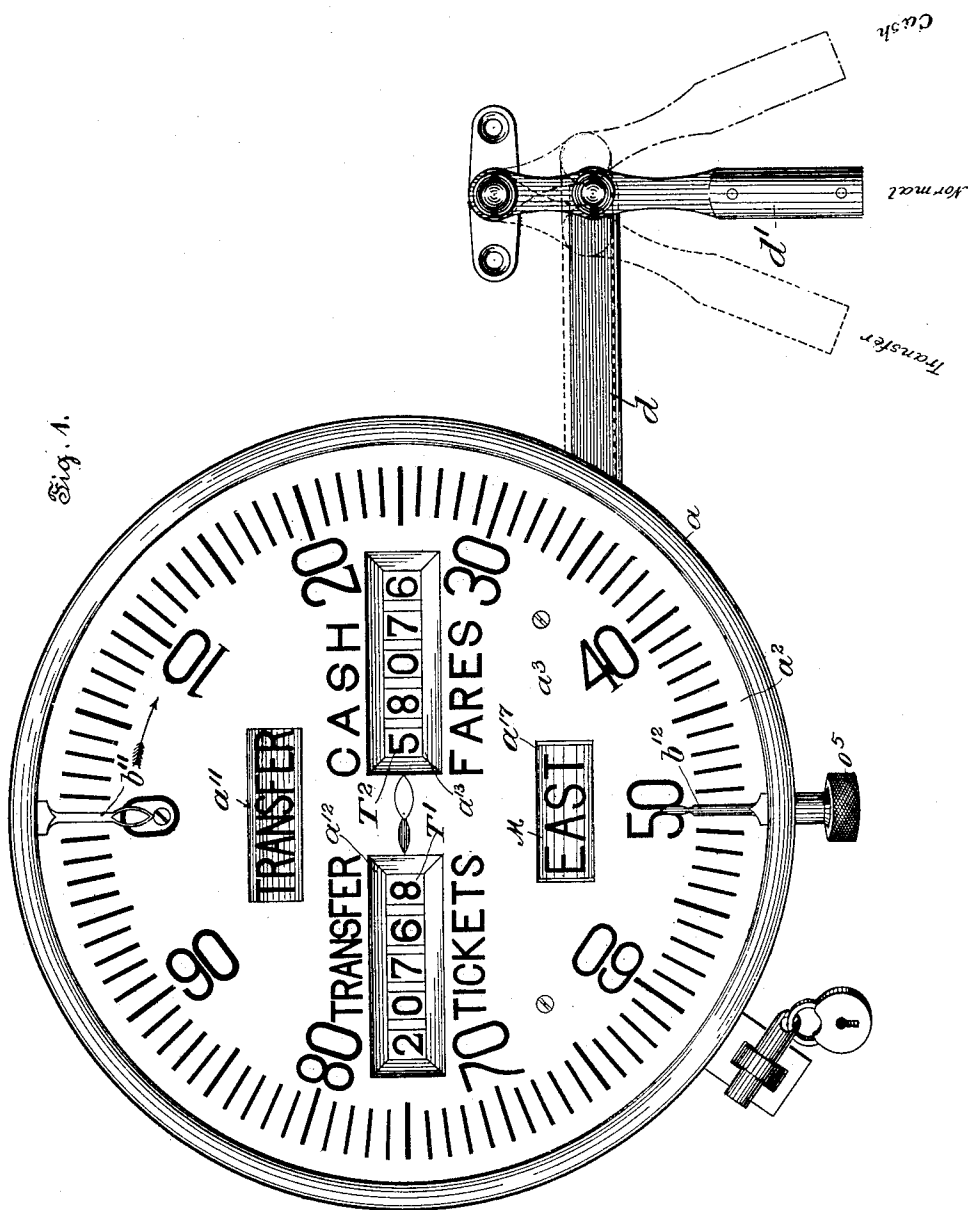
(No Model.)

5 Sheets—Sheet 1.

F. HERLT.
FARE REGISTER.

No. 581,555.

Patented Apr. 27, 1897.



Witnesses:

John Cantley

Mabel W. Faust.

Inventor:

Frank Herlt

By Hermann Bornmann

Att'y.

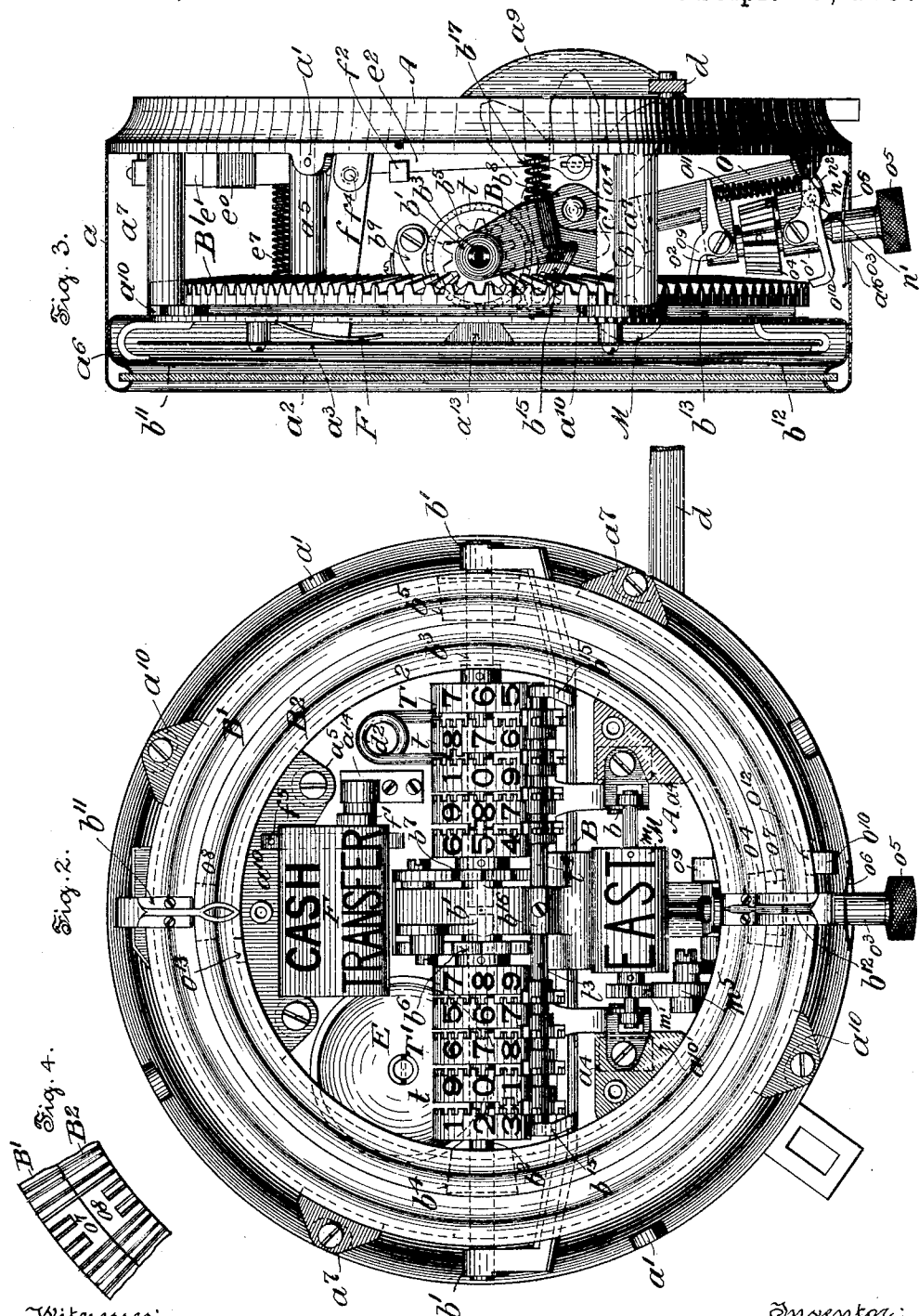
(No Model.)

5 Sheets—Sheet 2.

F. HERLT.
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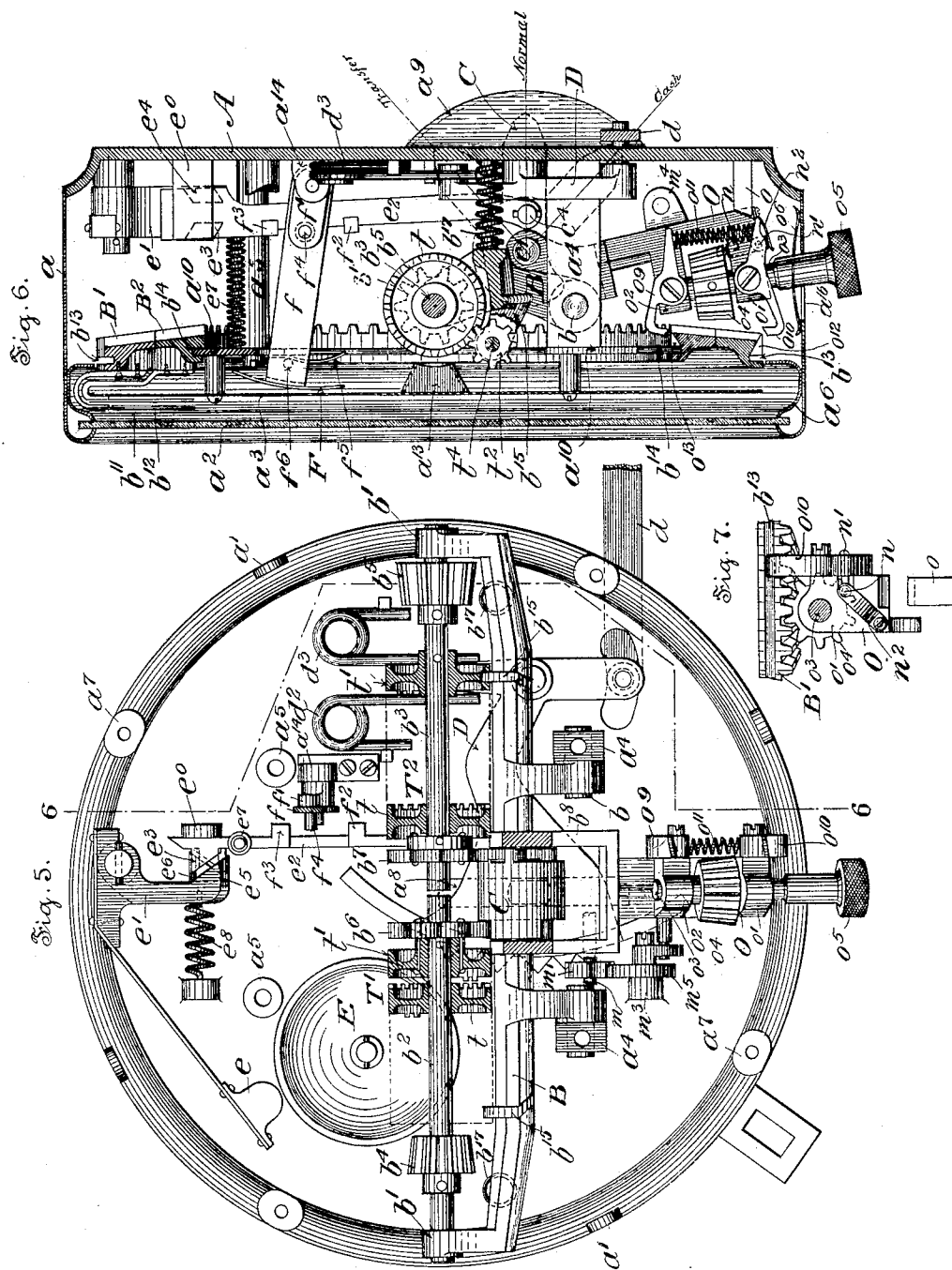
(No Model.)

5 Sheets—Sheet 3.

F. HERLT.
FARE REGISTER.

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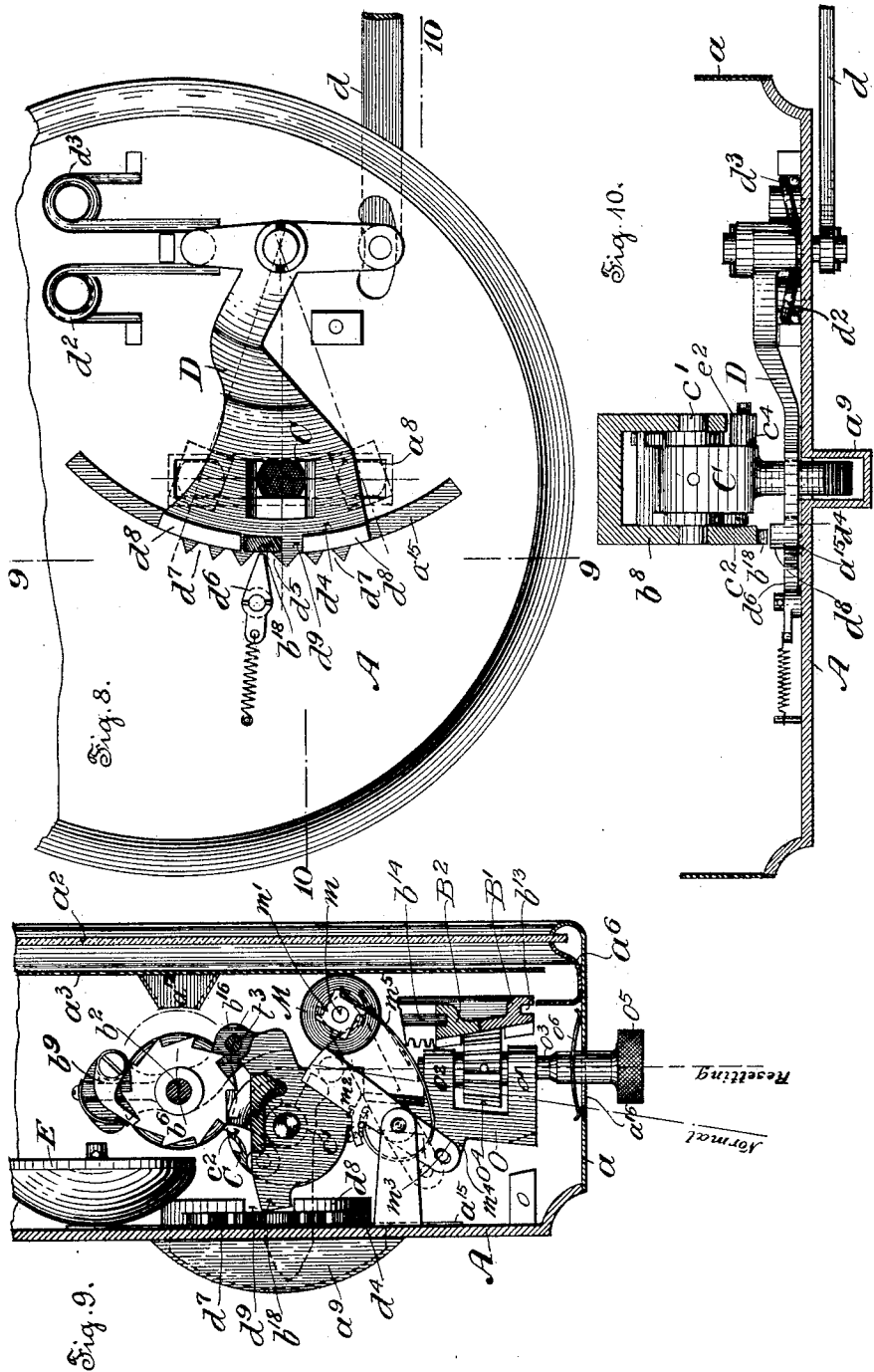
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John Cantley
Mabel W. Faust.

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UNITED STATES PATENT OFFICE.

FRANK HERLT, OF NEW YORK, N. Y.

FARE-REGISTER.

SPECIFICATION forming part of Letters Patent No. 581,555, dated April 27, 1897.

Application filed July 25, 1896. Serial No. 600,464. (No model.)

To all whom it may concern:

Be it known that I, FRANK HERLT, a citizen of the United States, residing at New York, in the county and State of New York, have
5 invented a new and Improved Fare-Register, of which the following is a specification.

My invention relates to fare-registers used in street-cars and similar vehicles for the registration of cash fares, tickets, transfers, &c.; and the object of the invention is to provide
10 a fare-register having two registering-machines combined into one, on which two classes of fares—for instance, cash fares and transfer-tickets—may be registered.

My invention relates more particularly to that class of fare-registers in which a revolvable pointer moves over a fixed dial to indicate the number of fares collected during one trip; and it consists of the entirely new arrangement and construction of parts constituting
20 my new fare-register, which is simple, compact, durable, and absolutely reliable in operation, insuring the most security against handling for fraudulent purposes, as will be hereinafter more fully described.

My improved fare-register consists of two so-called "trip-registers" for registering separately the cash fares and the sale of transfer-tickets or other desired transfers of higher or
30 lower value than the regular cash fare. These trip-registers are so arranged, in connection with a changeable sign, that a passenger can at once see after his fare has been registered whether it has been registered by the proper
35 mechanism—i. e., if a cash fare has been paid and registered, a pointer indicating only fares moves one division ahead on the indicator-dial and a sign appears on a sight-hole that a cash fare, "cash," has been paid. If, how-
40 ever, another fare—for instance, a transfer-ticket—has been paid for and is registered, another pointer moves one division on the same indicator-dial and another sign in the same sight-hole appears, stating that a "transfer-ticket" has been sold. It is obvious, therefore, that the passengers themselves have a
45 control upon the proper registration of the various fares.

To distinguish one pointer, sign, and other
50 markings of one class of fares from the others pertaining to the other class of fares, they

may be of two distinct colors or particular shapes.

My invention further consists of mechanism on the trip-registers by which a full
55 stroke to the actuating devices must be given before a signal or a registration of a fare of any class may be obtained, as otherwise the further movements of the actuating devices and pointer are checked until the said device is
60 moved again in the same direction to make good the deficiency in the stroke.

My improved fare-register further consists in the combination of the two trip-registers above mentioned with two permanent or totalizing registers which register the total
65 number of fares in each of the two classes as registered during the various trips made in a certain period, as a day, week, or month, and of novel means whereby the trip-regis-
70 ters may simultaneously and separately be brought into zero position at each end of a trip, and in such a manner that, first, neither trip-register can be moved without having
75 such registering mechanism in its normal or resting position or having the resetting mechanism fully engaging the trip-registering mechanism; secondly, that the permanent or totalizing registers cannot be tampered with during the resetting of the trip-
80 registers or trip-indicators, nor at any time and at any position of the various devices.

The improved fare-register further consists in the combination of the two trip-registers with a trip-indicator and means whereby the
85 latter may be automatically set and locked only at zero position of both the trip-registers.

The improved fare-register further consists of novel means for giving signals from one bell, whether a fare of one or the other class
90 is being registered; and my improved fare-register finally consists of the improvements, novel construction, and arrangements of entirely new mechanism hereinafter more fully described, and pointed out in the claims.
95

In the designing of my improved fare-register great care has been taken to so construct and proportion most of the parts as that they can be cast without necessitating any finishing or machine work. Machine-cut wheels
100 are as much as possible avoided, for which reason the machine is simple in construction.

Another advantage is its appearance in size, as well as shape, which is also due to special arrangements of the parts, which simply need be cast and fitted, as will be more fully understood from the drawings forming part hereof, and in which—

Figure 1 is a front view of my improved register, showing two trip-register pointers, a sight-hole for exposing one or the other sign, according to what class of fare has been registered, two permanent or totalizing registers, the trip-indicator sign, and a handle with connection for actuating the register. Fig. 2 shows the register with the cover and indicating-dial removed. Fig. 3 is a view from the right-hand side with housing shown in section. Fig. 4 shows a detail view of one portion of the means for, first, actuating the pointers, and, secondly, resetting the same to zero position. Fig. 5 is a view illustrating in plan various devices for actuating the signal, the indicator for the class of fare, the trip-register actuating and resetting mechanism, &c. Fig. 6 is a section on the line 6 6 of Fig. 5. Fig. 7 is a view of the resetting and locking mechanism. Fig. 8 is a plan view showing the trip-register-actuating mechanism and means for checking and locking the same at resetting position. Fig. 9 is a section on line 9 9 of Fig. 8, showing also the means for operating the trip-indicator, the locking devices therefor, and the resetting mechanism. Fig. 10 is a section approximately on the line 10 10 of Fig. 8. Fig. 11 is a plan showing in detail the actuating device for the two-class trip-register, the signal, and means for operating the same from the former. Fig. 12 is a view on line 12 12 of Fig. 11, showing the arrangement of operating and locking the permanent or totalizing register for cash fares and also the bar for operating the signal. Fig. 13 is a detail view on line 13 13 of Fig. 11, showing the bell-hammer arrangement to give a signal either by the registration of a cash or other fare. Fig. 14 is a view on the line 14 14 of Fig. 11, showing the arrangement of operating and locking the permanent or totalizing register for transfer fares. Fig. 15 is a section on the line 15 15 of Fig. 11, showing the bar for actuating the signal and also the bell-hammer arm and its step with guide for the signal-bar; and Fig. 16 is a view showing the relative positions of the devices for actuating the trip-register.

Referring now to the drawings for a further description of my invention, A is a base-plate supporting the various devices, registers, &c., which are inclosed by a cylindrical housing comprising the wall a , secured to lugs a' of the base-plate A, the glass plate a^2 , the dial a^3 , supported from the inner guide-plates a^{10} , secured to posts a^4 a^5 of the base A, and a ring a^6 , resting on the outer guide-plates a^{10} of posts a^7 to hold the glass a^2 in position. For convenience the separate devices constituting my fare-register will be treated separately, and a description of the two-class

trip-register, which hereinafter will be termed "twin register," because it registers cash fares as well as transfers, will first be given.

In the posts a^4 , Fig. 6, is journaled at b a frame B, of cast metal, which is provided with bearings b' for two shafts b^2 and b^3 , upon which, at their outer ends, are secured two bevel-wheels b^4 and b^5 , and at their inner ends the ratchet-wheels b^6 and b^7 , whose teeth are pitched oppositely, as shown in Figs. 12 and 14, respectively.

In an extension b^8 of the frame B is journaled at c' a lever C, carrying on one side a spring-pawl c^2 for the ratchet-wheel b^6 , Fig. 14, and at the other side a spring-pawl c^3 for the ratchet-wheel b^7 , Fig. 12. The free end of this lever C extends through a slot a^8 of the base-plate A, which is provided at this point with a hood a^9 to protect the said lever. A T-lever D, provided with a slot through which the lever C extends, is journaled to the base-plate A and receives oscillatory motion from a bar d , handle d' , and springs d^2 d^3 , Figs. 1, 5, 8, and 10, in such a manner that when the handle d' is pushed manually from the "Normal" position to the "Cash" position the lever C is likewise brought into such position as indicated by the line marked "Cash" in Figs. 6, 9, 12, and 14, and upon release of the handle d' the spring d^2 brings the said parts into their "Normal" position again. Likewise if the handle d' is pushed in the opposite direction, or into the "Transfer" position, the lever C is also moved in such position, as indicated by the line marked "Transfer" in Figs. 6, 9, 12, and 14, and upon release the parts are returned to their "Normal" positions by the spring b^3 . Both of the springs d^2 and d^3 keep the said T-arm and lever C, as well as the handle, in normal position and prevent them from rattling back and forth. Instead of using a handle d' and bar d , other suitable mechanism may be provided to oscillate the said T-arm D and lever C, as will be readily understood by those skilled in the art to which my invention appertains.

By each oscillation of the lever C, either in one or the other direction, the pawl c^2 or c^3 engages its respective ratchet-wheel and turns the same and with it the shaft and bevel-wheel connected therewith the space of one tooth.

On the sides of an extension b^{10} of the frame B is hinged a dog b^9 for each ratchet-wheel b^6 and b^7 , so that after one ratchet-wheel, shaft, and bevel-wheel have been turned they are prevented from slipping partly backward during the return movement of the lever C to its normal position by their dog b^9 .

The non-operated ratchet-wheel b^6 or b^7 is locked during an oscillation of the lever C by the cylindrical head of the lever C fitting exactly and moving between the apices of two teeth of such ratchet-wheel, while the tooth of the ratchet-wheel b^6 or b^7 which is to be turned by its pawl on lever C, and after the latter has been moved slightly, enters the cavity c^5

in the cylindrical head in which the free end of the pawl is located. The projection c^6 on one side of the pawl-lever C is cut away, as at c^7 , to lock the ratchet-wheel while the lever C is in either the "Cash" or "Transfer" position, so that any attempt at resetting the trip-register without using the proper mechanism is frustrated, as will be readily understood from Figs. 12, 14, and 16.

Upon the posts a^4 , a^5 , and a^7 are secured guide-plates a^{10} for supporting and guiding gear-rings B^1 and B^2 by their respective grooves b^{13} and b^{14} . One of the rings B^1 carries the pointer b^{11} to indicate on the dial a^3 the number of cash fares collected and registered during each trip, and the other gear-ring B^2 carries the pointer b^{12} to indicate on the same dial the number of transfers sold and registered. Each of these gear-rings B^1 and B^2 is adapted to move independently of the other, but concentric to the center of the circular fare-register. The gear-ring B^1 , carrying the pointer b^{11} , is turned in the direction of the arrow, Fig. 1, by each oscillation of the lever C from the "Normal" position to the "Cash" position one division on the dial a^3 through the intervention of the ratchet-wheel b^7 , shaft b^3 , and gear-wheel b^5 , meshing with the said ring b^1 , while the gear-ring B^2 , carrying the pointer b^{12} , is turned in the same direction of the arrow in Fig. 1 by each oscillation of the lever C from the "Normal" position to the "Transfer" position one division on the dial a^3 and through the intervention of the ratchet-wheel b^6 , shaft b^2 , and gear-wheel b^4 , meshing with the said gear-ring B^1 .

By the arrangement of the two gear-rings B^1 B^2 , instead of wheels having hubs and spokes, a great saving of space at the most important point of the register is attained, which space in the present machine is used for the location of the permanent or totalizing registers T^1 for the continuous registration of the transfer-tickets sold and T^2 for the continuous registration of the cash fares collected. Both of these totalizing-registers T^1 T^2 are of usual construction. The wheels t , bearing numbers on their circumferential surface and constituting the totalizing-register T^1 , are loosely mounted upon the shaft b^3 , except the units-wheel t^1 , which is secured, together with the ratchet-wheel b^6 , to the shaft b^2 . The units-wheel t^1 of the totalizing-register T^2 is in a like manner secured to the shaft b^3 , and the transferring of tens from the units-wheel to the tens-wheel, the tens from the tens-wheel to the hundreds-wheel, and so on to the ten-thousands wheel in both totalizing-registers T^1 T^2 is accomplished by the usual transfer-pinions t^2 , loosely mounted on the counter-shafts t^3 t^4 , held in lugs b^{15} b^{16} of the frame B.

From the foregoing description it will be seen that whenever the lever d' is shifted into the "Transfer" position, Fig. 1, not only is the pointer b^{12} turned one division on the dial a^3 , as before stated, but such operation is reg-

istered on the totalizing-register T^1 by adding one unit to the number exposed through the sight-hole a^{12} of the dial a^3 . If, however, the lever d' is shifted into the "Cash" position, a unit is added in like manner to the number exposed through the sight-hole a^{13} of the totalizing-register T^2 .

At each full stroke of the lever d' , whether it be moved in one or the other direction, there is given a signal that a fare of any of the two classes has been registered, and this is attained in the following manner: A bell E is secured to the base-plate A, against which a bell-hammer, secured to a yielding arm e' , pivoted to the base-plate A, is caused to strike whenever the lever C is oscillated in one or the other direction. A bar e^2 , pivotally secured at c^4 to the lever C, is normally held in the guide-block e^0 of the base-plate A and is provided with two wedge-shaped projections e^3 and e^4 , Figs. 11, 12, 13, and 15, which are disposed at a distance apart and opposite to each other—i. e., one wedge—the upper one e^3 pointing with its pointed end toward the lower end of the register and the other in the opposite direction.

On the bell-hammer arm e' there are also provided two wedge-shaped projections e^5 e^6 , disposed the same distance apart as those on the bar e^2 , but in opposite direction—i. e., the butt-end of the upper wedge e^5 is directed toward the lower end of the register and the other in the opposite direction, as shown in Figs. 11, 12, 13, and 15. All the butt-ends of the wedge-shaped projections e^3 , e^4 , e^5 , and e^6 are beveled, so that when the bar e^2 is moved by the lever C in the direction to "Normal" from the "Cash" position the beveled butt-ends of the wedge-shaped projections e^3 on bar e^2 and e^5 on arm e' cause the bar e^2 to be raised against the action of the spring e^7 , so that the projection e^4 thereof passes between the two projections e^5 and e^6 without moving the arm e' and bell-hammer e . The bar e^2 is in a like manner raised against the action of the spring e^7 by the beveled butt-ends of the projections e^4 on the bar e^2 and e^6 on the arm e' to allow the projection e^4 to pass between the projections e^5 and e^6 of the arm e' when the bar e^2 is moved by the lever C from the "Transfer" to the "Normal" position. If now the lever C is moved from the "Normal" position into the "Cash" position, the wedge-shaped projection e^3 of the bar e^2 slides along the wedge-shaped projection e^5 of the arm e' and oscillates the latter about its pivot until the butt-ends of the said projections have passed each other, when the spring e^8 returns the said arm to its normal position, by which a lug e^9 on the arm e' impinges against the guide-block e^0 , Fig. 15. By the quick return movement of the lever e' the spring-hammer e strikes the bell E and sounds a signal that a fare has been registered. In a like manner a signal is given upon the full stroke of the lever C from "Normal" position to "Transfer" position. In this instance, however, the

bar e^2 moving away from the center of the register, the wedge-shaped projection e^4 of the bar e^3 slides along the wedge-shaped projection e^6 , oscillating the arm e^7 in a similar manner as before described to give a signal from the bell E.

In the drawings, Figs. 5 and 11, the rubbing faces of the wedge-shaped projections have been shown vertical to the base-plate A, but in order to prevent any slipping should a weak spring e^7 be selected to push the bar e^2 into its seat the said faces on the projections e^4 and e^5 may be undercut and the said faces on the projections e^3 and e^4 be shaped to suit the former, so as to insure at all times the proper engagement of the said projections.

In order to indicate the class of fare registered by the trip-register, a sign-plate F, bearing suitable inscriptions—in the present register “Cash” and “Transfer”—is arranged and operated to show through a sight-hole a^{11} of the indicator-dial a^3 either the one or the other inscription, according to what class of fare has been registered. This sign-plate F is mounted upon a lever secured to a cast arm f^7 , fulcrumed to a lug a^{14} of the base-plate A. On the arm f^7 and in range of two projections f^2 f^3 on the bar e^2 of the trip-register is secured a pin f^4 , which is adapted to move the sign-plate F from one position to the other—i. e., to expose at the sight-hole a^{11} the one or other inscription of the plate F. If, for instance, the arm C is shifted from the “Normal” position to “Transfer” position, the bar e^2 moves away from the center of the register and the projection f^2 engages the pin f^4 of the arm f^7 and brings the sign-plate in position, as shown in Figs. 1, 2, 3, and 6, and so as to expose the inscription “Transfer” through the sight-hole a^{11} . A reverse shifting of the arm C, or into the “Cash” position, causes the projection f^3 of the bar e^2 to engage the pin f^4 and to move the sign-plate F into position to expose the inscription “Cash” at the sight-hole a^{11} . Repeated shifting of the arm C in one and the same direction of course does not actuate the said sign-plate F after it has been set by the first stroke in one direction.

The sign-plate F is held in one or the other position by the spring f^5 , secured to the guide-plate a^{10} for the gear-ring B^2 , as shown in Figs. 2 and 6, which spring bears upon a pin f^6 on the lever f to check the movement of and maintain the sign-plate in one or the other position.

To prevent any half-strokes of the lever C for fraudulent purposes, the T-lever D is provided with a sector d^4 , Figs. 8 and 9, which slides in an arch upon a boss a^{15} , cast with the base-plate A.

In the peripheral edge of the sector d^4 is formed a deep V-shaped notch d^5 to allow a spring-dog d^6 to freely move therein, and at each side of the said notch d^5 are arranged smaller notches d^7 , so that when the T-lever D is moved its full stroke by the bar d or

other device in one or the other direction the dog d^6 will move over all the teeth formed by the small notches d^7 and permit the T-lever D to regain its normal position through the springs d^2 d^3 ; but if the lever D for fraudulent purposes is moved only a part of its full stroke to one or the other side the dog d^6 will not pass over all the said teeth, but locate in one of the said notches d^7 and lock the T-lever D in such position, without, however, causing the registration of a fare either on the trip-registers or the permanent register or sounding a signal, hereinbefore described. Before any of these functions are performed by the various devices the stroke must be completed by pushing the bar d or handle d' farther in the same direction.

On the upper side of the sector d^4 is provided a rim d^6 , which is cut away at its center, as at d^9 , for a purpose to be presently described.

After a trip of a car or vehicle is completed or it is otherwise required to bring the pointers b^{11} b^{12} of the twin trip-register to their zero position—i. e., to reset the fare-register so that both pointers b^{11} b^{12} are at zero and a trip-indicator designates the next route of the car or vehicle—the following devices are connected with certain of the devices previously described.

The frame B, as before stated, is hinged in the posts a^4 at b and is held in normal position by the springs b^{17} , so that the extension O thereof bears upon the post o , Figs. 6, 7, and 9, to form a back-stop for the frame and to present the totalizing-registers T' T² close to the sight-holes a^{12} and a^{13} , which are provided with slanting rims on the dial a^3 .

Upon the extension O of the frame B are formed two bearings o' o^2 , in which a shaft o^3 , carrying a bevel-wheel o^4 and knob o^5 , is journaled, Fig. 6.

In the wall a of the housing there is cut a slot a^{16} , through which the outer end of the shaft a^3 extends, so that the latter, together with the wheel o^4 and the whole frame B, may be oscillated against the action of the springs b^{17} and so as to bring the bevel-wheel o^4 into engagement with both the gear-rings B' and B^2 .

The slot a^{16} is effectually covered from the inside of the housing by a flat spring or shield o^6 , held in any suitable manner to the shaft o^3 , so that any tampering with the register or any of its part from this point is prevented.

From Figs. 2, 3, and 6 it will be seen that the bevel-wheel o^4 is adapted to engage the outer edge of the toothed gear-ring B^2 and the inner edge of the toothed gear-ring B' when the frame B and gear-wheel o^4 have been set into resetting position, in which position said gear-wheel o^4 engages both the gear-rings B' and B^2 , while the bevel gear-wheels b^4 and b^5 are disengaged from the said rings B' and B^2 on account of the location of the pivot-points b , which are situated about midway between the shafts b^2 and b^3 and the bevel-gear o^4 . It

is clear, therefore, that if the gear-wheels b^4 and b^5 are in engagement with their respective rings B' and B^2 the bevel gear-wheel o^4 common to both is out of engagement with the teeth of the rings B' and B^2 , (normal position.)

In line with each pointer b^{11} and b^{12} , and diametrically opposite to the points where the said pointers are attached to their respective gear-rings B' B^2 , are formed spaces o^7 o^8 by partly cutting away two teeth, as shown in Figs. 2 and 4, so that when the bevel gear-wheel o^4 is in resetting position—i. e., in engagement with the teeth of both of the rings B' and B^2 —both of them may be turned by means of the knob o^5 and wheel o^4 into position so that the pointers b^{11} and b^{12} are brought to zero. In such position the gear-wheel o^4 is in the spaces o^7 o^8 , formed by the cut-away teeth, as shown in Fig. 4, and cannot move either ring in one or the other direction. The spaces o^7 o^8 , formed by the cut-away teeth, also serve that when one pointer is ahead of the other it will be brought first into zero position, while the other will point to zero as soon as its ring presents its space o^7 or o^8 to the bevel-wheel o^4 . It will be understood, however, from the drawings that the spaces o^7 and o^8 do not interfere with the rotation of the two rings B' B^2 by the bevel-wheels b^4 and b^5 , respectively, when the frame B is in "Normal" position.

In resetting position the gear-wheel o^4 and frame B are held therein until both of the pointers are brought to zero, and this is effected by two pawls o^9 o^{10} , hinged on one side of the bearings o' o^2 , as shown in Figs. 2, 3, 5, 6, and 7. Each of these pawls o^9 o^{10} is provided with a beveled hook adapted to enter the grooves b^{13} b^{14} as soon as the frame B, with wheel o^4 , is brought into resetting position. The spring o^{11} is inserted between the lower ends of the pawls o^9 o^{10} to insure the engagement of the said hooks with their respective grooves b^{13} and b^{14} of the gear-rings B' B^2 . In zero position of the pointers b^{11} and b^{12} the gear-rings B' and B^2 present slanting outlets o^{12} o^{13} to the pawl-hooks, so that they may be disengaged from the grooves b^{13} b^{14} , but at zero position only, whereby any half-setting between divisions of the dial a^3 is obviated.

With the pawl o^{10} and the bearing o' , Figs. 6 and 7, is connected a locking device for the gear-wheel o^4 , which consists of a locking-pin n , held in an aperture of the bearing o' and connected to the lower arm of the pawl o^{10} by a pin n' in the said pawl-arm and a slot or groove in the said pin n . The latter is provided with an offsetted portion, which is held at all times between two teeth of the gear-wheel o^4 by a flat spring n^2 , secured to the outer end of the extension O, except when the frame B, with its various devices, is in resetting position—that is, when the hooked ends of the pawls o^9 o^{10} are in engagement with the grooves b^{13} b^{14} . In this position the pawl o^{10} has drawn the pin n sufficiently outward to release the wheel o^4 , so that it may

be turned freely in any direction by the knob o^5 . The object of this locking device is to insure a full disengagement of the bevel gear-wheels b^4 b^5 from the gear-rings B' B^2 and a full engagement of the gear-wheel o^4 with the latter before the operation of resetting the pointers b^{11} b^{12} to zero is commenced.

The lever D and with it the handle d' and lever C are also locked in resetting position of the frame B, so that any tampering of the machine or the various mechanisms thereof in this direction is also prevented. For this purpose the frame B is provided with an extension b^{18} , Figs. 8, 9, and 10, which, when the frame B is in its normal position, allows the rim d^8 of the sector d^4 , before described, to pass in an arch back and forth below the extension b^{18} when actuated by the rod d and handle d' ; but the frame B, with its devices, can only be brought into resetting position when the handle d' , as well as the devices connected therewith, is in normal position. In this instance the projection b^{18} enters the cavity d^9 , formed in the rim d^8 and prevents the T-lever D and its parts from moving sufficiently to cause the registration of fares of any class.

The trip-indicator comprises a drum M, on the surface of which are inscriptions indicating the directions of the trips, as "Up," "Down," "East," &c., either inscription of which may be exposed through a sight-hole a^{17} in the dial a^3 , Fig. 1.

The drum M is secured to a shaft m , journaled in bearings secured to the plates a^{10} of the posts a^4 in any suitable manner, Figs. 2 and 9, and is operated by a ratchet-wheel m' , secured to the shaft m . A lever m^2 is pivoted to a standard m^3 of the base-plate A and is connected to a lug m^4 of the frame B, so that when the latter is brought into resetting position it swings the lever m^2 into the position as shown in full lines in Fig. 9. Onto the hub of the lever m^2 is secured a flat curved spring m^5 , which with its free upper end is adapted to engage a tooth of the ratchet-wheel m' and partly move the latter whenever the frame B is being brought into resetting position, as is also shown in full lines in Fig. 9. The frame B, when released by the pawls o^9 o^{10} at zero position of the pointers b^{11} b^{12} and brought into normal position by the springs b^{17} , actuates the lever m^2 to engage another tooth of the wheel m' to complete, in this instance as four teeth are provided on the ratchet-wheel m' , the turn of ninety degrees of the drum M and to lock the same in the manner indicated by dotted lines in Fig. 9—i. e., the free end of the lever m^2 engages the apices of two teeth while the spring m^5 is brought into position as shown by the dotted lines. It may here be mentioned that the drum M, having in this present instance four inscriptions, may be operated as many times as desired to expose through the sight-hole a^{17} the one indicating the next trip, provided that the pointers b^{11} b^{12} are in zero position.

From the foregoing description and in connection with the drawings it will be seen that the devices constituting a twin fare-register as hereinbefore described can be arranged to most advantageously form a fare-register registering but one kind of fare, and I wish it to be distinctly understood by those skilled in the art to which my invention appertains that I do not limit myself to the exact construction of a fare-register herein set forth; but,

Having thus described the nature and objects of my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. In a fare-register adapted to register two classes of fares, an indicating-dial, two gear-rings held concentric with the said dial, a pointer attached to each of said gear-rings and means for independently rotating said gear-rings, substantially as and for the purposes set forth.

2. In a fare-register, an indicating-dial, two pointers each carried by a gear-ring held concentric with said dial and means for independently moving said rings and pointers, in combination with permanent registers, one for each pointer automatically actuated by the said means for moving the said gear-rings and pointers, substantially as and for the purposes set forth.

3. In a fare-register, a twin trip-register comprising two gear-rings supported and guided by plates secured to posts of a circular bed-plate, a dial attached to the said plates, a pointer secured to each of said gear-rings, a frame B hinged to projections of the base-plate and having journaled therein two shafts, a ratchet-wheel secured to the inner ends of the said shafts, a bevel-wheel on each of the said shafts each adapted to engage one of the said gear-rings, a lever C pivoted in said frame and carrying pawls adapted to actuate said ratchet-wheels, and means for operating said lever C, substantially as and for the purposes set forth.

4. In a fare-register, a twin trip-register comprising two gear-rings supported and guided by plates secured to posts of a circular bed-plate, a dial attached to the said plates, a pointer secured to each of said gear-rings, a frame B hinged to projections of the base-plate, and having journaled therein two shafts b^2 , b^3 , a ratchet-wheel on the inner ends of said shafts, a bevel-wheel on each of the said shafts each adapted to engage one of the said gear-rings, in combination with two permanent registers carried on the said shafts b^2 , b^3 and comprising the units-wheels t' attached to the said shafts, loose wheels t and transfer-pinions carried by a counter-shaft of the said frame; a lever C pivoted in the said frame carrying pawls adapted to actuate by the said ratchet-wheels, the trip and permanent registers, a bevel-wheel secured to a shaft journaled in an extension of the frame, and adapted to engage both of the gear-rings to reset

the pointers thereof to zero position, substantially as and for the purposes set forth.

5. In a fare-register having a twin trip-register comprising a dial, two gear-rings, pointers attached to said rings, a rocker-frame B hinged to the frame of the register, two shafts journaled in said frame, a ratchet-wheel and gear-wheel on each of said shafts a lever C pivoted to said frame and carrying pawls adapted to actuate said ratchet-wheels, a T-lever pivoted to the base-plate of the machine, means for actuating said T-lever from the outside of the register, a sector on said T-lever provided with notches of different depth, a spring-dog pivoted to the said base-plate and adapted to enter the said notches, substantially as and for the purposes set forth.

6. In a fare-register having a twin trip-register comprising a dial, two gear-rings, pointers attached to said rings, a rocker-frame B hinged to the frame of the register, two shafts journaled in said frame, a ratchet-wheel and gear-wheel on each of said shafts a lever C pivoted to said frame and carrying pawls adapted to actuate said ratchet-wheels, a T-lever pivoted to the base-plate of the machine, means for actuating said T-lever, a sector on said T-lever, provided with notches of different depth, a spring-dog adapted to engage the notches to control the stroke of the T-lever a rim on said sector having a recess to receive a projection of the rocker-frame, when the latter is in resetting position, to lock the said T-lever and mechanism connected therewith, substantially as and for the purposes set forth.

7. In a fare-register a twin trip-register comprising a dial two gear-rings, a pointer on each gear-ring, means for actuating the gear-rings, a lever C adapted to receive oscillatory motion in two directions from devices connected therewith, in combination with a signal device, comprising a bell, a bell-hammer secured to a resilient arm, a bar pivotally connected to said lever C, wedge-shaped projections on the said resilient arm and bar, whose butt-ends are beveled, to permit the said bar in sliding from inactive to active position to pass the said projections without actuating the signal, substantially as and for the purposes set forth.

8. In a fare-register, a twin trip-register, comprising a dial a^3 , two gear-rings B^1 , B^2 , with pointers b^{11} , b^{12} , a rocker-frame B, lever C, means for actuating the gear-rings from the said lever C, two permanent registers also operated from the means for actuating the trip-registers, a shaft with operating-knob journaled in an extension of the said frame a bevel-wheel secured to said shaft adapted to engage both of the said rings to bring the pointers thereof into zero position when the frame B is brought into resetting position, substantially as and for the purposes set forth.

9. In a fare-register, a twin trip-register comprising a dial a^3 , gear-rings B^1 , B^2 , with pointers b^{11} , b^{12} and cut-away teeth o^7 , o^8 , a

rocker-frame B, lever C, means for actuating the gear-rings from the said lever C two permanent registers carried by the said rocker-frame and operated from the means for actuating the trip-registers, a shaft with operating-knob journaled in an extension of the said frame, and a bevel-wheel secured to said shaft adapted to bring the said pointers into zero position, when the said wheel reaches the said cut-away teeth o^7 , o^8 , substantially as and for the purposes set forth.

10. In a fare-register the combination of the twin trip-register having the gear-rings B' , B^2 provided with grooves b^{13} , b^{14} engaging guide-plates a^{10} , a rocker-frame B carrying the permanent registers T' , T^2 , means for operating the twin trip-register and permanent registers, a trip-indicator comprising a drum with ratchet-wheel journaled to posts of the base-plate, a lever pivoted to a standard of the base-plate and attached with one end to a projection of the rocker-frame B by a slotted connection, the other end being adapted to lock the said drum when the frame is in normal position, a spring secured to the hub of the lever, serving to engage the ratchet-wheel and to partially rotate the drum, when the frame B is moved from "Normal" position to "resetting" position, while in the reverse movement of the rocker-frame the free end of the lever engages the ratchet-wheel and completes the partial turn of the drum and locks the same in position, substantially as and for the purposes set forth.

11. In a fare-register the combination of a circular base-plate A, a T-lever D pivoted thereto, a connection as d adapted to operate the said T-lever D against the actions of the springs d^2 , d^3 , a frame B pivoted to posts of the base-plate, two shafts b^2 , b^3 journaled in said frame and having secured thereto ratchet-wheels b^6 , b^7 , bevel-wheels b^4 , b^5 and units-wheel t' of two totalizing-registers T' , T^2 , an actuating-lever C receiving motion from the T-lever D, a spring-pawl on each side of the segmental head of the lever C engaging the said ratchet-wheels to operate gear-rings B' , B^2 held in guide-plates a^{10} concentric with the said circular bed-plate, a dial supported from the guide-plates, a pointer attached to each of the said gear-rings, and adapted to move around the edge of the said dial, substantially as and for the purposes set forth.

12. In a fare-register, a twin trip-register comprising two gear-rings B' , B^2 , held in guide-plates a^{10} , a dial supported from said guide-plates, a pointer attached to each of the said gear-rings, and means for actuating the said rings consisting of two shafts journaled in a frame B, two ratchet-wheels oppositely pitched secured to the inner ends of the said shafts, two bevel-gears attached to the other ends of the shafts and each meshing with one of the gear-rings, a lever C having a segmental head in which are mounted two spring-pawls adapted to engage the said ratchet-wheels said head arranged to lock one ratchet-

wheel while the other is being moved by its pawl and lever C, and suitable means for operating the said lever from the outside of the register, substantially as and for the purposes set forth.

13. In a fare-register, the combination with a twin trip-register, of a signal comprising a bell, a bell-hammer attached to a resilient arm pivoted to the base of the register, a bar held at one end in a guide-block, and receiving a sliding motion from an actuating-lever for the said trip-register, wedge-shaped projections e^3 , e^4 on the said bar adapted to engage wedge-shaped projections e^5 , e^6 on the said arm when the actuating-lever is moved to operate the trip-register, and to pass each other when the said lever returns to its normal position, substantially as and for the purposes set forth.

14. In a fare-register, the combination with a twin trip-register, of a back or base plate, a bracket thereon, a fare-indicating sign-plate F attached to a lever, fulcrumed to said bracket, a pin in said lever, a sliding bar attached with one end to an actuating-lever of the twin trip-register, two projections on said bar, adapted to engage the said pin, a pin in the upper end of the said lever and a flat curved spring attached to a part of the register-frame to check the movement of the plate F from one position to another, substantially as and for the purposes set forth.

15. In a fare-register, the combination with a twin trip-register of a signal comprising a bell, a bell-hammer attached to a resilient arm pivoted to the base of the register, a bar e^2 held at one end in a guide-block, and receiving a sliding motion from an actuating-lever for the said twin trip-register, wedge-shaped projections e^3 , e^4 on the said bar adapted to engage wedge-shaped projections e^5 , e^6 on the said arm when the actuating-lever is moved to operate the trip-register and to pass each other when the said lever returns to its normal position, a fare-indicating sign-plate attached to a lever f , fulcrumed to a bracket of the base-plate, a pin on said lever f , two projections on the bar e^2 adapted to engage the said pin to move the sign-plate from one position to the other, whenever the actuating-lever is shifted in a reverse direction from the previous one, a pin on the upper end of the lever f and a spring contacting therewith to retain the sign-plate in one or the other position, substantially as and for the purposes set forth.

16. In a fare-register, the combination of a twin trip-register comprising a dial a^3 , grooved gear-rings B' , B^2 with cut-away teeth o^7 , o^8 and pointers b^{11} , b^{12} , a frame B suitably pivoted to posts of the register base-plate, two shafts journaled in the said frame B, a bevel-gear b^5 attached to one shaft and meshing with the gear-ring B' , a bevel-gear b^4 attached to the other shaft and meshing with the gear-ring B^2 means for actuating said shafts to independently move either gear-ring, a totaliz-

ing-register on each of the shafts, a shaft o^3 journaled in an extension of said frame a bevel-gear o^4 on this shaft two pawls o^9 , o^{10} pivoted to one side of the frame extension, a
 5 spring between the lower ends of the said pawls, a locking-pin n for the said wheel o^4 actuated by the pawl o^{10} against the action of the spring n^2 all arranged substantially as and for the purposes set forth.

10 17. In a fare-register, the combination with a trip-register as described, its actuating devices and rocking frame carrying the totalizing-registers, of a stop for said frame, springs to maintain said frame against said stop in
 15 normal position, a locking device to hold the frame in resetting position, comprising two spring-pawls pivoted to an extension of said frame and adapted to engage grooves of the trip-register gear-rings and notches in said
 20 gear-rings corresponding to zero position of the pointers of the trip-register, substantially as and for the purposes set forth.

18. In a fare-register a trip-register and means for actuating the same in combination
 25 with a rocker-frame and means for resetting the trip-register comprising a gear-wheel journaled in an extension of the said rocker-frame, two pawls pivoted to the said extension, a spring tending to force the said pawls
 30 into grooves of the trip-register, a locking-pin held in the said extension, a pin in one of the pawls connecting the said locking-pin, and a spring adapted to normally hold the locking-pin between two teeth of the said gear-wheel,
 35 substantially as and for the purposes set forth.

19. In a fare-register the combination with

a trip-register, permanent register and its transfer mechanism, of actuating devices comprising a lever pivoted to the frame of the register, a lever having a segmental head
 40 hinged to a frame carrying the permanent register, a ratchet-wheel for the latter register, a spring-pawl pivoted in a recess of the segmental head of the said lever, said head
 45 adapted to fit and partly rotate between the apices of two teeth of the ratchet-wheel, substantially as and for the purposes set forth.

20. In a fare-register the combination with a trip-register of a signal comprising a bell,
 50 a resilient bell-hammer arm, a sliding bar operated from the trip-register mechanism, and wedge-shaped projections on said arm and sliding bar, substantially as and for the purposes set forth.

21. In a fare-register the combination of a twin trip-register comprising a dial, gear-rings B' , B^2 having pointers a^{11} , a^{12} and cut-away teeth o^7 , o^8 , a rocking frame B carrying permanent registers T' and T^2 on shafts b^3 ,
 60 b^3 , ratchet-wheels b^6 , b^7 and gear-wheels b^4 , b^5 , on a gear-wheel o^4 on a shaft journaled in the rocking frame B , adapted to engage both of the rings B' and B^2 , until the pointers are brought into zero position, when the frame
 65 B is in resetting position, substantially as and for the purposes set forth.

In witness whereof I have hereunto set my signature in the presence of two subscribing witnesses.

FRANK HERLT.

Witnesses:

WM. H. DRAKE,
 HENRY C. WEBER.