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CAB FARE REGISTER.

No. 456,905. Patented July 28, 1891.

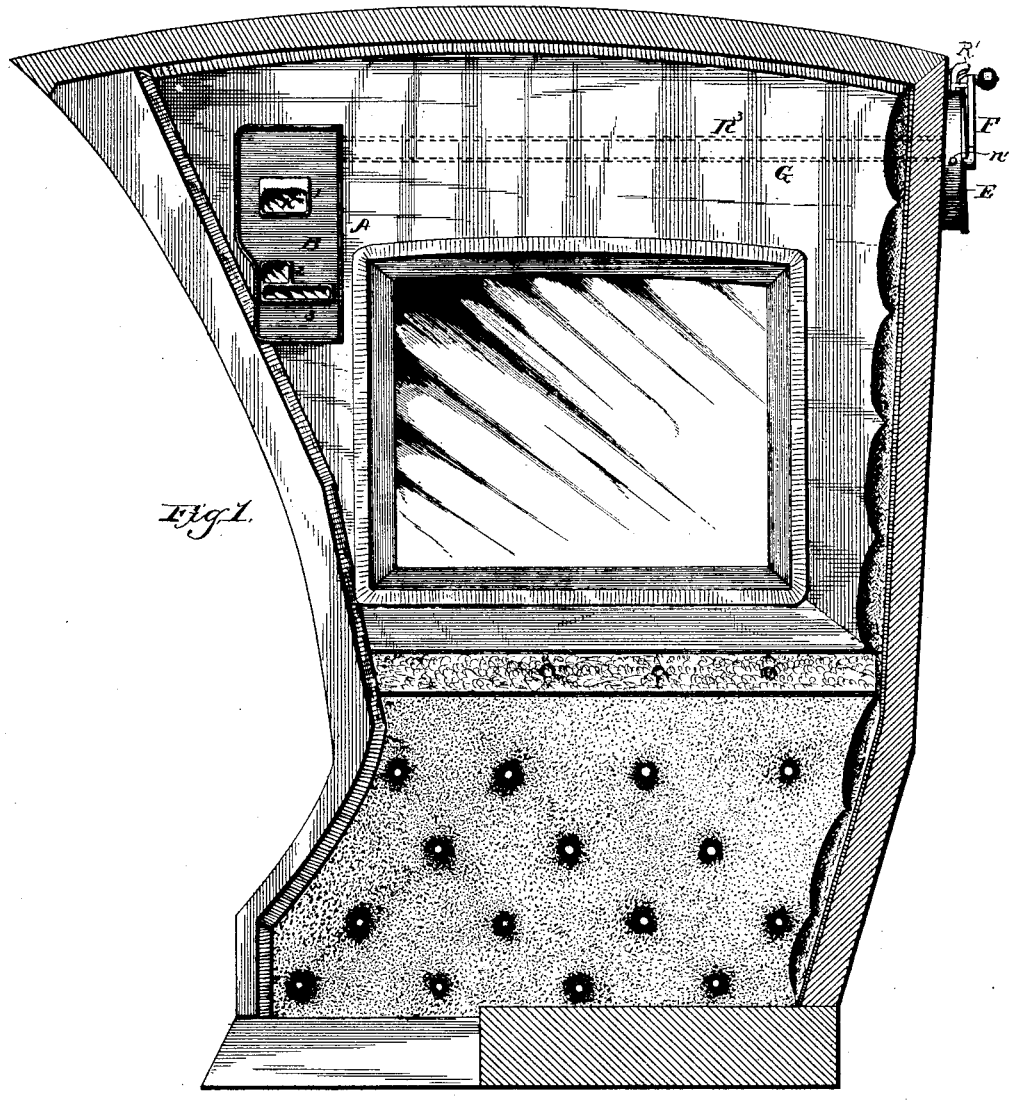

Fig 1.

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No. 456,905. Patented July 28, 1891.

Fig. 2.

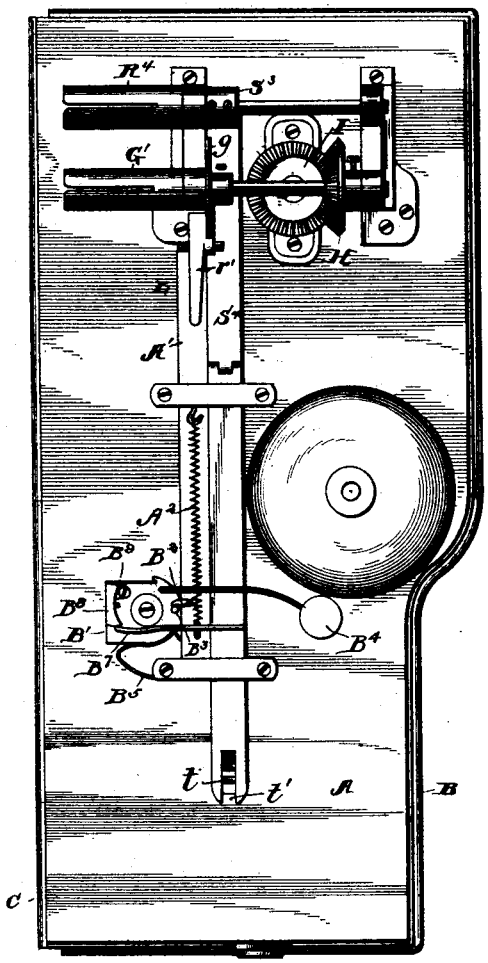
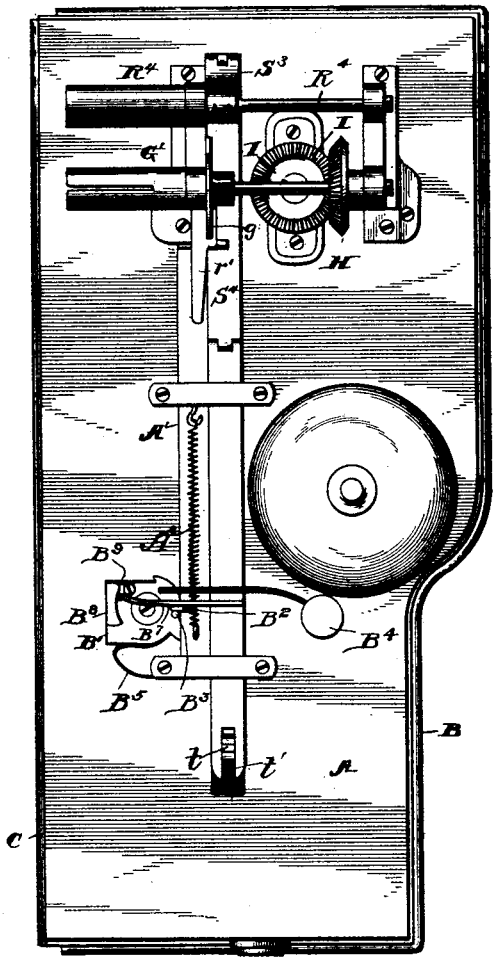


Fig. 3.



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(No Model.) 12 Sheets—Sheet 3.

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CAB FARE REGISTER.

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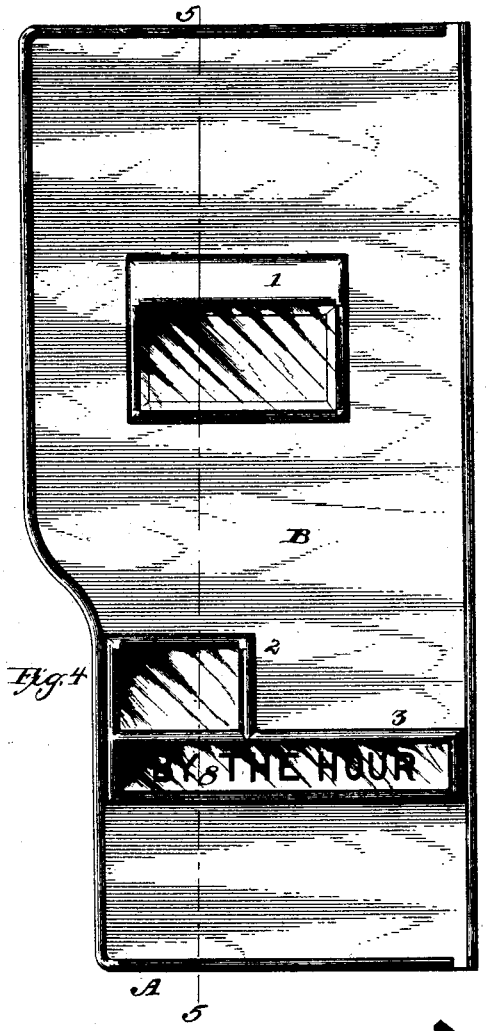

Fig. 4

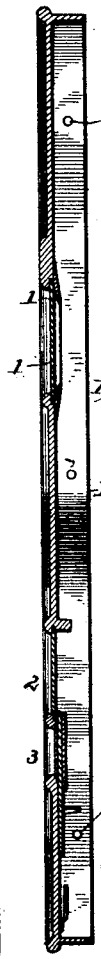

Fig. 5.

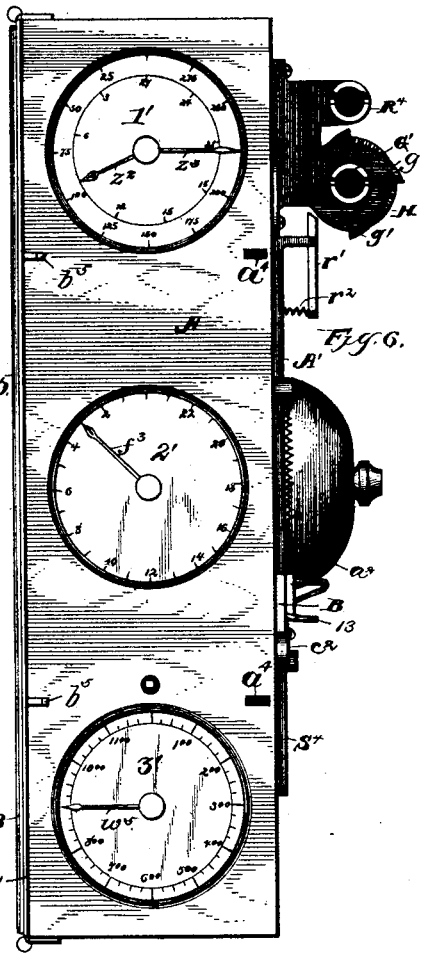

Fig. 6.

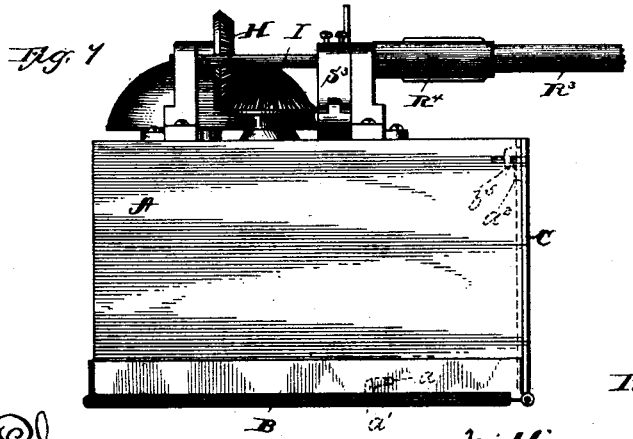

Fig. 7

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Fig. 8

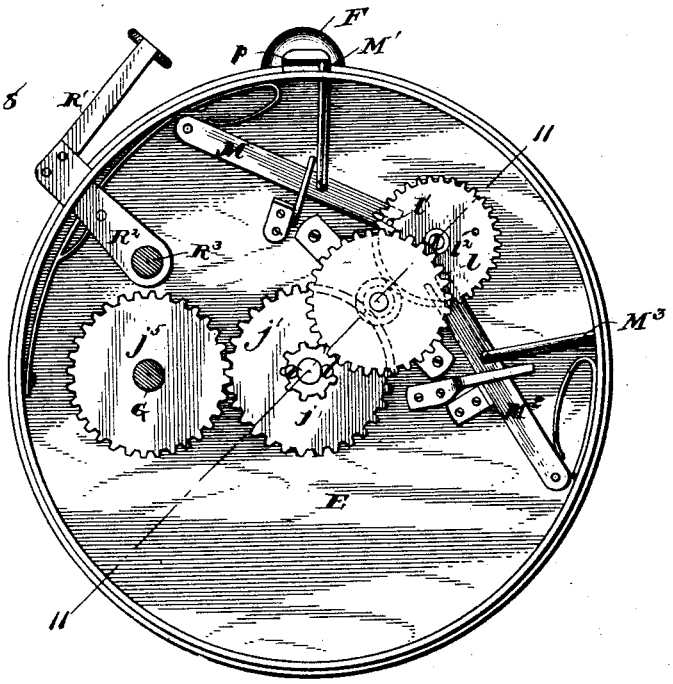

Fig. 9.

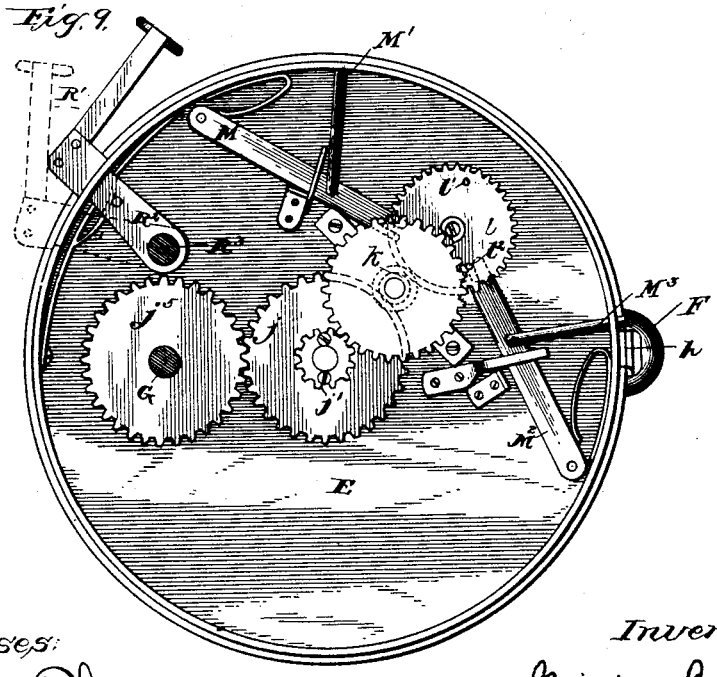

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Fig. 10.

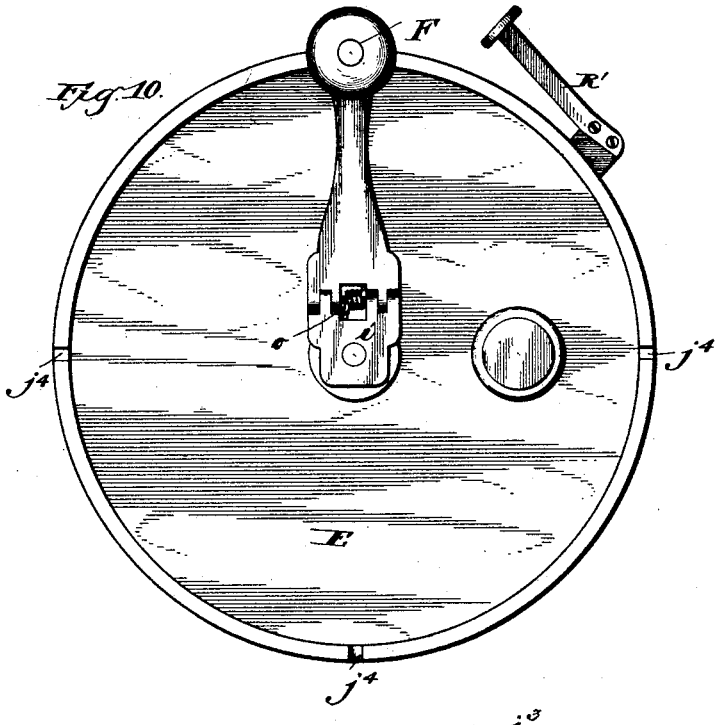
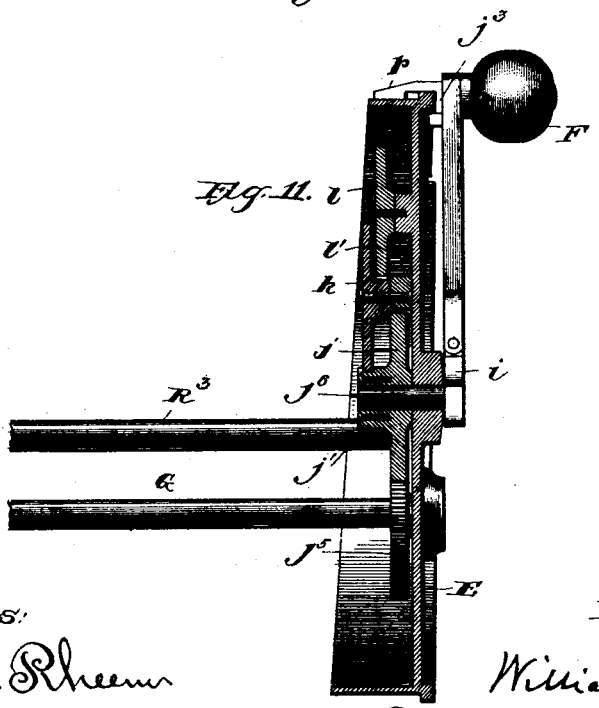


Fig. 11.



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Patented July 28, 1891.

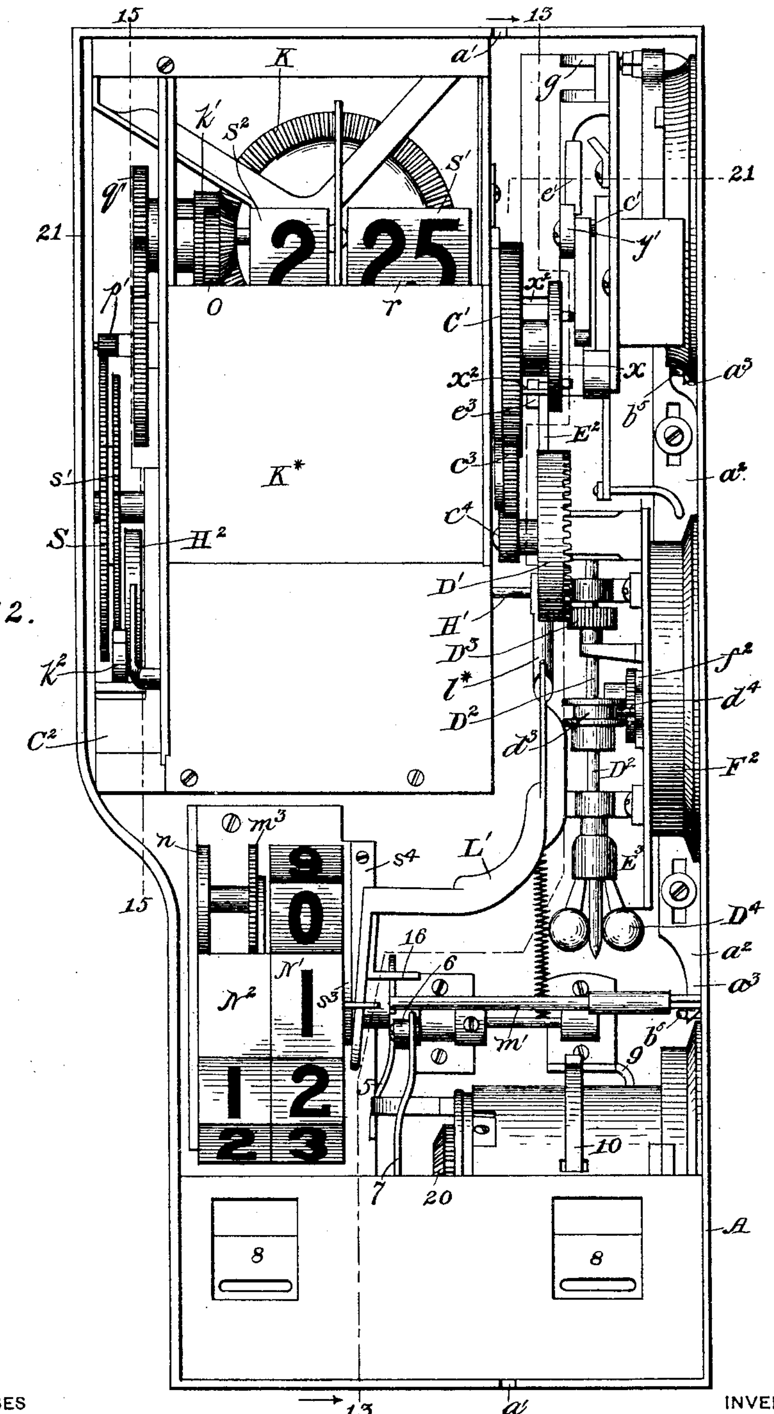

Fig. 12.

WITNESSES

INVENTOR

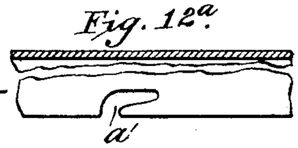

Fig. 12a.

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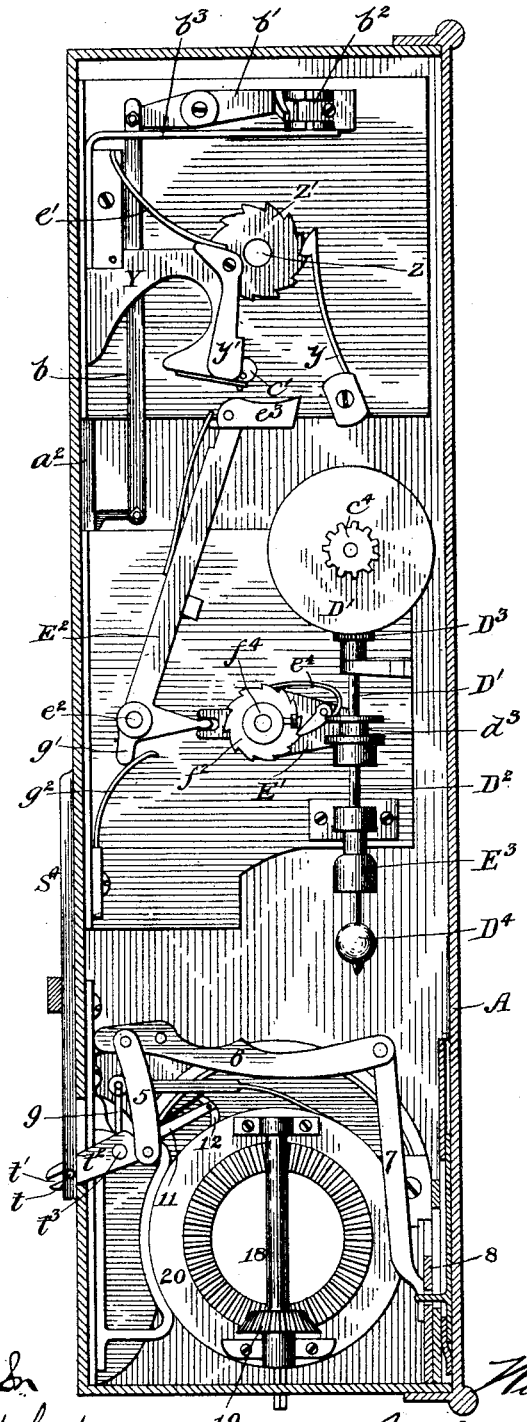
Fig. 13.



WITNESSES

T. A. Connolly

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(No Model.) 12 Sheets—Sheet 8

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CAB FARE REGISTER.

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Fig. 14.

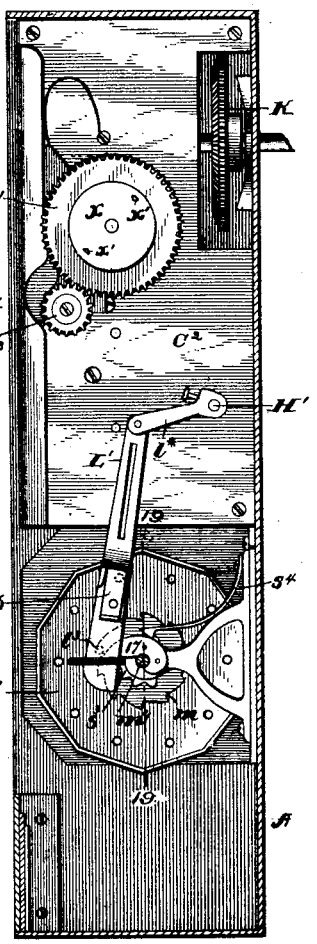


Fig. 15.

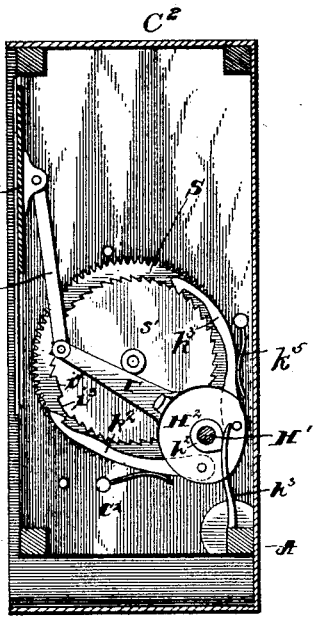
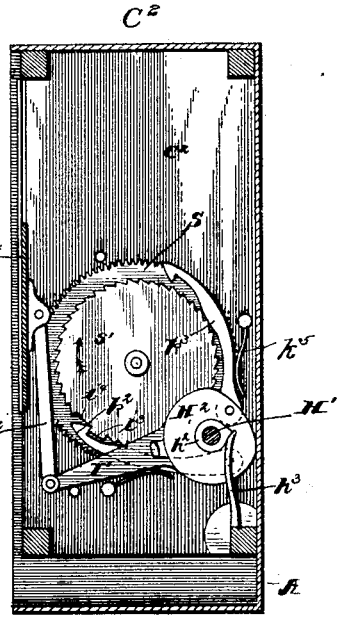


Fig. 16.



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(No Model.) 12 Sheets—Sheet 9.

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CAB FARE REGISTER.

No. 456,905. Patented July 28, 1891.

Fig. 17.

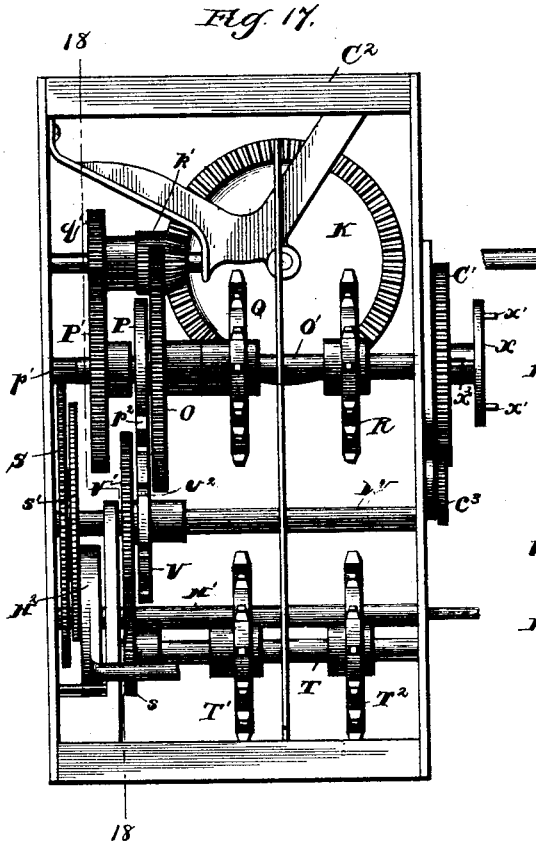


Fig. 18.

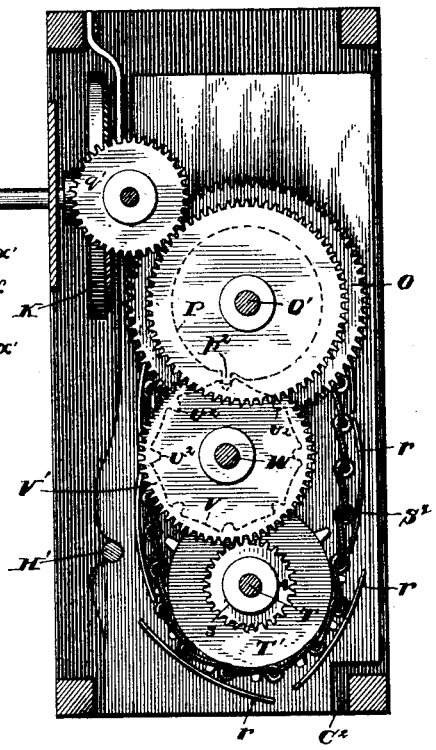


Fig. 19.

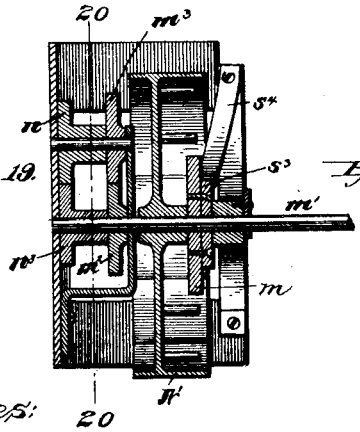
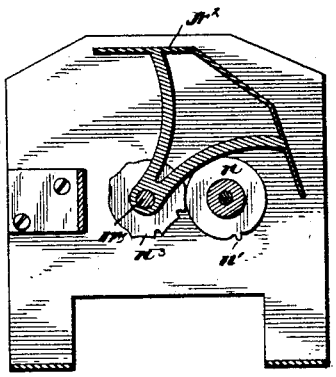


Fig. 20.



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CAB FARE REGISTER.

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Fig. 21.

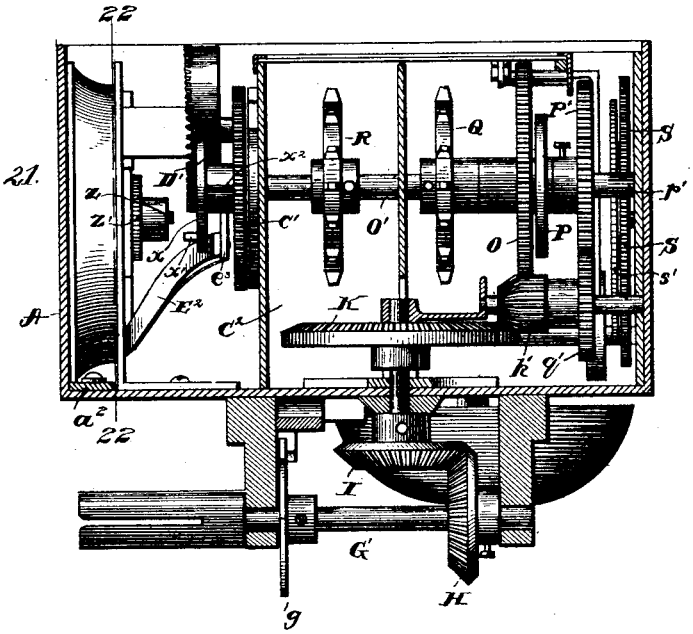


Fig. 22.

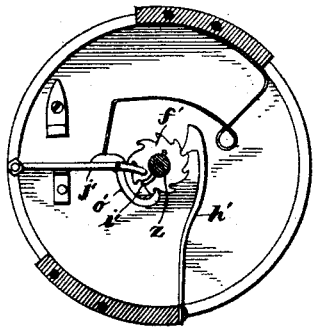
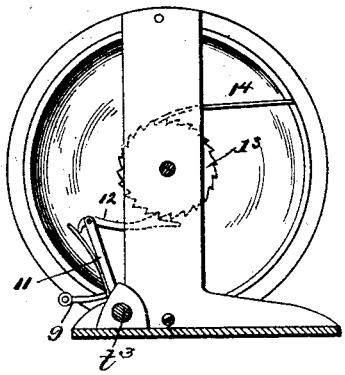


Fig. 25



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CAB FARE REGISTER.

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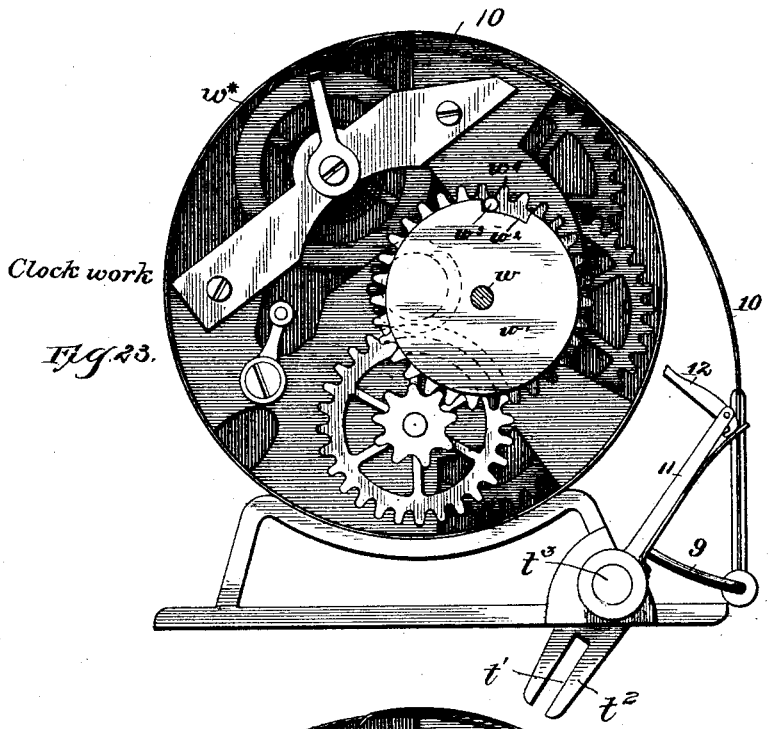

Fig. 23.

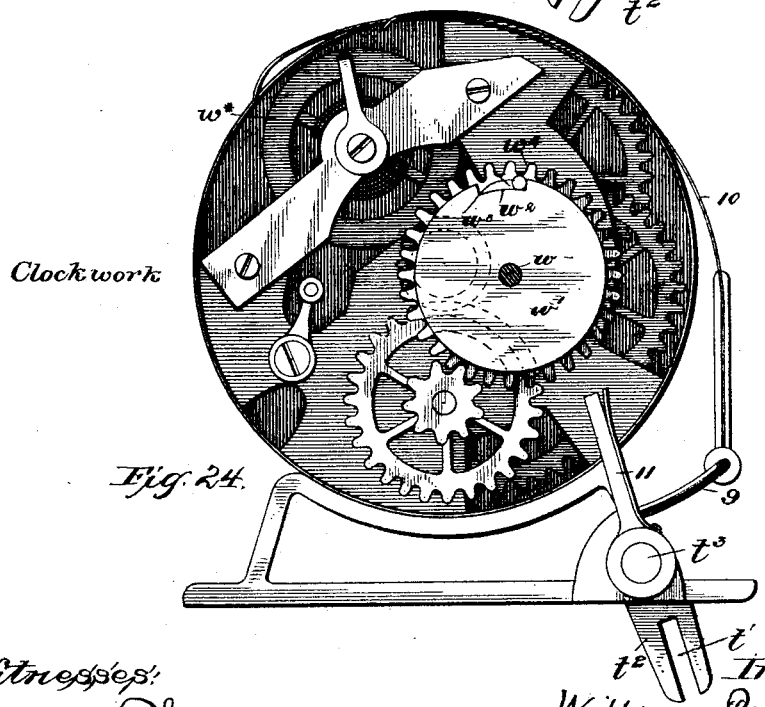

Fig. 24.

Witnesses:
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CAB FARE REGISTER.

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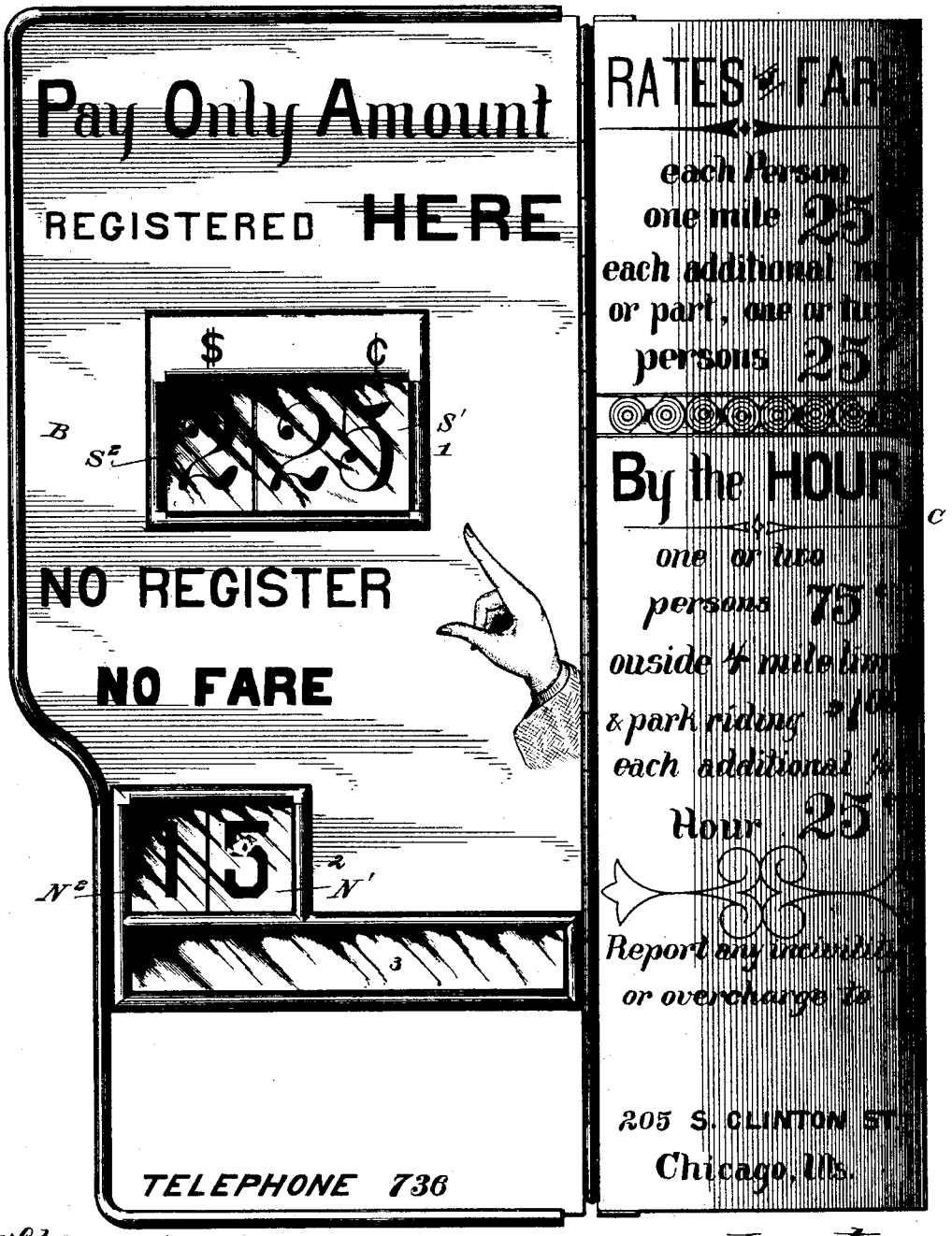

Fig. 26.

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UNITED STATES PATENT OFFICE.

WILLIAM PIGOTT, OF CHICAGO, ILLINOIS.

CAB FARE-REGISTER.

SPECIFICATION forming part of Letters Patent No. 456,905, dated July 28, 1891.

Application filed August 18, 1890. Serial No. 362,297. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM PIGOTT, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Cab Fare-Register, of which the following is a specification.

My present invention relates to improvements in fare-registers of the class specially designed for use in registering fares collected by the drivers of hacks, hansom-cabs, or similar vehicles used for carrying passengers, but of course it is capable of being used in a variety of other situations and for various purposes, which will readily suggest themselves.

Those engaged in rendering passenger service with vehicles of the class in which this invention is particularly adapted to be used usually charge two different rates of fare for two distinct kinds or classes of service—to wit, distance or mileage service and hour or time service. In the first class the amount charged for service depends upon the distance to be traveled, with perhaps an additional charge for any detention of the vehicle by the passenger, while in the second class a fixed charge is made for the first hour and an additional charge at certain fixed rates for each succeeding hour or any fraction thereof.

The object of my invention is to provide means whereby the exact amount of fares collected by the driver for service of either kind mentioned may be accurately registered, so that the total amount received for each day's service may be ascertained from the register when the receipts by the driver have been properly registered, or in the event of a false return by the driver or upon his failure to properly operate the register whenever a fare is collected to provide means by which such false return or irregularity in operating the register may be readily detected by the owner of the vehicle. To this end I have devised, first, novel and improved means for registering the total amount of fares collected by the driver, and, second, new and improved means for registering the number of engagements or trips made by the driver, combined with, third, novel fare and trip indicating mechanism in such manner that whenever a new fare is indicated at the sight-opening 1 a new trip or engagement will be registered in the trip-register 2′ and shown on the trip-indicator at the sight-opening 2, so that at the close of each day's work the register will show, first, on the dial 1′ the total amount of fares collected by the driver; second, on the dial 2′ the total number of trips or engagements made for either time or distance service, and, third, the amount collected for the two classes of service, the different amounts being determined by the difference between the total amount registered on the dial 1′ and the amount registered on the time-service dial 3′. The fare-indicating mechanism is so arranged that the driver, in order to indicate to the passenger the amount of fare which he is entitled to collect, must also simultaneously register a corresponding amount on the total fare-registering dial, and at the same time register the number of the new engagement on the concealed trip-registering dial 2′. The trip-registering mechanism is adapted to register only a single engagement for either distance or time service, irrespective of the amount of fare collected for such service, and is so organized that it cannot be operated for registering purposes after making a trip-register until the indicator mechanism is returned to its original position for registering a subsequent trip, whereby each engagement made and each fare collected must be accurately registered, or the failure to register the same will be clearly indicated at the close of the day by the condition of the register, so that the owners of cabs and like vehicles may not be cheated or defrauded out of their just earnings by the false returns of dishonest drivers.

I accomplish the several results stated by novel and improved mechanism which I will now proceed to describe, preferred forms of which are illustrated in the accompanying drawings, in which—

Figure 1 represents a section of a cab, showing my improved register in position. Figs. 2 and 3 are rear views of the register detached from the cab, showing the bell-ringing mechanism and the mechanism for operating the hour-movement in different positions. Fig. 4 is a face view of the cover, and Fig. 5 a vertical longitudinal section of the same on line 5 5 of Fig. 4. Fig. 6 is a side elevation of the register, showing the clock-dial and the trip and total registering dials. Fig. 7 is a top

view of the register detached from the cab. Figs. 8 and 9 are inside views of the ratchet-plate, showing the stop-movement for limiting the throw of the crank-handle for operating the register in different positions. Fig. 10 is a face view of the ratchet-plate, and Fig. 11 a section of same on line 11 11 of Fig. 9. Fig. 12 is a front view of the register with the cover or face-plate removed. Fig. 12^a is a detail showing the shape of the angular slots in the top and bottom edges of the casing, and Fig. 13 is a vertical longitudinal section of same on line 13 13 of Fig. 12, looking in the direction of the arrows. Fig. 14 is a similar section on the same line looking in the opposite direction. Fig. 15 is a section taken on the line 15 15 of Fig. 12, and Fig. 16 a similar section on same line, showing the parts in reversed position. Fig. 17 is a front view of the operating mechanism, and Fig. 18 a vertical section of the same, taken on line 18 18 of Fig. 17. Fig. 19 is a detail sectional view taken on line 19 19 of Fig. 14, and Fig. 20 a section on line 20 20 of Fig. 19. Fig. 21 is a transverse section taken on line 21 21 of Fig. 12; Fig. 22, a section on line 22 22 of Fig. 21. Figs. 23 and 24 are detail views showing the clock mechanism in different positions. Fig. 25 is a detail showing the pawl-and-ratchet mechanism of the time-register, and Fig. 26 is a face view of the cover and hinged side plate.

Similar letters and figures refer to similar parts throughout the several views.

A represents the inclosing casing, to which is attached a removable face-plate or cover B, at one side of which is hinged the side plate C, which forms a door or cover for the registering-dials, which are located at one side of the casing.

The cover B C is attached to the casing by locking mechanism constructed as follows: On the inner side of an inwardly-projecting flange on the outer edge of the cover B, Fig. 5, opposite the hinged side plate C, are pins or studs a, which enter perforations in the side plate of the casing, and similar pins (not shown, projecting inward from the top and bottom flanges of the cover enter angular slots a', Fig. 12, in the top and bottom edges of the casing A, forming bayonet-joint connections at these points, which joints are made fast when the cover is in position on the casing by the pins impinging against the inclined portions of the angular slots a', Figs. 12 and 12^a. Inside of the casing at the back is a vertically-adjustable bar a^2, Fig. 12, having projecting portions a^3, which engage hooks b^5, fixed to the door C, as indicated in dotted lines in Fig. 7, and adapted to enter slots a^4, Fig. 6, in the casing, so as to lock the door in place. The bar a^2 is connected to a rod b, which is pivoted to a hinged lever b', Fig. 13, having an inclined or wedge-shaped end which is engaged by a key which fits an opening in the top of the casing and corresponding openings in the ears of a bracket b^2, between which the flange of the key rotates, so as to bear upon the inclined end of the lever, and thereby depress the same so as to raise the bar or slide a^2 and unlock the door. A spring-arm b^3 rests against the free end of the lever b' in such a position that when the key is removed the spring will lift the end of the lever and cause the pointed projections on the bar a^2 to engage the hooks upon the door C and lock the door and cover upon the casing.

To place the cover in position upon the casing, the pins a, which project inward from the side flange of the part B, are placed in the perforations in the side plate of the casing, and similar pins upon the top and bottom flanges of the cover are placed in the angular slots a', and then by moving the cover endwise the pins in the slots a' will impinge against the inclined edges of the slots, and thereby draw the part B of the cover inward until it fits snugly against the casing. Thereupon the part C may be turned upon its hinges until the hooks b^5 enter the slots a^4, Figs. 5 and 7, and by pressing the hooks against the inclined ends or projections on the bar a^2 the latter will rise until released by the hooks, whereupon the outer end of the lever b' will be thrown upward by the spring b^3, and thereby depress the bar a^2, thus causing its pointed ends or projections to engage the hooks b^5 and lock the cover to the casing. To remove the cover, this operation is reversed.

1′, Fig. 6, represents the total-registering dial, having a long pointer z^3 and a short pointer z^2 and two sets of figures arranged in circles, one within the other. The figures on the inner circle represent dollars only, and those on the outer circle represent dollars and fractions thereof to the amount of $3.00.

2′ is the trip-register dial having a single pointer f^3 and bearing the numerals 1 2 3 4, &c., to any desired number for the purpose of registering the number of trips or engagements made by the driver.

3′ is the dial of the hour-register, having figures corresponding to the amount to be charged for service by the hour, the spaces between the hours denoted on the dial being divided into four equal parts, so as to represent a similar division of time. In actual use the register is preferably arranged at one side of the front upper portion of the cab or similar vehicle, to the back of which is attached the ratchet-plate or notched plate E, Figs. 8, 9, 10, and 11, supporting the stop mechanism for the crank-handle F and the gearing connecting said crank with the operating-shaft of the register mechanism. This stop mechanism may be constructed as follows: The crank-handle F is pivoted to a bracket i, fixed to an arbor j^6, which is journaled centrally in the ratchet or notched plate E and carries a gear-wheel j, having fixed to the hub thereof a pinion j', the teeth of which are engaged with a gear-wheel k, journaled on a stud or arbor which projects from the inside of the ratchet-

plate. Fixed to the hub of the gear-wheel k is a pinion which engages with the teeth of a gear-wheel l, to which are attached two pins l' l^2, arranged in such relation to spring-pressed pivoted levers M M^2 that at the commencement of the revolution of said wheel l, starting from the zero-point, the pin l', Figs. 8 and 9, will engage the open slot in the end of the lever M and move the same on its pivot, so as to draw inward the pin M', (which limits the backward throw of the crank-handle F,) as shown in Fig. 8, so as to permit the crank-handle to pass this point as its forward movement continues until such movement is arrested by the pin M^3. (Shown in Fig. 9.) The pin M^3 is pivoted to the lever M^2, whose open slotted end is engaged by the pin l^2 as the wheel l revolves, whereby the continued movement of the crank-handle F will cause the pin M^3 to project into the path of the crank at a certain predetermined point in the revolution of the wheel, which point, with the construction shown, will be reached when the crank-handle shall have made seven and three-fourths revolutions. The reverse movement of the handle will effect a reverse movement of the parts and cause the pin M^3 to be withdrawn and the pin M' to be moved outward when the crank-handle approaches the zero-point, so as to prevent said crank from moving backward beyond this point.

Fig. 8 represents the described stop mechanism, showing the parts in the position they occupy when the crank-handle and register mechanism are at the zero or starting point.

Fig. 9 shows the position of the parts when the crank-handle has reached the point at which its further movement in a forward direction is arrested by the projecting pin M^3. A detent j^3 upon the crank-handle F engages notches j^4, formed in a rim or flange upon the periphery of the ratchet-plate E, which is provided with four equidistant notches j^4, arranged so as to divide the circle described by the flange into four equal parts. A spring o holds the crank-handle normally in engagement with the flange of the ratchet-plate, while a projecting lip p upon the detent carried by the crank-handle engages the inner edge of the rim and prevents breakage when the handle is too forcibly disengaged from the notched flange either maliciously or carelessly in registering a fare. The teeth of the gear-wheel j engage with a gear-wheel j^5, fixed upon the operating-shaft G, which is journaled at one end in a bearing attached to the ratchet-plate and extends to a convenient point at the back of the register, (being preferably concealed by the lining of the vehicle,) where it is detachably connected to a shaft-extension G', Figs. 2 and 3, journaled in bearings attached to the back of the casing A. The detachable connection referred to between the shafts at this point is preferably made by means of a tongue-and-groove connection, one shaft being provided with a spline or tongue adapted to fit the tubular slotted end of the adjacent shaft, so as to permit the two shafts to be readily engaged or disengaged at will.

The extension or continuation of shaft G carries a bevel-wheel H the teeth of which engage with a bevel-wheel I, fixed on an arbor or shaft journaled in the back of the casing and carrying a larger bevel-wheel K. The shaft-extension G' also carries a disk g, having four cam-shaped teeth or projections g', adapted to operate a vertically-movable slide L for the purpose of ringing a bell, as will be hereinafter described. The teeth of the bevel-wheel K engage a correspondingly-beveled pinion k', which is adapted to engage a gear-wheel O, placed loosely upon a shaft O' and having fixed thereto a single-toothed disk P, Figs. 17 and 18. The shaft O' also carries a loose chain-wheel Q, a fixed chain-wheel R, and a gear-wheel P', which latter is engaged by a gear-wheel q', keyed to the arbor which carries the pinion k'. It will thus be seen that when the crank F is turned it will revolve the wheel I by means of the beveled gearing connecting said wheel with the shaft operated by said handle, and the train of gearing also connected with said wheel I, being operated, the shaft O' will revolve and carry with it the fixed chain-wheel R and gear-wheel P', while the gear-wheel O and disk P revolve independent of the shaft. On said shaft O' is also keyed a pinion p', Fig. 17, which engages the teeth of a gear-wheel S, Figs. 15, 16, and 17, which revolves upon an arbor fixed to the side of the casing and operates the trip mechanism, as hereinafter described.

Journaled in the frame C^2, (which supports the operating and indicating mechanisms,) beneath the shaft O', is a companion shaft T, which carries a fixed chain-wheel T' and loose chain-wheel T^2. The chain-wheels T^2 R carry an endless chain S', Figs. 12, 17, and 26, to which are fixed face-plates r, on which are marked the figures by which the amount of fare to be collected is indicated to the passenger, and, as will be readily understood, the chain is advanced to expose successive figures by the movement of the fixed chain-wheel R, which revolves with the shaft O', the chain-wheel T^2 meanwhile turning loosely upon its shaft T. The endless chain S' has preferably marked thereon the figures 25 50 75 00 in indicating fractions of a dollar.

Adjacent to the chain S' is a companion chain S^2, Figs. 12, 18, and 26, carried by the chain-wheels Q and T', and having marked on similar face-plates thereof the figures 0 1 2 3 4 5 6 7, the figures in the present case being preferably limited to eight in number, placed equidistant apart on the face of the plates r and denoting dollars. This chain S^2, as will be seen, will be advanced by the revolutions of the fixed wheel T', but will not be affected by the wheel Q, which rotates loosely upon shaft O'. As best seen in Figs. 17 and 18, the disk P has a single tooth p^2, which is adapted to engage notches in the periphery

of the disk V, hinged to an intermediate shaft W, journaled in the side plates of the frame C^2, which supports the fare-indicating mechanism. Keyed to the said shaft W is a gear-wheel V′, which engages a pinion *s*, Figs. 17 and 18, fixed to the shaft T, so that when the disk V is rotated it will cause the chain-wheel T′, and consequently the chain S^3, to rotate through the medium of the pinion *s* and gear-wheel V′. The latter movement is accomplished at each complete revolution of the chain S′ by means of the tooth p^2 of the wheel P taking into one of the notches v^2 of the wheel V and moving the same therewith until the tooth is disengaged by the notch, whereupon the curved peripheral portion of the wheel P will engage the concave portion of the periphery of the wheel V between two of the notches and prevent further movement of the wheel V until the chain S′ has made another complete rotation, at which time the tooth p^2 will engage another notch and the same operation will be repeated. It will thus be seen that when the crank-handle F is operated the operating-shafts G G′ will rotate and impart motion to the shaft O′ by means of the described intermediate gearing, which motion will be communicated to the indicator-chains. By giving the crank-handle a quarter-turn the chain S′ will be moved so as to expose at the sight-opening 1, Figs. 1, 4, and 26, the figure 25 in the cent column. A half-turn will expose the figure 50, and so on until a complete revolution is made, bringing into action the toothed and notched disks P V and gearing connecting the same with the chain-wheels carrying the chain S^2, so as to advance the latter chain a single step and expose the figure 1 at the sight-opening 1 in the dollar column. As shown in Fig. 26, the chain S′ has made two and one-fourth revolutions, and the chain S^2 has advanced two steps, indicating $2.25 as the amount of fare to be collected. A reverse movement of the crank-handle will simply return the indicating mechanism to the zero or starting point in proper position for registering a new fare.

I will now describe the mechanism which I preferably use for registering the total amount of fares collected. The outer circle on the dial 1′, Fig. 6, is divided into twelve equal parts, at which are placed the figures 25, 50, 75, 100, &c., in the order shown, the next to the last space in the circle bearing the figures $2.75, and the inner circle is spaced so that there will be nine figures indicated thereon, the first figure denoting $3.00, the second $6.00, and so on up to $27.00, which represents the full capacity of the register shown in the present case, although it is manifest that the capacity of the register may be varied and that different rates of fare may be indicated and registered by simply adopting different sets of figures. A spur-wheel *x* is fixed upon the shaft O′, Figs. 12, 17, and 21, so as to revolve therewith, and carries on one side thereof two spurs or pins x' x' and on the opposite side two similar spurs or pins x^2 x^2. A rocking plate or dog Y, Figs. 12 and 13, pivoted to a bracket attached to the casing A, carries a pivoted click or pawl y', whose lower end projects into the path of the spurs x', so that as the wheel *x* is rotated in a forward direction the spurs x' will strike the click twice at each revolution of the wheel, rocking the dog upon its pivot each time and at each movement advancing the long pointer z^3 on the dial 1′ a single space. The said pointer z^3 is fixed upon the shaft or arbor Z, Fig. 13, on which is keyed a ratchet-wheel z', the teeth of which are engaged by a spring-pawl *y*, which prevents backward movement of the ratchet. A spring-pressed pawl c', Figs. 12 and 13, fixed to the dog Y, Fig. 13, on the side thereof opposite the click y', engages the teeth of the ratchet z' and advances the same one tooth each time the dog Y is raised by the pins x'; but on the reverse movement of the spur-wheel these pins strike the side of the click y' and simply move the same upon its pivot without moving the dog, the click being returned to its normal position by a spring e', as shown in Fig. 13. The short pointer z^2 of the dial 1′ is made fast to a sleeve which rotates upon the shaft or arbor Z, and to which sleeve is fixed a ratchet-wheel f', Fig. 22, which is secured against backward movement by a spring-pawl h'. The arbor Z carries a pin i', which is adapted to engage the end of a spring-pressed dog j', which is pivoted to the dial-case and carries a hook o', which is held in spring-pressed engagement with the teeth of the ratchet f'. By this mechanism, as the long pointer z^3 approaches a complete revolution the pin i', revolving with the arbor Z, that carries the long pointer, will engage the dog j' and cause the hook o', Fig. 22, to move the ratchet f' one tooth, thereby rotating the sleeve and the short pointer z^2 secured thereto one space on the dial, which registers $3.00 collected. This operation will be repeated at each complete revolution of the long pointer to the full capacity of the register, each revolution of the long pointer being equivalent to one space on the inner circle of figures and each space in the outer circle denoting 25 cents.

As will be seen by reference to Fig. 26, a notice may be placed on the cover of the register informing the passenger that he is to pay only the amount indicated at the sight-opening 1, and the rates of fare for both distance and time service are indicated in the notice at the side of the register.

To direct the attention of the passenger to the amount indicated, and also to indicate to the driver that the proper registry has been made, I provide means whereby each quarter-revolution of the crank-handle will cause a bell to ring. This mechanism is best shown in Figs. 2, 3, and 6 of the drawings, wherein A′ represents a vertically-movable slide, which is held normally in position by a coiled spring A^2 and carries a pin B^2, which on the down-

ward movement of the slide strikes a pin B^3, attached to a rocking dog B′, which carries a bell-hammer B^4 and rocks the dog on its pivot until the pin B^2 is released, whereupon a spring B^5 throws the dog back into position and rings the bell, as will be seen by reference to Figs. 2 and 3. The downward movement of the slide A′ is accomplished by the cam-toothed disk g striking the dog r', which is pivoted to an arm projecting from the upper end of the slide A′ and held in position by a coil-spring r^2, so that, as shown in Fig. 6, the slide will be depressed only when the cam-toothed disk (which is on the extension G′ of the shaft G, to which the crank-handle F is attached) is moved by the forward movement of the crank-handle F, the spring r^2 permitting the dog r' to yield to the pressure of the cam-teeth on the reverse or backward movement of the crank-handle.

In order that each engagement or trip made by the driver may be registered, so as to serve as a check on the driver in the event of any irregularity in operating the register, I provide what I conveniently term a "trip-register" or "tell-tale" device, which is operated by mechanism which may be constructed as follows: A gear-wheel C′ is keyed to the shaft O′ and engages with the idler c^3, Figs. 12 and 17, pivoted on an arm which is hinged to one of the side plates of the frame C^2, which idler engages a pinion c^4, fixed on an arbor having suitable bearings arranged as shown in Fig. 12 and carrying a crown-wheel D′, which engages a pinion D^3, secured on the upright shaft D^2, Figs. 12 and 13, by a spline-and-groove connection, so as to permit the shaft to slide vertically therein. The shaft D^2 is movable vertically in bearings attached to the back plate of the trip-register casing, as shown in Figs. 12 and 13, and carries about midway thereof a grooved pulley d^3, adjustably secured thereon by a set-screw, Fig. 13, and adapted to be engaged by a pin d^4, attached to one end of a rocking lever E′, the opposite end of which is connected by a ball-and-socket joint to the short arm of an elbow-lever E^2, pivoted at e^2 to the back plate of the trip-register casing. The elbow-lever E^2 carries at its upper end a spring-pressed click e^3, adapted to be struck by the pins x^2 on the spur-wheel x when the latter rotates in a forward direction, so as to rock the elbow-lever E^2 and depress the shaft D^2 by means of the connections E′, d^3, and d^4, which support the shaft D^2 vertically in its bearings; but on the backward movement of the spur-wheel the pins x^2 strike the upper edge of the click e^3, which yields and allows the pins to pass without effecting any movement of the elbow-lever and its connections. A ratchet-wheel f^2 is fixed upon an arbor or shaft f^4, which carries the pointer f^3 of the trip-registering dial 2′, said shaft being journaled in suitable bearings in the trip-register casing, Figs. 12 and 13, and forming the pivotal center on which the lever E′ rocks. A spring-pressed pawl e^4, pivoted to the rocking lever E′, engages the teeth of the ratchet-wheel f^2, and, as shown in Fig. 13, moves the ratchet-wheel a single tooth forward each time the lever E′ is rocked by the lever E^2, so as to lower the shaft D^2. By means of the described train of gearing connecting the pinion D^3 on the shaft D^2 with the gear-wheel C′ on the shaft O′ the forward movement of the crank-handle F and intermediate mechanism revolves the shaft D^2, and one of the pins x^2 on the spur-wheel x, coming into contact with the click e^3, throws the lever E^2 forward, and through its connections with the shaft D^2 lowers the latter, and thereby, as already described, moves the pointer f^3 one space on the dial-face 2′. This combined movement brings into action the governor D^4, with which the shaft D^2 is provided, as shown in Figs. 12 and 13. The rotation of the shaft D^2 causes the governor-arms to be thrown outward by centrifugal force, and so long as the forward movement of the shaft continues the governor-arms by resting against a sleeve E^3, interposed on the shaft between the governor and the lower shaft-bearing, will prevent the shaft from rising during its further rotary movement, so that no additional movement of the ratchet-wheel f^2 and pointer f^3 can be effected until the shaft d^2 ceases to rotate and resumes its normal position, to which position it will be returned by the action of a spring g^2, bearing against an auxiliary arm g^4 of the lever E^2, as shown in Fig. 13. In its normal position the arms of the governor on the shaft D^2 are embraced by the loose sleeve or thimble e^3 and held against outward movement, so that the shaft may then be rotated in a backward direction for the purpose of returning the crank-handle F to the zero-point, but any subsequent movement of the shaft in a forward direction will result in registering a new trip or engagement, as above set forth. It will thus be seen that the initial movement of the crank-handle F in a forward direction will register a single engagement on the dial 2′ of the trip-register or tell-tale device, and that while this movement of the crank-handle continues, for the purpose of indicating the amount of fare to be collected and simultaneously registering the same on the total-registering dial, the trip-register will not be affected, whether the amount collected be twenty-five cents, fifty cents, or more, up to seven dollars and seventy-five cents, which is the highest amount that can be registered for a single engagement with the exact arrangement of mechanism described herein, although it is apparent that a different limit may be fixed by obvious modifications of the figures upon the several dials and fare-indicating mechanisms.

In order that the driver may not fail to register the exact amount of fare collected without being detected, as has been done with fare-registers heretofore in use, I pro-

vide a fare-indicator slide or door for closing the sight-opening of the fare-indicator, which slide may be raised for the purpose of exhibiting the figures upon the indicator-chain only when the crank-handle F is rotated in a forward direction, starting from the zero-point, said slide or door being adapted to close the said opening 1 immediately on the reverse movement of the crank-handle, but incapable of further movement to expose the figures of the sight-opening until the crank-handle has been returned to the zero-point. For accomplishing this result I have devised the improved mechanism which I will now describe and which may be constructed as follows:

H′, Figs. 15 and 16, represents a shaft journaled in suitable bearings in the frame C^2 at the rear of the casing, and on this shaft is fixed a cam-shaped disk H^2, on the hub of which is a cam h^2, bearing against a spring h^3, attached to the frame, as shown. The shaft H′ has also fixed thereon a crank-arm I′, connected by a link or rod i^2 with the slide K*, so that when the shaft H′ is rotated the slide K* will be raised or lowered.

To rotate the shaft H′, spring-pressed pawls k^2 k^3, pivoted eccentrically to the cam-shaped disk H^2, are adapted to engage the teeth of a ratchet-wheel s', attached to the gear-wheel S, Figs. 15, 16, and 17, in the following manner: The ratchet-wheel s', Figs. 15 and 16, has a continuous toothed peripheral portion, except at a single point, where it is provided with an elongated tooth i^3 and a depression i^4. Fig. 16 represents the parts in the position they occupy, with the sight-opening 1 closed by the slide K* and the crank-handle and fare-indicating mechanism at the zero-point. When the crank-handle is moved forward, operating the train of gearing connecting it with the shaft O′ and causing the shaft O′ to revolve, the pinion p' upon the latter causes the gear-wheel S to revolve in the direction indicated by the arrow in Fig. 16, carrying with it the ratchet-wheel s' and the pawl k^2, which is shown in engagement with the tooth i^3, thereby causing a partial revolution of the shaft H′ and by means of the crank-arm I′ and rod i^2 elevating the slide K*, so as to expose to view the figures shown at the sight-opening 1. The shaft H′ continues to revolve until the projecting portion of the cam h^2, which bears upon the spring h^3, is thrown suddenly forward, like the click of a knife-blade, which movement will cause the bulged portion or belly of the pawl k^2 to impinge against the teeth of the ratchet-wheel and disengage the pawl k^2, while the pawl k^3 is forced into engagement with the teeth of the ratchet-wheel by the spring k^5, which presses thereon, as shown in the drawings. Fig. 15 represents the parts of the mechanism just described in the last-mentioned position, and, as will be seen, the pawl k^3 will remain in one-way engagement with the ratchet-teeth and allow the ratchet-wheel to revolve in a forward direction; but the moment the motion of the ratchet-wheel is reversed the pawl k^3 will pull upon the cam H^2, thereby causing a partial rotation of the shaft H′ in reverse direction, and consequently lowering the slide K*. During the latter movement the cam h^2 operates to disengage the pawl k^3 in the same manner that it caused the release of the pawl k^2. The latter pawl, however, cannot be brought into position to act upon the slide K* until the tooth i^3 is made to engage therewith, which necessitates the return of the parts to the position shown in Fig. 16, which position can be attained only by operating the crank-handle F, so as to restore the fare-indicating mechanism to the zero-point. Thus it will be seen that before the driver can exhibit a new fare at the sight-opening 1 he must first move the indicating mechanism in a backward direction to the zero-point.

For the purpose of indicating the number of engagements or trips made by the driver, so as to correspond with the engagements registered by the trip-register, I provide trip-indicating mechanism, which may be constructed as follows: An arm l^*, projecting from the shaft H′, is pivoted at its outer end to a lever L′, Fig. 14, which carries at its lower end a pin l^3, (shown in dotted lines, Fig. 14,) adapted to engage the teeth of a ratchet-wheel m, fixed upon a shaft m', and impart a partial rotary movement thereto each time the lever L′ is moved upward. The shaft m' carries an indicator-wheel N′, Figs. 12, 14, and 19, upon the periphery of which are ten flat surfaces or faces bearing in the order mentioned the numerals 1 2 3 4 5 6 7 8 9 0. These numbers may be exhibited in the order given at the sight-opening 2, Figs. 4 and 26, so as to indicate to the driver the number of trips or engagements made. To accomplish this result, the shaft m' has a gear-wheel m^2, Fig. 19, keyed thereon, in engagement with a gear-wheel m^3, fixed upon an arbor which also carries a fixed disk n, having a single tooth n', Fig. 20, which at each complete revolution of the shaft is adapted to engage one of the series of notches in a disk n^3, fixed to the hub of an indicator-wheel or segment N^2, having a series of flat peripheral surfaces or faces bearing the numerals 1 2 3, &c., in the same order as the companion wheel N′. When the tooth n' engages a notch of the disk n^3, the latter will be moved a sufficient distance to carry forward the segment or wheel N^2 and exhibit at the sight-opening 2 one of the numbers carried by the segment; but as the tooth is disengaged by the notch the curved peripheral portion of the disk n engages one of these concave faces on the periphery of the disk n^3 and prevents further movement thereof until the disk n and indicator-wheel N′ have made a complete revolution, in the manner already described in respect to the toothed and notched disks P V. It will thus be seen that the segment N^2 will move one-tenth of a circle at each complete revolution of the in-

dicator-wheel N′, and that the figure 1 on the segment N^2 will not be moved so as to appear at the sight-opening 2 until the cipher on the indicator-wheel N′ is brought opposite said opening, and thereupon the same operation of exhibiting the numerals on the indicator-wheel in proper order will be repeated until said wheel has again made nine-tenths of a revolution, when the further movement of the segment N^2 one-tenth of a circle will be accomplished, in the manner already described.

To prevent undue movement of the indicator-wheel N′ and to hold the same in position to properly expose the numerals thereon at the sight-opening 2, a star-wheel s^3, Figs. 14 and 19, having V-shaped teeth, is made fast to the ratchet-wheel m and held against undue movement in either direction by frictional engagement with a spring-pawl s^4. It will also be observed that as the movement of the shaft H′ is controlled by the mechanism that operates the slide K′, which, for convenience, I term "crab mechanism," the movement of the lever L′ can be effected only when the parts are in position for raising the slide K′.

To permit the reversal of the trip-indicating mechanism, Figs. 14, 19, and 20, the lever L′ is provided with a foot-plate 16, which, as the lever descends, rides upon a cam 17, Figs. 12 and 14, that throws the lower end of the lever forward, so that the pin thereon will not engage the teeth of the ratchet until the lever begins to move upward.

When a cab is engaged by the hour, it is desirable to correctly register the time occupied in rendering such service, and for this purpose I provide a clock-work of ordinary construction, the movement of which may be arrested when the cab is not rendering time service, and which will not actuate the pointer of the time-fare-registering dial until the first hour of engagement has elapsed. The purpose of this is to register the first hour's engagement at the time the cab is first called into service, for the passenger making such an engagement will be required to pay for one full hour whether the cab is used the entire hour or not, and if the operation of the time-fare register were solely dependent upon the movement of the clock-work the time-fare-registering dial might show only a fraction of an hour, whereas the driver might have received pay for the full hour.

The clock mechanism shown is of ordinary construction, having the usual mainspring and suitable train of gearing transmitting motion to the balance-wheel w^*, Figs. 23 and 24, and such mechanism is contained in the barrel fitted in the lower portion of the casing, as shown in Fig. 12.

Upon the shaft or arbor w of the clock mechanism is placed a disk w', having an elongated notch w^2 in its periphery, the shoulders upon which are adapted to be engaged by a pin w^3 on the cog-wheel w^4, which is fitted on the shaft w, so as to revolve therewith only when the pin w^3 on the wheel w^4 engages the shoulder at the front end of the elongated slot w^2 on the disk w'. The disk w' is fixed on the shaft w in frictional contact with the cog-wheel w^4, so that the initial movement of the clock-work may be made without affecting the cog-wheel, whereupon the clock mechanism will begin to work without actuating the pointer of the time-fare-registering dial until one hour has elapsed, after which the disk w' and cog-wheel w^4 will revolve together as one wheel by reason of the pin-and-shoulder engagement, and thereby actuate the pointer w^5 of the dial 3′.

To effect the initial movement of the pointer w^5 of the dial 3′ and at the same time to exhibit at the sight-opening 3 a notice to show that the vehicle is engaged by the hour, I provide actuating mechanism which may be constructed as follows: A thumb-piece or crank-lever R′ is secured to a crank-arm R^2, Figs. 8, 9, 10, and 11, projecting from a rock-shaft R^3 through a slot in the flange of the ratchet or notched plate E, so as to be in easy reach of the driver from his seat, and said rock-shaft is extended to the back of the register at the front of the vehicle, as shown in Fig. 1, where it is detachably joined to a short shaft or arbor R^4, journaled in brackets attached to the back of the casing A, as shown in Figs. 2 and 3. A crank-arm S^3, fixed on the arbor R^4, is pivoted to a jointed slide S^4, which moves vertically in guides attached to the casing and carries at its lower forked end a pin t, which engages the open slotted end t' of the long arm of a crank-lever t^2, Figs. 13, 23, and 24, fixed to a rock-shaft t^3, journaled in bearings fixed to the rear inner wall of the casing. The short arm of the crank-lever t^2 is pivotally connected by a link 5 to the short arm of a rocking lever 6, whose long arm is pivoted to a rod or bar 7, which is attached to the slide 8, that carries the notice "By the hour," Fig. 4, to be exposed at the sight-opening 3 to the view of the passenger engaging the vehicle for time service, and it will be seen that the upward movement of the slide S^4 will cause a similar movement of the slide 8 by means of the described lever and link connections with the rock-shaft t^3. The rock-shaft t^3 also carries a rigid arm 9, on which is placed a sleeve which carries a steel spring 10, which projects through a slot in the clock-barrel, Figs. 23 and 24, and rests upon the balance-wheel w^* when the slide 8 is lowered, so as to prevent the clock mechanism from actuating the time-fare register; but when the slide 8 is raised the forward movement of the arm 9 causes the spring 10 to release the balance-wheel and at the same time to give an initial movement thereto, so as to put the clock to work. The latter movement also actuates the pointer w^5 on the dial-face 3′, advancing the same one hour by means of a crank-arm 11, Figs. 13 and 25, secured to the rock-shaft t^3 and carrying a spring-pressed

pawl 12, which engages the teeth of a ratchet-wheel 13, Fig. 25, on the arbor which carries the pointer of the dial 3′. A spring 14 engages the ratchet-wheel 13 on the side opposite the pawl 12, so as to permit the ratchet to move in a forward direction, but prevent any backward movement.

The dial 3′ is divided into twelve equal parts, indicating the same division of time as the face of any ordinary clock-dial, except that the hour-spaces are divided into four equal parts instead of five, so as to represent four equal divisions of an hour. The purpose of this is to arrange the figure upon the dial so as to accommodate the register to any rate of fare that may be fixed upon; but as no charge is ordinarily made for less than a quarter of an hour the four equal divisions of the hour-spaces will be convenient in determining whether or not a charge has been made for the fraction of an hour, as the position of the pointer in proximity to the quarter-spaces will show whether or not a charge has been made for a fraction of an hour. When the slide 8 is raised, so as to exhibit to the passenger the notice of service by the hour, it is desirable to ring a bell for the purpose of directing the passenger's attention to this notice, and also to indicate to the driver that the slide has been properly raised and the clock mechanism put to work. For this purpose I attach to the slide S^4 a bar or rod B^7, Figs. 2 and 3, which on its upward movement strikes a click B^8, pivoted to the dog B′, and rocks the latter on its pivot until the rod is released by the click, whereupon the spring B^5 forces the dog back into position and causes the bell-hammer to strike the bell. On the downward movement the click B^8 yields to the rod against the pressure of a spring B^9, which forces the click into position for engagement with the rod on the upstroke.

It should be noted that the described connections between the disk w' and the cog-wheel w^4 of the clock mechanism permits the disk to be moved forward at any time, so as to move the pointer of the time-fare register a full hour irrespective of the position of the pin at the time the clock-movement shall have been arrested, and when the pin upon the cog-wheel is thrown to the rear of the elongated slot the clock mechanism will run a full hour before the pin reaches the front of the slot, so as to engage the disk, the length of the said slot and the time required by the cog-wheel to engage the disk, so as to move the dial-pointer, being equivalent to one hour denoted on the face of the dial of the hour-register.

For the purpose of winding the clock a hole is provided in the bottom of the casing, through which a key may be inserted to engage the square end of the spindle 18, Fig. 13, which carries a bevel-wheel 19, the teeth of which engage with a bevel-wheel 20, fixed upon the shaft which connects with the main-spring of the clock mechanism, whereby the clock may be wound without the necessity of removing the cover.

From the foregoing description the operation of my invention as an entirety may be readily understood. Supposing the sight-opening 1 to be closed by the slide K* and the register-operating mechanism to be at the zero-point, with the crab mechanism in the position shown in Fig. 16, the trip-indicator mechanism in the position shown in Fig. 14, and the stop-movement for the crank-handle F in the position shown in Fig. 8, if now the crank-handle F be given a quarter-turn, this movement will impart a rotary movement to the shaft G′, bringing into action a tooth upon the cam-disk g and ringing the bell, as before described. The same movement will also rotate the gears H I K k' O, shaft O′, and chain-wheel R, thereby moving the chain S′ a sufficient distance to expose the number 25 at the sight-opening 1. The gears q' p' P′ S will also operate the "crab," Fig. 16, and raise the slide K*, so that the amount of fare (twenty-five cents) indicated at the sight-opening 1 may be exposed to the view of the passenger. This action of the crab on the rock-shaft H′ will also have the effect to elevate the lever L′, so as to revolve the indicator-wheel one-tenth of a circle and cause the spring-pawl s^4 to slip one tooth upon the star-wheel s^3, thereby exposing the figure 1 on the face of the trip-indicator wheel N′ at the sight-opening 2, and thus indicate the number of the engagement. At the same time one of the spurs x' on the spur-wheel X, by engaging the click upon the dog Y, will rock the dog, and by means of the ratchet-wheel a' and pawl c' move the long pointer on the total-registering dial one step, so as to register the amount (twenty-five cents) indicated at the sight-opening 1. One of the spurs x^3 on the spur-wheel will also engage the pawl e^3, and thereby rock the elbow-lever E^2, and through the rocking dog E′ and connections with the shaft D^2 lower the latter and at the same time move the ratchet-wheel f^2 one tooth forward, thereby also moving the arbor on which the pointer f^3 is fixed, so as to register a single trip or engagement.

As already stated, it will make no difference whether the crank-handle be given a partial revolution or rotated in a forward direction to expose the highest number shown by the indicator mechanism or any intermediate number, the result upon the register will be the same for a continuous movement of the crank-handle—that is to say, every forward movement will register a single trip and indicate the number of such trip at the sight-opening 2, while the total-registering dial will accurately register twenty-five cents for each quarter-revolution of the crank-handle; but when the forward movement of the crank-handle ceases the shaft D^2 will immediately assume a position for registering another engagement. The reverse movement of the parts, as already described, will not affect the

registers or the trip-indicators, so that the fare-indicator and operating mechanism may be returned to the zero-point after registering each fare, and in the event of any backward movement of the crank-handle the crab mechanism immediately operates to raise the slide K* and necessitates a return of the operating mechanism to the zero-point before it is possible to actuate the slide, so as to exhibit at the sight-opening 1 the amount of the fare shown on the indicating mechanism, whereby it will not be possible for the driver to add a fare to a fare—as, for instance, twenty-five cents to fifty cents—and make return of a single fare of seventy-five cents, when in fact he has actually collected one dollar and twenty-five cents, (which has been done with registers heretofore in use,) without being detected by the tell-tale trip-register, which would show that two engagements had been made for the single fare. In case of an hour engagement the trip-register would of course only register a single engagement, the amount for which received by the driver would be shown by the total registering dial corresponding to the amount exhibited to the passenger at the sight-opening 1.

I do not of course wish to be understood as limiting my invention to the exact details of construction described herein, as various modifications of the constructions shown may readily be made without departing from the spirit of my invention.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a fare-register, the combination, with the inclosing casing, of the fare-indicating device comprising an indicator-chain movable freely in either forward or backward direction, and mechanism, substantially as described, for operating the same, an operating-shaft in gear with said mechanism, having an operating-handle arranged in proximity to the driver's seat, a total-fare-registering dial, and mechanism connecting the same with the operating-shaft of the indicating device, whereby the dial-pointer will be moved on the forward movement only of the indicator-chain, substantially as described.

2. In a fare-register, the combination of the fare-indicating device, the total-fare-registering dial, the operating mechanism, and a rotatable operating-shaft in gear with said operating mechanism, having a suitable handle arranged in proximity to the driver's seat, and stop mechanism for automatically limiting the movement of said shaft, substantially as described.

3. In a fare-register, an indicating device, a total-registering dial, mechanism for operating the same, an operating-shaft in gear with said mechanism, and stop mechanism adapted to be automatically projected into the path of the handle of the operating-shaft, so as to limit the movement of said shaft in either forward or backward direction, substantially as described.

4. In a fare-register, an indicating device, a total-registering dial, mechanism for operating the same, a rotatable shaft in gear with said operating mechanism, a crank-handle fixed to said shaft, a ratchet-plate, suitable gearing carried by said ratchet-plate in gear with said shaft, and a pivoted lever carrying a stop-pin adapted to be projected into the path of the crank-handle to limit the movement of the operating-shaft, substantially as described.

5. In a fare-register, the combination, with fare indicating and registering devices and mechanism for operating the same, of an operating-shaft in gear with said mechanism, a ratchet-plate, suitable gearing having bearings on said plate and in gear with said shaft, and a pair of pivoted levers, each provided with a stop-pin, whereby the movement of the shaft in either forward or backward direction may be arrested at a predetermined point, substantially as described.

6. In a fare-register, an indicating device movable freely in either forward or backward direction, mechanism for operating the same, a total-registering dial, mechanism, substantially as described, for operating the dial-pointer on the forward movement only of the indicator mechanism, and a trip-registering dial or tell-tale device adapted to register a single trip or engagement on the initial forward movement of the indicator mechanism, substantially as described.

7. In a fare-register, the combination, with a fare-indicating device movable freely in either forward or backward direction and mechanism for operating the same, of a trip-register or tell-tale device in one way geared with said operating mechanism, whereby a single trip or engagement will be registered on the forward movement of the indicating mechanism, substantially as described.

8. In a fare-register, the combination, with a fare-indicating device and mechanism for operating the same, of a trip-register or tell-tale device in one-way gear with the operating mechanism of the fare-indicator, substantially as described.

9. In a fare-register, the combination, with a fare-indicating device, mechanism for operating the same, a total-registering dial in one-way gear with said operating mechanism, and a trip or engagement register also in one-way gear with the operating mechanism of the indicating device, whereby a trip or engagement and also a fare will be registered on the initial forward movement of the fare-indicating device, substantially as described.

10. In a fare-register, a fare-indicating device and mechanism for operating the same, in combination with a trip or engagement indicator in one-way gear with the operating mechanism of the fare-indicating device, substantially as described.

11. In a fare-register, a fare-indicating device and mechanism for operating the same in either forward or backward direction, in combination with a trip-indicator and mechanism for operating the same connected with the operating mechanism of the fare-indicator, so as to operate the trip-indicator on the forward movement only of the fare-indicating mechanism, substantially as described.

12. In combination with a fare-indicator and mechanism for operating the same in either forward or backward direction, a trip-indicator, a trip-register or tell-tale device, and a total-fare-registering dial, each in one-way gear with said operating mechanism, substantially as described.

13. In a fare-register, an inclosing casing, a sight-opening in said casing, a fare-indicator, mechanism for operating the indicator in either forward or backward direction, so as to exhibit the fare at said sight-opening, a movable slide for covering the sight-opening, and mechanism, substantially as described, whereby the slide will be raised to exhibit the fare only when the indicator mechanism is operated, starting from the zero-point, substantially as described.

14. In a fare-register, a fare-indicator and mechanism for operating the same, in combination with a movable slide or cover for covering the indicator sight-opening, and mechanism for operating the slide, geared with the operating mechanism of the indicator, whereby the slide will be raised on the initial movement in a forward direction of the indicator mechanism and lowered immediately on the reversal of this movement, substantially as described.

15. In a fare-register, the combination of a fare-indicator, a trip-indicator, a trip-register, and a total-registering dial with operating mechanism, substantially as described, adapted to simultaneously operate the fare and trip indicators and the trip and total registering dials when the fare-indicator is moved in a forward direction, substantially as described.

16. In combination with a fare-indicator, a trip-indicator, a trip-register, a total-fare-registering dial, an operating-shaft, and mechanism for simultaneously operating the fare and trip indicators and the trip and fare registers on the forward movement of the operating-shaft, a bell, and operating mechanism, substantially as described, adapted to be operated on the forward movement of the indicator and register mechanisms, so as to ring the bell, substantially as described.

17. In a fare-register, the combination, with a clock mechanism, of a time-fare-registering mechanism in gear therewith, actuating mechanism under the control of the driver for operating said time-fare-registering mechanism in a forward direction independently of the clock mechanism, and intermediate gearing adapted to permit the pointer of the time-fare register to be moved an hour's space on the dial irrespective of the position of the parts of the clock and dial movements at the time the movement of the clock is arrested, substantially as shown and described.

18. In a fare-register, the combination, with a time-fare-registering dial and ordinary clock mechanism for moving the pointer of the dial in a forward direction, of mechanism under the control of the driver for operating the dial-pointer independent of the clock mechanism and simultaneously setting the clock in motion, a cog-wheel arranged loosely upon the shaft which carries the dial-pointer, a disk fixed on said shaft in frictional engagement with said cog-wheel, and means whereby said wheel and disk are made to engage each other, so as to cause the clock mechanism to actuate the dial-pointer at a fixed period of time subsequent to the initial movement of the clock-work, substantially as described.

19. In a fare-register, the combination of an indicating device, mechanism for operating the same in either forward or backward direction, a total-fare-registering dial in one-way gear with said operating mechanism, a time-fare-registering dial and mechanism for operating the same, an inclosing casing having sight-openings therein for exhibiting the rate of fare for time service and notice of such service, and a movable slide adapted to be raised so as to expose such notice of time service at one of said sight-openings, and mechanism connecting the same with the mechanism for operating the time-fare-registering dial, substantially as described.

20. In a fare-register, the combination, with a fare-indicating device and mechanism for operating the same freely in either forward or backward direction, of a trip-registering dial, a ratchet-wheel on the arbor of the dial-pointer, a rocking lever, a rocking dog pivotally connected to an arm of said lever, and a pawl on the rocking dog engaging the teeth of the ratchet-wheel, a vertically-movable rotary shaft carrying a grooved pulley which engages a pin on the rocking dog, and a spur-wheel in gear with the operating mechanism of the indicating device, adapted to operate the pointer of the trip-registering dial on the forward movement only of the fare-indicating mechanism, substantially as set forth.

21. In a fare-register, the combination, with the fare-indicating devices, the total-fare-registering dial, and mechanism for operating the same, of a trip-register in one-way gear with the operating mechanism of the fare indicating and registering devices, a spur-wheel on the main shaft of said operating mechanism, a rocking elbow-lever having one of its arms arranged in the path of the spurs upon said wheel, a rocking dog loosely connected at one end to the other arm of said elbow-lever, a vertically-movable rotary shaft loosely connected with the other end of said rocking dog, a governor, and a sliding thimble or sleeve arranged on said shaft, whereby the governor-arms will be closed on the backward movement of the shaft and opened on

the forward movement thereof, so as to register a single trip during the continued forward movement of the operating mechanism, substantially as described.

22. In a fare-register, the combination, with an indicating device consisting of an endless chain carrying face-plates on which are placed numerals to be exhibited at a sight-opening in the register-casing, and operating mechanism under the control of the driver, whereby the indicator-chain may be moved freely in either forward or backward direction, of an inclosing casing having a sight-opening therein for exhibiting the numerals upon the indicator-chain, and a movable cover or slide connected with the operating mechanism of the indicator-chain, so as to uncover said sight-opening on the forward movement of the chain with the operating mechanism at the zero-point, substantially as described.

23. In a fare-register, the combination, with the inclosing casing having a sight-opening therein, of the fare-indicating device comprising an endless chain carrying face-plates having numerals or figures thereon denoting units or fractions of a dollar, and a companion chain geared thereto and carrying similar plates having numerals marked thereon denoting dollars, together with mechanism for moving said chains in either forward or backward direction, so as to successively expose the numerals thereon at said sight-opening, the units-chain being adapted to make a complete revolution at each step or movement of the companion chain, substantially as described.

24. In a fare-register, an indicating device comprising a pair of endless chains supported upon fixed and loose chain-wheels arranged in pairs on shafts which are geared with the operating-shaft of the register, an intermediate shaft supporting a disk having a series of notches in its periphery which are adapted to be engaged by a single-toothed disk fixed on one of the chain-wheel shafts, and gearing connecting said chain-wheel shafts with said operating-shaft, whereby one chain will be moved a single step or space at each complete revolution of the other chain, substantially as described.

25. In a fare-register, the combination, with the casing having a sight-opening therein, of a trip-register and operating mechanism and a trip-indicator consisting of a rotary wheel having flat peripheral faces or surfaces bearing numerals to exhibit at the sight-opening the number of trips registered, together with operating mechanism in one-way gear with the operating mechanism of the register, whereby said wheel will be rotated on the initial forward movement of the register-operating mechanism, substantially as described.

26. In a fare-register, the combination, with the inclosing casing, the fare and trip indicating devices, the trip and total-fare registering dials, and mechanism for operating the same, of a cover adapted to be removably attached to said casing, and mechanism, substantially as described, for locking the cover in position upon the casing, said cover being provided with sight-openings which are adapted to expose the fare and trip indicating devices, substantially as set forth.

27. In a fare-register, the combination, with the register-casing, of the removable face-plate or cover, the side plate or door hinged to said cover, hooks or staples attached to said side plate, a spring-actuated locking device adapted to engage the hooks on said door, openings in said casing to receive said hooks, and means for disengaging said locking device from said hooks so as to release the cover, substantially as described.

28. In a fare-register, the combination, with the fare indicating and registering mechanism, of the operating-shaft, the ratchet-plate, and the crank-handle pivoted to a bracket which is secured to an arbor journaled in said ratchet-plate and in gear with said operating-shaft, said ratchet-plate having a notched rim or flange which is engaged by a detent and lip upon the crank-handle, whereby displacement of the crank-handle in operating the shaft is prevented, substantially as described.

29. The combination, in a fare-register, of the fare-indicating device, the inclosing casing, the sight-opening in said casing, the movable slide or cover, mechanism for operating the indicating device, and crab mechanism for operating the slide, consisting of a gear-wheel in engagement with the operating mechanism of the register, a ratchet-wheel connected with said gear-wheel, a rock-shaft, a disk on said rock-shaft, spring-pressed pawls pivoted eccentrically to said disk and adapted to be thrown into engagement with said ratchet-wheel, and a cam on said rock-shaft adapted to effect the disengagement of the pawls, substantially as described.

30. The combination, in a fare-register, of a fare-indicating device, the total-registering dial, mechanism for operating the same, the inclosing casing, and the sectional operating-shaft connected with said operating mechanism, the sections of the shaft being united by a slip-joint connection which will permit the parts to be joined together or separated by sliding one within the other, whereby the register-casing may be removed from the cab without disengaging the gearing which connects said shaft with the register mechanism, substantially as described.

31. The combination, in a fare-register, of the fare-indicating device, the total-fare-registering dial, mechanism for operating the same, the inclosing casing having a sight-opening therein, the vertically-adjustable slide or cover for said sight-opening, and the crab mechanism for operating the slide, comprising a gear-wheel in engagement with the operating mechanism of the fare indicating and registering devices, a ratchet-wheel having a continuously-toothed periphery except at a single point and a single tooth re-

versely arranged at said point, a rock-shaft connected with said slide, a spring-pressed pawl pivoted to said rock-shaft and adapted to engage the continuously-toothed portion of said ratchet-plate, a second spring-pressed pawl adapted to engage only the single tooth upon said plate, and a spring-pressed cam upon said rock-shaft adapted to effect the disengagement of said pawls, whereby said slide will be raised only on the forward movement of the indicator mechanism starting from the zero-point and will be lowered immediately on the reversal of this movement, substantially as described.

32. In a fare-register, the combination, with the inclosing casing containing the operating mechanism of the register, of the sectional operating-shaft in gear with said mechanism, having an operating-handle arranged in proximity to the driver's seat, one section of said shaft having a tongued end adapted to engage the correspondingly-grooved end of the adjoining section, whereby said sections may be separated, so as to permit the removal of the register-casing, substantially as described.

33. In a fare-register, the combination, with fare-indicating devices and operating mechanism for the same, of clock mechanism and a time-fare-registering dial geared to said clock mechanism, a bell, a rocking spring-actuated dog supporting a bell-hammer, a slide connected with the time-fare-registering mechanism, and intermediate mechanism, substantially as described, for operating the slide on the forward movement of the shaft which actuates the indicator mechanism, whereby the dog may be actuated by the movement of the slide, so as to ring the bell simultaneously with the operation of setting in motion the mechanism which actuates the time-fare-registering dial, substantially as described.

34. The combination, in the fare-register, of the casing, the trip-indicator, mechanism for operating the same, the lever, the ratchet-plate adapted to engage said lever, a foot-plate attached to the lever, and a cam adapted to engage said foot-plate, so as to throw the lever out of engagement with the teeth of the ratchet-wheel on the downward movement of the lever, and thereby permit the indicator-wheel to be reversed, substantially as described.

35. In a fare-register, the combination, with the trip-indicator, mechanism for operating the same, the ratchet-plate, the notched disk, the spring engaging said disk, the lever carrying a pin which engages the teeth of said ratchet-wheel, and the cam for throwing said lever out of engagement with said wheel, whereby the trip-indicator is adapted to be reversed, substantially as described.

36. In a fare-register, a trip-indicating device comprising a rotary shaft, an indicator-wheel mounted on said shaft, a ratchet-wheel, connections between said ratchet-wheel and the register-operating mechanism for imparting motion to the shaft on the forward movement of said operating mechanism, a disk fixed on said shaft, having V-shaped notches in its periphery, and a stationary spring-pawl having a tooth which is adapted to engage the notches of said disk, so as to hold the indicator-wheel against undue movement by frictional contact between said notched disk and the tooth of said pawl and permit the same to be adjusted in either forward or backward direction against the pressure of said spring-pawl, substantially as described.

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