(No Model.)

A. H. DOLLARD.

FARE REGISTER.

No. 506,629. Patented Oct. 10, 1893.

Fig. 1.

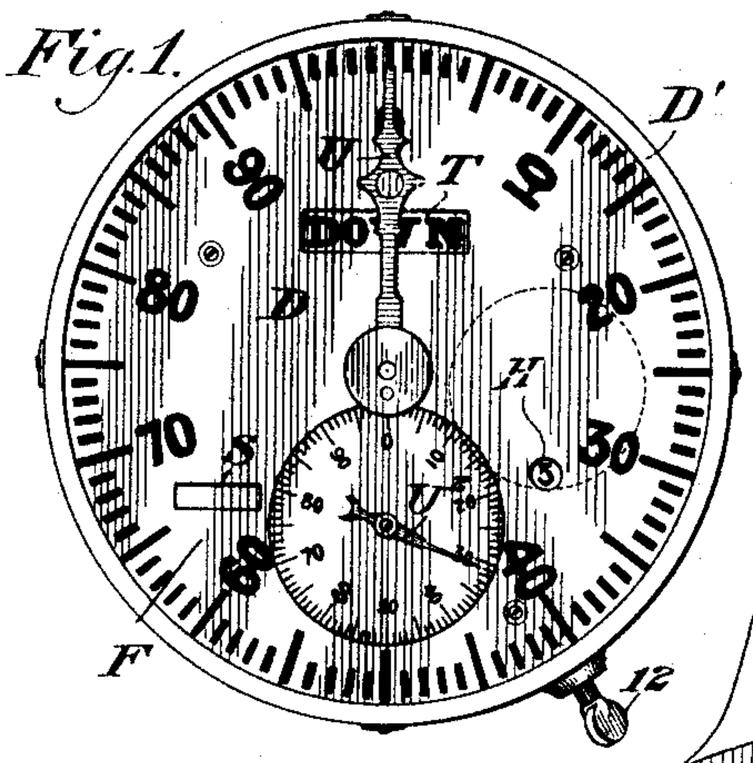


Fig. 2.

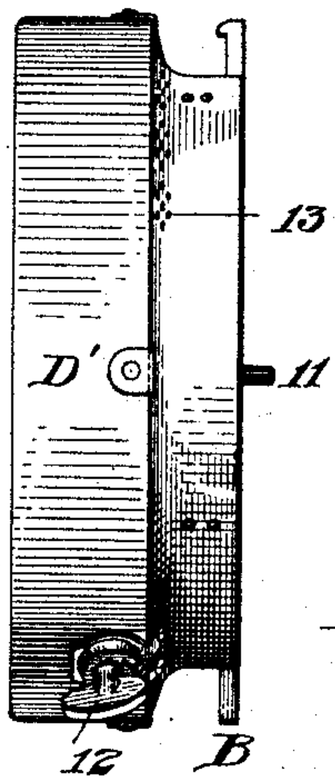


Fig. 3.

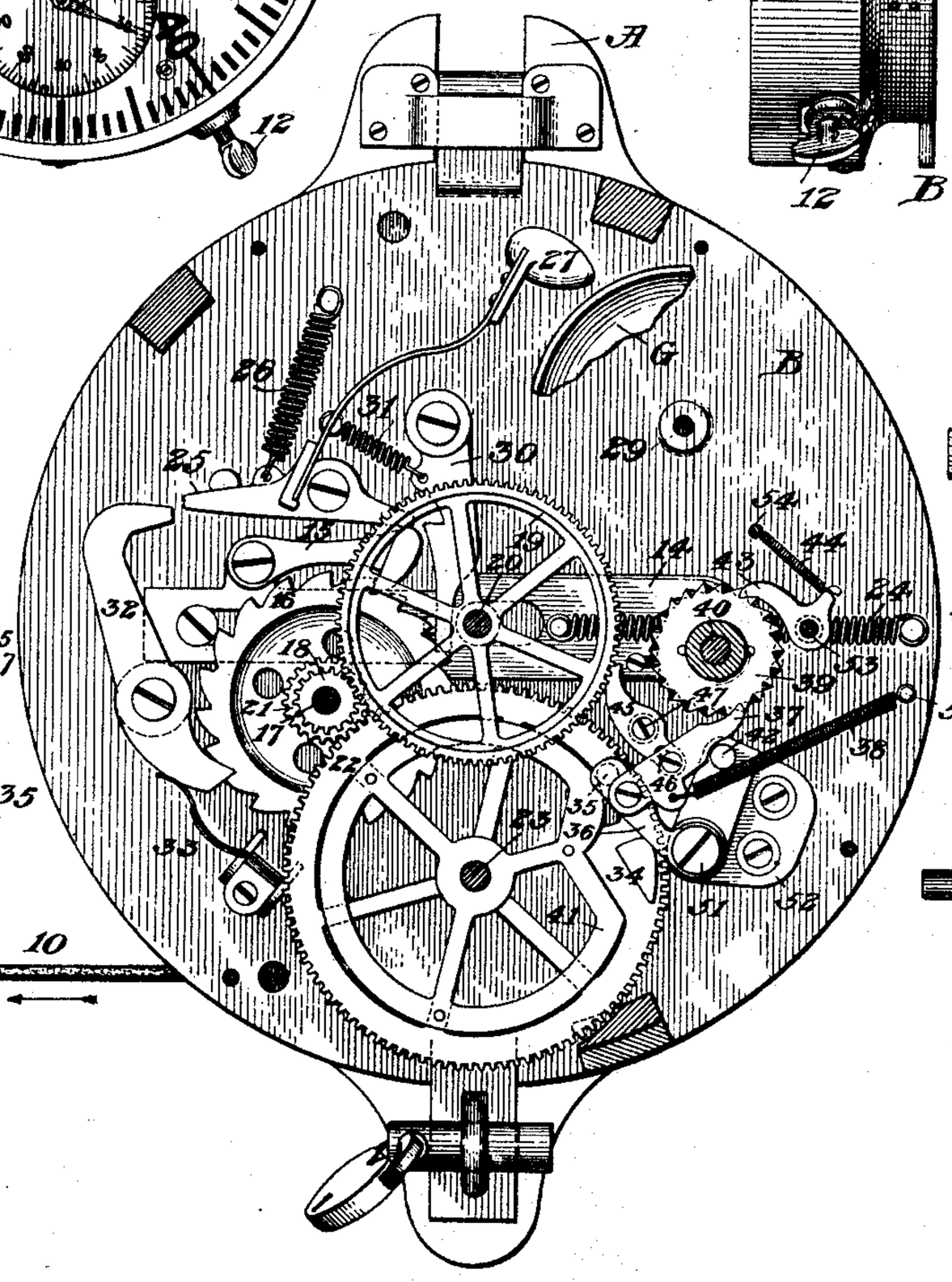


Fig. 5.

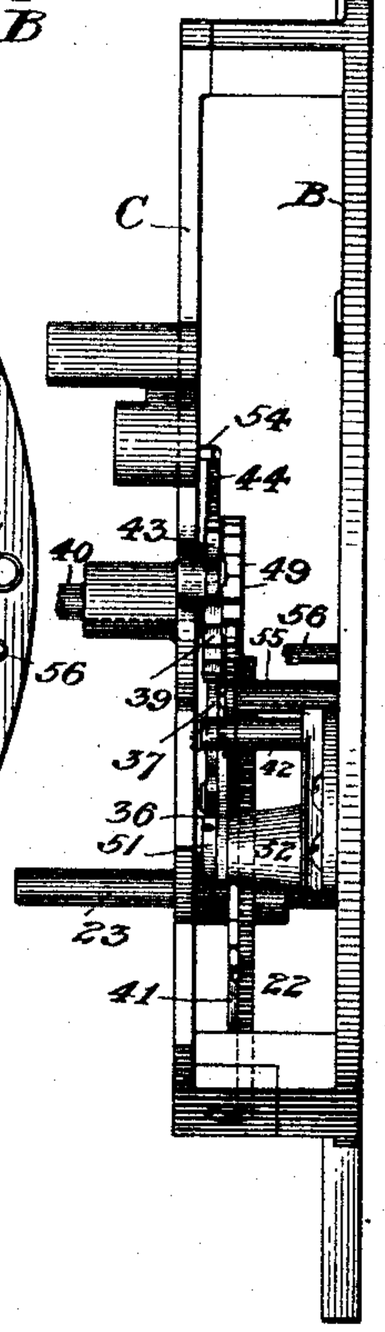


Fig. 6

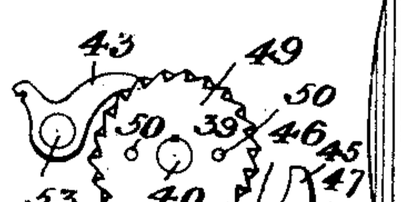


Fig. 7.

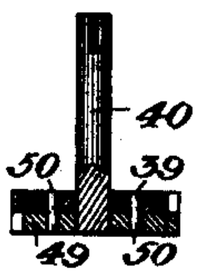
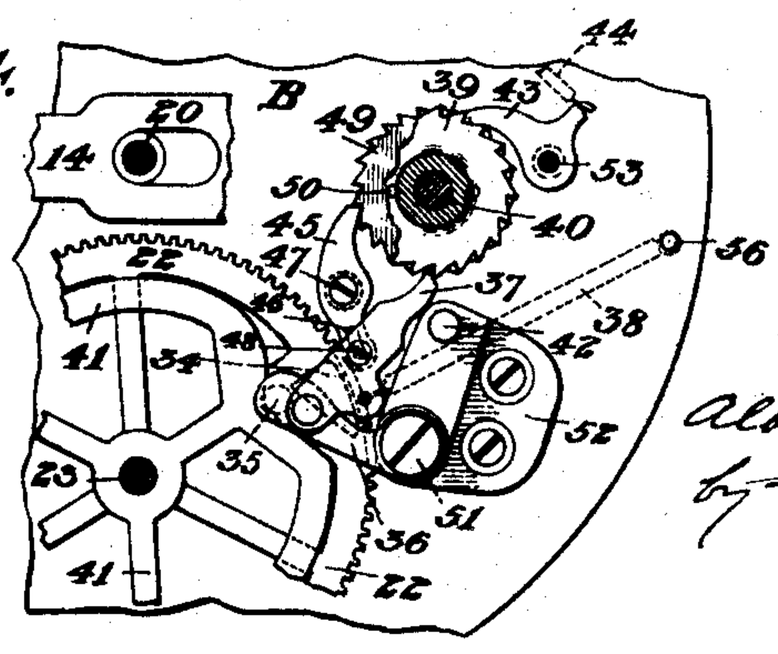


Fig. 4.



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UNITED STATES PATENT OFFICE.

ALBERT H. DOLLARD, OF BROOKLYN, NEW YORK, ASSIGNOR TO THE LEWIS & FOWLER MANUFACTURING COMPANY, OF SAME PLACE.

FARE-REGISTER.

SPECIFICATION forming part of Letters Patent No. 506,629, dated October 10, 1893.

Application filed June 10, 1893. Serial No. 477,199. (No model.)

To all whom it may concern:

Be it known that I, ALBERT H. DOLLARD, a citizen of the United States of America, and a resident of Brooklyn, in the State of New York, have invented a new and useful Improvement in Fare-Registers, of which the following is a specification.

This invention relates to the "hundreds mechanism" of the fare-registers manufactured by The Lewis & Fowler Manufacturing Company, of said Brooklyn, under United States Letters Patent No. 185,740, dated December 26, 1876; No. 190,021, dated April 24, 1877; No. 206,553, dated July 30, 1878; No. 207,728, dated September 3, 1878; No. 231,161, dated August 17, 1880; No. 247,552, dated September 27, 1881; No. 271,977, dated February 6, 1883; No. 273,675, dated March 6, 1883; No. 280,925, dated July 10, 1883, and No. 487,731, dated December 13, 1892. Said hundreds mechanism, as heretofore constructed, comprised a single ratchet-wheel on the shaft of the hundreds-dial, engaged by feed and detent-pawls; said feed-pawl being retracted by a tripping projection on the slow-moving units-wheel of the permanent register, and instantaneously projected at the proper moment by a spiral spring put in tension by such retraction of the pawl, and said ratchet-wheel and therewith said hundreds-dial being locked except during a portion of each retraction of the feed-pawl by a locking stud or post behind the nose of the projected pawl, preventing its displacement by the wheel.

The present invention consists in the combination with said hundreds-shaft or the like of a locking device which comprises a dog connected with such feed-pawl so as to be projected when said feed-pawl is retracted, and thus to prevent turning the hundreds-dial or its equivalent to a false indication, and in a specific combination of parts for so guarding said hundreds-dial or its equivalent, as hereinafter set forth and claimed.

A sheet of drawings accompanies this specification as part thereof.

Figures 1 and 2 of the drawings are external face and edge views of a large dial "Lewis & Fowler" register illustrating this invention. Fig. 3 is a face view, partly in section, showing its back-plate as mounted on a hanging board in customary manner, and its mechanism as arranged in front of said back-plate. Fig. 4 is a fragmentary face view illustrating the operation of the improved hundreds mechanism. Fig. 5 is an edge view, projected from Fig. 3, showing said back-plate, the mechanism to which the present improvement relates, and the spider-plate which supports certain parts of said mechanism. Fig. 6 is a back view of the feed-pawl of the hundreds-mechanism, and parts connected therewith; and Fig. 7 is a sectional elevation of the shaft of the hundreds-dial, and parts attached thereto.

Like letters and numbers refer to like parts in all the figures.

In said Lewis & Fowler register, the "machine" or register proper, Figs. 1 and 2, is hung upon a wooden hanging-board A, Fig. 3, which is permanently attached to the end of a street-car for example, and provided with the "ringing device" or primary actuating device represented by its leather ringing cord 10, Fig. 3. Said ringing device coacts with a stud 11, Fig. 2, projecting from the back of the machine through a slot in a circular cast-iron back-plate B, which, when the machine is hung, immediately overlies said hanging board, and is the means by which the machine is attached to said hanging board in the manner represented in Fig. 3 and set forth in said previous patents. Between said back-plate B and a spider-plate C, Fig. 5, parallel therewith, the whole of the registering and bell mechanism is located, as in Figs. 3 and 5; and between said spider plate and a duplex dial-plate D, Fig. 1, a direction indicator or trip-signal T, Fig. 1, a setting-signal S, Fig. 1, and a rotary hundreds dial H, Fig. 1, are conveniently located, together with the "setting-mechanism" and signal connections represented by the setting-knob or attached key 12, Figs. 1 and 2; the indications of the respective signals and of said hundreds dial being exposed to view through openings in said dial-plate, as in Fig. 1. In front of said dial-plate D two units-hands U U^2, known respectively as the trip-hand and the permanent hand, revolve concentrically with the respective dials. Finally, a circular glass front plate F and an annular sheet-metal drum D′, in connection with said back-plate B, tightly inclose every other part of the machine excepting said stud

11 and said knob or key 12; and their fastenings are protected when the machine is hung, as set forth in said Patent No. 487,731. Sound-escape holes 13, Fig. 2, in the drum, provide for clearly hearing the gong bell G, Fig. 3, when the bell is rung.

Referring now more particularly to Fig. 3, it is pointed out that in said Lewis & Fowler register at each pull on the ringing cord, indicated by the arrow at 10, a slide 14, from which said stud 11 projects, is moved in one direction, and therewith a main pawl 15 in mesh with a main ratchet-wheel 16, the shaft 17 of which is geared by a pinion 18 and spur-wheel 19, the latter of one hundred teeth, to the shaft 20 of said trip-hand U, and by a pinion 21 and another spur-wheel 22 of one hundred teeth to the shaft 23 of said permanent units-hand U^2. Each passenger or each fare is thus simultaneously registered on both dials of the duplex dial-plate D. During the return stroke of said slide 14, which is effected by a strong spiral spring 24, the head of said pawl 15, riding over the next tooth of said ratchet-wheel 16 preparatory to another pull, coacts with a distinct bell-lever 25, puts in tension a spiral spring 26 connected therewith, and at the completion of the return stroke drops into the succeeding interdental notch, under the impulse of said spring 26 and of gravity, permitting said spring 26 to return the bell-lever 25 to its position of rest, and to throw the bell-hammer 27 into contact with the bell G, which is a circular gong, attached to the back-plate B at 29. A stroke of the bell thus attests each registration. A "swinging catch" 30 together with its spring 31, and a "bell-guard" 32, with its spring 33, prevent fraudulent ringing of the bell as set forth in said Patents Nos. 247,552 and 280,925; said bell-guard in the arrangement shown serving also as the main detent or guard against retrogression. When said permanent hand U^2 approaches O on the smaller units-dial of the dial-plate D, a tripping projection 34 on said spur-wheel 22 comes in contact with a stud 35 on a lever 36 carrying a feed-pawl 37, and retracts said feed-pawl against the tension of a spring 38, and as said hand U^2 reaches O said projection "trips" said lever, and said spring 38 instantaneously projects the feed-pawl 37, which in turn, coacting with a ratchet wheel 39 on the lower end of the shaft 40 of said hundreds-dial H, turns the latter so as to expose a fresh hundreds indication at H in Fig. 1. During the remainder of the revolution of the units-wheel 22 a nearly circular guard spider 41, superposed thereon, coacts with said stud 35, as in Fig. 3, so as to prevent the retraction of the feed-pawl 37, and except during its retraction the nose of the pawl is held in mesh with the teeth of said ratchet-wheel 39 by a stud 42, as in Fig. 3, so as to lock the wheel and therewith its shaft and the hundreds-dial against any movement until the feed-pawl is so retracted; while a detent-pawl 43, projected by a spring 44, is in constant mesh with said ratchet-wheel 39 to prevent retrogression. To prevent fraudulently turning the hundreds-dial forward while said feed-pawl 37 is retracted, a dog or guard-pawl 45, having a slot 46 and a fixed pivot 47, is connected with said feed-pawl 37 by a stud which is conveniently formed by the smooth end of a screw 48, projecting into said slot 46, and a second ratchet-wheel 49, with teeth reversed as compared with said ratchet-wheel 39, is fixedly attached to the latter, as by pins 50 Fig. 7, and therewith connected to the hundreds-dial. When the feed-pawl 37 is retracted, as in Fig. 4, the nose of the guard-pawl 45 is simultaneously projected until it is in mesh with the teeth of said second ratchet-wheel 49, and the hundreds-dial is thus securely locked until it is relocked by the projection of the feed-pawl. The screw pivot 51 of said lever 36 and its locking-stud 42 are conveniently supported by a bracket 52 attached to the back-plate B. The pivot 53 of said detent pawl 43 and the stud 54 from which its spring 44 is stretched are conveniently supported by said spider plate C, Fig. 5, and said pivot 47 of said guard-pawl 45 is conveniently supported by a post 55, Fig. 5, and the feed-pawl spring 38 is conveniently stretched from a post 56, both of which project from the back-plate. These and other like mechanical details are subject to change by different manufacturers. An index hand in connection with a fixed dial may furthermore take the place of the rotary hundreds-dial; and the improved hundreds-mechanism may be incorporated in other registers without departing from my invention.

Having thus described the said improvement, I claim as my invention and desire to patent under this specification—

1. The combination, in a fare-register, of a rotary hundreds-indicator forming part of the permanent register, a feed-pawl and ratchet transmitting motion to said indicator, and a locking device, for protecting said indicator against fraudulent actuations, comprising a guard-pawl or dog which is projected when said feed-pawl is retracted, and a reversed ratchet-wheel engaged by said dog, substantially as hereinbefore specified.

2. The combination of the units-wheel 22, carrying a tripping projection 34, the stud-carrying lever 36, the feed-pawl 37 and its projecting spring 38, the ratchet-wheel 39 on the hundreds shaft 40, the pivoted dog or guard-pawl 45, the slotted connection between said guard-pawl and said feed-pawl, and the reversed ratchet-wheel 49 attached to said ratchet-wheel 39, substantially as hereinbefore specified, for the purpose set forth.

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