

No. 834,120.

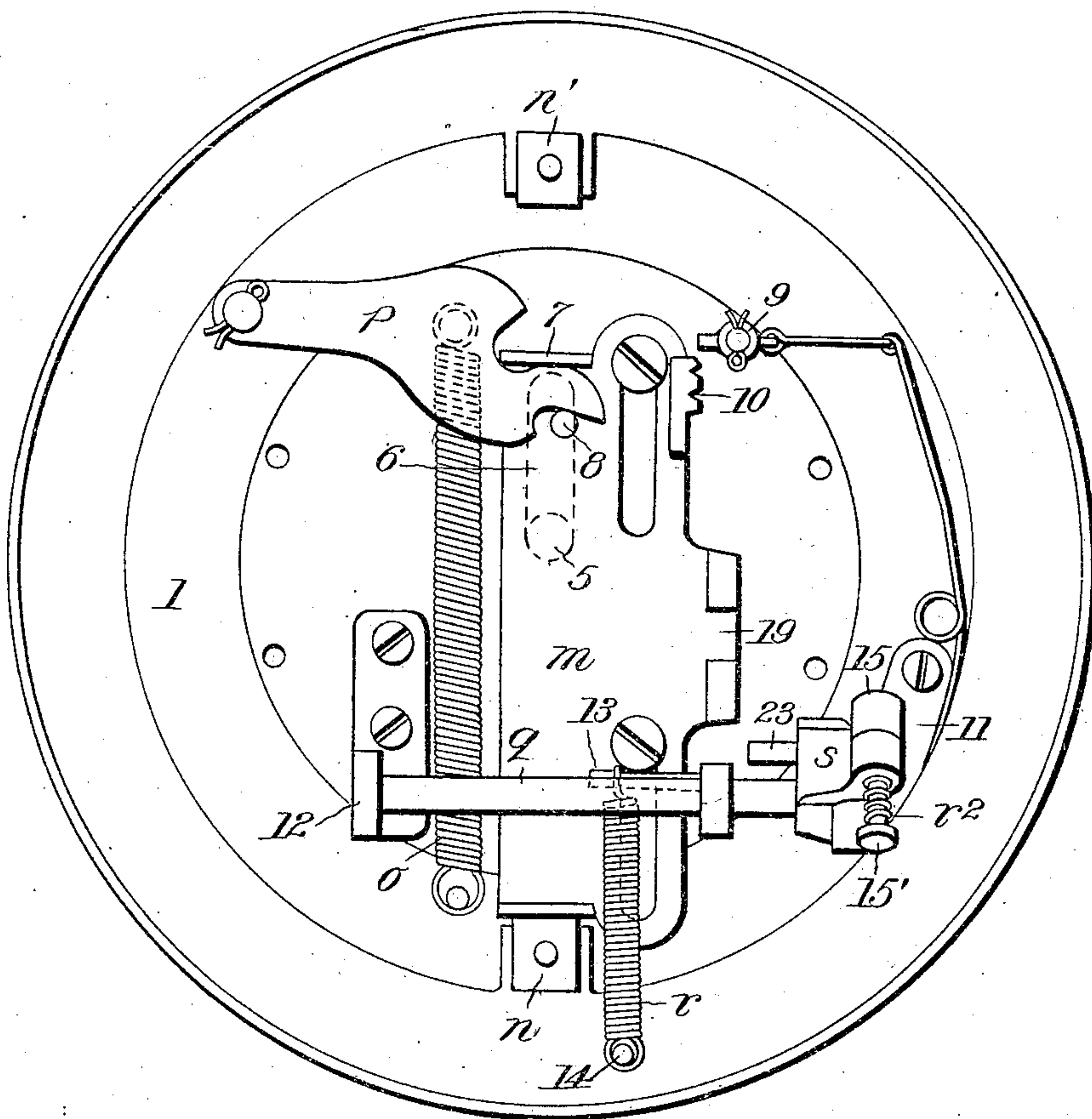
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FARE REGISTER BELL MECHANISM.

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2 SHEETS—SHEET 2.

Fig. 5.



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FARE-REGISTER BELL MECHANISM.

No. 834,120.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, CHARLES E. GIERDING, a citizen of the United States of America, and a resident of Newark, in the State of New Jersey, have invented a new and useful Improvement in Fare-Register Bell Mechanism, of which the following is a specification.

This invention relates to the alarm mechanism or bell mechanism of fare registers or recorders or combined registers and recorders, herein referred to in common as "fare-registers;" and it consists in certain novel combinations of parts hereinafter described and claimed.

The leading objects of the present invention are to render the bell mechanism as simple as practicable and to attach the same apart from the bell and the means for retracting and tripping the hammer to the back plate of the register, so as to facilitate its adjustment and inspection.

Two sheets of drawings accompany this specification as part thereof.

Figures 1 and 2 are external face and edge views of a fare-register in which the improved bell mechanism has been embodied. Figs. 3 and 4 are sectional edge views, on a larger scale, showing one and the same side of the inner mechanism with the back part of the register-casing in section, the front part of the casing and the dial-plate being omitted, Fig. 3 showing the bell-hammer at rest and Fig. 4 illustrating its operation by full and dotted lines, as hereinafter described. Fig. 5 is a face view of the back part of the register-casing, on the same scale as Figs. 3 and 4, showing the main actuating-slide and its appurtenances, together with the bell mechanism in part.

Like reference characters refer to like parts in all the figures.

The external characteristics of the fare-register shown in the drawings include a circular drum or casing, (shown complete in Figs. 1 and 2, composed of separable back and front parts, 1 and 2, made, respectively, of cast metal and sheet metal, together with a transparent dial-cover 3, of glass, behind which the indications of trip-register numeral-wheels *a*, totalizer numeral-wheels *b*, and a direction-indicator *c* are exposed to view through the respective apertures *a'*, *b'*, and *c'* of an apertured dial-plate

4, as in Fig. 1. An actuation-indicator *d*, Figs. 3 and 4, is also periodically exposed to view through said aperture *a'* during the registering operation to show that the registration of a fare is in progress, and a not-set indicator *e*, Figs. 3 and 4, is exposed to view through the same aperture during the setting operation to show that the operation of resetting the trip-register to zero is begun and is not fully completed. Other external characteristics are means for actuating said trip-register and totalizer wheels to register each fare on both and for attesting each registration by ringing the inclosed bell *f* of the bell mechanism, such actuating means being represented by the customary rearwardly-protruding stud 5, Figs. 2-5, and means for periodically resetting the trip-register wheels to zero and operating said direction-indicator *c* and not-set indicator *e*, such resetting and operating means being represented by the customary external resetting knob or key *k*, Figs. 1 and 2. Said back part 1 of the register-casing is provided internally, as best seen in Fig. 5, with a vertically-movable main slide *m*, from the back of which said actuating-stud 5 projects through a slot 6 in the back plate, as shown in dotted lines in Fig. 5; also, a pair of buffers *n* and *n'*, between which said slide *m* reciprocates; also, a retracting-spring *o* and an amplifying-lever *p*, interacting with an end flange 7 and an adjacent stud 8 on said slide *m* at its upper end and serving to hold said slide normally in contact with the bottom buffer *n*; also, the several parts of a full-stroke device, said parts including a spring-controlled dog 9, having a fixed pivot and interacting with a ratchet-flange 10 on said slide *m*, and, finally, a rock-shaft *q*, its bearings 11 and 12, formed by brackets rigidly attached to said back plate, and a tensile striking-spring *r*, stretched from an arm 13 of said rock-shaft to a stud 14 on said back part, said rock-shaft *q* carrying the bell-hammer *s*. This specific bell-hammer is characterized by an attached and spring-retracted face part 15, which is projected into contact with the bell *f* by momentum when a pair of stop-shoulders 16 and 16', Figs. 3 and 4, on the bell-hammer *s* and its right-hand bearing 11 come in contact, said face part 15 having a central stem 15', Figs. 3-5, perpendicular to its back, extending

through the body part of the bell-hammer *s* and headed at its rear end, and the spring *r*² being in the form of a helical coil inclosing said stem between its head and the back of the hammer-body. This specific construction of the bell-hammer *s* forms no part of the present invention. The other parts of the register mechanism include a right-hand frame-piece 17, Figs. 3 and 4, perpendicular to the back plate of said back part 1 and rigidly attached thereto in the working register.

When the main slide *m* is "pulled" through the medium of the customary operating back and the said stud 5, its motion toward the top buffer *n'* is transmitted primarily and directly through a knuckle-joint, the respective parts of which are shown at 19 and 20, to a pawl-carrier *t*, on which said part 20 is formed and which rocks on an axis concentric with that of the trip-register wheels *a*. Said pawl-carrier *t* is mounted on the outer end of the hub of a ratchet-wheel *u*, Figs. 3 and 4, (shown in dotted lines in Fig. 3) and is further supported by a bracket or bridge-piece 21, fixedly attached to said right-hand frame-piece 17, and it carries in addition to the main pawl *u'* said actuation-indicator *e*, which projects rigidly therefrom over the units-wheel of the trip-register wheels *a*. A spring-pressed detent-pawl *u*², pivotally attached to said right-hand frame-piece 17, interacts with said ratchet-wheel *u* and by means of a heel end 22, protruding from behind the bell *f* and interacting with a stud 23 on the bell-hammer *s*, retracts and trips the latter in the act of riding over each ratchet-tooth, so as to ring the bell upon the completion of each one-tooth movement of the ratchet-wheel *u*. Such movement of the ratchet-wheel is transmitted directly to the units-wheel of the trip-register wheels *a* and to the units-wheel of the totalizer-wheels *b* in a customary manner.

The operation of the bell mechanism is illustrated by Figs. 3 and 4, which see. When the actuating mechanism is at rest, the parts occupy the positions in which they are shown in Fig. 3. When the slide *m* is pulled and the ratchet-wheel *u* is turned, as above described and as illustrated by Fig. 4, the contiguous tooth of the ratchet-wheel interacting with the nose projection of the detent-pawl *u*² cams the latter into the position in which it is shown in full lines in Fig. 4, and by the interaction of the heel end of said pawl with said stud 23 on the bell-hammer *s* the latter is turned against the resistance of the striking-spring *r* into the position in which it is shown in full lines in Fig. 4. All this time the main slide *m* is locked against retrogression by the full-stroke device 9 10, and repeated strokes of the bell during one and the same registering operation are thus prevented in a customary way. Upon the comple-

tion of the registering movement or pull the main slide is released by the full-stroke device 9 10 for its return movement, and at the same instant the pawl *u*², and therewith the bell-hammer *s*, is tripped or freed by the ratchet-wheel *u*, so as to permit the face part 15 of the bell-hammer to strike the bell *f* under the impulse of the spring *r*, as in dotted lines in Fig. 4. The face part 15 reaches the bell *s* in such movement after the stop-shoulders 16 and 16' come in contact by the momentum of the face part 15 overcoming its retracting-spring *r*², as above described, and the face part is immediately restored to its normal retracted position. (Shown in Fig. 3.)

The setting-key *k* is screwed directly into the right-hand end of a horizontal shaft *w*, upon which the trip-register wheels *a* are normally loose and which serves to support the bell *f* by its right-hand end, and motion is transmitted from said key and shaft to said not-set indicator *e* by means of a lever *x* and its connections, said lever serving also to transmit motion to a locking-bolt *y* and said connections including a rock-shaft *z*. None of these parts interacting with the setting-key *k* form any part of the present invention.

For the purposes of this invention the fare-register apart from its bell mechanism may be of any known or improved construction, and the bell-hammer itself, as before indicated, may be of any known or improved construction.

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

1. A fare-register bell mechanism including, in combination with the back plate of the register and with a suitably-supported bell within the register, a bracket rigidly attached to said back plate, a rock-shaft mounted in said bracket, a striking-spring stretched from an arm of said rock-shaft to a relatively fixed part, and a swinging hammer movable with said rock-shaft and having its face normally out of contact with the bell, said bracket and the body of the bell-hammer being constructed with stop-shoulders interacting to limit the movement of the bell-hammer toward the bell, substantially as hereinbefore specified.

2. A fare-register bell mechanism including, in combination with the back plate of the register and a bell suitably supported within the register, and with means for registering fares including a pawl-carrier and its pawl and a rotatable ratchet-wheel interacting with said pawl, a detent-pawl pivoted to a relatively fixed part and having a nose projection interacting with said ratchet-wheel and a heel projection, a bell-hammer support attached to said back plate, a bell-hammer pivoted to said support, adapted to contact with said heel end and to be retracted by the

interaction of said ratchet-wheel and detent-
pawl during each one-tooth movement of
said ratchet-wheel, and a striking-spring
against the resistance of which the bell-ham-
5 mer is so moved, said support and the body
of the bell-hammer being constructed with
stop projections which interact to limit the

movement of the bell-hammer toward the
bell, substantially as hereinbefore specified.

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