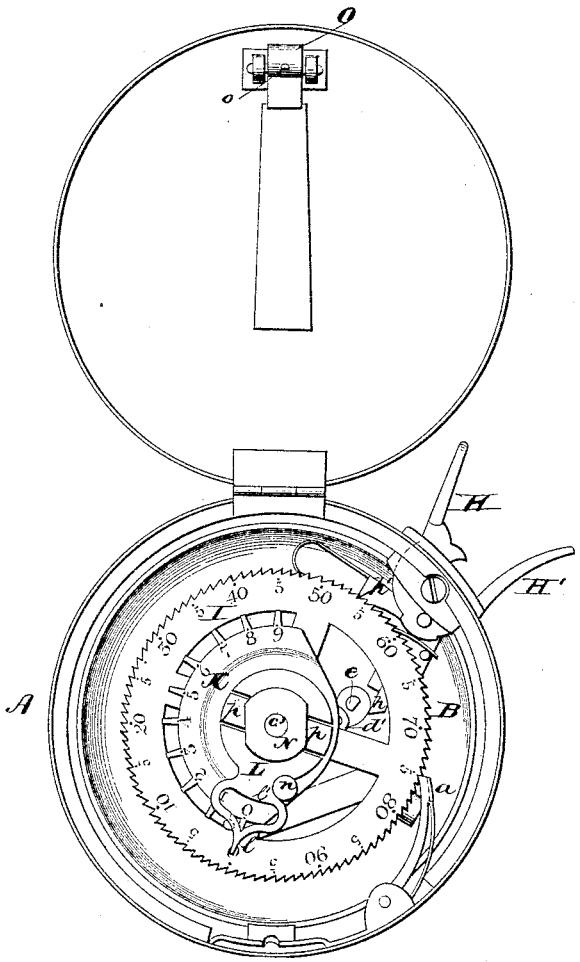
3 Sheets—Sheet 1.

R. GORNALL.
Fare-Register.

No. 212,798. **Patented Mar. 4, 1879.**

fig. 1.



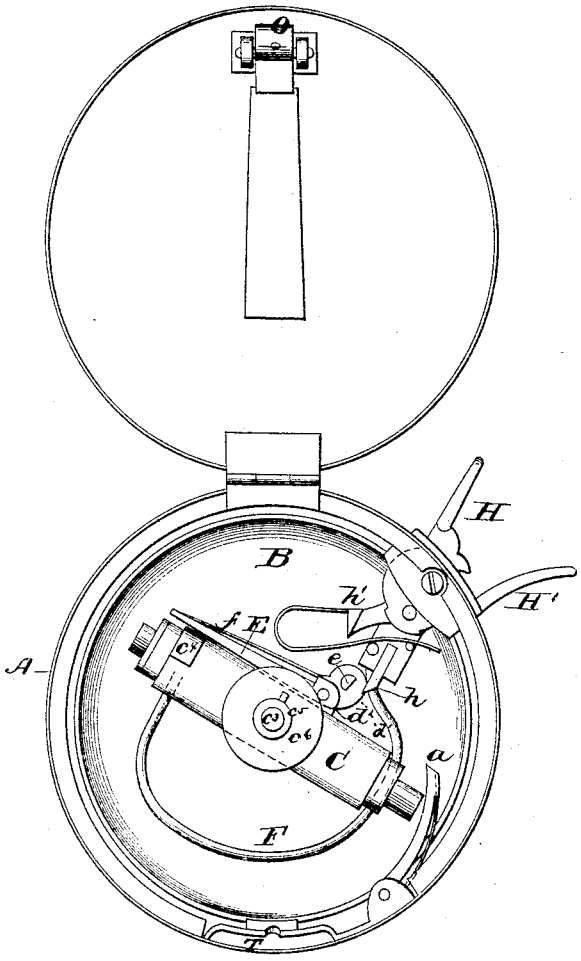
Witnesses.
M. Edwards
Wm Blackstock

Inventor.
Richard Gornall
By L. Hill,
His Atty.

R. GORNALL.
Fare-Register.

No. 212,798. Patented Mar. 4, 1879.

fig. 2.



Witnesses.
M. Church
Wm Blackstock

Inventor.
Richard Gornall
By L. Hill,
His atty.

R. GORNALL.
Fare-Register.

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fig. 3.

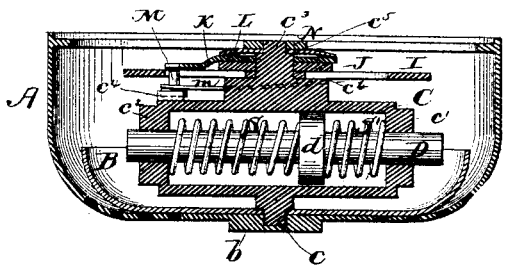
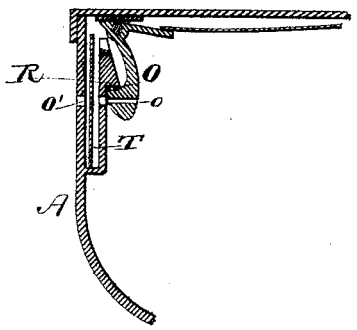


fig. 4.



Witnesses.
C. G. Church
Wm Blackstock

Inventor.
Richard Gornall
By L. Hill,
His Atty.

UNITED STATES PATENT OFFICE.

RICHARD GORNALL, OF BALTIMORE, MARYLAND, ASSIGNOR TO THOMAS TANSLEY, JR., OF SAME PLACE.

IMPROVEMENT IN FARE-REGISTERS.

Specification forming part of Letters Patent No. **212,798**, dated March 4, 1879; application filed January 9, 1879.

To all whom it may concern:

Be it known that I, RICHARD GORNALL, of Baltimore, in the county of Baltimore and State of Maryland, have invented a certain new and useful Improvement in Fare-Registers; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a plan view of the register with the hinged side of the casing thrown open. Fig. 2 is a similar view with the indicating devices removed, and showing the bell-striking mechanism. Fig. 3 is a longitudinal vertical section taken on the line *x x*, Fig. 1; and Fig. 4 is a detailed view of the means for locking the hinged cover.

Similar letters of reference in the several figures denote the same parts.

This invention has for its object to provide a light, cheap, and effective portable fare-register for use on street-railroads, &c.; and it consists in certain novel improvements, which I will now proceed to describe in detail, and point out particularly in the claims.

Referring to the drawings, A represents the box or casing, constructed, preferably, of metal, spun up into the desired form, and made of about three and one-half inches in diameter. Within this casing I place a bell or gong, B, and secure the same in place by means of a screw-threaded stud, *c*, on the lower part of a striker-frame, C, which screws into an enlargement or boss, *b*, at or near the center of the casing, as shown in Fig. 3. The striker-frame, in addition to the stud *c*, is provided with perforated end portions, c^1 c^2, which serve as guides or bearings for the bolt or striker D, and an upper flat bearing-surface, c^6, surrounding a central screw-threaded stud, c^3, for the accommodation and support of the registering-wheels, to be hereinafter referred to. Said frame is further provided with a cam-faced boss, c^4, for a purpose to be presently described.

The bolt or striker D is provided with an enlargement, *d*, near its center, from which extend two lateral lugs, d' d', and between these lugs a latch-plate, E, is pivoted. Said latch-plate is constructed with a long shank, which extends along the side face of the frame C, being normally held in contact therewith by a flat spring, *f*, one part of which is fastened near the outer end of the latch-plate, and the other part of which bears upon the lower lug d'.

The short arm of the latch-plate is provided with a pin or projection, *e*, with which a steel point, *h*, on the end of the operating lever or handle H is adapted to engage when said handle is vibrated.

S is a spring coiled around the bolt D, between the enlargement and the rear portion, c^2, of the frame, and S′ is a shorter coiled spring arranged between the enlargement and the portion c^1 of the frame.

In operation, the lever or handle H is grasped and pressed toward the stationary handle H′, secured to the casing, which movement causes the steel point *h* to engage with the pin on the latch-plate, and force the bolt back against the tension of the spring S until the steel point clears the pin and allows the bolt to be shot forward against the bell. The forward impulse given to the bolt compresses the short spring S′; but said spring instantly resumes its normal position, and holds the bolt out of contact with the surface of the bell. A spring, F, returns the lever or handle H to its first position, the steel point again striking the pin, but this time simply tilting it on its pivot without disturbing the bolt. The distance between the steel point of the handle and the pin on the latch-plate is less than the distance between the striking end of the bolt and the surface of the bell, and therefore said bolt is prevented by any possibility from striking the bell from any jar or concussion applied to the outside of the casing, but must be regularly forced back and released, as above described.

Having thus described the improved apparatus for sounding the bell, I will now proceed to point out the novel features of the registering mechanism.

I is a large wheel mounted on the screw-threaded stud c^3, and resting upon the flat

bearing-surface c^6, so that it may revolve freely. This wheel is provided on its periphery with one hundred ratchet-teeth, and is marked with numerals at intervals of five teeth, commencing at zero.

A washer, J, is next placed over the stud, and made fast thereto by means of a feather and groove, and upon this washer a graduated segmental plate, K, is placed, as shown. The interposition of the washer between the wheel I and the segmental plate permits the independent rotation of said wheel and plate. The upper surface of the segmental plate lies a trifle below a shoulder, c^5, on the stud, so that a pointer-plate, L, having an aperture fitting the threaded portion only of the stud c^3 may be forced down by a nut, N, upon said shoulder, and held firmly from rotating with the segmental plate.

The pointer-plate is provided with spring portions *p p*, which bear upon the surface of the segmental plate, and prevent the casual or accidental rotation of the latter. It is also provided with a pointer, *l*, which extends out over the numbers on the wheel I, and with an opening, *l'*, through which the numbers on the segmental plate are visible.

A spring-pawl, *h'*, upon the handle or lever H is adapted to engage with the ratchet-teeth of the wheel I, and to advance the wheel one tooth every time the handle is vibrated sufficiently far to release the bolt and sound the bell, while a second spring-pawl, *a*, articulated to the casing, prevents the backward movement of said wheel.

A pin or stop, M, is mounted upon the free end of a spring-plate, *m*, attached to the under side of the wheel, so that its upper end will normally lie flush with the upper surface of said wheel, in a path immediately beneath a series of teeth on the graduated segmental plate, as shown in Fig. 3.

Upon each complete revolution of the wheel I, or, in other words, upon the recording of a hundred fares, the spring-plate *m* comes in contact with the cam-faced boss c^4 on the frame C, before alluded to, and is raised thereby, causing the stop-pin M to rise above the upper surface of the wheel I and engage with one of the teeth of the segmental plate, and carry said plate around till the next number is exhibited through the opening *l'* in the pointer-plate, at which time the spring-plate disengages from the cam and assumes its former position, carrying with it the stop.

It will, therefore, be observed that the segmental plate records the hundreds, and the wheel I records all fractions of a hundred, while the single pointer-plate serves as an indicator for both wheel and plate.

For the purpose of a fare-register it is not required that the segmental plate should indicate more than ten hundred, because that number of fares will not have been collected before the proper officer of the company has taken the state of the register and turned it back to zero, or elsewhere, as he may see fit; but instead of a segmental plate I may use a circular plate or wheel with more than double the capacity, as will be readily understood. For altering the position of the segmental plate a knob or button, *n*, is provided.

The spring portions *p p* of the pointer-plate hold the segmental plate in any position in which it may be adjusted, and prevent its being displaced by jars or concussions applied to the casing.

O is a movable spring-catch applied to the hinged cover or side of the casing, and R is a fixed catch or keeper secured to the inside of the casing, with which said spring-catch engages and locks when the cover is closed down.

In front of the fixed catch is a receptacle, T, for a seal, of paper or other suitable material, and an aperture, *o'*, is provided through the outer casing, and another through the wall of the seal-receptacle, through which an instrument may be inserted to push back the spring-catch and release it from its keeper, so that the cover may be opened.

In this construction it will be observed that the instrument must be passed through the seal before reaching the spring-catch. Without further provision, however, there would be nothing to prevent a person from introducing a fine-pointed instrument through the seal, releasing the catch, and opening the cover, changing the registering mechanism, skillfully rubbing the small aperture made in the paper seal with a little white wax, reapplying the seal, and locking the box, all without detection.

To prevent frauds of this kind I provide an aperture, *o*, in the head of the spring-catch opposite the apertures in the wall of the seal-receptacle and the outer casing, of a diameter nearly, though not quite, as great as the diameter of the two last-mentioned apertures, and by this means render it impossible to spring back the catch, except by an instrument so large that if passed through the seal it would make a hole which could not be "doctored" so as to escape detection.

I claim as my invention—

1. The combination, with the segmental indicating-plate and the stud upon which it is mounted, of the pointer-plate, adapted to be clamped down upon the shoulder of the stud by the nut N, and having the spring portions *p p*, which bear upon the segmental plate, whereby said segmental plate is prevented from casual displacement, and yet allowed to be positively moved without disturbing the pointer, substantially as described.

2. The combination of the stud, the main indicating-wheel having the spring-pin, the washer keyed to the stud, the segmental indicating-plate, the pointer-plate and its clamp-

ing-nut, and the cam for actuating the spring-pin, all arranged and operating substantially as described.

3. The combination, with the bell, of the sliding bolt or striker, its propelling and reacting springs, the pivoted spring-latch, provided with the pin or projection *e*, and the projection *h* on the operating-handle, whereby the bell is prevented from being rung by blows applied to the outside of the register, substantially as described.

RICHARD GORNALL.

Witnesses:
E. J. BAKER, Jr.,
O. GEO. DEAVER.