2 Sheets—Sheet 1.

W. H. HORNUM.

FARE-REGISTER.

No. 185,536. Patented Dec. 19, 1876.

Fig. 1.

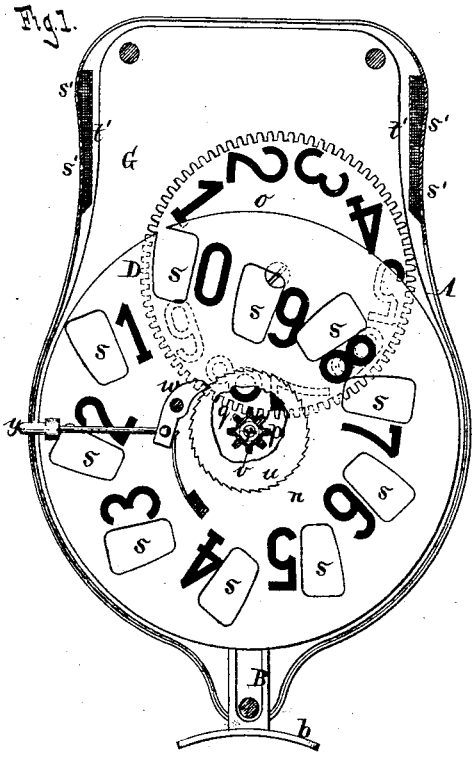


Fig. 2.

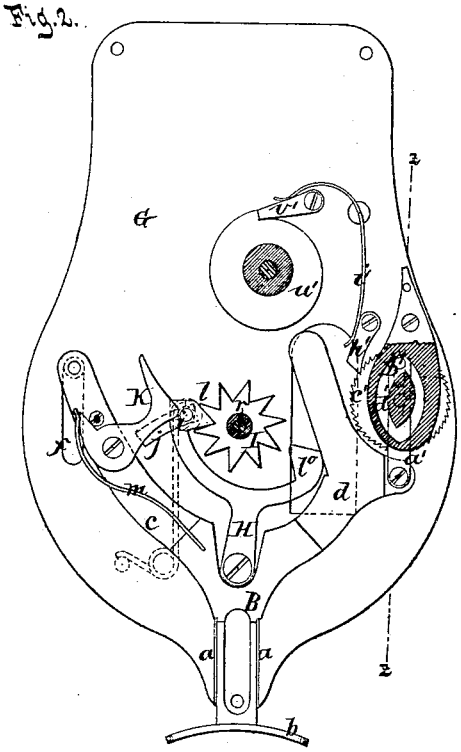
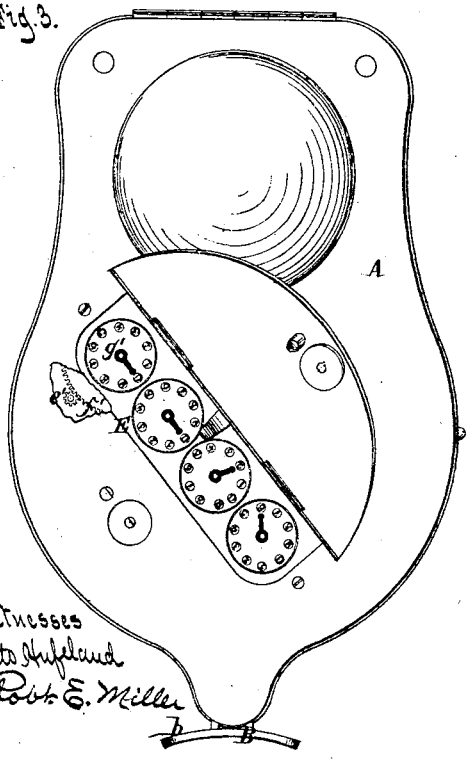


Fig. 3.



Witnesses
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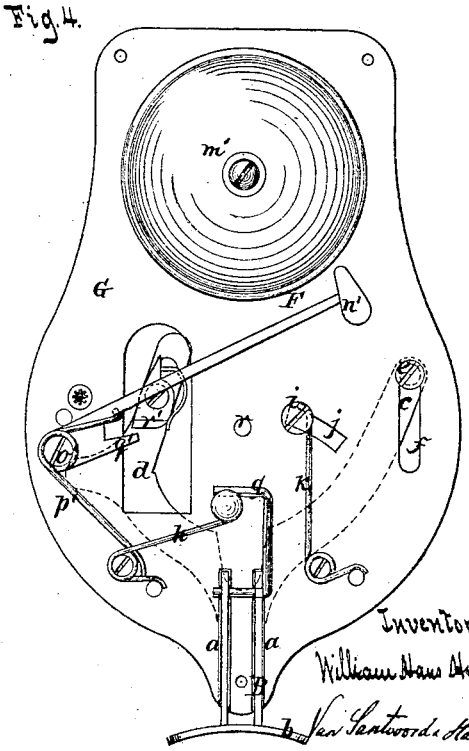
Robt. E. Miller

Fig. 4.



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THE GRAPHIC CO. N.Y.

2 Sheets—Sheet 2.

W. H. HORNUM.

FARE-REGISTER.

No. 185,536. Patented Dec. 19, 1876.

Fig. 5.

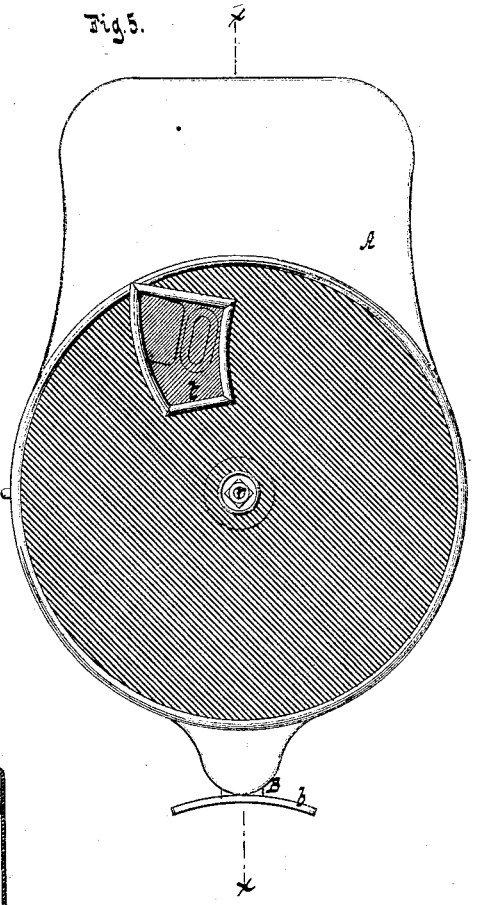


Fig. 6.

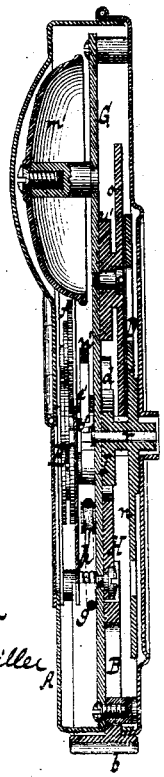
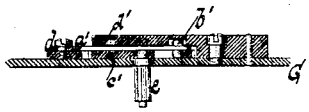


Fig. 7.



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UNITED STATES PATENT OFFICE.

WILLIAM H. HORNUM, OF NEW YORK, N. Y. ASSIGNOR TO THE HORNUM PATENT REGISTER MANUFACTURING COMPANY, OF SAME PLACE.

IMPROVEMENT IN FARE-REGISTERS.

Specification forming part of Letters Patent No. **185,536**, dated December 19, 1876; application filed November 10, 1876.

To all whom it may concern:

Be it known that I, WILLIAM HANS HORNUM, of the city, county, and State of New York, have invented a new and useful Improvement in Fare-Registers, which improvement is fully set forth in the following specification, reference being had to the accompanying drawing, in which—

Figure 1 represents a face view of the registering mechanism. Fig. 2 is a sectional face view of the mechanism which imparts motion to the registering-disks. Fig. 3 is a back view of the apparatus. Fig. 4 is a face view of the mechanism which serves to actuate the alarm. Fig. 5 is a face view of the apparatus when closed up ready for use. Fig. 6 is a longitudinal vertical section of the same in the plane *x x*, Fig. 5. Fig. 7 is a section in the plane *z z*, Fig. 2.

Similar letters indicate corresponding parts.

This invention relates to that class of fare-registers in which are combined a single trip-registering mechanism, a general registering mechanism, an alarm, and a prime mover, which serves to impart motion to both registering mechanisms and to the alarm, the whole being so arranged that the single-trip-registering mechanism can be returned to its starting-point without affecting the general register.

The prime mover consists of a slide, which has two branches, between which is situated an anchor-lever, which acts on an escapement-wheel connected to the single-trip-registering mechanism, and which is actuated by one branch of the slide, and from this same branch motion is also imparted to the general registering mechanism by means of a rod, which connects with a pin projecting from the face of a ratchet-wheel, and made to engage with a cam-slot, whereby the two registering mechanisms and the alarm are prevented from being actuated unless the slide is drawn clear out and permitted to return to its original position.

With the anchor-lever is combined a safety-dog, which is attached to the second branch of the slide, and which serves to insure the correct position of said anchor-lever in relation to the escapement-wheel.

In the drawing, the letter A designates a case, which is made of sheet metal or any other suitable material, in the form best adapted for the purpose for which it is intended to be used. In this case is situated a slide or prime-mover, B, which serves to actuate the single-trip-registering mechanism D, the general registering mechanism E, and the alarm F.

The body of this slide is guided in slots *a*, formed in a plate, G, (see Figs. 1, 4, and 6,) that is secured in the case A, and forms a partition between the single-trip-registering mechanism on one side, and the alarm and general register on the opposite side, and to which all the working parts of the apparatus are attached, and said slide extends through an opening in the edge of the case, and is provided with a finger-piece, *b*, by means of which it can be manipulated. From its body, on one side of the partition-plate G, extend two branches or arms, *c d*, and in one of these arms, Figs. 2 and 4, is secured a stud, *e*, which catches in a slot, *f*, in the partition-plate, and assists in compelling the slide to move in a rectilinear path.

On the under side of the partition-plate is situated a hook, *g*, which is firmly secured to the slide, and on which acts a spring, *h*, (see Fig. 4,) which has a tendency to throw said slide up to the position shown in the drawing.

Between the arms *c d* of the slide is situated an anchor-lever, H, in one arm of which is secured a stud, *i*, which extends through a slot, *j*, in the partition-plate, and is exposed to the action of a spring, *k*. (See Fig. 4.) By the action of this spring the pallet *l* of the anchor-lever is thrown in gear with an escapement-wheel, I, which serves to impart motion to the single-trip register. Sometimes it happens, however, that this spring gives out, and in order to insure a correct action of the apparatus a safety-dog, K, is combined with the anchor-lever. This safety-dog is

pivoted to the arms *c* of the slide B, and it is subjected to the action of a weak spring, *m*, which throws its edge in contact with the stud *i*, and holds the pallet *l* in gear with the escapement-wheel. If the slide is drawn out its arm *d* acts on the pallet *l*° of the anchor-lever, and the pallet *l* is thrown out of gear with the escapement-wheel, and when the slide is allowed to rise or to move in, the face of the safety-dog sweeps past the stud *i*, and throws the pallet *l* in gear with the escapement-wheel, so as to cause the same to advance one tooth. By means of its spring *m* the safety-dog is permitted to pass the stud *i* during the outward motion of the slide, and it adjusts itself in the correct position to throw the pallet *l* in gear during the inward motion of said slide.

In the example shown in the drawing the single register consists of a unit-disk, *n*, and a ten-disk, *o*, which are geared together by a pinion, *p*, and cog-wheel *q*, the unit-disk and its pinion being firmly connected to the escapement-wheel and mounted on a pin or arbor, *r*, which is secured in the partition-plate G.

In the unit-disk are ten apertures, *s*, which are arranged in a convolute curve, and on the face of said disk are marked the figures 0 to 9, one opposite to each of the apertures *s*. On the face of the ten-disk are marked the figures from 0 to 9 in a circular line. As the unit-disk receives a step-by-step movement by the action of the anchor-lever H on the escapement-wheel I, the figures on its face are successively brought opposite to an opening, *t*, in the cover or face-plate of the case A. (See Fig. 5.) At the same time the ten-disk receives a slow revolving motion, so that each of its figures will successively appear through the convolute apertures *s* in the unit-disk. By this arrangement ninety-nine fares can be registered in succession.

To the face of the unit-disk is secured a ratchet-wheel, *u*, from the center of which projects a square, *v*, for the reception of a key, that serves to set the single-trip register back to its starting-point.

To the inside of the cover of the case A is secured a spring-pawl, *w*, which engages with the ratchet-wheel *u*, and from the tail of this pawl extends a rod, with a button, *y*, through the side of the case.

By the pawl *w* the unit-disk is prevented from turning backward; but by pressing on the button *y*, said pawl is thrown out of gear with the ratchet-wheel *u*, and the single-trip register can be set back to its starting-point. A cam-wheel, *u'*, and a stop-pawl, *v'*, Fig. 2, prevent the single-trip register from being turned back beyond the starting-point. Said cam-wheel is secured to the ten-disk.

From the arm *d* of the slide B extends a rod, *a'*, to an eccentric wrist-pin, *b'*, which is secured in the face of a ratchet-wheel, *c'*, Figs. 2 and 7, which catches in a cam-groove, *d'*, formed in a plate situated in front of said ratchet-wheel. This ratchet-wheel is mounted on an arbor, which extends through the partition-plate G; and on the inner end of this arbor is mounted a pinion, *e'*, Fig. 3, which engages with a cog-wheel, *f'*, mounted on the arbor *g'* of the unit-hand of the general register E.

On the face of the partition-plate G is secured a pawl, *h'*, which is held in gear with the ratchet-wheel *c'* by a spring, *i'*, and which prevents said ratchet-wheel from being turned in the wrong direction.

When the slide B is drawn out, and then allowed to recede, the eccentric pin *b'* moves down through one side of the cam-groove *d'*, and up through its opposite side, so that the ratchet-wheel *c'* is compelled to make one complete revolution in the right direction; but if the slide is drawn out only partially, and then released, the ratchet-wheel *c'* is arrested by the pawl *h'*, and the slide cannot recede unless it is drawn out to its full extent, so as to allow the eccentric pin *b'* to pass through the upward branch of the cam-groove *d'*; and since the alarm is also connected to the slide B, so that the same will not sound unless said slide is drawn out to its full extent, it will be seen that whenever the slide is drawn out, so as to sound the alarm, both the single-trip register and the general register are propelled one step, and one fare is registered. Furthermore, the general register is entirely independent of the single-trip register, and if the single-trip register should be fraudulently turned back, the general register will at once expose the fraud.

This general register consists of a series of hands, the first of which indicates units, the next tens, the third hundreds, the fourth thousands, and so on, so that the same will serve to control the single-trip register for an unlimited period of time.

The alarm F is situated on the under side of the partition-plate G, Fig. 4. It consists of a bell, *m'*, and a hammer, *n'*. The hammer swings on a pivot, *o'*, and it is exposed to the action of a spring, *p'*. On its shank is formed a toe, *q'*, which is acted on by a tappet, *r'*, secured to the under side of the arm *d* of the slide. When this slide is drawn out the hammer is carried down, and as the slide reaches the outer end of its stroke, the hammer is released by the tappet *r'*, and it is thrown against the bell by the action of the spring *p'*; but if the slide is only partially drawn out, the tappet *r'* retains the hammer, and the alarm does not sound.

In the sides of the case A are a series of holes, *s'*, Fig. 1, to allow the sound of the bell to escape freely, and on the inside of the case, over the holes *s'*, are secured screens *t'*, of wire-gauze, to prevent impurities from passing into the interior of the case.

By these means a fare-register is obtained

which is neat, compact, and not liable to get out of order, and which can be conveniently operated with one hand.

What I claim as new, and desire to secure by Letters Patent, is—

The combination, in a fare-register, of a slide, B, anchor-levers H, and safety-dog K, said dog serving to throw the anchor-lever positively in gear with the escapement-wheel, which transmits motion to the registering mechanism, substantially as shown and described.

In testimony that I claim the foregoing I have hereunto set my hand this 30th day of October, 1876.

WILLIAM H. HORNUM.

Witnesses:
W. HAUFF,
JNO. D. PATTEN.