

W. H. HORNUM.  
FARE-REGISTER.

No. 174,246.

Patented Feb. 29, 1876.

Fig. 2.

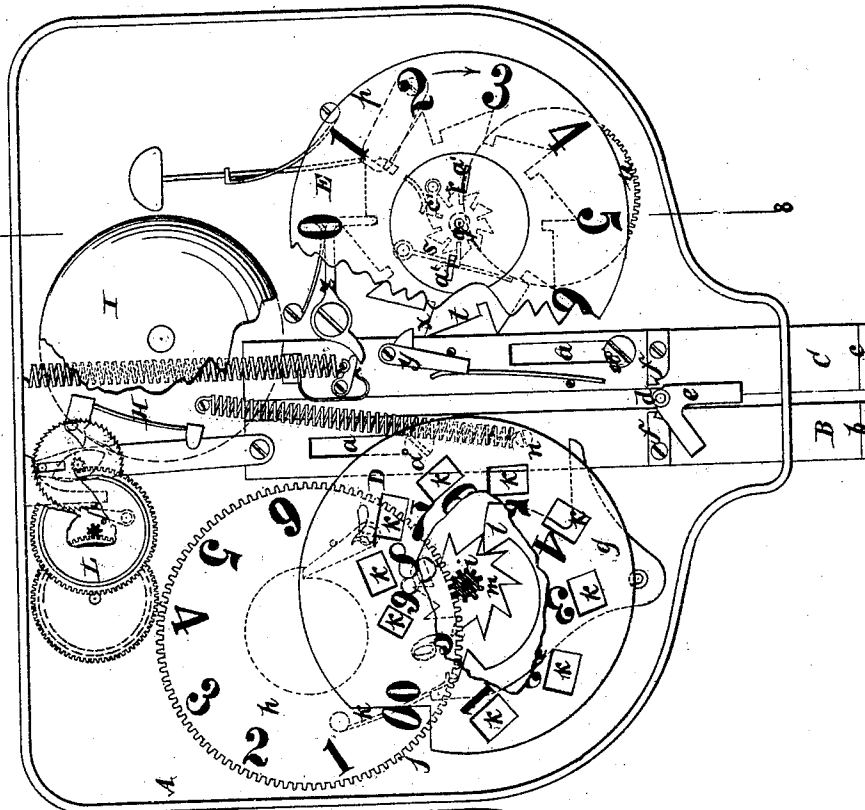
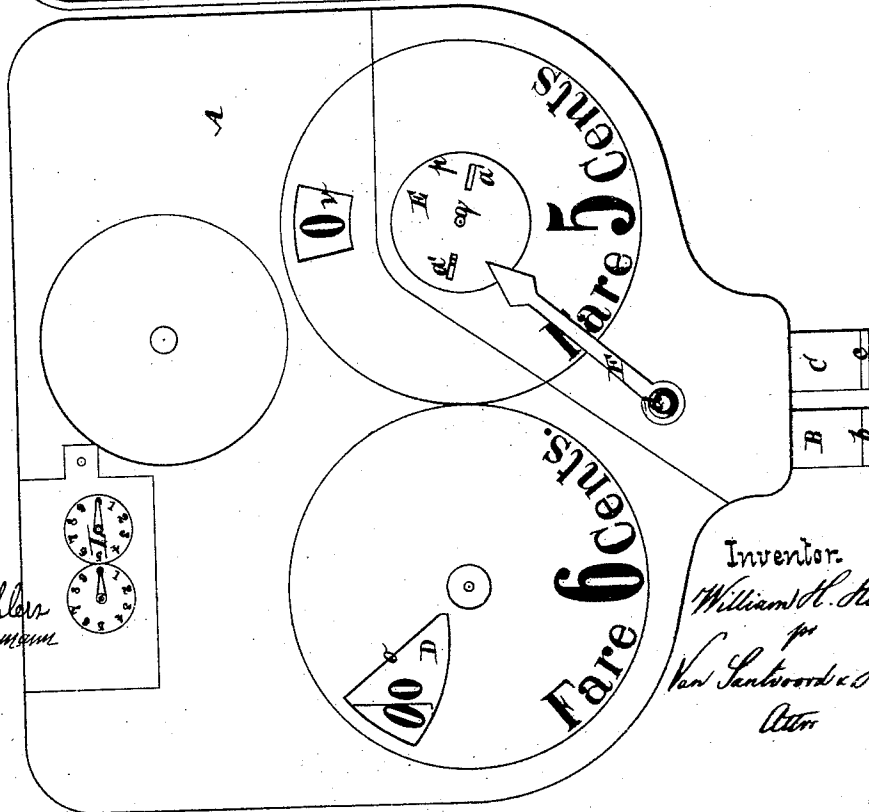


Fig. 1.



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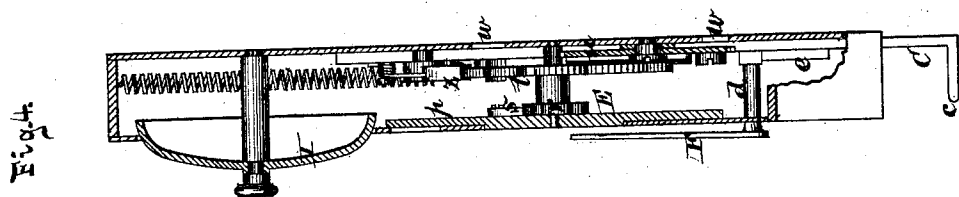
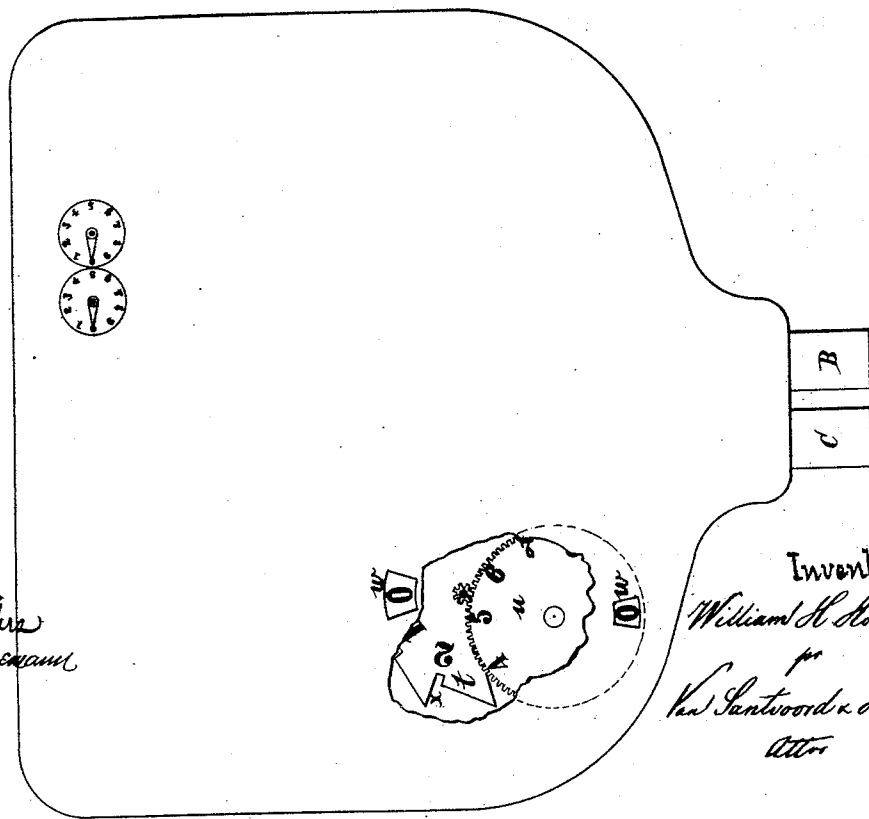


Fig. 2



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# UNITED STATES PATENT OFFICE

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## IMPROVEMENT IN FARE-REGISTERS.

Specification forming part of Letters Patent No. **174,246**, dated February 29, 1876; application filed February 9, 1876.

### *To all whom it may concern:*

Be it known that I, WILLIAM H. 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 my fare-register. Fig. 2 is a similar view when the face-plate has been removed, some parts being broken away to expose the mechanism beneath them. Fig. 3 is an inverted plan, some portions of the case being broken away to expose the working parts. Fig. 4 is a transverse section in the plane 7 8, Fig. 2.

Similar letters indicate corresponding parts.

This invention relates to a fare-register, in which two slides or prime movers are used, each of which serves to actuate a different registering mechanism. With said slides is combined a cam-lever, mounted on an arbor, which carries a pointer, said cam-lever being acted on by tappets secured to the actuating-slides, so that whenever one of the slides is pulled out the pointer (unless the same is already in the required position) is moved and caused to point to the registering mechanism, which is to be actuated by the motion of said slide, and at the same time the cam-lever forms a stop, so that only one slide can be moved at a time. The registering mechanism which I use with one of the slides consists of a unit-disk and a ten-disk, each of which is marked with figures from 0 to 9, and which are mounted on different arbors, and geared together by a pinion and a cog-wheel. The unit-disk covers a portion of the ten-disk, and it is provided with a series of openings placed in a convolute curve, one opening opposite to each figure. For each up and down stroke of the appropriate slide the unit-disk turns one-tenth of a revolution, so as to bring a new figure opposite to an opening in the face-plate at the same time the ten-disk is rotated sufficiently to keep the same figure opposite the successive openings in the unit-disk until said disk has completed a full revolution, when the next succeeding figure of the ten-disk is brought under the opening next to the 0 on the unit-disk. A general

registering mechanism, entirely independent of the single-trip-registering mechanism, is also combined with this slide. With the other slide is combined a registering mechanism composed of a main unit-disk, marked with figures from 0 to 9, which are successively brought opposite to an opening in the face-plate of the case, and a secondary unit-disk and a ten-disk, each of which is marked with figures from 0 to 9, which are successively brought opposite to openings in the back plate of the case. The unit-disk revolves loosely on its spindle, being connected to the same by a ratchet-wheel and spring-pawl. In the unit-disk are two openings for the introduction of a suitable key, which is so formed that it throws the spring-pawl out of gear with its ratchet-wheel, and that the unit-disk can be turned on its arbor in one direction, a stop-pawl preventing its being turned in the opposite direction.

The secondary unit-disk is mounted firmly on the arbor of the main unit-disk, and it is provided in its periphery with ratchet-teeth, which engage with a spring-pawl secured to the appropriate slide, so that for each stroke of the slide both unit-disks are turned one-tenth of a revolution, and the figures marked on their faces are successively brought opposite to the respective openings in the face-plate and back plate of the case.

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 the middle of this case are situated two slides or prime movers, B C, which serve to actuate the registering mechanisms D E, and which extend through slots in the edge of the case, each slide being provided with a finger-piece, *b c*, and with a guide-slot, *a*, catching over a stud, *a'*, so that the same are compelled to move in rectilinear paths. Between said slides is situated an arbor, *d*, which has its bearings in the front and back plates of the case A, and which extends through the front plate a sufficient distance to receive an index-hand, F. On said arbor, and in the interior of the case, is firmly mounted a cam-lever, *e*, and each of the slides is provided with tappet *f*. If one

of the slides is drawn out, its tappet acts on the cam-lever *e*, and the index-hand *F* is thrown over to that side of the case *A* which contains the registering mechanism controlled by that particular slide. For instance, if the registering mechanism on one side of the case is intended for five-cent fares, and that on the other for six-cent fares, if the slide *C* is drawn out, the index-hand is thrown over to the five-cent fare, (see Fig. 1,) and it remains in that position until the six-cent slide *B* is pulled. Neither of the slides can be drawn out without showing by the index-hand what kind of fare has been registered. The cam-lever *e* also forms a stop, so that only one slide at a time can be drawn out. If desired, said cam-lever may be so formed that it acts merely as a stop, and that each slide can be drawn out only after the index *F* has been turned by hand to the fare which is to be registered.

Instead of the slides other prime movers, such as levers, triggers, or push-bars may be substituted.

The registering mechanism *D* consists of a unit-disk, *g*, and a ten-disk, *h*, which are geared together by a pinion, *i*, and a cog-wheel, *j*. In the unit-disk are ten apertures, *k*, 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 *k*. On the face of the ten-disk are marked the figures 0 to 9 in a circular line. A step-by-step movement is imparted to the unit-disk by means of an anchor-lever, *l*, which engages with a ratchet-wheel, *m*, mounted on the arbor of the unit-disk, said anchor-lever being actuated by a stud, *n*, secured in the slide *B*, so that when this slide is pulled out and then pushed in, the unit-disk makes one-tenth of a revolution, and thereby the figures on its face are successively brought opposite to an opening, *o*, Fig. 1, in the face-plate of the case. 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 *k* in the unit-disk. By this arrangement ninety-nine fares can be registered in succession.

On the arbor of the unit-disk is secured a button; or said arbor may be constructed to fit an appropriate key, whereby the registering mechanism *D* can be returned to its starting point after each trip. With the slide *B* is combined a general registering mechanism, *L*, which works independent of the single trip-registering mechanism *D*, and which is moved one step for each stroke of the slide *B*. With this slide is also combined a hammer, *H*, which strikes the bell *I* each time the slide is drawn out.

The registering mechanism *E* consists of a main unit-disk, *p*, which is mounted loosely on an arbor, *q*, being connected to said arbor by a ratchet-wheel, *r*, and spring-pawl *s*, said ratchet-wheel being firmly secured to the arbor *q*. On this arbor is also secured the sec-

ondary unit-disk *t*, which is geared together with the ten-disk *u*. Each of these disks is marked on its face with figures from 0 to 9, the figures of the main unit-disk being brought successively opposite to an opening, *v*, in the face-plate of the case, while the figures on the secondary unit and ten disks come successively opposite to openings *w* in the back plate of the case. The edge of the secondary unit-disk forms ratchet-teeth *x*, which are acted on by a spring-tappet, *y*, secured to the slide *C*. A stop-pawl, *z*, retains the secondary unit-disk, and with it the entire registering mechanism, firmly in position, and if the slide *C* is pulled out said stop-pawl is raised out of gear with the ratchet-teeth *x* before the tappet *y* takes action. For each stroke of the slide *C* the main unit-disk and the secondary unit-disk are turned one-tenth of a revolution.

With the main unit-disk may be combined a ten-disk, so as to enable this portion of the registering mechanism *E* to register at least ninety-nine fares, and with the secondary unit and ten disks will be combined in practice a hundred and thousand disk, so as to convert it into a general registering mechanism capable of registering a large number of fares.

In the face of the main unit-disk are two slots, *a'*, for the reception of a suitable key, said slots being so situated that, by inserting the key, the spring-pawl *s* is thrown out of gear with the ratchet-wheel *r*, and the main unit-disk can be turned forward and set to its starting-point. A stop-pawl, *a'*, prevents said disk from being turned in the wrong direction.

By this arrangement the main unit-disk, with its appendages, forms a single-trip registering mechanism, which can be set back to the starting-point after each trip, while the secondary unit-disk with its appendages forms a general registering mechanism, which cannot be set back, and which keeps on registering all the fares taken during a number of trips.

With the registering mechanism *E* is combined a hammer, *J*, which is actuated by the ratchet-teeth *r* of the secondary unit-disk, and which, for each movement of the registering mechanism, strikes the bell *I*.

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

1. The combination, with two independent registering devices, *D E*, and with their prime movers *B C*, of a cam-lever, *e*, and index *F*, whereby only one of the prime movers can be moved at a time, the index pointing to that registering mechanism, which is to be actuated substantially as shown and described.

2. The registering mechanism *D*, composed of a unit-disk, *g*, and a ten-disk, *h*, geared together with each other, said unit-disk being provided with apertures *k*, arranged on a convolute curve, in combination with a slide or prime mover, and with a general registering mechanism, all constructed and operating substantially as set forth.

3. The registering mechanism E composed of a main unit-disk, *p*, with or without a ten-disk and a secondary unit-disk, *t*, and ten-disk *u*, with or without additional disks, the main unit-disk being loosely connected to the arbor of the secondary unit-disk, in combination with a prime mover acting on the secondary unit-disk, so that the main unit-disk with its appendages can be turned back to the starting-point, while the secondary unit-disk with

its appendages continues to register, all constructed and operating substantially in the manner shown and described.

In testimony that I claim the foregoing, I have hereunto set my hand this 5th day of February, 1876.

WILLIAM H. HORNUM.

Witnesses:

W. HAUFF,

E. F. KASTENHUBER.