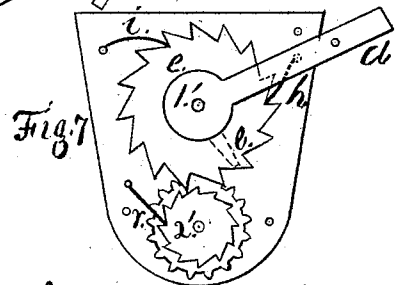
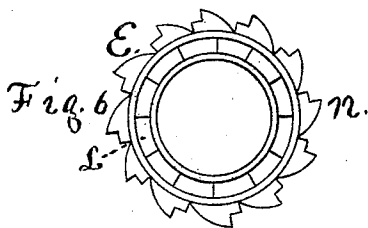
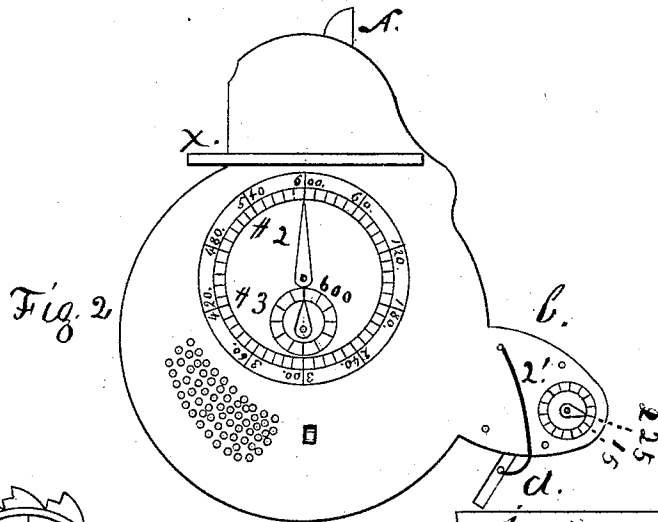
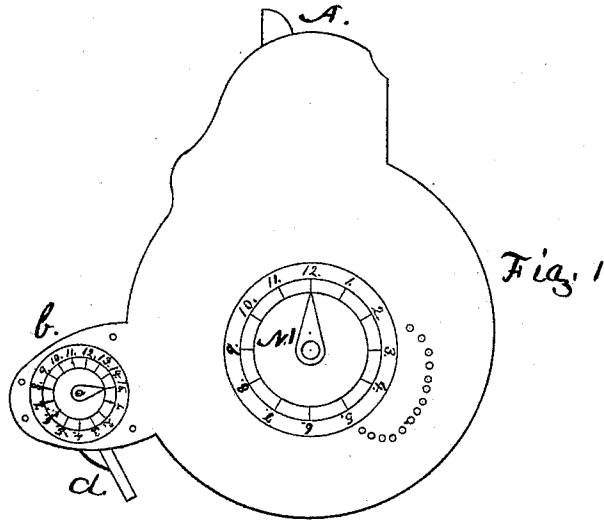


E. KRAUSS.
FARE-REGISTER.

No. 175,715.

Patented April 4, 1876.



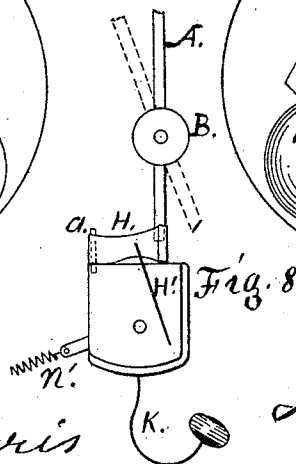
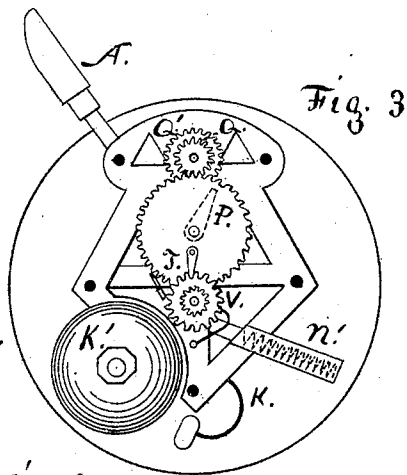
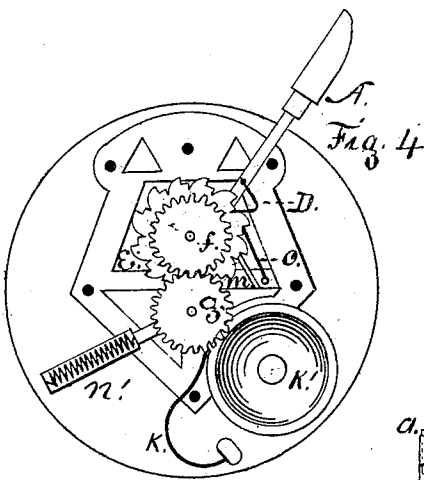
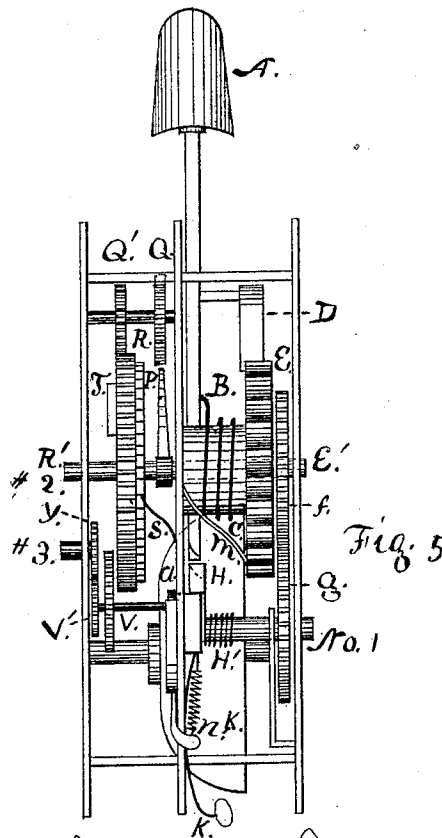
Witness
Horace Harris
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Inventor
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FARE-REGISTER.

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Patented April 4, 1876.



Witness
Horace Harris
Juris. Præsidens

Inventor
Ernest Kraus

UNITED STATES PATENT OFFICE.

EARNEST KRAUSS, OF NEWARK, NEW JERSEY, ASSIGNOR OF ONE-THIRD HIS RIGHT TO LEWIS L. PREISENDOFFER, OF SAME PLACE, AND SAID KRAUSS AND PREISENDOFFER ASSIGNORS TO THEMSELVES, THOS. S. OSBORN, AND HATFIELD HAFFER, OF SAME PLACE.

IMPROVEMENT IN FARE-REGISTERS.

Specification forming part of Letters Patent No. **175,715**, dated April 4, 1876; application filed June 19, 1875.

To all whom it may concern:

Be it known that I, EARNEST KRAUSS, of Newark, in the county of Essex and State of New Jersey, have invented certain Improvements in Conductors' Fare-Registers, of which the following is a specification:

My invention consists in constructing a continuous register, with the dials on opposite sides, and the whole so arranged that it may not be tampered with by a conductor without detection.

Figure 1 is a front view. Fig. 2 is a back view. Fig. 3 is a view of the works resting on the center plate, with the back removed. Fig. 4 is a view of the works under the front plate and on the center plate. Fig. 5 is a vertical side view, with the outside case removed. Fig. 6 is a detailed view of a wheel, lettered E, seen in Fig. 4. Fig. 7 is a detailed view of the half-fare register. Fig. 8 is a detailed view of the part called the hinged arm.

The frame for supporting the members of the register is in three parts—a front, back, and center section—and the works connected with the dial 1 are between the front and center frames, and the works connected with dials 2 and 3 are between the back and center frames; and it will be seen in the following description that two of the shafts connecting the works make a pivoted connection at this center frame, letter B'.

In the description of my invention it will be seen that lever A passes through a cylinder, B, which encircles a shaft, on which it swings. The spring C around the cylinder reacts the lever. D is a spring-dog attached to the lever, and moves the main ratchet-wheel E, attached to the shaft above named as passing through the cylinder, which, not appearing in sight, I will call E'. On the outer side of this wheel E, and on the same shaft, is a small gear, f, which communicates motion to a small gear, g, on the shaft of which is the hand which appears on dial 1, and one complete action of the lever makes a register of 1 on this dial, and at the same time the inner end of the lever (that on the

opposite side of the cylinder) strikes a hinged arm, H, of the bell-hammer K, which rings the bell K'. This hinged arm provides for the better action and reaction of the end of the lever, as above stated. The hinged part H of the arm is hung on the pin a', (see Fig. 8,) and when the lever from the position of rest (see dotted line) is moved for the purpose of registering the end strikes against the edge of the part H, and carries it along until the point passes, when the spring n' reacts that and the whole bell-arm together, and rings the bell. Then, when the lever flies back, the end slips under the side of the hinge H, as seen in red lines, for the lever with dotted end, and when it has passed back to the place of rest the end of spring H' presses the hinge back again into position for a new register. The spring H H' reacts the hinged arm H, and the spring n' reacts the hammer k. The ratchet-wheel E is arranged with notches L, like a ratchet, (see Fig. 6,) on the inner surface, with a spring-pawl, m, to catch at a half movement of the lever, and show that the hand only moved the half of one space, and did not register, and the hand will show between two figures; and if the conductor shall ring any other bell about his person the dial will show that a register was not made, and the lever cannot react and pass over that point until it completed the first action and registered. The ratchet-teeth n of wheel E are made with double points, as seen in Figs. 4 and 6, so that when the lever has had a three-fourths action the spring-pawl O (see Fig. 4) will catch over the first or outer point of tooth n, and hold the ratchet E at that point, and will register, but will not ring the bell, so that the register is always a quarter action before the ringing of the bell; then, the lever carried on a quarter farther, the pawl O drops into the inner notch of the tooth n, and that completed action of the lever rings the bell. The first dial is arranged for counting twelve, but may be arranged for any other number. When the number "twelve" has been reached in the order of registering,

the hand on dial 2 registers one mark, which counts twelve. This dial 2 is figured by sixties—five twelves.

This second act of registering is secured as follows: On the inner end of the shaft passing through the cylinder (the shaft called E') is an arm, *p*, which, when the ratchet E on the same shaft has made one revolution, strikes into or catches onto a tooth of the wheel Q, and moves it one notch. On the outer end of the shaft, on which is the wheel Q, is a small gear, Q', communicating motion to a larger wheel, R. The shaft R' of this wheel holds the hand moving on dial 2, which registers, as above stated. The inner end of this shaft R' has a pivot turning in the inner end of the shaft E', both being on the same line. The wheel R is kept in proper position by the ratchet and spring-pawl S. The dial 2 counts from twelve to six hundred; and when this hand 2 has made one revolution, the hand on dial 3 makes one register, which counts six hundred. This is done as follows: On the outer side of the wheel R is a pin, T, which, when the wheel goes once around, catches onto a tooth in a small wheel, V, and moves it one notch, and on the side of this wheel, on the same shaft, is a small gear, V', communicating motion to the gear Y, on the shaft of which is the hand for dial 3. This dial has twelve marks, and one entire revolution of hand 3 makes a register of seven thousand two hundred. On this dial 3 letters may be used instead of figures, for convenience. The spring-pawl and ratchet-wheel *a* hold the wheel V in position. The dial No. 1 has a glass over it; all the dials are covered with glass, and this one is open to the sight of the conductor and of the passengers. The dials 2 and 3 are in the reverse side of the register, and are covered with a lock-case, *x*, (shown standing open,) and when locked can only be opened in the office of inspection or by the inspector. The half-fare register *b* is attached to one side of the main register. This on dial 1' counts fifteen, and on the dial 2' on the opposite side counts two hundred and twenty-five. The action of the lever *d* makes one mark on dial 1', and one complete revolution on dial 1', by the connection of pin *l*, marks

one on dial 2', which counts fifteen. Connected with the lever *d* is the ratchet-wheel *c*, and the dog *h* operates it, and the spring *i* holds it in position. There is also a ratchet and spring, *r*, which hold the shaft operating the hand on dial 2'. *The registers on this dial may be indicated by letters, if preferred to figures.

These registers may be used about the person of a conductor, or in other positions in a car where the front dial may be in sight.

I claim—

1. The combination of lever A, provided with spring-dog D, cylinder B, having inclosing and reacting spring C, ratchet-wheel E, having the three sets of teeth, as shown and described, and the hinged arm H of bell-hammer K, substantially as shown and set forth.

2. The hinged arm H of the bell-hammer, in combination with the lever operating the ratchet-wheel E, substantially as shown and set forth.

3. The ratchet-wheel E, with the double-pointed teeth *n* and the notches L on its surface, substantially as and for the purposes set forth.

4. The combination of arm P on the inner end of shaft E, the shaft R', journaled in one end of the shaft E', and the wheels and pinions for actuating the pointers on dials 1 and 2, substantially as and for the purposes set forth.

5. The combination of shafts E' and R', journaled together, making one line of shafting through the case, the two turning in opposite directions, so that the hands on dials 1 and 2 on opposite sides shall both move in the same direction, substantially as and for the purposes set forth.

6. The open dial 1 on one side of the case, the ratchet-wheel E, and the closed dials 2 and 3 on the opposite side of the face, and tallying from dial 1 by means of the connecting-shafts E' and R', all combined and arranged substantially as and for the purposes set forth.

EARNEST KRAUSS.

Witnesses:

HORACE HARRIS,
LEWIS PREISENDOFER.