(No Model.) 4 Sheets—Sheet 1.

R. L. IRVINE.

FARE COLLECTING APPARATUS.

No. 426,817. Patented Apr. 29, 1890.

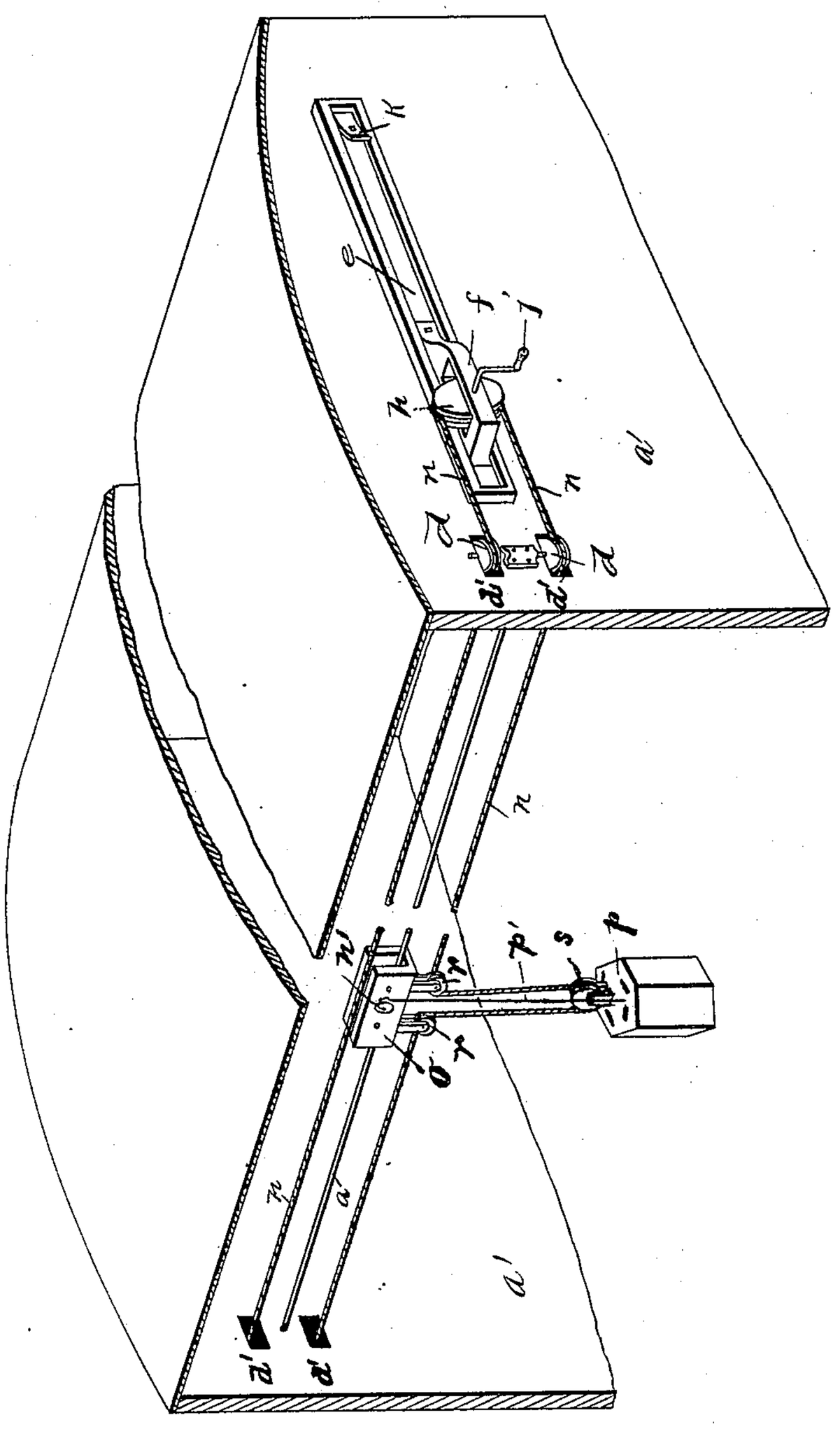


Fig. 1.

Witnesses
E. C. Duffy
H. E. Peck

Inventor
R. L. Irvine
per E. C. Duffy
Attorney

(No Model.) 4 Sheets—Sheet 2.

R. L. IRVINE.

FARE COLLECTING APPARATUS.

No. 426,817. Patented Apr. 29, 1890.

Fig. 2.

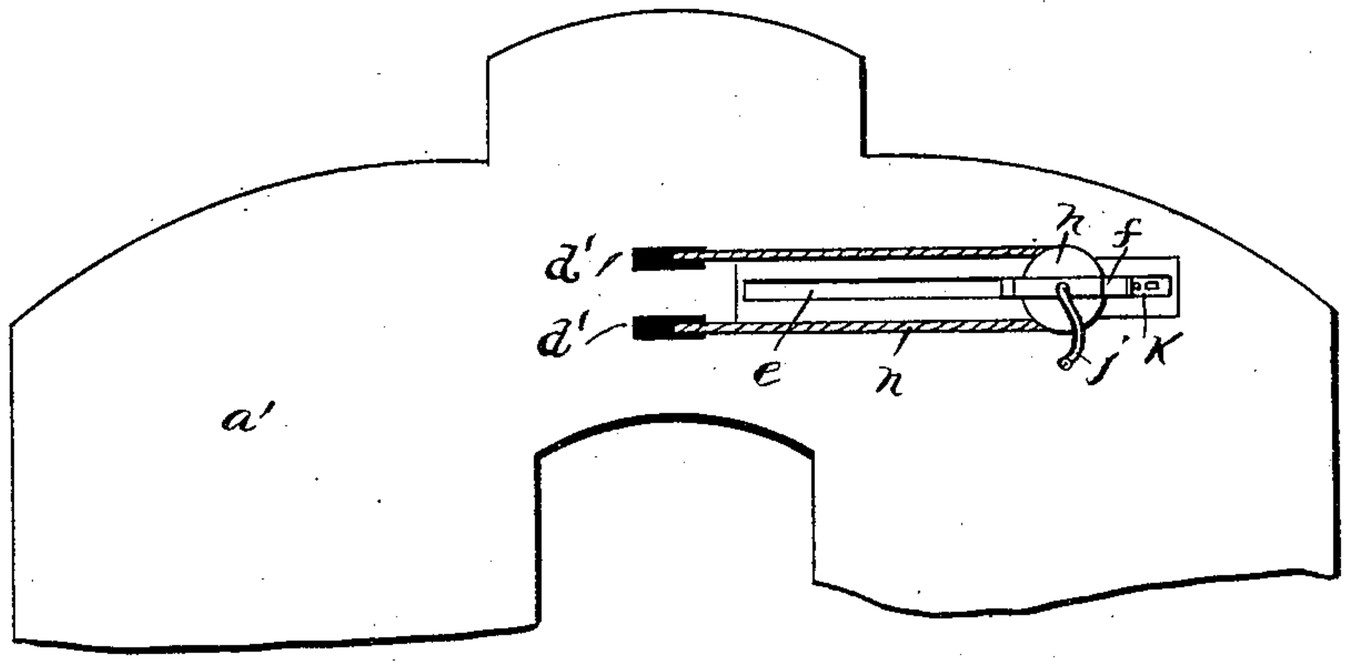


Fig. 6.

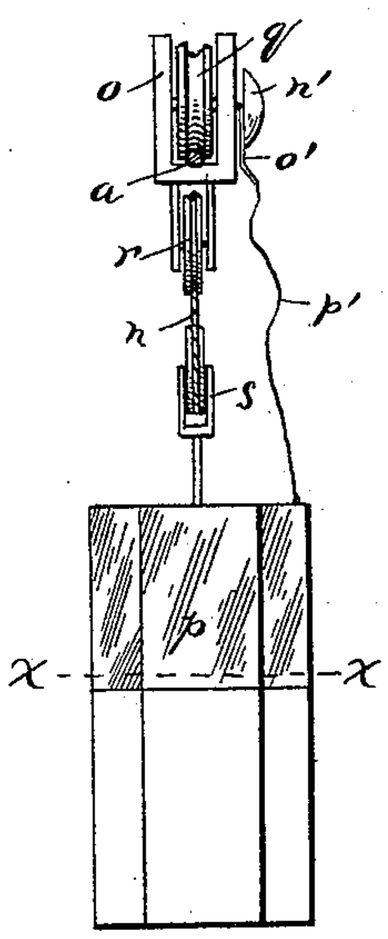


Fig. 7.

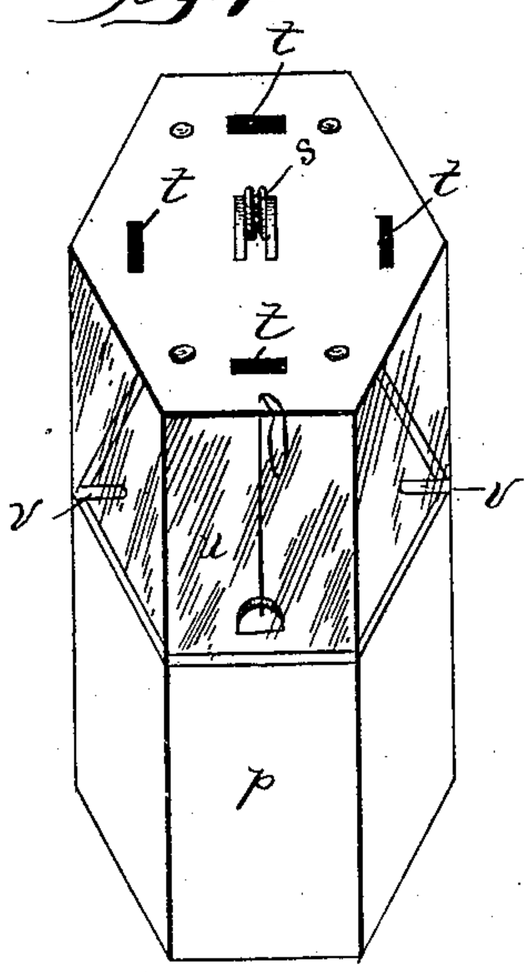
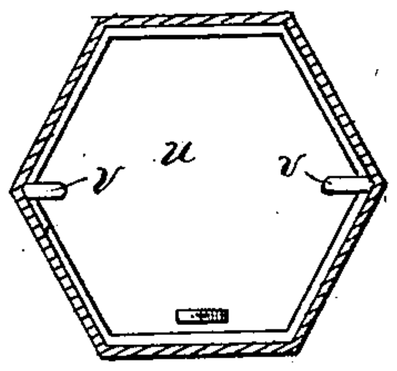


Fig. 8.



Witnesses:
E. C. Duffy
Chas. M. Clarke

Inventor
R. L. Irvine
per C. E. Duffy
Attorney

(No Model.) 4 Sheets—Sheet 3.

R. L. IRVINE.

FARE COLLECTING APPARATUS.

No. 426,817. Patented Apr. 29, 1890.

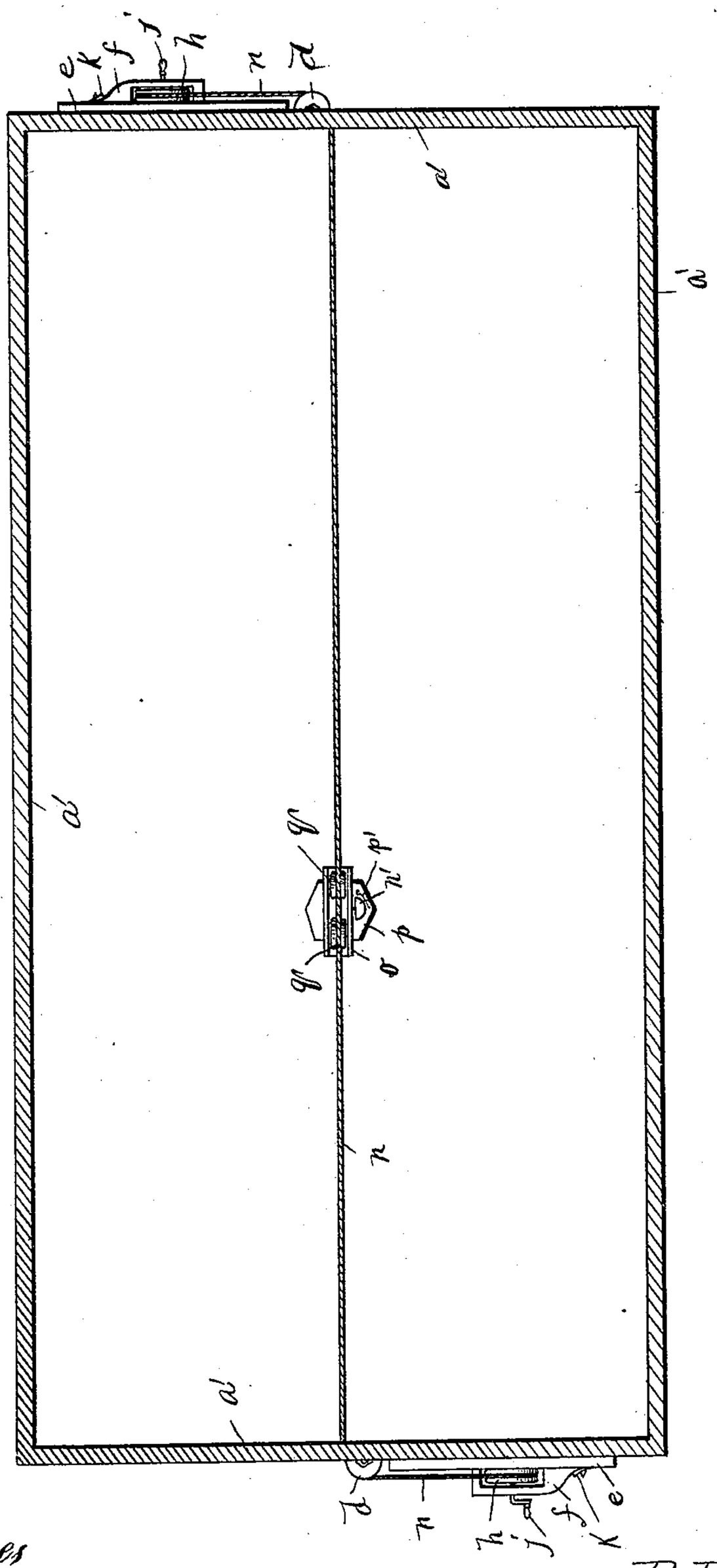


Fig. 3.

Witnesses
C. b. Duffy
Chas. M. Dorsey

Inventor
R. L. Irvine
per O. E. Duffy
Attorney

(No Model.) 4 Sheets—Sheet 4.

R. L. IRVINE.

FARE COLLECTING APPARATUS.

No. 426,817. Patented Apr. 29, 1890.

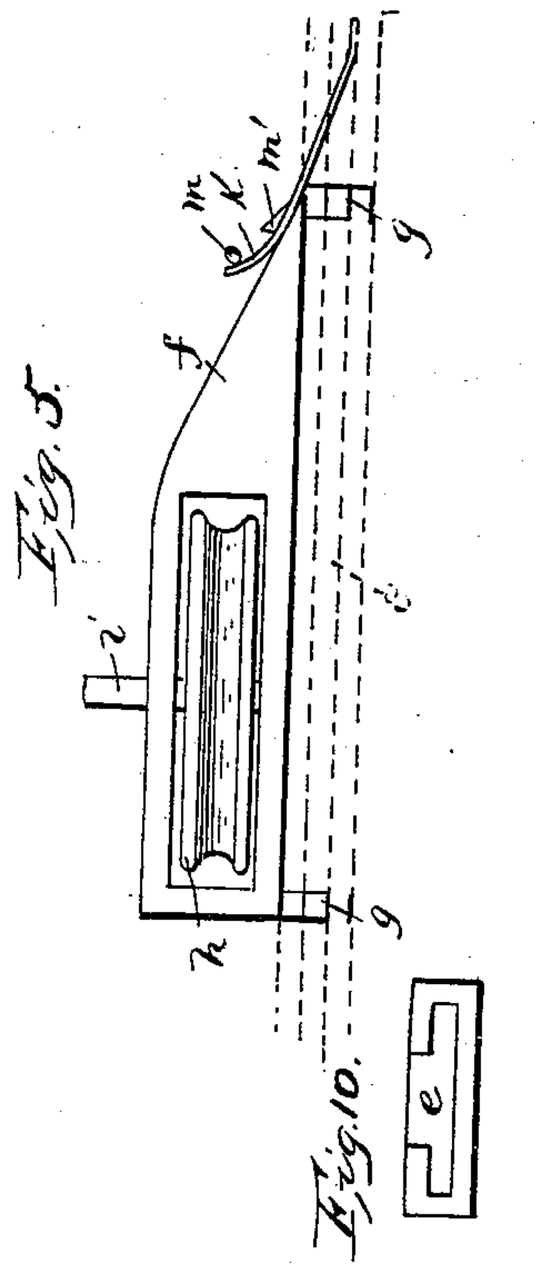


Fig. 5.

Fig. 10.

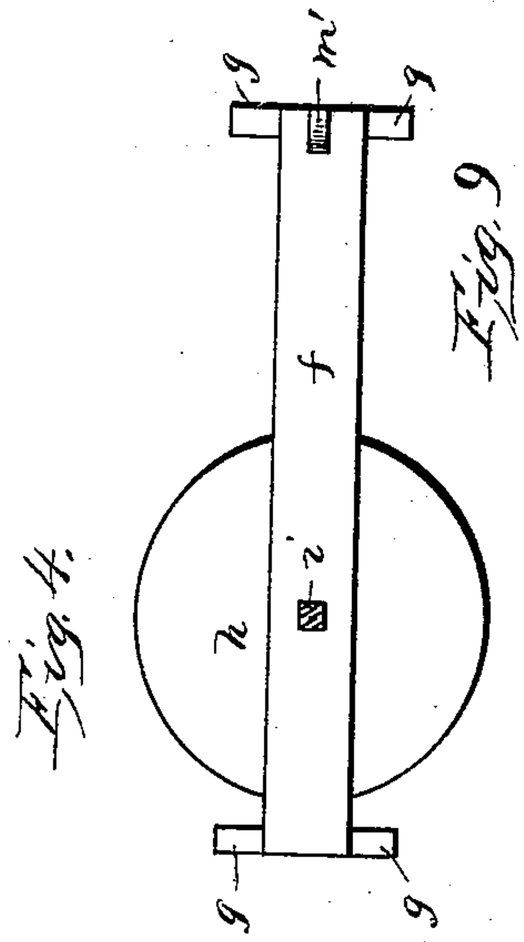


Fig. 11.

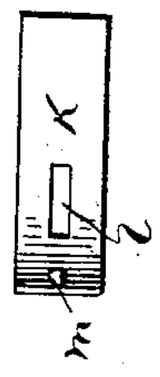


Fig. 9.

Witnesses:
O. E. Duffy
H. E. Peck

Inventor
R. L. Irvine
per
O. E. Duffy
Attorney

UNITED STATES PATENT OFFICE.

ROBERT L. IRVINE, OF NEVADA, MISSOURI.

FARE-COLLECTING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 426,817, dated April 29, 1890.

Application filed May 22, 1889. Serial No. 311,691. (No model.)

To all whom it may concern:

Be it known that I, ROBERT L. IRVINE, of Nevada, in the county of Vernon and State of Missouri, have invented certain new and useful Improvements in Fare-Collecting Apparatus; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form part of this specification.

My invention relates to an improved apparatus for collecting fares in street-cars.

The object of the invention is to provide an improved apparatus, as above mentioned, whereby a cash or fare box can be conveyed to any portion of a car and dropped within convenient reach of a passenger while he pays his fare, and then raised and conveyed to another portion of the car; and, further, to so construct the apparatus that it can be readily and easily operated from either end of a car by the driver or any other person, whereby the apparatus can be used on those cars that move in either direction without being completely turned around on a turn-table or the like, and also to construct the apparatus in such a way that there will be a minimum amount of friction, whereby there is less wear between the parts, and also to make it extremely easy and noiseless in operation, and also to produce an improved cash or fare box to form a part of this apparatus. These objects are accomplished by my invention, which consists in certain novel features of construction, and in combinations of parts, more fully described hereinafter, and particularly pointed out in the claims.

Referring to the accompanying drawings, Figure 1 is a perspective of a portion of a car provided with the present invention, the fare-box being shown in lowered adjustment. Fig. 2 is a view of one end of a car provided with the present invention. Fig. 3 is a plan of a car provided with the fare-collecting apparatus, the roof being removed. Figs. 4 and 5 are respectively a detail plan with the crank removed and a side elevation, with the guideway shown in the dotted lines, of the slidable pulley-carriage for raising and lowering the fare-box. Fig. 6 is an elevation of the fare-box and car for carrying the same. Fig. 7 is a detail perspective of the fare-box. Fig. 8 is a cross-section of the fare-box on the line $x\,x$, Fig. 6. Fig. 9 is a plan of the spring-catch for the slidable carriage for raising and lowering the fare-box. Fig. 10 is an end view of the guideway in which this carriage is confined.

In the drawings, the reference-letter a indicates a stationary track (wire or cable) extending centrally from one end of the car a' to the other just below the roof or top of the same and rigidly secured to the ends of the car, preferably by means of eyebolts. Upon the outer side of both ends of the car and opposite openings $d'\,d'$ in the same a pair of horizontal grooved pulleys $d\,d$ are journaled. At each end of the car an undercut or partially-inclosed guideway e extends horizontally from a point midway between the planes of the two horizontal rollers $d\,d$ toward one side of the end of the car, (preferably, although not necessarily, from the pulleys $d'\,d$ toward the right,) and this way is closed at each end. In this guideway a slide or carriage f is confined and movable thereon. This carriage consists of a frame provided with lateral arms g, extending and slidable beneath the flanges of the guideway, and with a transverse opening outside of the plane of the way, in which a vertical grooved pulley h is journaled. The axle i of the pulley is extended outwardly and provided with a squared end to receive a crank-handle j or other means for turning the pulley. This carriage is held at the desired location in the groove by means of a suitable catch, in the present instance consisting of a plate-spring k at one end secured in the outer end of the way, so that its free end is located in the way, springing against the bottom of the same and bent upwardly at its free end and provided with a longitudinal transverse slot l and with a knob m on its outer end. The outer end of the carriage f is provided with an upwardly-extending beveled lug m', so that when the carriage is pushed to the outer end of the way its end engages and lifts the free end of the plate-spring until the lug m' enters the slot in said spring and is held therein by the elasticity of the spring.

An endless movable operating-cable *n* passes around the pulleys *h* horizontally across the ends of the car, around the upper and lower horizontal pulleys *d d*, through the openings *d'* at the ends of the car, and thence the length of the car above and directly below the track.

A car *o*, for supporting and conveying the fare-box *p*, is supported and confined on said track *a*, and said car is elongated and approximately U-shaped in cross-section, open at the top, and provided with two or more grooved supporting-rollers *q q*, mounted between the upwardly-extending sides of the car and running on the track. A pair of pulleys *r r* depend from the opposite ends of the bottom of this car, and the operating-cable *n* extends over said depending pulleys in the form of a loop.

The fare-box *p* is carried in the bight of the loop of the cable located between and supported by the two depending pulleys *r r*. Said fare-box preferably consists of an oblong box—in the present instance octagonal in shape and formed of side pieces of thick glass provided with end pieces, and the device is secured together by longitudinal rods or bolts. At its upper end the fare-box is provided with a pulley *s*, which rests in the bight of the loop of the operating-cable located between the pulleys *r r* on the car. The box is provided with any suitable number of slots *t* for the insertion of the coin or fare. The interior of the box is divided into two compartments by a tilting bottom *u*, adapted to swing on the pivots *v v*, and provided with a cord or other means extending to the exterior of the box, by which the bottom can be tilted to drop the fares thereon into the lower compartment of the box, which lower compartment is provided with a hinged bottom provided with a lock, (not shown,) whereby access can be had to the lower compartment to remove the coin and fare therein. This box is strongly constructed, so that it cannot be opened by unauthorized persons.

The operation of the apparatus is as follows: When the fare-box is raised to its normal position beneath the bottom of the car *o*, it can be moved toward or from either end of the track *a* by merely turning the crank or handle *j*, connected with the pulley *h*, in either direction, which moves the operating-cable, and with it the car and fare-box. When the box is conveyed to a position over or near the passenger from whom a fare is to be received, the driver or a person at either end of the car raises the free end of the spring-plate *k* by means of its knob *m*, so that the plate is lifted clear of the lug *m'*, thereby releasing the pulley-carriage *f*, and the weight of the fare-box pulling on the cable will, through the medium of the cable, immediately draw the said carriage to the inner end of the way *e* toward the two rollers *d d*, and thereby loosening the cable, and the slack in the same will be sufficient to allow the fare-box to drop to a position within convenient reach from a passenger, and after the fare is received the driver will draw the carriage *f* back to its normal position, thereby tightening the cable and raising the fare-box to its normal position. It should be observed that the pulley-carriages *f* are rendered movable, as described, so that the fare-box can be raised and lowered thereby.

The passenger is notified of the descent of the fare-box and that he is expected to pay his fare by an alarm consisting of an ordinary bell or gong *n'*, secured to the carriage *o* and provided with a lever *o'*, which, when rocked or pulled, draws back and releases the bell-clapper, and thereby sounds the bell, and this lever is connected with the fare-box by means of a cord or other flexible connection *p'* of such a length that it will admit the free descent of said box, but will tighten and operate the lever when the box nearly reaches its limit of downward movement.

What I claim is—

1. In a fare-collecting apparatus, the combination, with a track extending the length of the passenger-car, of a car movable on the track, a fare-box suspended from the car, movable pulley-carriages at the opposite exterior ends of the car, and a single cable carrying said box and arranged to move, propel, and raise and lower the fare-box, arranged substantially as described.

2. In a fare-collecting apparatus, the combination of the track, a car thereon, the endless traveling operating-cable to move the car to and fro on the track, a fare-box suspended from said car and arranged to be raised and lowered by said cable, and slidable pulley-carriages at the ends of said track, each having a pulley around which the cable passes, and by which it is operated and slackened and tightened to raise and lower the fare-box.

3. A fare-collecting apparatus consisting of a track, a car thereon, an endless traveling cable, slidable pulley-carriages at the ends of the track, and a fare-box suspended from the car, a cable passing around the slidable carriage-pulleys and over pulleys on said car, the portion of the cable between said car and pulleys carrying the fare-box, said cable arranged to be tightened and slackened by the movement of said carriages to raise and lower the fare-box, and to be moved by the rotation of the slidable carriage-pulleys to propel the car and fare-box on the track.

4. A fare-collecting apparatus consisting of a track, a car thereon, an endless traveling cable, slidable pulley-carriages at the exterior ends of the passenger-car, and a fare-box suspended from the car, the endless traveling cable passing around the pulleys on the slidable carriages, over the pulleys on the car, and under a pulley on the fare-box, the cable being adapted to be tightened and slackened by the movement of the pulley-carriages to raise and lower the fare-box and to be moved

by the rotation of the pulleys on the pulley-carriages to carry the car and the fare-box to and fro on the track, all substantially as set forth.

5. A fare-collecting apparatus consisting of a stationary track extending the length of a passenger-car, a car movable on the track, a single traveling cable extending through the ends of the passenger-car, and over the pulleys, mounted on movable supports at the ends of the passenger-car for the purpose set forth, said cable being connected to move the car in either direction on the track, and a fare-box directly carried by the portion of the cable suspended from the movable car, and adapted to be raised and lowered by the cable and to be moved to and fro with said car, substantially as described.

6. A street-car provided with an end opening, a pair of horizontal rollers journaled at said opening, a horizontal way transversely located at the end of the car, a slidable carriage adapted to be held in position in the way, a vertical pulley journaled in said carriage, an endless cable extending through the car and said opening over said horizontal pulleys and around said vertical pulley, and a fare-box carried by the cable, substantially as described.

7. In a fare-collecting apparatus, the combination, with a passenger-car, of an endless traveling cable extending longitudinally through the same, a fare-box carried by the cable, and a slidable carriage at an end of the passenger-car, having a vertical pulley around which said cable passes, so that the box and cable can be moved by the rotating pulley and the box can be raised and lowered by moving said carriage to tighten and slacken the cable.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

ROBERT L. IRVINE.

Witnesses:
G. B. CARSTARPHEN,
W. S. ROBERTSON.