C. E. GIERDING.

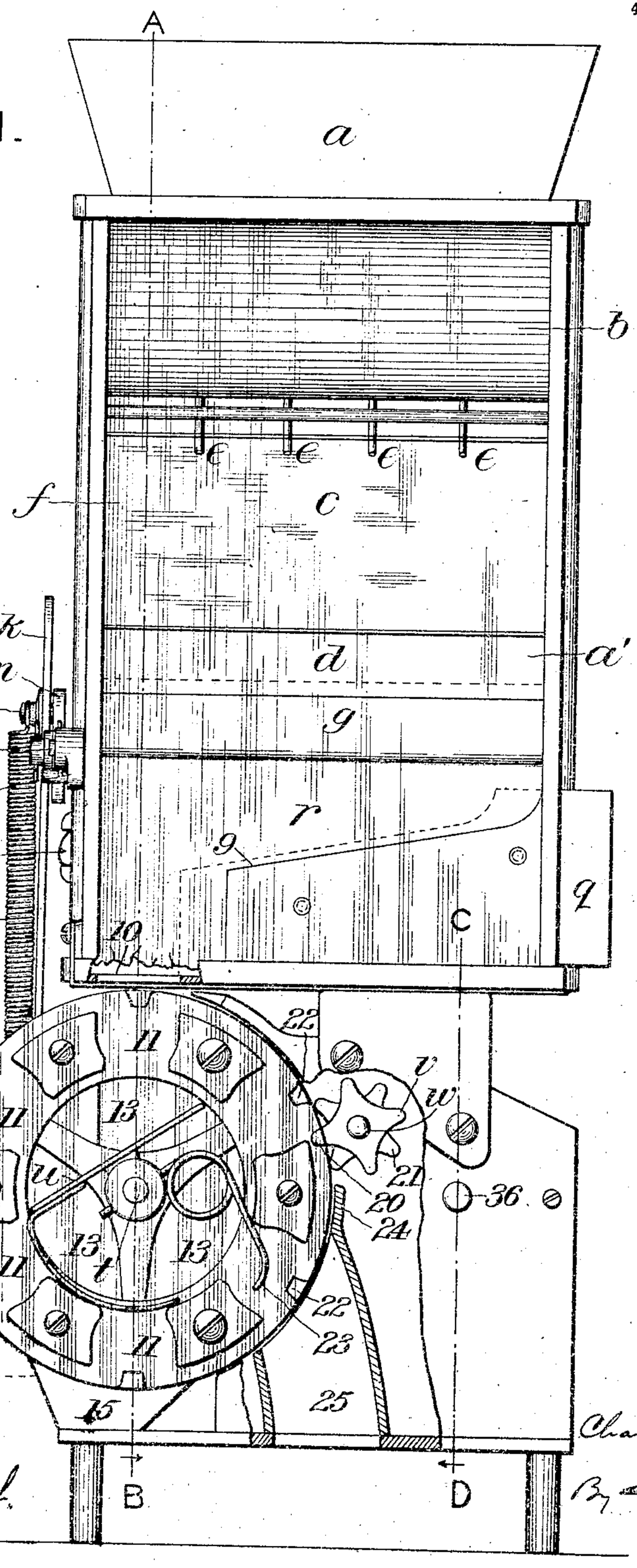
REGISTERING FARE BOX.

APPLICATION FILED JUNE 29, 1908.

914,821. Patented Mar. 9, 1909.

4 SHEETS—SHEET 1.

FIG. 1.



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4 SHEETS—SHEET 2.

FIG. 2.

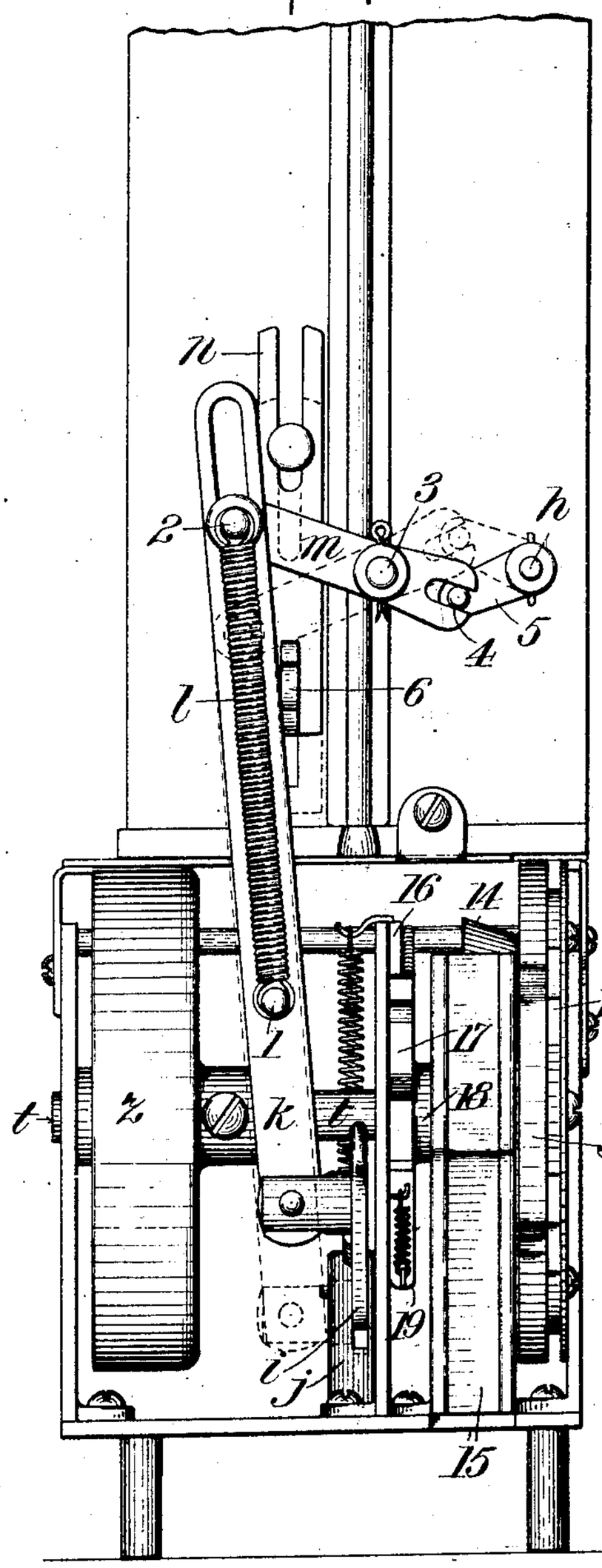
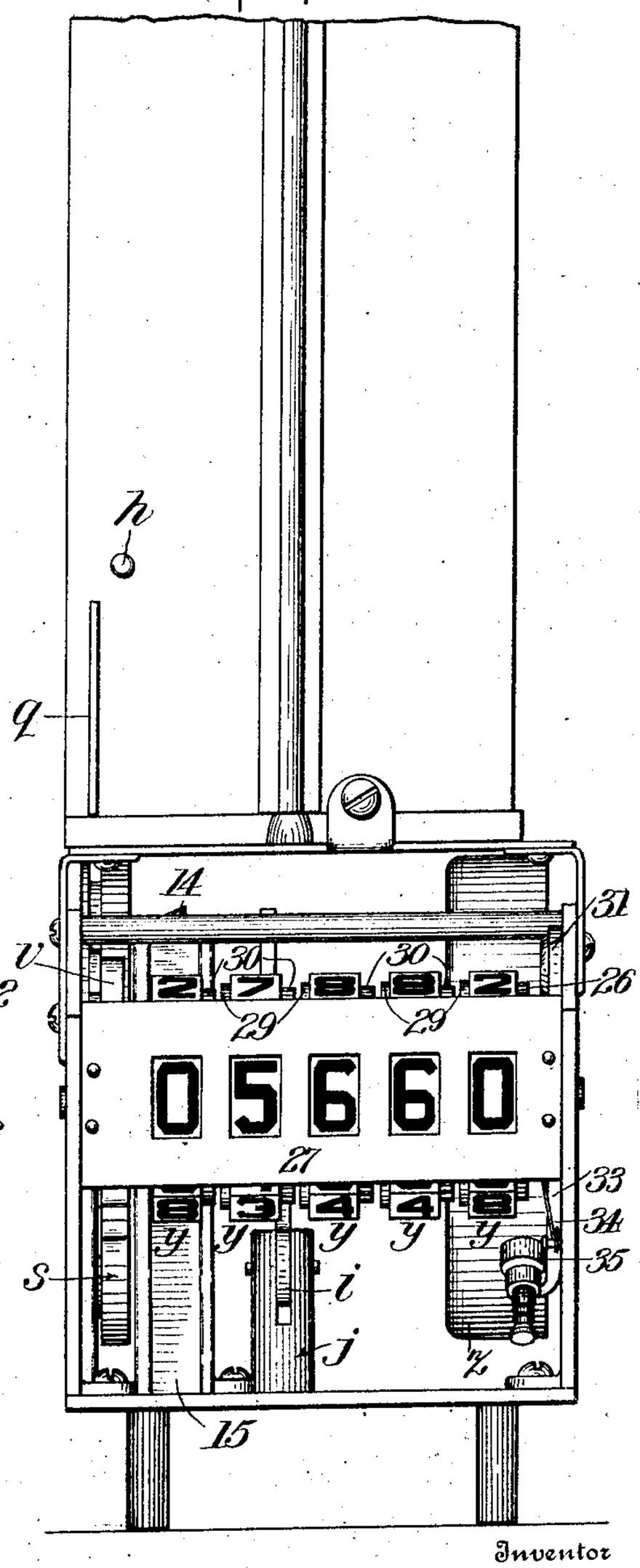


FIG. 3.



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4 SHEETS—SHEET 3.

FIG. 4.

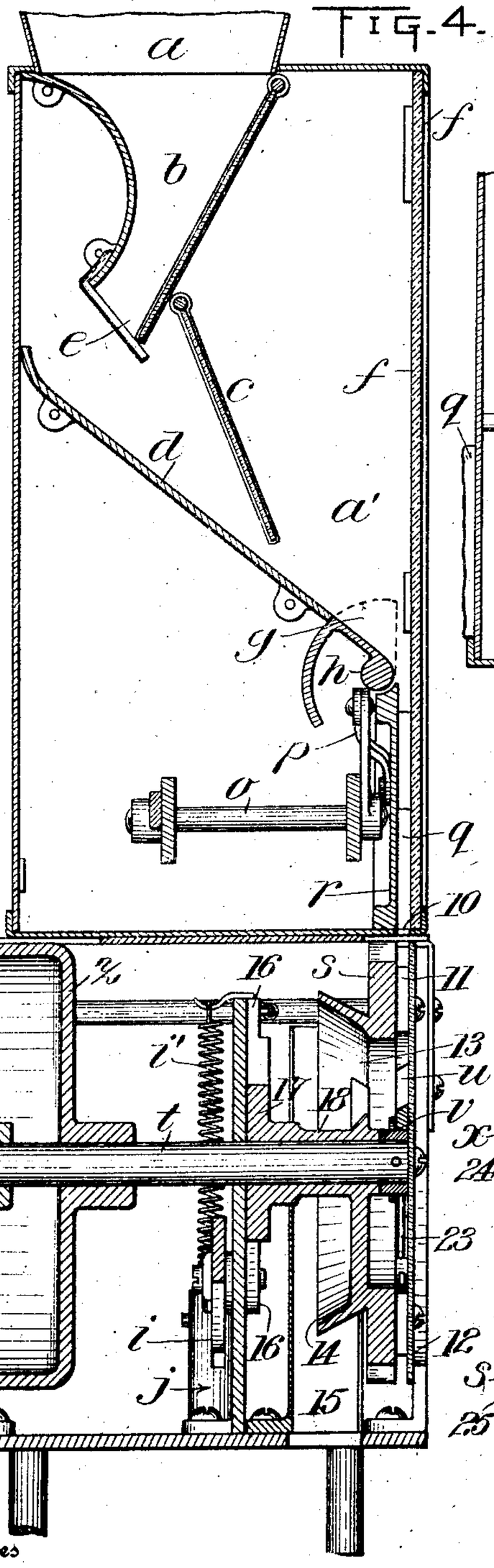


FIG. 5.

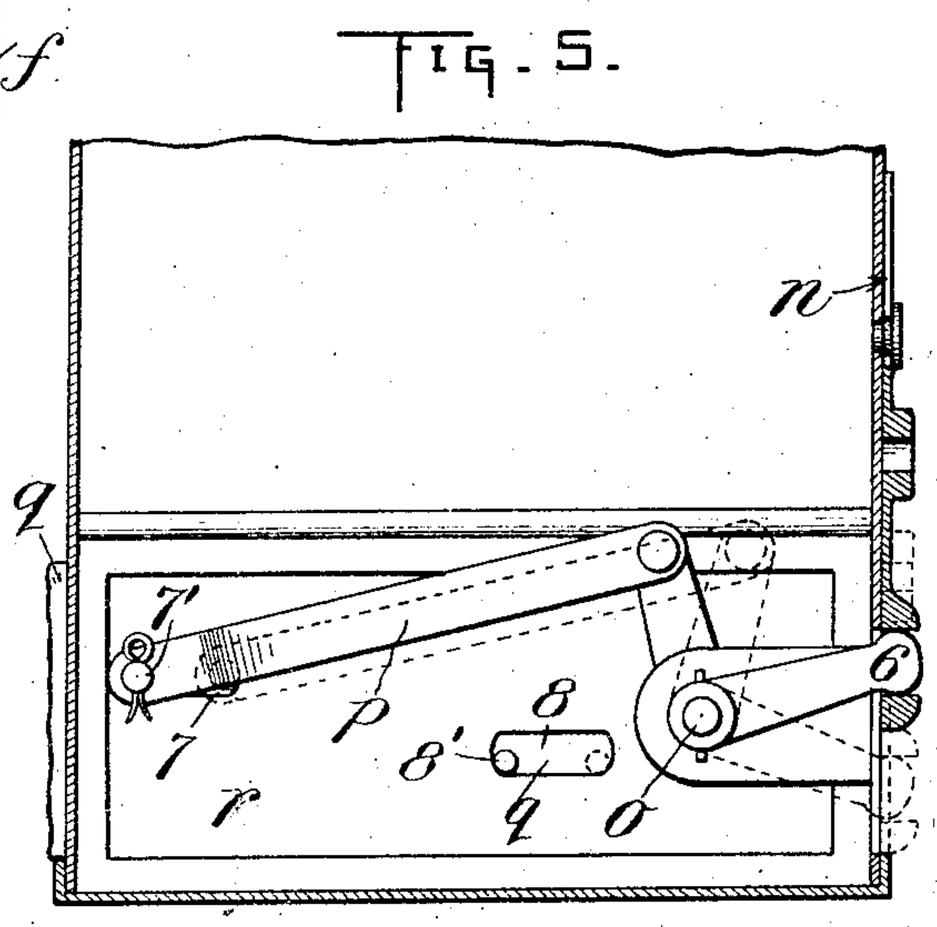
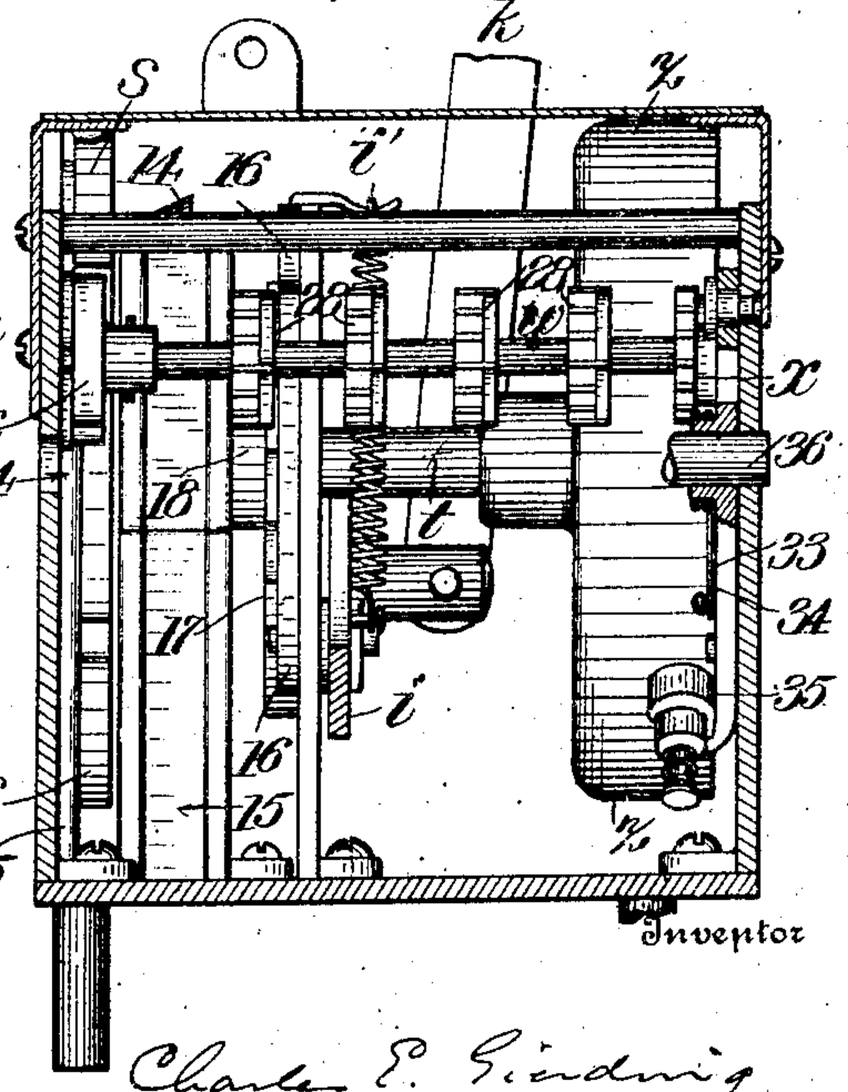


FIG. 6.



Witnesses

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APPLICATION FILED JUNE 29, 1908.

914,821.

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4 SHEETS—SHEET 4.

FIG. 7.

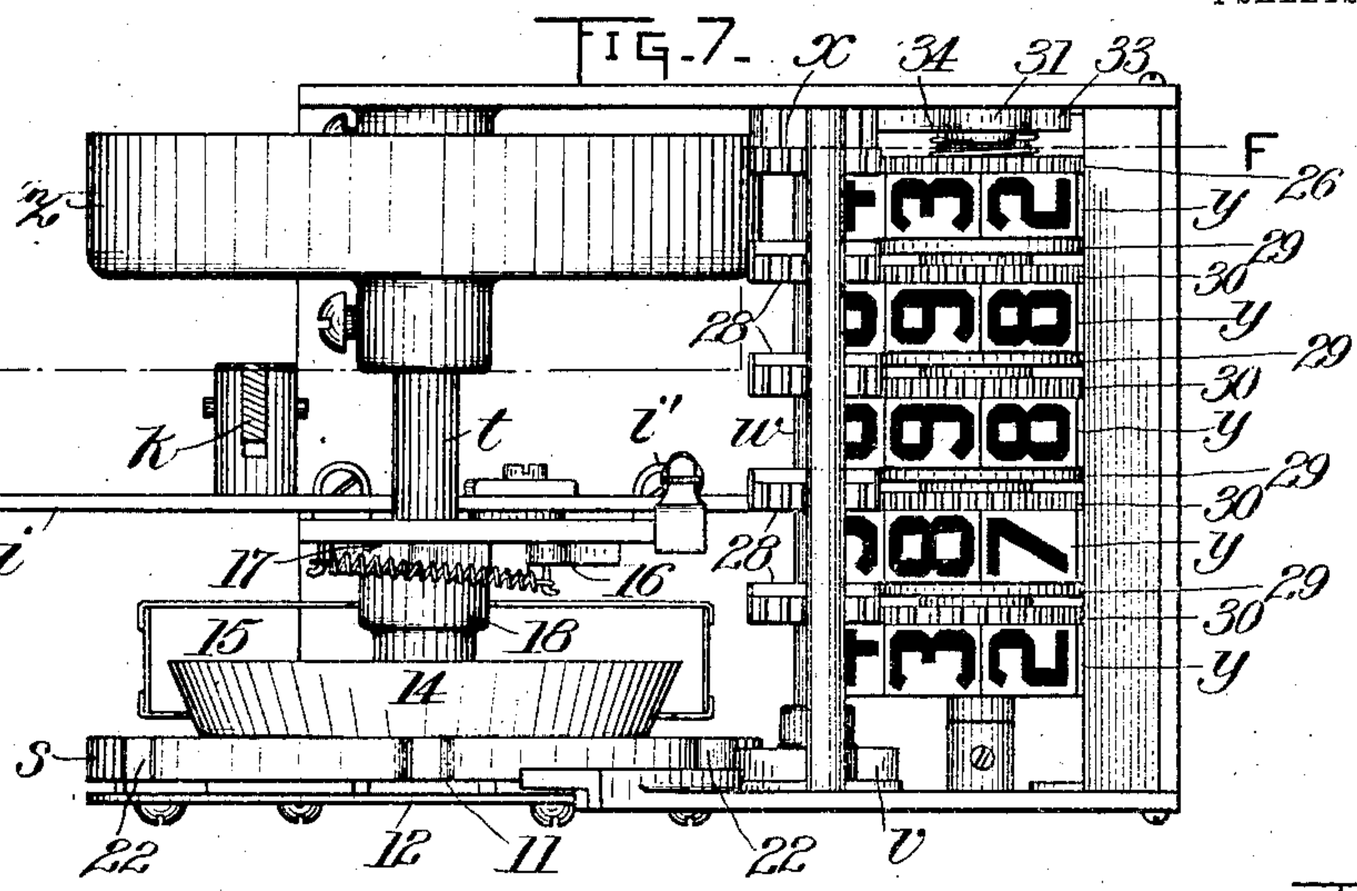


FIG. 8.

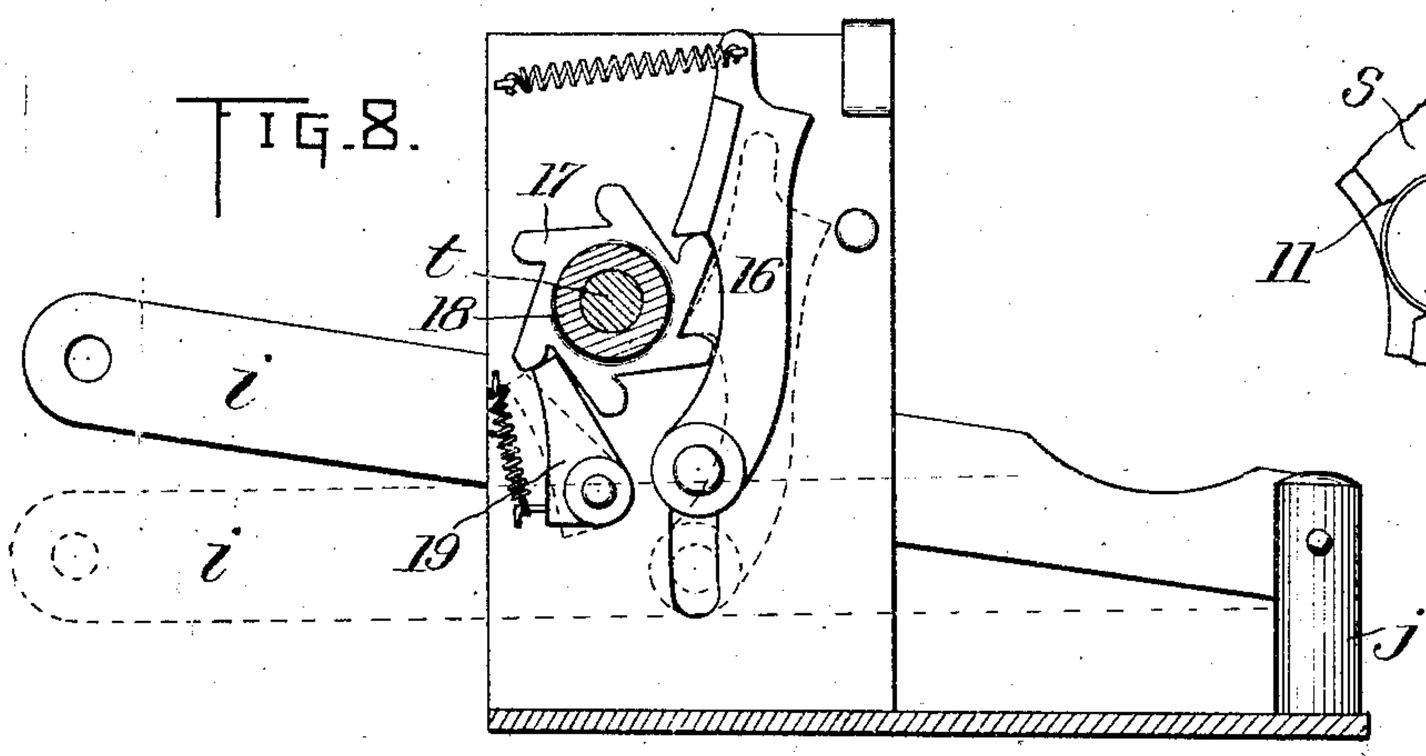


FIG. 10.

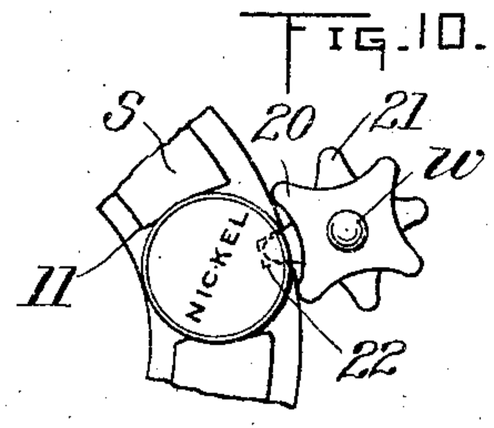


FIG. 11.

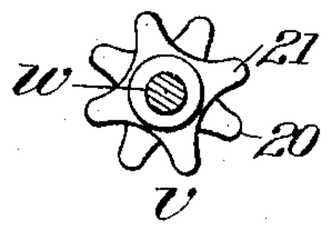
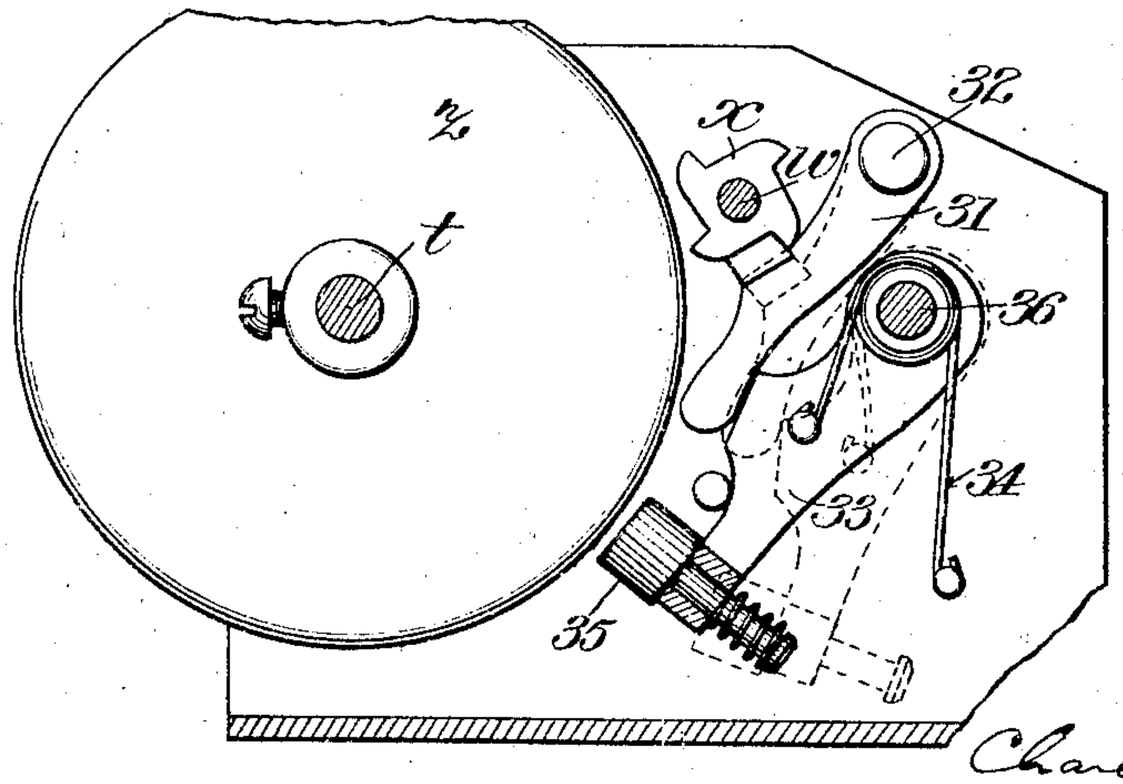


FIG. 9.



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UNITED STATES PATENT OFFICE.

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REGISTERING FARE-BOX.

No. 914,821. Specification of Letters Patent. Patented March 9, 1909.

Application filed June 29, 1908. Serial No. 440,943.

To all whom it may concern:

Be it known that I, CHARLES E. GIERDING, a citizen of the United States of America, and a resident of the city of Newark, in the State of New Jersey, have invented a new and useful Improvement in Registering Fare-Boxes, of which the following is a specification.

This invention relates to those fare boxes which are provided with automatic means for registering the number of uniform fares collected during a given period, and also to those fare boxes which are provided with means for rejecting improper coins or for classifying or separating the coins deposited in the box, with reference to insuring a correct record.

The leading object of the present invention is to construct a registering fare box that will exclude coins larger than the standard, and will properly expose deposited coins to view, both by the passenger and by the collector; and will also classify or separate the admitted coins, rejecting or conducting to one receptacle those which are smaller than the standard coin representing the prescribed fare, the customary nickel, for example, and will accurately register the number of such standard coins, hereinafter sometimes spoken of as nickels, before transferring them to another receptacle.

Other objects will be set forth in the general description which follows.

The invention consists in certain novel combinations of parts hereinafter described and claimed, and in a registering fare box embodying such combinations or any of them.

Four sheets of drawings accompany this specification as part thereof.

Figure 1 is a front view of the body or metallic portion of the improved fare box with portions broken away, showing by full and dotted lines two positions of some of the parts; Fig. 2 is a view of the left-hand side of the structure shown in Fig. 1, with corresponding full and dotted lines; Fig. 3 is a view of its right-hand side; Fig. 4 represents a vertical section on the line A—B, Fig. 1; Fig. 5 is a fragmentary sectional view, hereinafter more particularly described; Fig. 6 represents a vertical section through the base portion on the line C—D, Fig. 1; Fig. 7 is a top view of said base portion; Fig. 8 is a fragmentary sectional view of a part of the same; Fig. 9 is a section, showing the bell mechanism on the line E—F, Fig. 7; Fig 10 is a fragmentary view illustrating the transmission of motion from the coin wheel hereinafter described; and Fig. 11 is a back view of the double star wheel shown in Fig. 10.

Like reference characters refer to like parts in all the figures.

It will be understood that the structure represented by the drawings is inclosed on both sides and at bottom within a suitable casing, which is not shown and which may be of any known or improved construction.

Nickels and other coins in payment of fares are freely admitted at top by a hopper, *a*, and pass therefrom through an internal chute, *b*, Figs. 1 and 4, having a glass front, and beneath a glass guard, *c*, onto an incline, *d*, which forms the bottom of the inspection chamber, *a'*, of the box, and rest on said incline until they are discharged from the inspection chamber by the person in charge of the box. A grating, *e*, at the lower end of the chute *b* operates to arrest larger coins, transfers and the like, that may be dropped into the hopper *a*, so that they may be extracted therethrough. The coins arrested within said chute *b* and those resting on said incline *d* are exposed to view through the customary glass front, *f*, of the box, and a continuation of the front edge of said incline is formed, immediately behind said glass front, by a tilter, *g*, carried by a horizontal rockshaft, *h*, and which normally rests in its position represented by full lines. The coins resting thereon are turned on edge when the tilter is turned into the position represented by dotted lines in Figs. 1 to 4. Motion is transmitted to said tilter *g* and to the other moving parts of the mechanism of the fare box by a working lever, *i*, which projects to the left as shown in Figs. 1, 7 and 8, and is pivoted at its inner end to a post, *j*, Figs. 2, 4 and 8. A spiral retracting spring, *i'*, stretched between said lever *i* and a fixed part of the frame of the fare box, tends to hold said lever in its normal position of rest. Motion is transmitted from said lever *i* to said tilter *g*, through connections shown in Figs. 1 and 2, which see. A connecting rod, *k*, pivoted to the lever *i* and slotted at its upper end, is further provided with one of a pair of studs, 1 and 2, between which a spiral spring, *l*, is stretched as the medium through which motion is transmitted from said rod *k* to a short lever, *m*, which is movable, as shown in Fig. 2.

on a central fixed pivot, 3, and is connected in front thereof by a slot connection, 4, with a crank arm, 5, fast on the outer end of the rockshaft *h* of said tilter. Behind its pivot 3, said short lever *m* is pivotally connected with a vertical slide, *n*, shown in the plane of section in Fig. 5, and this slide is connected by a knuckle joint, 6, Figs. 1, 2 and 5, with the outer crank arm of a rockshaft or bell-crank, *o*, Figs. 4 and 5, connecting said vertical slide *n* with the aid of a pitman, *p*, Figs. 4 and 5, to a horizontally sliding feeder, *q*, shown in the foreground in Fig. 1, and located immediately behind the glass front plate *f*, and between said front plate and a metallic partition, *r*, shown in cross section in Fig. 4, adjoining at its upper edge the rockshaft *h* of said tilter *g*. This partition *r* is slotted, as shown at 7 and 8 in Fig. 5, to accommodate the pin, 7′, which connects said pitman *p* with said feeder *q*, and also to interact with a stop pin, 8′, on the latter, as illustrated by full and dotted lines in Fig. 5. The upper edge, 9, of said feeder *q* is cut away as shown in Fig. 1, so that the coins will roll therefrom, and its inner end pushes the coins successively over an opening, 10, Fig. 1, in the floor of the upper part of the fare box. Immediately beneath said opening 10 a coin wheel, *s*, is located, the coin-holding compartments of which, shown at 11, are fitted to nickels, and are sufficiently open at their inner ends to allow smaller coins to drop therethrough. The front plate, 12, of the coin wheel may preferably be made of transparent material, as indicated, so as to expose to view the contents of the compartments 11 at the front of the fare box. Said coin wheel *s* is mounted on a stationary horizontal shaft, *t*, the front end of which extends through the wheel and supports within its recessed metallic portion a combined coin guide and shield, *u*, Figs. 1 and 4, which directs the smaller coins from the point where they drop through the open bottom of the compartment 11 which is in position beneath the opening 10 to one of several apertures, 13, in the web of the wheel, through which the smaller coins pass into contact with a deflector, 14, in the form of an inclined annular flange formed concentrically on the back of the coin wheel, which discharges them through a conduit, 15, into an adjacent receptacle, not shown.

Simultaneously with each operation of the tilter *g* and the feeder *q*, the coin wheel *s* is turned the space of one of its compartments 11; motion being transmitted from said working lever *i* to said coin wheel *s* by mechanism best shown in Fig. 8, which see. A spring pressed pawl, 16, carried by said lever *i*, interacts with a ratchet wheel, 17, fast on a sleeve, 18, the front end of which carries the coin wheel *s;* and a spring-pressed detent pawl, 19, interacting with the same ratchet wheel, prevents retrogression. Nickels arrested by the coin wheel *s* turn therewith and successively come in contact with tappets in the form of the outer points, 20, of a double star wheel, *v*, for the transmission of registering impulses therefrom. Two of the inner points, 21, of said star wheel normally interact with the periphery of the coin wheel *s*, as in Fig. 1, to prevent accidental or excessive movements of the registering train. Compare Figs. 3, 6, 7, 10 and 11. When a nickel contacts with one of said outer points 20, the star wheel *v* is turned by such contact sufficiently to cause one of the inner points, 21, to enter the approaching notch of a series of notches, 22, in said periphery, as in Fig. 10, whereupon the predetermined registering movement is completed by the direct interaction of the coin wheel *s* and star wheel *v*, leaving these parts again in the relative positions represented in Fig. 1. The next actuation of the lever *i* brings the registered nickel into contact with an ejecting spring, 23, Fig. 1, etc., which is first bent inward by the nickel in contact with an external guard, 24, and at the proper moment throws the released nickel outward through a conduit, 25, into the appropriate receptacle. The shank of the spring 23 serves conveniently to fasten the hub of the coin-guide *u* upon the outer end of the fixed shaft *t*. Said double star wheel *v* is fast on the front end of a shaft, *w*, parallel with said shaft *t*, the rear end of which carries a combined pinion and cam wheel, *x*, the spur teeth of which are in constant mesh with a spur wheel, 26, fast to the units wheel of a sufficient series of decimal numeral wheels, *y*, and the figures on these wheels are successively exposed to view through the apertures of an apertured frame piece, 27, Fig. 3, at the right hand side of the fare box. Motion is transmitted from wheel to wheel by transfer pinions, 28, loosely mounted on said shaft *w*, and interacting with spur wheels, 29, and notched disks or rings, 30, carried by the successive numeral wheels *y*. The cam projections of said combined pinion and cam wheel *x* interact with a bell-lever, 31, Fig. 9, etc., having a fixed pivot, 32, at one end, and which contacts at its other extremity with a bell-hammer, 33, as means for lifting the same against the pressure of a suitable striking spring, 34. The bell-hammer 33 is provided with a suitable spring-retracted face-piece, 35, or its equivalent, to contact by momentum with a contiguously supported bell, *z*, which is preferably and conveniently mounted on said shaft *t* of the coin wheel *s*. The bell-hammer 33 is conveniently pivoted on the shaft, 36, of the numeral wheel *y*. The details of this bell mechanism form no part of the present invention, and it may obviously be varied or omitted without affecting the other mechanism. The details of the upper part of the

fare box are also considered immaterial, and subject to change; and other like modifications will suggest themselves to those skilled in the art. Details which have not been specified may be of any known or improved description.

Having thus described said improvement, I claim as my invention, and desire to patent under this specification:

1. A registering fare box having, in combination, means for admitting fares in the form of coins and exposing them to view, including an inspection chamber, means for excluding coins above the standard size, means for discharging the admitted coins singly from the inspection chamber at its bottom, a subjacent coin wheel having compartments each of which is adapted to admit one coin of the standard size and to carry the same and apertures through which smaller coins are discharged, means for turning said wheel, transmitting mechanism adapted to interact with the standard coins carried by said wheel successively, and registering mechanism to which motion is so transmitted.

2. A registering fare box having, in combination, means for admitting fares in the form of coins and exposing them to view, including an inspection chamber, means for excluding coins above the standard size, means for discharging the admitted coins singly from the inspection chamber at its bottom, a subjacent coin wheel having compartments each of which is adapted to admit one coin of the standard size and to carry the same and apertures through which smaller coins are discharged, means for turning said wheel, transmitting mechanism adapted to interact with the standard coins carried by said wheel, successively, registering mechanism to which motion is so transmitted, and a bell mechanism actuated simultaneously with each registration through the medium of the same transmitting mechanism.

3. The combination, in a fare box, of means for admitting fares in the form of coins and exposing them to view, including an inspection chamber, means for excluding coins above the standard size, means for discharging the admitted coins singly from the inspection chamber at its bottom including a tilter arranged and operated to turn the coins on edge, and a subjacent coin wheel having peripheral compartments each of which is adapted to admit edgewise one coin of the standard size and to carry the same and apertures at the inner edges of said compartments through which smaller coins are discharged, and means for operating said tilter and for turning said wheel.

4. The combination, in a fare box, of means for admitting fares in the form of coins and exposing them to view, including an inspection chamber having an inclined bottom, means for discharging the admitted coins singly from the inspection chamber including a tilter which normally forms a continuation of said inclined bottom and is carried by a horizontal rock shaft and movable therewith to turn the coins on edge, a subjacent coin wheel having peripheral compartments each of which is adapted to admit edgewise one coin and to carry the same, and means for turning said rock shaft and said wheel.

5. The combination, in a fare box, of a coin wheel having peripheral compartments fitted to coins of a standard size, apertures at the inner edges of said compartments and in the web of the wheel through which smaller coins are discharged therefrom and an annular deflector carried concentrically by the wheel, means for turning said wheel, and an inclined coin guide fixedly supported within said wheel and arranged to direct said smaller coins upon said deflector.

6. The combination, in a fare box, of a coin wheel having peripheral compartments fitted to coins of a standard size, means for turning said wheel, a conduit external to said wheel which communicates in succession with said compartments as the coin wheel is turned, and an ejecting spring fixedly supported within said wheel and arranged to eject the standard coins outwardly through said conduit.

7. The combination, in a fare box, of a coin wheel constructed with peripheral compartments each of which is adapted to carry one coin and with a notched periphery, means for turning said wheel, a double star wheel arranged to interact with the successive coins within said compartments and with said notched periphery, respectively, a shaft turned by said double star wheel, spur gearing transmitting motion from said shaft, and a registering device actuated by said gearing.

8. The combination, in a fare box, of a coin wheel constructed with peripheral compartments each of which is adapted to carry one coin and with a notched periphery, means for turning said wheel, a double star wheel arranged to interact with the coins within said compartments successively and with said notched periphery, a shaft turned by said double star wheel, gearing including a pinion fast on said shaft and transfer pinions loose thereon, and a registering device including numeral wheels adapted to interact with said pinion and with said transfer pinions.

9. The combination, in a fare box, of a coin wheel constructed with peripheral compartments each of which is adapted to carry one coin and with a notched periphery, means for turning said wheel, a double star wheel arranged to interact with the coins

within said compartments successively and with said notched periphery, a shaft turned by said double star wheel, a combined pinion and cam wheel carried by said shaft, a registering device actuated by the spur teeth of said pinion and cam wheel, and a bell mechanism actuated by the cam projections of said pinion and cam wheel, substantially as hereinbefore specified.

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