

No. 694,035.

Patented Feb. 25, 1902.

C. C. STEARNS.
CASH REGISTER.

(Application filed Nov. 19, 1901.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1.

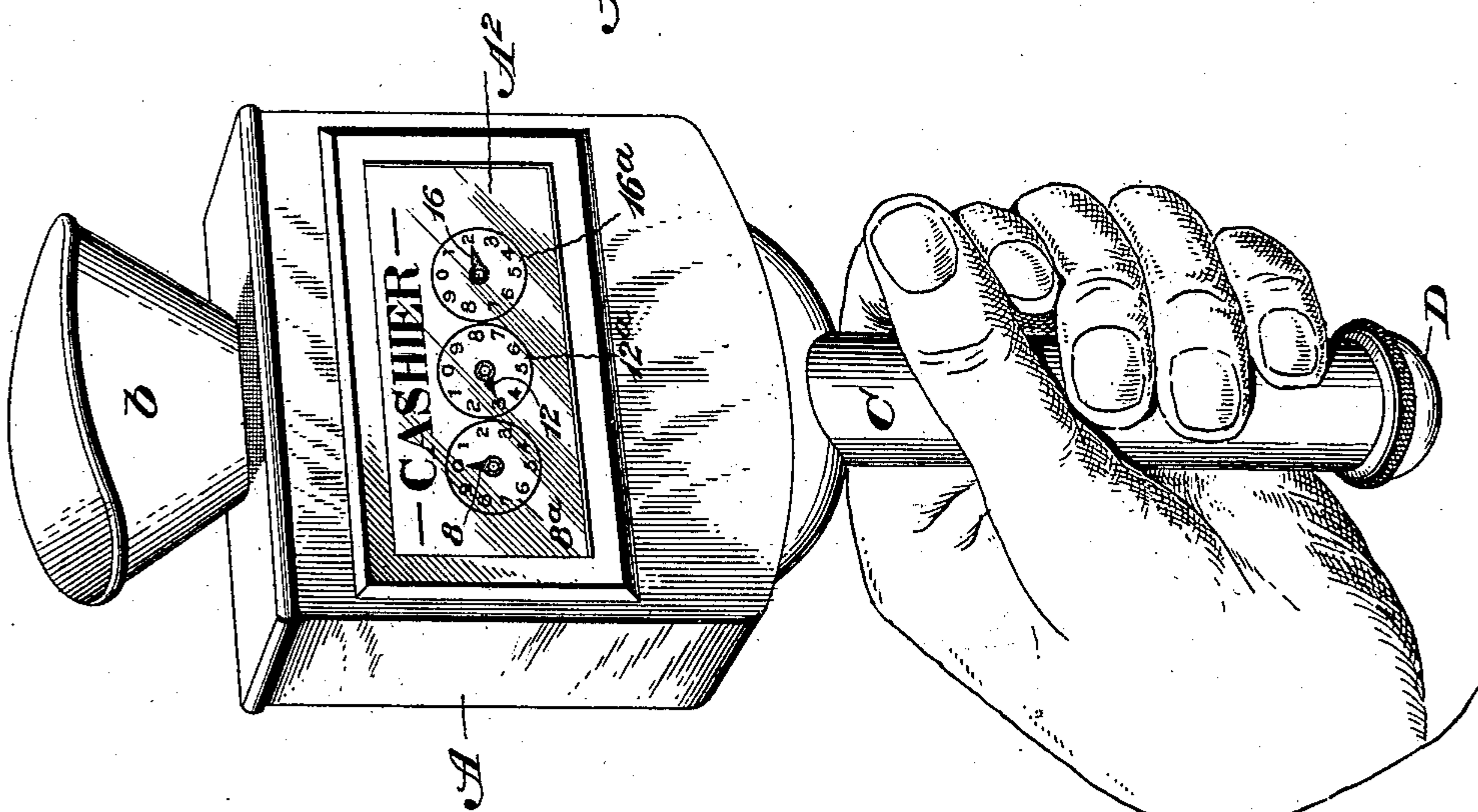


Fig. 2.

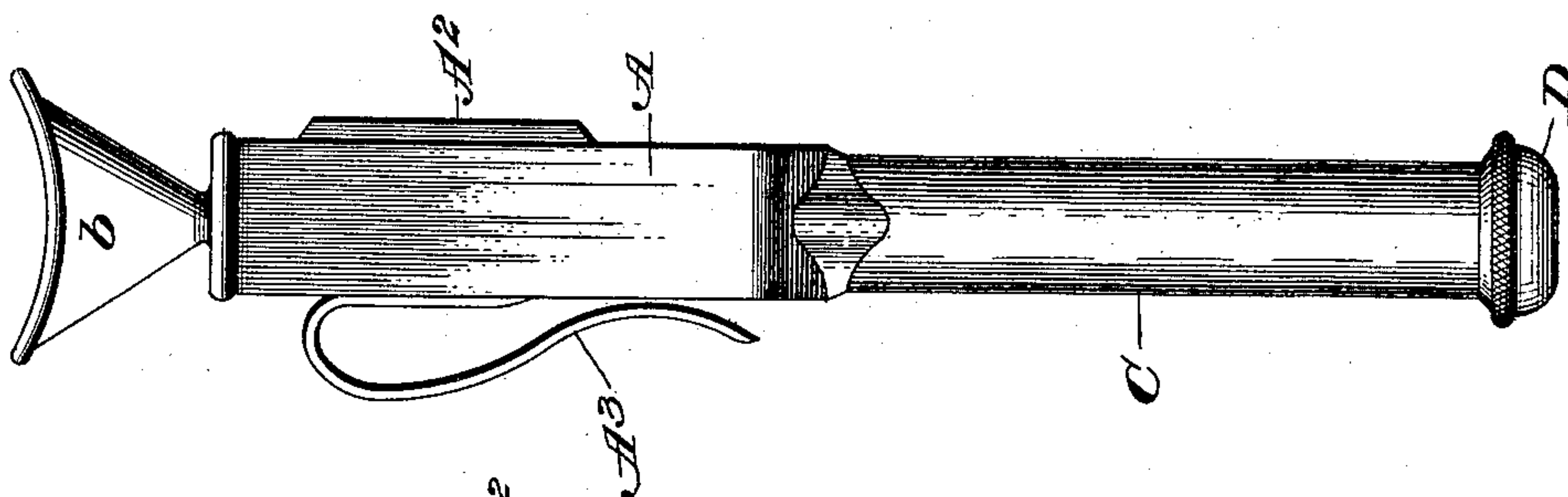
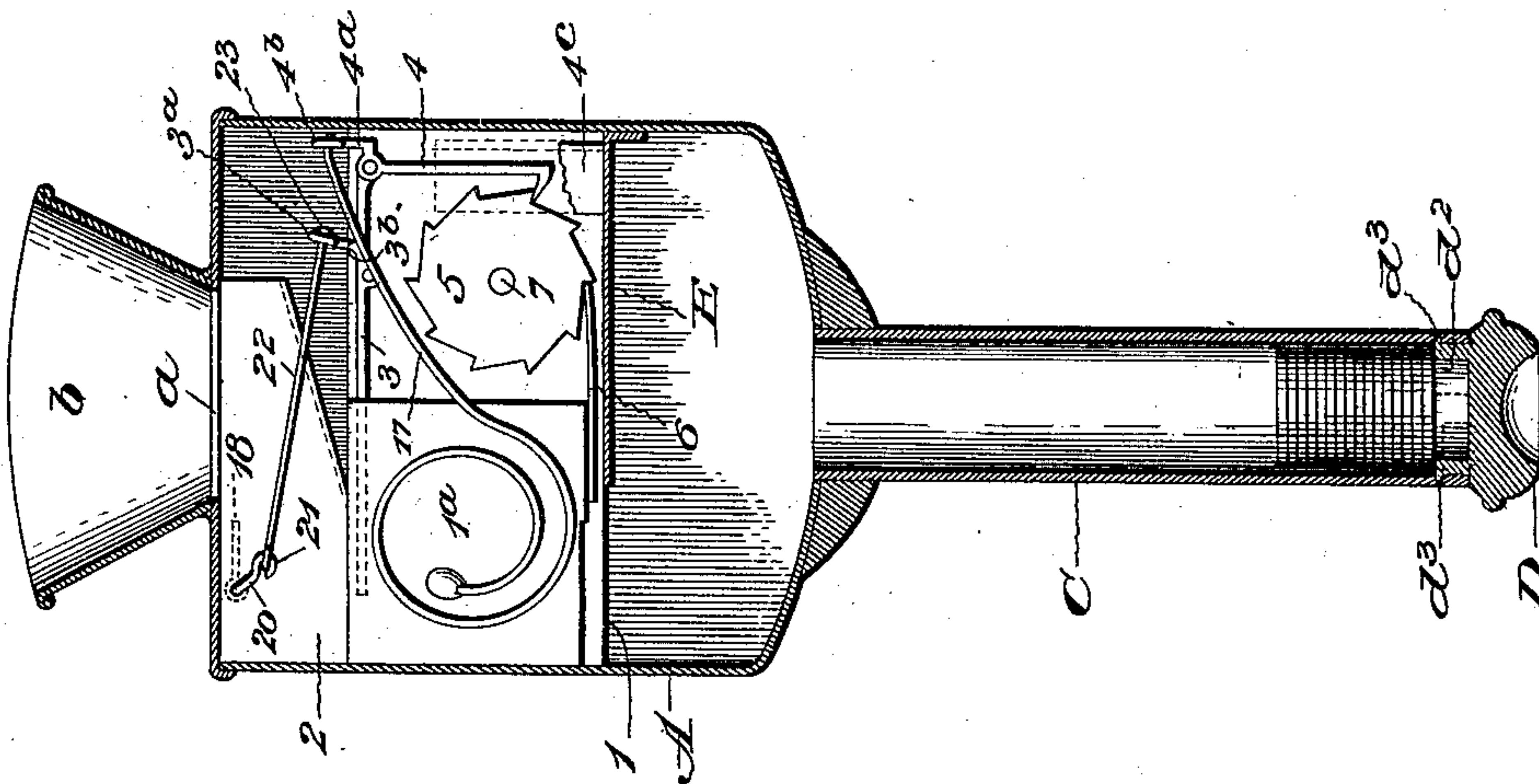


Fig. 3.



Witnesses:
G. Sargent Elliott.
J. Harry Stinson

Inventor:
By Christopher C. Stearns,
H. S. Bailey, Attorney.

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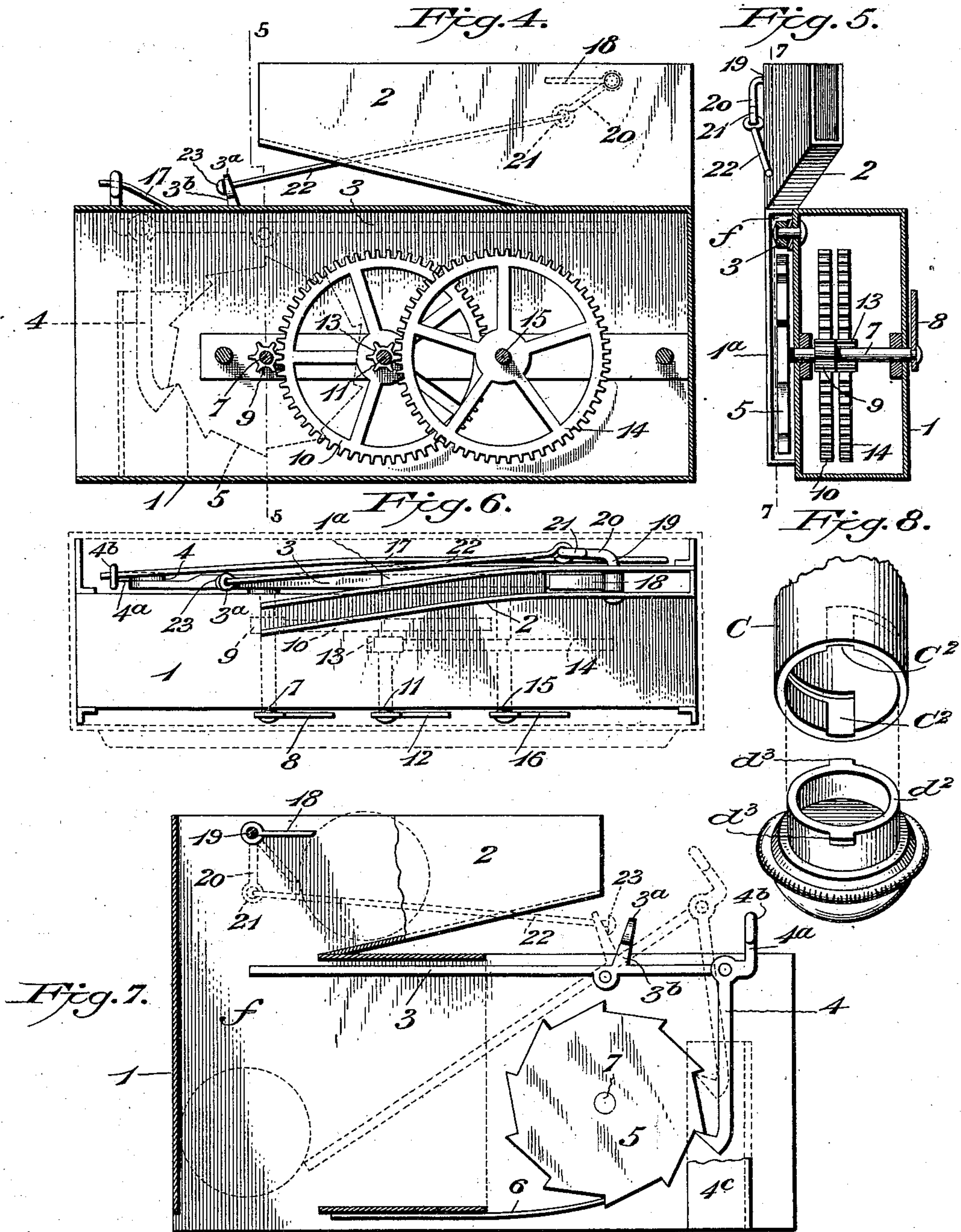
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J. Sargent Elliott.

J. Harry Stinson

By

H. S. Bailey, Attorney.

Inventor:

Christopher C. Stearns,

UNITED STATES PATENT OFFICE.

CHRISTOPHER C. STEARNS, OF DENVER, COLORADO, ASSIGNOR OF ONE-THIRD TO JOHN H. STIMSON, OF DENVER, COLORADO.

CASH-REGISTER.

SPECIFICATION forming part of Letters Patent No. 694,035, dated February 25, 1902.

Application filed November 19, 1901. Serial No. 82,908. (No model.)

To all whom it may concern:

Be it known that I, CHRISTOPHER C. STEARNS, a citizen of the United States of America, residing at Denver, in the county of Arapahoe and State of Colorado, have invented certain new and useful Improvements in Portable Cash Registers and Receivers; and I do declare the following to be a full, clear, and exact description of the invention, such as 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 and figures of reference marked thereon, which form a part of this specification.

My invention relates to improvements in portable cash registers and receivers.

An object of the invention is to provide a device of this character which is especially adapted for use in street-railway service; and to this end the said device is constructed to present a rectangular casing which receives the registering mechanism and from which depends a cylindrical tube which performs the double office of a coin-receiver and grasping-handle, the said handle being held by the conductor as the fares are deposited in the receiver or by the passengers themselves as the receiver is passed from one to another and back to the conductor, each fare being registered as it passes into the receiver.

Another object of the invention is to produce a combined register and receiver which is neat and simple in construction and in which the parts constituting the registering mechanism are few and easily and quickly assembled and when once assembled are not easily disarranged, means being provided to insure the registering of each fare separately.

The invention further consists in the novel combination and arrangement of the parts constituting the same, as will be pointed out in the specification and particularly set forth in the claims.

In the accompanying drawings, forming part of this application, Figure 1 is a perspective view of my improved cash register and receiver. Fig. 2 is a side elevation of the same. Fig. 3 is a sectional elevation through the casing constituting the receiver, the registering mechanism being shown in elevation. Fig. 4 is a vertical longitudinal sectional view

through the removable frame or casing containing the registering mechanism. Fig. 5 is a vertical sectional view taken on the line 5 5 of Fig. 4. Fig. 6 is a plan view of the removable frame or casing. Fig. 7 is a sectional elevation taken on the line 7 7 of Fig. 5, and Fig. 8 is a perspective view illustrating the manner of attaching and detaching the knob which closes the tubular portion of the receiver.

Referring to the drawings, the letter A indicates the body portion of the receiver, which is substantially rectangular in contour and of a depth sufficient for the purpose required. The top of this rectangular portion is provided with a slot *a*, around which is secured a funnel *b*, and from the bottom thereof depends a cylindrical tube C, which is closed at its extremity by a removable cap D, for a purpose to be hereinafter set forth. The upper or rectangular portion of the receiver is designed to carry the registering mechanism, as will be seen by reference to Fig. 3, and to this end is provided with a support or platform E, which extends partly across the width of the receiver and upon which the casing 1, carrying the said registering mechanism, is supported. The casing 1 is designed to fit snugly within the receiver, and upon its upper side is secured an inclined trough or guideway 2, one end of which lies beneath the slot *a* in the top of the receiver, while the other end opens into a passage *f*, leading to the coin-receiving tube C. Across the passage *f* and in the pathway of the falling coin lies the free end of the operating-lever 3, by means of which the mechanism is actuated, as will fully appear. The lever 3 is positioned on the rear side of the casing 1 and is pivoted so as to present a long member, the free end of which is actuated by the coin, and a short member, to the end of which is pivoted a swinging pawl 4, which engages the ratchets of a wheel 5, as shown, a detent 6 preventing any backward motion of the said wheel. The shaft or arbor 7, upon which the ratchet-wheel 5 is mounted, passes through bearings secured on the inner side of the casing 1, as shown in Fig. 5, and is provided at its outer end with a pointer or hand 8. The arbor 7 is also provided with a pinion 9 in mesh with a gear-wheel 10, car-

ried by a shaft or arbor 11, the outer end of which carries a pointer 12, as shown. The arbor 11 is also provided with a pinion 13 in mesh with a gear-wheel 14, carried by an arbor 15, the outer end of which is provided with a pointer 16. The pinions 9 and 13 are each provided with six teeth, while the gear-wheels 10 and 14 are each provided with sixty teeth; but it is apparent that this number may be either increased or diminished so long as the ratio of one to ten is preserved.

The swinging pawl 4, which is pivoted to the short member of operating-lever 3, has an arm 4^a, which extends slightly above the pivotal point of the pawl, and is provided with an eye 4^b, in which rests the free end of a spring 17. This spring holds the pawl in operative engagement with the ratchet-wheel and is also designed to return the lever 3 and pawl 4 to their normal position after the lever 3 has been tilted by the weight of the coin on its free end, and the tension of spring 17 is just sufficient to be overcome by the weight of a coin of the denomination for which the register is arranged.

Within the trough or guideway 2 and just above the discharge-opening therein is located a stop 18, which is designed to have a swinging movement and the purpose of which is to prevent two or more fares from entering the receiver in such quick succession that only one fare will be registered. This stop 18 is a short metal tongue or arm, which lies horizontally in the trough and one end of which is secured to a rocking arm 19, which passes through the side walls of the trough. One end of this arm 19 extends outside the trough and is bent at right angles to the portion passing through the trough to form a crank-arm 20, which is provided with an eye 21, which is engaged by the bent end of a rod 22, the other end of which passes through an eye 3^a in an upwardly-projecting member 3^b of the operating-lever 3 and is provided with a head 23, as shown. The member 3^b is positioned slightly to one side of the pivotal point of lever 3 on the short member thereof, and consequently moves forward in the arc of a circle as the forward or long member of the said lever is depressed by the weight of a coin. This forward movement allows rod 22 to move forward also, as the crank-arm 20, to which it is connected, drops by gravity to a vertical position, as shown by dotted lines, Fig. 7, when the rod 22 is not held back by the member 3^b. As the crank-arm 20 drops its member 19, which extends through the trough or guideway 2 and to which the stop 18 is secured, is given substantially a quarter-turn, which brings stop 18 to the position shown in dotted lines, Fig. 7, or so as to obstruct the passage of a coin until one previously deposited has been registered. When the coin depresses the free end of lever 3 to the position shown in dotted lines, Fig. 7, it drops into the receiver, and the lever 3 by reason of the downward pressure exerted at its op-

posite end by spring 17 assumes its normal position, and the member 3^b, contacting with the head 23 on rod 22, draws the said rod back to the position shown in Fig. 3, which movement turns crank-arm 20, to which it is attached, and brings stop 18 to a horizontal position, so that a coin may pass under the same. The passage *f*, through which the coin passes, between the discharge end of trough 2 and the receiver, is formed by a sheet of metal 1^a, which is secured to the rear side of the casing 1, as shown in Figs. 5 and 6, so as to form a guideway slightly wider than the width of a coin, and in this passage or guideway the free end of lever 3 moves up and down, as will be fully understood by reference to the drawings. The pawl 4, pivoted to the end of lever 3, is protected by a housing 4^c, which prevents excessive lateral movement of the said pawl and insures its engagement with the ratchet-wheel 5. When a coin has passed through the passage *f*, it drops into the body A and thence into the tube or handle C, as shown in Fig. 3. This handle may be of a length sufficient to hold a large number of coins, and a greater number can be accommodated by the body A when the tube or handle has been filled. The tube or handle C is closed at its lower end by the cap *d*, as previously mentioned, and by reference to Fig. 8 it will be seen that the cap has a short cylindrical portion *d*², which fits within the lower end of the tube or handle *c*. At diametrically opposite points the portion *d*² at its upper edge is provided with laterally-projecting ears *d*³. The lower end of tube or handle C is provided at diametrically opposite points on its inner periphery with vertical grooves C², which extend upward for a distance equal to the height of the cylindrical portion *d*² of cap *d* and are then continued horizontally and in opposite directions with respect to each other for a quarter of the inner circumference of the tube. Thus when it is desired to close the end of the tube or handle C the cylindrical portion *d*² of cap *d* is inserted in the tube, the ears *d*³ lying within the vertical grooves C². The cap is then given a quarter-turn, which causes the ears *d*³ to engage the horizontal extensions of the grooves C² and securely lock the cap in engagement with the tube or handle C. An opposite turn of the cap will release the same, when the receiver may be emptied of its contents or coins withdrawn for the purpose of making change.

The front side of the body A is fitted with a glass plate A², through which the registering-dials may be inspected, and the rear side of the said body A is provided with a hook A³, by means of which the receiver may be hooked to the coat-pocket of the conductor when not in use.

The operation of my invention is as follows: A coin dropped into the funnel *b* passes through the slot *a* in the top of the receiver and into the inclined trough or guideway 2. It then rolls to the discharge end thereof and

passes into passage *f*, where it drops vertically, carrying with it the free end of lever 3, which normally lies just beneath the discharge end of trough 2 and in the pathway of the coin. The downward movement of the free end of lever 3 elevates the opposite end, to which pawl 4 is pivoted, and the said pawl, being in operative engagement with ratchet-wheel 5, turns the same and the arbor 7, to which it is secured, one-tenth of a revolution, causing the pointer 8 at the forward end of said arbor 7 to register one fare. The upwardly-projecting arm 3^b on lever 3 moves forward as the said lever is tilted, releasing its pull on rod 22 and allowing crank-arm 20 and stop 18 to drop by gravity, the said stop preventing the entrance of another coin until the one previously deposited has been registered. When the coin escapes the end of lever 3 and falls into the receiver, the downward pressure exerted upon pawl 4 by springs 17 causes the parts to assume their normal position, as will be fully understood.

This device is not only serviceable on street-railways, but on all classes of vehicles where fares are collected, and while I have illustrated and described a device especially adapted for the accepting and registering of five-cent pieces, or "nickels," I do not wish to limit myself to such construction, as it is apparent that by duplicating the registering mechanism and varying the tension of spring 17 to suit the weight of coins of different denominations a receiver capable of registering coins of every denomination, from a cent to a dollar, may be employed without in the least departing from the principle upon which the device operates.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A combined cash register and receiver, comprising a portable casing having a slot in its top side; registering mechanism secured within the casing beneath the slot; a trough or guideway connecting the slot with the registering mechanism, a lever, one end of which is depressed by a falling coin, and the other end of which carries means for actuating the registering mechanism, a coin-receiving tube having a removable cap, secured to the casing; and a stop operating in conjunction with the lever, for preventing the entrance of a coin until one previously inserted has been registered, substantially as described.

2. A combined cash register and receiver comprising a portable casing having a slot in its top side and a coin-receiving tube secured to its bottom side; registering mechanism located within the casing and beneath the slot; an inclined trough or guideway connecting the slot with the coin-passage leading to the receiving-tube; a lever one end of which obstructs the coin-passage so as to be depressed by a falling coin, while the other end carries a swinging pawl; a ratchet-wheel operated by each upward movement of the pawl the

arbor of said wheel carrying a pinion and at its outer end a pointer; and a stop located in the trough or guideway, which falls by gravity as the lever is tipped; the said stop preventing the entrance of a coin until one previously inserted has been registered, substantially as described.

3. A combined cash register and receiver comprising a portable casing, having a coin-receiving slot in its top side and a coin-receiving tube having a removable cap secured to its bottom side; registering mechanism located within the casing; an inclined trough or guideway leading from the coin-receiving slot to the coin-passage which discharges into the coin-receiving tube; a lever, one end of which lies beneath the discharge end of the trough, and in the pathway of a falling coin so as to be tilted thereby, while the other end carries a swinging pawl; a stop located within the trough above the discharge end thereof, said stop normally lying in a horizontal position, and being secured to a rocking arm, one end of which is formed into a crank-arm; a rod connecting the crank-arm with a projection on the operating-lever, whereby the stop, through its connection with said lever falls by gravity when the lever is tilted so as to bar the entrance to the receiver; a ratchet-wheel engaged by the aforesaid pawl pivoted to one end of the operating-lever; said ratchet-wheel being mounted upon an arbor which carries a pinion and at its forward end a pointer, the said pinion operating a gear-wheel whose arbor carries a pointer at its outer end, and a pinion which operates a second gear-wheel, whose arbor also carries a pointer at its outer end, the number of teeth on pinions and gear-wheels having a ratio of one to ten, so that the registering mechanism operates in the order of tens, hundreds and thousands, substantially as described.

4. A combined cash register and receiver, comprising a portable casing having a coin-receiving slot in its top side; registering mechanism secured within the casing beneath the slot; an inclined trough or guideway connecting the slot with the registering mechanism; an operating-lever, one end of which lies within the pathway of a falling coin so as to be tilted thereby, while its opposite end carries a pawl; a ratchet-wheel forming part of the registering mechanism to which said pawl imparts an intermittent rotation; a spring engaging said pawl in such a manner as to hold it in operative engagement with the ratchet-wheel, and at the same time, hold the lever to which said pawl is pivoted, normally, in a horizontal position, the tension of the springs being such as to be overcome by the weight of a coin; a coin-receiving tube having a removable cap, secured to the bottom of the casing; and a stop secured to a rocking arm located at the discharge end of the trough or guideway one end of said rocking arm being bent to form a crank-arm; a rod connecting the crank-arm with a project-

ing member on the operating-lever, so that the said stop through its connection with the lever is normally held in a horizontal position, or so as to allow a coin to pass beneath it, but drops by gravity when the lever is tilted, so as to bar the entrance to the receiver, substantially as shown.

5 5. A registering mechanism comprising the following cooperating agents; a shaft or arbor
10 carrying at its forward end a pointer and at its rear end a ten-toothed ratchet-wheel, said shaft or arbor also being provided with a pinion which operates a gear-wheel on a second shaft or arbor, this second shaft or arbor carrying a pointer at its outer end, and a pinion
15 which operates a gear-wheel on a third shaft or arbor, carrying a pointer at its outer end; the teeth on the pinions and those on the gear-wheels having a ratio respectively of one
20 to ten, so that the said registering mechanism

operates in the order of tens, hundreds and thousands; a lever one end of which carries a pawl which is in operative engagement with the aforesaid ratchet-wheel; while the other end is designed to be tilted; the said tilting
25 motion of the lever causing the pawl at its opposite end to rotate the ratchet-wheel intermittently or step by step; and a spring engaging the pawl in such a manner as to hold it in engagement with the ratchet-wheel and
30 at the same time hold the lever to which the said pawl is pivoted, normally, in a horizontal position, substantially as shown.

In testimony whereof I affix my signature in presence of two witnesses.

CHRISTOPHER C. STEARNS.

Witnesses:

G. SARGENT ELLIOTT,
J. HARRY STIMSON.