S. P. HUNTINGTON.

COIN HANDLING APPARATUS.

APPLICATION FILED JAN. 29, 1912.

1,110,263. Patented Sept. 8, 1914.

Fig. 1.

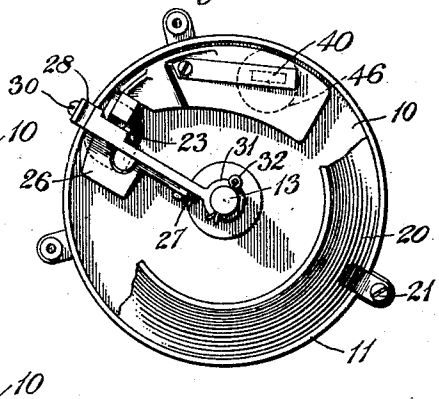


Fig. 5.

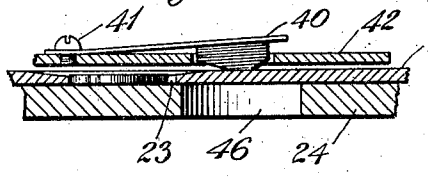


Fig. 6.

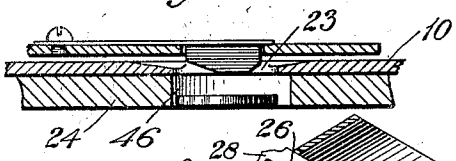


Fig. 2.

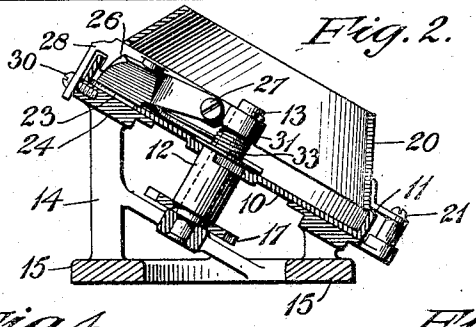


Fig. 4.

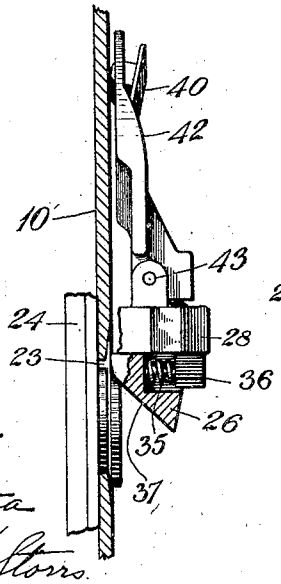
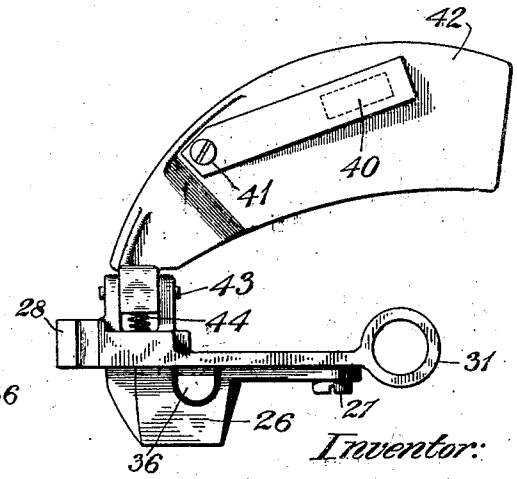


Fig. 3.



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UNITED STATES PATENT OFFICE.

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COIN-HANDLING APPARATUS.

1,110,263. Specification of Letters Patent. Patented Sept. 8, 1914.

Application filed January 29, 1912. Serial No. 674,130.

To all whom it may concern:

Be it known that I, SAMUEL P. HUNTINGTON, a citizen of the United States, residing at New Haven, in the county of New Haven and State of Connecticut, have invented new and useful Improvements in Coin-Handling Apparatus, of which the following is a specification.

This invention relates to improved means for separating and feeding coins, the object being to provide a receptacle for holding an accumulation of mixed coins and to separate the said coins and feed them singly from the receptacle to coin registering or counting mechanism of any desired character.

Figures 1 and 2 are angular views of my device, Fig. 2 being a side view in section taken mainly through the axial center of the hopper, showing it in an inclined position, while Fig. 1 is a face or end view projected from Fig. 2. Fig. 3 is a plan view in enlarged scale, of the coin separating and ejecting devices of the previous figures, and Fig. 4 is an edge view partly in section, projected from Fig. 3. Figs. 5 and 6 are edge views in section showing the construction and illustrating the operation of the coin ejecting device.

This invention is herein illustrated as an adjunct to machines for receiving and registering the fares paid at turnstiles, or on street cars, ferries, and similar utilities, in which coins, generally of different denominations, are deposited, and accumulate sometimes in considerable quantity, within a short time, as at the stopping places, or at rush periods of traffic. The necessity of registering these coins separately, according to their different denominations, requires them to be fed singly from the hopper or other coin receptacle, without wedging the coins together, and separating those which may adhere to each other, either accidentally or as the result of mischievous or malicious intent on the part of those depositing the coins.

The rotating coin carrier or plate 10, on which the coins are received, consists of a circular disk having a turned-up rim 11, to prevent the coins from rolling or sliding off the plate. The plate is provided with a hub 12, which is mounted for rotation upon a stud 13, attached to the framing 14 of the machine, which is provided with suitable feet or flanges 15 to be attached to any convenient portion of the registering or other mechanism, of which this invention may be the adjunct. The coin plate is rotated, preferably by a crank and geared connection between the registering mechanism and gear 17 for example, appurtenant to the hub 12, or to any convenient part of the plate or its appurtenances.

The coins may be dropped directly upon the coin plate by the respective depositors, or may fall thereon from above after passing through various forms of well known coin exposing devices, for enabling the coins to be inspected by the conductor or attendant. These devices, however, form no part of the present invention. To more securely guide and confine the falling and accumulating coins to the plate, I prefer to employ the stationary hopper 20, which is attached in any convenient way, as by means of screws 21 to the frame 14.

The bottom of the coin plate 10 is provided with one or more coin receiving seats or apertures 23, for receiving a single coin, the edges of the aperture being not thicker than the thickness of the thinnest coin to be handled. Each single coin 8 lying in this aperture rests upon the upper face of a platen or supporting member. The platen 24 is supported upon, or is appurtenant to the frame 14, the coin sliding over the surface of this platen as it is carried around by the coin plate. At the desired discharging point for the coin, the platen is provided with a discharge aperture 46, leading either directly, or by means of suitable chutes, to the coin registering, or counting, or assorting mechanism, as the case may be.

Coöperating with the coin plate to separate from the single coin 8 intended to be carried by that plate whatever other coins may be carried along with it, either by adhesion, or due to the accumulation of coins in the plate, is a separating pawl or finger 26. This finger is pivoted at 27 to a stationary arm 28, which is herein shown to be mounted at one end upon the stud 13, and attached at its other end to the frame 14 by means of the screw 30, the arm being by these means suspended in a stationary position within the hopper, just above the plate. In this case also the inner end of the arm is utilized as a thrust collar 31 held down by a split pin 32, and having a spring 33 beneath it, which bears against the upper surface of the coin plate and holds the latter firmly but yieldingly down to its proper plane of rotation against the platen 24, thus

maintaining close contact therewith, and taking up any looseness between these plates, due to wear or otherwise, thereby also preventing the thinner coins from entering and becoming wedged between the coin plate and the platen.

The outer end of the separating finger is held down toward the coin plate by means of a spring 35 beneath the hub 36 of the arm 28. That portion of the finger which lies across the annular pathway of the coin aperture 23 in the coin plate is beveled backwardly as shown at 37 in Fig. 4, to enable the finger to ride out of the aperture 23, whenever the latter passes under the pawl empty, without a coin. This intended rising and falling movement of the finger, occurring when the spring 35 is in its most extended position, offers little resistance to the turning movement of the plate. But when pushing back other coins which may lie upon the first coin, as shown in Fig. 4, the increased stiffness of the compressed spring resists the tendency of the finger to ride over more than one coin, and thus causes the finger to wipe back all coins lying above that first coin which is in the aperture.

To further assist in the sweeping back of all excepting one coin, the coin plate is preferably inclined as illustated in Fig. 2, so that many or most of the coins will roll or slide by gravity to or toward the lower portion of the plate and hopper. The separating and ejecting positions of such an inclined plate are disposed at the higher portions of the path of travel of the plate, the coins being received into the aperture at the lower portion of that path of travel, where the aperture passes through the accumulated heap of coins. The plate having thus taken a single coin in the aperture 23, and having passed the separating position shown in Fig. 4, the coin is carried to its discharging position beneath the ejector pawl 40, the ejecting operation being illustrated in Figs. 5 and 6. The ejector is herein shown in the form of a spring pawl, attached by means of the screw 41 to a shield, such as a float 42, which is pivoted at 43 to the arm 28, and is pressed downwardly toward and against the coin plate by a spring 44. This float serves as a guard or fender to keep the falling or accumulating coins of the hopper away from the discharge aperture 46, deflecting them toward the bottom of the hopper, where they are intended to be received one by one into the coin plate. The float is pivotally supported so as to permit it to rise against the pressure of the spring, in case coins should accidentally become crowded under the float.

The ejector 40 is disposed in the circular path of rotation of the coin aperture 23 of the coin plate, and immediately over the ejecting aperture 46 of the platen, as shown in Figs. 5 and 6. Thus when a coin which has been properly received into the aperture of the coin plate arrives over the ejecting aperture 46 of the platen, its tendency to fall by gravity is increased by the ejector, which pushes or knocks it quickly through the two apertures while they are in coincidence, thus avoiding any tendency of the coin to remain in engagement with the plate and the platen and lock them together. The ejector 40 may be directly appurtenant to the float 42. But in that case the certainty of its action might be impaired whenever a stray coin became pushed beneath the float, thus raising it away from the coin plate. In the present arrangement, however, the ejector having an additional movement of its own, relative to the float, would eject the intended coin, even though the float were to be raised by another coin.

I claim:—

1. In a coin handling device, a rotary carrier having a coin-receiving seat, a pawl arranged to ride over said carrier in the path of said seat and having the forward portion of its face inclined to the plane of said carrier and formed of hard, smooth material, and a spring tending to move said pawl toward said seat and cause it to engage the face of a coin in said coin seat and to engage the edge of a coin not properly seated in said coin seat.

2. In a coin handling device, a rotary plate having a coin-receiving aperture, a pawl of rigid material arranged above the path of said aperture and having its forward edge beveled, and a spring tending to move said pawl into said aperture when the latter is brought into alinement therewith and resisting the tendency of said pawl to ride over any coin which may project above that portion of said plate adjacent to said aperture.

3. In a coin handling device, a coin receptacle comprising a rotary inclined plate having a coin-receiving aperture, a supporting member arranged beneath said plate to retain the coin within said aperture and having a discharge opening, a pawl of rigid material movably mounted above the path of said coin-receiving aperture, and a spring tending to move said pawl into said aperture and resisting the tendency of said pawl to ride over any coin which may project above the surface of said plate adjacent to said aperture.

4. In a coin handling device, a coin receptacle comprising a rotary inclined plate having a coin-receiving aperture, a supporting member arranged beneath said plate to retain the coin within said aperture and having a discharge opening, a pawl of rigid material movably mounted above the path of said coin-receiving aperture, and a spring tending to move said pawl into said aperture and resisting the tendency of said pawl

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to ride over any coin which may project above the surface of said plate adjacent to said aperture, and a spring-actuated ejector arranged above the discharge opening of said supporting member and adapted to forcibly enter the aperture in said rotary plate when said aperture is moved into alinement with said discharge opening.

5. In a coin handling device, a rotary plate having a coin-receiving aperture, a supporting member arranged beneath said plate to support a coin in said aperture and having a discharge opening, and a spring-actuated ejector mounted above said discharge opening, bearing normally upon said rotary plate and adapted to forcibly enter said coin-receiving aperture when the latter is moved into alinement with said discharge opening.

6. In a coin-handling device, a rotary plate having a coin-receiving aperture, a supporting member arranged beneath said plate to support said coin in said aperture and having a discharge opening, a shield arranged above said discharge opening, and an ejector carried by said shield and arranged to enter said coin-receiving aperture when the latter has been brought into alinement with said discharge opening.

7. The combination of a revolving coin carrier having a receiving seat for a single coin, a platen forming a circular raceway for supporting a coin carried by the receiving seat and having an ejecting aperture registering at intervals with the revolving receiving seat of the carrier, and a spring pressed coin ejector disposed in the path of travel of the coin receiving seat of the carrier for ejecting the coins therefrom through the ejecting aperture in the platen.

8. The combination of a revolving coin carrier provided with a receiving seat for a single coin, a platen forming a circular raceway for supporting a coin carried by the receiving seat, and having an ejecting aperture registering periodically with the coin receiving seat of the revolving carrier, a float covering the ejecting aperture, and means appurtenant to the float for ejecting the coins from the carrier through the said ejecting aperture of the platen at the said registering positions.

9. The combination of a revolving coin carrier provided with a receiving seat for a single coin, a platen forming a circular raceway for a coin carried by the receiving seat and having an ejecting aperture registering periodically with the coin seat of the revolving carrier, a yielding float overlying the coin receiving seat and the registering aperture at their registering position, and a coin ejector projecting through the seat and the aperture when in register.

10. In a coin handling device, a coin receptacle comprising a rotary plate forming one wall of said receptacle and having a coin-receiving aperture, a supporting member arranged beneath said plate to support a coin in said aperture and having a discharge opening, a float yieldingly supported above said rotary plate at a point adjacent to the discharge opening in said supporting member and having an opening therein, and a spring-actuated pawl carried by said float, projecting through said opening therein and arranged to enter the aperture in said rotary plate when the latter is brought into alinement with said discharge opening.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses, this 26th day of January, 1912.

SAMUEL P. HUNTINGTON.

Witnesses:

FRANK B. KENNEDY,

IRMA C. NYSTROM.