Oct. 24, 1950 W. W. BOWMAN 2,527,174

COIN SEPARATOR

Filed Dec. 4, 1948 2 Sheets-Sheet 1

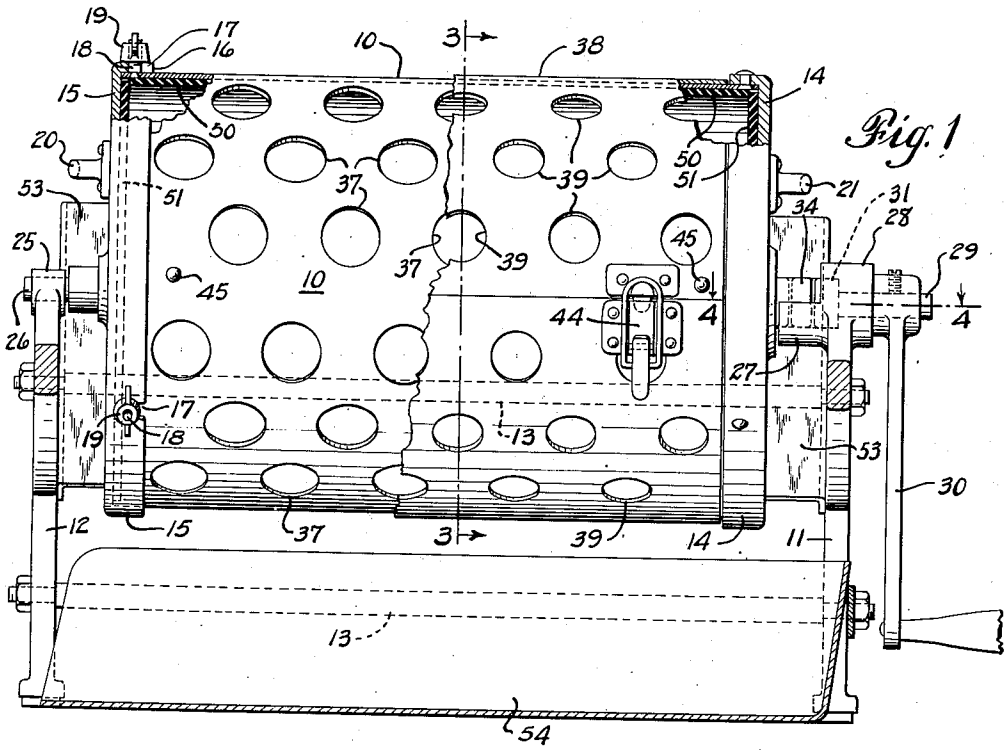


Fig. 1

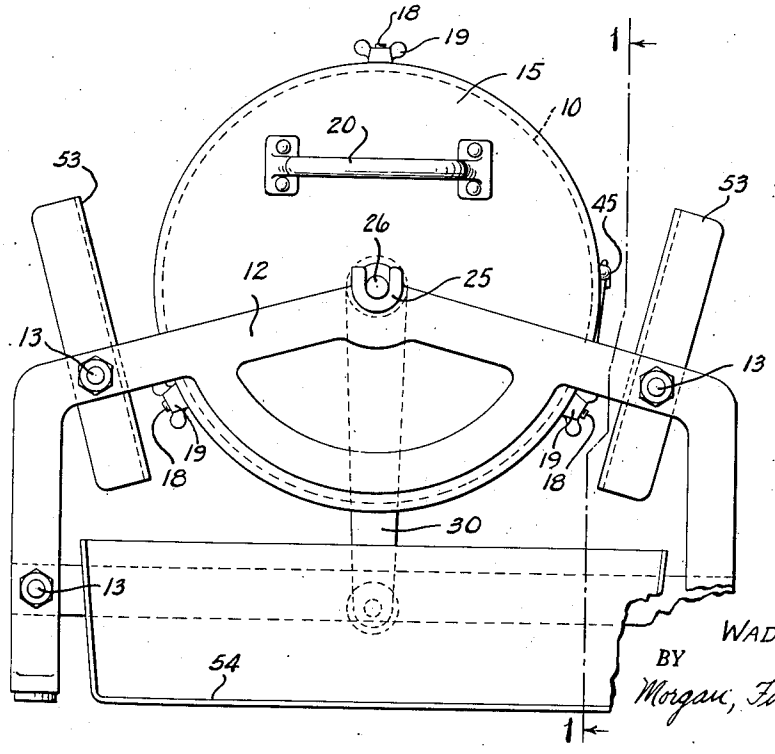


Fig. 2

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Fig. 3

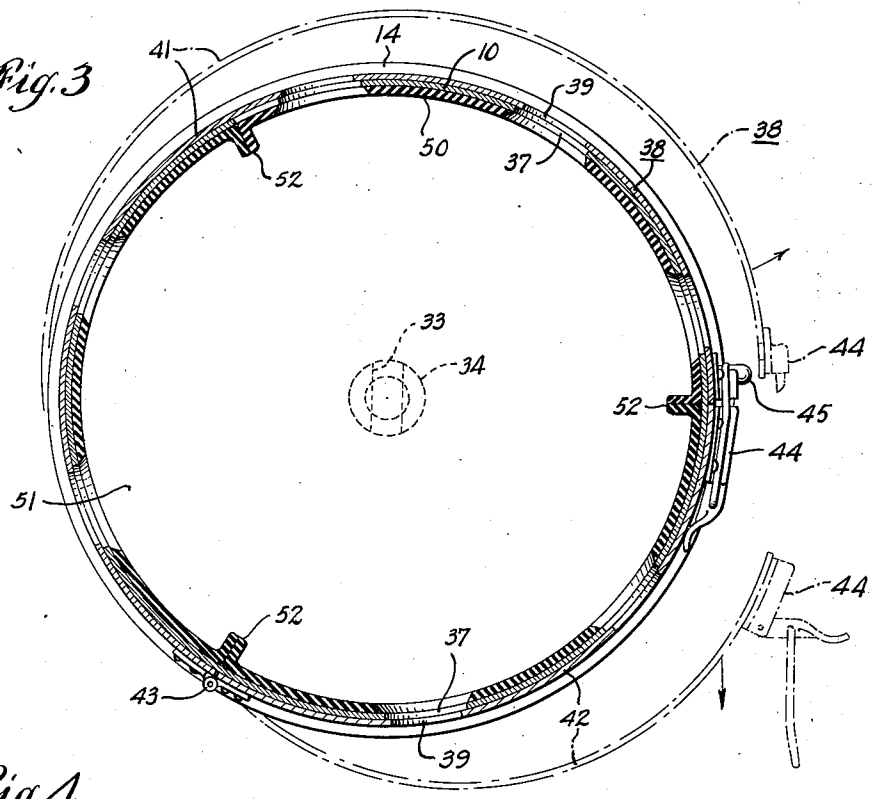


Fig. 4

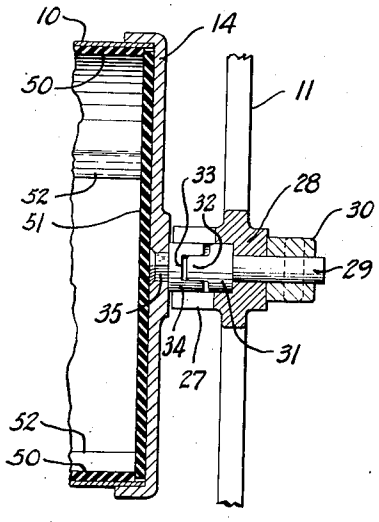
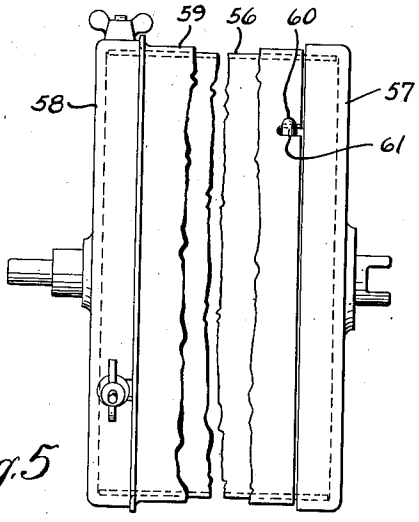


Fig. 5



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COIN SEPARATOR

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10 Claims. (Cl. 133—3)

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The present invention relates to a device for separating coins of various denominations from each other, and depends for its operation upon the varying diameters of coins of different denominations.

Objects and advantages of the invention will be set forth in part hereinafter and in part will be obvious herefrom, or may be learned by practice with the invention, the same being realized and attained by means of the instrumentalities and combinations pointed out in the appended claims.

The invention consists in the novel parts, constructions, arrangements, combinations and improvements herein shown and described.

The accompanying drawings, referred to herein and constituting a part hereof, illustrate an embodiment of the invention, and together with the description, serve to explain the principles of the invention.

Of the drawings:

Fig. 1 is a side elevation of a typical and illustrative embodiment of the invention;

Fig. 2 is an end view of the device shown in Fig. 1 viewed from the left of Fig. 1;

Fig. 3 is a cross-sectional view taken along line 3—3 of Fig. 1, the outer shell being shown in partly removed position in the broken lines;

Fig. 4 is a cross-sectional view taken along line 4—4 of Fig. 1; and,

Fig. 5 is a fragmentary view of a modified embodiment of the invention.

The invention has for an object the provision of an efficient device for the separation of a mass of coins intermingled as to various denominations, the separation being effected by separating the coin of different diameter. The invention provides such a coin separator of compact and efficient design, simple to build and operate, which is small enough to be easily transported so that it can be conveniently used by the collector of coins from automatic dispensing machines and the like.

Referring now in detail to the illustrative embodiments of the invention shown by way of example in the accompanying drawings, and referring first to the embodiment of Figs. 1 to 4 inclusive, the coin separator is shown as comprising a perforated main drum cylindrical element 10 which is mounted for rotation upon a framework comprising inverted Y shaped frames 11 and 12 one at each end of the drum, the frames being held in spaced relationship to form a rigid framework by means of a plurality of side rods 13 extending between them.

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As one end the main drum 10 is provided with a fixed circular head 14 riveted thereto as shown, while the other end of the drum is closed by a removable head 15. The inwardly turned flange portion 16 of head 15 is slotted at a plurality of spaced places as indicated by numeral 17 to receive screws 18 which extend radially outwardly from and are secured in the main drum 10. Wing nuts 19 on screws 18 may be tightened against flange 16 to hold the circular head 15 in place on the drum, or may be loosened to allow easy removal of the head axially of the drum. A handle 20 is preferably provided on the head 15, and another handle 21 on the head 14, to form grips for removing the drum from the framework, and the removable head 15 from the drum.

The removable, rotatable mounting of main drum 10 on the framework includes the open topped journal 25 on the Y frame 12 to receive the stub shaft 26 secured to removable head 15 on the axis of the head and drum. The other Y frame 11 is provided with an open topped journal part 27 nearer the drum 10 and a closed journal part 28 adjacent thereto, wherein is rotatably secured the shaft 29 of crank 30. The driving connection between the crank 30 and the drum 10 is shown in detail in Fig. 4 of the drawings, comprising the driving head part 31 secured to crank shaft 29, having a rectangular extension 32 to be received within a relieved place 33 in the driving part 34 which is secured to head 14 by means of shaft 35. With the construction shown it will be apparent that drum 10 may be readily removed from its framework by simply lifting it upwardly, the shaft 26 being raised out of journal 25, and the driving part 34 being raised out of journal part 27, the driving parts 31 and 34 being separated, with the crank 30 left in its place on frame 11.

The main drum 10 is provided with a plurality of apertures 37 therein arranged preferably, as shown, in rows extending in spaced relationship between the ends of the drum, with the apertures in adjacent rows being staggered with respect to each other. A removable outer shell 38 is provided to fit closely around the drum and contact the outer surface thereof, said shell having apertures 39 therein of slightly smaller diameter than apertures 37, and arranged in the same relationship so that when the shell is in place on the drum, each aperture 39 will be positioned substantially coaxially with respect to its corresponding aperture 37 in the drum.

The shell 38 is somewhat shorter in overall

length than the drum 10, extending between the flanges of the drum heads 14 and 15, and is removable therefrom by its fabrication in two pieces 41 and 42, connected to each other by hinges 43 (Fig. 3). The shell is held in assembled relationship on the drum by means of a pair of levered buckles 44, whereby the adjacent ends of shell pieces 41 and 42 may be drawn together and locked. A pair of pins 45 are suitably secured in the drum 10 and extend radially outwardly therefrom to be seated in corresponding apertures in the shell 38, the said pins serving as location devices in placing the shell on the drum so that the apertures 37 and 39 will be found in the described relationship when the shell is mounted on the drum (as shown in Fig. 3).

The internal surface of drum 10 is preferably provided with a liner 50 of rubber, cork, or similar material for dampening and preventing the noise of the revolving mass of coins, and the ends 14 and 15 are likewise provided with such material as indicated by numeral 51. The liner 50 may be formed of a plurality of sections, as clearly shown in Fig. 3, with the adjacent ends abutting and radially inwardly turned to form the ribs 52 extending longitudinally of the drum to mix and tumble the coins of the mass when rotated.

A pair of longitudinally extending plates or baffles 53 are provided between the frames 11 and 12, one at either side of the drum 10, in order to direct coins falling from the drum in its operation toward the tray 54, which is adapted to be removably positioned beneath the drum and between the legs of the end frames.

With the construction for a coin separator shown and described the operation will be clearly apparent. A mixed mass of coins such as, for instance, might be collected from an automatic dispensing machine having coin changing means therein, would comprise five, ten, and twenty-five cent pieces. The mass would be introduced into the drum 10 by removing the end 15, the end then replaced and tightened, and the drum mounted in the framework with the outer shell 38 in place about the drum. The drum is then slowly rotated for several revolutions by crank 30, and the dimes in the mass are dropped out into tray 54 through apertures 37 and 39, the sizes of said apertures being selected for purpose of the example separation, so that dimes and nickels will pass through apertures 37, dimes will pass through apertures 39 but not nickels, and quarters will pass through neither size of aperture.

After the dimes have been dropped out, the outer shell 38 may be easily removed after loosening the levered buckles 44, the tray 54 removed and the dimes taken out or another tray put in place, and further rotation of the drum drops out the nickels into the tray, the quarters remaining alone within the drum. The quarters are easily removable by taking the drum from the framework and removing head 15, and the mixed mass of coins has thereby been separated into the various denominations of different diameters.

Fig. 5 of the drawings discloses a modified embodiment of the invention the operation and construction of which are entirely similar to those of the embodiment just discussed, except that the drum 56, provided as before with a fixed head 57 and a removable head 58, has an outer shell 59 of one piece design adapted to be slipped over the end of the drum when the head 58 is removed and moved axially along the drum to its position between the heads. A location pin 60 on drum 56 cooperates with slot 61 at the end of shell 59 to position the shell on the drum for proper registration of the apertures in each. In operation the drum and shell unit must be removed from the supporting frame and the head 58 removed in order to take off shell 59 during the course of separation.

The invention in its broader aspects is not limited to the specific mechanisms shown and described but departures may be made therefrom, within the scope of the accompanying claims, without departing from the principles of the invention and without sacrificing its chief advantages.

What I claim is:

1. A coin separating device comprising, in combination, a rotatably mounted, apertured drum member and an apertured shell member adapted to be removably mounted on the outer surface of said drum member with the apertures thereof registering with corresponding apertures of said drum member, the apertures of said shell member being less extensive than the corresponding apertures of said drum member.

2. A coin separating device comprising, in combination, a rotatably mounted, apertured drum member and an apertured shell member adapted to be removably mounted on the outer surface of said drum member with the apertures thereof registering with corresponding apertures of said drum member the apertures of said shell member being of smaller diameter than the apertures of said drum member.

3. A coin separating device comprising, in combination, a rotatably mounted, apertured drum member having end closure plates one of said plates being removably mounted on said drum, and an apertured shell member adapted to be removably mounted on the outer surface of said drum member with the apertures thereof registering with corresponding apertures of said drum member, the apertures of said shell member being of smaller diameter than the apertures of said drum member.

4. A coin separating device comprising, in combination, a rotatably mounted, apertured drum member, an apertured shell member adapted to be removably mounted on the outer surface of said drum member with the apertures thereof registering with corresponding apertures of said drum member and guide means secured to said drum member engageable with said shell member to assure such registry of said apertures, the apertures of said shell member being of smaller diameter than the apertures of said drum member.

5. A coin separating device comprising, in combination, a rotatably mounted, apertured drum member having end closure plates and bearing shafts on said plates, an apertured shell member adapted to be removably mounted on the outer surface of said drum member with the apertures thereof registering with corresponding apertures of said drum member, and supporting means for said drum member having journal portions wherein said shafts may be removably journalled, the apertures of said shell member being of smaller diameter than the apertures of said drum member.

6. A coin separating device comprising, in combination, a rotatably mounted, apertured drum member having end closure plates and bearing shafts on said plates, an apertured shell member adapted to be removably mounted on the outer surface of said drum member with the apertures thereof registering with corresponding apertures

of said drum member, supporting means for said drum member having journal portions wherein said shafts may be removably journaled, and a crank element mounted on said supporting means and having a shaft portion journalled in said means and adapted to be detachably connected for driving relationship with one of said shafts, the apertures of said shell member being of smaller diameter than the apertures of said drum member.

7. A coin separating device comprising, in combination, a rotatably mounted, apertured drum member and an apertured shell member adapted to be removably mounted on the outer surface of said drum member with the apertures thereof registering with corresponding apertures of said drum member said shell member comprising a pair of shell sections hingedly secured together, the apertures of said shell member being of smaller diameter than the apertures of said drum member.

8. A coin separating device comprising, in combination, a rotatably mounted, apertured drum member, an apertured shell member adapted to be removably mounted on the outer surface of said drum member with the apertures thereof registering with corresponding apertures of said drum member said shell member comprising a pair of shell sections hingedly secured together, and means for connecting adjacent free edges of said shell sections, the apertures of said shell

member being of smaller diameter than the apertures of said drum member.

9. A coin separating device comprising, in combination, a rotatably mounted, apertured drum member having end closure plates one of said plates being removable, and an apertured, cylindrical shell member adapted to be slipped over the end of said drum member when said one closure plate is removed to be supported on the outer surface of said drum member with the apertures of said shell member registering with corresponding apertures of said drum member, the apertures of said shell member being of smaller diameter than the apertures of said drum member.

10. A coin separating device comprising, in combination, a drum member having circular apertures therein and end closure plates having bearing shafts thereon, a shell member having circular apertures, formed of a pair of hinged shell sections adapted to be positioned around said drum member with the apertures thereof registering with corresponding apertures of said drum member, means for interconnecting adjacent free edges of said shell sections, and supporting means for said drum member having journal portions wherein said shafts may be radially removably mounted, the apertures of said shell member being of smaller diameter than the apertures of said drum member.

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No references cited.