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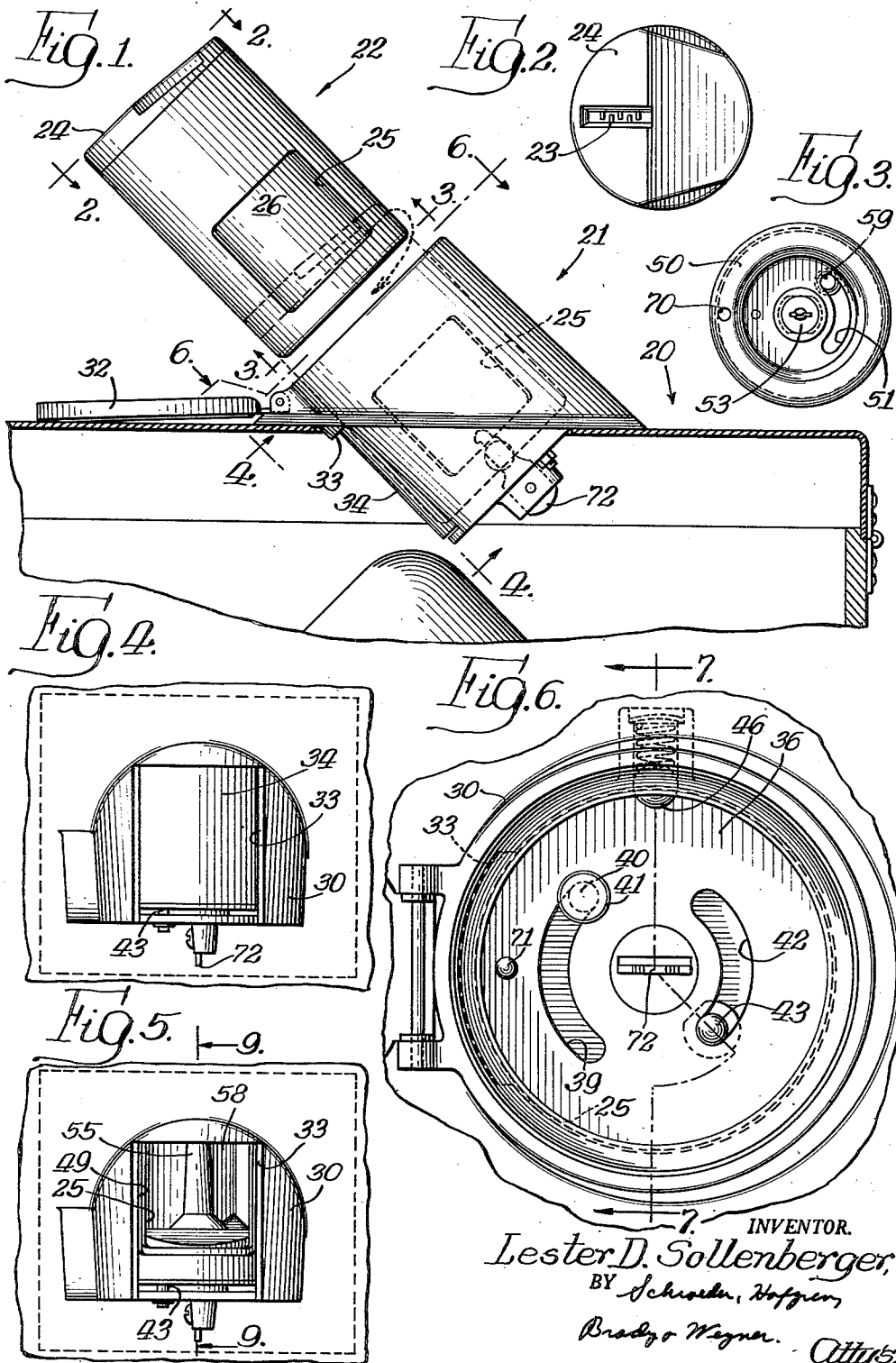
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2,815,166

COIN HANDLING APPARATUS

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3 Sheets-Sheet 1



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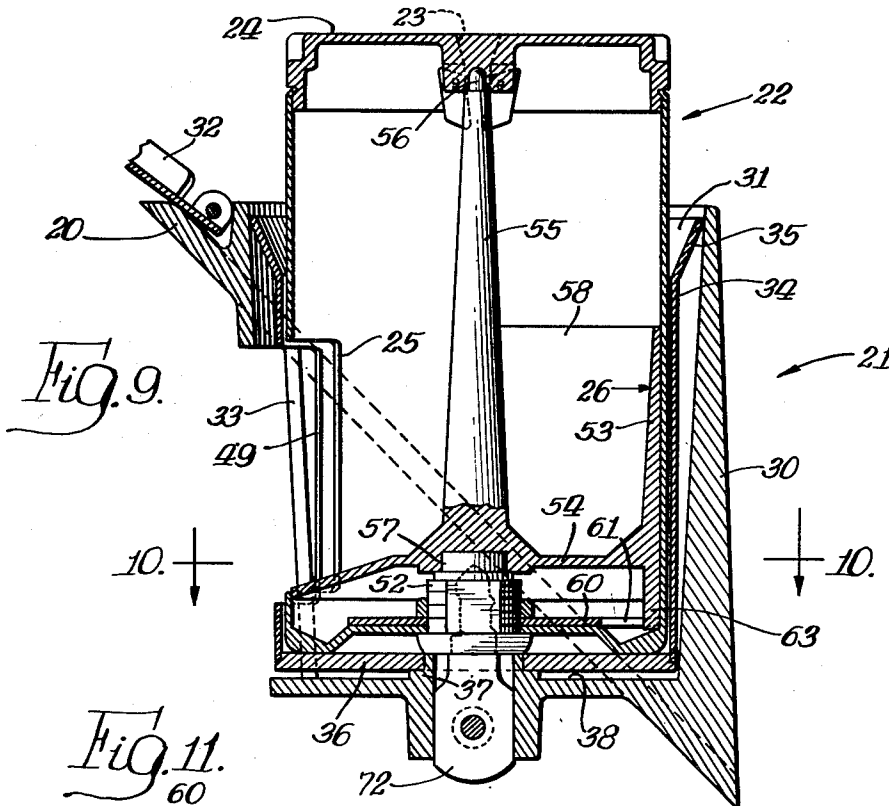
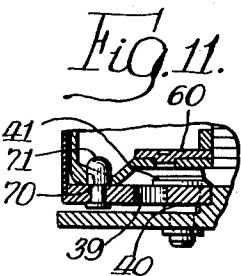
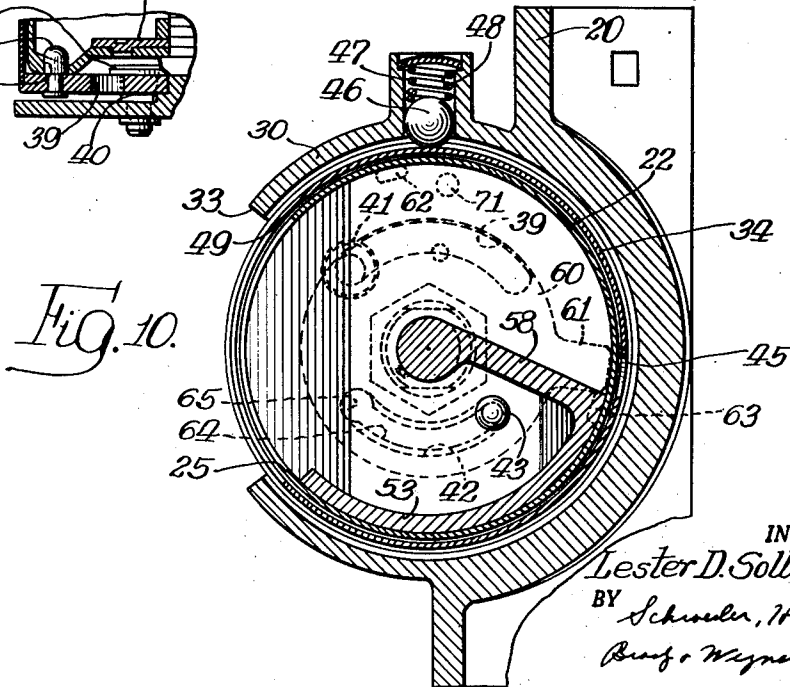
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3 Sheets-Sheet 3



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COIN HANDLING APPARATUS

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8 Claims. (Cl. 232—16)

This invention relates to coin-handling apparatus, and more particularly to coin-handling apparatus particularly adaptable for use in a system for collecting coins from a coin-operated mechanism such as a parking meter or vending machine.

It is the general object of the present invention to produce a new and improved coin-handling apparatus.

It is a more specific object of the invention to produce a coin-handling apparatus including a locked cash box removably mounted within a coin-operated apparatus to receive coins therefrom, together with a coin container for receiving coins from the cash box, with the container being provided with means for opening the cash box only when the cash box is inserted therein, and the coins are thereby inaccessible to the collector.

It is a more specific object of the invention to produce a coin-handling apparatus of the character described in which the container is provided with a receiver housing for receiving the cash box, with the receiver housing mounting a key for unlocking the cash box when the latter is inserted into the receiver housing and rotated, and to provide such an apparatus with means which insures operation even under extreme weather conditions such as freezing and the like.

It is a further object of the invention to produce a coin-handling apparatus of the type described in the preceding paragraph wherein means are provided to prevent pilfering of the coins in the cash box by protecting the key against intentional breakage.

Other and further objects and advantages of the present invention will be readily apparent from the following description and drawings, in which:

Fig. 1 is a side elevational view partly in section of a coin container and cash box embodying the present invention;

Fig. 2 is a sectional view through the top of the cash box taken along line 2—2 of Fig. 1;

Fig. 3 is a bottom elevational view of the cash box taken along line 3—3 of Fig. 1;

Fig. 4 is a side elevational view taken from within the container and showing a portion of the receiver housing;

Fig. 5 is a view like Fig. 4, but showing the parts in coin discharge position;

Fig. 6 is a sectional view taken along line 6—6 of Fig. 1;

Fig. 7 is a sectional view taken along line 7—7 of Fig. 6;

Fig. 8 is a sectional view along line 8—8 of Fig. 7;

Fig. 9 is a longitudinal sectional view through the apparatus of Fig. 1 (rotated so as to appear vertical);

Fig. 10 is a sectional view along line 10—10 of Fig. 9; and

Fig. 11 is a sectional view of the left-hand portion of Fig. 7 showing details of certain parts thereof.

While this invention is susceptible of embodiments in many different forms, there is shown in the drawings and

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will herein be described in detail one specific embodiment, with the understanding that the present disclosure is to be considered as an exemplification of the principles of the invention and is not intended to limit the invention to the embodiment illustrated. The scope of the invention will be pointed out in the appended claims.

As previously indicated, the apparatus of the present invention is particularly adapted for use in collecting coins from a coin-operated mechanism and transferring them into a sealed container for eventual delivery to a collection or auditing point. In the specific embodiment chosen for illustration, the apparatus is designed for use in a system for collecting coins from parking meters, and may be considered an improvement over the apparatus shown in the Broussard Patent 2,430,384. In systems of this nature, the collector is provided with a sealed container 20 which may be mounted on wheels or may be carried, with the container being provided with a receiver housing 21 in its top, being generally cylindrical in shape and proportioned to receive a cash box 22 therein. The cash box 22 is normally installed within a parking meter housing so that coins deposited in the parking meter eventually find their way into the cash box by means of a coin slot 23 in the top 24 thereof. The cash box 22 is provided with a coin discharge opening 25 in its side normally closed by a gate 26 so that when the cash box is removed from the parking meter housing, the coins therein are unavailable to the collector. The cash box and receiver housing are so designed, however, as to permit the gate 26 to be opened only when the cash box is inserted fully within the coin receiver housing and the coin discharge opening 25 covered thereby, so that only when so inserted can the coins be removed from the cash box. When the cash box is so inserted and the gate operated to open the coin discharge opening, the cash box cannot be withdrawn from the receiver housing until the parts are again operated as to cause the gate 26 to close the coin discharge opening.

For the foregoing purposes, the receiver housing 21 comprises a generally cylindrical neck portion 30 extending from the top of the container 20 and providing therein a generally cylindrical recess 31. A hinged cover 32 is provided to close the outer open end of the recess when a cash box is not inserted therein. The cylindrical neck 30 is provided with a coin discharge opening 33 within the confines of the container 20 and opening downwardly from the neck with the coin discharge opening 33 being normally closed by the walls of a sleeve 34 rotatably mounted within the recess 31. The sleeve 34 is provided with a flared top 35 to guide the cash boxes into the recess as they are inserted and with a bottom plate 36 rotatably supported on a hollow stepped boss 37 forming a part of the bottom 38 of the recess.

To hold the sleeve in position in the recess, it is provided with an arcuate slot 39 in its bottom to receive a retainer pin 40 having an enlarged head 41 overlying the slot. The bottom of the sleeve is provided with a second arcuate slot 42, through which an actuator pin 43 extends, with the latter being secured to the bottom 38 of the recess, and being provided with a portion 44 of reduced diameter for purposes hereinafter to be described. The sleeve is also provided with an opening 45 positioned to receive a ball 46 urged therein by a spring 47 positioned in a spring chamber 48 formed in the neck 30. With the ball seated in the opening 45 as illustrated in Fig. 8, the coin discharge opening 33 in the neck is closed as previously described. The sleeve may be rotated in order to bring a coin discharge opening 49 provided therein into registry with the coin discharge opening 33 in the receiver housing, so that when the coin discharge opening of an inserted cash box is opened, coins in the cash box may

pass through the various coin discharge openings and fall downwardly into the container.

Referring specifically to Figs. 3, 7 and 9, it will be noted that the cash box 22 is generally cylindrical in shape and provided with a round bottom 50 having an arcuate groove 51 therein adapted to receive the actuator pin 43. A cylinder lock 52 is provided in the center of the bottom to lock the gate 26 in position closing the coin discharge opening 25. The gate comprises upstanding wall 53 proportioned to closely overlie the coin discharge opening along the interior walls of the cash box, with the gate being integrally secured to a circular gate bottom 54 rotatably mounted within the cash box. For this purpose the gate is provided with a central axle part 55 rotatably mounted at its top in a bearing 56 and secured by a pin 57a at its bottom to the plug 57 of the lock 52 so as to rotate with the plug as the latter is rotated relative to the lock cylinder. A radial wall 58 extends from one side of the gate to the axle part so that coins within the cash box will fall downwardly when the gate opens the coin discharge opening 25, i. e. when the parts are in the position shown in Fig. 10 (as shown in that figure, downwardly is to the left). The bottom 54 of the gate is provided with a hole 59 to receive the top of the actuator pin 43, as illustrated in Fig. 7.

Below the bottom 54 of the gate mechanism and above the bottom 50 of the cash box, there is positioned a locator plate 60 fixed to the interior surface of the bottom 50 and provided with a finger portion 61 adapted to contact a pair of spaced lugs 62 and 63 formed on the gate bottom 54 and serving to limit the relative movement between the gate mechanism and the cash box.

The plate 60 is provided with an arcuate slot having a portion 64 of a diameter less than the diameter of the pin 43, except at the reduced portion 44. The portion 64 of the slot is in registry with the slot 42 in the bottom of the sleeve, and has a second portion 65 of sufficiently enlarged diameter as to be capable of receiving the pin 43 therein.

To provide a driving connection between the cash box and the sleeve, the former is provided with a hole 70 in its bottom adapted to receive an integrator pin 71 fixed to the bottom of the sleeve, so that when the pin is engaged in the hole, the cash box and sleeve may rotate as a unit.

A key 72 is fixed within the hollow of the boss 37 and adapted to enter the lock 52 to permit relative rotation between the gate mechanism 26 and the cash box.

The operation of the coin-handling apparatus of the present invention is believed to be clear from the foregoing description. When a cash box containing coins is inserted into the recess in the receiver housing, the actuator pin 43 passing through the slot 42 in the bottom of the sleeve and the enlarged portion 65 of the slot in the locator plate enters the hole 59 in the bottom of the gate, and thus holds the gate stationary. Simultaneously, the key 72 enters the lock 52, the integrator pin 71 enters the opening 70, and the box unseats the ball 46 from the opening 45. If the cash box is now rotated with the parts in this position, the key permits relative rotation between the lock 52 which is fixed to the cash box and the gate mechanism 26, and thus the latter remains stationary as the box is rotated. Such rotation of the box moves the coin discharge opening 25 therein to a position where it is no longer closed by the gate wall 53. The engagement of the integrator pin 71 with the cash box causes the sleeve 34 to rotate with the cash box, as the latter is rotated as just described, until the coin discharge opening 49 in the sleeve is in registry with the coin discharge opening 33 in the receiver housing. In this position (illustrated in Fig. 10), all of the coin discharge openings are open and in registry, with such registry being insured by the contact of the finger 61 with the lug 63 as the cash box is rotated. Referring to Fig. 10, it will be noted that to achieve the registry, the cash box 22

was rotated in a clockwise direction, thus moving the wall 58 to a position where no coins will be retarded thereby and where they can readily fall to the left (downwardly), as seen in Fig. 10.

As previously indicated throughout the foregoing description, pilfering of coins is not an uncommon practice, but is rendered a good deal more difficult by the apparatus of the present invention. In the first place, it is not possible to break off the key 72 by inserting the cash box only part way into the recess and then rotating it. If it were possible to break off the key in this manner, the broken portion of the key might be sufficient to permit operation of the lock, and as the key fits all cash boxes, a good deal of pilfering could occur. With the present invention, however, the actuator pin 43 will not travel in the slot portion 64 unless the cash box is fully seated within the recess to bring the reduced portion 44 of the pin into alignment with the slot portion 64. Furthermore, no strain is placed on the key as the parts are rotated. In cold weather, ice often accumulates in the movable portions of the cash box, and it might be possible to break off the key even unintentionally in systems wherein the key transmits the force of rotation to the various parts. In the present invention, relative rotation between the cash box and the gate mechanism is accomplished by means of the actuator pin 43, which holds the gate as the operator rotates the cash box. Furthermore, rotation of the sleeve 34 is accomplished through the driving connection between it and the cash box provided by the integrator pin 71 engaging the opening 70. Thus, no strain is placed upon the key, even should the various parts be difficult to rotate or move, inasmuch as pin driving connections rather than key driving connections are provided between such parts.

I claim:

1. Coin handling apparatus comprising a closed coin container; a receiver housing on the container having a generally cylindrical receiving recess therein and having a coin discharge opening within the container; an actuating pin fixed in the recess and extending generally axially thereof; a generally cylindrical sleeve mounted in the recess, said sleeve having a coin discharge opening therein and being rotatable from a first position in which said discharge openings are aligned to a second position in which said discharge openings are misaligned; a closed cash box having a coin discharge opening therein; a gate in the cash box and rotatable relative thereto to control the discharge opening therein, said cash box having an arcuate slot in its bottom to receive said actuating pin; a lock in the cash box locking the gate against opening movement relative to the coin discharge opening in the cash box; a key fixed in the bottom of the recess, said key being positioned to enter the lock and the pin being positioned to enter the slot and engage the gate when the cash box is inserted into the sleeve; and means providing a driving connection between the box and the sleeve when the box is so inserted into the sleeve, whereby rotation of the inserted box within the recess will unlock the gate and rotate the box relative thereto to open the coin discharge opening in the box, said rotation serving to rotate the sleeve to said first position to permit coins in the box to pass into the container.

2. Coin handling apparatus comprising a closed coin container; a receiver housing on the container having a generally cylindrical receiving recess therein and having a coin discharge opening within the container; an actuating pin having a portion of reduced diameter and extending generally axially of the recess and fixed therein; a generally cylindrical sleeve mounted in the recess, said sleeve having a coin discharge opening therein and being rotatable from a first position in which said discharge openings are aligned to a second position in which said discharge openings are misaligned; a closed cash box having a coin discharge opening therein; a gate in the cash box and rotatable relative thereto to control the

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discharge opening therein, said cash box having an arcuate slot in its bottom, with the slot proportioned at one end to receive the pin and being narrower along its length to receive only the reduced portion of said pin; a lock in the cash box locking the gate against opening movement relative to the coin discharge opening in the cash box; a key fixed in the bottom of the recess, said key being positioned to enter the lock and the pin being positioned to enter said end of the slot and engage the gate, with said reduced portion of the pin being positioned in the slot, only when the box is fully inserted in the sleeve; and means providing a driving connection between the box and the sleeve when the box is so inserted into the sleeve, whereby rotation of the inserted box within the recess will unlock the gate and rotate the box relative thereto to open the coin discharge opening in the box, said rotation serving to rotate the sleeve to said first position to permit coins in the box to pass into the container.

3. Coin handling apparatus comprising a closed coin container; a receiver housing on the container having a cylindrical receiving recess therein and having a coin discharge opening in its lower wall and within the container; an actuating pin fixed in the recess and extending generally axially thereof; a cylindrical sleeve mounted in the recess, said sleeve having a coin discharge opening therein and being rotatable from a first position in which said discharge openings are aligned to a second position in which said discharge openings are misaligned; a closed cylindrical cash box having a coin discharge opening therein; a gate in the cash box and rotatable relative thereto to control the coin discharge opening therein; a locator plate in the bottom of the cash box and fixed thereto, said plate having a finger portion engageable with spaced stops on the gate to limit the rotative movement between the gate and box, said plate and the bottom of the cash box having aligned cutout portions forming a slot to receive said actuating pin; a lock in the cash box locking the gate against opening movement relative to the coin discharge opening in the cash box; a key fixed in the bottom of the recess, said key being positioned to enter the lock and the pin being positioned to enter the slot and engage the gate when the cash box is inserted into the sleeve; and means providing a driving connection between the box and the sleeve when the box is so inserted into the sleeve, whereby rotation of the inserted box within the recess will unlock the gate and rotate the box relative thereto to open the coin discharge opening in the box, said rotation serving to rotate the sleeve to said first position to permit coins in the box to pass into the container.

4. Coin handling apparatus comprising a closed coin container; a receiver housing on the container having a generally cylindrical receiving recess therein and having a coin discharge opening within the container; an actuating pin having a portion of reduced diameter and extending generally axially of the recess and fixed therein; a generally cylindrical sleeve mounted in the recess, said sleeve having a coin discharge opening therein and being rotatable from a first position in which said discharge openings are aligned to a second position in which said discharge openings are misaligned; a closed cylindrical cash box having a coin discharge opening therein; a gate in the cash box and rotatable relative thereto to control the coin discharge opening therein; a locator plate in the bottom of the cash box and fixed thereto, said plate having a finger portion engageable with spaced stops on the gate to limit the rotative movement between the gate and box, said plate and the bottom of the cash box having aligned cutout portions forming a slot proportioned at one end to receive the actuating pin and being narrower along its length to receive only the reduced portion of said pin; a lock in the cash box locking the gate against opening movement relative to the coin discharge opening in the cash box; a key fixed in the bottom

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of the recess, said key being positioned to enter the lock and the pin being positioned to enter said end of the slot and engage the gate, with said reduced portion of the pin being positioned in the slot, only when the box is fully inserted in the sleeve; and means providing a driving connection between the box and the sleeve when the box is so inserted into the sleeve, whereby rotation of the inserted box within the recess will unlock the gate and rotate the box relative thereto to open the coin discharge opening in the box, said rotation serving to rotate the sleeve to said first position to permit coins in the box to pass into the container.

5. Coin handling apparatus comprising a closed coin container; a receiver housing on the container having a generally cylindrical receiving recess therein and having a coin discharge opening within the container; an actuating pin having a portion of reduced diameter and extending generally axially of the recess and fixed therein; a generally cylindrical sleeve mounted in the recess, said sleeve having a coin discharge opening therein and being rotatable from a first position in which said discharge openings are aligned to a second position in which said discharge openings are misaligned; a closed cylindrical cash box having a coin discharge opening therein; a gate in the cash box and rotatable relative thereto to control the coin discharge opening therein; a wall fixed to the gate and extending therefrom radially inwardly of the box; a locator plate in the bottom of the cash box and fixed thereto, said plate having a finger portion engageable with spaced stops on the gate to limit the rotative movement between the gate and box, said plate and the bottom of the cash box having aligned cutout portions forming a slot proportioned at one end to receive the actuating pin and being narrower along its length to receive only the reduced portion of said pin; a lock in the cash box locking the gate against opening movement relative to the coin discharge opening in the cash box; a key fixed in the bottom of the recess, said key being positioned to enter the lock and the pin being positioned to enter said end of the slot and engage the gate, with said reduced portion of the pin being positioned in the slot, only when the box is fully inserted in the sleeve; and means providing a driving connection between the box and the sleeve when the box is so inserted into the sleeve, whereby rotation of the inserted box within the recess will unlock the gate and rotate the box relative thereto to open the coin discharge opening in the box, said wall lying in a vertical plane to prevent coins from being retarded thereby, so the coins in the box will fall to the opening therein, said rotation serving to rotate the sleeve to said first position to permit coins to drop from the box into said container.

6. Coin handling apparatus comprising a closed coin container; a receiver housing on the container having a generally cylindrical receiving recess therein and having a coin discharge opening within the container; an actuating pin fixed in the recess and extending generally axially thereof; a closed generally cylindrical cash box having a coin discharge opening therein; a gate in the cash box and rotatable relative thereto to control the discharge opening therein, said cash box having an arcuate slot in its bottom to receive said actuating pin; a lock in the cash box locking the gate against opening movement relative to the coin discharge opening in the cash box; and a key fixed in the bottom of the recess, said key being positioned to enter the lock and the pin being positioned to enter the slot and engage the gate when the cash box is inserted into the recess, whereby rotation of the inserted box will unlock the gate and rotate the box relative thereto to open the coin discharge opening of the box to permit coins to pass through the coin discharge opening in the housing and into the container.

7. Coin handling apparatus comprising a closed coin container; a receiver housing on the container having a generally cylindrical receiving recess therein and having a coin discharge opening within the container; an actuat-

ing pin having a portion of reduced diameter and extending generally axially of the recess fixed therein; a closed generally cylindrical cash box having a coin discharge opening therein; a gate in the cash box and rotatable relative thereto to control the discharge opening therein, said cash box having an arcuate slot in its bottom with the slot being proportioned at one end to receive the pin and being narrower along its length to receive only the reduced portion of the pin; a lock in the cash box locking the gate against opening movement relative to the coin discharge opening in the cash box; and a key fixed in the bottom of the recess, said key being positioned to enter the lock and the pin being positioned to enter said end of the slot and engage the gate, with said reduced portion of the pin being positioned in the slot, only when the box is fully inserted in the recess, whereby rotation of the inserted box within the recess will unlock the gate and rotate the box relative thereto to open the coin discharge opening of the box to permit coins to pass through the coin discharge opening in the housing and into the container.

8. Coin handling apparatus comprising a closed coin container; a receiver housing on the container having a generally cylindrical receiving recess therein and having

a coin discharge opening within the container, an actuating member fixed in the recess; a generally cylindrical cash box having a coin discharge opening therein; a gate in the cash box and rotatable relative thereto to control the discharge opening therein, said cash box having an opening therein to receive said actuating member; a lock in the cash box locking the gate against opening movement relative to the coin discharge opening in the cash box; a key fixed in the bottom of the recess, said key being positioned to enter the lock and the actuating member being positioned to enter the member receiving opening in the cash box and to engage the gate when the cash box is inserted into the recess; whereby rotation of the inserted box within the recess will unlock the gate and rotate the box relative thereto to open the coin discharge opening of the box to permit coins to pass through the coin discharge opening in the housing and into the container.

References Cited in the file of this patent

UNITED STATES PATENTS

1,011,815	Kohler	Dec. 12, 1911
2,430,384	Broussard	Nov. 4, 1947
2,613,871	Broussard	Oct. 14, 1952