Sept. 2, 1947. O. A. SHANN 2,426,649

COIN COLLECTOR

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FIG. 1.

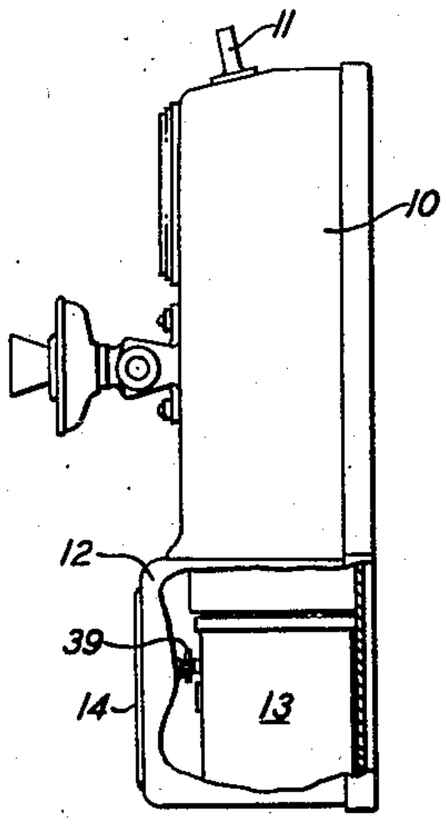


FIG. 3.

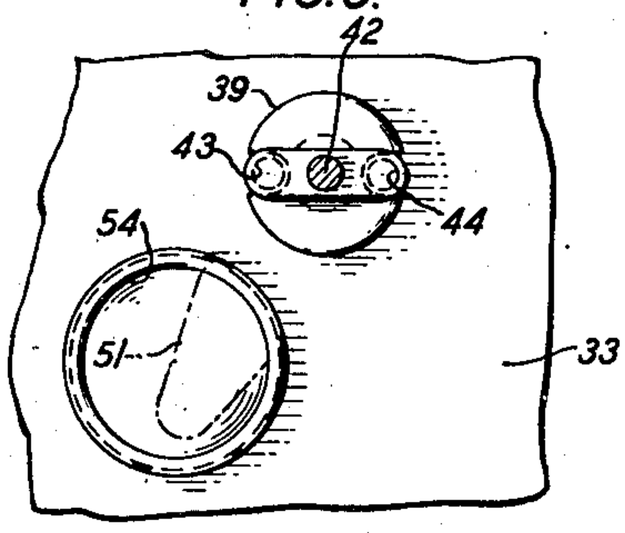
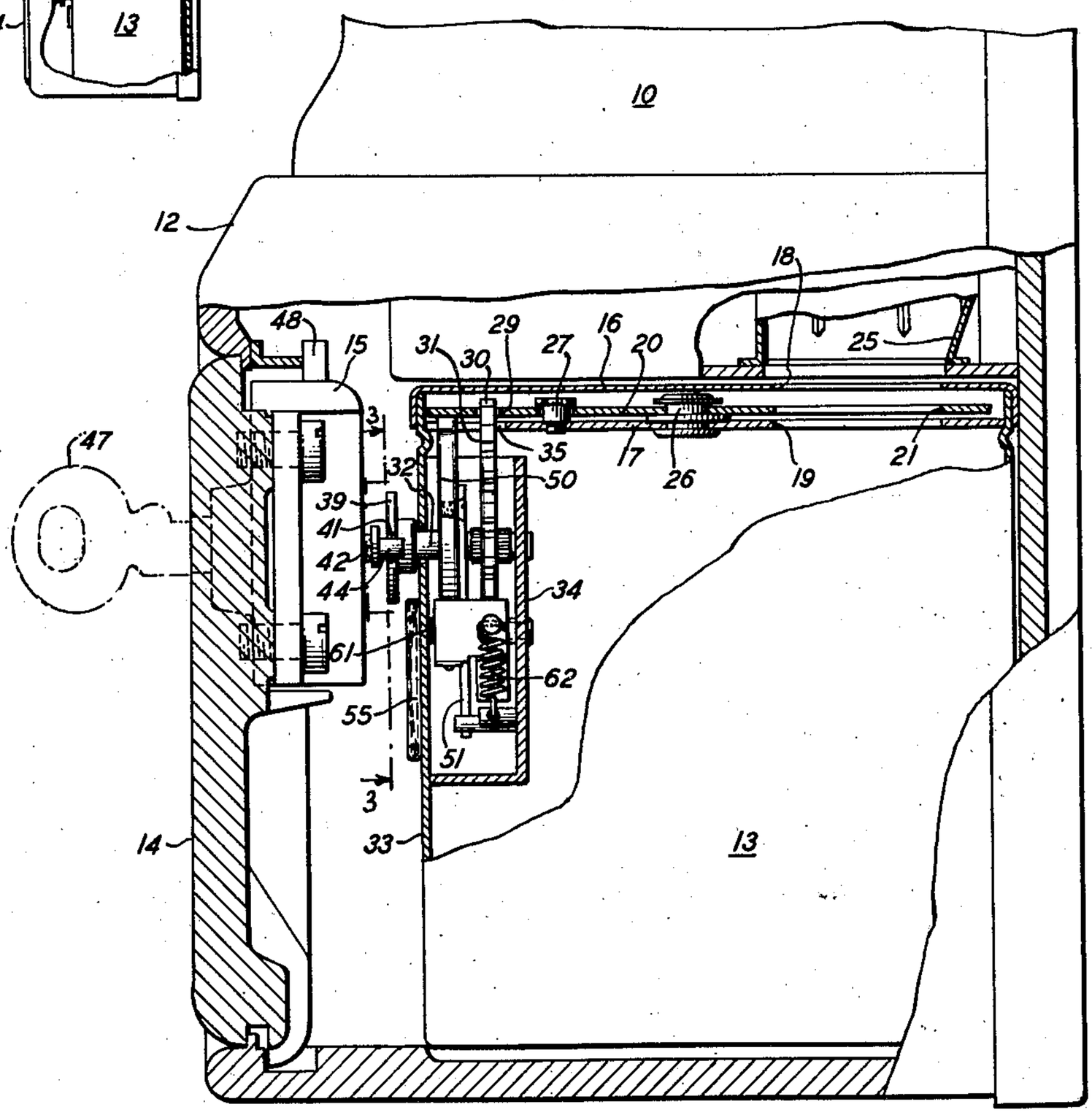


FIG. 2.



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COIN COLLECTOR

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FIG. 4.

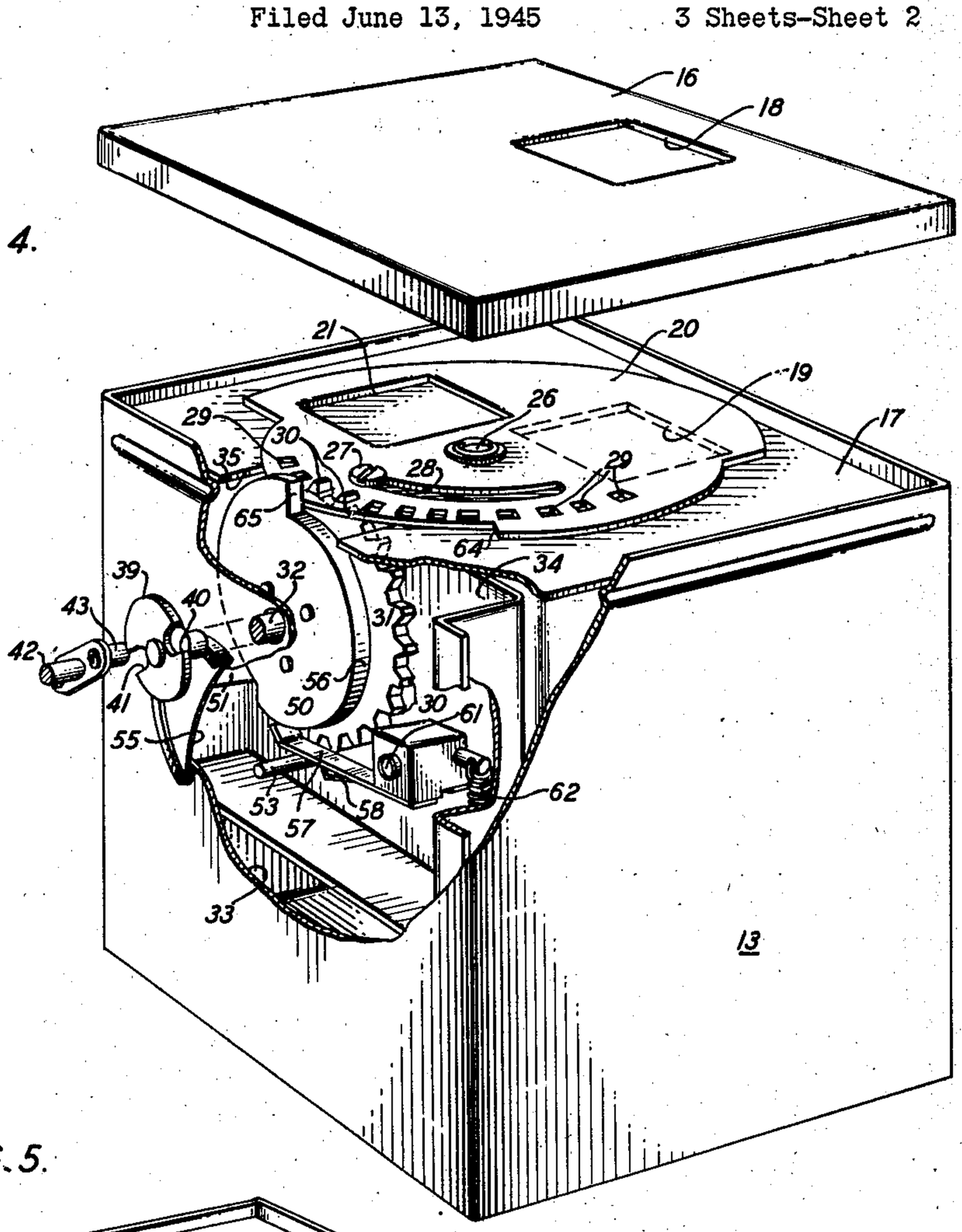

FIG. 5.

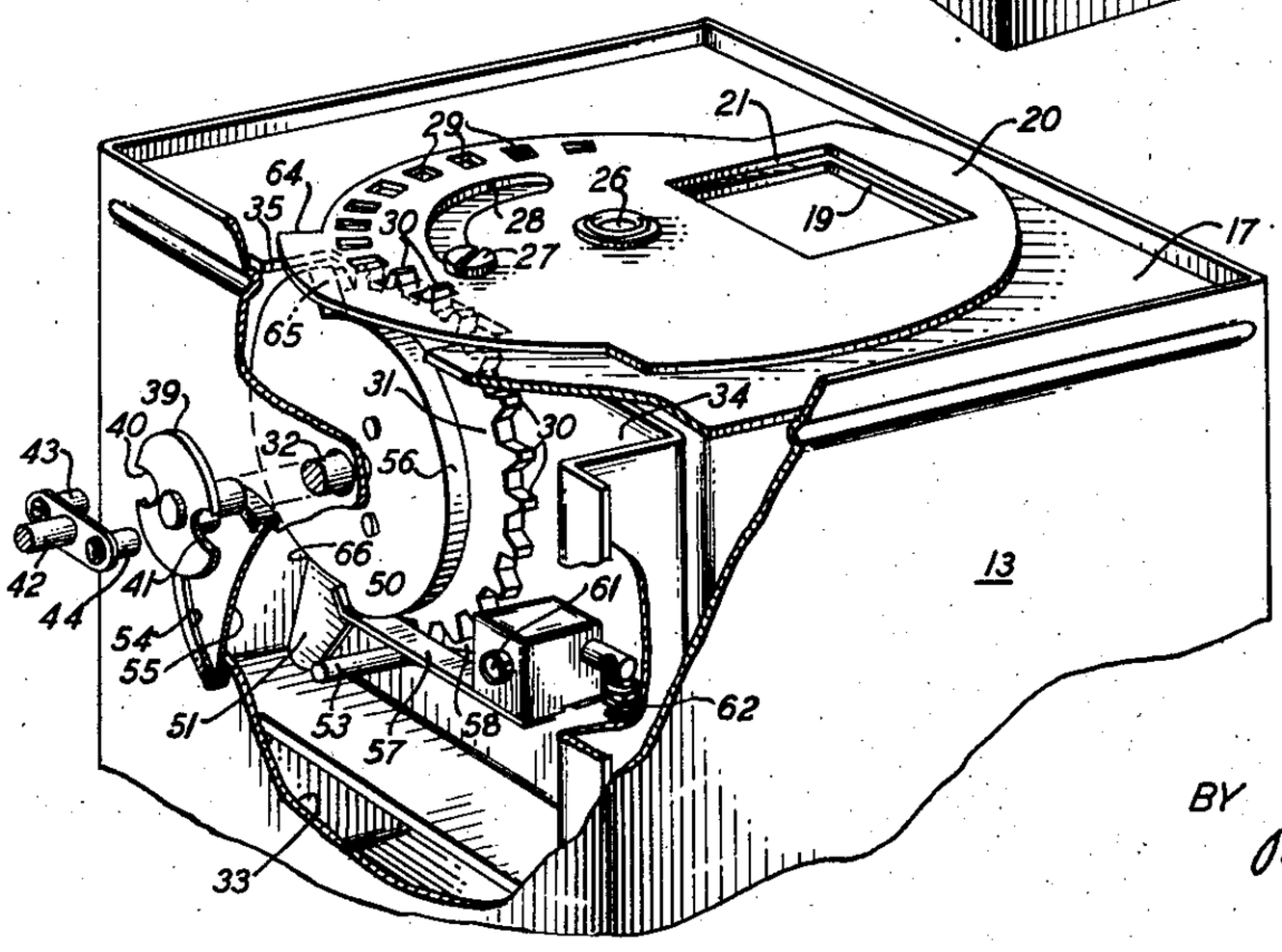

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FIG. 6

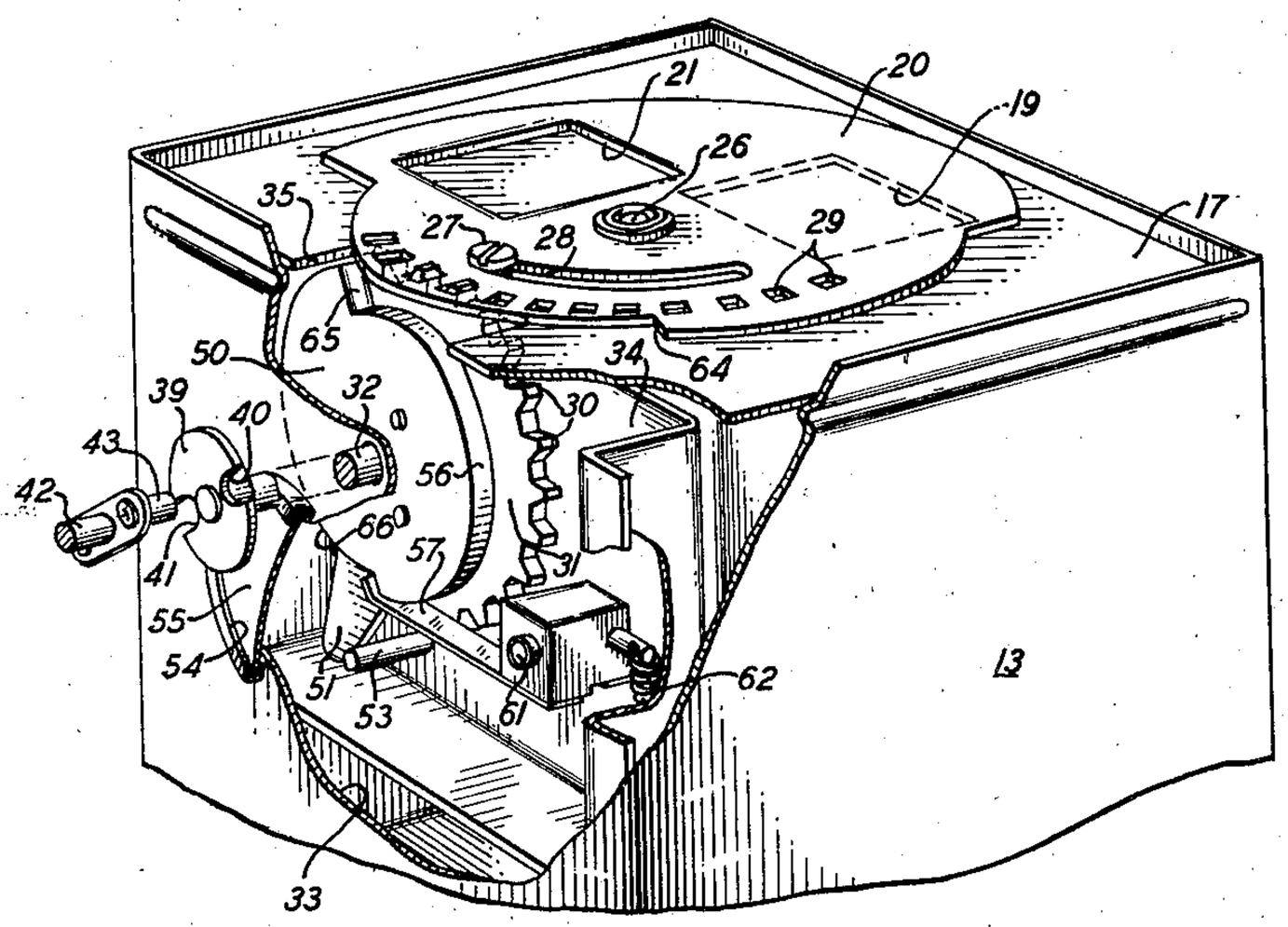


FIG. 7.

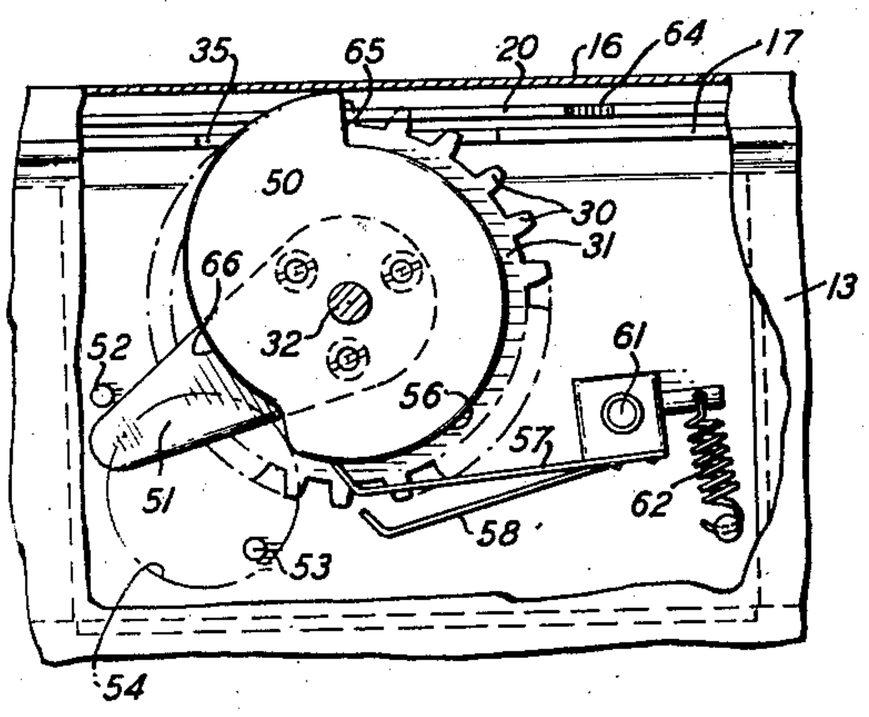
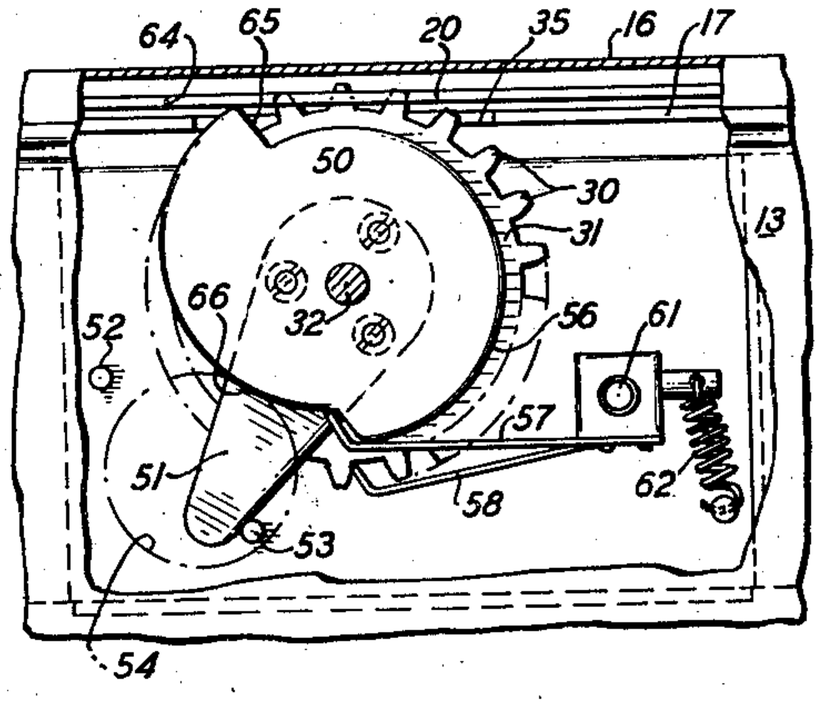


FIG. 8.



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Patented Sept. 2, 1947 2,426,649

UNITED STATES PATENT OFFICE

2,426,649

COIN COLLECTOR

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Application June 13, 1945, Serial No. 599,166

8 Claims. (Cl. 232—16)

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This invention relates to coin collectors and has for an object the provision of an improved type of cash compartment for safeguarding the coins deposited therein.

The invention is of particular utility in connection with telephone coin collectors which are usually provided with a locked compartment adapted to house a coin box or receptacle containing an aperture to permit deposited coins to enter the receptacle. The front wall of the compartment usually includes a door provided with a key-operated lock to guard the compartment except when access to the coin receptacle is desired. It is also advantageous to have incorporated as part of the receptacle a locking member for closing the coin aperture before a coin-filled receptacle is withdrawn from the collector for transportation to the telephone central offce.

In accordance with the preferred embodiment of the invention the coin receptacle is provided with a rotatable shutter adapted to occupy two positions, in one position closing the coin receiving aperture in the receptacle, and in the second position opening the aperture. The means for moving the shutter from one of these positions to the other is preferably mounted on a rotatable shaft which projects beyond the front wall of the receptacle for engagement with an extension of the lock center of the compartment door lock whereby the turning of the key to lock the door moves the shutter to aperture opening position and the turning of the key to unlock the door moves the shutter to aperture closing position.

Preferably the shutter operating mechanism is provided with latching means adapted to be set at the central office whereby the shutter can be moved to aperture opening position only once before the receptacle is returned to the central office.

Referring to the drawings:

Fig. 1 is a side view partly in section of a telephone coin collector embodying this invention;

Fig. 2 is an enlarged side view of the lower portion of the collector of Fig. 1 with certain parts torn away to disclose the coin receptacle and the shutter operating mechanism;

Fig. 3 is a front view of a portion of the coin receptacle of Fig. 2 taken in the direction indicated by the arrows 3, 3 shown on Fig. 2;

Fig. 4 is another view of the coin receptacle of Fig. 2 with the box cover removed and the side walls torn away to disclose the shutter and its control mechanism in their relative positions ready for the insertion of the receptacle in the cash compartment of the collector;

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Fig. 5 is similar to Fig. 4 except that the shutter has been operated to open the coin aperture for the reception of deposited coins;

Fig. 6 is similar to Fig. 5 except that the shutter has been operated to close the coin aperture and has been locked in that position;

Fig. 7 is a detail view of the latching mechanism for the shutter with the latching mechanism temporarily rendered ineffective; and

Fig. 8 is similar to Fig. 7 except that the latching mechanism is shown operated to prevent the shutter from being moved from its closed position.

For illustrative purposes, the invention has been shown embodied in a telephone coin collector of the general type disclosed in the Forsberg United States Patent 1,043,219, issued November 5, 1912. As shown in Fig. 1, such a coin collector usually comprises an upper housing 10 provided with a coin gauge 11 having coin entrance slots to permit coins to be deposited. If the collector is of the prepay type, the deposited coins are temporarily held within the upper housing for subsequent collection or refund depending on whether or not the desired telephone connection is established. The lower housing 12 is usually provided with a refund chute for coin return if the call is not established and with a cash compartment containing a portable coin receptacle 13 for receiving the coins if the desired connection is completed. The present invention is primarily concerned with an improved type of coin receptacle, the details of which are shown in the subsequent Figs. 2 to 8 inclusive.

In Fig. 2 the portable coin receptacle 13, which is preferably of metal, is shown in coin receiving position within the cash compartment of the lower housing 12. The front wall of the cash compartment comprises a door 14 having a lock 15 to prevent access to the cash compartment except by an authorized person equipped with a proper key. This door, for example, may be of the type disclosed in the Hoyt United States Patent 2,025,390, issued December 24, 1935, except for a modification of the lock structure which will be described later.

The top of the receptacle comprises two spaced walls 16 and 17 having aligned openings 18 and 19; and between these two walls lies a rotatable shutter 20 which also contains an opening 21 adapted to be aligned with openings 18 and 19. It will be apparent from Fig. 2 that when the receptacle 13 is properly placed within the cash compartment of the collector, the three openings 18, 19 and 21 when properly aligned lie imme-

diately below the lower end of the collect chute 25 whereby any coins directed into chute 25 will fall through openings 18, 19, 21 into the receptacle.

As shown in Figs. 2, 4 and 5, the shutter 20 is rotatable about a centrally located pin 26 which is suitably fastened to the lower stationary wall 17. The amount of rotation permitted in shutter 20 is determined by a bolt 27 projecting upwardly from wall 17 through an arcuate slot 28 in shutter 20. In Fig. 4, the shutter 20 lies in its maximum counter-clockwise position with bolt 27 engaging one end of slot 28 and with the shutter opening 21 about 90 degrees removed from the fixed wall opening 19; in Fig. 5 the shutter 20 is in its maximum clockwise position with bolt 27 engaging the opposite end of slot 28 and with shutter opening 21 in alignment with the fixed wall opening 19.

In order to actuate shutter 20 from one of its positions of Fig. 4 or Fig. 5 to its other position, the shutter 20 near its periphery has an arcuate row of spaced slots 29 adapted to be engaged by the teeth 30 of a driving wheel 31 fixed to a horizontal rotatable shaft 32 suitably mounted in apertures in vertical walls 33, 34. Wall 17 contains a slot or opening 35 to permit the teeth of wheel 31 to engage shutter 20. Shaft 32 extends beyond the front wall 33 of the receptacle and terminates in a disk or coupling member 39 containing two opposed slots 40, 41. The relative location of shaft 32 in front wall 33 is such that when the receptacle 13 lies in its normal position within the cash compartment of the collector, shaft 32 is in alignment with the key-operated lock center of the lock 15 which forms a part of the door 14. As shown in Fig. 2 this key-operated lock center has a forked extension 42 projecting rearwardly from the lock housing and terminating in two spaced pins 43, 44 which, when the door is in position, are adapted to enter slots 40, 41 respectively, to couple lock center extension 42 with shaft 32.

When the coin receptacle, such as receptacle 13, is first placed within the cash compartment of the collector, it is desirable that the shutter 20 be in aperture closing position as shown in Fig. 4, for which condition, in the embodiment shown, the slots 40 and 41 in the coupling member 39 have the angular position shown in Fig. 4. Hence, when the unlocked door 14 is placed in position, the two pins 43, 44 carried by the extension of the lock center should be so arranged that they occupy the angular position shown in Fig. 4 whereby in the placing of the unlocked door 14 in position, pin 43 will enter slot 40 and pin 44 will enter slot 41 to couple shaft 32 with the lock center. When the key 47 is inserted in the key slot of lock 15 and is rotated to move the lock bolt 48 from its retracted position to its advanced locking position shown in Fig. 4, the key center and hence the key center extension 42 are turned in a counter-clockwise direction whereby coupling member 39 is rotated from its position in Fig. 4 to its position in Fig. 5 so that the manual turning of key 47 from unlocked condition to locked condition produces a rotation of shaft 32 of about one-half turn in the illustrated embodiment. Since the toothed wheel 31 is rigidly mounted on shaft 32 it follows that the rotation of shaft 32 from its position of Fig. 4 to its position of Fig. 5 rotates shutter 20 to bring the shutter opening 21 into alignment with the aperture 19. It similarly follows that the turning of key 47 from locking position to unlocking position will rotate the shutter in the reverse manner from its position of Fig. 5 back to its position of Fig. 4.

The above described arrangement for placing the position of the shutter 20 under the control of key 47, whereby with the key in locked position the coin receiving aperture in the receptacle is open and with the key in unlocked position the coin receiving aperture is closed, may be further modified to safe guard the contents of the receptacle after a coin-filled receptacle has been removed from the collector. This safety device may comprise latching mechanism which, when initially set, will permit the shutter to be moved only once from aperture closing position to aperture opening position after which the mechanism will lock the shutter in aperture closing position until the latch has been reset. One form of this latching mechanism will now be described.

Mounted for free rotation about shaft 32 is a cam wheel 50 to which is rigidly attached a depending lever 51 whereby the maximum motion of wheel 50 is determined by the engagement of lever 51 with either one of the stop pins 52, 53 (Figs. 7 and 8). Lever 51 is accessible for adjustment by means of a circular opening 54 in the front wall 33 of the receptacle. In preparing an empty receptacle for use in a coin collector a suitable tool is inserted through opening 54 to engage lever 51 and move the lever clockwise until it engages stop pin 52 shown in Fig. 7; and while still maintaining lever 51 against stop pin 52 the shaft 32 is rotated by hand to place shutter 20 in its aperture closing position as in Fig. 4. Opening 54 is then closed with a suitable seal 55 which may, for example, comprise a disk of a partially cured thermosetting material which is fully cured after it is snapped into a locking position closing the opening whereby the subsequent removal of the seal is prevented except by breakage.

With tooth wheel 31 and cam wheel 50 in their positions just described and with shutter in its aperture closing position, the various movable parts are in relative positions disclosed in Figs. 4 and 7. It will be noted from Figs. 4 and 7 that the cam surface 56 of wheel 50 is engaged by the free end of a spring biased arm 57. Arm 57 and a latching member 58 are angularly displaced from each other but are suitably mounted for movement as a unit about a shaft 61, being biased for clockwise motion by a coiled spring 62 which simultaneously urges arm 57 against cam surface 56 and latch 58 towards toothed wheel 59, but as long as arm 57 is riding on cam surface 56 the latch member 58 is held away from the toothed wheel 59 as shown in Fig. 7.

With the various movable parts of the receptacle in their relative positions shown in Figs. 4 and 7, the receptacle is ready to be inserted in a collector to receive deposited coins. After the insertion of the receptacle in the cash compartment, the replacement of door 14 and the locking of the door by turning of key 47 will move shaft 32 from its position of Fig. 4 to its position of Fig. 5 resulting in the clockwise movement of shutter 20 from aperture closing position to aperture opening position. Cam wheel 50 is not staked to shaft 32 but is movable independently of the shaft and, hence, there is no movement of cam wheel 50 due to the rotation of shaft 32 just described. However, the clockwise rotation of shutter 20 from its position of Fig. 4 to its position of Fig. 5 causes

shoulder 64 on shutter 20 to engage shoulder 65 on cam wheel 50 and causes the cam wheel to rotate counter-clockwise from its position of Fig. 4 to its position of Fig. 5. This movement of wheel 50 moves cam surface 56 out of engagement with spring pressed arm 57 to permit the arm to move farther towards shaft 32 to engage cam surface 66; and since arm 57 and latch member 58 are joined together this additional movement of arm 57 to permit it to ride on cam surface 66 permits latching member 58 to enter between the teeth on wheel 31 as shown in Fig. 8 thereby preventing any subsequent counter-clockwise rotation of toothed wheel 31 while permitting its movement in a clockwise direction

The relative positions of the various parts of the receptacle as shown in Figs. 2, 5 and 8 are retained while the receptacle lies in the cash compartment of the collector for collecting deposited coins. Whenever it is desired to remove the receptacle, the unlocking of door 14 by the turning of key 47 rotates the shaft 32 in such a direction as to move shutter 20 from its aperture opening position of Fig. 5 to aperture closing position of Fig. 6, with which movement latch member 58 does not interfere. However, when the shutter 20 has reached its aperture closing position of Fig. 6, the shutter cannot now be moved back to aperture opening position because it is locked against such movement by latching member 58.

When it is desired to remove the money from the receptacle it is necessary to break the seal 55 and by means of a tool inserted through opening 54 move lever 51 over against stop pin 52 which movement again causes arm 57 to ride on cam surface 56 and thence throws latching member 58 out of engagement with the toothed wheel 50 as shown in Fig. 7. Shaft 32 may then be rotated clockwise to move shutter 20 to aperture opening position so that by turning the receptacle upside down it may be emptied of the collected money.

For illustrative purposes, the top wall 16 of the receptacle has been removed from the receptacle in Fig. 4 to disclose the shutter operating mechanism, while in Figs. 5 and 6 the top wall 16 is entirely absent for the same reason. It is intended that cover 16 should be welded or otherwise permanently fastened to the side walls of the receptacle.

It is to be understood that the particular form of this invention, chosen for illustrative purposes and described above, may be variously modified without departing in anywise from the spirit of this invention as defined in the appended claims.

What is claimed is:

1. In a coin collector, a cash compartment for receiving deposited coins, a portable coin receptacle within said compartment and having an aperture in a wall thereof into which the deposited coins are directed, said receptacle having a movable shutter normally closing said aperture and adapted to be moved to aperture opening position, a door for said compartment, a lock for said door comprising a lock center adapted to be rotated by the operating of a key to lock and unlock said door, and means coupled to said lock center for moving said shutter to aperture opening position when said door is locked and for moving said shutter to aperture closing position when said door is unlocked.

2. In a coin collector, a cash compartment for receiving deposited coins, a portable coin receptacle within said compartment and having an aperture in a wall thereof into which the deposited coins are directed, said receptacle having a rotatable shutter adapted to occupy a first position closing said aperture and a second position opening said aperture, a rotatable shaft coupled to said shutter for rotating the same, a door for said compartment, a lock for said door comprising a lock center adapted to be rotated by the operation of a key to lock and unlock said door, said shaft being axially aligned with said lock center, and means for coupling said shaft to said lock center for moving said shutter to aperture opening position when said door is locked and for moving said shutter to aperture closing position when said door is unlocked.

3. In a coin collector, a cash compartment for receiving deposited coins, a portable coin receptacle within said compartment and having an aperture in a wall thereof into which the deposited coins are directed, said receptacle having a movable closure member for said aperture adapted to occupy an aperture closing position and an aperture opening position, a door for said compartment, a key-operated lock for said door, and means actuated by the turning of the key in said lock for controlling the movement of said closure member.

4. In a coin collector, a cash compartment for receiving deposited coins, a coin receptacle within said compartment having an aperture in a wall thereof into which the deposited coins are directed, said receptacle having a movable shutter adapted to occupy a position opening said aperture and a position closing said aperture, a key-operated lock mounted on an external wall of said compartment and having a rotatable lock center with a key slot accessible from outside said compartment, and means for actuating said shutter in accordance with the key-controlled movements of said center.

5. A portable coin receptacle having a coin receiving aperture in the top wall thereof, a rotatable shutter adapted to occupy a position closing said aperture and a position opening said aperture, a horizontally arranged shaft mounted below said shutter, and a driving wheel mounted on said shaft and engaging said shutter to rotate said shutter in accordance with the rotation of said shaft, a portion of said shaft projecting outside said receptacle.

6. A coin receptacle having a coin receiving aperture in a wall thereof, a movable shutter adapted to be moved from a position opening said aperture to a position closing said aperture, a rotatable shaft projecting through a side wall of said receptacle having a portion within said receptacle and a portion external to said receptacle, a toothed wheel coupled to said shaft within said receptacle and engaging said shutter whereby the rotation of said shaft in a certain direction causes said shutter to move from aperture opening position to aperture closing position, and a pawl cooperating with the teeth of said wheel to hold said shutter in closed position.

7. A coin receptacle having a coin receiving aperture in a wall thereof, a movable shutter adapted to be moved from a position opening said aperture to a position closing said aperture, a rotatable shaft projecting through a side wall of said receptacle and having a portion within said receptacle and a portion external to said receptacle, a toothed wheel coupled to said shaft within said receptacle and engaging said shutter whereby the rotation of said shaft in a certain direction causes said shutter to move from aper-

ture opening to aperture closing position, a movable locking pawl adapted to occupy either of two positions, said pawl in one position engaging said teeth, said pawl in a second position being disengaged from said teeth, said pawl being biased to said first position, means for holding said pawl in said second position, and means actuated by said shutter in moving from aperture closing position to aperture opening position for releasing said pawl from said holding means.

8. In a coin collector, a cash compartment for receiving deposited coins, a portable coin receptacle within said compartment and having an aperture in a wall thereof into which the deposited coins are directed, said receptacle having a movable closure member for said aperture adapted to occupy an aperture closing position and an aperture opening position, a door for said compartment, locking mechanism mounted on said door for locking and unlocking said door to control access to said receptacle, and means actuated by said mechanism for controlling the movement of said closure member.

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