

Oct. 4, 1966

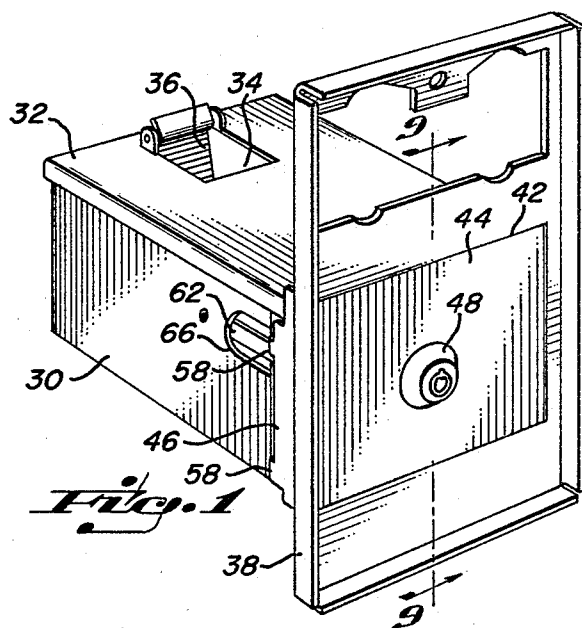
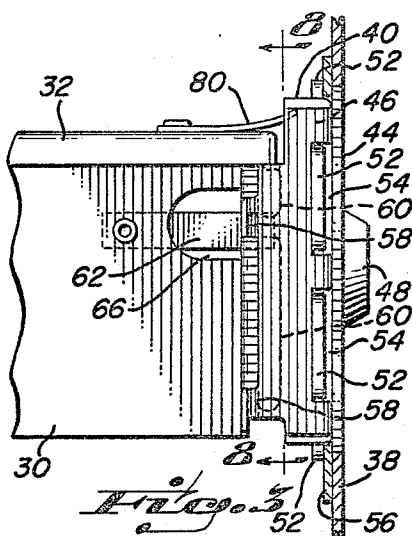
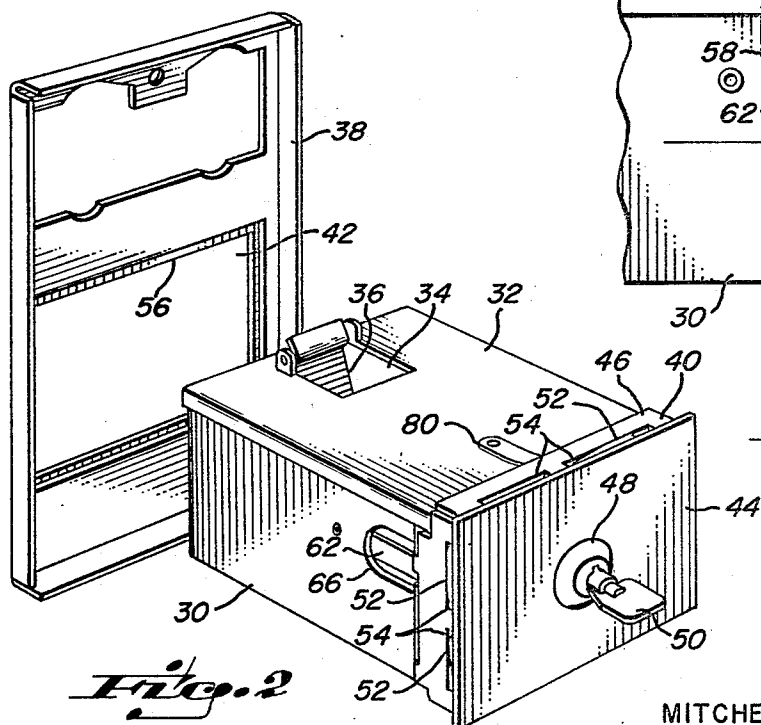
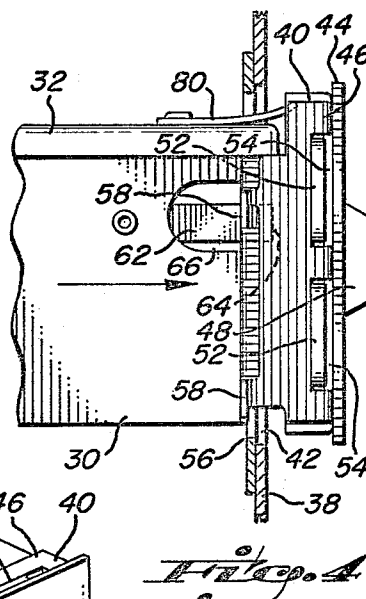
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3,276,835

MONEY BOX CONSTRUCTION

Filed Oct. 28, 1964

7 Sheets-Sheet 1



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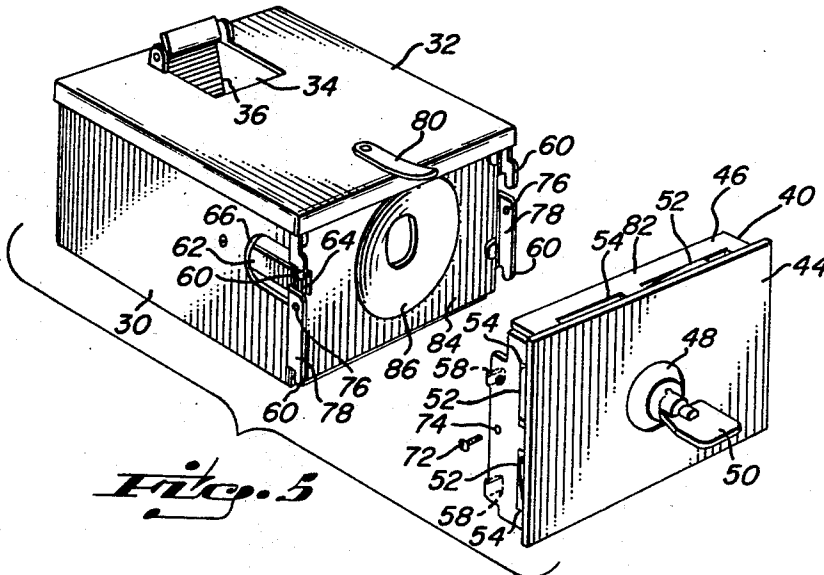


Fig. 5

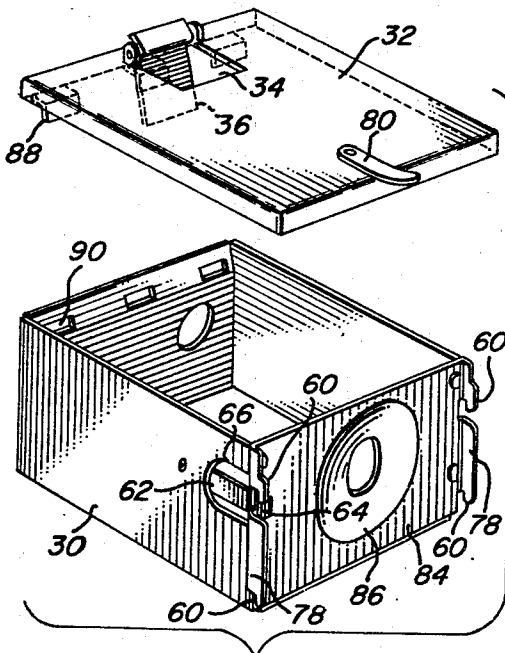


Fig. 6

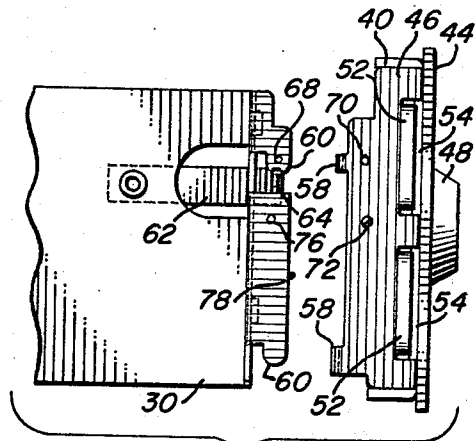


Fig. 7

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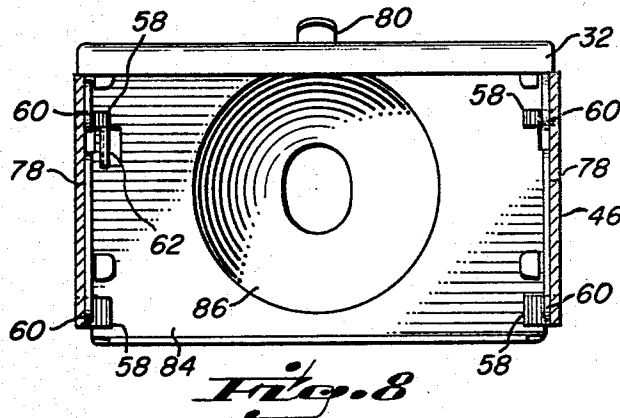
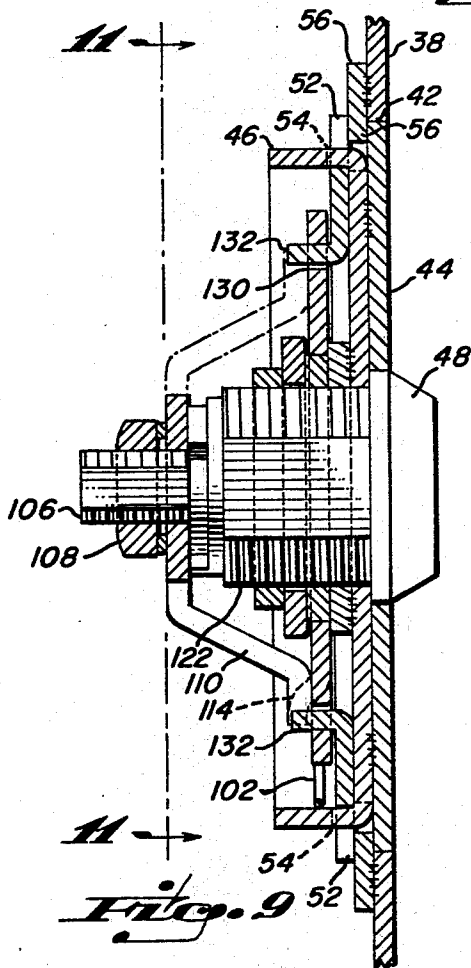
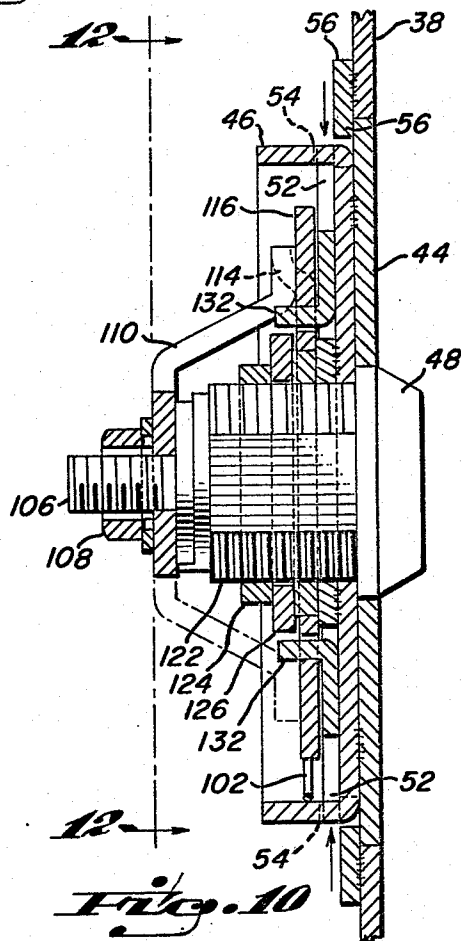
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MONEY BOX CONSTRUCTION

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7 Sheets-Sheet 3



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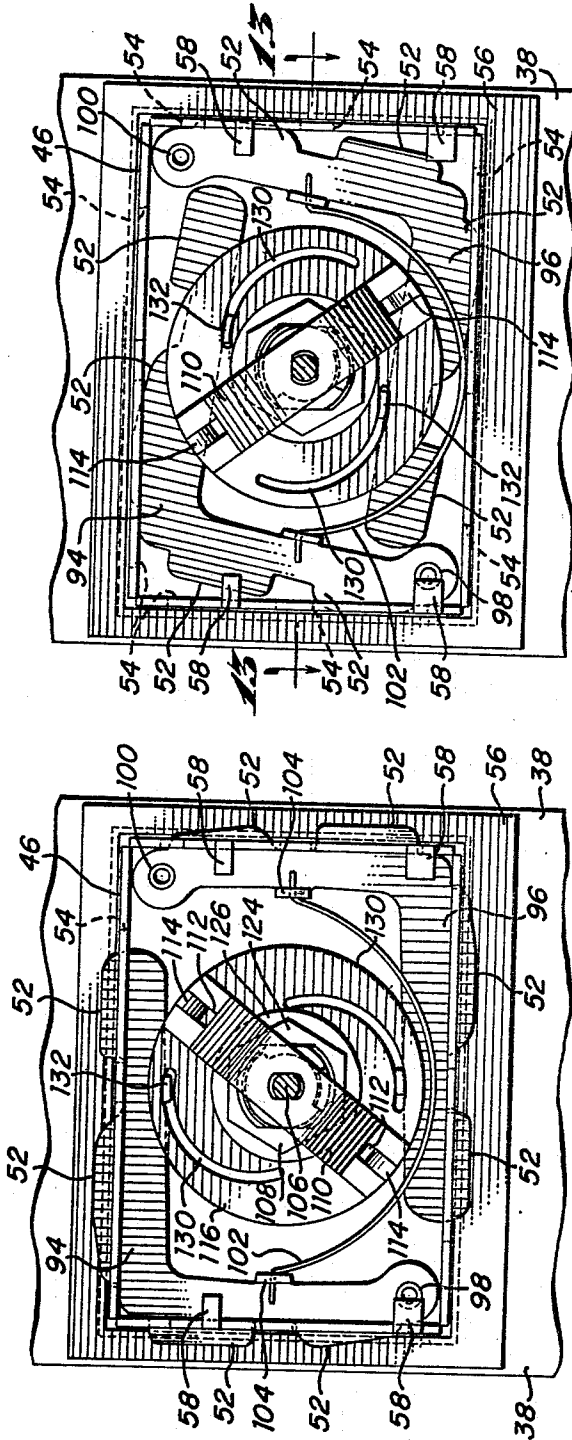
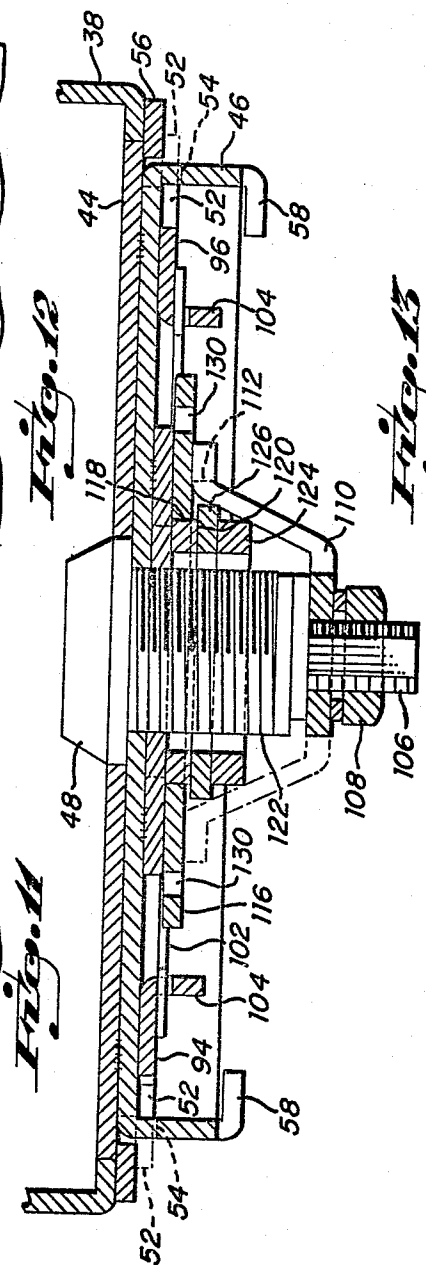
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MONEY BOX CONSTRUCTION

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7 Sheets-Sheet 4



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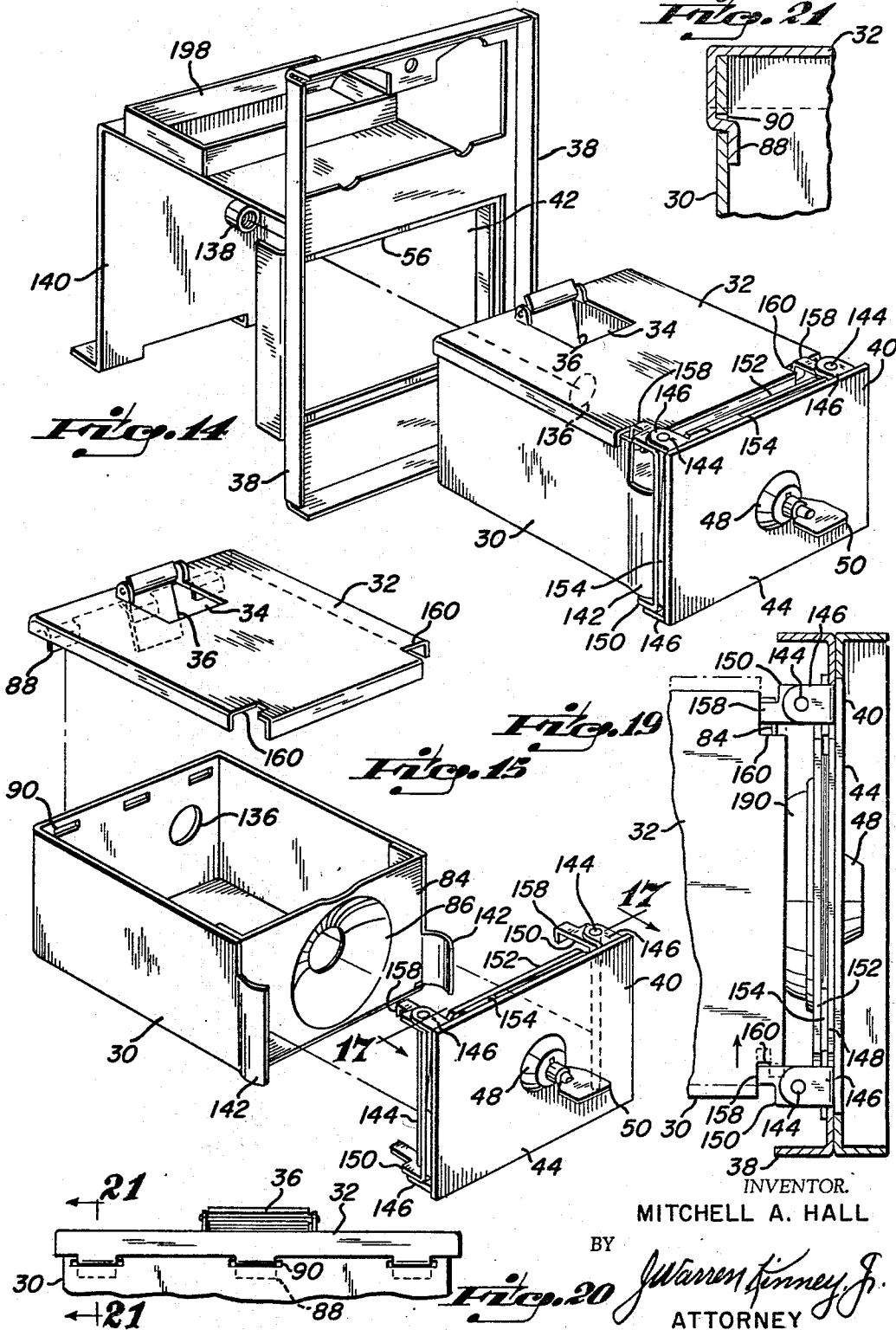
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MONEY BOX CONSTRUCTION

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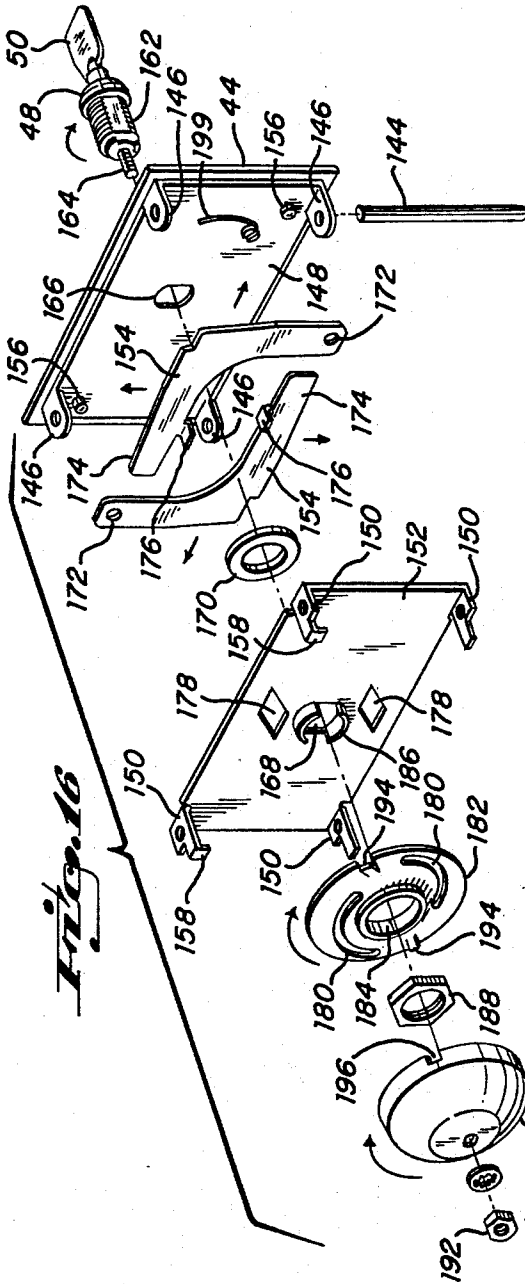
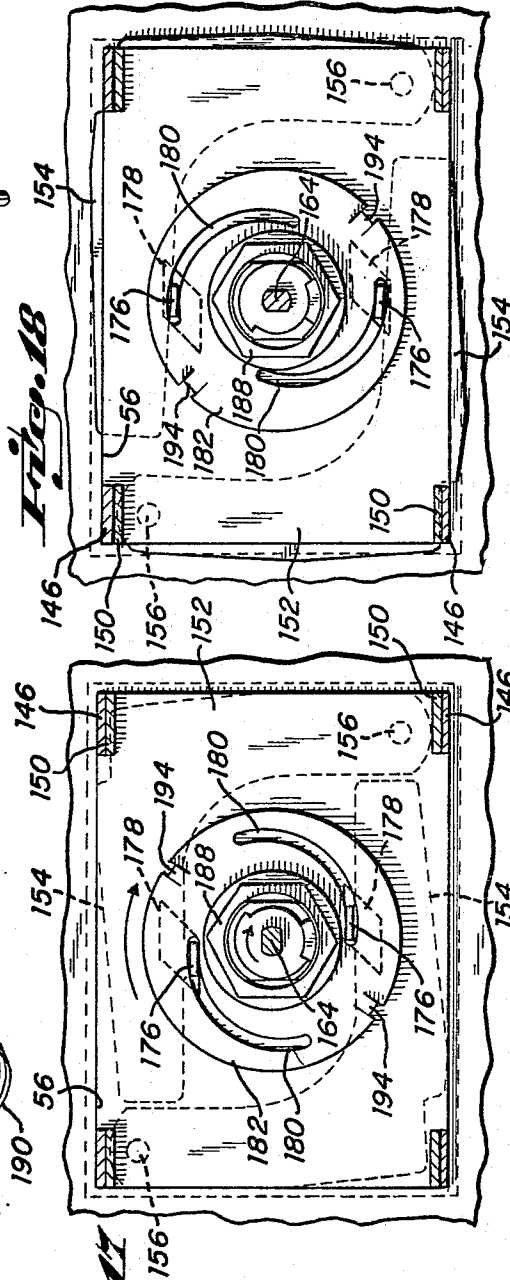
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MONEY BOX CONSTRUCTION

Filed Oct. 28, 1964

7 Sheets-Sheet 6



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MONEY BOX CONSTRUCTION
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 Filed Oct. 28, 1964, Ser. No. 407,112
 28 Claims. (Cl. 312—333)

This invention relates to a money box construction, of the type suited for use in accumulating coins from the coin chutes of dispensing machines; laundry service machines, coin telephones, and similar coin-operated devices. Such money boxes are adapted to be locked to a rigid frame fixed within the casing of the dispensing or service machine, so that removal of the box and contents from the machine casing may be achieved only by an authorized person in possession of a proper key. Such person may thereby remove a box containing accumulated coins, and substitute therefor an empty box. The box removed will ordinarily be forwarded to a coin-counting office.

In some instances, it may be desirable to provide the money box with a detachable lock-unit, so that the box of coins removed from the machine may be forwarded to the counting office with the lock-unit detached therefrom. The detached lock-unit may under such circumstances be applied by the serviceman to the empty replacement box, thereby to avoid the forwarding of lock-units to the counting office. Such procedure keeps the lock-units in constant service, and may be of advantage for accounting purposes.

An object of the present invention is to provide an improved locking and bolting mechanism for money boxes and the like, which effectively defies pilfering even though the attempt may result in severe mutilation or destruction of the locking mechanism.

Another object of the invention is to provide in a money box construction, a simplified and highly effective means for maintaining a bolted affixation of the box to a stationary frame, in defiance of unauthorized removal by drilling of the lock or other elements of the lock-unit, or by driving the lock from normal position within the unit.

A further object is to provide in a device of the character stated, means for facilitating and expediting the exchanging of lock-units on money boxes, and in the alternative, effecting a simple semi-permanent affixation of the lock-unit to a box.

A still further object of the invention is to provide means in a device of the character stated, for the multiple bolting of a door to a supporting frame with maximum ease and ample security.

The foregoing and other objects are attained by the means described herein and illustrated upon the accompanying drawings, in which:

FIG. 1 is a perspective view of a money box, shown bolted and locked to a stationary supporting frame through the agency of the improved lock-unit of the invention.

FIG. 2 is a perspective view of the money box detached from the supporting frame.

FIG. 3 is a side elevation of the FIG. 1 assembly, showing the box locked to the frame by extension of its lock bolts.

FIG. 4 is a view similar to FIG. 3, showing the lock bolts retracted and the box partially withdrawn from the frame.

FIG. 5 is a perspective view of the money box, with lock-unit detached.

FIG. 6 is a perspective view of the money box, with lid removed.

FIG. 7 is a view similar to FIG. 5, in side elevation.

FIG. 8 is a cross-section taken on line 8—8 of FIG. 3.

FIG. 9 is an enlarged cross-section taken on line 9—9

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of FIG. 1, the lock bolts being extended to bolted position.

FIG. 10 is a view similar to FIG. 9, showing the lock bolts retracted to inoperative position.

FIG. 11 is a cross-section, on a reduced scale, taken on line 11—11 of FIG. 9.

FIG. 12 is a cross-section, on a reduced scale, taken on line 12—12 of FIG. 10.

FIG. 13 is an enlarged cross-section taken on line 13—13 of FIG. 12.

FIG. 14 is a perspective view similar to FIG. 2, showing a modified construction.

FIG. 15 is an exploded perspective view, showing the money box of FIG. 14 with its lid and lock-unit detached.

FIG. 16 is an exploded perspective view of the lock-unit of FIG. 15.

FIG. 17 is an enlarged cross-section taken on line 17—17 of FIG. 15, showing the lock bolts retracted.

FIG. 18 is a view similar to FIG. 17, showing the lock bolts extended to operative position.

FIG. 19 is a top plan view of the FIG. 14 money box, shown locked to a stationary supporting frame.

FIG. 20 is a fragmental rear view of the money box of FIG. 15, with the lid thereof applied to the box.

FIG. 21 is a fragmental enlarged cross-section taken on line 21—21 of FIG. 20.

FIG. 22 is a fragmental side elevation of the FIG. 14 money box, with the lock-unit in place thereon.

FIG. 23 is a view of the FIG. 22 assembly, showing the money box undergoing detachment from the lock-unit.

FIG. 24 is an enlarged cross-section taken on line 24—24 of FIG. 22.

FIG. 25 is an exploded perspective view of a second modified form of money box and lock-unit.

FIG. 26 is an enlarged cross-section taken on line 26—26 of FIG. 25, the locking and bolting mechanism being assembled within the lock-unit housing shown at the right in FIG. 25.

FIG. 27 is a top plan view taken on line 27—27 of FIG. 26.

In the drawings, FIGS. 1 to 4, the numeral 30 indicates a sheet-metal money box, having a lid 32 apertured at 34 to receive coins released from a coin slide (not shown).

The lid aperture may be furnished with a hinged closure member 36, which may be closed and sealed when the box containing a quantity of coins is to be separated

from its supporting frame 38 and forwarded to a coin counting office. Frame 38 is a stationary element fixed

securely within the cabinet or housing of a dispensing machine or the like.

Coin box 30 carries a lock-unit 40 (FIG. 5), which

normally is fixed to the box, but which may quickly be detached therefrom after the unit is unlocked from

frame 38 to permit withdrawal of the box from frame aperture 42. Detaching the lock-unit by the serviceman

enables him to apply the same lock-unit to an empty replacement box which replaces the one removed. The

box removed may therefore be transported to the coin counting office, relieved of the weight and bulk of the

lock-unit.

The lock-unit may comprise a flat door or front plate 44, and a permanently mounted boltwork housing 46

which may be welded or otherwise secured to the rear face of the door. A lock case 48 fixed to housing 46,

extends through a central aperture of door plate 44 and may accommodate a key 50 for extending and retracting

the multiple bolts 52. The bolts may be projected through upper, lower and side openings 54 of housing 46, to en-

gage a hard steel flange 56 applied to frame 38 marginally of aperture 42, for bolting the lock-unit and accompany-

ing coin box to the frame.

FIGS. 5, 6, and 7, show the lock-unit separated from the coin box, by means of a quick-detachable connection. As shown, lock-unit, or boltwork housing 46 is provided with pairs of fixed lugs 58, which extend inwardly from opposite sides of the housing. The lugs are engageable by depending hooks 60 carried by the coin box, so that the box normally hangs on the lugs. To effect a connection, it is necessary only to insert the lugs 58 of the bolt housing behind the hooks 60 of the coin box, so that the box hangs from the lugs. Detachment involves lifting the box sufficiently to disengage the hooks from the lugs, and then moving the box away from the lock-unit as in FIG. 5.

To avoid inadvertent separation of the coin box from the lock-unit, the box may be provided with a leaf spring latch 62 having a hooked end 64 to engage an upper lug 58 upon assembly of the lock-unit upon the box. The spring latch may be accessible through an opening 66 in one side of the box, so as to be manually flexed for disengaging the hooked end 64 from upper lug 58, thereby to free the lock-unit for detachment from the coin box.

As an alternative or supplemental latch, the material of hooks 60 may be provided with outwardly projected pimples such as 68, adapted to enter holes 70 in the sides of boltwork housing 46 concurrently with application of the lock-unit to the box. The hooks 60 carrying the pimples are resilient to the extent that the pimples are resilient to the extent that the pimples will leave the holes 70 incident to detachment of the lock-unit from the box. The pimples 68 and holes 70 constitute friction detents which are readily separable.

In the event that a semi-permanent connection between the lock-unit and coin box is desired, a screw 72 may be inserted through an opening 74 in the bolt housing, to engage a threaded hole 76 in hook flange 78. Removal of the screw permits detachment of the lock-unit from the coin box. Screws such as 72 may be applied at opposite sides of boltwork housing 46.

The reference numeral 80 indicates a laterally swingable latch to engage beneath the upper flange 82 of boltwork housing 46, to hold lid 32 in closed position while the coin box is attached to the lock-unit. The front wall 84 of the coin box may be provided with a depression 86 to accommodate the inner end portion of lock 48, if necessary. Front wall 84 is a permanent element of the coin box, applied in any suitable manner; and lid 32 may or may not be hinged upon the box, as desired. A separable hinge is shown at 88-90, FIGS. 6 and 21.

The details of the boltwork are illustrated by FIGS. 9 to 13, inclusive, wherein the numeral 52 indicates a plurality of bolts which may be extended through slots 54 in boltwork housing 46, to engage the flange 56 of frame 38 serving as a keeper. Bolts 52 may be in the form of protuberances fashioned on a pair of bolt plates 94 and 96, hinged at 98 and 100 upon housing 46. Each bolt plate may be in the shape of a bell crank as shown in FIGS. 11 and 12, and the divergent arms of each bell crank may carry one or more bolts 52. Each arm carries two bolts in the example illustrated.

Referring to FIGS. 11 and 12, it is apparent that slight movement of a bolt plate in one direction about its pivot 98 or 100, may extend the bolts 52 through slots 54 as in FIG. 11, to lock the boltwork housing 46 relative to flange or keeper 56. Conversely, movement of a bolt plate in the opposite direction about its pivot will retract the bolts, as in FIG. 12, so they will clear the keeper and thereby permit withdrawal of the coin box from the frame aperture 42, according to FIG. 2.

Bolt plates 94 and 96 are constantly yieldingly urged outwardly to extend their bolts 52, preferably by means of one or more springs. In the example illustrated, a single spring 102 is employed, operative to extend both bolt plates 94 and 96. Spring 102 may be in the form of a resilient arched wire having opposite ends thereof

impinging against lugs 104 formed on the bolt plates, to constantly yieldingly urge the plates in opposite directions about their respective pivots 98 and 100.

Key lock 48 has a central shaft 106 to which is fixed, as by means of a nut 108, a yoke 110 which includes a pair of legs having slots 112 formed in the free ends thereof. The slots are loosely receptive of a pair of lugs 114 which extend from one face of a flat cam disc 116, which disc is centrally apertured at 118 for rotation about a hub 120. The hub concentrically surrounds the threaded lock barrel 122, and may be fixed to the barrel by means of a nut 124 and washer 126. Thus, whenever the lock shaft 106 is rotated by means of a proper key 50, yoke 110 will drive the cam disc 116 by reason of the connection 112-114.

Cam disc 116 has formed therein a pair of spiral cam slots or tracks 130, and each track slidably accommodates a follower 132, said followers being in the form of lugs formed integrally upon the bolt plates 94 and 96. Thus, rotation of the cam disc enforces movement of followers 132, toward and from shaft 106, to retract and extend bolt plates 94 and 96, and their several bolts 52.

The gradual long slope and short throw of cam tracks 130, ensures easy manipulation of the door bolts by means of key 50. Noteworthy also is the fact that follower lugs 132 engage the cam tracks at right angles to the plane of the cam disc 116, and will therefore readily leave the tracks in the event that a thief drives the lock forcibly through door 44 in attempting to gain access to the coin box. Displacement of the lock and cam disc 116 rearwardly, will result in freeing the followers 132 from the cam disc, whereupon spring 102 will effectively maintain an extended or operative condition of all the bolts 52. Also, if driving of the lock displaces yoke 110 to destroy the connections at lugs 114, cam plate 116 will be immobilized in the bolted condition of the door. The spring 102 insures, further, a bolted condition of the door even though the thief may resort to drilling the door or the lock in various ways. Note also that bolting occurs all around the perimeter of the door, or along four sides thereof.

It may here be noted that with only slight modification, the lock and boltwork above described may be applied to doors which are circular, rather than rectangular, while preserving all the advantages above referred to. In the case of a circular door construction, the coin box may be either rectangular or cylindrical in shape, with corresponding modification of the shape of frame aperture 42.

FIGS. 14 to 24, inclusive, illustrate a modification of the boltwork, and of the means employed to mount and demount a lock-unit relative to a coin box. The coin box in this instance has an opening 136 in the rear wall thereof, aligned with an internally threaded nut 138 carried by a portion 140 of frame 38, for reception of an elongate threaded bolt (not shown), which normally ties the box to the frame. This constitutes old practice which forms no part of the present invention, and should therefore be ignored as the tie mentioned will not be used in conjunction with the present invention.

The sheet metal box, FIG. 15, carries a pair of forwardly extended arcuate arms or wings 142, which may be formed integrally with the box sides. The arms are capable of slight outward flexion to the extent of the inherent resiliency of the metal sides. Said arms are adapted to snap over and embrace a pair of spaced parallel posts 144 on lock-unit 40, FIGS. 22, 23, 24, for detachably mounting the lock-unit by means of rearwardly extending lugs 146 struck from a bolt housing plate element 148 (FIG. 16) which element 148 may be spot-welded against the back of door 44. The same posts 144 are adapted to pass through perforated lugs 150 of a second housing plate member 152, for supporting the latter in spaced parallelism with plate member 148. The space between members 148 and 152 accommodates the

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bold elements 154 for extensible and retractile movement about pivots 156, 156.

The upper pair of lugs 150 may be provided with depending hooks 158 to engage the upper edge of box front 84, so that the lock-unit may hang from the box. The box lid may be cut away at 160, 160, to permit engagement of hooks 158 with the upper edge of the box front wall. The lower lugs 150 need not carry hooks such as 158. FIGS. 22 and 23 indicated how the lock-unit may be applied to and detached from box 30, by tilting one part relative to the other. FIG. 24 shows the arms 142 yieldingly embracing the posts 144 to hold the parts in the FIG. 22 position.

Referring to FIGS. 16, 17 and 18, it is noted that lock 48 comprises an externally threaded body 162, and a shaft 164 which may be rotated upon insertion of a proper key into the lock. Lock body 162 fits snugly within an aperture 166 of plate 148, and extends also through a central aperture 168 of plate 152. Plates 148 and 152 may be spaced apart by a washer 170, which maintains clearance for movement of bolt members 154, 154 between the plates. The bolt members may be of bell crank formation as shown, with holes 172 provided for pivotal connection with pivot members 156.

Corresponding arms 174, 174 of the bolt members carry lugs 176, 176 which extend in a common direction at right angles to the bolt members. These lugs are cam followers, which extend through apertures 178 in plate 152 to engage cam slots or tracks 180 of a cam disc 182. The central bearing 184 of the cam disc rides upon hub 186, and a nut 188 threaded onto the lock body holds the cam disc in place upon the hub.

To the outer end of lock shaft 164 is fixed a cap 190, secured by means of a nut 192. The cap has a driving connection with cam disc 182, consisting of an outstanding lug 194 on the disc loosely received in a notch 196 of the cap, whereby rotation of lock shaft 164 and cap 190 is imparted to the cam disc. It will be understood that rotation of the cam disc by shaft 164, with followers 176 riding in cam slots 180, enforces movement of bolt members 154 about their pivots 156, to extend and retract the bolt members into and from locking engagement with the flange 56 of frame 38, FIG. 14. Both legs of each bolt member may engage flange 56 when the bolt members are extended (FIG. 18).

With reference to FIG. 15, the coin box wall 84 is recessed at 86 to accommodate cap 190. Should a thief drive the lock through door 44 and thereby displace cap 190 away from cam disc 182, the connection at 194-196 would be broken so as to prevent any subsequent rotation of the cam disc, and consequently, prevent withdrawal or retraction of the bolt members from operative position. The bolt members may be spring-loaded as suggested at 199, to urge the bolt members constantly toward locking position.

It will be apparent by referring to FIGS. 16, 17, 18, that drilling the door or the lock in an attempt to gain access to the coin box, cannot successfully be accomplished. Neither will destruction of the lock afford any advantage in the attempt to pilfer the coin box. In FIG. 14, the reference numeral 198 denotes a flanged aperture of frame 38, through which coins may be guided from one or more coin slides to the coin box aperture 34. Suitable coin slides may be supported by the upper apertured portion of frame 38.

In the modification, FIGS. 25, 26, 27, the housing 200 for bolt members 202, 202, is welded or otherwise fixed to the back of door 44, and has top and bottom flanges 204 and 206 flanked by opposed side flanges 208 which may be integral with a back wall 210. The side flanges and the bottom flange may carry inwardly directed hooked lugs 212, to engage slots 214 of the coin box walls in detachably mounting the lock-unit upon the coin box. As FIG. 27 clearly indicates, the sides of the coin box may be flexed inwardly, as at 216, to facilitate attachment and detachment of the lock-unit.

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The top and bottom flanges of the boltwork housing may be provided with elongate slots 218, through which the bolting portions of the bolt member 202 may be extended and retracted. The bolt members in this instance are bodily slidable in opposite directions within a common plane, while resting flatwise against the back wall 210 of the housing. The door and the back wall are apertured as at 220 to accommodate the threaded body 222 of lock 48, and a nut 224 engaging the threads of the lock body holds the lock in fixed position thereon. The bolt members may be recessed at 226 to avoid interference with nut 224 as the bolt members retract.

The lock has the usual shaft 228 to be rotated upon insertion of a proper key into the lock, and upon the end of the shaft is secured a cam disc 230, preferably by means of a nut 232. The cam disc may be provided with an extended hub 234 centrally apertured to receive lock shaft 228, and about the hub may be located the spiral cam slots or tracks 236.

The spiral cam slots or tracks 236 loosely receive the extending followers or studs 240 which are fixedly secured to the bolt members, so that rotation of the cam disc in opposite directions by means of a key inserted in lock 48, will serve to extend and retract the bolt members through the slots 218 of housing 200. FIG. 26 shows the bolt members 202 fully retracted (full lines), whereas the broken lines 242 shows the bolt members extended so as to engage a flange 56 of frame 38. The two bolt members, if desired, may be spring-urged toward the locking or extended position, as suggested in the description of FIG. 11.

In all forms of the device herein disclosed, the lock-units for the coin boxes may be separated from the boxes with great ease and dispatch, and re-assembly is just as readily achieved. The ability to gather coin boxes from the machines which they serve, and to convey or forward the coin boxes without lock-units attached, is of great advantage. The weight of the shipment is thereby substantially reduced, and a minimal number of lock-units is needed since all the lock-units on any given service route are kept in constant use.

The lock-units per se incorporate several important improvements, which as previously explained, greatly enhance ease of bolt manipulation, and promote maximum security against pilfering of the coin boxes. The assembly of box and lock-unit eliminates accessibility of parts vulnerable to removal or disassembly, and precautionary measures are employed to foil any attempts to gain access to the coin receptacle by drilling the lock or the door front, or by driving the lock from the door of the receptacle. The door in each embodiment of the invention may be constructed of tough stainless steel if desired, and tough steel may be employed in constructing other vital elements of the assembly.

It is to be understood that various modifications and changes may be made in the structural details of the device, within the scope of the appended claims, without departing from the spirit of the invention.

What is claimed is:

1. A money box structure detachably lockable within a reception aperture of a supporting frame having forward and rearward sides and comprising in combination, a box body having a front end, a lock unit including a door adapted to be positioned in opposed relation with said box body front end and dimensioned to cover the latter and peripherally project beyond the top, bottom and sides thereof to cover the aperture, said lock unit including shiftable means for engaging the marginal portion of the inner side of the supporting frame aperture for securing the door therein, and interengaging readily separable means carried by said lock unit and said box at opposite sides of the unit and the box formed for interlocking connection one with the other for mounting the box upon the lock unit.

2. The combination as set forth in claim 1, wherein one face of the frame is normally inaccessible, and the

connecting means for mounting the box upon the lock-unit is located behind the inaccessible face of the frame when the lock-unit with the box attached is bolted within the frame aperture.

3. A money box structure mountable within an aperture of a supporting frame having a front face and a normally inaccessible rear face, said structure comprising: an elongate box dimensioned for passage through the frame aperture; a door larger than the frame aperture for closing the aperture at the front face thereof; means on the door for bolting the door to the supporting frame independently of the box; and cooperative means carried by the door and the box, for detachably connecting the box to the door, said means being inaccessible at the rear face of the supporting frame while the door is in bolted position thereon, the cooperative means aforesaid comprising a pair of lugs on the door and a pair of hooks on the box, the hooks being engageable with the lugs to suspend the box from the door at appropriate right angles thereto.

4. A lock-unit for detachable mounting upon a money box comprising in combination with a frame structure having a money box receiving opening therein, a money box insertable through said opening, a door having inner and outer sides and transversely apertured to receive a lock body, separable coupling means between said door and said money box, the door being dimensioned to peripherally engage an outer side portion of the frame structure and close said opening, a lock body mounted in said aperture, a bolt housing fixed to the inner side of said door and embodying upper, lower and side inwardly projecting flanges rigid with said inner side of the door and for extension through said opening when the door is in opening closing position and each flange having a bolt opening therein, bolt elements supported within said housing for movement through said flange openings from retracted to extended positions, said flange openings being disposed in a plane paralleling and spaced from the inner side of said door a distance for the bolt elements, when extended, to engage the inner sides of the frame; a shaft within the lock body rotatable upon insertion of a proper key into the lock body; bolt actuating means associated with said shaft and bolt elements for extending and retracting the bolts in correspondency with rotational movements of the shaft; and means for constantly yieldingly urging the bolts toward the extended position.

5. The device as set forth in claim 4, wherein the bolt actuating means is separable from the bolts upon displacement of the lock shaft away from the inner face of the door.

6. In combination: a money box having a forward end portion; a lock unit including a door having inner and outer faces transversely apertured; a lock body fitted to the door aperture; a bolt housing fixed to the inner face of the door, said housing having opposite guide means adjacent to at least two opposite side edges of said door disposed in a plane parallel to the door faces; a pair of bolts movable within the housing and in said guide means thereof from a retracted position to an extended position; a shaft within the lock body rotatable upon insertion of a proper key into the lock body; bolt actuating means associated with said shaft for extending and retracting the bolts in correspondency with rotational movements of the shaft; means for constantly yieldingly urging the bolts toward the extended position; and means for detachably coupling the bolt housing upon the forward end portion of the box to embody the box and lock unit in a single functional structure.

7. The combination as set forth in claim 6, wherein the bolt actuating means is separable from the bolts and rendered inoperative thereon, upon bodily displacement of the lock shaft in a direction away from the inner face of the door.

8. In combination: a money box having a forward end portion; a lock unit including a door having inner and outer faces transversely apertured; a lock body received

in the door aperture; a bolt housing fixed to the inner face of the door and having an opening therein aligned with the aperture of the door, said housing having transverse openings therein disposed in a plane parallel to the door faces; a pair of bolts movable within the housing and through the transverse openings thereof from a retracted position to an extended position; a shaft within the lock body rotatable upon insertion of a proper key into the lock body; bolt actuating means associated with said shaft for extending and retracting the bolts upon movement of the shaft in opposite directions; and means for effecting a quick-detachable coupling of the bolt housing with the forward end portion of the box, whereby the box and lock unit form a single handleable functional structure.

9. The combination as set forth in claim 8, wherein the bolt actuating means is separable from the bolts and rendered inoperative thereon, upon bodily displacement of the lock shaft in a direction away from the inner face of the door.

10. A closure device comprising in combination: a door having inner and outer faces transversely apertured; a lock body fixed in the door aperture; a bolt housing fixed to the inner face of the door and having an opening therein aligned with the aperture of the door, said housing having transverse openings disposed in a plane parallel to the door faces; a pair of L-shaped bolt members each comprising two arms having edge portions projectable through the transverse openings of the housing; means on the housing for pivotally supporting each bolt member, the pivots being located at one end of each bolt member, to guide the edge portions thereof through the housing openings as the bolt members move about the supporting pivots; a cam follower lug on each bolt member, said lugs extending in a direction away from the inner face of the door, and at approximate right angles thereto; a shaft within the lock body rotatable upon insertion of a proper key into the lock body, said shaft having a free end extended in the direction of extension of the cam follower lugs; a cam disc rotatable about the fixed lock body, said disc having formed therein a pair of spirally disposed cam grooves each slidably receptive of a cam follower lug of each bolt member, whereby rotation of the cam disc in opposite directions guides the lugs toward and from the lock shaft to retract and extend the edge portions of the bolt members through the housing openings; a cam disc drive member fixed to the free end of the lock shaft; a separable drive connection between said drive member and said cam disc, for normally rotating the cam disc with said drive member, said connection being separable upon forcible longitudinal displacement of the lock shaft in a direction away from the inner face of the door.

11. The device as set forth in claim 10, wherein is included means for constantly yieldingly urging the bolt members about their pivots, in a direction outwardly of the bolt housing.

12. A closure device comprising in combination: a door having inner and outer faces transversely apertured; a lock body fixed in the door aperture; a bolt housing fixed to the inner face of the door and having an opening therein aligned with the aperture of the door, said housing having transverse openings disposed in a plane parallel to the door faces; a pair of L-shaped bolt members each comprising two arms having edge portions projectable through the transverse openings of the housing; means on the housing for pivotally supporting each bolt member, the pivots being located at one end of each bolt member, to guide the edge portions thereof through the housing openings as the bolt members move about the supporting pivots; a shaft within the lock body, and means for rotating said shaft in opposite directions, said shaft having a free end extended in a direction away from the inner face of the door; a cam member rotatable about the fixed lock body; cooperative means on the cam member and each bolt member, for translating rotational movements of the cam member to

rocking movements of the bolt members about their respective pivots, thereby to extend and retract the bolt member edge portions through the housing opening; a cam member driving element fixed to the free end of the lock shaft; a separable drive connection between said driving element and said cam member, for normally rotating the cam member with said drive element, said connection being separable upon forcible longitudinal displacement of the lock shaft in a direction away from the inner face of the door.

13. The device as set forth in claim 12, wherein is included means for yieldingly urging the bolt members about their pivots, in a direction outwardly of the bolt housing.

14. A closure device comprising in combination: a door having inner and outer faces transversely apertured; a lock body fixed in the door aperture; a bolt housing fixed to the inner face of the door and having an opening therein aligned with the aperture of the door, the housing having a wall surface facing inwardly from the door, said housing having transverse side wall openings disposed in a plane parallel to the door faces; a pair of flat plate bolt members disposed against said wall surface shiftable toward and from one another within the housing, said bolt members having outer edge portions movable through the housing openings to positions of extension and retraction; a shaft within the lock body, and means for rotating said shaft in opposite directions, said shaft having a free end extended in a direction away from the inner face of the door; a cam member rotatable relative to the fixed lock body on a common axis; cooperative means on the cam member and each bolt member, for translating rotational movements of the cam member to sliding movements of the bolt members, thereby to extend and retract the bolt member edge portions through the housing openings; and means operatively coupling and securing the cam member to the free end of the lock shaft.

15. The device as set forth in claim 14, wherein the translating means includes a connection separable upon forcible longitudinal displacement of the lock shaft in a direction away from the inner face of the door.

16. The device as set forth in claim 15, wherein is included means for yieldingly urging the bolt members apart, in a direction outwardly of the bolt housing.

17. In combination: a money box having a forward wall, and a pair of side walls; a pair of resilient wings extending beyond the forward wall, each wing being substantially coplanar with a side wall; a lock unit including a door having inner and outer faces transversely apertured; a lock body received in the door aperture; a bolt housing comprising an inner plate and an outer plate, the inner plate being fixed flatwise to the inner face of the door, and including upper and lower pairs of perforate lugs extending away from the inner face of the door, both of said plates being centrally apertured to receive the lock body; pairs of upper and lower perforate lugs on the outer plate extending in the same direction as the lugs of the inner plate, with the apertures of the outer plate lugs in register with the apertures of the inner plate lugs, the outer plate having about its central aperture a pair of offset openings flanking the central aperture thereof; a pair of upright posts, each post passing through an upper and a lower apertured lug of each housing plate, to inter-connect the plates in spaced parallelism; a shaft within the lock body, and means for rotating the shaft in opposite directions, said shaft having a free end extended in a direction away from the inner face of the door; a pair of bolt members movable between the spaced inner and outer housing plates, from a retracted position within the limits of said plates, to an extended position beyond said plate limits; a cam follower on each bolt member, each follower extending through an offset opening of the outer housing plate; a cam member including a pair of spirally disposed cam tracks, each receptive of one of the cam followers aforesaid; means on the outer housing plate

rotatably supporting the cam member in substantial concentricity with the lock body; and a drive element fixed to the free end of the lock shaft, including a driving connection with the cam member; a depending hook on each upper lug of the outer housing plate, to overhang the forward wall of the box and thereby suspend the lock unit from the box, the resilient wings of the box being so spaced apart as to frictionally engage the upright posts of the housing, for detachably connecting the housing to the money box.

18. In combination: a money box having a forward wall, and a pair of side walls; a pair of wings extending beyond the forward wall, each wing being substantially coplanar with a side wall; a lock unit including a door having inner and outer faces transversely apertured; a lock body received in the door aperture; a bolt housing comprising an inner plate and an outer plate, the inner plate being fixed flatwise to the inner face of the door, said inner plate including upper and lower pairs of perforate lugs extending away from the inner face of the door, both of said plates being transversely apertured to receive the lock body; pairs of upper and lower perforate lugs on the outer plate extending in the same direction as the lugs of the inner plate, with the apertures of the outer plate lugs in register with the apertures of the inner plate lugs; a pair of upright posts, each post passing through an upper and a lower apertured lug of each housing plate, to interconnect the plates in spaced parallelism; a shaft rotatable within the lock body; a pair of bolt members movable between the spaced inner and outer housing plates, from a retracted position to an extended position relative to said plates; means associated with the lock shaft and the bolt members for so moving the bolt members upon rotation of said shaft; a depending hook on each upper lug of the outer housing plate, to overhang the forward wall of the box and thereby suspend the lock unit from the box, the wings of the box being so spaced apart as to frictionally embrace the upright posts of the housing, for detachably connecting the housing to the money box.

19. A money box structure mountable within an aperture of a supporting frame having a front face and a normally inaccessible rear face, said structure comprising: an elongate box dimensioned for passage through the frame aperture; a door larger than the frame aperture for closing the aperture at the front face thereof; means on the door for bolting the door to the supporting frame independently of the box; and cooperative means carried by the door and the box, for detachably connecting the box to the door, said means being inaccessible at the rear face of the supporting frame while the door is in bolted position thereon, the cooperative means aforesaid comprising a pair of hooks on the door, and a wall of the box upon which the hooks engage to suspend the box from the door at appropriate right angles thereto.

20. A money box structure mountable within a reception aperture of a supporting frame having a front side and a normally inaccessible rear side, said structure comprising: an elongate box body dimensioned for passage through the frame aperture, a door having an overall area larger than the frame aperture for engagement along a peripheral portion thereof with the front side of the frame and closing the aperture of the frame, bolt means on the door for engaging a portion of the rear side of the frame and cooperating with the said peripheral portion at the front side of the frame for securing the door to the frame independently of connection with the box, and cooperative means carried by the door and the box for detachably coupling the box to the door for the support of the box on and by the door.

21. The invention according to claim 14, wherein the last said means comprising a member bridging the inner end of the lock body and coupled to said free end of the lock shaft and having operative coupling at locations

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spaced diametrically of the lock shaft, with the said cam member.

22. The invention according to claim 21, wherein said operative coupling between said bridging member and said cam member is releasable upon forceable longitudinal displacement of the lock shaft in a direction away from the inner face of the door.

23. A closure device comprising in combination: a door having inner and outer faces transversely apertured; a lock body fixed in the door aperture; a bolt housing fixed to the inner face of the door and having an opening therein aligned with the aperture of the door, the housing having a wall surface facing inwardly from the door, said housing having transverse side wall openings disposed in a plane parallel to the door faces; a pair of flat plate bolt members disposed against said wall surface shiftable toward and from one another within the housing, said bolt members having outer edge portions movable through the housing openings to positions of extension and retraction; a shaft within the lock body, and means for rotating said shaft in opposite directions, said shaft having a free end extended in a direction away from the inner face of the door; a cam member rotatable relative to the fixed lock body on a common axis; cooperative means on the cam member and each bolt member, for translating rotational movements of the cam member to sliding movements of the bolt members, thereby to extend and retract the bolt member edge portions through the housing openings; said translating means including a connection separable upon forceable longitudinal displacement of the lock shaft in a direction away from the inner face of the door, and means operatively coupling and securing the cam member to the free end of the lock shaft comprising a member bridging the inner end of the lock body and coupled to said free end of the lock shaft and having operative coupling at locations spaced diametrically of the lock shaft with the said cam member.

24. The invention according to claim 23, wherein said operative coupling between said bridging member and said cam member is releasable upon forceable longitudinal displacement of the lock shaft in a direction away from the inner face of the door.

25. A closure device comprising in combination: a door having inner and outer faces transversely apertured; a lock body fixed in the door aperture; a bolt housing fixed to the inner face of the door and having an opening therein aligned with the aperture of the door, said housing having transverse openings disposed in a plane parallel to the door faces; a pair of bolt members shiftable toward and from one another within the housing, said bolt members having edge portions movable through the housing openings to positions of extension and retraction; a shaft within the lock body, and means for rotating said shaft in opposite directions, said shaft having a free end extended in a direction away from the inner face of the door; a cam member comprising a disc having cam slots therein and supported on and rotatable relative to the said fixed lock body to turn on a common axis, means on each bolt member engaging in a cam slot of said disc for translating rotational movements of the cam member to sliding movements of the bolt members thereby to

extend and retract portions of the bolt members through the housing openings, a bridging member at the side of said cam member inwardly from the door, said bridging member extending width wise of the cam member, means securing said bridging member to the said free end of the lock shaft to be rotated thereby, and means coupling said disc at diametrically opposite points to the said bridge member.

26. The invention according to claim 25, wherein the last said means is separable for releasing the coupling between the said disc and the bridging member upon forceable longitudinal displacement of the lock shaft in a direction away from the inner face of the door.

27. The invention according to claim 25, wherein the last said means consists of lugs on said disc extending inwardly from the disc, and slots in said bridging member having said lugs loosely engaged therein.

28. A closure device comprising in combination: a door having inner and outer faces transversely apertured, a lock body fixed in the door aperture, a bolt housing fixed to the inner face of the door and having an opening therein aligned with the aperture of the door, said housing having transverse openings disposed in a plane parallel to the door faces, a pair of bolt members each comprising a flat plate having edge portions projectable through the transverse openings of the housing, said plate members being positioned in a common plane with said openings for separatory sliding movement for projection of said edge portions through the housing openings, a cam follower lug on each bolt member, said lugs extending in a direction away from the inner face of the door and at approximately right angles thereto, a shaft within the lock body rotatable upon insertion of a proper key into the lock body, said shaft having a free end extending in the direction of extension of the cam follower lugs, a cam disc rotatable about the fixed lock body and having said bolt plate members between the same and a surface of the bolt housing, said disc having formed therein a pair of spirally disposed cam grooves each slidably receptive of the cam follower lug of each bolt member, whereby rotation of the cam disc in opposite directions effects movement of the lugs toward and from the lock shaft to retract and extend the edge portions of the bolt members through the housing openings, a cam disc drive member fixed to the free end of the lock shaft, a separable drive connection between said drive member and said cam disc for normally rotating the cam disc with the drive member, said connection being separable upon forceable longitudinal displacement of the lock shaft in a direction away from the inner face of the door.

References Cited by the Examiner

UNITED STATES PATENTS

55	912,776	2/1909	Baker	232—15
	3,056,544	10/1962	Sollenberger et al.	232—16

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