July 19, 1966 L. J. LAVIANA 3,261,186

PARKING METER DOOR LOCK ASSEMBLY

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FIG. 1

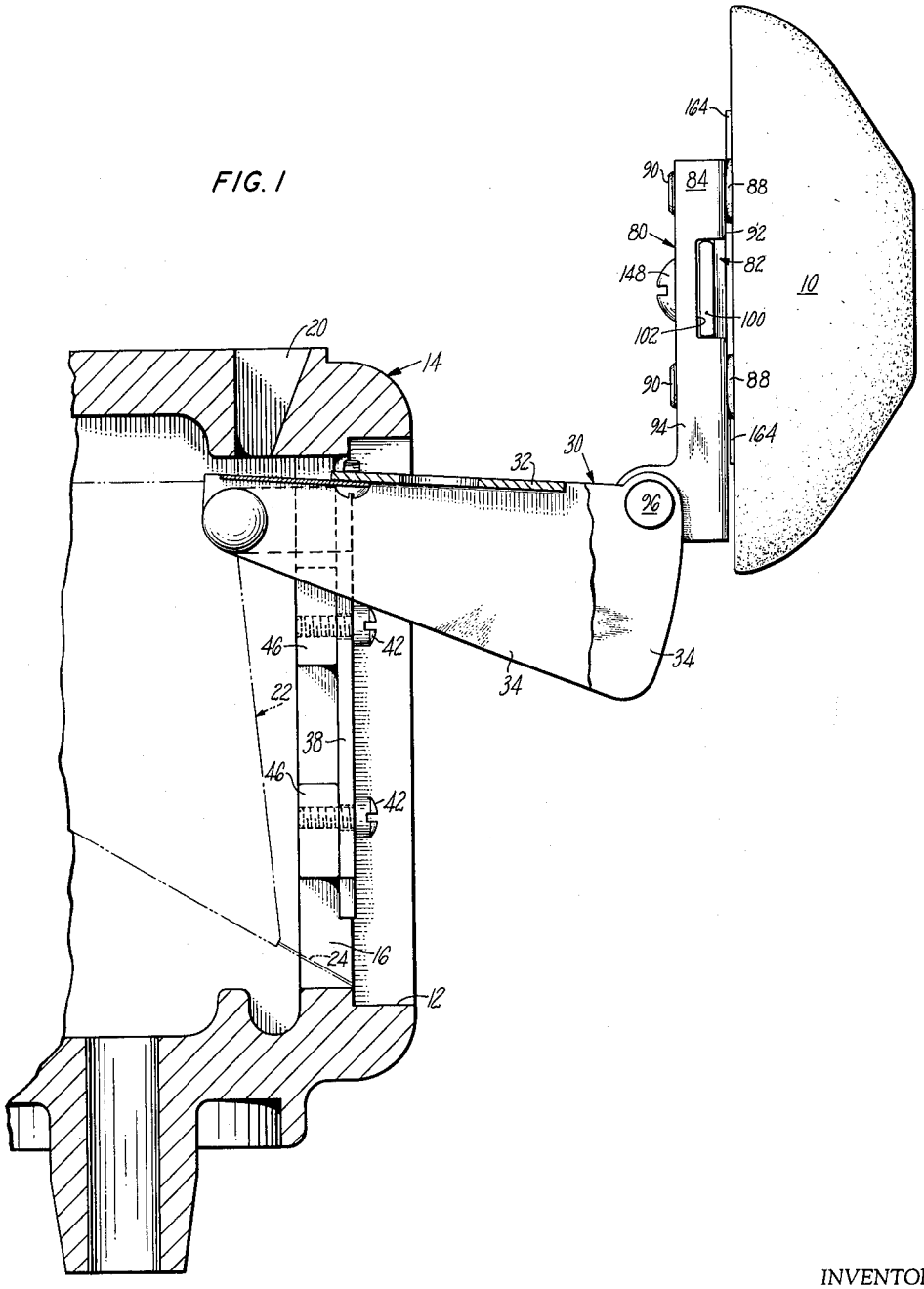

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FIG. 2

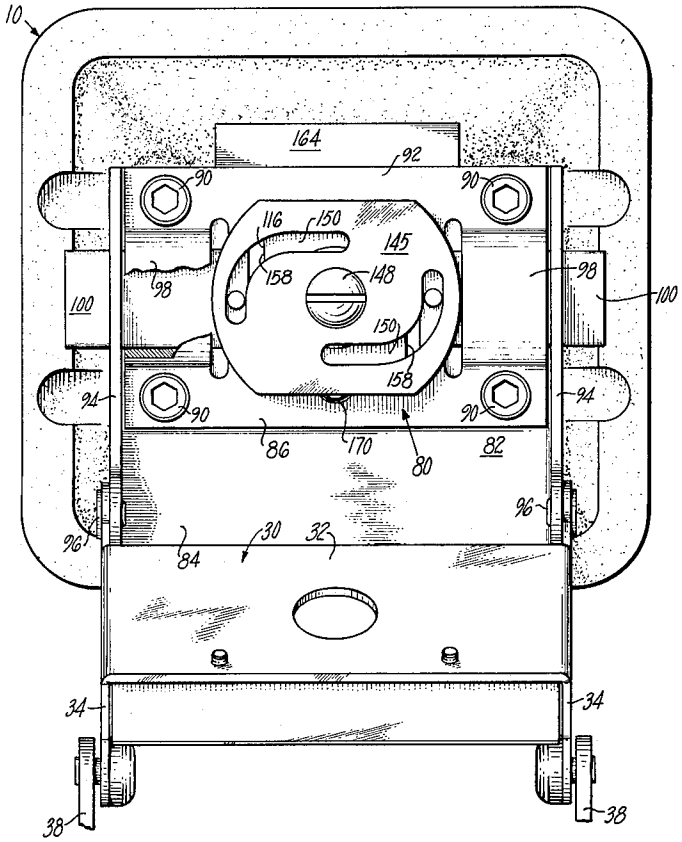

FIG. 3

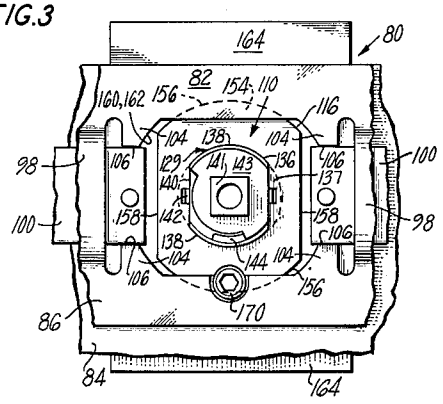

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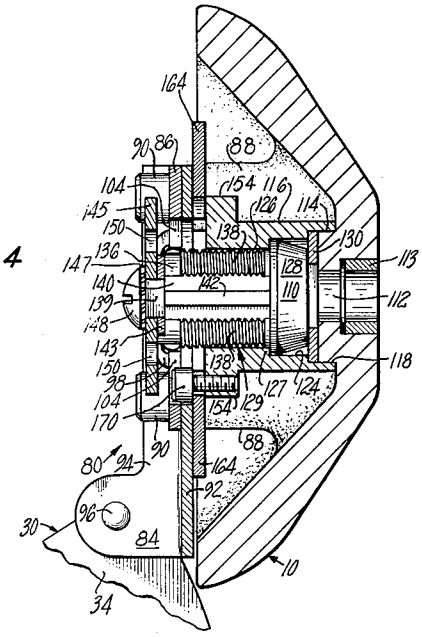
FIG. 4



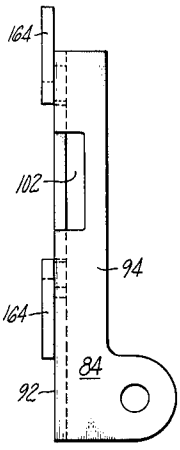


FIG. 6

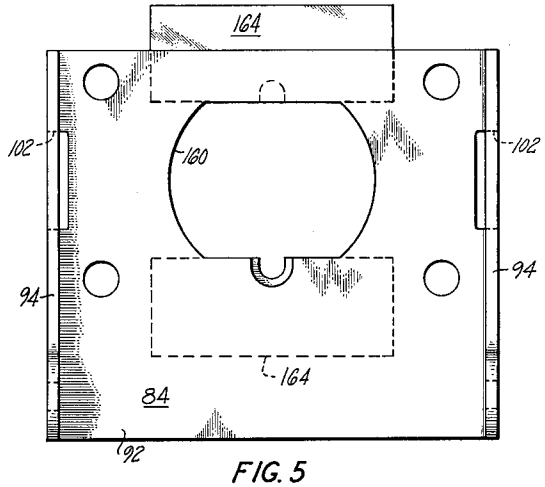


FIG. 5

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PARKING METER DOOR LOCK ASSEMBLY

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3 Claims. (Cl. 70—116)

The present invention relates to a lock assembly having notable utility for locking the coin receptacle door of a parking meter.

The principal object of the present invention is to provide an improved parking meter door lock assembly having a sturdy and compact assembly of parts of economical construction and facile assembly and providing increased effectiveness against tampering and attempted destruction.

Another object of the present invention is to provide an improved parking meter coin receptacle door lock assembly having increased effectiveness in preventing illegal access to the coins deposited in the receptacle.

A further object of the present invention is to provide a parking meter door lock assembly having a key-operated lock subassembly which may be readily detached for repair or replacement.

Other objects will be in part obvious and in part pointed out more in detail hereinafter.

The invention accordingly consists in the features of construction, combination of elements and arrangement of parts which will be exemplified in the construction hereafter set forth, and the scope of the application of which will be indicated in the appended claims.

In the drawings:

FIG. 1 is a fragmentary side elevation view, partly broken away and partly in section, of a parking meter coin receptacle assembly incorporating an embodiment of a door lock assembly of the present invention;

FIG. 2 is a fragmentary view showing a pair of locking bolts of the door lock assembly in their fully extended or locking positions;

FIG. 3 is a fragmentary view with parts removed showing a portion of the door lock assembly in more detail;

FIG. 4 is a fragmentary section view of the door lock assembly;

FIG. 5 is a rear view of a support bracket of the door lock assembly; and

FIG. 6 is a side view of the support bracket.

Referring now to the drawings in detail, an exemplary embodiment of a parking meter lock assembly of the present invention is mounted for locking a generally rectangular door **10** within a conforming recess **12** of a parking meter coin receptacle **14** for preventing access to an opening **16** therein, the receptacle including the door **10** being, for example, constructed of ductile iron for security. In a well-known manner a suitable coin-operated timing mechanism (not shown) is mounted on the receptacle **14** and coins inserted into the timing mechanism are deposited in the receptacle via a coin chute **20** and are stored therein until removed by unlocking the receptacle door **10**, for which purpose a fixed coin box **22** having a downwardly inclined bottom wall **24** may be provided in the receptacle.

For opening the door **10** outwardly of the recess **12** and clear of the access opening **16**, the door is mounted by a hinge bracket **30** having an apertured base **32** and a pair of opposed parallel sides **34** extending normal thereto. The hinge bracket is pivotally connected to a pair of opposed generally L-shaped hinge supports **38** which are secured to pairs of vertically spaced lugs **46** of the receptacle by machine screws **42**. Accordingly, with the door **10** withdrawn from the receptacle access opening, the door subassembly including the hinge bracket **30** and the

hinge supports **38** may be readily detached from the receptacle enclosure by the removal of the machine screws **42**, and with the door locked in the recess **12** access to the interior of the receptacle is prevented.

The door lock assembly of the present invention, generally denoted by the numeral **80**, includes a bolt subassembly **82** comprising a support bracket **84** and a cover plate **86** which together are secured by machine screws **90** to inwardly projecting posts **88** of the door **10** whereby a generally flat base portion **92** of the support bracket is spaced generally parallel to but inwardly of the door. Upstanding from and integrally formed with the flat base portion **92** of the support bracket are a pair of parallel side flanges **94** which, as best seen in FIG. 1, are pivotally connected to the free ends of the sides **34** of the hinge bracket **30** by a pair of pivot pins **96**. The cover plate **86** is formed with a pair of laterally spaced inwardly offset bridge portions **98** which with the base portion **92** of the support bracket **84** define laterally extending coaxial channels slideably receiving a pair of oppositely extending bolts **100** of substantially rectangular plate construction. The upstanding side flanges **94** have slots **102** receiving and guiding the bolts, and the cover plate **86** is provided with two pairs of projections **104** with opposed parallel edges **106** engageable with the edges of the bolts, it being seen therefore that the side flanges **94** and the opposed edges **106** provide edge bearings for the bolts and that the bridge portions **98** and the base portion **92** provide face bearings for the bolts.

Referring to FIG. 4, a key-operated lock subassembly, generally denoted by the numeral **110**, is mounted substantially between the door **10** and the support bracket **84**. The door is provided with a central key opening **112** for insertion of an appropriate key, and, as seen in FIG. 4, the key opening **112** may be enlarged at its outer end to receive a hardened knurled bushing **113** press fit flush with the face of the door to resist illegal access to the contents of the receptacle by enlargement, as by drilling, of the key opening **112**. For axial alignment of the lock subassembly **110** with the key opening **112**, the door **10** is provided with an inwardly projecting cylindrical boss **114**, and a support housing or bushing **116** of the lock subassembly is provided with a bore portion **118** for revolvably supporting the lock subassembly on the boss **114** with the outer end of the bushing abutting the door. A bore portion **124** of lesser diameter than the bore portion **118** and of greater diameter than a remaining bore portion **126** of the bushing provides an annular shoulder **127** for retaining an enlarged outer end **128** of a key-operated cylinder lock **129** against inward axial displacement. For protection of the lock **129**, a guard washer **130** having a central key slot is revolvably mounted in the bore portion **118** between the face of the lock and the boss **114**.

The lock **129** comprises a cylinder **136** with threaded partially cylindrical portions **138** and intermediate diametrically opposed parallel flat portions **140** having axially extending integral keys **142**. For retaining the cylinder **136** against angular displacement within the bushing **116** there are integrally formed on the bushing adjacent the inner face thereof a pair of lateral projections **137** with opposed edges engaging the flat portions **140** of the cylinder and with slots receiving the keys **142**. The lock **129** incorporates a key-operated plug **139** which in the present embodiment has an inwardly projecting mounting nut or cam support **141** contoured for receiving a stop cam plate **143** and a bolt cam plate or locking lever **145**, the cam plates **143**, **145** being detachably retained on the cam support **141** by a lock washer **147** and a screw **148** threaded to the plug. The stop cam plate **143** cooperates with a stop **144** formed on the inner face of the lock cylinder to limit the angular freedom of displacement of the plug to substantially 90°, and the bolt cam plate is posi-

tioned to overlie the bolts as seen in FIG. 2. For translating the angular displacement of the plug **139** into lateral rectilinear displacement of the bolts, the bolt cam plate **145** is provided with a pair of camming slots **150** and the bolts are provided with upstanding pins or followers received therein, it being understood that when the door **10** is fully inserted in the recess **12** of the receptacle and the bolts are fully extended as shown in FIG. 2 the bolts are positioned to overlie the plates **38** between the lugs **46** (FIG. 1) to lock the door.

For facilitating assembly and removal of the lock subassembly **110**, the bushing **116** is provided with an elongated or oblong radial flange or end face **154** having diametrically opposed radially extending flange portions **156** and intermediate parallel flat portions **158**, and the base portion **92** and the cover plate **86** of the bolt subassembly are provided with oblong openings **160, 162** substantially conforming thereto for axial insertion of the bushing therethrough. For axially retaining the bushing **116** on the door, the bushing is angularly offset from its inserted position, preferably substantially 90° as shown in FIG. 3, to position the bushing flange **154** in overlying abutting engagement with the base portion of the support bracket, for which purpose the base portion **92** may have spot welded thereto a pair of parallel retaining plates **164**, shown to be identical, for abutment by the bushing flange **154** for increasing the strength of the support bracket against inward deflection. The bushing **116** is keyed to the support bracket to retain this abutting engagement as by a machine screw **170** threaded to the flange and having an enlarged head received in pockets formed in the cover plate **86** and the base portion **92** and engaging one of the retaining plates **164**.

Thus, it can be seen that the machine screw **170** becomes accessible by the removal of the screw **148** and the cam plate **145** and that by the additional removal of the machine screw **170** the lock subassembly can be readily detached from the door for repair or replacement. Additionally, the lock subassembly is firmly retained between the base portion **92** of the support bracket and the door and attempted destruction of the lock as by driving a tool, such as a punch, against the guard washer **130** would be greatly resisted. Moreover, even if the lock plug were driven out of the lock cylinder inwardly through the aperture in the hinge bracket, the locking bolts will continue to serve to maintain the door locked.

As will be apparent to persons skilled in the art, various modifications and adaptations of the structure above described will become readily apparent without departure from the spirit and scope of the invention, the scope of which is defined in the appended claims.

I claim:

1. In a parking meter coin receptacle assembly comprising a coin receptacle having an access door and a door lock assembly mounted on the inside of the door for locking the door, the improvement wherein the door lock assembly comprises a bolt subassembly fixed to the inside of the door having a support plate with a laterally extending generally flat base portion and a pair of upstanding laterally spaced side flanges, a cover plate on the flat base portion having a pair of laterally spaced bridge portions defining with the base portion a pair of coaxial laterally extending channels, said side flanges having slots aligned with the channels, and a pair of flat locking bolts laterally reciprocable within the channels and the aligned slots, said cover plate having opposed edges between the channels providing edge bearings for the locking bolts; and a key-operated lock subassembly mounted on the door in axial alignment with the key opening for operation of the reciprocable bolts; and wherein the door is provided with an inwardly projecting boss substantially coaxial with the key opening therein; said lock subassembly comprising a bushing having a bore portion receiving the inwardly projecting boss, said bushing having an elongated end face adjacent its inner end and said base portion having a generally conforming elongated opening for axially receiving the bushing for installation and removal of the lock subassembly, the support plate having strengthening plate means adjacent the elongated opening engageable by the elongated end face when in angularly offset relationship with the elongated opening to prevent inward axial displacement of the bushing, fastener means threaded to the bushing for keying the bushing to the support plate in said angularly offset relationship, a key-operated lock within the lock bushing, a rotatable lock guard washer having a key slot therein revolvably mounted within the bore portion between the boss and the key-operated lock, and lock-operated means for reciprocating the bolts.

2. In a parking meter coin receptacle assembly comprising a coin receptacle having an access door with a key opening and a door lock assembly mounted on the inside of the door having a bolt subassembly with a laterally extending bolt support fixed to the door and a key-operated lock subassembly for operating the bolt subassembly mounted on the door in axial alignment with the key opening, the improvement wherein the bolt support comprises a support bracket with a laterally extending base portion, a cover plate on the base portion having a pair of laterally spaced bridge portions defining with the base portion a pair of coaxial laterally extending channels, and a pair of flat locking bolts laterally reciprocable within the channels; wherein the lock subassembly comprises a generally cylindrical detachable housing in axial alignment with the key opening having an outer open end rotatably supported on the door and an oblong inner end face in abutting engagement with the base portion of the support bracket, and a key lock mechanism supported within the generally cylindrical housing against inward movement relative thereto and removable from the housing through the outer open end thereof with the housing detached from the door; wherein the base portion of the support bracket has an oblong opening in axial alignment with the key opening substantially conforming to said oblong end face for axially installing or removing the lock housing with the key lock mechanism therein when the oblong end face is in an angular alignment therewith; and wherein the door lock assembly comprises means for keying the generally cylindrical housing to the support bracket with the oblong end face in nonaligned angular relationship with the oblong opening and in abutting engagement with the base portion of the support bracket.

3. In a parking meter coin receptacle assembly comprising a coin receptacle having an access door with a key opening, and a door lock assembly mounted on the inside of the door having a bolt subassembly fixed to the door and a key-operated lock subassembly for actuating the bolt subassembly mounted in axial alignment with the key opening; the improvement wherein the bolt subassembly comprises a support bracket with a laterally extending generally flat base portion, a pair of upstanding laterally spaced side flanges, and a cover plate on the flat base portion between the side flanges having a pair of laterally spaced bridge portions defining with the base portion a pair of coaxial laterally extending channels, said side flanges having slots aligned with the channels, and a pair of flat locking bolts laterally reciprocable within the channels and the aligned slots, said cover plate having opposed edges inwardly of the channels providing edge bearings for the locking bolts, said aligned slots being dimensioned to provide additional edge bearings on the side flanges outwardly of the channels, said base portion having an opening therein between the bolts axially aligned with the key opening for receiving the lock subassembly, and fastener means for securing the support bracket to the inside of the door; wherein the door has an inwardly extending boss coaxial with the key opening; wherein the lock subassembly comprises a generally cylindrical detachable housing in axial alignment with the key opening hav-

ing an outer open end rotatably supported on the inwardly extending boss and an oblong inner end face in abutting engagement with the generally flat base portion of the support bracket and a key lock mechanism supported within the generally cylindrical housing against inward movement relative thereto and removable from the housing through the outer open end thereof with the housing detached from the door; wherein the base portion of the support bracket has an oblong opening in axial alignment with the key opening substantially conforming to said oblong end face of the housing for axially installing or removing the lock subassembly therethrough with the oblong end face of the housing in angular alignment therewith; and wherein the door lock assembly comprises means for keying the elongated generally cylindrical housing to the support bracket with the oblong end face of the housing in non-aligned angular relationship with the elongated opening and in abutting engagement with the base portion of the support bracket.

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