Jan. 9, 1962 F. H. OSBORNE 3,016,185

TAMPERPROOF COIN BOX

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Fig. 1.

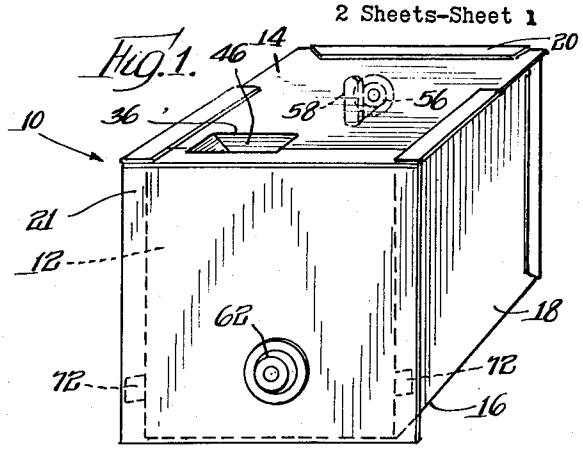


Fig. 2.

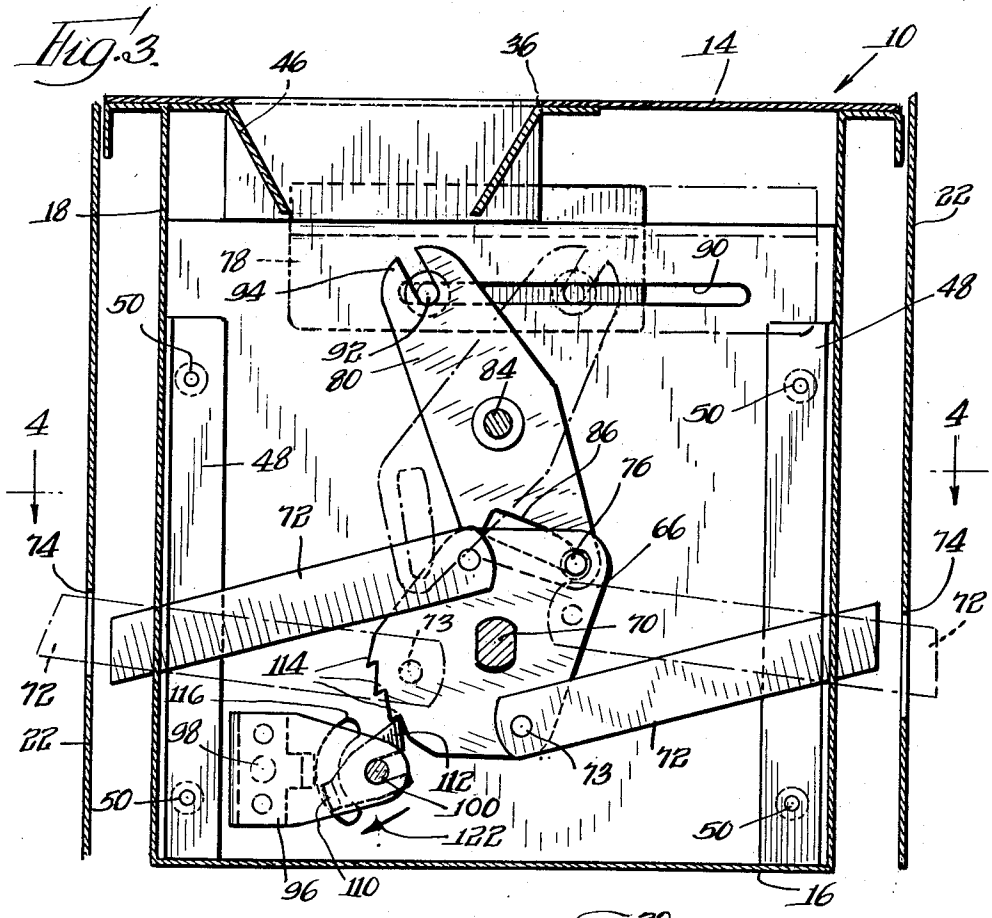
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Fig. 3.



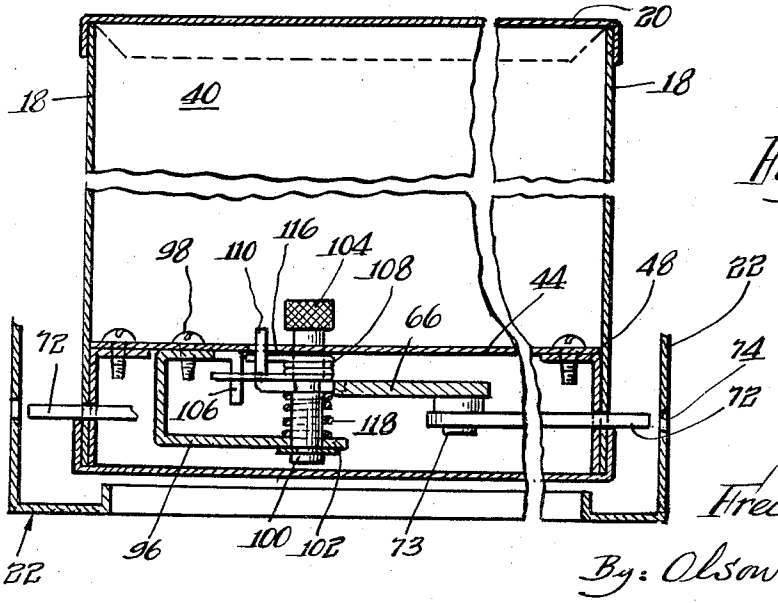


Fig. 4.

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TAMPERPROOF COIN BOX

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8 Claims. (Cl. 232—15)

This invention relates generally to coin-operated juke boxes, vending machines and the like and especially to a tamperproof coin box for use with such devices.

A common problem in the management of coin-operated juke boxes, vending machines and the like is preventing the looting or pilfering of the coin repositories, particularly by those individuals assigned to collect the receipts of operation. Accordingly, an important object of the present invention is to provide coin-repositing apparatus which is constructed to prevent looting or pilfering.

Another object of the invention is to provide an improved coin box for use with juke boxes, vending machines and the like.

Additional objects and features of the invention pertain to the particular structure and arrangements whereby the above objects are attained.

The structure in accordance with the invention includes a housing defining a coin-receiving chamber and having a coin-passing aperture which communicates with the chamber, a structure enclosing the housing, plate means positionable to obstruct the aperture, latch means for releaseably fastening the housing in the enclosing structure, lock means for simultaneously positioning the plate means and operating the latch means, the lock means being arranged to position the plate means so as to obstruct the aperture when the latch means are disposed to release the housing from the structure and being arranged to position the plate means to free the aperture when the latch means fasten the housing in the structure; and detent means arranged with the lock means selectively to block movement of the plate means from its aperture obstructing position.

The invention, both to its structure and mode of operation, will be better understood by reference to the following disclosure and drawings forming a part thereof, wherein:

FIG. 1 is a perspective view of a coin box constructed in accordance with the invention;

FIG. 2 is an enlarged, side elevational view in cross-section showing the coin box of FIG. 1 fastened in a juke box structure;

FIG. 3 is a view through the section 3—3 of FIG. 2; and

FIG. 4 is a view through section 4—4 of FIG. 3.

One important use of the coin-repositing apparatus of the invention is in the art of coin-operated phonographs or juke boxes; and hereinafter, such art will be used for purposes of explanation and illustration without intending to limit the applications and uses of the invention in any way.

Referring now in detail to the drawings, specifically to FIG. 1, a housing generally indicated at **10** is shown to include a front wall **12**, a top **14**, a bottom **16** and sides **18**, all firmly joined together, as by being formed integral or by spot welding. Housing **10** additionally includes a removable back wall **20**. A front plate **21** extending beyond the sides **18** may be affixed to front wall **12**, as by screws, when such a plate is desired.

With reference now to FIG. 2, it will become apparent that housing **10** is adapted to be installed in a box-like assembly **22** which is mounted in a juke box cabinet shown generally at **24** or in some other similar supporting structure. Housing **10** is advantageously received on guide rails **26** or otherwise appropriately supported.

The box-like assembly **22** is closed off by means of an access panel **28** which may be removably mounted in cabinet **24** by slot-and-flange elements such as are shown generally at **30** or by any other suitable means. Panel **28** is furthermore provided with a lock **32** which operates an eccentrically mounted arm **34** to secure panel **28** in the cabinet **24**.

The top **14** of housing **10** is fashioned with an aperture **36** which cooperates with a coin chute **38** conventionally incorporated in cabinet **24**. As is well known to those versed in juke box art, a coin chute such as chute **38** is associated with a coin slot, a slug detector, and an operating switch. However, since these elements comprise no part of the present invention, they are neither illustrated in detail nor described herein.

Housing **10** is divided into a coin-receiving chamber **40** and a mechanism chamber **42** by means of a partition **44**. Accordingly, a coin hopper **46** is fastened to the top **14** communicating aperture **36** with the coin-receiving chamber **40**. As will become apparent from an examination of FIG. 3, partition **44** is assembled to sidewalls **18** by means of mounting brackets **48** which are affixed to sidewalls **18** as by a spot welding. Holes **50** are provided in brackets **48** in order to receive sheet metal screws or other suitable fasteners passing through corresponding holes in partition **44** and securing partition **44** to brackets **48**.

Proceeding with reference to FIG. 2, removable back wall **20** is shown swingably mounted to housing **10** as by offset flanges **52** entering cooperating slots **54** in the bottom **16**. As will become apparent, other suitable means of mounting back wall **20** may also be employed. In order to secure back wall **20** in housing **10**, there is provided a lock **56** which is operable exteriorly of housing **10** and which is adapted to rotate an eccentrically mounted arm **58** so as selectively to cooperate with a strike **60** fastened to the interior surface of top **14**. Lock **56** is preferably of the type in which the key can only be removed when the lock is in its locked position.

An exteriorly operable lock **62** is mounted in front **12** to extend its rotatable barrel **64** into the mechanism chamber **42**. To the free end of barrel **64**, a drive plate **66** is securely fastened, as by a nut **68** threadedly engaging a stud **70** which projects from barrel **64**.

As best shown in FIG. 3, latch means, comprising a pair of lock arms **72** pivotally mounted to drive plate **66** by lock arm studs **73**, are adapted to secure housing **10** in the box-like assembly **22**. Specifically, rotation of the drive plate **66** is adapted to extend the lock arms **72** through appropriate slots in sidewalls **18** into cooperating slots **74** in assembly **22**. The housing **10** is fastened in assembly **22** when lock arms **72** take the position shown in dotted outline in FIG. 3. Conversely, housing **10** may be removed or installed in the assembly **22** when the lock arms **72** are disposed as shown in solid outline. The free ends of lock arms **72** are advantageously beveled as shown in order to provide maximum ease in insertion and withdrawal of housing **10** when the lock arms are positioned as shown in solid outline.

According to the showing of FIGS. 2 and 3, drive plate **66** also carries a lever drive stud **76** which couples the drive plate to a slide plate **78** by means of a lever **80**, which is pivotally mounted to front wall **12** by means of a lever stud **82**, and a pivot element **84**. Lever **80** advantageously receives the drive stud **76** in a cam slot **86**. Furthermore, slide plate **78** is slidably mounted to partition **44** by means of retainer studs **88** which are securely fastened to the plate **78** and pass through a cooperating slot **90** in partition **44**. Retainer stud **88** is advantageously formed with a projection **92** which enters the slotted end **94** of lever **80** in order to complete coupling slide plate **78** to drive plate **66**. Whereas one retainer

stud 88 is adequate for satisfactorily engaging lever 80, it is useful to mount slide plate 78 to partition 44 with two or more of the retainer studs 88 so as to attain positive relative positioning of the slide plate and the partition.

As is best shown in FIG. 4, a bearing bracket 96 is firmly fastened to partition 44 by suitable means including a sheet metal screw 98. One end of the bracket 96 is apertured to receive a rotatable ratchet shaft 100. Shaft 100 is appropriately grooved to receive a lock washer 102 so as to limit its axial motion in one direction. The other end of shaft 100 terminates in an operating knob or thumb screw 104 which extends into coin-receiving chamber 40.

The opposite end of bracket 96 terminates in a tongue 106 which cooperates with a centering spring 108 and an L-shaped arm 110 in providing a centering action for shaft 100. Arm 110 is securely fastened to ratchet shaft 100 as by silver soldering and, as is best shown in FIG. 3, extends a pawl 112 into cooperative engagement with notches 114 which are provided on drive plate 66. Advantageously, partition 44 is apertured with a slot 116 which allows rotational movement of arm 110. There is additionally provided a biasing spring 118 which urges operating knob 104 in the geenral direction of coin-receiving chamber 40, thereby normally positioning pawl 112 coplanarly with drive plate 66.

Having thus described one construction of the invention, it is important now to state how the illustrated embodiment operates.

Considering first that housing 10 has been properly installed in the box-like assembly 22 and that the juke box enclosed in cabinet 24 has been in operation for some time, it will become apparent that coins will have been delivered from chute 38 through the aperture 36 into the hopper 46; and since, in this configuration, slide plate 78 frees hopper 46, coins will have been delivered into the coin-receiving chamber 40 in the direction generally indicated by arrow 120. In this situation, operation of lock 56 will have disposed arm 58 behind strike 60 so as to secure wall 20 to housing 10. Furthermore, lock arms 72 will have been disposed in the slots 74 in box-like assembly 22 fastening housing 10 in the assembly. Also, lock 32 will have disposed arm 34 so as to secure panel 28 and preclude access to housing 10.

Assuming that a collector has been provided with keys to locks 32 and 62, preferably a single key which operates both locks, it will become apparent that the collector can gain access to housing 10 by removing panel 28 after lock 32 has been unlocked. The collector may then release housing 10 from box-like assembly 22 and cabinet 24 by inserting his key in lock 62. A turning of this key will effect a rotation of barrel 64 which, in turn, will result in a rotation of drive plate 66, thereby incurring retraction of the lock arms 72 from the position shown in dotted outline in FIG. 3 to the position shown in solid outline.

This rotation of the drive plate 66 will also result in notches 114 sliding past pawl 112 until the pawl comes to rest in the bottommost of these notches. Furthermore, this rotation of drive plate 66 will cause lever 80 to reposition slide plate 78 so as to obstruct the bottom of hopper 46. Thus, when the collector has access to housing 10 and may withdraw it from the box-like assembly 22, ingress through the coin hopper 46 is effectively blocked; and he cannot shake or otherwise manipulate the coins contained in chamber 40 through the hopper 46. Furthermore, the engagement of pawl 112 in the bottommost of the notches 114 in conjunction with the end of slot 116 blocking further movement of arm 110 prevents the collector from reopening hopper 46 by means of his key.

Accordingly, the collector has no other alternative than to withdraw the filled coin box and return with it intact to a central collection point, replacing the filled coin box with a properly prepared empty box of similar construction.

At the central collection point, the coin box is received from the collector and a master key is inserted in lock 56 whereby arm 58 may be rotated out of engagement with strike 60. Subsequently, back wall 20 may be removed from housing 10 and the coins contained within chamber 40 dumped out onto a counting table.

While housing 10 is thus opened exposing the coin-receiving chamber 40, the coin box may be prepared for reinstallation by depressing operating knob 104 against the bias of spring 118 and rotating the pawl 112 behind drive plate 66 in the general direction indicated in FIG. 3 by arrow 122. Finally, when pawl 112 has cleared drive plate 66, operating knob 104 may be released allowing spring 118 to return pawl 112 into coplanar relationship with the drive plate 66.

So arranged, the lock arms 72 will be withdrawn so as to permit installation of the housing 10 in the box-like assembly 22; and the slide plate 78 will be in position to obstruct the hopper 46. It is important to point out that, in this configuration, the collector's key may be used to operate lock 62 so as to relocate the slide plate 78 into its hopper freeing position but that such movement will simultaneously cause drive plate 66 to move the notches 114 past pawl 112 so that the subsequent operation of lock 62 is limited to a single rotation whereby slide plate 78 is repositioned to obstruct hopper 46.

Thus, when the housing 10 has been prepared for reinstallation by the central agent, operation of lock 62 is limited to one complete cycle corresponding to the steps necessary to fasten the housing in the cabinet freeing hopper 46 and subsequently to release housing 10 and simultaneously obstruct hopper 46. Accordingly, the collector is effectively prevented from pilfering or looting the coin box comprising housing 10.

The specific example herein shown and described is illustrative only. Various changes in the structure will, no doubt, occur to those skilled in the art; and these changes are to be understood as forming a part of this invention insofar as they fall within the spirit and scope of the appended claims.

The invention is claimed as follows:

1. Coin-repositing apparatus comprising: a housing defining a coin-receiving chamber and having a coin-passing aperture which communicates with said chamber; a structure enclosing said housing; plate means slidably mounted to a fixed element within said housing and positionable to obstruct said aperture; latch means for releasably fastening said housing in said structure; and lock means for simultaneously positioning said plate means and operating said latch means, said lock means being arranged to position said plate means to obstruct said aperture when said latch means is disposed to release said housing from said structure and being arranged to position said plate means to free said aperture when said latch means fastens said housing in said structure.

2. Coin-repositing apparatus comprising: a housing defining a coin-receiving chamber and having a swingably mounted wall and a coin-passing aperture which communicate with said chamber; a structure enclosing said housing; plate means positionable to obstruct said aperture; latch means for releasably fastening said housing in said structure; first lock means for securing said wall closing off said housing and adapted to be operable exteriorly of said housing; second lock means for simultaneously positioning said plate means and operating said latch means, said lock means being adapted to be operable exteriorly of said housing and being arranged to position said plate means to obstruct said aperture when said latch means is disposed to release said housing from said structure and being arranged to position said plate means to free said aperture when said latch means fastens said housing in said structure; and resettable detent means arranged with said second lock means selectively to block movement of said plate means from its aperture obstructing position, said detent means being further ar-

ranged to be resettable from the interior of said housing.

3. A coin box for use in a coin-operated machine comprising: a housing defining a coin-receiving chamber and a mechanism chamber, said housing having a coin-passing aperture; a partition separating said coin-receiving chamber and said mechanism chamber; a coin hopper communicating said aperture with said coin-receiving chamber; a slide plate slidably mounted to said partition and positionable to obstruct said hopper; a lock fastened to said housing to extend a rotatable barrel into said mechanism chamber; a drive plate fixed to said barrel; and a lever pivotally mounted to said partition and coupling said slide plate to said drive plate.

4. A coin box for use in a coin-operated machine comprising: a housing defining a coin-receiving chamber and a mechanism chamber, said housing having a coin-passing aperture and a plurality of slots radiating from said mechanism chamber; a partition separating said coin-receiving chamber and said mechanism chamber; a coin hopper communicating said aperture with said coin-receiving chamber; a slide plate slidably mounted to said partition and positionable to obstruct said hopper; a lock fastened to said housing to extend a rotatable barrel into said mechanism chamber; a drive plate fixed to said barrel; a plurality of lock arms mounted to said drive plate to fasten said housing releasably in said machine; and a lever pivotally mounted to said partition coupling said slide plate to said drive plate so as to position said slide plate to obstruct said hopper when said lock arms are disposed to release said housing from said machine and so as to position said slide plate to free said hopper when said lock arms fasten said housing in said machine.

5. A coin box for use in a coin-operated machine comprising; a housing defining a coin-receiving chamber and a mechanism chamber, said housing having a coin-passing aperture and a pair of opposed slots radiating from said mechanism chamber; a partition separating said coin-receiving chamber and said mechanism chamber; a coin hopper communicating said aperture with said coin-receiving chamber; a slide plate slidably mounted to said partition and positionable to obstruct said hopper; a lock fastened to said housing to extend a rotatable barrel into said mechanism chamber; a peripherally notched drive plate fixed to said barrel; a pair of lock arms pivotally mounted to said drive plate and extending through said slots to fasten said housing releasably in said machine; a lever pivotally mounted to said partition coupling said slide plate to said drive plate so as to position said slide plate to obstruct said hopper when said lock arms are disposed to release said housing from said machine and so to position said slide plate to free said hopper when said lock arms fasten said housing in said machine; and a pawl mounted to extend rotatably and reciprocably through said partition, said pawl being adapted to cooperate with the notches in said drive plate in selectively blocking movement of said slide plate from its hopper obstructing position.

6. A tamperproof coin box for use in a coin-operated machine comprising: a housing defining a coin-receiving chamber and a mechanism chamber, said housing having a removable wall, a coin-passing aperture, and a pair of opposed slots radiating from said mechanism chamber; a partition separating said coin-receiving chamber and said mechanism chamber; a first exteriorly operable lock for securing said wall to said housing; a coin hopper communicating said aperture with said coin-receiving chamber; a slide plate slidably mounted to said partition and positionable to obstruct said hopper; a second exteriorly operable lock fastened to said housing to extend a rotatable barrel into said mechanism chamber; a drive plate fixed to said barrel; a pair of lock arms pivotally mounted to said drive plate and extending through said slots to fasten said housing releasably in said machine; a lever pivotally mounted to said partition and disposed within said mechanism chamber, said lever coupling said slide plate to said drive plate so as to position said slide plate to obstruct said hopper when said lock arms are disposed to release said housing from said machine and so as to position said slide plate to free said hopper when said lock arms fasten said housing in said machine; and unlike keys for operating said locks.

7. A tamperproof coin box for use in a coin-operated machine comprising: a housing defining a coin-receiving chamber and a mechanism chamber, said housing having a removable wall, a coin-passing aperture, and a pair of opposed slots radiating from said mechanism; a partition separating said coin-receiving chamber and said mechanism chamber; a first exteriorly operable lock for securing said wall to said housing; a coin hopper communicating said aperture with said coin-receiving chamber; a slide plate slidably mounted to said partition and positionable to obstruct said hopper; a second exteriorly operable lock fastened to said housing to extend in a rotatable barrel into said mechanism chamber; a peripherally notched drive plate fixed to said barrel; a pair of lock arms pivotally mounted to said drive plate and extending through said slots to fasten said housing releasably in said machine; a lever pivotally mounted to said partition and disposed within said mechanism chamber, said lever coupling said slide plate to said drive plate so as to position said slide plate to obstruct said hopper when said lock arms are disposed to release said housing from said machine and so as to position said slide plate to free said hopper when said lock arms fasten said housing in said machine; and a pawl mounted to a ratchet shaft which slidably and reciprocably extends an operating knob through said partition into said coin-receiving chamber, said pawl being adapted to cooperate with the notched portion of said drive plate in selectively blocking movement of said slide plate from its hopper obstructing position.

8. A tamperproof coin box for use in a coin-operated machine comprising: a housing defining a coin-receiving chamber and a mechanism chamber, said housing having a removable wall, a coin-passing aperture, and a pair of opposed slots radiating from said mechanism chamber; a partition separating said coin-receiving chamber and said mechanism chamber; a first exteriorly operable lock for securing said wall to said housing; a coin hopper communicating said aperture with said coin-receiving chamber; a slide plate slidably mounted to said partition and positionable to obstruct said hopper; a second exteriorly operable lock fastened to said housing to extend a rotatable barrel into said mechanism chamber; a peripherally notched drive plate fixed to said barrel; a pair of lock arms pivotally mounted to said drive plate and extending through said slots to fasten said housing releasably in said machine; a lever pivotally mounted to said partition and disposed within said mechanism chamber, said lever coupling said slide plate to said drive plate so as to position said slide plate to obstruct said hopper when said lock arms are disposed to release said housing from said machine and so as to position said slide plate to free said hopper when said lock arms fasten said housing in said machine; and a pawl mounted to a ratchet shaft which slidably and reciprocably extends an operating knob through said partition into said coin-receiving chamber, said pawl being adapted to cooperate with the notched portion of said drive plate in selectively blocking movement of said slide plate from its hopper obstructing position; unlike keys for operating said locks; and biasing means for urging said pawl normally into coplanar relationship with said drive plate.

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