Feb. 28, 1961 A. A. LEONE ET AL 2,973,139

LOCKING COIN BOX

Filed Jan. 5, 1959 3 Sheets-Sheet 1

Fig. 1

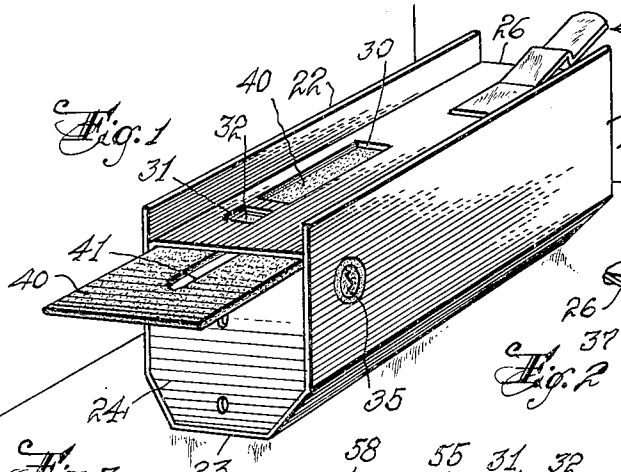


Fig. 2

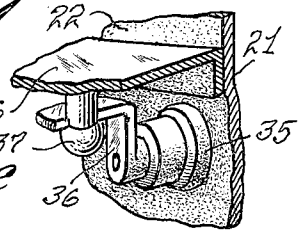


Fig. 3

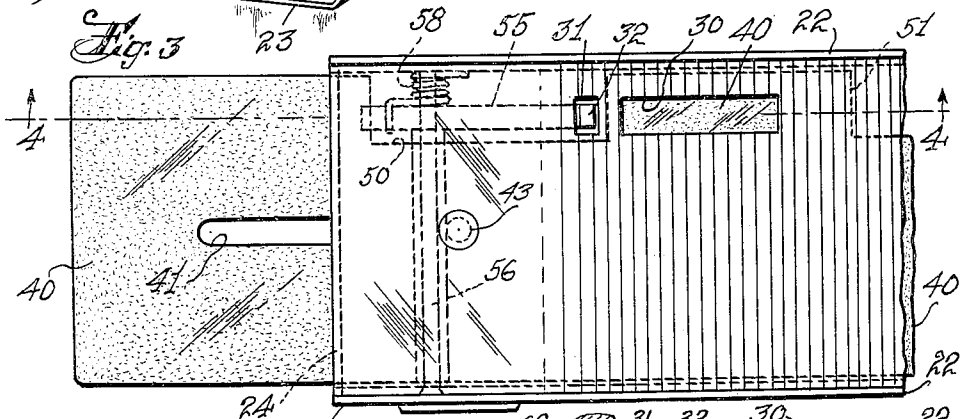


Fig. 4

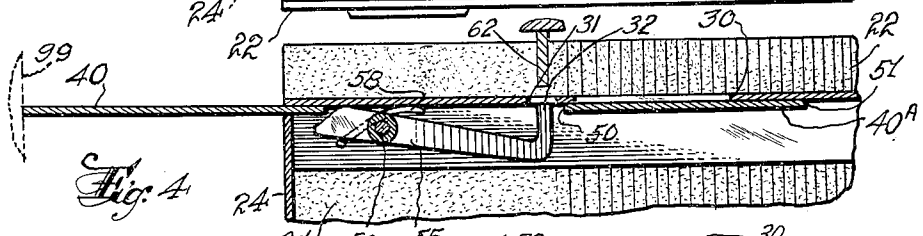
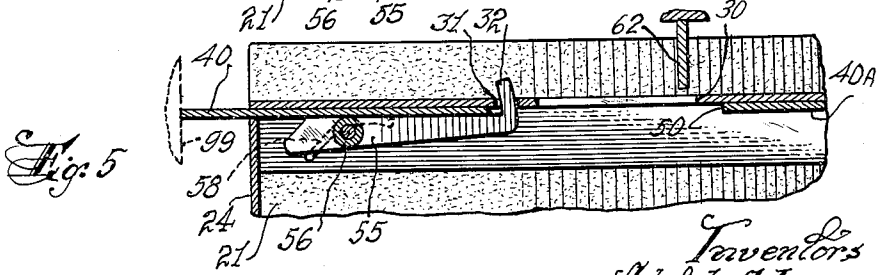


Fig. 5



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Feb. 28, 1961 A. A. LEONE ET AL 2,973,139

LOCKING COIN BOX

Filed Jan. 5, 1959 3 Sheets-Sheet 2

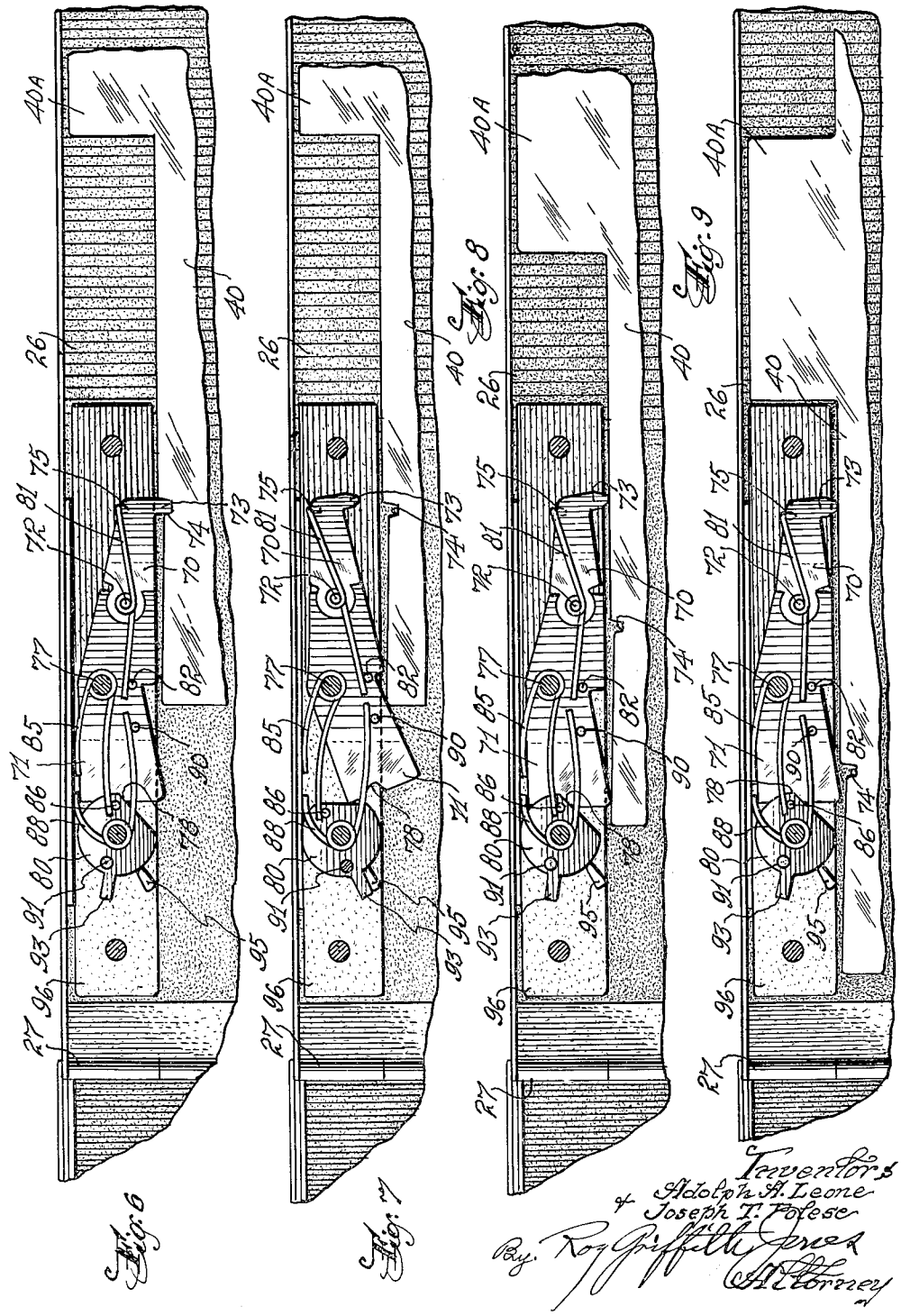


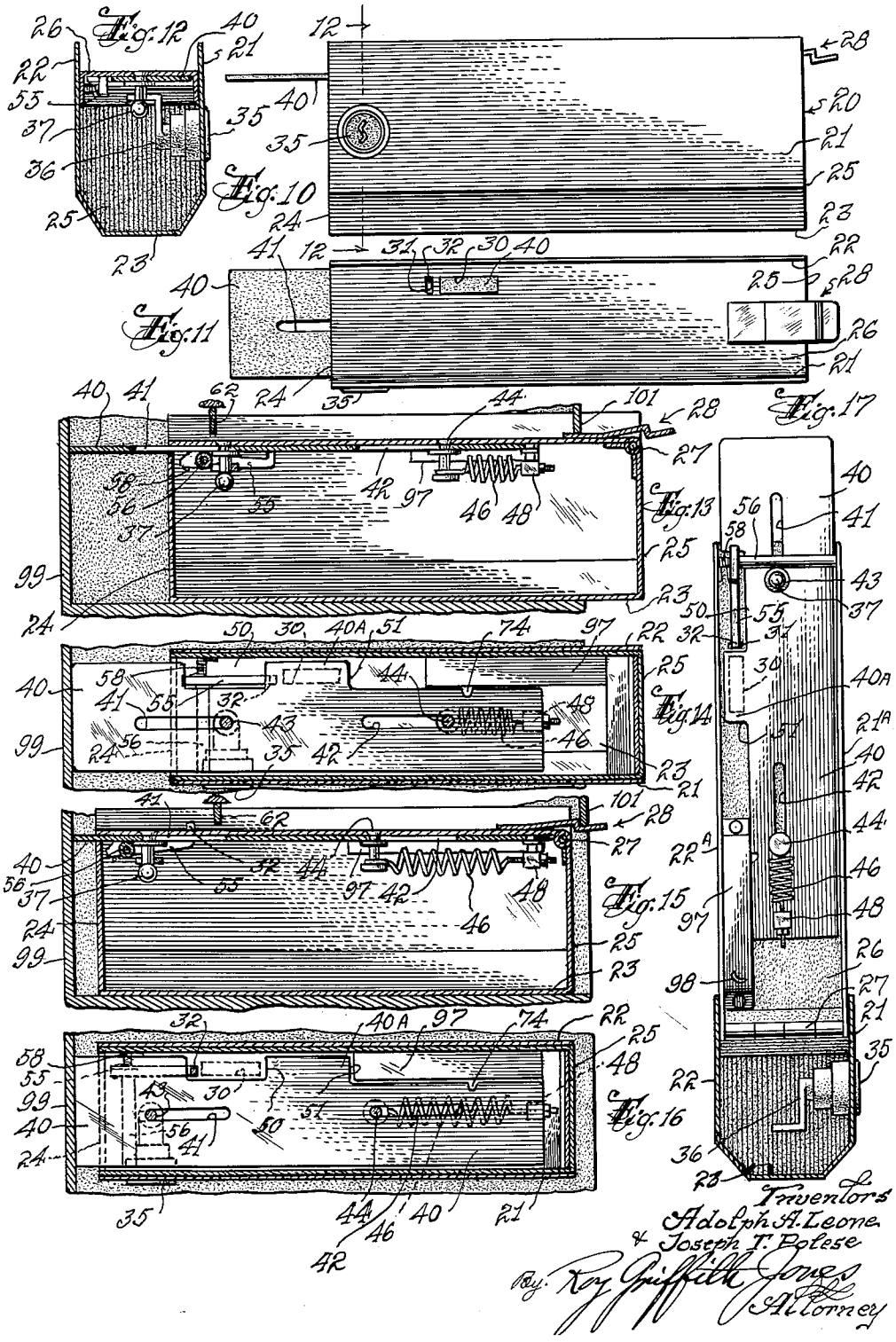
Fig. 6 Fig. 7 Fig. 8 Fig. 9

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LOCKING COIN BOX

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LOCKING COIN BOX

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2 Claims. (Cl. 232—15)

This invention relates to a coin box which, by the act of inserting it into a coin-controlled machine, opens a coin slot, and which automatically both closes the coin slot and locks it closed as the box is withdrawn from the machine with coins therein.

Coin boxes placed in coin-operated machines, as cigarette-dispensing or phonographic machines for example, are periodically withdrawn by collectors acting for an employer. It is desirable that these boxes be tamper-proof, and the box herein disclosed is such a box.

The coin box herein shown, described, and claimed, comprises a box with a cover hinged thereto and adapted to be locked, as by key or otherwise; this is done by the employer to all boxes before they are given to the collector for insertion into machines. The box also comprises a slidable plate disposed under the cover lengthwise thereof. This plate is spring-loaded so that an end portion projects beyond the rear end of the box, unless the plate is held in by pressure, as it is when inserted into a coin-operated machine. There is an always-open coin slot in the box cover, and there is a recess in said slide plate adapted to register with the cover slot when the plate is pushed into the box, so that coins may drop into the box, but the plate closes the box cover slot and is automatically so locked when pressure against the plate endwise is released, which occurs when the box, with coins, is withdrawn from the machine. Thus, no coins can be withdrawn from the box through the coin slot.

Should an attempt be made to tamper with the box, before inserting it into the machine, by pressing the slidable plate inwardly to open the coin slot, and holding it in that position as by a piece of tape for example, which would prevent the plate from moving outwardly and becoming locked as the box is withdrawn from the machine, another anti-tamper feature is provided to prevent such manipulation; this anti-tamper feature brings about a condition which prevents the entrance of the box into its machine compartment.

The drawings illustrate the invention, and in these:

Fig. 1 is a perspective view of the box before its insertion into, and also after withdrawal from, a coin-operated machine;

Fig. 2 is a perspective view of means for locking the coin box cover, and in locking position;

Fig. 3 is a fragmentary plan view of the coin box;

Fig. 4 is a sectional view taken on line 4—4 of Fig. 3;

Fig. 5 is a view similar to Fig. 4, but shows a slidable plate shoved in and raising a locking detent above the coin box cover;

Fig. 6 is a fragmentary plan view of the box cover in open position, i.e., of the under face of the cover, with means for locking a slidable plate secured thereto and in locking position;

Fig. 7 is a view similar to Fig. 6, but showing the plate-locking means in unlocked position, as effected by spring action on turning a cam by means of a key, and the slide plate pushed part way into the box;

Fig. 8 is a view similar to Fig. 7, but shows the slide plate pushed farther into the box to move the cam to locking position;

Fig. 9 is a view similar to Figs. 7 and 8, but shows the slide plate pushed all the way in;

Figs. 10 and 11 are respectively side elevational and top plan views of the box before its insertion into, and withdrawal from, a coin operated machine;

Fig. 12 is a sectional view on line 12—12 of Fig. 10;

Fig. 13 is a section on the central vertical plane lengthwise of the box;

Fig. 14 is a horizontal section of the box, taken just under the box cover, the box being only part way in its proper place in the machine;

Fig. 15 is a view similar to Fig. 13 but shows the slide plate pushed into the box;

Fig. 16 is a horizontal section similar to Fig. 14, but shows the slide plate pushed all the way into the box and the latter fully into its compartment;

Fig. 17 is a view similar to Fig. 12, but shows a slidable locking plate and coacting parts unlocked and positioned to allow coins to be withdrawn.

Referring to the drawings for a detailed description, Figure 1 shows an elongate box 20 comprising vertical sides 21 and 22 which are bent inwardly at their lower portions, bottom 23, rear end 24, front end 25, and cover 26, in the form of an inverted channel, hinged at 27 to the upper part of front end 25. On the forward portion of the cover is a bent spring 28 which operates to latch the box in its machine compartment. The cover has a coin slot 30 and a slot 31 to permit the projection therethrough of a stop 32 (Figs. 3, 4 and 5) from below, as later explained.

To lock cover 26 to the body of the box, a key-operated lock 35 is provided in side 21 near the rear end of the latter, and extends from the outer face of the side to beyond the inner face, as shown in Figs. 1, 2 and 12. Within the box, the lock comprises a right-angled latch 36 which is turnable by key to engage and disengage a fixed bolt 37 which depends from the box cover 26, and is enlarged at its free lower end, the latch being notched at the engaging edge to fit part way around the bolt.

Just under the box cover 26 there is a plate 40 which is slidably secured to the cover. For this purpose the plate has two elongate slots 41 and 42 midway between its sides and lengthwise of the plate, with retaining pins 43 and 44 respectively passing through these slots from the cover. A coiled spring 46 is employed to move plate 40 rearwardly, so that its rear end portion projects beyond the rear end of the box, being subject to being pushed forwardly under pressure, as it is when the box is inserted into a coin-operated machine. Said coil is attached at one end to pin 44, secured, as stated, to the box cover, and at its other end to a fixture 48 which depends from plate 40, as shown in Figs. 13 and 15 for example. Plate 40 is cut into laterally from its side adjacent side 22 of the box, as shown in Figs. 14 and 16, forming recesses 50 and 51. Recess 50 is provided to allow operation of stop 32, which is part of a lever 55, and is more clearly shown in Figs. 4 and 5. The object of providing lever 55 is to prevent a possible mode of effective tampering with the box, as by pushing in plate 40 before inserting it in the machine, and taping the plate to hold it in, as previously mentioned, which would leave coin slot 30 open. Lever 55, a lever of the first class, is pivotally supported on a horizontal shaft 56 which is held to the sides of the box. The lever is angular and comprises a vertical portion 32, previously mentioned, which is normally held down, below the cover, by a coiled spring 58. The spring is wound around supporting shaft 56 and has one end under the

power arm of the lever and the other end bearing up against the lower surface of the box cover. It will be seen from Figs. 4 and 5 that the rear end of the lever is beveled; the reason for the bevel is that, should plate 40 be pushed in, and taped to hold it in, before attempted insertion of the box into the machine, in a tampering action, an edge of the plate, adjacent recess 50, rides on said bevel and is pushed between the lever and the box cover, thus raising stop 32, as shown in Fig. 5, above the box cover. To prevent the insertion of the box into the machine under such assumed attempted tampering, the stop 32 being raised, a depending member 62 is fixed to the machine, in front of stop 32, so that the box cannot be pushed entirely into place.

The mentioned lateral recess or cut-out 51, in plate 40, is for the purpose of accommodating means for automatically locking plate 40 as the box, with coins therein, is withdrawn from the machine, it being understood that the locking action occurs after plate 40 has been permitted enough movement for it to close coin slot 30 in the cover, so that coins cannot be obtained therethrough. Said means for locking plate 40 will now be described. Referring especially to Figs. 6–9 and Fig. 17, it is seen that this locking means is secured to the under surface of the flanged cover, adjacent a side thereof, and adjacent to one side of plate 40, the plate being movable relative thereto due to cut-out or recess 51. The locking means comprises (Figs. 6–9) an element 70, pivotally connected, for limited angular motion, to an end portion of lever element 71 at 72, said motion being limited by abutment of adjacent ends of said elements. Element 70 has a detent 73 adapted to fit into notch 74 in the adjacent edge of plate 40, to lock the latter as the coin box is withdrawn from the machine. Element 71 is pivoted intermediate its ends, at 77, and has a notch 78 (Fig. 7) in its free or rear end. A centrally pivoted cam 80 is adapted to engage notch 78 and to be disengaged therefrom. Element 70 is normally pressed toward the notched edge of plate 40 by a coiled spring 81 which is wound around pivot 72, one end portion of the spring bearing against a pin 82 projecting from element 71, below pivot 77, and the other end portion of the spring bearing on pin 75 of element 70, above detent 73.

When cam 80 engages the notched edge of member 71 (Figs. 6 and 9), a coiled spring 85 tends to hold it engaged, said spring being coiled around pivot 77 of element 71 and having one end portion bearing against a flange of cover 26 and the other end portion bearing against a pin 86 on the cam. Another coiled spring, 88, is provided, which moves element 71 to the position shown in Fig. 7 when the cam is not engaging it, being wound around the pivot of cam 80 and having one end portion bearing against a flange of the cover and the other end portion bearing against a pin 90 which projects from element 71. The cam 80 has an aperture 91 therein, the purpose of which is explained below, and said cam also has a radial projection 93, to limit its movement when it meets a stop 95 which is fixed to the base plate 96 on which the locking mechanism is mounted for attachment to the box cover. A cover 97 (Figs. 14, 16 and 17) is provided over the described plate-locking means and secured to base plate 96. Through this cover there is an arcuate slot 98 (Fig. 17) so that a straight key may be passed therethrough and enter aperture 91 in the cam to turn the latter. The employer, by means of said straight key, turns cam 80 to disengage it from element 71, the latter element and element 70 thereby assuming the position shown in Fig. 7, by action of the described springs. The employer then locks the cover 26 by means of lock 35.

It is to be understood that slidable plate 40 is then in its rearmost position, due to tension of the mentioned spring 46, as shown in Figs. 1, 3, 4, 10 and 11, and it remains in this position until it is inserted into the coin-operated machine by the collector. On insertion into the machine, the projecting end of plate 40 contacts the back wall 99 of the machine compartment which accommodates the coin box. However, to get the box completely into said compartment, it is necessary to push it in until plate 40 is in the box as far as it will go. When the coin box is fully in place in the machine, part 40A of plate 40, between recesses 50 and 51 of the plate, is then in position opening coin slot 30 of the box, as shown in Fig. 16. As previously stated, before the box is inserted in the machine, the plate-locking means is in the position shown in Fig. 7. But when plate 40 is being pushed into the box, the corner of the notched edge of the plate (Fig. 7) pushes against the inclined lower edge of element 71, thus intermediately moving the mechanism to the position shown in Fig. 8, wherein the detent 73 is in contact with the notched edge of the plate, and finally to the position shown in Fig. 9. The locking mechanism remains in this position until the box, with coins, is removed from the machine, at which time, as the box is being withdrawn, slidable plate 40, due to action of coiled spring 46, moves out, i.e., to project rearwardly of the box, and therefore relative to the locking mechanism. In so moving, notch 74 of plate 40 reaches detent 73 of element 70, at which moment the detent is pressed into said notch by spring 81 to lock the plate, as shown in Fig. 6. In this position, portion 40A of plate 40 closes coin slot 30 of the box cover, so that coins can not be withdrawn.

To hold the coin box in its machine compartment against the action of coiled spring 46, the bent spring 28, which is secured to the front end of the box cover, latches under a front portion 101 (Fig. 15) of the machine when the box is fully in said compartment, and need only be pressed down to withdraw the box.

What is claimed is:

1. A coin box comprising a coin-receiving body, a cover therefor having a coin slot, key-operated means for locking the cover to the body, a plate under the cover and slidable relative thereto, spring means normally moving the plate to a projected position in which an end portion of the plate extends beyond the rear end of the body, said plate being adapted to close said coin slot of the cover when in projected position, and to open the coin slot when pressed into the body against the action of the mentioned spring, and means under said cover for automatically locking said plate in the position closing said coin slot as the plate moves to the projected position from its inner or slot-open position, said slidable plate having a notch, and said automatic locking means comprising a detent, a lever pivotally secured to the detent, a turnable cam adapted to engage the lever to hold the latter in locked position, a first spring means tending to move the detent towards the notch of said plate, a second spring means tending to move said lever into the path of said plate when the latter is in projected position, a third spring means adapted to move said cam into locking engagement with said lever when the latter is moved by said plate out of the plate's path as the plate moves into the box body from its projected position.

2. A coin box comprising a coin-receiving body, a cover therefor having a coin slot, key-operated means for locking the cover to the body, a plate under the cover and slidable relative thereto, spring means normally moving the plate to a projected position in which an end portion of the plate extends beyond the rear end of the body, said plate being adapted to close said coin slot of the cover when in projected position, and to open the coin slot when pressed into the body against the action of the mentioned spring, and means under said cover for automatically locking said plate in the position closing said coin slot as the plate moves to the projected position from its inner or slot-open position, said automatic locking means comprising plate-engaging means for locking the slidable plate, a lever pivotally secured to said plate-engaging means, a cam adapted to engage the lever to hold the latter in

locked position, a first spring means tending to move the plate-engaging means into engagement with the plate, a second spring means to move said lever into the path of said plate when the latter is in projected position, a third spring means adapted to move said cam into locking engagement with said lever when the latter is moved by said plate out of the plate's path as the plate moves into the box body from its projected position.

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