

[54] **COIN LOCK HAVING DISC TO
INDICATE READINESS OF LOCK**

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[58] Field of Search194/17, 51, 59, 74, 92, 65

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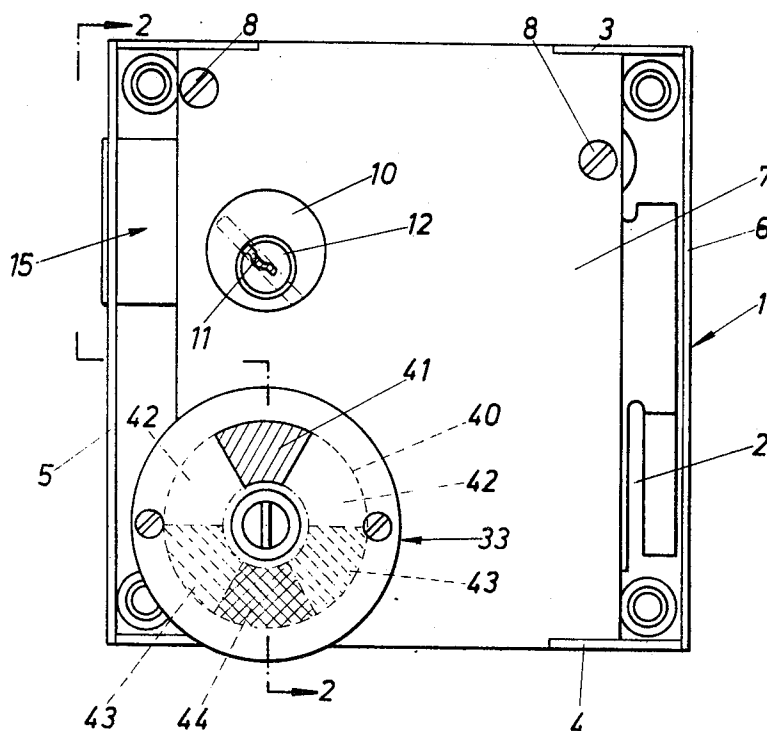
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[57] **ABSTRACT**

A coin lock, particularly for baggage storing boxes, including means for controlling the time period of use of said box, which comprises a lock box having a lock bottom and a lock cover, and a cylinder lock is secured to the lock cover. The cylinder lock includes a key-operated cylinder core and a locking bolt has a driving slot receiving a driving pin controlled by the cylinder core. A stepwise operated switching work, operable from the outside and controlled by an indicating disc, is coupled with the locking bolt. The stepwise operated switching work has a locking cam movable from a locking-readiness position from the outside into a position blocking the return closing movement of the bolt, and is displaceable by the return closing movement of the bolt into its original, starting position.

4 Claims, 9 Drawing Figures



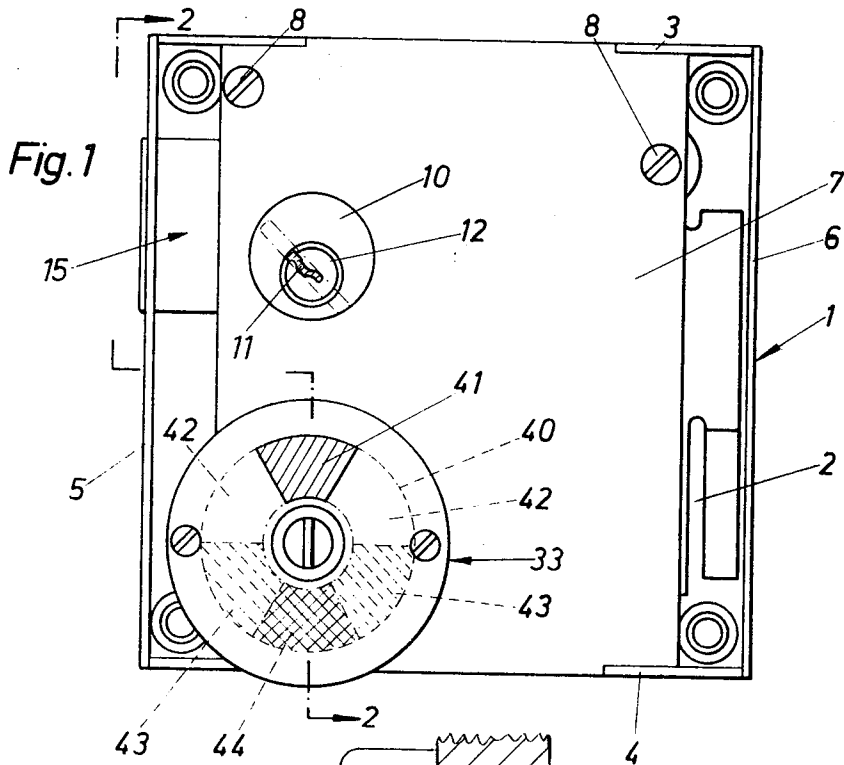
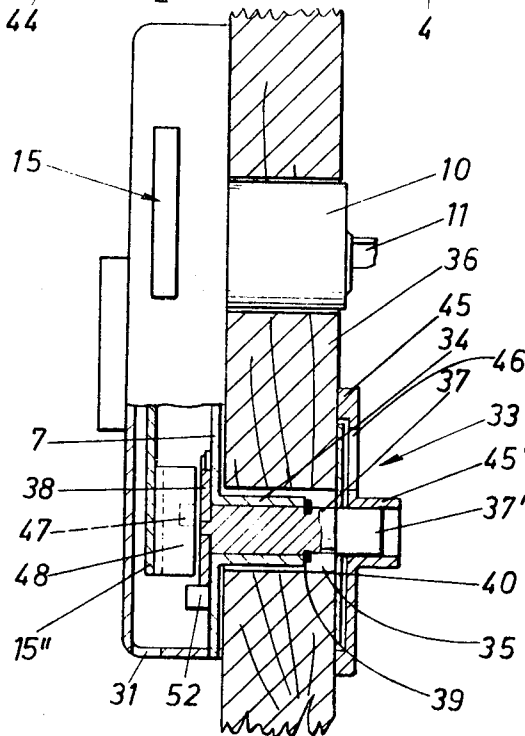
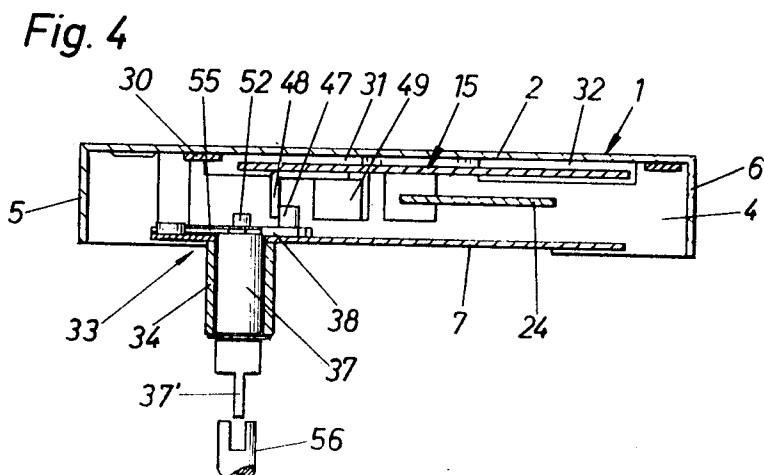
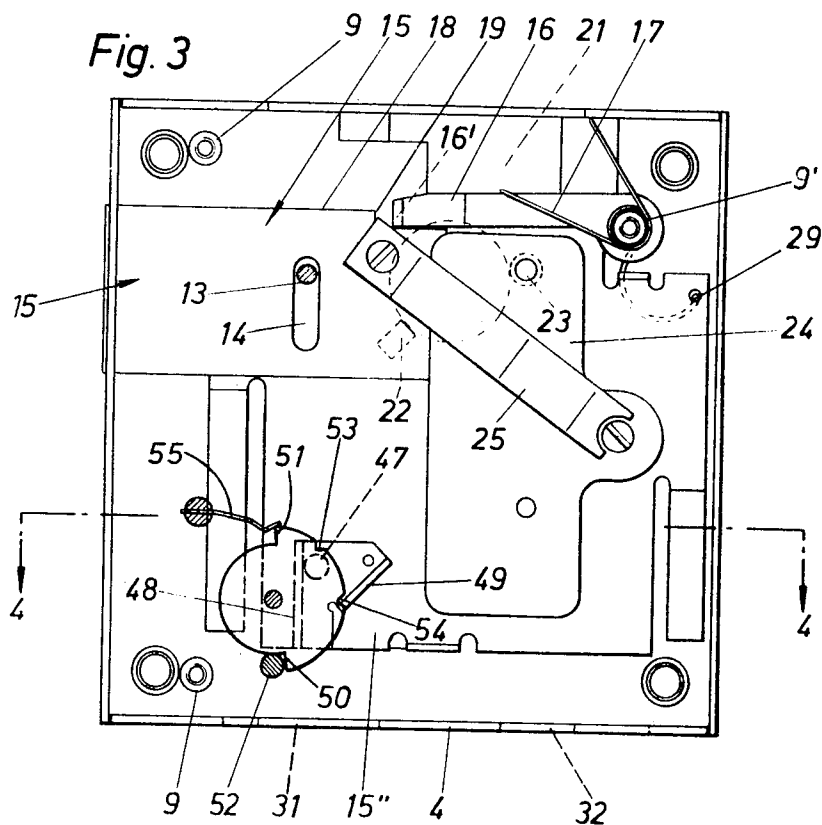


Fig. 2



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Fig. 5

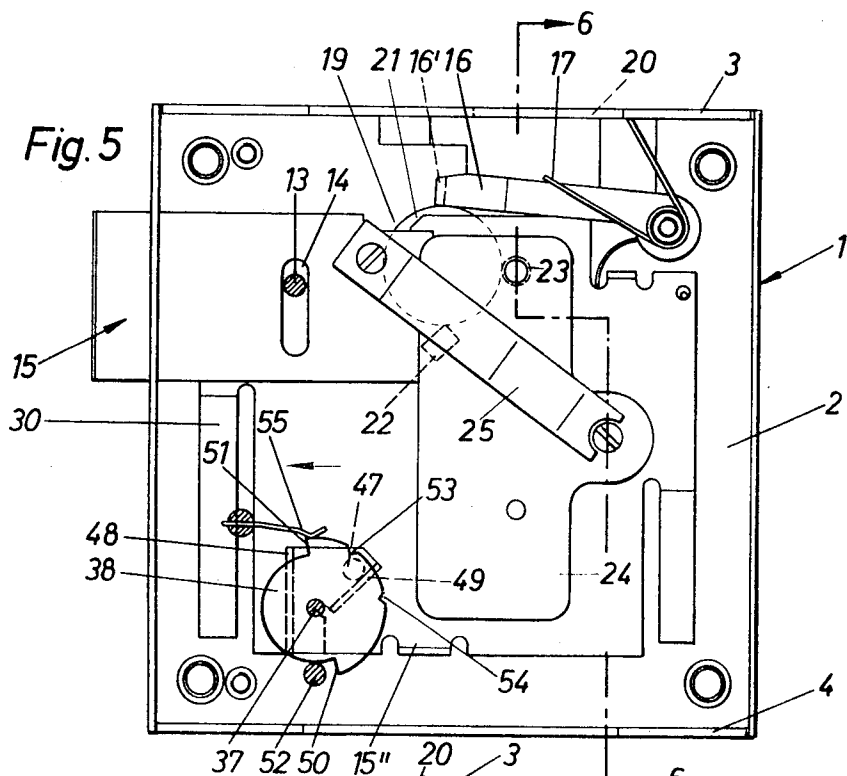
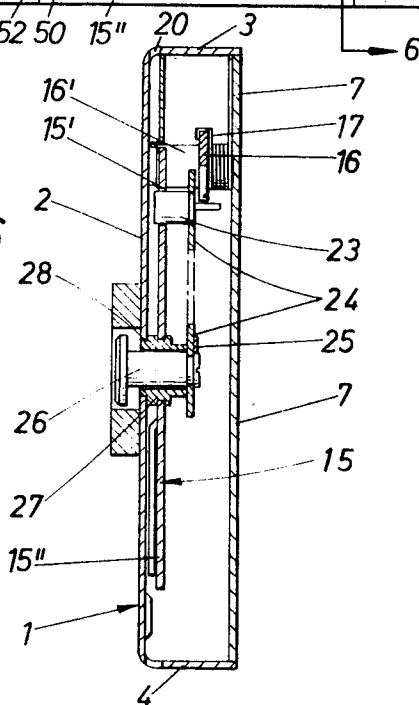


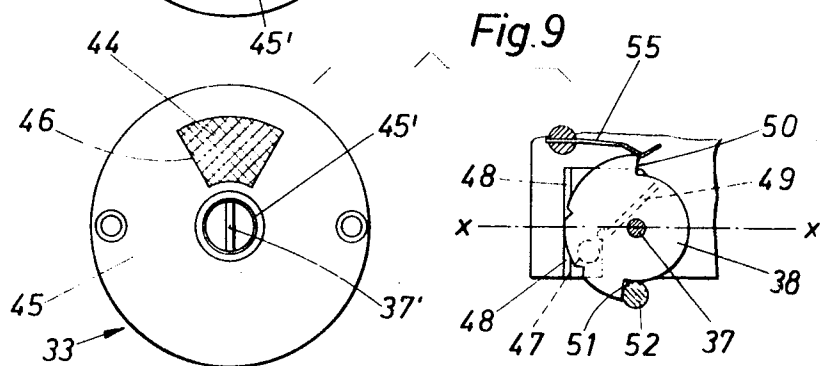
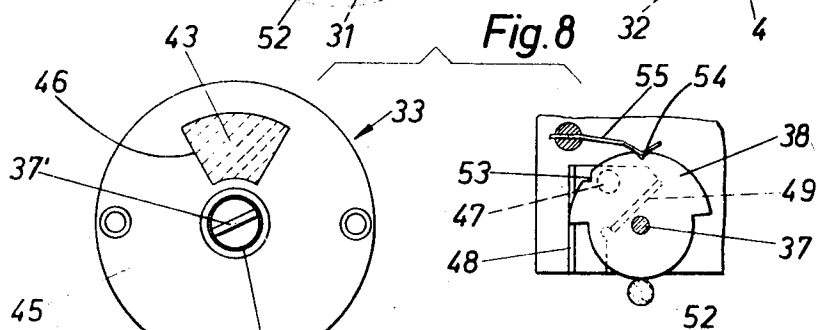
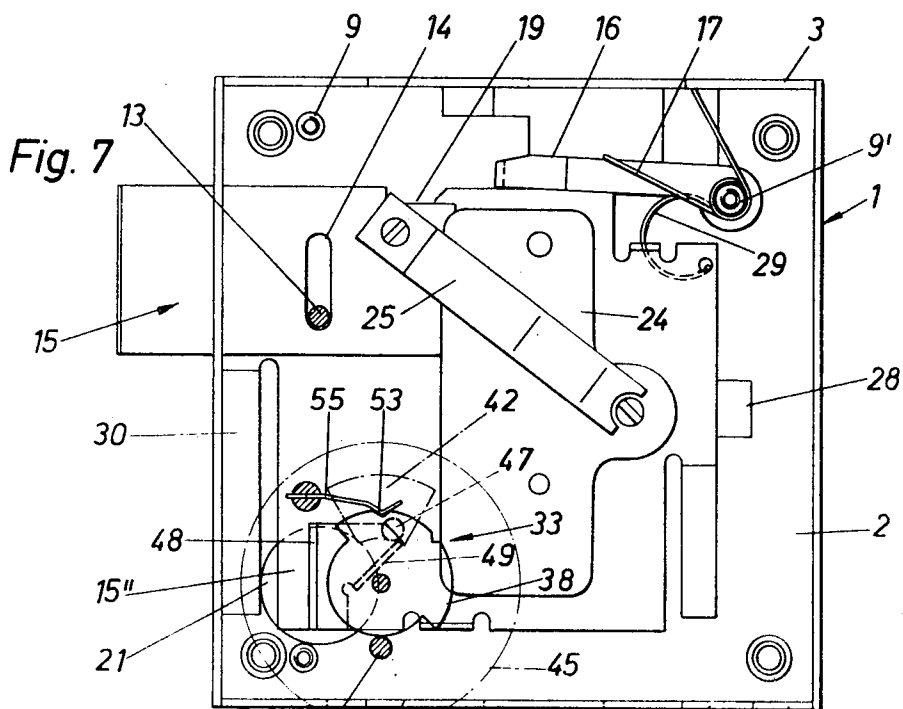
Fig. 6



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COIN LOCK HAVING DISC TO INDICATE READINESS OF LOCK

The present invention relates to a coin lock, in general, and to such coin lock for baggage storing boxes with a control function for the time period of use of the box, in particular.

As a rule, such coin locks are equipped with a time clock. Upon reaching a predetermined time use a locking of the coin lock disposed in the closing position is brought about. Upon paying a fee, the coin lock can be opened again by a supervisor. Such coin locks equipped with a time clock are cumbersome and expensive. A further drawback resides also in the fact that the time clocks are bound to be subjected to disturbances due to the often rough operation of such devices.

It is one object of the present invention to provide a coin lock with a control device for the time period of use of the box in a simple and stabile structure, such control device is not subject to disturbances, which can be produced at reasonable cost and which can be arranged without changes of the remaining locking device.

It is another object of the present invention to provide a coin lock, wherein a stepwise functioning switching device operated from the outside and controlled by an indicating disc, is connected with a closing bolt, which switching device has a locking cam, which can be brought from a locking-readiness position on the one hand from the outside into a position blocking the return closing movement of the bolt and on the other hand is displaceable by the return closing movement of the bolt into its original position.

An essential feature of the present invention resides in the fact that the locking cam projecting from a switching disc into the lock housing projects between two control flanks of the bolt plate, such that the one, preferably obliquely extending control flank joins the locking cam during the closing movement of the bolt, into an intermediate position, from which intermediate position it is displaceable from the outside due to a corresponding free space between the control flanks up to the oppositely arranged control flank in the locking-readiness position and is displaceable by further operation from the outside into the locking position.

It is thereby of advantage in accordance with the present invention that the locking cam during the transition from the locking-readiness position into the locking position by means of the rotary pin of the switching disc enters into the latter, arranged in the direction of the bolt displacement, and an abutment pin is also provided, blocking a further rotation of the switching disc.

Finally, it is of great advantage in accordance with the present invention, if a spring cooperating with resting recesses of the latter slides on the periphery of the switching disc. Due to such structure, a coin lock with a control device storing box or the like, is created in a simpler and stabile structure. The control function assumes advantageously a stepwise g switching work controlling an indicating disc, and coupled with a closing bolt. The use of expensive time clocks which are subject to disturbances is superfluous. The function of the control device in accordance with the present invention is always reliable and not subject to disturbances. Upon termination of a predetermined time period of use of the closed box, the locking cam on which the stepwise operating switching work sits is controlled into the locking-readiness position. A color field of the indicating disc symbolizes clearly this position. From the latter, it is not possible for the user of the box to displace by means of a key the locking cam during the return closing movement of the bolt. This position is likewise symbolized by a color field of the indicating disc, which indicates to the user that the lock cannot be closed any more with the key. It is now up to the service or supervisory personnel to open the lock for the stepwise operating switching work. The coupling between the locking bolt and the operating switching bolt, takes place effectively over two control flanks provided on the bolt plate, between which extends the locking cam of the switching disc. During the closing movement of the bolt, the one, preferably obliquely arranged control flank joins the

locking cam into an intermediate position, which position is indicated, outwardly visible, by a color field. Advantageously caused by the opening distance between the control flanks the locking cam can be controlled by the outside in front of the opposite control flank into the locking-readiness position or by means of further operation into the locking position. From the latter, the locking cam cannot be brought any more into its original position by means of the key operating the cylinder lock, since the locking cam has surpassed during the transition from the locking-readiness position into the locking position, the line provided in the direction of the bolt displacement through the rotary pin of the switching disc. The switching disc is safely blocked against further rotation during an attempted closing, in which one control flank presses against the locking cam, from the abutment pin sitting on the lock cover. In each abutment position is the corresponding switching disc secured by a spring in its position, which spring cooperates with the resting recesses and the abutment edges of the switching disc. The control device can also be selectively added by use of the available lock path.

With these and other objects in view, which will become apparent in the following detailed description, the present invention, which is disclosed by example only, will be clearly understood in connection with the accompanying drawings, in which:

FIG. 1 is an elevation of the coin lock with withdrawn locking bolt;

FIG. 2 is a section along the lines 2—2 of FIG. 1;

FIG. 3 is an elevation, similar to that of FIG. 1, however, with a removed lock cover, for better demonstration;

FIG. 4 is a section along the lines 4—4 of FIG. 3;

FIG. 5 is an elevation of the coin lock, indicating the start of the closing procedure;

FIG. 6 is a section along the lines 6—6 of FIG. 5;

FIG. 7 is an elevation of the coin lock indicating the completed closure procedure;

FIG. 8 is a schematic showing of the indicating disc and of the switching disc in the position of locking-readiness and shown next to each other for better clarification; and

FIG. 9 is a schematic showing, similar to that of FIG. 8, with, however, displaced indicating- and switching discs in locking position.

Referring now to the drawings, the coin lock formed in box form comprises a lock box 1.

From a lock bottom 2 of the lock box 1 extend the angularly bent edges 3, 4, 5 and 6. The inner parts of the lock are covered by a lock cover 7, which is secured by means of securing screws 8. The latter enter into distancing bushings 9 and 9', respectively.

A cylinder lock 10 is secured on the cover 7. A cylinder core 12 operable by means of a key 11 controls a driver pin 13, which extends into a driver slot 14 of the locking bolt 15.

A locking catch 16 is swingably mounted above the locking bolt 15 for swinging about the distancing bushing 9'. A spring 17 surrounding the distancing bushing 9' and bent in form of a hairpin, abuts the locking catch 16 in the direction of the corresponding narrow longitudinal side 18 of the bolt 15. The narrow longitudinal side 18 is equipped with a resting recess 19, into which the angularly-shaped end 16' of the locking catch 16 enters.

In the lock box wall 3 is provided a coin insert slot 20. The insert movement of the coin 21 is limited by a carrying shoulder 22, disposed on the lock bottom 2 and by a pin 23. The latter sits on a plate 24 displaceable crosswise to the direction of movement of the bolt 15 and passes through an opening 15' of the locking bolt 15. A plate 24 is abutted by a blade spring 25 in the direction toward the wide side of the lock 15.

An operation key for the return of the coin is secured on the plate 24, which key is mounted on a bushing 27 of the lock 15. The bushing 27 extends in a longitudinal slot 28 of the lock bottom 2, whereby the bolt guide is formed.

The bolt 15 stands under the effect of a bolt spring 29, disposed on the bushing 9', which bolt spring 29 retains the locking bolt in its prevailing abutment position.

At the forward side of the bolt 15, a web 30 is bent over, which web 30 guides the coin 21 with a guide plate (not shown) sitting on the bolt 15. The coin storage chamber formed by the web 30 and the guide plate can be brought into a flash position, depending upon the position of the bolt 15, with the coin emerging slot 31 of the lock box wall 4 and with a cassette (not shown) and disposed on the lock box wall 4.

Coins which are too small and the diameter which is smaller than the distance between the carrying shoulder 22 and and the pin 23 fall through and out of the slot 32.

Also damaged or faulty inserted coins fall out of the slot 32, if the operating key is pushed, whereby the pin 23 controls out of its coin holding position by means of the plate 24.

This coin lock is coordinated to a stepwise operated switching work 33. The lock cover 7 is equipped with a bushing 34, which enters a bolt 35 of the door 36 of a baggage storing box or the like. A rotary pin 37, which projects on the inside of the switching disc 38, engaging the lock cover 7, projects the bushing 34, and is secured by means of a spring ring 39 against axial displacement. On the end side of the section 37', flattened on both sides, the rotary pin 37 carries an indicating disc 40, which has the color symbol fields 41, 42, 43 and 44. The indicating disc 40 is covered by a disc 45, secured in front of a door 36, which disc 45 defines or forms a viewing opening 46 of the size of a color symbol field. The bushing 45' of this disc formed thereto, serves furthermore for the mounting and covering of the flattened section 37' of the rotary pin 37.

The locking cam 47, projecting into the inside of the lock from the switching disc 38, extends between two control flanks 48 and 49 of the bolt plate 15''. The control flank 49 is preferably designed as extending obliquely.

The switching disc 38 forms the abutment edges 50 and 51. In the open position of the lock, the abutment edge 50 is disposed in front of an abutment pin 52, secured to the lock cover 7. Such switching disc 38 is rotatable into different sensibly resting positions, for which purpose, it has at its periphery the resting recesses 53 and 54 and the abutment edges which cooperate with a spring 55, sliding on the periphery of the switching disc 38.

The operation of the described lock is as follows:

In accordance with FIGS. 1-4, the lock is shown in open position. The key 11 is not removable in this position. Upon a coin insert and a starting preliminary closing, the locking catch 16 is brought out of engagement with the resting recess 19 (see FIG. 5). The coin 21 is advanced by the pin 23 over the carrying shoulder 22, until it slides off from the carrying shoulder 22 and falls into the coin storage chamber. The key can be removed in this position. Simultaneously, with the advancing movement of the bolt 15, the switching disc 38 and the indicating disc 40 are rotated by the control flank 49 over the locking cam 47, so that the field 42 steps in front of the viewing opening 46. In this intermediate position, the spring 55 rests in the resting recess 53 of the switching disc 38 (see FIG. 7).

Upon termination of a predetermined time period of use of the box by means of a key 56, adjusted to the section 37', the switching disc can be further rotated for one step. In this locking-readiness position, the spring 55 enters into the resting recess 54 of the switching disc 38, while the field 43 of the indicating disc 40 is arranged in front of the viewing opening 46. From this locking-readiness position, as well as from the intermediate position, the lock can be opened by means of the key 11, whereby the control flank 48 moves backwardly the switching disc 38 and thereby the locking cam 47 into the

original, starting position.

If, however, upon termination of another time period of use of the box, the switching disc 38 is further rotated from the locking-readiness position for one step, and in particular, into the locking position. The locking cam 37 surpasses during the transition from the locking-readiness position (see FIG. 8) into the locking position, which moves by means of the rotary pin 37 of the switching disc 38 in the direction of the line $x-x$, arranged in the direction of the displacement of the bolt. The abutment edge 51 steps now in front of the abutment pin 52, which prevents a further rotation of the switching disc 38 beyond the control flank 48. In this position, the color field 44 is disposed in front of the viewing opening 46, and indicates that the lock cannot be closed any more (see FIG. 9).

The lock can now open only by supervisory personnel, during which opening by means of the key 56, the switching disc 38 is brought into a locking-readiness position or into the intermediate position. Since the locking cam 47 surpasses thereby the line $x-y$, the lock can be closed again by means of the key 11, whereby the control flank 48 of the locking cam 47 sitting above the bolt 15 is brought into its original, starting position.

While I have disclosed several embodiments of the present invention, it is to be understood that these embodiments are given by example only and not in a limiting sense.

I claim:

1. A coin lock, particularly for baggage storing boxes, including means for controlling the time period of use of said box, comprising

a lock box having a lock bottom and a lock cover, a cylinder lock secured to said lock cover, said cylinder lock includes a key-operated cylinder core, a locking bolt having a driving slot receiving a driving pin controlled by said cylinder core;

a stepwise operated switching work, operable from the outside and controlled by an indicating disc being coupled with said locking bolt, and

said stepwise operated switching work having a locking cam movable from a locking-readiness position from the outside into a position blocking the return closing movement of said bolt, and being displaceable by the return closing movement of said bolt into original, starting position.

2. The coin lock, as set forth in claim 1, which includes a bolt plate having two control flanks and a switching disc, and said locking cam, projecting from said switching disc into the inside of the lock box between said two control flanks of said bolt plate, such that the one, preferably obliquely extending control flank joins the obliquely extending control flank of said locking cam during the closing movement of said bolt into an intermediate position, from which it is displaceable from the outside due to a corresponding free space between said control flanks up to in front of the oppositely disposed control flank into the locking-readiness position and upon further operation from the outside into the locking position.

3. A coin lock, as set forth in claim 2, wherein said locking cam steps during its transition from the locking-readiness position into the locking position beyond an imaginary line extending through the rotary pins of said switching disc in the direction of the bolt displacement, and

an abutment pin blocking a continued rotation of said switching disc.

4. The coin lock, as set forth in claim 1, which includes a spring cooperating with resting recesses of said switching disc, and sliding along the periphery of said switching disc.

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