May 26, 1942. A. PETRUSAK 2,284,294

KEYLESS LOCK

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Fig. 1.

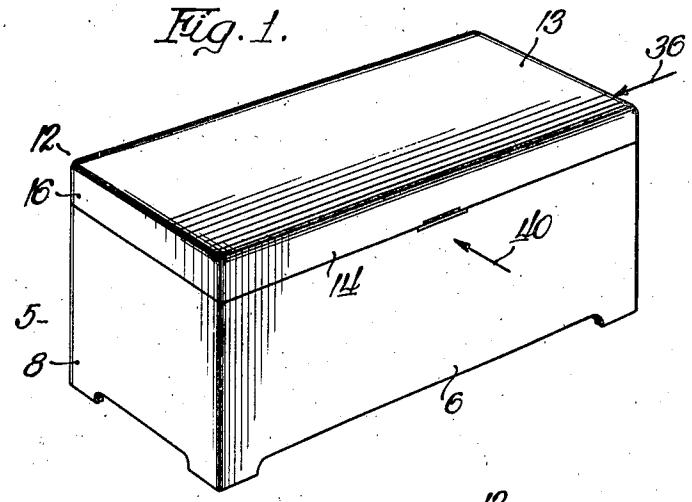


Fig. 4.

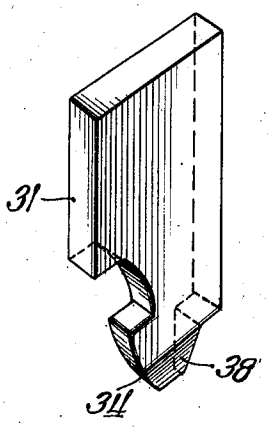


Fig. 2.

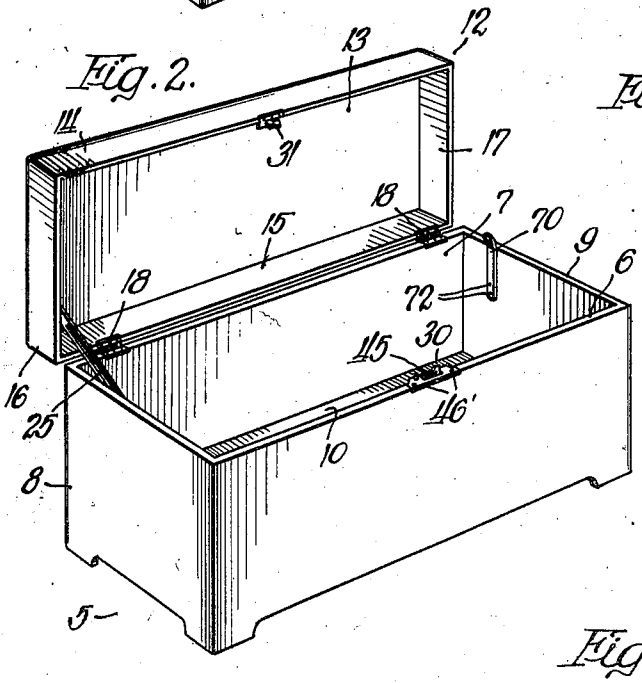


Fig. 6.

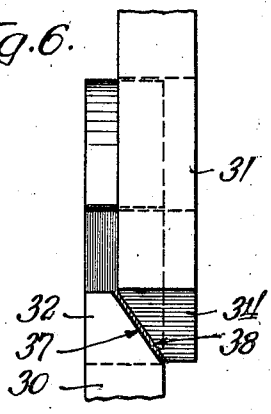


Fig. 5.

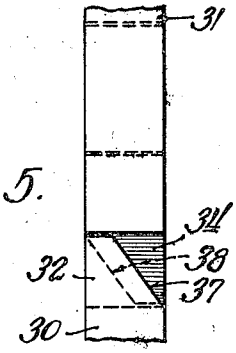
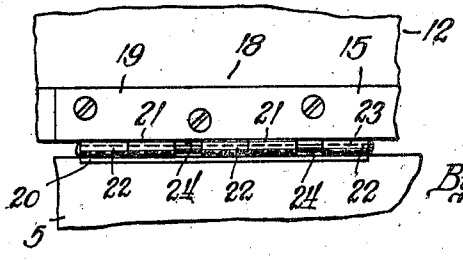


Fig. 3.



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Fig. 7.

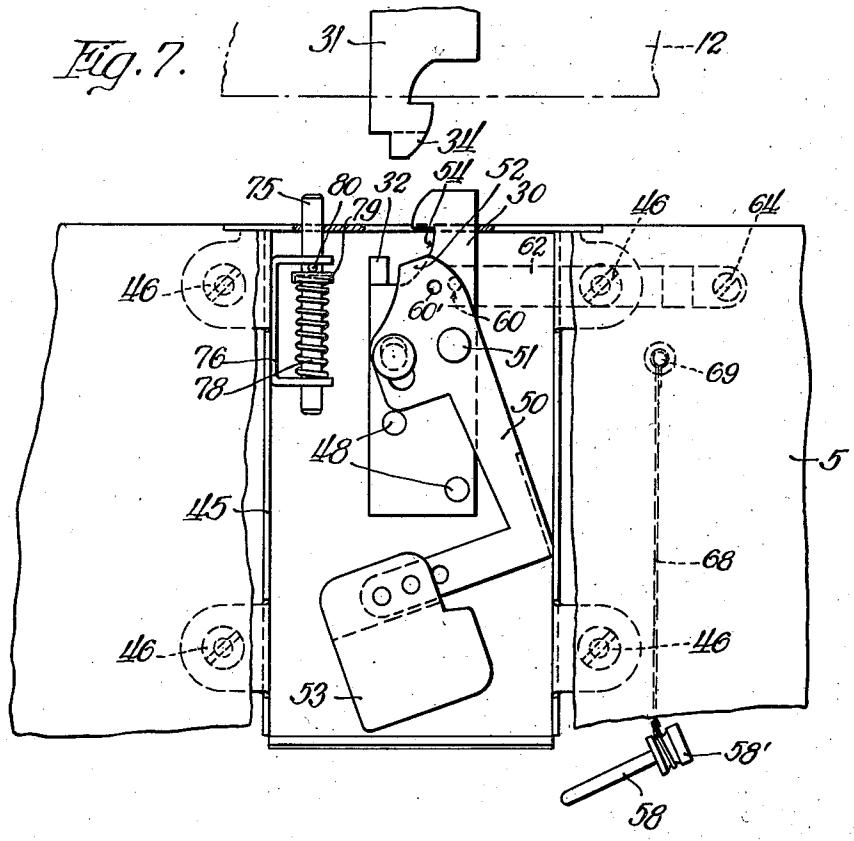


Fig. 8.

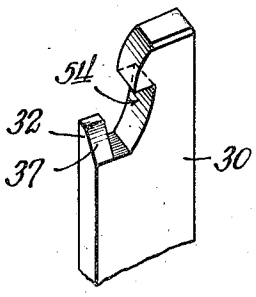
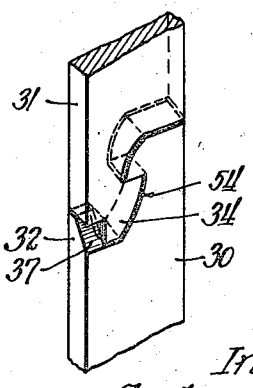


Fig. 9.



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UNITED STATES PATENT OFFICE

2,284,294

KEYLESS LOCK

Andrew Petrusak, Harvey, Ill.

Application October 9, 1939, Serial No. 298,527

2 Claims. (Cl. 206—1.5)

This invention relates to a keyless lock.

While the particular lock selected for illustration is described in connection with a box such as a tool box or the like, it is to be understood that the lock of the present invention may be used with other boxes or containers, or elsewhere as suitable and desired.

One of the main objects of my invention is to provide a keyless lock which is adapted for securely locking, for instance, the cover of a box or other receptacle securely in closed position, and which lock at the same time may be readily released or opened secretly and with little effort by a person familiar with the same, but is difficult to release or circumvent by an unauthorized person or by a person unfamiliar with the combination of movements required to release the lock.

Another and more specific object of my invention is to provide a keyless lock requiring a combination of different movements in different directions to release the same, and a lock with which these releasing movements may be imparted within the view of other persons without revealing to them in opening the lock the combination of movements required for that purpose.

Another object of my invention is to provide in a keyless lock, preferably of a character requiring two or more different predetermined movements in different directions to release the same, a counterweighted arm arrangement which may be employed to make an additional tilting movement necessary to release the lock, thereby lending additional security, and which counterweighted arm arrangement may be secured in released position where the additional security afforded thereby is not required.

It is also an object of my invention to provide a keyless lock of the character described which is of simple and inexpensive construction and which may be operated conveniently and effectively; also, a lock of the character described composed of few parts and adapted for convenient assembly and application to the members to be locked thereby—for instance, to a box or other container and to the cover therefor.

Further objects and advantages of my invention will appear from the following detailed description, taken in connection with the accompanying drawings, in which:

Figure 1 is a perspective view of a box, such as a tool box, with the lock of my present invention applied thereto;

Figure 2 is a view similar to Figure 1, showing the cover of the box in open position;

Figure 3 is a fragmentary view showing one of the hinge connections between the box and the cover;

Figure 4 is a perspective view of the locking member which, in the illustrated embodiment of the invention, is shown applied to the cover of the box;

Figure 5 is a fragmentary and more or less diagrammatic view showing the locking members on the box and on the cover therefor in locking position;

Figure 6 is a similar view, showing the locking members in released position;

Figure 7 is a fragmentary front and more or less diagrammatic view, partially broken away to show the locking means on the inner side of the front wall of the box;

Figure 8 is a fragmentary perspective view of the locking member which is applied to the box; and

Figure 9 is a fragmentary perspective view showing the locking members in locking engagement.

The keyless lock of the present invention is illustrated in the drawings as applied to a generally rectangular box, such as a tool box or other container or the like, formed, for instance, of wood or other suitable material. The box, indicated in its entirety at 5, has front and rear walls 6 and 7, end walls 8 and 9, and a suitable bottom 10.

The cover, which is indicated in its entirety at 12, is shown of hollow form and has a top wall 13, front and rear walls 14 and 15, and end walls 16 and 17. When the cover 12 is closed, the walls 14, 15, 16, and 17 thereof register with the walls 6, 7, 8, and 9, respectively of the box 5. The cover 12 is mounted upon the box 5 in such a manner as to permit swinging and longitudinal movement of the cover relative to the box.

A pair of hinges 18, 18 mount the cover 12 for swinging and longitudinal sliding movement on the box 5, as above set forth. Each hinge 18 comprises a pair of hinge members 19 and 20 (Figure 3), one secured to the cover 12 and the other secured to the box 5. These hinge members 19 and 20 have cooperating hinge knuckles 21 and 22 pivotally joined by a rod or pintle 23. Clearance is provided, as indicated at 24, between the hinge knuckles 21 and the hinge knuckles 22, so that the cover is slidable relative to the box in a longitudinal direction or along the hinge. The cover 12 is shown in Figure 3 as shifted to its released position toward the left. Any other mounting of the cover which will permit swinging and sliding movement of the cover relative to

the box 5 in the manner set forth may be employed within the scope of the present invention. A slotted strut 25 pivoted to the cover 12 and pivotally and slidably connected to the box 5 may be provided for limiting the opening movement of the cover and, if desired, for holding the cover in open position.

The lock comprises a generally hook-shaped locking member 30 secured to the box 5, for instance to the inner side of the front wall 6 substantially intermediate the ends thereof, and a cooperating and generally hook-shaped locking member 31 secured to the cover 12, for instance to the inner side of the front wall 14 substantially intermediate the ends of this wall. When the cover is closed, the locking member 30 engages the locking member 31 to lock the cover in closed position. The locking member 30 has an integral lug 32 which cooperates with an integral lug 34 on the locking member 31 to lock the member 31 and thereby the cover 12 against movement relative to the member 30 and the box 5 in the longitudinal direction indicated by the arrow 36 in Figure 1. The lugs 32 and 34 have inclined surfaces 37 and 38.

The lock, as thus far described, is released by pressing or shifting the locking member 30 inwardly slightly relative to the locking member 31, for instance from the locking position shown in Figure 5 to the position shown in Figure 6. This shifting movement, which is in the direction indicated by the arrow 40 in Figure 1, may be accomplished by pressing the intermediate portion of the front wall 6 of the box inwardly slightly relative to the cover 12 in the direction indicated by the arrow 40. This frees the lug 34 from the lug 32 as shown in Figure 6, and then, by pressing or shifting the cover 12 endwise or longitudinally slightly relative to the box 5 in the direction indicated by the arrow 36, the lock is released so that the cover 12 may be swung to open position.

The locking means on the box 5 is preferably enclosed within a metal housing 45 which may be secured to the inner side of the front wall 6, for instance at 46 and 46'. Where a housing such as the housing 45 is employed, the locking member 30 may be secured to this housing at 48, being thereby secured with the housing 45 to the box 5 in the position described.

To give the lock greater security, an arm 50 is pivoted at 51, for instance, to the housing 45 and thereby on the front wall 6 of the box. This arm 50 has a lug 52 which is held by means of a counterweight 53 in the position shown in Figure 7 to lock the head or lug 34 on the bolt or locking member 31 in the recess 54 in the bolt or locking member 30 and against disengagement from the lug 32 for longitudinal movement of the cover relative to the box. The lug 52 is released or moved clear of the lug 34 by tilting or lifting the right hand end of the box 5 as the same is viewed in Figures 1, 2, and 7 upwardly until the arm 50 swings in a counterclockwise direction (Figure 7) about its pivot 51 sufficiently to clear the lug 52 of the recess 54.

The locking members 30 and 31 are then released, as previously described, by pressing the front wall of the box 5 inwardly and shifting the cover 12 longitudinally to the left to free the hooked lower end of the locking member 31 from the hooked upper end of the locking member 30, whereupon the cover 12 is adapted to be swung to open position.

Where the additional security afforded by the arm 50 is not necessary, this arm 50 is adapted to be swung in a clockwise direction about its pivot, as the device is viewed in Figure 7, to clear the lug 52 of the recess 54, and may be secured in this position by inserting a pin 58 through an opening 60 in the housing 45 and through the opening 60' provided at the upper end of the arm 50 to maintain the lug 52 in retracted or released position against the action of the counterweight 53. A spring arm 62, secured at one end at 64 to the inner side of the front wall 10 of the box 5, is adapted to be engaged at its opposite or free end with the inner headed end 58' of the pin 58 to hold the same in the position in which it maintains the lug 52 released. The attachment of the spring arm 62 to the box 5, at 64, is preferably of a pivotal character to permit this arm 62 to be swung downwardly clear of the pin 58 when it is desired to release the pin and when the pin is not in place.

The pin 58 may be carried by a cord, flexible wire, or other flexible element 68 which may be secured at 69, for instance, to the inner side of the front wall 10 of the box. A spring arm 70, secured at 72 to the inner side of the end wall 9 of the box 5, cooperates yieldingly with the inner side of the end wall 17 of the cover 12 to shift the cover back to the right (Figure 3) to bring the end walls of the cover into registration with the end walls of the box upon swinging the cover 12 to closed position.

A spring-pressed plunger 75 carried by a bracket 76 secured, for instance, to the housing 45 is adapted to cooperate with a bracket on the lower edge of the front wall 14 of the cover, or directly with this lower edge of the wall 14 to impart the initial movement of the cover to open position when the lock is released. The spring 78, which urges the plunger 75 yieldingly in an upward direction, is coiled about the plunger and interposed between the lower arm of the bracket 75 and a spring abutment member 79 which abuts the projecting ends of a pin 80 extending diametrically through the plunger 75.

From the foregoing description it will now be apparent that I have provided an improved form of keyless lock which requires a combination of different movements in different directions to release the same and a lock with which these releasing movements may be imparted within the view of others without revealing to them in opening the lock the combination of movements required for that purpose. The lock securely locks the cover of the box in closed position and, at the same time, may be readily released or opened secretly and with little effort by a person familiar with the same, but is difficult to release or circumvent by an unauthorized person or by a person unfamiliar with the combination of movements required to release the lock.

The particular lock selected for illustration requires two different predetermined movements in different directions to release the same, and has the counterweighted arm arrangement which, when operative, makes an additional tilting movement necessary to release the lock, thereby lending additional security. This counterweighted arm arrangement may be secured in released position where this additional security is not required. It is to be understood that other combinations of movements may be employed within the scope of the present invention, so that different locks in the hands of different persons may be released by different combinations of movements. For instance, the

counterweighted arm arrangement, instead of being adapted to be released by lifting or tilting the right hand end, may be arranged to be released by lifting or tilting the opposite end, or by lifting or tilting the back or front of the box, and the relative direction of shifting movement between the cover and the box may be varied, as may be the particular movement illustrated as required to release the locking members to permit shifting of the cover longitudinally relative to the box.

I have described the invention in connection with the details of a particular embodiment, but I do not intend thereby to limit the invention to such details, nor do I intend to be limited to the particular use and relation of the essential features shown and described.

I claim:

1. In combination, a box, a cover hinged to one wall of said box for swinging movement to open and closed positions and movable relative to said box axially along the hinge, a first locking member mounted on the opposite wall of said box and having a recess and a hook-shaped lug overhanging said recess, a second locking member mounted on the wall of said cover opposite the hinge and in alignment with said first locking member, said second locking member having a recess for receiving the hook-shaped lug of said first locking member and a hook-shaped lug underlying said recess and adapted to enter the recess in said first locking member for interlocking engagement wtih said first locking member to hold said cover in closed position, a second lug on said first locking member and cooperating with said second locking member to hold the hook-shaped lug thereof in interlocking engagement with the hook-shaped lug on said first locking member and said cover against movement relative to the box axially along the hinge, said second lug being adapted to be released from cooperation with said second locking member by pressing the adjacent wall of the box inwardly whereby said cover is freed for movement relative to the box axially along the hinge to release the interlocking engagement between the hook-shaped lugs on said first and second locking members so that the cover may be swung to open position about the axis of said hinge, and an arm pivoted internally of said box on the adjacent wall of the box and having a counterweight for holding a portion of the arm over the recess in said first locking member to hold the hook-shaped lug on said second locking member against disengagement from the second lug on said first locking member when the adjacent wall of the box is pressed inwardly, said counterweight being operable to move said arm clear of the recess in said first locking member by imparting tilting movement to the box.

2. In combination, a box, a cover hinged to one wall of said box for swinging movement to open and closed positions and movable relative to said box axially along the hinge, a first locking member mounted on the opposite wall of said box and having a recess and a hook-shaped lug overhanging said recess, a second locking member mounted on the wall of said cover opposite the hinge and in alignment with said first locking member, said second locking member having a recess for receiving the hook-shaped lug of said first locking member and a hook-shaped lug underlying said recess and adapted to enter the recess in said first locking member for interlocking engagement with said first locking member to hold said cover in closed position, a second lug on said first locking member and cooperating with said second locking member to hold the hook-shaped lug thereof in interlocking engagement with the hook-shaped lug on said first locking member and said cover against movement relative to the box axially along the hinge, said second lug being adapted to be released from cooperation with said second locking member by pressing the adjacent wall of the box inwardly whereby said cover is freed for movement relative to the box axially along the hinge to release the interlocking engagement between the hook-shaped lugs on said first and second locking members so that the cover may be swung to open position about the axis of said hinge, an arm pivoted internally of said box on the adjacent wall of the box and having a counterweight for holding a portion of the arm over the recess in said first locking member to hold the hook-shaped lug on said second locking member against disengagement from the second lug on said first locking member when the adjacent wall of the box is pressed inwardly, said counterweight being operable to move said arm clear of the recess in said first locking member by imparting tilting movement to the box, and means for securing said arm in inoperative position clear of the recess in said first locking member.

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