Sept. 8, 1936. E. VAN NOTE 2,053,805

LOCK

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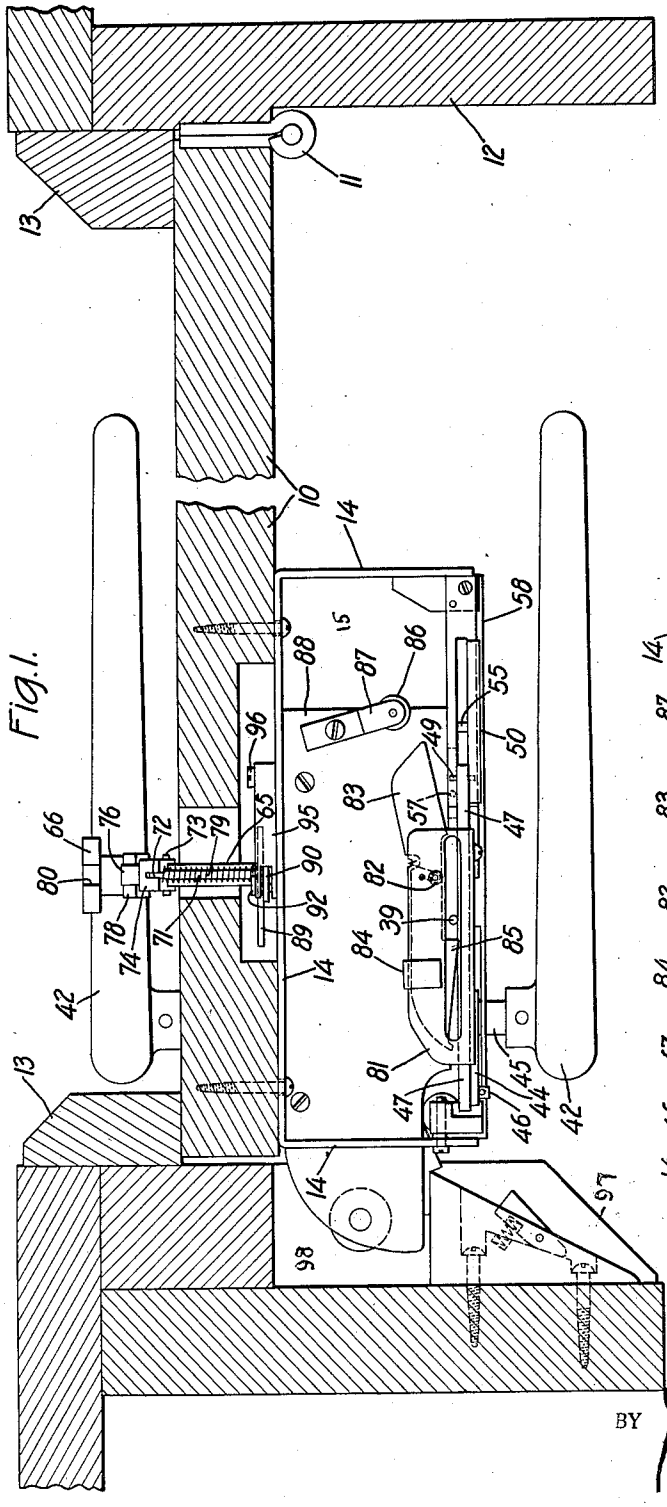


Fig. 1.

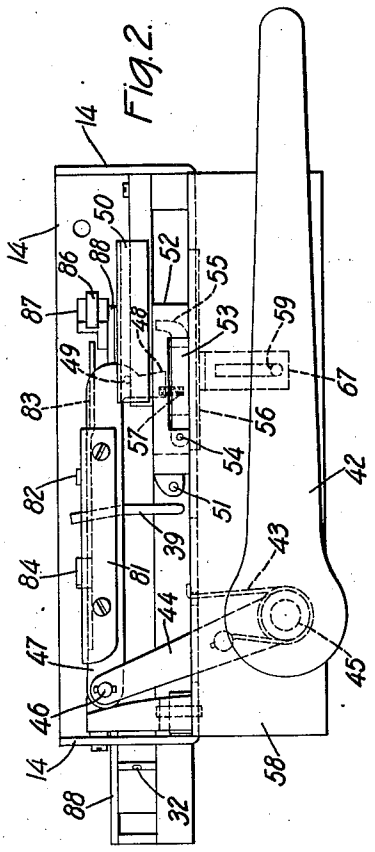


Fig. 2.

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Fig. 3.

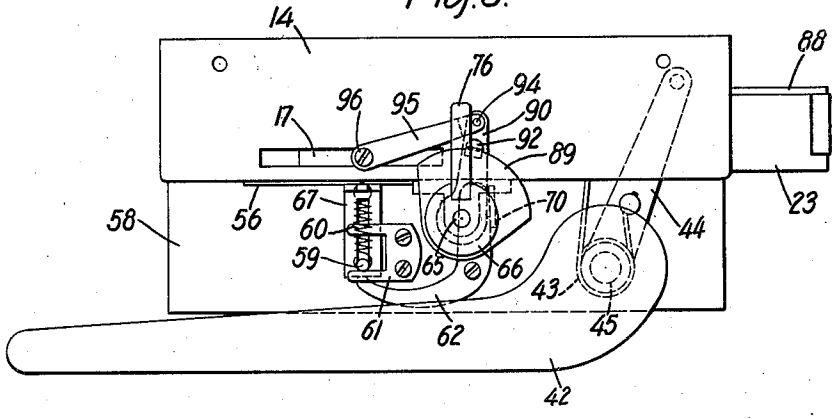


Fig. 4.

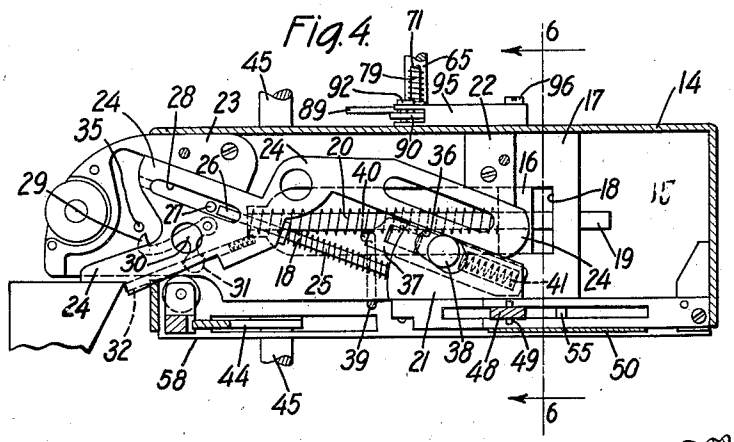


Fig. 5.

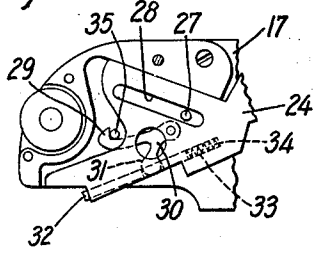


Fig. 6.

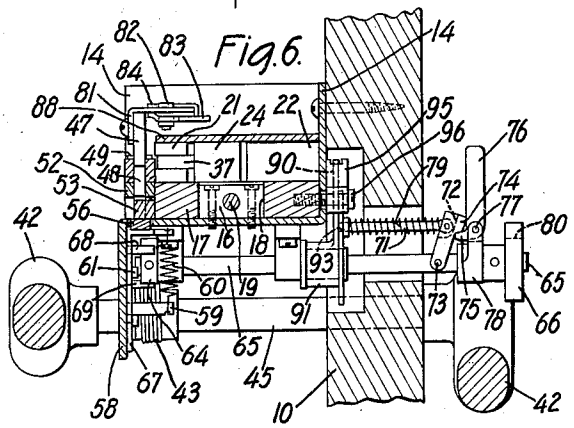
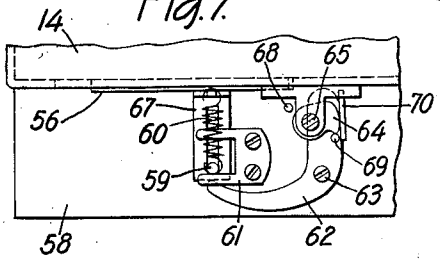


Fig. 7.



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Patented Sept. 8, 1936 2,053,805

UNITED STATES PATENT OFFICE

2,053,805

LOCK

Eugene Van Note, Trenton, N. J.

Application June 28, 1935, Serial No. 28,852

9 Claims. (Cl. 292—167)

This invention relates to locks adapted to be tightly positioned in their keepers, and which may be readily disconnected from and re-connected to the control of their operating handles.

A principal object of the invention is to provide a lock which will be held tightly in its keeper, and thus be prevented from rattling.

Another principal object is, by a simple manual operation, to throw the operating handle of the lock out of control of the lock itself, and in this way to prevent the lock from being operated until the same has been reset for such purpose.

Another principal object of the invention is to adapt the lock to be reset for manual control by the handle.

Another principal object of the invention is to provide means to prepare the lock to be put out of control of the handle, so that the next manipulation of the handle will throw the lock out of such control.

Another principal object of the invention is to provide means for automatically releasing the tightening mechanism.

Other objects will be apparent from reading this specification in connection with the accompanying drawings.

In the drawings,

Figure 1 is a plan view of my assembled lock secured in position on a door, the view being taken from the top;

Figure 2 is a side elevation of the lock shown in Figure 1;

Figure 3 is a side elevation of the lock looking at the same from the other side of the position shown in Figure 2;

Figure 4 is a sectional top plan view of the lock;

Figure 5 is a fragmentary top plan view illustrating the latching mechanism for the tightening bolt;

Figure 6 is a vertical section taken along the line 6—6 of Figure 4; and

Figure 7 is a view showing a detail of the mechanism for controlling the elevator platform.

Referring now in detail to the drawings, in which similar characters refer to similar parts throughout, 10 is a door hinged at 11 to its support 12. Door-stops are shown at 13.

Mounted on the door 10 is my improved lock having a housing, the sides of which are designated 14, and the bottom of which is designated 15. Secured to the housing-bottom 15 is a stationary block 16 (Fig. 4), on which is mounted in sliding contact the main bolt 17. This main bolt is slotted at 18, and is provided with a spring-support 19 integral with said bolt, which spring-support carries the coil spring 20. The spring-support 19 extends through the block 16 and is in slidable contact therewith. Integral with the main bolt 17 are guides 21, 22 and 23 respectively. These guides are adapted to control the direction of the movement of the sliding tightener 24. This tightener is spring propelled by the spring 25, mounted on the spring-holder 26, which spring-holder is integral at one end with the block 21, and extends through a portion of and is in slidable contact with the slide 24 at the other end. A guide pin 27 mounted in the bolt plate 17, is provided to co-operate with the slot 28 as part of the guiding means to control the direction of the movement of the sliding tightener 24.

In the tightener 24 (Fig. 5) is a bifurcated bar or bell-crank 30 pivoted in the slide 24, one leg of which terminates in the latch 29, and the other leg of which terminates in the slot 31, located in the push rod 32 carried by the tightener 24. This push rod is normally pressed downwardly by the spring 33 confined in a recess 34 at the end of the push rod 32, on which it acts. A pin 35 is mounted in the bolt plate 17 which the latch 29 is adapted to engage when the tightener slide 24 is in its most forward position. This latch may be released from the pin 35 by pressing the rod 32 which swings the bell-crank 30 and with it the latch.

The guide block 21 is cut away at 36 (Fig. 4) the forward end of such cut-away portion being slightly narrower than and tapering back to the rear portion. The side of the cut-out portion 36 adjacent the sliding tightener 24, is open, the cut-out of the guide block and the side of the tightener forming an open oval slot. A spring pressed carriage 37 is in slidable relation with the guide block 21, which carriage bears the roll 38 which extends into the oval cut-out portion 36, which roll makes a free contact at the enlarged portion of the cut-out and frictional contact between the guide block 21 and the tightener 24, as it approaches the smaller end of the cut-out. The purpose of this arrangement is to hold the tightener in rigid condition with reference to the bolt plate 17, until the same is released. Releasing means are provided in the form of a lever 39 extending through the bolt plate 17, and having the turned up end 40 which is adapted to press the carriage 37 against the spring 41 and thereby force the roll 38 out of frictional contact with the guide block 21 and the sliding tightener 24,

and thereby again subject the tightener to the action of the spring 25.

Referring to Figures 1 and 2, the operating handle for the lock is designated as 42, which is held in normal position by the spring 43, one end of which is held in the housing-back 15 and the other end is held in the link 44. The handle 42 is mounted to turn the shaft 45, the link 44 also being keyed to said shaft. A pivot connection is made between the link 44 and the push-bar 47, having the nose 48 integral therewith. Projecting from said push-bar 47 is a guide pin 49, which travels in the track 50. Secured to the bolt-plate 17 by the rivet 51 is the carriage 52, which pivotally supports the rocking bar 53, the same being pivoted at 54. At the other end of the bar 53 is a lug 55, which, in the position shown in Fig. 2, lies in the path of the nose 48. Upon the handle 42 being pressed downward, the push-bar 47 will move rearward, and the nose 48 will engage the lug 55, carrying the same rearward, and with it the carriage 52 and the bolt-plate 17 with its connected mechanism.

The bar 53 is controlled in its pivoted position by the elevator platform 56, the said bar being pressed against the same by reason of the spring 57. The operating mechanism of this elevator platform will now be described. Depending from the housing back 15 is the face plate 58. (See Figure 7.) Mounted in the rear of this face plate is the stud 59, which holds one end of the spring 60, the other end being secured to the underside of the elevator-platform 56. The effect of this spring is normally to pull down on said platform. Secured to the platform is a slide 67 held in slidable position against the face plate 58 by the bracket 61, and prevented from lateral movement by the stud 59 which, as described, also carries one terminal of the spring 60. The elevated position of the said platform is controlled by the lever 62, which is pivoted at 63 to the face plate 58. This lever is operated by the cam 64 mounted on the shaft 65, operated by the hand-piece 66 (Fig. 6). A stud 68 is mounted in the face plate 58 to limit the cam movement in one direction, and a stud 69 is mounted on the lever 62 to limit the cam movement in the other direction. A spring 70 is provided to hold the cam in set position. A segment 89 (Fig. 3) is keyed to the shaft 65, (Fig. 6), and the link 90 is integral with the collar 91. Secured to the link 90 is a guide 92 (Fig. 3) in which the periphery of the segment 89 is adapted to slide. The said segment has an aperture 93 (Fig. 6) in line with the rod 71, the end of which is adapted to be slid into said aperture. To accomplish this, the bifurcated link 72 straddles the shaft 65 and is pivoted thereto by the pivot 73. The link 72 is provided with a lip 74 adapted to be engaged by the lip 75 on the lever 76, which lever is pivoted at 77 in the bearing 78. A spring 79 is carried by the rod 71 for the purpose of thrusting the link 72 into constant engagement with the lip 75 of the lever 76. When the lever 76 is drawn down it rests in the recess 80 of the hand-piece 66, and the rod 71 is pressed forward so that the end thereof passes through the aperture 93 of the segment 89 and projects into the path of the link 90. When the rod 71 is extended into the path of the link 90, the movement of said link will cause the rod 71 to rotate about the rod 65, and with it the hand-piece 66, and the elevator-platform 56 will by reason thereof be lowered, and the handle 42 be put out of control of the lock. The said link 90 is pivoted to another link 95, which in turn at its opposite end is pivoted at 96 to the bolt plate 17. The bolt operating mechanism of the lock may be rendered unresponsive to the manipulations of the handle 42 by pressing down the lever 76, which in the manner described will thrust the end of the rod 71 into the path of the link 90. Upon the handle 42 being pressed downward, the bolt 17 will slide in the manner heretofore described and will draw the link 95 and its connected link 90 with the rod 71, the shaft 65 will be turned, the elevator-platform 56 will be lowered as described and with it the bar 53 and its attached lug 55, which lug is then removed from the path of the nose 48 of the push-bar 47, and thus fail to move forward the carriage 52 and its connected bolt plate 17.

As above described, the elevator-platform 56 is shown in its lifted position and as a consequence the lug 55 is in the path of the nose 48, which enables the carriage 52 to slide the bolt 17 and its connected mechanism upon the manipulation of the handle 42. In case it is desired to disconnect the sliding bolt mechanism of the lock so that manipulation of the handle 42 will have no effect upon the same, the hand-piece 66 is turned, which effects the lowering of the elevator-platform 56, and with it the bar 53 with its connected lug 55, dropping the same out of the path of the nose 48. When the elevator-platform is in its lower position, manipulation of the handle 42 will have no control over the carriage 52 and its connected sliding bolt 17 by reason of the following mechanism. Mounted on the push-bar 47 (Fig. 1) is a bracket 81, in which is pivotally mounted at 82 the rockable bar 83. This bar is spring held in the position shown in Figure 1, and is provided with the stop 84 to limit its spring pressed position. This bracket 81 is stepped at 85, the step being adapted to engage the lever 39 and carry the same rearward upon manipulation of the handle 42. The elevator-platform 56 being in its lowermost position as last described, the movement of the pushbar 47 being unrestrained by the lug 55, will permit the rocking bar 83 to continue rearward in its travel, and upon engaging the roller 86 carried by the bracket 87 mounted on the cover plate 88, will depress the raised end of said bar 83, and thereby raise the step 85 out of the path of the tightener-release-lever 39. It will now be seen that manipulation of the handle 42 while the lock is in this position, will exercise no control on either the bolt 17 or the tightener 24.

In operation, upon a door carrying my lock being closed, the main bolt 17 will be pressed inwardly by its contact with the strike plate 97 until it passes the same, when the bolt will be spring-pressed forward into its keeper 98, the edge of the strike plate 97 which is in the path of the release rod 32, presses the same and thereby unhooks the latch 35, and restrains the tightening bolt 24 from further forward movement with the main bolt 17. As the main bolt extends forward after the restraining of the tightening bolt, the latter expands laterally with reference to the main bolt and effects a tightened fit of the bolt in its keeper 98. This tightening is due to the inclination of guides 21, 22 and 23, in which the tightening bolt 24 operates. As the main bolt moves forward and the tightening bolt is restrained, the roll 38 will assume a position in the narrow part of the cutout portion 36, and will operate upon the tightening bolt and frictionally hold the same in position until the same is released by the lever 39.

If it is desired to interrupt the control of the handle 42 upon the lock so that upon manipulation of the same it will not operate the lock, the hand-piece 66 is turned so as to allow the elevator-platform 56 to be lowered, which will remove the lug 55 out of the path of the nose 48, thereby exercising no influence upon the carriage 52 or the bolt 17 to which said carriage is attached. The operation of the handle 42, when the lock is in this position, will carry rearward the pushrod 47 until the elevated end of the rocking bar 83 passes under the roll 86, depressing the said elevated end of the rocking bar and elevating the opposite end thereof, and thereby withdraw the step 85 out of the path of the tightening-bolt-release-lever 39, which in consequence will be uninfluenced by the manipulation of the handle, when the lock is in this position. Instead of manually turning the hand-piece 66, to put the lock out of control of the handle 42, the lever 76 may be drawn down so that the free end thereof will be in the cut-out 80 of the hand-piece 66. The said lever being so drawn down will press forward the rod 71 through the segment 89, and the end of the rod 71 will extend into the path of the link 90, and upon the next manipulation of the handle 42, the link 90 will engage the end of the rod 71 and turn the same together with the hand-piece 66, and thereby lower the elevator-platform 56 with the attendant consequences.

In order to put the handle again into control position of the lock, the hand-piece 66 is turned to raise the elevator-platform 56, and to move it into this position, the lever 76 is raised to vertical position as shown in Figure 6, thereby permitting the withdrawal of the end of the rod 71 from the path of the link 90.

I have described what I believe to be the best embodiment of my invention. I do not wish to be limited in patent protection, however, to the embodiment shown, but what I desire to cover by Letters Patent is set forth in the appended claims.

I claim:

1. In a lock, a main bolt, controlling means, means between said main bolt and said controlling means for sliding said main bolt upon manipulation of said controlling means, a tightening bolt slidable and expansible with reference to said main bolt, means for thrusting said tightening bolt forward, means for restraining the movement of said tightening bolt and holding the same in restrained position, and means for releasing said tightening bolt from such restraint.

2. In a lock, a main bolt, a tightening bolt, means for sliding said main bolt and said tightening bolt, and means for restraining the movement of said tightening bolt with reference to said main bolt.

3. In a lock, a main bolt, a tightening bolt, control means for sliding said main bolt and said tightening bolt, means for restraining the movement of said tightening bolt with reference to said main bolt, and means for nullifying the control means on the main bolt and the tightening bolt.

4. In a lock, a main bolt, a tightening bolt, control means for sliding said main bolt and tightening bolt, means for restraining the movement of said tightening bolt with reference to the main bolt, means for releasing said restraint, and means for nullifying the control means on said main bolt and said tightening bolt.

5. The structure defined in claim 3 in which the means for sliding the main bolt consists of a pusher, a link between the controlling means and the pusher, a carriage secured to the main bolt, and means in said carriage projecting into the path of said pusher.

6. In a lock, a main bolt, a tightening bolt, a handle, a pusher adapted to be operated by said handle, a carriage secured to the main bolt, means in said carriage projecting into the path of said pusher, and means for removing the projecting means from the path of said pusher to nullify the action of said handle upon the main bolt.

7. In a lock, a main bolt, a tightening bolt, means for restraining the movement of said tightening bolt with reference to said main bolt, means for holding said tightening bolt in such restraint, and means for releasing the tightening bolt from such restraint, which latter means consists of a lever adapted to remove the restraining means out of restraining position.

8. In a lock, a main bolt and a tightening bolt, means for restraining the movement of said tightening bolt with reference to said main bolt, means for holding said tightening bolt in such restraint, means for releasing the tightening bolt from such restraint consisting of a releasing lever adapted to remove the restraining means out of restraining position, a pusher adapted to slide the main bolt and with it the tightening bolt, and means on said pusher adapted to operate said releasing lever.

9. In a lock, a main bolt and a tightening bolt, means for restraining the movement of said tightening bolt with reference to said main bolt, means for holding said tightening bolt in such restraint, means for releasing the tightening bolt from such restraint, consisting of a releasing lever adapted to remove the restraining means out of restraining position, a pusher adapted to slide the main bolt and with it the tightening bolt, means on said pusher adapted to operate said releasing lever, and means for removing the means adapted to operate said releasing lever.

EUGENE VAN NOTE.