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Moses

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[54] **DOOR LOCK ATTACHMENT**

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[52] **U.S. Cl.** **70/416**

[51] **Int. Cl.** **E05b 13/00**

[58] **Field of Search** 70/416, 419, 429, 430, 70/431, 447

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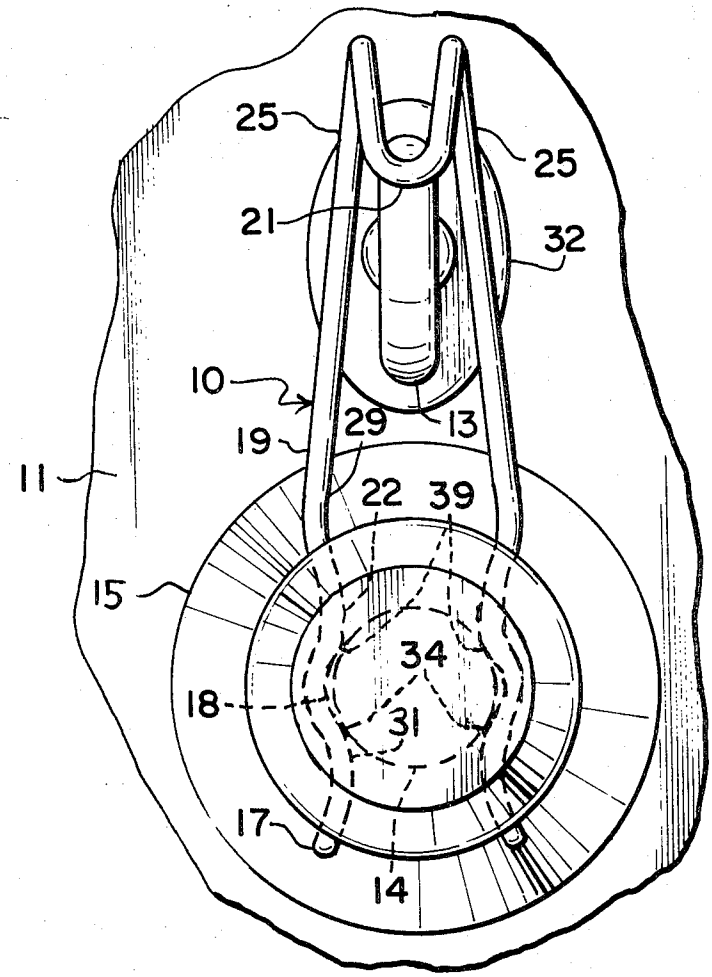
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[57] **ABSTRACT**

A clamping attachment for a lock bolt thumb knob for preventing the lock from being opened from the outside, consisting of a U-shaped wire bracket which can be snapped onto the door knob hub which acts as an anchor for the attachment. The closed end of the attachment is bent to form a claw for gripping the wings of the thumb knob and preventing the lock from being opened from the outside by a pass key or other device. It can be shifted on the lock to an inoperative position or pulled off entirely leaving the door unmarred.

12 Claims, 6 Drawing Figures



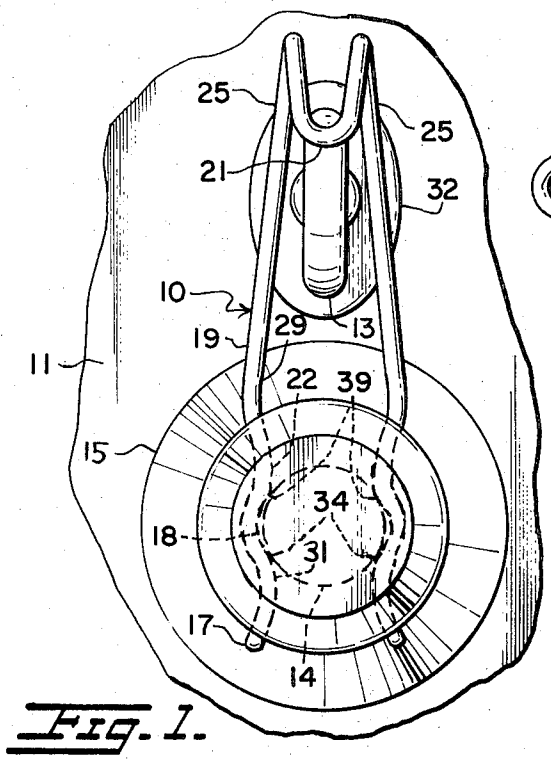


Fig. 1.

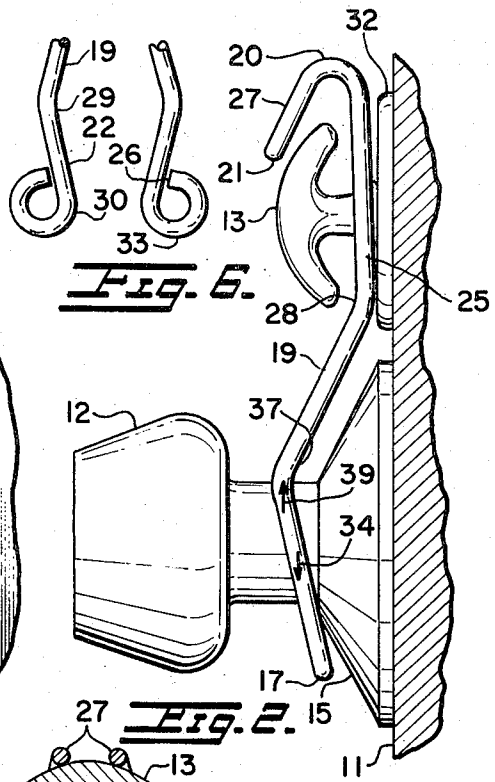


Fig. 6.

Fig. 2.

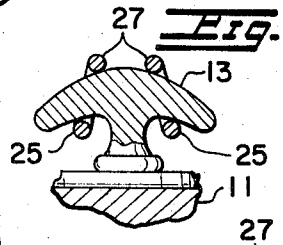


Fig. 4.

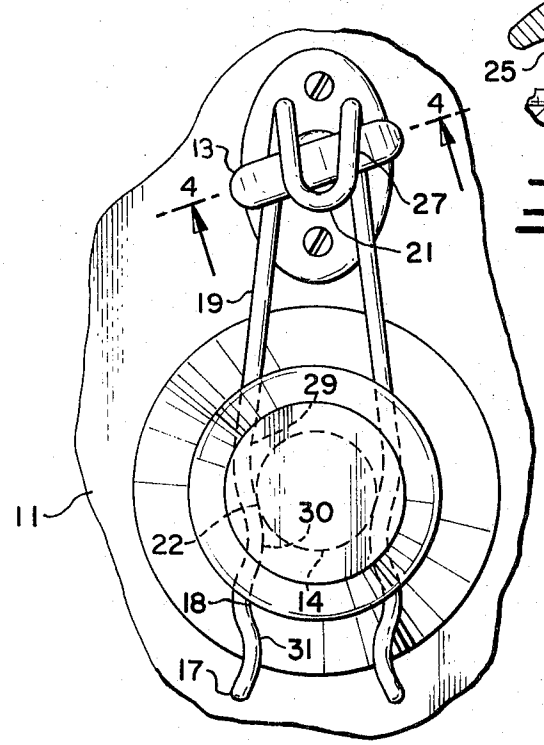


Fig. 3.

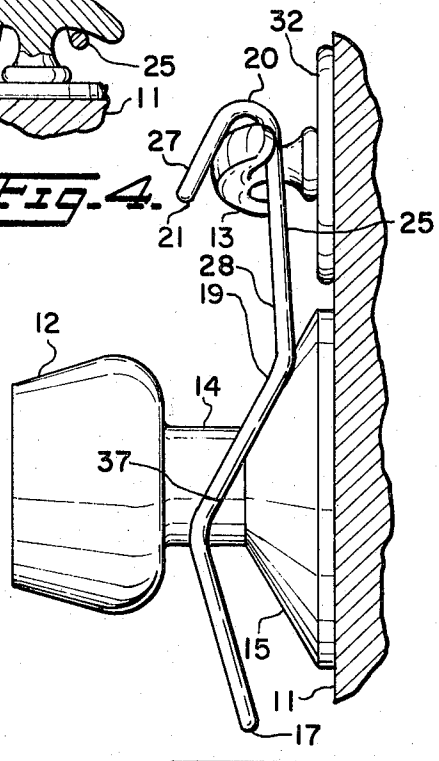


Fig. 5.

DOOR LOCK ATTACHMENT

This invention relates to a clamping attachment to a lock bolt thumb knob to prevent the lock from being opened by use of its own key or lock picking devices.

Many entranceway doors such as used in homes, apartments or motels are fitted with door locks which include a bolt thumb knob usually located above the door handle or knob and on the room or inside of the door so that the room occupant can bolt or unbolt the door from the inside by rotating the thumb knob through a quarter of a revolution. However, even when the bolt is in a locked position, persons using pass keys, lock picking devices or cylinder wrenches, can force the bolt back into the lock, unlock and open the door. But if the thumb knob is restrained from rotating, it is impossible from the outside for the bolt to be returned to its unlocked or inoperative position less the lock mechanism is broken. In that event, there will be evidence of forcible entry and grounds for collecting burglary insurance that might be in force.

The present invention provides a simple, inexpensive device capable of constraining the thumb knob of a lock against rotation after the device has been detachably slipped or snapped onto the lock and placed in the operative position. The device can be shifted on the lock to an inoperative position or it may be removed by hand for use elsewhere.

It is therefore an object according the present invention to provide a clamping device for optionally constraining the rotation of a thumb knob so as to prevent the opening of a bolt type lock from the outside.

Other objects of the present invention are to provide for a thumb knob, a clamp which is cheap, reliable, requires no skill, no screws, drilling or tools to apply, does not mar the door, and which adapts itself to various lock dimensions.

Other objects and features of the present invention will become apparent from the following detailed description considered in connection with the accompanying drawing which discloses the embodiment of the invention. It is to be understood that the drawing is designed for the purpose of illustration only and not as a definition of the limits of the invention.

In the drawing wherein similar reference characters denote similar elements throughout the several views:

FIG. 1 is an elevation or inside view of a section of a door in which a bolt type lock has been installed and the locking device **10** is shown placed in its inoperative position on the lock, and with the thumb knob **13** in the bolt with drawn position.

FIG. 2 is a side view of FIG. 1.

FIG. 3 shows the thumb knob **13** in the bolt extended position and with the device **10** in its operative position embracing both the thumb knob **13** and the door knob hub **14**.

FIG. 4 is a cross sectional view taken along section line 4—4 of FIG. 3.

FIG. 5 is a side view of FIG. 3.

FIG. 6 is a truncated variation of the device shown in FIG. 1 but showing an alternate form **26** and **33** of the ends **17** of the device.

The front elevation or view of the locking device **10** is shown in FIG. 1. It is preferably formed from spring steel wire, which has a circular cross section. Its top end is formed into an inverted V **20**, shown in FIGS. 2 and 5. There are two inverted Vs **20** joined at one end by a U or V shaped portion **21**, as shown in FIGS. 1 and 3. Referring to FIG. 2, the ends **25** of the inverted Vs **20** extend downward and at **28**, are bent inward towards the center line of the inverted Vs **20**. Further down at **37**, the legs are bent away from the center line of the inverted Vs **20**. FIGS. 1 and 3 show these legs bent at **29** inward substantially at an angle to the center line of U**21**. This makes the legs **19** concave at **29** relative to the center line of the U **21**. Farther down, the legs **19** are successively convex at **30**, concave at **18**, and again convex at **31**, ending with hemispherical ends **17** as shown in FIGS. **1**, **2**, **3** and **5**, or with flat ends **26**, formed into an eye or loop **33** as shown in FIG. **6**.

Referring to FIGS. 1 and 2, with the device **10** in its inoperative position and the thumb knob **13** in the bolt withdrawn position, locking device **10** has been placed over the thumb knob **13** of a conventional bolt type door lock, which has a door knob **12**, connected by its hub **14** through cover plate **15** to the internal mechanism of an ordinary lock. The device **10** is pushed down on the hub **14**, causing the ends **17** or modified ends **33** to be sprung apart until portions **18** embrace the hub **14**, which supports the device **10** in this inoperative position. It should be noted that the door knob **12** would not be turned unless the device is in the inoperative position where the ends **17**, as shown in FIG. 2, would clear the fingers grasping the door knob **12**. The center of gravity of the device being nearer the door than the points of contact of hub **14** with the element **18** of the device **10**, the device **10** leans against the thumb knob plate **32**. The spring grip of the concave section **18** of legs **19** on the hub **14** helps to maintain the device **10** in the inoperative position shown in FIGS. 1 and 2.

FIG. 1 shows that in the inoperative position, the device **10** contacts the hub **14** at points **39** above the center of the hub **14**. The reaction of hub **14** against the device **10** at points **39** will therefore have an upward component which is shown in FIG. 2 by the arrow at **39**. There are also contacts with the hub **14** shown in FIG. 1 at points **34** below the center of hub **14**. The reaction of hub **14** against the device **10** at points **34** will therefore have a downward component, which is shown in FIG. 2 by the arrow at point **34**. It will be apparent from FIG. 2 that these component forces produce a couple urging the device **10** to rotate clockwise, thus urging the hooks **20** towards the plate **32**. The device **10** will function without this feature but it makes for a smoother actuation of the lock by a key when the device **10** is in its inoperative position. With the device **10** in this inoperative position, the thumb knob **13** may be given a quarter turn bringing it to a horizontal position. When the device **10** is in this inoperative position, the lock may also be operated from the outside by a key. The thumb knob **13** may be turned from the inside back to the vertical position to unlock the door while the device **10** is in this inoperative position.

FIG. 3 shows the thumb knob **13** rotated anticlockwise to a horizontal or nearly horizontal position which extends the bolt that locks the door. The sections **22** of legs **19** are bent inward towards the center line of the device so that they contact the hub **14** below the axis of the hub **14**. Thus the reaction of the hub **14** against the section **22** has a downward component which pulls or urges the device **10** down, thus causing the inverted V shaped hooks **20** to make firm contact with the knob **13** at four points as shown in FIG. **4**, and

also prevents the device **10** from being jarred to an inoperative position.

Any attempt to unlock the door from the outside would result in urging the thumb knob **13** to turn counterclockwise. But the thumb knob **13** cannot turn farther counter clockwise because it is embraced or trapped by the sections **27** and **25** of the two inverted V hooks **20,** which are sufficiently stiff to resist the forces that may be exerted against them by the thumb knob **13.** These forces are minimized by sections **25** being as far as practicable from the axis of the thumb **13.** Having the section **27** as near as practicable to the axis of thumb knob **13** minimizes the rotation of the thumb knob **13.** It should be borne in mind that the torque at the thumb knob **13** is only a fraction of the torque on the lock cylinder.

It should be noted that the hooks **20** and bracket **10** cannot rotate about the axis of the thumb knob **13** since any torque exerted by the thumb knob **13** on the hooks **20** would urge one of the legs **19** against the hub **14,** which prevents rotation of the device **10.** The reaction force of the hub **14** against **22** on leg **19** has a down component which pulls the hooks **20** more firmly down on the thumb knob **13.** Thus, while the bracket **10** is in its operative position shown in FIGS. **3, 4** and **5,** the lock cannot be operated from the outside.

Note that the device **10** as shown in FIG. **3** is symmetrical and therefore will function equally well on locks where clockwise rotation of the thumb knob **13** opens the lock.

In brief, the device **10** may be placed in its inoperative position shown in FIGS. **1** and **2** by simply pushing it down over the thumb knob **13** and hub **14** until it is detained by detent **18,** contacting hub **14.** From this inoperative position it may be shifted to its operative position shown in FIGS. **3, 4,** and **5** by pushing it down as far as it will go where it will be detained and urged downward by detent **22** contacting hub **14.** The device **10** when it is in its inoperative position shown in FIGS. **1** and **2** may be removed by pulling upward on hooks **20.**

When the device is in the operative position shown in FIGS. **3** and **5,** it may be removed by first pushing upward with a finger on end **17,** to position the device in its inoperative position, shown in FIGS. **1** and **2,** from which it may be removed as explained above.

If it is known that the thumb knob **13** is going to be handled many times before the attachment is placed in its operative position as in FIG. **3,** the attachment **10** may while in its inoperative position as in FIG. **1,** be pulled by the hooks **20** away from the door **11** until the attachment **10** clears the thumb knob **13,** whereupon the attachment **10** may be rotated on half a revolution on the hub **14** and left hanging down from the hub **14,** thereby making it more convenient to turn the thumb knob **13** by hand and insuring smoother operation of the lock by its key.

Referring to FIG. **6,** the bracket **10** as shown in FIG. **3** does not have the concave detent portion **18** but starting at point **30** has its ends curled outward to form an eye. This makes unnecessary the machining operation on the ends **17** and provides ends which are easier on pocket linings and are more comfortable to handle. The truncated embodiment of the present invention is intended to be slid upward off the lock when the device is to be inoperative. It may then be inverted and pushed upward on hub **14** and left hanging downward therefrom or it may be carried away.

Note that this shortened embodiment, which does not include concave element **18,** does not need to have bends which start at **28** and **37,** as shown in FIG. **2.**

What is claimed is:

1. A snap on and off attachment for optionally restraining rotation of the thumb knob of a lock having a door knob comprising:

a bracket having at one end means to optionally embrace the thumb knob consisting of a pair of siamese inverted substantially V-shaped hooks straddling the thumb knob axis to restrain the rotation relative to the bracket; and

at the opposite end means for demountably embracing the door knob hub consisting of a pair of spring legs so as to anchor the bracket against rotation about the thumb knob axis.

2. The attachment as recited in claim **1,** wherein the hooks can adapt themselves to a range of thumb knob dimensions.

3. The attachment as recited in claim **1,** wherein one or both of said legs has a concave portion located with respect to the hooks so that when the concave portion is aligned with the door knob hub, the hooks are held out of engagement with the thumb knob wings but may be engaged with the wings by pushing the bracket down.

4. The attachment is recited in claim **3,** wherein the upper contact point of said concave portion with the door knob hub is farther from the door than the lower contact point of said concave portion with the door knob hub.

5. The attachment is recited in claim **1,** wherein one or both of said spring legs has a concave or angled portion located so that when the bracket is pushed down to engage the thumb knob wings, said angled portion contacts the door knob hub below its axis, thus urging the hooks to grip the wings and to resist the hooks from being jarred out of engagement with the wings.

6. The attachment as recited in claim **5,** wherein said angled portion is of sufficient length to accommodate the desired range of door knob to thumb knob center distances and the desired range of thumb knob dimensions.

7. The attachment as recited in claim **1,** wherein each of said legs just below the lowest thumb knob gripping tip is bent towards the centerline of the V portions of the hooks.

8. The attachment as recited in claim **1,** wherein each of said leg ends are rounded or hemispherical.

9. The attachment as recited in claim **1,** wherein the end of each of said legs is curled outward to form an eye.

10. The attachment as recited in claim **1,** wherein each of said legs has an end portion which is spread outward.

11. The attachment as recited in claim **1,** wherein said bracket is formed from a single piece of material.

12. The attachment as recited in claim **5,** wherein the legs are coiled or flared outward just below the said angled portion and then terminated.

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