United States Patent

Schwartz et al.

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[54] CHAIN DOOR LOCK

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[73] Assignee: **Taylor Lock Company,** Philadelphia, Pa.

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[52] **U.S. Cl.** .....**70/93,** 70/379 A, 292/124

[51] **Int. Cl.**.....**E05b 65/06,** E05c 17/36

[58] **Field of Search** .....70/93, 379 A; 292/264

[56] **References Cited**

UNITED STATES PATENTS

3,071,958	1/1963	Russo	70/93
3,125,875	3/1964	Friedman	70/93
1,316,327	9/1919	Rixson	70/379 A UX

FOREIGN PATENTS OR APPLICATIONS

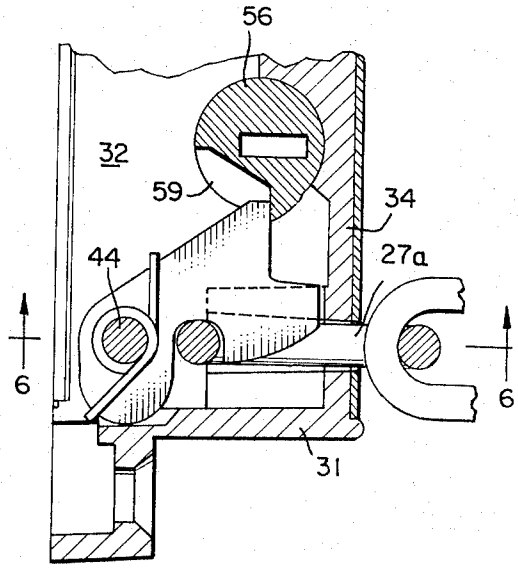
6,448	1912	Great Britain	70/93
25,772	1912	Great Britain	292/264
319,545	3/1920	Germany	70/93

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[57] **ABSTRACT**

A door lock including a chain, means for detachably connecting one end of the chain to a door, and a housing for affixation to the door jamb having an opening for receiving a member on the other end of the chain and releasably securing the latter in the housing, the chain being releasable from the housing by key lock means accessible through the doorway.

6 Claims, 6 Drawing Figures



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SHEET 1 OF 2

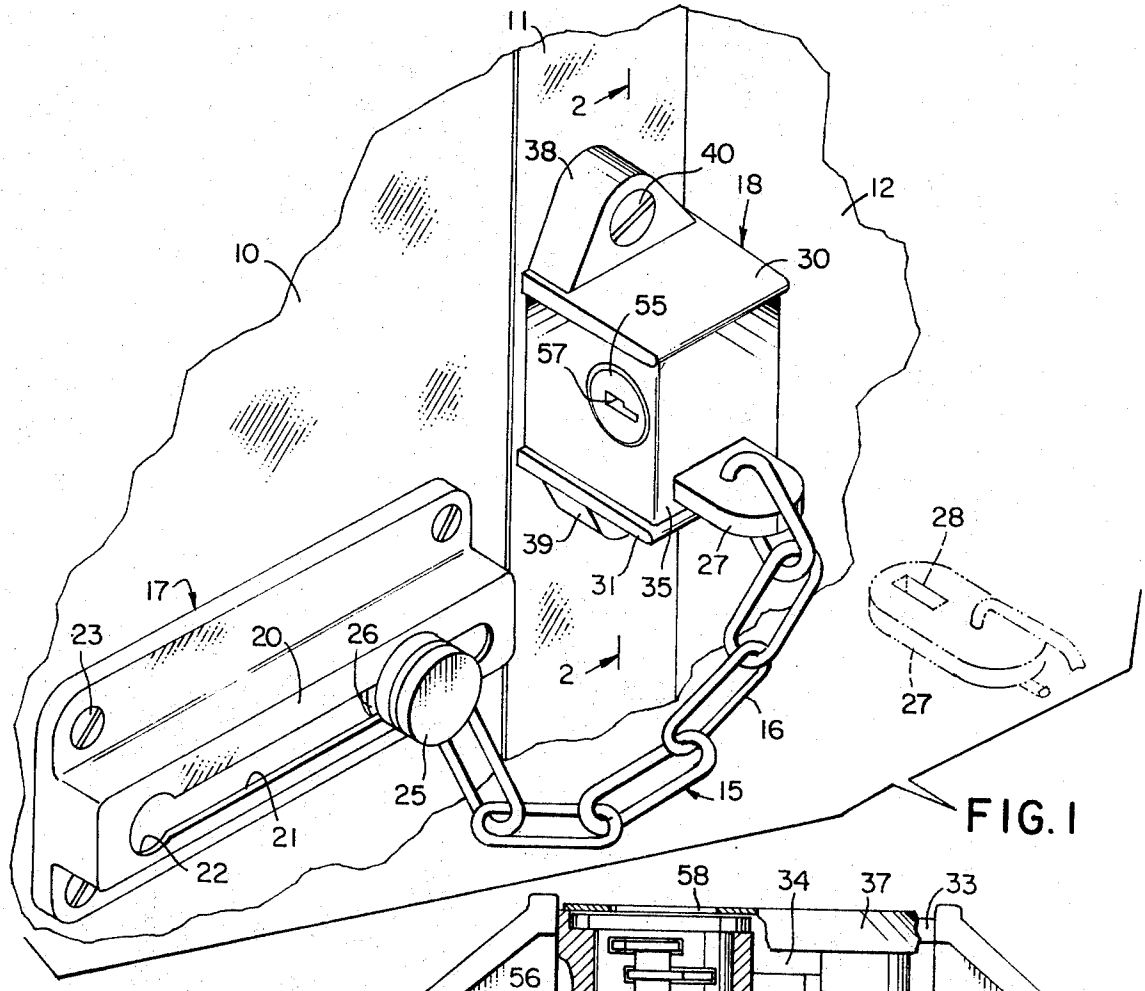


FIG. 1

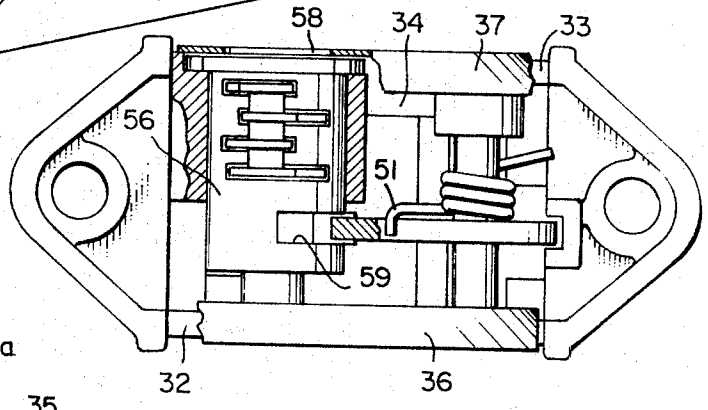


FIG. 4

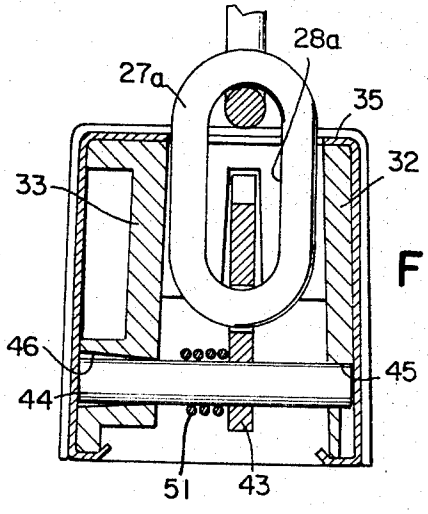


FIG. 6

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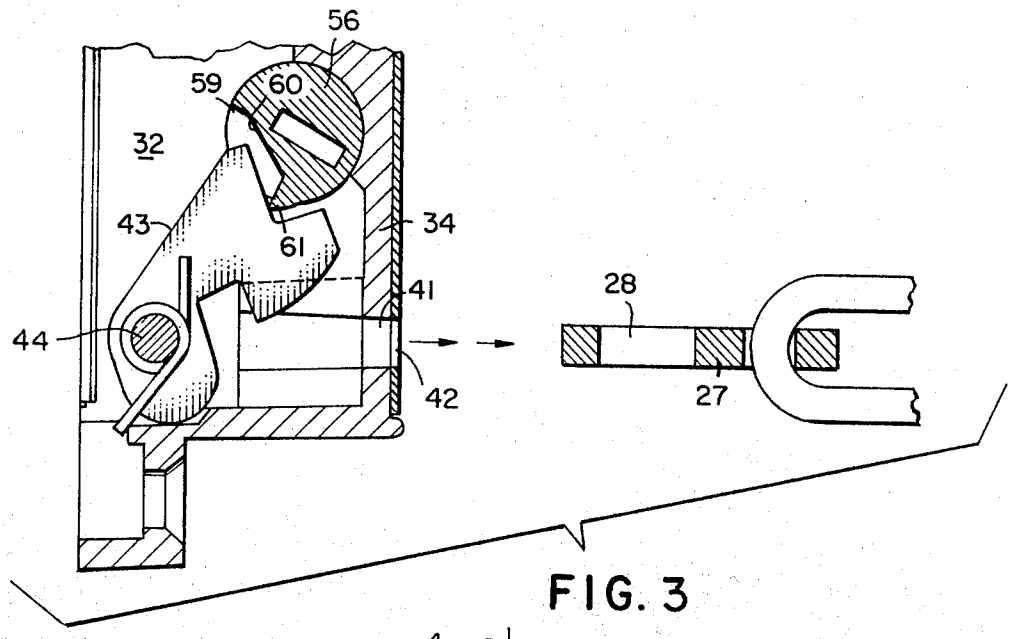


FIG. 3

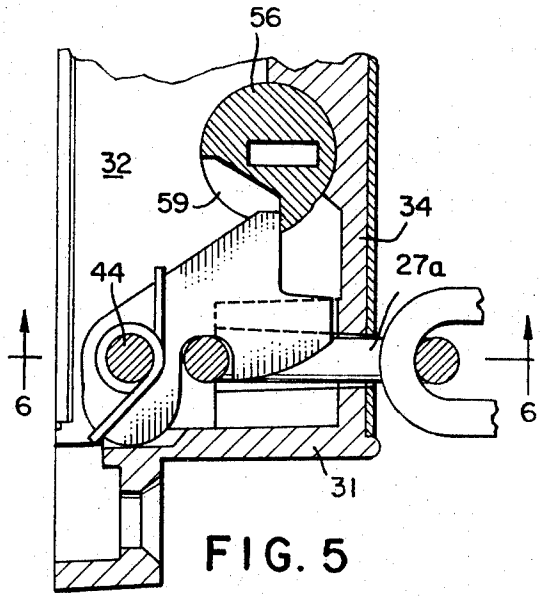


FIG. 5

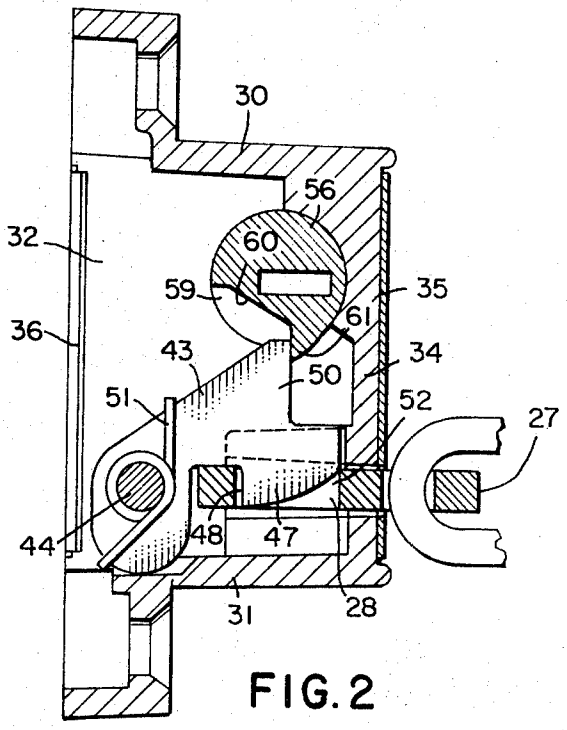


FIG. 2

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CHAIN DOOR LOCK

BACKGROUND OF THE INVENTION

While there have, in the past, been provided various chain door locks of the instant type, these prior locks have not been entirely satisfactory and have therefore not gained wide acceptance. For example, prior chain door key locks have been relatively expensive to manufacture, large and bulky in size so as to be incapable of use with modern, narrow jamb doorway construction, and have presented considerable difficulty in obtaining access to the key slot.

SUMMARY OF THE INVENTION

Accordingly, it is an important object of the present invention to provide a chain door lock of the type described which uniquely minimizes space requirements for use with narrow door jambs, is of enhanced security while substantially reduced in cost, and which affords enhanced convenience in access to the key slot.

It is a more particular object of the present invention to provide a chain door lock having the advantageous characteristics mentioned in the preceding paragraph, which permits of use with a conventional chain link releasably retained in the jamb mounted housing.

It is still a further object of the present invention to provide a chain door lock of greatly simplified construction, wherein a swingable latch member cooperates with a rotatable key lock cylinder for effecting releasable retention of a door chain link or the like.

Other objects of the present invention will become apparent upon reading the following specification and referring to the accompanying drawings, which form a material part of this disclosure.

The invention accordingly consists in the features of construction, combinations of elements, and arrangements of parts, which will be exemplified in the construction hereinafter described, and of which the scope will be indicated by the appended claims.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a partial perspective view illustrating a chain door lock of the instant invention in its operative association with a door and door jamb.

FIG. 2 is a sectional view taken generally along the line 2—2 of FIG. 1.

FIG. 3 is a sectional view similar to FIG. 2, but illustrating the chain release mode of operation.

FIG. 4 is a rear elevational view, partly in section, taken generally along the line 4—4 of FIG. 2.

FIG. 5 is a sectional view similar to FIG. 2, but illustrating a slightly modified embodiment.

FIG. 6 is a transverse sectional view taken generally along the line 6—6 of FIG. 5.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring now more particularly to the drawings, and specifically to FIG. 1 thereof, a door is there generally designated **10**, being swingable into its illustrated closed position proximate to a door jamb **11** on a wall **12**. A chain door lock is generally designated **15**, and is shown in solid lines in locked position in FIG. 1, the phantom position in dot-and-dash outline illustrating release or opening of the chain door lock.

More particularly, the chain door lock **15** includes a chain **16**, and detachably connected at one end of the chain **16** is connection means **17** mounted on the door **10** for detachable connection to the chain. Mounted on the door jamb **11** is a housing, generally designated **18**, to which the other end of chain **16**, remote from connection means **17**, is releasably secured.

The detachable connection means **17** may include a slideway **20** having an elongate slot **21** terminating a one end, remote from the door jamb **11**, in an enlargement or enlarged opening **22**. The slideway **20** is suitably affixed to the door **10**, as by fasteners **23**.

The chain **16** may include ovaloid or elongate links, of conventional construction, and carried by one end link is a slide member **25**, which may be of generally cylindrical configuration and provided on one end with an enlargement, knob or head **26** for engagement through opening **22** and retaining engagement with the inner side of slot **21**, as in the condition illustrated in FIG. **1**.

Connected at the other end of chain **16** is an end member **27**, which may be of generally ovaloid configuration and provided at its distal end with a longitudinal slot **28**, for a purpose appearing presently.

The housing **18** includes upper and lower end walls **30** and **31**, and a pair of side walls extending in laterally spaced relation between the upper and lower end walls, as at **32** and **33**. Extending between the forward ends of the upper and lower walls **30** and **31** and side walls **32** and **33** is a front wall **34**. The back side of the housing **18** may be open, and against the door jamb **11**, being closed thereby. In practice, to minimize finishing costs and for added security, a fascia sheet or covering member **35** is wrapped about the front and side walls **34**, **32** and **33**, with its edge portions folded into the interior of the housing, as at **36** and **37**. Extending upwardly and downwardly from the upper and lower end walls **30** and **31** are respective ears **38** and **39**, having through holes for receiving fasteners, such as screws **40**.

In a lower region of the front wall **34**, there is formed a laterally elongate through slot **41**, spaced between the side walls **32** and **33**, and the cover sheet, see FIG. **3**, is cut out at **42**, in registry with the opening or slot **41**.

Interiorly of the housing **18** is a generally flat, plate-like latch member **43**, located in a generally lower region of the housing and mounted therein for swinging movement in a generally vertical plane in parallel space relation between the side walls **32** and **33**. More specifically, the generally flat latch member **43** is mounted for swinging movement about a horizontally disposed pivot member or pin **44**, being normal to the latter, which pin extends laterally between the lower rear regions of side walls **32** and **33**. For example, as best seen in FIG. **6**, pin **44** extends laterally between and has its opposite ends mounted in through openings **45** and **46** formed in walls **32** and **33** respectively, which openings are closed by overlying portions of cover sheet **35**. It will be seen that this permits of quick and easy assembly by insertion of pin **44** simultaneously through latch member **43** and into its supporting formations **45** and **46**. The plate-like latch member is configured to define a hook or catch **47** which extends downwardly into position immediately behind or inward of the front wall opening **41**, **42**. Immediately behind the downwardly extending hook or catch **47**, the latch member **43** is provided with a downwardly opening cutout or notch **48**. In addition, the latch member **43** is provided with a forwardly and upwardly extending projection **50** which is spaced angularly with respect to the catch **47** about the axis of pin **44**. Suitable resilient means, such as a coil torsion spring **51** may be engaged about the pin **44** having its opposite ends respectively engageable with the latch **43** and housing **18** to resiliently urge the latch clockwise, as seen in FIG. **2**. It will there be apparent that the chain end member **28** has been inserted through the opening **41**, being received into the housing **18** in position for engagement of the hook or catch **47** downwardly into the opening **28** of the chain end member. Further, by the substantially aligned relationship of the direction of force upon attempted withdrawal of the chain end member **27** radially of the pivotal axis **44**, or an overcenter relationship thereof, the hook or catch **47** serves to positively retain the chain end member **27** in received relation in the housing **18**. Of course, the spring **51** aids in retaining the latch **43** in holding relationship with the received chain end member **27**. The forward surface or edge **52** of the hook or catch **47** extends across the path of movement of chain end member **27** inward through housing opening **41**, and faces

toward the opening. This surface or edge **52** is advantageously oblique or arcuately configured to ride over the leading edge of an end member **27** being inserted, against the resilient force of spring **51**, for snap engagement downward through opening **28**.

In an upper, forward interior region of housing **18**, there is mounted key lock means **55**, such as a cylinder lock of the pin tumbler, wafer, or other suitable type, including a rotary cylinder **56** mounted with its axis of rotation generally parallel to that of pin **44**, and having a key slot at one end opening through an upper forward region of one housing side wall **33**. As best seen in FIG. **1**, the key slot **57** faces toward the doorway or door opening of door **10** for manual access therethrough. The cover sheet **35** is cut out or open, as at **58** in FIG. **4**, aiding in retaining the cylinder **56** in position within the housing **18**, while neatly framing the exposed cylinder end. Further, the rotary cylinder **56** of key lock **55** is provided interiorly of the housing **18**, intermediate the ends of the cylinder, with a cutout **59** extending partially about the circumference of the cylinder, see FIGS. **2** and **3**, and having a bottom wall **60** specifically configured for camming engagement with the latch member projection **50**. That is, by operation of a key in slot **57**, the cylinder **56** may be rotated in the clockwise direction, as from the initial position of FIG. **2** to the final position of FIG. **3**, by which rotation the cam surface **60** of cutout **59**, and the adjacent radial projection **61**, serve to effect counterclockwise swinging movement of latch member **43** about pivot **44** against spring **51**, to release chain end member **27** from catch **47**. Of course, return of the key lock cylinder **56** in the counterclockwise direction effects return of the latch member **43** in the clockwise direction. In practice, the chain **16** permits opening of the door **10** sufficiently to afford manual access to the key lock **55** for insertion of a key into the key slot **57** to accomplish the above-described releasing operation. It will be appreciated further that the partial opening of the door **10**, when the latch member **43** is moved to its releasing position of FIG. **3**, serves to urge the chain end member **27** toward withdrawal from the housing **18**.

The embodiment of FIGS. **5** and **6** is essentially identical to that of figs. **1–4**, except that the chain end member **27***a* consists of a chain link which has its central opening **28***a* corresponding to the opening **28** of the chain end member **27**. That is, for purposes of economy, or under emergency circumstances, an ordinary chain link **27***a* may suitably serve for reception in the housing **18** and releasable retention therein. Further, if it is desired to lock the instant chain door lock without sufficient play to permit opening of the door this may be accomplished by merely inserting an intermediate link of chain **16** into the housing opening **41**, with the chain drawn tight, rather than inserting a chain end member.

It will also be appreciated that the key lock cylinder **56**, by the formation intermediate its ends of cutout or slot **59** receiving latch member **43**, is further effectively retained in position, so as to resist withdrawal of the key lock even upon tampering, say by enlargement of cover sheet opening **58** to a size greater than that of the key lock.

From the foregoing, it is seen that the present invention provides a chain door lock which is effective to accomplish its intended purposes, and otherwise fully meets practical conditions of manufacture, installation and use.

Although the present invention has been described in some detail by way of illustration and example for purposes of clarity of understanding, it is understood that certain changes and modifications may be made within the spirit of the invention.

What is claimed is:

1. A chain door lock comprising chain connection means for attaching one end of a chain to a door, a chain having one end attached to a door by said connection means, a housing for mounting on a door jamb and having an opening facing away from the door jamb for receiving a chain member on the other end of said chain, a latch member mounted in said housing spaced laterally between opposite sides of said housing for rotation about a generally horizontal first axis to move generally vertically into and out of holding engagement with a received chain member, a key lock cylinder mounted in said housing extending between opposite housing sides for rotation about a second axis generally parallel to said first axis, and operating formations formed on said cylinder spaced intermediate the ends thereof for movement in operative engagement with said latch member to effect movement of the latter into and out of said holding engagement, said latch member including a projection extending into said operating formations to positively resist longitudinal cylinder movement.

2. A chain door lock according to claim **1**, said latch member being swingable up and down in said housing and comprising a catch swingable in one direction through said received chain member to releasably hold the latter in said housing.

3. A chain door lock according to claim **2**, said first axis being located relative to said catch for positive holding engagement with said received chain member.

4. A chain door lock according to claim **3**, in combination with spring means operatively connected to said latch member to urge said catch toward its position of holding engagement with said received chain member.

5. A chain door lock according to claim **3**, said connection means comprising a slideway for mounting on a door, and a slide removably interengageable with said slideway.

6. A chain door lock according to claim **3**, said other end chain member comprising a chain link engageable through said opening.

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