Oct. 17, 1961 M. FALK, JR 3,004,419

CHAIN LOCKING CONSTRUCTION

Filed Sept. 3, 1959

FIG. 1

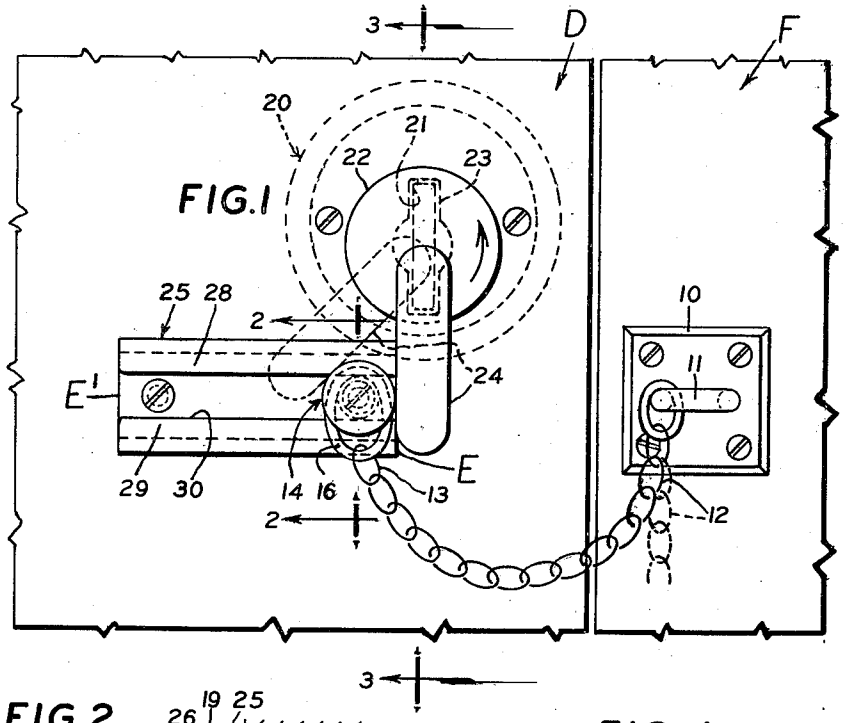


FIG. 2

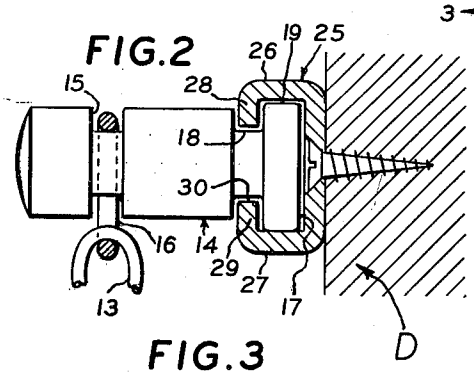


FIG. 3

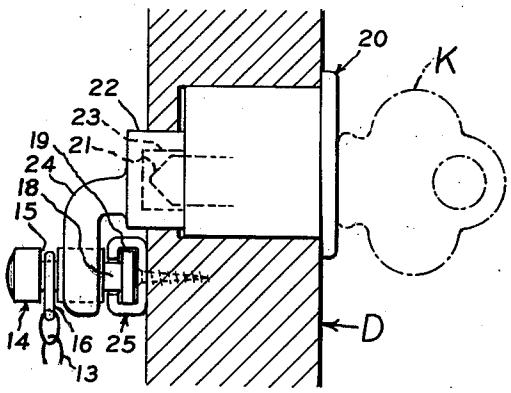
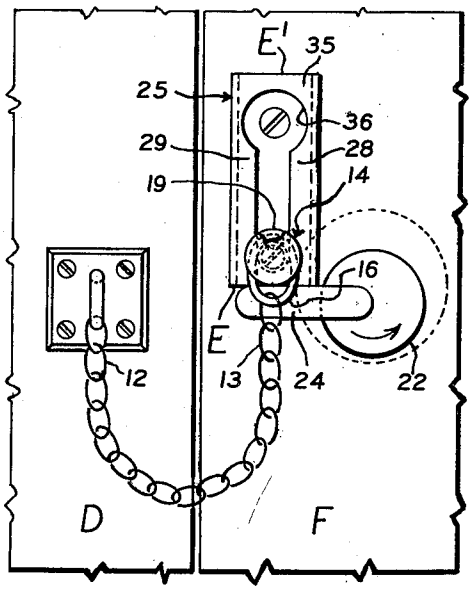


FIG. 4



INVENTOR
MORRIS FALK, JR.
BY Mark Basseches
his ATTORNEY

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CHAIN LOCKING CONSTRUCTION

Morris Falk, Jr., Highland Park, Ill., assignor to Independent Lock Company, Fitchburg, Mass., a corporation of Massachusetts

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This invention relates to a security device, and more particularly to an auxiliary door security device to be used in conjunction with the usual door locking mechanism.

This invention shows features covered, in a measure, in my joint application Serial No. 757,355, filed August 26, 1958, Patent Number 2,970,465, dated February 7, 1961.

This invention relates to a chain lock device to be used as an adjunct to a normal door lock, to permit the inhabitant to release the door lock and open the door part way for inspection of a caller, without compromising the security of the door.

Still more particularly, this invention relates to a key controlled chain locking device of the class described, which may be set by the inhabitant from the inside, and may, nonetheless, be released by an authorized person provided with a key to fit the locking device.

It is well known in the art to provide, as an auxiliary locking device, a chain fastener consisting of a chain member having one end anchored to the door or door frame, the other end of the chain being provided with a pin having a flange engageable with a flange seat or channeled anchor secured to the door or door frame member, not having a permanent connection to the chain. With such known auxiliary chain latch, it is possible for the inhabitant to secure the pin to the seat or channeled anchor, release the door locking means, and open the door part way within the scope of movement provided by the chain, thereby permitting inspection of the caller without permitting the caller, by the expedient of pushing on the door, to force the door open. Such auxiliary chain structures, while effective in a measure, present safety problems in that, if an accident should befall the only occupant of the residence when the chain is in spanning position between the door and frame, entrance to the residence, in an emergency or otherwise, is possible only by breaking the door or destroying the chain.

Accordingly, it is an object of this invention to provide an auxiliary chain locking device having all the advantages of chain lock structures heretofore known, and having the additional advantage and safety feature of permitting authorized persons to enter, notwithstanding the secured or spanning engagement of the chain assembly.

A further object of this invention is to provide an auxiliary chain assembly of the type described having positive disengaging means to assure, upon key actuation by an authorized person, that the chain will become released from spanning position of the door and frame, to permit entrance of such authorized person.

Still a further object of this invention is to provide a chain locking device having the advantages aforesaid, which is extremely economical to produce, and in which a large number of parts standard to the lock industry may be employed.

Reference is made to the accompanying drawings, forming a part hereof, in which—

FIGURE 1 is an end elevational view of the inner face of a door to which the chain locking device has been applied;

FIGURE 2 is a magnified sectional view taken on the lines 2—2 of FIGURE 1;

FIGURE 3 is a reduced section taken on the lines 3—3 of FIGURE 1;

FIGURE 4 is an end elevational view of the inner face of the door to which an embodiment of the chain locking device has been applied.

Describing my invention in detail, there is shown in FIGURE 1 a frame F, and door D of the usual type, the door and frame being shown in closed position in FIGURE 1. To the frame F there is fixedly mounted, by screws or the like, a bracket 10 provided with a rearwardly directed hasp or link 11. A chain 12 is secured to the hasp 11, the free end 13 of the chain 12 being provided with a clevis pin member 14. The pin 14 is provided, adjacent one end, with an annular recessed portion 15, within which portion 15 there is seated the end link 16 of the chain 12. Adjacent the other end 17 there is formed an anuular groove 18 to provide a flanged portion 19 adjacent the end 17.

Transversely through the door D there is mounted a key controlled locking assembly 20, which may be of any known type, such as a pin tumbler assembly, or a disk tumbler assembly. The operation of the locking assembly 20 is such that when a key K, correctly mated to the locking assembly, is inserted in the keyway, not shown, driver blade 21 may be rotated in a counter clockwise direction, as viewed in FIGURE 1, by rotating the key K. A hub 22, provided with inner recess 23 of mating configuration with the driver blade 21, is seated over the said driver blade to rotate with such blade when the key is turned. The hub 22 is provided with a sweep arm or finger 24, spaced a distance rearwardly of the hub so that when the key K is rotated, the arm or finger 24 will be rotated in a plane rearwardly of the rear face of the door.

An open channel member 25 is fixed by screws or otherwise to the rear face of the door D. The channel member is provided with side walls 26, 27, and top walls 28, 29, between which top walls there is defined an open space or slot 30. The channel member 25, in cross section, presents a generally C shaped appearance. The channel 25 is mounted to the rear face of the door, so that the open end E lies adjacent to the sweep arm 24 when the locking assembly 20 is in locked position, as shown in solid lines in FIGURE 1. The inner dimensions of the channel member 25 are such as to receive the flange 19 of the pin 14 within the said channel, the flange 19 and inwardly directed walls 28, 29, serving to prevent lateral removal of the pin 14 from the channel 25 when the pin 14 is in inserted position within such channel.

In operation, the chain lock is applied by inserting the flange 19 through the end E' and sliding the pin 14 toward the arm 24 to the position shown in full lines in FIGURE 1. When the pin is thus positioned in the channel, the main door lock may be unlatched and the door opened to the limiting position permitted by the chain 12, to permit the occupant to inspect a caller. The caller cannot force his way into the house since pressure on the door D will merely force the pin 14 more tightly against the arm 24, which is dogged against rotation by the locking mechanism 20. The pin 14 may be unseated from channel 25 by an authorized person from the outside by inserting the proper key K and turning the hub 22 and arm 24 through a rotation of about 360°. Initial rotation of the arm 24 unblocks end E, permitting the pin 14 to be slid endwisely out of engagement with the channel 25. It will be readily recognized from the foregoing description, that continued rotation of the key will cause the arm 24 to proceed to a position behind the pin 14, see dotted lines, FIGURE 1, continued rotation of the arm 24 serving forcibly to dislodge the pin 14 outwardly from the channel in endwise direction over the open side E of the said channel to assure a positive ejection.

In the embodiment of FIGURE 4, wherein similar

parts have been given similar reference numerals to the prior described embodiment, the end E' of the channel 25 restricts endwise removal of the pin 14, since straddling wall 35 serves to seal the channel at this end E'.

At this location, the walls 28, 29, defining the face of the channel 25, are widened at the point 36 adjacent the upper end E' to permit lateral insertion of the flange 19 through the widened portion, whereupon the flange 19 will be engaged with the narrower portions of walls 28, 29, to prevent lateral removal of the pin 14 from the channel 25 at a point along the length of the channel 25 other than the widened portion 36.

In this embodiment, the channel 25 is oriented in a vertical direction and the pin 14, under the influence of gravity, drops to a position adjacent the end E of the channel 25, egress from the channel being blocked by the arm 24. It will be readily recognized in this embodiment that when the key K is rotated to withdraw the arm 24 from blocking position of the end E, the pin 14 will fall free of any connection with the door under the influence of gravity.

The key operated chain assembly herein described provides the security heretofore obtainable through the use of the conventional chain latch assemblies, while doing away with the dangers of such latch assemblies, by providing a means of unlatching such assembly from the outside. Security is not sacrified by the provision for outside unlatching, since such unlatching may be accomplished only by authorized persons having a key intended to operate the assembly.

I refer to my joint application above mentioned which embodies features of my invention for direct actuation and release of an anchor clevis pin by key rotation, and which shows mounting means for the assembly of an actuating member to couple the actuating member directly to the plug, to provide a simple and economical security installation. I therefore have not described details of such mounting assembly herein as the form thereof will readily be evident from such exemplification of mounting means.

Having thus described my invention and illustrated its use, what I claim as new and desire to secure by Letters Patent is—

1. A chain fastener device comprising a bracket adapted to be anchored to the frame of a door, a channel member adapted to be anchored to a door and including side walls, top walls spaced to define a slot, and an open end portion, a chain anchored at one end to said bracket and having at its other end a clevis pin slidable within said slot of said channel member, said pin including a flange portion adapted, in the channel inserted position of said pin, to engage said top walls to prevent lateral removal of said pin from said channel member and an extending portion projecting transversely from said channel, key operable locking means mountable on said door, and an arm controlled by said locking means and adapted, in the locked position of said key operable member to lie adjacent said end portion in blocking position of said extending portion of said pin.

2. In combination with a door and frame assembly, a chain fastener device comprising key rotatable locking means mounted on said door, a sweep arm extending from said locking means in spaced parallel relation to the rear face of said door, a channel member mounted on the inside face of said door adjacent said sweep arm of said locking means, said channel member having walls defining a longitudinally extended slot and an open end portion adapted to lie adjacent said sweep arm in the locked position of said locking means, a chain member having one end secured to said frame and having at the other end a clevis pin including a flange portion slidable within said channel member and an extension portion projecting through said slot, said sweep arm serving in the locked position of said locking means to prevent endwise removal of said pin from said channel member through said open end portion by the engagement of said sweep arm with said extension portion of said pin.

3. A device in accordance with claim 2 wherein said sweep arm extends normal to the axis of rotation of said locking means and is spaced rearwardly of the inner face of said door a distance to describe, upon rotation of said locking means, a plane rearward of said channel member but intersecting said extension portion of said clevis pin when said pin is mounted in said channel member.

4. A device in accordance with claim 2 wherein said open end portion of said channel member is downwardly directed and said pin is maintained in said channel member against the influence of gravity by said sweep arm in the locked position of said locking means.

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