A chain door latch device adapted for use for inwardly and outwardly swinging doors having a latch bracket mounted on either the door or the jamb and a chain fastening member mounted on the other of the door or jamb with the other end of the chain connected to a latch slide member. The latch bracket is provided with an elongated slot with an enlarged opening at each end of the slot. The latch slide member has mounted on its free end a matching enlarged member that is received by the enlarged openings in the latch bracket and permitting the sliding movement of the latch member along the length of the latch bracket. However, the latch bracket is provided with a resilient member at the enlarged opening nearest the chain fastening member to prevent removal of the latch slide member therefrom, the other enlarged opening being so positioned that the latch member must be swung through an arc in a direction away from the chain fastening member to be removed from the latch bracket.

4 Claims, 10 Drawing Figures
1. CHAIN DOORLATCH DEVICE

BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention relates generally to door chain locking devices that permit the partial opening of the door without danger of a person being able to enter therethrough before being unlatched and is more particularly directed to one which can be mounted on either an outwardly or inwardly swing doors without increasing the danger of disengaging the latch by an unauthorized person.

2. Description of the Prior Art

At the present time the conventional chain door latches are to a large extent ineffective to permit opening of a door by a person on the inside to view the person on the outside and still prevent that person from manipulating the latch from the outside to gain unauthorized access therein. By use of certain tools, rubber bands and the like, a person is able to release the conventional latch from the outside so long as the chain is sufficiently long to permit entry of the tool, hand, etc. Consequently the users of the conventional chain door latches have had to shorten the chain to the extent that the door can only be slightly opened when the door is being guided by the latch. Of course, this defeats the purpose of the chain door latches as the door should be capable of being opened sufficiently to permit persons on the inside to identify, speak with and even pass articles between them and others on the outside without the necessity of unlatching the door.

In addition thereto, the conventional chain door latches are designed for use on inwardly swinging doors and cannot be used on outwardly swing doors. On outwardly swinging doors, the length of chain that is necessary to permit the door to open even slightly is sufficient for an unauthorized person on the outside to easily manipulate the latch slide member to its opened position. Even those latches devices that require not only that the latch member be slid to its end position, but also a button to be pressed inwardly to remove the latch lever are easily manipulated from the outside on an outwardly swinging door.

SUMMARY OF THE INVENTION

My invention provides a chain door latch that is readily adapted for use on both outwardly and inwardly swing doors and yet permit the door on which the latch slide member is in its engaged position to swing a relatively large opened position without making it possible for a person on the outside to manipulate and disengage the latch member from the bracket.

To accomplish this function I provide a latch bracket with an elongated slot in which the latch member is slidably mounted as in the conventional chain door latches. However, at both ends of the slot there is an enlarged triangular opening that is matched by a triangular member mounted on the latch slide member so that the latch member may be engaged at either end of slot, but can only be removed from the latch bracket at the enlarged opening furthest from the edge of the door and only after the latch slide member has been swung through an arc of approximately 135 degrees.

The particular shape of the openings and the matching member on the latch lever and the angle at which the latter must be pivoted in order to remove the latch slide member from the latch bracket may be varied as desired.

In providing such structure it is:

A principle object of my invention to provide a chain door latch adapted for being mounted on both inwardly and outwardly swinging doors.

A further object of the present invention is to provide a chain door latch having a latch slide member that can be engaged to the latch bracket at either end, but disengaged only at the furthest end after rotating the latch member through an angle of approximately 135°.

A still further object of the present invention is to provide a chain door latch which permits the opening of the door to an extent not heretofore achieved without increasing the possibility of the chain door latch being unlatched by an unauthorized person outside the door unless he has a key to release the chain at the end other than the one attached to the latch lever.

With these and other objects in view, the invention will be best understood from a consideration of the following detailed description taken in connection with accompanying drawings forming a part of this specification, with the understanding however, that the invention is not confined to any strict conformity with the showing of the drawings but may be changed or modified so long as such changes or modifications mark no material departure from the salient features of the invention as expressed in the appended claims.

BRIEF DESCRIPTION OF THE DRAWINGS

In the accompanying drawings:

FIG. 1 is a perspective view of an inwardly swinging door and jamb showing my chain door lock mounted thereon and the door shown in a closed position.

FIG. 2 is a similar view with the latch slide member swung to its release position preparatory for its disengagement from the latch bracket to permit opening of the door from the inside.

FIG. 3 is a similar view with the door having swung to its open position and the dotted line position indicating the manner of releasing the latch from the outside by use of a key.

FIG. 4 is a bottom plan of the latch bracket showing the position of the slide member as in FIG. 2.

FIG. 5 is a top plan view of the latch bracket.

FIG. 6 is a bottom plan view of the latch slide member.

FIG. 7 is a cross sectional view taken along the line 7—7 of FIG. 3.

FIG. 8 is a similar view showing the latch member being inserted into the latch bracket.

FIG. 9 is a view similar to FIG. 1 showing my chain door latch mounted on an outwardly swinging door, the dotted line showing the position of the latch member for removal from the latch device.

FIG. 10 is a similar view with door shown in an open position.

Referring to the drawings wherein like numerals are used to designate similar parts throughout the several views, the numeral 10 refers to a chain door latch constructed in accordance with my invention and consisting generally of a latch bracket B, a combined latch slide member and chain A and a fastening member C. As shown by FIGS. 1—3 inclusive, the latch bracket B is
mounted on an inwardly swing door 11 and the fastening member C is mounted on the side of the door frame 12 while FIGS. 9 and 10 show my chain door latch 10 as having the latch bracket B fastened to the face of the door frame 14 while the fastening member C is mounted on the door 13 which swings outwardly.

The latch bracket B consists of an elevated flat wall 15 having side and end walls 16 and 17 with flanges 18 extending outwardly of the side walls 16, and openings 27 through which screws 28 extend for fastening the bracket B to the door 11. Formed on the top wall 15 is an elongated slot 20 that terminates adjacent each end in an enlarge opening 21 and 22. Both openings 21 and 22 are identical in size and shape and for the purpose of illustration are shown herein as an equilateral triangle.

Mounted on the bracket B below the opening 21 is a resilient member such as a leaf spring 23 pivotally secured to the side walls 16 by a pin 24 and maintained in a horizontal position by a second pin 25 extending between the walls 16 and engaging the lower surface of the leaf spring 23. Mounted on the free end of the leaf spring 23 is a blocking member 26 that yieldsly engages the lower surface of the top wall 15 and obstructs a portion of the opening 21 as best shown by FIGS. 5, 7 and 8.

The latch slide member A consists of an elongated flat member 30 on which a handle 31 is mounted. At one end of the slide member 30 is a pin 32 that extends below the lower surface of the member 30 and has mounted thereon a matching triangular latch release member 33 that matches in shape and size the triangular openings 21 and 22. Also mounted on the pin 32 is a cover member 34 that engages the lower surface of the slide member 30 and spaced from the triangular member 33 to permit the top wall 15 to fit therebetween as the slide member 30 is slid along the latch bracket A. The cover member 30 is sufficiently large to completely cover the opening 21 when the slide member 30 has been brought to the position shown by FIG. 8 to prevent an unauthorized person to insert a tool against the leaf spring 23 to permit the slide member 30 to be released from the bracket B via the opening 21. The slide member 30 assumes the position on the bracket B as shown by FIG. 7 when the door 11 is in its open position at which time a person on the outside of the door 11 is able to insert his hand therethrough.

At the other end of the latch slide member 30 is a pin 35 that extends below the lower surface thereof. The distance between the pin 35 and the triangular member 33 is such that when the slide member 30 has been slid toward the enlarged opening 22 with the slide member 30 aligned with the slot 20, the triangular member 33 will be short of the triangular opening 22 as shown by FIG. 4. Adjacent the pin 35 is an opening 36 through which a link of a chain 37 extends. The other end of the chain 37 is secured to a slide lock member 38 of a tumbling type barrel lock 39 for which a key 40 is provided for releasing the slide lock member 38. The lock C which is fastened to the door jamb 12 as shown by FIG. 1 and to the door 13 as shown by FIG. 9 is similar to that described in detail in U. S. Pat. No. 2,966,053 issued Dec. 27, 1960 for Safety Door Chain.

In the normal use of my chain door latch 10 for an inwardly swinging door 11 as shown by FIGS. 1–3 inclusive, the latch bracket B is mounted on the door 11 while the barrel lock 39 is secured to the side wall of the door jamb 12. With the slide lock 38 in position on the barrel lock 39 as shown by FIG. 1, a person grasps the handle 31 of the slide member 30 and superimposes the triangular member 33 over the enlarged opening 21 and forces the member 33 against the leaf spring 23 to the position shown by FIG. 8. Then he slides the slide member 30 along the slot 20. The chain door latch 10 is now in its locked position. If a person who is outside the room, outside the door 11, wishes to enter through the door 11 which is otherwise not locked, all he need do is swing the door open to the position shown by FIG. 3. Then the opened door will permit him to insert and actuate the key 40 in the barrel lock 39 to release the slide lock member 38 and cause locking member C to become completely disengaged as shown by the dotted lines in FIG. 3. If the person inside the room wishes to open the chain door latch 10 while in its locked position, he must first return the door 11 to its closed position, then slide the slide member 30 to the right until the pin 35 bears against the bracket B. Then he swings the slide member through an arc of approximately 135 degrees to the position shown by FIG. 2. At this position the triangular member 33 and the enlarged opening 22 will become aligned and the triangular member 33 will now slide outwardly of the bracket B to release the locking member C from the latch bracket B. The door 11 can now be swung to its completely open position.

Referring now to FIGS. 9 and 10, my chain door latch is shown in connection with an outwardly swinging door 13. The locking member C is fastened to the door 13 while the bracket member B is attached to the inside surface of the door jamb 14. When the door 13 is in its open position as shown by FIG. 10, the slide member 30 cannot be removed from the bracket B without a key 40 as indicated. In order to open the door 13 completely without the use of the key 40, the door 13 must be closed and the slide member 30 slid to its extreme left position as shown by FIG. 9. Then the slide member 30 must be swung through an arc of approximately 135° to the dotted line position when the slide member 30 is capable of being removed from the bracket B to permit the complete opening of the door 13.

It is to be noted that the lock member C consisting of a barrel-type lock 39 and lock member 38 may be substituted by a conventional permanent fastener such as an eye bolt. The use of the lock member C permits access to the room protected by my chain door lock 10 from the outside without the necessity of there being a person inside the room.

Having disclosed my invention, what I desire to secure by Letters Patent of the United States is:

1. A chain door latch device comprising a latch bracket having an elongated slotted portion terminating in enlarged openings, said enlarged openings having substantially identical configurations, a slide member, pin means mounted at one end of said slide member received by said slotted portion, a matched member mounted on the free end of said pin means, said matched member having substantially the same configuration as said enlarged openings whereby said enlarged openings are adapted to permit the passing of
said match member therethrough, stop means mounted on the other end of said slide member and engaging said matched member and one of said enlarged openings when said slide member is in alignment with said slotted portion, and releasable means mounted on said bracket adjacent said other of said enlarged openings preventing the passing therethrough of said matched member in a reverse direction, a chain connected at one end to said other end of said slide member and at the other end to a fastening member.

2. The structure as recited by claim 1, wherein said enlarged openings and said matched member are geometrical in configuration whereby said slide member must be swung through a predetermined arch in order to effect an aligning and matching of said matched member and said one of said enlarged openings to remove said slide member from said bracket.

3. The structure as recited by claim 2 wherein said releasable means comprises a resilient member secured to said bracket in alignment with said other of said enlarged openings, a stop member mounted on said resilient member in the path of said matched member whereby upon the sliding of said slide member in the direction of said other of said enlarged openings, said stop member prevents the aligning of said matched member and said other of said enlarged openings without preventing the inserting of said matched member in said other of said enlarged openings for locking said door latch device.

4. The structure as recited by claim 3 wherein said fastening member comprises a lock member adapted to be unlocked by a key and a lock member releasably mounted on said lock and secured to said other end of said chain.

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