Nov. 22, 1955 S. SEGAL 2,724,257

SAFETY CHAIN DOOR RETAINING LATCH

Filed April 5, 1954

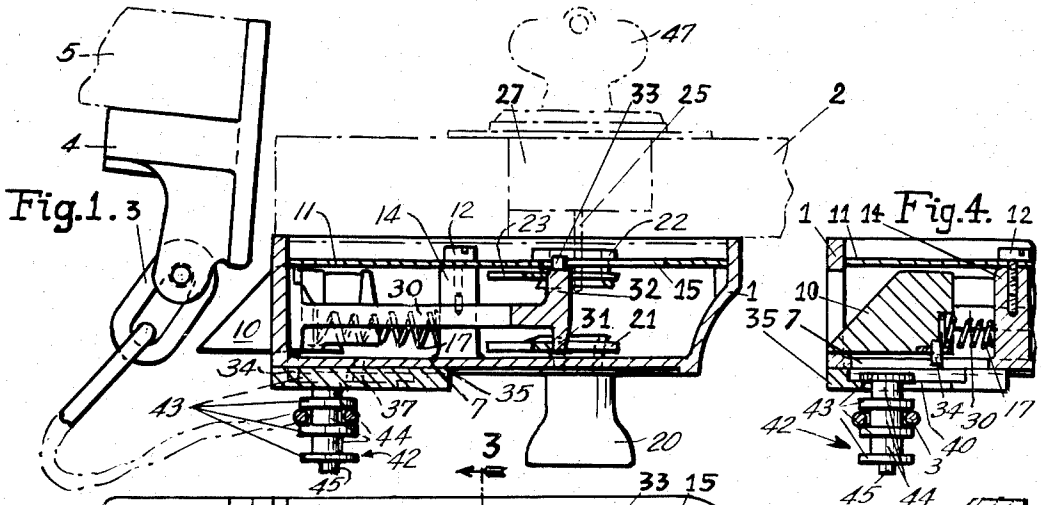


Fig.1.

Fig.4.

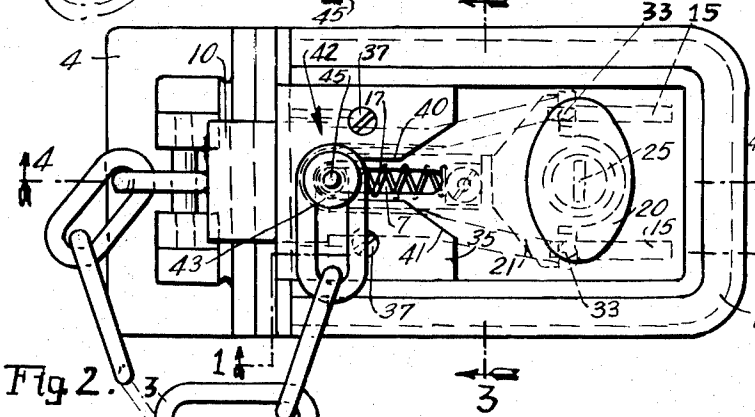


Fig.2.

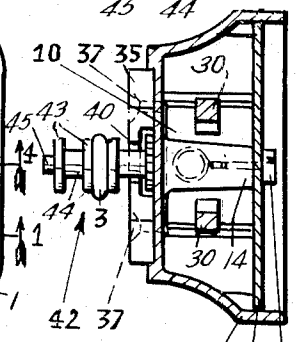


Fig.3.

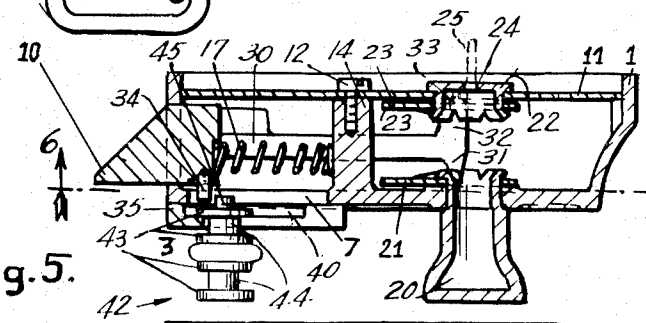


Fig.5.

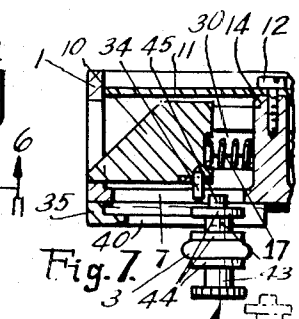


Fig.7.

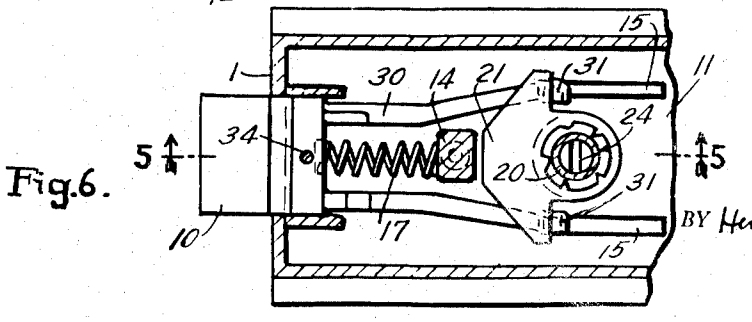


Fig.6.

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SAFETY CHAIN DOOR RETAINING LATCH

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10 Claims. (Cl. 70—93)

The present invention relates to improvements in door locks and safety chains and, more specifically to a door latch provided with new and improved means for attaching thereto a safety chain.

One object of the present invention is the provision of a device of the character described which combines into a single unit a door latch casing and a retainer for holding one end of a safety chain the other end of which is secured to a door jamb or frame.

Another object of the present invention is the provision of a device of the character described which allows an unlocking of the door by means of the door latch without releasing the safety chain from the latch casing, so that a door can be partially opened from the inside by manipulating a handle on the latch casing, and which allows also an unlocking of the door from the outer side thereby releasing the safety chain if the same has been attached to the latch casing in a certain position, but which—if the chain has been attached to the latch casing in another position—will prevent a releasing of the chain by unlocking the door from the outer side.

A further object of the present invention is the provision of a device of the character described which requires only slight changes on the presently used latch cases, so that existing cases easily can be converted for attaching thereto my new and improved device, and that the same dies and tools can be used as hitherto for manufacturing new latch cases which are to be provided with my new and improved device.

Yet still another object of the present invention is the provision of a device of the character described which is simple in construction, inexpensive to manufacture, of a small size, of a pleasing outer appearance, and light in weight, but which is also sturdy, durable, and well adapted for withstanding the rough usage to which devices of this type frequently are subjected.

With the foregoing and other objects in view which will appear as the description proceeds, the invention consists of certain novel details of construction and combinations of parts hereinafter more fully described and pointed out in the claims, it being understood that changes may be made in the construction and arrangements of parts without departing from the spirit of the invention as claimed.

In the accompanying drawing a preferred form of the invention has been shown.

In said drawing:

Figure 1 is a partial side elevation of a preferred embodiment of my invention and a partial sectional view on the line 1—1 of Fig. 2;

Fig. 2 is a top plan view;

Fig. 3 is a sectional view on the line 3—3 of Fig. 2;

Fig. 4 is a fractional sectional view on the line 4—4 of Fig. 2;

Fig. 5 is a sectional view on the line 5—5 of Fig. 6;

Fig. 6 is a sectional view on the line 6—6 of Fig. 5; and,

Fig. 7 is a fractional sectional view as Fig. 5 showing the movable parts of the device in a position different from that shown in Fig. 5.

Similar reference characters refer to similar parts throughout the several views.

In the drawing the numeral 1 denotes a door latch casing adapted for being secured to a door 2, and the numeral 3 denotes a safety chain one end of which is secured to a holder 4 adapted for being secured to a door jamb or door frame member 5 (Fig. 1). The casing 1 has a top wall portion provided with a slot 7 and side wall portions through one of which a latch 10 is slidably extended, and the back of the casing 1 is closed by a plate 11. The plate 11 is secured to the casing 1 by means of a screw 12, which is screwed into a threaded hole in a raised portion 14 of the casing 1, and is provided with a pair of slots 15, which are parallel to the slot 7. A spring 17 is interposed between the latch 10 and the raised portion 14 for forcing the latch 10 into its locking position in the usual manner. A handle 20 is rotatably extended through the front wall portion of the casing 1, and at the inner side of said front wall portion there is secured to the handle 20 a cam dish 21. A plug 22 is rotatably extended through the plate 11, and at the inner side of the plate 11 there is secured to the plug 22 a cam disk 23. The plug 22 has a slot 24 adapted for receiving a tail piece 25 of a cylinder lock 27, which is secured to the door 2 in the usual manner.

A pair of arms 30 extending from the latch 10 to the cam disks 21 and 23 have substantially T-shaped extremities of each of which one branch 31 engages the cam disk 21 while the other branch 32 engages the cam disk 23. Thus the latch 10 can be moved from its locking position (Figs. 1, 2, 5 and 6) to its unlocking position (Figs. 4 and 7) either by turning the handle 20 independently of the plug 22, or by turning the plug 22 independently of the handle 20. Thereby the arms 30 are guided by lug portions 33 extending slidably into the slots 15 from the branches 32.

The latch 10 is provided with a laterally therefrom protruding member 34 which extends slidably into the slot 7. The member 34 can be a pin as shown, or it can be formed as a unit with the latch 10.

A block 35, secured to the outer side of the casing 1 by means of screws 37 or by any other suitable means, has a slot 40, whose main portion is T-shaped (Fig. 3) in cross-section and which extends into the block 35 from an edge thereof. The end portion 41 of the slot 40, which terminates at the aforementioned edge, is gradually increased toward said edge, and the longitudinal axis of the slot 40 is in registering alignment with the longitudinal axis of the slot 7.

The chain 3 is secured to a pin 42 intermediate the ends thereof. The pin 42 has increased portions 43 and reduced portions 44 between each pair of said increased portions 43, and at one end a further reduced portion 45. The reduced portions 44 are so dimensioned that one of them can be slidably inserted into the narrow section of the main portion of the slot 40, and the increased portions 43 are so dimensioned that one of them can be slid into the wide section of the main portion of the slot 40 adjacent the top wall portion of the casing 1. The end portion 45 of the pin 42 is so dimensioned that it can be slid in the slot 7. Thus the chain 3 can be attached to the casing 1 by inserting either one end of the pin 42 into the slot 40.

If that portion 43 of the pin 42 which is opposite the portion 45 is inserted into the slot 40 (Figs. 1, 2, 3 and 4), the latch 10 can be moved from its locking position to its unlocking position without moving the pin 42 (see Fig. 4), so that the door 2 can be partially opened without

releasing the safety chain 3, and the chain 3 cannot be released by turning the plug 22 when unlocking the lock 27 by means of a key 47 (Fig. 1) from the outer side. However, if the other end of the pin 42 is inserted into the slot 40 (Figs. 5, 6, and 7), thereby extending the portion 45 into the slot 7, the member 34 will engage the portion 45 and will push the pin 42 into the gradually widened slot end portion 41, so that the pin will fall out of the slot 40 thus disengaging the chain 3 from the casing 1, if the latch 10 is being moved from its locking position to its unlocking position, as is indicated by dash-and-dotted lines in Fig. 7. If the pin 42 is in this last mentioned position, the door can can be opened completely from the outer side by means of the key 47. This affords the possibility that a person within an apartment or the like can secure the door by attaching the chain 3 to the housing 1 and still allow another member of the family or the like, who has a key, to enter without ringing the bell and requiring the first mentioned person to release the chain 3.

Since certain changes may be made in the above article and different embodiments of the invention could be made without departing from the scope thereof, it is intended that all matter contained in the above description or shown in the accompanying drawing shall be interpreted as illustrative and not in a limiting sense.

It is also to be understood that the following claims are intended to cover all of the generic and specific features of the invention herein described, and all statements of the scope of the invention which as a matter of language might be said to fall therebetween.

Having thus fully described my said invention, what I claim as new and desire to secure by Letters Patent is:

1. A safety chain retaining door latch comprising a latch casing having side wall portions and a top wall portion provided with a longitudinal opening, a spring biased latch slidably extending into said latch casing through a side wall portion thereof, a laterally from said latch protruding member extending into the longitudinal opening in said top wall portion and being slidable therein, a plate closing the bottom of said latch casing having at least one longitudinal opening parallel to the longitudinal opening in said top wall portion, a plug rotatably mounted on said plate having a slot adapted for receiving a tail piece of a cylinder lock, a first cam member within said latch casing secured to said plug, a handle rotatably mounted on the top wall portion of said latch casing, a second cam member within said latch casing secured to said handle, at least one arm within said casing extending from said latch to said cam members and having an end portion engaging said cam members and being provided with a section which slidably protrudes into the longitudinal opening in said plate, a block secured to the outer side of the top wall portion of said latch casing being provided in registering alignment with the longitudinal opening in said top wall portion with a slot extending into the block from an edge thereof and having an end portion gradually increasing in width toward said edge and a main portion which is T-shaped in cross-section and whose wider section is adjacent said latch casing, a pin having alternately arranged increased and decreased portions and terminating at one end with a decreased portion and at the other end with an increased portion, and a safety chain one end of which is secured to said pin intermediate its ends, each of the outermost increased portions of said pin being so dimensioned that they can be selectively slid in the wider section of the slot in said block while the decreased end portion of said pin is so dimensioned that it can be slidably extended into the longitudinal opening of said latch casing so as to be pushed by the laterally from said latch extending member into the gradually in width increasing end portion of the slot of said block when said latch is being moved from its locking position to its unlocking position thereby causing a falling of said pin out of said slot of said block, thus permitting the insertion of the reduced end of said pin into the opening in said casing if it is desired to disconnect the chain from the latch casing while unlocking the latch, and if it is desired to retain the chain on the casing when unlocking the latch permitting the insertion of the increased end of said pin into the slot in said block.

2. A device of the character described comprising a latch casing having side wall portions and a top wall portion provided with a longitudinal opening, a spring biased latch slidably extending into said latch casing through a side wall portion thereof, a laterally from said latch protruding member extending into the longitudinal opening in said top wall portion, a plate closing the bottom of said latch casing having at least one longitudinal opening, a plug extending through said plate and being rotatably mounted thereon having a slot adapted for receiving a tail piece of a cylinder lock, a handle rotatably mounted on the top wall portion of said latch casing, a pair of cam members within said latch casing the first of which being secured to said plug and the second to said handle, cam members engaging means extending from said latch to said cam members, guide means on said cam members engaging means extending into the longitudinal opening in said plate, a block secured to the outer side of the top wall portion of said latch casing being provided in registering alignment with the longitudinal opening in said top wall portion with a slot extending into the block from an edge thereof and having a wide longitudinal portion adjacent said latch casing and a narrow portion in alignment with the longitudinal center of the said wide portion, a pin having alternately arranged increased and decreased portions and having at one end a decreased portion and at the other end an increased portion, and a safety chain one end of which is secured to said pin intermediate its ends, each of the outermost increased portions of said pin being selectively slidable in the wide portion of the slot in said block, and the decreased end of said pin being slidable in the longitudinal opening in said casing so as to be pushed by the laterally from said latch extending member to the end of the slot of said block when said latch is being moved from its locking position to its unblocking position thereby causing a falling of said pin out of said block, thus permitting the insertion of the reduced end of said pin into the opening in said casing if it is desired to disconnect the chain from the latch casing while unlocking the latch, and if it is desired to retain the chain on the casing when unlocking the latch permitting the insertion of the increased end of said pin into the slot in said block, thereby allowing a movement of said latch and the member laterally protruding therefrom without engaging said pin, so that the same remains in said block.

3. A device of the character described comprising a latch casing having side wall portions and a top wall portion provided with a longitudinal opening, a spring biased latch slidably extending into said latch casing through a side wall portion thereof and having a portion extending into the longitudinal opening in said top wall portion, a plate closing the bottom of said latch casing being provided with guide means, a rotatable member extending through said plate being constructed and arranged for receiving a tail piece of a cylinder lock, a handle rotatably mounted on the top wall portion of said latch casing, a pair of cam members within said latch casing the first of which being secured to said rotatable member and the second to said handle, cam members engaging means extending from said latch to said cam members and engaging the guide means of said plate as well as each one of said cam members so that said latch can be moved from its locking position to its unlocking position by said handle alone as well as by said rotatable member alone without moving said handle, a block mounted on the outer side of the top wall portion of said latch casing being provided in registering alignment with the longitudinal opening in said top wall portion with a slot extending into the block from an edge thereof and having a

wide longitudinal portion adjacent said latch casing and a narrow portion in alignment with the longitudinal center of said wide portion and having also an end section which gradually increases in width toward said last mentioned edge of the block, a pin having a pair of grooves and a reduced end portion, and a safety chain one end of which is secured to said pin intermediate said grooves, each of said grooves permitting said pin to be selectively slid into the slot of said block so that the narrow portion of the slot engages a groove, and the reduced end portion of the pin being slidably extendable into the longitudinal opening in the front wall portion of said latch casing so as to be pushed by that portion of the latch which extends into said longitudinal opening to the gradually in width increasing end section of the slot in said block when said latch is being moved from its locking position to its unlocking position thereby causing a falling of said pin out of said slot of said block, thus permitting the insertion of the reduced end of said pin into the opening in said casing if it is desired to disconnect the chain from the latch casing while unlocking the latch, and if it is desired to retain the chain on the casing when unlocking the latch permitting the insertion of the other end of said pin into the slot in said block, thereby allowing a movement of said latch without engaging said pin, so that the same remains in said block.

4. A device of the character described comprising a latch casing having side wall portions and a top wall portion provided with a longitudinal opening, a spring biased latch slidably extending into said latch casing through a side wall portion thereof and having a portion extending into the longitudinal opening in said top wall portion, a plate closing the bottom of said latch casing being provided with a pair of slots which are parallel to the longitudinal opening in said top wall portion, a rotatable member extending through said plate being constructed and arranged for receiving a tail piece of a cylinder lock, a handle rotatably mounted on the top wall portion of said latch casing, a pair of cam members within said latch casing the first of which being secured to said rotatable member and the second to said handle, a pair of arms extending from said latch each having a T-shaped end portion one branch of which engages one of said cam members while the other branch engages the other cam member as well as one of the slots in said plate so that said spring biased latch can be moved from its locking position to its unlocking position by said handle alone as well as by said rotatable member alone without moving said handle, a block mounted on the outer side of the top wall portion of said latch casing being provided in registering alignment with the longitudinal opening in said top wall portion with a slot extending into the block from an edge thereof and having a wide longitudinal portion adjacent said latch-casing and a narrow portion in alignment with the longitudinal center of said wide portion and having also an end section which gradually increases in width toward said last mentioned edge of the block, a pin having a pair of grooves and a reduced end portion, and a safety chain one end of which is secured to said pin intermediate said grooves, each of said grooves permitting said pin to be selectively slid into the slot of said block so that the narrow portion of the slot engages a groove, and the reduced end portion of the pin being slidably extendable into the longitudinal opening in the front wall portion of said latch casing so as to be pushed by that portion of the latch which extends into said longitudinal opening to the gradually in width increasing end section of the slot in said block when said latch is being moved from its locking position to its unlocking position thereby causing a falling of said pin out of said slot of said block, thus permitting the insertion of the reduced end of said pin into the opening in said casing if it is desired to disconnect the chain from the latch casing while unlocking the latch, and if it is desired to retain the chain on the casing when unlocking the latch

permitting the insertion into said block of that end of said pin which is opposite the reduced end portion thereof, thereby allowing a movement of said latch without engaging said pin, so that the same remains in said block.

5. A device of the character described comprising a latch casing having a longitudinal opening in its top wall portion, a spring biased latch in said latch casing having a portion extending into said opening, a handle rotatably mounted on said latch casing, a cylinder lock tail piece engaging member rotatably mounted on said latch casing, means for moving said latch by turning said handle independently of said tail piece engaging member and for moving said latch by turning said member independently of said handle mounted on said latch casing, a pin having unequally shaped end portions, a safety chain secured to said pin intermediate its ends, and means for removably attaching said pin to said latch casing being constructed and arranged for receiving either one of said unequally shaped end portions of said pin in such a manner that if the first end portion of said pin is received the movement of said latch from its locking position to its unlocking position will cause said pin to be removed from said latch casing by that portion of said latch which extends into said opening in said casing, and that if the second end portion of said pin is received by said last mentioned means said latch can be moved without changing the position of said pin.

6. A device of the character described comprising a latch casing having a longitudinal opening in its top wall portion, a spring biased latch in said latch casing having a portion extending into said opening, a handle rotatably mounted on said latch casing, a cylinder lock tail piece engaging member rotatably mounted on said latch casing, means for moving said latch by turning said handle independently of said tail piece engaging member and for moving said latch by turning said member independently of said handle mounted on said latch casing, a block mounted on the outer side of the top wall portion of said latch casing being provided in registering alignment with the longitudinal opening in said top wall portion with a slot extending into the block from an edge thereof and having a wide longitudinal portion adjacent said latch casing and a narrow portion in alignment with the longitudinal center of said wide portion and having also an end section which gradually increases in width toward said last mentioned edge of the block, a pin having a pair of grooves and a reduced end portion, and a safety chain one end of which is secured to said pin intermediate said grooves, each of said grooves permitting said pin to be selectively slid into the slot of said block so that the narrow portion of the slot engages a groove, and the reduced end portion of the pin being slidably extendable into the longitudinal opening in the front wall portion of said latch casing so as to be pushed by that portion of the latch which extends into said longitudinal opening to the gradually in width increasing end section of the slot in said block when said latch is being moved from its locking position to its unlocking position thereby causing a falling of said pin out of said slot of said block, thus permitting the insertion of the reduced end of said pin into the opening in said casing if it is desired to disconnect the chain from the latch casing while unlocking the latch, and if it is desired to retain the chain on the casing when unlocking the latch permitting the insertion of the other end of said pin into the slot in said block, thereby allowing a movement of said latch without engaging said pin, so that the same remains in said block.

7. A device of the character described comprising a latch casing having side wall portions and a top wall portion provided with a longitudinal opening, a spring biased latch slidably extending into said latch casing through a side wall portion thereof, a laterally from said latch protruding member extending into the longitudinal opening in said top wall portion and being slidable therein, a plate closing the bottom of said latch casing having at least one

longitudinal opening parallel to the longitudinal opening in said top wall portion, a plug rotatably mounted on said plate having a slot adapted for receiving a tail piece of a cylinder lock, a first cam member within said latch casing secured to said plug, a handle rotatably mounted on the top wall portion of said latch casing, a second cam member within said latch casing secured to said handle, at least one arm within said casing extending from said latch to said cam members and having an end portion engaging said cam members and being provided with a section which slidably protrudes into the longitudinal opening in said plate, a pin having unequally shaped end portions, a safety chain secured to said pin intermediate its ends, and means for removably attaching said pin to said latch casing being constructed and arranged for receiving either one of said unequally shaped end portions of said pin in such a manner that if the first end portion of said pin is received the movement of said latch from its locking position to its unlocking position will cause said pin to be removed from said latch casing by said laterally from said latch protruding member, and that if the second end portion of said pin is received by said last mentioned means said latch can be moved without changing the position of said pin.

8. A safety chain retaining door latch comprising a latch casing having side wall portions and a top wall portion provided with a longitudinal opening, a spring biased latch slidably extending into said latch casing through a side wall portion thereof, a laterally from said latch protruding member extending into the longitudinal opening in said top wall portion, a plate closing the bottom of said latch casing having at least one longitudinal opening, a plug extending through said plate and being rotatably mounted thereon having a slot adapted for receiving a tail piece of a cylinder lock, a handle rotatably mounted on the top wall portion of said latch casing, a pair of cam members within said latch casing the first of which being secured to said plug and the second to said handle, cam members engaging means extending from said latch to said cam members, guide means on said cam members engaging means extending into the longitudinal opening in said plate, a pin having unequally shaped end portions, a safety chain secured to said pin intermediate its ends, and means for removably attaching said pin to said latch casing being constructed and arranged for receiving either one of said unequally shaped end portions of said pin in such a manner that if the first end portion of said pin is received the movement of said latch from its locking position to its unlocking position will cause said pin to be removed from said latch casing by said laterally from said latch protruding member, and that if the second end portion of said pin is received by said last mentioned means said latch can be moved without changing the position of said pin.

9. A device of the character described comprising a latch casing having side wall portions and a top wall portion provided with a longitudinal opening, a spring biased latch slidably extending into said latch casing through a side wall portion thereof and having a portion extending into the longitudinal opening in said top wall portion, a plate closing the bottom of said latch casing being provided with guide means, a rotatable member extending through said plate being constructed and arranged for receiving a tail piece of a cylinder lock, a handle rotatably mounted on the top wall portion of said latch casing, a pair of cam members within said latch casing the first of which being secured to said rotatable member and the second to said handle, cam members engaging means extending from said latch to said cam members and engaging the guide means of said plate as well as each one of said cam members so that said latch can be moved from its locking position to its unlocking position by said handle alone as well as by said rotatable member alone without moving said handle, a pin having unequally shaped end portions, a safety chain secured to said pin intermediate its ends, and means for removably attaching said pin to said latch casing being constructed and arranged for receiving either one of said unequally shaped end portions of said pin in such a manner that if the first end portion of said pin is received the movement of said latch from its locking position to its unlocking position will cause said pin to be removed from said latch casing by that portion of said latch which extends into said opening in said casing, and that if the second end portion of said pin is received by said last mentioned means said latch can be moved without changing the position of said pin.

10. A safety chain retaining door latch comprising a latch casing having side wall portions and a top wall portion provided with a longitudinal opening, a spring biased latch slidably extending into said latch casing through a side wall portion thereof and having a portion extending into the longitudinal opening in said top wall portion, a plate closing the bottom of said latch casing being provided with a pair of slots which are parallel to the longitudinal opening in said top wall portion, a rotatable member extending through said plate being constructed and arranged for receiving a tail piece of a cylinder lock, a handle rotatably mounted on the top wall portion of said latch casing, a pair of cam members within said latch casing the first of which being secured to said rotatable member and the second to said handle, a pair of arms extending from said latch each having a T-shaped end portion one branch of which engages one of said cam members while the other branch engages the other cam member as well as one of the slots in said plate so that said spring latch can be moved from its locking position to its unlocking position by said handle alone as well as by said rotatable member alone without moving said handle, a pin having unequally shaped end portions, a safety chain secured to said pin intermediate its ends, and means for removably attaching said pin to said latch casing being constructed and arranged for receiving either one of said unequally shaped end portions of said pin in such a manner that if the first end portion of said pin is received the movement of said latch from its locking position to its unlocking position will cause said pin to be removed from said latch casing by that portion of said latch which extends into said opening in said casing, and that if the second end portion of said pin is received by said last mentioned means said latch can be moved without changing the position of said pin.

References Cited in the file of this patent

UNITED STATES PATENTS

1,924,627 Segal ---------- Aug. 29, 1933

FOREIGN PATENTS

447,529 Great Britain ---------- May 20, 1936