Oct. 31, 1961 M. RIFKIN 3,006,178

WINDOW LATCHING DEVICE

Filed Dec. 3, 1957 2 Sheets-Sheet 1

Fig. 4.

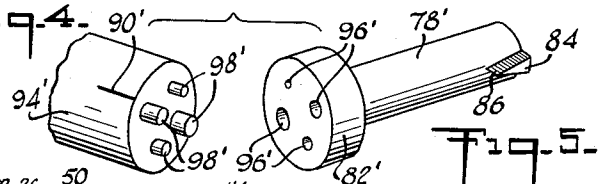


Fig. 1.

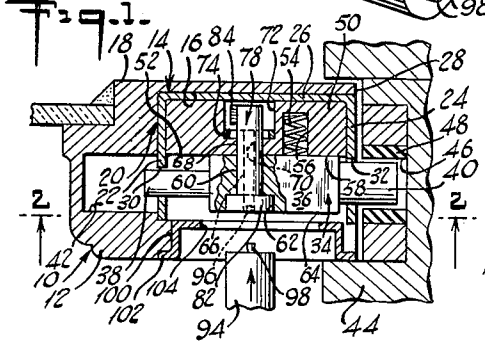


Fig. 5.

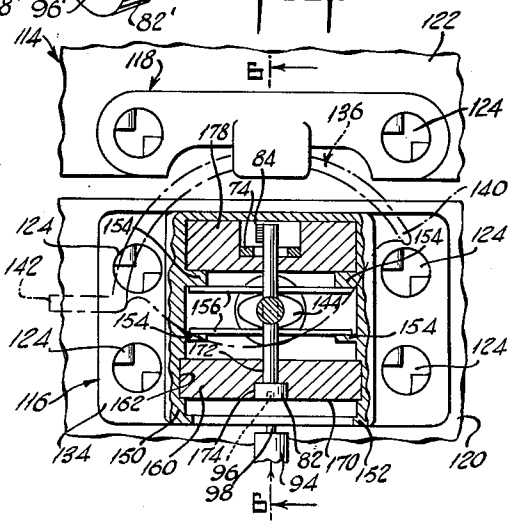


Fig. 2.

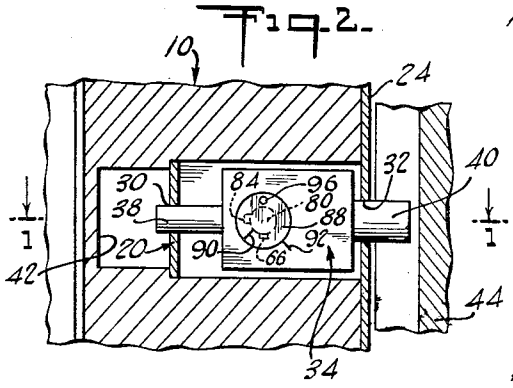


Fig. 6.

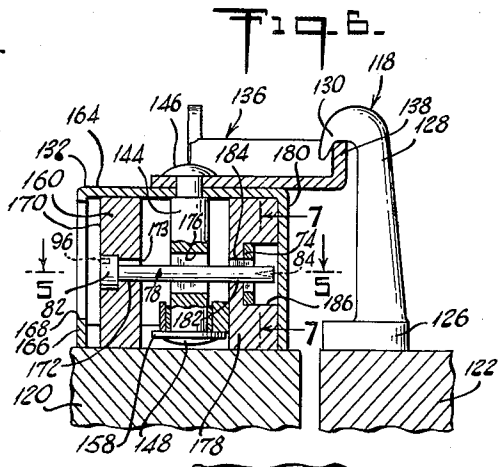


Fig. 3.

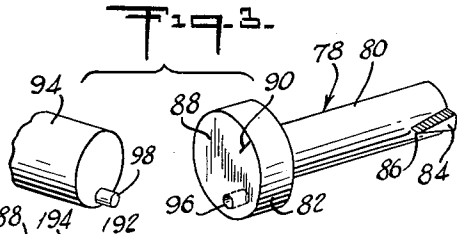


Fig. 8.

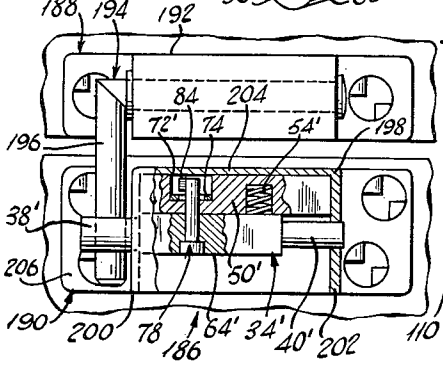


Fig. 7.

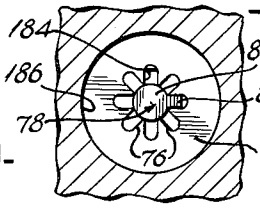
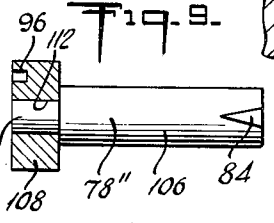


Fig. 9.



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Fig. 10.

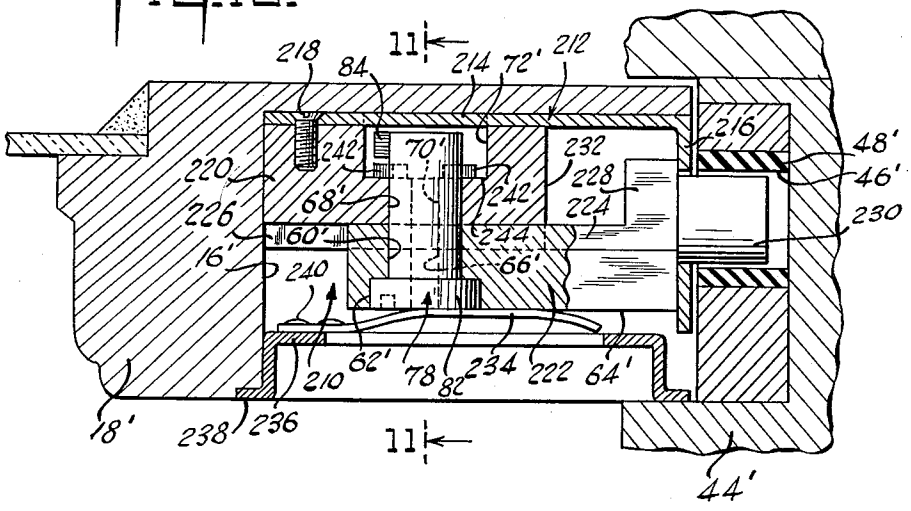


Fig. 11

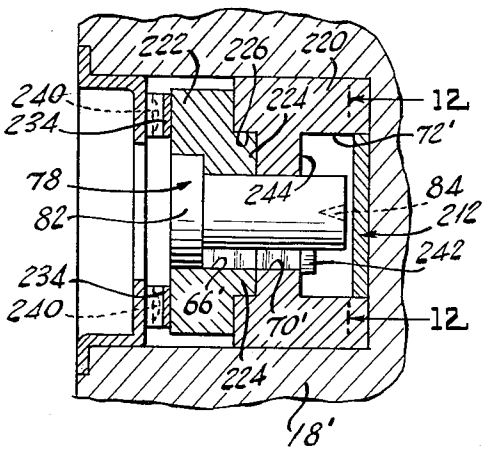
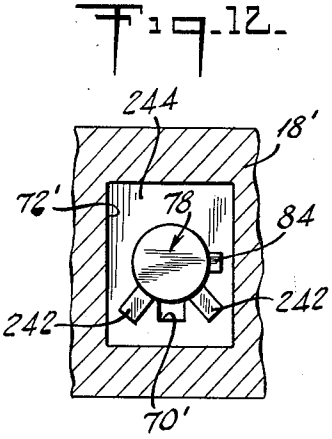


Fig. 12.



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United States Patent Office

3,006,178

Patented Oct. 31, 1961

3,006,178

WINDOW LATCHING DEVICE

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Filed Dec. 3, 1957, Ser. No. 700,457
4 Claims. (Cl. 70—90)

This invention relates generally to an improved window latching device and, more particularly, to an improved window latching device incorporating a novel anti-burglary locking arrangement.

In my application Serial No. 685,971 filed on September 24, 1957, now abandoned, for Window Latching Device, there are disclosed latch arrangements having novel means for locking sashes in a closed, or near closed, condition in a burglar proof manner and one important aim and object of the present invention is the provision of a window latching device of a generally similar character having improved means for locking sashes in a burglarproof manner.

Another important object of the present invention is the provision of a latching device or sash lock which may be used with conventional types of double-hung windows, either as an original installation sash lock or as a replacement for the conventional types of presently used sash locks.

Yet another object of the present invention is the provision of an improved latching device of the aforenoted character which is of simple design and construction, and in which the anti-burglary locking feature may be made selectively operative or inoperative by the householder in a quick and facile manner.

Other objects, features and advantages of the invention will become apparent as the description thereof proceeds when considered in connection with the accompanying illustrative drawings in which:

FIG. 1 is a fragmentary horizontal sectional view showing a sash stile and associated latching device of the present invention with the latching device in a locked condition;

FIG. 2 is a sectional view taken on the line 2—2 of FIG. 1;

FIG. 3 is a perspective view of the key lock bolt and companion lock bolt removing tool;

FIG. 4 is a view similar to FIG. 3 showing a modification;

FIG. 5 is a top plan view, shown partly in section, of a sash lock formed according to the present invention and adapted for use with double-hung sash, said section part being taken on the line 5—5 of FIG. 6;

FIG. 6 is a partial sectional view taken on the line 6—6 of FIG. 5;

FIG. 7 is a partial sectional view taken on the line 7—7 of FIG. 6;

FIG. 8 is a view similar to FIG. 5 showing another modified form of double-hung sash lock;

FIG. 9 is a side elevational view, shown partly in section, of a modified form of key lock bolt;

FIG. 10 is a view similar to FIG. 1 showing a modified form of latching device;

FIG. 11 is a sectional view taken on the line 11—11 of FIG. 10; and

FIG. 12 is a sectional view taken on the line 12—12 of FIG. 11.

Referring to the drawings and, more particularly to FIGS. 1 and 2 thereof, there is shown a window construction **10** which may be of the general type disclosed in my above referred to patent application and in my Patent No. 2,694,237 issued on November 16, 1954. The window construction includes a sash **12** which is mounted for vertical reciprocation between a companion pair of runners, one of which is fixed with the opposite one being

laterally movable towards its associated jamb member against the action of spring means disposed between said jamb member and the movable runner. Thus the window construction may be of the removable sash type or, if desired, and as will be apparent from the description which follows, the window construction may be of the non-removable sash type.

The latching device **14** of the present invention is secured in the recess or mortise **16** of a companion sash stile **18**, the latching device incorporating an improved anti-burglary feature so that the sashes may be locked in a closed, or near closed, position in a burglarproof manner. The latching device **14** comprises a U-shaped bracket **20** having laterally spaced walls **22** and **24** interconnected by a transverse wall **26**, said wall **24** defining a face plate which is flush with the surface of the outer side **28** of the stile. The walls **22** and **24** have aligned circular apertures **30** and **32**, respectively extending therethrough which mount the latching member **34** for axial movement. The latching member **34** has a central part **36** of quadrilateral cross section and end parts **38** and **40** of circular cross section. If desired, the parts **38** and **40** may be threadedly engaged to the part **36** to facilitate the assembly of the latching member with the bracket **20**. The end part **38** is adapted to project into the closed bottom aperture **42** of the stile.

The jamb **44** is provided with a series of apertures **46** defined by the sound absorbent sleeves **48**, said apertures being adapted for the reception of the part **40**. The apertures **46** may be at spaced levels for the reception of part **40** for releasably latching the sash at selected levels or such apertures may be provided only at levels corresponding to the closed or closed and near closed positions of the sash. Any suitable device or fitting may be provided at the jamb for reception of part **40**.

Secured to the rear wall of the bracket **20**, as by means of welding or the like, is a block **50** which has the front face **52** thereof disposed in adjacent relation with the latching member. The latching member is lightly biased away from the block **50** by means of the compression coil spring **54** which is seated in recess **56** of the block and which bears against the rear face **58** of the latching member. Any suitable means may be used, other than spring **54**, for applying a frictional drag on the latching member so as to retain the latter in its manually adjusted position. The latching member is provided with an aperture **60** having a counterbore **62** at the front face **64** thereof, said aperture **60** having a keyway **66** coextensive therewith. The block **50** is provided with an aperture **68** and keyway **70** in registry with aperture **60** and keyway **66** and of corresponding size. The block **50** is recessed as indicated at **72** and suitably secured in said recess as by means of a press-fit or the like is a star washer **74** (see FIG. 7) which registers with aperture **68**. One of the slots **76** of washer **74** registers with the keyways **66** and **70**, said washer being provided with a series of slots **76** extending peripherally thereof for a reason which will be apparent from the description which follows.

In order to lock the sash in a sash locked position and in a burglarproof manner, the part **40** is engaged in an aperture **46** at a level in which the sash is closed or near closed and in this position the apertures **60** and **68** will register so that the key lock bolt **78** (FIG. 3) may be manipulated therethrough. The lock bolt **78** has a shaft part **80** and a head **82** which are formed complementary to the apertures **60**, **68** and counterbore **62**, respectively to interfit therewith. The inner end of the shaft part **80** is provided with a laterally projecting key **84** which tapers longitudinally of the bolt towards the head thereof. The apex **86** of the key is in the form of a relatively thin

edge which confronts the washer 74 in the installed position of the bolt 78. While a specific form of key has been illustrated and described herein, it will be apparent that other forms of keys may be used to accomplish the function to be pointed out in detail hereinafter. It will be apparent that the key 84 is registered with the keyways 66, 70 when the bolt is extended through the apertures 60, 68. In the installed position of bolt 78, the head 82 thereof interfits with the counterbore 62 and the outer face 88 of the head is flush with the face 64 of the latching member. The bolt 78 is rotated to take the key 84 out of registry with the keyways 66, 70 and to lock the sash in a burglarproof manner. It will be apparent that the bolt 78 must be removed to unlock the sash and such removal requires the registry of the key with the keyways. This is accomplished by the householder by rotating the bolt to align the index mark 90 on the face 88 of the bolt with the index mark 92 on the face 64 of the latching member and with the index marks so aligned the key will be in registry with the keyways and the bolt will be conditioned for axial retraction. The latching member and bolt are preferably formed of magnetizable material in the instant embodiment and the bolt may be readily axially retracted from the apertures 60, 68 by a suitable magnetic device such as the magnetic tool 94 which is best shown in FIG. 3. The householder manipulates the tool 94 to the face 88 of the bolt head and the latter will be magnetically attracted to the tool so that the bolt may be axially retracted. The bolt head 82 is provided with a very small aperture 96 to facilitate the rotation of the bolt and the latter may be rotated by a suitable pin inserted in said aperture or by the pin 98 formed complementary to the aperture 96 projecting at the end of the tool 94. Thus the bolt may be readily rotated and retracted by the householder to unlock the sash but this becomes a near impossible task for a would-be burglar who must gain access to the bolt from an outside position, as by breaking a window pane. Even if the burglar is sufficiently accomplished to know that lock bolt removal is required for unlocking a sash, he will be frustrated in his attempt to remove the lock bolt without frontal visual access thereto, and thus the latching device provides a burglarproof sash lock. With the lock bolt in a locked condition the front exposed surface of the latching member presents a substantially uniform feel to the touch to therefore render the accurate locating of the bolt head near impossible without frontal visual access. This feature may be enhanced by providing the front face 64 of the latching member and the face 88 of the bolt head with smooth polished surfaces. Even if the bolt head is located the would-be burglar without frontal visual access could not register the index lines 90 and 92 which is a prerequisite for lock bolt removal. If such would-be burglar should apply a magnet to the bolt head and attempt to withdraw and rotate the same to a position in which the key 84 is registered with the keyways, the key will lock in a slot 76 of the star washer 74 to prevent the rotation of the bolt, the configuration of the key, and more particularly the thin edge apex 86 thereof, facilitating this locking action. Only one slot 76 will be registered with the keyways and the rotation of the key to register with such slot is a very difficult or near impossible task without frontal visual access. Thus the washer 74 functions to prevent the rotation of the bolt when the latter is slightly axially retracted by a magnet so as to prevent the use of such magnet from applying a bolt retracting force concomitant with the rotation thereof. Where the latching member is also formed of magnetizable material the registering of a magnet with the bolt head by a would-be burglar is very difficult as the magnet will be equally attracted to the face of the latching member and the bolt head and it will be difficult to manipulate the magnet along the face of the latching member to a position of registry with the bolt head.

Secured in the elongated opening 100 of the sash stile is a trim plate 102 having an elongated opening 104 providing access to the face of the latching member. If desired, a suitable finger piece may be used with the latching member to facilitate the axial movement thereof when the lock bolt is removed therefrom or such manipulation may be accomplished through the medium of the counterbore 62 of the latching member.

It is within the scope of the present invention to use a lock bolt having a slotted head in which case removal may be effected by the use of a "quick-wedge" screwdriver in place of a magnetic tool.

With reference to FIG. 4, there is shown a modified form of lock bolt 78' and magnetic tool 94' which differ from the aforedescribed lock bolt and tool in the manner to be described. The head 82' is provided with a series of different sized spaced apertures 96' formed complementary to the pins 98' of the magnetic tool and the pins are insertable in the apertures in one position only. In practice, the pins 98' are inserted or plugged into the apertures 96' and the assembly is rotated to align the index mark 90' on the peripheral face of the tool with the index mark 92 on the latching member, and in this position the lock bolt may be axially retracted as aforedescribed. With reference to FIG. 9, the lock bolt 78'' differs from the lock bolt 78 in that bolt 78'' is formed in two parts 106 and 108 which are press fitted or otherwise suitably secured to each other, the part 106 being formed of magnetizable material and the part 108 being formed of non-magnetizable material. The part 106 is provided with a reduced diameter shaft portion 110 and the part 108 is provided with a companion aperture 112, it being apparent that magnetic tool must be accurately registered with the exposed portion 110 to rotate the bolt and withdraw the same, to thereby enhance the anti-burglary feature aforedescribed.

With reference to FIGS. 5–8, there are shown forms of a latch device or sash lock which may be used with conventional types of double-hung windows, either as an original installation sash lock or as a replacement for the presently used sash lock. Referring now to FIGS. 5–7, the sash lock 114 comprises a complementary pair of releasably interengageable latch parts 116 and 118 which are secured to the meeting rails 120 and 122, respectively, of a double-hung window by suitable fasteners, such as clutch head screws 124 which extend through companion apertures provided in the latch parts.

The latch part 118 is preferably of one-piece construction and comprises a base 126 having a centrally upstanding part 128 which terminates in a hook-shaped portion 130, the base being mounted to the top face of the rail 122 of the upper sash by screws 124. The latch part 116 comprises a housing 132 having a base 134 which is mounted to the top face of the rail 120 of the lower sash by screws 124, said housing pivotally mounting the part 136 which is interengageable with the portion 130 of the latch part 118 for locking the sashes. The part 136 is provided with an arcuate upstanding flange 138 of gradually ascending depth from the end 140 thereof and terminates at the opposite end in a fingerpiece 142 providing for the manual actuation of the part 136. The part 136 is fixedly mounted to the shaft 144 for rotation therewith by means of the fasteners 146 and 148. The shaft 144 is of elliptical cross section and is disposed internally of the housing 132 centrally thereof. The housing is provided with opposite side walls 150 and 152 and projecting from said side walls are two aligned pairs of ribs 154 which mount the spring members 156. The spring members rest on the washer 158 secured between the shaft 144 and the fastener 148. The spring members are disposed adjacent to the shaft 144 and are spaced a distance substantially corresponding to the length of the elliptical minor axis for biasing said shaft in its extreme

locked and unlocked positions, said spring members being yieldable away from each other on the rotation of said shaft concomitantly with the rotation of the part **136**.

Pursuant to the present invention, a block **160** is mounted forwardly of the housing between the walls **150** and **152**, the ends of the block being seated in recesses **162** provided in said walls and being secured in position by fasteners or other suitable means. The housing further includes a top wall **164** and a front wall **166**, the latter wall having an opening **168** providing access to the block. The block **160** has a front exposed surface **170** which corresponds to the surface **64** previously described. The block **160** is provided with an aperture **172** and counterbore **174** which correspond to the aperture **60** and counterbore **62** of the previous embodiment. The shaft **144** is provided with a vertically elongated aperture **176** in registry with the apertures **172** and **182**. A block **178** is fixedly secured in position adjacent the back wall **180** and between walls **150** and **152**. The block **178** corresponds to the block **50** previously described and is provided with an aperture **182** and keyway **184** in registry with aperture **172** and keyway **173** of block **160**. The block **178** is recessed as indicated at **186** and secured in said recess is a star washer **74** which registers with aperture **182**. One of the slots **76** of washer **74** registers with the keyways **173** and **184** as aforedescribed.

In order to lock the sashes in a burglarproof manner the part **136** is manually actuated to the sash locked position in which the portion **130** is interengaged with the flange **138** as shown in FIGS. 5 and 6, and the lock bolt **78** is installed in position in the manner described above in detail. It will be apparent that any of the lock bolts previously described may be used in conjunction with the sash lock **114**. The lock bolt **78** extends through the aperture **176** of shaft **144** to thereby lock said shaft against rotation and thereby lock the sash lock. Thus lock bolt removal is required to permit the part **136** to be manually actuated to the unlocked position. Thus even if the would-be burglar should break or remove a pane of glass to gain access to the sash lock, he could not unlatch such sash lock without first removing the lock bolt which is a very difficult or near impossible task for the burglar without frontal visual access to the bolt as previously explained in detail. The householder may facilely install and remove the lock bolt relative to the sash lock through the opening **168**.

The sash lock **186**, shown in FIG. 8, comprises a complmentary pair of releasably interengageable latch parts **188** and **190** which are secured to the sash meeting rails in the manner described above in connection with sash lock **114**. The latch part **188** comprises a bracket **192** which rotatably mounts the bolt member **194**, the latter being restrained against axial movement and having a laterally projecting part **196** which is engageable with the latch part **190** for locking the sash lock. Thus the part **196** is engageable and disengageable with the part **190** on the rotation of the bolt member.

The latch part **190** comprises a bracket **198** having sidewalls **200** and **202** and a back wall **204**, there being provided a block **50'** which is suitably secured in fixed position against said back wall and between said sidewalls. The block **50'** corresponds to the block **50** previously described and is provided with a star washer **74** seated in the recess **72'**. The latching member **34'** corresponds to the latching member **34** previously described and is of quadrilateral cross section with circular end parts **38'** and **40'**, the latching member being axially reciprocable in the bracket **198**. The front face of block **50'** and the rear face of the latching member are disposed in adjacent relation and the latching member is lightly biased away from the block **50'** by means of the coil spring **54'**. The latching member **34'** is thus of generally similar construction as the latching member **34** previously described and incorporates a similar anti-burglary feature utilizing a lock bolt **78**, the latching member **34'** cooperating with its companion block **50'** in

the manner of cooperation between member **34** and its companion block **50**. Thus the latching member **34'** is provided with a smooth face **64'** and has an aperture and counterbore for the reception of the lock bolt.

In order to lock the sash in a sash locked position and in a burglarproof manner, the bolt member **194** is rotated to engage the part **196** with the part **206** of latch part **190** and the latching member is reciprocated in a locking direction to the position shown in FIG. 8 in which the locking apertures and keyways of the block **50'** and member **34'** are in registry. In this position the part **196** will be locked between the part **206** and the part **38'** to thereby lock the sashes in position. If desired, the contact face of the part **38'** may be somewhat flattened and the adjacent contact faces between the part **196** and the part **38'** may be knurled or roughened to provide frictional drag between the parts. The latching member is locked in this position by means of the lock bolt **78** which is installed in position in the manner previously described with reference to the latching device **14**. With the latching member thus locked in position, the part **196** will be locked between the parts **38'** and **206** to thereby lock the sashes in position. It will be apparent that with the lock bolt **78** removed, the latching member may be shifted to the right viewing FIG. 8, and the part **196** rotated to a sash unlocked position.

Referring to FIGS. 10–12, the latching device **210** is of generally similar construction as the latching device **14** and incorporates a similar anti-burglary feature, the latching device **210** differing from latching device **14** in the respects to be described in detail hereinafter. The latching device **210** dispenses with the need of providing an aperture corresponding to aperture **42** in the stile **18'** as will be apparent from the description which follows. The latching device **210** is secured in the mortise **16'** of stile **18'**, said latching device comprising an L-shaped bracket **212** having a back wall **214** and a side wall **216** which defines a face plate. Suitably secured to the wall **214**, as by means of fastener **218**, is a block **220** which corresponds to the block **50** of device **14**.

The latching member **222** corresponds to the latching member **34** and is mounted for axial movement between locking and unlocking positions, the member **222** having a projecting portion **224** which interfits with the slot or track **226** at the forward part of the block **220** for relative slidable movement. The member **222** has a laterally offset part **228** provided with an end part **230** of circular cross section. The wall **216** forms a stop for the latching member in the locking position thereof and the end wall **232** of the block forms a stop for the latching member in the movement thereof in an unlocking direction.

The jamb **44'** is provided with a locking aperture **46'**, defined by the sleeve **48'**, for the reception of the part **230** of the latching member in the locking position thereof. The latching member **222** is lightly biased into engagement with the block **220** by the leaf springs **234** which are suitably secured to the wall **236** of the trim plate **238**, as by means of the fasteners **240**. The latching member is provided with an aperture **60'** having a counterbore **62'** at the front face **64'** thereof, said aperture **60'** having a keyway **66'** coextensive therewith. The block **220** is provided with an aperture **68'** and keyway **70'** in registry with aperture **60'** and keyway **66'** and of corresponding size. The block is recessed as indicated at **72'** and in place of a star washer a pair of stops **242** are utilized which project from the wall **244** defined by the recess adjacent the keyway **70'** (see FIG. 12).

In order to lock the sash in a sash locked position and in a burglarproof manner, the part **230** is engaged in the aperture **46'** and in this position the apertures **60'** and **68'** will register so that the lock bolt **78** may be manipulated therethrough as described in detail with reference to the latching device **14**. The key **84** is registered with the keyways when the bolt is extended through the apertures **60'**, **68'**. In the installed position of bolt **78**, the head **82** thereof interfits with the counterbore

62' and the outer face of the head is flush with the face 64' of the latching member. The bolt 78 is rotated to take the key 84 out of registry with the keyways 66', 70' and to lock the sash in a burglarproof manner. The stops 242 function to prevent full rotation of the bolt when the latter is slightly axially retracted by a magnet so as to prevent the use of such magnet from applying a bolt retracting force concomitant with the rotation thereof to the keyway 70'. It will be understood that it is within the scope of the present invention to provide any desired number of apertures 96 in the bolt head 82 and such apertures may be of the same or of different sizes and may be uniformly or non-uniformly spaced as desired.

While there is shown and described herein certain specific structures embodying the invention it will be manifest to those skilled in the art that various modifications and rearrangements of the parts may be made without departing from the spirit and scope of the underlying inventive concept and that the same is not limited to the particular form herein shown and described except insofar as indicated by the scope of the appended claims.

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

1. A latching device, comprising a bracket mounting a latching member for axial movement between first and second positions and means for locking said latching member in one of said positions thereof comprising a part disposed in fixed relation with said bracket and a lock bolt adapted for engagement with said part in the locking position of said latching member, said latching member and said fixed part being provided with registering apertures and keyways, said lock bolt having a head at one end and a key at the opposite end thereof, said lock bolt being mountable in said registering apertures with said key aligned with said registering keyways to a locking position in which said head is disposed in substantially flush relation with the adjacent surface of said latching member, said lock bolt in said locking position having the key rotated out of alignment with the registering keyways rearwardly of said fixed part aperture to thereby prevent the retraction of said lock bolt from said latching member, the rotation of said lock bolt to align said key with said keyways conditioning said lock bolt for retraction from said latching member to an unlocked position.

2. A latching device, comprising a bracket mounting a latching member for axial movement between first and second positions, and means for locking said latching member in one of said positions thereof comprising a part disposed in fixed relation with said bracket and a lock bolt adapted for engagement with said part in the locking position of said latching member, said latching member and said fixed part being provided with registering apertures and keyways, said lock bolt having a head at one end and a key at the opposite end thereof, said lock bolt being mountable in said registering apertures with said key aligned with said registering keyways to a locking position in which said head is disposed in substantially flush relation with the adjacent surface of said latching member, said lock bolt in said locking position having the key rotated out of alignment with the registering keyways rearwardly of said fixed part aperture to thereby prevent the retraction of said lock bolt from said latching member, the rotation of said lock bolt to align said key with said keyways conditioning said lock bolt for retraction from said latching member to an unlocked position, said lock bolt head and said latching member surface being smooth, and said lock bolt head being formed of magnetizable material whereby the lock bolt may be retracted from said latching member with said key aligned with said keyways by a magnetic device applied to said lock bolt head.

3. A latching device, comprising a bracket mounting a latching member for axial movement between first and second positions and means for locking said latching member in one of said positions thereof comprising a part disposed in fixed relation with said bracket and a lock bolt adapted for engagement with said part in the locking position of said latching member, said latching member and said fixed part being provided with registering apertures and keyways, said lock bolt having a head at one end and a key at the opposite end thereof, said lock bolt being mountable in said registering apertures with said key aligned with said registering keyways to a locking position in which said head is disposed in substantially flush relation with the adjacent surface of said latching member, said lock bolt in said locking position having the key rotated out of alignment with the registering keyways rearwardly of said fixed part aperture to thereby prevent the retraction of said lock bolt from said latching member, the rotation of said lock bolt to align said key with said keyways conditioning said lock bolt for retraction from said latching member to an unlocked position, and means disposed adjacent to the rear of said fixed part aperture to prevent the rotation of said lock bolt simultaneous with the application of a retracting force thereto.

4. A latching device, comprising a bracket mounting a latching member for axial movement between first and second positions and means for locking said latching member in one of said positions thereof comprising a part disposed in fixed relation with said bracket and a lock bolt adapted for engagement with said part in the locking position of said latching member, said latching member and said fixed part being provided with registering apertures and keyways, said lock bolt having a head at one end and a key at the opposite end thereof, said lock bolt being mountable in said registering apertures with said key aligned with said registering keyways to a locking position in which said head is disposed in substantially flush relation with the adjacent surface of said latching member, said lock bolt in said locking position having the key rotated out of alignment with the registering keyways rearwardly of said fixed part aperture to thereby prevent the retraction of said lock bolt from said latching member, the rotation of said lock bolt to align said key with said keyways conditioning said lock bolt for retraction from said latching member to an unlocked position, and means disposed adjacent to the rear of said fixed part aperture to prevent the rotation of said lock bolt simultaneous with the application of a retracting force thereto, said last mentioned means comprising a star washer having a central aperture aligned with said registering apertures and a series of slots extending peripherally thereof, one of said slots being aligned with said keyways.

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