Oct. 9, 1962 M. M. CHECK 3,057,649

PRIVACY LATCH

Filed March 7, 1961

Fig. 1.

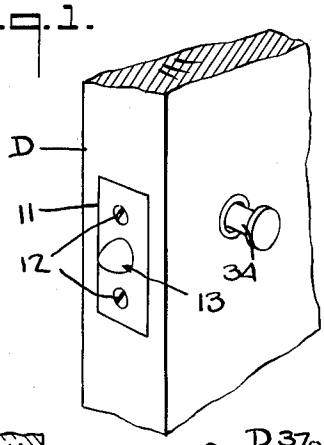
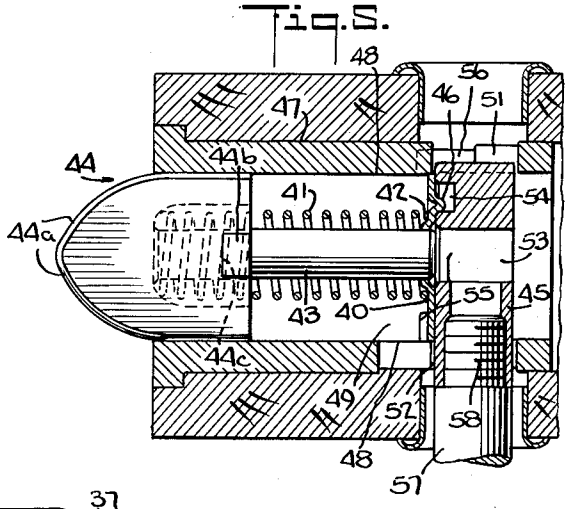


Fig. 5.



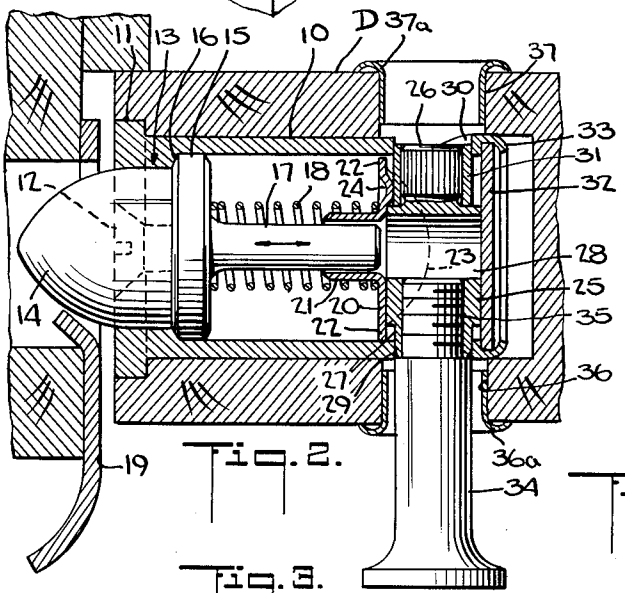


Fig. 2.

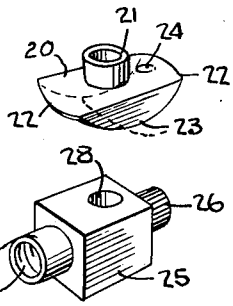


Fig. 4.

Fig. 3.

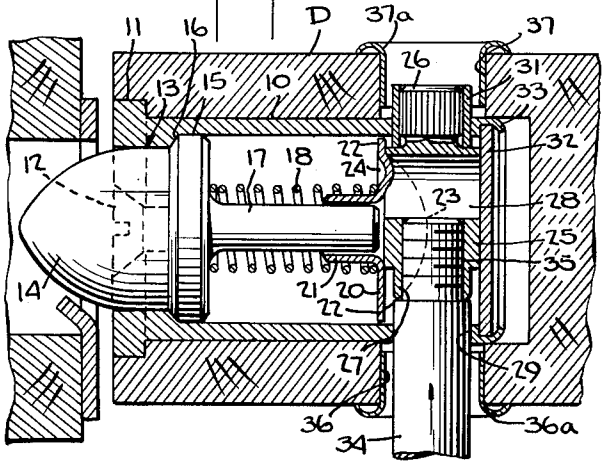
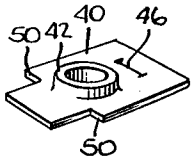
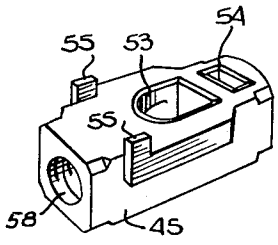


Fig. 6.





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PRIVACY LATCH

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8 Claims. (Cl. 292—74)

This invention relates to privacy latches for doors.

The latches of the particular class have a bolt that moves to projected and retracted positions, and a locking member that can be operated by a person at the inner side of the door so as to prevent retraction of the bolt. Frequently, some provision is made for operation of the locking member by a person at the outer side of the door, enabling him to gain admittance in case of emergency. The exceedingly novel concept of my invention is a latch of this class that will contribute very effective operation of the bolt and locking member while having a relatively simple construction.

In my invention, I utilize a bolt that is spring pressed to locking position, with a locking member adapted to move behind a tailpiece on the bolt to prevent release movement of the bolt. As a feature of my invention, I equip my latch with a novel guide member for the tailpiece of the bolt. That member floats in the casing of the latch, with the locking member arranged behind the guide member to hold the guide member assembled. The guide member then supports the rearward end of the bolt spring, and is pressed rearwardly by the spring so as to hold the locking member yieldingly in locking and release positions relative to the tailpiece of the bolt.

As another feature, I utilize a detent that will control positively the locking and release positions of the locking member, enabling me to achieve more effective operation of my latch. My construction places the detent in a particular relation to an opening that guides the tailpiece on the guide member, so that the detent will hold the locking member rather exactly aligned with the tailpiece.

I have thus outlined rather broadly the more important features of my invention in order that the detailed description thereof that follows may be better understood, and in order that my contribution to the art may be better appreciated. There are, of course, additional features of my invention that will be described hereinafter and which will form the subject of the claims appended hereto. Those skilled in the art will appreciate that the conception on which my disclosure is based may readily be utilized as a basis for the designing of other structures for carrying out the several purposes of my invention. It is important, therefore, that the claims be regarded as including such equivalent construction as do not depart from the spirit and scope of my invention, in order to prevent the appropriation of my invention by those skilled in the art.

In the drawing:

FIG. 1 shows a perspective view of my novel privacy latch installed on a door.

FIG. 2 shows a longitudinal section of one form of my latch, with a coacting strike.

FIG. 3 is like FIG. 2, but shows the latch in locking position.

FIG. 4 shows parts of the latch.

FIG. 5 shows a further form of my novel latch.

FIG. 6 shows parts of the latch shown in FIG. 5.

To describe my invention, I shall refer first to FIG. 2 of the drawing. I indicate by the numeral 10 a tubular latch casing that is mounted in a usual way in a bore in the edge of a door D, the casing having a front plate 11 secured to the door edge by screws 12. Assembled in the casing 10 is a circular bolt 13 having a domed head 14 that slides in an opening in the front of the casing, and an enlarged portion 15 that slides on an inner surface of the casing. The enlarged portion 15 is adapted to engage a stop surface 16 when the bolt is projected, so as to hold the bolt assembled in the casing. The bolt 13 further has an integral tail pin 17 extending from the head 14 in a rearward direction.

A coil spring 18 is assembled about the tail pin 17, and acts at one end against the bolt head so as to press bolt 13 to projected position. As will be appreciated, the spring pressed bolt 13 may coact with a strike 19 to hold the door closed. When a person applies sufficient opening force to the door D, the strike 19 normally will cam the domed bolt head 14 to depress the bolt against its spring pressure, allowing the door to open. Bolt 13, being circular, can rotate in the casing 10 to present a different surface to coact with the strike 19, minimizing the effects of wear.

Referring again to FIG. 2, I utilize in my novel concept a floating guide plate 20 that also is shown in FIG. 4. The guide plate 20 supports the rearward end of the spring 18, and has a forwardly directed sleeve portion 21 positioned within the spring 18, also forming a guide opening for the tail pin 17 on the bolt. Opposed edges 22 on the plate 20 are guided on inner surfaces of the tubular casing 10, enabling plate 20 to hold the tail pin and spring 18 in positions aligned alongitudinally of the casing. The plate 20 is bent to form opposed flange portions 23 that contribute a rearwardly directed channel, as best seen in FIG. 4, the plate also having near one side a portion 24 pressed out to form a detent, to which I shall refer again.

Together with the guide plate 20, I utilize a locking block 25. In the form that I show in FIGS. 2 and 4, the locking block 25 has a rectangular body formed at its opposed ends with a stud 26 and a short stem portion 27. Also, I form the block 25 with an opening 28 that is adapted to accept the tail pin 17 on bolt 13. It will be well at this point to call attention to the fact that the latch casing 10 is formed initially with an open rear end through which parts of my latch will be assembled. The locking block 25 will be assembled behind the guide plate 20, the stem portion 27 being placed in an opening 29 in one side of casing 10, while placing the stud 26 in position aligned with an opening 30 in the opposed side of the casing. A sleeve 31, FIG. 2, will then be inserted through opening 30 and applied to stud 26 with a press fit, so as to be an integral part of block 25, adapted to slide in opening 30. Also, I assemble an end plate 32 on the rear end of casing 10, as by spinning over a portion 33 of the casing.

Thereby the locking block 25 will be mounted to slide in a transverse direction in the casing 10, while the end plate 32 prevents rotation of block 25 and holds it with opening 28 aligned longitudinally of the casing. Further, the block 25 now is engaged in the channel of guide plate 20 so that the block and plate are guided relatively to each other. Moreover, the block 25 accepts the spring pressure of guide plate 20 and holds the plate in assembled position.

Naturally, it will be appreciated that the detent 24 on plate 20 now is pressed against the locking block 25. As will be seen when considering together FIGS. 2 and 3, the detent 24 is so positioned as to engage alternately at one end of the body portion of block 25, or in its opening 28, when the block slides to align or displace opening 28 relatively to the tail pin 17 on the bolt. Thereby the detent 24 will very effectively hold the block 25 in both locking and release positions relatively to the tail pin 17. However, detent 24 can yield through tilting of the guide plate 20, when the block 25 slides from one position to the other.

I assemble a finger piece 34 to one end of the locking block 25 through screw threads 35, that finger piece being used by a person at the inner side of the door D to slide the block to its locking and release positions. The door D naturally will be formed with an opening 36 for the finger piece 34, the finger piece being assembled after the latch is mounted in position in the bore of the door. To allow emergency release of my latch, it is merely necessary to form the door with an opening 37 that will enable a person at the outer side of the door to insert a tool for pushing locking block 25 to release position. It will be appreciated that my latch will not require escutcheons, but ferrules 36*a*, 37*a* may very well be used to enhance the appearance of the door openings 36, 37.

I shall now describe the form of my novel latch that I show in FIG. 5. That latch has a casing 47 with a generally rectangular opening in which a rectangular bolt 44 slides. Opposed sides of bolt 44 are formed with tapered surfaces 44*a*, and a tail pin 43 extends rearwardly from the head of the bolt. Further details of bolt 44 are not important to an understanding of my invention, but for purposes of disclosure I may note that bolt 44 has upper and lower lugs 44*b*, one of which is shown in FIG. 5, engaging stop surfaces indicated at 44*c* to limit projecting movement of the bolt relatively to the casing.

The latch in FIG. 5 has a floating guide plate 40 that acts much like the plate 20 in FIG. 2. Thus, guide plate 40 has a short sleeve or flange 42 guiding one end of a coil spring 41 that is assembled about the tail pin 43, and that presses bolt 44 toward projected position. Plate 40 is held by the spring pressure against a locking block 45 that I shall describe, and has a detent 46 that coacts yieldingly with block 45. The edges of the guide plate 40 are guided on inner flat surfaces 48, 49 on latch casing 47, the plate 40 being generally rectangular as best seen in FIG. 6. Further, parts of guide plate 40 are cut away to form a pair of shoulders 50.

The locking block 45, shown in FIGS. 5 and 6, is mounted to slide in a transverse direction in openings 51, 52 in opposed sides of latch casing 47. Block 45 has a medial opening 53 that is adapted to accept the tail pin 43 on bolt 44, and a depression 54 for the detent 46 on guide plate 40. Further, I form the upper and lower sides of block 45 with a pair of lugs 55, well shown in FIG. 6, that projects from the block in a forward direction.

The casing opening 51 has enlarged portions, one of which is indicated at 56 in FIG. 5, that will allow clearance for the pair of lugs 55. Thereby the locking block 45 can be assembled through the casing opening 51, it merely being necessary to press guide plate 40 forwardly to allow block 45 to move behind the plate. When block 45 is in assembled position, the shoulders 50 on the guide plate 40 will move into opposed relation to the lugs 55, due to the spring pressure, so that block 45 cannot move back through casing opening 51 and become disassembled. The shoulders 50 do, however, allow clearance that will enable the lugs 55 to move as the locking block 45 slides between locking and release positions. For sliding the block 45, I show a finger piece 57 assembled through screw threads 58 to one end of the block.

I believe it will be unnecessary to describe the operation of the latch of FIG. 5 in detail, since that operation will be like that I have already described in connection with the latch of FIG. 2. It will be appreciated that the spring pressure of guide plate 40 will hold the locking block 45 in both release and locking positions, the detent 46 being engaged alternately with the depression 54 or opening 53. In each case, detent 46 will hold the block 45 with its opening 53 positively aligned or displaced relatively to the bolt tail pin 43. As in the latch of FIG. 2, the latch that I show in FIG. 5 requires few parts and will be very easily assembled, with the locking block 45 merely inserted to hold bolt 44, spring 41, and guide plate 40 in assembled position.

Both forms of latch that I have described can be used without change on either right-hand or left-hand doors, and on doors that open either inwardly or outwardly. That will be appreciated when it is realized that the domed bolt 13 or tapered bolt 44 will act in the same way when moving in either direction against a strike, allowing each latch to operate when mounted in reversed or inverted position, with the locking finger piece at either side of the door. Thus, my novel privacy latch is completely reversible.

I believe that those persons skilled in the art will now understand that I have contributed an extremely novel privacy latch that will be extremely simple and easy to assemble. While simple, my latch nevertheless will have a very reliable locking operation, with positive locking and release positions insuring that the bolt will be locked or released according to the intention of a person operating the latch. Therefore, I believe that the very considerable value of my invention will be fully appreciated.

I now claim:

1. In a lock of the class described, a casing, a locking bolt sliding in said casing and having a head and a tailpiece, a spring about said tailpiece pressing at one end thereof against the bolt head for projecting the bolt to locking position, a guide member against which the other end of the spring presses, an opening in said guide member into which the tailpiece of the bolt extends, a locking block, said spring urging said guide member toward said locking block and thereby yieldingly holding said locking block against movement relatively to said guide member, said locking block having an opening for the tailpiece of said bolt which when aligned relatively to said tailpiece allows retraction of said bolt, and said locking block moving relatively to said guide member to align and disalign said locking block opening relatively to said tailpiece.

2. In a lock of the class described, a locking bolt having a head and a tailpiece pin on said head, a spring about said tailpiece pin pressing at one end against the bolt head for projecting the bolt to locking position, a guide member against which the other end of the spring presses, a locking block, said spring urging said guide member against said locking block and yieldingly holding said locking block against sliding relatively to said guide member, said locking block having an opening for the tailpiece pin of said bolt, and said locking block sliding relatively to said guide member to align and disalign said locking block opening relatively to said tailpiece pin.

3. In a lock of the class described, a locking bolt having a tailpiece, a spring about said tailpiece pressing at one end against the bolt for projecting the bolt to locking position, a guide member against which the other end of the spring presses, a locking block, a detent urged against said locking block by the spring pressure of said guide member, so as to hold said locking block yieldingly against movement relatively to said guide member, said locking block having an opening for the tailpiece of said bolt, and said locking block moving relatively to said guide member to align and disalign said locking block opening relatively to said tailpiece.

4. In a lock of the class described, a locking bolt having a tailpiece, a locking block mounted to slide in a transverse direction relatively to said tailpiece, a guide member bearing against the locking block and having a portion guiding the tailpiece of the bolt relatively to said block, said locking block having an opening for said tailpiece, a spring acting between the bolt and the guide member to press the bolt to locking position and the guide member relatively to said locking block, said guide member yieldingly holding the locking block against sliding, and means for sliding said locking block relatively to said guide piece to align and disalign the locking block opening relatively to said tailpiece.

5. In a lock of the class described, a locking bolt having a tailpiece, a locking block having an opening for the tailpiece and mounted to slide in a transverse direction relatively to said tailpiece, a guide member guiding the

tailpiece of the bolt relatively to the locking block, a detent in position on the guide member to coact with said locking block, a spring acting between the bolt and the guide member to press the bolt to locking position and the detent against said locking block, said detent yieldingly holding the locking block against sliding, and means for sliding said locking block relatively to said guide member to align and disalign the locking block opening relatively to said tailpiece.

6. In a lock of the class described, a casing, a locking bolt mounted to slide in said casing and having a tailpiece, a guide plate movable in said casing with edge portions of said guide plate guided on inner surfaces of the casing, said guide plate formed with an opening guiding the tailpiece of the bolt in aligned relation to the casing, a spring acting between the bolt and the movable guide plate to press said bolt in a forward locking direction and said guide plate in a rearward direction in said casing, a locking block assembled in opposed relation to a rearward surface of the guide plate in the casing and accepting the rearward spring pressure of the guide plate to hold said guide plate in assembled position in said casing, means for moving said locking block in a transverse direction to locking and release positions relatively to the tailpiece of said bolt, and said locking block moving between said positions with friction due to the rearward spring pressure accepted by said locking block.

7. In a lock of the class described, a casing, a locking bolt mounted to slide in said casing and having a tailpiece, a guide plate movable in said casing with edge portions of said guide plate guided on inner surfaces of the casing, said guide plate formed with an opening guiding the tailpiece of the bolt, a spring acting between the bolt and the movable guide plate to press said bolt in a forward locking direction and said guide plate in a rearward direction in said casing, a locking block assembled behind the guide plate and accepting its spring pressure to hold said guide plate in assembled position in said casing, means mounting said locking block for movement in a transverse direction on the casing, said locking block having an opening for the tailpiece of said bolt, and a detent urged by the spring pressure of said guide plate against the locking block for holding the locking block in position with its opening aligned and disaligned relatively to the guide plate opening and tailpiece.

8. In a lock of the class described, a casing, a locking bolt sliding in said casing and having a head and a tailpiece, a spring about said tailpiece pressing at one end thereof against the bolt head for projecting the bolt to locking position, a guide member having an opening for guiding said tailpiece and against which the other end of the spring presses, a locking block, said spring pressing said guide member against said locking block, detent means whereby said guide member yieldingly holds said locking block in either of two positions relatively to said guide member, said locking block having an opening for the tailpiece of said bolt, and means for moving said locking block relatively to said guide member against the yielding action of said detent means to align and disalign said locking block opening relatively to said tailpiece and said opening in said guide member.

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