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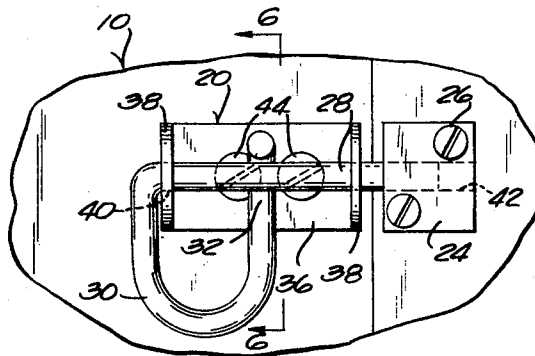
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[54] **POSITIVE HOLDING DOOR AND WINDOW LOCK**
5 Claims, 6 Drawing Figs.

[52]	U.S. Cl.....	292/58, 292/67, 292/153
[51]	Int. Cl.....	E05c 5/04
[50]	Field of Search.....	292/67, 153, 147, 145, (CP), (L&H), (I), 57, 58, 63, 68

ABSTRACT: Disclosed herein is a positive holding bolt action lock having a base with a flat center portion and a pair of parallel end members and a bolt having a shank at one end which is supported by said end members for rotary and axial motion on the base and a half loop handle at the other end of the bolt encircling one of the end members and overlapping the shank.



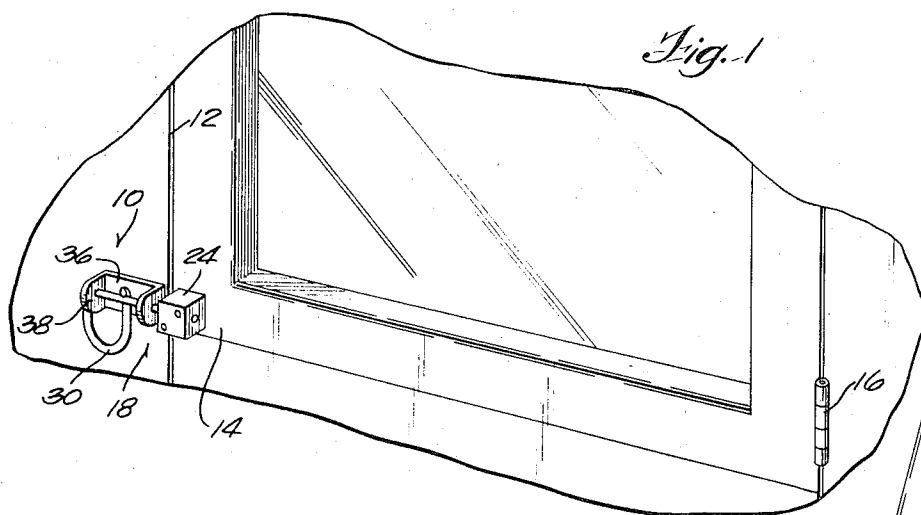


Fig. 1

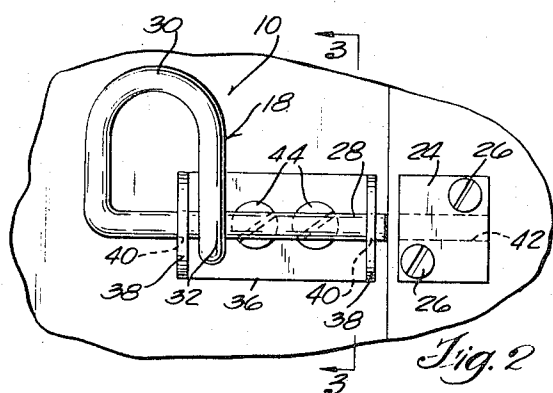


Fig. 2

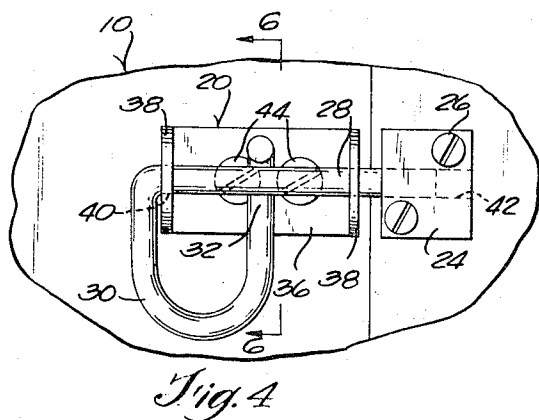


Fig. 4

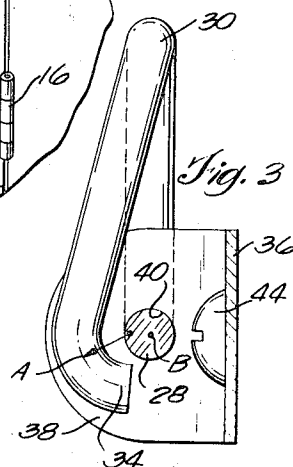


Fig. 3

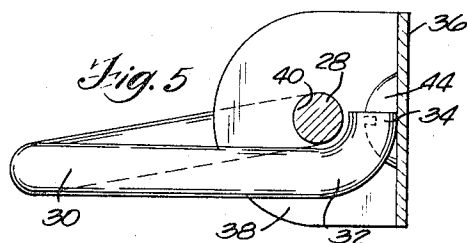


Fig. 5

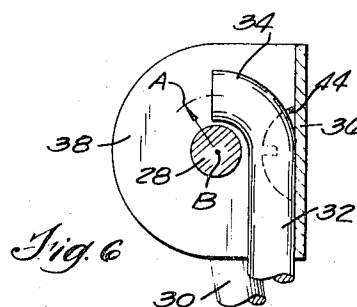


Fig. 6

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POSITIVE HOLDING DOOR AND WINDOW LOCK

BACKGROUND OF THE INVENTION

Bolt-action-type locks which are used on a structures that are subject to vibration, such as doors and windows on moving vehicles or covers for motor or engine housings, often become loose allowing the door, window or cover to come open on the structure.

SUMMARY OF THE INVENTION

This invention provides a positive holding bolt-type lock for securing a door, window, or cover to a fixed frame. The lock includes a base and a bolt supported on the a base for axial movement between engaged and disengaged positions with respect to said frame and rotary movement between locked and unlocked positions with respect to the base. Rotary and axial movement of the bolt is limited by the engagement with the base of a handle formed as an integral part of the bolt.

Other objects and advantages of the invention will become apparent from the following detailed description when read in connection with the accompanying drawings in which:

FIG. 1 is a partial view of a door or window with the positive holding lock mounted on the door or window frame.

FIG. 2 is a top view of the lock with the shank of the bolt moved axially to a disengaged position.

FIG. 3 is an enlarged end view taken on line 3-3 of FIG. 2 showing the position of the quarter loop cam part on the end of the shank in the disengaged position.

FIG. 4 is a top view of the lock with the shank of the bolt in engagement with the clasp and rotated to a locked position.

FIG. 5 is an enlarged end view of the lock with the end member removed, showing the position of the quarter loop cam part just prior to the movement of the handle to the locked position.

FIG. 6 is an enlarged end view taken on line 6-6 of FIG. 4 showing the position of the quarter loop cam part in the locked position of the bolt.

DESCRIPTION OF THE INVENTION

Although the disclosure hereof is detailed and exact to enable those skilled in the art to practice the invention, the physical embodiment herein disclosed merely exemplifies the invention which can be embodied in other specific structures. The scope of the invention is defined in the claims appended hereto.

The positive holding bolt action lock 10 of this invention can be used wherever one member is to be restrained relative to another member. This can be seen in FIG. 1 where the lock 10 is shown mounted on a door frame 12 and a door frame 14 is pivotally mounted on the frame 12 by hinges 16. The door 14 is locked to the frame 12 by means of the lock 10 which includes a bolt 18 supported on a base 20 for movement into engagement with a clasp 24 secured to the door 14. Although the lock 10 is shown secured to the frame 12, the lock 10 could also be secured to the door 14 with the clasp 24 mounted on the frame 12.

The bolt 18 includes a shank 28 and a half loop handle 30 formed by bending the bolt into a semicircle with the leg 32 of the handle 30 overlapping the shank 28 in a transverse spaced relation. A quarter loop cam part 34 is formed at the end of the leg 32 to aid in locking the bolt 18 to the base as described hereinafter. The cam part 34 is also spaced from the shank 28 with the center of the radius of curvature A of the cam part 34 offset or eccentric to the axis B of the shank 28.

The base 20 includes a flat center portion 36 and a pair of parallel end members 38 with coaxially aligned apertures 40 in the end members 38 to support the shank 28 in a parallel relation to the center portion 36 and at a given distance greater than the diameter of the shank 28. The base 20 is mounted on the frame 12 by means of a pair of roundhead screws 44. The clasp 24 is mounted on the door 14 by means of screws 26 and could also be mounted on the frame if the lock 14 is reversed. An aperture 42 is provided in the clasp to receive the end of the shank 28 when the door is locked.

Axial movement of the shank 28 with respect to the base 20 is limited by means of the handle 30. This can be seen in FIG. 2 where the shank 28 of the bolt 18 is shown supported in the apertures 40 of the end members 38 with handle 30 encircling the end member 38 on the left in the drawing. The shank 28 is axially moveable from a disengaged position where the shank 28 is withdrawn from aperture 42 in clasp 24 (FIG. 2) to an engaged position where the shank 28 is inserted in aperture 42 of the clasp 24 (FIG. 4). In the disengaged position the leg 32 will be in engagement with the inside surface of end member 38 (FIG. 2) and in the engaged position the handle 30 at the juncture with the shank 28 will be engaged with the outside surface of the end member 38 (FIG. 4). Axial movement of the shank 28 is therefore limited to the distance between the leg 32 and the juncture of the handle 30 with the shank 28.

Axial movement of the bolt 18 is prevented when the shank 28 is in the engaged position by means of the engagement of the leg 32 with the head of screw 44 on the left of the base 20 shown in FIGS. 2 and 4. Referring to FIG. 4, the shank 28 is shown moved axially to the engaged position with the end of the shank 28 projecting into the clasp 24. The handle has been rotated from a position where the leg overlaps the shank 28 (FIGS. 2 & 3) to a position where the leg overlaps the shank 28 (FIGS. 4 & 6). When the handle 30 is rotated to this latter position, the leg 32 will be aligned with the head of screw 44 preventing axial movement of the shank 28.

The bolt 18 is positively locked from rotation in the engaged position of the shank 28 with the clasp 24 by means of the seating of the leg 32 on the center portion 36 of the base. In this regard the leg 32 of the handle 30 crosses over the shank 28 in a spaced relation as seen in FIG. 3. When the bolt 18 is rotated to the locked position, the leg 32 will be forced toward the shank 28 by engagement of the leg 32 with the center portion 36 of the base 20. Rotation continues until the leg 32 is fully seated on the center portion 36. The bias provided by the inherent resiliency of the handle 30 will bias the leg 32 into full engagement with the center portion 36 positively locking the bolt 18 from further rotary motion.

Means are provided to cam the leg 32 of the handle 30 toward the shank 28 on rotation of the bolt 18 to the locked position. This means includes the quarter loop cam part 34 provided at the end of the leg 32. In the unlocked position (FIG. 3) the quarter loop cam part 34 (FIG. 3) is spaced from the shank 28 with the center A of the radius of curvature of the cam part 34 eccentric to the axis B of the shank 28. As the bolt 18 is rotated toward the locked position, the quarter loop cam part 34 will engage the center portion 36 of the base 20 (FIG. 5) camming the leg 32 of the handle 30 toward the shank 28 with the center A of the cam part 34 also moving toward the axis B of the shank (FIG. 5). After the bolt 18 has been rotated far enough to move the cam part 34 past the center of the shank 28, the inherent resiliency of the handle will cause the leg 32 of the bolt to fully seat on the base 20.

I claim:

1. A positive holding bolt action lock comprising a base, means for securing said base to a member to be locked, a bolt having a shank supported by said base for rotary and axial movement with respect to said base, a half loop handle extending integrally from said shank and having a leg including a quarter loop cam part crossing over said shank in a spaced relation to engage said base and cam said leg toward said shank to engage said base and to limit axial and rotary movement of said shank.

2. A lock according to claim 1 wherein said cam part has a radius of curvature, the center of which is located in an eccentric position with respect to the axis of said shank.

3. A positive holding bolt action lock comprising a base having a flat elongated center portion and a pair of parallel end members, means for secure securing said center portion to a member to be locked, a bolt having a shank supported by said end members for rotary and axial movement in a parallel relation to said center portion and at a given distance from said center portion, a half loop handle formed a one end of said shank and encircling one of said end members, said handle

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having a leg crossing over said bolt in a transverse spaced relation thereto and having a cross section less than said given distance, and means on said leg to cam said leg toward said shank on engagement with said center portion of said base.

4. A positive holding bolt action lock comprising a base, a clasp separate from said base, means for securing said base to a member to be locked, and a bolt having a shank supported

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by said base for rotary and axial movement with respect to said base and adapted to engage said clasp, and a half loop handle having a leg crossing over said shank for travel between said shank and said base.

5. A lock according to claim 4 wherein said shank is supported on said base at a given distance from said base.

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