A lock for a sliding closure supported along opposite edges in a frame having a flange along one of the edges. The lock has a body with a slot for receiving the frame flange, a lock screw for clamping the body to the flange to lock the closure against opening movement past the position of the lock, and means for locking the screw against turning to prevent rotation of the screw to release the lock by an intruder who may reach the screw from the outside when the closure is locked in partially open position.
LOCK FOR A SLIDING CLOSURE

BACKGROUND OF THE INVENTION

1. Field of the Invention
This invention relates generally to sliding closures such as sliding doors and windows and more particularly to a lock for such closures.

2. Discussion of the Prior Art
Sliding closures such as sliding doors and windows are supported along opposite edges in a frame for edgewise movement along the frame between open and closed positions. Along the longitudinal sides of the frame are flanges which may provide guide flanges for guiding the closure in its movement along the frame. In closed position, the closure closes a portion of the frame opening, the remaining portion of the opening being closed by one or more additional closures which may be stationary closures. In open position, the closure uncovers its portion of the frame opening and overlaps a stationary closure.

Sliding closures of this kind are commonly equipped with means for locking the closures in fully closed position. However, in most cases it is desirable to lock the closures in partially open position to provide ventilation while preventing entrance of intruders. A variety of locks for this purpose have been devised. One such lock is disclosed in U.S. Pat. No. 3,428,349. This patented lock has a generally channel shaped body with spaced legs defining an intervening slot for receiving a flange of the closure frame in such a way that the body projects laterally of the frame into the path of opening movement of the closure. Threaded in one of the legs is a wing screw for firmly clamping the body to the flange to lock the closure against opening movement past the position of the lock. The lock may be adjusted to any position along the frame, to adjust the maximum window opening, by releasing the lock screw, sliding the lock body along the frame flange, and then retightening the screw.

The existing closure locks of this kind have one deficiency which this invention overcomes. The deficiency resides in the fact that even when the lock is positioned to permit opening the closure a small amount, it is often possible for an intruder to release the lock and open the closure by reaching through the opening and turning the lock screw with a stick or other implement.

SUMMARY OF THE INVENTION

The present invention provides an improved sliding closure lock of the character described which cannot be released by intruders in the manner just mentioned. To this end, the lock is equipped with means for locking the lock screw against turning. This screw locking means is arranged in such a way that it cannot be released except from the inner side of the closure.

In the disclosed closure lock of the invention, the locking means for the lock screw comprises a plunger transverse to and having a flat engageable with a flat on the screw to lock the latter against turning. Spaced along the plunger from its flat is a recess which may be aligned with the lock screw by depression of the plunger. This recess is shaped to free the lock screw for rotation to release the lock. A spring urges the plunger to its screw locking position. The lock is installed in such a way that the plunger can be reached and depressed to release the lock from the inner side of the closure. Accordingly, when the closure is locked in a partially open position, an intruder cannot release the lock even though he may be able to reach the lock screw with a stick or other implement.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 illustrates a lock according to the invention installed on a sliding closure which, in this instance, is a sliding door;

FIG. 2 is an enlarged elevational view of the lock;
FIG. 3 is an end view of the lock in FIG. 2;
FIG. 4 is a section taken on line 4—4 in FIG. 2;
FIG. 5 is a section taken on line 5—5 in FIG. 3;
FIG. 6 is a perspective view of the lock plunger; and
FIG. 7 is an enlarged section through the lock screw.

DESCRIPTION OF THE PREFERRED EMBODIMENT

FIG. 1 illustrates a sliding closure 10, in this instance a sliding door, supported by a frame 12. Along the upper and lower sides of the frame (only the lower side shown) are flanges 14 defining channels receiving the upper and lower door edges. Flanges 14 guide the door movement endwise of the frame between open and closed positions. In its closed position, the door 10 occupies the left-hand portion of the frame opening 16. The remaining portion of the opening is occupied by a stationary door panel 18. In its open position, the door 10 uncovers its portion of the frame opening and overlaps the stationary panel. A sliding screen door 20 is also movable to and from a closed position at the left end of the frame opening, as shown. Mounted along the lower frame flange 14 is a lock 22 according to the invention for limiting opening movement of the sliding door 10.

Referring to FIGS. 2–7, the lock 22 has a generally channel shaped body 24 with spaced legs 26 defining an intervening slot 28. Slot 28 is dimensioned to slidably receive the frame flange 14 in the manner shown in FIG. 1, such that the body may slide along the flange. The normally outer side of the body, that is, the side facing the door 10, has an extension 30 which projects across the path of edgewise movement of the door. The lock is installed on the flange 14 at the leading side of the door relative to its direction of opening movement. Threaded in the inner leg 26 of the body 24, on an axis transverse to the slot 28, is a lock screw 32. The tip of the screw Shank 34 projects into the slot 28 for engagement with the flange 14. The screw is inclined relative to the slot so that the screw tip engages the flange obliquely to bight into the flange when the screw is tightened against the flange, thus to firmly clamp the lock against movement along the flange. With the lock thus firmly clamped to the flange, the lock acts as a stop for limiting opening movement of the door 10. The lock is releasable for adjustment along the flange to adjust the limiting open position of the door by releasing the lock screw, sliding the lock along the flange, and then retightening the screw.

The structure of the lock 22 described to this point is conventional. As noted earlier, this conventional lock structure is deficient in that an intruder can reach through even a small door opening and with a stick rotate the lock screw 32 to release the lock and open the door 10. According to the present invention, this deficiency is corrected by providing the lock with means 36 for releasably locking the lock screw 32 against turning...
in such a way that the lock screw can be released only from the inner side of the door 10.

The illustrated lock screw means 36 comprises flats 38 on the shank 34 of the lock screw 32 provided by the illustrated polygonal cross-section of the shank 5 and a locking plunger 40 which slides in a bore 44 transverse to and tangentially intersecting the threaded lock screw hole 46. Plunger bore 44 opens through the side of the lock body 24 remote from the door 10. One end of the plunger 40 projects through this open end of the bore and terminates in an enlarged push-button-like head 48. At the opposite or inner end of the plunger is a flat 50, and along the plunger at the outer end of its flat is a rounded recess 52. A spring 54 urges the plunger 40 outwardly to its extended locking position of FIG. 5 wherein a shoulder 56 at the inner extremity of the plunger engages the lock screw shank 34 to prevent further extension of the plunger.

In the locking position of the plunger 40, the plunger flat 50 engages a flat 38 on the lock screw shank 34 to lock the screw 32 against turning. The plunger is depressible inwardly, by finger pressure on its head 48, to a retracted unlocking position wherein the plunger recess 52 is aligned with the screw shank. The lock screw 32 is then free to turn to release and set the lock. An important feature of the invention resides in the extension of the locking plunger 40 beyond the side of the lock body 24 remote from the door 10 in FIG. 1. This location of the plunger makes it inaccessible from the door opening, whereby the lock cannot be released by an intruder reaching through the opening.

What is claimed as new in support of Letters Patent is:

1. A lock for a sliding closure supported along opposite edges in a frame having a flange along one of said edges, comprising:
   a generally channel-shaped body having spaced legs defining an intervening slot opening through one side of said body for receiving said flange, a stop shoulder projecting from one leg, and a threaded bore extending through the other to the plane of said slot,
   a lock screw with at least one flat threaded in said bore for extension into said slot to directly engage and clamp said body firmly to said flange, and
   means for releasably locking said screw against turning including a second bore extending through said one leg on an axis transverse to said threaded bore and tangentially intersecting the latter bore, a locking plunger slidable in said second bore having a clearance recess which registers with said threaded bore to permit rotation of the screw in a first unlocking position of said plunger and a flat extending from one side of said recess which registers with said threaded bore for engaging said screw flat to lock said screw against turning in a second locking position of said plunger, a spring urging said plunger to its second position wherein said plunger has an accessible outer end against which finger pressure may be exerted to move the plunger to its unlocking position against the thrust of said spring, and a stop shoulder on the other end of said plunger for limiting movement of the plunger by said spring.

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