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3,172,280

UNIVERSAL SLIDING DOOR LOCKING MECHANISM

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FIG. 1.

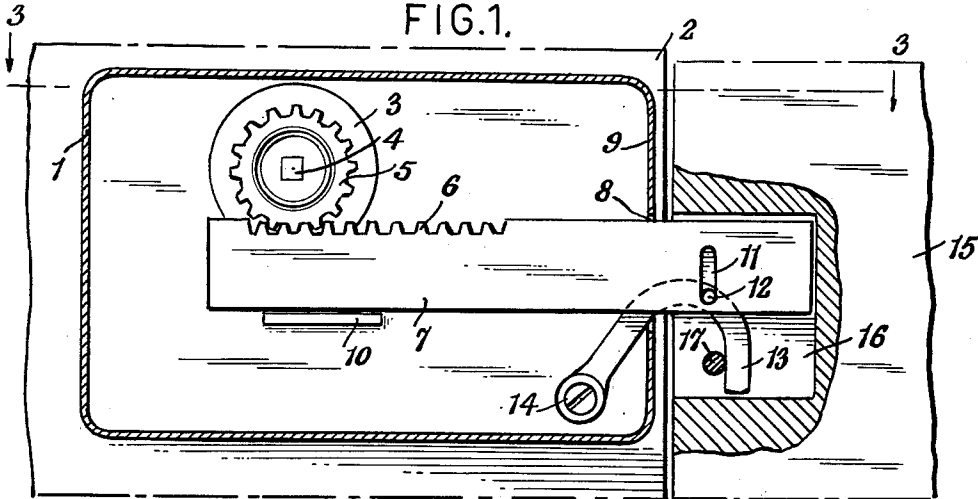


FIG. 2.

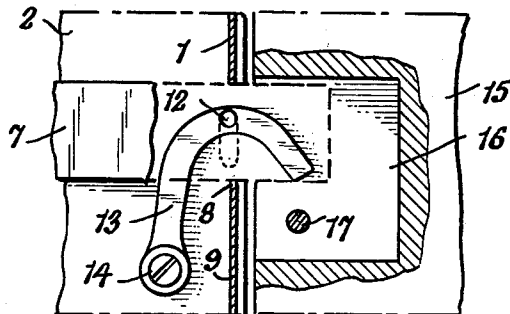
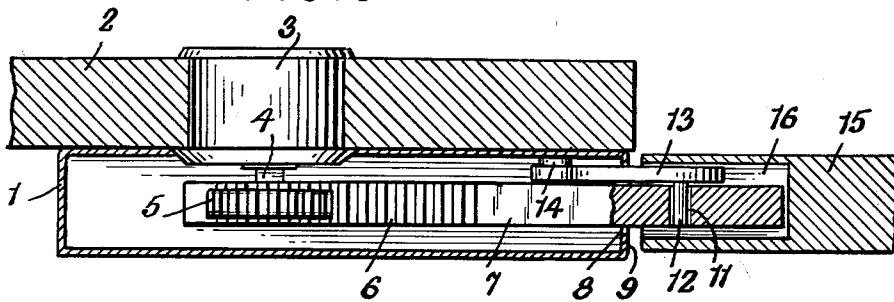


FIG. 3.



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UNIVERSAL SLIDING DOOR LOCKING MECHANISM

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1 Claim. (Cl. 70-100)

This invention relates to locks, and more particularly to locks adapted for sliding doors and by which two or more doors can be locked together, or a single door locked against sliding movement within its frame.

It is an object of the invention to provide a lock of this kind which will be of relatively simple construction and of few parts, and which will be smooth in operation and operate effectively by simple sliding-bolt movement and by which a secure locking effect will be obtained.

More particularly, the invention contemplates the provision of a key-controlled or knob-controlled slidable bolt coupled by means of a pin-and-slot connection to a pivotal mounted, hook-shaped dog or catch, the arrangement being such that when the bolt is slid in one direction by key or knob manipulation, a portion of the bolt and a part of the dog or catch will enter into a recess provided in an adjacent door or door jamb and the dog or catch swingably lowered to thereby engage around a pin or cross member located in the recess and extending transversely of the same. By retraction of the bolt, the pin-and-slot connection between the bolt and the dog or catch will be effective to swingably lift the dog and release it from its engagement with the cross pin, thus permitting the door on which the lock is mounted, to be freely slidably moved.

With these and other objects to be hereinafter set forth in view, I have devised the arrangement of parts to be described and more particularly pointed out in the claim appended hereto.

In the accompanying drawing, wherein an illustrative embodiment of the invention is disclosed,

FIG. 1 is a face view, partly in section and with parts fragmentarily shown, of a sliding door lock constructed according to the invention;

FIG. 2 is a face view of a portion of the lock, showing the same in its unlocked position, and

FIG. 3 is a sectional view, taken substantially on the line 3-3 of FIG. 1, looking in the direction of the arrows.

Referring to the drawing, 1 indicates a casing or housing for the lock, the same being suitably attached by screws or otherwise to a face of a sliding door 2, or if the sliding doors are adapted to be abutted edge to edge when closed, the housing and its parts may be disposed within a recess in the edge of the door.

A lock cylinder is shown at 3 and the same may be of any known construction and conventionally mounted in the door. The bolt-retracting shaft of the lock is shown at 4, the same being rotatively moved by means of the key of the lock or by a knob in the known manner.

Secured on the shaft 4 is a gear or pinion 5, the same being in mesh with a toothed rack 6 formed in the upper edge of the bolt 7, movable back and forth through an

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aperture 8 in the wall 9 of the housing 1. A lug 10 or other suitable guiding means is provided in the housing to guide and support the bolt 7 in its sliding movement.

Provided in the bolt 7 is a slot 11 into which a pin 12, extending laterally from the hook-shaped dog or catch 13, enters. Said dog or catch 13 is disposed between the bolt 7 and the back of the casing and it is pivoted at one end on a pivot pin 14 in the housing.

At 15 is shown a second door, or it may be part of a door frame or other element with which the door 2 is to co-operate. The door or frame 15 is provided with a suitably-positioned recess 16 into which a part of the bolt 7 as well as a part of the dog 13 enters. Extending transversely across the recess 16 is a pin 17 which, in the locked position of the lock, is engaged by the hook-shaped dog 13, in the manner substantially shown in FIG. 1.

From the foregoing, the operation of the improved sliding door lock will be apparent. By the insertion of a key in the lock and the turning of the key therein, the bolt 7 will be longitudinally shifted by means of the pinion 5 and rack 6, toward the right, as viewed in FIG. 1, and such sliding movement of the bolt will, by means of the pin 12 and its engagement with the slot 11, bring the nose portion of the hook-shaped dog 13 in position to engage behind the cross pin 17 substantially as shown in FIG. 1, thus locking the two doors 3 and 15, or a single door and a door frame, together. The recess 16, is of course of a size to accommodate the end of the bolt as well as receive the nose portion of the dog 13.

When it is desired to disengage the dog 13 from the pin 17, the key is turned in a manner to retract the bolt 7, or move it toward the left, whereupon the dog 13 will be pivoted in a counter-clockwise direction or swingably raised up to free it from the cross pin 17, substantially as shown in FIG. 2, thus allowing the door to be slid away from its companion door or from a door frame.

The structure thus described is to be considered as being illustrative since variations are possible and without departing from the spirit of the invention. The shape and relative proportions of the bolt and dog may be altered; and the housing and its lock parts may be set into the edge of a door rather than attached to the face thereof as illustrated in the drawing, and particularly when sliding doors are to meet in edge-to-edge abutment or where the door is to have its edge abut against a door jamb or frame. Also, while it is suggested that the bolt be retracted or advanced by key manipulation, the movements of the bolt can be effected by knob movements if desired.

Having thus described a single embodiment of the invention, it is obvious that the same is not to be restricted thereto, but is broad enough to cover all structures coming within the scope of the annexed claim.

What I claim is:

A lock for a sliding door comprising, a housing an aperture in one of its walls, a key-rotatable pinion located in the housing, a sliding bolt having a rack engaged by the pinion, said bolt being longitudinally slidable by key manipulation, a pivoted hook shaped dog having a portion disposed between the bolt and a wall of the housing, said dog being pivotally attached to the hous-

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ing at a location within the housing, the bolt having a slot, the dog having a laterally extending pin extending into the slot, said pin and slot engagement of the dog and bolt being such as to cause downward swing of the dog and the projection thereof forwardly and outwardly of the housing by movement of the bolt in one direction and upward swing of the dog and retraction thereof toward the interior of the housing by sliding movement of the bolt in the opposite direction, a cooperating door or frame having a recess into which parts of the bolt and dog enter, and means in said recess around which the dog engages when it enters the recess.

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