Aug. 2, 1938. J. L. OLDHAM 2,125,518

LATCH OPERATING MECHANISM

Filed June 3, 1937

FIG. 1.

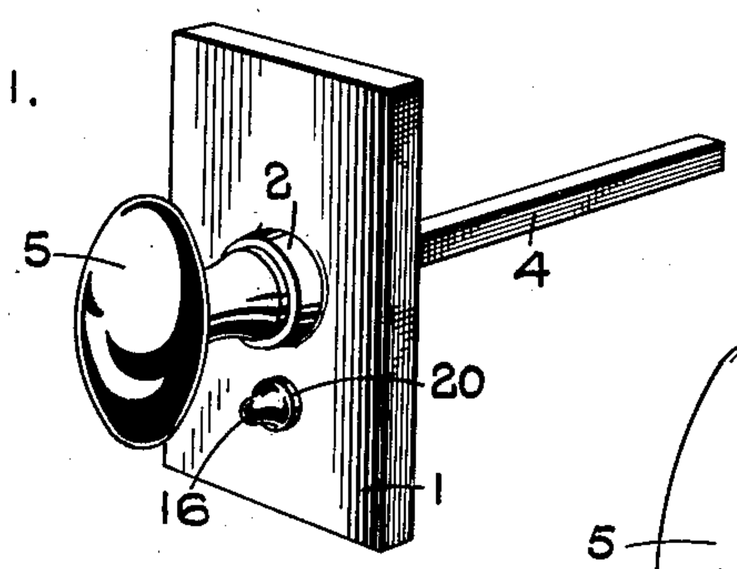


FIG. 5.

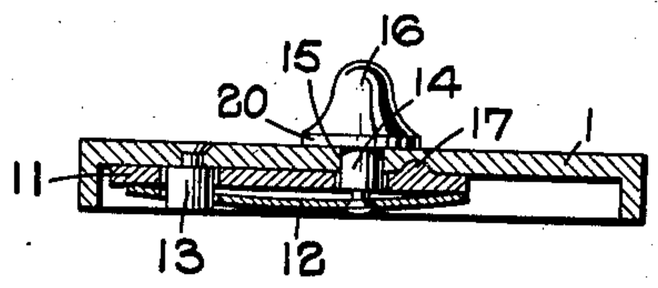


FIG. 4.

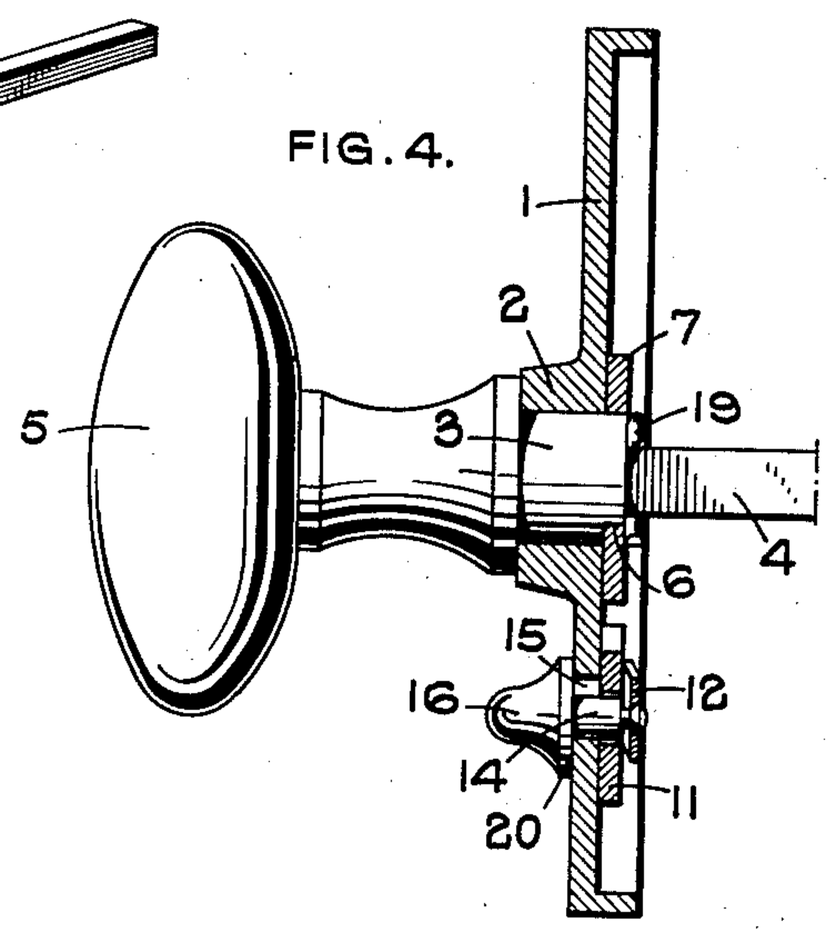


FIG. 2.

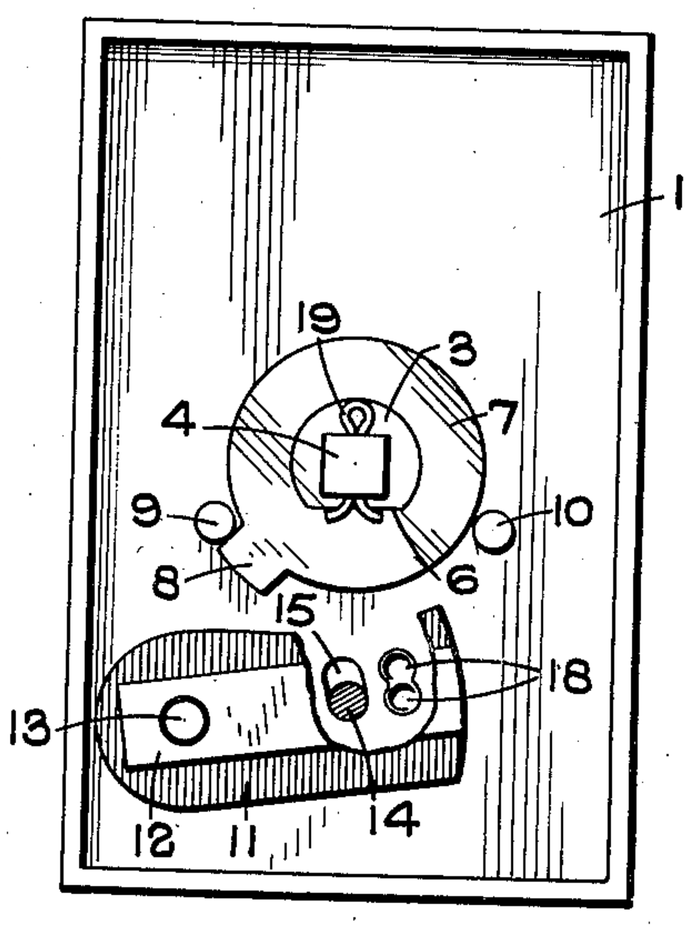
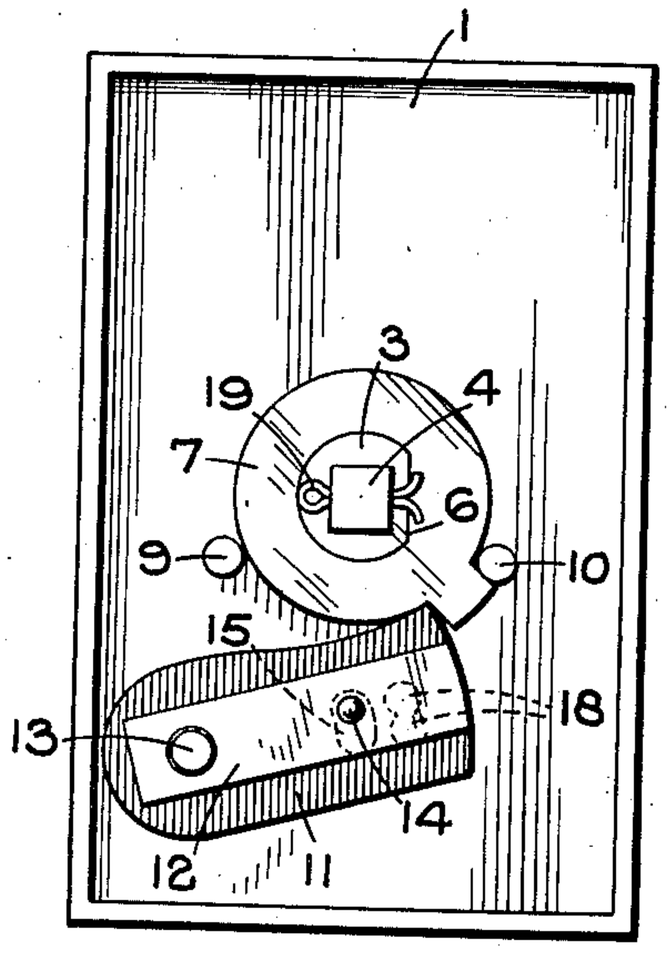


FIG. 3.



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UNITED STATES PATENT OFFICE

2,125,518

LATCH OPERATING MECHANISM

James Lonsdale Oldham, Nelson, England

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In Great Britain November 28, 1936

15 Claims. (Cl. 292—359)

This invention relates to latch operating mechanism of the kind including a sliding latch bar spring urged into its projected position and adapted to be retracted against the spring pressure by an arm or member on a latch spindle mounted for movement on its own axis and a movable pawl or locking member having a part which can be moved into engagement with a notch or projection in or on a member rotatable with the latch spindle whereby the latter can be locked against rotation.

The object of the present invention is to provide a simple mechanism for locking the latch spindle against rotation, so that if the door or other member to which the latch is applied is closed, the projecting latch operates as a lock since it cannot be moved into the withdrawn position until the pawl or locking member has first been released.

The latch spindle may have a washer non-rotatably mounted thereon, this washer being formed with a projection adapted for engagement by the said arm or pawl and also adapted for co-operation with stops on the supporting plate to limit rotation of the latch spindle on its axis.

Referring to the drawing:—

Figure 1 is a view in perspective showing one form of the present invention.

Figure 2 is a rear view showing a part of the pawl broken away and with the pawl in its released position.

Figure 3 is a view similar to Figure 2 showing the pawl in its locking position.

Figure 4 is a sectional view in side elevation.

Figure 5 is a sectional plan.

In the construction illustrated, the supporting plate 1 is provided with a bearing portion 2 in which is located a cylindrical part 3 associated with a latch spindle 4 of square or other non-circular section.

The usual operating handle 5 is provided on the latch spindle at the outer end of the cylindrical part 3 and on the outer side of the supporting plate 1, whilst at its other or inner end the cylindrical part 3 is provided with a flat 6.

A washer 7 is mounted on the inner end of the part 3 and on the inner side of the plate 1, this washer having a hole with a flat engaging the flat 6. The washer 7 has a radial projection 8 which is adapted to operate between two stop pins 9 and 10 mounted on the inner side of the plate 1, so as to limit the turning movement of the latch spindle. The washer 7 may be retained in position by any suitable means such as a split pin 19.

The latch spindle is employed to operate a latch which may be in the form of a sliding bar which is moved into its projected position by means of a spring, and the mechanical connection between the latch bar and the latch spindle is such that the pressure of this spring also acts upon the latch spindle 4 and tends to keep it in the position shown in Figure 3 with the projection 8 in contact with the stop pin 10.

In accordance with the present invention, I provide means for retaining the latch spindle in this position and such means comprise a rigid plate 11 and a resilient or spring plate 12, both mounted with slight clearance on the pivot pin 13 which is riveted into the supporting plate 1.

An operating stud or pin 14 is provided for the plates 11 and 12, and this pin or stud 14 extends through a clearance hole in the rigid plate 11 and is riveted to the spring plate 12. Further, the pin or stud 14 extends through an arcuate slot 15 in the plate 1, and on the outer side thereof is provided with a finger piece 16 whereby it may be moved.

The finger piece 16 has an enlarged integral flange 20 which, in any position of the finger piece, closes the slot 15 so as to prevent entry of dirt to the lock mechanism. The pressure of the spring plate 12 holds the flange 20 firmly against the outer side of the plate 1.

On its one face the rigid arm 11 is provided with an integral or other projection 17 adapted to co-operate with either of two recesses 18 formed in the inner surface of the plate 1.

When the arm 11 is in the locking position as shown in Figure 3, it is retained therein by reason of the fact that the resilient plate 12 presses the projection 17 into one of the recesses 18, but the arm 11 can be moved into the alternative position shown in Figure 2 by manipulating the stud or pin 16, the projection 17 then being moved into the other recess 18.

In passing from one position to the other, the spring 12 is partially straightened whilst the arm 11 rocks about the left-hand end as seen in Figure 5, in order to allow the projection 17 to leave and enter the recesses 18. This limited rocking motion is permitted by the clearance in the holes in the plate 11 whilst the clearance hole in the plate 12 for the passage of the pin 13 permits the slight straightening of the spring.

What I claim then is:—

1. Latch operating mechanism including a supporting plate, a latch spindle mounted rotatably in said supporting plate for movement on its own axis, a member rotatable with the latch spindle, a movable pawl adapted for co-operation with said member to lock said latch spindle against rotation, a resilient plate engaging frictionally with and being adapted to move said pawl, said pawl and said resilient plate being both pivotally mounted on said supporting plate, an operating member for moving said pawl, said member being attached to said resilient plate and operable from the exterior of said support-

ing plate and means for retaining said pawl in an adjusted position.

2. Latch operating mechanism including a supporting plate, a latch spindle mounted rotatably in said supporting plate for movement on its own axis, a member rotatable with the latch spindle, a projection on said member, stops on said supporting plate for co-operation with said projection to limit rotation of said latch spindle, a movable pawl, a part on said pawl adapted for co-operation with said projection to lock said latch spindle against rotation, a resilient plate engaging frictionally with and being adapted to move said pawl, said pawl and said resilient plate being both pivotally mounted on said supporting plate, an operating member for moving said pawl, said member being attached to said resilient plate and operable from the exterior of said supporting plate and means for retaining said pawl in an adjusted position.

3. Latch operating mechanism including a supporting plate, a latch spindle mounted rotatably in said supporting plate for movement on its own axis, a member rotatable with the latch spindle, a projection on said member, a movable pawl, a part on said pawl adapted for co-operation with said projection to lock said latch spindle against rotation, a resilient plate engaging frictionally with and being adapted to move said pawl, a pivot pin on said supporting plate, said pawl and said resilient plate being both pivotally mounted on said pivot pin, an operating member for moving said pawl, said member being attached to said resilient plate and means for retaining said pawl in an adjusted position.

4. Latch operating mechanism including a slotted supporting plate, a latch spindle mounted rotatably in said supporting plate for movement on its own axis, a member rotatable with the latch spindle, a movable pawl having a hole therethrough and adapted for co-operation with said member to lock said latch spindle against rotation, a resilient plate engaging said pawl, said pawl and said resilient plate being both pivotally mounted on said supporting plate, an operating pin for operating said pawl, said pin being secured to said resilient plate and extending through said hole in said pawl and through said slot in said supporting plate, an operating portion on the outer end of said pin, said portion covering the slot in said supporting plate and means for retaining said pawl in an adjusted position.

5. Latch operating mechanism including a supporting plate, a latch spindle mounted rotatably in said supporting plate for movement on its own axis, a member rotatable with the latch spindle, a projection on said member, a movable pawl, a part on said pawl adapted for co-operation with said projection to lock said latch spindle against rotation, a resilient plate engaging said pawl, said pawl and said resilient plate being both pivotally mounted on said supporting plate, an operating pin for operating said pawl, said pin being secured to said resilient plate and extending through a hole in said pawl and through a slot in said supporting plate, an operating portion on the outer end of said pin, said portion covering the slot in said supporting plate and means for retaining said pawl in an adjusted position.

6. Latch operating mechanism including a slotted supporting plate, a latch spindle mounted rotatably in said supporting plate for movement on its own axis, a member rotatable with the latch spindle, a projection on said member, a movable pawl having a hole therethrough, a part on said pawl adapted for co-operation with said projection to lock said latch spindle against rotation, a resilient plate engaging said pawl, a pivot pin on said supporting plate, said pawl and said resilient plate being both pivotally mounted on said pivot pin, an operating pin for operating said pawl, said pin being secured to said resilient plate and extending through said hole in said pawl and through said slot in said supporting plate, an operating portion on the outer end of said pin, said portion covering the slot in said supporting plate and means for retaining said pawl in an adjusted position.

7. Latch operating mechanism including a supporting plate, a bearing portion on said supporting plate, a latch spindle, a cylindrical part on said latch spindle engaging rotatably in said bearing portion, an operating knob on said cylindrical part on the exterior of said supporting plate, a member mounted on said cylindrical part on the interior of said supporting plate, said member being rotatable with the latch spindle, a movable pawl adapted for co-operation with said member to lock said latch spindle against rotation, a resilient plate engaging said pawl, said pawl and said resilient plate being both pivotally mounted on said supporting plate, an operating member for moving said pawl, said member being attached to said resilient plate and operable from the exterior of said supporting plate and means for retaining said pawl in an adjusted position.

8. Latch operating mechanism including a supporting plate, a bearing portion on said supporting plate, a latch spindle, a cylindrical part on said latch spindle engaging rotatably in said bearing portion, an operating knob on said cylindrical part on the exterior of said supporting plate, a member mounted on said cylindrical part on the interior of said supporting plate, said member being rotatable with the latch spindle, a projection on said member, a movable pawl, a part on said pawl adapted for co-operation with said projection to lock said latch spindle against rotation, a resilient plate engaging said pawl, said pawl and said resilient plate being both pivotally mounted on said supporting plate, an operating member for moving said pawl, said member being attached to said resilient plate and operable from the exterior of said supporting plate and means for retaining said pawl in an adjusted position.

9. Latch operating mechanism including a supporting plate, a bearing portion on said supporting plate, a latch spindle, a cylindrical part on said latch spindle engaging rotatably in said bearing portion, an operating knob on said cylindrical part on the exterior of said supporting plate, a member mounted on said cylindrical part on the interior of said supporting plate, said member being rotatable with the latch spindle, a projection on said member, stops on said supporting plate for co-operation with said projection to limit rotation of said latch spindle, a movable pawl, a part on said pawl adapted for co-operation with said projection to lock said latch spindle against rotation, a resilient plate engaging said pawl, a pivot pin on said supporting plate, said pawl and said resilient plate being both pivotally mounted on said pivot pin, an operating member attached to said resilient plate for moving said pawl and means for retaining said pawl in an adjusted position.

10. Latch operating mechanism including a slotted supporting plate, a bearing portion on said

supporting plate, a latch spindle, a cylindrical part on said latch spindle engaging rotatably in said bearing portion, an operating knob on said cylindrical part on the exterior of said supporting plate, a member mounted on said cylindrical part on the interior of said supporting plate, said member being rotatable with the latch spindle, a projection on said member, a movable pawl having a hole therethrough, a part on said pawl adapted for co-operation with said projection to lock said latch spindle against rotation, a resilient plate engaging said pawl, a pivot pin on said supporting plate, said pawl and said resilient plate being both pivotally mounted on said pivot pin, an operating pin for operating said pawl, said pin being secured to said resilient plate and extending through said hole in said pawl and through said slot in said supporting plate, an operating portion on the outer end of said pin, said portion covering the slot in said supporting plate and means for retaining said pawl in an adjusted position.

11. Latch operating mechanism including a supporting plate, a latch spindle mounted rotatably in said supporting plate for movement on its own axis, a member rotatable with the latch spindle, a movable pawl adapted for co-operation with said member to lock said latch spindle against rotation, a resilient plate engaging said pawl, said pawl and said resilient plate being both pivotally mounted on said supporting plate, an operating member for moving said pawl, said member being attached to said resilient plate and operable from the exterior of said supporting plate and means for retaining said pawl in an adjusted position, said means including at adjacent faces of said supporting plate and said pawl a projection on one of the faces and co-operating recesses in the other of said faces, said resilient plate urging said projection into engagement with one or another of said recesses but permitting said pawl to be turned on its pivot.

12. Latch operating mechanism including a supporting plate, a latch spindle mounted rotatably in said supporting plate for movement on its own axis, a member rotatable with the latch spindle, a projection on said member, stops on said supporting plate for co-operation with said projection to limit rotation of said latch spindle, a movable pawl, a part on said pawl adapted for co-operation with said projection to lock said latch spindle against rotation, a resilient plate engaging said pawl, said pawl and said resilient plate being both pivotally mounted on said supporting plate, an operating member for moving said pawl, said member being attached to said resilient plate and operable from the exterior of said supporting plate and means for retaining said pawl in an adjusted position, said means including at adjacent faces of said supporting plate and said pawl a projection on one of the faces and co-operating recesses in the other of said faces, said resilient plate urging said projection into engagement with one or another of said recesses but permitting said pawl to be turned on its pivot.

13. Latch operating mechanism including a supporting plate, a latch spindle mounted rotatably in said supporting plate for movement on its own axis, a member rotatable with the latch spindle, a projection on said member, a movable pawl, a part on said pawl adapted for co-operation with said projection to lock said latch spindle against rotation, a resilient plate engaging said pawl, a pivot pin on said supporting plate, said pawl and said resilient plate being both pivotally mounted on said pivot pin, an operating member for moving said pawl, said member being attached to said resilient plate and means for retaining said pawl in an adjusted position, said means including at adjacent faces of said supporting plate and said pawl a projection on one of the faces and co-operating recesses in the other of said faces, said resilient plate urging said projection into engagement with one or another of said recesses but permitting said pawl to be turned on its pivot.

14. Latch operating mechanism including a slotted supporting plate, a latch spindle mounted rotatably in said supporting plate for movement on its own axis, a member rotatable with the latch spindle, a movable pawl having a hole therethrough and adapted for co-operation with said member to lock said latch spindle against rotation, a resilient plate engaging said pawl, said pawl and said resilient plate being both pivotally mounted on said supporting plate, an operating pin for operating said pawl, said pin being secured to said resilient plate and extending through said hole in said pawl and through said slot in said supporting plate, an operating portion on the outer end of said pin, said portion covering the slot in said supporting plate and means for retaining said pawl in an adjusted position, said means including at adjacent faces of said supporting plate and said pawl a projection on one of the faces and co-operating recesses in the other of said faces, said resilient plate urging said projection into engagement with one or another of said recesses but permitting said pawl to be turned on its pivot.

15. Latch operating mechanism including a slotted supporting plate, a bearing portion on said supporting plate, a latch spindle, a cylindrical part on said latch spindle engaging rotatably in said bearing portion, an operating knob on said cylindrical part on the exterior of said supporting plate, a member mounted on said cylindrical part on the interior of said supporting plate, said member being rotatable with the latch spindle, a movable pawl having a hole therethrough and adapted for co-operation with said member to lock said latch spindle against rotation, a resilient plate engaging said pawl, said pawl and said resilient plate being both pivotally mounted on said supporting plate, an operating pin for operating said pawl, said pin being secured to said resilient plate and extending through said hole in said pawl and through said slot in said supporting plate, an operating portion on the outer end of said pin, said portion covering the slot in said supporting plate and means for retaining said pawl in an adjusted position, said means including at adjacent faces of said supporting plate and said pawl a projection on one of the faces and co-operating recesses in the other of said faces, said resilient plate urging said projection into engagement with one or another of said recesses but permitting said pawl to be turned on its pivot.

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