Feb. 5, 1924. 1,482,974

E. DAELE

LOCK

Filed April 12, 1923

Fig. 1.

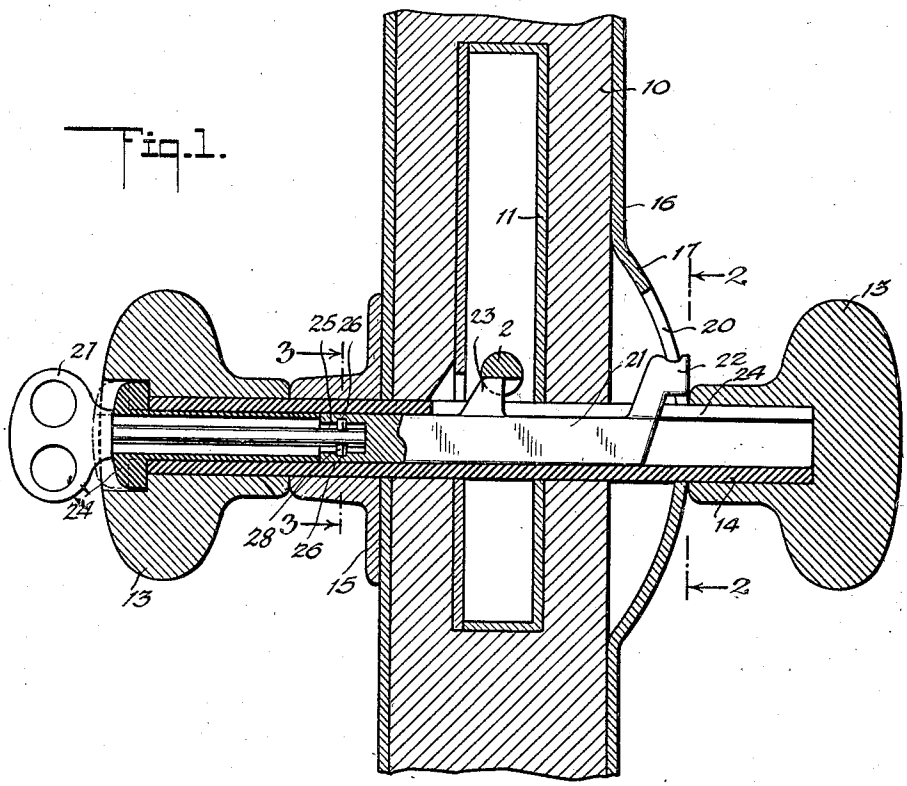


Fig. 2.

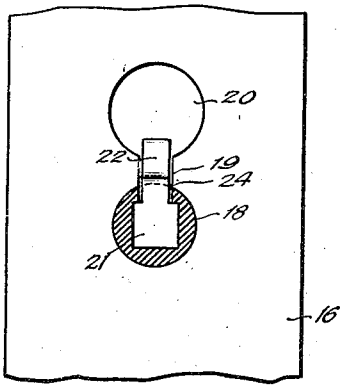
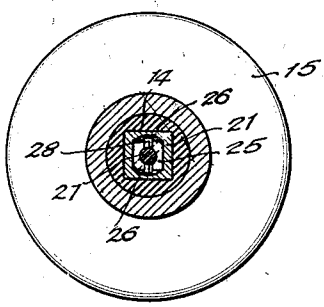


Fig. 3.



WITNESSES

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Patented Feb. 5, 1924. 1,482,974

UNITED STATES PATENT OFFICE.

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LOCK.

Application filed April 12, 1923. Serial No. 631,705.

To all whom it may concern:

Be it known that I, ERNEST DAELE, a subject of the King of Belgium, and a resident of the city of New York, borough of Manhattan, in the county and State of New York, have invented new and useful Improvements in Locks, of which the following is a full, clear, and exact description.

This invention relates to door locks.

The general object of this invention is the provision of a simple and efficient locking mechanism for locking the means for operating door latches against operation and for preventing the operation of the latch by any means other than its operating mechanism.

This object is accomplished by slidably mounting in the hollow spindle used for operating a door latch a bar provided with means for preventing its rotation relative to the hollow spindle, and projections for engaging fixed members to prevent the rotation of the hollow spindle and for engaging the door latch to prevent its movement except by the operation of the hollow spindle.

This and other objects of the invention will be more clearly understood from the following detailed description and accompanying drawings.

Figure 1 is a vertical section through the locking mechanism, showing its construction;

Figure 2 is a vertical transverse section along the line 2—2, Figure 1;

Figure 3 is a vertical transverse section along the line 3—3, Figure 1.

Referring to the above-mentioned drawings, a door 10 is shown having any latching mechanism 11 of well known construction mounted therein. This latching mechanism includes a latch 2 operated through the knobs 13 and rotatably mounted spindle 14. The bearing plate 15 for attachment to the door 10 to rotatably mount one end of the spindle 14 is of ordinary construction, but the bearing plate 16 for rotatably mounting the other end of the spindle 14 is of a particular construction. This bearing plate 16 has a member 17 formed therein which resembles a portion of a spherical shell. An opening 18 is provided in this member 17 for receiving the hollow spindle 14. Directly above and connecting with the opening 18 is a slot 19 and above the slot 19 is an opening 20. The purpose of these openings will appear in a subsequent paragraph of this specification.

A bar 21 is slidably mounted in the hollow spindle 14 and the bar is usually shaped so that it may not be rotated in the spindle. This bar 21 carries a plurality of projections 22 and 23 which extend upward through a slot 24 provided in one end of the hollow spindle 14. If the bar 21 is not shaped to prevent its rotation in the hollow spindle 14 the projections 22 and 23 will prevent its rotation. The projection 22 is shaped to fit into the slot 19 in the plate 16 for the purpose of locking the bar 21 and consequently the spindle 14 against rotation about their common axis. In forming the projections 22 and 23 on the bar 21 the projection 23 is so located relative to the projection 22 that when the latter engages the plate 17 the projection 23 engages the latch 12, serving to hold the latch against movement. An opening 25, square in cross section, is provided in one end of the bar 21. Formed in the walls defining the opening 25 are grooves 26 for receiving the head of a key.

Slidably mounted in the end of the spindle 14 is a key plug 24 having a groove extending therethrough which permits the insertion of the head 28 of the key 27. The head of this key is of such a size that it may be projected into the opening 25 when it is set parallel to a diagonal of this square opening. After the head 28 has been forced home in the opening it may be rotated, moving into the grooves 26.

Considering the door locked, as shown in Figure 1, and assuming that it is desired to open the door, then the operation is as follows: The head 28 of the key 27 is inserted through the opening in the key plug 24, turned until it sets along a diagonal of the square opening 25 and thus projected home in the opening. Next, the key is rotated, carrying the head 28 into the grooves 26 and thus attaching the key to the bar 21. By pulling outward on the key the bar 21 and plug 24 are drawn outward, releasing the projection 22 from the plate 16 and the projection 23 from the latch 2. The key may then be removed by manipulating it in the reverse order to the manner in which it was inserted. After the key has been removed the latching mechanism may be operated in the usual manner by means of the knobs 13. When it is desired to lock

the latching mechanism against operation the key is inserted in the manner described above and the bar 21 forced inward, setting the projection 22 in the slot 19 and the projection 23 in engagement with the latch 2. The bar 21 may also be operated from one side of the door by means of the hand. As shown in Figure 1, the projection 21 may be engaged by the finger and forced outward, releasing the bar 21 from the plate 16, or by inserting the finger through the opening 20 provided in the member 17 the bar 21 may be pulled inward, setting the projection 22 in the slot 19. In locking the door from the left-hand side, as viewed in Fig. 1 the key plug 24 is forced inward, projecting the bar 21 to the right until it engages in the slot 19 in the plate 16.

In constructing a lock of this type many members might be provided for receiving the projection 22 of the bar 21 to hold it against rotation. These holding members would preferably be mounted on the plate 16 or the door 10.

I would state in conclusion that while the illustrated example constitutes a practical embodiment of my invention I do not limit myself strictly to the exact details herein illustrated since manifestly the same can be considerably varied without departing from the spirit of the invention as defined in the appended claims.

Claims:

1. In a door lock including a hollow spindle, bearing plates in which said hollow spindle is mounted and a latch operated by said hollow spindle, means for locking the hollow spindle against rotation and the latch against movement, comprising a bar slidably mounted in said hollow spindle, projections formed on said bar and extending through a slot provided in the hollow spindle, one of said projections serving to engage in a slot provided in one of the bearing plates, the other projection being positioned to engage the latch to retain it against movement, and means for operating said bar.

2. In a door lock including a latch, a hollow spindle, bearing plates in which said hollow spindle is rotatably mounted for operating said latch, means for locking the hollow spindle against rotation, comprising a bar slidably mounted in the hollow spindle, means for preventing the rotation of said bar relative to the spindle, projections formed on the bar and extending through a slot formed in the hollow spindle, one of said projections serving to engage in a slot provided in one of the bearing plates to lock the hollow spindle against rotation, the other projection serving to engage the latch to hold it against movement, a key plug mounted in one end of the hollow spindle, and a key adapted to project through the key plug to engage the bar, providing a means for operating it.

3. In a door lock, a hollow spindle, bearing plates rotatably mounting said hollow spindle, one of said bearing plates being curved and having a slot cut therein, a bar slidably mounted in said hollow spindle, means for preventing the rotation of said bar relative to the hollow spindle, projections formed on the bar and extending through a slot in the hollow spindle, one of said projections being shaped for projecting in the slot provided in the bearing plate, the other projection serving to retain the locked latch against operation, and a key plug slidably mounted in the hollow spindle to prevent the operation of the bar except by the proper key.

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