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G. MARCHETTI

DOOR LOCK

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2,672,745

FIG. 1

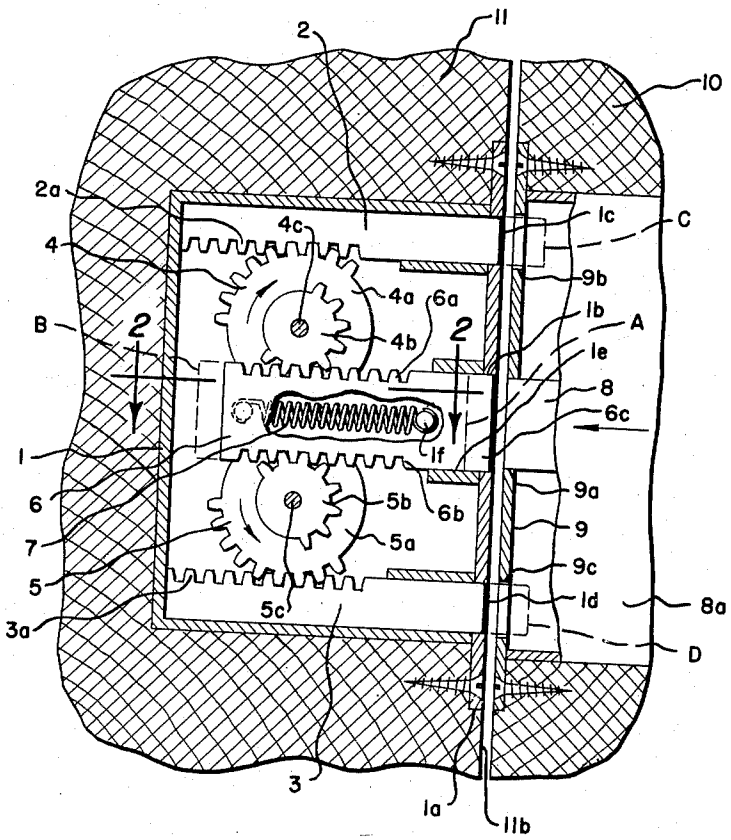
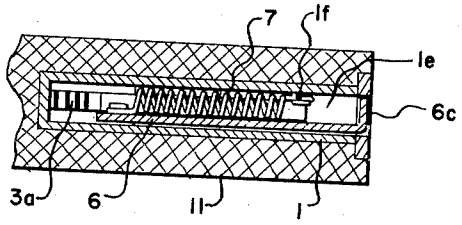


FIG. 2



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DOOR LOCK

Giovanni Marchetti, San Diego, Calif.

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3 Claims. (Cl. 70—101)

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My invention relates to a door lock, and more particularly to a door lock in the jamb of a door, actuated by the sliding bolt of a conventional lock in the door, and the objects of my invention are:

First, to provide a door lock of this class which provides for additional shear strength in a door lock by providing auxiliary bolts which are disposed at opposite sides of the conventional lock bolt, in vertically spaced relationship therewith;

Second, to provide a lock of this class which may be used in cooperative relation with various conventional locks now in use with very slight changes in the conventional lock face plate;

Third, to provide a lock of this class which operates very easily and positively;

Fourth, to provide a lock of this class which is very easy to install;

Fifth, to provide a lock of this class which greatly strengthens the locking structure of a conventional lock, and in addition, increases the angular stability of doors, which prevents twisting of the same when pressure is exerted thereon;

Sixth, to provide a lock of this class which incorporates three locking bolts, which are all actuated by a single key; and

Seventh, to provide a lock of this class which is very simple and economical of construction, efficient in operation, and which will not readily deteriorate or get out of order.

With these and other objects in view, as will appear hereinafter, my invention consists of certain novel features of construction, combination and arrangement of parts and portions, as will be hereinafter described in detail and particularly set forth in the appended claims, reference being had to the accompanying drawings and to the characters of reference thereon, forming a part of this application, in which:

Fig. 1 is a vertical sectional view of my lock, shown installed in connection with a door and door jamb; and Fig. 2 is a plan sectional view, taken from the line 2—2 of Fig. 1.

Similar characters of reference refer to similar parts and portions throughout the several views of the drawings.

The casing 1, bolts 2 and 3, gears 4 and 5, gear rack member 6, spring 7, conventional lock bolt 8, conventional lock face plate 9, door 10, and door jamb 11, constitute the principal parts and portions of my door lock.

In the construction of my door lock, I have provided a substantially rectangular box-shaped casing 1, which is adapted to be set into the structure of the door jamb 11, and this casing 1 is provided with face plate 1a, substantially flush

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with the door jamb surface 11b of the door jamb 11. The face plate 1a is provided with a central opening 1b and secondary openings 1c and 1d, at opposite sides thereof in vertically spaced relationship with said opening 1b. The conventional lock face plate 9 is provided with coinciding openings 9a, 9b and 9c, respectively.

It will be noted that the door 10 is hinged relative to the jamb 11, and that the conventional lock bolt 8 is mounted in a conventional casing 8a set into the door 10.

In the casing 1 are bolts 2 and 3, which are reciprocally mounted in the openings 1c and 1d, respectively, and which are provided with gear rack portions 2a and 3a, engaging the large diameter gear portions 4a and 5a of the gears 4 and 5, respectively. The small diameter gear portions 4b and 5b engage opposed gear rack portions 6a and 6b, respectively, of the gear rack member 6, which is slidably mounted at its outer end in the opening 1b in the casing face plate 1a. Adjacent the opening 1b is provided a hollow guide 1e, which supports the outer end 6c of the gear rack member 6 during its reciprocal movement, as indicated by dash lines in Fig. 1 of the drawings.

The operation of my door lock is substantially as follows:

When the door 10 is closed relative to the jamb 11, and a key is inserted in the casing 8a of the conventional lock, the key is turned, causing extension of the conventional lock bolt 8 to the dash line position A, shown in Fig. 1 of the drawings, which forces the gear rack member 6, at its inner end, to the dash line position B, and during this reciprocal movement, the gear portions 4b and 5b engage the rack portions 6a and 6b, respectively, to cause rotation of the gear portions 4a and 5a, which engage the gear racks 2a and 3a to cause the bolts 2 and 3 to be extended to the dash line positions C and D, in which positions these bolts are extending through the openings 9b and 9c in the conventional lock face plate 9. In such extended position, the bolts 2 and 3 are operatively supplemental to the bolt 8, all of which strengthens the locking arrangement of the door 10. It will be understood that in most door locks the bolt 8 is restrained against retraction until released by a key. The bolt 8 being thus restrained holds the rack member in the dotted line position shown in Figure 1, until a key is used to retract the bolt 8.

It will be noted that when the conventional lock bolt 8 is retracted by the key, the spring 7, connected at its one end to the gear rack member 6 and at its opposite end to the casing by

means of the pin 1f, is forced backwardly into the solid line position as shown in Fig. 1 of the drawings, which concurrently retracts the bolts 2 and 3 from the openings 9b and 9c in the conventional lock face plate 9.

It will be seen that during the rotation of the gears 4 and 5 they are maintained in stationary position in the casing 1 by means of the axles 4c and 5c, which are fixed to the inner side of the casing 1.

Though I have shown and described a particular construction, combination and arrangement of parts and portions, I do not wish to be limited to this particular construction, combination and arrangement, but desire to include in the scope of my invention the construction, combination and arrangement substantially as set forth in the appended claims.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:

1. A locking mechanism for locking a member against swinging movement relative to a second member, comprising opposing lock casings having apertured face plates in opposing relation, the apertures in one face plate being opposite to the apertures in the other face plate, a lock bolt operatively mounted in one casing and extendable from one face plate through the other face plate, said bolt being of the type which is restrained against retraction until released by a key, a spring-biased bolt-operated member operably mounted in the other casing and positioned for being engaged by said bolt and driven inwardly of said other casing against spring pressure when said bolt is extended, a secondary bolt operably mounted in said other casing, and mechanical linking means connecting said member and said secondary bolt for extending said secondary bolt through both said face plates when said member is driven inwardly.

2. A locking mechanism for locking a member against swinging movement relative to a second member, comprising opposing lock casings having apertured face plates in opposing relation, the apertures in one face plate being opposite to the apertures in the other face plate, a lock bolt operatively mounted in one casing and extendable from one face plate through the other face plate, said bolt being of the type which is restrained against retraction until released by a key, a spring-biased bolt-operated member operably mounted in the other casing and positioned for being engaged by said bolt and driven inwardly of said other casing against spring pressure when said bolt is extended, a secondary bolt operably mounted in said other casing, and mechanical linking means connecting said member and said secondary bolt for extending said secondary bolt through both said face plates when said member is driven inwardly, said member including a rack and said mechanical linking means comprising a gear means operated by said rack and operating said secondary bolt.

3. A locking mechanism for locking a member against swinging movement relative to a second member, comprising opposing lock casings having apertured face plates in opposing relation, a lock bolt operatively mounted in one casing and extendable from one face plate through the other face plate, said bolt being of the type which is restrained against retraction until released by a key, a spring-biased bolt-operated member operably mounted in the other casing and positioned for being engaged by said bolt and driven inwardly of said other casing against spring pressure when said bolt is extended, a secondary bolt operably mounted in said other casing, and mechanical linking means connecting said member and said secondary bolt for extending said secondary bolt through both said face plates when said member is driven inwardly, said member including a rack and said mechanical linking means comprising a gear means operated by said rack and operating said secondary bolt, said member having a second rack in opposing relation to the first mentioned rack, another secondary bolt similar to the first mentioned secondary bolt, another gear means similar to said gear means and operated by said second rack, said lock bolt being manually operated as by a key.

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