

July 21, 1953

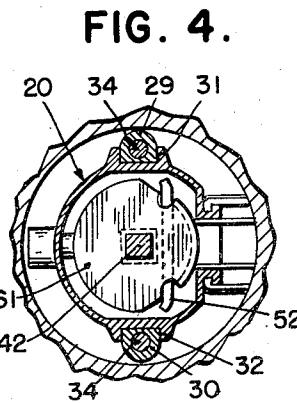
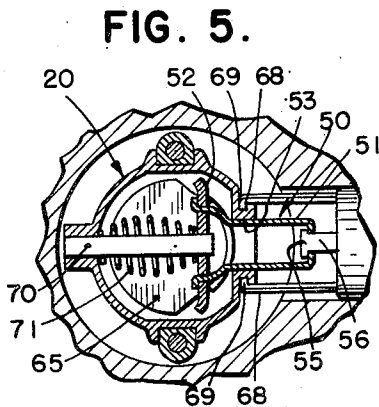
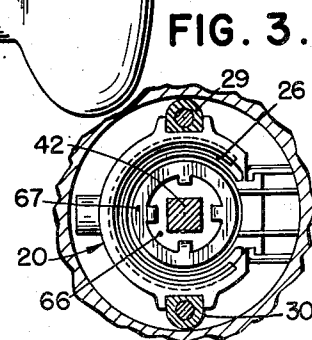
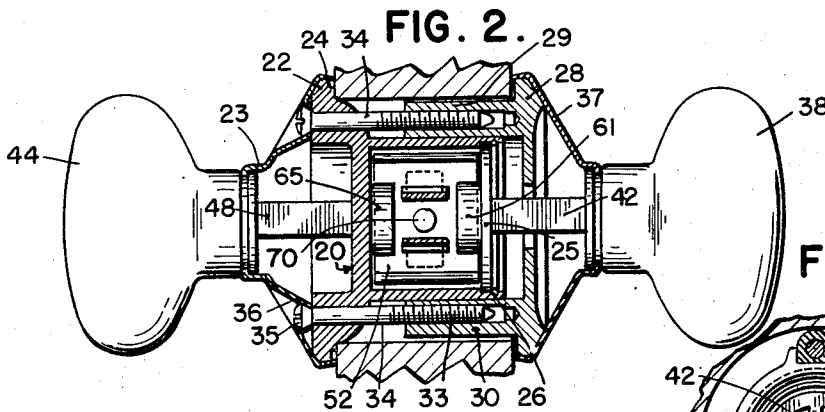
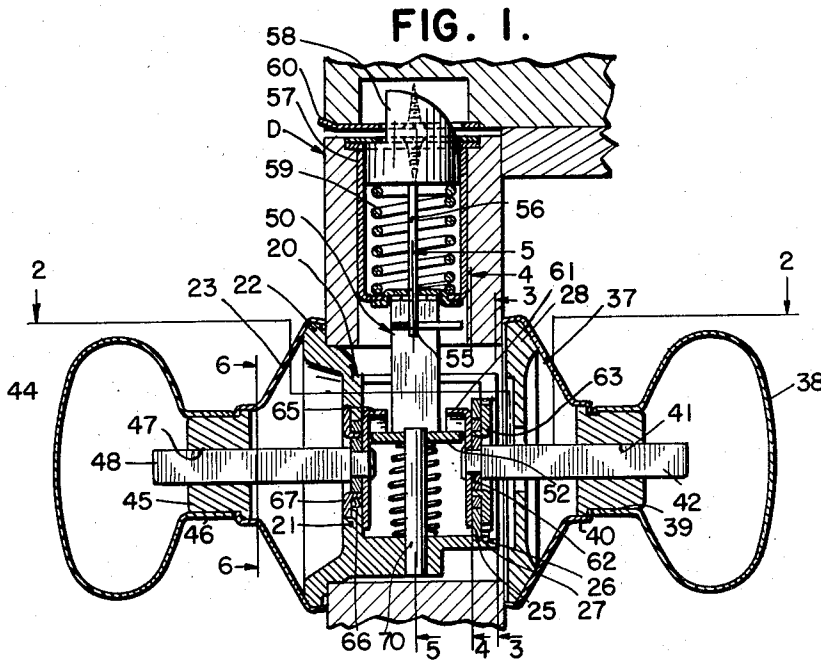
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2,646,301

MOUNTING MEANS FOR DOOR LATCHES

Filed Feb. 8, 1951

2 Sheets-Sheet 1



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FIG. 6.

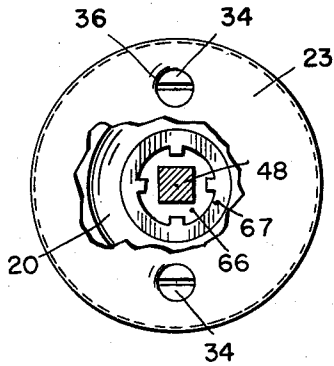


FIG. 7.

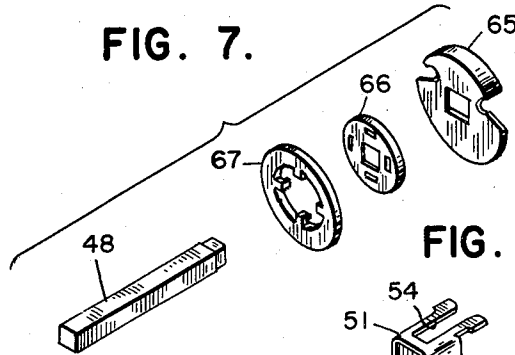
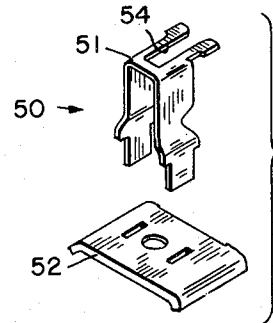


FIG. 8.



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MOUNTING MEANS FOR DOOR LATCHES

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2 Claims. (Cl. 292—337)

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This invention relates to mounting means for door latches and particularly latches which are mounted in bored holes in the door.

One object of the invention is to improve and simplify the construction and operation of door latches with knobs. Another object is to provide means for spacing the escutcheon plates on doors of different thickness. A further object is to provide means for accurately aligning split-spindle door knob and latch sets. These and other objects are attained by my invention which will be understood from the following description, reference being made to the accompanying drawings in which:

Figure 1 is a plan view partly in section showing a door knob and latch set of my invention as mounted on a door;

Figure 2 is a side elevational view taken in the direction indicated in the line 2—2 of Figure 1, with parts broken away to reveal the interior construction;

Figure 3 is a cross-sectional view taken on the line 3—3 of Figure 1;

Figure 4 is a cross-sectional view taken on the line 4—4 of Figure 1;

Figure 5 is a cross-sectional view taken on the line 5—5 of Figure 1;

Figure 6 is a cross-sectional view taken on the lines 6—6 of Figure 1;

Figure 7 is a disassembly view showing in perspective a spindle, bearing disk, spindle attaching washer, and a rollback; and

Figure 8 is a disassembly view in perspective of the retractor arm and base plate.

In the preferred form of my invention shown in the drawings, a retractor housing 20 generally cylindrical in shape is provided with an integral closure 21 at one end which is extended to a greater diameter than the retractor housing to form a clamping rim 22 for engaging the margin of the hole in the door in which the retractor housing is mounted. The clamping rim 22 is adapted to be covered on the outside by the rosette 23 whose peripheral margin 24 is turned over to tightly engage the outer periphery of the clamping rim 22. The opposite end of the retractor housing is closed by an inset closure disk 25 and held in place by the spring ring 26 in the groove 27 on the inside of the retractor housing 20 adjacent the open end a clamping disk 28 of large enough diameter to engage the margin of the hole in the door D in which the retractor housing is mounted, is disposed on the side of the door opposite said clamping rim 22. The clamping disk 28 is provided with inwardly extending aligning studs 29 and 30 which are disposed on

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opposite edges and are adapted to slide in aligning grooves 31 and 32 provided on the opposite outer sides of the retractor housing. Each of the aligning studs 29 and 30 is provided with a threaded hole 33 at its free end adapted to receive attachment screws 34 extending from corresponding holes 35 in the clamping rim 22 of the closure 21. The rosette 23 is also provided with corresponding holes 36 to provide access to the heads of the screws 34. This arrangement permits the clamping of the retractor housing 20 by the clamping ring 22 and the clamping disk 28 on doors of varying thickness.

The clamping disk 28 is preferably attached to the outer rosette 37 by turning the outer periphery of said rosette over the outer periphery of the clamping disk 28. The outer knob 38 is rotatably attached at its neck 39 to the neck 40 of the rosette 37, the knob neck 39 being solid and provided with an axial square hole 41 adapted to engage the outer spindle 42. The inside knob 44 is similarly rotatably attached by its neck 45 to the neck 46 of the inner rosette 23, the inside knob neck 45 being solid and provided with an axial squared hole 47 adapted to receive the inner spindle 48.

The retractor 50 consists of an inverted U-shaped retractor arm 51 which is attached perpendicularly to a retractor plate inside the housing 20. The U-shaped retractor arm 51 protrudes through an opening 53 in the retractor housing preferably at an intermediate position on the periphery of said housing relative to the aligning grooves 31 and 32. The protruding end of the retractor arm 51 is provided with an elongated slot 54 which is arranged parallel to the axis of the spindle and is adapted to receive the head 55 of the latch bar 56. The elongated slot 54 compensates for the variance in the thickness of the door.

The latch unit consists of a tubular casing 57 which is mounted horizontally in the door at right angles to the axis of the knob spindles. The latch bolt 58 is attached to the latch bar 56 and has a spring 59 abutting the inner end of the latch bolt and the inside end of the casing. The latch bolt is adapted to engage the strike plate 60 in the usual manner. The tubular casing 57 is provided on its inner end with connecting legs 68 which are adapted to engage turned over marginal grooves 69 on both edges of the opening 53 in the casing 20. In mounting the device, the legs are slipped into the grooves 69 at the same time that the end of the latch bar 56 is engaged in the elongated slot 54.

The retractor 50 is actuated independently by

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the turning of the outer spindle 42 by the outer knob 38, the spindle being provided on its end inside the retractor housing with an outer rollback 61. The outer spindle 42 is mounted in a bearing disk 62 by the attaching washer 63, the bearing disk being mounted in the closure disk 25. The retractor is also actuated by the turning of the inner spindle 48 by the inside knob 44, there being an inside rollback 65 attached to the inner end of the inside spindle. The inside spindle 48 is mounted for rotation by the bearing disk 66, the spindle being attached thereto by the attaching washer 67. The retractor 50 is arranged to reciprocate on the post 70 mounted in the housing 20 opposite the opening 53, a compression spring 71 being mounted on said post between the retractor plate 52 and the wall of the housing 20.

The advantages of my invention will be apparent. The provision of the aligning studs extending from the outside clamping plate and closely engaging the aligning grooves on the retractor housing provides sliding adjustment to accommodate the mounting of the latch on doors of different thickness and at the same time provide means for aligning the axes of the spindles. This is particularly important in split-spindle type locks to keep the operating axes of the knobs in line to avoid binding of the mechanism. The housing and the outer clamping plate with the integral aligning studs are easily made to accurate dimensions by the well-known process of die casting. The cost of manufacture is low because of the small number of parts and the simplicity of assembly. My housing structure with integral clamping plate, and the opposed clamping plate with the aligning studs integrally made provides easy means for installing locks of this type in doors of varying thickness.

I claim:

1. In a knob-actuated door latch a retractor housing adapted to be mounted in a cylindrical hole bored through a door in axial alignment with the knob spindles comprising a cylindrical body having aligning grooves in the exterior cylindrical surface disposed parallel to the axis of said cylindrical body, a fixed clamping rim attached at one end of said housing, said fixed clamping rim being adapted to abut the margin of the hole in said door and to extend into and align itself with the cylindrical wall of said hole, a separable clamping plate at the end of said housing opposite

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said fixed clamping rim, said separable clamping plate being provided with inwardly extending studs disposed to slide in and fit into said aligning grooves, and screw means for extensibly connecting the ends of said studs to said fixed clamping rim, said grooves and said studs coacting to maintain the axial alignment of said cylindrical body and said separable clamping plate.

2. In a door latch, a retractor housing adapted to be mounted in a cylindrical hole bored through a door in axial alignment with the knob spindles comprising a cylindrical body having aligning grooves in the exterior cylindrical surface disposed parallel to the axis of said cylindrical body, a fixed clamping rim attached at one end of said housing, said fixed clamping rim being adapted to abut the margin of the hole in said door and to extend into and align itself with the cylindrical wall of said hole, a separable clamping plate at the end of said housing opposite said fixed clamping rim, said separable clamping plate being provided with inwardly extending studs disposed to slide in and fit into said aligning grooves, and screw means for extensibly connecting the ends of said studs to said fixed clamping rim, said grooves and said studs coacting to maintain the axial alignment of said cylindrical body and said separable clamping plate; a rosette having a tubular neck non-rotatably attached by said screw means to said fixed clamping rim; a rosette having a tubular neck non-rotatably attached to said separable clamping plate; door knobs having tubular necks rotatably attached to the tubular neck of each of said rosettes, and spindles extending from said knobs into said retractor housing and longitudinally affixed to said housing, said knobs being longitudinally slidably but non-rotatably mounted on said spindles.

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