No. 843,047. PATENTED FEB. 5, 1907.

H. G. VOIGHT.

KNOB OPERABLE LATCH MECHANISM.

APPLICATION FILED MAR. 23, 1906.

Fig. 1.

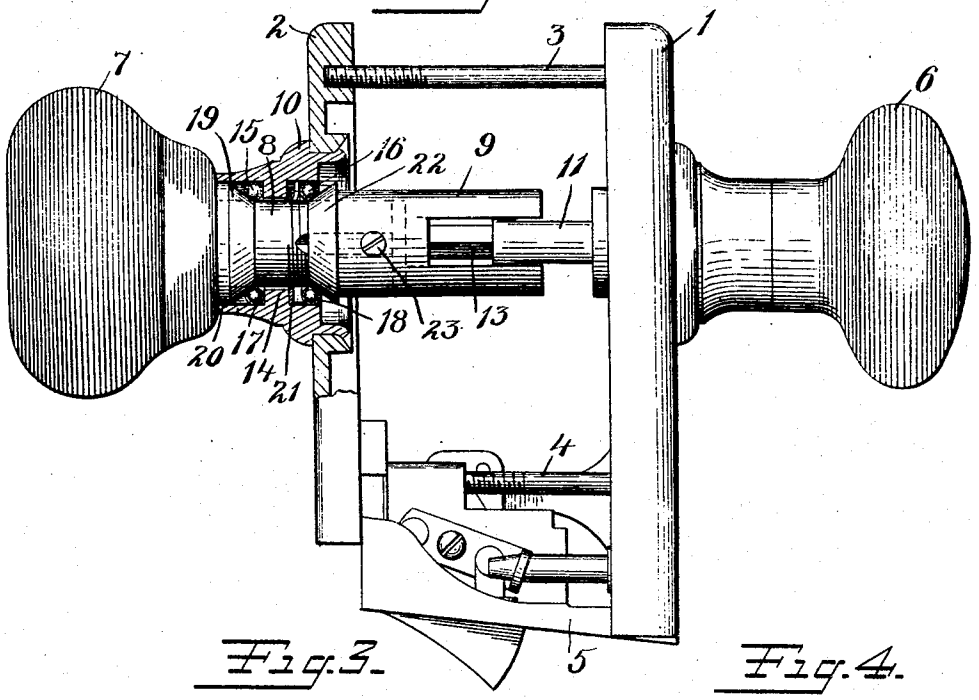


Fig. 3.

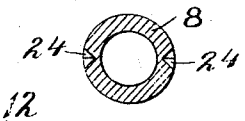


Fig. 4.

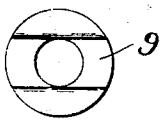


Fig. 2.

Fig. 5.

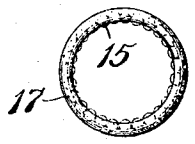
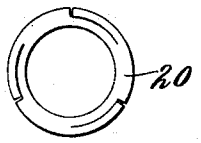


Fig. 6.



Witnesses

Inventor

H. G. VOIGHT

By his Attorneys

UNITED STATES PATENT OFFICE.

HENRY G. VOIGHT, OF NEW BRITAIN, CONNECTICUT, ASSIGNOR TO RUSSELL & ERWIN MANUFACTURING COMPANY, A CORPORATION OF CONNECTICUT.

KNOB-OPERABLE-LATCH MECHANISM.

No. 843,047. Specification of Letters Patent. Patented Feb. 5, 1907.

Application filed March 23, 1906. Serial No. 307,642.

To all whom it may concern:

Be it known that I, HENRY G. VOIGHT, a citizen of the United States, residing at New Britain, Hartford county, State of Connecticut, have invented certain new and useful Improvements in Knob-Operable-Latch Mechanism, of which the following is a full, clear, and exact description.

My invention relates to latch mechanism, and particularly to a construction for providing a substantially frictionless bearing for an operating-knob.

The invention is directed to that type of lock in which the knobs are carried by plates adapted to the opposite sides of a door and the latch mechanism carried by one of these plates. In such mechanisms it has been found particularly difficult to provide a satisfactory bearing for the knobs.

My present invention is concerned with an improvement in bearings.

Figure 1 is a plan view and partial section illustrating my invention. Fig. 2 is a view illustrating detached members of a knob and shank with the removable bearing members. Fig. 3 is a sectional view of the main portion of the knob-shank. Fig. 4 is an end view of an extension portion of the knob-shank. Fig. 5 is a detail view of a series of balls and retainer. Fig. 6 is a detail view of a spring employed in the bearing.

The plates 1 and 2 are adapted to the opposite sides of the door and connected by screws 3 and 4. The side plate 2 has an extension 5, which is adapted to extend across the edge of the door.

The inner side plate 1 carries a suitable latch-slide and dogging mechanism. A suitable latch-bolt and connections are also provided; but since these are not involved in this present invention it will be unnecessary to describe them.

6 and 7 are the inner and outer knobs carried, respectively, by the inner and outer side plates and which are adapted to operate the mechanism.

8 is the shank of the outer knob, which is screw-threaded.

9 is an extension portion of the shank, adapted to be adjusted on the screw-threaded portion of the shank 8.

10 is the rose-plate, which is secured to the side plate 2 and affords the stationary element of the bearing.

11 is an extended shank of the outer roll-back, which coöperates with the latch mechanism, as described in another application filed by me. This extension 11 telescopes with the extension-shank 9 of the outer knob. The outer knob carries a cylinder-lock 12, as indicated in dotted lines in Fig. 2, the plug of which is connected by the spindle 13 with the latch mechanism.

14 is an annular ring formed integral with the rose-plate 10 and providing shoulders on its outer and inner surfaces for resisting the longitudinal thrust of the knob 7 and its shank in both directions.

15 and 16 are balls of a series carried by the retainers 17 and 18. These retainers are mounted on opposite sides of the rose-plate shoulders.

20 is a washer which fits over the outer knob-shank and aids in centering the knob in the rose-plate.

21 is a spring interposed between the retainer 18 and the shoulder 14.

22 is the interior bearing-ring, which cooperates with the series of balls in the retainer 18.

The bearings are adjusted by rotating the extension sleeve-like portion 9 upon the screw-threaded portion 8 of the knob-shank until the required pressure on the bearings is attained. The shank portion 9 is then locked in place relatively to the shank portion 8—for instance, by means of a screw 23, taking into a notch or groove 24 in the shank portion 8.

The bearings may of course be provided with lubricating material, if desired, so that their operation will be practically without friction. The adjustment of the bearings can be effected as nicely as desired without having the parts bind.

The mechanism may be applied either to a right or left hand swing-door, it only being necessary to turn the outer knob around halfway before securing the mechanism in place.

What I claim is—

1. In a latch mechanism, a knob-bearing comprising a rose-plate having oppositely-arranged interior shoulders, a knob-shank projecting through said rose, a shoulder on the outer part of said knob-shank, a removable and adjustable shoulder on the inner part of said knob-shank, and two independent sets of antifriction-bearings arranged be-

tween the interior shouldered portion of the rose and the shouldered portions of the knob-shank, one of the latter being adjustable.

2. In a latch mechanism, a knob-bearing comprising a rose-plate having an annular inwardly-projecting shoulder, a knob-shank having a shoulder near the knob end of said shank, and an internal removable and adjustable shoulder on said knob-shank, said knob-shank shoulders being arranged on opposite sides of the shoulder in the rose-plate, and antifriction-bearings arranged between the latter and each of said knob-shank shoulders.

3. In a latch mechanism, a knob-bearing comprising a rose-plate, a knob, a two-part shank, one of said parts being adjustable longitudinally relatively to the other, and ball-bearings around said shank supported by said interior rose-plate shoulders and by the two parts of said shank.

4. In a latch mechanism, plates adapted to the opposite sides of a door, knobs carried by said plates, a shank for one of said knobs, a transversely-slotted extension adjustable thereon, and a roll-back extension fitting into said slotted shank extension and longitudinally adjustable relatively thereto.

5. In a latch mechanism, plates adapted to the opposite sides of a door, knobs carried by said plates, a hollow knob-shank extending from one of said knobs, a transversely-slotted extension adjustable thereon, a roll-back extension adapted to the slotted shank extension and longitudinally adjustable relatively thereto, and an independent spindle passing through said knob-shank and roll-back extension.

HENRY G. VOIGHT.

Witnesses:
M. S. WIARD,
CHAS. E. RUSSELL.