

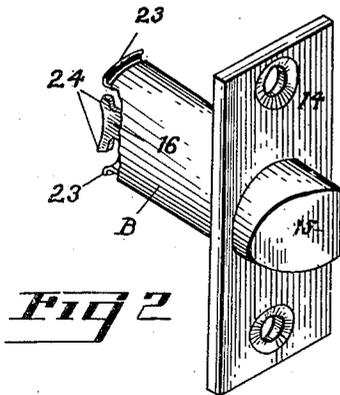
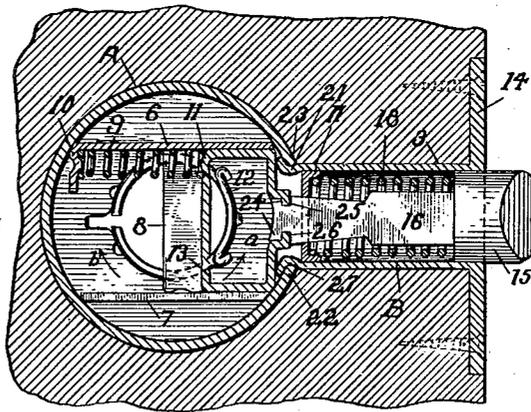
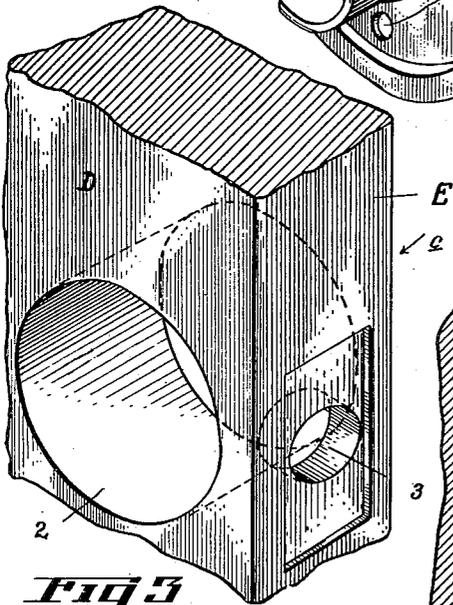
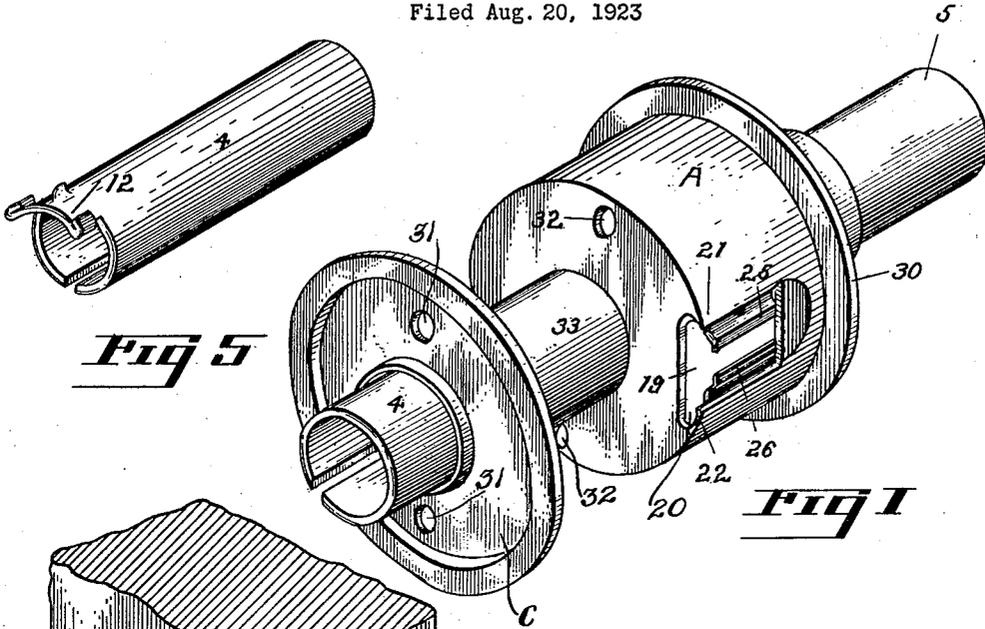
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DOOR LOCK

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DOOR LOCK.

Application filed August 20, 1923. Serial No. 653,245.

This invention relates to door latches and especially to a double unit latch, together with means for assembling, connecting and securing the same in a door.

5 The object of the present invention is to generally improve and simplify the construction of door latches to permit saving both in time and cost of installation; to provide a latch which consists of two separable
10 units, to-wit, a knob actuated retracting unit and a latching unit, each unit being enclosed by an independent housing and each unit being self-contained; to provide a latch of this character in which means are employed for interlocking the housings and the
15 contained mechanisms when they are assembled in a door, and further to provide a latch of this character in which lateral adjustment is permitted between the individual housings and the contained mechanisms, thereby permitting the latch to be
20 fitted to doors of various thicknesses. Other objects will hereinafter appear.

One form which my invention may assume is exemplified in the following description and illustrated in the accompanying drawings, in which:

Fig. 1 is a perspective view of the unit which carries the latch actuating mechanism.

Fig. 2 is a perspective view of the unit which carries the latch mechanism.

Fig. 3 is a perspective view of a portion of a door showing the manner in which it is drilled to receive the respective units.

Fig. 4 is a cross-section of the latch showing the latch actuating unit and the latching unit assembled and interlocked.

Fig. 5 is a perspective view of one of the spindle sections.

Referring to the drawings in detail, and particularly to Figs. 1, 2 and 4, A indicates in general a housing which contains a latch actuating mechanism and B a housing which contains a latch mechanism. Each housing carries a mechanism which is complete or self-contained, and each housing is cylindrical in cross-section. The housing A is disposed transversely with relation to a door when placed in position and a hole is drilled transversely of the door to receive the same as indicated at 2. A hole is drilled at right angles thereto endwise of the door as indicated at 3 and this hole is provided for the
55 reception of the housing B; the respective

holes 2 and 3 being best illustrated in Fig. 3, these holes being drilled with an ordinary brace and bit and as such require comparatively little time when comparison is made with the cutting and mortising of doors for
80 the reception of ordinary latches. The housing A, as previously stated, contains the latch actuating or retracting mechanism and it also forms a support for the spindles 4 and 5, which carry knobs not here illus-
85 trated.

The latch retracting mechanism consists of a rigid rectangular shaped frame consisting of upper and lower guides 6 and 7 suitably secured interior of the housing A.
70 Slidably mounted between these upper and lower guides is a latch retracting member 8. A spring 9 is interposed between a lug 10 and a lug 11 and this spring serves the normal function of projecting the retracting
75 member 8. The spindles are provided with retracting lugs as indicated at 12, the upper and lower portions thereof engaging the members 11 and 13 of the retracting member 8, that is, turning movement may be trans-
80 mitted to the spindles in either direction and this turning movement retracts the member 8. For instance, if the spindle is turned in the direction of arrow *a*, the upper part of the lug 12 engages the lug 11 and
85 thereby retracts the member 8. Again, if the spindle is turned in the direction of arrow *b*, the lower part of the lug 12 engages the lug 13 and the member 8 is again retracted. It therefore makes no difference
90 whether the spindle is turned in one direction or another as retracting movement is imparted in either instance and an automatic return movement is imparted by the
95 spring 9.

The latch mechanism, as previously stated, consists of the housing B. This housing carries a keeper plate 14, a latch 15 and a latch actuating plate 16. The inner end of the housing B is closed by an end plate
100 17 and a spring 18 interposed between this end plate and the inner end of the latch 15 serves the function of normally projecting the latch. The springs 9 and 18 cooperate and act in unison and the size and
105 tension of the springs may thus be reduced to a considerable extent, or either might break without materially affecting the operation of the mechanism.

The main feature of the present invention 110

is that part of the structure which permits interlocking of the housings A and B and simultaneous interlocking of the retracting member 8 and the latch actuating plate 16.

5 For the purpose of interlocking the housings A and B, a slot 19 is formed in one side of the housing as shown in Fig. 1. The end of the housing is similarly cut away or slotted as shown at 20 and two overhanging flanges are thus formed as at 21 and 22. A pair of projecting lugs 23 is formed on the inner end of the housing B and these lugs are adapted to pass in under the flanges 21 and 22 as shown in Fig. 4. An interlock is thus formed between the housings and endwise removal of the housing B is prevented. To interlock the retracting member 8 and the latch actuating plate 16, a pair of lugs is formed on the inner end of the latch actuating plate as indicated at 24. These lugs are engaged by a pair of fingers 25 and 26 which form a part of the retracting member 8 and an interlock is thus formed between the retracting member and the latch actuating plate which permits these to cooperate and function in unison.

By referring to Fig. 1 it will be noted that the slot 19 is extended a considerable distance and, similarly, that the fingers 25 and 26 have a length substantially equal thereto. This is of great importance as it permits lateral adjustment of the housings with relation to each other and also lateral adjustment of the mechanisms contained in the respective housings; that is, the lugs 24 formed on the inner end of the latching plate may slide along the fingers 25 and 26 and as long as engagement is maintained between the lugs 24 and the fingers 25 and 26 operation is permitted. It should be remembered that doors vary in thickness and that it is desirable to place the latch in the center of the door as shown in Fig. 3. Such disposition of the latch, or, in other words, the housing B with contained mechanism, is permitted in this instance as the length of the slot 19 and the fingers 25 and 26 is such that operative engagement is maintained throughout a considerable range.

50 In actual operation if it is desired to apply a latch to a door, it is only necessary to take an ordinary brace and bit and first drill an opening transversely through the door as indicated at 2, and then to drill a hole at right angles thereto as indicated at 3, care being taken of course to center and align the openings before drilling the same. After this has been accomplished, the keeper plate 14 which carries the housing B is next inserted endwise in the opening 3 and when so inserted it will be noted that the lugs 23 and 24 project slightly into the transverse opening 2. The housing A is next inserted endwise through the transverse opening 2 in the direction of arrow *c* (see Fig. 3) and

when so inserted an interlock will be automatically formed between the lugs 23 and 24, the flanges 21 and 22, and the fingers 25 and 26; that is, the flanges 21 and 22 will pass over the lugs 23 and the fingers 25 and 26 will at the same time pass over the lugs 24. The two units of the latch indicated at A and B are thus assembled and interlocked and it is then only necessary to secure the unit A against removal by applying a clamping plate such as indicated at C (see Fig. 1). This plate engages the face of the door indicated at D, while an annular flange 30 on the opposite end of the housing engages the opposite face of the door indicated at E, the flange 30 limiting the endwise movement of the housing A when inserted in the direction of arrow *c* and the clamping plate C serving the function of securing the housing against removal; that is, a pair of screws is passed through openings 31 in the clamping plate and the openings 32 formed in the housing. The inner ends of the screws there engage threaded lugs formed on the retractor guide as shown in my copending application entitled "Door lock", Serial No. 656,335, filed August 8, 1923. The clamping plate and the housing A is thus drawn tightly together and secured in the opening 2 and the whole operation is completed by applying the knobs to the ends of the spindles indicated at 4 and 5 and securing them in any suitable manner. A pair of screws is finally inserted through the keeper plate 14 and the striker plate is placed in position on the door frame in the usual manner, thus completing the operation of installing and assembling the latch.

By referring to Fig. 1 it will be noted that the housing A is provided with a bearing extension 33 and that this is fairly long. The clamping plate C is slidably mounted on this bearing extension and as such is adjustable to the inner end of the housing A. This feature is of importance as it permits the latch to be installed in doors of various thicknesses and correct positioning of the housings A and B is at the same time taken care of as considerable lateral movement between the housing A and the housing B is permitted due to the length of the slot 19 and the flanges 21 and 22. In other words, the interlock between the housings and the mechanisms contained therein is not disturbed even though the thickness of the door may vary to a considerable extent as engagement is maintained between the flanges 21 and 22 and the lugs 23 throughout the entire length of the slot 19 and engagement is similarly maintained between the lugs 24 and the fingers 25 and 26 throughout a considerable range of movement.

A divided spindle is employed in this instance and the inner end of each spindle

is therefore provided with a retracting lug as indicated at 12, thus permitting individual operation of each knob and spindle.

The particular form of spindle and the particular form of retracting mechanism are, however, of no importance as far as the present invention is concerned as this application is only intended to cover a double unit latch comprising one housing which contains a complete latch actuating or retracting mechanism, and a second housing which contains a complete and self-contained latching mechanism, said units being separately installable in a door and automatically connected when assembled.

The invention further covers the interlocking feature between the housings and the mechanisms contained therein, and a structure which permits lateral adjustment between the same. It is for this reason that no particular stress has been laid on the latch actuating or retracting mechanism, etc., and furthermore for the reason that this specific structure forms the subject matter of a copending application entitled door latch, filed August 8, 1923, Serial No. 656,335.

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

1. In a device of the character described, a retracting member, a pair of separated fingers formed thereon, a latch actuating plate, a lug formed thereon adapted to be engaged by the fingers of the retracting member, and means permitting adjustment of the fingers with relation to the lug on the latch-actuating plate in a direction transversely to the longitudinal axis of the latch-actuating plate.

2. In a device of the character described, a pair of independent housings, one enclosing and containing a retractor and the other enclosing and containing a latch mechanism, and a detachable connection formed between the retractor and the latch mechanism, said connection permitting adjustment of one housing and mechanism with relation to the other on a plane parallel to the longitudinal axis of the housing containing the retractor.

3. In a device of the character described, a pair of independent housings, one enclosing and containing a retractor and the other enclosing and containing a latch mechanism, and connecting means permitting simultaneous interlocking of the housings and the contained mechanisms to form an operative connection between the same.

4. In a device of the character described, a housing, a self-contained latch actuating mechanism mounted therein, a second housing, a self-contained latch mechanism mounted therein and means permitting interlocking of the housings and the latch

actuating mechanism and the latch mechanism.

5. In a device of the character described, a latch actuated mechanism, a latch mechanism, each adapted to be independently assembled in a door, and a slidable interlocking connection between the latch and the latch actuating mechanism whereby they are operatively connected when assembled in a door.

6. In a device of the character described, a latch unit, a latch actuating unit, said units being adapted to be slidably engaged and interlocked when being assembled in a door to establish an operative connection between the units.

7. A device of the character described, comprising a casing enclosing and containing a latch actuating mechanism, a second casing enclosing and containing a latch mechanism, said first-named casing being longitudinally slotted on the side adjacent the casing enclosing the latch mechanism, and lugs formed on the housing containing the latch mechanism adapted to enter the slotted casing and interlock therewith.

8. In a device of the character described, a retracting member, a pair of separated fingers formed thereon, a latch actuating plate, and a pair of lugs formed thereon adapted to interlock with the fingers of the retracting member.

9. In a device of the character described, a retracting member, a latch actuating plate, and a slidable adjustable interlocking connection formed between the same.

10. A device of the character described, comprising a casing enclosing and containing a latch actuating mechanism, a second casing enclosing and containing a latch mechanism, said casings being disposed on a common plane, and the casing containing the latch mechanism being disposed at right angles to the casing containing the latch actuated mechanism, a pair of lugs on the inner end of the housing containing the latch mechanism, and means on the housing containing the latch actuating mechanism adapted to interlock with said lugs, said means being positioned on the side of the housing adjacent the housing containing the latch mechanism.

11. A device of the character described, comprising a casing enclosing and containing a latch actuating mechanism, a second casing enclosing and containing a latch mechanism, and a pair of lugs on the inner end of the housing containing the latch mechanism, the housing containing the latch actuating mechanism having a slot formed therein on the side adjacent the housing containing the latch mechanism, said slot adapted to receive said lugs and to form an interlock therewith.

12. A device of the character described, 130

comprising a casing enclosing and contain-
ing a latch actuating mechanism, a second
casing enclosing and containing a latch
mechanism, a pair of lugs on the inner end
5 of the housing containing the latch mecha-
nism, the housing containing the latch actu-
ating mechanism having a slot formed
therein on the side adjacent the housing con-
taining the latch mechanism, said slot
10 adapted to receive said lugs and to form an
interlock therewith, and other means form-
ing an interlock between the mechanisms
contained in the housings.

13. A device of the character described,
15 comprising a casing enclosing and contain-
ing a latch actuating mechanism, a second
casing enclosing and containing a latch
mechanism, a pair of lugs formed on the
inner end of the housing containing the latch
20 mechanism, a pair of lugs on the inner end
of said latch mechanism, means on the
housing carrying the latch actuating mecha-
nism adapted to form a detachable inter-

lock with the lugs on the latch housing, and
means on the latch actuating mechanism 25
adapted to form a detachable interlock with
the lugs on the latch mechanism.

14. A latch adapted for assembly in a
door having two openings formed therein 30
which intersect each other at right angles,
one opening being transverse of the door
and the other opening extending through the
edge of the door and having its longitudinal
axis parallel with the faces of the door, said
latch comprising a housing containing a 35
latch mechanism, said housing adapted to
be inserted in the opening which extends
through the edge of the door, a second hous-
ing containing a latch actuating mechanism, 40
said housing being insertable in the trans-
verse opening in the door, and means where-
by an interlock is formed between the hous-
ings and the respective mechanisms when the
housing containing the latch actuating mech-
anism is inserted in the transverse opening.

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