May 20, 1958 A. VAHTRA 2,835,525

DOOR LATCH AND HANDLE MECHANISM

Filed Feb. 14, 1956 2 Sheets-Sheet 1

Fig. 1.

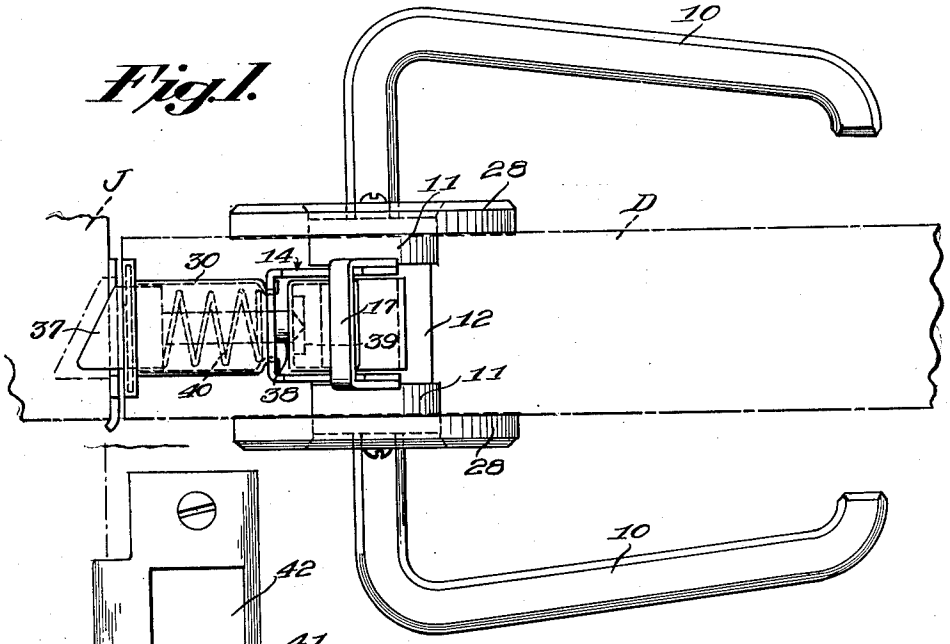


Fig. 2.

Fig. 3.

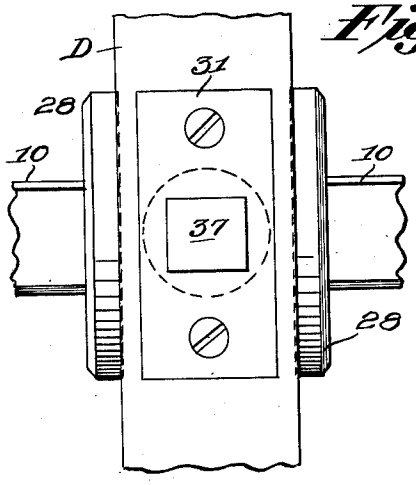
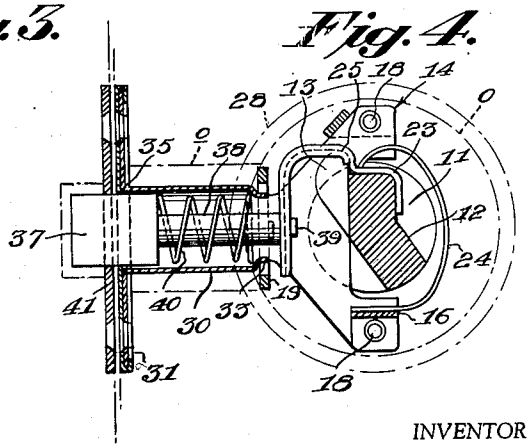


Fig. 4.



INVENTOR

Arvo Vahtra

BY Robert A. Cummings

ATTORNEY

May 20, 1958 A. VAHTRA 2,835,525

DOOR LATCH AND HANDLE MECHANISM

Filed Feb. 14, 1956 2 Sheets-Sheet 2

Fig. 7.

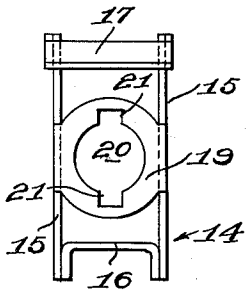


Fig. 5. Fig. 6.

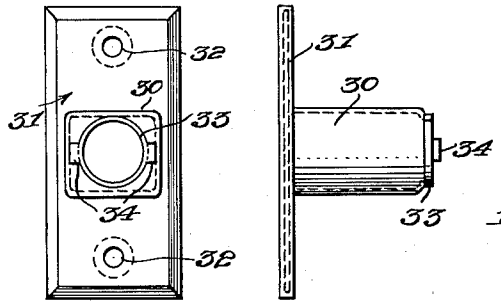


Fig. 8.

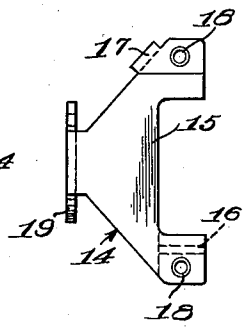


Fig. 9. Fig. 10.

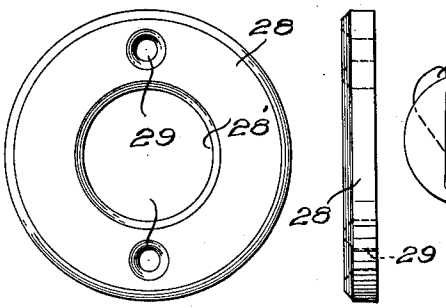


Fig. 11.

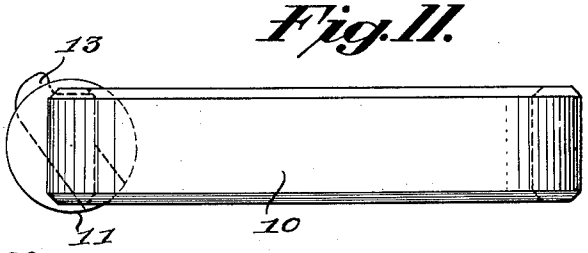


Fig. 13. Fig. 12.

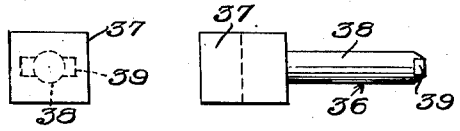


Fig. 15.

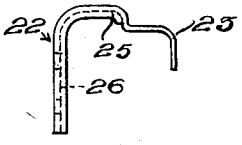


Fig. 14.

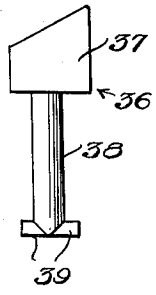


Fig. 16.

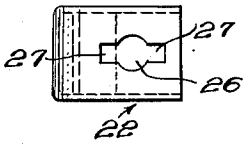
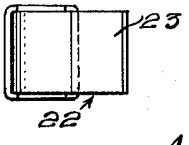


Fig. 17.



INVENTOR

Arvo Vahtra

BY Robert K. Kennedy

ATTORNEY

United States Patent Office 2,835,525 Patented May 20, 1958

2,835,525

DOOR LATCH AND HANDLE MECHANISM

Arvo Vahtra, Toronto, Ontario, Canada

Application February 14, 1956, Serial No. 565,501

4 Claims. (Cl. 292—169)

This invention relates to door latch and handle mechanism.

The invention is more particularly concerned with door latch mechanism of the kind generally recognized as a spring projected bolt whose free end engages a recess in a door jamb together with means operable by a knob on each side of the door for retracting the spring projected bolt.

While the present invention is for the same purpose as present door latches above briefly referred to, it has as a primary object a single hand engageable latch retracting member accessible from either side of a door, whereby the present objection to loose door knobs is wholly overcome.

A further object of the invention is to provide door latch mechanism, which embodies relatively few simple and durable cooperating elements, which are easy to assemble, and when assembled are not liable to get out of working order.

A still further object of the invention is to provide a door latch mechanism including a pair of rigidly connected latch actuating handles, one for disposition on one side of the door and the other for disposition on the opposite side of the door, and wherein said handles are highly attractive in appearance.

A still further object of the invention is to provide a door latch mechanism including a one-piece U-shaped latch actuating handle structure and wherein said handle structure is highly attractive in appearance.

Other objects and advantages of the invention will become apparent in the course of the following detailed description taken in connection with the accompanying drawings, wherein—

Fig. 1 is a top plan view of the improved latch mechanism with portions of a door and door jamb indicated in dot-and-dash lines in which the latch mechanism is mounted.

Fig. 2 is an elevational door of a bolt keeper plate shown mounted in a door jamb or door post indicated fragmentally in dot-and-dash lines.

Fig. 3 is a fragmental elevational view as observed toward the free edge of a door and showing in particular the bolt guiding plate.

Fig. 4 is a central longitudinal vertical sectional view of the latch mechanism shown in Fig. 1.

Fig. 5 is a rear elevational view of a bolt and spring receiving casing.

Fig. 6 is a side elevational view of the casing shown in Fig. 5.

Fig. 7 is a front elevational view of a retaining member.

Fig. 8 is a side elevational view of the retaining member.

Fig. 9 is an elevational view of a door side plate.

Fig. 10 is an edge view of the plate shown in Fig. 9.

Fig. 11 is a side elevational view of the combined unitary handle and cam member.

Fig. 12 is a side view of the bolt.

Fig. 13 is an end view of the bolt as observed from the left of Fig. 12.

Fig. 14 is a side view of the bolt as observed from the bottom of Fig. 12.

Fig. 15 is a side elevational view of a cam actuated bolt retracting member.

Fig. 16 is a view as observed from the left of Fig. 15.

Fig. 17 is a bottom plan view of the member shown in Fig. 15.

Referring now in detail to the drawings, the latch assembly is pre-assembled in two separate sub-assemblies, which may be identified as "handle assembly" and "latch assembly."

At the outset it is to be observed that the door D is provided with a lateral trough opening O for reception of the handle assembly and an intersecting opening *o* for the latch assembly, the latter opening extending through the free edge of the door.

The handle assembly comprises a one-piece handle structure **10** including a pair of cylindrical journals **11** and a member **12**, having a cam **13**. The handle assembly further comprises a retaining member **14** which includes opposite side plates **15** whose lower ends are interconnected by a brace bar **16** and whose upper ends are interconnected by a brace bar **17**. The said ends are provided with tapped apertures **18** for a purpose later referred to and the side plates **15** intermediate the ends thereof are interconnected by a disk **19** having a central opening **20** which is provided with diametrically opposed rectangular recesses **21**.

The handle assembly further includes a latch retracting member **22** which includes an angular portion **23** which is retained in contact with member **12** by means of one end of a leaf spring **24** whose opposite end is secured to said brace bar **16**.

The member **22** further includes a cam engageable portion **25** and a vertical leg of said member **22** is provided with an aperture **26** having a pair of diametrically opposed recesses **27**.

The pre-assembled handle structure as above described may be positioned in the door opening O prior to assembly of the latch structure since upon introducing the mechanism intermediate the handles **10** into the opening O, the door side plates **28** may be position over the ends of opening O as indicated by dotted line in Fig. 4 and upon the introduction of screws into openings **29** in plates **28**, same will enter the tapped apertures **18** in the retaining member **14** and thereby hold the parts in position. It is to be noted that plates **28** are provided with openings **28'** for journals **11**.

The latch structure includes a casing **30** having a rectangular end plate **31** which is provided with apertures **32** for receiving bolts to secure the plate to the free edge of the door.

The inner end of casing **30** is provided with a circular portion **33** which is provided with diametrically opposed tongues **34** which enter the recesses **21** in disk **19** upon initial position of the casing in 90° relationship to its final position wherein the said tongues engage behind the disk and lock in casing in position prior to securing the plate **31** to the door.

The plate **31** is provided with a central opening **35** corresponding to the interior of casing **30** whereupon the bolt **36** may be pushed back into the casing.

The bolt includes a beveled rectangular outer end portion **37** and a cylindrical shank **38** having diametrically opposed tongues **39** on its free end.

Upon insertion of the bolt into the casing a coil spring **40** is positioned over the shank **38** and the bolt together with the spring urged rearwardly into the casing with the tongues **39** aligned with the recesses **27** in member **22** after which the bolt is rotated together with casing **30**

for interlocking of the tongues with said member 22 which limits outward movement of the bolt under the action of spring 40.

A keeper plate 41 is secured to the door jamb J and same is provided with a bolt receiving opening 42.

From the above description it should be appreciated that by the present invention a door latch mechanism is provided which is relatively simple in construction, artistic in appearance and which is durable and dependable in use.

Having set forth my invention in accordance with a preferred structural embodiment thereof, what I claim and desire to secure by U. S. Letters Patent is:

1. Door latch and handle mechanism comprising a pair of handles positionable at opposite sides of a door, means rigidly connecting said handles and being disposable in a lateral opening in the door and including a cam, means mounting the handles and said connecting means for simultaneous rotation, a casing positionable in an opening through the free edge of the door and in communication with said first opening, a bolt slidably disposed in said casing, means disposable in said first opening having a releasable connection with said bolt and an operative engagement with said cam, whereby said latch is retracted upon rotation of said handles, a casing retaining member positionable in said first opening and having screw receiving apertures therein, said means rigidly connecting said handles comprising a pair

of journals, a pair of side plates securable to the door in covering relation to said first opening and having central openings receiving said journals and said side plates having screw receiving openings aligned with said opening in said retaining member.

2. The structure according to claim 1 together with a leaf spring secured to said retaining member and being yieldably engaged with said cam engaging means.

3. The structure according to claim 1 wherein said retaining member and said casing are provided with releasable connecting means and wherein said cam engaging means and said bolt are provided with releasable connecting means.

4. The structure according to claim 3 together with a coil spring in said casing in surrounding relation to said bolt for normally projecting same outwardly of said casing.

References Cited in the file of this patent

UNITED STATES PATENTS

1,759,375	Schlage	May 20, 1930
2,231,443	Gerard et al.	Feb. 11, 1941
2,447,290	Truninger	Aug. 17, 1948
2,510,746	Kleeberg	June 6, 1950
2,547,256	Cerf	Apr. 3, 1951
2,668,072	Falk	Feb. 2, 1954
2,729,485	Schlage	Jan. 3, 1956