Feb. 5, 1929. 1,700,747

G. E. ROEDDING ET AL

DOOR LATCH

Filed July 14, 1926 2 Sheets-Sheet 1

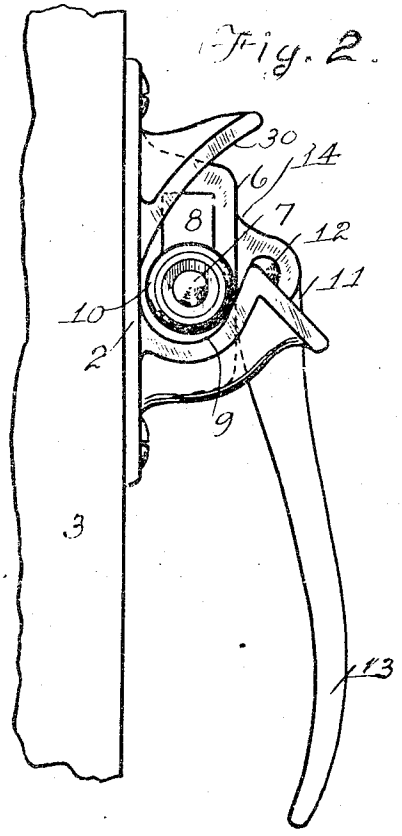


Fig. 2.

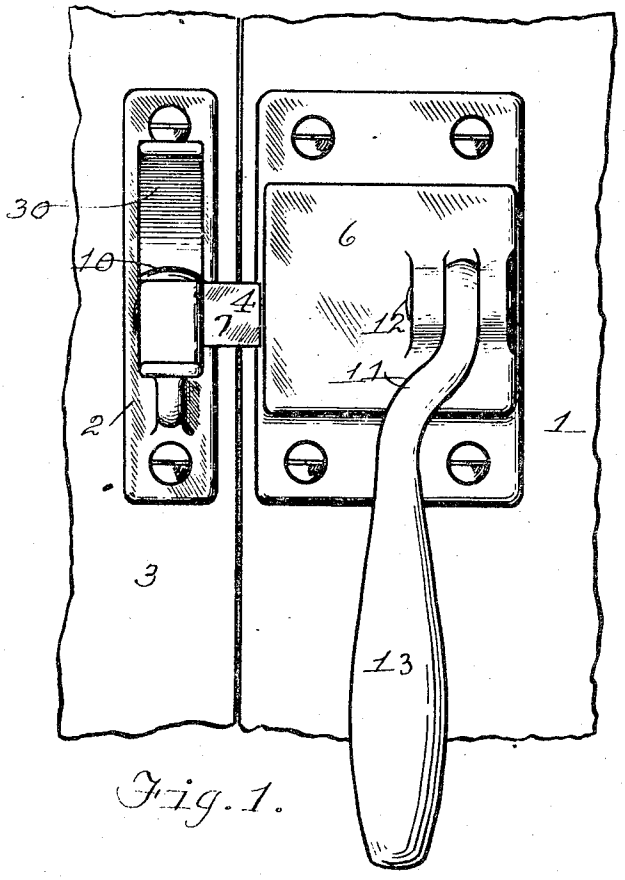


Fig. 1.

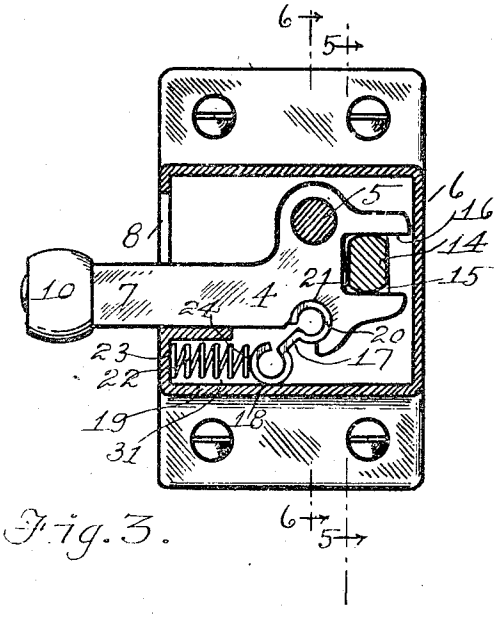


Fig. 3.

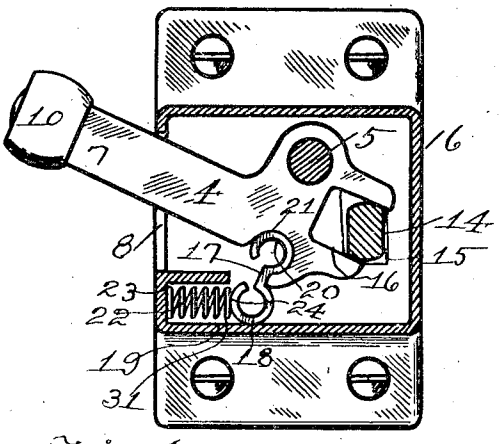


Fig. 4.

INVENTORS:
Gordon E. Roedding
Elmer C. Osbeck
BY
Cyrus W. Rice
ATTORNEYS.

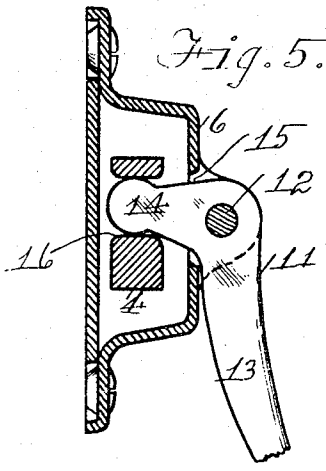
Feb. 5, 1929. 1,700,747

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DOOR LATCH

Filed July 14, 1926 2 Sheets-Sheet 2

Fig. 5.



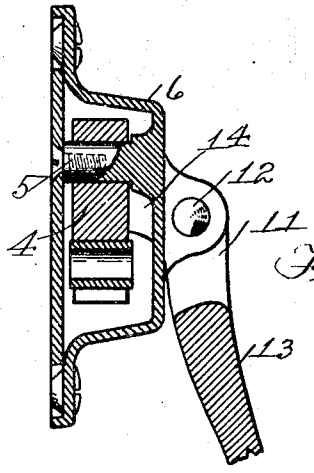
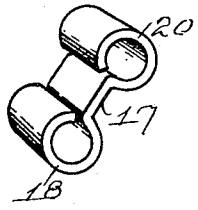


Fig. 6.

Fig. 8.



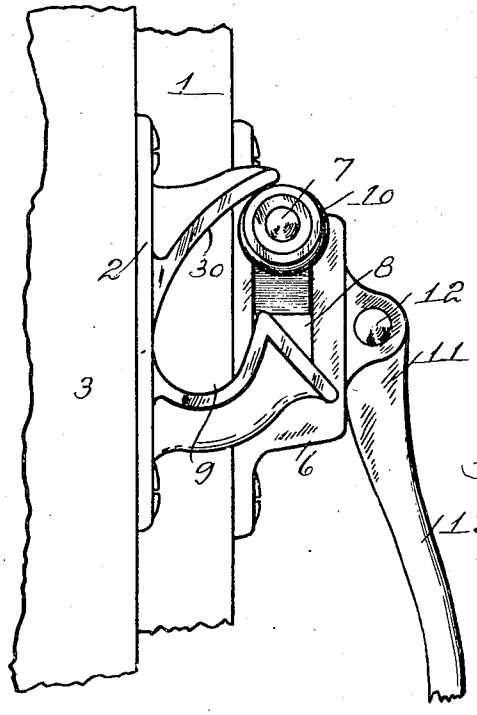


Fig. 7.

INVENTORS:
Gordon E. Roedding
Elmer C. Osbeck
BY
Cyrus W. Rice
ATTORNEYS.

Patented Feb. 5, 1929. 1,700,747

UNITED STATES PATENT OFFICE.

GORDON E. ROEDDING AND ELMER C. OSBECK, OF GRAND RAPIDS, MICHIGAN, ASSIGNORS TO GRAND RAPIDS BRASS COMPANY, OF GRAND RAPIDS, MICHIGAN, A CORPORATION OF MICHIGAN.

DOOR LATCH.

Application filed July 14, 1926. Serial No. 122,284.

The present invention relates to door latches; and its object is to provide a door latch having improved means for yieldingly holding the latching bolt in certain positions, and, in certain movements of the bolt, urging the same into one of its positions.

This and any other objects hereinafter appearing are attained by, and the invention finds preferable embodiment in, the structure hereinafter particularly described in the body of this specification and illustrated by the accompanying drawings, in which:—

Figure 1 is a front view of a latch and its keeper element;

Figure 2 is a left hand side view thereof;

Figure 3 is an inner side view of the latch, showing the bolt in latching position;

Figure 4 is a like view of the same, but showing the bolt in retracted position;

Figure 5 is a transverse sectional view of the latch taken on line 5—5 of Figure 3;

Figure 6 is a transverse sectional view of the latch taken on line 6—6 of Figure 3;

Figure 7 is a left hand side view of the latch and its keeper element, showing the door member on which the latch is mounted approaching closed position; and

Figure 8 is a view in perspective of a toggle arm.

In the embodiment of the invention illustrated by the accompanying drawings, a latch is shown mounted on the closure member 1 of a door, its keeper element 2 being mounted on the jamb or frame member 3 of the door. This latch comprises a latching bolt 4 swingably mounted on a pivot post 5 and enclosed in a casing 6, a portion 7 of the bolt extending through a slot 8 in the casing and being adapted to latchingly engage in the keeper or recess 9 in the element 2 to hold the closure member 1 shut, said portion 7 being desirably provided with an antifriction roll 10. This latching bolt may be swung by any suitable means; preferably however, a lever 11 of common form fulcrumed at 12 on the casing and having a handle arm 13 and a short arm 14 extending through an opening 15 into the casing is provided, said short arm engaging in a notch 16 in the latching bolt to swing the bolt in either direction. A toggle arm 17 bears at one end 18 slidably on a way 19 in the casing, the other end 20 of said arm bearing at 21 turnably on the bolt. A spring 22 presses at 23 on the inner side of the casing and at 24 on the end 18 of the toggle arm, in such manner as to yieldingly hold the bolt in either its keeper-engaging position or its retracted position, and to urge the bolt to one position or the other as the case may be, whenever in the bolt's swinging movement its bearing 21 in which the end 20 of the toggle arm turns, passes across a direct line extending between the spring-pressed end 18 of the toggle arm and the pivot post 5.

It will be seen that by reason of this toggle action, the bolt is strongly, though yieldingly, held in either of its said positions, the parts however being desirably so disposed and proportioned, as shown, that the bolt is more strongly held in keeper-engaging position than in retracted position.

The toggle arm is desirably formed of a strip of metal bent as shown to form its rounded ends 18 and 20.

When the closure member 1 is moved to nearly closed position, the roll 10 strikes the inclined portion 30 of the element 2 and is thereby moved downwardly into latching engagement with the keeper or recess 9. The spring is held against lateral movement by being seated in a socket 31 in the casing.

The invention being intended to be pointed out in the claims, is not to be limited to or by details of construction of the particular embodiment thereof illustrated by the drawings or hereinbefore described.

What is claimed is:

1. In combination with a keeper, a latch comprising: a bolt swingably mounted on a door member and movable to latching position in the keeper and to retracted position; a toggle arm bearing at one end on said member slidably in a direction transverse to said arm's longitudinal direction and turnably bearing at its other end on the bolt; a spring pressing the first-mentioned end of said arm to yieldingly hold the bolt in one of its said positions, and to urge the bolt at a point in its movement to the other of its said positions.

2. In combination with a keeper, a latch comprising: a bolt swingably mounted on a door member and movable to latching position in the keeper and to retracted position; a toggle arm bearing at one end on said member turnably and slidably in a direction transverse to said arm's longitudinal direction and turnably bearing at its other end on the bolt; a spring pressing the first-mentioned end of said arm to yieldingly hold the bolt

in one of its said positions, and to urge the bolt at a point in its movement to the other of its said positions.

3. In combination with a keeper, a latch comprising: a bolt swingably mounted on a door member and movable to latching position in the keeper and to retracted position; a toggle arm slidably bearing at one end on said member and having a limited turning movement at its other end on the bolt; a spring pressing the first-mentioned end of said arm to yieldingly hold the bolt in one of its said positions and to urge the bolt at a point in its movement to the other of its said positions.

In testimony whereof we have hereunto set our hands at Grand Rapids, Michigan, this 30th day of June, 1926.

GORDON E. ROEDDING.
ELMER C. OSBECK.