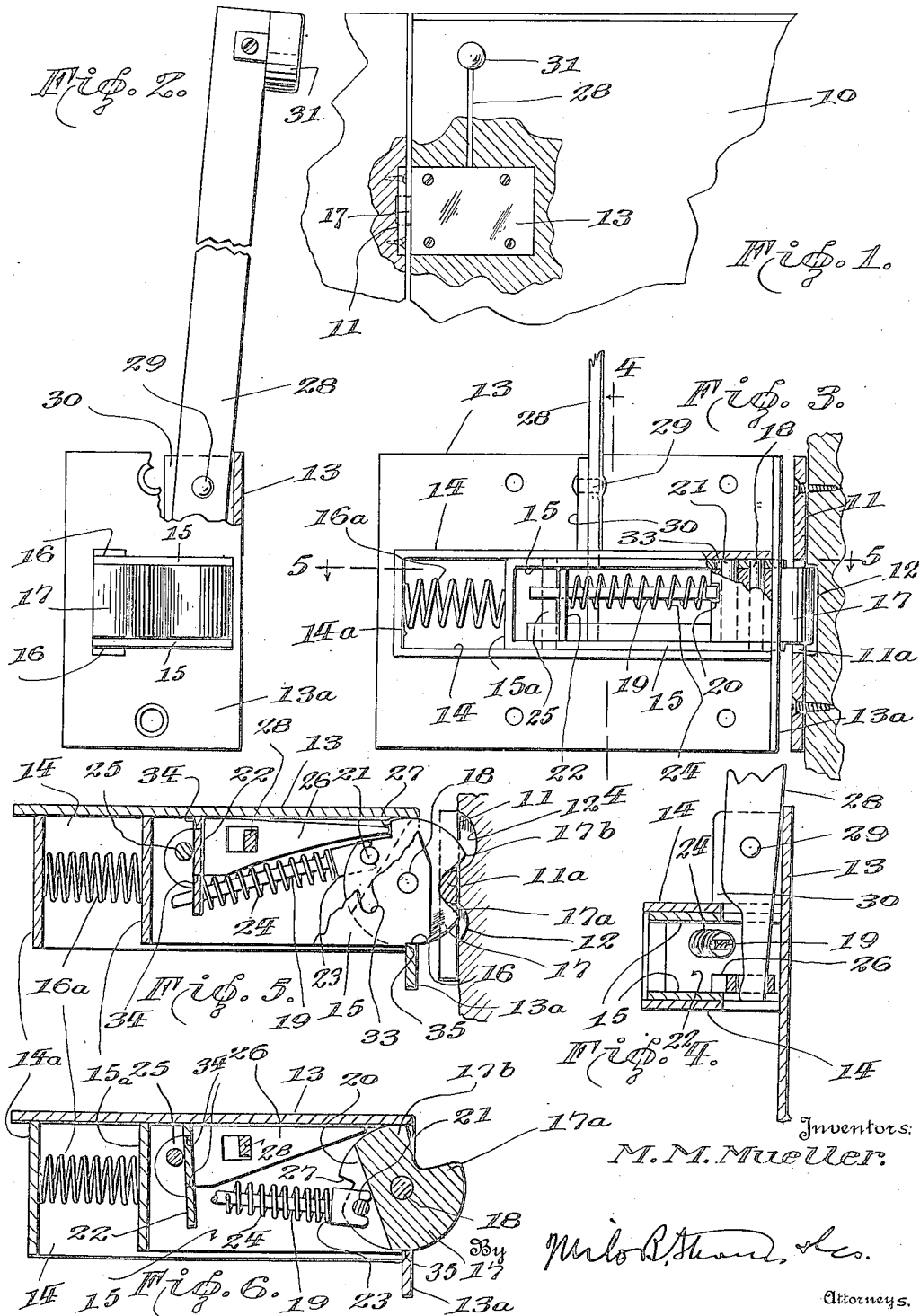


M. M. MUELLER.
 AUTOMOBILE DOOR LATCH.
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UNITED STATES PATENT OFFICE.

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AUTOMOBILE DOOR LATCH.

Application filed March 31, 1921. Serial No. 457,172.

To all whom it may concern:

Be it known that I, MAX M. MUELLER, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented new and useful Improvements in Automobile Door Latches, of which the following is a specification.

The latch which is the subject matter of the present application for patent has been designed more particularly for application to automobile or other motor vehicle doors, and the invention has for its object to provide a latch which will securely hold the door closed, and which effectually prevents rattling of the door, it being so constructed that wear is automatically taken up.

The object stated is attained by means of a novel combination and arrangement of parts to be hereinafter described and claimed, and in order that the same may be better understood, reference is had to the accompanying drawing forming a part of this specification.

In the drawing,

Figure 1 is an elevation showing the application of the invention;

Fig. 2 is a front elevation of the latch, partly in section;

Fig. 3 is a side elevation partly in section;

Fig. 4 is a cross-section on the line 4—4 of Fig. 3;

Fig. 5 is a longitudinal section on the line 5—5 of Fig. 3, and

Fig. 6 is a view similar to Fig. 5 showing the parts in another position.

Referring specifically to the drawing, 10 denotes a fragment of one of the doors of an automobile or other vehicle, and at 11 is shown a strike plate fitted to the edge of the door opening. This plate has its opposite side edges notched to define a vertical cross bar 11^a, and on opposite sides of the latter, to register with the notches, the part to which the strike plate is attached, has recesses 12.

In the door 10 is embedded a latch casing or housing comprising a side plate 13 which is set flush with the inner face of the door, and has a lateral flange 13^a at one end which is set flush with the edge of the door. Suitable fasteners passing through the plate and its flange secure the same to the door, and back of the plate, the door is recessed to accommodate the parts carried by the plate.

On the rear face of the casing plate 13 are mounted two vertically spaced and parallel plates 14 which extend out horizontally from the casing plate, and are connected at their rear ends by a cross bar 14^a, whereas at their forward ends they abut against the rear face of the flange 13^a.

The plates 14 form a guide way for a slidable latch carrier consisting of two vertically spaced and parallel plates 15 connected at their rear ends by a cross bar 15^a, whereas at their forward ends they extend to the flange 13^a to seat in an aperture 16 in said flange. Between the cross bars 14^a and 15^a is positioned a coiled spring 16^a which tends to constantly urge the latch carrier forwardly.

The latch proper is a rotatable head 17 having a sector-shaped notch to define two separate and rigid keeper engaging parts 17^a and 17^b. The latch member is so positioned that its keeper engaging parts may protrude from the aperture 16, and it seats between the latch carrier plates 15 and is pivoted on a vertical pin 18 carried by said plates.

To the rear portion of the latch member 17 is loosely connected a rod 19, said portion of the latch member having a groove 20 in which the end of the rod seats, the connection between the rod and the latch member being made by a pin 21. The rod 19 extends rearwardly from the latch member and passes slidably through an aperture in an abutment plate 22 seating between the plates 15. Around the rod 19, between the plate 22 and an abutment 23 on the rod is coiled a spring 24.

To a cross pin 25 carried by the plates 15 is pivoted a detent 26 which passes through an aperture in the plate 22 and extends forwardly to engage a notch 27 in the rear portion of the latch head 17 to prevent rotation of the latter when in door-locking position. The detent is disengageable to allow the latch head to rotate, the release being effected by a lever 28 fulcrumed at 29 to a bracket arm 30 carried by the plate 13, said lever being vertically positioned and passing through slots in the plates 14 and 15 for connection at its lower end to the detent 26, the latter having a vertical opening through which the lever loosely extends. The detent releasing lever is housed in the door and its upper end has a finger button 31 which is exposed and projects from the inner face of

the door, so that when said button is pushed in, the lever swings to disengage the detent 26 and release the latch head 17.

When the door 10 is open, the keeper-engaging portion 17^a of the bolt head 17 is protruding from the edge of the door, and upon swinging the door closed, the part 17^a, when it reaches the cross bar 11^a and strikes the same, causes the latch head to rotate or swing in a direction to draw back the part 17^a and to advance the part 17^b, so that the cross bar now becomes seated between said parts 17^a and 17^b. The door is now locked, and the latch head is held in locking position by the detent 26 which has entered the notch 27. To unlock the door so that it may be swung open, the finger button 31 is pressed in to operate the lever 28, whereby the detent 26 is withdrawn from the notch 27. The latch head is now unlocked, and upon pushing on the door in a direction to swing it open, the latch head automatically swings to release position by the pressure of the cross bar 11^a against the part 17^b, this resulting in a rotary movement of the latch head in a direction to retract the part 17^b and to advance the part 17^a, so that the said parts clear the cross bar. The part 17^a is now again in position to strike the cross bar 11^a when the door is closed, and thus actuate the latch as before to lock the door. The latch head rotates in one direction when it goes to locking position, and in the opposite direction when going to release position, and its movement in either direction is opposed by the spring 24, so that the latch head swings with a snap. The entire latch assembly is also constantly being urged forwardly by the spring 16^a, whereby all looseness due to wear or other causes is automatically taken up, and rattling of the door is thus effectually prevented.

The pin 21 projects from one side of the latch head 17 and works in an arcuate slot 33 in one of the plates 15 to limit the swing of the latch head in either direction. The plate 22 seats loosely between the plates 15, and the detent 26 has shoulders 34 which abut against opposite sides of the plate 22. It will therefore be seen that the plate 22 partakes of the slight movement of the detent 26 to and from latch-holding position, and this movement is resisted by the spring 24. The forward movement of the slidable latch carrier composed of the parts 15 and 15^a, is limited by shoulders 35 on one of the edges of the former, which shoulders abut against the flange 13^a.

It will be seen from the foregoing that the operation of the latch device is very simple. To permit opening of the door, it is necessary only to press on the push button 31, whereupon the latch head 17 is unlocked, and it is automatically disengaged from its keeper by pushing the door open.

I claim:

1. A latch comprising a keeper, a rotatable latch mechanism head having a pair of separate keeper engaging parts, and operable by the keeper for rotating the latch head, one of said parts rotating the latch head in one direction and the other part rotating the latch head in the opposite direction, and said parts seating on opposite sides of the keeper when the latch head is in locking position, means for locking the latch head in locking position, means for placing said locking means in release position, a slidable spring-backed carrier for the latch head, and a support for said carrier.

2. A latch comprising a keeper, a rotatable latch mechanism head having a pair of separate keeper engaging parts between which the keeper seats when said head is in locking position, means for locking the latch head in locking position, means for placing said locking means in release position, a slidable spring-backed carrier for the latch head, and a support for said carrier.

3. A latch comprising a keeper, a rotatable latch mechanism head having a pair of separate keeper engaging parts, and operable by the keeper for rotating the latch head, one of said parts rotating the latch head in one direction and the other part rotating the latch head in opposite direction, and said parts seating on opposite sides of the keeper when the latch head is in locking position, a slidable spring-backed carrier for the latch head, a support for said carrier, a cross pin carried by the carrier, a detent pivotally supported by the cross pin and engageable with the latch-head for holding the same in locking position, a plate loosely supported by the carrier in front of the cross pin, said plate having an aperture through which the detent passes, and said detent having shoulders abutting against the plate, a pin loosely connected at one end to the latch head and supported at its other end by the aforesaid plate, a spring on the pin between the latch-head and the plate, and means for disengaging the detent from the latch head.

4. A latch comprising a keeper, a rotatable latch mechanism head having a pair of separate keeper engaging parts, and operable by the keeper for rotating the latch head, one of said parts rotating the latch head in one direction and the other part rotating the latch head in the opposite direction, and said parts seating on opposite sides of the keeper when the latch head is in locking position, a support for the latch head, a cross pin carried by the support, a detent pivotally supported by the cross pin and engageable with the latch-head for holding the same in locking position, a

plate loosely supported by the carrier in front of the cross pin, said plate having an aperture through which the detent passes, and said detent having shoulders abutting against the plate, a pin loosely connected at one end to the latch head and supported at its other end by the aforesaid plate, a spring on the pin between the latch head and the plate, and means for disengaging the detent from the latch head.

5. A latch mechanism comprising a

keeper, a rotatable latch head having keeper engaging parts, a slidable carrier for said head, a support for the carrier, a spring constantly urging the carrier in the direction of the keeper, means for locking the latch head in locking position, and means for placing said locking means in release position.

In testimony whereof I affix my signature.

MAX M. MUELLER.