Dec. 3, 1963 J. H. WERNIG ETAL 3,112,946

TOGGLE BOLT DOOR LATCH

Filed April 7, 1961 5 Sheets-Sheet 1

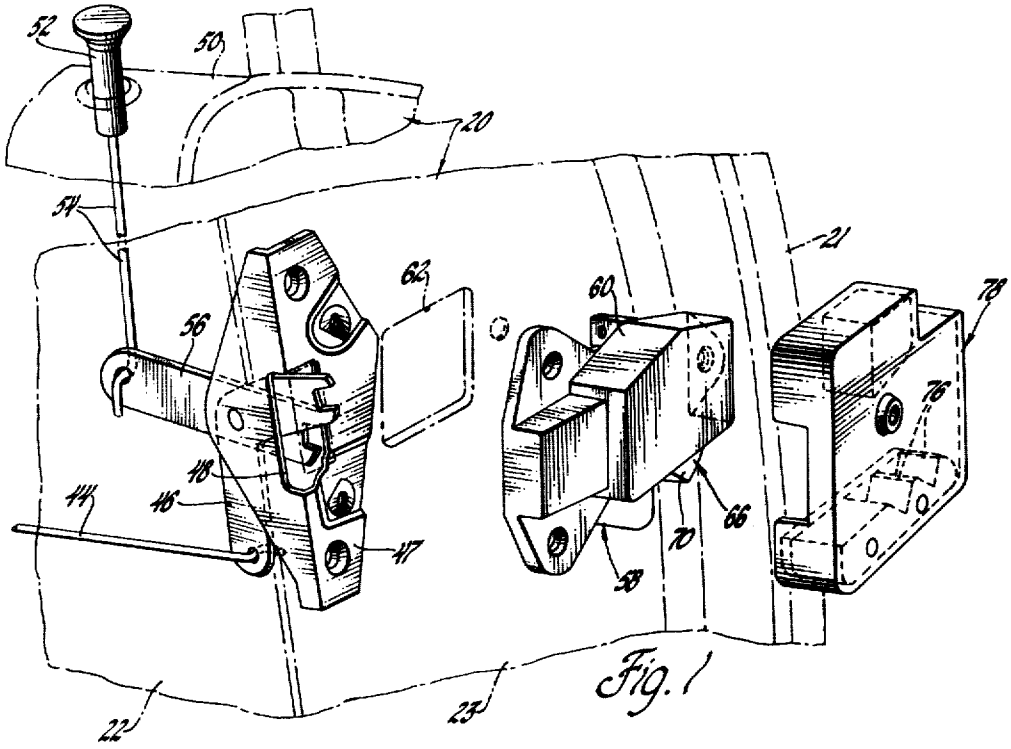


Fig. 1

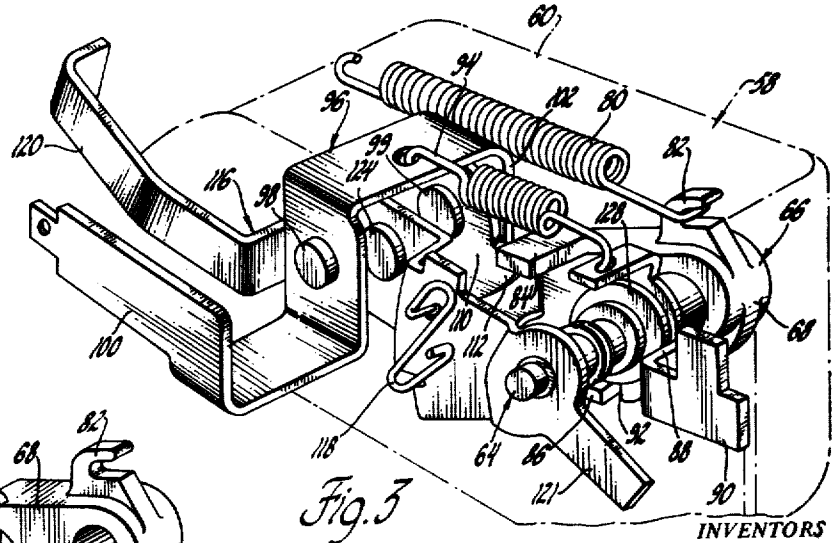


Fig. 3

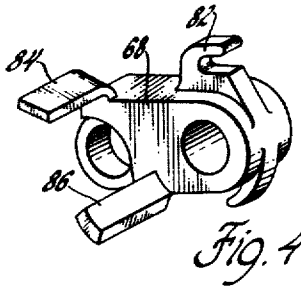


Fig. 4

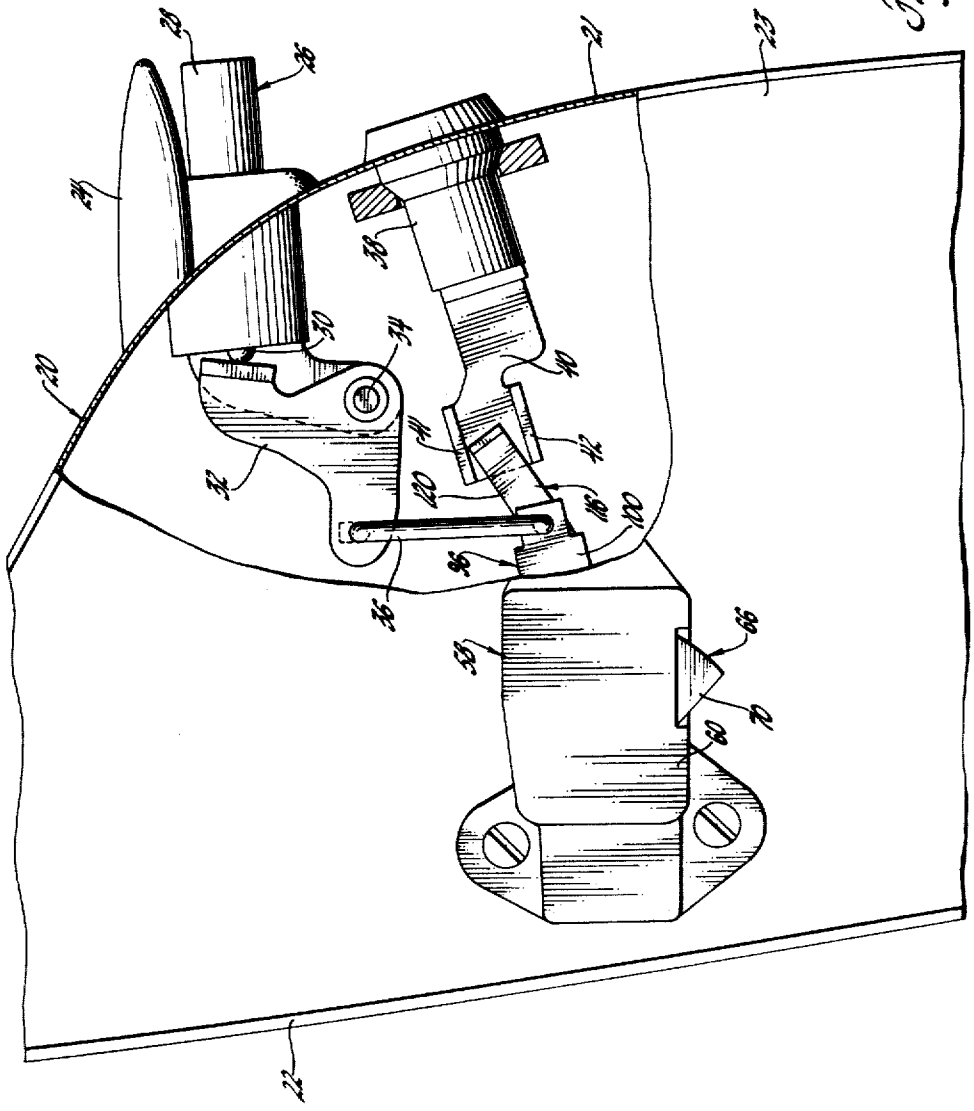
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Fig. 2



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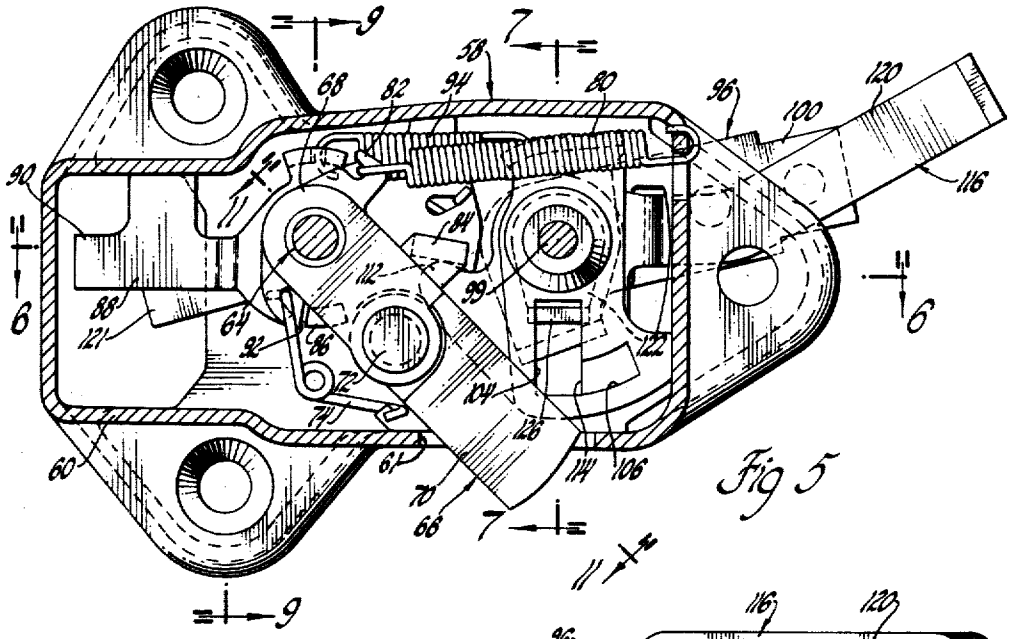


Fig 5

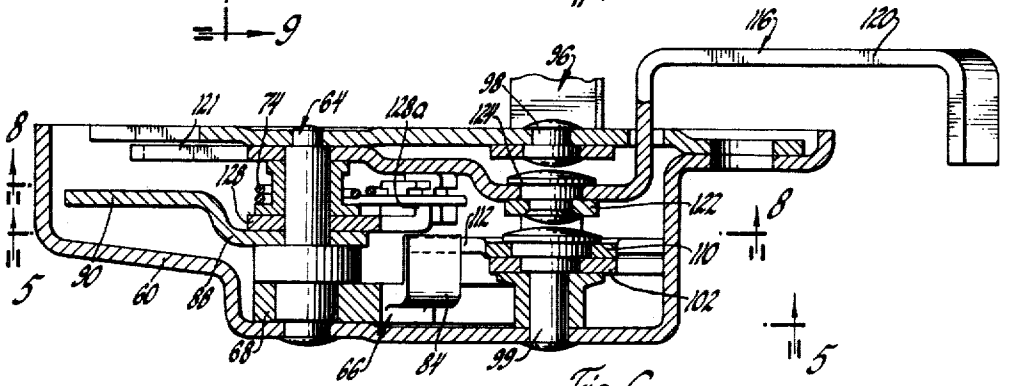


Fig. 6

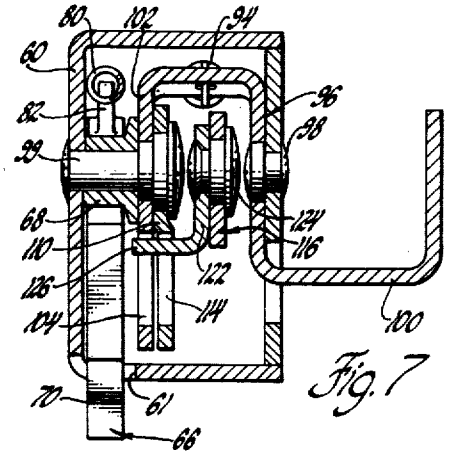


Fig. 7

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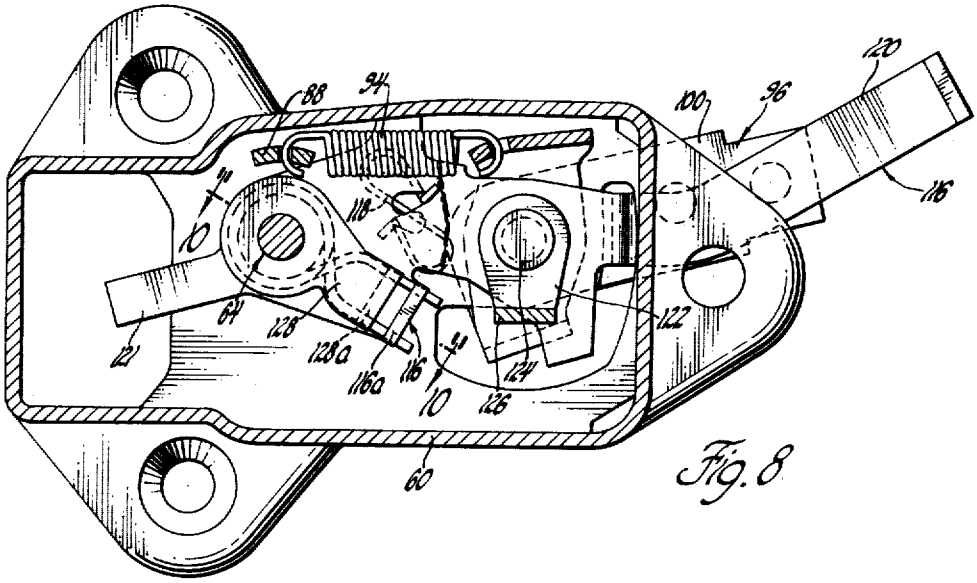


Fig. 8

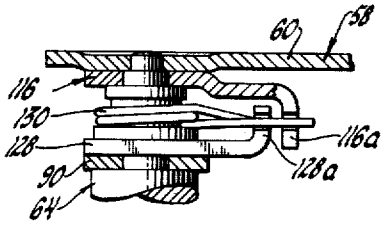


Fig. 10

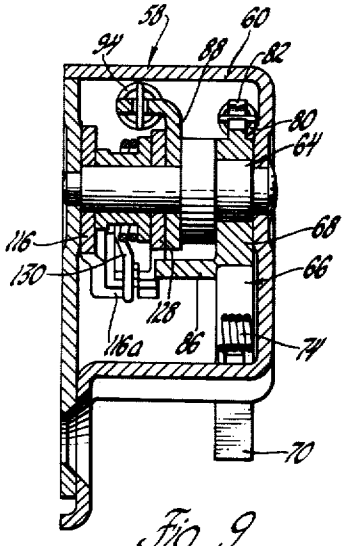


Fig. 9

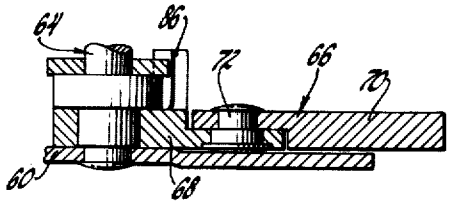


Fig. 11

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TOGGLE BOLT DOOR LATCH

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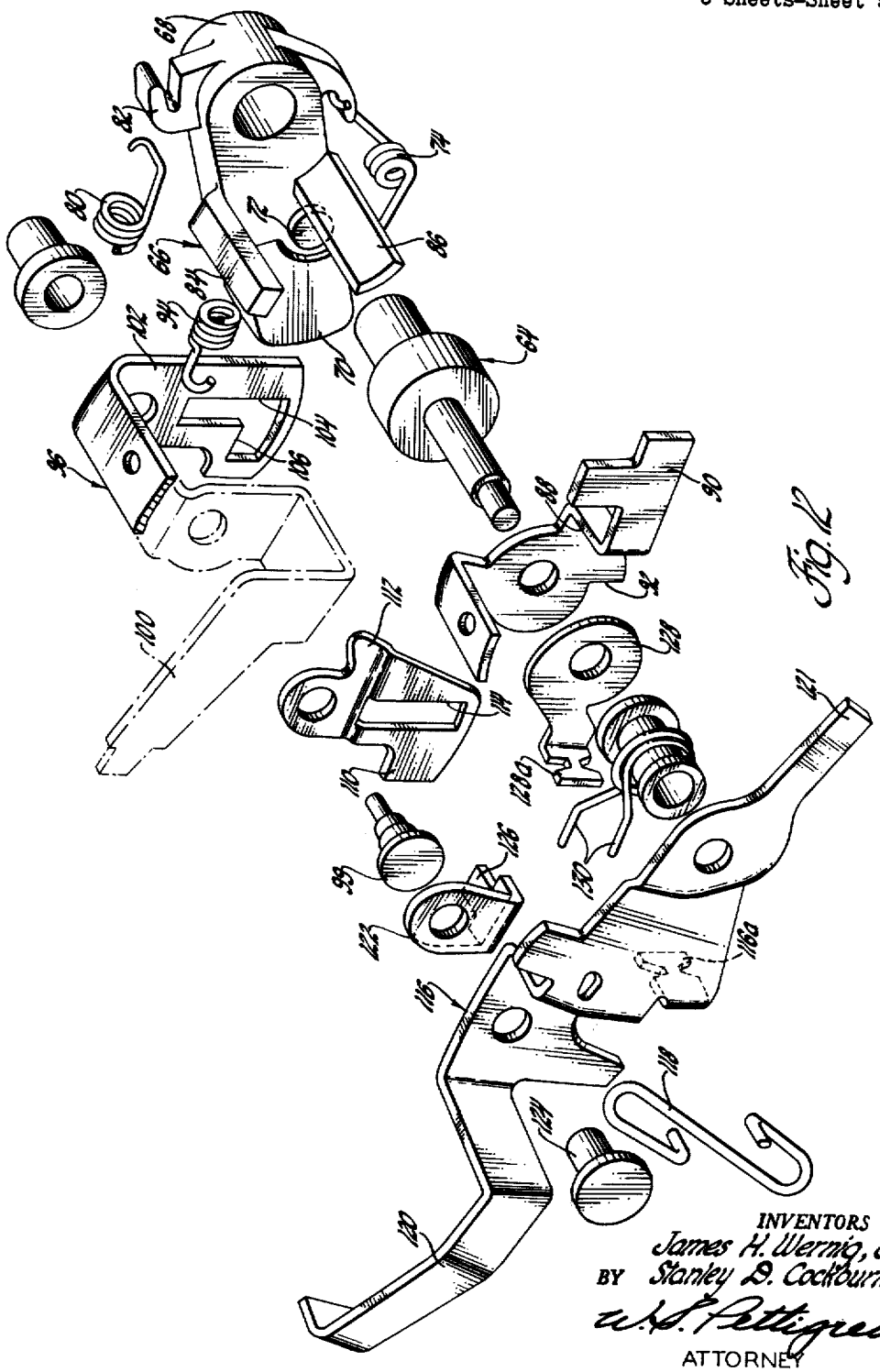


Fig. 12

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3,112,946

TOGGLE BOLT DOOR LATCH

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Filed Apr. 7, 1961, Ser. No. 101,430
11 Claims. (Cl. 292—223)

This invention relates to a vehicle door latch, and more particularly to a vehicle door latch embodying a toggle bolt.

One feature of the invention is that it provides an improved vehicle door latch. Another feature of the invention is that it provides a vehicle door latch in which all of the latch parts are mounted in a casing which is secured to the outer surface of the jamb face of the door, certain control apparatus for the latching being mounted on the inner surface of the jamb face of the door. A further feature of the invention is that it provides a vehicle door latch having improved locking means. Still another feature of the invention is that the locking means of the door latch includes a trip lever and a free wheeling link mounted on the trip lever, said free wheeling link coupling the latch intermittent link to the latch operating lever when the trip lever is in unlocked position, and uncoupling the intermittent link from the operating lever when the trip lever is in locked position. Another feature of the invention is that it provides a door latch having operating means including a pivotally mounted operating lever and an intermittent link which is pivoted coaxially with and adjacent a surface of said operating lever, the intermittent link having a slot extending radially of its pivotal axis and the operating lever having a slot with a radial stem portion lying in registry with the slot in the intermittent link, and an arm portion extending substantially at a right angle from said stem portion, the locking apparatus including a member having a lug extending through both slots, said lug being out of registry with the arm portion of the slot in the operating lever when the trip lever is in unlocked position, and being in registry with said arm portion when the trip lever is in locked position. A still further feature of the invention is that it includes improved undogging and keyless locking apparatus comprising an undogging lever pivoted coaxially with the locking trip lever and connected thereto by a spring, so that the two levers normally pivot together, and means for blocking the locking trip lever against movement to unlocked position to accomplish keyless locking of the latch.

Other features and advantages of the invention will be apparent from the following description, having reference to the drawings in which:

FIGURE 1 is a fragmentary isometric exploded view showing the improved latch, the body mounted striker with which the latch cooperates, and the inside control apparatus for the latch, the striker and the vehicle door upon which the latch and door control apparatus are mounted being shown in broken lines;

FIGURE 2 is a transverse vertical section through a vehicle door having the improved latch mounted thereon, and showing the outside control apparatus;

FIGURE 3 is an enlarged isometric view of the latch, the latch casing being shown in broken lines;

FIGURE 4 is an isometric view of one of the links of the toggle bolt;

FIGURE 5 is a vertical section taken through the latch along the line 5—5 of FIGURE 6;

FIGURE 6 is a horizontal section through the latch taken along the line 6—6 of FIGURE 5;

FIGURE 7 is a transverse section taken along the line 7—7 of FIGURE 5;

FIGURE 8 is a vertical section taken along the line 8—8 of FIGURE 6;

FIGURE 9 is a transverse section taken along the line 9—9 of FIGURE 5;

FIGURE 10 is a detail section taken along the line 10—10 of FIGURE 8;

FIGURE 11 is a detail section taken along the line 11—11 of FIGURE 5; and

FIGURE 12 is an isometric exploded view of the latch parts removed from the latch casing.

Referring now more particularly to the drawings, an automobile door designated generally as **20** is provided with an outer panel **21**, an inner panel **22**, and a jamb wall **23** connecting the inner and outer panels at the free side of the door. The door **20** is hingedly mounted on an automobile body in conventional manner, as is well understood in the art. The door has a stationary gripping handle **24** fixedly mounted on its outer panel **21** and provided with a conventional push button unlatching assembly **26**. This assembly includes the push button itself which is identified by the reference character **28**, a push rod **30** which is axially movable upon depression of the button **28**, a bellcrank **32** which is pivotally mounted at **34** inside the door, and a connecting rod **36**. As shown in FIGURE 2, the push rod **30** swings the bellcrank **32** upon depression of the push button **28** so that the connecting rod **36** which extends between the bellcrank **32** and the latch moves downwardly.

A conventional key cylinder **38** is mounted in the door outer panel **21** below the location of the push button **28**. A conventional type of key-operated tumbler locking mechanism (not shown) is contained inside the key cylinder, and a key operator **40** projects from the key operated mechanism and terminates in spaced parallel flanges **41** and **42** which receive between them the locking trip lever of the door latch.

The door inner panel mounts a conventional type of remote turn handle, which is not shown in the drawings but which is similar to the handle shown in Cockburn et al. U.S. Patent 2,871,049, and a connecting rod **44** extends from this handle to one arm of a control bellcrank **46** which is pivotally mounted on a frame bracket **47** that is bolted to the jamb wall of the door. The free bifurcated end of this bellcrank projects out through the opening **48** in the jamb wall **23** of the door. At the belt line of the door there is a conventional garnish molding **50**, having an opening therein, through which extends a conventional garnish molding locking button **52**, which is connected by a locking rod **54** to a lever **56** pivoted on the frame bracket **47**. The free bifurcated end of the lever **56** projects out through the door jamb opening **48**.

The latch, which is designated generally as **58** in FIGURES 1 and 2, is housed in a casing **60** which is bolted onto the outer surface of the jamb wall **23** of the door, the wall **23** being provided with an opening **62** into which the outside control parts of the latch project.

FIGURES 3–11 show the detailed construction of the latch. A mounting shaft designated generally as **64** is mounted between the front and rear faces of the latch casing **60** and provides a mounting for most of the parts of the latch. The bolt, which is designated generally as **66**, comprises two toggle links **68** and **70** which are pivoted together by means of a stud **72** so arranged that the links may move relative to each other between a straight line position as shown in FIGURE 5 and a tripped or broken position in which the knee of the toggle bolt has moved upwardly from the position of FIGURE 5. A bolt toggle spring **74** is connected between the bolt links **68** and **70**, and yieldably urges the links toward the straight line latheing position shown in FIGURE 5, wherein the free end of the link **70** projects down through an opening **61** in the latch casing **60** in position to engage

the teeth **76** of the striker **78** which is mounted in conventional manner on the vehicle body. The bolt link **68** is pivotally mounted on the main mounting shaft **64** so that the bolt is movable as a unit between the latching position shown in FIGURE 5 and an out-of-the-way position wherein both bolt links swing together in a counterclockwise direction from the position shown in FIGURE 5 to an out-of-the-way position wherein the nose of the bolt link **70** no longer projects into latching engagement with the teeth of the striker **78**.

By virtue of this arrangement, when the door is slammed shut the bolt cams to its out-of-the-way position over the striker teeth **76**. A coil spring **80** is connected between an upstanding tab **82** on the bolt link **68** and the latch casing **60** to bias the bolt away from its out-of-the-way position and toward its operative or latching position as shown in FIGURE 5. The bolt link **68** is also formed with an outside operating abutment **84** which extends above and generally parallel to the mounting shaft **64** and an inside operating abutment **86** which extends below and generally parallel to the shaft **64**. A remote lever **88** is piovtally mounted on the main mounting shaft **64** and is formed with a control arm **90** which extends out through the latch casing and has its free end received in the bifurcated end of the remote control bellcrank **46**. The remote lever **88** is also formed with an operating abutment **92** which lies closely adjacent the inside operating abutment **86** of the bolt link **68**, and the remote lever is biased by a spring **94** in a counterclockwise direction as the parts appear in FIGURE 3.

In order to open the door from the inside, the remote control handle (not shown) is turned to pull on the rod **44**. This swings the bellcrank **46** in a clockise direction in FIGURE 1 moving the remote lever **38** in a clockwise direction (FIGURE 3) so that the abutment **92** on the remote lever **88** picks up the abutment **86** on the bolt link **68** and breaks the toggle bolt at the knee or pivot **72** so that the toggle bolt is tripped from latched position to unlatched position.

Outside operating means includes an operating lever **96** which is pivotally mounted on the casing **60** by means of coaxial studs **98** and **99**. One arm **100** of the operating lever **96** extends outside the latch casing and projects through the opening **62** in the jamb wall **23** and is connected to the lower end of the push button connecting rod **36**. The other arm **102** extends downwardly within the latch casing and is formed with a slot having a vertical stem portion **104** which extends radially of the pivotal axis of the lever **96** and an arm portion **106** extending substantially at a right angle from the stem portion and lying on an arc drawn about the pivotal axis of the operating lever. The coil spring **94** is connected between the operating lever **96** and the remote lever **38** and biases both of these members to the position shown in FIGURE 3 of the drawing. An intermittent link **110** is pivotally mounted on the mounting stud **99** coaxially with the operating lever **96** and is formed with a nose portion **112** which, when the intermittent link is swung, picks up the outside operating abutment **84** on the bolt link **68** and breaks the toggle arangement to trip the bolt from latched position to unlatched position. The intermittent link is formed with a vertical slot **114** which extends radially of the pivotal axis of the intermittent link, the stem portion **104** of the slot in the operating lever lying in registry with the intermittent link slot **114**. When the outside push button **28** is depressed, the bellcrank **32** is swung to push down on the connecting rod **36**, thus swinging the outside operating lever **96** in a counterclockwise direction as the parts appear in FIGURE 3. Assuming the intermittent link **110** to be coupled to the outside operating lever so that it moves with said lever, the nose **112** of the intermittent link swings upwardly, picking up the abutment **84** and tripping the bolt.

In order to lock the latch against outside operation, the intermittent link **110** is uncoupled from the operating

lever **96**. The locking means includes a locking trip lever **116** which is pivotally mounted on the main mounting shaft **64** and which is movable between locked and unlocked positions, being yieldably held in either position, as selected, by an over-center spring **118** which is connected between the trip lever **116** and the latch casing **60**. An outside operating arm **120** of the trip lever **116** extends outside the casing **60** and projects through the opening **62** in the door jamb wall **23**. The free end of this arm is bent at a right angle and is received between the flanges **41** and **42** of the key cylinder extension **40** so that turing a proper key in the key cylinder will flip the locking lever between locked and unlocked positions. An inside operating arm **121** projects from the opposite side of the pivotal axis of the trip lever **116** and is received in the bifurcated free end of the garnish molding lever **56**. Depression of the garnish molding button **52** will swing the trip lever **116** from unlocked position to locked position.

A free wheeling link **122** is pivotally mounted on the trip lever **116** on a pivot stud **124**. The link **122** is formed with a lug **126** which extends through the slot **114** in the intermittent link and also through the stem **104** of the slot in the operating lever **96**, so that normally the free wheeling link couples the intermittent link to the operating lever and the intermittent link and the operating lever swing together. When the trip lever **116** is in its unlocked position the lug **126** of the free wheeling link **122** is in the upper portion of the vertical slot and is out of registry with the arm portion **106** thereof. When the trip lever **116** is moved in a counterclockwise direction in FIGURE 3 to locked position, the lug **126** of the free wheeling link moves down into registry with the arm portion **106** of the slot in the operating lever so that the intermittent link **110** is uncoupled from the operating lever **96**. Now upon depression of the outside push button **28** the operating lever **96** merely "free wheels" and the intermittent link does not swing with the operating lever, so that the bolt **66** is not tripped.

The improved latch incorporates the features of "automatic undogging," "remote undogging," and "keyless locking." Automatic undogging means that if the latch is inadvertently placed in locked condition while the door is open, the latch parts will be moved back to unlocked position when the door is slammed shut. Remote undogging means that if the latch is placed in locked condition, operation of the inside remote handle to open the door from the inside will move the latch parts back to unlocked position. In other words, when the door is locked it is only locked against outside operation. Keyless locking means that, if desired, and upon the performance of a conscious act by the operator, the automatic undogging feature may be overridden and the door may be slammed shut and locked without use of a key. The improved latch provides a novel means for achieving keyless locking.

Pivotally mounted on the main mounting shaft **64** coaxially with the trip lever **116** is an undogging lever **128**. This lever is yieldably connected to the trip lever by means of a centering spring **130** which is connected between a lug **128***a* on the undogging lever and a lug **116***a* on the trip lever **116**. Normally the undogging lever **128** and the trip lever **116** swing together, since the centering spring **130** is quite strong. However, if the trip lever is blocked against swinging movement, the undogging lever still may swing against the yielding force of the centering spring **130**.

If the latch parts are placed in locked position when the door is open either by depression of the garnish molding button **52** or by operation of a proper key in the key cylinder **38** and then the door is slammed shut, automatic undogging will occur and the latch parts will be shifted back to unlocked position. As the door is slammed shut the nose of the bolt link **70** will engage the teeth **76** of the striker and the bolt will be cammed as a unit (with-

out breaking the toggle) to an out-of-the-way position against the force of the bolt spring **80**. As the bolt swings to its out-of-the-way position, inside operating abutment **86** on the bolt link **68** picks up the undogging lever **128**, swinging it clockwise as the parts appear in FIGURE 3. Because of the yieldable interconnection between the undogging lever and the trip lever **116** through the relatively strong centering spring **130**, the trip lever will be swung from locked position to unlocked position. Remote undogging is achieved in the same manner. When the door is opened from the inside the remote lever **88** picks up the abutment **86** on the bolt and breaks the toggle, tripping the bolt to unlatched position. During this upward movement the abutment **86** picks up the undogging lever **128** in the manner just described.

If desired the operator may, by the performance of a conscious act, override the automatic undogging operation and lock the door from the outside without a key. If the latch parts are in locked position and the door is to be slammed shut and locked without a key, the operator merely depresses the outside push button **28** during the time the door is being slammed shut. Depression of the push button swings the operating lever **96** counterclockwise so that the lug **126** on the free wheeling link **122** enters the arm portion **106** of the slot in the operating lever. This blocks the trip lever **116** against movement to its unlocked position. However, the undogging lever **128** may swing against the yielding force of the centering spring **130**.

An important feature of the improved latch is that the latch itself is mounted on the outside surface of the jamb wall of the door, this being made possible because of the small size of the latch due to the novel combination and arrangement of the parts as heretofore described. Since the latch in its casing is mounted on the outer surface of the jamb wall of the door it is not necessary to remove the door inner panel in order to service the latch, and initial assembly is greatly facilitated since only the inside and outside latch control means are mounted in the door while the latch casing which mounts the bolt, the inside operating means, the outside operating means, and the locking means is simply bolted or screwed to the outer surface of the jamb wall of the door.

While we have shown and described certain embodiments of our invention, it is capable of many modifications. Changes, therefore, in the construction and arrangement may be made without departing from the spirit and scope of the invention as set forth in the appended claims.

We claim:

1. A vehicle door latch of the character described, comprising: a bolt movable between latched and unlatched positions; means yieldably holding said bolt in latched position; operating means including an operating lever and an intermittent link which is adapted, upon movement, to engage said bolt and move it from latched to unlatched position; outside unlatching means for swinging said operating lever; and locking means including a trip lever which is movable between locked and unlocked positions and a free wheeling link mounted on said trip lever for bodily movement therewith and for pivotal movement relative thereto, said free wheeling link coupling said intermittent link to said operating lever when the trip lever is in unlocked position, and uncoupling said intermittent link from said operating lever when the trip lever is in locked position.

2. A vehicle door latch of the character described, comprising: a bolt movable between latched and unlatched positions; spring means yieldably holding said bolt in latched position; operating means including an operating lever and a pivotally mounted intermittent link which is adapted, upon swinging movement, to engage said bolt and move it from latched to unlatched position; outside unlatching means for swinging said operating lever; and locking means including a trip lever which is movable between locked and unlocked positions and a free wheeling link mounted on said trip lever for bodily movement therewith and for pivotal movement relative thereto, said free wheeling link coupling said intermittent link to said operating lever when the trip lever is in unlocked position and uncoupling said intermittent link from said operating lever when the trip lever is in locked position.

3. A vehicle door latch of the character described, comprising: a bolt comprising two toggle links movable relative to each other between latched and unlatched positions; spring means yieldably holding said bolt in latched position; operating means including an operating lever and a pivotally mounted intermittent link which is adapted, upon swinging movement, to engage said bolt and trip it from latched to unlatched position; outside unlatched means for swinging said operating lever; locking means including a trip lever which is movable between locked and unlocked positions and a free wheeling link mounted on said trip lever for bodily movement therewith and for pivotal movement relative thereto, said free wheeling link coupling said intermittent link to said operating lever when the trip lever is in said unlocked position and uncoupling said intermittent link from said operating lever when the trip lever is in locked position; and inside unlatching means comprising a pivotally mounted lever directly engageable with said bolt to trip the bolt from latched to unlatched position.

4. A vehicle door latch of the character described, comprising: a bolt movable between latched and unlatched positions; spring means yieldably holding said bolt in latched position; operating means including a pivotally mounted operating lever and an intermittent link which is pivoted coaxially with and adjacent a surface of said operating lever and is adapted, upon swinging movement, to engage said bolt and move it from latched to unlatched position; outside unlatching means for swinging said operating lever; locking means including a trip lever which is movable between locked and unlocked positions and a free wheeling link mounted on said trip lever for bodily movement therewith and for pivotal movement relative thereto, said free wheeling link coupling said intermittent link to said operating lever when the trip lever is in unlocked position and uncoupling said intermittent link from said operating lever when the trip lever is in locked position; and inside unlatching means comprising a pivotally mounted lever adapted, upon swinging movement, to directly engage said bolt and move it from latched to unlatched position.

5. A vehicle door latch of the character described, comprising: a bolt comprising two toggle links movable relative to each other between latched and unlatched positions; spring means yieldably holding said bolt in latched position; operating means including a pivotally mounted operating lever, and an intermittent link which is pivoted coaxially with and adjacent a surface of said operating lever and is adapted, upon swinging movement, to engage said bolt and trip it from latched to unlatched position; outside unlatching means for swinging said operating lever; and locking means including a pivotally mounted trip lever which is swingable between locked and unlocked positions and a free wheeling link pivotally mounted on said trip lever for bodily movement therewith and for pivotal movement relative thereto, said free wheeling link coupling said intermittent link to said operating lever when the trip lever is in unlocked position and uncoupling said intermittent link from said operating lever when the trip lever is in locked position.

6. Apparatus of the character claimed in claim 5, wherein said intermittent link has a slot extending radially of said pivotal axis and said operating lever has a slot with a stem portion lying in registry with the slot in said intermittent link and an arm portion extending substantially at a right angle from said stem portion, said

free wheeling link having a lug extending through the slots in said intermittent link and operating lever, said lug being out of registry with the arm portion of the slot in the operating lever when the trip lever is in unlocked position and being in registry with said arm portion when the trip lever is in locked position.

7. A vehicle door latch of the character described, comprising: a bolt movable between latched and unlatched positions; spring means yieldably holding said bolt in latched position; operating means including a pivotally mounted operating lever and an intermittent link which is pivoted coaxially with and adjacent a surface of said operating lever and is adapted, upon swinging movement, to engage said bolt and move it from latched to unlatched position; outside unlatching means for swinging said operating lever; locking means including a pivotally mounted trip lever which is swingable between locked and unlocked positions and a free wheeling link pivotally mounted on said trip lever for bodily movement therewith and for pivotal movement relative thereto, said free wheeling link coupling said intermittent link to said operating lever when the trip lever is in unlocked position and uncoupling said intermittent link from said operating lever when the trip lever is in locked position, said intermittent link having a slot therein extending radially of said pivotal axis and said operating lever having a slot with a stem portion lying in registry with the slot in said intermittent link and an arm portion extending substantially at a right angle from said stem portion and lying on an arc drawn about said pivotal axis, said free wheeling link having a lug extending through the slots in said intermittent link and operating lever and lying out of registry with the arm portion of the slot in the operating lever when the trip lever is in unlocked position and in registry with said arm portion when the trip lever is in locked position; and inside unlatching means comprising a lever adapted to directly engage said bolt when the trip lever is in unlocked position.

8. A vehicle door latch of the character described, including: a bolt comprising two toggle links movable relative to each other between latched and unlatched positions; means mounting said bolt for movement as a unit from operative position to an out-of-the-way position; spring means yieldably urging said bolt toward operative position; operating means including an intermittent link which is adapted, upon movement, to engage said bolt and trip it from latched to unlatched position; outside unlatching means for said operating means; locking means including a pivotally mounted trip lever which is movable between locked and unlocked positions and means on said trip lever for coupling said intermittent link to said outside unlatching means when the trip lever is in unlocked position and uncoupling said intermittent link from said unlatching means when the trip lever is in locked position; an undogging lever pivoted coaxially with said trip lever; a centering spring yieldably connecting said undogging lever to said trip lever whereby the two levers normally pivot together, said undogging lever having a portion lying in the path of movement of said bolt whereby said locking lever is moved from locked position to unlocked position upon movement of said bolt to unlatched position or to out-of-the-way position; and means for blocking said trip lever against movement to unlocked position, whereby said undogging lever moves relative to the trip lever against the force of said centering spring upon movement of said bolt to unlatched position or to out-of-the-way position.

9. A vehicle door latch of the character described, including: a bolt comprising two toggle links movable relative to each other between latched and unlatched positions; means mounting said bolt for movement as a unit from operative position to an out-of-the-way position; spring means yieldably urging said bolt toward operative position; operating means including an operating lever and an intermittent link which is adapted, upon movement, to engage said bolt and trip it from latched to unlatched position; outside unlatching means for swinging said operating lever; locking means including a pivotally mounted trip lever which is movable between locked and unlocked positions and a free wheeling link mounted on said trip lever, said free wheeling link coupling said intermittent link to said operating lever when the trip lever is in unlocked position and uncoupling said intermittent link from said operating lever when the trip lever is in locked position; an undogging lever pivoted coaxially with said trip lever; a centering spring yieldably connecting said undogging lever to said trip lever whereby the two levers normally pivot together, said undogging lever having a portion lying in the path of movement of said bolt whereby said locking lever is moved from locked position to unlocked position upon movement of said bolt to unlatched position or to out-of-the-way position; and means for blocking said trip lever against movement to unlocked position, whereby said undogging lever moves relative to the trip lever against the force of said centering spring upon movement of said bolt to unlatched position or to out-of-the-way position.

10. A vehicle door latch of the character described, including: a bolt comprising two toggle links movable relative to each other between latched and unlatched positions, a spring connected between said links and yieldably urging said links toward latched position; means mounting said bolt for movement as a unit from operative position to an out-of-the-way position; spring means yieldably urging said bolt toward operative position; operating means including a pivotally mounted operating lever and an intermittent link which is pivoted coaxially with and adjacent a surface of said operating lever and is adapted, upon swinging movement, to engage said bolt and trip it from latched to unlatched position; outside unlatching means for swinging said operating lever; locking means including a pivotally mounted trip lever which is movable between locked and unlocked positions and a free wheeling link mounted on said trip lever, said free wheeling link coupling said intermittent link to said operating lever when the trip lever is in unlocked position and uncoupling said intermittent link from said operating lever when the trip lever is in locked position; an undogging lever pivoted coaxially with said trip lever; a centering spring yieldably connecting said undogging lever to said trip lever whereby the two levers normally pivot together, said undogging lever having a portion lying in the path of movement of said bolt whereby said locking lever is moved from locked position to unlocked position upon movement of said bolt to unlatched position or to out-of-the-way position; means for blocking said trip lever against movement to unlocked position, whereby said undogging lever moves relative to the trip lever against the force of said centering spring upon movement of said bolt to unlatched position or to out-of-the-way position; and inside unlatching means comprising a pivotally mounted lever adapted, upon swinging movement, to directly engage said bolt and trip it from latched to unlatched position.

11. A vehicle door latch of the character described, including: a bolt comprising two toggle links movable relative to each other between latched and unlatched positions; a spring connected between said toggle links and yieldably urging said toggle links toward latched position; means mounting said bolt for movement as a unit from operative position to an out-of-the-way position; spring means yieldably urging said bolt toward operative position; operating means including a pivotally mounted operating lever and an intermittent link which is pivoted coaxially with and adjacent a surface of said operating lever and is adapted, upon swinging movement, to engage said bolt and trip it from latched to unlatched position; outside unlatching means for swinging said operating lever; locking means including a pivotally mounted trip lever which is swingable between locked and

unlocked positions and a free wheeling link pivotally mounted on said trip lever, said free wheeling link coupling said intermittent link to said operating lever when the trip lever is in unlocked position and uncoupling said intermittent link from said operating lever when the trip lever is in locked position, said intermittent link having a slot therein extending radially of said pivotal axis and said operating lever having a slot with a stem portion lying in registry with the slot in said intermittent link and an arm portion extending substantially at a right angle from said stem portion, said free wheeling link having a lug extending through the slots in said intermittent link and operating lever, said lug being out of registry with the arm portion of the slot in the operating lever when the trip lever is in unlocked position and in registry with said arm portion when the trip lever is in locked position; an undogging lever pivoted coaxially with said trip lever; a centering spring yieldably connecting said undogging lever to said trip lever whereby the two

levers normally pivot together, said undogging lever having a portion in the path of movement of said bolt whereby said locking lever is moved from locked position to unlocked position upon movement of said bolt to unlatched position or to out-of-the-way position; means for moving said lug into the arm portion of the slot in said operating lever whereby said trip lever is blocked against movement to unlocked position, said undogging lever moving relative to the trip lever against the force of said centering spring upon movement of said bolt to unlatched position or to out-of-the-way position; and inside unlatching means comprising a lever adapted to directly engage said bolt when the trip lever is in said unlocked position.

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UNITED STATES PATENT OFFICE

CERTIFICATE OF CORRECTION

Patent No. 3,112,946 December 3, 1963

James H. Wernig et al.

It is hereby certified that error appears in the above numbered patent requiring correction and that the said Letters Patent should read as corrected below.

Column 1, line 17, for "latching" read -- latch --; column 4, line 12, for "turing" read -- turning --; column 6, line 17, for "unlatched" read -- unlatching --.

Signed and sealed this 13th day of October 1964.

(SEAL)
Attest:

ERNEST W. SWIDER
Attesting Officer

EDWARD J. BRENNER
Commissioner of Patents