June 19, 1951 J. H. ROETHEL 2,557,468

DOOR LOCK

Filed Sept. 29, 1948 2 Sheets-Sheet 1

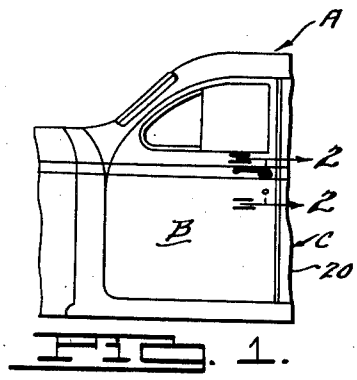


Fig. 1.

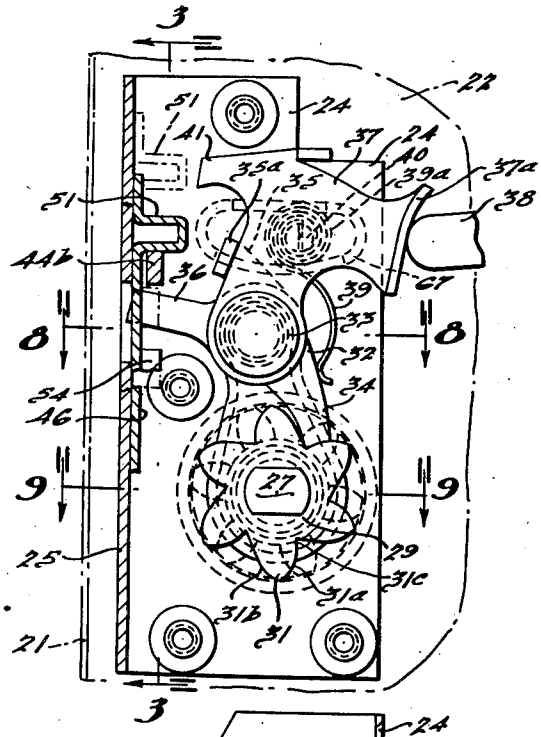
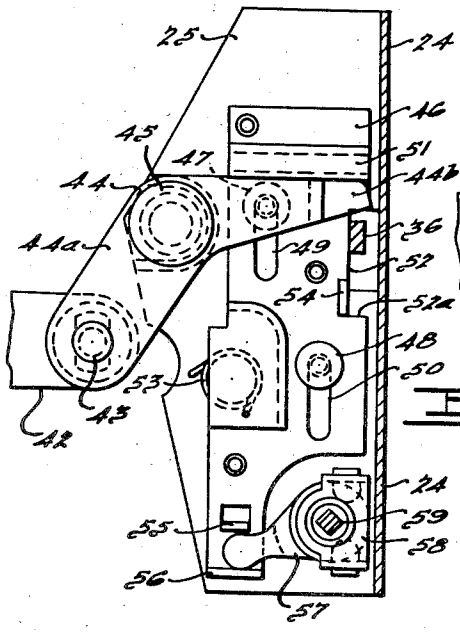


Fig. 2.

Fig. 3.



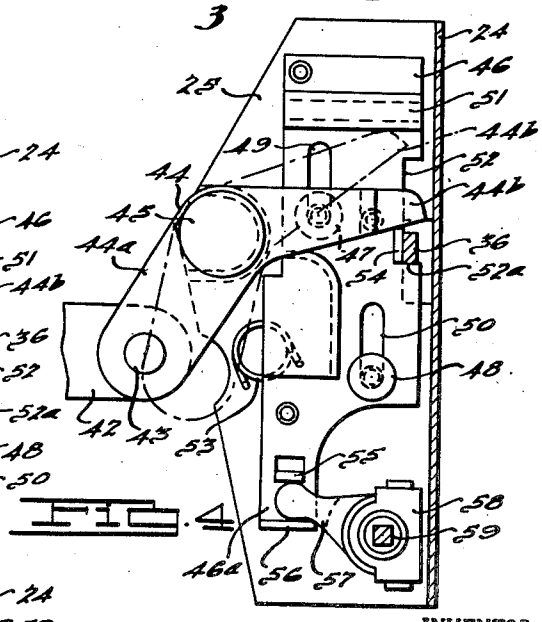


Fig. 4.

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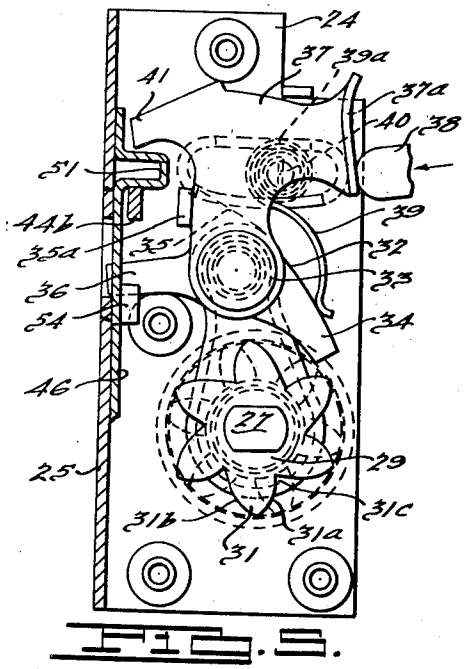


FIG. 5.

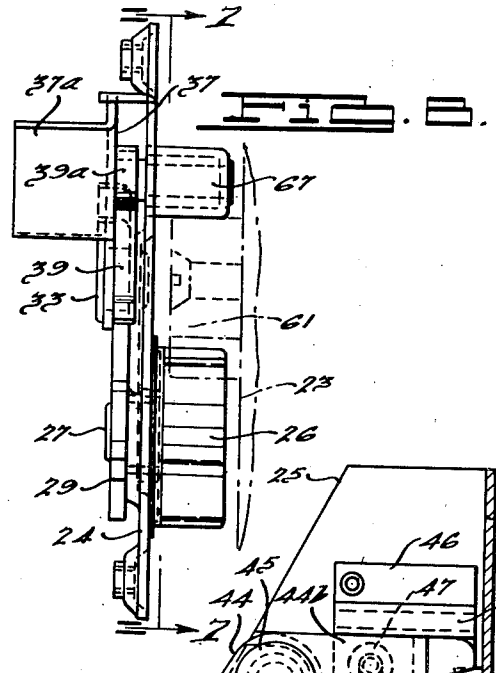


FIG. 6.

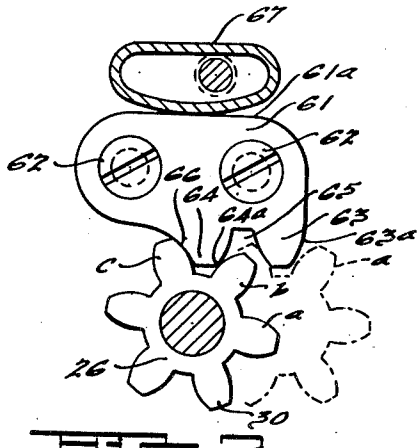


FIG. 7.

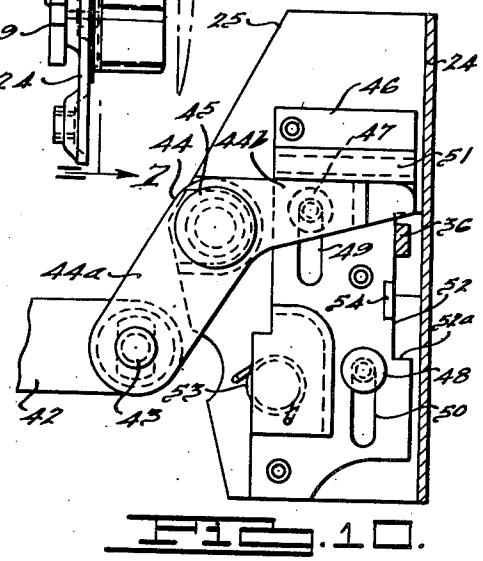


FIG. 10.

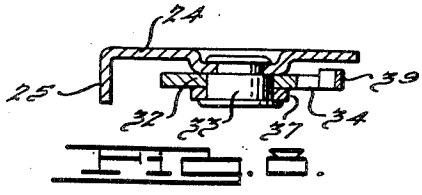


FIG. 8.

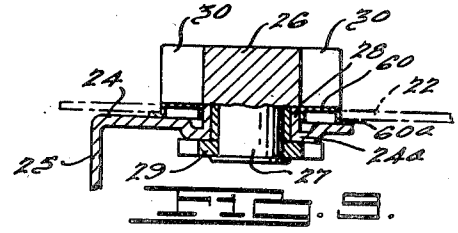


FIG. 9.

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2,557,468

UNITED STATES PATENT OFFICE

2,557,468

DOOR LOCK

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Application September 29, 1948, Serial No. 51,719

6 Claims. (Cl. 292—280)

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This invention relates to latch mechanism for the swinging doors of various structures. Although a desirable adaptation of the present invention is in connection with the doors of vehicle bodies, such as automobile bodies, the invention may be applied to other uses.

An object of the invention is to provide a door latch mechanism which is small in size, relatively simple and compact in construction, efficient and positive in operation, economical to manufacture in large quantities, comparatively quiet in operation when closing the door, and easy to release when opening the door.

In accordance with the embodiments of the invention, herein illustrated by way of example, there is provided a rotatable latch device mounted on a support for the latch mechanism, such as a plate portion for disposition at the door jamb and having a flange extending from the inner edge thereof. The latch mechanism also comprises detent means pivotally mounted on the plate portion of the support and engageable with the latch device for holding it in door latching position. Pivotally mounted on the plate portion is a detent release lever which is manually operable from the outside of the door. The detent means is adapted to swing in one direction independently of or relatively to the lever about a common pivot axis therewith. The lever and detent means have parts arranged in opposing relation so as to abut upon swinging movement of the lever thereby to pivotally move the detent means out of holding position with respect to the latch device. Blocking means for the lever is provided, comprising a member mounted for up and down movement on the support and having blocking means cooperable with a blocking portion on the lever. This blocking member is moved through the medium of inner manually operable means so as to dispose its blocking means in position to be engaged by the blocking portion on the lever thereby to block the lever and render the same ineffective to move the detent means out of holding position with respect to the latch device. For the purpose of disengaging the detent means from the inside of the door, the detent means is provided with an arm extending toward the flange portion of the support into position to be engaged by inner manually operable means, such as a remote controlled

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lever, effective to swing the detent means relatively to the lever to disengage the detent means from the latch device. In certain embodiments the detent is capable of motion independently of the outside manually operable release means so as to shift the slide into position to render such release means operative.

Another object of the invention is to provide an improved door latch mechanism embodying a fully rotatable latch device together with a fully rotatable detent engaging member by which the latch device is positively held through the medium of a detent in any position to which it may be rotated. More specifically an object is to form the latch device as a toothed member which, when the detent is disengaged, is unrestrained against rotation in any direction, yet which will rotate into locking relation to its striker regardless of the position to which the latch device is turned.

A further object of the invention is to provide an improved latch mechanism having a rotatable latch formed peripherally with tooth-like projections engageable with a rack-type striker preferably formed to provide two locking positions for the latch, i. e. a safety locking position and a final locking position, the latch being positively held in either latching position by means of a detent, dog or the like engageable with a rotatable member fixed to the latch and carrying detent engaging portions corresponding in number to the number of tooth-like projections on the latch.

Other objects of this invention will appear in the following description and appended claims, reference being had to the accompanying drawings forming a part of this specification wherein like reference characters designate corresponding parts in the several views.

Fig. 1 is a fragmentary side elevation of a portion of an automobile body provided with swinging doors upon which latch devices made in accordance with the present invention are installed.

Fig. 2 is an enlarged vertical section taken substantially through lines 2—2 of Fig. 1 looking in the direction of the arrows.

Fig. 3 is a fragmentary vertical section taken substantially through lines 3—3 of Fig. 2 looking in the direction of the arrows.

Fig. 4 is a view generally similar to Fig. 3 but

illustrating certain of the parts in a different position.

Fig. 5 is a view generally similar to Fig. 2 but illustrating the detent in disengaged position.

Fig. 6 is a side elevation of the structure shown in Fig. 5, this view being taken from the right in Fig. 5.

Fig. 7 is a vertical section taken substantially through lines 7—7 of Fig. 6 looking in the direction of the arrows.

Fig. 8 is a section taken substantially through lines 8—8 of Fig. 2 looking in the direction of the arrows.

Fig. 9 is a section taken substantially through lines 9—9 of Fig. 2 looking in the direction of the arrows.

Fig. 10 is a view generally similar to Fig. 3 but illustrating a slight modification.

Before explaining in detail the present invention it is to be understood that the invention is not limited in its application to the details of construction and arrangement of parts illustrated in the accompanying drawings, since the invention is capable of other embodiments and of being practiced or carried out in various ways. Also it is to be understood that the phraseology or terminology employed herein is for the purpose of description and not of limitation.

In the drawings there are illustrated, by way of example, certain embodiments of the present invention as applied to the doors and door frame structure of an automobile body. As illustrated in Fig. 1 the automobile body, generally designated at A, is provided with a front door B which is hinged at its front edge so as to swing against a door post or body pillar in accordance with conventional practice. The automobile body of the illustrated type is also provided with a rear swinging door C. Each door comprises an outer metal door panel **20** and an inner metal door panel **21**, see Fig. 2. The panel **21** terminates in a transverse jamb edge or portion **22** facing the fixed jamb face or edge **23** (Fig. 6) of the door frame post or body pillar.

Adapted to be secured, as by means of screws, to the inner side of the jamb portion **22** of the door is a case plate **24** terminating at its inner edge in a longitudinally extending flange **25** facing the inner door panel **21**. The present latch device is preferably provided with a rotatable toothed latch or bolt **26** positioned at the outer face of the case plate **24**, see Figs. 6 and 9, this latch or bolt having an integral projecting stud shaft or pivot **27** extending through an aperture in the case plate and having a bearing in an annular flanged edge **28** of this aperture. The inner end of the stud or shank **27** of the bolt is flattened and extended through a correspondingly shaped aperture in a rotatable detent or dog engaging member **29**, the inner end of the stud **27** being riveted over this member so as to rigidly anchor the same to the bolt. The member **29** is formed from flat stock and has bearing engagement against an annular embossment **24***a* on the case plate.

The rotatable latch **26**, as shown in Fig. 7, is formed with a number of radially projecting tooth-like projections **30**, such as six, which are spaced equally entirely around the periphery of the latch so as to provide in effect a gear type latch. The detent engaging plate or member **29** is formed around its periphery with a number of tooth-like abutments or shoulders **31** which correspond in number to the number of tooth-like projections **30**. Each tooth **31** of the member **29** is formed at one side with a relatively short outwardly curved edge **31***a* and at the opposite side with a relatively long curved camming edge **31***b*. A detent receiving space **31***c* is thus formed between the edges **31***a* and **31***b* of each adjacent pair of teeth or projections **31** and it will be noted that the edge **31***a* of each such space curves outwardly and away from the edge **31***b* of the space.

Cooperable with the rotatable detent engaging member **29** is a swinging detent, pawl or dog **32** pivotally mounted upon the shank of a stud or shoulder rivet **33** secured to the case plate **24**, see Fig. 8. The detent or dog **32** is provided with a detent arm **34** having a curved end corresponding substantially to the curvature of the edge **31***a* of each projection **31** when the detent arm **34**, as shown in Fig. 2, is fully seated within a toothed space **31***c*. The detent **32** has an upwardly projecting arm or extension **35** terminating in a laterally extending lug or projection **35***a*. The detent also has an inwardly extending arm or extension **36**. The detent is thus provided with three arms **34**, **35** and **36** and is preferably formed from a single piece of flat metal stock.

Associated with the detent **32** is a detent actuating or release lever **37** which is pivoted at its lower end upon the shoulder rivet **33** so as to turn or swing about the axis of the detent **32**. The release lever **37** has an outwardly extending arm terminating in a lateral flange **37***a* positioned for engagement by a plunger or the like **38** which may be shifted inwardly to swing the lever **37** on its pivot **33** by any suitable manually operable means on the outside of the door such, for example, as a handle or by any other preferred means such as a push button associated with the outside door handle. The detent **32** is yieldingly urged toward the plate **29** and the detent release lever **37** is urged outwardly toward its retracted position shown in Fig. 2 by means of a common spring **39**. This spring has a depending arm engaging the detent arm **34** and has an upper spirally wound or coiled portion **39***a* secured at **40** to the case plate **24**. It will be noted that the release lever **37** overlies the detent **32** and has its inner edge abutting against the lug or projection **35***a* on the detent. Hence, the effort exerted by the spring **39** in urging the detent arm **34** into engagement with the member **29**, as shown in Fig. 2, will also be transmitted through the lug **35***a* to the release lever **37**, thereby urging the latter toward its retracted position. The lever **37**, for a purpose hereinafter described, has an arm or extension **41** projecting in the direction of the case plate flange **25**.

The latch device constructed in accordance with the present embodiments preferably incorporates a remote control mechanism for permitting release or disengagement of the detent **32** by operation of an inside door handle or other manually operable means. This mechanism is preferably manually actuated from the inside of the door remote from the case plate **24** by means of a door handle which may be turned in the desired direction. Suitably connected to the inside door handle is a longitudinally extending draft link **42** which is pivoted at **43** to the lower end of one arm **44***a* of a bell crank lever **44**. This lever is pivoted at **45** to the case plate flange **25** and is provided with a projecting lever arm **44***b* overlying at its outer end the detent arm **36**. Normally when the inside door handle is turned so as to swing the lever arm **44***b* downwardly, the latter by engagement with the detent arm **36** will swing the detent, thus swing-

ing the detent arm **34** upwardly from the position shown in Fig. 2 to the position shown in Fig. 5 so as to disengage it from the member **29**. A similar action occurs when the release lever **37** is swung inwardly, as shown in Fig. 5, by operation of the outside door handle, push button or the like, the motion of the release lever being transmitted to the detent through the lug **35***a*.

In the embodiment of Figs. 1 to 6 inclusive means is provided for rendering the detent release lever **37** inoperative to disengage the detent **32**, such as by blocking the same so that the door cannot be opened from the outside. In the illustrated embodiments this is accomplished, by way of example, through the medium of a manually operable slide **46** which, in the present instance, may be shifted by operation of the inside door handle, or by the detent arm **36**, or by a key operated lock. The slide member **46** is guided on the case plate flange **25** in a vertical direction by means of upper and lower headed guide studs **47** and **48** secured to the case plate flange and extending through vertical guide slots **49** and **50**, respectively, in the slide. The slide is formed near its upper end with a relatively deep outwardly extending projection **51** which, in the present instance, is in the form of a channel shaped rib pressed or embossed in the slide. It will be noted that the lever arm **44***b* extends across the face of the slide and normally lies directly beneath the projection **51**. Hence, it will be readily seen that upon turning the inside door handle in one direction so as to swing the lever **44** to its position shown in broken lines in Fig. 4 the lever arm **44***b*, by engagement with the projection **51** on the slide **46**, will shift the slide upwardly to its full line position shown in Fig. 4 and its broken line position shown in Fig. 2. When the slide is thus shifted to its upward position the projection **51** on the slide will be disposed opposite the arm **41** on the release lever **37** and, hence, in blocking relation thereto. Hence, any attempt to swing the release lever **37** inwardly to disengage the detent **34** will be prevented or blocked by engagement of the arm **41** on the release lever with the projection **51** on the slide **46**.

After the inside door handle has been turned in one direction so as to rock the lever **44** and shift the slide **46** upwardly as shown in Fig. 4, release of the door handle will cause the lever **44** to return to its full line position shown in Fig. 4 by virtue of the usual return spring associated with the door handle. As particularly shown in Figs. 3 and 4, the slide **46** is cut away to provide a notch portion **52** to receive the inner end of the detent arm **36**. When the slide is in its down position shown in Fig. 3 the lower edge **52***a* of this notch is disposed a predetermined distance below the detent arm **36**. Projecting outwardly from the side edge of the notch **52** in the slide is a lug or projection **54** of suitable height, this lug being disposed a predetermined distance below the lever arm **44***b* in its normal position shown in Fig. 3. When the slide **46** is shifted to its upward position, as shown in Fig. 4, the lower edge **52***a* of the notched portion **52** will directly underlie the detent arm **36** and the lug **54** on the slide will directly underlie the lever arm **44***b* in substantial engagement therewith. Hence, upon operation of the inside remote control mechanism, including slide **46**, by turning the inside door handle so as to swing the lever arm **44***b* downwardly from its full line

position shown in Fig. 4, the slide **46** will be shifted downwardly by coaction of the lever arm **44***b* with the lug **54** on the slide. As the slide is thus shifted downwardly by the lever arm **44***b* the latter will engage the detent arm **36** and swing the same downwardly from the position shown in Figs. 2 and 4 to the position shown in Fig. 5, thereby disengaging the detent arm **34** from the toothed member **29**. Thus, it will be seen that, even though the release lever **37** will be blocked by means of the projection **51** on the slide when the latter is shifted to its uppermost position, the slide will be returned downwardly to its normal position to move the projection **51** out of blocking position with respect to the arm **41** on the release lever **37** by turning the inside door handle so as to swing the lever arm **44***b* downwardly. Accordingly, it will be seen that up and down movement of the slide **46** may be accomplished by turning the inside door handle in one direction or the other to swing the lever arm **44***b* upwardly or downwardly, upward movement of the slide being accomplished by engagement of the lever arm with the projection **51** and downward movement of the slide being accomplished by engagement of the lever arm with the lug **54** on the slide, the latter being accompanied by disengagement of the detent from the toothed member **29** through coaction of the lever arm **44***b* with the detent arm **36**.

In the event the slide **46** is shifted upwardly when the door is in open position, closing of the door will result in the detent arm **36** shifting the slide downwardly. When the door is closed with the slide **46** in its upper position engagement of the bolt **26** with the striker or keeper will rotate the plate **29** and thus swing the detent **32** in a counter-clockwise direction, as viewed in Fig. 2. This action will swing the detent arm **36** downwardly and by its engagement with the lower edge **52***a* of the notch **52** in the slide will shift the slide downwardly. The slide is yieldingly held and urged toward its upper and lower limits of movement by means of a snap-over spring **53** of suitable strength attached at one end to the slide and at its opposite end to the case plate flange **25**. When the slide is shifted downwardly, as by the action of the detent arm **36** as above described, the snap-over spring **53** will pass dead center and through its action will aid the detent arm in shifting the slide to its lowermost position. In the event the slide, for some reason, is moved out of blocking position with respect to arm **41** of the release lever but is not shifted to its full lowermost position, the release lever arm **41**, when shifted from its position shown in Fig. 2 to the position shown in Fig. 5, will contact the upper side of the projection **51** on the slide and will force the slide downwardly to its lowermost position.

Where a key controlled device is used with any of the present embodiments the slide **46** is provided with a depending extension **46***a* having spaced lugs **55** and **56** pivotally receiving a rounded end of a swinging crank arm **57**. This arm is pivoted to a bracket **58** on the case plate and provided with a square opening at the locality of its pivot to receive the square portion **59** of a key actuated shaft. This shaft is connected to the cylinder mechanism of any conventional lock having the usual key control. By turning the key in the lock on the outside of the door the crank arm **57** may be swung to shift the slide **46** vertically in one direction or the other in the same manner as may be accomplished by

swinging the lever arm 44b upwardly or downwardly from its full line position shown in Fig. 4. The key control means for the slide 46 is usually embodied in the front door locks of an automobile body but is usually omitted from the locks used on the rear doors.

In the embodiment of Fig. 10 the construction of the latch device mechanism is identical with that above described in connection with the embodiment of Figs. 1 to 6 inclusive with the exception that the key operated means for the slide is omitted and the extension 46a is also omitted. The embodiment of Fig. 10 also differs from the previous embodiment in that the depth of the notch 52 is increased so that the lower edge 52a thereof extends well below the lug 54. When, therefore, the slide is moved to its upper position to bring the lug 54 into engagement with the underside of the lever arm 44b the lower edge 52a of the notch 52 in the slide will be disposed sufficiently below the detent arm 36 as to prevent the latter from shifting the slide downwardly when the door is closed. Thus, with the door open the slide 46 in the embodiment of Fig. 10 may be set in its upper position, similar to the position shown in Fig. 4, by manipulating the inside door handle and the lever 44. Upon then closing the door downward motion of the detent arm 36 will not return the slide as in the previous embodiment, and hence the door will remain locked with the release lever 37 blocked in the manner previously described. In such case the door, using the embodiment of Fig. 10, can only be opened from the inside.

When mounting the case plate and latch mechanism carried thereby on the door jamb 22, see Fig. 9, the bolt 26 is passed through a circular hole in the door jamb. Since the diameter of this hole is at least as great as the maximum diameter of the toothed bolt 36, it will be apparent that portions of the hole or aperture in the jamb 22 will be exposed between the teeth 30 of the bolt. This objectionable condition is overcome in the present instance by providing a flat escutcheon, disk or cap 60 which has a central flanged aperture fitting around the annular bearing flange 28 in the case plate. The disk 60, being interposed between the bolt 26 and the case plate 24, completely closes the spaces between the teeth 30. The outer circular edge of the cap or disk 60 is provided with a lateral flange 60a which is overlapped by the door jamb 22 around the edge of the aperture therein. Thus, when the case plate 24 is screwed tightly to the inner side of the door jamb the flange 60a of the closure cap 60 will be clamped tightly between the case plate and door jamb.

In the several embodiments of the invention herein illustrated the rotary toothed latch 26 is actuated when the door is closed by means of a striker or keeper device which is rigidly mounted on the jamb edge 23 of the body pillar or fixed upright member of the door frame. As illustrated in Fig. 7, the striker device comprises a body member 61 which may be in the form of a die casting or a stamping, this member being secured to the body pillar by means of screws 62. The striker body is formed at its lower edge with two integral tooth-like projections 63 and 64 forming therebetween a tooth space 65 having downwardly diverging side edges. When the door is moved to closed position and in any rotated position of the latch 26 one of the teeth 30, such as the tooth indicated at a, will engage the outer tapered edge 63a of the striker tooth 63, thereby rotating the latch to move the next succeeding tooth, indicated at b, into the tooth space 65, as shown in broken lines in Fig. 7. If the door remains only partially closed with the latch 26 in its broken line position in Fig. 7 the latch will be in its safety locking position and the door will be positively held against opening movement by the tooth 63 on the striker. Continued closing movement of the door will cause the bolt 26 to be rotated further by engagement of the tooth b with the outer edge of the tooth 64, thereby bringing the next succeeding tooth, indicated at c, into engagement with the inner edge 66 of the tooth 64, this latter edge being shaped in accordance with the curved contour of the tooth on the bolt. When the bolt thus reaches the full line position shown in Fig. 7 it will be in its normal final locking position with the door fully closed. It is important to note that in the final locking position of the bolt the tooth 64 on the striker will be straddled or embraced by two of the bolt teeth, such as the teeth indicated at b and c, with the tooth b engaging the lower corner 64a of the tooth 64. Thus, the bolt will be in positive meshing relation with the final locking tooth 64 so as to be positively turned or rotated even if the bolt moves bodily inwardly beyond its position shown in Fig. 7 such as when the door is slammed against a compressible rubber weatherstripping.

Cooperable with the upper inclined surface 61a of the striker body 61 is a guide shoe 67 which is secured to the case plate 24 and which projects through a correspondingly shaped opening in the door jamb 22. It will be understood that when the door is closed the shoe 67 engages and slides over the inclined surface 61a of the striker body and cooperates with the latch 26 to clamp or hold the door firmly in position against vertical movement during operation of the vehicle.

I claim:

1. In a latch mechanism for a swinging door, a support having a plate portion for disposition at the door jamb and having a flange extending from the inner edge of said plate portion, a rotatable latch device mounted on said plate portion, a lever pivotally mounted on said plate portion, a blocking portion on said lever, means manually operable from the outside of the door for swinging said lever, detent means engageable with said latch device for holding it in door latching position, said detent means being pivotally mounted on said plate portion to swing independently of said lever about a common pivot axis therewith, said lever having a part arranged in opposing relation to a part of said detent means to abut the same upon swinging movement of said lever thereby to pivotally move said detent means out of holding position with respect to said latch device, a member mounted for up and down movement on said support and having blocking means for cooperation with said blocking portion, and inner manually operable means for moving said member to dispose said blocking means in position to be engaged by said blocking portion thereby to block said lever and render the same ineffective to move said detent means out of holding position with respect to said latch device.

2. In a latch mechanism for a swinging door, a support having a plate portion for disposition at the door jamb and having a flange extending from the inner edge of said plate portion, a rotatable latch device mounted on said plate portion, a lever pivotally mounted on said plate portion, a blocking portion on said lever, outer manually operable means for swinging said lever, de-

tent means engageable with said latch device for holding it in door latching position, said detent means being pivotally mounted on said plate portion to swing independently of said lever about an axis common to the pivot axis of said lever, said lever having an edge thereof arranged in opposing relation to a projection on said detent means to abut the same upon swinging movement of said lever thereby to pivotally move said detent means out of holding position with respect to said latch device, a member mounted for up and down movement on said support and having blocking means for cooperation with said blocking portion, and inner manually operable means for moving said member to dispose said blocking means in opposing relation to said blocking portion thereby to block said lever and render the same ineffective to move said detent means out of holding position with respect to said latch device.

3. In a latch mechanism for a swinging door, a support having a plate portion for disposition at the door jamb and having a flange extending from the inner edge of said plate portion, a rotatable latch device mounted on said plate portion, a lever pivotally mounted on said plate portion, a blocking portion on said lever, manually operable means for swinging said lever and moving the same in a direction toward said flange, detent means engageable with said latch device for holding it in door latching position, said detent means being pivotally mounted on said plate portion to swing independently of said lever about a common pivot axis therewith, said lever having a part arranged in opposing relation to a part of said detent means to abut the same upon movement of said lever toward said flange thereby to pivotally move said detent means out of holding position with respect to said latch device, a member mounted for up and down movement on said flange and positioned opposite said lever and having a blocking portion adapted to be disposed opposite said first named blocking portion, and inner manually operable means for moving said member to dispose said last named blocking portion in position to be engaged by said first named blocking portion thereby to block said lever and render the same ineffective to move said detent means out of holding position with respect to said latch device.

4. In a latch mechanism for a swinging door, a support having a plate portion for disposition at the door jamb and having a flange extending from the inner edge of said plate portion, a rotatable latch device mounted on said plate portion, detent means pivotally mounted intermediate its ends on said plate portion comprising a unitary member having a plurality of rigid arms, one of said arms extending in one direction from the pivot axis of the detent means and engageable with said latch device for holding the same in latching position and a second one of said arms extending in an opposite direction from said pivot axis, a swinging lever mounted on said plate portion having a common pivot with said detent means, said lever and said second one of said arms having parts disposed in lapping relation, one of said parts having a projection thereon lying in the path of movement of the other of said parts and engageable therewith upon swinging movement of said lever part toward said flange to cause swinging movement of said second arm of the detent means toward said flange and thereby move and disengage said one arm of the detent means from said latch device, said second arm being free to swing independently of said lever toward said flange, spring means urging said detent means in a direction to restore engagement of said one arm with said latch device, a member mounted for up and down movement on said support and having blocking means for cooperation with a blocking portion on said lever, and inner manually operable means for moving said member to dispose said blocking means in position to be engaged by said blocking portion thereby to block said lever and render the same ineffective to move said detent means out of holding position with respect to said latch device.

5. In a latch mechanism for a swinging door, a support comprising a plate portion for disposition at the jamb edge of the door and a flange portion extending angularly from the inner edge portion thereof, a rotatable latch device comprising a bolt having a peripheral series of tooth-like projections and a latching member secured to the bolt and rotatably mounted on said plate portion and having a corresponding series of tooth-like abutments, detent means, a pivot for pivotally mounting said detent means on said plate portion, said detent means having a rigid arm extending downwardly from said pivot and selectively engageable with said abutments for holding the latch member in latching position, said detent means having a second rigid arm extending upwardly from said pivot, a swinging outer manually operable lever pivotally mounted on said pivot to swing about the pivotal axis of said detent means and having an arm swingable inwardly toward said flange portion upon manual operation of the lever, said lever arm and said second arm of the detent being disposed in lapping relation, and one of said last named arms having a projecting part abutting a part of the other arm to provide for pivotal actuation of the detent means to disengage the same from said latch member upon swinging said lever arm inwardly toward said flange portion, a member mounted for up and down movement on said support and having blocking means for cooperation with a blocking portion on said lever, and inner manually operable means for moving said member to dispose said blocking means in position to be engaged by said blocking portion thereby to block said lever and render the same ineffective to move said detent means out of holding position with respect to said latch device.

6. In a latch mechanism for a swinging door, a support comprising a plate portion for disposition at the jamb edge of the door and a flange portion extending angularly from the inner edge portion thereof, a rotatable latch device comprising a bolt having a peripheral series of tooth-like projections and a latching member secured to the bolt and rotatably mounted on said plate portion and having a corresponding series of tooth-like abutments, detent means, a pivot for pivotally mounting said detent means on said plate portion, said detent means having an arm extending downwardly from said pivot and selectively engageable with said abutments for holding the latch member in latching position, said detent means having a second arm extending upwardly from said pivot, a swinging outer manually operable lever pivotally mounted on said pivot to swing about the pivotal axis of said detent means and having an arm swingable inwardly toward said flange portion upon manual operation of the lever, said lever arm and said second arm of the detent being disposed in lapping relation, one of

said last named arms having a projecting part abutting a part of the other arm to provide for pivotal actuation of the detent means to disengage the same from said latch member upon swinging said lever arm inwardly toward said flange portion, and said detent means having a third arm extending toward said flange portion into position to be engaged by inner manually operable means effective to swing the detent means independently of said lever to disengage the detent means from the latch device.

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REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
1,547,210	Garrett	July 28, 1925
2,156,874	Schonitzer	May 2, 1939
2,301,221	Marple	Nov. 10, 1942
2,394,646	Wagner	Feb. 12, 1946
2,480,688	Allen	Aug. 30, 1949