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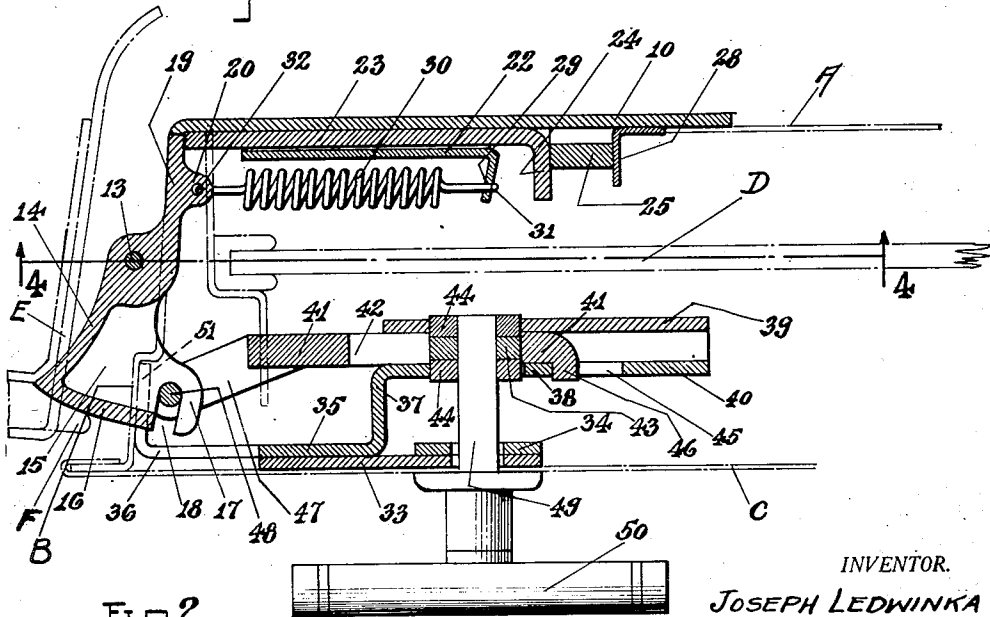
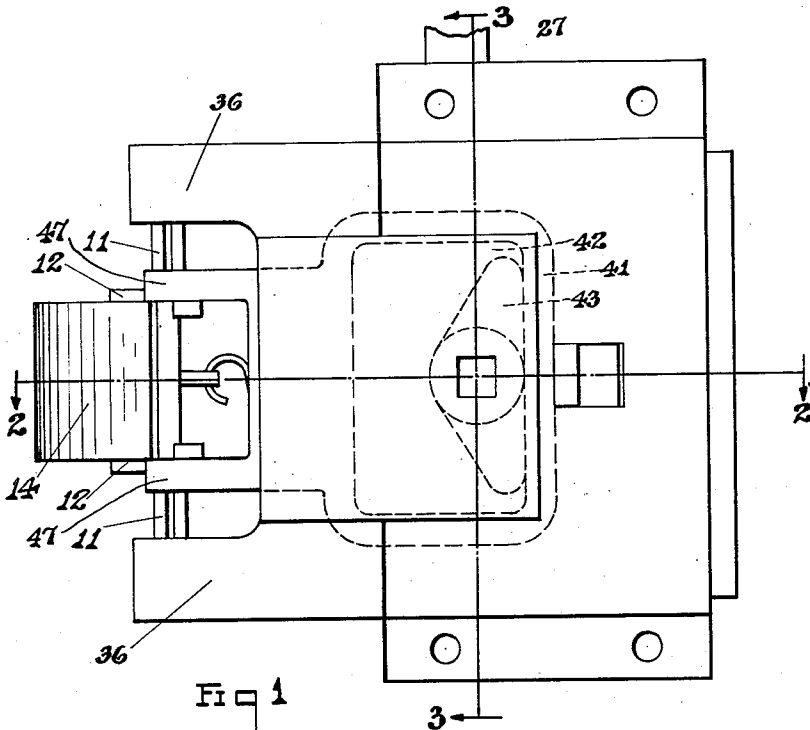
J. LEDWINKA

1,966,251

LATCH MECHANISM

Filed Dec. 28, 1923

2 Sheets-Sheet 1



WITNESS:
Walter M. Trout.

BY

INVENTOR.
JOSEPH LEDWINKA

John P. Darbo
ATTORNEY.

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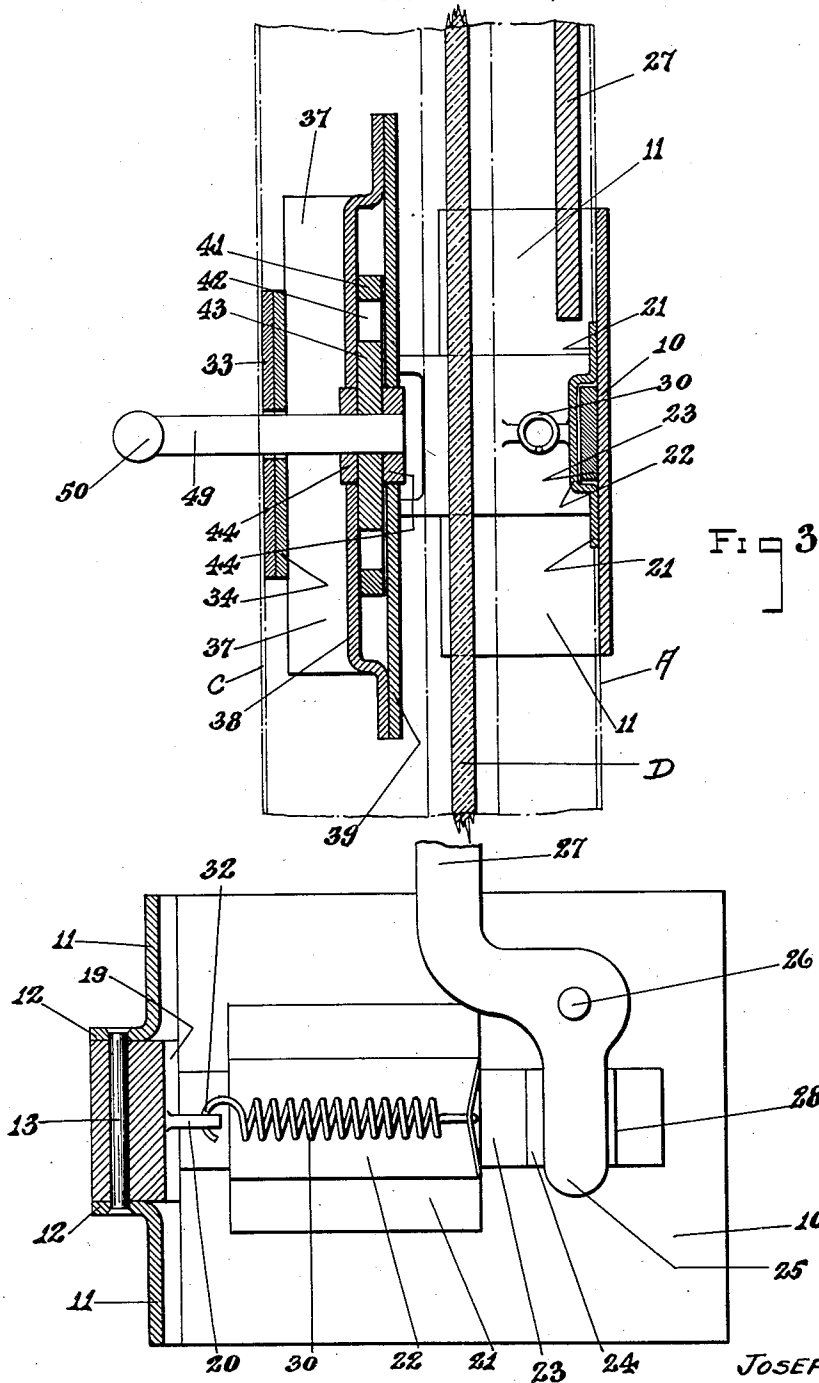
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2 Sheets-Sheet 2



WITNESS:-
Walter M. Grou.

Fig 4

BY

INVENTOR.
JOSEPH LEDWINKA
John P. Darbo
ATTORNEY.

UNITED STATES PATENT OFFICE

1,966,251

LATCH MECHANISM

Joseph Ledwinka, Philadelphia, Pa., assignor to
Edward G. Budd Manufacturing Company,
Philadelphia, Pa., a corporation of Pennsylvania

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39 Claims. (Cl. 292—222)

My invention relates to improvements in latch mechanism and it has to do, more particularly, with latch mechanism which is especially suited for use in connection with doors having a runway for a vertically movable glass window panel therein, such as are used in automobile bodies.

The object of my invention is to provide a latch mechanism which is simple in structure, economical to manufacture, easy to assemble and which is compact, efficient and durable in use.

A further object of my invention is to provide a latch mechanism which may be operated from either side of a door and which is so constructed as to permit a window pane or similar part to slide freely through it and extend substantially up to the free vertical edge of the door.

Another object of my present invention is to provide a latch mechanism which includes a latch bolt at the edge of the door and independent operating handles and connections for retracting the bolt, respectively located at the inner and outer faces of the door, with a free space between them through which a window pane or similar part may move.

Another object of my present invention is to provide a latch mechanism including a latch bolt and two independent sets of operating connections for retracting said bolt, said mechanism being so constructed that one set of connections may be disconnected and separated from the other very quickly and easily.

A further object is to provide a latch mechanism of such construction that one set of operating connections may be removed very quickly and easily from the door, after the latch is mounted, leaving the other set in place, and again very readily and quickly reassembled and connected.

Further objects, and objects relating to details and economies of construction and operation, will definitely appear from the detailed description to follow. In one instance, I accomplish the objects of my invention by the devices and means set forth in the following specification. My invention is clearly defined and pointed out in the appended claims. A structure constituting a preferred embodiment of my invention is illustrated in the accompanying drawings, forming a part of this specification, in which:

Fig. 1 is a view, in side elevation, of a latch mechanism embodying my invention.

Fig. 2 is a sectional view through the latch mechanism, taken on line 2—2 of Fig. 1, the door, door post and window pane being indicated by dotted lines.

Fig. 3 is a vertical, sectional view, taken on the line 3—3, of Fig. 1, and

Fig. 4 is vertical, sectional view, taken on line 4—4, of Fig. 2.

In the drawings, the same reference numerals indicate the same parts throughout the several

views and the sectional views are taken looking in the direction of the arrows at the ends of the section lines.

In automobile bodies of the closed type it is frequently desirable to provide latch mechanism for the doors which is operable from either the inner or the outer side of the door at will. Ordinarily such doors carry a window frame for the window opening in the upper part of the door which is slidably mounted so when desired, it may be lowered into a well or pocket in the lower part of the door. It is very desirable that the width of the window opening and of the window frame be as great as possible to admit the maximum of light to the interior of the body, and hence it is the constant aim of body builders to reduce to the utmost the interference with free vision from the interior of the body which is offered by the parts of the door structure at the sides of the window opening. Heretofore, the latch mechanism has been a factor in limiting and determining the width of the window pane since such mechanism is customarily mounted in the door near the free vertical edge thereof at a point below the window opening where it interfered with the lowering of the window pane into the pocket of the door. To avoid this, it has, heretofore, been the practice to employ a pane of such reduced width that when lowered into the pocket in the door, its vertical edge would clear and pass by the latch mechanism. This meant, of course, a failure to secure a maximum width of window pane, and, hence, a more or less restriction of vision from the interior of the body. It is among the special purposes of the present invention to provide a structure and arrangement of latch mechanism for the doors of automobile bodies, which not only is operable from either the outer or the inner side of the door, at will, but which also avoids the objections noted of being a factor in limiting or restricting the width of the window pane, and which permits the use of a window pane of maximum width.

In general, I accomplish the objects of my invention by providing a latch mechanism, having means by which it may be actuated from either side of the door in which it is mounted, and having a space or runway through the latch mechanism in which a part, such as a sliding pane, may move. I propose to provide a latch construction such that a sliding window pane, for instance, may be interposed between the latch-actuating means at opposite sides of the door. The general objects of my invention may be accomplished in various ways. One illustrated arrangement is shown wherein I provide a latch bolt working at the edge of the door and connected to be actuated by either of two independent spaced apart sets of actuating connections, one located in one face of the door and

the other in the other, so as to permit, for instance, a window pane to slide between them. In some instances, I find it desirable to use a swinging latch bolt which is pivoted at the edge of the door and rocked at will on its pivot by either of two sets of independent operating connections above referred to. I also propose to provide a latch mechanism, including at least two assemblies, which may be mounted separately and connected together quickly and easily as they are mounted in the door. This construction may be such as to permit one of the sets of independent operating connections to be removed from the door and disconnected from the other set by moving it to a predetermined position with respect to the door.

Referring to the numbered parts of the drawings illustrating one embodiment of my invention, the outlines of a door and door jamb or post and the window pane are indicated in dotted lines, A indicating the inner face or side, C the outer face or side, and B the edge of the door, D the window pane, E the door post or jamb and F the latch keeper mounted in the door post or jamb, it being understood, of course, that these parts are shown merely illustratively.

The jamb rail of the door at its free vertical edge is preferably made of thin sheet metal, as shown, to permit the adjoining edge of the window runway to extend substantially to the jamb plane of the door edge, a structure practically impossible of achievement in the old wooden frame doors.

I will first describe a structure of and mounting for a latch bolt device suitable for use in connection with and embodying the principles of my invention. A base or latch plate, 10, is mounted on the inner surface of the inner face or side, A, of the door. The outer vertical edge of this base plate is bent laterally forming a flange, 11, which fits against the free edge, B, of the door. An opening is formed in this flange through which the swinging latch bolt works. A convenient expedient for mounting this latch bolt is shown wherein the flange 11 is turned outwardly at the upper and lower edges of said opening, forming ears, 12, which project slightly beyond the free edge, B, of the door, and which ears carry the latch bolt pivot pin, 13. The latch bolt, 14, is pivoted on this pin and has a head portion which is hollow and includes side walls, 15, and an end wall, 16, the latter being curved to concentric relation to the pivot pin, 13. The curved end wall, 16, coacts with and engages the keeper, F, carried by the door post, E. The side walls, 15, are formed with inwardly projecting extensions which constitute ears, 17, in which are formed the notches, 18. The end wall, 16, and the ears, 17, are located adjacent to the outer face, C, of the door. The latch bolt, 14, is also provided with a tail, 19, which extends beyond the pivot, 13, toward the inner face, A, of the door. This tail, 19, has an ear, 20, on its inner face, to which one end of a latch projecting spring, 30, may be fastened.

I will now describe an arrangement for operating the latch bolt from one side of the door, which embodies the principles of my invention and which I have found to be effective for the purpose, it being understood that the arrangement shown is illustrative and that I am not to be restricted or confined to the specific details thereof. In the arrangement shown, a plate, 21, is fastened to the inner side of the base plate, 10, to form a guide for a slidably

mounted member, 23. In the form shown, the guide is provided for member, 23, by forming the plate, 21, into a channel as indicated at 22. The outer or forward end of the slide member, 23, is arranged, when projected, to engage the tail portion, 19, of the latch, to rock the same on its pivot, 13, against the tension of spring, 30, to withdraw the head end portion 16, thereof from engagement with the keeper, F. The slide, 23, may be projected to accomplish this result in any suitable or convenient manner. In the illustration shown, the rear end of the slide is turned laterally, at 24, and is adapted to be engaged by the arm, 25, of an actuating lever, 27, which is pivoted, at 26, on the base plate, 10. An angle member, 28, secured to said base plate, constitutes a stop for limiting the movement, in one direction, of the lever, 27. The plate, 21, has a laterally-extending ear, 29, and one end of latch projecting spring, 30, is fastened, at 31, to said ear, while the other end of said spring is fastened, at 32, to the ear, 20, on the tail of the latch bolt. This constitutes one set of operating connections for retracting the latch bolt, and, as noted, this latch operating mechanism is located on the inside of the side, A, of the door.

I will now describe a structure and arrangement of latch retracting mechanism which is operable from the other side of the door and which is wholly independent in its operation of the latch operating mechanism above described. It is to be understood that the structure and arrangement now to be described, while simple and efficient, is illustrative of the principles involved, and my invention in its broadest scope is not to be limited or restricted to the details thereof. In the broadest aspect of the invention, the latch plates 10 and 33 may be considered as cooperating portions of the case plate supporting the latch and having portions flanking the inner and outer sides of the window runway, each of said portions being angularly extended inwardly toward the other at their outer ends beyond the runway and flanking the jamb plane of the adjacent vertical door edge. In the form shown, a separate plate, 33, is mounted at the outer face, or side, C, of the door cooperating with the plate 10 on the inner face of the door in mounting the latch mechanism adjacent the free vertical edge of the door. This plate, if desired, may be reinforced by the strip, 34, secured to it near the rear edge thereof. A plate, 35, is fastened to the forward portion of the plate, 33, and is offset, at 37, so that its rear portion, 38, 40, extends parallel to but spaced from the plate, 33. Arms, 36, extend forwardly from the upper and lower portions of plate, 35, the ends of said arms being bent laterally, at 51, to lie along the free edge, B, of the door, above and below the latch bolt. The rear portion, 38, of the plate, 35, is formed into a channel in which a member, 41, is slidably mounted. The channel is closed by the plate, 39, fastened to the portion, 38, of plate, 35. The slide, 41, has a central opening, 42, in which the roll-back, 43, is disposed in engagement with the rear wall of said opening. The roll-back, 43, has hub members, 44, which are journaled in the plates, 39 and 40, respectively, and is actuated by the spindle, 49, which is journaled in plate, 33, and strip, 34, and carries the handle, 50. A lug, 46, on the rear end of the slide, 41, works in the slot, 45, in the portion, 40, of plate, 35. This forms a simple and convenient arrangement for guiding the slide, 41, and limiting the movement thereof. This constitutes an independent

set of operating connections for retracting the latch bolt. Other connections may be used for this purpose, if desired. The slide, 41, may be connected to the latch bolt in any suitable way.

5 I have shown a simple arrangement which permits of the ready separation of the parts of the latch. Arms, 47, project forwardly from the upper and lower portions of the side, 41, and carry a pin, 48, which is disposed in the notches, 18, 10 formed in the side walls, 15, of the latch bolt head.

The operation of my improved latch mechanism will be very readily apparent from the foregoing description. When the door is swung to closed position, the front wall of the head of the latch bolt, which is normally projected, engages the keeper, F, and the bolt is swung on its pivot, 13, to retracted position against the tension of spring, 30. As soon as the door is closed, the 20 spring swings the bolt to projected position with the curved end wall, 16, of the bolt head in engagement with the keeper, F, as shown in Fig. 2. If it is desired to retract the bolt from inside of the door or body, the upper end of the lever, 27, 25 is swung toward the hinged edge of the door, thus forcing the slide, 23, forwardly and pushing the tail, 19, of the latch bolt, forwardly against the tension of spring, 30. This causes the latch bolt to swing on its pivot to retract the head from 30 engagement with the keeper. If it is desired to retract the bolt from outside the door or body, the spindle, 49, is rotated through the handle, 50. The roll-back, 43, turns with the spindle and forces the slide, 41, rearwardly. Since the slide 35 is connected to the head of the latch bolt through pin, 48, and notches, 18, the bolt is swung to retracted position against the tension of spring, 30.

It will be observed that the two sets of latch operating devices are spaced apart from each other, thus providing an uninterrupted passage 40 between them through which the window pane, D, or any similar part, may slide. In this way the latch mechanism avoids the objections noted above, of prior latch constructions. It does not interfere with the sliding window pane and the latter may extend practically to the free vertical edge of the door. The result is that, by using my latch mechanism, the body maker is able to provide a considerably wider window opening in the 50 door and to use a considerably wider window pane than has been the case heretofore, in fact, a window pane extending substantially the full width of the door, particularly, as respects the latch side of the door. Where I use the expression "a window of substantially the full width 55 of the door," or a similar expression, in the following claims, it has reference more particularly to the relative extent of the door and window at the latch side with which my invention is more particularly concerned. The latch bolt is located 60 at the free vertical edge of the door and may be actuated at will by either of the two independent sets of operating connections, one located at each face of the door. There is a free and uninterrupted space between these two sets of operating connections so that a window pane, for 65 instance, may be interposed and slide freely between them. My invention, in its broad scope, is not restricted to a swinging latch bolt, but the use of a swinging latch bolt lends itself especially to compactness of construction and 70 makes a latch which operates very easily. It will be noticed that the latch bolt, which I have illustrated, is pivoted substantially at, or slightly forward of, the free edge of the door and hence

projects only slightly inwardly from said free edge.

In the form of my invention illustrated, in which I have shown a pivoted latch bolt arranged in the vertical jamb edge of the door, the bolt 80 itself may form a connection or interlock between the inside and outside operating handles, but it will be understood that while it may be preferable for the sake of simplicity and compactness of construction to so combine the latching and interconnecting functions in one element, such combination is not, in all cases, required. It will also be noted that the head of the latch bolt or the part engaging the keeper 85 is located on one side of the plane of the runway, which is the side opposite that on which the inner operating handle is mounted and that this head is connected with the inner handle by a connection extending across the plane of the runway at its vertical free edge. The inter- 90 connection between the outside and inside operating handles also can be defined as intersecting the geometric rectilinear extension in generally vertical directions of the jamb face portions of the main body of the door, or alternatively, the geometrical vertical projection of the transverse operating connection parallel to the vertically extending main body of the jamb face 95 portion of the door rail upon a horizontal plane may be said to transact the said vertically extending main body of the jamb face of the rail. This construction is necessitated by reason of the close approach of the window runway to the vertical plane of the jamb face of the door and the fact that the latch mechanism is housed in 100 large part within the body of the door. Since the handle on the opposite side of the runway from the latch head is arranged some distance inwardly from the vertical edge of the door and since the other handle is also preferably so arranged, as shown, it follows that the inter- 105 connection between the first-named handle and the latch head is of substantially L-form and the interconnection between the two handles is of substantially U-form in plan, having arms flanking the runway and a portion extending one of said arms and/or interconnecting said arms extending transversely across the adjacent vertical edge of the runway at the edge of the door.

This latch mechanism can be constructed at a 125 comparatively low cost and the parts assembled quickly and easily. The parts can be detached very readily in order to remove the same from the door, if desired. To do this, the screws or bolts by which the base plate, 10, is fastened to 130 the inner face of the door, are removed and the base plate, and parts carried thereby, can then be separated from the parts carried by the plate, 33, since the pin, 48, is free to move out of the notches, 18. This also facilitates the assembling of the latch mechanism because the 135 plate, 33, and the parts mounted on it, can be fastened in the outer face of the door, the latch bolt, the slide, 23, and associated parts can be mounted on the base plate, 10, the latter moved to a position which introduces pin, 48, into 140 notches, 18, and the base plate then swung to its normal position and fastened in the inner face of the door. This permits of the convenient assembly of the latch mechanism and its mounting 145 in operative position.

The expressions "main portion of the jamb face of the door" or "main body of the door edge" or "plane of the jamb face" in the following claims have reference to these parts without 150

regard to relatively small localized projections, housings or bearings arranged on the free edge of the door and extending into the space between the main body of the door edge and the post beyond the "main portion of the jamb face" or beyond "the plane of the jamb face" or beyond the "main body of the door edge". By "protuberance" is meant any projecting portion or portions or bulge from the plane of the jamb face or main body of the free door edge extending into said space.

The term "interlock" or "interconnection" as used herein to designate the means extending between the outside and inside operating handles, does not require a positive interlock or connection, for the term is used in its broadest sense, namely, to designate either a single element so extending between the handles or a plurality or chain of elements. Such chain of elements may include as one element thereof the latch bolt itself, or the connecting chain may be independent of the latch bolt. The handles are interlocked or interconnected only in the sense that they, either of them, may operate the latch bolt, such operation being effected by one handle either without movement of the other handle or with such movement, and vice versa. As shown herein, the movements of the handles for operating the latch bolt are independent of each other, but they are nevertheless interlocked or interconnected, in this case, through their connection with the latch bolt.

The term "vertical" as used herein to designate the edge of the door adjacent which the latch mechanism is disposed and/or the edge of the window runway around which said mechanism is extended, is used in a general sense, to differentiate the edge referred to from the top and bottom generally horizontal edges of the door.

I am aware that the latch construction shown may be changed considerably without departing from the spirit of my invention, and, therefore, I desire to claim my invention broadly, as indicated by the appended claims.

Having thus described my invention, what I claim as new and useful and desire to secure by Letters Patent is:

1. A latch mechanism comprising a swinging latch bolt adapted to be pivoted at the edge of a door and to work therethrough, a handle operable from one face of the door, operating connections between said handle and the head of said bolt, said operating connections being disposed adjacent one face of the door, a second handle operable from the opposite face of the door, and a second set of operating connections for swinging said latch bolt disposed adjacent the opposite face of said door, said operating connections being spaced from each other to provide an uninterrupted passage in the door in which a window pane or similar part may move.

2. A latch mechanism comprising a latch bolt adapted to be pivoted at the edge of a door and to work therethrough, said latch bolt having a head adapted to engage a latch keeper and a tail extending in the opposite direction from the head, a handle operable from one face of the door, operating connections between said handle and the head of the bolt, a second handle operable from the opposite face of the door, and operating connections between said second handle and the tail of the bolt, said connections being spaced from each other to provide an uninterrupted pas-

sage in which a window pane or similar part may move.

3. A latch mechanism comprising a base plate, a swinging latch bolt pivoted thereon and including a head on one side of the pivot, adapted to engage a latch keeper and a tail on the opposite side of the pivot, a slide slidably mounted on said base plate and engaging the tail of the bolt, means for actuating said slide, and an independent set of operating connections connected to the head of said bolt.

4. A latch mechanism comprising a base plate, a swinging latch bolt pivoted on said base plate and including a head on one side of the pivot, adapted to engage a latch keeper, and a tail on the opposite side of said pivot, a slide slidably mounted on said base plate with its forward end engaging the tail of said latch bolt and its rear end turned laterally, a lever pivoted on said base plate with one arm in engagement with the laterally-turned end of said slide, a spring connected to swing the tail of said latch bolt towards the forward end of said slide, and an independent set of bolt-operating connections connected to the head of said bolt.

5. A latch mechanism comprising a base plate having a laterally-extending flange at one edge thereof, a swinging latch bolt pivoted on said flange and including a head adapted to engage a latch keeper and located on one side of the bolt pivot, and a tail extending on the opposite side of said pivot, a slide slidably mounted on said base plate with its forward end engaging the tail of the latch bolt and its rear end turned laterally an actuating lever pivoted on said base plate with one arm in engagement with the laterally-turned end of said slide, a spring connected at one end to the tail of said bolt and at the other end to a part fixed to said base plate, and an independent set of operating connections connected to the head of said latch bolt.

6. A latch mechanism comprising a swinging latch bolt adapted to be pivotally mounted at the edge of a door, an operating slide connected to the head of said latch bolt, a suitably journaled spindle extending through one face of the door, a roll back disposed adjacent said face of the door and engaging said operating slide, and independent operating connections disposed adjacent the opposite face of said door and connected to said latch bolt.

7. A latch mechanism comprising a swinging latch bolt adapted to be pivotally mounted at the edge of a door, said latch bolt having a hollow head provided with side walls having notches therein, an operating slide provided with a pair of forwardly extending arms, a pin carried by said arms and disposed in the said notches, a suitably journaled spindle extending through one face of the door, a roll back carried by said spindle and engaging said slide, and a set of independent operating connections disposed adjacent the opposite face of said door and connected to said latch bolt.

8. A latch mechanism comprising a plate, a slide support carried by said plate and having its body portion offset therefrom, a slide slidably mounted on said support, a spindle journaled in said plate, a roll back carried by said spindle and engaging said slide, a pivotally mounted latch bolt having a head connected with the forward end of said slide, and a set of independent operating connections connected to said latch bolt.

9. A latch mechanism comprising a base plate, a swinging latch bolt pivotally mounted there-

on and including a head on one side of the pivot and a tail on the opposite side of said pivot, a slide slidably mounted on said base plate with its forward end engaging the tail of the latch bolt, a lever pivoted on said base plate and having an arm engaging the rear end of said slide, and a spring connected to the tail of said latch bolt and to a part fixed to said base plate.

10. A latch mechanism comprising a base plate having a flange extending laterally from one edge thereof, said flange having an opening therein with ears projecting from the upper and lower edges of said opening, a latch bolt pivoted on said ears and swinging through said opening, said latch bolt having a head at one side of its pivot and a tail extending on the opposite side thereof, a slide slidably mounted on the body portion of said base plate and engaging the tail of said latch bolt, means for actuating said slide, and a spring connected to a part fixed to said base plate and to the tail of said latch bolt.

11. A latch mechanism comprising a base plate, a latch bolt pivotally mounted thereon and provided with a notch, connections mounted on said base plate for operating said latch bolt, and a second set of operating connections including a pin adapted to be disposed in the notch of said latch bolt, said second set of connections being separable from the latch bolt and the first set by moving said plates to a position in which said pin may be removed from said notch.

12. A latch mechanism comprising a latch bolt, a pivot therefor, said latch bolt having a hollow head, provided with an end wall coaxial with said pivot and side walls provided with notches, and a tail extending on the opposite side of said pivot from the head, an operating slide carrying a pin disposed in the said notches, and means for actuating said slide.

13. In combination, an automobile door comprising a main body, an extensible portion sliding therein on a path substantially of the full width of the main body of the door, and latch mechanism for said door operable from both the inside and outside thereof and embodying an interlocking member between the inside and outside operating means, said member being journaled on the door at a point exterior to the main body portion thereof.

14. An automobile door adapted to have a sliding window arranged therein of substantially the full width of the door, a latch operating mechanism on each of the opposite sides of the plane of movement of said sliding window, and an interconnecting means between said operating mechanisms extending around the side edge of the main body of the door having its central portion offset with respect to the point of attachment of one of said operating mechanisms.

15. In combination, an automobile door comprising an extensible portion substantially of the full width of the body of the door, latch operating mechanisms on opposite sides of the path of movement of said extensible portion, one of which connects with the other through an oscillating member journaled on the door exteriorly of the jamb face of the door rail.

16. The combination with a door having a window runway extending substantially to the vertical free edge thereof, of a latch mechanism carried thereby and housed in large part within the body thereof comprising a latch bolt adapted to work through said edge of the door, a handle operable at the inside face of the door, actuating connections between said handle and latch bolt dis-

posed adjacent the inside face of the door, a second handle operable at the outside face of the door, and actuating connections between the bolt and said second handle disposed adjacent the outside face, said groups of inside and outside operating connections being independent and spaced apart and flanking the opposite sides of said runway.

17. The combination with a door having a window runway extending substantially to the free vertical edge thereof, of latch mechanism carried thereby and housed in large part within the main body of the door and embodying inside and outside operating mechanisms for a latch bolt, said operating mechanisms being disposed in major part adjacent the inside and outside faces of the door, respectively, and flanking the runway, at least one of said operating mechanisms circumventing the adjoining side edge of the runway.

18. The combination with a door having a window runway extending substantially to the free vertical edge thereof, of latch mechanism carried by the door and housed in large part within the body thereof and embodying inside and outside latch operating devices disposed on the opposite faces of the door and an interlocking device interconnecting the inside and outside latch operating devices, supported on the door and extending around the adjoining edge of the runway, and mounted so as to partake of least motion where it passes through the plane of the runway.

19. The combination with a door having a window runway extending substantially to the vertical free edge thereof, of latch mechanism having inside and outside latch operating devices carried by the door on opposite sides of the plane of said runway and an interconnecting member extending between said latch operating devices, the ends of said member being arranged for simultaneous movement in opposite directions such that the adjoining edge of the runway is embraced by the projected paths of movement of said ends of said member.

20. The combination with a door having a window runway extending substantially to the free vertical edge thereof, of latch mechanism therefor having a slotted portion disposed at the free vertical edge of the door and outwardly of the side edge of said runway, and a latch means circumventing said runway, said means being carried by a bearing supported from the upper and lower edges of said slot.

21. In combination with a door having a window runway extending substantially to the free vertical edge thereof, of latch mechanism carried by the door and housed in large part within the body thereof, including a latch plate flanking one face of the door and carrying an extension beyond the plane of the main body of the door in its free vertical edge and inside and outside latch operating mechanisms on opposite sides of the plane of the runway embodying an interlock borne by said extension interconnecting said operating mechanisms.

22. The combination with a door having a window runway extending substantially to the free vertical edge thereof and a jamb rail at said edge having an outward protuberance, of latch mechanism on the door and housed in large part within the body thereof and flanking the runway and operable from both the inside and outside faces thereof and embodying an interconnecting member between the inside and

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outside operating means, said member extending through said protuberance.

23. The combination with a door having a window runway extending substantially to the free vertical edge thereof and having a thin sheet metal jamb rail in said edge provided with a slot in the body thereof, of latch mechanism carried by the door adjacent said edge and housed in large part within the body of the door, said latch mechanism comprising latch operating mechanisms arranged on the opposite sides of the plane of said runway, and an interlock between said operating mechanisms arranged in said slot.

24. The combination with a door having a window runway extending substantially to the free vertical edge thereof, of latch mechanism carried by the door and housed in large part within the body thereof, said latch mechanism including a latch operating mechanism on each of the opposite sides of said runway, a lock plate flanking one side of the runway and having a portion thereof extending in a direction transversely to the plane of said runway and lying substantially in the plane of said free vertical edge of the door and an interconnecting means between said operating mechanisms carried by said transversely extending portion of the lock plate.

25. The combination with a door having a rabbeted jamb rail at its free vertical edge and a window runway extending substantially to said edge, of latch mechanism carried by the door including latch operating mechanisms on opposite sides of the plane of said runway, and an interlock interconnecting said operating mechanisms, said interlock passing through the rabbet of said rail and therein connecting with one of said operating mechanisms.

26. The combination with a door having a window runway extending substantially to the free vertical edge thereof, of latch mechanism carried by the door and housed in large part within the body thereof, including a latch operating mechanism on each of the opposite sides of the projected plane of said runway, and an interlocking member for interconnecting said operating mechanisms disposed in part at least outside the vertical projection of the main body of the door at its vertical free edge and transversely of the runway.

27. The combination with a door having a window runway extending substantially to the free vertical edge thereof, of latch mechanism carried by the door and housed in large part within the body thereof including a latch operating device on each of the opposite sides of the plane of said runway, and an interconnection between said operating devices, a portion of said interconnection traversing the plane of the adjoining edge of the runway outwardly of the plane of the main body of the jamb face of the door at said vertical edge, and a portion thereof re-entering the body of the door at one side of the plane of said runway.

28. The combination with a door having a window runway extending substantially to the free vertical edge thereof, of latch mechanism carried by the door and housed in large part within the body thereof, including a latch operating device on each of the opposite sides of the runway inwardly of its adjoining vertical edge, and a connection between the operating devices having a portion emerging outwardly to intersect the plane of the jamb face of said vertical edge

on one side of the runway, a portion extending across the runway, and a portion re-crossing the plane of said jamb face on the other side of the runway to enter the interior of the door.

29. The combination with a door having a window runway extending substantially to the free vertical edge thereof, of latch mechanism carried by the door and housed in large part within the body thereof, including a latch operating device on each of the opposite sides of the plane of said runway and an interconnection between said operating devices extending around the adjoining side edge of the runway and having its central portion extending around the runway offset outwardly with respect to the points of attachment to the door of said operating devices.

30. The combination with a door having a window runway extending substantially to the free vertical edge thereof, of latch mechanism carried by the door and housed in large part within the body thereof, including a latch operating mechanism on each of the opposite sides of the plane of said runway and flanking the same, one of which connects with the other through a member mounted on the door and journaled to swing outside of the plane of the main portion of the jamb face of the door at said edge.

31. The combination with a door having a window runway extending substantially to the jamb face of the door rail at the free vertical edge of the door, of latch mechanism carried by the door and housed in large part within the body thereof, said latch mechanism having a latching head at one side of the plane of said runway, a handle on the other side of said runway, and an operating connection between said handle and latching head extending around the adjacent vertical edge of said runway and intersecting the geometric rectilinear extension of the jamb face portions of the main body of the rail.

32. The combination of a door having a window runway extending substantially to the free vertical edge thereof, of latch mechanism carried by the door and housed in large part within the body thereof, said latch mechanism embodying operating handles, one on each of the opposite sides of the runway, and an interconnecting means extending between said handles and of generally U-form in plan having arms flanking the sides of the runway and a central bight portion whereby it is extended around the adjoining vertical edge of the runway.

33. The combination with a door having a window runway extending substantially to the free vertical edge thereof, of latch mechanism on the door housed in large part within the body thereof, said latch mechanism having a latching head at one side of the plane of the runway, an operating handle onset inwardly from said edge of the door and mounted on the opposite side of said runway, and operating connections between said handle and latching head, a portion of said connection flanking said runway and another portion extending on the door transversely of the adjacent vertical side edge of the door across the plane of the runway.

34. The combination with a door having a sheet metal vertical jamb rail and a window runway extending substantially to said rail, of latch mechanism carried by the door and housed in large part within the body thereof, said latch mechanism embodying latch operating devices one on each of the opposite sides of the plane of said runway and a connection between said

operating devices extending around the adjacent vertical edge of said runway in an approximately horizontal plane and intersecting the geometrical vertical projection on said plane of the transverse cross section of the main body of the jamb face of said rail.

35. The combination with a door having a runway for a vertically movable glass panel, of latch mechanism carried by the door embodying latch plate portions arranged in large part within the main body of the door one on each of the opposite sides of the runway and flanking the same and each extended angularly inwardly in advance of the adjoining vertical edge of the runway, inside and outside latch operating handles mounted, respectively, on said flanking portions, and connections between said operating handles extending around the adjoining edge of the runway.

36. The combination with a door having a sheet metal jamb rail at its free vertical edge and a runway for a vertically movable glass panel extending substantially to said rail, of latch mechanism carried by the door embodying latch plate portions arranged in large part within the body of the door, one on each of the opposite sides of the runway and flanking the same and each formed at their outer ends with angular extensions overlapping the jamb rail, a latch bolt carried by the latch plate portion on one side of the runway, a roll back carried by the other of said latch plate portions inwardly of said free vertical edge of the door, a spindle and handle for operating said roll back, and operating connections between said roll back and latch bolt.

37. The combination with a door having a runway for a vertically movable glass panel, of latch mechanism carried by the door embodying a latch plate having a portion flanking one side of the runway and extended laterally at its outer end to provide a transverse portion extended across the adjacent edge of the runway, said transverse portion flanking the vertical jamb face of the door, inside and outside latch operating devices on opposite sides of the plane of said runway, and an interconnection between said devices transecting said transverse portion of the latch plate.

38. The combination with a door having a window runway extending substantially to the free vertical edge thereof, of latch mechanism mounted on the door and comprising a swinging latch bolt at said edge of the door having a head on one side of said runway, a roll back disposed adjacent the face of the door on said side of the runway, and having operative connections with said latch bolt head, and operating means disposed adjacent the opposite face of said door and connected to operate said latch bolt.

39. The combination with a door having a window runway extending substantially to the free vertical edge thereof, of latch mechanism carried by the door and housed in large part within the body thereof, said mechanism comprising a latch and two operating means therefor, one flanking each side of the runway, said mechanism including connections extending around the adjacent vertical edge of the runway.

JOSEPH LEDWINKA.

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