March 29, 1960 R. W. AHLQUIST ET AL 2,930,646

DEADLOCKING LATCH MECHANISMS

Filed Jan. 12, 1959

Fig. 1.

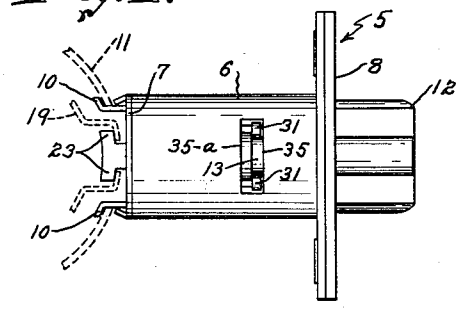


Fig. 2.

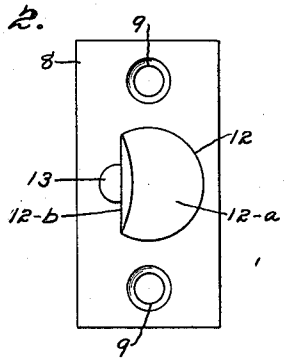


Fig. 3.

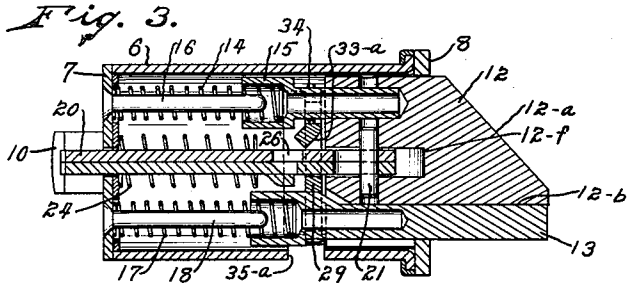


Fig. 4.

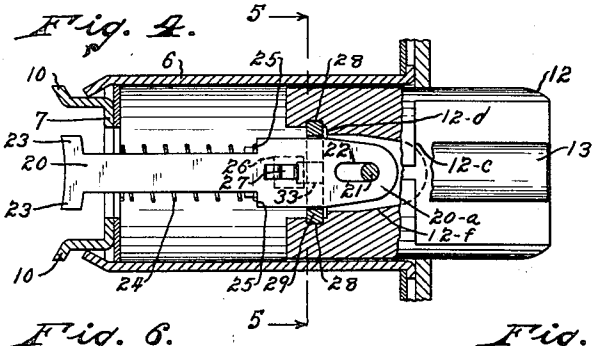


Fig. 5.

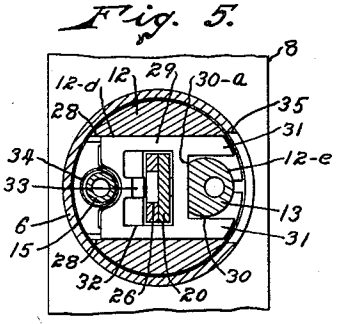


Fig. 6.

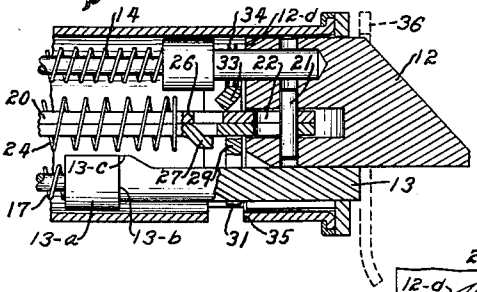


Fig. 7.

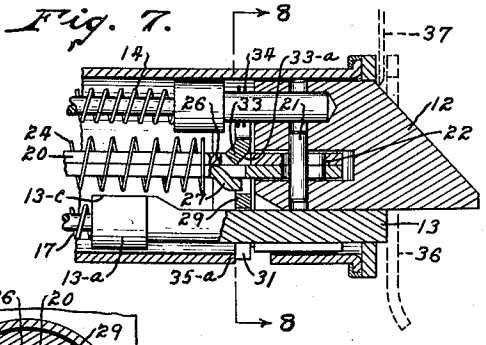
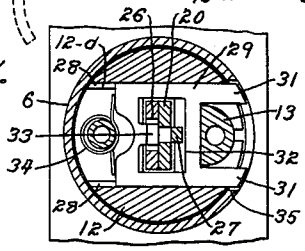


Fig. 8.



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DEADLOCKING LATCH MECHANISMS

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13 Claims. (Cl. 292—163)

This invention relates to deadlocking latch mechanisms and more particularly to a deadlocking latch mechanism that is especially adapted for use in a latch unit for a cylindrical door lock, but which may also be easily incorporated in many other types of door locks without departing from the spirit of the present invention.

Deadlocking latch mechanisms of the type embodying the present invention employ an auxiliary bolt in conjunction with the main latch bolt to control a deadlocking or dogging member for the main latch bolt. When the door is closed and the main latch bolt is projected into its strike, the auxiliary bolt is held in depressed position by the strike to cause or allow movement of the deadlocking member into deadlocking position wherein depression of the main latch bolt, such as by a tool inserted between the door and its frame, is prevented.

The vast majority of prior deadlocking latch mechanisms have been constructed in such a way that the deadlocking member moves into deadlocking position each time the door is closed. Since an attempt may never be made to forcibly depress the latch bolt, it is not only unnecessary to actuate the deadlocking member each time the door is closed, but is also undesirable because of the excessive wear to which the parts of the mechanism are subjected.

The primary object of this invention, therefore, is to provide a deadlocking latch mechanism in which the deadlocking member does not move to deadlocking position until an attempt is actually made to forcibly depress the main latch bolt.

A further object of the invention is to provide a deadlocking latch unit in which the deadlocking mechanism is conditioned for operation each time the door is closed, but in which the deadlocking member never actually moves into deadlocking position unless an attempt is made to forcibly depress the main latch bolt.

A still further object of the invention is to provide a deadlocking latch mechanism in which the deadlocking member does not move into deadlocking position unless an attempt is made to forcibly depress the latch bolt, and in which said deadlocking member cannot be knocked out of deadlocking position by striking the door with a heavy implement during an attempt to forcibly depress the main latch bolt.

Further objects and advantages of this invention will be more clearly understood from the following description and the accompanying drawing in which:

Fig. 1 is an elevational view of a latch unit embodying our invention.

Fig. 2 is an end view of said latch unit.

Fig. 3 is an enlarged, plan view thereof, in central horizontal section, illustrating the construction of the latch unit.

Fig. 4 is a sectional, elevational view of the latch unit, further illustrating its construction.

Fig. 5 is a sectional, end view of the latch unit taken on line 5—5 of Fig. 4.

Fig. 6 is a sectional, plan view of the latch unit, similar to Fig. 3, but illustrating the condition of the mechanism when the door is closed.

Fig. 7 is a similar view, illustrating the operation of the deadlocking member when an attempt is made to forcibly depress the main latch bolt.

Fig. 8 is a sectional, end view of the latch unit, taken on line 8—8 of Fig. 7.

Our invention is illustrated herein in a separate latch unit which forms part of a cylindrical door lock and, as well known to those skilled in the art, is adapted to be inserted into a hole bored into the edge of a door and connected to the separate operating unit of the cylindrical lock which is disposed in a hole extending perpendicularly through the door and intersecting the hole for the latch unit. Said operating unit contains a retracting mechanism which is adapted to be connected to the main latch bolt of the latch unit whereby said latch bolt may be withdrawn from either side of the door.

Referring now to the drawing, the latch unit 5 embodying our invention includes a tubular case 6 which is closed at its rear end by an end plate 7 and at its front end by a faceplate 8 having holes 9—9 therein which receive screws that are used to fasten the latch unit to the door. The end plate 7 has fingers 10—10 extending perpendicularly therefrom which are adapted to engage the housing 11 of the operating unit, as shown in Fig. 1, to prevent relative movement of the two units.

A main latch bolt 12 of generally cylindrical shape is slidably mounted in the case 6 and extends through a complementary opening in the faceplate 8. The latch bolt has a beveled outer end 12–*a* and a flat side 12–*b* which extends longitudinally thereof for a portion of its length and terminates at a shoulder 12–*c* that engages the inner side of the faceplate 8 to limit movement of the latch bolt to its fully projected position as illustrated in Figs. 1 to 6. The beveled end 12–*a* provides a cam surface that is engageable with the strike on the door frame to cause movement of the latch bolt to retracted position as the door is closed.

A transversely extending slot 12–*d* is formed in the inner end of the latch bolt 12 to accommodate parts of the deadlocking mechanism to be hereinafter described, and said latch bolt also has a longitudinally extending hole 12–*e* in the portion thereof between the shoulder 12–*c* and the bottom of the slot 12–*d* which slidably receives an auxiliary bolt 13 of more or less conventional form which is disposed adjacent the flat side 12–*b* of the latch bolt and extends through a hole in the faceplate 8. The inner end portion 13–*a* of the auxiliary bolt is enlarged to form an annular shoulder 13–*b* therearound and said portion is provided with a flat side forming a blocking surface 13–*c* which extends perpendicularly with respect to the sides of the slot 12–*d* in the latch bolt.

The latch bolt is urged to projected position by a compression spring 14 which has one end resting against the end plate 7 of the latch case and its opposite end disposed in a positioning sleeve 15 that is mounted in a hole extending longitudinally into the latch bolt from the bottom of the slot 12–*d*. The spring 14 is maintained in proper position by a pin 16 which extends axially thereof from the end plate 7.

The auxiliary bolt 13 is biased toward projected position, as shown in Figs. 1, 3 and 4, by a compression spring 17 that is disposde between the end plate 7 of the latch case and a shoulder at the bottom of an axial hole in the auxiliary bolt. A guide pin 18 is also provided on the end plate 7 for positioning the spring 17 and is adapted to enter the said axial hole to guide the auxiliary bolt 13 in its rearward movement.

The main latch bolt 12 is connected to the retractor 19 in the housing 11 of the operating unit by a tailpiece

20 which, in the present instance, is formed of two identically shaped flat bars that are spot-welded together to form a unitary structure. The tailpiece has a head portion 20–*a* which is received in a recess 12–*f* extending axially into the latch bolt from the bottom of the slot 12–*d*, and said tailpiece is connected to the latch bolt by a pin 21 which extends transversely across the recess 12–*f* and through an elongated slot 22 in said head portion of the tailpiece, thus providing a lost motion connection which permits depression of the latch bolt from its projected position independently of the tailpiece for a purpose to be hereinafter described.

The tailpiece extends axially of the latch case through an opening in the end plate 7 and is provided at its rear end with oppositely extending lugs 23—23 which are engageable with the retractor 19 of the operating unit in the well known manner as shown in Fig. 1. A light compression spring 24 surrounds the tailpiece between shoulders 25—25 thereon and the end plate 7 and urges the tailpiece forwardly into its normal position wherein the lugs 23—23 are in engagement with the retractor 19. In this position, the pin 21 in the latch bolt 12 is disposed at the forward end of the slot 22 in the tailpiece as shown in Figs. 3 and 4.

The side of the tailpiece opposite the auxiliary bolt 13 contains a recess 26 which is located substantially centrally between the upper and lower edges of the head portion 20–*a* and is spaced rearwardly from the slot 22. On its other side, the tailpiece is provided with a laterally offset blocking lug 27 which is disposed centrally of the head portion 20–*a* and has a flat end facing the latch bolt, said recess 26 and blocking lug 27 being provided for a purpose to be hereinafter set forth.

The opposite side walls of the transverse slot 12–*d* in the main latch bolt 12 contain aligned, parallel grooves 28—28 which are disposed closely adjacent the bottom of said slot and define a guideway which extends transversely of the tailpiece 20 and in which a flat deadlocking plate 29 is mounted for rectilinear sliding movement transversely of said latch bolt. The deadlocking plate contains a notch 30 in its right-hand end (see Fig. 5) forming fingers 31—31 thereon which straddle the auxiliary bolt 13 and are engaged by the annular shoulder 13–*b* thereon to limit movement of said auxiliary bolt to its projected position. When in said projected position, the blocking surface 13–*c* on the auxiliary bolt is engaged by the edge 30–*a* of the notch 30 in the deadlocking plate and thereby retains said plate in non-deadlocking position, as shown in Figs. 3 and 5, wherein the terminal ends of the fingers 31—31 are disposed inwardly of the peripheral edge of the latch bolt 12.

A clearance opening 32 is formed intermediate the ends of said deadlocking plate through which the tailpiece 20 extends, and a stop finger 33 projects into said opening from the center of the left-hand edge thereof (see Fig. 5) which is adjacent the side of the tailpiece 20 having the recess 26. Said stop finger 33 extends rearwardly from the deadlocking plate at an angle of approximately 45° and its forward side provides a cam surface 33–*a*. In the normal condition of the latch mechanism, illustrated in Figs. 1 to 5, wherein both the main latch bolt 12 and the auxiliary bolt 13 are projected, the free end of the stop finger is disposed very close to the side of the tail piece 20 forwardly of the recess 26 therein as probably best illustrated in Fig. 3. The deadlocking plate is biased toward deadlocking position by a spring 34 which is wound around the sleeve 15 and has opposite free end portions engaging the adjacent edge of the deadlocking slide.

In the operation of the deadlocking mechanism to be hereinafter described, the fingers 31—31 on the deadlocking plate are adapted to enter a circumferential slot 35 formed in the latch case 6 in alignment with the deadlocking slide. The rear edge of said slot provides an abutment 35–*a* on the case that is engageable by the fingers of the deadlocking slide to prevent depression of the latch bolt to its fully retracted position.

In describing the operation of the latch mechanism, let it first be assumed that the door in which the latch mechanism is mounted is open and that said latch mechanism is in its normal condition as illustrated in Figs. 1 to 5. When the door is closed, the beveled surface 12–*a* of the latch bolt will engage the strike 36 mounted on the door frame and the latch bolt will be urged into the latch case. The deadlocking plate 29 and the auxiliary bolt 13 will be carried rearwardly with the latch bolt in the same relative positions which they normally occupy and as best illustrated in Fig. 3. The latch bolt and the parts carried thereby will move rearwardly independently of the tailpiece 20 against the force of the springs 14 and 17 until the deadlocking plate 29 engages the forward end of the blocking lug 27 whereupon the tailpiece will move rearwardly with the latch bolt and relatively to the retractor 19. During this movement, the deadlocking plate is held in normal, non-deadlocking position by the auxiliary bolt, and the stop finger 33 is thus prevented from entering the recess 26 in the tailpiece although it does move into alignment therewith.

When the door is fully closed, the latch bolt 12 is projected into the opening in the strike plate 36 by the spring 14. The tailpiece will also be urged forwardly simultaneously with the latch bolt under the influence of the spring 24. The auxiliary bolt 13 will, however, be retained in depressed position through the engagement of its outer end with the strike plate 36. With the door closed, the parts thus assume the positions shown in Fig. 6. It will be noted that when the auxiliary bolt is in depressed position, the deadlocking plate is no longer held out of deadlocking position by the blocking abutment 13–*c* thereon, but through the engagement of the stop finger 33 with the adjacent side of the tailpiece 20 forwardly of the recess 26.

When the retractor 19 of the operating unit is actuated to open the door, the tailpiece 20 is pulled rearwardly and thus withdraws the latch bolt 12 out of the opening in the strike plate and ino the latch case. During retraction of the latch bolt through operation of the retractor 19, the latch bolt and the tailpiece will move rearwardly as a unit in the same relative positions illustrated in Fig. 6 and the deadlocking plate 29 will therefore be retained out of deadlocking position throughout the rearward movement of the parts. When the door is opened, the spring 17 will urge the auxiliary bolt into its normal position relatively to the latch bolt to bring the blocking abutment 13*c* thereon into engagement with the edge of the notch 30 in the deadlocking plate whereby said deadlocking plate is maintained in non-deadlocking position by the auxiliary bolt as the latch mechanism returns to normal position under the influence of the springs 14, 17 and 24 when the retractor operating mechanism is released.

If, when the door is closed and the latch mechanism is in the condition illustrated in Fig. 6, an attempt is made to forcibly depress the latch bolt 12 such as by means of a tool 37 (see Fig. 7) inserted between the edge of the door and its frame, the latch bolt and the deadlocking plate carried thereby will move rearwardly relatively to the tailpiece 20 which is held in normal position by the spring 24. As the free end of the stop finger 33 rides over the forward edge of the recess 26 in the tailpiece, the spring 34 will urge the deadlocking plate laterally with respect to the latch bolt to project the fingers 31—31 thereon into the slot 35 in the latch case. When said fingers 31—31 engage the rear edge 35–*a* of said slot 35, the inward movement of the latch bolt is terminated and further depression thereof is prevented. When the tool 37 is removed, the spring 14 will urge the latch bolt into normal projected position. As the latch bolt and the deadlocking plate move forwardly rela-

tively to the tailpiece, the cam surface 33–*a* on the stop finger 33 will engage the edge of the recess 26 to thus cause transverse movement of the deadlocking plate back to its normal non-deadlocking position.

When the deadlocking plate is in deadlocking position, as illustrated in Figs. 7 and 8, it will be noted that the edge of the clearance opening 32 therein opposite the stop finger 33 is aligned with the blocking lug 27 on the tailpiece. Said blocking lug prevents transverse movement of the deadlocking plate back to its non-deadlocking position and thus defeats any attempt to "knock off" the deadlocking plate by striking the door with a heavy implement.

It will be understood that our invention provides a deadlocking mechanism wherein the deadlocking member is never actually actuated until an attempt is made to forcibly depress the latch bolt, but wherein said deadlocking member is always conditioned for actuation when the door is closed and the auxiliary bolt is depressed.

We claim:

1. In a latch mechanism, a case, a latch bolt reciprocably mounted in said case for movement between projected and retracted positions, a spring urging said latch bolt to its projected position, a tailpiece extending from said latch bolt longitudinally of said case and adapted to be connected to a retractor, means providing a lost motion connection between said tailpiece and said latch bolt permitting depression of said latch bolt from its projected position independently of said tailpiece, an abutment on said case, a deadlocking member mounted on said latch bolt for movement transversely of said tailpiece between a non-deadlocking position clear of said abutment and a deadlocking position engaged with said abutment wherein depression of said latch bolt from its projected to its retracted position is prevented, a separate spring member mounted on said latch bolt and continuously biasing said deadlocking member toward deadlocking position, and means on said tailpiece defining a retaining portion adapted to be engaged by and to retain said deadlocking member in non-deadlocking position when said latch bolt is in projected position, said deadlocking member being carried out of engagement with said retaining portion and movable into deadlocking position under the influence of said separate spring member during the initial movement of said latch bolt when it is depressed from its projected position independently of said tailpiece.

2. In a latch mechanism, a case, a latch bolt reciprocably mounted in said case for movement between projected and retracted positions, a spring urging said latch bolt toward projected position, a tailpiece extending rearwardly from said latch bolt longitudinally of said case and adapted to be connected to a retractor, a second spring urging said tailpiece toward said latch bolt, means providing a lost motion connection between said tailpiece and said latch bolt permitting depression of said latch bolt from its projected position independently of said tailpiece, an abutment on said case, a deadlocking member mounted on said latch bolt for movement transversely of said tailpiece between a non-deadlocking position clear of said abutment and a deadlocking position engaged with said abutment wherein depression of said latch bolt from its projected to its retracted position is prevented, a third spring member mounted on said latch bolt and continuously biasing said deadlocking member toward deadlocking position, and means on said tailpiece defining a retaining portion adapted to be engaged by and to retain said deadlocking member in non-deadlocking position when said latch bolt is in its projected position, said deadlocking member being carried out of engagement with said retaining portion and movable into deadlocking position under the influence of said third spring member during the initial movement of said latch bolt when it is depressed from its projected position independently of said tailpiece.

3. In a latch mechanism, a case, a latch bolt reciprocably mounted in said case for movement between projected and retracted positions, a tailpiece extending from said latch bolt longitudinally of said case and adapted to be connected to a retractor, means providing a lost motion connection between said tailpiece and said latch bolt permitting depression of said latch bolt from its projected position independently of said tailpiece, an abutment on said case, a deadlocking member mounted on said latch bolt for movement between a non-deadlocking position clear of said abutment and a deadlocking position engaged with said abutment wherein depression of said latch bolt from its projected to its retracted position is prevented, a spring continuously biasing said deadlocking member toward deadlocking position, means defining a retaining portion on said tailpiece adapted to be engaged by and to retain said deadlocking member in non-deadlocking position when said latch bolt is in its projected position, said deadlocking member being carried out of engagement with said retaining portion and movable into deadlocking position under the influence of said spring during initial movement of said latch bolt when it is depressed from its projected position independently of said tailpiece, and a blocking member formed on said tailpiece with which said deadlocking member is alignable when in deadlocking position for preventing movement of said deadlocking member out of deadlocking position.

4. In a latch mechanism, a case, a latch bolt reciprocably mounted in said case for movement between projected and retracted positions, a tailpiece extending rearwardly from said latch bolt longitudinally of said case and adapted to be connected to the retractor of a latch operating mechanism, a spring urging said tailpiece forwardly in said case, means providing a lost motion connection between said tailpiece and said latch bolt permitting depression of the latch bolt from its projected position independently of said tailpiece, an abutment on said case, a deadlocking member mounted on said latch bolt for movement thereon between a non-deadlocking position clear of said abutment and a deadlocking position engaged with said abutment wherein depression of said latch bolt to its retracted position is prevented, a separate spring continuously biasing said deadlocking member toward deadlocking position, means defining a retaining portion on said tailpiece adapted to be engaged by and to retain said deadlocking member in non-deadlocking position when said latch bolt is in its projected position, said deadlocking member being carried out of engagement with said retaining portion and movable into deadlocking position under the influence of said separate spring during initial movement of said latch bolt when it is depressed independently of said tailpiece, and a blocking member formed on said tailpiece in alignment with said deadlocking member when in deadlocking position for preventing movement of said deadlocking member out of deadlocking position.

5. In a latch mechanism, a case, a latch bolt reciprocably mounted in said case for movement between projected and retracted positions, a spring urging said latch bolt to projected position, a tailpiece extending rearwardly from said latch bolt longitudinally of said case and adapted to be connected to the retractor of a latch operating mechanism, means providing a lost motion connection between said tailpiece and said latch bolt permitting depression of said latch bolt from its projected position independently of said tailpiece, an abutment on said case, a deadlocking member mounted on said latch bolt for movement transversely of said tailpiece between a non-deadlocking position clear of said abutment and a deadlocking position engaged with said abutment wherein depression of said latch bolt from its projected to its retracted position is prevented, a separate spring mounted on said latch bolt and continuously biasing said deadlocking member toward deadlocking position, a projec-

tion on said deadlocking member engageable with said tailpiece when the latch bolt is projected and retaining said deadlocking member in non-deadlocking position, said tailpiece having a recess therein normally disposed rearwardly of and adapted to receive said projection, said deadlocking member being moved to a position wherein said projection is aligned with said recess upon initial depression thereof relatively to said tailpiece, whereupon said spring will urge said deadlocking member into deadlocking position engaged with said abutment.

6. The subject matter set forth in claim 5 wherein said projection and the edge of said recess over which it moves are formed to provide cooperative cam means capable of camming said deadlocking member from deadlocking to non-deadlocking position when said latch bolt is moved by its spring from its depressed position at which it is deadlocked to projected position.

7. In a latch mechanism, a case, a latch bolt reciprocably mounted in said case for movement between projected and retracted positions, a spring urging said latch bolt to projected position, retracting means connected to said latch bolt and through which said latch bolt is adapted to be retracted from projected to retracted positions, means providing a lost motion connection between said latch bolt and said retracting means permitting depression of said latch bolt from its projected position independently of said retracting means, said latch bolt having spaced parallel grooves in its inner end portion defining a guideway extending transversely thereof, an abutment on said case, a deadlocking plate mounted in said guideway for rectilinear sliding movement transversely of said latch bolt between a non-deadlocking position clear of said abutment and a dealocking position engaged with said abutment wherein depression of said latch bolt from its projected to its retracted position is prevented, a separate spring mounted on said latch bolt and continuously biasing said deadlocking plate toward deadlocking position, means adapted to be engaged by and to retain said deadlocking plate in non-deadlocking position when said latch bolt is in its projected position, said deadlocking plate being carried out of engagement with said retaining means and movable into deadlocking position under the influence of said separate spring during initial movement of said latch bolt when it is depressed from its projected position independently of said retracting means.

8. In a latch mechanism, a case, a latch bolt reciprocably mounted in said case for movement between projected and retracted positions, a spring urging said latch bolt to projected position, a tailpiece extending rearwardly from said latch bolt longitudinally of said case and adapted to be connected to the retractor of a latch operating mechanism, means providing a lost motion connection between said tailpiece and said latch bolt permitting depression of said latch bolt from its projected position independently of said tailpiece, means forming a guideway on the inner end portion of said latch bolt extending transversely across said tailpiece, an abutment on said case, a deadlocking plate slidable in said guideway and having portions adapted to engage said abutment, said deadlocking plate being movable between a non-deadlocking position wherein said portions are clear of said abutment and a deadlocking position wherein said portions are engaged with said abutment and prevent depression of said latch bolt to its fully retracted position, a separate spring mounted on said latch bolt and continuously biasing said deadlocking plate toward deadlocking position, means on said tailpiece defining a retaining portion adapted to be engaged by and to retain said deadlocking plate in non-deadlocking position when said latch bolt is in projected position, said deadlocking plate being carried out of engagement with said retaining portion and movable into deadlocking position by said separate spring during the initial movement of said latch bolt when it is depressed from its projected position independently of said tailpiece.

9. The subject matter set forth in claim 8 wherein said projection is inclined rearwardly from said deadlocking plate to thereby provide a cam surface on the front side thereof that is engageable with the forward edge of said recess to cam said deadlocking plate from deadlocking to non-deadlocking position when said latch bolt is moved by its said spring from its depressed, deadlocked position to its projected position.

10. The subject matter set forth in claim 9 wherein said tailpiece is provided with a laterally extending projection on the opposite side thereof from said retaining portion forming a blocking member with which the adjacent edge of the opening in said deadlocking plate is aligned when in deadlocking position, whereby to prevent inertial movement of said deadlocking plate to non-deadlocking position in response to a sharp blow on the door in which the latch mechanism is mounted.

11. In a latch mechanism, a case, a latch bolt reciprocably mounted in said case for movement between projected and retracted positions, a spring urging said latch bolt to projected position, a tailpiece extending rearwardly from said latch bolt longitudinally of said case and adapted to be connected to the retractor of a latch operating mechanism, means providing a lost motion connection between said tailpiece and said latch bolt permitting depression of said latch bolt from its projected position independently of said tailpiece, means forming a guideway on the inner end portion of said latch bolt extending transversely across said tailpiece, an abutment on said case, a deadlocking plate slidable in said guideway and having portions adapted to engage said abutment, said deadlocking plate being movable between a non-deadlocking position wherein said portions are clear of said abutment and a deadlocking position wherein said portions are engaged with said abutment and prevent depression of said latch bolt to its fully retracted position, a separate spring mounted on said latch bolt and continuously biasing said deadlocking plate toward deadlocking position, a projection on said deadlocking plate engageable with said tailpiece when the latch bolt is projected to retain said deadlocking plate in non-deadlocking position, said tailpiece having a recess therein normally located rearwardly of and adapted to receive said projection, said deadlocking plate being carried to a position wherein said projection is aligned with said recess upon initial depression thereof from projected position relatively to said tailpiece, whereupon said separate spring member will urge said deadlocking plate into deadlocking position.

12. In a latch mechanism, a case, a latch bolt reciprocably mounted in said case for movement between projected and retracted positions, a spring urging said latch bolt to projected position, a tailpiece extending rearwardly from said latch bolt longitudinally of said case and adapted to be connected to the retractor of a latch operating mechanism, means providing a lost motion connection between said tailpiece and said latch bolt permitting depression of said latch bolt from its projected position independently of said tailpiece, means forming a guideway on the inner end portion of said latch bolt extending transversely across said tailpiece, an abutment on said case, a deadlocking plate slidable in said guideway and having an opening therein through which said tailpiece extends, said deadlocking plate having portions adapted to engage said abutment and being movable between a non-deadlocking position wherein said portions are clear of said abutment and a deadlocking position wherein said portions are engaged with said abutment and prevent depression of said latch bolt to its fully retracted position, a separate spring mounted on said latch bolt and continuously biasing said deadlocking plate toward deadlocking position, means on the edge of the opening in said deadlocking plate remote from said dead-

locking portions defining a stop portion, means on said tailpiece defining a retaining portion facing said stop portion and engageable thereby when the latch bolt is projected to retain said deadlocking plate in non-deadlocking position, said deadlocking plate being movable to a position wherein said stop portion is disengaged from said retaining portion during initial depression of said latch bolt from its projected position, whereupon said separate spring will urge said deadlocking plate into deadlocking position engaged with said abutment to prevent further depression of said latch bolt.

13. In a latch mechanism, a case, a latch bolt reciprocably mounted in said case for movement between projected and retracted positions, a spring urging said latch bolt to rejected position, a tailpiece extending rearwardly from said latch bolt longitudinally of said case and adapted to be connected to the retractor of a latch operating mechanism, means providing a lost motion connection between said tailpiece and said latch bolt permitting depression of said latch bolt from its projected position independently of said tailpiece, an auxiliary bolt mounted in said case adjacent said latch bolt for reciprocable movement between projected and depressed positions, spring means urging said auxiliary bolt to projected position, an abutment on said case, means on the inner end portion of said latch bolt forming a guideway extending transversely across said tailpiece, a deadlocking plate mounted in said guideway for rectilinear sliding movement between a non-deadlocking position clear of said abutment and a deadlocking position engaged with said abutment wherein depression of said latch bolt from its projected to its retracted position is prevented, a separate spring mounted on said latch bolt and continuously biasing said deadlocking plate toward deadlocking position, a blocking portion on said auxiliary bolt disposed in the path of and engageable by said deadlocking plate when said auxiliary bolt is in projected position to prevent movement of said deadlocking plate into deadlocking position, means on said tailpiece defining a retaining portion adapted to be engaged by and to retain said deadlocking plate in non-deadlocking position when said auxiliary bolt is depressed, said deadlocking plate being carried out of engagement with said retaining portion and movable into deadlocking position under the influence of said separate spring during initial movement of said latch bolt from its projected position independently of said tailpiece.

References Cited in the file of this patent

UNITED STATES PATENTS

2,636,376	McConnell	Apr. 28, 1953
2,644,706	McConnell	July 7, 1953
2,759,747	McConnell	Aug. 21, 1956