

2,861,834

2 Sheets-Sheet 1



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Nov. 25, 1958

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2,861,834

CONTROL MECHANISM FOR DOOR LATCHES

Original Filed Feb. 16, 1948

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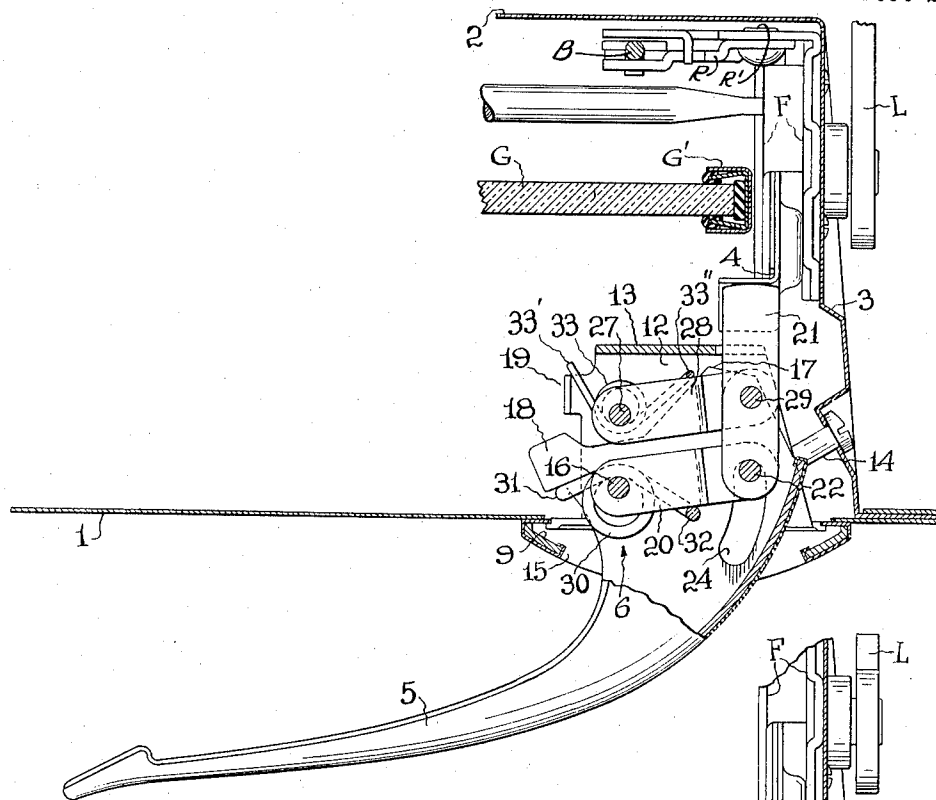


FIG. 5

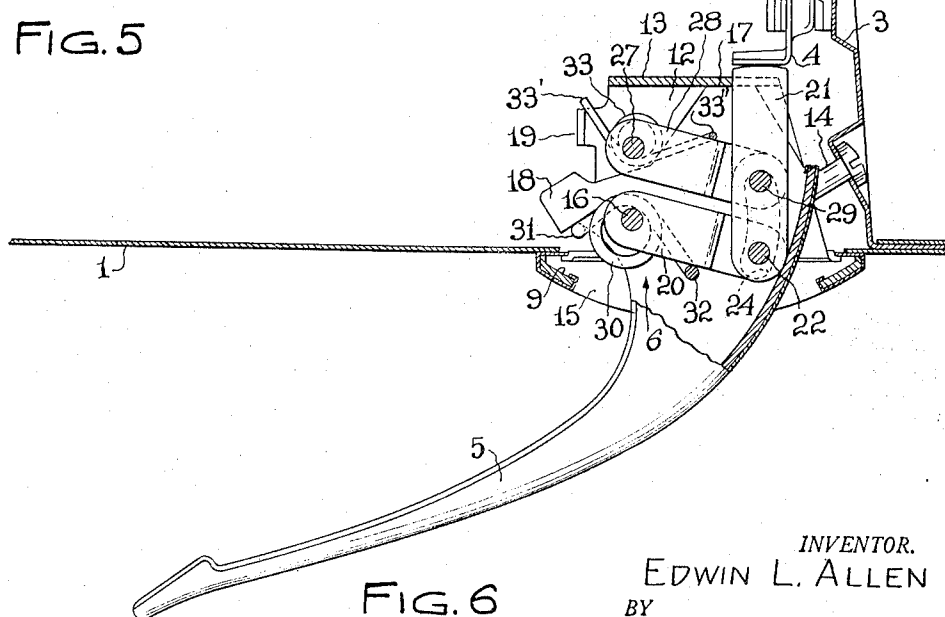


FIG. 6

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CONTROL MECHANISM FOR DOOR LATCHES

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Original application February 16, 1948, Serial No. 8,565,
now Patent No. 2,573,679, dated November 6, 1951.
Divided and this application August 6, 1951, Serial No. 10
240,523

21 Claims. (Cl. 292—336.3)

This invention relates to door latching and locking
mechanisms and more particularly to certain improve-
ments in apparatus for manually effecting release of a
door latch from its latched or door closed position.

In the latching and locking of the doors of automotive
vehicles or the like, it has been proposed to use latch
mechanisms of various types. A very successful device
for this purpose is illustrated and described in the Ru-
dolph I. Schonitzer United States Patent No. 2,094,413,
and another embodiment of the same general type of
door control mechanism is illustrated and described in
my copending United States patent application Serial No. 746,521,
filed May 7, 1947 (Patent No. 2,658,783). In
the door control mechanisms illustrated in said patent
and application the latching apparatus includes coacting
elements associated with the door and door frame struc-
tures whereby the door may be latched and held in
closed position or released from closed position to per-
mit opening thereof, and a detent whereby one of the
co-acting elements, which may be termed the latch mem-
ber, is releasably retained in its operative or door latched
position when the door is closed.

After the detent of this type of mechanism is moved by
suitable manually operable means to release the latch
member and permit opening of the door, the latch mem-
ber is moved concurrently with the initial door opening
movement into an operated or door unlatched position
which is different from its above-mentioned operative or
door latched position and remains in this operated posi-
tion until the door is again closed. Means are also pro-
vided for locking the mechanism to prevent unauthorized
opening of the door, which means effect locking of the
door by blocking the detent, together with the parts of
the latch mechanism proper which are directly associated
with the detent for actuation thereof, against movement
from latch restraining to latch released position.

In door control installations of the type referred to,
manually operable means is provided, such as a push
button or handle assembly, for effecting movement of
the detent from its latch restraining to its latch released
position. In the apparatus of the said Schonitzer patent
and of my said copending U. S. patent application such
manually operable means is also blocked against move-
ment from its neutral or non-operating position into oper-
ating or latch releasing position when the locking means
is positioned to block the detent against movement into
latch released position. In some instances this arrange-
ment is considered undesirable because, if the mechanism
is locked and an effort is made to open the door by oper-
ating the handle or push button, excessive force may be
applied thereon with resulting damage to the latch me-
chanism, etc. The same difficulty may be encountered in
installations of other types of door latches where locking
blocks the handle against movement.

Accordingly, it is among the objects of the present in-
vention to provide safety means for permitting the manu-
ally operable handle, push button, or the like of a door
latching and locking installation to be moved by the oper-

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ator in its normal path from its neutral or non-operating
position to its operating or latch releasing position regard-
less of whether the latch mechanism, and particularly
the part thereof which is directly engaged by the manually
operable unit, is free to move or is locked against move-
ment.

Other objects of my invention include: the provision of
a manually operable control unit for door latches or the
like whereby only a predetermined permissible maximum
load may be imposed upon the latch mechanism upon
operation of the manual unit, thus preventing damage
to the latch unit; the provision of manually operable con-
trol means for a door latch mechanism which is effective
when the latch mechanism is unlocked to cause release
thereof but which, when the latch mechanism is locked,
may be moved without releasing the latch mechanism; the
provision of a safety handle assembly for door latches or
the like which includes a yieldable safety member and is
adapted to move between two extreme positions, in one
of which the handle is blocked against further movement
by engagement with a rigid member arranged to block
the handle against further movement before the yieldable
member has built up its maximum load on the latch
mechanism; the provision of a safety handle assembly
all moving parts of which are held under spring tension
at all times, thus preventing objectionable rattles, etc.;
and the provision of a compact, rugged, effective, and
economical manually operable unit for controlling the
operation of door latches or the like whereby the possi-
bility of damage to the latch unit is effectively prevented.

The above and other objects of my invention will ap-
pear from the following description of several embodi-
ments thereof, reference being had to the accompanying
drawings in which:

Figure 1 is a fragmentary side elevation of a portion of
the outside of the door of an automotive vehicle or the
like, partly in cross section, showing one embodiment of
my improved safety handle assembly.

Figure 2 is a horizontal cross-sectional view taken sub-
stantially on line 2—2 of Figure 1 and illustrating the
safety handle assembly together with the essential parts
of the latch mechanism with which it is associated, the
latch mechanism being shown in door latched position
and the handle assembly being shown in neutral or non-
operative position.

Figure 3 is a detached vertical cross-sectional view of
the safety handle assembly shown in Figures 1 and 2,
taken substantially on line 3—3 of Figures 1 and 2.

Figure 4 is a vertical cross-sectional view generally
similar to Figure 3 but taken on line 4—4 of Figures 1
and 2.

Figure 5 is a view generally similar to Figure 2 but
showing the latch mechanism in unlocked, door unlatched
position and the handle mechanism in operating or latch
releasing position.

Figure 6 is a view generally similar to Figures 2 and 5
but illustrating the latch mechanism in locked, door
latched position and the handle of the manual control unit
in its fully extended operating or latch releasing position
although the contact member of the control unit has re-
mained substantially in its neutral or non-operating po-
sition by virtue of the safety means incorporated in the
assembly.

Referring to Figures 1 to 6, inclusive, the door with
which my apparatus is associated includes an outer panel
1 and an inner panel 2 connected at the free edge of the
door by a wall 3. The usual window glass is indicated
at G and its glass run channel is seen at G'. It will, of
course, be understood that my latch control or actuating
apparatus may be employed with various types of doors
and with other closure members and with various kinds
of latch mechanisms. The illustrated latch mechanism is

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of the type described and claimed in my said copending United States patent application Serial No. 746,521 (Patent No. 2,658,783) and includes a latch member L adapted to coact with a keeper pin (not shown) on the adjacent door frame. This latch mechanism also includes a frame structure generally indicated at F mounted on the inner side of the edge wall 3 and an actuating member in the form of an arm 4 suitably supported by the frame F. This actuating member or arm 4 is adapted to effect release of the latch member L from its door latched position when moved inwardly from the position shown in Figure 2 into that shown in Figure 5 as will be later described.

Also included in the latch mechanism, but not illustrated herein as the details thereof form no part of the present invention, is a locking means for locking the latch mechanism to prevent release of the latch member L from its door latched position. For purposes of the present description it will be sufficient to point out that when the locking means is unlocked the actuating member or arm 4 may be moved between its non-operating or neutral position shown in Figure 2 and its operating or latch releasing position shown in Figure 5 while, when the locking mechanism is locked, the actuating member or arm 4 is maintained substantially in its neutral or non-operating position as seen in Figure 2. A locking rod B, shown in Figures 2 and 5, is connected to the locking member R which is pivotally supported at R'. Rod B extends upwardly therefrom through the garnish molding for operation from inside the door. When the operator desires to lock the door from the inside, he pushes rod B downwardly, which movement causes the locking member R to block movement of actuating member or arm 4 in latch releasing direction. Conversely, lifting of rod B releases the actuating member or arm 4 to permit movement thereof in latch releasing direction.

As illustrated in Figures 1 to 6 inclusive my improved safety handle assembly comprises a handle member 5 of any suitable form having at its inner end a bracket-like portion of the nature of a pivot arm generally indicated at 6 and having horizontally inwardly extending spaced side walls 7 and 8. The supporting housing or frame structure for my handle assembly is the inwardly directed bracket generally indicated at H (Figs. 3 and 4) and includes a bezel supporting portion 9 disposed on the outer side of the door panel 1, a plate 10 secured to the bezel supporting portion 9, and inwardly extending spaced arms 11 and 12 connected at their inner ends by a vertical wall 13.

When assembled on a door the arms 11 and 12 extend through a suitable aperture in the door panel 1. Retaining screws 14, which extend through the edge wall 3 of the door and have threaded engagement with the housing H, are adapted to secure the housing H in position with the plate 10 clamped against the outer surface of the panel 1 and the arms 11 and 12 projecting inwardly into the interior of the door. The bezel supporting portion 9 is slotted at 15 to permit the inner end of the handle 5 to extend therethrough, sufficient clearance being provided so that the handle 5 may move freely from its neutral or non-operating position as seen in Figure 2 to its extended or operating position seen in Figures 5 and 6. The pin 16 extends across between the arms 11 and 12 of housing H and is secured thereto as by riveting its outer ends as clearly seen in Figure 4. This pin 16 passes through suitable holes in the side walls 7 and 8 of bracket-like portion 6, thus permitting movement thereof from the position shown in Figure 2 into those shown in Figures 5 and 6. It will be noted that the side walls 7 and 8 of bracket-like portion 6 are disposed in sliding engagement with the inner surfaces of the arms 11 and 12 of housing H, thus guiding the handle in the desired path of movement and providing a substantial and rattle-proof support therefor.

The inner ends 17 of the side wall portions 7 and 8 of

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bracket-like portion 6 form abutments which, as is best seen in Figure 6, are adapted to engage the end wall 13 and limit the outward pivotal movement of the handle 5 and bracket-like portion 6 about the pivotal support 16. Movement of the handle 5 and bracket-like portion 6 in the opposite (inward) direction is limited by projecting arms 18 on the side walls 7 and 8 which arms, as is clearly seen in Figure 2, engage lugs 19 extending inwardly from the arms 11 and 12 of housing H.

Also pivotally supported on the pin 16 is a guide arm 20 of the nature of a thrust member the outer end of which is bifurcated as seen at 20' (Figures 1 and 3) to accommodate a latch-actuating element that is slideably mounted at one end in vertical wall 13 of housing H and pivotally mounted at its other end on a moveable pin disposed near the front of bracket-like portion 6 of handle 5 between the lateral limits of the inwardly directed portion of housing H, such latch-actuating element taking the form of the plunger or contact member 21. This plunger 21 is pivotally secured to the bifurcated end portions 20' of guide arm 20 by the pin 22 which extends outwardly into arcuate slots 23 and 24 in the top and bottom side walls 7 and 8 respectively of the bracket-like portion 6. It will be noted that the ends of pin 22 are not secured to the bracket-like portion 6 but may have movement relative thereto in the slots 23 and 24 about the common pivotal support 16 of the guide arm 20 and bracket-like portion 6. In order to center the plunger 21 between the upper and lower side walls 7 and 8 of bracket-like portion 6 spacer bars 25 and 26 are disposed between the bifurcated end portions 20' of guide arm 20 and the inner surfaces of side walls 7 and 8.

Pivotally mounted on a pin 27 which is carried by and extends between the arms 11 and 12 of housing H is a second guide arm 28, likewise of the nature of a thrust member, which is also bifurcated at its outer ends as seen at 28' (Figure 3) in the same manner as guide arm 20 and is pivotally secured to the plunger 21 by a pin 29. It will be apparent that the parallel guide arms 20 and 28, which are pivotally supported on the housing H and also pivotally connected to the plunger 21, will provide a support for plunger 21 guiding it for movement in a path parallel to the common center line of the pivot pins 16 and 27. As illustrated, the arms 20 and 28 are made up of identical stampings thus facilitating manufacture and assembly.

It will be noted from Figure 3 that the pivot pin 29 also passes through the spacer bars or links 25 and 26 but does not extend into and is not secured to the side walls 7 and 8 of handle end bracket-like portion 6.

In order to interconnect the handle 5 and bracket-like portion 6 thereof with the guide arm 20 so that movement of handle 5 will normally cause corresponding movement of guide arm 20 and plunger 21, I provide a safety spring 30 which has double coil portions 30' and 30'' disposed around the pin 16 on opposite sides of the guide arm 20 (see Figure 4). The outer end portions 31 of spring 30 engage the arms 18 of the side walls 7 and 8 while the inner ends of the coil portions of spring 30, which are connected together in the form of a loop 32, engage the outer edge of the guide arm 20. As the spring 30 is preloaded when installed, the ends 31 are held stationary relative to the bracket-like portion 6 by the arms 18 while the end 32 urges the arm 20 in counterclockwise direction (Figure 2) relative to the bracket-like portion 6 and thus normally maintains the outer ends of the pin 22 in releasable engagement with the inner ends of the slots 23 and 24 as seen in Figures 2 and 3.

In order to return the handle 5 to its neutral position (Figure 2) after it has been moved outwardly away from the door panel 1 into the latch releasing position of Figure 5, I provide a return spring 33 which may be generally similar in form to spring 30 but of considerably less strength or stiffness. This spring has end portions 33' abutting the lugs 19 of the housing H and its other

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end portion 33" engaging the second guide arm 28 and tending to urge same in clockwise direction relative to the housing H (Figure 2).

Figures 1 to 4 inclusive illustrate the parts of my apparatus in their door closed and latched positions, the outside door handle 5 being in neutral or non-operating position. If it is desired to release the latch mechanism to permit opening of the door, assuming that the latch mechanism is not locked and that the actuating member or arm 4 of the latch mechanism is free to move inwardly in latch releasing direction, the operator will grip the handle 5 and pull outwardly thereon. This action will cause the handle 5 and its bracket-like portion 6 to move about the pivotal support 16 in counterclockwise direction as seen in Figure 2. The arms 18 of bracket-like portion 6 will also move in counterclockwise direction around pivot 16 and will cause the safety spring 30 to rotate about the pin 16, the end portion 32 engaging the guide arm 20 and causing corresponding rotation of arm 20 about pin 16. This concurrent movement of the handle 5 and bracket-like portion 6 with the guide arm 20 causes the plunger or contact member 21 to be moved inwardly relative to the housing H and to bear against the end of actuating member or arm 4 causing same to be moved inwardly to release the latch mechanism. As previously noted, this movement of the plunger 21 is in a path parallel to the common center line of pins 16 and 27 due to the action of the second guide arm or link 28.

In order that the handle mechanism will operate as described above to release the latch it is necessary that the spring 30 be of such strength or stiffness, or be preloaded to such a degree, that the resistance imposed against the plunger 21 by the actuating member or arm 4 in its normal latch releasing movement is insufficient to cause material flexing or compression of spring 30. In order to secure the desired firm and positive unlatching action of the handle, the spring 30 is preferably preloaded when installed to such a degree that it will not be appreciably flexed by the force imposed thereon through plunger 21 during release of the unlocked latch mechanism.

Figure 5 illustrates the positions the parts assume when the handle has reached its operating or latch releasing position and it will be noted that, during movement of the second guide arm 28 from the position of Figure 2 into that of Figure 5, the return spring 33 has been compressed and energized. When the operator releases the handle 5 the energy stored in spring 33, acting through the guide arm 28, plunger 21, guide arm 20, safety spring 30, and bracket-like portion 6, will return the handle 5 to its neutral position as seen in Figure 2. Thus when the latch mechanism is unlocked the handle unit operates as an integral assembly which is movable into latch releasing position against the relatively light resistance of the return spring 33 and is returned to neutral position by the spring 33 when released by the operator. Return spring 33 is also preferably installed in somewhat preloaded condition and thus all moving parts of the latch control mechanism are at all times under spring tension and objectionable vibrations and rattles are effectively prevented.

If the latch mechanism is locked to prevent unauthorized opening of the door the actuating member or arm 4 will be blocked against movement between its non-operating or neutral position (Figure 2) and its operating or latch releasing position (Figure 5). If an attempt is now made to open the door by pulling outwardly on the handle 5 the result will be that the handle 5 may be moved outwardly into the position shown in Figure 6 but the plunger 21 and the guide arms 20 and 28 will not move substantially from their positions as seen in Figure 2 (see Figure 6). Thus the handle 5 may be idled through the same path that it takes in its operat-

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ing movement. During the idling movement of the handle the safety spring 30 is wound up or loaded, the end portion 32 thereof remaining substantially stationary while the ends 31 are rotated, by engagement of the arms 18, about the pivot pin 16. Under the circumstances just described the safety spring 30 also acts as a return spring to move the handle back into the position in Figure 2 when it is released from the position seen in Figure 6.

It will be noted that in Figure 6 the handle has been moved outwardly to the limit of its permitted movement, the abutment 17 on the bracket-like portion 6 having reached and engaged the vertical wall 13 of the housing H. The spring 30 is so designed and installed that, when the latch mechanism is locked, the maximum load which can be imposed on the latch mechanism through the spring 30 and the plunger 21, which occurs when handle 5 reaches its fully extended position seen in Figure 6, is insufficient to cause any damage to or overloading of the latch mechanism through the actuating member or arm 4. After the handle 5 reaches its fully extended position as seen in Figure 6 any additional outward pull thereon will be absorbed by the housing H, which is in effect a part of the door structure, and will not be transmitted to the latch mechanism. Thus my improved safety handle construction provides means for effectively protecting the latch mechanism against damage due to attempts to move the handle, or other manually operable member, when the latch mechanism is locked. It will be understood that the safety spring 30 will be designed to provide the desired action and to insure operation of the latch when unlocked but will not be so strong as to impose an undesirably great resistance to movement of the handle 5 when the latch mechanism is locked.

It will be noted that in the illustrated embodiment of my invention the movement of the manually operable handle or the like in latch releasing direction is limited by a fixed stop on the frame or housing which is located to be effective to limit releasing movement of the handle before the safety spring reaches its maximum yielding position (the position in which it acts as a solid member rather than as a resilient spring member). As noted above, this makes it impossible to overload the latch mechanism.

Although I have described in considerable detail my improved safety handle control mechanism for door latches or the like, it will be understood that variations and modifications may be made in the arrangement and proportions of the parts which make up my improved apparatus. Accordingly I do not wish to be limited to the specific form herein shown and described but claim as my invention all embodiments thereof coming within the scope of the appended claims.

This application is a division of my prior application, Serial No. 8,565, filed February 16, 1948, for "Control Mechanism for Door Latches" (Patent No. 2,573,679).

I claim:

1. Control mechanism for door latches including a supporting frame structure, a manually operable handle pivotally supported on said frame structure for movement between a neutral or non-operating position and an operating or latch releasing position and having an inner end bracket portion, a guide link pivotally supported at one end on said frame structure, a contact member pivotally connected to said guide link, means for limiting the movement of said guide link and contact member in one direction relative to said inner end bracket, safety spring means carried by and movable with said end bracket and arranged to exert a force tending to move said guide link and contact member in said one direction relative to said end bracket whereby said contact member will move with said handle and end bracket until opposed by a force great enough to cause said safety spring means to yield, coacting stop portions on said frame structure and end bracket for limiting movement of said handle in latch

releasing direction, and return spring means effective on said contact member, guide link, safety spring means and end bracket to return said handle to said neutral position upon release after being moved toward said latch releasing position.

2. Control mechanism for door latches including a supporting frame structure, a manually operable handle pivotally supported on said frame structure for movement between a neutral or non-operating position and an operating or latch releasing position and having an inner end bracket portion, a guide link pivotally supported at one end on said frame structure, a contact member pivotally connected to said guide link, means for limiting the movement of said guide link and contact member in one direction relative to said inner end bracket, safety spring means carried by and movable with said end bracket and arranged to exert a force tending to move said guide link and contact member in said one direction relative to said end bracket whereby said contact member will move with said handle and end bracket until opposed by a force great enough to cause said safety spring means to yield, coacting stop portions on said frame and end bracket for limiting movement of said handle in latch releasing direction, a second guide link pivotally supported at one end on said frame structure and pivotally connected at the other end to said contact member whereby said contact member is supported for guided movement relative to said frame structure, and return spring means effective between said frame structure and said second guide link to return said contact member, first named guide link, safety spring means, end bracket, and handle to their neutral or non-operating positions upon release of said handle after being moved toward said latch releasing position.

3. Control mechanism for door latches including a supporting frame structure, a manually engageable operating member supported on said frame structure for movement between a neutral or non-operating position and an operating or latch releasing position and having an inner end operating portion, a guide link pivotally supported at one end on said frame structure, a contact member pivotally connected to said guide link, means for limiting the movement of said guide link and contact member in one direction relative to said inner end operating portion, safety spring means carried by and movable with said inner end operating portion and arranged to exert a force tending to move said guide link and contact member in said one direction relative to said inner end operating portion whereby said contact member will move with said operating member and inner end operating portion until opposed by a force great enough to cause said safety spring means to yield, coacting stop portions on said frame structure and inner end operating portion for limiting movement of said operating member in latch releasing direction, and return spring means effective on said contact member, guide link, safety spring means and inner end operating portion to return said operating member to said neutral position upon release after being moved toward said latch releasing position.

4. Latch mechanism comprising an actuating member adapted to have movement between a non-operating or neutral position and an operating or latch releasing position; means for locking said actuating member against said movement from neutral to latch releasing position; a manually engageable operating member; a movable contact member adapted to engage said actuating member and move it from its neutral to its latch releasing position; and operating connections between said manually engageable operating member and said movable contact member including a return spring effective on said contact member and a preloaded safety spring operating on a guide link extending from said manually engageable operating member to said contact member, said

safety spring being of such strength that, upon movement of said manually engageable operating member in latch releasing direction when said actuating member is locked against movement from neutral to latch releasing position by said locking means, said safety spring will yield and limit the force transmitted to said actuating member by said contact member to a predetermined safe value.

5. Latch mechanism comprising an actuating member adapted to have movement between a non-operating or neutral position and an operating or latch releasing position; means for locking said actuating member against said movement from neutral to latch releasing position; a manually engageable operating member; a movable contact member adapted to engage said actuating member and move it from said neutral to said latch releasing position; operating connections between said manually engageable operating member and said contact member, said operating connections including a return spring effective on said contact member and a preloaded safety spring operating on a guide link extending from said manually engageable operating member to said contact member; and stop means for limiting the movement of said manually engageable operating member in latch releasing direction, said stop means being disposed to limit movement of said manually engageable operating member in latch releasing direction before said safety spring reaches its maximum yielding position.

6. Control mechanism for a door latch comprising a supporting frame; a manually engageable operating member supported on the frame for movement between a non-operating neutral position and a latch releasing position; a plunger connected to the manually engageable operating member, said plunger extending through an opening in the frame into proximity to the latch; means for guiding the plunger for movement in the opening in the frame into and out of contact with the latch, said means including a guide arm linking the plunger to the frame and a return spring acting on the guide arm; and, effective on the plunger and the manually engageable operating member, safety spring means of greater stiffness than the return spring, said safety spring means tending when compressed to bias the plunger toward the latch and to bias the manually engageable operating member toward its non-operating neutral position.

7. Control mechanism as in claim 6 in which the safety spring means includes a double-coil spring.

8. Control mechanism as in claim 7 in which the return spring is a double-coil spring.

9. Control mechanism for a door latch comprising a supporting frame; a manually operable handle pivotally supported on the frame for movement between a non-operating neutral position and a latch releasing position; a guide arm supported at one end from the frame for pivotal movement relative to the frame; a plunger pivotally connected to the guide arm, said plunger extending beyond the frame into proximity to the latch; resilient means effective on the plunger and tending when compressed to bias the plunger away from the latch, said resilient means acting on the frame; a resilient member effective on the plunger and tending when compressed to bias the plunger toward the latch, said resilient member acting on the handle and acting on the plunger through the guide arm; and a stop on the frame limiting what might otherwise be excessive movement of the handle out of non-operating neutral position.

10. Control mechanism as in claim 9 in which the resilient member acting on the handle is characterized by a low degree of resiliency.

11. Control mechanism as in claim 9 in which the resilient means acting on the frame are characterized by a high degree of resiliency.

12. Control mechanism for a door latch comprising a supporting frame; a manually operable handle pivotally

supported on the frame for movement between a non-operating neutral position and a latch releasing position; two guide arms, each supported at one end from the frame for pivotal movement relative to the frame; a plunger pivotally connected to both of said guide arms, said plunger extending into proximity to the latch; two resilient members of different degrees of resilience, one acting on one guide arm and on the frame and the other acting on the other guide arm and on the handle; and a stop on the frame limiting what might otherwise be excessive movement of the handle out of non-operating position.

13. Control mechanism for door latches including a supporting frame structure, a manually operable handle, a pivot pin carried by said frame structure, said handle being pivotally supported on said pin for movement between a neutral or non-operating position and an operating or latch releasing position and having an inner end bracket portion, a lever member pivotally mounted at one end on said pivot pin, said lever extending from said pin in the opposite direction from said handle, contact means at the other end of said lever adapted to engage the latch mechanism, means on said inner end bracket for limiting the movement of said lever member in one direction relative to said inner end bracket, safety spring means supported on said pin and having one end engaging said end bracket portion and the other end engaging said lever member in said one direction relative to said end bracket whereby said lever member will move with said handle and end bracket until opposed by a force great enough to cause said safety spring means to yield, co-acting stop portions on said frame structure and end bracket for limiting movement of said handle in latch releasing direction, and return spring means effective between said frame structure and said end bracket and adapted to return said handle to said neutral position upon release after being moved toward said latch releasing position.

14. In a latch control system for an automobile door having an outer panel, an inner panel and a latch between the two panels, a supporting bracket on the inside face of one of said panels, a door handle pivoted on said bracket for swinging movement relative thereto, a latch actuating element mounted on said bracket out of contact with said panel, a return spring for said latch actuating element, and a spring operatively connected to said handle to be placed under actuating stress by the actuation thereof about the pivotal axis of the handle on said bracket and through which said latch actuating element is actuated when the resistance to the actuation of the latch actuating element is normal, said latch actuating element and spring being inaccessible through the handle.

15. In a latch control system for an automobile door having an outer panel, an inner panel and a latch between the two panels, a supporting bracket on the inside face of one of said panels, a door handle provided with an inwardly projecting pivot arm mounted on said bracket, a movably mounted latch actuating element, said latch actuating element being out of contact with said panel, and actuating connections therefor to said handle comprising a helically coiled spring within said handle, a pivotally mounted thrust member disposed in a location between said spring and said latch actuating element in which it is inaccessible through the handle, and a return spring for said latch actuating element of such tension as to return the handle and the thrust member to retracted position.

16. In a latch control system for an automobile door having an outer panel, an inner panel and a lockable latch between the two panels, a mounting bracket of which part is on the outside and part is on the inside of one of said panels; a door handle having a portion

pivotally mounted on the inside part of the bracket, said handle having a grasping portion extending outwardly from the adjacent portion of the door; a latch actuating element associated with said handle; spring-biased thrust means associated with said handle in coacting operative relation to said latch actuating element; and other means carried by said thrust means normally engaging said handle and preventing movement of said thrust means in one direction relative to said handle, said other means being inaccessible through that portion of said handle which extends outwardly from the adjacent portion of the door, being disengaged when the latch actuating member is subjected to such resistance as would result from a locked latch when the handle is actuated, and being automatically re-engaged by the return of the parts to normal position.

17. A latch control system according to claim 16 including a return spring for the latch-actuating element.

18. A latch control system according to claim 17 in which the latch actuating element takes the form of a plunger.

19. In a latch control system for an automobile door having an outer panel, an inner panel and a latch between the two panels, a supporting bracket of which part is on the outside and part is on the inside of one of said panels; a door handle provided with an inwardly projecting pivot arm pivotally mounted on said bracket inwardly of said one panel, said handle having an exterior grasping portion; a movable latch actuating member associated with said handle; and an operating connection which is operatively associated with said latch actuating member for actuating the same, which is swingable with said handle, and which is inaccessible through the grasping portion of said handle, said operating connection being provided with handle-engaging means tensioned to normally engage the handle for actuation with the handle but tensioned for release therefrom when the resistance on the latch actuating member is increased as by the locking of the latch with which the handle is associated.

20. In a latch control system for an automobile door having an outer panel, an inner panel and a latch between the two panels, a supporting bracket of which part is on the outside and part is on the inside of one of said panels; a door handle provided with an inwardly projecting pivot arm mounted on said bracket inwardly of said one panel, said handle having an exterior grasping portion; a latch actuating element located in a position in which it is out of contact with said panel; a return spring therefor; thrust means pivotally associated with said handle the pivot axis of which coincides with that of the pivot arm, said thrust means being inaccessible through the grasping portion of said handle; and a coil spring in engagement with said thrust means.

21. In a latch control system for an automobile door having an outer panel, an inner panel and a lockable latch between the two panels, an inwardly directed supporting bracket of which part is on the outside and part is on the inside of the outer panel; a door handle pivotally mounted on the inside part of the bracket, said handle having a grasping portion extending outwardly from the adjacent portion of the door; a latch-actuating plunger associated with said handle near the inner end thereof; spring-biased thrust means associated with said handle in coacting operative relation to said latch-actuating plunger; and other means carried by said thrust means normally engaging said handle and preventing movement of said thrust means in one direction relative to said handle, said other means being inaccessible through that portion of said handle which extends outwardly from the adjacent portion of the door, being disengaged when the latch releasing member is subjected to such resistance as would result from a locked latch when

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the handle is actuated, and being automatically re-engaged by the return of the parts to normal position.

References Cited in the file of this patent

UNITED STATES PATENTS

2,034,746 Ciak et al. ----- Mar. 24, 1936
 2,115,849 Gustavson ----- May 3, 1938

5

2,232,629
 2,234,632
 2,285,367
 2,382,062
 2,582,927
 2,591,822

12

North et al. ----- Feb. 18, 1941
 Gustavson ----- Mar. 11, 1941
 Shoup ----- June 2, 1942
 Joachim ----- Aug. 14, 1945
 Dall ----- Jan. 15, 1952
 Jakeway ----- Apr. 8, 1952

UNITED STATES PATENT OFFICE
CERTIFICATE OF CORRECTION

Patent No. 2,861,834

November 25, 1958

Edwin L. Allen

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

In the grant, lines 2 and 12, and in the heading to the printed specification, line 4, name of assignee, for "Lisle W. Meuzimer", each occurrence, read -- Lisle W. Menzimer --.

Signed and sealed this 12th day of May 1959.

(SEAL)

Attest:

KARL H. AXLINE

Attesting Officer

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Commissioner of Patents