April 8, 1952 G. V. JAKEWAY 2,591,822

LATCH RELEASING DOOR HANDLE

Filed Jan. 24, 1949 2 SHEETS—SHEET 1

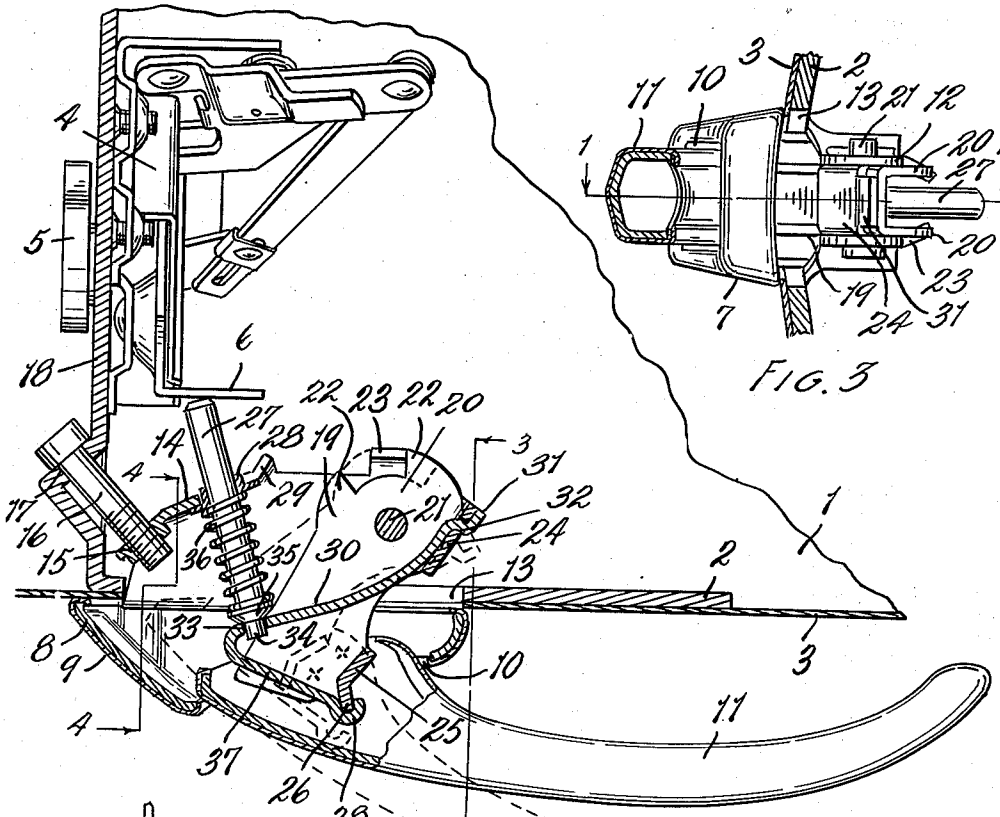


FIG. 1

FIG. 3

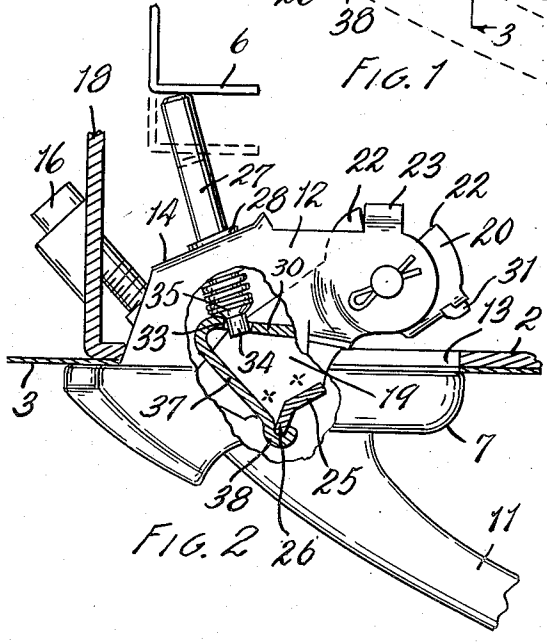


FIG. 2

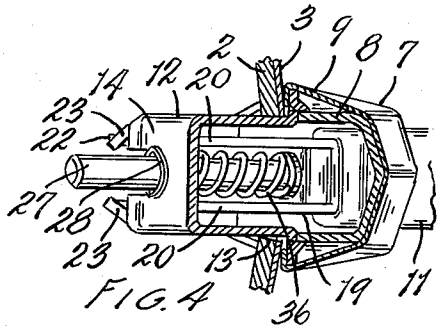


FIG. 4

INVENTOR.
Gerald V. Jakeway
BY
Attorney.

April 8, 1952 G. V. JAKEWAY 2,591,822

LATCH RELEASING DOOR HANDLE

Filed Jan. 24, 1949 2 SHEETS—SHEET 2

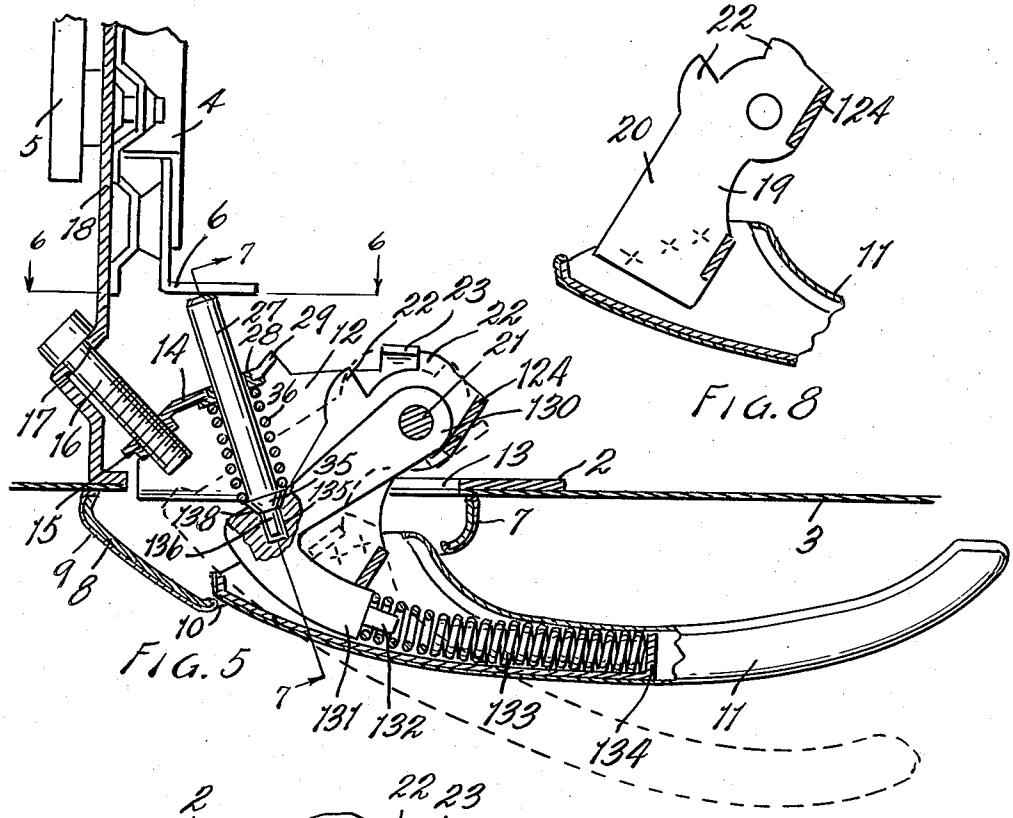


FIG. 5

FIG. 8

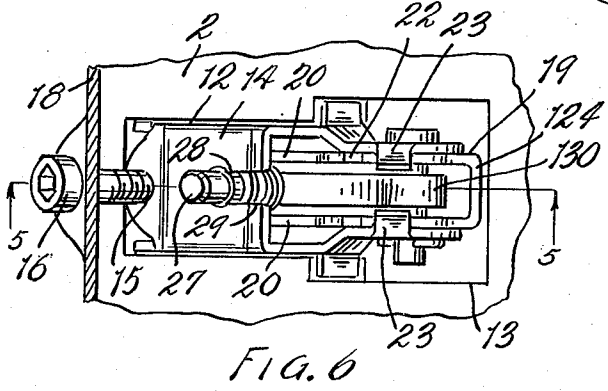


FIG. 6

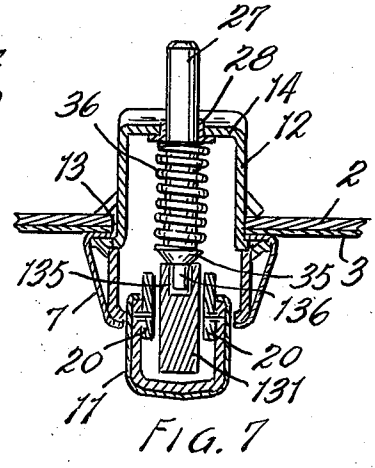


FIG. 7

INVENTOR.
Gerald V. Jakeway
BY
Attorney.

Patented Apr. 8, 1952

2,591,822

UNITED STATES PATENT OFFICE

2,591,822

LATCH RELEASING DOOR HANDLE

Gerald V. Jakeway, Grand Rapids, Mich., assignor to Keeler Brass Company, Grand Rapids, Mich.

Application January 24, 1949, Serial No. 72,377

11 Claims. (Cl. 292—336.3)

1

This invention relates to improvements in latch releasing door handles.

The main objects of this invention are:

First, to provide a latch releasing door handle adapted for use in connection with lockable latches which is effective in releasing the latch when unlocked but prevents parts being broken when the latch is locked.

Second, to provide a latch releasing door handle which includes a springable operating connection for the handle to the latch releasing element which is so conneced to the handle that it operates as a substantially rigid member normally but which is yieldable or springable when the thrust resistance exceeds a predetermined amount such, for example, as would be occasioned by an operation of the handle when the latch is locked.

Third, to provide a door handle in which the operating parts are so connected or associated with the handle that attempts to open a door such as the door of an automobile when the same is locked, by breaking or forcing the latch mechanism, are effectively prevented.

Fourth, to provide a structure embodying these advantages which is comparatively simple and economical in its parts and may be assembled as a unit upon a door in operative relation to a latch mechanism.

Objects relating to details and economies of the invention will appear from the description to follow. The invention is defined and pointed out in the claims.

A preferred embodiment of the invention is illustrated in the accompanying drawing, in which:

Fig. 1 is an enlarged fragmentary view partially in section on a line corresponding to line 1—1 of Fig. 3, the handle being shown in retracted position by full lines and in actuated position by dotted lines.

Fig. 2 is a fragmentary view partly in section illustrating the handle and associated parts in latch releasing or actuated position.

Fig. 3 is a fragmentary view in section on a line 3—3 of Fig. 1.

Fig. 4 is a fragmentary view in section on broken line 4—4 of Fig. 1.

Fig. 5 is a fragmentary view partially in section on a line corresponding to line 5—5 of Fig. 6 of a modified form or embodiment of my invention.

Fig. 6 is a fragmentary inside view generally on a line corresponding to line 6—6 of Fig. 5.

Fig. 7 is a fragmentary view mainly in section on a line corresponding to line 7—7 of Fig. 5.

Fig. 8 is a fragmentary sectional view of the handle and its pivot arm, the section corresponding to that of Fig. 5.

2

In the accompanying drawing, 1 represents a door having a supporting plate 2 secured on the inner side of the outer panel 3 thereof. A lockable latch mechanism is designated generally by the numeral 4, the keeper engaging portion being designated by the numeral 5. This latch mechanism includes a release member 6. The latch mechanism 4 is adapted to be locked.

This mechanism is not described as it forms no part of my present invention. It is illustrated merely for the purpose of showing that conventional lockable latches include several parts which may be broken if force is applied to release or disengage the latch while the latch is locked, such for example as on an automobile door installation.

The latch releasing door handle on the embodiment of my invention illustrated in Figs. 1 to 4 comprises an escutcheon 7 consisting of a body portion 8 and an ornamental casing 9 suitably shaped and having an opening 10 therein receiving the inner end of the pull handle 11. The escutcheon is provided with a U-shaped bracket portion 12 which is disposed through an opening 13 in the door panel 3 and plate 2.

The cross or web portion 14 of the bracket is provided with a threaded opening 15 receiving the screw 16 arranged through an opening 17 in the latch supporting plate 18 which is, as illustrated, formed as a part of the plate 2. This clamps the escutcheon and the handle and operating mechanism assembled therewith in position as a unit.

The handle is provided with an inwardly projecting pivot arm 19 comprising spaced side members 20 disposed between the sides of the bracket and pivotally mounted thereon at 21 adjacent the inner end of the arm. The side members of the pivot arm are provided with spaced stops 22 which coact with the inturned lug-like stops 23 formed on the side members of the bracket to limit the swing of the handle. The pivot arm side members are connected by an inner cross piece 24 and an outer cross piece 25 extending between the rear edges thereof.

The outer cross piece is provided with a rearwardly inclined keeper 26 on its outer edge. The latch actuating member 27 in the embodiment illustrated is in the form of a plunger and reciprocates through a bushing or bearing member 28 engaged in a slot 29 in the web portion 14 of the bracket. This plunger is positioned to coact with the latch releasing elements 6 as is illustrated.

The plunger is connected for operation by the handle by means of the blade-like springable thrust member 30 which has an outwardly offset inner end portion 31 disposed through a slot 32 in the inner cross piece of the pivot arm, the member 30 being in fulcruming engagement with the cross piece and having an opening 33 therein receiving the end 34 of the plunger 27. The plunger is provided with a thrust collar 35 engaging the inner side of the member 30 and also serving as a thrust abutment for the coil spring 36, the inner end of which rests on the bushing or bearing 28, the spring thereby acting to return the plunger and also return the handle to its retracted position.

The springable thrust member 30 is provided with an integral detent arm 37 at its outer end which terminates in an inwardly facing recessed detent jaw 38 normally engaging the keeper 26. In normal operation the springable member 30 is supported by its detent connection to the lever so that it swings therewith without springing. However, in the event that an attempt is made to release the latch while it is locked, pull on the handle swinging it to the position indicated by dotted lines in Fig. 1 results in the keeper riding out of the jaw of the detent and sliding along the inner side of the detent arm as shown by dotted lines in Fig. 1, thereby permitting the actuation of the handle without imparting such thrust upon the latch release member as would be likely to break parts of the handle or of the latch.

The springability of the member 30 provides a yielding connection to the handle which permits a complete swinging movement of the handle without injury to associated parts. It is common observation that unauthorized persons, in attempting to forcibly open the door of an automobile, for example, employ a wrench or a section of pipe or the like engaged with the handle so as to increase the leverage and thereby break the lock mechanism.

In the embodiment of my invention shown in Figs. 5 to 8, inclusive, various parts are substantially as described in connection with Figs. 1 to 4, inclusive, the main exceptions being that of the operating connections for the handle to the latch release plunger or member 27. In this embodiment of Figs. 5 to 8, inclusive, the handle 11 is provided with the pivot arm 19 substantially as in the other embodiment with the exception that the cross member 124 of this embodiment does not serve as a fulcruming support for the thrust member 130 corresponding generally to the thrust member 30 of the described structure. The thrust member 130 is pivotally mounted on the handle pivot 21 and is provided with a rearwardly projecting curved arm 131 terminating in a stud 132 extending into the inner end of the coiled trust spring 133, the outer end of which is supported by the abutment 134 in the handle, the outer end of the spring being telescopingly supported within the handle. The thrust member 130 is provided with a bore 135 receiving the stud 136 of the actuating plunger 27 corresponding to the stud 34 of the described structure.

The thrust collar of the actuating member 27 engages a suitable seat 138 on the member 130. In this structure the tension of the spring 133 exceeds that of the return spring 36 or the member 27 so that when the handle is normally actuated the member 27 is actuated to release the latch. However, in the event that the resistance to actuation of the latch releasing member is such that some part is likely to be broken the spring 133 yields preventing such breakage with the result of protecting the parts against breakage substantially as in the embodiment of my invention shown in Figs. 1 to 4 inclusive.

This modification of my invention of Figs. 5 to 8, inclusive, has certain structural advantages in that the coil spring 123 is a standard or conventional type of spring whereas the spring member 30 is a special spring, that is, it is especially fabricated for this particular structure.

I am aware that lock mechanisms have been provided which, when locked, release the handle so that it cannot be manipulated to break the lock but the handles in such mechanisms are likely to swing out of normal position when they are thus released, thereby disfiguring the automobile and requiring that they be repositioned before the latch can be unlocked.

I have illustrated and described my invention in a simple and practical embodiment thereof. I have not attempted to illustrate or describe other adaptations or embodiments which I contemplate as it is believed that this disclosure will enable those skilled in the art to which my invention relates, to embody or adapt the same as may be desired.

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

1. A latch releasing door handle comprising an escutcheon, an outwardly facing U-shaped bracket connected thereto for assembly upon a door with the bracket projecting through an opening in the door, a handle, a pivot arm secured to the inner end of the handle to project inwardly therefrom and comprising spaced side members and inner and outer cross members extending between the rear edges thereof, the outer cross member having a rearwardly directed keeper portion, the pivot arm side members being disposed between the side members of the bracket and pivotally mounted thereon and having spaced stops on their inner ends, the bracket having a stop coacting with the stops of the arms to limit the swing of the handle, a latch actuating plunger reciprocatingly mounted on the bracket, a springable blade-like thrust member for said plunger disposed between the side members of said pivot arm on the inner side of said inner cross member and having an offset at its inner end engaged in an opening in the inner cross member whereby the thrust member is supported in fulcruming relation to the inner cross member and in thrust engagement with the plunger, the thrust member having an integral springable detent arm at its outer end terminating in an inwardly facing hook shaped keeper engaging jaw normally coacting with said keeper, a return spring for said plunger in thrust engagement therewith and in supported engagement with the bracket and maintaining the plunger in thrust engagement with said thrust member, said keeper being disengaged from said detent jaw and slidably engaging the detent arm when the actuation of the plunger is resisted as by a locked latch.

2. A latch releasing door handle comprising an escutcheon, an outwardly facing U-shaped bracket connected thereto for assembly upon a door with the bracket projecting through an opening in the door, a handle, a pivot arm secured to the inner end of the handle to project inwardly therefrom and comprising spaced side members and inner and outer cross members extending between the rear edges thereof, the outer

cross member having a rearwardly directed keeper portion, the pivot arm side members being disposed between the side members of the bracket and pivotally mounted thereon, a latch actuating plunger reciprocatingly mounted on the bracket, a springable blade-like thrust member for said plunger disposed between the side members of said pivot arm on the inner side of said inner cross member and having an offset at its inner end engaged in an opening in the inner cross member whereby the thrust member is supported in fulcruming relation to the inner cross member and in thrust engagement with the plunger, the thrust member having an integral springable detent arm at its outer end terminating in an inwardly facing hook shaped keeper engaging jaw normally coacting with said keeper, a return spring for said plunger in thrust engagement therewith and in supported engagement with the bracket and maintaining the plunger in thrust engagement with said thrust member, said keeper being disengaged from said detent jaw and slidably engaging the detent arm when the actuation of the plunger is resisted as by a locked latch.

3. A latch releasing door handle comprising an escutcheon, an outwardly facing U-shaped bracket connected thereto for assembly upon a door with the bracket projecting through an opening in the door, a handle, a pivot arm secured to the inner end of the handle to project inwardly therefrom and comprising spaced side members, the pivot arm side members being disposed between the side members of the bracket and pivotally mounted thereon and having a keeper, a latch actuating plunger reciprocatingly mounted on the bracket, a springable thrust member for said plunger disposed between the side members of said pivot arm and mounted thereon for swinging movement therewith in engagement with the plunger, the thrust member having a springable detent arm terminating in a keeper engaging jaw normally in engagement with said keeper, a return spring for said plunger, said keeper being disengaged from said detent jaw and slidably engaging the detent arm when the actuation of the plunger is resisted as by a lock latch.

4. A latch releasing door handle comprising an escutcheon, an outwardly facing U-shaped bracket connected thereto for assembly upon a door with the bracket projecting through an opening in the door, a handle, a pivot arm secured to the inner end of the handle to project inwardly therefrom, the pivot arm being disposed between the side members of the bracket and pivotally mounted thereon at its inner end, a keeper operated by said handle, stops limiting the swing of the handle, a latch actuating member mounted on the bracket, a springable thrust member for said latch actuating member mounted on said pivot arm adjacent the pivot thereof with its outer end in thrust engagement with said latch actuating member, the thrust member having an integral springable detent arm terminating in an inwardly facing recessed keeper engaging jaw normally coacting with said keeper, a return spring for said latch actuating member, said keeper being disengaged from said detent jaw and slidably engaging the detent arm when the actuation of the plunger is resisted as by a lock latch.

5. A latch releasing door handle comprising a mounting bracket, a handle provided with an inwardly projecting pivot arm comprising spaced

side members pivotally mounted at its inner end on said bracket and having a cross piece at its inner end and a keeper at its outer end, the bracket and arm having coacting stops, a latch actuating element mounted on said bracket, a springable thrust member for said actuating element disposed between the side members of said pivot arm and fulcrumly engaged with said pivot arm with its outer end in cooperating engagement with said latch actuating element, and a springable detent on the outer end of said thrust member and engageable with said keeper on the outer end of said pivot arm, the detent yielding to permit disengagement of the keeper from the detent when the load resisting the actuation of the latch actuating member is excessive, the keeper being in sliding and supporting engagement with the detent when released from the jaw thereof, thereby guiding the keeper into the jaw on the return of the handle to normal position.

6. A latch releasing door handle comprising a mounting bracket, a handle provided with an inwardly projecting pivot arm comprising spaced side members pivotally mounted at its inner end on said bracket and having a cross piece at its inner end and a keeper at its outer end, a latch actuating element mounted on said bracket, a springable thrust member for said actuating element disposed between the side members of said pivot arm and fulcrumly engaged with said pivot arm with its outer end in cooperating engagement with said latch actuating element, and a springable detent on the outer end of said thrust member and engageable with said keeper on the outer end of said pivot arm, the detent yielding to permit disengagement of the keeper from the detent when the load resisting the actuation of the latch actuating member is excessive.

7. A latch releasing door handle comprising in combination, a mounting bracket, a handle pivotally mounted thereon, a latch actuating plunger mounted on said bracket, a springable thrust member for said plunger mounted on said handle adjacent the pivot thereof for swinging movement with the swinging of the handle and in thrust engagement with the plunger, a spring biased detent carried by said thrust member, said handle being provided with a keeper releasably engaged by said detent, the tension on the detent being such that the detent is normally in engagement with the keeper but disengages therefrom when the resistance on the plunger is excessive, and a return spring for the plunger acting to hold the plunger in thrust engagement with the thrust member and to return the handle.

8. A latch releasing door handle comprising in combination, a mounting bracket, a handle pivotally mounted thereon, a latch actuating element mounted on said bracket, a springable thrust member for said latch actuating element mounted on said handle adjacent the pivot thereof for swinging movement with the swinging of the handle and in operative relation to the latch actuating member, a spring biased detent carried by said thrust member, said handle being provided with a keeper releasably engaged by said detent, the tension on the detent being such that the detent is normally in engagement with the keeper but disengages therefrom when the resistance on the latch actuating element is excessive.

9. A latch releasing door handle comprising a supporting bracket, a handle provided with an inwardly projecting pivot arm pivotally mounted on said bracket, a latch actuating member, a

springable operating connection normally swingable with said handle and operatively associated with said latch actuating member for actuating the same, said springable operating connection being provided with a spring biased handle engaging detent tensioned to normally connect the said springable operating connection to the handle for actuation therewith but tensioned to release when the resistance of the latch actuating member is increased as by the locking of the latch with which the handle is associated.

10. A latch releasing door handle for lockable latches comprising a pivotally mounted handle, a latch actuating element, a springable thrust member mounted on said handle in coacting operative relation to said latch actuating element, means carried by said springable thrust member normally engaging said handle and preventing the springing of said thrust member, said means being releasable when the latch releasing member is subjected to such resistance as would result from a locked latch when the handle is actuated and being automatically reengaged by the return of the parts to normal position.

11. A latch releasing door handle comprising a supporting bracket for attachment to a door, a door handle pivoted on said bracket for swinging movement relative thereto, a latch actuating element mounted on said bracket, 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.

GERALD V. JAKEWAY.

REFERENCES CITED

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

UNITED STATES PATENTS

Number	Name	Date
2,228,674	Raymond	Jan. 14, 1941
2,232,629	North et al.	Feb. 18, 1941