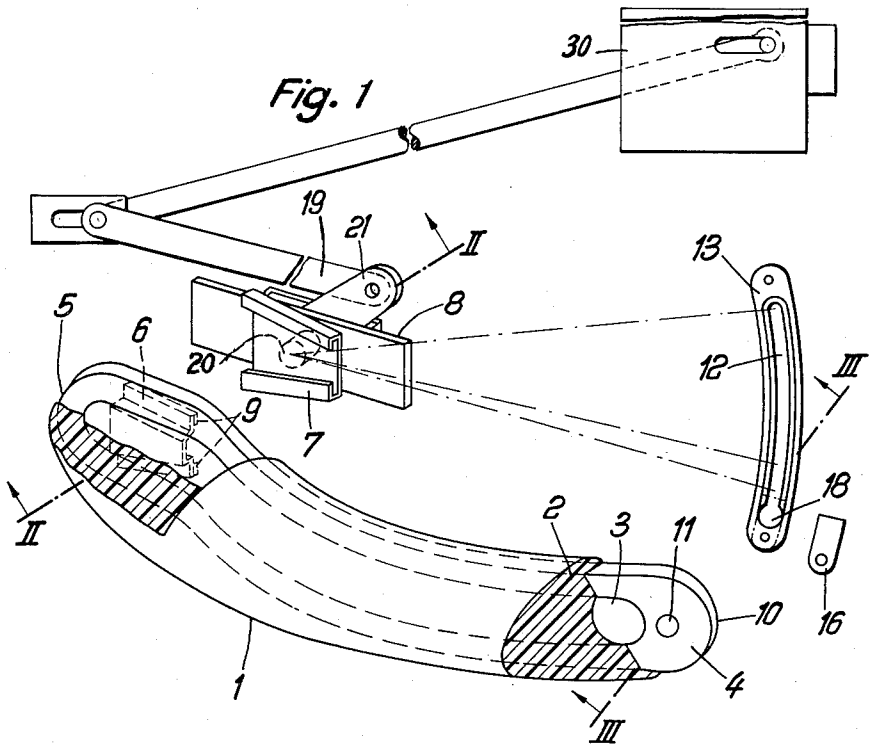
June 12, 1962 W. SCHULZE 3,038,757

INNER DOOR HANDLE FOR AUTOMOBILES

Filed Dec. 8, 1959

Fig. 1



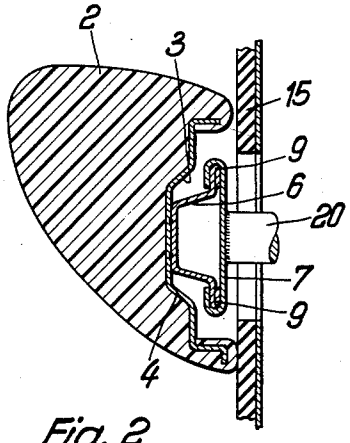


Fig. 2

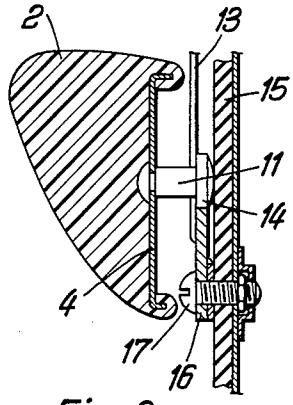


Fig. 3

Inventor.
Werner Schulze
By Richards & Geier
ATTORNEYS

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INNER DOOR HANDLE FOR AUTOMOBILES

Werner Schulze, Dusseldorf, Germany, assignor to Auto-Union G.m.b.H., Ingolstadt (Danube), Germany

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In automobiles it is known to mount the inner handle of a door of the automobile body on a splined, serrated or square shaft of an auxiliary door lock. In such an arrangement, the inner door handle is connected with the main door lock through a connecting rod, and the door lock is opened or locked by depressing or raising the door handle. In most cases, an arm rest is fastened to the inner side of the door at elbow height. This arm rest may also be formed as a handle so that it can be used for closing the door. There are also door-mounted arm rests in which a lever mechanism is installed, whereby the door is opened through the intermediary of a small lever and a cable. For locking a lock which is operated in such manner from the interior of the car, a button connected with the door lock through a connecting rod is provided on the inner garnish molding of the door window.

It is an object of the present invention to simplify the parts of a construction of the kind described above, and to construct these parts in such a manner that there is a minimum of door lock operating parts which project into the interior of the car and may cause injury to the occupants. The novel feature of the present invention resides in the fact that the arm rest also serves as inner door handle. Conveniently, the door lock is unlocked by moving the arm rest upward. Instead of a plurality of projecting parts there is thus only one relatively smooth and simple part which is held in the locking position by the the weight of the occupant's arm resting thereon.

Further objects, features and advantages of the present invention will become apparent from the following description when taken in connection with the accompanying drawing.

In the drawing:

FIG. 1 is a perspective exploded view of the arm rest, the auxiliary door lock and the guide plate, with parts of the arm rest broken away;

FIG. 2 is a section through the arm rest along line II—II of FIG. 1 which passes through the median plane of the auxiliary door lock and

FIG. 3 is a section taken on line III—III of FIG. 1 through the free end of the arm rest and the associated guiding parts.

As shown in the drawing, the arm rest 1 comprises a support 4 which is U-shaped in cross section and is provided with an identation 3 and is covered by a cushion 2 of foamed material such as foamed rubber, plastic, or the like. The door lock 30 is unlocked by swinging the arm rest 1 upwardly about the shaft of the auxiliary door lock 8. It is thus apparent that the arm rest 1 also serves as the inner door handle. With the arm rest 1 in the position indicated by the lowermost of the three dash-and-dot lines in FIG. 1, the door lock is locked, in the position corresponding to the next higher line it is closed. and in the position designated by the uppermost of these three lines it is opened. The one end 5 of the arm rest 1 engages with a converging part 6 in a correspondingly converging part 7 of the auxiliary door lock 8.

The part 6 converges in the form of a trapeze. It has a hat-shaped cross section with the marginal flanges 9 bent or doubled up inwardly. These marginal flanges 9 are embraced by the C-shaped profile of part 7.

The opposite free end 10 of the arm rest 1 is guided in a slot 12 of a guide plate 13 by means of a pin 11. In

order to relieve the mounting of the auxiliary door lock of all forces acting on the arm rest 1 in the direction of the axis of pin 11, the latter with its rounded head 14 slides on a rail 15. The pin 11 is introduced with its head 14 into an enlargement 18 of the slot 12 in the guide panel 13, whereupon a spacer plate 16 is placed over the enlargement 18, and the spacer plate 16 together with the rail 15 and the guide plate 13 is held in position by a screw 17. The spacer plate 16 limits the downward movement of the arm rest 1. From part 7, the movement of the arm rest 1 is transmitted to the main door lock 30 through a shaft 20, an arm 21 and a connecting rod 19.

In operation, in order to open the door lock 30, the user swings the arm rest 1 about the axis II—II (FIG. 1) from the lowermost position indicated by the lowermost dot-dash line of FIGURE 1 to the uppermost position indicated by the uppermost dot-dash line. In the course of this movement, the end 10 of the arm rest 1 moves upwardly, while the end 5 of the arm rest 1 swings counter-clockwise. Since the arm rest 1 is firmly connected with the U-shaped part 6 the flanges 9 of which are embraced by the C-shaped part 7 (FIG. 2), the parts 6 and 7 will rotate along with the arm rest 1. The rotation of the part 7 is transmitted to the shaft 20 which is firmly connected with the part 7. The shaft 20 will swing the arm 21 which will actuate the connecting rod 19, thereby unlocking the main door lock 30.

During the upward movement of the end 10 of the arm rest 1, the pin 11 moves in the slot 12. Due to this arrangement, any danger that the parts 6 and 7 may become disconnected is effectively avoided.

I claim:

1. An inner door handle for automobiles, comprising, in combination with lock-actuating means: an arm rest, means connected with one end of said arm rest and with said lock-actuating means for turning said arm rest about said end and operating said lock-actuating means during said turning movement, a pin carried by the other end of said arm rest and having a rounded head, and a guide plate having a curved slot, and a rail supporting said guide plate and spaced therefrom, the head of said pin being guided in said slot during said turning movement and having an inner surface sliding upon a surface of said guide plate and an outer rounded surface contacting said rail.

2. An inner door handle for automobiles, comprising, in combination with lock-actuating means: an arm rest, a wedge-shaped member firmly connected with one end of said arm rest and having a cross-section diminishing substantially in the direction of the other end of said arm rest, another wedge-shaped member corresponding to and engaging the first-mentioned wedge-shaped member and rotatable therewith, means operatively connecting the second-mentioned wedge-shaped member with said lock-actuating means, whereby a turning of said arm rest along with said wedge-shaped members operates said lock-actuating means, a pin carried by said other end of said arm rest, and a guide plate having a curved slot, said pin having a head guided in said slot during the turning of said arm rest.

3. An inner door handle for automobiles, comprising, in combination with lock-actuating means: an arm rest, a wedge-shaped member firmly connected with one end of said arm rest and having a hat-shaped cross section diminishing substantially in the direction of the other end of said arm rest, whereby said wedge-shaped member has opposed flanges; said flanges having inwardly bent ends, another wedge-shaped member having a C-shaped cross-section diminishing substantially in the direction of the other end of said arm rest and engaging said flanges of

the first-mentioned wedge-shaped member, means operatively connecting the second-mentioned wedge-shaped member with said lock-actuating means, whereby a turning of said arm rest along with said wedge-shaped members operates said lock-actuating means, a pin carried by said other end of said arm rest, and a guide plate having a curved slot, said pin having a head guided in said slot during the turning of said arm rest.

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