Handle for motorcar doors.

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Proprietor: S.I.R.P. STUDI INDUSTRIALI REALIZZAZIONE PROTOTIPI S.p.A.
Via A. Grandi 11
I-10024 Moncalieri (Torino) (IT)

Inventor: Mantovani, Aldo
Via A. Grandi, 11
I-10024 Moncalieri (Torino) (IT)

Representative: Lotti, Giorgio
C/o Ing. Barzanò & Zanardo Milano S.p.A. Via Cercaia 20
I-10122 Torino (IT)

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Description

This invention relates to a handle for motorcar doors.

From a certain time till now there have been manufactured outer handles for motorcar doors, which are mounted in such a manner as to result in being disposed substantially in alignment with the outer surface of the motorcar body. In order to allow grasping the handle, the outer surface of the body is provided with a pocket disposed adjacent the handle.

Such pocket give rise to disadvantages from the point of view of the aerodynamic characteristics of the motorcar and the noise produced by this latter, especially in the case of high performance motorcars.

To obviate such disadvantages there have been proposed handles disposed substantially in alignment with the outer surface of the motorcar body which are provided with a plate mounted in register with the pocket formed adjacent the handle, which plate is movable between a first position, in which it is disposed in alignment with the outer surface of the motorcar body and covers the said pocket, and a second position in which the plate is withdrawn into the interior of the pocket so as to allow grasping the handle, said plate also being provided with elastic means tending to push it towards its first position.

Thanks to this characteristic, during the travel of the motorcar the outer surface of the motorcar body does not present any cavities which may alter the aerodynamic characteristics of the motorcar or increase the noise of this latter.

When it is necessary to actuate the handle, a hand is introduced into the pocket disposed adjacent the handle to push the said plate towards its position retracted into the interior of the pocket.

The elastic means with which the said plate is provided make this latter return to its first position in which it covers the said pocket, as soon as the hand is withdrawn from this latter.

However, this technical solution has some disadvantages. First of all, as the plate is pushed into the interior of the pocket the elastic means with which this plate is provided keep it pressed against the hand thus rendering difficult the grasping of the handle; furthermore, it is necessary for the pocket to be rather deep; since, as the plate is pressed, the handle remains stationary and therefore it is necessary to introduce the hand to a sufficient depth for being able to grasp the handle.

This involves also the disadvantages consisting in the inner overall dimensions of the unit, which hinder the operation of aligning the slidable glass of the window with the surface of the body.

A motorcar door handle of the type indicated above is known from e.g. DE—A—2 243 538.

The object of the invention is to provide a unit which will improve the manoeuvre of grasping the handle, reducing, at the same time, the overall dimensions of the pocket and avoiding the necessity to maintain the plate pressed against the fingers of the hand during the actuation of the handle.

To attain this object, the invention proposes the provision of a motorcar door handle disposed substantially aligned with the outer surface of the door in register with a pocket formed to allow grasping the handle hinged on the door and provided with means for releasing this latter, while a plate, also hinged on the door, is mounted in register with the pocket and adjacent the handle, and is movable between a first position, in which it is disposed in alignment with the outer surface of the motorcar body and covers the pocket, and a second position, in which it is withdrawn in the interior of the pocket so as to allow grasping the handle, characterized in that there are provided first elastic means which ensure the stability of said extreme positions of the plate, as well as projections of the plate arranged to cooperate with the handle and such as to impart to the handle, at the outside, an initial rotation during the displacement of the plate towards the said second position, further elastic means, connected to handle and arranged to overcome the counteraction of the first elastic means, being provided for returning the handle and the plate to the respective positions aligned with the surface of the door as the handle is being released.

The invention will now be described with reference to the annexed drawings, in which:

Figure 1 is a front view of the handle unit according to the present invention,
Figure 2 is a rear view of the unit shown in Fig. 1,
Figure 3 is a section view along line III—III of Fig. 2,
Figures 4, 5 and 6 are sectional views along line IV—IV of Fig. 2 in three different working stages, respectively, and
Figure 7 is a sectional view along line VII—VII of Fig. 2.

Handle 10 comprises a stationary portion 11, in which there is disposed a lock 12, and a movable portion 13 formed by a plate pivotally mounted, at the upper part thereof, about a horizontal axis 14.

The axis 14 of the plate 13 is anchored on a body 15 which delimits the pockets containing the handle unit and is fixed at 16 to the sheet 17 of the side of the door, in register with an ear 18 of the sheet 17, bent towards the interior of the space containing the handle, and, moreover, it is hooked at 33 to the sheet 17 by an overturned portion 34 by means of a sheif 35 formed on the body 35, the whole being visible in Fig. 7.

Rigidly connected to the plate 13 is a bracket 19 mounted slidable within a space 23 of the body 15 and provided with a slot 10 containing the bar 21 for releasing the door. Furthermore, wound on the axis 14 are springs 22 whose ends 24 and 25 exert a pressure onto the body 15 and the plate 13, respectively.

A second plate 26, positioned below the first plate, is provided with arms 27 hinged at 28 to the
body 15 beyond which they extend by means of teeth 29.
Second springs 30 have their ends 31 reaching the body, while their second end 32 is fixed to the arm 27 of the plate 26.
When it is necessary to open the door, with the handle 10 normally disposed in the position shown in Fig. 4, the lower plate 26 is pushed by means of the fingers of a hand, which plate, counteracting the force of the spring 30, rotates inside the pocket till it reaches the position shown in Fig. 5. At the same time, the teeth 29 exert a pressure onto the handle 10 making it partially rotate towards the outside, as shown in Fig. 5. In this situation, moreover, the plate 26 will result in being locked in the position shown in Fig. 5, inasmuch as the ends 32 of the springs 30, which act onto the arms 27, will result in being positioned beyond the ideal straight line which passes through the pivoting point of the said arms and the engagement point of springs 30 themselves, and accordingly the plate 26 will be maintained in striking position against the body 15, as can be seen from Fig. 5.
It will now be easy for the user to grasp the handle 10, which has automatically rotated slightly towards the outside, not having even any pressure exerted onto the fingers by the plate, which is stationary now.
By further rotating the handle 10 until it attains the position shown in Fig. 6, an action will be exerted onto the bar 21 which releases the door, thus allowing this latter to be opened.
When the handle 10 is released, this latter, pushed by the springs 22, will return first to the position shown in Fig. 5 and then to that shown in Fig. 4.
This is obtained by simply providing a load of the springs 22 which is higher than the load of the springs 30; in this way, in fact, when the handle 10 will have returned to the intermediate position shown in Fig. 5, by pressing the teeth 29 of the arms 27, the springs 22 will overcome the force exerted by the springs 30 and will allow the plate 13 to continue the rotation until it reaches the rest position shown in Fig. 4, thus making return to this position also the lower plate 26.

Claims

1. A motorcar door handle disposed substantially aligned with the outer surface of the door in register with a pocket formed to allow grasping the handle (13) hinged on the door and provided with means for releasing this latter, whilst a plate (26), also hinged on the door, is mounted in register with the pocket and adjacent the handle (13), and is movable between a first position, in which it is disposed in alignment with the outer surface of the motorcar body and covers the pocket, and a second position, in which it is withdrawn in the interior of the pocket so as to allow grasping the handle, characterized in that there are provided first elastic means (30) which ensure the stability of said extreme positions of the plate, as well as projections (29) of the plate arranged to cooperate with the handle (13) and such as to impart to the handle, on the outside, an initial rotation during the displacement of the plate towards the said second position, further elastic means (22), connected to the handle (13) and arranged to overcome the counteraction of the first elastic means (30), being provided for returning the handle (13) and the plate (26) to the respective positions aligned with the surface of the door as the handle is being released.
2. A handle as claimed in Claim 1, characterized in that the plate (26) is provided with arms (27) which are hinged to the door within the pocket and extend beyond the hinging point by means of said projections intended to assume a position in striking relationship against the handle and to push it outwards during the rotation of the plate towards the interior of the pocket.
3. A handle as claimed in Claim 1, characterized in that the first elastic means (30) are formed by springs which maintain the plate alternately in the two extreme positions after they have passed an intermediate position laying on the straight line joining the fixing point of the springs with hinging point of the arms of the plate.
4. A handle as claimed in Claim 1, characterized in that the second elastic means (22) directly act onto the handle to bring it back to the position of alignment with the surface of the door and have a load higher than that of the said first elastic means which act onto the plate.

Patentansprüche

1. Ein Tuergriff fuer Automobil, der fest auf der Aussenoberflache angeordnet und mit dieser buendlich abgeschlossen ist. Er ist mit einer Vertiefung versehen zum bequemen Ergreifen des Tuergriffes (13), zusammen mit einer Vorrichtung, um die Tuer loszulassen. Eine Platte (26), die ebenfalls an der Tuer verankert ist, schliesst mit der Vertiefung buendlich ab und befindet sich in der Nahe des Tuergriffes (13); diese Platte lasst sich in einer ersten Stellung einrasten, wo sie buendlich mit der Aussenoberflache der Fahrzeugkarosserie abschliesset; in einer weiteren Stellung bewegt sie sich in das Innere der Vertiefung, sodass es moglich ist, den Tuergriff zu ergreifen, Voraussetzung hierfuer sind elastische Systeme (30), die fuer eine vorschriemassige Fixierung in besagter unterer Stellung der Platte sorgen und so auf der Platte angeordnete Erhebungen (29), dass sie in den Griff (13) eingreifen, um diesen von aussen so drehen zu koennen, dass er mit der Bewegung der Platte in Richtung besagter zweiter Stellung einrastet, in Verbindung mit weiteren Elastik-Systemen (22), die mit dem Griff (13) verbunden und so angeordnet sind, dass sie den ersten Elastik-Systemen (30) entgegenwirken, die so angeordnet sind, damit Griff (13) und Platte (26), sobald der Griff losgelassen wird, in die Stellung bei der sie buendlich mit der Oberflache der Karosserie abschliessen, zurueckzuschnellen.
2. Ein wie unter (1) angesprochener Griff, der so
beschaffen ist, dass die Platte (28) mit Arne (27) ausgestattet ist, die mit der Tuer im Innern der Vertiefung verankert sind und mit besagten Erhebungen ueber den Verankerungspunkt hinausragen mit dem Ziel, eine im Gegensatz zum Griff gegensatzliche Stellung einzunehmen und diesen waehrend der Drehung der Platte nach aussen in das Innere der Vertiefung zu bewegen.

3. Ein wie unter (1) angespruchter Griff mit der besonderen Eigengschaft, dass die ersten Elastik-Systemen (30) aus Federn bestehen, die die Platte wechselweise in den zwei extremen Stellungen festhalten, nachdem die Federn eine mittlere Stellung uberschritten haben, die sich auf der Geraden befindet, die den Verankerungspunkt der Federn mit dem Verankerungspunkt der Arme der Platte verbindet.

4. Ein wie unter (1) angespruchter Griff mit der Eigengschaft, dass die zweiten Elastik-Systeme (22) direkt auf den Griff wirken, um ihn wieder in die Stellung zurueckzubringen, wo er sich auf gleicher Hoehle mit der Oberflache der Tuer befindet. Ihre Belastung ist starker als die der obengenannten, auf die Platte wirkenden Elastik-Systeme.

Revendications

1. Une poignee pour porte de voiture, solide et alignee a la surface exterieure de la porte, en equerre avec un cavitee expressement creee afin de permettre de saisir la poignee (13) fixee par des charniere a la porte et munie de systemes appropries de relacheement de cette derniere, tandis qu'une plaque (28) egalement fixee par des charniere a la porte est montee en equerre avec la cavitee en position adjacente a la poignee (13) pour etre depassee a partir d'une premiere position dans laquelle elle est alignee a la surface exterieure de la carrosserie de la voiture en couvrant la cavitee, jusque a une seconde position dans laquelle elle est tiree vers l'interieur de la cavitee de sorte a permettre la prise de la poignee, caracterisee du fait que sont prevus des premiers systemes elastics (30) qui assurent la stabilité de la plaque aux positions extremes, ainsi que des saillies (29) de la plaque aménagees de sorte a ce qu'elles puissent collaborer avec la poignee (13) et appliquer a cette derniere une rotation initiale lors du deploiement de la plaque vers la second position mentionnee plus haut, avec d'ultieures systemes elastics (22) reliee a la poignee (13) et placee de sorte a pouvoirs sur monter l'action contraire des premiers systemes elastics (30) prevus pour remener la poignee (13) et la plaque (26) aux positions respectives, alignees a la surface de la porte des que la poignee est relachee.

2. Une poignee revendiquee suivant la revendication 1, caracterisee du fait que la plaque (26) est munie de bras (27) fixees a la porte par des charniere a l'intérieur de la cavitee et depassant le point de fixation par les charniere au moyen des saillies susdites destinees a se placer en position d'opposition vis-a-vis de la poignee et a amener cette derniere vers l'exterieur, pendant la rotation de la plaque vers l'intérieur de la cavitee.

3. Une poignee revendiquee suivant la revendication 1, caracterisee du fait que les secones systemes elastics (30) sont constitues de ressorts qui maintiennent alternativement la plaque dans les deux positions extremes des qu'elles depassent une position intermediaire situaee sur la droite unissant le point de fixation des ressorts et celui de fixation par les charniere des bras de la plaque.

4. Une plaque revendiquee suivant la revendication 1, caracterisee du fait que les seconds systemes elastics (22) agissent directement sur la poignee pour la ramener a la position d'alignement vis-a-vis de la surface de la porte et dont la charge est plus importante que celle des premiers systemes elastics susdits qui agissent sur la plaque.