

United States Patent

Grosseau

[15] 3,698,136

[45] Oct. 17, 1972

[54] **LATERAL ABUTMENT DEVICES FOR VEHICLE WINDOWS**

[72] Inventor: **Albert Grosseau**, Paris, France

[73] Assignee: **Societe Anonyme Automobiles Citroen**, Paris, France

[22] Filed: **Jan. 5, 1971**

[21] Appl. No.: **104,061**

[30] **Foreign Application Priority Data**

Jan. 12, 1970 France.....7000905

[52] U.S. Cl.49/394, 49/310, 49/475,
49/70, 292/201

[51] Int. Cl.E05b 65/061

[58] Field of Search.....49/303, 307, 310, 475, 394,
49/70; 292/201

[56] **References Cited**

UNITED STATES PATENTS

2,185,909 1/1940 Caponey.....292/201 X

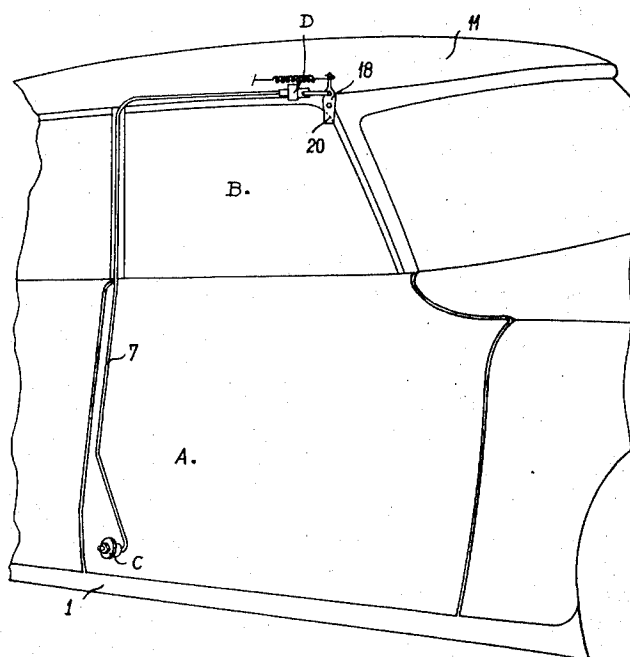
2,908,948 10/1959 Jones.....49/303

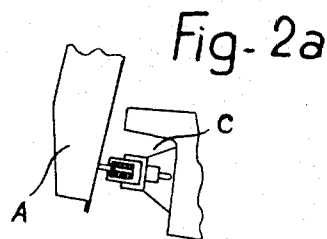
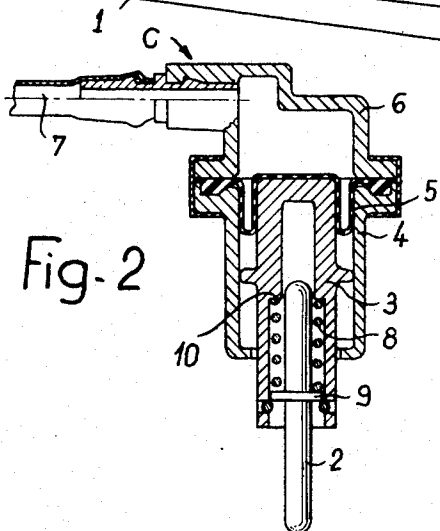
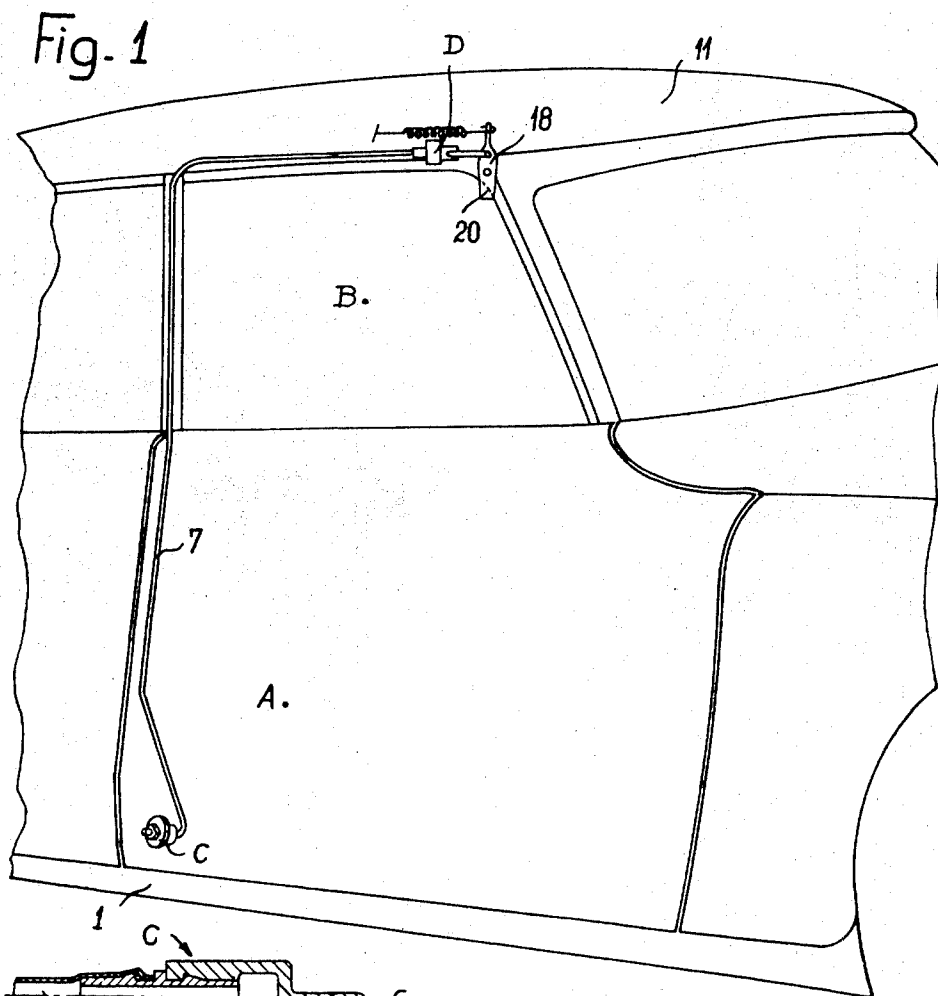
Primary Examiner—Kenneth Downey
Attorney—Wenderoth, Lind & Ponack

[57] **ABSTRACT**

A device for preventing the lateral movement of the side windows of a motor vehicle. A sensing and transmitting device is mounted on the side rail of the door and is actuated by the closing of the door. The sensing and transmitting device is connected to a receiver by a fluid circuit, the fluid being a liquid under pressure. The fluid transmitted by the sensing and transmitting device causes the receiver to act on a latching member through a push-rod to move the latching member into position on the opposite side of the window from the sealing member thereby providing an abutment preventing the lateral movement of the window.

4 Claims, 5 Drawing Figures





Inventor

Albert Grosseau

By *Wendell L. Smith & Partners*

Fig- 3

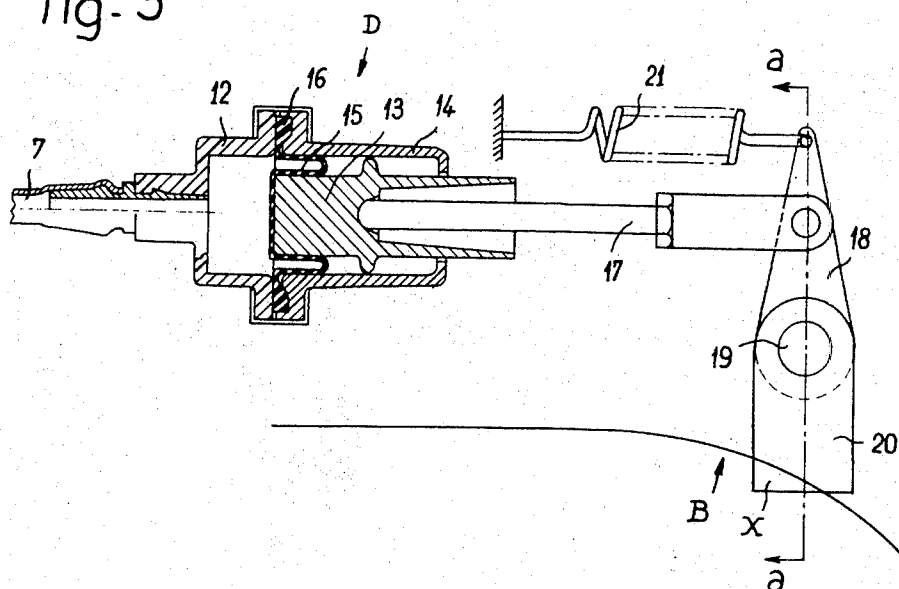
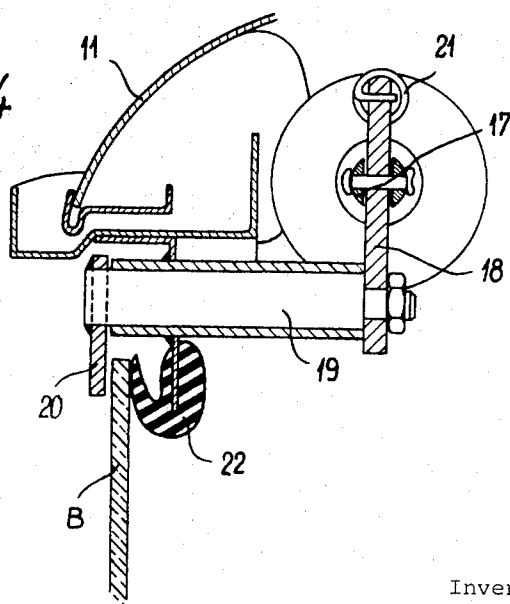


Fig- 4



Inventor

Albert Grosseau

By *Wenduth, Seid & Porsch*

LATERAL ABUTMENT DEVICES FOR VEHICLE WINDOWS

The invention relates to an abutment device particularly for non-framed vehicle side windows.

On high performance modern vehicles a certain number of new aerodynamic phenomenon have been observed, for example, the loosening of the non-framed windows frequently occurs on the side doors and gives rise to vibrations, draughts and sounds detrimental to comfort.

The invention aims to overcome the above-mentioned disturbances without recourse to a method of pre-stressing with its undesirable consequence (thick windows, strengthened window regulator mechanisms, difficult operation, etc . . .) by means of a simple device, hydraulically and remotely controlled, whose automatic action which is controlled by the operation of the doors is free from human interference.

The present invention consists essentially in such a device wherein the windows are urged against their ordinary sealing member upon the closing of the door, a hydraulic system comprising a dual action sensing and transmitting device disposed between the door and the door frame transmits fluid under pressure to a hydraulic receiver which is mounted on the body of the vehicle and acts on a latching member whose displacement prevents any lateral loosening movement of the window relative to its sealing member.

In the accompanying drawings:

FIG. 1 shows a partial view of a vehicle comprising the device according to the invention for preventing the loosening of the side windows of its front right door;

FIG. 2 shows the construction of the hydraulic sensing device on a larger scale;

FIG. 2a shows a detail of the mounting of the hydraulic sensing device relative to the door;

FIG. 3 shows the arrangement of the receiving device

FIG. 4 shows a section along *a* in FIG. 3.

Referring to the drawings and in particular to FIG. 1, a vehicle is shown with a front right door A having a window B.

A hydraulic detector C in the illustrated embodiment is disposed at the lower portion of the door between the side-member 1 and the fillister of the door. The detector C comprises an actuating push-button 2 adapted to slide in a hollow piston 3 guided in an element 4 and connected by a flexible membrane 5 to a casing 6 filled with oil or other liquid which is transmitted under pressure to the receiver D through the tube 7 (FIG. 2). It should be noted that a spring 8 is disposed between a disc 9 of the button 2 and an interior shoulder 10 in the piston 3.

The receiver device D, whose construction is shown on a larger scale in FIG. 3, is mounted in the roof or top 11 of the vehicle as shown in FIG. 1. It is seen in FIG. 3 that the tube 7 opens into a casing 12 of the receiver device which receives liquid under pressure acting on the piston 13 guided in the element 14 and provided with a flexible member 15 whose edges are clamped between the element 14 and the casing 12.

The piston 13 acts on the lever 18 through the intermediary of the push-rod 17 to effect the rotation of the pin 19 at the end of which a latching member 20 can

exert pressure against the face of the window B in order to maintain it against the peripheral sealing member 22. An opposed return spring 21 is mounted between the upper end of the lever 18 and a fixed point; the spring 21 is stronger than the spring 8 of the hydraulic detector C.

The operation of the device is as follows:

Door closed — (device in latched position)

The double-acting detector C (compressed between the fillister and the door sill) sends the liquid under pressure to the receiver device D via tube 7; pushed forward, the push rod 17 acts on the return lever 18 which it pivots with the pin 19 driving the latching member 20 whose body covers over a portion X of the surface of the window, thus stopping the lateral movement observed at high speeds. Under these conditions, the actuating push-button 2 of the double acting detector C is driven back by the fillister of the door inside the piston (spring 8 compressed) while at the other end of the circuit, the resilient return-means (spring 21) more powerful than the spring 8, tends to cause the pivoting of the lever 18 and of the latching member 20 opposed to the hydraulic force exerted by the detector C. It is obvious from this fact and from the starting of any opening operation, that the release of the spring 8 effects an action through the spring 21 on the lever 18 which immediately causes the release of the side of the window (latching member retracted). The reduction of the path is, of course, determined consequently.

In case of the closing operation, the time delay between the detector and the receiving device obviously acts in reverse, the latching member 20 only interferes in the "window" clearance plane after the passage of the time delay, while avoiding rebound phenomenon.

Of course the device described hereinabove is given only by way of example. All other alternative applications, combinations of devices or details are to be considered as being part of the invention.

It is important to specify on the other hand that the device described can be applied in the following particular cases:

1. framed or unframed windows whose rest position in their bays or openings are not controlled by any guiding means (no fixed frame);

2. Windows whose rest position in their bays are only partly guided (localized lateral control in certain convertibles);

3. Windows whose fixed guiding frames do not provide a sufficient rigidity to oppose the lateral forces which develop.

What is claimed as new is: 1. A device for lateral abutment of a vehicle door window associated with a sealing member and normally in contact with said sealing member upon the closing of the door comprising a double-acting hydraulic detector, transmitter means disposed between the door panel and the door fillister, a hydraulic receiver mounted on the vehicle body top surmounting the window, a latching member actuated by said receiver for maintaining laterally said window when said door is closed and preventing the window from moving from said sealing member, said detector containing a fluid to be transmitted under pressure to said receiver for the actuation of said latching member.

3

2. A device for lateral abutment of a vehicle door window associated with a sealing member upon the closing of the door, comprising a receiver mounted on the vehicle body top surmounting the window, a window latching member, a double-acting hydraulic detector, transmitter means disposed between the door panel and the door fillister, said transmitter means comprising a housing, a hollow piston in said housing, an actuating push-button slidably mounted in the piston, a compression spring acting between said button and said piston, a flexible membrane separating said piston from a part of said housing containing a fluid to be transmitted under pressure to said receiver whereby upon the closing of the door said actuating button is moved into the piston and the piston exerts a pressure on the fluid through the membrane to transmit fluid pressure to said receiver for the actuation of said window latching member.

3. A device according to claim 1, wherein said hydraulic receiver comprises a casing, a hollow piston in said casing, a flexible membrane fixed to said casing and separating said piston from a part of said casing operatively connected to said detector for receiving pressure fluid when the vehicle door is closed, and a

4

push-rod inside said piston operatively connected to said latching member.

4. A device for lateral abutment of a vehicle door window associated with a sealing member upon the closing of the door, comprising a double-acting hydraulic detector, transmitter means disposed between the door panel and the door fillister, a hydraulic receiver mounted on the vehicle body top surmounting the window, a latching member actuated by said receiver for maintaining laterally said window when said door is closed and preventing the window from moving from said sealing member, said hydraulic receiver comprising a casing, a hollow piston in said casing, a flexible membrane fixed to said casing separating said piston from a part of said casing operatively connected to said detector and receiving pressure fluid when the vehicle door is closed, a push-rod inside said piston operatively connected to said latching member, said latching member being formed as a pivoting lever having a flat latching portion to come in engagement with the window, said lever being associated with said receiver push-rod and supporting said latching portion.

* * * * *

25

30

35

40

45

50

55

60

65