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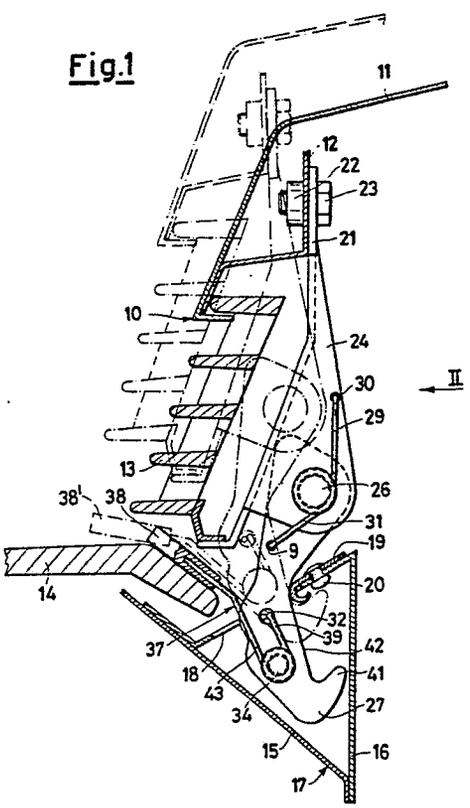
(54) Safety device for a automobile front hood.

(57) A front hood opening safety device of the type operable from outside the passenger ccmpartment, comprising a support on which there is pivoted a safety hook (27) which is retained by the force of a spring (88) in a first predetermined position corresponding to complete closure of the hood, the hook having at one end the shape of a ramp which blends into an inclined wall, on opening the hood the hook assuming a second position in which the ramp comes into engagement with a catch element (19), the hook being operationally connected to a control lever (37) provided with a handgrip, the lever being provided with at least one arm formed from at least one preloaded elastic element.

Fig.1



EP 0 307 978 A1

SAFETY DEVICE FOR AN AUTOMOBILE FRONT HOOD

This invention relates to a safety device for an automobile front hood, formed from a hook provided in addition to the hood fastening system.

For safety reasons it is known to provide in front hood fastening systems further devices for restraining the hood. Usually, the hood fastening system can be operated from the interior of the passenger compartment, whereas the safety device which restrains the hood and retains it in a semi-open position is operated from the exterior of the automobile. This is desirable to prevent the front hood rising while the automobile is moving, due to either an erroneous manoeuvre or a strong accidental impact.

In most cases however, these safety devices are difficult to operate because for aesthetic and space reasons they are located in difficulty accessible positions. On the other hand, if they are provided with an operating lever, for example positioned in view, they are too exposed externally.

The object of the present invention is to provide a safety device for the opening of the front or engine hood, which comprises a lever for its operation but which has the advantage of maintaining the lever hidden when the hood is closed whereas is able to automatically move the safety hook operating lever into an easily accessible region when the engine hood opening control is operated from the interior of the passenger compartment.

Said object is attained by a front hood opening safety device of the type operable from outside the passenger compartment, comprising a support on which there is pivoted a safety hook which is retained by the force of a spring in a first predetermined position corresponding to complete closure of the hood, said hook having at one end the shape of a ramp which blends into a suitably shaped wall, on opening the hood said hook assuming a second position in which said ramp comes into engagement with a catch element, said hook being operationally connected to a control lever provided with a handgrip, said lever being characterised by being provided with at least one arm formed from at least one preloaded elastic element.

Advantageously, said control lever consists of at least one wire spring which is pivoted to said hook and of which the ends form arms, a first end being secured to the hook itself and a second end being secured to said handgrip.

Preferably, said second end of said control lever with the relative handgrip remains constantly in contact with a wall on the front of the automobile.

Preferably, said lever consists of a pair of wire springs, of which those ends secured to the handgrip are formed from a single wire.

The advantages and characteristics of the invention are illustrated hereinafter with reference to the accompanying figures, which show one embodiment of the invention by way of non-limiting example.

Figure 1 shows with continuous lines the device mounted in the automobile with the engine hood in a first closed position, whereas the dashed lines show the device when in the safety position.

Figure 2 is a view in the direction of the arrow II of Figure 1 showing the device before mounting in the automobile.

Figure 3 is a view of the control lever alone.

In Figure 1 the reference numeral 10 indicates overall a front or engine hood formed from an external sheet metal portion 11 with a relative internal stiffening sheet metal portion 12, and a radiator protection grille 13 which is also rigid with the hood 10. The reference numeral 14 indicates a front bumper (partly shown), and 15 and 16 indicate sheet metal portions forming a front cross-member 17.

The sheet metal portion 16 comprises an aperture 18 provided with a catch element 19, the reference numeral 20 indicating a rivet which fixes the catch element 19 to the edge of said aperture 18. The sheet metal portion 12 carries a support 21 which is fixed by a threaded pad 22 and a screw 23. With the support 21, which is of double-T shape in the figure, there are rigid two lugs 24 which are disposed perpendicular to the intermediate portion of said double-T and are provided with a hole 25. A pin 26 is inserted through said hole 25, and on it there is rotatably pivoted a hook 27 having an end ramp 41 which smoothly joins into an inclined wall 42. Said hook 27 is retained in a predetermined position by a spiral spring 28 centrally wound about said pin 26 and having two arms 29 and 31 which engage respectively in a hole 30 provided in one of the lugs 24, and in a hole 9 in the hook 27. Two seats 32 and 33 are provided in the hook 27, there being inserted in the seat 33 a pin 34 which by means of a split ring 35 retains coil turns 36 of a control lever indicated overall by 37. The control lever 37 consists of a preloaded spring to which a handgrip 38 is rigidly connected. The reference numeral 39 indicates two arms of the spring, which are engaged in the seats 32 of the hook 27, and the reference numeral 43 indicates further arms which are rigidly connected to the handgrip 38. The reference numeral 40 indicates holes provided in the support 21 and used

for fixing the support to the hood 10.

At the moment in which the hood 10 is released, an elastic system (not shown) tends to raise the hood and consequently also the safety device which comes into operation at this point. In this respect, in its upward movement, the hood 10 also carries with it the hood 27 which is retained against the catch element 19 by the action of the spring 28.

This movement continues until the point in which the ramp 41, guided in its travel by an inclined wall 42 of the hook 27, hooks onto the catch element 19 so halting the opening of the hood. The vertical movement of the hood 10 also results in movement of the lever 37 as this is pivoted at 34 to the hook 27. However as the control lever 37 consists of a preloaded spring, the lever itself remains constantly in contact with the abutting wall of the bumper 14 during movement, until a position which is more accessible for gripping purposes is reached as shown in Figure 1 by dashed lines and indicated by 38'.

On rotating the control lever 37 and pulling it outwards, the ramp 41 is released from the catch element 19, so allowing the hood 10 to open.

Claims

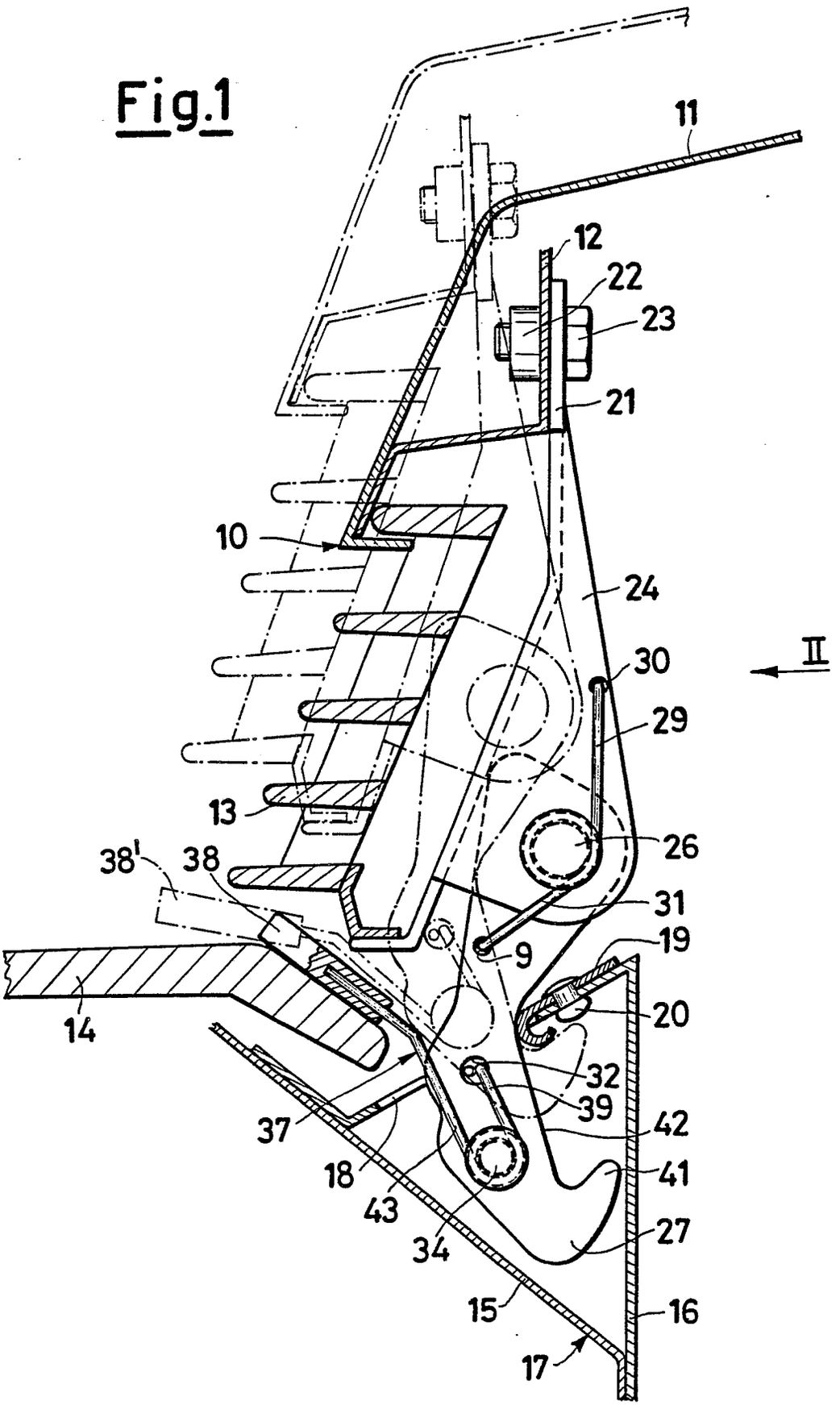
1. A front hood opening safety device of the type operable from outside the passenger compartment, comprising a support on which there is pivoted a safety hook which is retained by the force of a spring in a first predetermined position corresponding to complete closure of the hood, said hook having at one end the shape of a ramp which blends into an inclined wall, on opening the hood said hook assuming a second position in which said ramp comes into engagement with a catch element, said hook being operationally connected to a control lever provided with a handgrip, said lever being characterised by being provided with at least one arm formed from at least one preloaded elastic element.

2. A safety device as claimed in claim 1, characterised in that said control lever consists of at least one wire spring the ends of which form arms, a first end being secured to the hook itself and the second end being secured to said handgrip.

3. A safety device as claimed in claim 2, characterised in that said second end of said control lever with the relative handgrip remains constantly in contact with an abutting wall on the front of the automobile.

4. A safety device as claimed in claim 1, characterised in that said control lever consists of a pair of wire springs, of which those ends secured to the handgrip are formed from a single wire.

Fig.1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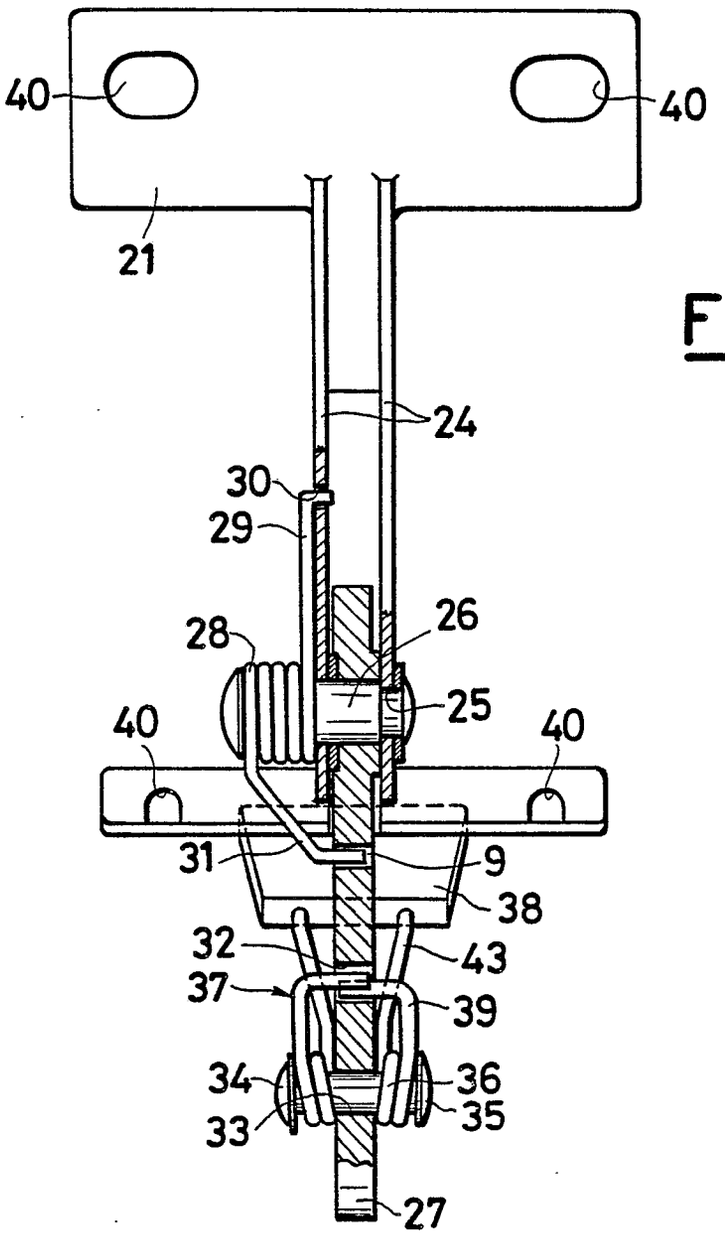
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Fig.2

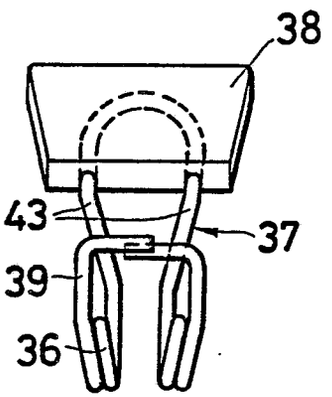
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Fig.3

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EUROPEAN SEARCH REPORT

Application Number

EP 88 20 1654

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.4)
A	FR-A-2 255 456 (DAIMLER BENZ) * Whole document *	1,3	E 05 B 65/19
			TECHNICAL FIELDS SEARCHED (Int. Cl.4)
			E 05 B

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	08-12-1988	VAN BOGAERT J.A.M.M.

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
Y : particularly relevant if combined with another document of the same category
A : technological background
O : non-written disclosure
P : intermediate document

T : theory or principle underlying the invention
E : earlier patent document, but published on, or after the filing date
D : document cited in the application
L : document cited for other reasons

& : member of the same patent family, corresponding document

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