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(54) **A hood release arrangement for a motor vehicle.**

(57) A hood release arrangement has a main latch which normally holds the hood 10 fully closed, and a safety latch which continues to hold the hood closed after the main latch has been operated to open the hood. The safety latch is operated by a release lever 28, and the release lever and the safety latch are connected by a Bowden cable 30 extending from the release lever which is mounted at the front end of the hood to the safety latch which is concealed beneath the hood.

This invention relates to a hood release arrangement for a motor vehicle, particularly for use with a vehicle latching arrangement where the hood is normally secured in its closed position by a latch and by a separate safety latch.

In a latching arrangement of this type, it is conventional to provide a release lever for the main latch which is operated from within the passenger compartment of the vehicle, by a remotely mounted lever. Once the main latch has been released in this way, the hood is still held in a closed condition by a safety latch which can only be released from outside the vehicle. This arrangement is intended to prevent inadvertent opening of the hood whilst the vehicle is in motion.

The safety latch is conventionally released by a lever mounted beneath the hood and accessible, once the main latch has been released. This release lever can however be difficult to locate by feel, and opening of the hood is a two stage operation, namely the safety latch must first be released and then subsequently the hood must be lifted.

According to the present invention, there is provided a hood latching arrangement for a motor vehicle, the hood being normally being secured in a closed condition by a main latch and, on release of the main latch, being retained in the closed condition by a safety latch, the arrangement including a hook release lever mounted on the hood assembly and connected to the safety latch by a cable so that operation of the release lever releases the safety latch.

By mounting the hook release lever on the hood assembly, it becomes possible to operate the release lever and to lift the hood assembly to the open position without the person lifting the hood having to move their hands from one position to another.

Because a cable is used to connect the release lever to the safety latch, the release lever can be positioned in an ergonomically desirable position so that it can be readily located by the user.

In a preferred embodiment the hood assembly comprises a hood panel and a grille fixed to the hood panel. The release lever can then be pivoted to the grille and, where the grille is a plastics moulding, the release lever can be pivoted in bearings formed as an integral part of the grille moulding.

The cable is preferably a Bowden cable and the sheath of the Bowden cable can be secured at its lower end in a bracket moulded integrally with the grille, and at its inner end in a terminal moulding, which moulding provides a guide extending beyond the end of the sheath and diverting the inner wire of the cable through an angle of at least 75°.

The invention also extends to a grille for a hood assembly, the grille being adapted to be attached to a hood panel, and the grille having a hood release lever pivotally mounted on the rear face thereof. The grille is preferably a plastics moulding, and the re-

lease lever is preferably pivoted in brackets integrally formed with the grille moulding.

The invention will now be further described, by way of example, with reference to the accompanying drawings, in which:

Figure 1 is a section through part of the front end of a motor vehicle, showing a hood release arrangement in accordance with the invention;

Figure 2 is a view from behind of a radiator grille incorporating part of the hood release arrangement of Figure 1; and

Figure 3 is a perspective view of another part of the hood release arrangement.

Figure 1 shows a hood top, or bonnet, which covers the engine compartment of a vehicle and is made up of a hood inner panel 12 and an outer panel 14. At the front of the vehicle is a radiator grille 16 which is moulded of plastics material and is fixed to the front edge of the hood 10.

The engine compartment includes a cross member 18 which is part of the vehicle bodywork and to which the hood 10 is latched in the closed position.

There are two latch mechanisms, namely a main latch and a safety latch. The main latch which holds the hood in its fully closed position and which can be released from within the vehicle passenger compartment forms no part of this invention and will not be described here in any detail. The main latch however, in a known way, makes use of a tapered pin which is inserted through an opening in the cross member 18, past a spring-loaded shutter in the opening and is held tightly in position by a compression spring 22.

The safety latch comprises a safety hook 24 which engages in an aperture 26 in the cross member 18. When the main latch 20, 22 is released the spring 22 will lift the hood 10 until further lifting movement is stopped by abutment of the hook 24 beneath the cross member 18. At this time the hood is in a partially released condition.

To fully release the hood it is necessary to turn the safety hook 24 so that it can pass up through the opening 26, and this is done by pulling on a release handle 28 which is connected through a release cable 30 to the top of the hook 24.

Figure 1 shows the release lever 28 in its normal position (shown in bold lines) and in its released position (shown in dotted lines). To move the release lever from one position to the other, a hand is inserted beneath the bottom edge 32 of the grille so that the fingers can find the lever 28 and pull it from the position 28 to the position 28a.

The cable 30 is a Bowden cable with an outer sheath 34 and an inner wire 36. The sheath is supported between fixed abutments 38 and 40, and the ends of the wire 36 are connected to the lever 28 and to the hook 24 respectively.

At the inner end, shown in Figure 3, the outer sheath abutment 40 is part of a plastics moulding 42

which provides a guide channel for the inner wire 36 and allows the cable 30 to meet a mounting plate 44 in the plane of the plate, whilst the line of action of the cable is at a substantial angle to the plate, as can be seen in Figure 3. This plastics moulding which has a channel for receiving the wire 36 thus acts as a combined terminal, direction diverter and guide for the cable 30.

At the outer end of the latching arrangement (seen in Figure 2), the lever 28 is mounted in bearing lugs 46 which are moulded onto reinforcing ribs 48 at the back of the radiator grille 16. The lever 28 itself is a plastics part which can be simply snap fitted into the bearing lugs 46. A button 50 at the end of the wire 36 engages in one arm 52 of the lever 28 so that when the lever is pulled, the wire is pulled and the hook 24 is withdrawn from the hole 26.

Because a Bowden cable is used to connect the lever 28 with the hook 24, the lever 28 can be positioned at a position chosen by the designer to make it easy to operate. Furthermore by mounting the lever in the position shown, immediately behind the grille and towards the bottom edge thereof, it is possible for the person opening the hood to use only one hand which is inserted beneath the bottom edge 32 of the grille, finds the lever 28 and then pulls the lever to release the hook 24. Then, without moving the hand, the user can immediately lift the hood.

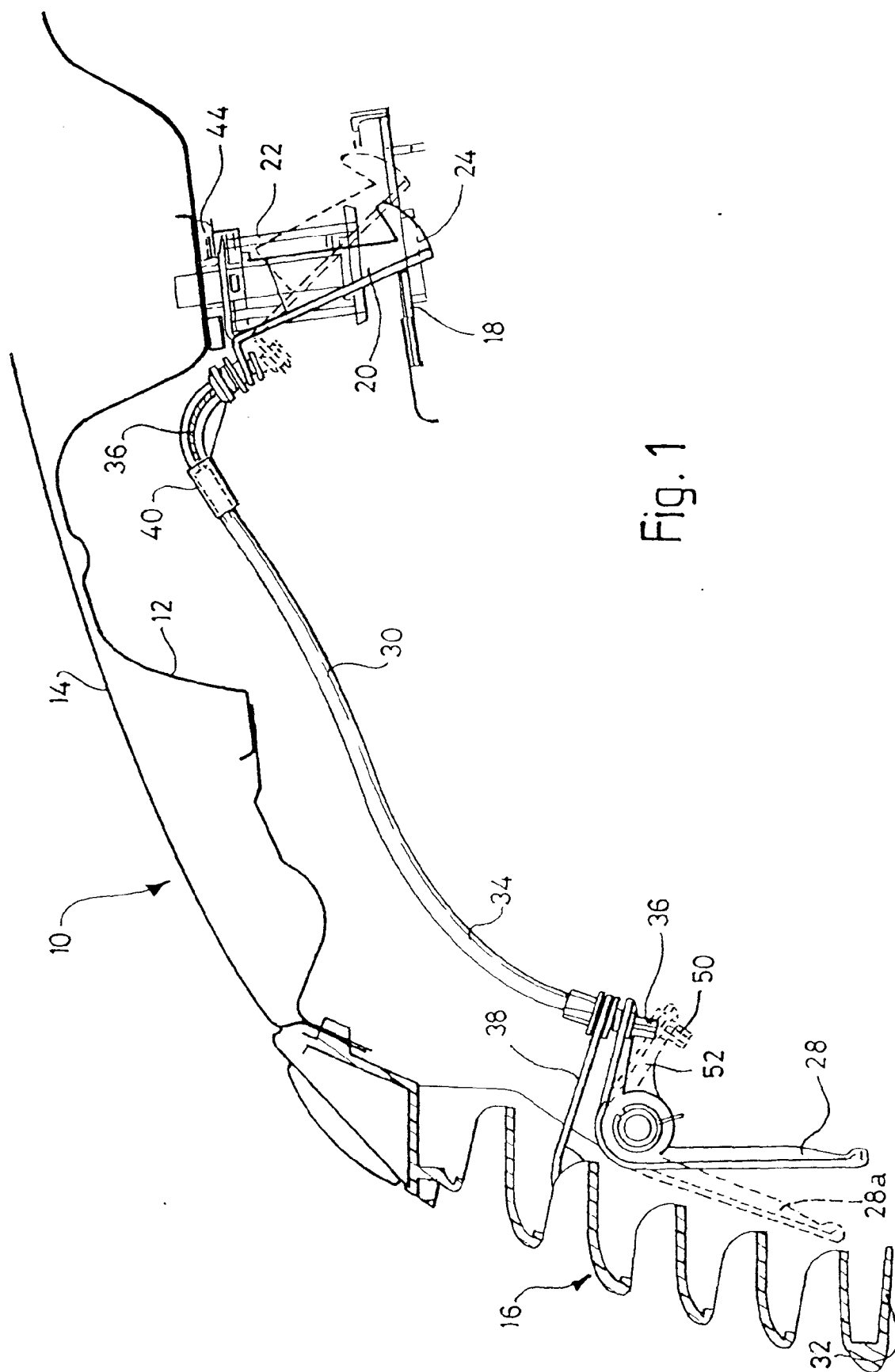
The use of the cable 30 to connect the lever and the hook also provides the advantage that the hook can be positioned anywhere beneath the bonnet and does not itself need to be directly accessible from in front of the vehicle.

bearings (46) formed as an integral part of the grille moulding.

4. A hood latching arrangement as claimed in any preceding claim, characterised in that the cable (30) is a Bowden cable and the sheath (34) of the Bowden cable is secured at its lower end in a bracket (38) moulded integrally with the grille, and at its inner end in a terminal moulding (40), which moulding provides a guide extending beyond the end of the sheath and diverting the inner wire (36) of the cable through an angle of at least 75°.
5. A grille for a hood assembly, the grille (16) being adapted to be attached to a hood panel (10,12,14), and the grille having a hood release lever (28) pivotally mounted on the rear face thereof.
6. A grille as claimed in Claim 1 which is a plastics moulding with the release lever (28) pivoted in brackets (48) integrally formed with the grille moulding.

## Claims

1. A hood latching arrangement for a motor vehicle, the hood (10) being normally being secured in a closed condition by a main latch and, on release of the main latch, being retained in the closed condition by a safety latch (24,26), the arrangement including a safety latch release lever (28) characterised in that the safety latch release lever (28) is mounted on the hood assembly (10,12,14,16) and is connected to the safety latch by a cable (30) so that operation of the release lever releases the safety latch.
2. A hood latching arrangement as claimed in Claim 1, characterised in that the hood assembly (10,12,14,16) comprises a hood panel (10) and a grille (16) fixed to the hood panel and the release lever (28) is pivoted to the grille.
3. A hood latching arrangement as claimed in Claim 2, characterised in that the grille (16) is a plastics moulding and the release lever (28) is pivoted in



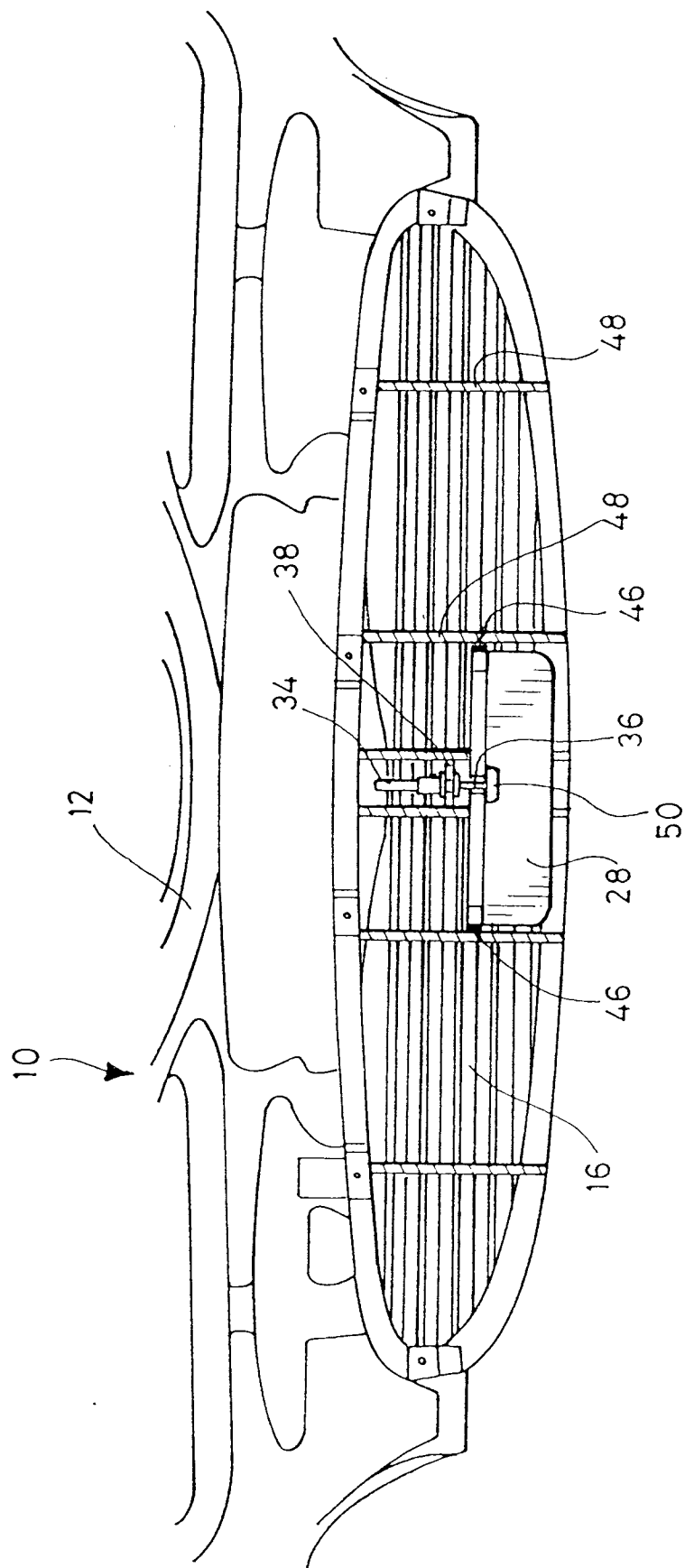


Fig. 2

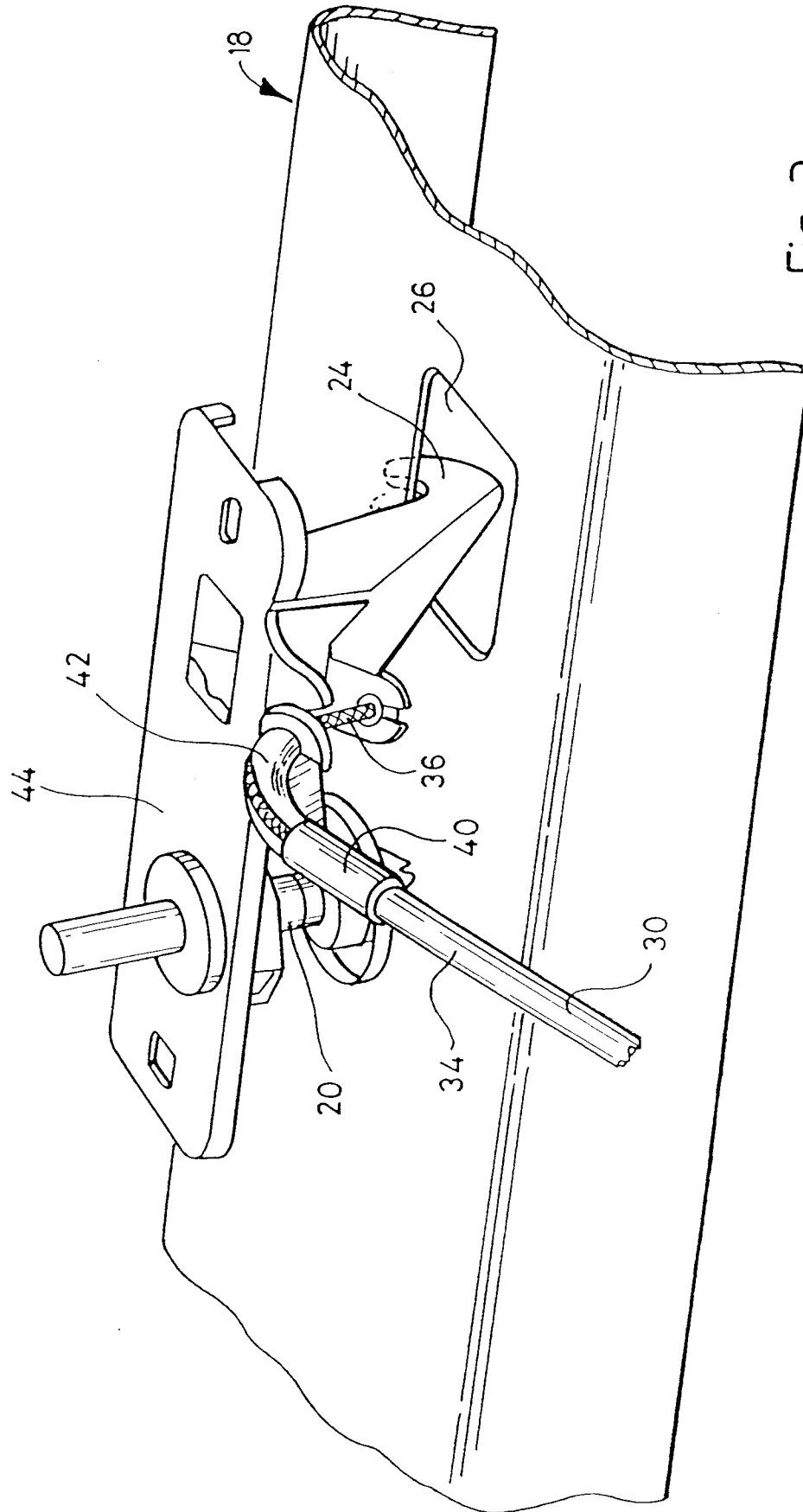


Fig. 3