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VEHICLE BODY CONSTRUCTION
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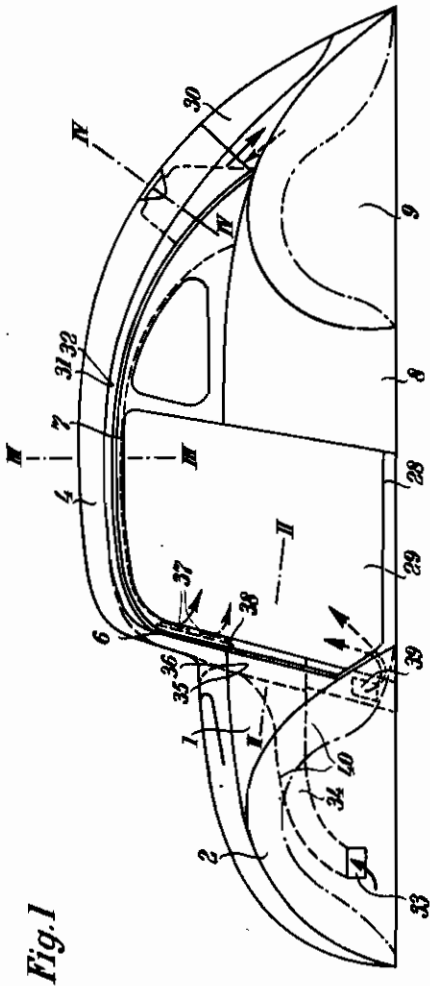


Fig. 1

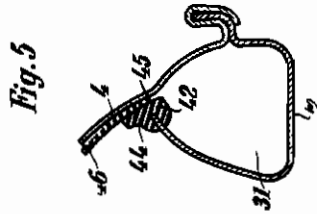


Fig. 5

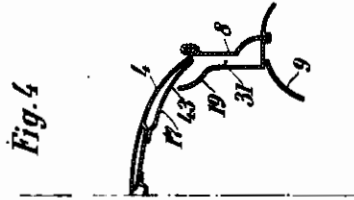


Fig. 4

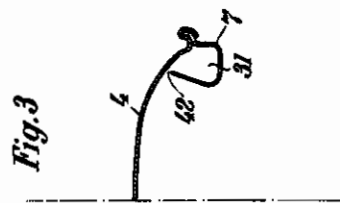


Fig. 3

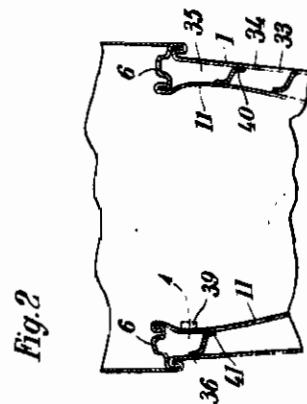


Fig. 2

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ALIEN PROPERTY CUSTODIAN

VEHICLE BODY CONSTRUCTION

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Application filed November 26, 1938

This invention relates to an improved vehicle body construction and more particularly to a vehicle body formed with integral air ducts for cooling and/or heating various vehicle parts.

An object of this invention is to provide a vehicle body containing air cooling and/or heating ducts formed as an integral part of the body construction.

Another object of this invention is to provide air cooling and/or heating ducts for a vehicle body, formed with a minimum of added parts.

Still another object of this invention is the provision of a vehicle body made of individual interconnected sheet metal members which, at the same time, form air cooling and/or heating ducts.

An object of this invention is the provision of air cooling and/or heating ducts for the engine, passenger compartment, or windshield of a sheet metal vehicle body, formed from the hollow spaces already present in such a body.

A more specific object of this invention is the provision of air cooling and/or heating ducts for the engine, passenger compartment, and windshield of a vehicle body formed from the hollow spaces within the body walls, windshield posts and roof rails of such a body, preferably made from interconnected sheet metal parts.

Other objects and advantages of this invention will be apparent from the description of a single preferred embodiment thereof taken in connection with the attached drawing, wherein:

Fig. 1 is a side view of a vehicle body formed in accordance with the principles of this invention;

Fig. 2 is a transverse cross-sectional view along the line II—II of Fig. 1;

Fig. 3 is the half of a transverse cross-sectional view along the line III—III of Fig. 1;

Fig. 4 is the half of a transverse cross-sectional view along the line IV—IV of Fig. 1; and

Fig. 5 is a transverse cross-sectional view of part of the construction shown in Fig. 3, drawn upon an enlarged scale to emphasize certain features of my construction.

The principles of this invention are illustrated generally in Fig. 1 as applied to an automobile of the type having its engine in the rear. The vehicle body is illustrated as being formed of a front apron 1 having a wheel insert 2 and interconnected with a roof portion 4. Windshield posts 6 are provided at the front edge of the roof 4 and the roof is itself supported by roof rails 7. The latter extend rearwardly into the side walls 8 which is formed with rear wheel inserts 9. The

body is supplied with the usual floor board 28 forming with the interior of the body the passenger space 29. The engine space at the rear of the body has been indicated at 30. It is to be understood that preferably all of the body elements are formed from sheet metal and, more specifically, in accordance with the teachings of my co-pending application Serial Number 236,633, filed October 24, 1938, of which the present application is a continuation-in-part. The principles of my construction are not, however, limited in their application to this specific type of body which has been used merely by way of illustration.

The body arrangement described above adapts itself admirably to the formation of integral hollow ducts extending longitudinally of the vehicle for carrying fresh or cooling air to the passenger compartment or engine, or for carrying heated air from the engine compartment to the interior of the vehicle or to openings directed against the windshield. As best shown in Fig. 2, taken in connection with Fig. 1, I prefer that the fresh air be drawn in through a suitable opening in the side of the vehicle, such as the opening 33 positioned in the wheel insert 2. An opening so positioned is subjected to a certain amount of natural air pressure, developed when the vehicle is traveling, which will tend to blow the air through the ducts to the positions desired. For guiding the entering air, duct 34 is first readily formed between the hollow portions existing by the arrangement of the apron 1 and the interior strengthening leaf 11. The boundaries of the duct may be completed by insertion of small transverse leaves, such as 40.

Extending rearwardly, the duct 34 merges into the duct 35 which is formed by the hollow space bounded by the apron 1, the windshield post 6, the strengthening leaf 11, and the transverse leaf 40.

The duct 35 will then extend upwardly through the hollow windshield post 6 and will there merge into the connecting duct 31.

As best illustrated in Fig. 3, the duct 31 is formed from the natural hollow space existing between the roof 4 and the sheet metal roof rail 7. No additional parts are necessary to form this passage.

Toward the rear of the vehicle where the roof rail extends into the sheet metal side walls 8, the duct 31 is formed by the hollow space bounded on opposite sides and at the bottom by the outside wall itself and the inner lining 19, as shown in Fig. 4. The top of the duct at this

point consists of the transverse roof strengthening member 17. At this rear portion of the vehicle the duct 31 will communicate with the rear engine space 30, and there may be interconnected in any suitable manner so as to guide cooling air to the engine itself. It will thus be seen that the various hollow spaces 34, 35, and 31 will, with the addition of extremely few parts, form a continuous air conducting duct from the front of the vehicle back to the rear engine. While such has not been illustrated, it is within the scope and concept of this construction that suitable means be provided to forcibly draw the air through this duct in addition to the natural draft caused by pressure at the opening 33.

If it is desired to provide heated air to the passenger compartment or to play upon the windshield to prevent the formation of frost or ice, a similar duct 32 extending forwardly from the rear of the vehicle may be provided. This duct can be formed by the connection of the roof, roof rails, and side walls similarly to the duct 31. As shown in the left hand portion of Fig. 2, the duct 31 will connect with a duct 36 formed in the windshield post by the apron 1, the strengthening leaf 14, the windshield post 6, and the transverse member 41. At the lower end of the windshield post 6 preferably in the vicinity of the floor board 28, a suitable opening 39 may be provided through which the heated air may pass into the interior of the vehicle. At the position of the windshield, slits 37 may be provided in the windshield post 6 for properly directing the heated air against the windshield. In Fig. 1, the direction of the cooling air has been indicated by the arrow in solid lines while the direction of the heated air has been indicated by the arrow in dotted lines.

The manner in which the air may be heated at the rear of the vehicle is of unimportance with regard to this invention but it may be done in any of several manners known to the art. For example, the air may obtain its heat from the engine exhaust, from the hot engine cooling water, or by some separate air heating device which may be regulated to control the temperature of the air supplied. Suitable air filtering means (not shown) may also be used for both the cooling and heated air.

It is furthermore contemplated that a suitable blower (not shown) may be supplied for propelling the air forwardly to the windshield and/or body interior.

Since the cooling or heating air is liable to contain moisture or other ingredients which may affect and rust the interior of the ducts, it is advisable that these be so formed that they are accessible for cleaning or covering by paint. To that end, the ducts may be preferably formed with small slits indicated in Fig. 3 as 42, in Fig. 4 as 43, and still more clearly shown in Fig. 5. By means of a special device the ducts may be cleaned or sprayed through these slits or, if the body is painted by the dipping method, the slits permit entry and withdrawal of the paint from the ducts. After the painting operation has been performed, I prefer to cover these ducts with suitable compressible means indicated at 44, such as soft rubber, artificial resinous material, or felt. This material may be in the form of pads which at certain places within the vehicle body can advantageously cover the edges 45 of the interior decorative covering 46. The parts will press against the edges and thus tend to hold them in place by a clamping action.

While in the form of invention illustrated and described above only two ducts have been shown, it is obvious that others formed in accordance with the principles of this construction may be utilized, if desired. Variations in the duct system are also apparent. For example, the cooling air may lead directly into the passenger compartment and an opening from that compartment may lead through a duct back into the engine space. Although the engine has been described in connection with a rear engine vehicle, the duct system can readily be adapted to those constructions in which the engine is positioned forwardly. In the same manner, the invention is applicable to other types of vehicles such as railway cars, motor boats, etc. One of the advantages of my arrangement is that constructional space and cost is saved by utilizing the body elements themselves to form the air conducting passages. It is possible, however, that if thought desirable, these passages may be formed of separate thin sheet metal elements such as, for example, aluminum sheeting; or even cardboard. This arrangement will work very satisfactorily and will not consume much more space or add much more weight if at least one side of the ducts is formed by the vehicle body parts already present.

ERWIN KOMENDA.