

# PATENT SPECIFICATION



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279,105

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COMPLETE SPECIFICATION.

## Improved Method of Mounting Motor Vehicle Bonnets and Radiators.

I, ADOLPHE KEGRESSE, of 54, Quai Michelet, Levallois Perret (Seine), France, a French citizen, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

In all motor-cars the bonnet of the engine rests upon the front end of the body and upon the edge of the radiator. It is secured directly to the longitudinal members of the chassis and sometimes resilient means are disposed therebetween.

In vehicles on which the radiator is not in front, the bonnet of the engine rests upon the longitudinal members of the chassis and on a wooden or metal base.

It is common knowledge that the longitudinal members of motor-car chassis have some degree of flexibility. Owing to the action of uneven ground over which the car may run, the flexibility of the said members causes the whole of the chassis to be put out of shape within its limits of elasticity, so that elements secured to the said chassis (i.e. the radiator, the bonnet and the body) are likewise put out of shape.

The whole chassis is very often actually twisted, the consequence being that the radiator and the body, at some distance from one another, are subjected to the action of forces of dissimilar magnitude and in dissimilar directions. The bonnet connects the said radiator to the body and is therefore also subjected to stresses of dissimilar magnitude exerted in dissimilar directions, because it bears with its two ends upon the radiator and upon the front end of the body respectively. It is thus very difficult, if not impossible, to hold the bonnet steady relatively to the radiator and these two elements steady relatively to the body.

This invention relates to a method of mounting the radiator and the bonnet to render them independent of the flexures of the corresponding portion of the chassis and rigidly connect them to the front end of the body.

The invention comprises a method of mounting the bonnet and the radiator on

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motor vehicles in which the radiator is foremost, characterised by an oscillable attachment point at the base of the radiator which is connected, on each side of its lower portion, to the lower portion of the front end of the body by means of rigid cross-ties with a clearance between the latter and the chassis, the bonnet being mounted on the front end of the body and on the radiator, and being rigidly fastened to the said cross-ties without contacting with the chassis.

The invention also comprises in motor vehicles without a radiator foremost, a method of mounting the bonnet by means of a base rigidly secured to the front of the body and oscillating on the opposite side, on a front cross-piece of the chassis, with a clearance between the said base and the chassis, the said base serving as a support to which the bonnet is secured.

In order to make the invention clearly understood, an example is illustrated in the drawings appended hereto, in which:

Figure 1 is an external view, in elevation, of one construction;

Figure 2 is a vertical section through the axis of the radiator;

Figure 3 is a plan view with the bonnet removed;

Figure 4 is an end elevation;

Figure 5 is a front cross-sectional elevation on line A—B of Figure 3; and

Figure 6 is a side elevation showing the arrangement of the invention applied to a motor-car having no radiator in front.

In all the figures, 1 is the chassis of the vehicle, 2 the front end of the body, 3 the bonnet, 4 the radiator and 5 the front springs.

The lower part of the radiator is fitted with a base plate 6 (Figures 2, 3 and 4) having two lugs 7 mounted astride the cross-piece 8 of the chassis 1 (Figures 1, 2, 3, 4, 5 and 6). A tubular spindle 9, secured to the lugs 7 of the base plate 6, is articulated on a bushing 10 which may be of wood or any other suitable material and which is fixed for this purpose within the cross-piece 8 of the chassis 1.

The spindle 9 is in line with the axis of the engine and carries the ball-and-socket attachment 11 of the engine front

when the engine has a three-point sus-  
pension, as shown on Figure 2. The said  
spindle may be hollow to afford passage  
to the starting handle.

5 A clearance 12 (Figure 4) is provided  
between the base of the radiator and the  
cross-piece 8, to allow the radiator to  
oscillate to a certain extent transversely  
to the longitudinal members of the  
10 chassis.

The bushing (made of wood or of any  
other suitable material) may also be  
rigidly secured to the radiator 4. In this  
case the cross-piece 8 of the chassis is used  
15 as a frame for it and the articulation  
spindle 9 is carried on the said cross-  
piece 8. This arrangement is within the  
scope of the invention.

The base of the radiator 4 is connected  
20 on each side to the front end of the body  
by means of two pressed sheet-metal ties  
13 (Figures 1, 2 and 3) disposed with  
a clearance above the chassis 1. The ties  
13 are rigidly attached to the lower end  
25 of the front 2 of the body and to the base  
of the radiator 4. The bonnet 3 rests  
upon the said front 2 of the body and  
upon the edge of the radiator 4. The  
bonnet is held down on the two ties 13  
30 and therefore does not bear on the  
chassis.

The upper portion of the radiator may  
be connected to the front of the body by  
one or two ties 14 (Figures 2 and 3) which  
35 may be made of steel wire, of tubing or  
of swaged metal, and may be cross-  
braced.

These ties are unnecessary in three-  
point-suspension engines attached to the  
40 front of the chassis by means of a ball-  
and-socket joint. The water-pipe unions  
15 (Figure 2) afford a sufficient amount  
of connection since the radiator and the  
engine are mounted on one and the same  
45 spindle, as stated in the foregoing.

With cars in which the radiator is  
not in front, a frame 16 is provided  
(Figure 6) as a supporting base for the  
bonnet. The rear end of this frame is  
50 secured to the lower portion of the front  
end 2 of the body, while the foremost  
portion of this frame bears with its middle  
point on a lug clamp mounted astride the  
cross-piece 8 of the chassis, like the base  
55 of the radiator in the case previously  
considered.

A certain amount of clearance 17 is  
provided between the frame 16 (Figure 6)  
and the chassis 1, so that the bonnet is  
60 secured directly to the said frame 16,  
which rests upon the chassis only through  
its oscillating forepart.

A structure of this kind behaves as  
follows, for example on a rough road  
65 surface:

1. As regards vehicles having the  
radiator foremost, the twistings of the  
chassis, which take place around the  
longitudinal axis thereof, are transmitted  
neither to the radiator nor to the bonnet 70  
because the radiator is connected to the  
chassis only through its articulation and  
is, therefore, unaffected by the said twist-  
ings. Moreover, the bonnet rests on the  
front end of the body and upon the 75  
radiator, and is secured to cross-ties 13,  
so that it has no point of attachment to  
the chassis, with the consequence that it  
cannot be affected by the deformations of  
the latter. 80

2. In vehicles in which the radiator is  
not foremost, the bonnet rests upon a sup-  
porting base which is some distance from  
the chassis and is secured to the  
front end of the body and is articu- 85  
lated on the opposite side to the longi-  
tudinal axis of the machine so that  
it is unaffected by any twistings of  
the chassis.

Having now particularly described and  
ascertained the nature of my said inven- 90  
tion and in what manner the same is  
to be performed, I declare that what I  
claim is:—

1. A method of mounting the bonnet 95  
and the radiator on motor vehicles in  
which the radiator is foremost, char-  
acterised by an oscillable attachment  
point at the base of the radiator which  
is connected, on each side of its lower por- 100  
tion, to the lower portion of the front end  
of the body by means of rigid cross-ties  
with a clearance between the latter and  
the chassis, the bonnet being mounted on  
the front end of the body and on the 105  
radiator, and being rigidly fastened to the  
said cross-ties without contacting with  
the chassis.

2. In motor vehicles having their  
radiator foremost, a method of mounting 110  
the bonnet and the radiator as in Claim  
1, characterised by an oscillable attach-  
ment point at the base of the radiator,  
the axis of oscillation of the said attach-  
ment corresponding to the axis of the 115  
engine.

3. In motor vehicles without a radiator  
foremost, a method of mounting the bon-  
net by means of a base rigidly secured  
to the front of the body and oscillating 120  
on the opposite side, on a front cross-  
piece of the chassis, with a clearance  
between the said base and the chassis, the  
said base serving as a support to which  
the bonnet is secured. 125

4. In motor vehicles, the methods of  
mounting the bonnet and radiator as in  
Claim 1 or 3 and substantially as  
described or substantially as illustrated in  
the accompanying drawings. 130

Dated this 14th day of October, 1927.

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[This Drawing is a reproduction of the Original on a reduced scale.]

Fig. 2

Fig. 1

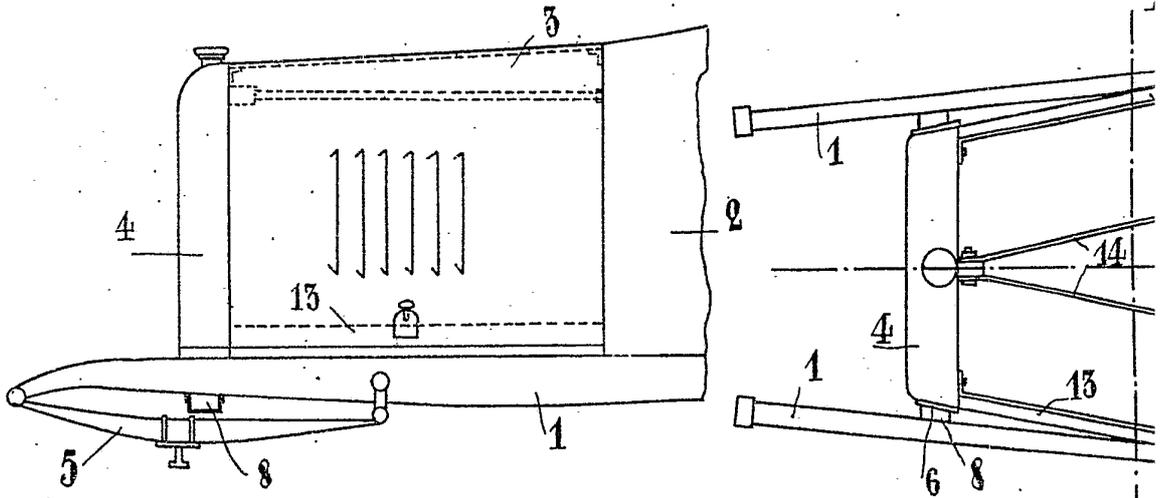


Fig. 2

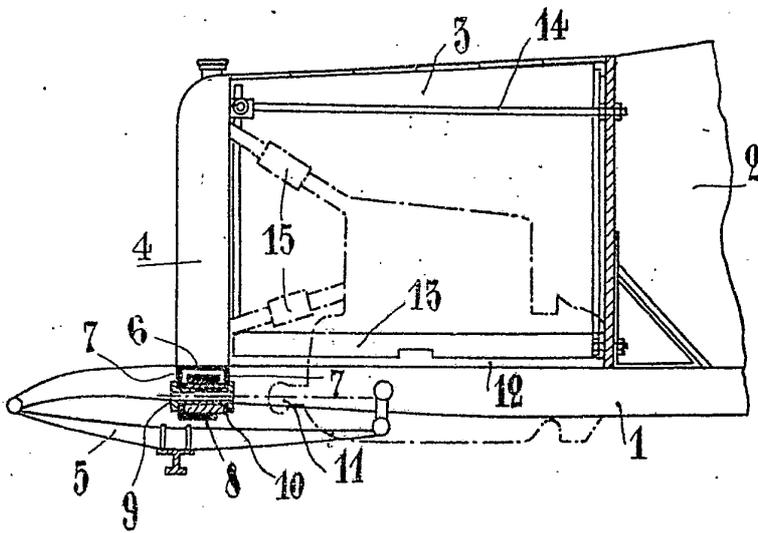


Fig. 4

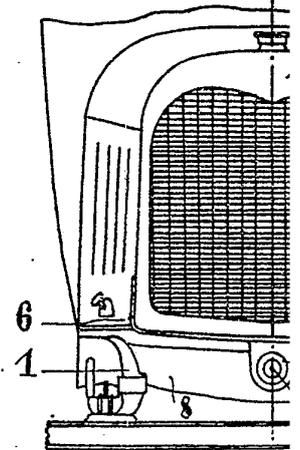


Fig.3

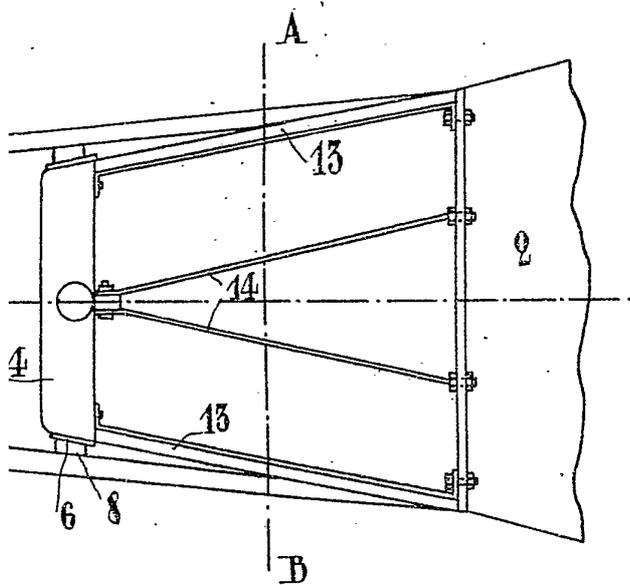


Fig.5

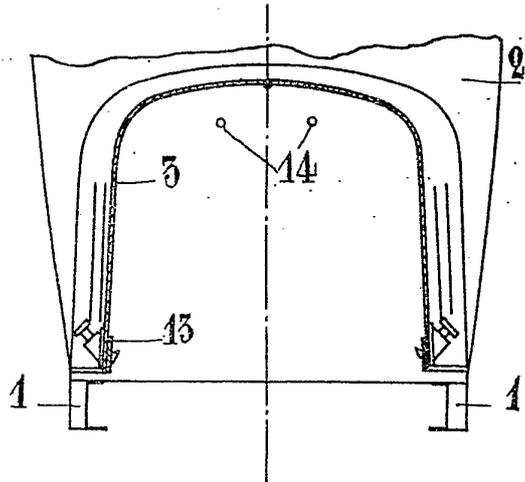


Fig.4

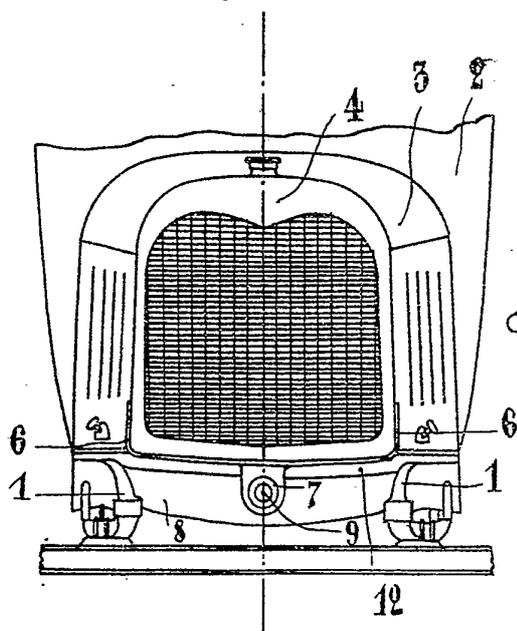


Fig.6

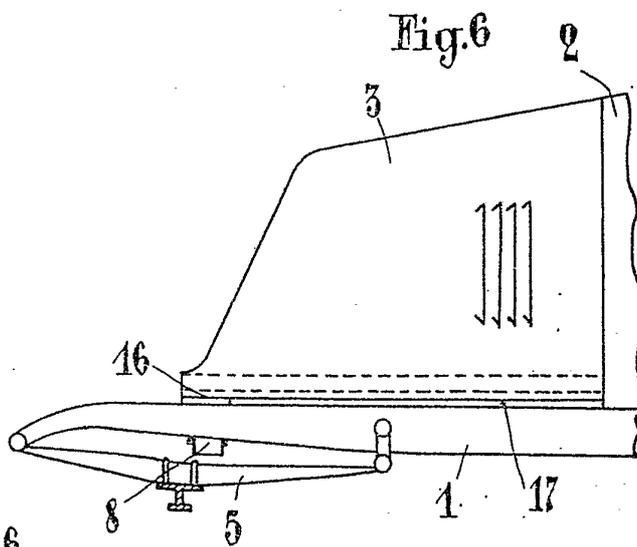


Fig. 1

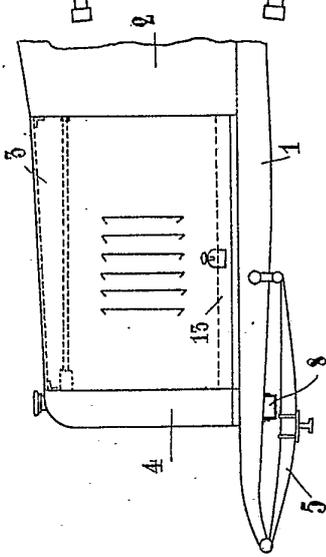


Fig. 3

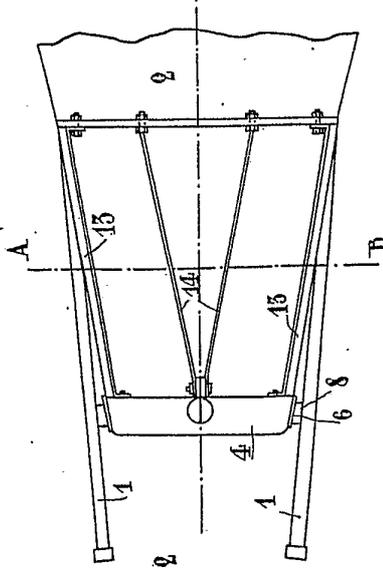


Fig. 5

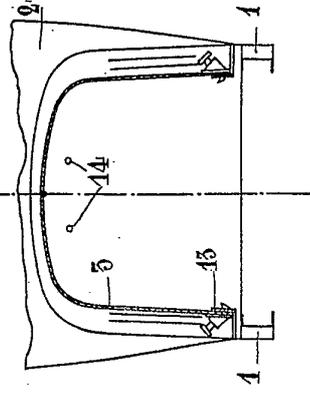


Fig. 2

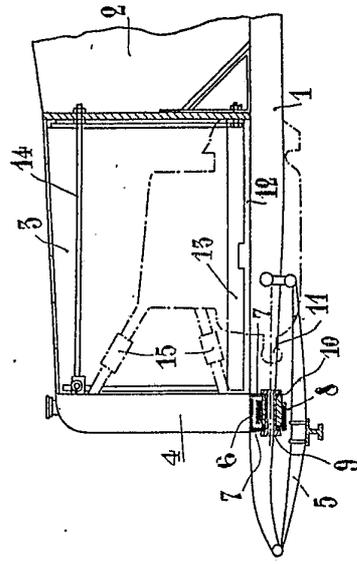


Fig. 4

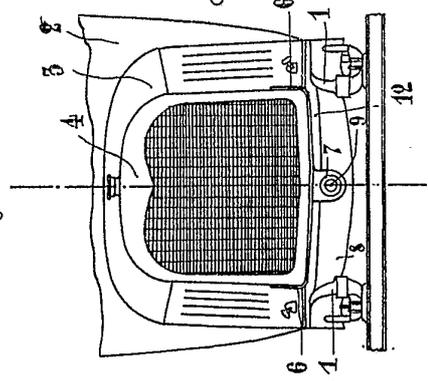
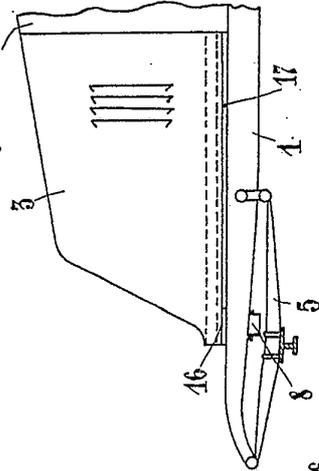


Fig. 6



[This Drawing is a reproduction of the Original on a reduced scale.]