

PATENT SPECIFICATION

311,072

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PROVISIONAL SPECIFICATION.

Motor Car Springing.

We, THE ALVIS CAR & ENGINEERING COMPANY, LIMITED, a British company, GEORGE THOMAS SMITH-CLARKE, a British subject, and WILLIAM MARSHALL DUNN, a British subject, all of Holyhead Road, Coventry, Warwickshire, do hereby declare the nature of this invention to be as follows:—

This invention relates to motor car springing, of the kind in which each wheel is separately supported and no continuous axle between the wheels is used. The object of the invention is to provide an efficient suspension, particularly applicable to the back wheels of a motor car in which the front wheels are used for steering and driving, wherein effective support against all stresses is provided.

According to this invention, each wheel is supported on a short axle carried by an arm pivoted at one end to the chassis and linked at the other end to a spring.

In the preferred construction, there is arranged at the extreme back of the chassis a cross member which is fixed to the chassis. Attached either to each side of the chassis frame, or to each end of the cross member, is a bracket to the underside of which is attached a forwardly projecting leaf spring. The bracket projects upwards and to the upward projection is pivoted a forwardly extending arm, the extreme front of which is linked to the front end of the spring.

At some suitable point on this arm, preferably a point near the front end, is formed an enlargement and to this is bolted or otherwise secured a short stationary axle length upon which the wheel is mounted. This stationary axle may carry a brake anchor plate on which is supported the brake-applying mechanism, or this mechanism may be carried on the arm.

It is important that the pivotal mounting of the arm on the bracket should be a wide one, and therefore the arm is, in plan, of T-shape. In this manner considerable resistance against lateral deflection of the wheel or its support is provided, which is further enhanced by the fact that the arm is spaced from the spring and the latter therefore provides considerable lateral support. Under all normal road stresses, the wheel, therefore, can only rise and fall in a vertical plane.

Although the spring described is of the quarter-elliptic type, the end of the arm may be linked to the centre of a half-elliptic spring or to the end of a cantilever spring, and it is not essential that the spring should lie underneath the arm.

Dated this 16th day of April, 1928.

ERIC. W. WALFORD,

Fellow of the Chartered Institute of Patent Agents,
19, Hertford Street, Coventry,
Agent for the Applicants.

COMPLETE SPECIFICATION.

Motor Car Springing.

We, THE ALVIS CAR & ENGINEERING COMPANY, LIMITED, a British company, GEORGE THOMAS SMITH-CLARKE, a British subject, and WILLIAM MARSHALL DUNN, a British subject, all of Holyhead Road, Coventry, Warwickshire, 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:—

This invention relates to motor car
[Price 1/-]

springing, of the kind in which each wheel is separately supported upon a short axle projecting from an arm pivoted to the chassis frame and engaged by a spring, and no continuous axle between the wheels is used. The object of the invention is to provide an efficient suspension, particularly applicable to the back wheels of a motor car in which the front wheels are used for steering and driving, wherein effective support against all stresses is provided, and ample spring capacity is provided.

vided so that the invention can be used on heavy and fast vehicles.

According to this invention, each wheel is supported on a short axle projecting laterally from an arm extending along the chassis frame and pivoted at one end thereto, the other end being engaged by a leaf spring which also lies along the chassis frame.

10 In the accompanying drawings illustrating the invention as applied to the rear wheels of a motor car in which the front wheels are employed for driving and steering,

15 Figure 1 is a side elevation,

Figure 2 is a plan partly in section, the latter being on the line II, II, of Figure 1, and

20 Figures 3 and 4 are diagrammatic views showing the adaptation of the invention to modified types of suspension springs.

Like numerals indicate like parts throughout the drawings.

In the construction shown in Figures 1 and 2, there is fixed at the extreme back of the chassis frame 2 a cross member 3. Attached either to each side of the chassis frame as shown, or to each end of the cross member, is a bracket 4 to the lower part of which is attached a forwardly projecting quarter-elliptic type leaf spring 5. The bracket 4 projects upwards at 6, and to this part is pivoted about an axis 7 a forwardly extending arm 8, the extreme front 9 of which is linked to the front end 10 of the spring 5 by a shackle 11.

At some suitable point on this arm, preferably a point near the front end, is formed an enlargement 12 and to this is bolted or otherwise secured a short stationary axle 13 upon which the wheel (not shown) is mounted. This stationary axle may carry a brake anchor plate 14 on which is supported the brake-applying mechanism 15, or this mechanism may be carried on the arm.

It is important that the pivotal mounting at 7 of the arm 8 on the bracket 4 should be a wide one, and for this purpose the arm is keyed at 16 to a shaft 17 of substantial length which extends for some distance into a bore 18 of the cross member 3 and is supported near its ends on anti-friction bearings 19. Alternatively the arm at this end may be in plan of T-shape adapted to pivot on a lateral projection on the bracket. In this manner considerable resistance against lateral deflection of the wheel or its support is provided, and the arm thus provides considerable lateral support also. Under all normal road stresses the wheel, therefore, can only rise and fall in a vertical plane.

65 Although the spring described is of the

quarter-elliptic type, the forward end of the arm may be linked by a shackle 11 to the centre 20 of a half-elliptic spring 21 (Figure 3) or to the end 22 of a cantilever spring 23, and it is not essential that the spring should lie underneath the arm. It will be clear, however, that a substantial spring can be used.

Having now particularly described and ascertained the nature of our said invention and in what manner the same is to be performed, we declare that what we claim is:—

1. A motor car springing system of the kind referred to, in which each wheel is supported on a short axle projecting laterally from an arm extending along the chassis frame and pivoted at one end thereto, the other end being engaged by a leaf spring which also lies along the chassis frame.

2. A motor car springing system as claimed in Claim 1, in which a bracket attached to the chassis frame supports the spring and the pivot for the arm.

3. A motor car springing system as claimed in Claim 1 or Claim 2, in which the spring is of the quarter-elliptic type and is arranged below the arm.

4. A motor car springing system as claimed in Claim 1, in which the pivot member, such as the shaft 17, is fixed to the arm and is supported on relatively widely spaced anti-friction bearings carried by the chassis frame.

5. A motor car springing system as claimed in Claim 1, in which the spring is of the quarter-elliptic type, and is arranged below the arm and spaced therefrom, one end being anchored to the chassis below the pivotal attachment of the arm and the other end linked to the free end of the arm by a shackle.

6. A motor car springing system as claimed in Claim 1, in which the end of the arm remote from the pivot is linked to the centre of a half elliptic spring such as 21.

7. A motor car springing system as claimed in Claim 1, in which the end of the arm remote from the pivot is linked to the end of a cantilever spring such as 23.

8. The complete springing means for use on a motor car, substantially as described or as illustrated in Figures 1 and 2, or Figure 3, or Figure 4, of the accompanying drawings.

Dated this 28th day of December, 1928.

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

