

N^o 3022



A.D. 1901

Date of Application, 12th Feb., 1901

Complete Specification Left, 12th Nov., 1901—Accepted, 6th Feb., 1902

PROVISIONAL SPECIFICATION.

"Improvements in or relating to Carriage Springs for Motor Vehicles and the like.

I, WILHELM MAYBACH, Engineer, of Cannstadt, in the Kingdom of Wurtemberg, German Empire, do hereby declare the nature of this invention to be as follows:—

5 This invention relates to improvements in or relating to carriage springs for motor vehicles and the like.

The usual method of mounting leaf springs is to secure the ends of the springs to the vehicle body or to the ends of a second spring placed between the first and the vehicle body and to allow the centre of the spring to rest upon the axle of the road wheels. In motor vehicles it is however found advantageous to
10 place the front wheel or wheels of the vehicle so far forward that they project often beyond the end of the vehicle body in which case it becomes inconvenient to mount the springs in the usual manner. For this purpose springs mounted according to this invention are secured at one end to the carriage body and at the other end to the road wheel axle.

15 According to one method of carrying out this invention each leaf spring to be interposed between the forward axle and the vehicle body is carried at its centre by a strap, preferably of metal, secured to the body of the vehicle. One end of each spring thus supported is secured to the vehicle body whilst the other end rests upon the road wheel axle. That end secured to the vehicle body may
20 be carried by a support pivotted to the body of the vehicle, if desired, and the strap may also be pivotted to the vehicle so that the spring is allowed a certain amount of longitudinal movement when weight is brought to bear upon it or is removed from it.

If preferred the strap may be mounted free within the support by which it
25 is secured to the vehicle body so that it may slide in the support, the latter preventing it from lateral displacement only. This arrangement allows the load to be more properly shared by both ends of the spring than is possible with the former arrangement. The ends of the springs are allowed to rest upon the road wheel axle which may be provided with recesses to engage the ends of the
30 springs and to maintain the road wheel axle in proper engagement with the vehicle body backwardly extending arms are secured to the axle and pivotted to supports mounted upon any convenient part of the body of the vehicle. In order that the vehicle body may have free movement relatively to the road wheel axle and *vice versa* the ends of the backwardly extending members by which
35 the axle is secured to the vehicle body are fastened to the latter by bolts which screw into the members so that each member is free to turn about its bolt and one or both of the members is pivotted to the axle so that should one end of the axle be raised suddenly, as in passing over a stone, the vehicle body need not necessarily rise with it.

40 Dated this 12th day of February 1901.

BOULT, WADE & KILBURN,
Agents for the Applicant.

[Price 8d.]

Improvements in or relating to Carriage Springs for Motor Vehicles and the like.

COMPLETE SPECIFICATION.

Improvements in or relating to Carriage Springs for Motor Vehicles and the like

I, WILHELM MAYBACH, Engineer, of Cannstadt, in the Kingdom of Wurtemberg, German Empire, 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 improvements in or relating to carriage springs 5 for motor vehicles and the like.

The usual method of mounting leaf springs is to secure the ends of the springs to the vehicle body or to the ends of a second spring placed between the first and the vehicle body and to allow the centre of the spring to rest upon the axle of the road wheels. In motor vehicles it is however found advantageous to 10 place the front wheel or wheels of the vehicle so far forward that they project often beyond the end of the vehicle body in which case it becomes inconvenient to mount the springs in the usual manner. For this purpose springs mounted according to this invention are secured at one end to the carriage body and at 15 the other end to the road wheel axle.

According to one method of carrying out this invention each leaf spring to be interposed between the forward axle and the vehicle body is carried at its centre by a strap, preferably of metal, secured to the body of the vehicle. One end of each spring thus supported is secured to the vehicle body whilst the other 20 end rests upon the road wheel axle. That end secured to the vehicle body may be carried by a support pivotted to the body of the vehicle, if desired, and the strap may also be pivotted to the vehicle so that the spring is allowed a certain amount of longitudinal movement when weight is brought to bear upon it or is removed from it.

If preferred the strap may be mounted free within the support by which it 25 is secured to the vehicle body so that it may slide in the support, the latter preventing it from lateral displacement only. This arrangement allows the load to be more properly shared by both ends of the spring than is possible with the former arrangement. The ends of the springs are allowed to rest upon the road wheel axle which may be provided with recesses to engage the ends of the 30 springs, and to maintain the road wheel axle in proper engagement with the vehicle body backwardly extending arms are secured to the axle and pivotted to supports mounted upon any convenient part of the body of the vehicle. In order that the vehicle body may have free movement relatively to the road wheel axle and *vice versa* the ends of the backwardly extending members by which 35 the axle is secured to the vehicle body are fastened to the latter by bolts which screw into the members so that each member is free to turn about its bolt and one or both of the members is pivotted to the axle so that should one end of the axle be raised suddenly, as in passing over a stone, the vehicle body need not necessarily rise with it. 40

In the accompanying drawings which illustrate one method of carrying out this invention:

Figure 1 is a side elevation in part section of the front end of a vehicle showing one of the bearing springs;

Figure 2 is a vertical section of part of the spring on the line X—X of 45 Figure 1;

Improvements in or relating to Carriage Springs for Motor Vehicles and the like.

Figure 3 is a vertical section behind the front axle on the line Y—Y of Figure 1 the supporting arm in this case not being pivotted to the axle;

Figure 4 is a plan of the front wheel axle and its supporting arms, and

Figure 5 is a side elevation of a slightly modified construction.

Like letters indicate like parts throughout the drawings.

The vehicle body or frame *a* which it is desired to support from the front wheel axle *b* by leaf springs *c* (one only of which is shown for convenience) is provided with bifurcated lugs or supports *g* rigidly secured to the vehicle. Each leaf spring *c* is surrounded at its centre by a strap *d* free to swing in the bifurcated portion of the lug *g* to which it is pivotted at its lower end by a bolt *e*. The rear end of each spring *c* is pivotted at *k* to a stirrup or link *f* which in turn are themselves pivotted to the vehicle *a*. The axle *b* is provided at each end with projections or studs *b*¹, Figures 1, 3 and 4, to receive the free ends of the springs *c* which rest upon opposite ends of the axle between the projections or studs and are free to slide upon the axle, whilst they are prevented from lateral displacement by the projections or studs *d*¹.

This method of mounting the spring *c* allows both portions of the spring to act freely as, when the axle *b* rises, the strap *d* rocks in the bifurcated lug *g* so that both the rear and forward ends of the spring are brought into operation.

To maintain the axle *b* in place arms *h* are secured one at each end of the axle, their free ends being conveniently secured to screw eye-bolts *i* carried upon the bolts *e* in the bifurcated lugs *g* so that each arm is free to pivot in a vertical plane and also to turn about the eye-bolt upon which it is screwed.

The object of this method of connecting the arms *h* to the vehicle frame is to allow one wheel and consequently one end of the axle *b* to rise, as for instance, when the wheel is passing over a stone, and to enable this movement to take place freely one or both of the arms *h* may be pivotally connected to the axle *b* as shown in Figures 1 and 4.

In place of pivotting the straps *d* to the bifurcated lugs *g* each strap may be free to slide in its lug, the upper surface of the strap being rounded, and the base of the lug *g* against which it bears being also preferably rounded as shown in Figure 5; the lug thus allows free movement in a vertical direction to the strap *d* and the central portion of the spring but serves to maintain the same in position laterally. When this construction is employed the rear end of the spring *c* is preferably pivotted to a rigid support *k*¹ in place of the pivotted link *f*.

Figure 5 shows the position taken by the spring when loaded.

Modifications may be obviously made in this construction of bearing spring without departing from the spirit of this invention. For instance, means other than those described may be employed for connecting the axle *b* to the lugs *g* or direct to the frame of the vehicle; also the rear ends of the springs *c* may be free to slide on the supports rigidly secured to the frame *a* of the vehicle, the forward ends being pivotally connected to the axle *b*, or in the case of the construction illustrated in Figure 1 both ends of the spring may be free to slide on their supports.

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

1. In bearing springs for motor or other vehicles the combination with a road wheel axle of a leaf spring connected at one end to the vehicle frame and resting at the other upon the road wheel axle the weight of the vehicle being arranged to fall upon the spring at a point intermediate of its ends substantially as described.

2. In bearing springs for motor or other vehicles the combination with the spring *c* suspended at one end from the vehicle by a link or stirrup such as *f* and resting at the other end upon the road wheel axle *b* of a strap such as *d*

Improvements in or relating to Carriage Springs for Motor Vehicles and the like.

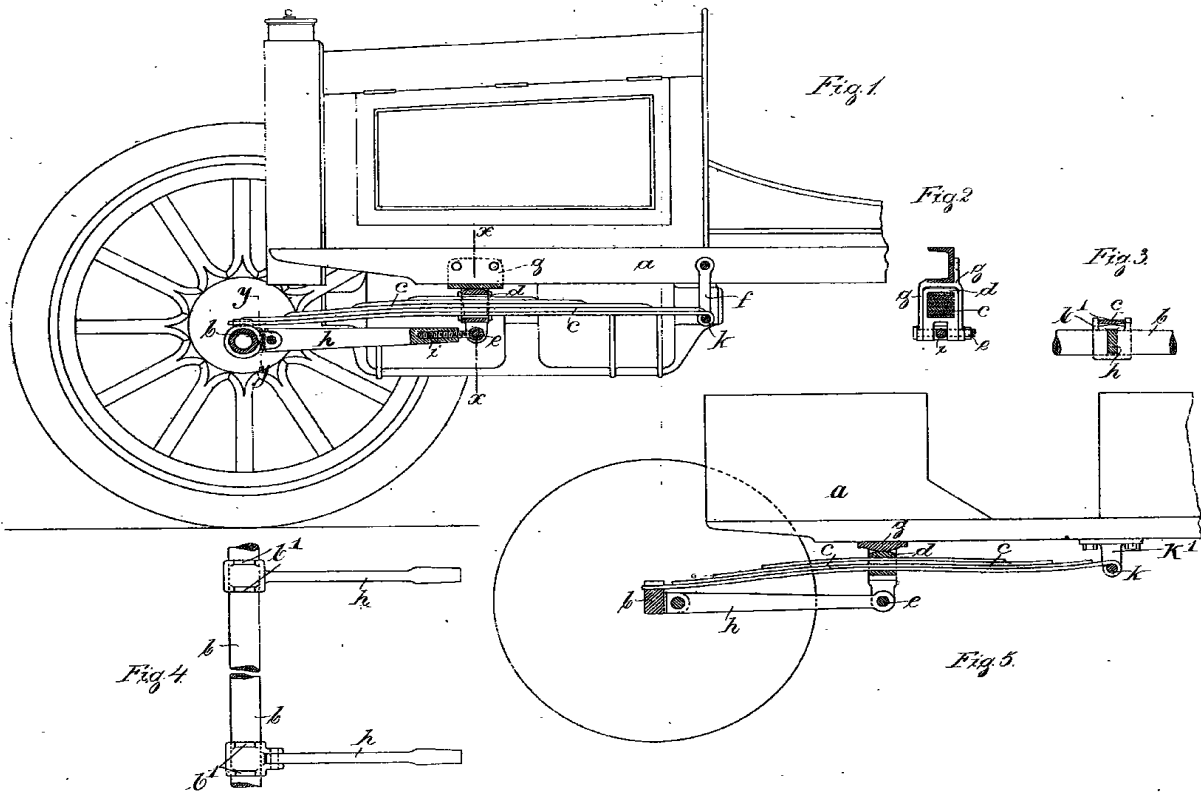
pivotted to or free to slide in a support such as *g* secured to the frame of the vehicle substantially as and for the purpose described.

3. In bearing springs for motor or other vehicles the combination with a spring mounted between the road wheel axle and vehicle body in the manner described of an arm *h* pivotally secured at or near one end of the axle *b* a second 5 arm secured with or without a pivot at or near the other end of the axle the free ends of both arms being hinged to the vehicle frame by screw swivel bolts such as *i* substantially as and for the purpose described.

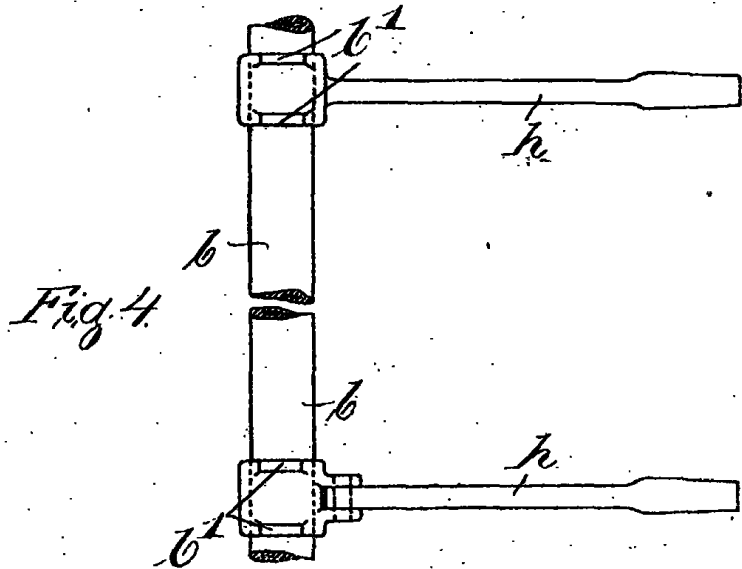
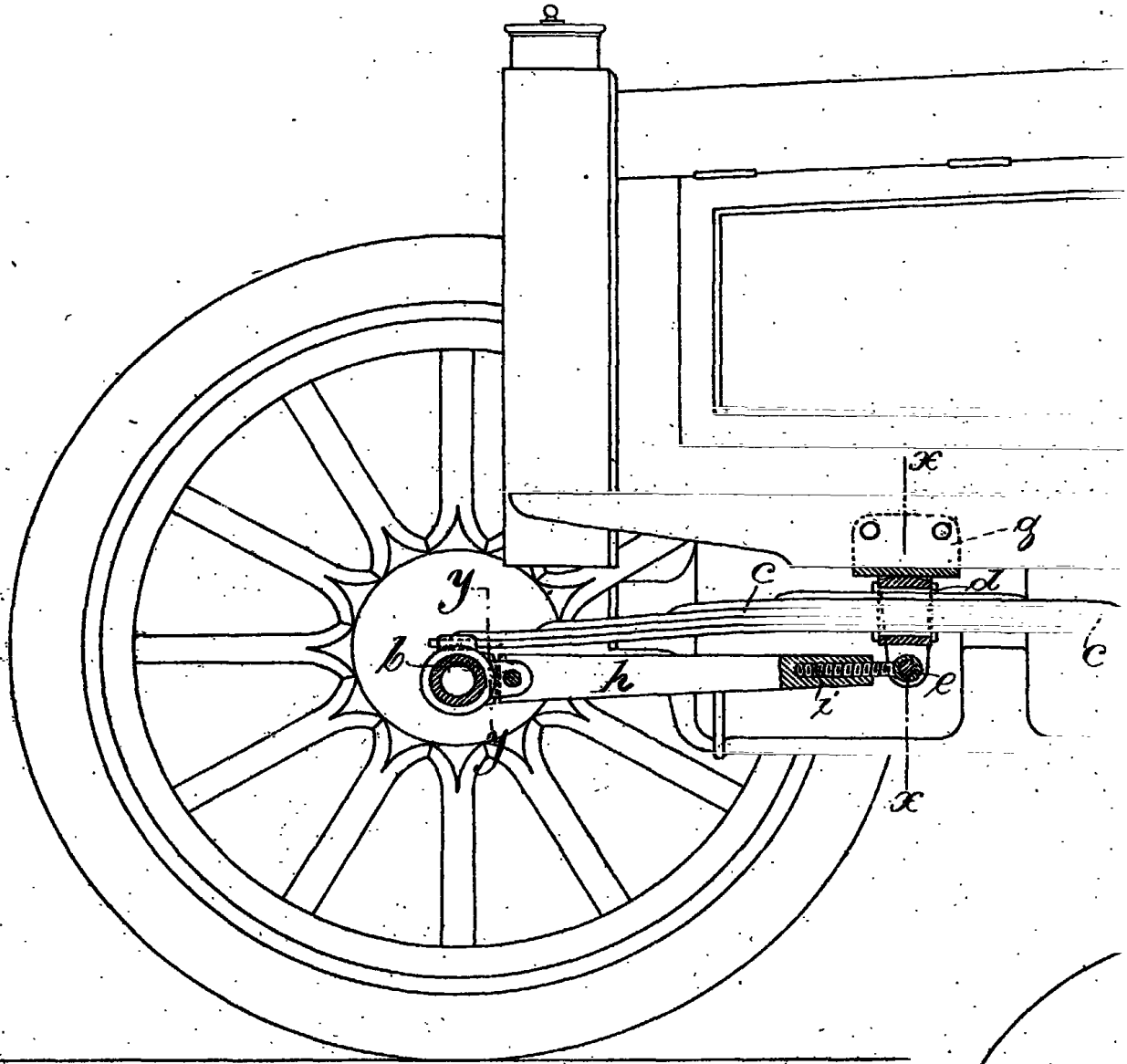
4. The complete bearing spring device for motor or other vehicles substantially as described and illustrated in Figures 1 to 4 or Figure 5 of the accom- 10 panying drawings.

Dated this 12th day of Novr 1901.

BOULT, WADE & KILBURN,
Agents for the Applicant.



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



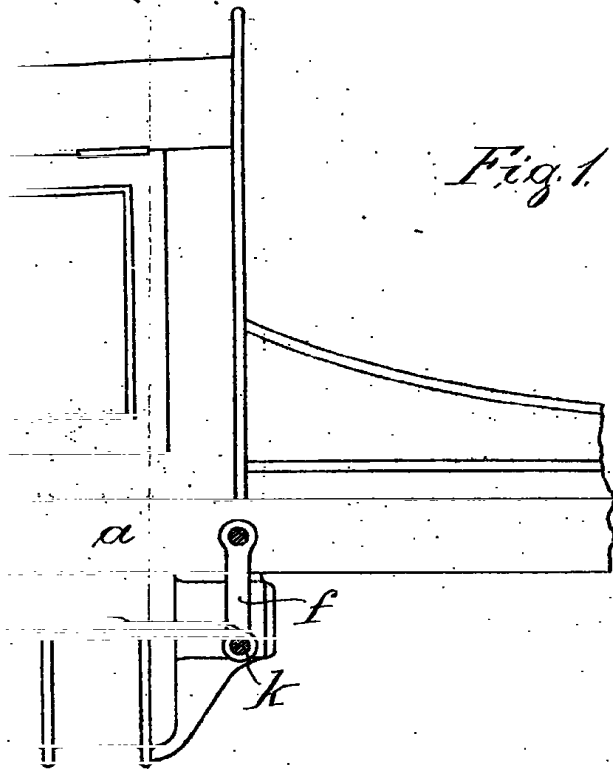


Fig. 1.

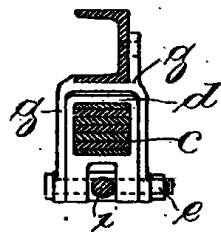


Fig. 2.

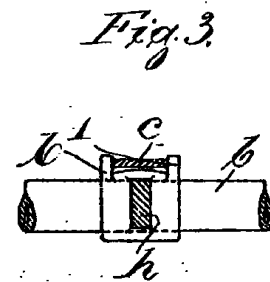


Fig. 3.

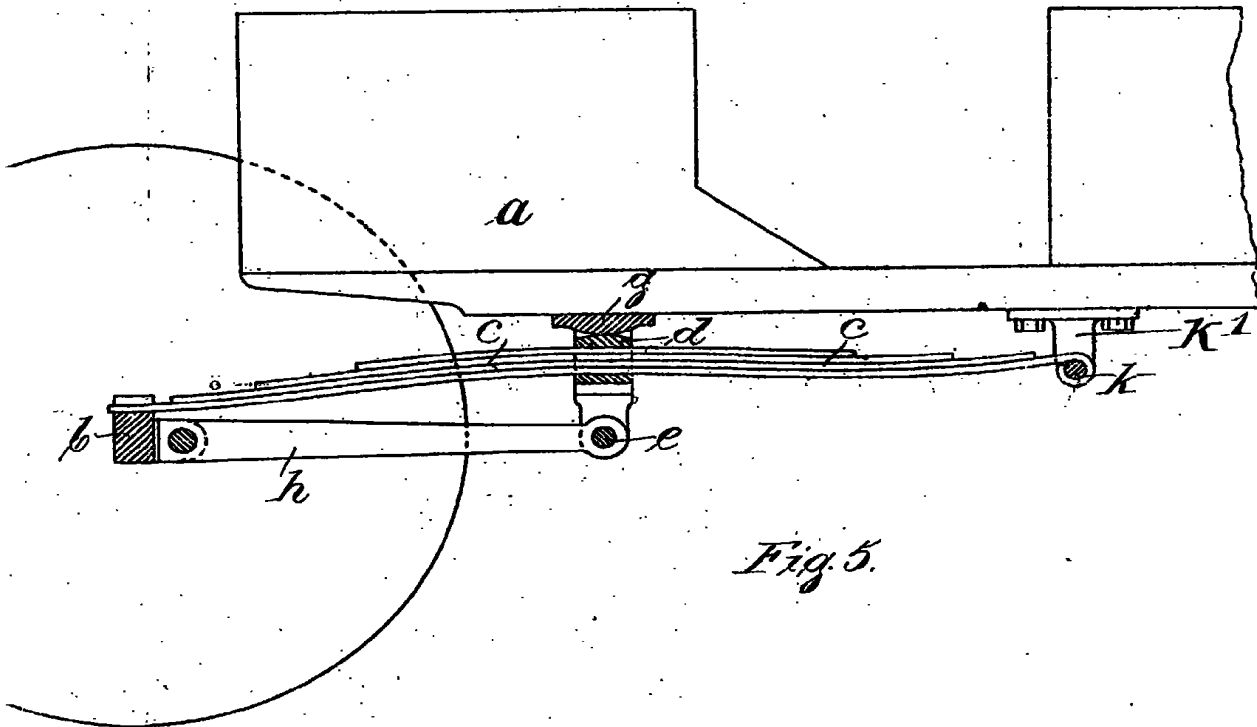


Fig. 5.

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