

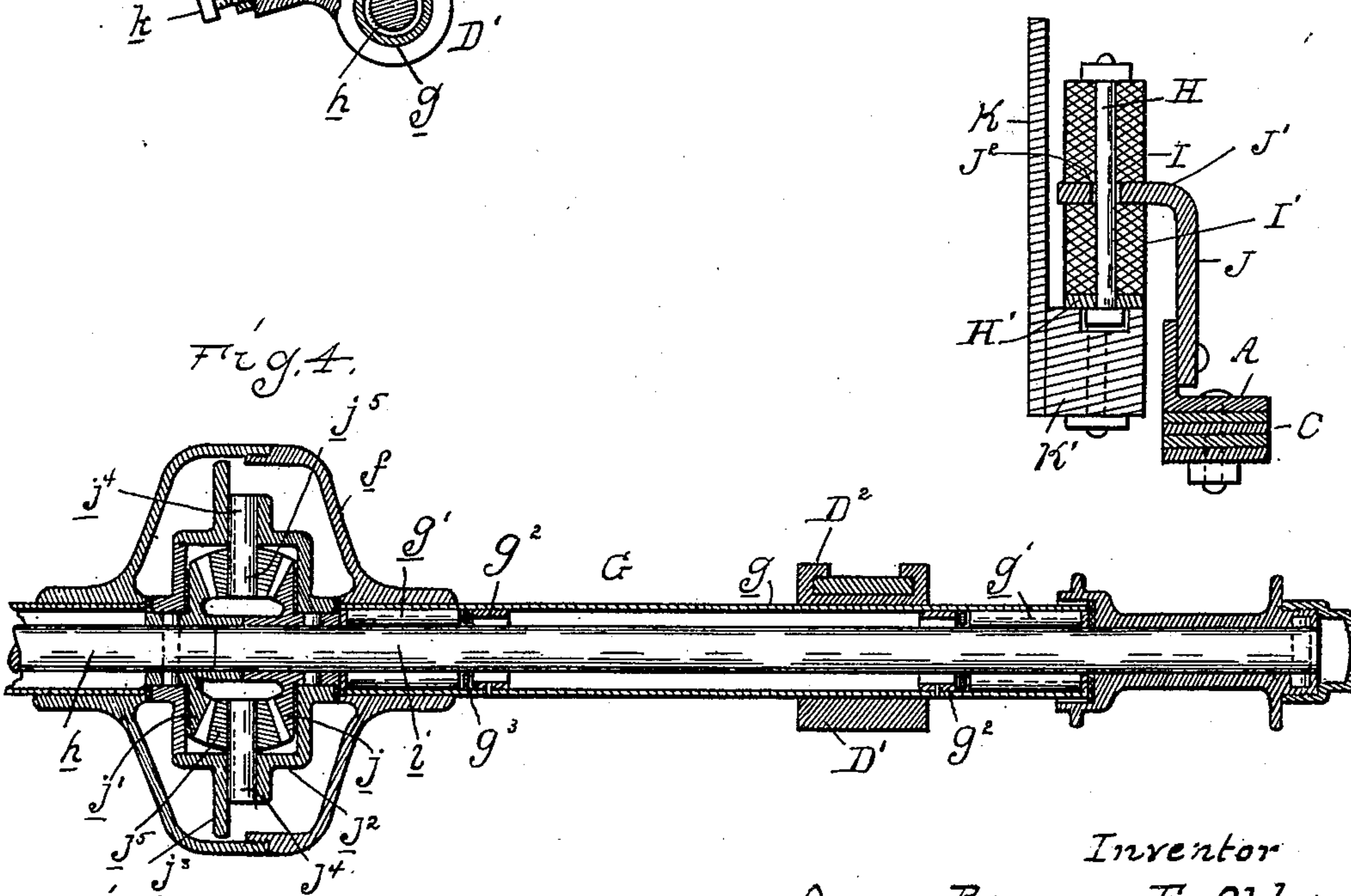
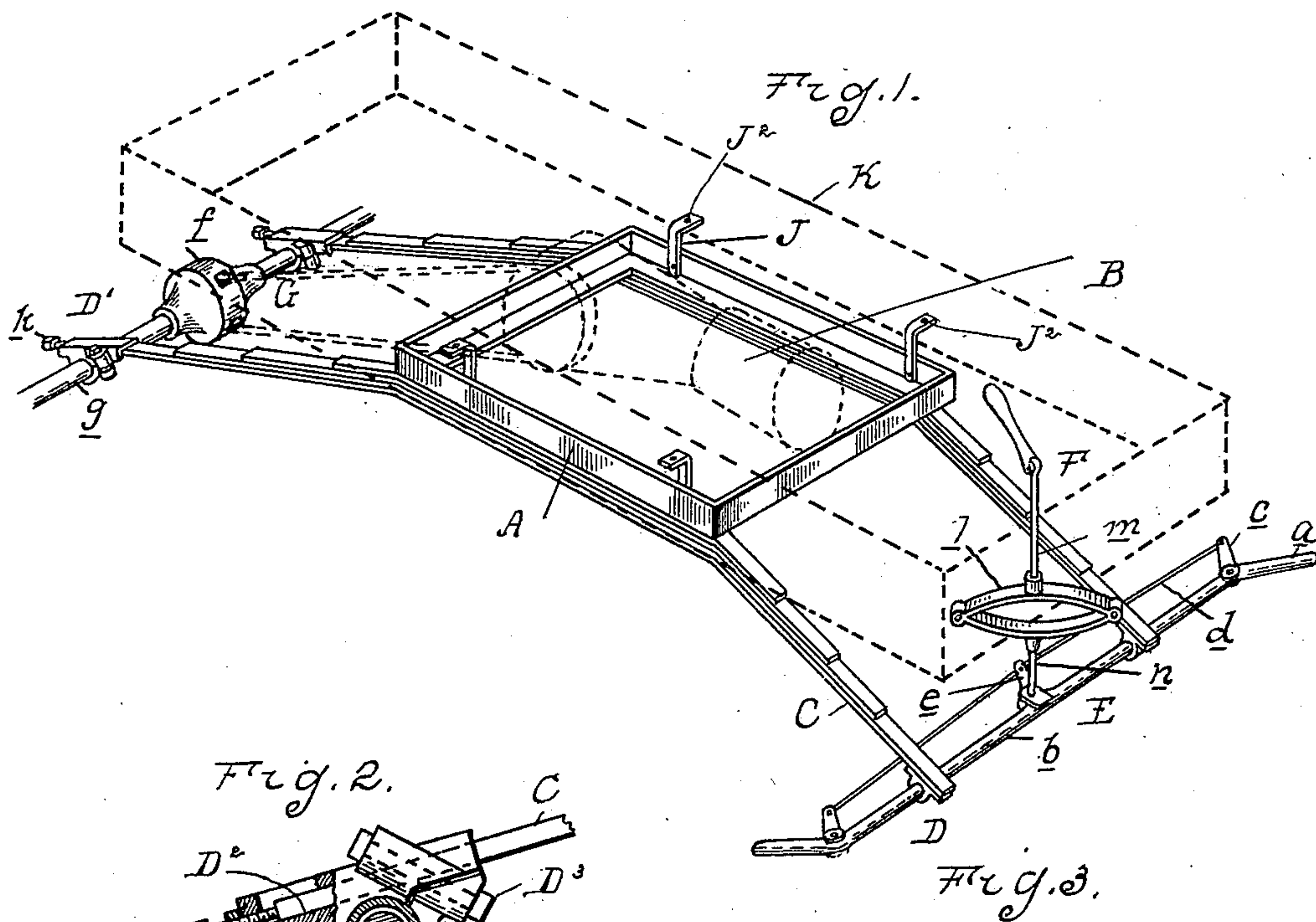
No. 689,511.

Patented Dec. 24, 1901.

R. E. OLDS.
MOTOR VEHICLE.

(Application filed Mar. 15, 1901.)

(No Model.)



Witnesses
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UNITED STATES PATENT OFFICE.

RANSOM E. OLDS, OF DETROIT, MICHIGAN.

MOTOR-VEHICLE.

SPECIFICATION forming part of Letters Patent No. 689,511, dated December 24, 1901.

Application filed March 15, 1901. Serial No. 51,362. (No model.)

To all whom it may concern:

Be it known that I, RANSOM E. OLDS, a citizen of the United States, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Motor-Vehicles, of which the following is a specification, reference being had therein to the accompanying drawings.

10 The invention relates to motor-vehicles, and more particularly to the construction of the frame thereof.

It is the object of the invention to obtain a construction in which the motor and driving 15 mechanism, as well as the body, are supported upon springs and at the same time one in which the axles are held in parallel vertical planes, but free to have an angular movement in relation to each other within said planes.

20 It is a further object to obtain a simple and inexpensive construction to build.

With these objects in view the invention consists in the construction hereinafter described and claimed.

25 In the drawings, Figure 1 is a perspective view of a vehicle-frame, showing the body in dotted lines. Fig. 2 is a detail view of the connection between the springs and the axles, and Fig. 3 is a detail of the flexible connection between the frame and the body of the 30 vehicle. Fig. 4 is a cross-section in the plane of the rear axle.

The improved construction comprises, essentially, a spring frame or reach connected 35 at opposite ends, respectively, to the front and rear axles, and centrally supporting the motor drive mechanism and the vehicle-body.

In detail, A is a rigid frame, preferably rectangular in form and forming a direct support for the motor. (Indicated in dotted lines 40 at B.) Projecting from the front and rear ends of this frame and upon opposite sides thereof are downwardly-inclined spring-arms C. These are preferably in the form of leaf- 45 springs, which at their inner ends are rigidly secured to the frame A, the lower leaf of each spring being connected to the axle.

D is a fitting for connecting each of said springs with the front axle, which comprises 50 a ring or bearing embracing the axle, and riv-

eted or otherwise secured to lower leaf of the spring.

The front axle E may be of any desired construction, provided with pivoted stub-axles a at opposite ends of the center section b, said 55 stub-axles being connected by the rock-arms c and links d to the rock-arm e on the steering-post F.

The rear axle G comprises a casing f for inclosing the compensating gear, and the tubular casings g, extending from opposite sides of said casing f and provided at their outer ends with roller-bearings g'. Within this hollow casing are arranged the two sections 60 h and i of the driving-shaft, which are connected to each other through the medium of the compensating gear. The latter comprises oppositely-arranged beveled gears j and j', secured, respectively, to the axle-sections, and a surrounding casing j², inclosing said 65 gears and sleeved upon the hubs thereof. The casing j² is provided upon its periphery with sprocket-teeth j³.

j⁴ represents stub-axles projecting inwardly into the casing j², upon which are sleeved the 75 pinions j⁵, forming intermediates between the opposite beveled gears j and j'.

The rear axle is secured to the spring-arms C by fittings D'. Each of these fittings comprises a split ring embracing the axle-casing 80 and having formed therein a socket D² for receiving the end of said spring-arm.

D³ is a clamping-bolt for drawing the two sections of fitting together, the arrangement being such that the tightening of the bolts 85 will clamp both the fitting to said axle-casing and the spring-arm in its socket. At the rear end of the socket is arranged a screw k, adapted to bear against the end of the spring-arm and forming an adjusting means for 90 tightening the drive-chain connecting to the compensating gearing.

The body of the vehicle K is supported upon the frame A and preferably has a yielding connection therewith. This connection 95 comprises a bracket J, secured to the frame A, which has a laterally-projecting portion J', apertured at J².

H is a rod or bolt passing through the aperture J² and secured at its lower end to the 100

sill K' of the body, preferably by passing through a plate H', bolted to said sill.

I and I' are elastic washers or cushions sleeved upon the bolt H upon opposite sides of the bracket J.

With the construction as above described the frame A is permitted to oscillate vertically by the spring-arms C, connecting it to the axles. At the same time this oscillation does not interfere with the drive connection between the compensating gear and the motor. The body K is also free to have a limited independent movement from the vehicle-frame, which diminishes the jar of sudden starting or stopping or the passing over of an obstruction in the road.

As the body of the vehicle moves independently from the frame and axles, the steering-post is preferably provided with a spring-section permitting of attaching its upper and lower ends, respectively, to the vehicle-body and the axle E. As shown, this spring-section comprises a double elliptic spring *l*, arranged to lie in a vertical plane extending upon opposite sides of the steering-post. The upper and lower portions of this spring are respectively connected to the upper and lower sections *m* and *n* of the steering-post, the latter being pivoted to the axle E and the former being secured in bearings on the vehicle-body. It will be understood that such a post while transmitting the rotary movement of the steering-handle to the rock-arm *e* does not interfere with the free movement of the body K in relation to the axle. It will also be observed that as the whole frame is in the form of an upward bowed leaf-spring it will form an easy support for the vehicle-body.

In order to form an efficient and yet inexpensive form of roller-bearing for the drive-axle, rings or collars *g*² are preferably secured within the tubular casing *g*, near the outer ends thereof and adjacent to the compensating gearing. The rolls *g*¹ are then placed between said end collars and the wheel-hubs and between the intermediate collar and compensating gear, and washers *g*³ are preferably arranged at the opposite ends of said rolls, as shown in Fig. 4.

What I claim as my invention, is—

1. In a motor-vehicle the combination of a rigid motor-frame, having the motor secured thereto, spring-arms rigidly secured to said frame at the sides and extending to the front and rear with a downward inclination, axles secured to the outer ends thereof, a drive connection from the motor to the rear axle, and steering-wheels pivoted to the ends of the front axle.

2. In a motor-vehicle, the combination of a rigid motor-frame, forming a support for the motor and drive mechanism, pairs of straight leaf-springs projecting in inclined planes respectively forward and rearward from said frame having a horizontal portion rigidly se-

cured to the frame at the sides thereof, axles connected to the free ends of said springs, and a body secured to said frame independent of the motor.

3. In a motor-vehicle, the combination of a rigid motor-frame, having the motor secured thereto, spring-arms rigidly secured to said frame at the sides and extending to the front and rear with a downward inclination, axles secured to the outer ends thereof, a drive connection from the motor to the rear axle, steering-wheels pivoted to the ends of the front axle, and a body secured to the motor-frame independently of the motor.

4. In a motor-vehicle, the combination of forward and rear axles, a central rigid frame, pairs of spring-arms projecting forwardly and rearwardly from said frame and connected at their free ends to said axles, a body supported upon said central frame, and yielding connections between said frame and body.

5. In a motor-vehicle, a fitting for connecting the reach with the axle comprising a ring for embracing said axle having a socket for receiving the end of said reach, said ring being split longitudinally of said socket and a bolt for drawing together the portions on opposite sides of said split to clamp both axle and reach.

6. In a motor-vehicle, the combination with a motor-supporting frame therefor, an axle and a chain drive connection between said motor and axle, of an arm extending from said frame in proximity to said axle and a fitting for connecting said arm to said axle, comprising a ring embracing said axle having a socket for receiving the end of the reach and an adjusting-screw adapted to bear against the end of the reach in said socket whereby the chain may be tightened.

7. In a motor-vehicle, the combination with the reach-frame and the body, of a bracket secured to said frame, a headed pin secured to the body passing through an aperture in said bracket and elastic washers sleeved upon said pin upon opposite sides of said bracket.

8. In a motor-vehicle, the combination of forward and rear axles, a central reach-frame forming a support for the motor and drive mechanism, pairs of straight leaf-springs respectively projecting forwardly and rearwardly from said frame in a downwardly-inclined direction and connected at their free ends respectively with said forward and rear axles and a body yieldingly supported upon said frame free to rock in a vertical, longitudinal plane.

9. In a motor-vehicle the combination of a rigid motor-frame, having the motor secured thereto, spring-arms rigidly secured to said frame at the sides and extending to the front and rear with a downward inclination, axles secured to the outer ends thereof, a drive connection from the motor to the rear axle, adjustable connections for the rear springs

and steering-wheels pivoted to the ends of the front axle.

5 10. In a motor-vehicle the combination of a rigid motor-frame, having the motor secured thereto, spring-arms rigidly secured to said frame at the sides and extending to the front and rear with a downward inclination, axles adjustably secured to the outer ends thereof, a drive connection from the motor to the rear

axle, and steering-wheels pivoted to the ends 10 of the front axle.

In testimony whereof I affix my signature in presence of two witnesses.

RANSOM E. OLDS.

Witnesses:

L. J. WHITTEMORE,
H. C. SMITH.