

No. 842,245.

PATENTED JAN. 29, 1907.

C. T. PRATT.
RUNNING GEAR FOR AUTOMOBILES.

APPLICATION FILED AUG. 15, 1905.

2 SHEETS—SHEET 1.

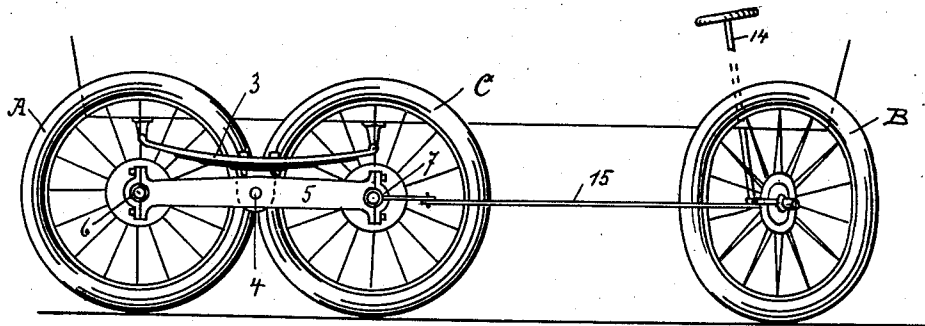


Fig. 1.

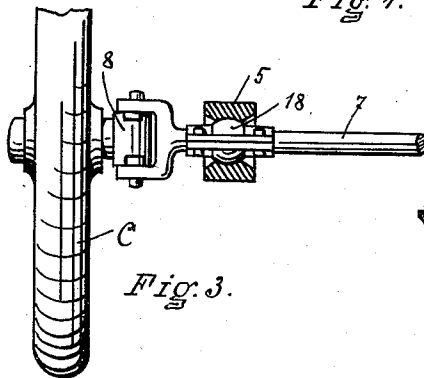


Fig. 3.

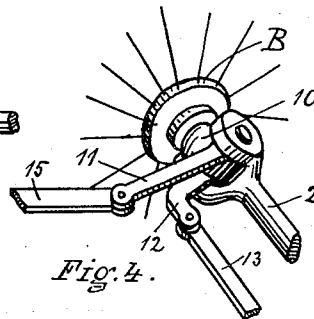


Fig. 4.

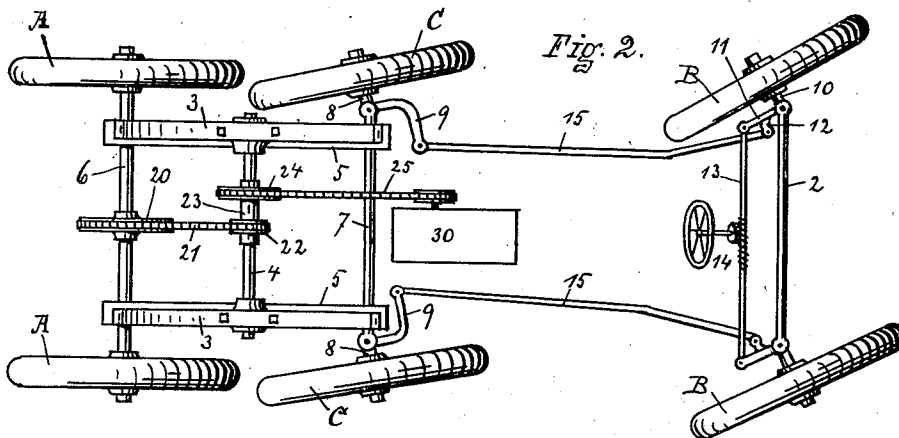


Fig. 2.

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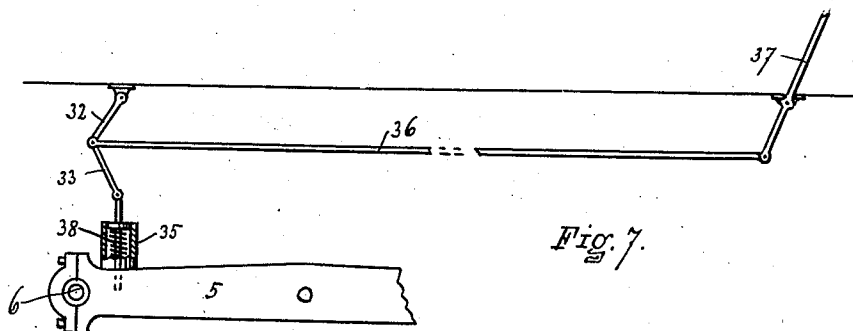


Fig. 7.

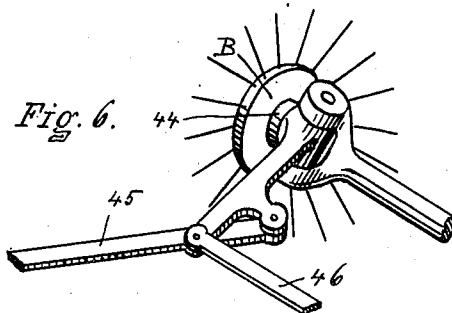


Fig. 6.

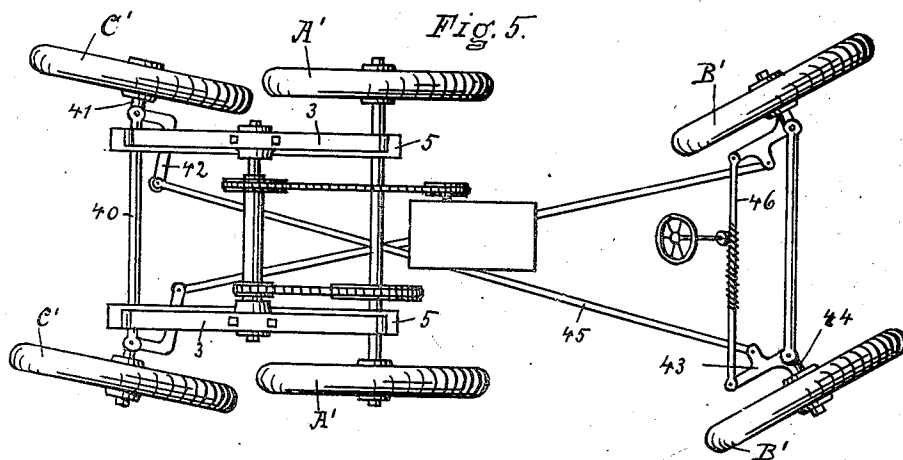


Fig. 5.

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UNITED STATES PATENT OFFICE.

CHARLES T. PRATT, OF FRANKFORT, NEW YORK.

RUNNING-GEAR FOR AUTOMOBILES.

No. 842,245.

Specification of Letters Patent.

Patented Jan. 29, 1907.

Application filed August 16, 1906. Serial No. 274,255.

To all whom it may concern:

Be it known that I, CHARLES T. PRATT, of Frankfort, in the county of Herkimer and State of New York, have invented certain new and useful Improvements in Running-Gears for Automobiles; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

The object of my present invention is to provide an improved running-gear for automobiles wherein provision is made for better and easier carrying of the body, and the same is more advantageously driven and steered and the strain on the machine and wear on the tires greatly reduced.

In the drawings, Figure 1 shows a side elevation from the inner side of certain parts of the running-gear. Fig. 2 is a plan view of the same. Fig. 3 shows details of a knuckle-joint and a flexible joint employed in the construction. Fig. 4 shows details of the knuckle-joint at the forward end of the machine. Fig. 5 shows a plan view of a modified form of construction. Fig. 6 shows details of the connection with the knuckle-joint at the forward end of the vehicle. Fig. 7 shows details of a mechanism for applying additional pressure to the driving pair of wheels.

Referring to the reference letters and figures in a more particular description, A A indicate the rear pair of wheels, B B indicate the forward pair of steering-wheels, while C C indicate an intermediate pair of supporting and steering wheels.

The forward end of the body, which is only shown in partial outline in drawings, is supported from the forward axle-tree 2 in any of the usual manners, and as to this part of the construction my invention does not depart from the usual construction. Further description need not be given. The rear portion of the body is supported on springs 3, which are pivotally mounted on a cross-shaft 4. The shaft 4 is supported at either end in the truck-frame bars 5 on rocking joints. The truck-frame bars 5 have a bearing at their rear ends on shaft 6, extending between and coupling together the rear wheels A A, while the front or forward ends of the truck-frame

bars 5 are supported and have a bearing on the forward truck-frame shaft 7, extending between the wheels C C. The wheels C are mounted on the end of the shaft 7 by the knuckle-joint construction 8 in substantially the usual manner of steering-wheels of automobiles, which knuckle-joint is provided with the arm 9. The forward wheels B are attached to the ends of the forward shaft or axle 2 by means of the knuckle-joints 10, which knuckle-joint has the arm 11 and the arm 12. The arms 11 of the opposite sides of the machine are connected by the usual connecting-rod 13, on which the hand steering mechanism 14 operates to handle the front pair of wheels B. The arms 12, which are relatively short as comparing with the arms 9, are connected with the arms 9 by the longitudinal connecting-rods 15, the arrangement being such that when the wheels B are turned on their pivots, as in the act of steering the vehicle, the middle set of wheels will be turned in a corresponding direction, but in a lesser degree. In order to afford flexibility in the rear truck having the wheels A A and C C, there is preferably provided on the shaft 7 a ball-bearing 18, which engages in a suitable box in the truck-frame bars 5 to allow for this flexibility, as is readily apparent from Fig. 3 of the drawings. The connection between the rear ends of the truck-frame bars 5 and the shaft 6 may be similar to that shown in Fig. 3 on the forward shaft, if desired. The vehicle, as shown in Figs. 1 and 2, will preferably be driven through the medium of the wheels A, and to this end there is provided on the shaft B a sprocket-wheel 20, connected by a sprocket-chain 21 with a sprocket-wheel 22 on a sleeve 23 on shaft 4. The sleeve 23 is also provided with a sprocket-wheel 24, which is connected by a sprocket-chain 25 with a driving-wheel of the engine 30. Of course this mechanism is not important, but is shown more as some means for propelling the vehicle.

It will be noted that in passing over uneven surfaces, as through a hollow place in the road or over a knoll, the forward wheels C of the truck first accommodate themselves to the change of direction and then the following wheels A A, which greatly relieves any shock or jar incident to a vehicle which only has four wheels to support the body. With this vehicle any tendency for the vehicle to skid around, as on slippery foundation or on an

unstable foundation, is largely or completely obviated, and the vehicle can be directed around corners and curves with a great deal more certainty in its manipulation than when only four wheels are employed; also, the power is applied in such a manner as to drive the vehicle with much more certainty and with less shock and jar to the occupants of the carriage than where the power is applied to the rear wheels of a four-wheeled vehicle. Under certain circumstances it may be advisable to apply more of the weight of the body and its contents to the rear driving-wheels A than is ordinarily applied to them in ordinary running conditions. This may occur when attempting to make very steep grades. In order to provide for this emergency, I have devised the construction shown in detail in Fig. 7, which consists of a toggle-joint construction, consisting of the links 32 and 33, extending between the under side of the body on the one hand and the spring-supported plunger 34 on the other hand, the said plunger 34 being supported in a socket 35 on the rear end of the truck-frame bar 5 adjacent to the rear shaft 6. For temporarily throwing into operation this mechanism there is provided a connecting-rod 36, connected to the joints between the links 32 and 33 and extending to a convenient position for the operator, where it is provided with the operating-lever 37. It will be noted that when the links 32 and 33 are moved into a position substantially in line with each other the pressure or weight of the body will be communicated to the bar 5, through the medium of the spring 38, almost directly at the shaft 6. When this extra weight on the rear wheels A is not desired, it is relieved by throwing out the toggle-joint connection and allowing these parts to play loosely as the body rises and falls with reference to the truck-frame on the usual carrying-springs 3.

In Fig. 5 there is shown a modified form of construction, wherein the arrangement of wheels on the rear truck is changed to provide the steering-wheels of the truck on the rear instead of on the forward end of the truck. In this modified form of construction A' A' indicate the main driving-wheels; B' B', the forward steering-wheels; C' C', the rear steering-wheels. The rear wheels C' are mounted on the ends of the rear-truck shaft 40 by means of the usual knuckle-joint construction 41, the same having the arm 42. This arm 42 is connected with the arm 43 on the knuckle 44 of the front steering-wheels by a connecting-rod 45, which crosses the machine diagonally from front to rear, so that the rear wheel on the one side is connected with the forward steering-wheel on the opposite side. By this arrangement when the forward steering-wheels B' are manipulated, as in steering the vehicle, the wheels C' are operated in the opposite direction, and prefer-

ably to less extent or degree, resulting from the fact that the arm 42 of the rear knuckle is longer from its pivotable point to the point of attachment of the connecting-rod than is the same with reference to the forward steering-knuckle. The steering-knuckle of the forward set of wheels B' are connected by the connecting-bar 46 in the usual manner, on which the steering mechanism operates, as before mentioned and as is common. It will be noted with reference to the modified form of construction shown in Fig. 5 that the connection for driving the machine is to the forward set of wheels A' of the rear truck, and the mechanism shown in Fig. 7, to applying additional weight to the driving-wheels, may be introduced in this construction with slight modifications, as well as the other details providing for flexibility on the truck-frame, as hereinbefore described with reference to the other construction.

Other modifications and changes in and from the construction herein described may be made without departing from the spirit of my invention.

What I claim as new, and desire to secure by Letters Patent, is—

1. The combination in a running-gear for automobiles of six carrying-wheels, one pair of which carries one end of the body and the other four of which carry a truck carrying intermediate of the two pairs of wheels said body, and means for applying more weight to a given pair of the truck-wheels, substantially as set forth.

2. The combination in a running-gear for automobiles of a body and a flexible truck consisting of two axles and wheels, truck-frame side bars flexibly connected to the axles, and springs between said frame-bars and the body, substantially as set forth.

3. The combination in a running-gear for automobiles of a flexible truck consisting of two axles with wheels, truck-frame side bars flexibly connected to the axles and means for supporting the body from said side bars, substantially as set forth.

4. The combination in a running-gear for automobiles of a body, a pair of steerable wheels supporting one end of the body, two pairs of wheels supporting the other end of the body, one pair of which latter wheels are steerable and the other non-steerable and driving, and a common steering mechanism connected to the several steerable wheels and arranged to cause their angular adjustment in different degrees substantially proportionable to their distance from the non-steerable wheels, substantially as set forth.

5. The combination in an automobile of a body, a pair of steerable wheels supporting one end of the body, two pairs of wheels supporting the other end of the body, the inner pair of which are steerable wheels and the outer pair non-steerable driving-wheels, and

a common steering mechanism connected with all steerable wheels and arranged to turn in the same direction, all steerable wheels to different degrees of angularity to the body substantially according to their distance from a non-steerable pair, substantially as set forth.

In witness whereof I have affixed my signature, in presence of two witnesses, this 9th day of August, 1905.

CHARLES T. PRATT.

Witnesses:

S. I. DE VINE,
S. E. CLARK.