

No. 641,096.

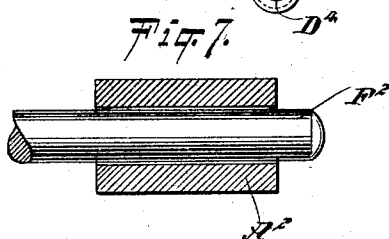
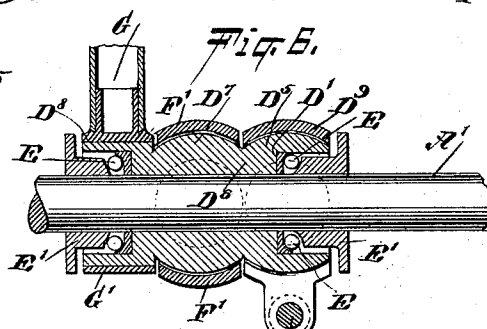
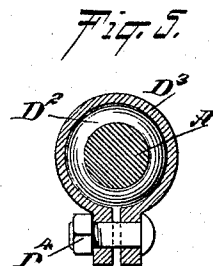
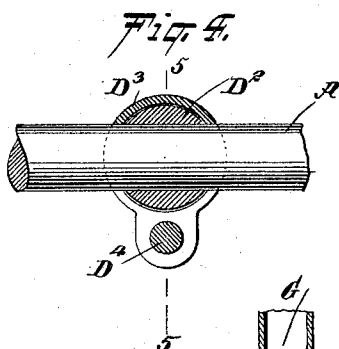
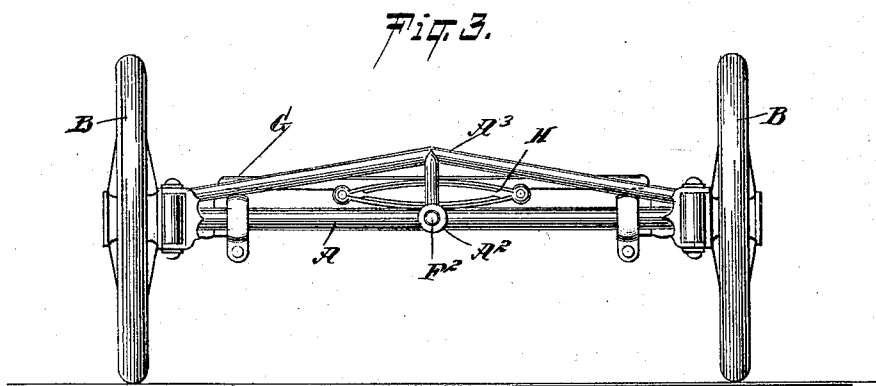
Patented Jan. 9, 1900.

T. FRENCH.
MOTOR CYCLE FRAME.

(Application filed July 6, 1899.)

(No Model.)

2 Sheets—Sheet 2.



WITNESSES :

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UNITED STATES PATENT OFFICE.

TOM FRENCH, OF ANDOVER, MAINE.

MOTOR-CYCLE FRAME.

SPECIFICATION forming part of Letters Patent No. 641,096, dated January 9, 1900.

Application filed July 6, 1899. Serial No. 722,952. (No model.)

To all whom it may concern:

Be it known that I, TOM FRENCH, of Andover, in the county of Oxford and State of Maine, have invented a new and Improved Motor-Cycle Frame, of which the following is a full, clear, and exact description.

The object of the invention is to provide a new and improved motor-cycle frame which is simple and durable in construction and arranged to flex and yield when the vehicle-wheels pass over rough roads, to insure easy riding to the occupants of the vehicle, and to allow the driving-gear to work properly and true at all times and without danger of breaking the parts thereof.

The invention consists of novel features and parts and combinations of the same, as will be fully described hereinafter and then pointed out in the claims.

A practical embodiment of my invention is represented in the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a sectional side elevation of the improvement on the line 1 1 in Fig. 2. Fig. 2 is a plan view of the same. Fig. 3 is a front end elevation of the same. Fig. 4 is an enlarged cross-section of the ball-and-socket joint between the front axle and one of the reaches, the section being on the line 4 4 in Fig. 2. Fig. 5 is a sectional side elevation of the same on the line 5 5 in Fig. 4. Fig. 6 is an enlarged cross-section of the rear axle and the ball-and-socket joints thereon, the section being on the line 6 6 in Fig. 2; and Fig. 7 is an enlarged sectional side elevation of the sliding connection between the triangular frame and the front axle, the section being on the line 7 7 in Fig. 2.

The vehicle is provided with a front axle A and a rear axle A', carrying front and rear wheels B B', respectively, and of any approved construction. The front and rear axles A A' are connected with each other by reaches C, arranged at an angle to each other, as plainly indicated in Fig. 2, with a ball-and-socket joint D connecting the front end of a reach with the front axle A and a similar ball-

and-socket joint D' connecting the rear end 50 of a reach with the rear axle A'.

As shown in Fig. 4, each ball-and-socket joint D is provided with a ball D², secured on the axle A and upon which fits a socket D³, preferably an integral part of the corresponding reach, the socket being split at the lower portion and flanged, a bolt D⁴ connecting the flanges with each other, as will be readily understood by reference to Figs. 4 and 5. The ball and socket D' for the rear end of each reach is provided with a ball D⁵, formed on a bearing D⁶, journaled on balls E, held on cones E', secured to the rear axle A', as is plainly shown in Fig. 6. The bearing D⁶ is provided with a second ball D⁷ and with a hub D⁸ for purposes hereinafter more fully described, it being understood that the ball D⁵ is engaged by the socket D⁹ of the rear end of a reach, and this socket D⁹ is similar to the front socket D³ above mentioned and referred to in detail in Figs. 4 and 5.

A triangular supporting-frame F is provided at its base ends with sockets F', engaging the balls D⁷ of the two bearings D⁶ on the rear axle A', and the front apex end of said triangular frame F is formed with a longitudinally-extending pin F², mounted to slide in a bearing A², forming part of the front axle A, at the middle thereof, said front axle being preferably strengthened at the middle by a truss A³, as is plainly shown in Fig. 3.

Above the triangular or supporting frame F is arranged a bearing or body frame G for carrying the vehicle-body and the motor for driving the rear axle A' in the usual manner and by suitable gearing, and this body-frame G is supported at its front end on springs H, resting on the triangular frame F. The rear ends of the frame G are formed with sockets G', engaging the hubs D⁸, previously mentioned, and forming integral parts of the bearings D⁶, journaled on the rear axle A'. The rear ends of the body-frame G are provided with braces G², connected with hubs G³, engaging the rear axles, and from said hubs lead parallel rods I, connected with the motor-shaft for keeping the same in true alignment with the rear axle, so that a transmis-

sion of power from the motor to the rear axle is true and uniform at all times notwithstanding the vehicle may pass over rough roads and considerable jarring and jolting result therefrom.

By arranging the triangular frame in the manner described a sliding connection is had with the front axle A, and a relatively-fixed connection is had with the rear axle A' to keep the wheels B' always in line and at the same time allow the front wheels B to readily pass over obstructions in the roadway without displacement of the connected parts, especially as the ball-and-socket joints of the triangular frame with the rear axle permit slight angular movement of the frame F. In a similar manner the other ball-joints at the rear axle—that is, those connected with the reaches C and the frame G—permit sufficient motion of the latter to avoid all jolting and jarring incident to the wheels passing over rough roads, so that easy riding is insured to the occupants, and the motor is not liable to be thrown out of alinement with the axle.

Having thus fully described my invention, I claim as new and desire to secure by Letters Patent—

1. In a vehicle, front and rear axles, reaches having ball-and-socket-joint connections with the said front and rear axles, and a frame having ball-and-socket-joint connection with the rear axle and a longitudinal sliding connection with the front axle, substantially as shown and described.

2. A motor-cycle frame, provided with front and rear axles, and a triangular frame having ball-and-socket-joint connection with the rear axle and a longitudinal sliding connection with the front axle, substantially as shown and described.

3. A motor-cycle frame having front and rear axles, reaches connecting the same with each other, a triangular frame having a sliding connection with the front axle and a relatively-fixed connection with the rear axle, and a body-frame spring-supported from said triangular frame, and having a ball-and-socket-joint connection with the rear axle, substantially as shown and described.

4. A motor-cycle frame having a supporting-frame connected with the rear axle and

slidably mounted on the front axle, and a body-frame connected with the rear axle and spring-supported from said supporting-frame, substantially as shown and described.

5. A motor-cycle frame having a supporting-frame connected with the rear axle and slidably mounted on the front axle, a body-frame connected with the rear axle and spring-supported from said supporting-frame, braces from said body-frame to the rear axle, and rods from said braces to the motor-shaft, to keep the latter a fixed distance from the rear axle, substantially as shown and described.

6. In a vehicle, front and rear axles, reaches having ball-and-socket-joint connections with the said front and rear axles, and a body-frame connected with the rear axle and spring-supported at its forward end, substantially as shown and described.

7. In a vehicle, front and rear axles, and reaches having ball-and-socket-joint connections with the said front and rear axles, each ball-and-socket joint comprising a ball on the axle, and a split socket on the reach and fitting upon the said ball, substantially as shown and described.

8. In a vehicle, front and rear axles, two bearings on the rear axle each provided with two balls formed thereon, the said bearings being each provided with a hub portion, reaches connected at their forward ends with the front axle and provided at their rear ends with sockets fitting respectively upon one of the balls of each bearing, a supporting-frame provided with sockets engaging the other balls of the two bearings, and a body-frame having its rear end provided with sockets engaging the hubs of the said bearings, substantially as shown and described.

9. In a vehicle, reaches connected with the front and rear axles, a body-frame connected with the rear axle, and a supporting-frame connected with the rear axle and provided at its front end with a longitudinally-extending pin mounted to slide in a bearing on the front axle, substantially as shown and described.

TOM FRENCH.

Witnesses:

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