(No Model.)

W. H. LONG.

TWO WHEELED VEHICLE.

No. 343,134. Patented June 1, 1886.

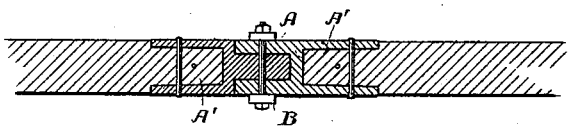
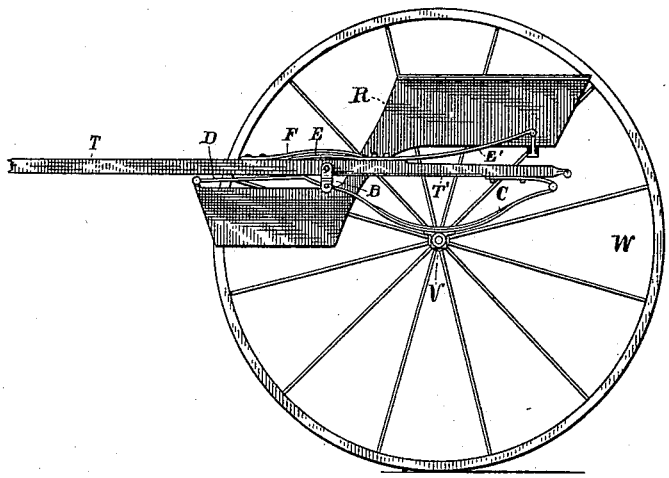


Fig. 4.

Fig. 1.



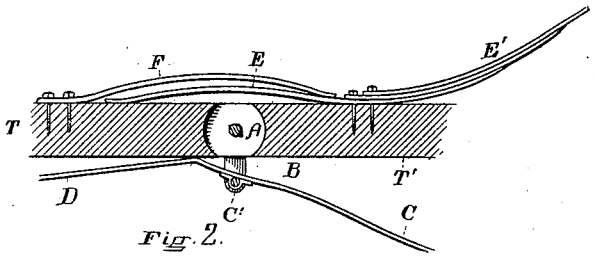


Fig. 2.

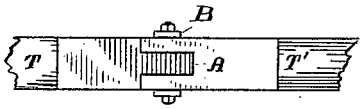


Fig. 3.

Witnesses;

H. W. Mills.

A. Keithley

Inventor,

William H. Long;

by A. B. Upham,

His Attorney.

UNITED STATES PATENT OFFICE.

WILLIAM H. LONG, OF WASHINGTON, ILLINOIS, ASSIGNOR OF ONE-HALF TO CHARLES L. NESMITH, OF SAME PLACE.

TWO-WHEELED VEHICLE.

SPECIFICATION forming part of Letters Patent No. 343,134, dated June 1, 1886.

Application filed December 26, 1885. Serial No. 186,670. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. LONG, of Washington, in the county of Tazewell, in the State of Illinois, have invented an Improved Two-Wheeled Vehicle; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the annexed drawings, making a part of this specification, in which like letters of reference refer to like parts, and in which—

Figure 1 represents a side elevation of the vehicle having the nearer wheel removed; Fig. 2, a detail sectional view of the thill-joint; Fig. 3, plan view of said joint; Fig. 4, longitudinal section of said joint.

The object of this invention is the effecting of certain improvements in two-wheeled vehicles, which shall free them of the objectionable feature of oscillating in their line of progression, or, as ordinarily expressed, shall overcome their horse-motion.

My invention for this purpose consists, essentially, in forming each thill of the vehicle in two parts, pivotally united and kept from more than moderate flexure by means of springs, and having the vehicle-body held by the posterior of the parts of said thills and the horse connected to the forward parts.

In the drawings, R represents the body of the vehicle; T, the thills, and W one of the wheels, the one nearer the spectator being removed. Each thill T is formed in the two parts T and T′, jointed together so as to flex in a vertical plane alone. I usually make said joint a knuckle-joint, A, held together by the bolt or pin A′. On each side of the joint A, and loosely held by the bolt A′, are the two short links, B, united at their ends by the bolt B′. The half-elliptic spring C, connected to the rear end of the thill part T′, is attached by the clip C′ to said bolt B′ of the depending links B. At its lowest point the spring C is fixed to the axle V by a suitable fastening, and its front end is prolonged in a straight but slightly declining line to the front of the vehicle-body R, to the corner of which it is attached. Said prolongation D of the spring C is just in front of the links B given an upward bend, adapted to impress against the under side of the thill.

The rear end of the vehicle-body is supported by the lever-spring E′, rigidly secured to the thill part T′, the rear ends of said springs E′ being usually joined by a transverse spring, upon which the body R rests. There is, however, nothing new about this arrangement of the springs E′.

Upon the upper side of each thill T, I fasten at one end of each the two springs E and F.

The spring E, I usually form as a continuation of the spring E′, the clips or other fastenings securing the latter in place serving also for the former. The center of the spring E being elevated and its front end pressing upon the thill in front of the joint A, the tendency of the same is to depress the front end of the thill. The other spring, F, is similarly bent, but is fast to the thill in front of the joint, and impresses upon the spring E at the rear of said joint, as shown in detail in Fig. 2. This second spring simply re-enforces the first spring, E.

The arrangement of the springs is of course the same upon each side of the vehicle, so that where I have described those upon one side alone the opposite side is supposed to be constructed in the same way.

The operation of my vehicle is as follows: The thills being supported by the horse harnessed thereto, the weight of the vehicle-body and that of the occupants thereof is upheld by the spring C, affixed to the axle V. Upon each spring C there is therefore an upward force against the same at the axle V and a downward force at the front end of its prolongation D, and as said part of the spring at the axle is upwardly pressed, tending to straighten the spring, the front extremity thereof is made to decline; hence, when the vehicle passes over an obstruction that would tend to raise the same, the sudden bending of the spring C lowers the forward end of the vehicle-body sufficiently to counteract the upward movement of the thills and springs, and the center of gravity of the said body remains substantially the same. The office of the links B is to permit the bending of the springs C, the rear ends of the same being fixed and immovable, and therefore requiring the longitudinal play of their front ends. The prevailing tendency of the weight of the vehicle-body and its contents is to depress the part of the thills at their joints

A. This being, however, counteracted by means of the springs E and F, the thills remain approximately horizontal or unbent. During the locomotion of the horse, whose body continuously rises and falls, the thills are made to vertically oscillate; but the jointed arrangement thereof and the springs E F keep this horse-motion from being transmitted to the rear portion of the thills and the vehicle-body connected thereto.

I am aware that prior to my invention two-wheeled vehicles have been constructed in which the thills were severed and hinged or jointed together and provided with springs for flexibly controlling the same, so that I do not broadly claim the same.

In Fig. 4 is shown the way in which I prefer to construct my joint A, which is by making the parts thereof from cast metal, and forming in each a socket, A′, for the insertion of the ends of the thills. Rivets passed through the sockets and the portions of the thills therein hold the latter firmly in place.

What I claim as my invention, and for which I desire Letters Patent is as follows, to wit:

1. The combination, with the vehicle-body, axle, and thills or side bars, of the springs C, fixed to said axle and connected to the side bars, and having the prolongation D, supporting an end of said body, substantially as and for the purpose specified.

2. In a two-wheeled vehicle, the combination, with the jointed thills, the springs overlapping the joints, and the vehicle-body, of the springs C, connected at their rear ends to the rear extremities of the thills and having their front ends prolonged and attached to the front end of the body, and the links B, joining said springs to the pivotal centers of the joints of the thills, substantially as and for the purpose specified.

3. The combination, with the vehicle-body, the wheels, and axle, of the thills T, having the joints A, the links B, depending from said joints, the springs C, attached to said links and to the rear ends of the thills, and having the frontal prolongations D, to which the body is attached, said springs being fixed to the axle, the springs E, fast to the rear parts of the thills and prolonged into the lever-springs E′, connected to the body, and the springs F, fastened to the thills in front of the joints A, and overlapping the same, as and for the purpose specified.

4. In a road-cart, the combination, with the jointed thills, of the two eccentrically-curved springs, one of which is rigidly fastened to the thill at the rear of the joint and terminally presses upon the thill in front of said joint, and the other of said springs is rigidly fastened to the thill in front of said joint and arches over the former spring and presses upon the same at the rear of the joint, as and for the purpose specified.

In testimony that I claim the foregoing invention I have hereunto set my hand this 10th day of December, 1885.

W. H. LONG.

In presence of—
DAVID KYES,
J. F. HOOVER.