

(No Model.)

H. C. SWAN.  
TWO WHEELED VEHICLE.

No. 467,210.

Patented Jan. 19, 1892.

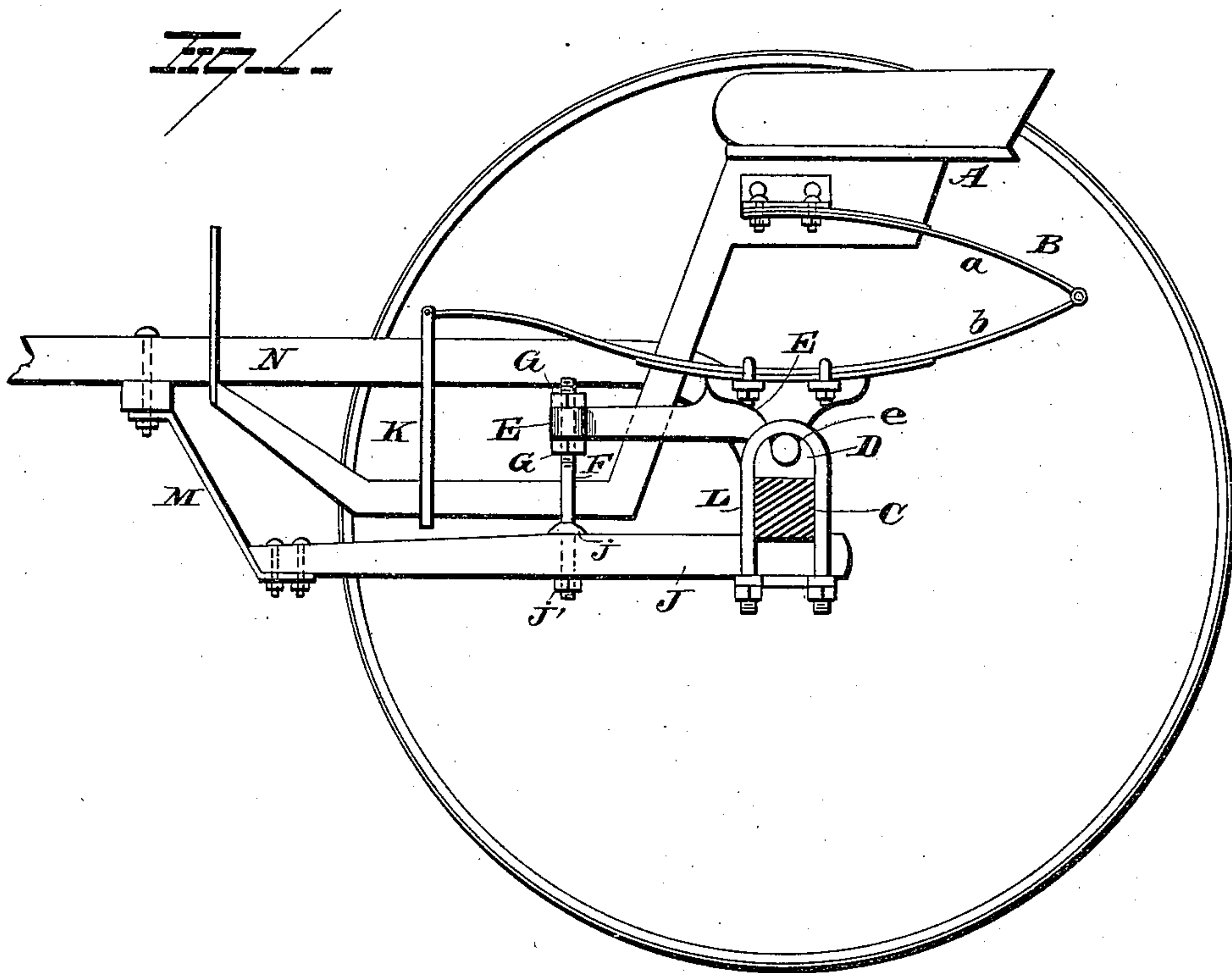


FIG. 2.

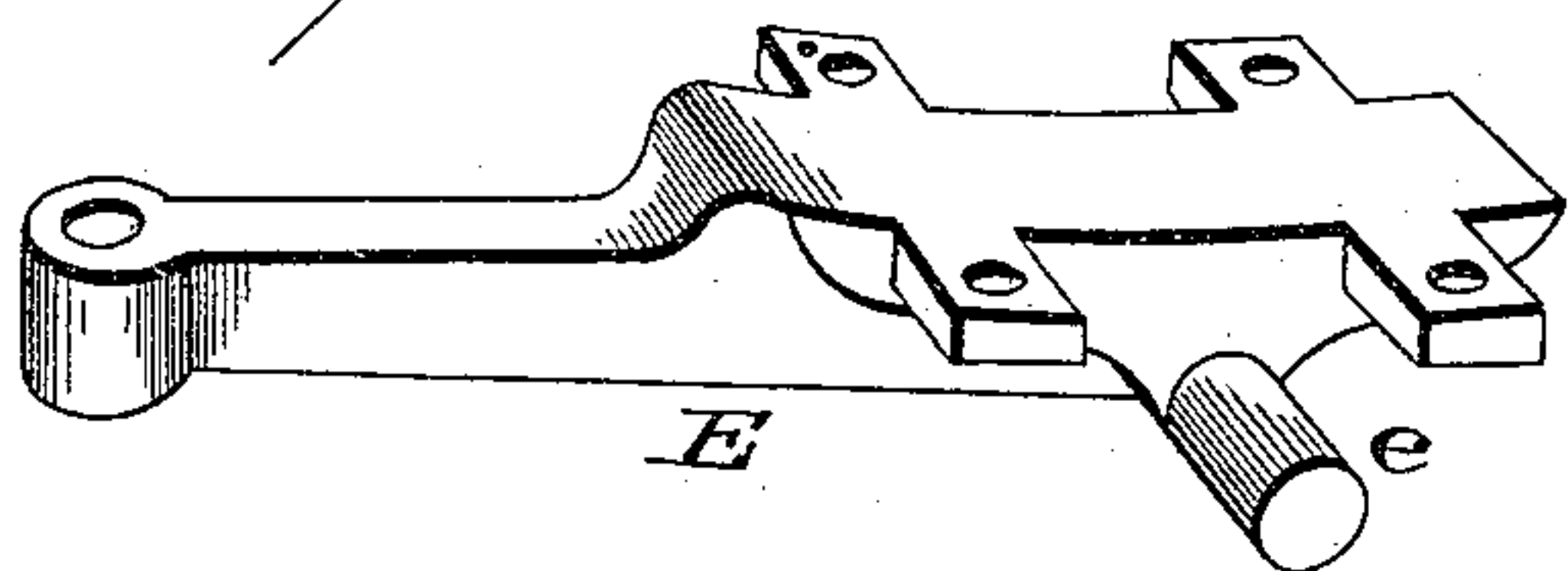


FIG. 3.

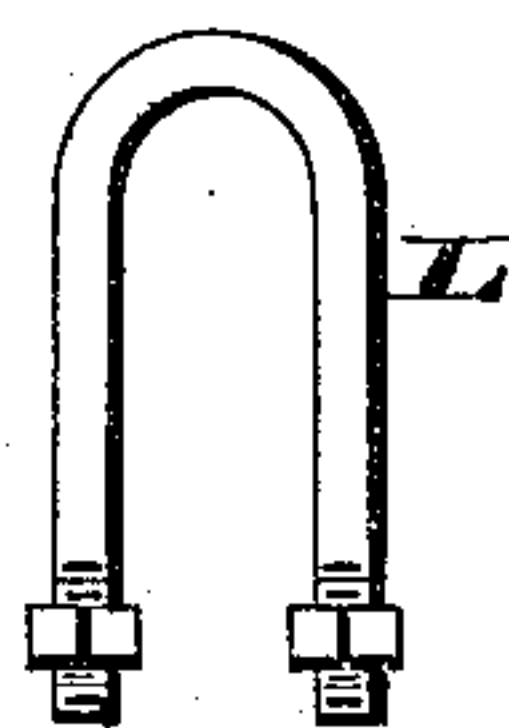


FIG. 4.

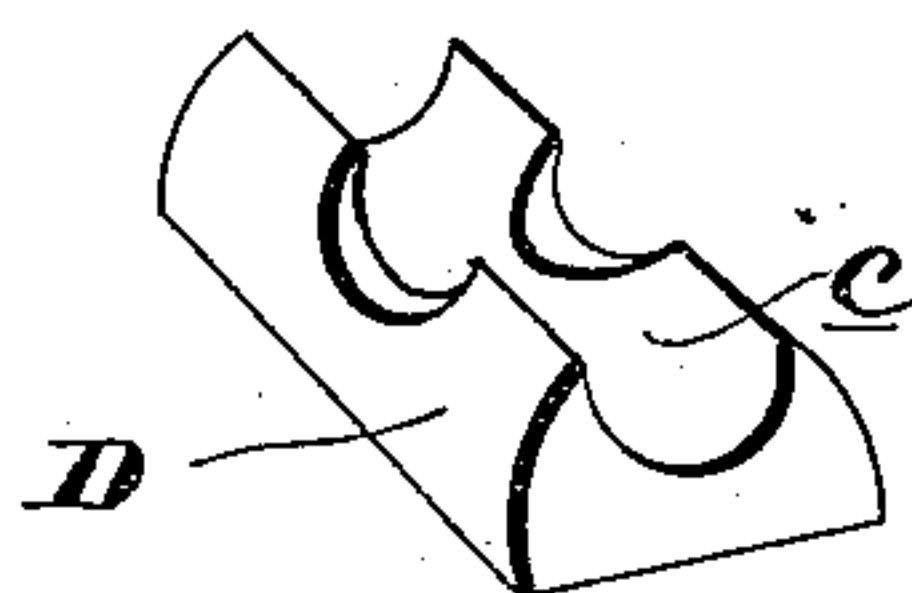
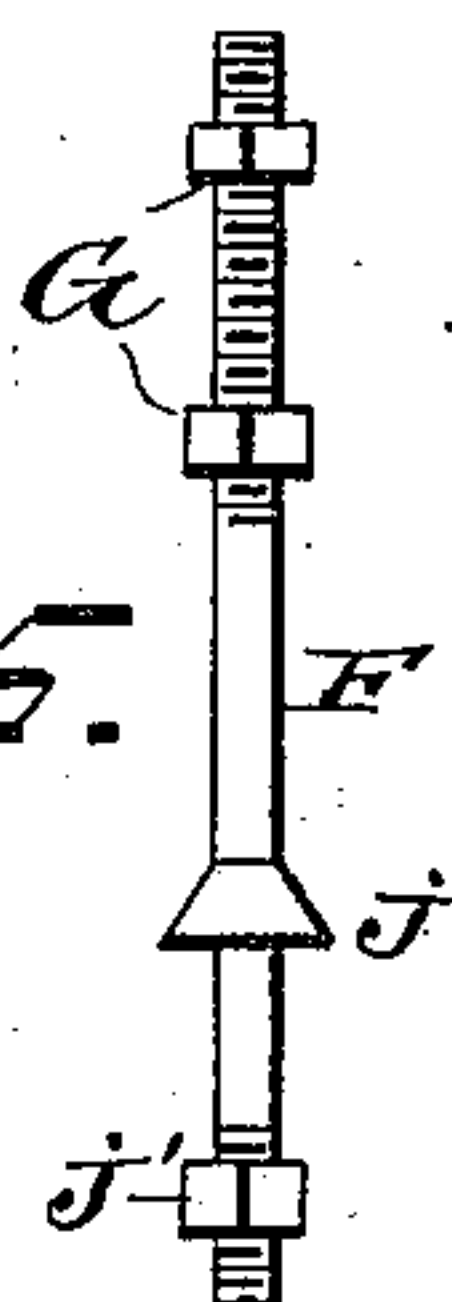


FIG. 5.



Inventor

H. C. Swan.

R. H. Aspinwall.

Attorney

Witnesses  
S. Mottingham  
G. F. Downing



# UNITED STATES PATENT OFFICE.

HENRY C. SWAN, OF OSHKOSH, WISCONSIN, ASSIGNOR TO THE LIPPELMANN CARRIAGE COMPANY, OF CINCINNATI, OHIO.

## TWO-WHEELED VEHICLE.

SPECIFICATION forming part of Letters Patent No. 467,210, dated January 19, 1892.

Application filed January 12, 1891. Serial No. 377,541. (No model.)

*To all whom it may concern:*

Be it known that I, HENRY C. SWAN, of Oshkosh, in the county of Winnebago and State of Wisconsin, have invented certain new and useful Improvements in Two-Wheeled Vehicles; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to an improvement in two-wheeled vehicles.

Hitherto various devices have been employed for the purpose of adjusting the body of two-wheeled vehicles to accommodate them to the various heights of horses and also to obviate the horse motion. Many of these have been so constructed as to make it necessary to attach the front end of the body to the shafts. Consequently when loaded an uneven movement of the body resulted, inasmuch as the largest portion of the load was in the rear of the body, which resulted in depressing the rear end more than the front and throwing the vehicle out of level.

The object of my invention is to overcome these defects, to prevent horse motion, and to accommodate the vehicle to horses of different heights.

With these ends in view my invention consists in certain novel features of construction and combinations of parts, as will be hereinafter described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a view in side elevation with the rear wheel removed and parts in section, and Figs. 2, 3, 4, and 5 are views in detail.

A represents the body of the vehicle, the same being yieldingly supported on springs B. There are two of these springs, one at each side, and each spring comprises two members *a* and *b*, hinged together and the former connected with the body at its free end and the other connected preferably at or near its middle with the axle C in the following manner: A bearing-seat D is secured on the axle by clips L L or other means. This seat is constructed with a concave socket or recess *c* on its upper surface. E is a rocking lever, to the upper surface of which the member *b* of the spring is securely attached. This rocking le-

ver is provided with a rounded axle *e*, which bears in the socket or recess *c*. The clips L L extend over the ends of these axles to hold them down in the sockets. The forward or free ends of the leaves *b* of the springs are connected to the body by straps or links K. Bars J are rigidly secured to the axle, preferably by the same clips which hold the seats D and levers E thereon, and the forward ends of these bars are connected by braces M M to the shafts N, thus constituting a rigid portion of the vehicle. It will be noticed that the body is suspended on the axle by means of the springs B, and from this connection of parts not only is the seat of the vehicle rendered yielding, so as to make it insensible to jars caused by the wheels running over ruts and rough places, but, furthermore, horse motion is taken up by the elasticity of the springs and disposed of, whereas in any other vehicles of this character special springs have been regarded as necessary for this purpose.

The most essential feature of my invention remains to be described, and it consists in means for regulating the position of the vehicle-body. Adjusting-bolts F F are securely fastened to the bars J J, and to this end are furnished with collars *j* and nuts *j'*, which retain them in place, and their upper or free ends are screw-threaded and pass loosely through holes formed in the outer or free ends of the rocking levers E E. Jam-nuts G G are screwed on the threaded ends of these bolts and adapted to be turned on and off on either side of the levers, whereby the latter are rocked on their axles and made to incline the body A back and forward, as the case may be, so that for a small horse the seat is tilted backward and for a large horse it is tilted forward; or, in other words, by means of my improvement the seat is kept level or horizontal regardless of the height of the horse.

It is evident that slight changes might be resorted to in the form and arrangement of the several parts described without departing from the spirit and scope of my invention, and hence I do not wish to limit myself to the exact construction herein set forth; but,

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



1. In a two-wheeled vehicle, the combination, with a body, axle, and a lever pivotally supported on the axle, of springs comprising two or more members, one secured to the body  
5 and the other connected with the lever at or near the center and also at the free end to the body, substantially as set forth.

2. The combination, with an axle and bars connecting the axle with the shafts of the vehicle, of a body, a lever pivotally supported  
10 on the axle, and a spring connected at its ends with the body and at or near its center with the lever, substantially as set forth.

3. The combination, with a body, axle, and  
15 springs, of bearing-seats, rocking levers pivotally supported in the bearings, and means connecting the free ends with the frame of the vehicle, substantially as set forth.

4. The combination, with a body, axle, and springs connecting the said parts, of rocking  
20 levers, to which the springs are secured, said levers pivotally connected with the axle, and bolts secured to the frame of the vehicle and passing loosely through the outer ends of the levers and jam-nuts or other means mounted  
25 on the rods on each side of the levers for regulating the inclination of the latter, substantially as set forth.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

HENRY C. SWAN.

Witnesses:

S. G. NOTTINGHAM,  
V. E. HODGES.