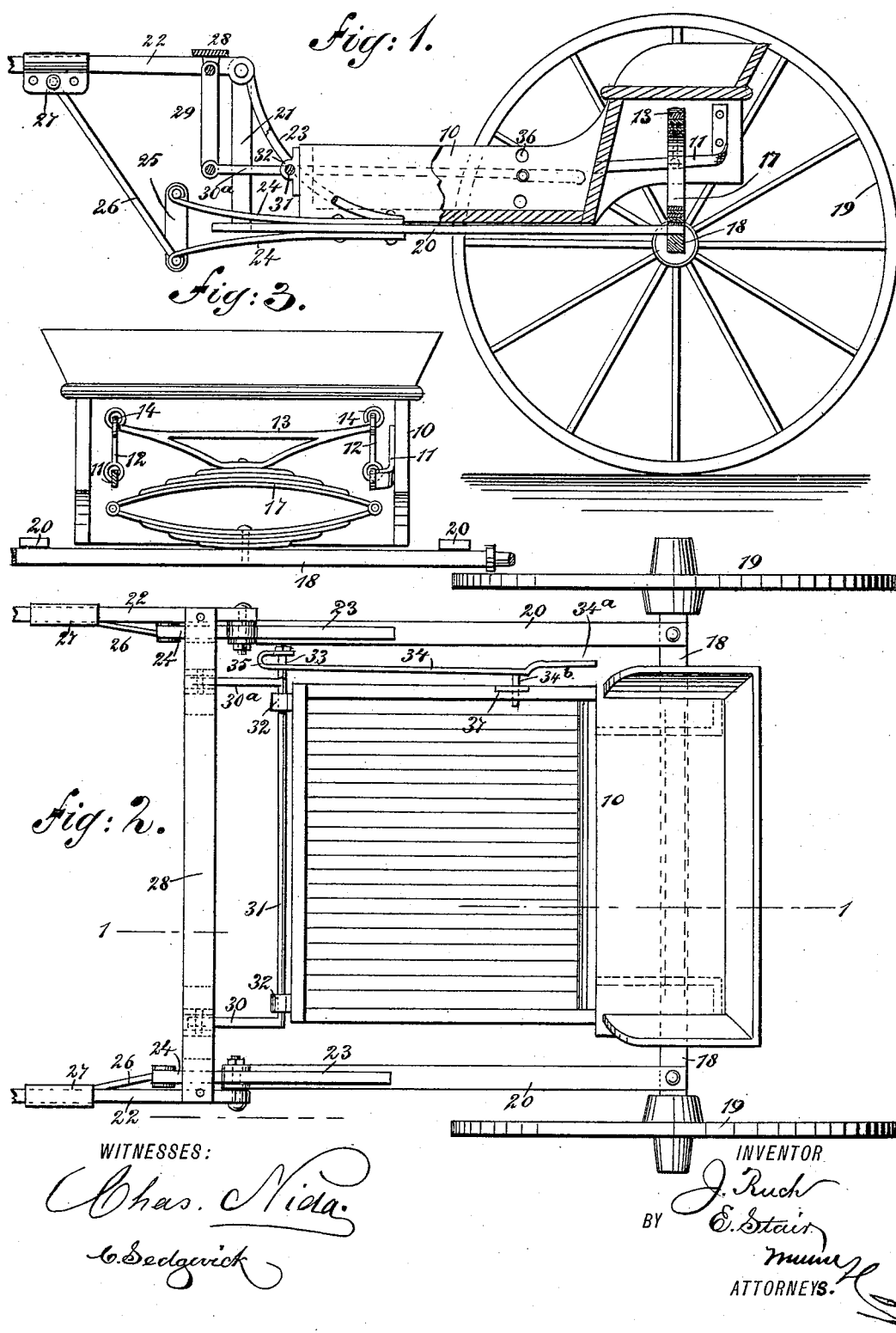


J. RUCH & E. STAIR.
VEHICLE.

Patented Mar. 15, 1892.



UNITED STATES PATENT OFFICE.

JACOB RUCH AND EMANUEL STAIR, OF MOUNT EATON, OHIO; SAID STAIR
ASSIGNOR TO SAID RUCH.

VEHICLE.

SPECIFICATION forming part of Letters Patent No. 471,026, dated March 15, 1892.

Application filed April 28, 1891. Serial No. 390,825. (No model.)

To all whom it may concern:

Be it known that we, JACOB RUCH and EMANUEL STAIR, both of Mount Eaton, in the county of Wayne and State of Ohio, have invented a new and Improved Vehicle, of which the following is a full, clear, and exact description.

Our invention relates to improvements in vehicles, and more especially to wheeled vehicles; and the object of our invention is to produce a vehicle which is freely suspended upon its springs and which is constructed in such a manner that it is perfectly balanced and very easy riding.

To this end our invention consists in certain features of construction and combinations of parts, which will be hereinafter described and claimed.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar figures of reference indicate corresponding parts in all the views.

Figure 1 is a broken vertical longitudinal section of the vehicle on the line 1 1 of Fig. 2. Fig. 2 is a broken plan view of the same; and Fig. 3 is a broken rear elevation, partly in section.

The vehicle-body 10 is provided with a seat at the rear end, and the body is preferably cut away beneath the seat, so as to provide for suspending it from the rear spring. Beneath the seat and on each side of the body are bars 11, which are firmly secured to the body, and these bars are suspended by means of links 12, as best shown in Fig. 3, from the outer ends of a support 13, which extends transversely beneath the seat, is bent upward at its outer ends, and the ends terminate in eyes 14 to facilitate its attachment to the links 12. The support 13 is secured at its center to the top of an ordinary elliptical buggy-spring 17, and this spring is secured to an axle 18, which is mounted in wheels 19 in the usual manner. It will thus be seen that the rear portion of the body is suspended in a way to have an easy spring action. It will also be capable of swinging laterally to a certain extent and will be extremely easy to ride in.

On each side of the vehicle-body are arms 20, which at their rear ends are firmly secured

to the axle 18, and the arms extend to a point a little in advance of the body and carry near the forward ends vertical posts 21, to the upper ends of which the shafts 22 are pivoted. The posts 21 are strengthened and supported by braces 23, which extend from the tops of the posts to the arms 20. The arms 20 are also provided at their forward ends with curved springs 24, which are secured to the upper and lower sides of the arms and which extend slightly beyond the arms, the forward ends of the springs diverging, as best shown in Fig. 1, and these ends are connected by means of links 25, to the opposite ends of which they are secured. The lower ends of the links 25 connect by means of braces 26 with clamps 27, which are adjustable on the shafts 22. It will thus be seen that the braces 26, links 25, and springs 24 form a spring connection between the shafts and the arms 20, which connection makes the vehicle easy to the horse and to the rider.

The rear ends of the shafts 22 are connected by a cross-bar 28, and pivoted on the under side of the cross-bar near each end are links 29, to which at their lower ends are pivoted the bent ends 30 and 30^a of the rod 31. This rod 31 extends transversely through suitable bearings 32 on the front end of the body 10. One end 30 of the rod is bent so as to extend forward and connect with one of the links 29, and at the opposite side of the body the portion 30^a of the rod extends forward in a similar manner and connects with the opposite link 29, and from the part 30^a the rod extends laterally beyond the side of the vehicle-body and terminates in a squared end. A rod 34 extends along one side of the vehicle-body, where it may be conveniently reached from the seat, the front end of the rod being doubled and secured to the squared end of the rod 31, as shown at 35, and the rear end of the rod 34 is bent outward, as at 34^a, so that it may be easily grasped by the hand. The rod 34 has near its rear end an inwardly-extending pin 34^b, which is adapted to enter one of a series of holes 36, which extend through one side of the body and through a plate 37, which is secured thereto. It will be seen that by placing the pin 34^b in an upper or lower hole

36 the body 10 may be raised or lowered, as desired, so as to adapt it to the weight which it carries, and to balance it, as by raising or lowering the bent end 34^a of the rod and securing it to the body, as described, the position of the body will be changed according as the position of the rod is changed.

From the foregoing description it will be seen that the vehicle-body is freely suspended on its springs and that its front end is suspended from the cross-bar of the shafts, and as a result the body will have a swinging movement, which renders it very easy to a person riding in it.

We have shown a two-wheeled vehicle suspended in a peculiar manner; but it is obvious that the means of connecting the body with the elliptical spring may be applied to a four-wheeled carriage as well.

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

1. In a vehicle, the combination, with the axle, bars secured to the axle and having upwardly-projecting posts, and thills connected to the posts, of a body having its front end supported from the thills and its rear end supported from the axle to have a yielding and a lateral swinging motion, substantially as described.

2. In a vehicle, the combination, with the axle, bars secured to the axle and having upwardly-projecting posts, and thills connected to the posts, of a body having its front end supported from the thills, an elliptical spring on the axle, a support on the spring, and links

pivoted to the support and body, substantially as described.

3. In a vehicle, the combination, with the axle, bars secured to the axle and provided with posts at their forward ends, and thills connected to the posts, of springs secured to the forward ends of the said bars and connected to the thills, a spring on the axle, and a body having its forward end supported from the thills and its rear end supported from the spring on the axle to have a lateral swinging motion, substantially as herein shown and described.

4. The combination of the body, the axle, the arms secured to the axle and extending forward on opposite sides of the body, the posts carried by the arms, the shafts pivoted in the posts, the diverging springs secured to the arms and connected at their front ends, and braces connecting the springs with the shafts, substantially as shown and described.

5. The combination, with the body having a perforated side and the shafts supported from the vehicle-axle, of links 29, pivoted to the under side of the cross-bar of the shafts, the rod 31, mounted transversely on the front end of the body and provided with bent ends 30 30^a, pivoted to the said links, and the rod 34, having the front end double upon itself and secured to the end of the rod 31 and provided with the pin 34^b, substantially as described.

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Witnesses:

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