(No Model.) 2 Sheets—Sheet 1.

T. S. WATROUS.

ROAD CART.

No. 427,939. Patented May 13, 1890.

Fig. 1.

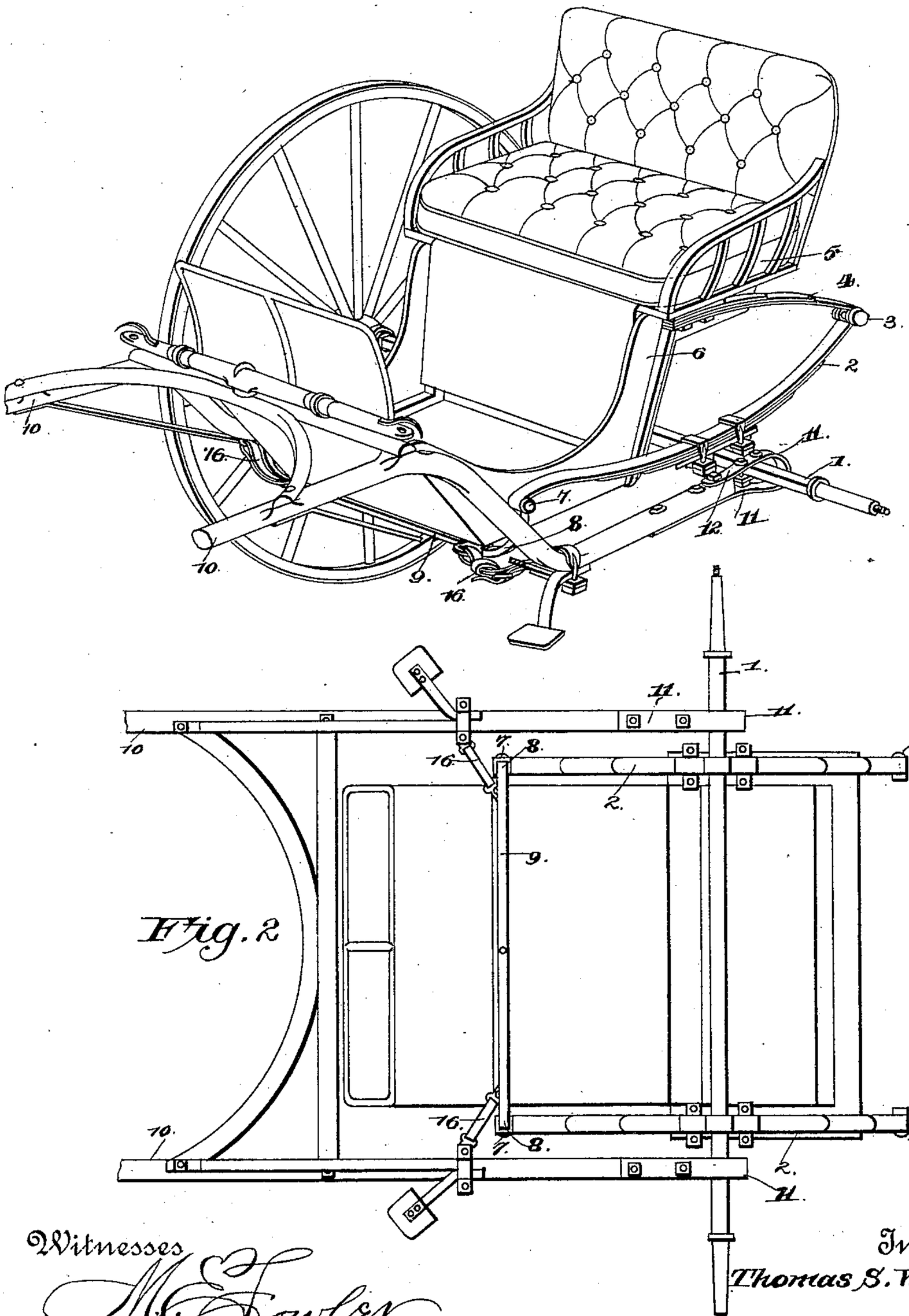


Fig. 2.

Witnesses
M. C. Fowler
H. J. Riley

Inventor
Thomas S. Watrous.

By his Attorneys
C. A. Snow & Co.

(No Model.) 2 Sheets—Sheet 2.

T. S. WATROUS.

ROAD CART.

No. 427,939. Patented May 13, 1890.

Fig. 3.

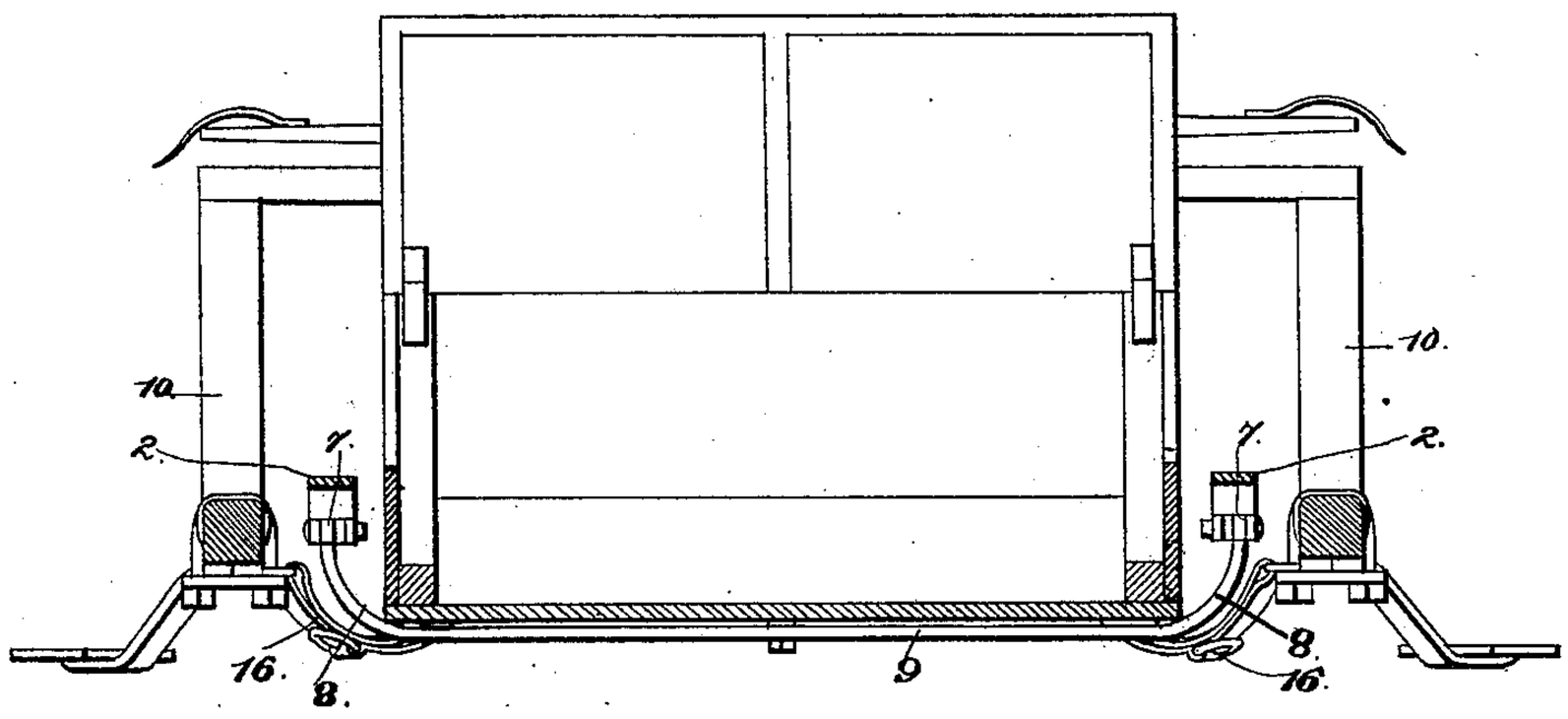


Fig. 4.

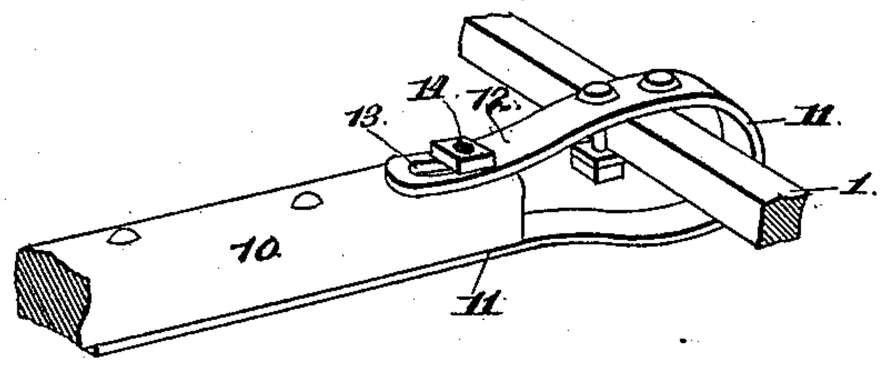
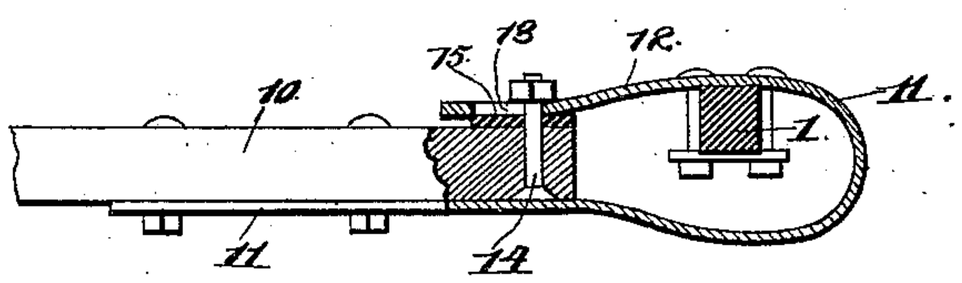


Fig. 5.



Witnesses

M. E. Fowler

F. F. Riley

Inventor

Thomas S. Watrous

By his Attorneys

C. A. Snow & Co.

UNITED STATES PATENT OFFICE.

THOMAS S. WATROUS, OF PENN YAN, NEW YORK.

ROAD-CART.

SPECIFICATION forming part of Letters Patent No. 427,939, dated May 13, 1890.

Application filed December 12, 1889. Serial No. 333,530. (No model.)

To all whom it may concern:

Be it known that I, THOMAS S. WATROUS, a citizen of the United States, residing at Penn Yan, in the county of Yates and State of New York, have invented a new and useful Road-Cart, of which the following is a specification.

The invention relates to improvements in road-carts.

The object of the present invention is to provide a road-cart of simple and economical construction, in which the motion of the horse will not be communicated to the body of the vehicle, and in which the motion of the body will be free and entirely independent of the motion of the shafts.

The invention consists in the construction and novel combination and arrangement of parts, hereinafter fully described, illustrated in the accompanying drawings, and pointed out in the claims hereto appended.

In the drawings, Figure 1 is a perspective view of a road-cart embodying the invention. Fig. 2 is a reverse plan view. Fig. 3 is a transverse sectional view. Fig. 4 is a detail perspective view illustrating the manner of attaching the shafts to the axle. Fig. 5 is a sectional view of the same.

Referring to the drawings, 1 designates an axle, which is supported on suitable wheels, and to which are clipped semi-elliptic springs 2, that are secured at a point about midway their ends. The semi-elliptic springs 2, which are clipped to the axle 1, have their rear ends 3 secured in the ordinary manner to curved springs 4, whose front ends are fastened beneath the seat 5 of a suitable body 6. The forward ends 7 of the semi-elliptic leaf-springs 2 are secured to the curved ends 8 of a spring-bar 9, that is centrally secured to the front of the body 6. This transverse spring-bar 9 is rigidly secured to the body, and during the motion of the vehicle its ends are capable of limited forward and backward spring in a horizontal plane, and it will readily be seen that the connection of the body of the vehicle to the running-gear is extremely flexible and elastic, and that the cushioning action of the springs is sufficient to prevent any jar.

The shafts 10 of the vehicle are secured to the axle by springs 11, which are approximately U-shaped, and have their arms arranged in a vertical plane. The lower arm 11 of the U-shaped spring is extended beyond the upper arm 12 and is bolted to the lower face of the shaft, and makes a very yielding connection to the axle, around which the spring 10 extends, and the upper arm 12 is clipped to the axle a short distance from the bend or curved end of the spring and is provided at its forward end with a longitudinal slot 13, through which projects a bolt 14, whose head is countersunk in the lower face of the shaft. The bolt 14 extends through the shaft and is arranged in the slot 13, and projects beyond the upper arm 12 of the U-shaped spring, and is provided with a nut which prevents the upper arm 12 leaving the shaft. By this construction the coupling between the shafts and the axle is very yielding and elastic, and the shafts are capable of limited longitudinal movement independent of the upper arm, to which the axle is clipped, and the motion of the horse is not communicated to the body of the vehicle. The upper face of the shaft is provided upon its upper face with a wear-plate 15, which protects the shaft and prevents the same being worn and scratched. In order to prevent too great freedom of movement of the body, stay-straps 16 are provided and are secured to the sides of the body and to the shafts, to prevent the body being thrown back too far or being too greatly depressed.

It will thus be seen that the motion of the body of the vehicle is entirely independent of that of the shafts, and that the motion of the horse is not communicated to the body.

I am aware that it is not broadly new to mount the body of the vehicle upon the semi-elliptic springs and the curved springs and to clip the semi-elliptic springs to the axle; but heretofore the front ends of the semi-elliptic springs have been secured to a transverse spring that is only capable of vertical movement, or they have been connected to a bar that will not allow any spring. The former of these constructions permits too much vertical movement of the body, and will not allow forward and backward motion, and the latter construction requires a swiveled or journaled bar and prevents the parts being rigidly secured together.

Having thus described my invention, I claim—

1. In a vehicle, the combination of the body, the transverse spring-bar rigidly secured at its center to the front of the body and capable of horizontal spring only, the semi-elliptic springs clipped to the axle and having their front ends secured to the ends of the transverse spring-bar, and the curved springs having their rear ends secured to the semi-elliptic springs and their front ends fastened to the body beneath the seat thereof, substantially as and for the purpose described.

2. In a vehicle-spring, the combination of the body, the transverse spring-bar centrally and rigidly secured to the front of the body and having upward-curved ends capable of horizontal spring, the semi-elliptic springs clipped to the axle and having their front ends secured to the curved ends of the spring-bar, and the curved springs having their rear ends secured to the semi-elliptic springs and their front ends fastened to the body beneath the seat, substantially as described.

3. In a vehicle, the combination of the shaft and the approximately U-shaped spring having the lower arm rigidly secured to the shaft and the upper arm designed to be clipped to an axle and being loosely secured to the shaft, whereby the latter is capable of limited longitudinal movement independent of the upper arm and the axle, substantially as described.

4. In a vehicle, the combination of the shaft, the approximately U-shaped spring having its lower arm rigidly secured to the shaft and its upper arm designed to be clipped to an axle and provided with a longitudinal slot, and the bolt projecting from the shaft and being arranged in said longitudinal slot, substantially as and for the purpose described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

THOMAS S. WATROUS.

Witnesses:

J. H. SIGGERS,

R. J. MARSHALL.