

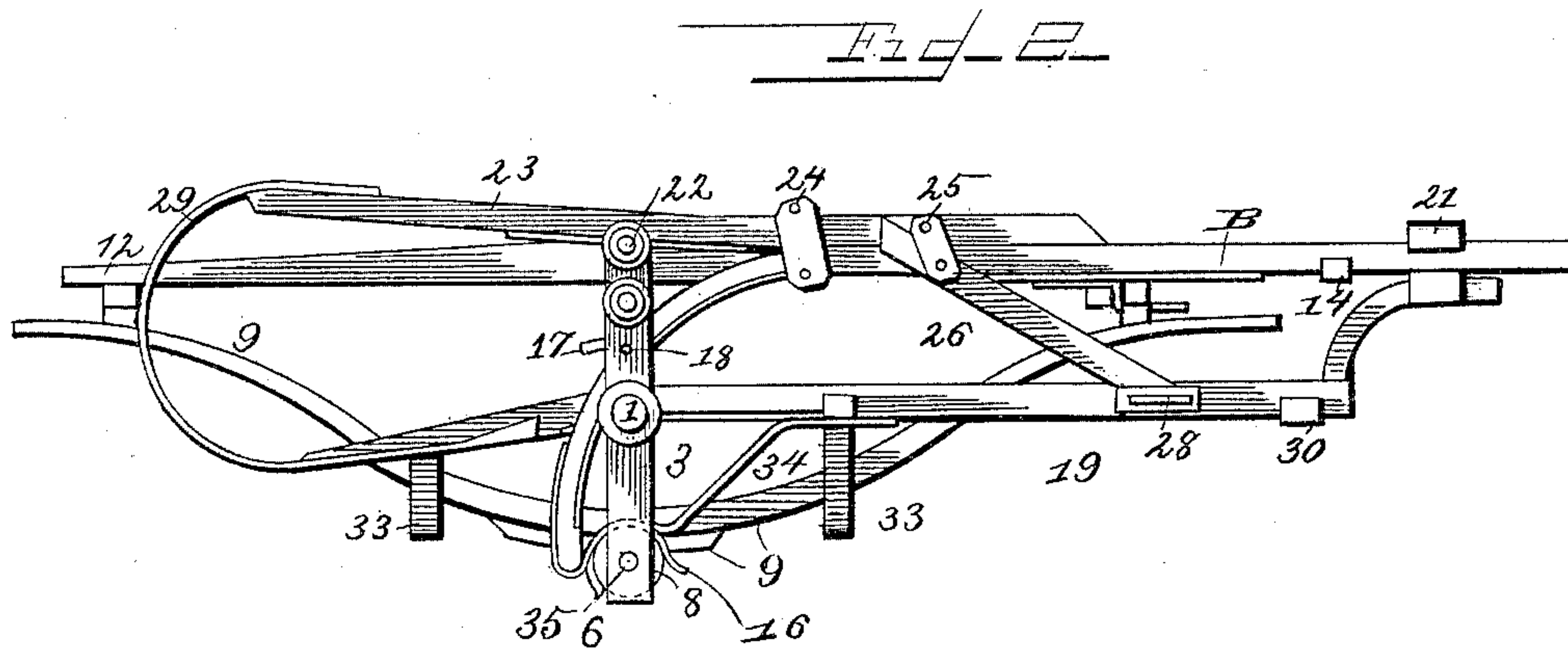
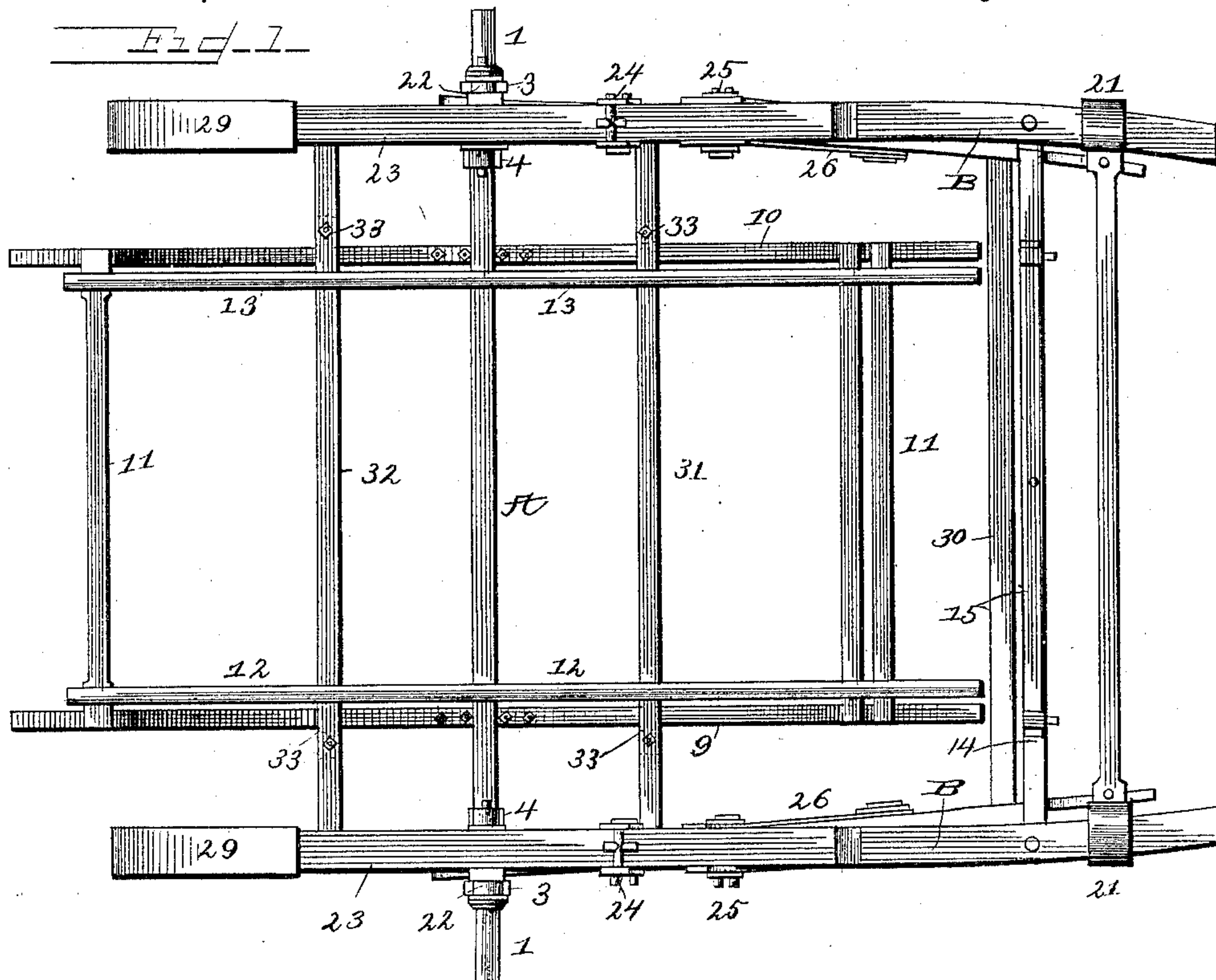
(No Model.)

2 Sheets—Sheet 1.

N. H. DAVIS.
SULKY.

No. 432,819.

Patented July 22, 1890.



Witnesses

G. A. Taubenschmitt,
C. W. Sommers

Inventor

Nathan H. Davis,

By his Attorney

A. G. Neffman,

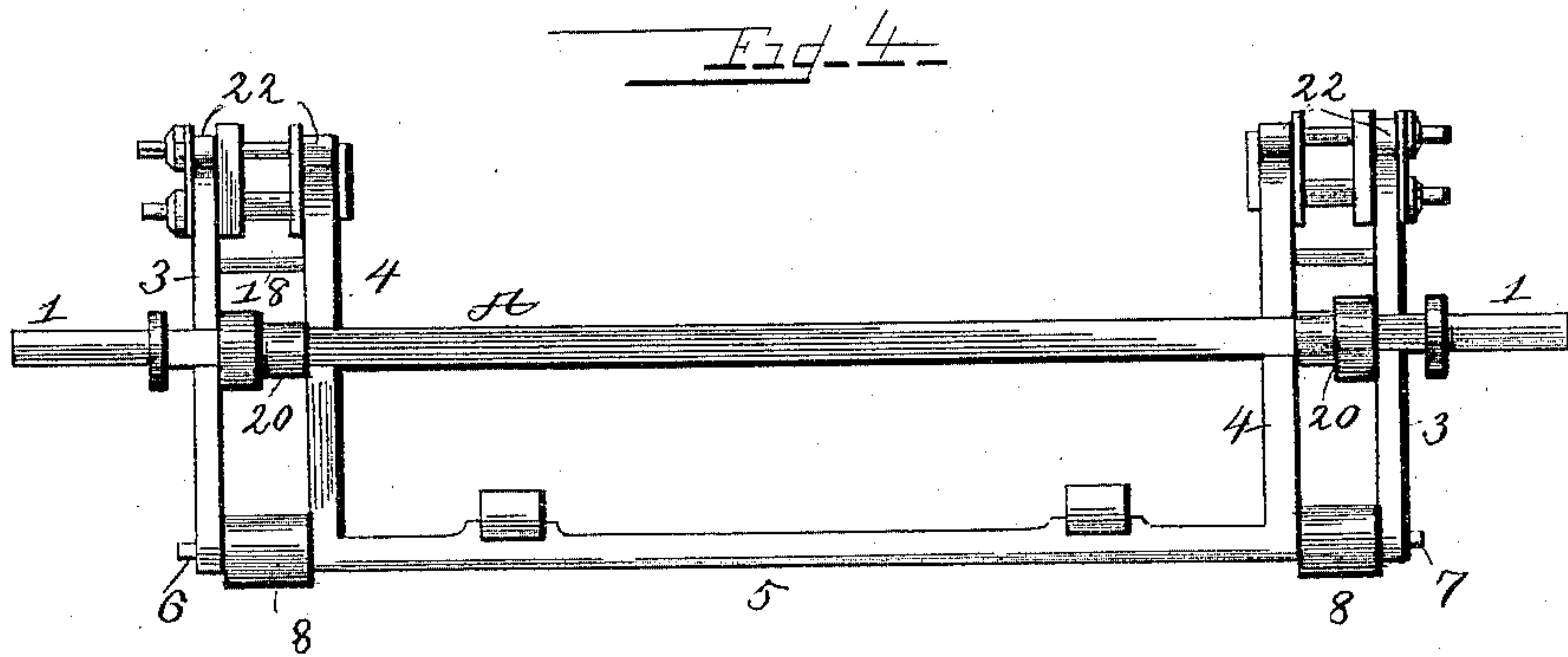
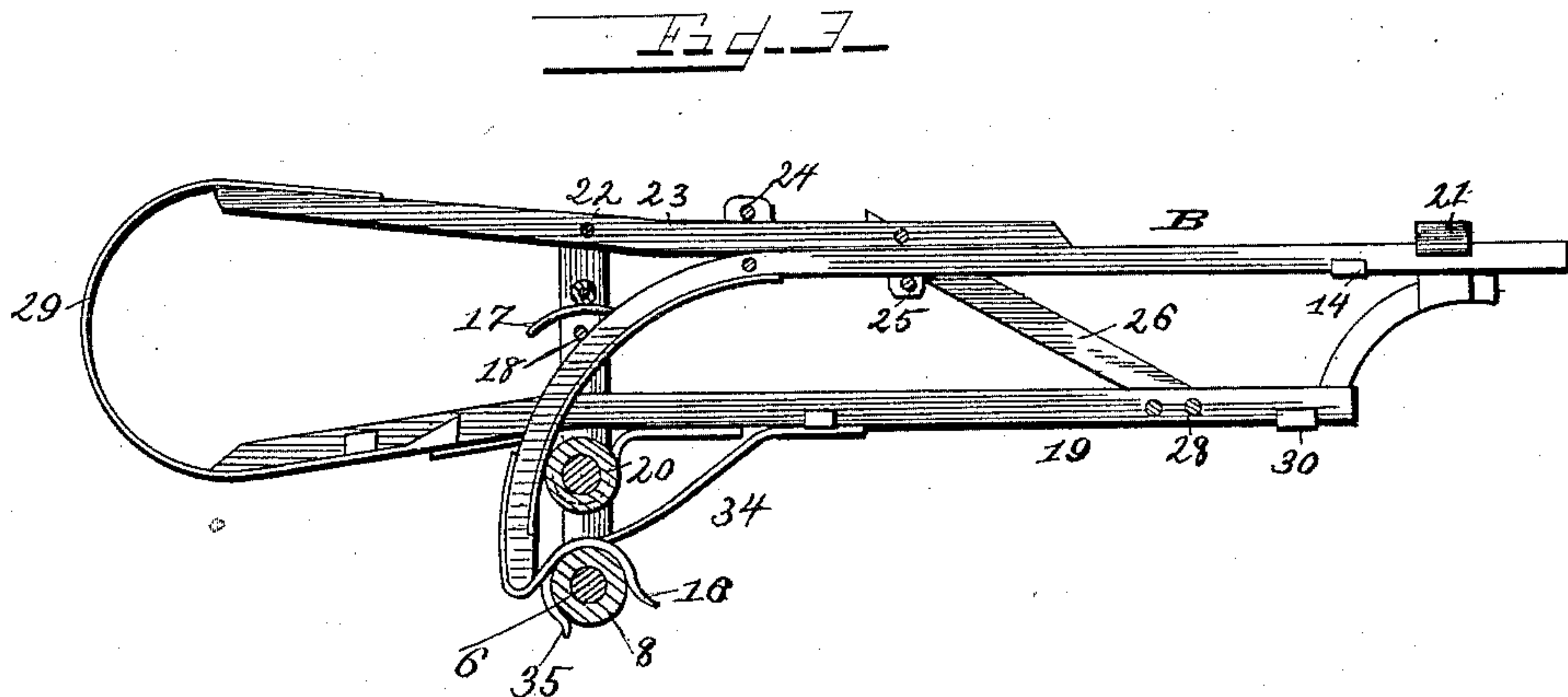
(No Model.)

2 Sheets—Sheet 2.

N. H. DAVIS.
SULKY.

No. 432,819.

Patented July 22, 1890.



Witnesses

G. A. Tauberschmidt

B. H. Sommers

Inventor

Nathan H. Davis

By *his*

Attorney

A. G. Heyman

UNITED STATES PATENT OFFICE.

NATHAN H. DAVIS, OF GREENVILLE, SOUTH CAROLINA.

SULKY.

SPECIFICATION forming part of Letters Patent No. 432,819, dated July 22, 1890.

Application filed December 7, 1889. Serial No. 332,907. (No model.)

To all whom it may concern:

Be it known that I, NATHAN H. DAVIS, a citizen of the United States of America, residing at Greenville, in the county of Greenville and State of South Carolina, have invented certain new and useful Improvements in Sulkies, of which the following is a specification.

My invention has relation to improvements in road-vehicles of that class styled "sulkies," wherein the running-gear is supported on two wheels and a single axle; and the object is to provide an improved sulky whereby the body of the same will be carried steadily and with comfort to the occupant and without jarring to the animal.

I accomplish the purposes of my invention by the constructions and means illustrated in the accompanying drawings, wherein—
Figure 1 is a plan view of the running-gear of my improved sulky. Fig. 2 is a side view thereof. Fig. 3 is a detail view of the shafts and connected spring part removed from the vehicle. Fig. 4 is a front view of the axles removed from the vehicle.

A designates the main axle, having the usual spindles 1 to receive the wheels. At each end of the axle are rigidly mounted two vertically-arranged standards 3 4, extending substantially an equal distance above and below the axle. To the lower ends of the respective inner standards is secured a cross-piece 5, having its ends projected outward and lodged in the respective outer standards, as shown, constituting bearings 6 7, on which are mounted elastic rollers 8, which serve as bearings for the spring ends of the shafts, as will be hereinafter specified. On the cross-piece 5 are mounted the springs 9 10, which support the body of the vehicle. These springs may be connected at their ends by cross-pieces 11 and have mounted thereon the usual side bars 12 13, to which the body may be connected.

B designates the shafts. These are connected at the front of the vehicle by a cross-bar 14, having attached thereto the singletree 15. The rear ends of the shafts are curved down, as shown, and projected over the axle and through the opening between the vertical standards, and have their ends provided with curved spring-arms 16, resting on and having a limited play over the elastic rollers 8 on the bearings of the cross-piece 5.

On the upper portion of each shaft at the part where they rest in the standards is secured a curved bearing-lug 17, arranged to bear on a bearing-rod 18 set across between the upper limbs of the vertical standards. These lugs and bearings serve to keep the shafts in their position of engagement on the elastic rollers and prevent them from lifting up at the rear.

19 designates bars supported on bearings 20 on the axle and extending forward to about the singletree-bar, and have their ends curved upward and forward, and are provided with clips 21, which engage over the shafts to prevent the bars from moving down beyond the limit of the clips.

To the top of the vertical standards are attached shackles or links 22, on the upper bars of which are mounted bars 23, extending forward of their connection to the shackles and resting on the shafts, as shown, and having their rear ends projecting back, as shown. The forward limit of these bars is yieldingly connected to the shafts by a link or shackle 24, so as to have a limited play back and forth, and forward of the links 24 is a shackle 25, having attached to it connecting-bars 26, having their lower ends fastened to a bolt 28 projected through the under bars 19. These connections maintain the upper and lower bars in their respective relations to the shafts and in alignment with each other and with shafts. The bars 19 and 23 are connected at their rear ends by bow-springs 29. The forward ends of the lower bars 19 are connected by a cross-bar 30, and also by cross-bars 31 32, arranged at a distance on opposite sides of the axle and provided with clips 33, taking in the springs which support the body, the clips being made of such capacity that the springs may have play therein, and in case of their being heavily weighted and borne down that they may have support in the bend of the clips. On the under face of the bars 19 are fixed springs 34, which are carried down and rearward and have their ends curved, as at 35, and arranged on the elastic rollers in the standards, so that they may have a springing or yielding support at that point. By the connection of the shafts to the upper bars and the connections of the bars at their rear by the bow-springs and at their forward portions by the links each element supports the other, yet, being yieldingly connected, the

shafts are allowed to move up or down with the motion of the horse without disturbing the horizontal position of the body of the vehicle. It will be observed that the vehicle-standards, through their connections to the bars, shafts, and axles, control the motion of the cross-piece 5 under the axle and maintain the body in easy horizontal position; but in order to directly throw the draft on the axle and prevent the jerking forward from their vertical position the shafts are connected to the bars 19 and 23 by yielding connections, and going back lie against the rear of the axle and keep the body on a level. The springs on the ends of the shafts bear on the elastic rollers on the cross-piece under the axle and assist in preventing a jerking motion to the body, and the same object is attained by the springs on the under bar, which may also assist in supporting the body when heavily loaded. The connecting links or bars 26 hold the shafts and part in line and at the same time allow them to have vertical play independent of each other, so that when the animal is descending a hill the shafts may move back, raising the body of the vehicle at the front and relieving the animal from its weight, and in going uphill the shaft is drawn forward, the connecting bars or links press the lower bar to its level, and thus prevent the body from tilting. The connections of the shafts and the associated parts being independent of the supports of the body, disagreeable jerking and tilting motion common to two-wheeled vehicles is prevented, the springs and yielding cushions being such that the supports of the body are relieved from these annoyances.

Having thus legally described my invention, so as to enable those skilled in the art to make, construct, and use the same, and also explained the principle thereof, so as to distinguish it from other inventions in the class, I proceed to particularly point out and distinctly claim the parts, improvements, and combinations I claim as my invention, as follows:

1. In a two-wheeled vehicle, the combination of an axle provided with two vertical standards at each end projecting above and below the axle, a cross-piece connecting the lower ends of said standards and having rollers on it between the standards, shafts having their rear ends resting on said rollers, a bar journaled on the axle, bars journaled in the top of the vertical standards, springs connecting the rear ends of said bars, and yielding fastenings connecting the forward end of the upper bar to the shafts and to the lower bar, substantially as described.

2. In a two-wheeled vehicle, the combination of the axle carrying two vertical standards at each end, extending above and below the axle and having rollers mounted on bearings between the vertical standards, the shafts having their rear ends yieldingly supported on said rollers, upper and lower spring-con-

nected bars journaled in the standards and on the axle, and shackles to connect the forward parts of said upper and lower bars to the shafts and to each other, substantially as described.

3. In a two-wheeled vehicle, the combination of the axle, the vertical parallel standards mounted on the axle, elastic rollers mounted between the lower ends of the standards, the shafts provided with springs at their rear end to engage the elastic rollers, the lower bars 19, journaled on the axle and having their forward ends projected upward and provided with clips to engage the shafts, the upper bars 23, yieldingly connected to the upper ends of the vertical standards, springs to connect the rear ends of said bars, and yielding fastenings to connect the forward end of the upper bars to the shafts and to the lower bars, substantially as described.

4. In a two-wheeled vehicle, the combination of the axle provided with two vertical standards at each end, rollers journaled in the lower ends of said standards, the upper and lower bars 19 and 23, having their rear ends connected by springs, springs on the lower bars having their free ends bearing on the rollers in the vertical standards, and the shafts arranged between and yieldingly connected to the said bars and having their rear ends yieldingly supported on the said rollers, substantially as described.

5. In a two-wheeled vehicle, the combination, with the axle, of vertical standards arranged at the ends of the axle and extending below the same, a cross-piece connecting the lower ends of the vertical standards, and springs mounted on the cross-piece to carry the body of the vehicle, substantially as described.

6. In a two-wheeled vehicle, the combination of the axle having vertical standards at its ends extending above and below the axle, the bars 19 and 23, connected by a spring at their rear ends, cross-bars connecting the lower bars, a cross-piece connecting the lower ends of the vertical standards, body-springs mounted on the cross-piece, and clips connecting the springs of the cross-pieces of the bars, substantially as described.

7. In a two-wheeled vehicle, the combination of the upper and lower bars having their rear ends connected by a spring, means, substantially as described, to support the bars on the axle of the vehicle, shafts arranged between the bars, and yielding connections to fasten the forward parts of the bars to the shafts and to each other, substantially as specified.

In witness whereof I have hereunto set my hand in the presence of two attesting witnesses.

NATHAN H. DAVIS.

Attest:

E. A. MCBEE,
J. A. MORNEY.