J. H. ROBINSON.
Side-Bar Wagon.

No. 196,041. Patented Oct. 9, 1877.

Fig: 1.

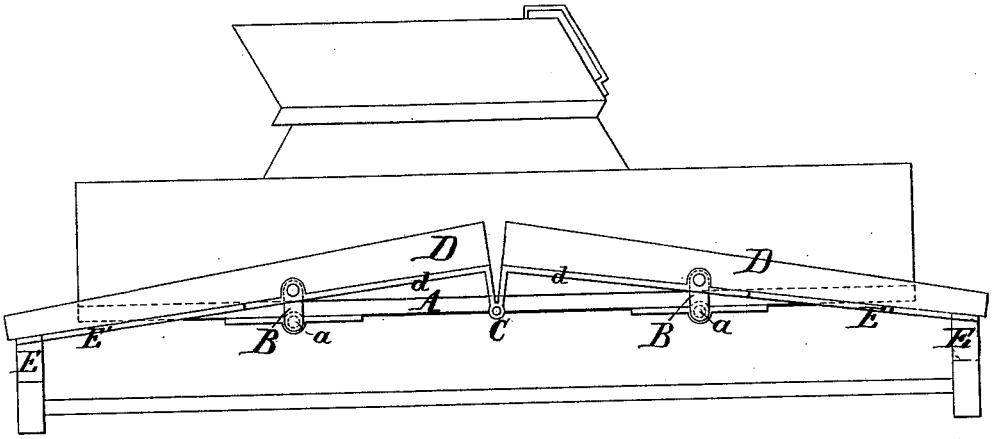
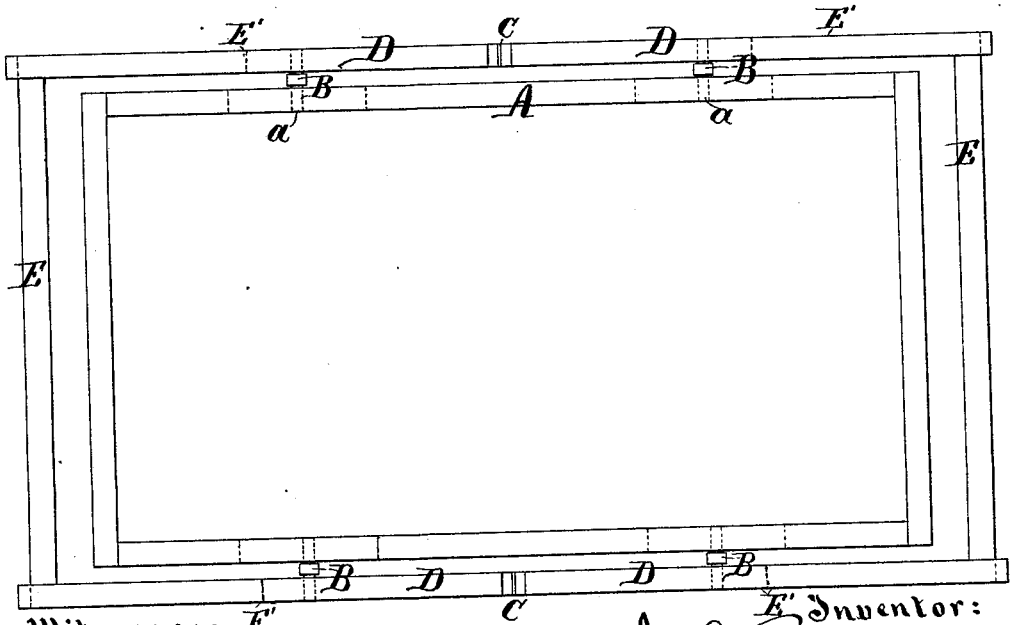


Fig: 2.



Witnesses:
A. Henry Gentner Jr.
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Inventor:
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UNITED STATES PATENT OFFICE.

JOHN H. ROBINSON, OF FALL RIVER, MASSACHUSETTS.

IMPROVEMENT IN SIDE-BAR WAGONS.

Specification forming part of Letters Patent No. **196,041**, dated October 9, 1877; application filed March 27, 1877.

To all whom it may concern:

Be it known that I, JOHN H. ROBINSON, of Fall River, Bristol county, in the State of Massachusetts, have invented certain new and useful Improvements in the Means for Hanging Carriages; and I do hereby declare that the following is a full and exact description thereof.

I suspend the body by short links, two on each side, to a hinged pair of bars lying nearly horizontal along each side, and firmly attached to the ends of half-elliptic springs lying over each axle. The carriage is supported by the torsional force of the springs when light.

When the load is so increased that the ends of the jointed bars abut together, the bars become rigid, and thenceforward the springs yield by flexure in the ordinary manner.

The following is a description of what I consider the best means of carrying out the invention.

The accompanying drawings form a part of this specification.

Figure 1 is a side elevation, showing the body of a light wagon mounted on springs according to this invention. Fig. 2 is a plan view, showing the frame of the wagon-body similarly mounted.

Similar letters of reference indicate like parts in both the figures.

A is the frame of the body, which, as also the body, seats, &c., may be of any ordinary or suitable construction. At two points under each side are eyes *a*, which form the connection for short crank-formed pieces B, serving as links to transfer the weight of the body to side bars D, which are each formed in two parts, as shown. Strong iron or steel straps *d* are riveted or otherwise secured on the under faces of the side bars D D. At the point where the two parts abut, these straps are turned downward, and united by strong knuckle-joints, the axis of motion being considerably below the body of the side bar.

E E are half-elliptic springs, formed with strong arms E′, extending backward from each end of the forward spring and forward from each end of the rear spring. The side bars are riveted to these arms.

The springs E, being made of sufficient width and thickness, and well tempered, serve both by their ordinary flexure and by their torsional or twisting action. All the parts not here referred to may be made in any ordinary or suitable manner.

The links B are of sufficient length to allow for the varying distance apart of the supporting centers as the hinged joints C at the centers of the side bars open and shut. The springs E with their arms E′ are so set that they tend to hold the joints C open. They tend to hold the parts of the side bars at an angle of about ten degrees with each other, and when the carriage is light they maintain about that position. As the carriage is loaded they sink down, twisting the springs E E′, which resist this torsional motion, but only to a moderate degree.

When the carriage is heavily loaded, the springs E E′ twist enough to allow the side bars to come down to or near a straight position. The ends of the two parts of each side bar now abut together, and any further sinking of the carriage-body and of the side bars is prevented by the joints C, which, from their low position, are well enabled to bear the strain.

When thus conditioned, any jolting of the carriage or motion of the occupants is accommodated by the workings of the springs E E, by simple flexure, in the ordinary manner.

The links B are mainly important in allowing for the relative changes of positions of the centers on the body, and on the side bars as the hinges C work. But they are also of some service in allowing a slight forward and backward swing for the carriage-body.

I provide efficient metallic eyes or bushed holes in the side bars to receive the bearings of the links B, and clinch the ends of the bearings upon washers or clinch-rings to keep the parts properly together, taking care to leave the proper motion of the links unobstructed.

Many modifications may be made in many of the details.

The side bars may be of metal, if preferred, being in such case mere extensions of the arms E′, with the proper holes to receive the links B′, and the properly formed ends to form the joints C. Or the arms E′ may be greatly shortened or omitted altogether; but in such case the side bars must be rigidly united to the springs by such clips or other means, as will compel the springs to twist as the hinges C open and close.

Rubber or other suitable elastic material may be inserted in the joint C, or rather between the abutting ends of the side bars D. The springs E may be made with leaves to re-enforce the centers; but it is important that the upper plate be of sufficient thickness and width to resist the torsion.

The center of each spring E may be widened or provided with a lateral arm, if desired, to assist in holding it against the torsional strain.

Instead of a hinge at the connections C, a spring on a slide motion can be used.

I claim as my invention—

1. The springs E, rigidly secured to the partial side bars D, so as to cause the springs to act torsionally, in combination with connections B, attaching the side bars to the carriage-body A, as herein specified.

2. The hinges C, connecting the partial side bars D D, in combination with such side bars and with the springs E, links B, and body A, as herein specified.

3. The crank-pieces B, in combination with the body A and hinged side bars C D, adapted both to accommodate the opening and closing of the hinges C, and to allow a slight pendulous motion of the body, as herein specified.

In testimony whereof I have hereunto set my hand this 16th day of March, 1877, in the presence of two subscribing witnesses.

JOHN H. ROBINSON.

Witnesses:
IVORY P. LOWE,
JAMES THOMPSON.