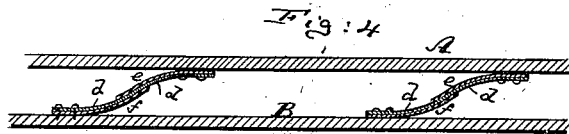
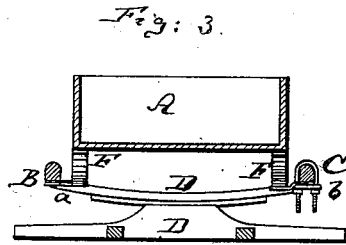
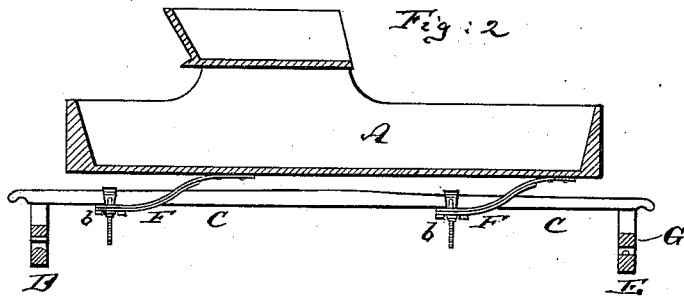
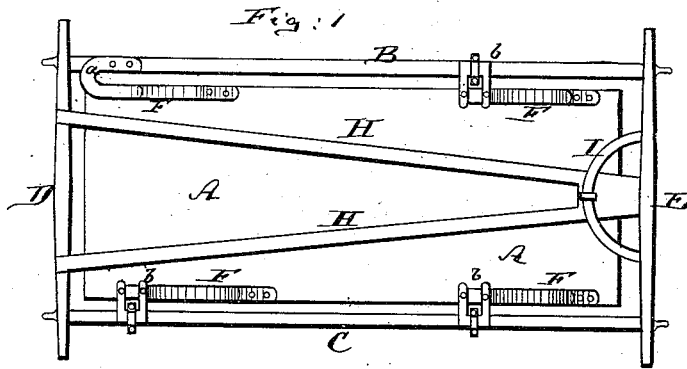


T. H. WOOD.
SIDE-BAR WAGONS.

No. 193,792.

Patented July 31, 1877.



Witnesses

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UNITED STATES PATENT OFFICE.

THOMAS H. WOOD, OF FLUSHING, ASSIGNOR TO J. B. BREWSTER & CO., OF
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IMPROVEMENT IN SIDE-BAR WAGONS.

Specification forming part of Letters Patent No. 193,792, dated July 31, 1877; application filed
January 18, 1877.

To all whom it may concern:

Be it known that I, THOMAS H. WOOD, of Flushing, in the county of Queens and State of New York, have invented a new and Improved Side-Bar Wagon, of which the following is a specification:

Figure 1 is a bottom view of a wagon-body which is provided with this improvement. Fig. 2 is a vertical longitudinal section of the same; Fig. 3, a vertical transverse section thereof. Fig. 4 is a detail longitudinal section of a modification thereof.

Similar letters of reference indicate corresponding parts in all the figures.

This invention consists in combining the body of a carriage, wagon, or other vehicle having a fifth-wheel and front steering-axle, with two or more longitudinal springs on each side, said springs projecting obliquely upward from the side bars, or from fixtures attached to said side bars, to the carriage-body. All the springs on the same vehicle-body slant in the same direction. The upper end of each spring is attached to the body, and the lower end to the side bars, or to fixtures or rods projecting therefrom, the side bars being in front connected with a head-block under which the front axle is swiveled by a fifth-wheel.

In the drawing, the letter A represents the vehicle-body. B and C are the two side bars, which are supported on the rear axle D and front head-block G. The rear axle is, by a stiff reach, H, connected rigidly with the front head-block. The latter rests in the front axle, which is swiveled beneath the head-block, and provided with a fifth-wheel, I, in the usual manner.

F F are the springs, that connect the vehicle-body with the side bars. There are at least two such springs on each side bar. Each spring F projects upwardly from the side bar to the under side of the carriage-body, and stands obliquely between the two, as clearly indicated in Fig. 2. The upper end of each spring is bolted or otherwise fastened to the vehicle-body, while the lower end is either directly fastened to the side bar, as in Fig. 4, or where, as in Figs. 1, 2, and 3, the side bars are placed beyond the sides of the vehicle-body, the lower end of the spring is attached

to a suitable rod or fixture, *a* or *b*, which projects laterally from the side bar, as shown; or, in lieu thereof, the upper end of the spring may be secured to a fixture projecting from one side of the vehicle-body. All four springs F F which thus connect with the under side of the vehicle-body slant in the same direction—in fact they are substantially parallel, as indicated.

The springs are preferably leaf-springs, as shown, and I prefer the construction shown in Fig. 4, which shows each spring to consist of a central leaf, *d*, of full length, and of upper and lower lap-leaves *e* and *f*, of shorter length. The upper end of the upper lap-leaf *e* is, together with the upper end of the long leaf *d*, fastened to the vehicle-body. In like manner the lower end of the lower lap-leaf *f* is, together with the lower end of the long leaf *d*, fastened to the side bar, or to the fixture, *a* or *b*, projecting therefrom; but the lower end of the upper lap-leaf and the upper end of the lower lap-leaf are loose, and bear against the middle leaf *d*.

By this arrangement the spring is rendered very elastic, and is not apt to be injured by strain; yet at the same time it is stronger than the middle leaf *d*, which directly connects the vehicle-body with the side bar.

Where still greater strength is desired, the inner leaf, *d*, may be duplicated *ad libitum*, retaining, however, the system of upper and lower lap-leaves.

The advantages of my arrangement of spring, as regards the parallel position of the obliquely-upright springs F over the ordinary cross-springs used on side-bar wagons, is, that the said cross-springs, whenever the vehicle-body is depressed by weight, are liable to become unfastened from the clips that secure them to the side bars, as their angle to said side bars is varied by the up-and-down motion of the body. With my springs the fastenings are never strained.

Another advantage of my invention is, that my springs can be used of the same length for wider and narrower wagon-bodies, while transverse springs have to be made of a length to suit each particular carriage.

As compared with the springs used as pro-

longations of side bars, mine are superior, as they are never exposed to longitudinal strain, while those which project from opposite ends of the side bars are apt to counteract the action of one another whenever the carriage-body is depressed.

This carriage, though properly supported on the side bars, does not in the least interfere with the proper motion of the front axle in steering.

I claim as my invention—

1. The spring F, composed of the main inner leaf *d*, and of the upper and lower lap-leaves *e* and *f*, said lap-leaves being on opposite sides of the inner leaf and loose at their

inner ends, substantially as herein shown and described.

2. The combination of the vehicle-body A and side bars B C with four or more oblique springs, F F, and with the rear axle D, reach H, head-block G, and fifth-wheel I, the four springs being all parallel with one another, and vertically interposed between the side bars and the vehicle-body, substantially as specified.

THOMAS H. WOOD.

Witnesses:

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