W. F. VERNIER.

Carriage Spring.

No. 84,446. Patented Nov. 24, 1868.

Fig: 1.

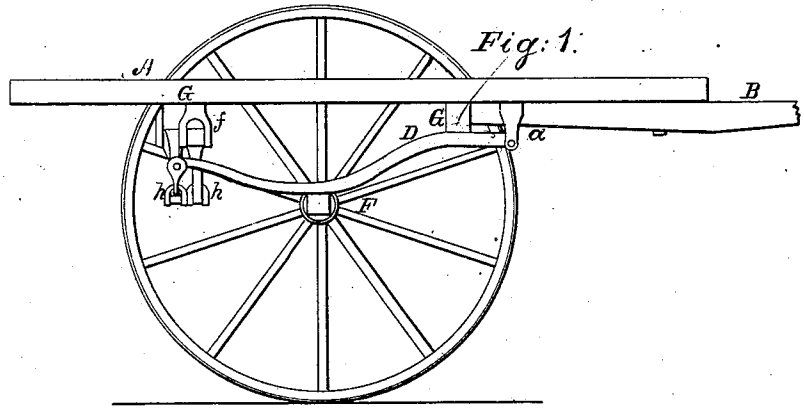


Fig: 2.

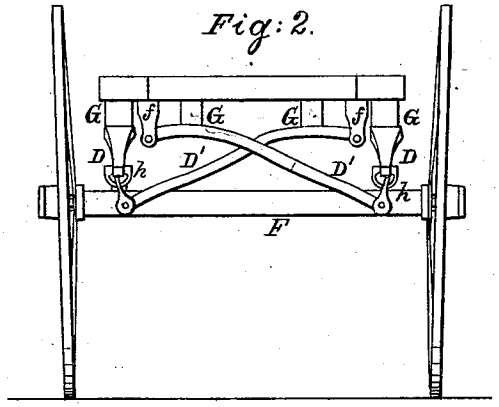


Fig: 4.

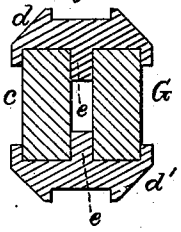
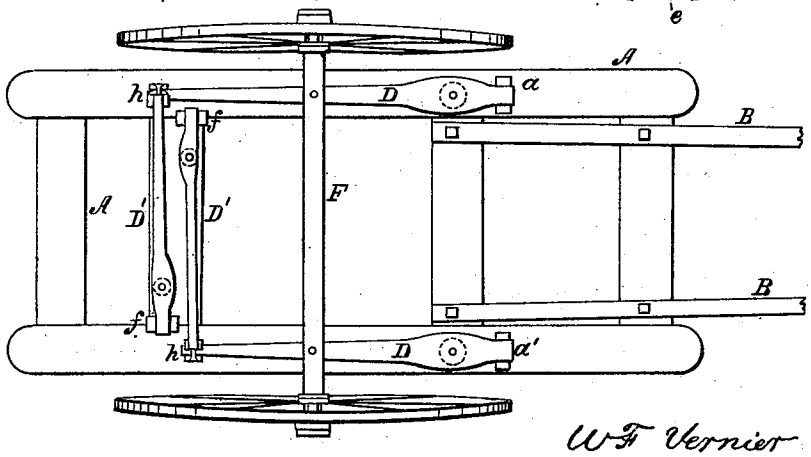


Fig: 3.



Witnesses { Wm. A. Steel. John Parker.

Wm F Vernier by his Attys Henry Howson

United States Patent Office.

WILLIAM F. VERNIER, OF PHILADELPHIA, PENNSYLVANIA.

Letters Patent No. 84,446, *dated November* 24, 1868.

IMPROVEMENT IN CARRIAGE-SPRINGS.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, WILLIAM F. VERNIER, of Philadelphia, Pennsylvania, have invented certain Improvements in Spring-Carriages; and I do hereby declare the following to be a full, clear, and exact description of the same.

My invention consists, first, of a certain arrangement of levers, by which the body of a carriage is connected to the axle, and, secondly, of gum-elastic springs, constructed as fully described hereafter, which intervene between each of the said levers and the body of the carriage, and upon which the latter rests.

In order to enable others skilled in the art of carriage-building to make and apply my invention, I will now proceed to describe its construction and operation, reference being had to the accompanying drawing, which forms a part of this specification, and in which—

Figure 1 is a side view of a carriage, with one of the wheels removed, to more clearly show my improvements.

Figure 2, a rear view of the same.

Figure 3, an inverted plan view, and

Figure 4, an enlarged sectional view of one of the springs.

Similar letters refer to similar parts throughout the several views.

A is a frame, which forms a part of the body of a carriage, and

B B are the shafts secured to the same.

On the under side, and near to the front end of this frame, are two hangers, *a* and *a'*, to which are hung the levers D D, and the axle F of the carriage is secured to the under side of these levers, as plainly shown in the drawing.

Between each of the levers and the frame of the carriage intervenes a spring, G, which, as shown in fig. 4, consists of a perforated gum-elastic cylinder, *c*, held between two recessed disks, *d* and *d'*, one of which is secured to the frame and the other to the lever, the gum spring being held in its place, as the disks are moved toward or from each other, by central pins, *e*, of the disks which enter the hole in the spring.

To hangers, *f f*, at opposite sides of the rear end of the frame, are hung cross-levers, D' D', each of which is connected, by a link, *h*, to the rear end of one of the levers D, and a spring, G, similar to that above described, intervenes between each of these cross-levers and the frame of the carriage.

The whole weight of the body of the carriage is thus borne by the gum-elastic springs, and transmitted from them to the axle F, through the medium of the levers.

The action upon the springs being in every case a direct downward pressure, they work more perfectly and are less liable to get out of order than if submitted to strains from any other point.

Another advantage of my invention, arising from the peculiar combination and arrangement of levers, is the fact that a weight placed upon one corner or other extreme point of the frame, will not unduly depress the latter at that point, but will press almost as evenly upon the springs as if it were equally distributed among them.

A third advantage gained by thus connecting the springs and levers together is the regular undulating motion given to the body of the carriage in passing over rough roads, instead of the swaying motion that would result if disconnected levers were employed.

Although I have shown my invention as applied to a carriage with two wheels only, it will be readily understood, by those skilled in the art of carriage-building, that my improvements may be applied to four-wheeled carriages with the same advantages as those described above.

I claim as my invention, and desire to secure by Letters Patent—

1. In combination with the axle and frame of a carriage, the lever D, having its fulcrum at *a*, and the gum-elastic spring G.

2. In combination with the above, the cross-levers D', with their gum-elastic springs, arranged substantially as and for the purpose set forth.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

WILLIAM F. VERNIER.

Witnesses:

JOHN WHITE,

HARRY SMITH.