

(No Model.)

S. GILBERT.
CARRIAGE SPRING.

No. 320,926.

Patented June 30, 1885.

Fig. 1.

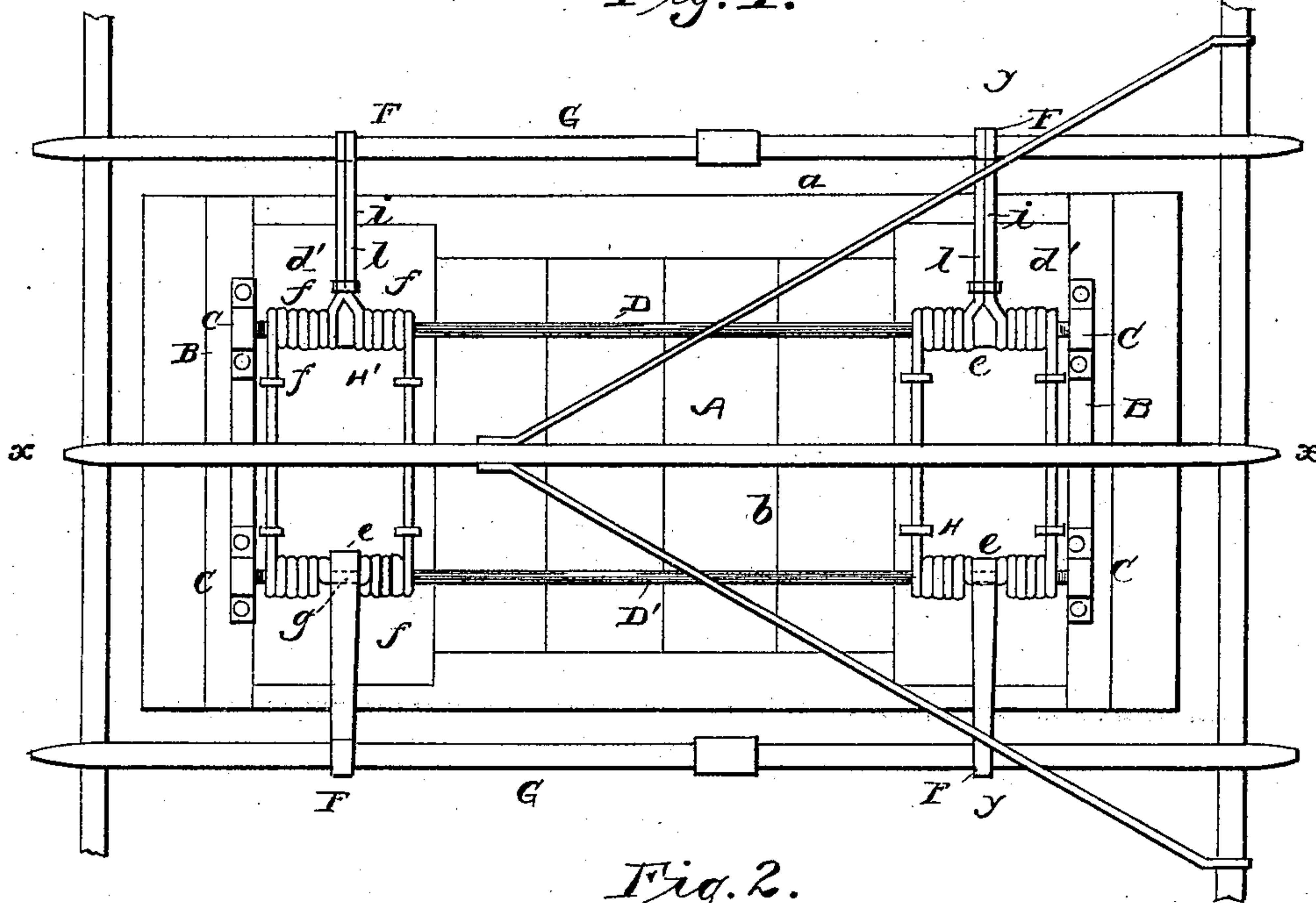


Fig. 2.

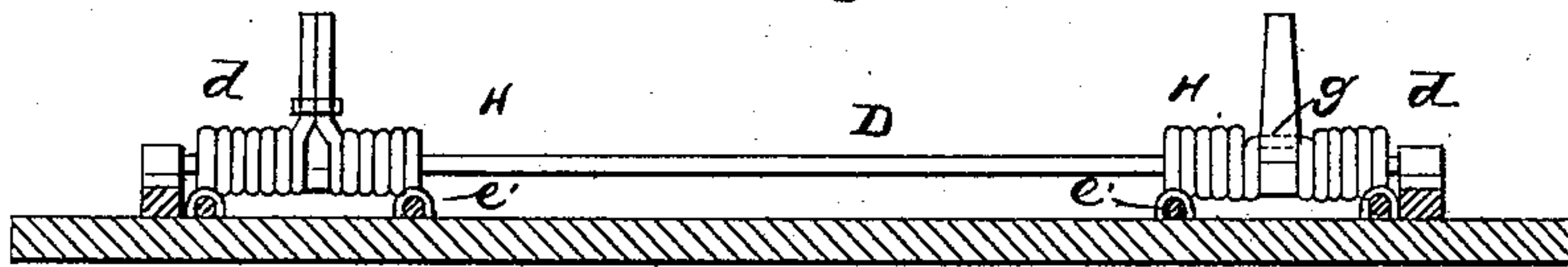


Fig. 3.

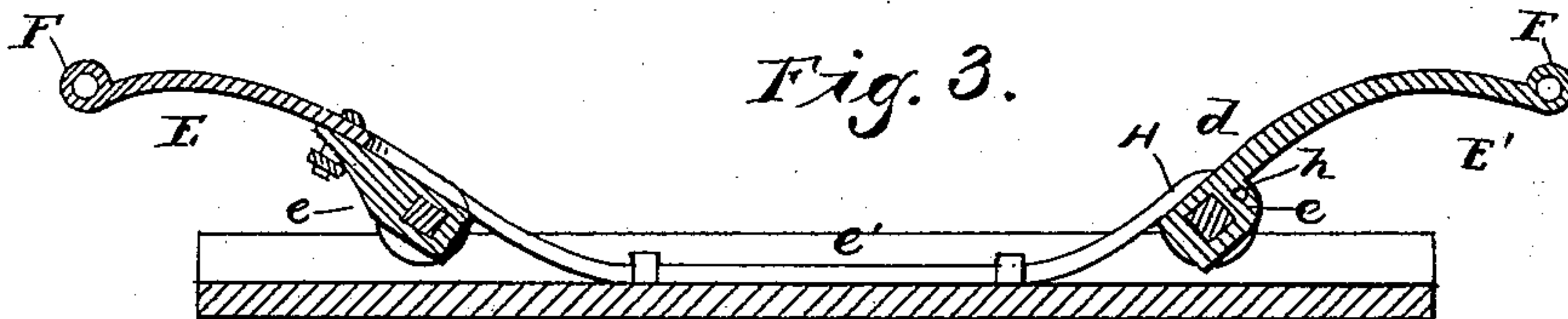
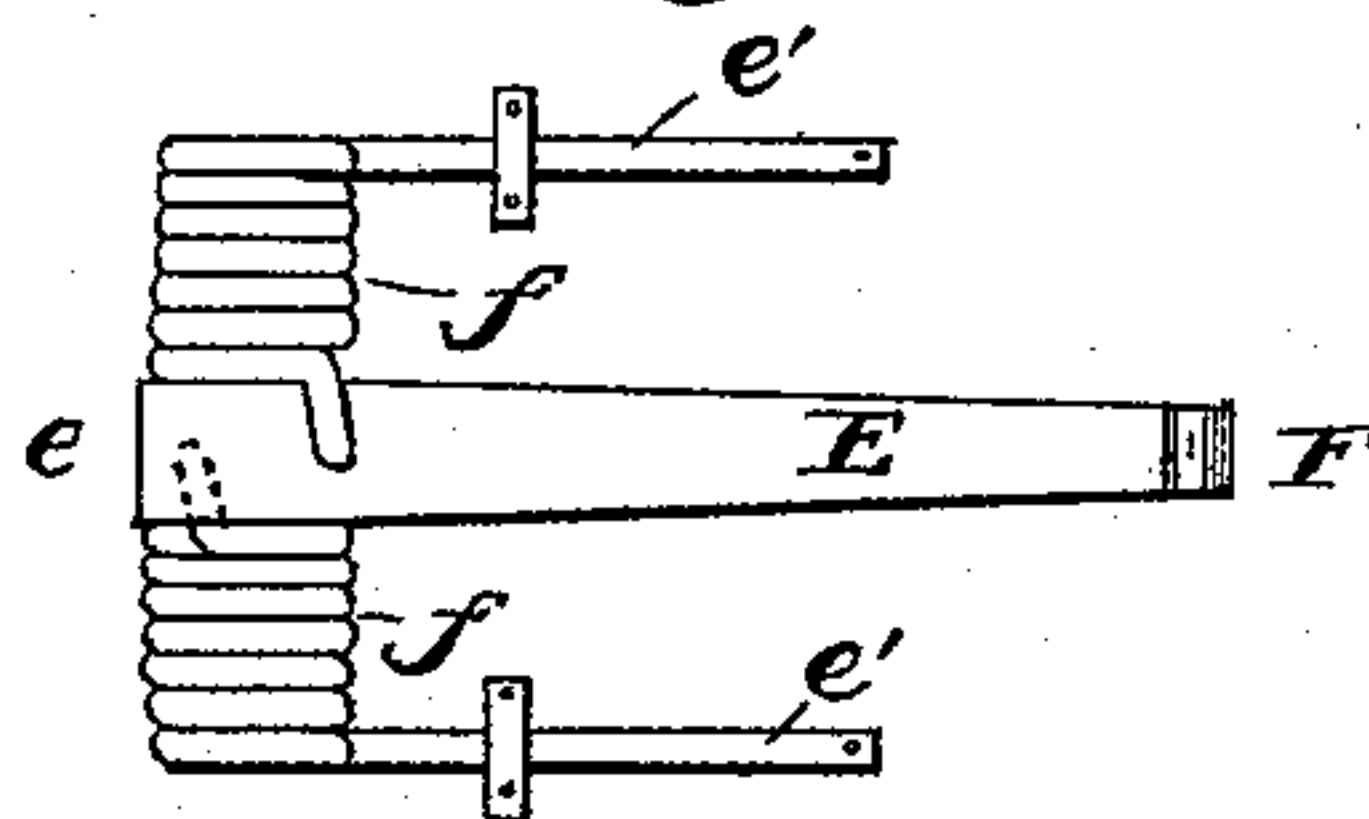


Fig. 4.



WITNESSES

W. R. Mortimer.
Edward G. Siggers.

Selden Gilbert
INVENTOR

by *C. A. Snow*
Attorneys

UNITED STATES PATENT OFFICE.

SELDEN GILBERT, OF NEW HAVEN, CONNECTICUT.

CARRIAGE-SPRING.

SPECIFICATION forming part of Letters Patent No. 320,926, dated June 30, 1885.

Application filed October 1, 1884. (No model.)

To all whom it may concern:

Be it known that I, SELDEN GILBERT, a citizen of the United States, residing at New Haven, in the county of New Haven and State of Connecticut, have invented a new and useful Improvement in Carriages and Wagons, of which the following is a specification, reference being had to the accompanying drawings.

10 This invention relates to carriages and wagons, and especially to that class of the same which employ what are termed as "side bars;" and it has for its object to provide a safe, easy, non-rebounding spring for the same
15 which becomes stronger as the weight placed upon it is increased, which secures an easy and pleasant action, so as to prevent the pitching of the body by the sudden movement of the horse or by unevenness in the
20 road, and which is capable of resisting considerable strain without the possibility of being broken.

With these ends in view the said invention consists in certain details of construction and
25 combination of parts, as hereinafter set forth, and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a bottom view of the running-gear of a wagon constructed in accordance with my invention.
30 Fig. 2 is a longitudinal sectional view of the same on the line *x x*. Fig. 3 is a transverse sectional view on the line *y y*, Fig. 1. Fig. 4 is a detail view of a modification.

Like letters are used to indicate corresponding parts in the several figures.

35 Referring to the drawings, A designates the body of the wagon, consisting, of the raised outer frame, *a*, and depressed platform or bottom *b*, which is secured to the said frame.
40 Projections B B extend from the bottom of the platform *b*, at each end of the same, and to the said projections are secured boxes C C, (preferably leather-lined,) which boxes form bearings for the ends of evening-rods D D',
45 extending longitudinally along the under side of the body and arranged parallel with each other. These rods are made round or square, as desired, and are preferably two in number, and arranged on opposite sides of the body, so
50 as to connect at each end with the coil-springs of the running-gear.

Fixed on the ends of the parallel evening-rods D are curved arms E E', provided with an enlargement, *e*, at their inner ends, and their outer ends curved upward and connecting by a shackle, F, with the side bars, G, of the vehicle. 55

H designates the spring, consisting of end coils, *d d*, connected by transverse arms or bars *e' e'*, which are clipped to the under side 60 of the platform *b*. Each end coil comprises two divisions or branches, *f f*, formed of a series of coils or twists, the inner twist or coil of each branch *f* extending longitudinally to form a U-shaped bend, *g*, the central portion 65 of which is received in an eye or opening, *h*, provided in the enlarged portion *e* of the arms E E. As seen, the arms *e'* terminate at their ends in the outer coils of each branch *f*, and thus the entire spring may be formed in a 70 single piece of metal.

The construction just described differs somewhat from that shown in Fig. 1, by reference to which it will be observed that one of the end coils *d* is different in construction from 75 the other. This end coil, designated as *d'*, has no central-division bend *g* fitted in an eye of the arms E, but the inner coils or twists of each branch *f* are extended outward in a parallel line, as at *i*, and clipped together, as 80 shown. These extended ends *i* of the coil *d'* are connected at their outer ends by a shackle with the side bars, the arms E being fixed on the evening-rod D and clipped at its outer end to the central portion of the extended ends *i*. 85

The operation of my invention will be readily understood from the foregoing description taken in connection with the annexed drawings. As seen, the evening-rods D D work in their bearings or boxes C C and have the end 90 coils, *d d'*, of the spring mounted at the ends thereof, the arms or bars *e'* of the spring being clipped to the under side of the platform or bottom *b*. The curved arms E are connected by the usual shackle to the side bars and 95 are fixed on the rods D. In some cases I may connect the arms E with the end coils by the central bend, *g*, or said arms may be clipped to extended ends of the coils. In either case the same object is attained, the movement of 100 the body causing the curved arms E to work the rods D in their bearings or boxes, and

also partially winding the end coils of the spring. It will be observed that when the body is depressed by a heavy load the arms E are worked upward, and since said arms are fixed on the evening-rods D the latter are turned in their boxes or bearings. The movement of the arms, by reason of their connection with the end coils of the spring, causes said coils to be wound slightly, and in this manner an easy pleasant motion is given to the vehicle. When the horse moves suddenly, or while driving over rough roads, the arms E will turn the evening-rods and partially wind the end coils in a similar manner, thereby obviating the unpleasant and objectionable pitching of the body.

In the drawings I have shown my improvement applied to a side-bar vehicle, to which it has special adaptation; but it will be apparent that I may apply it to other styles of vehicles as deemed desirable. The winding of the end coils of the spring is so slight that there cannot be any breakage from that cause, and for the purpose of making the spring at the forward end of the body more flexible than the other, I prefer to form the end coils of the same with more twists than the other.

I do not confine myself to mere details of construction, since the construction of the parts may be varied without departing from the spirit of the present invention.

The main feature of my improvements is the evening-rods connecting the coils of the spring, causing them to act together in whatever manner the attachment is made. These evening-rods take the strain off the spring and cause the same to become stronger as the weight of the body is increased. The spring itself cannot possibly become broken, as it is non-rebounding, while in use the evening-rods keep the body of the carriage even both forward and back.

As stated before, the construction of the spring may be modified without materially altering the nature of the present invention.

My improvements provide a serviceable, inexpensive, and easy-riding wagon or carriage, which will readily stand the varying loads subjected to vehicles of this class, and which will prove of great utility and benefit for the purposes intended.

In Fig. 4 is illustrated a modification of the spring. The curved arm E is of the same form and construction; but instead of the end coils of the spring being in one piece each side or branch *f* may be coiled from a separate piece starting from the transverse arms or bars *e' e'*, then coiling around the evening-rod and terminating at the inner end of the arm E. As seen, one of the branches *f* connects with the arm on one side of the evening-rod, while the other connects with the same on the opposite side, one branch offsetting or equalizing the other in the action on the rod. This attachment prevents the coil from being drawn against the rod in action.

Having described my invention, I claim—

1. In a vehicle, the combination, with the body, of the springs secured to the bottom thereof, and having a coiled or twisted portion, and evening-rods passing through said coiled or twisted portion and journaled at their ends, for the purpose set forth.

2. In a vehicle, the combination, with the body, of the coiled springs secured to the bottom thereof, evening-rods passing through the coils of said springs, and curved arms fixed on the rods and connecting with the coils, for the purpose set forth.

3. In a vehicle, the combination, with the body, of the springs secured to the underside thereof, evening-rods journaled to the body, and arms connecting the arms and springs to the side bars, as set forth.

4. In a vehicle, the combination, with the body, of the coil-springs secured to the bottom thereof at each end, and having their coils running longitudinally with the body, and parallel evening-rods passing through the coiled portion of the springs and journaled to the bottom, for the purpose set forth.

5. The herein-described spring, comprising the end coils and transverse connecting bars or arms, all formed in one piece, as set forth.

6. The herein-described spring, comprising the end coils and transverse connecting bars or arms, each coil consisting of two twisted branches or portions separated from each other, the entire spring being formed in a single piece, as set forth.

7. In a vehicle, the combination, with the body, of the parallel evening-rods journaled in boxes secured to the under side of the body, the springs mounted on the rods and attached to the body, and arms fixed on the rods and connected to the springs, the said arms being suitably attached to the side bars of the vehicle, as set forth.

8. In a vehicle, the combination, with the body, of the parallel evening-rods journaled to the under side of the same, arms fixed on the ends of the rods, springs having end coils mounted on the rods and connected with the arms, and transverse bars for connecting the coils, which bars are attached to the body, as set forth.

9. In a vehicle, the combination, with the body, of the parallel evening-rods journaled in the under side thereof, the springs secured to the body and mounted on the rods, and arms fixed on the rods and connecting with the springs on opposite sides of the rods so as to offset or equalize the action on the rods, for the purpose set forth.

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

SELDEN GILBERT.

Witnesses:

SAML. LLOYD,
GEORGE E. FRISBIE.