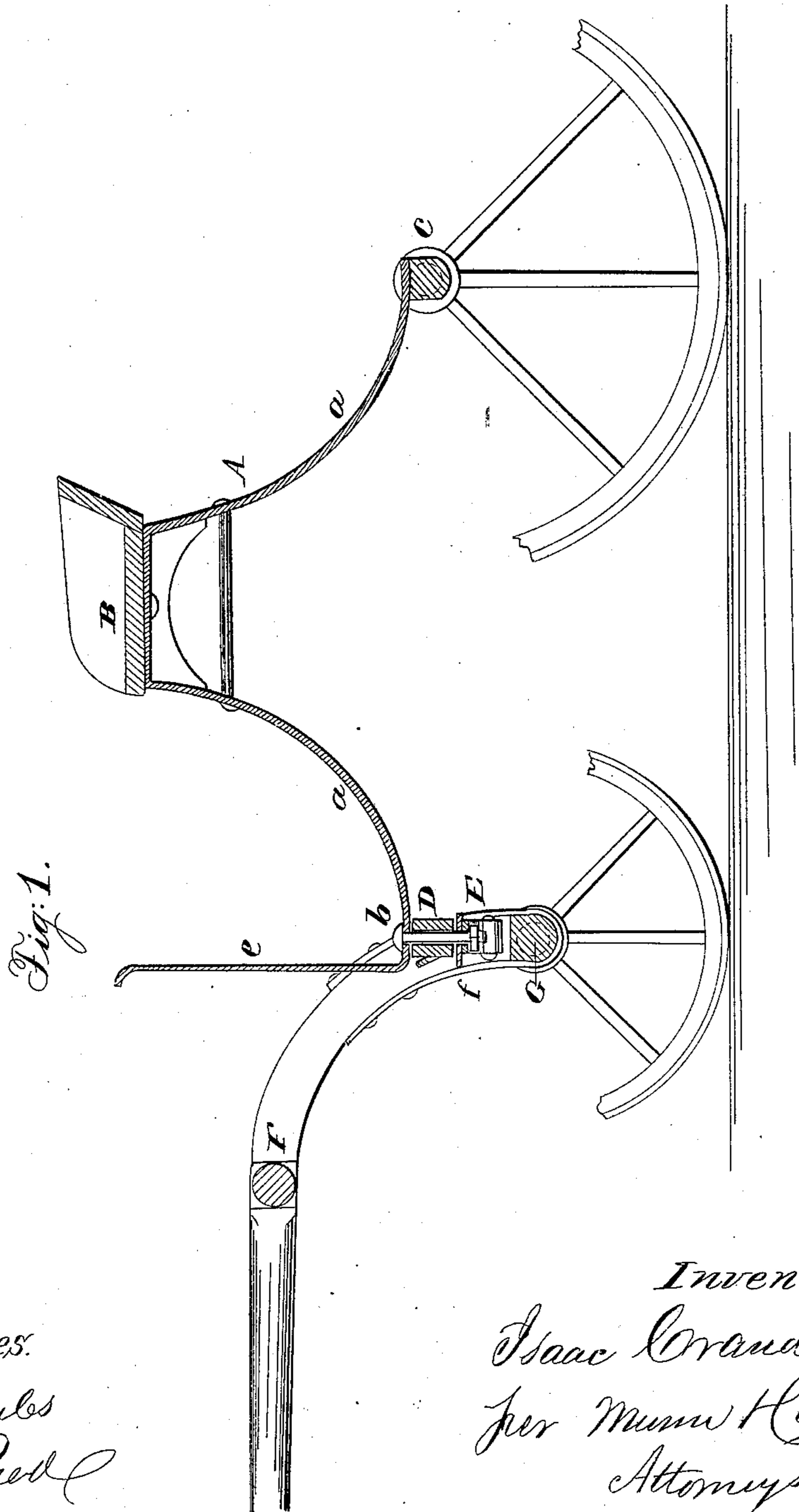


I. CRANDAL.
Carriage-Spring.

No. 34,350.

Patented Feb. 11, 1862.



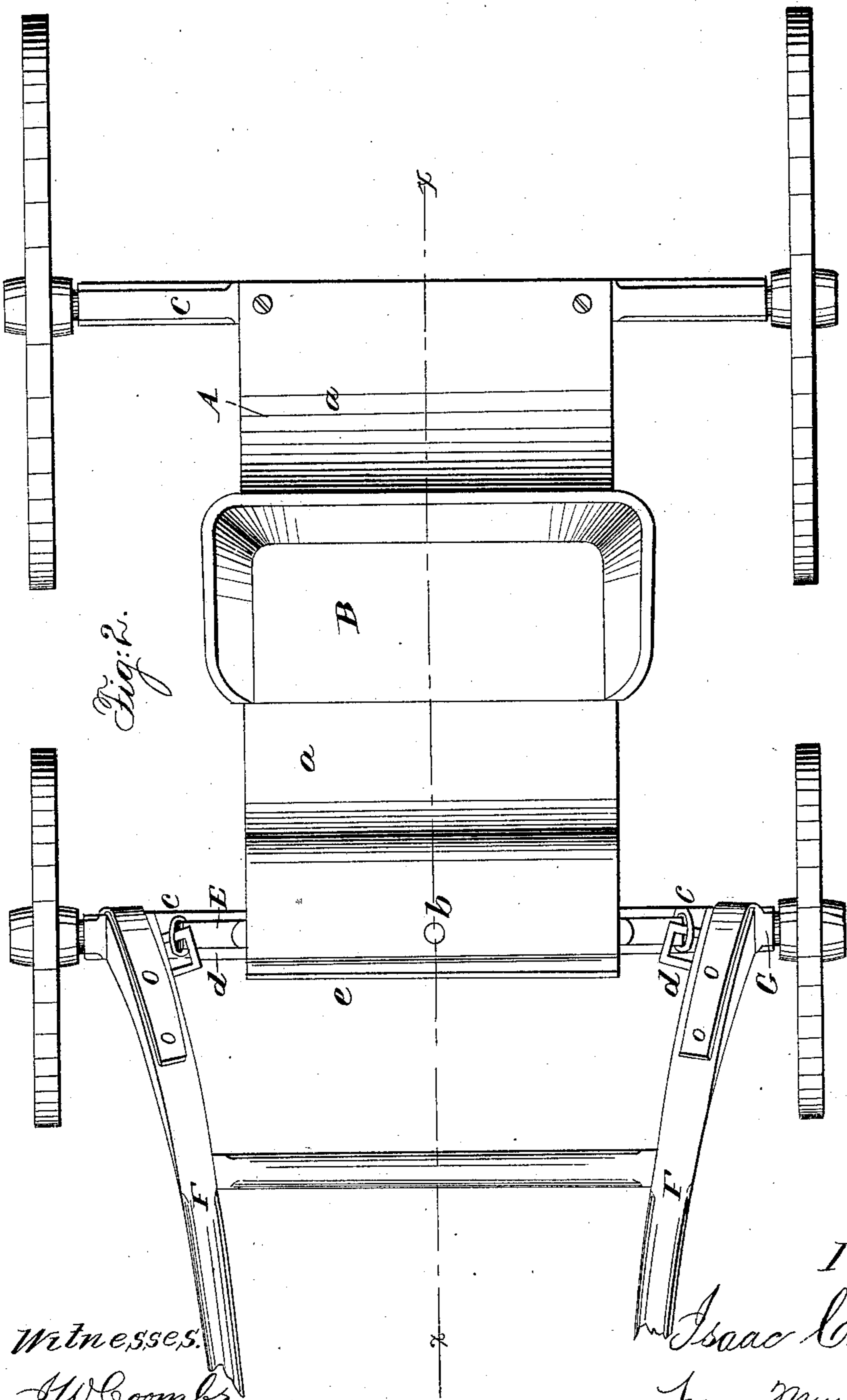
Witnesses:
J. W. Coombs
G. M. Reed

Inventor
Isaac Orandal
per Mum & Co
Attorneys

I. CRANDAL.
Carriage-Spring.

No. 34,350.

Patented Feb. 11, 1862.



Witnesses.

J. W. Coombs
G. W. Reed

Inventor:

Isaac Crandal
per Munn & Co
Attorneys

UNITED STATES PATENT OFFICE.

ISAAC CRANDAL, OF MIDDLEFIELD, NEW YORK.

IMPROVEMENT IN PLEASURE-WAGONS.

Specification forming part of Letters Patent No. 34,350, dated February 11, 1862.

To all whom it may concern:

Be it known that I, ISAAC CRANDAL, of Middlefield, in the county of Otsego and State of New York, have invented a new and useful Improvement in the Construction of Pleasure-Wagons; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a side sectional view of a wagon constructed according to my invention, *xx*, Fig. 2, indicating the plane of section; Fig. 2, a plan or top view of the same.

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

The object of this invention is to construct pleasure-wagons or light wheel vehicles in such a manner that they will be strong and durable, extremely light, of easy draft, and the expense of construction materially reduced below that of ordinary vehicles.

The invention consists in having the body of the vehicle made elastic or in such a manner that it will yield or give, and having the front part of the vehicle connected to a spring which is secured between the back parts of the thills, the latter being permanently attached to the front axle, and all arranged as hereinafter shown and described to effect the desired end.

To enable those skilled in the art to fully understand and construct my invention, I will proceed to describe it.

A represents the body of the vehicle, which is constructed of two parts *a a*, of curved form, and having their upper ends attached firmly to the bottom part of the seat B. The parts *a a* are constructed of a tough elastic wood, (hickory would answer a good purpose,) and the back part *a* of the body is attached directly to the back axle C.

The front part *a* of the body A has a bolster D attached to its under side, and a king-bolt *b* passes centrally through said bolster and through a spring E, which is of semi-elliptic form, such as are commonly termed "half-springs." The ends of this spring E are connected by loops *c* to eyes *d d*, which are attached to the inner parts of the thills F, as shown clearly in Fig. 2, and the back ends of the thills are permanently attached

to the front axle G. A dash-board *e* is secured to the front end of the front part *a* of the body A.

By this mode of construction I dispense with the perch or reach and the braces connected with it. The back bolster is also dispensed with, as well as most of the parts pertaining to the "fifth-wheel," a small circle-plate *f* being only used, and that is attached directly to the center of the spring E.

The elastic parts *a a*, forming the body, in connection with the spring E, give the vehicle a requisite degree of elasticity to insure ease to the rider, much more so than the ordinary rigid bodies.

The suspending of the spring E between the back parts of the thills F admits of the thills working under the action or motion of the horse without in the least affecting the perfect action of the spring.

The construction, it will be seen, is extremely simple, there being but few parts, and those not liable to get out of repair nor become deranged by use.

This invention has been practically tested and found to answer an excellent purpose, the reduction in cost being very considerable, while they have proved to be extremely strong and durable and very agreeable to ride in.

I would remark that in order to prevent the two parts *a a* of the body A being unduly depressed and distended under the action of the weight which it may contain a strap or check may be used and attached longitudinally to the ends of said parts *a a*, the check being placed longitudinally underneath the body A.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

Forming the body A of the vehicle of two elastic parts *a a*, attached, one part to the back axle *c*, and the other by a king-bolt *b* to a spring E, which is fitted or suspended between the back parts of the thills F, the latter being attached permanently to the front axle G, and all arranged as and for the purpose set forth.

ISAAC CRANDAL.

Witnesses:

L. E. BOWE,
LEVI CRANDALL.