

(No Model.)

W. M. GRAHAM.  
TWO WHEELED VEHICLE.

No. 369,987.

Patented Sept. 13, 1887.

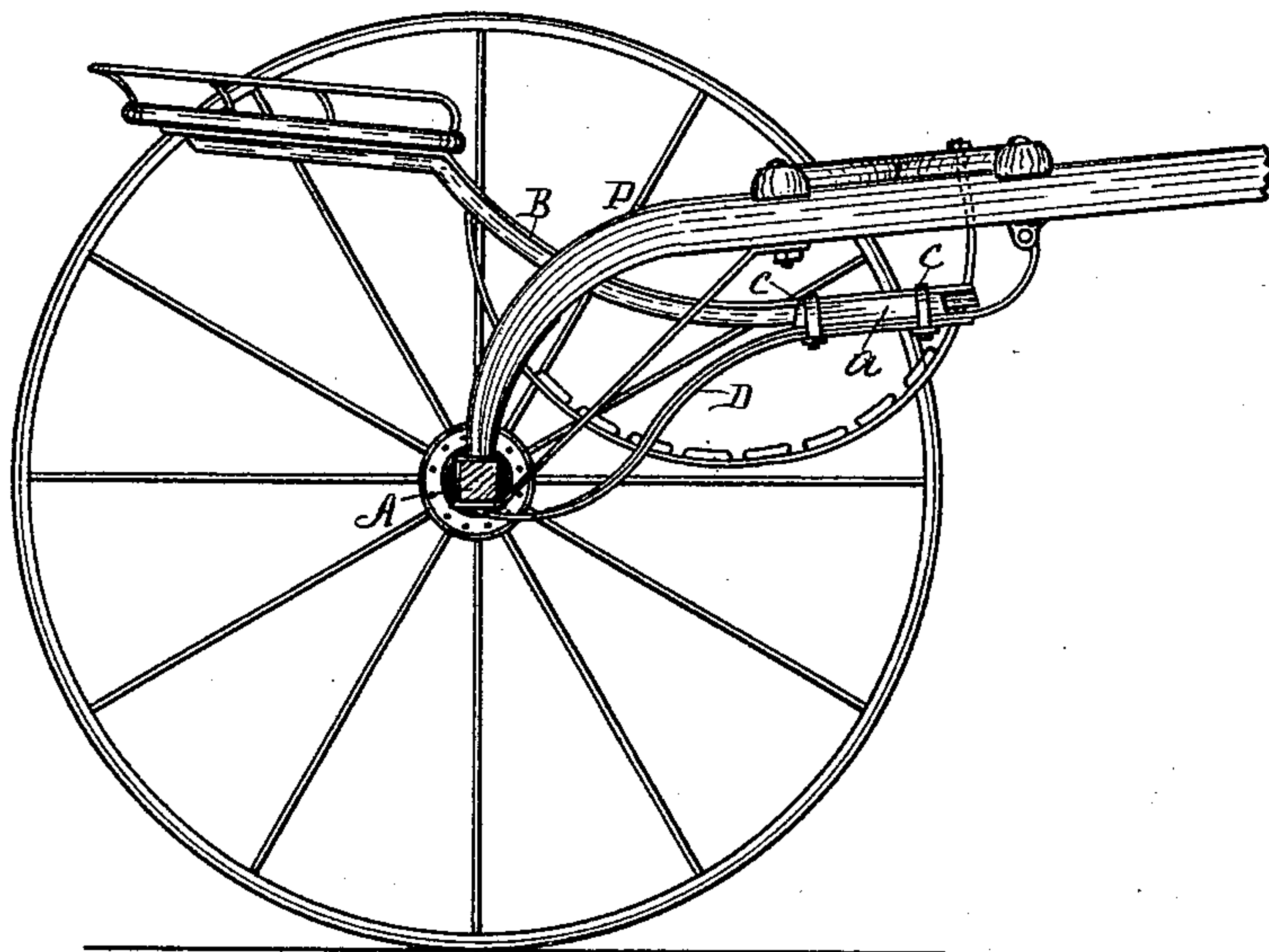


Fig. 1

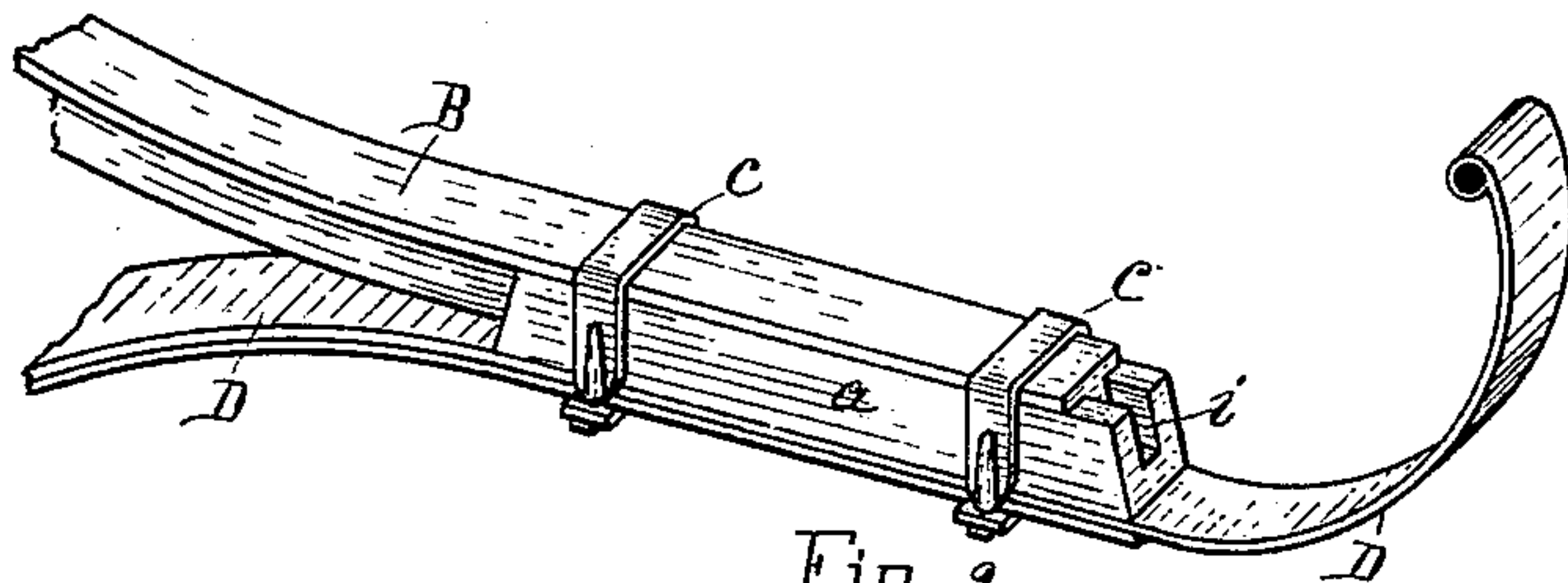


Fig. 2

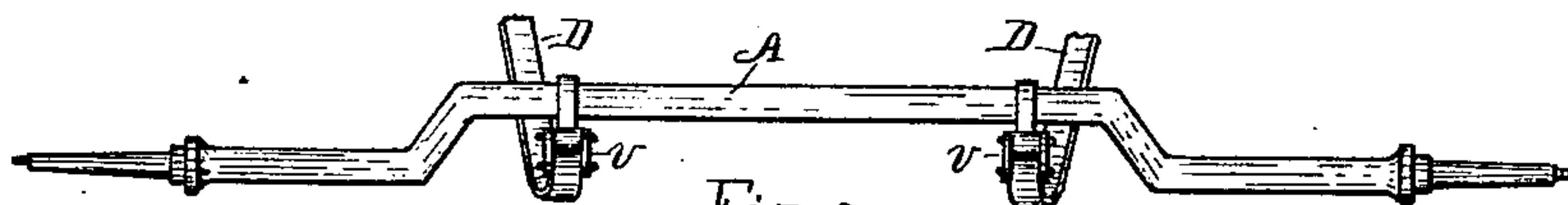


Fig. 3

Witnesses.

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# UNITED STATES PATENT OFFICE.

WILLIAM M. GRAHAM, OF KALAMAZOO, MICHIGAN.

## TWO-WHEELED VEHICLE.

SPECIFICATION forming part of Letters Patent No. 369,987, dated September 13, 1887.

Application filed May 16, 1887. Serial No. 238,357. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM M. GRAHAM, a citizen of the United States, residing at Kalamazoo, county of Kalamazoo, State of Michigan, have invented a new and useful Two-Wheeled Vehicle, of which the following is a specification.

This invention relates to the ordinary class of two-wheeled vehicles having seat-bars suspended over the axle; and it has for its object certain improvements below described and claimed.

In the drawings, forming a part of this specification, Figure 1 is a side elevation, with one wheel removed; Fig. 2, enlarged lettered details in perspective; and Fig. 3 shows a rear view of parts looking from a point at the left of Fig. 1.

Referring to the lettered parts of the drawings, the spring D is hinged to the thill P, or thill cross-bar, from thence curves downward and rearward, forming the straight portion which bears the block *a*, and extends thence to the axle A, in something like the form of an elongated letter S. The springs are hung from the axle by links *v*, Fig. 3, pendent from the central arched portion of said axle. The seat-bars B, preferably T metal, are attached to the straight portion of the springs D, at the forward end of said bars, by means of the confining-clips C, Fig. 2.

When the seat-bars are T metal, I employ a block, *a*, fitted to the straight portion of the spring, and grooved to receive the lower flange of the T-bars. By this means the seat-bars are held firmly attached to the springs without danger of rocking or canting out of proper position.

The action of the spring D when subjected to the downward pressure of the weight of the rider is to spring downward between its points of attachment at the ends. The weight of the rider also exerts a leverage on the forward end of the spring, the effect of which is to raise up on the thills P. For this reason it becomes necessary in constructing the vehicle

to locate the seat at a point over the axle, or rather above the axle, in conformity with the weight of the rider, so that a heavy person will not exert too great a leverage upward on the thills to unduly raise the same. This may be accomplished by particular design when constructing the vehicles for different uses, or it may be accomplished to a certain degree by adjustment of the seat-bars B on the blocks *a*. To illustrate, in Fig. 2 the adjustment is correct in a given instance for a person of certain weight. For a heavier person loosen the clips C and move the seat-bars ahead in the groove of the block *a*, so as to bring the seat nearer to a point over the axle. The reason of this of course is that the axle A is the fulcrum of the leverage exerted on the seat-bars. The spring here shown is composed of two parts lapped, the end of each part falling short of the terminal ends of the complete spring. By this means they are strong where strength is needed. Both sides of the vehicle are of course alike.

Having thus described my invention, what I claim is—

1. In combination, the thills, axle, the springs having the straight portion, the grooved blocks, the T seat-bars, and confining-clips, substantially as set forth.

2. In combination, the thills, axle, the springs having the straight portion, said springs hinged at the forward end to the thills and link connected with the axle at the rear end, the grooved blocks on said straight portion of the springs, the T-bars having their forward end fitted to said blocks, and means for attaching said bars, blocks, and springs together, substantially as set forth.

In testimony of the foregoing I have hereunto subscribed my name in presence of two witnesses.

WILLIAM M. GRAHAM.

Witnesses:

ADELBERT BISHOP,  
EDWARD VEOEGIVXLEWIJ.