(No Model.)

# H. SEEMAN.

## VEHICLE.

No. 462,168. Patented Oct. 27, 1891.

Fig. 1.

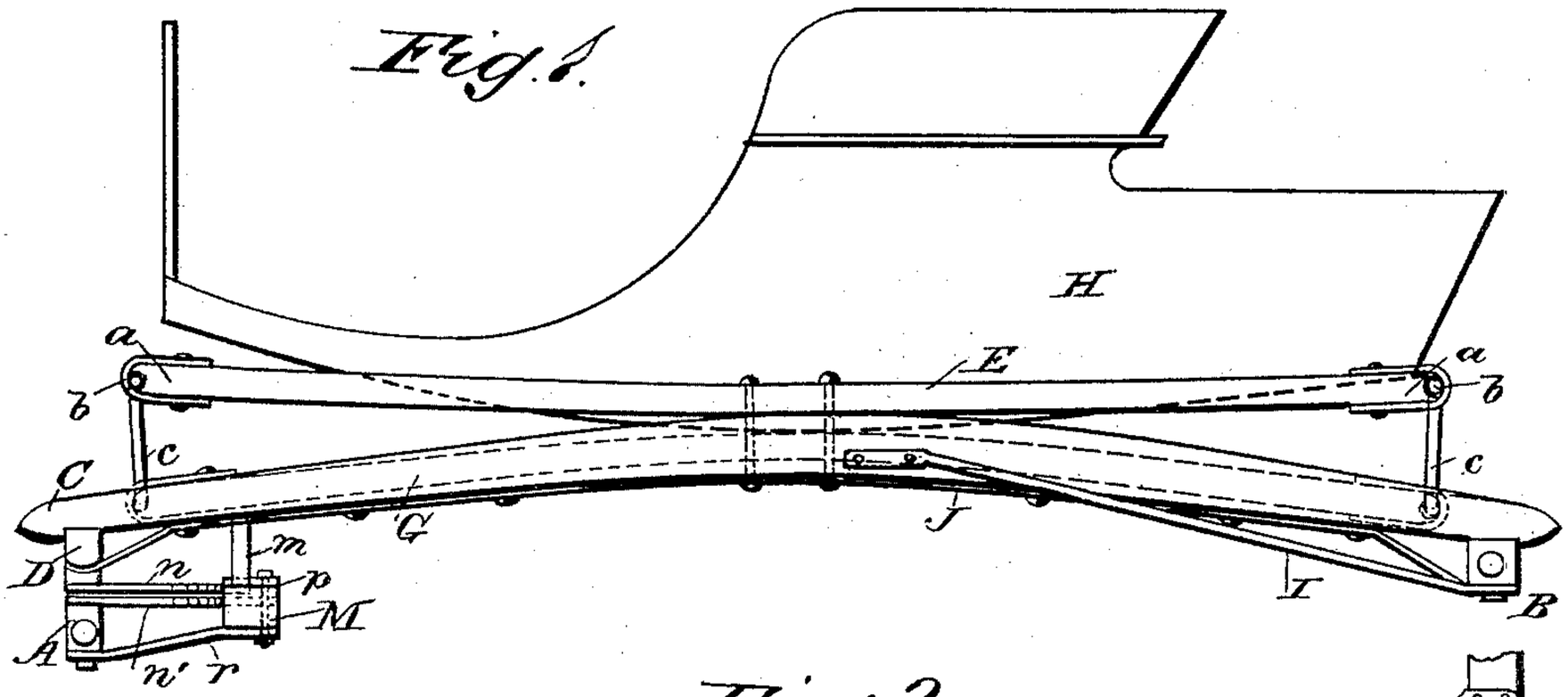


Fig. 2.

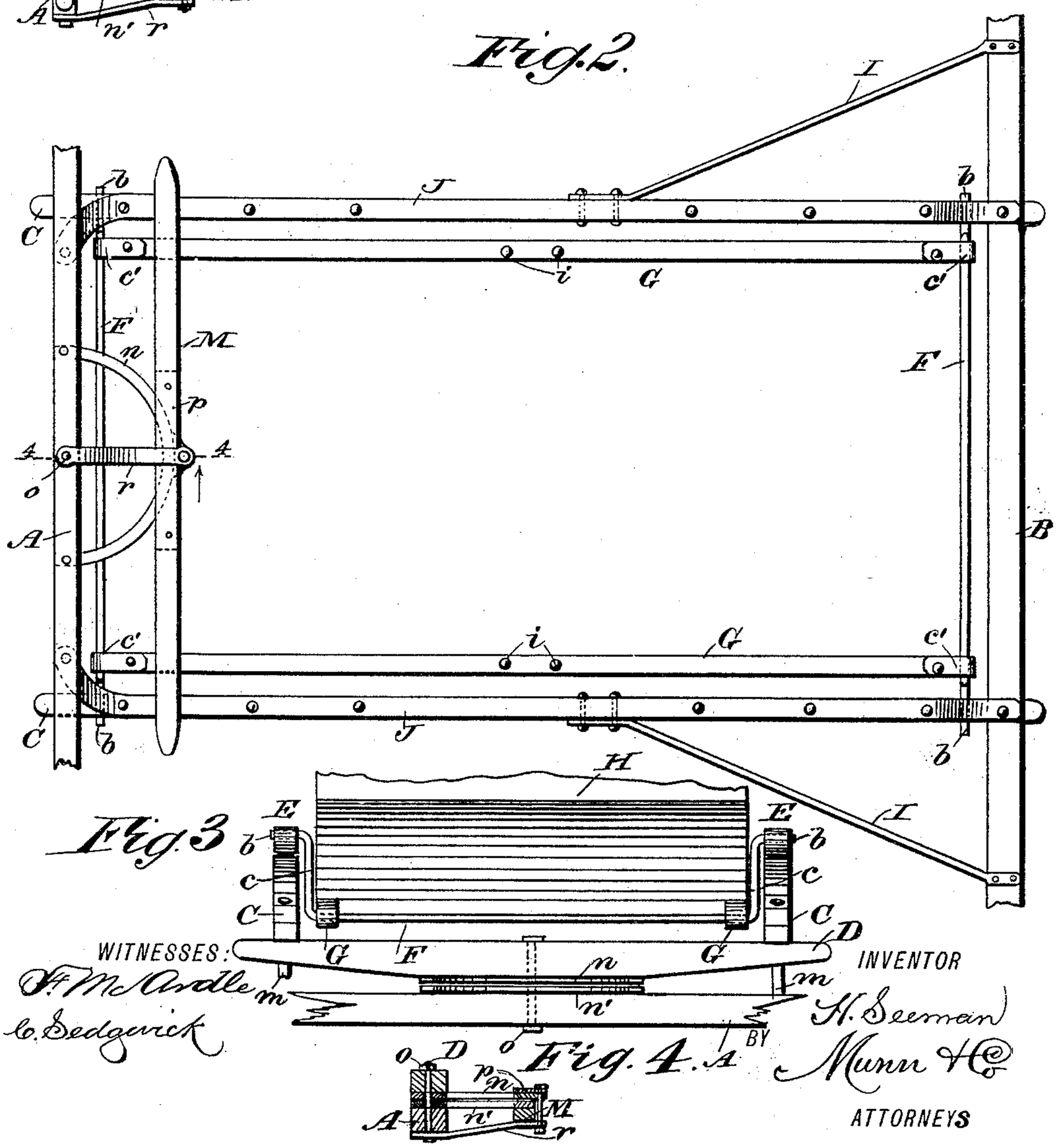


Fig. 3

Fig. 4.

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# UNITED STATES PATENT OFFICE.

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## VEHICLE.

SPECIFICATION forming part of Letters Patent No. 462,168, dated October 27, 1891.

Application filed July 20, 1891. Serial No. 400,097. (No model.)

*To all whom it may concern:*

Be it known that I, HENRY SEEMAN, of Durham, in the county of Durham and State of North Carolina, have invented a new and useful Improvement in Vehicles, of which the following is a full, clear, and exact description.

This invention relates to improvements in the construction of four-wheeled vehicles, and particularly to buggies of the side-bar type, the objects being to produce running-gears for such a vehicle which will be light, strong, afford ample spring action, distribute load strain, and dispense with the use of metallic springs.

A further object is to provide an improved simple fifth-wheel attachment for the vehicle-gears.

To these ends my invention consists in the peculiar construction and combination of parts, as is hereinafter described and claimed.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a side view of the vehicle body and gears with the wheels removed. Fig. 2 is a reverse plan view of the running-gears with the body removed and the axle-spindles broken away. Fig. 3 is a front end view of the vehicle gears and body, shown broken away above; and Fig. 4 is a transverse section of parts, taken on the line 4 4 in Fig. 2.

In the drawings, A is the front axle, B the rear axle, and C C two parallel side bars, which have one end of each secured upon the rear axle, their forward ends being located upon and attached to the end portions of a bolster D, that is centrally pivoted to the front axle, whereon it is seated.

The side bars C are upwardly arched a proper degree, as indicated in Fig. 1, where one is shown, and upon each side bar a spring-bar E is imposed. Said spring-bars having an upward curve, longitudinally considered, bear with their convex surfaces upon the centers of the side bars and are thereto secured by bolts or other means. At each end *a* of the spring-bars E a transverse rock-shaft F is clipped by its journaled ends *b*, said journals being formed on crank-arms *c*, that are bent in the same direction from the end portions of the shafts named, so that the main portions of these pieces will lie in about the same horizontal plane below the spring-bars E. Two other spring-bars G are provided, which are of sufficient length to lie between the parallel bodies of the rock-shafts F, having their ends clipped thereto near the crank-arms *c*, as at *c'*, in Fig. 2. Preferably the spring-bars G are slightly arched upwardly, and upon their top faces the side pieces of the body H are secured near their longitudinal centers.

The lower edges of the body H, which rest upon the spring-bars G, are curved downwardly in rocker form, as shown in Fig. 1, whereby the body is adapted to seesaw upon the yielding spring-bars in a longitudinal direction, which motion is limited by the degree of curvature of the impinging parts and the space between the bolts *i*, that hold the body in place on the spring-bars.

The rear axle B is laterally extended a proper distance beyond the side bars C, to which it is further secured by the braces I, which latter extend diagonally, as shown in Fig. 2, having their ends bolted or otherwise attached to the side bars and axle.

The side bars C are preferably stiffened by the re-enforce plates J, which are located upon the lower sides of these bars, and are thereto secured by bolts or equivalent means, the projecting end portions of said re-enforce plates being similarly connected with the bolster D and rear axle B.

At a proper distance from the front axle A the cross-brace M is secured by its ends to the side bars C and is held away from the lower sides of said side bars by the studs *m*, which secure the cross-brace and side bars together, so that the brace will lie opposite the front axle.

Two mating half-circle plates *n n'* are provided, the top plate *n* having its ends secured to the bolster D, the ends of the lower half-circle plate *n'* being attached to the front axle. The half-circle plates *n n'* are imposed one upon the other with their edges conforming, so as to together form a fifth-wheel, and are so connected to the bolster D and front axle A that the king-bolt *o*, which pivotally joins the latter-named parts, will form a radial center for the half-circle plates, so that the lower plate will slide against the up-

per plate when the axle is vibrated on the king-bolt.

To properly sustain the fifth-wheel, a recess is produced in the cross-brace M, into which the plates $n$ $n'$ are inserted, the lower plate loosely, the top plate $n$ being held rigidly in connection with the cross-brace by a bolt that passes through it and also through a cap-plate $p$ and a stay-bar $r$, the latter-named having its forward end loosely secured upon the lower surface of the front axle by the king-bolt $o$.

Any approved appliance may be utilized to connect one or more draft-animals with the vehicle front axle A, such as a pole or thills. (Not shown.)

In service the weight imposed on the seat in the vehicle-body H will be transferred to the elongated spring-bars E and G, which coact to afford proper elasticity for the absorption of shocks incidental to the travel of the vehicle over a rough road-bed, an easy rocking movement of the body being also afforded from its manner of connection with the spring-bars G.

The combined cross-brace M and half-circle plates $n$ $n'$ coact to stiffen the structure and at the same time permit a swinging movement of the front axle.

It is preferred to construct the spring-bars E and G of tough elastic wood, and these, if desired, may be nearly straight and act efficiently, and if the inner spring-bars G are sufficiently arched or bent upwardly the frame of the vehicle-body may be made straight below, instead of rocker-shaped, and afford good results.

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

1. In a vehicle, the combination, with a front axle, a rear axle, a bolster pivoted to the front axle, and two parallel side bars, of two spring-bars secured on the side bars near their centers, two rock-shafts loosely connected by their cranked ends to the ends of these spring-bars, two other spring-bars clipped by their ends to the bodies of the rock-shafts between the outer spring-bars, and a vehicle-body held on the inner spring-bars near their center of length, substantially as described.

2. In a vehicle, the combination, with a front axle, a rear axle, a bolster, two arched side bars, and two re-enforce plates secured to the side bars and attached by their ends to the axles, of two spring-bars that are upwardly curved and affixed near their centers upon the side bars, two rock-shafts having cranks on their ends and clipped by their journaled terminals to the ends of the outer spring-bars, two inner spring-bars clipped by their ends to the bodies of the rock-shafts, and a vehicle-body having its side parts curved on their lower edges to form rockers, which rest on the inner spring-bars and are thereto secured near their center of length, substantially as described.

3. The combination, with a pair of side bars and spring-bars secured centrally and longitudinally upon said side bars, of cranked bars suspended at their extremities from the ends of the spring-bars, and parallel body-supporting springs mounted at their ends on the said cranked bars, substantially as set forth.

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Witnesses:
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