(No Model.)

D. N. KRATZER.

VEHICLE.

No. 441,768. Patented Dec. 2, 1890.

Fig. 1.

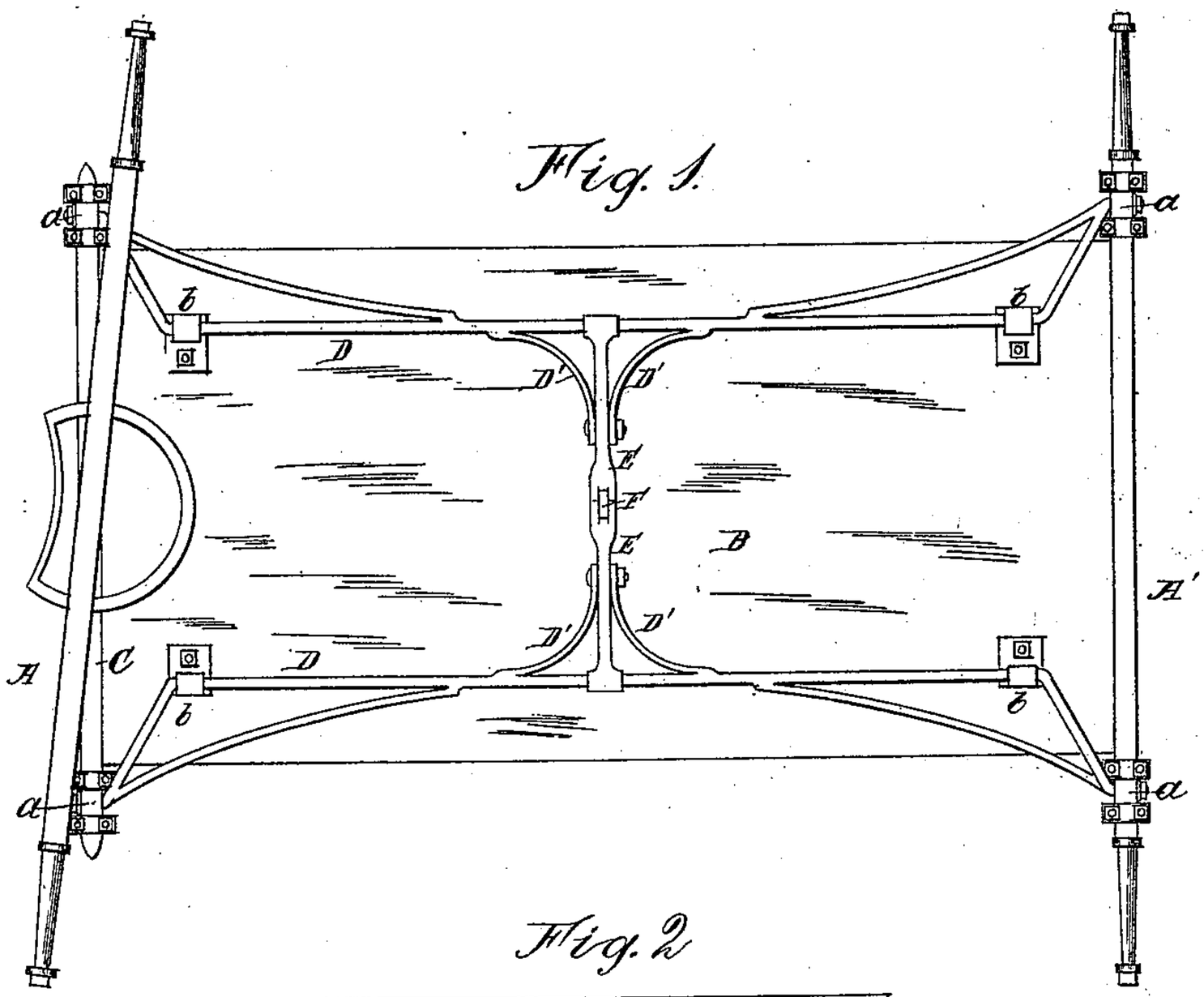


Fig. 2

Fig. 4.

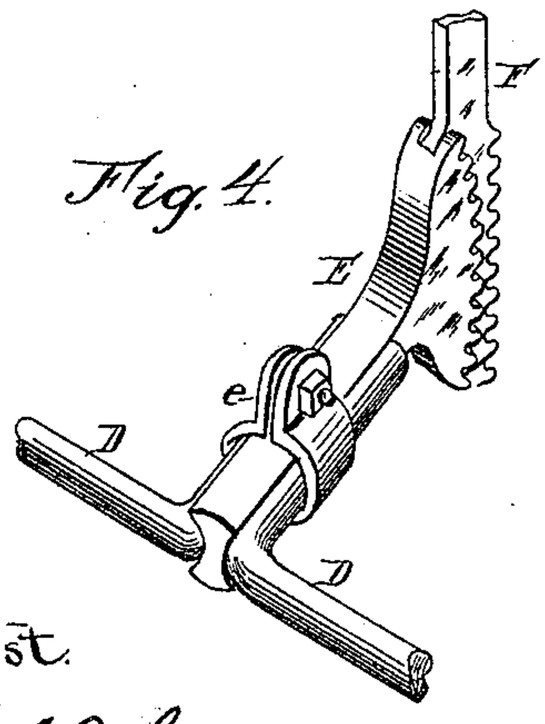
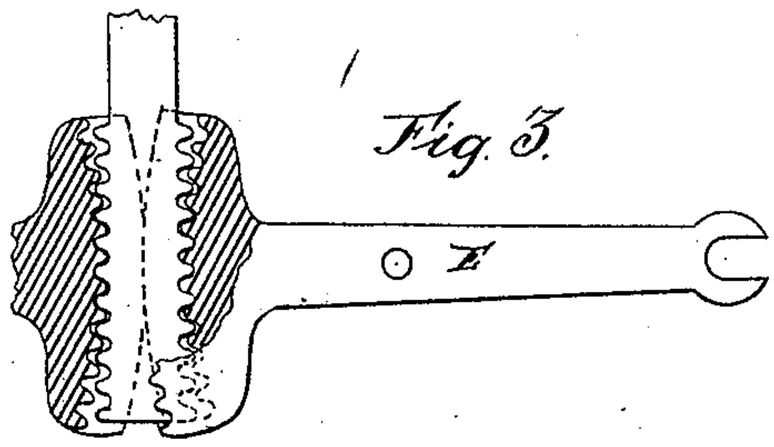


Fig. 3.



Attest.

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DAVID N. KRATZER, OF MARION, IOWA.

VEHICLE.

SPECIFICATION forming part of Letters Patent No. 441,768, dated December 2, 1890.

Application filed October 10, 1890. Serial No. 367,695. (No model.)

To all whom it may concern:

Be it known that I, DAVID N. KRATZER, a citizen of the United States, residing at Marion, in the county of Linn and State of Iowa, have invented certain new and useful Improvements in Vehicles; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to the mounting of the bodies of vehicles on the running-gear thereof; and the object of the invention is to secure a pleasant and comfortable action of the body, and one which shall be uniform on both sides thereof, whether the load be equal or not.

The invention consists in the construction, combination, and arrangement of parts, as hereinafter fully set forth and claimed.

In the accompanying drawings, forming a part of this specification, Figure 1 is a plan view, from the under side, of a running-gear embodying my invention. Fig. 2 is a rear view of the same. Fig. 3 is a fragmentary elevation showing the construction of the rack and segmental gears, and Fig. 4 is a view in perspective of the same, showing a modification in the manner of attaching it to the bars which support the body.

Similar letters of reference indicate corresponding parts.

The invention relates to that class of vehicles wherein the body is elastically connected with the running-gear by a coil-spring.

Referring to the drawings, A represents the front axle, A′ the rear one, B the body, and C the head-block. These parts do not differ essentially from those in common use.

The body is supported upon cranked bars or rods D D, pivotally connected with the rear axle and the head-block by suitable boxes *a a*. The main portion of the bars is connected with the body by links or shackles *b b*, or equivalent connection, adapted to allow for the necessary lateral movement of the bars with respect to the body. The middle portion of the bars connects with a cogged segment E, the center of the arc of which is the pivots connecting with the rear axle and cross-head. Between these two segments is a rack F, the cogs of which engage with those of the segments. Each segment is provided with two sets of teeth, as will be seen, one set engaging with the teeth of the rack and the other with those of the opposite segment, so that the segments are separated where the rack is interposed, which is preferably in the middle. Evidently both of the lateral flanges of the segments may be cogged and mesh together, or but one flange, the other being simply to retain the rack in proper vertical position. The upper portion of the rack is extended into the body of the vehicle through a coil-spring G, secured between the bottom of the body and a washer or flange *c* near the upper end of the rack, and held in proper position by a nut *d*.

The segments may be connected with the cranked bars or rock-shafts in a variety of ways. Two simple forms of attachment are illustrated in the drawings. In one of these the outer end of the segment has a notch fitting on the rock-shaft, and the rock-shaft is provided with braces D′ D′, extending inwardly and bolted to the segments. Another attachment is shown in Fig. 4. In this case the middle portion of the rock-shaft is turned inwardly, and the interposed segment, the sides of which are concaved or otherwise fitted to the inwardly-turned parts of the rock-shaft, is secured to the rock-shaft by a clamp *e*. By securing the ends of the pivots from longitudinal displacement, as by nut and washer, and suitably bracing the rock-shafts, they may serve in the place of a reach, as well as a support for the body.

The operation of the device will be readily understood. As the body is depressed by the weight upon it the segments are forced downwardly, and being meshed together mediately or directly they must descend simultaneously. In doing this the engaging rack is carried downwardly, thus compressing the coil-spring and giving elastic action to the movement of the body. It is to be understood that the action of the rock-shafts would be practically simultaneous if engaging only with the intermediate rack; but, as in such case there would be more or less lost motion, I prefer to connect the segments directly by engaging teeth with a separate connection for the rack.

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 the head-block and the rear axle, of a pair of rock-shafts pivotally connected by the outer arm with said head-block and axle, intermediately and pivotally connected with the body, and having inwardly-extending segments engaging with a toothed rack, a toothed rack, and a spring adapted to be compressed by the downward movement of said rack, substantially as and for the purpose set forth.

2. In a vehicle, the combination, with the head-block and rear axle, of a pair of longitudinal rock-shafts having outwardly-extending arms pivoted to said head-block and axle, inwardly-extending engaging segments, a rack engaging with each segment, a spring adapted to be compressed by the downward movement of the rack, and a connection of such rock-shafts with the body between the outer pivots and the said segments, substantially as and for the purpose set forth.

3. In a vehicle, the combination, with the body and running-gear, substantially as described, of a pair of rock-shafts having outwardly-extending arms pivotally but undetachably connected with the head-block and axle, inwardly-extending segments engaging with an interposed vertical rack, a rack, and a spring compressible by the downward movement of the rack, and a pivotal connection of the rock-shafts with the body between the said segments and the outer pivots, substantially as and for the purpose set forth.

4. In a vehicle, the combination, with rocking bars or shafts adapted to support the body on the running-gear and having toothed segments connected therewith, of a rack engaging with said segments and adapted to compress a spring in its movement, substantially as and for the purpose set forth.

5. In a vehicle, the combination, with a pair of toothed segments adapted to be actuated by the body, of an interposed rack adapted to impart simultaneous movement to the segments, a spring connected with said rack and adapted to be compressed by its movement, and a pivotal connection of said segments with the running-gear, substantially as and for the purpose set forth.

In testimony whereof I affix my signature in presence of two witnesses.

DAVID N. KRATZER.

Witnesses:
S. W. BRAINERD,
L. A. ST. JOHN.