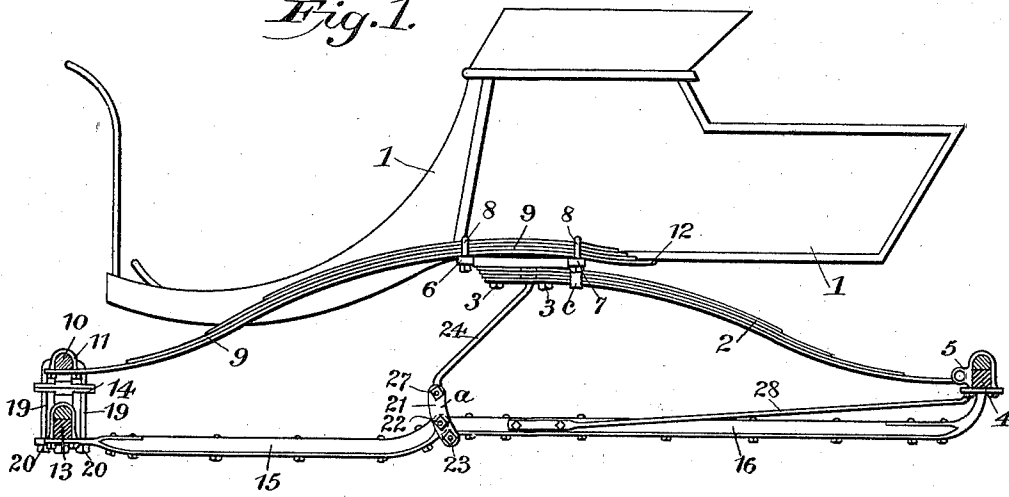


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RUNNING GEAR FOR WAGONS.

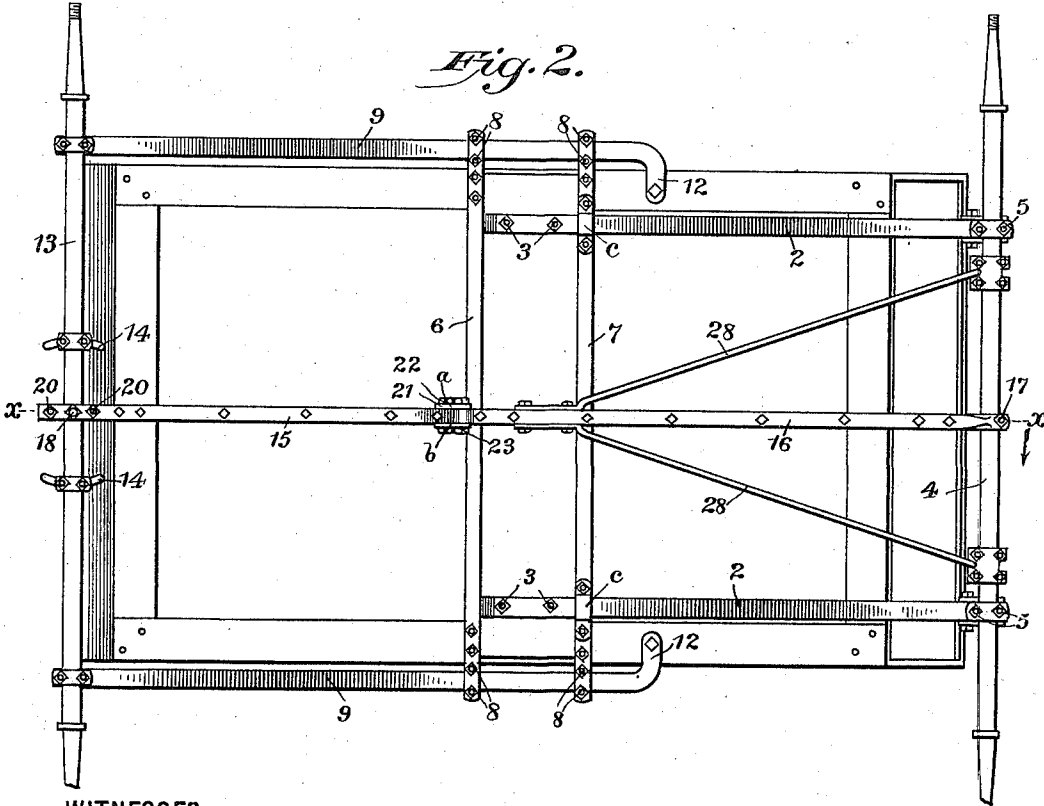
No. 577,892.

Patented Mar. 2, 1897.

*Fig. 1.*



*Fig. 2.*



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(No Model.)

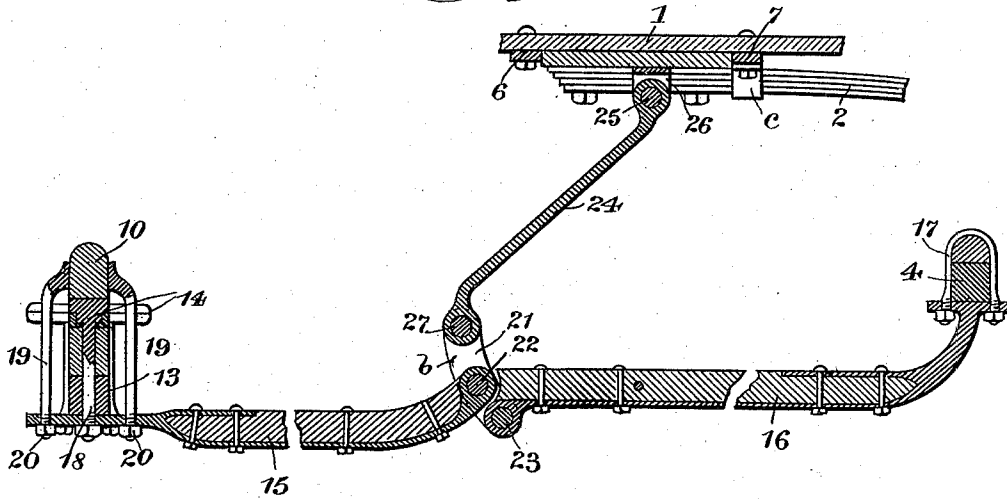
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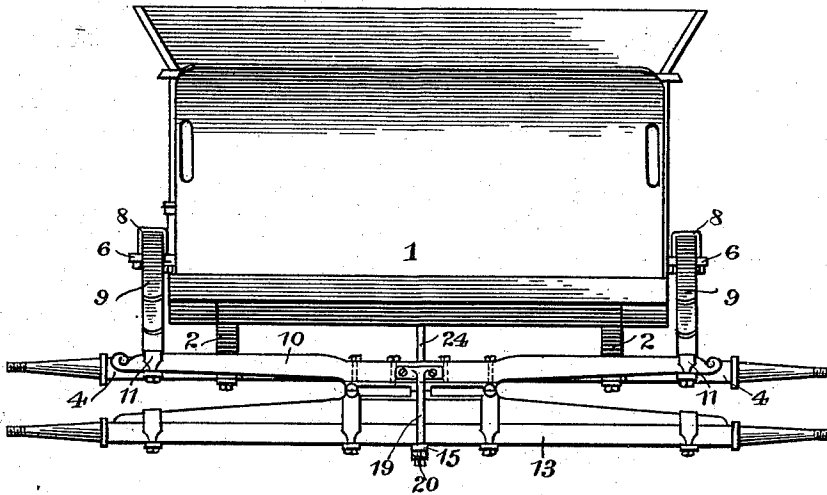
No. 577,892.

Patented Mar. 2, 1897.

*Fig. 3.*



*Fig. 4.*



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# UNITED STATES PATENT OFFICE.

JAMES VAUGHAN, OF DANBURY, CONNECTICUT.

## RUNNING-GEAR FOR WAGONS.

SPECIFICATION forming part of Letters Patent No. 577,892, dated March 2, 1897.

Application filed March 23, 1896. Serial No. 584,527. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES VAUGHAN, a citizen of the United States, residing at Danbury, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Wagons; 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.

My invention relates to certain new and useful improvements in the running-gear of light road-wagons; and the object of my invention is to lessen the discomfort attendant upon riding in vehicles of such description.

Referring to the accompanying drawings, which form a part of this specification, Figure 1 is a side elevation of my improved wagon, the axles being shown in cross-section; Fig. 2, a bottom view of such wagon, the wheels thereof being removed; Fig. 3, an enlarged central sectional elevation, partly broken away, taken on the line *x x* of Fig. 2; and Fig. 4, a front elevation of said wagon, the wheels and shafts thereof being removed.

Similar numbers and letters of reference denote like parts in the several figures of the drawings.

1 is the wagon-body, to the bottom of which are bolted the rear springs 2, as indicated at 3.

4 is the rear axle, to which the ends of the springs 2 are connected by clips 5.

Bolted to the under side of the body, about midway the length thereof, are two bars 6 7. These bars extend completely across the bottom of the body, and the ends of said bars project beyond the wagon sides, as clearly shown in Fig. 2. Secured to the projecting ends of the bars 6 7 by clips 8 are the front springs 9. The forward ends of the springs are secured to the under side of a bolster 10 by clips 11.

12 is an offset formed on the rear end of the bottom leaf of the springs 9 and bolted to the under side of the wagon-body, as shown in Fig. 2.

The rear springs 2 in addition to being bolted to the under side of the body are secured by clips *c*, which strap said springs to the bar 7.

13 is the front axle, between which and the bolster 10 is the ordinary fifth-wheel 14.

It will be observed by reference to Fig. 2 that the inner portions of the rear springs overlap or pass the inner portions of the front springs at the points where they are secured to the wagon-body. By thus arranging the springs so that their inner ends pass each other a greater length of spring may be used, and consequently the vertical spring motion of the wagon-body is rendered much easier. It will also be observed that the distance between the two front springs is greater than the distance between the two rear springs and that a considerable space is left between the inner edges of the front springs and the outer edges of the rear springs at the points where said springs pass each other and are secured to the wagon-body. In other words, the rear springs are fastened to the wagon-body in the space between the inner edges of the front springs, with the ends of the two sets of springs passing each other. By securing the two sets of springs to the wagon-body lengthwise thereof and in different planes with respect to each other, and by providing a reach such as I will presently describe, the disagreeable side motions are greatly reduced, while at the same time the resiliency of the springs is unimpaired.

In my present improvement the reach which connects the front and rear axles is made in two sections 15 16. The rear end of the section 16 is fastened rigidly to the rear axle 4 by a clip 17, as shown in section in Fig. 3. The forward end of the section 15 is pivotally connected to the front axle 13 by the king-bolt 18 of the fifth-wheel.

19 are vertical rods secured to either side of the bolster 10, and these rods pass through the end of the reach on each side of the axle and by means of nuts 20 on the ends of these rods secure the bolster 10 and reach firmly together, as will be readily understood by reference to Figs. 1, 3, and 4.

The manner of securing the front axle, fifth-wheel, bolster, and reach in proper relative position with respect to each other is old and well known, and I do not wish to be understood as laying any claim thereto.

The inner extremities of the sections 15 16 of the reach are pivotally connected in different horizontal planes to a link 21, which is

in the present instance formed of two parts *a b*, between which said sections are pivoted, as shown at 22 23 in Fig. 3.

24 is a bar the upper extremity whereof is pivoted at 25 between the ears of a clip 26, secured to the under side of the wagon-body, while the lower extremity of said bar is pivoted at 27 to the link 21.

28 are the usual brace-rods, running from the reach-section 16 to the rear axle 4.

It will thus be readily seen that any depression of the wagon-body will force the bar 24 downward, and that the link 21 will be rocked so that the pivotal points 22 23 will approach the same horizontal plane, thus effecting the extension of the sectional reach. Likewise it will be clear that the springs cannot buckle or become impaired as to their elasticity when weight is placed in the wagon-body, since these springs are perfectly free to lengthen out, owing to the fact that the front and rear axles are forced farther apart by the extension of the reach-sections. When weight is removed from the wagon-body, the springs will of course assume their normal position and will throw the wagon-body upwardly, and will thereby effect the contraction of the reach-sections and the front and rear axles. This free movement of the springs and the action of the reach are intimately related one to the other, and the advantages which result from my improvement are due to the combined action of these elements.

It will be observed that my construction, heretofore described, does not interfere with the other usual features of advantage in vehicles of this nature, since the front axle and bolster are always kept in a perfectly upright position, because the weight of the wagon and load thereon is then supported squarely on the axle and no great strain is thrown on the king-bolt. This is of course a feature which is usually sought for in constructing a wagon; but, nevertheless, the usual constructions do not always answer the purpose. In my improvement it will be clear that there cannot be any tendency to turn the bolster and front axle to an inclined plane, since these parts

are extended by the action of the reach-sections, which latter are always distended during any depression of the springs.

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

1. The combination of the wagon-body, the front and rear springs extending lengthwise of said body and arranged in pairs one of which is contained within the other the outer extremities of said springs being respectively connected with the rear axle and the bolster over the front axle, the reach made in two sections whose outer extremities are connected respectively with the front and rear axles, the link to which the inner ends of said sections are pivoted in different horizontal planes, and the bar whose extremities are pivoted to the wagon-body and said link, substantially as set forth.

2. The combination in a running-gear for wagons, of the wagon-body, the front and rear axles, a sectional reach whose outer extremities are connected respectively with said axles, a link to which the inner ends of the reach-sections are pivoted in different horizontal planes, and a bar whose upper end is pivoted to the wagon-body while its lower extremity is pivoted to said link, substantially as set forth.

3. In a wagon, the herein-described reach comprising two sections and an intermediate link to which the inner ends of said sections are pivotally connected in different horizontal planes whereby said sections are capable of lengthwise extension and contraction, the outer extremities of these sections being secured to the front and rear axles of the wagon, while said link is connected with the wagon-body whereby the vertical movements of the latter vary the distance between said axles, substantially as set forth.

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

JAMES VAUGHAN.

Witnesses:

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HENRY M. ROBINSON.