L. D. HURD.

Running-Gear for Wagons.

No. 216,854. Patented June 24, 1879.

Fig. 1.

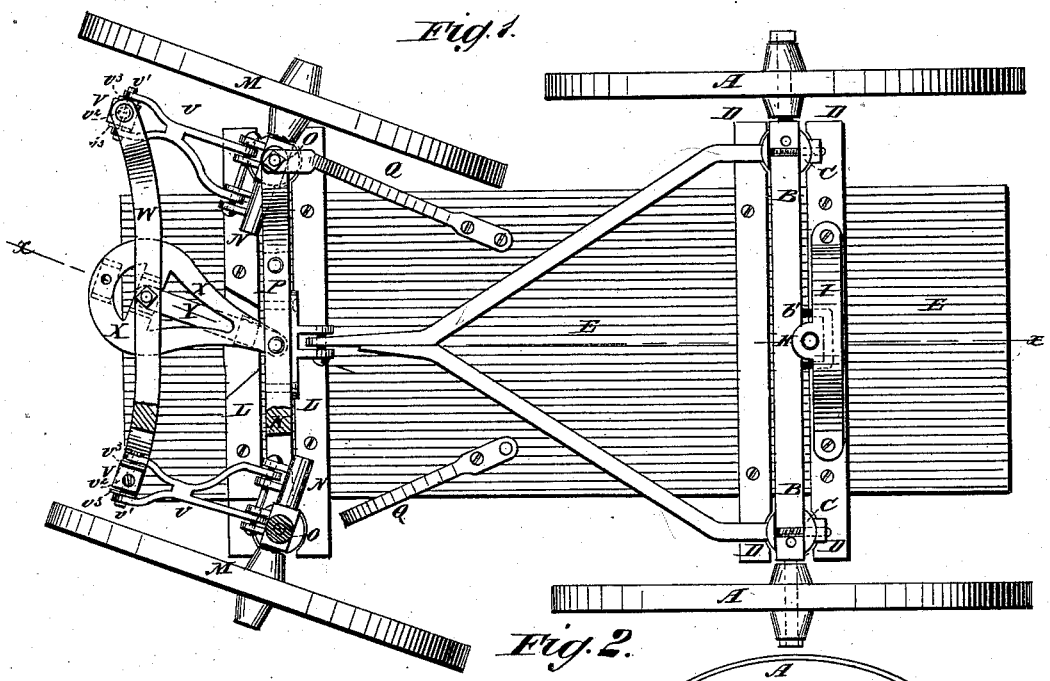


Fig. 2.

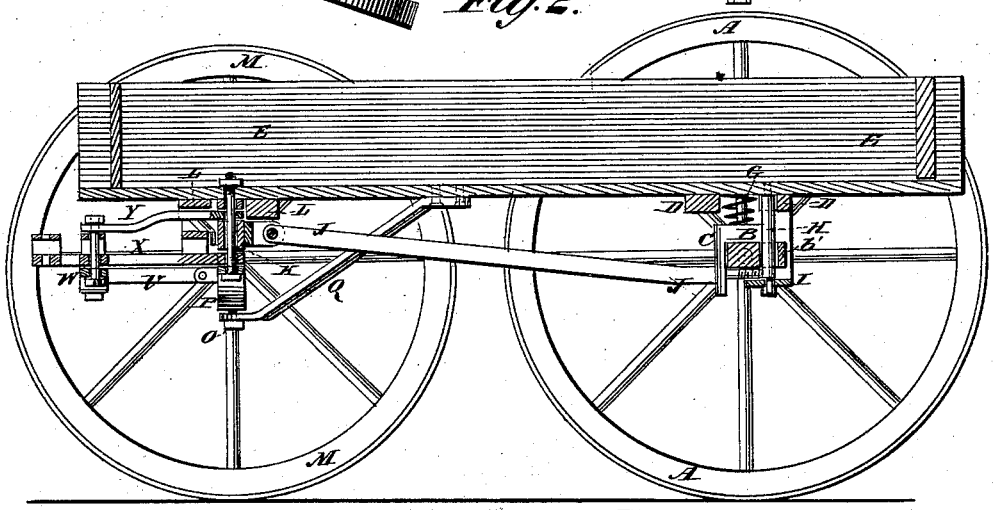


Fig. 3.

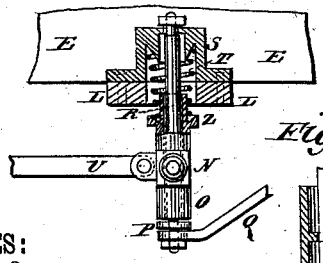


Fig. 5

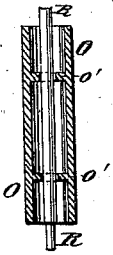
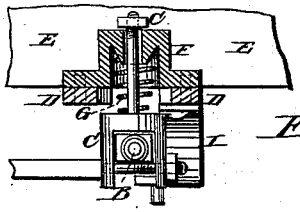


Fig. 4.



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UNITED STATES PATENT OFFICE.

LORENZO D. HURD, OF WELLSVILLE, NEW YORK, ASSIGNOR OF ONE-SIXTH HIS RIGHT TO JAMES DEVLIN, OF WILLIAMSPORT, PENNSYLVANIA.

IMPROVEMENT IN RUNNING-GEARS FOR WAGONS.

Specification forming part of Letters Patent No. **216,854**, dated June 24, 1879; application filed April 4, 1879.

To all whom it may concern:

Be it known that I, LORENZO D. HURD, of Wellsville, in the county of Allegany and State of New York, have invented a new and useful Improvement in Running-Gears for Wagons, of which the following is a specification.

Figure 1 represents the under side of a wagon to which my improvement has been applied, partly in section, to show the construction. Fig. 2 is a vertical longitudinal section of the same, taken through the line *x x*, Fig. 1. Fig. 3 is a detail view of one of the forward spindles, showing the spring, spring-seat, and spring-socket in section. Fig. 4 is a detail view of one of the rear spindles, showing the spring and spring-socket in section. Fig. 5 is a detail section of the forward axle.

Similar letters of reference indicate corresponding parts.

The object of this invention is to improve the construction of the running-gear of wagons in such a way that each wheel may rise in passing over an obstruction independent of the others, and without changing the level of the wagon-body, and in such a way as to bring the wagon more perfectly under the control of the team, making it more reliable and satisfactory in use.

The invention consists in the combination of the springs and the spring-sockets with the spindles formed upon or attached to the rear axles, and with the cross-bars attached to the body of the wagon; in the combination of the springs, the spring-sockets, and the hinged or jointed brace-bars with the spindles formed upon the forward axles, with the rods, and with the said forward axles; in the combination of the blocks and the pivot-bolts with the slotted ends of the brace-bars and of the cross-bar; in the combination of the adjustable washers with the pivot-block, its pivot-bolt, and the slotted forward end of the brace-bar hinged or jointed to the forward axle, for regulating the gather of the wheel; in the combination of the conical seats with the spindles of the forward axles, with the rods, and with the springs; and in the combination of the keeper and the guard with the rear axle and the body of the wagon, as hereinafter fully described.

A are the rear wheels, which revolve upon the journals of the axle B. To the axle B, at the inner ends of the hubs of the rear wheels, A, are secured the slotted lower ends or bases of the spindles C, the upper ends of which pass up between the ends of the two cross-bars D, to which the body E is secured. The spindles C also pass up through the sockets F, secured to the upper side of the projecting ends of the two cross-bars D, and have nuts screwed upon their upper ends.

Upon the spindles C, and within the sockets F, are placed spiral or other springs G, the lower ends of which rest upon the shoulders of the said spindles C, and upon their upper ends rest the tops of the sockets F.

To the body E, or to one of the cross-bars D, is attached a bolt or pin, H, which passes down through a keeper, *b'*, attached to the side of the axle B, and through a guide-hole in the center of the brace-bar I. The end parts of the brace-bar I are curved upward, and are attached to the cross-bar D or body E.

The cavity of the keeper *b'* is made longer than the thickness of the bolt or pin H, and in its ends, at the opposite sides of the said pin or bolt H, are inserted wooden blocks to receive the wear, lessen friction, and prevent swaying.

With this construction either of the rear wheels can rise in passing over uneven ground without changing the level of the wagon-body.

J is the reach, the rear part of which is forked, and the rear ends of its branches pass through the slotted lower ends of the rear spindles, C, at the lower side of the rear axle, B, and have nuts screwed upon their rear ends, so as to fasten the said axle and the said spindles together securely.

The forward end of the reach J is single, and is hinged to lugs attached to the head-block K, upon which the forward part of the body E rests. The body E is kept from longitudinal movement upon the head-block K by two cross-bars, L, attached to the said body in front and rear of the said head-block.

M are the forward wheels, which revolve

upon the journals of the short axles N. The axles N have spindles O formed upon their lower sides, which are made hollow, and through them are passed the rods R. The lower parts of the rods R pass through holes in the ends of the bar P, which is secured to the lower side of the head-block K and through holes in the forward ends of the brace-bars Q.

The braces Q incline inward and upward, and their rear ends are attached to the wagon-body E. The upper parts of the rods R pass up between the projecting ends of the cross-bars L through the sockets S, attached to the said cross-bars, and have nuts screwed upon their upper ends.

The cavity of the hollow spindles O is made larger than the rods R, and upon the inner surface of the said spindles O are formed webs o', about four inches from each end. These webs o' have holes formed through them of sufficient size to receive the rods R, and are designed to serve as seats for linings or boxes placed within the said cavity, to prevent the said lining from slipping into the middle parts of the said spindles O.

Upon the upper parts of the rods R, and within the sockets S, are placed spiral or other springs, T, the lower ends of which rest upon the conical seats Z, placed or formed upon the said spindles O, and upon their upper ends rest the tops of the sockets S, so that either of the forward wheels may rise in passing over uneven ground without changing the level of the body E.

To the forward side of the axles N are hinged or jointed the branched rear ends of the brace-bars U. The forward ends of the brace-bars U are slotted to receive the block V, which is pivoted in place by a bolt, v^1, passing horizontally through it. The blocks V and the forward ends of the brace-bars U are inserted in horizontal slots in the ends of the cross-bar W, and are pivoted in place by bolts v^2, passing vertically through the ends of the said cross-bar W and through the said blocks V. The blocks V are made narrower than the width of the slots in the ends of the brace-bars U, and the space thus formed is filled by washers v^3, placed upon the bolt v^1, at the sides of the said block V, so that more or less gather may be given to the wheels M by moving the said washers from one to the other side of the said block V.

The cross-bar W is pivoted at its center to the forward part of the plate X, the forward end of which is made wide and is rounded off into circular form, and its rear end is made narrow, and is pivoted to the center of the lower part of the head-block K by a bolt.

To the upper side of the plate or frame X are attached two or more keepers to receive the tongue, and one of the said keepers is directly over the pivot-hole of the said plate, so that the same bolt that secures the said plate X to the cross-bar W may also secure the tongue in place. The bolt that secures the tongue in place is strengthened against the draft-strain by a brace-bar, Y, the forward end of which is connected with the said bolt, and its rear end is connected with the bolt that pivots the plate X to the head-block K.

The invention has been described as being applied to wagons; but it is equally applicable to railroad-cars, street-cars, and other cars and vehicles.

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

1. The combination of the springs G and the spring-sockets F with the spindles C, formed upon or attached to the rear axle, B, and with the cross-bars D, attached to the body E, substantially as herein shown and described.

2. The combination of the springs T, the spring-sockets S, and the hinged or jointed brace-bars U with the spindle O, formed upon the forward axles, N, with the rods R and with the said forward axles, N, substantially as herein shown and described.

3. The combination of the blocks V and the pivot-bolts v^1 v^2 with the slotted ends of the brace-bars U and of the cross-bar W, substantially as herein shown and described.

4. The combination of the adjustable washers v^3 with the pivoted block V, its pivot-bolt v^1, and the slotted forward end of the brace-bar U, hinged or jointed to the forward axle, N, for regulating the gather of the wheel M, substantially as herein shown and described.

5. The combination, with the axles N, having hollow spindles O, with webs o', the bar P, secured to head-block K, and sockets S, of the rods R, passing through said spindles, bars, and sockets, and the springs T, resting on conical seats, as shown and described.

6. The combination of the pin or bolt H, the keeper b', and the guard I with the rear axle, B, and the body E of the wagon, substantially as herein shown and described.

LORENZO D. HURD.

Witnesses:
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J. C. SAMPSON.