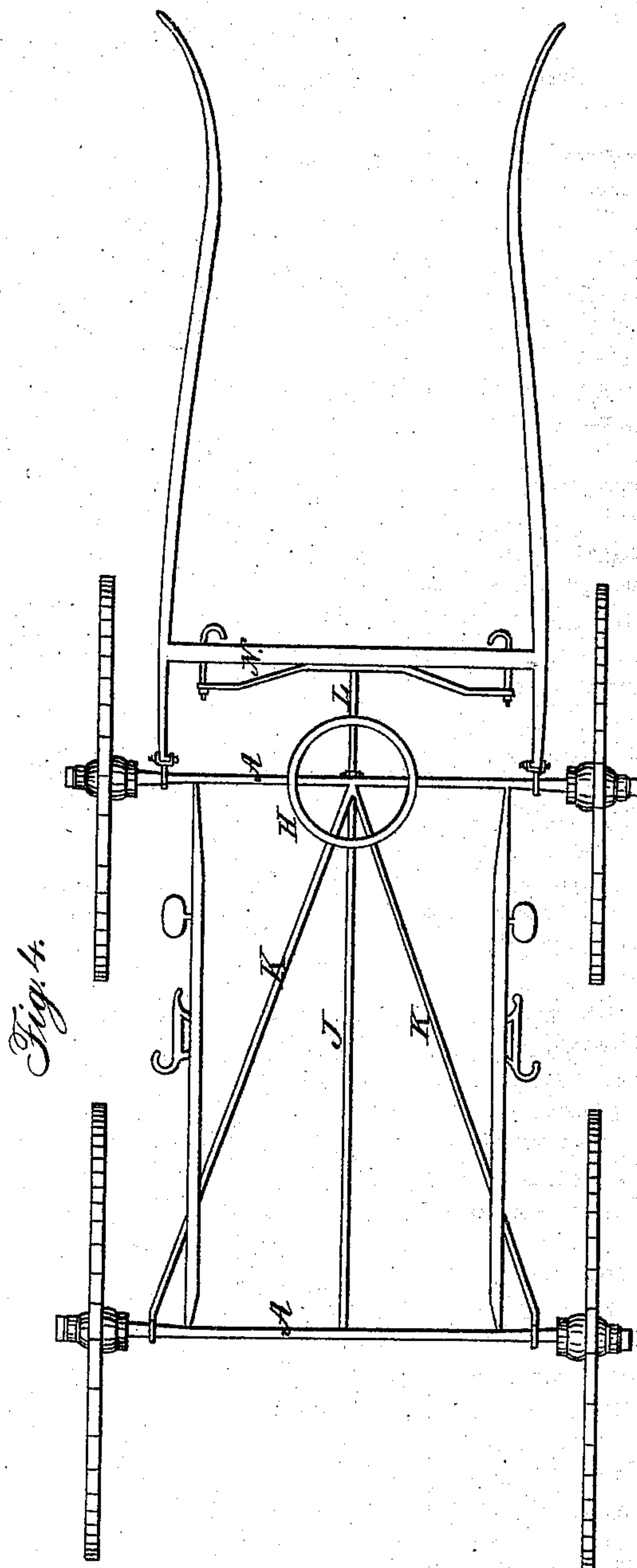


Running-Gear.

Patented Oct. 21, 1856.



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DANIEL FREEMAN, OF BURFORD, CANADA.

IMPROVEMENT IN CARRIAGES.

Specification forming part of Letters Patent No. **15,923**, dated October 21, 1856.

To all whom it may concern:

Be it known that I, DANIEL FREEMAN, of Burford, in the county of Brant and Province of Canada, have invented certain new and useful Improvements in Carriages, which I have described in the following specification and illustrated in the accompanying drawings with sufficient clearness to enable others of competent skill to make and use my invention.

My invention consists in first the method, hereinafter described, of hanging the body of the carriage upon four springs, and distributing its weight upon and attaching it to the springs in the manner hereinafter more fully set forth, the springs being arranged in pairs, one spring in each pair being placed above the other, and the point or points of support and the attachment of the body-loops upon the upper spring of the pair being higher than the points of attachment and support upon the lower spring in such a manner as to restrain within proper limits the vibratory motion of the body of the carriage and prevent the destructive effect of the wrenching of such vibration upon the springs.

In the accompanying drawings, Figure 1 is a front elevation of certain parts, showing the method of hanging at the front end. Fig. 2 is a rear elevation of certain parts of a buggy or other four-wheeled carriage, illustrating and embodying the principles of my invention. Fig. 3 is a side elevation. Fig. 4 is a plan.

A A' are the axles.

B are jack-irons, upon which the springs D D' D'' D''' are suspended by loops E. A suspension-bar F is bolted to the spring D, to the ends of which the back corners of the body are attached by the body-loops G. The middle of the back end of the body of the carriage is hung to the spring D' by the body-loop G'. This latter point of suspension is, as will be seen, considerably above the others, and consequently the body has only the torsional and lateral vibration allowed by the play of the loops E and the very slight yielding of other parts. The method of hanging the front end is the same, with only variations which are necessary to allow the front axle to turn. In this carriage the circle-plate H, which is usually attached to the front axle, is attached to the spring D'' and the circle-

plate H', which rests upon it and supports the suspension-bar F', to which the front corners of the body are hung by the loops G''. A short loop I connects the body to the back part of the circle-plate H' to prevent longitudinal vibration. The front end of the body is hung in the middle upon the spring D''' by the body-loop G''' in such a manner as to allow it to turn upon the spring. The reach J and braces K are jointed to the front axle in any convenient manner.

The shafts are made in the usual manner and attached as usual. The body being supported upon springs attached to jack-irons at the ends of the axles, they (the axles) need not be as large as it is necessary to have them in the old construction. The front axle, however, has to support upon its center the strain of drawing the hind wheels, and must possess within itself or by connection with some other part the strength necessary for that purpose. To furnish it by connection with the necessary strength is the object of my second improvement, by which I am enabled to make the axle very light and still have it sufficiently strong for all practical purposes.

This second improvement consists in connecting the middle of the front axle to the middle of the cross-bar N, which connects the two shafts to each other by a draw-brace L, jointed to the axle at one end and securely attached to the bar N at the other.

A third improvement consists in placing the circle-plate H upon the lower one of the two front springs, by which I gain several advantages, among which may be reckoned a greater steadiness of motion to the body of the carriage than would be realized if it were placed elsewhere.

A fourth improvement consists in making the head-block M, upon which the circle H is placed, elastic, by which I am enabled to screw down the circle-plate H' upon the circle-plate H sufficiently snug to prevent any rattling or jarring motion between them. This head-block M, I make of steel, about as thick as one of the leaves of the springs which support the body, or heavier if necessary.

The points at which the body-loops are attached to the suspension-bars F F' are from eight to ten inches lower than the points at which the middle of the body is attached to the upper springs.

The dotted lines in Figs. 1 and 2 show the height of the bottom of the body at the places where the body-loops are attached.

I am aware that the bodies of carriages have previously been supported upon springs arranged in pairs both above and below the axles.

I am also aware that the draw-brace arranged directly behind the point of draft and connecting the singletree with the body of the carriage is not new. I therefore do not claim, broadly, either the arrangement of the double springs or of the draw-brace; but

What I do claim is—

1. The combination and arrangement of

the body supported by and distributing its weight upon all four springs when placed above the axles, as described.

2. The arrangement of the draw bar and brace by which the former is connected directly with the center of the fore axle.

3. The arrangement of the fifth-wheel or circle H upon the lower of the two front springs, also making the head-block M elastic, as herein set forth.

DANIEL FREEMAN.

Witnesses:

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THOS. P. HOW.