(No Model.) 2 Sheets—Sheet 1.

W. LE B. HAWES.

RUNNING GEAR FOR VEHICLES.

No. 476,535. Patented June 7, 1892.

Fig. 1.

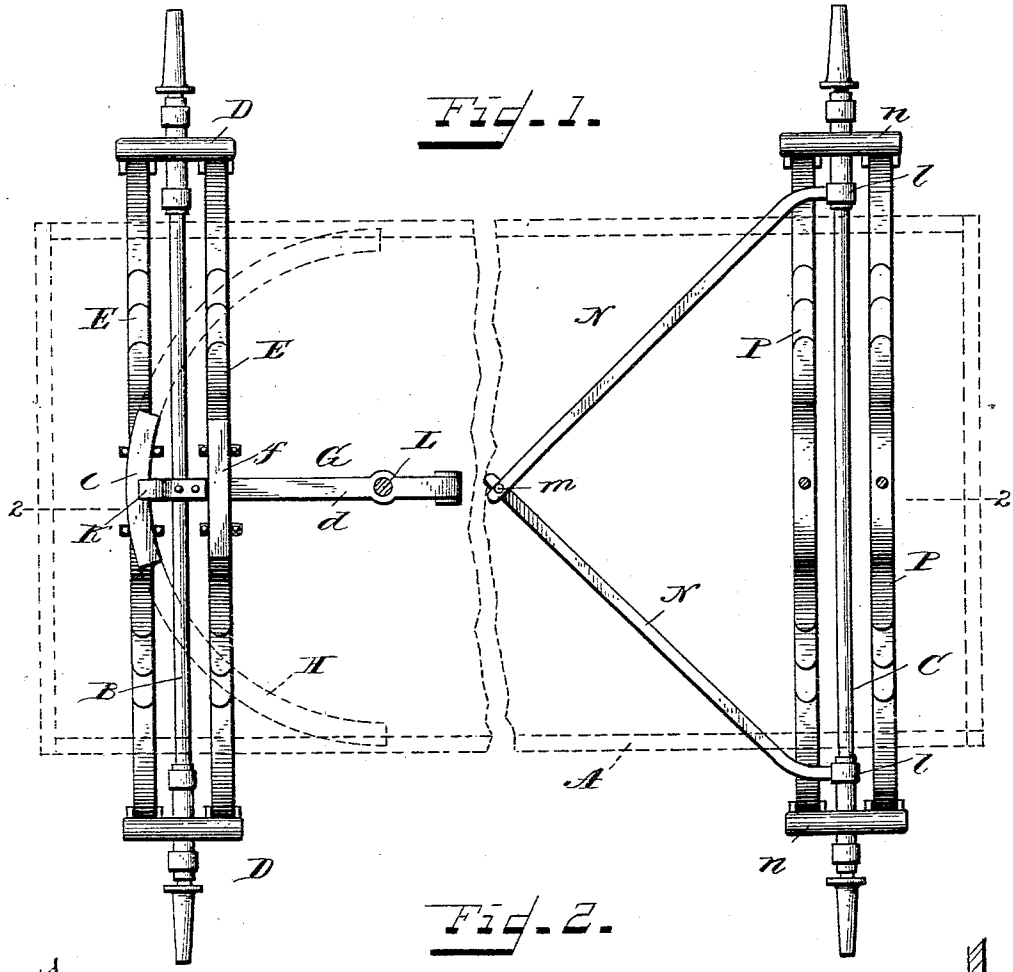
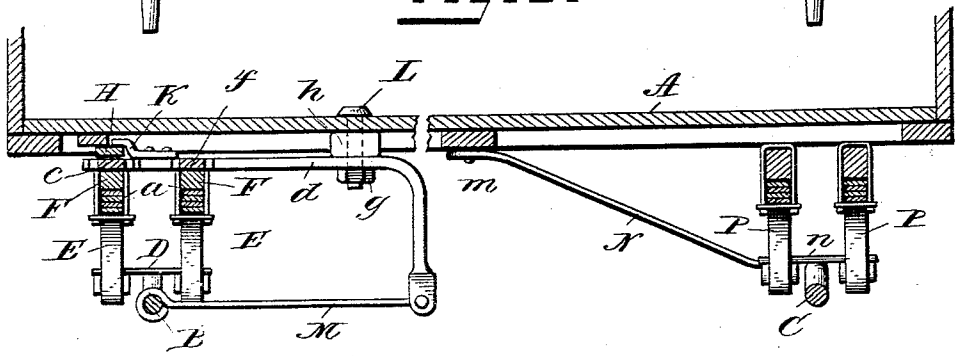


Fig. 2.



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(No Model.) 2 Sheets—Sheet 2.

W. LE B. HAWES.

RUNNING GEAR FOR VEHICLES.

No. 476,535. Patented June 7, 1892.

Fig. 3.

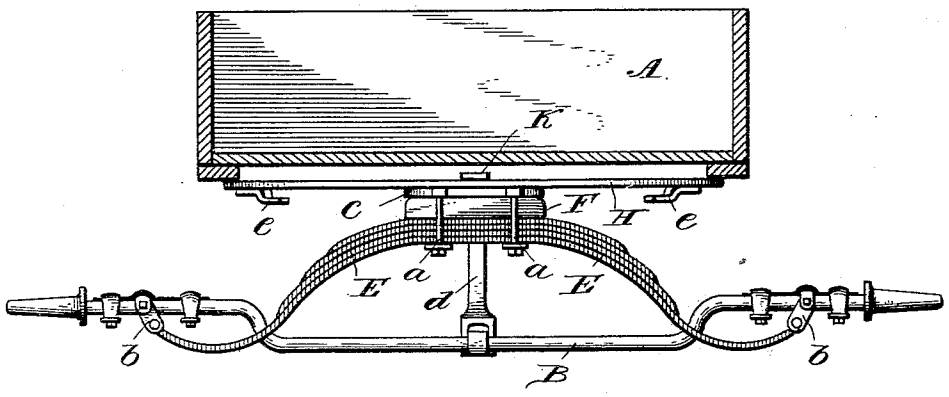
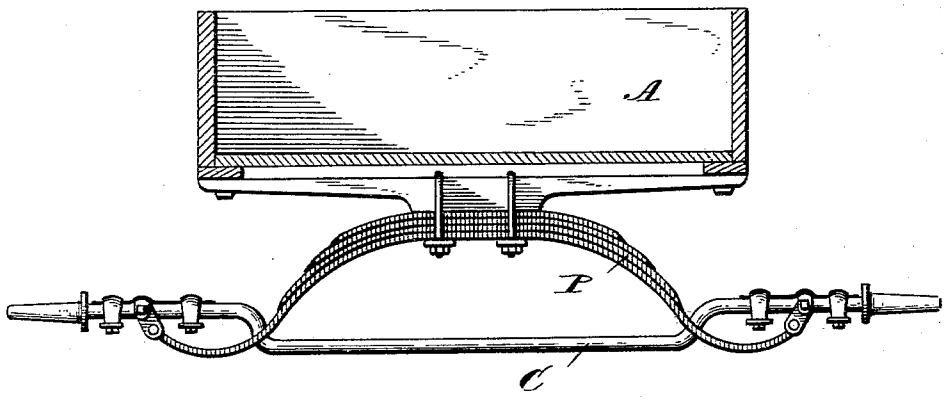


Fig. 4.



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UNITED STATES PATENT OFFICE.

WILLIAM LE B. HAWES, OF CINCINNATI, OHIO.

RUNNING-GEAR FOR VEHICLES.

SPECIFICATION forming part of Letters Patent No. 476,535, dated June 7, 1892.

Application filed December 11, 1891. Serial No. 414,734. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM LE B. HAWES, a citizen of the United States, residing at Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Running-Gears for Vehicles, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

My invention relates to improvements in the running-gear of vehicles, more particularly in that class of vehicles known as "short-turn vehicles," in which the king-bolt is placed back of the front axle, the object of this construction being to allow the front wheels to turn almost at right angles to the body of the vehicle without coming in contact therewith, so that the vehicle can be readily turned in a very narrow space.

My improvements consist in the novel construction and arrangement of parts to be hereinafter more particularly pointed out and claimed.

In the drawings, Figure 1 is a top plan view of my running-gear with the vehicle-body and upper fifth-wheel plate indicated in dotted lines. Fig. 2 is a longitudinal section of the running-gear, taken on line 2 2 of Fig. 1, with the vehicle-body in place. Fig. 3 is a front elevation of the vehicle and gearing. Fig. 4 is a rear view of the back axle and supporting-springs.

A is the body of the vehicle; B, the front axle; C, the rear axle.

D D are shoulders secured at each end of the front axle at right angles thereto, and to these shoulders the pair of semi-elliptic springs E E are attached by shackles *b b* in the usual way, one on each side of the axle. If desired, elliptic springs can be substituted for the semi-elliptic springs shown, and it is not at all essential that the springs should be in pairs, one on each side of the axle, as a single spring of any desired form could be used for each axle instead, in which latter case the shoulders D D can be dispensed with and the spring secured in any of the ordinary ways. The only essential thing is that the spring or springs should have a direct bearing over the front axle.

F F are the front bolsters secured to the top of the springs E E by bolts *a a* in the usual way. Of course when a single front spring is employed only one bolster is required.

G is a T-plate made up of a segmental cross-piece *c* and a long arm *d*. This T-plate is secured to the bolster and front springs by the same bolts *a a* which secure the bolster to the springs, so that the T-plate is rigidly attached to the front springs on top thereof. The segmental portion *c* of this T-plate forms the lower plate of the fifth-wheel. Immediately over this plate is secured to the vehicle-body the semicircular plate H, which forms the upper plate of the fifth-wheel connection, and between these two plates the front axle turns.

e e are stops secured to the plate H to prevent the axle turning too far in either direction and bringing the front wheels in contact with the body of the vehicle. To properly keep these two plates of the fifth-wheel in connection and to serve as a guide, a short bar or arm K is secured to the T-plate by bolts or otherwise, and has its free end bent so as to extend over the upper surfaces of the upper fifth-wheel plate H and prevent any strain from separating the two plates. Where two springs are used over the front axle, the T-plate is secured to the bolster on the inner spring in any convenient way. I have shown a plate *f* along the top of this bolster, which is preferably made integral with the T-plate and is secured to the bolster by the same bolts *a a* which secure the bolster to the spring.

The inner end of the T-plate is provided with an opening, through which and through the wagon-bed the king-bolt L is passed, secured below the arm *d* by the nut *g*. A block *h* between the arm *d* of the T-plate and the wagon-bed gives proper bearing-surface for the king-bolt. The arm *d*, after it passes the king-bolt, is bent downward at right angles to the wagon-body until the end comes into the same horizontal plane with the axle, and a brace M is pivoted to this end of the arm *d* and to the center of the axle in order to properly brace the parts.

It will be manifest that the pivotal connection with the downward extension of the T-plate must be in the same horizontal plane with the axle. Otherwise when weight is placed in the wagon and the bed of the wagon ap-

proaches the axle the tendency would be for the brace to throw the axle forward and to strain or break the parts. For example, if the brace M were pivoted to the T-plate immediately back of the king-bolt and in the same plane as the segmental lower fifth-wheel plate with weight on the wagon this pivotal center would descend in a vertical line and the distance to the middle of the axle would be shorter than before, so that the length of the brace remaining constant the axle would have to give forward or the brace bend. With the pivot of the brace on the same plane as the axle, however, the change of distance when the bed of the vehicle approaches the axle is very much less and no bad effect is experienced.

Instead of pivoting the downward extension of the T-plate to the brace, the parts may be made of spring-steel and all in one piece, and the spring of the metal will then take the place of the pivot between the T-plate and the brace.

With my construction above described I am enabled to dispense with a reach, and instead of such reach I use two braces N N, secured to the ends of the axle at *l l* and to the bed of the vehicle at *m*.

For the rear springs I prefer to use a pair of semi-elliptic springs O P, as in front, secured by shackles to cross-pieces *n n* on the axle; but of course a single spring or double spring of any of the ordinary forms may be used, if desired.

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

1. In a running-gear for vehicles, the combination, with the front axle and spring secured thereto so as to have a direct bearing thereon, of a T-plate rigidly secured on top of said spring, the cross-bar of said plate being segmental in shape and serving as the lower fifth-wheel plate and the rear extension thereof provided with an opening and having its inner end bent down at right angles to the body with a king-bolt to connect said plate to the vehicle-body, and a brace pivotally connected to the axle and to the downward extension of the T-plate on substantially a horizontal plane, in the manner and for the purpose described.

2. In a running-gear for vehicles, the combination, with the front axle and spring secured thereto so as to have a direct bearing thereon, of a T-plate rigidly secured on top of said spring, the cross-bar of said T-plate being segmental in shape and serving as the lower fifth-wheel plate and the rear extension of said plate provided with an opening at its inner end and bent down at right angles to the body, a king-bolt to connect same to the vehicle-body, a brace pivotally connected to the axle and to the downward extension of the T-plate on substantially a horizontal plane, and rear springs with braces connecting the ends of rear axle with the body of the vehicle to take the place of a reach, substantially as shown and described.

WILLIAM LE B. HAWES.

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