

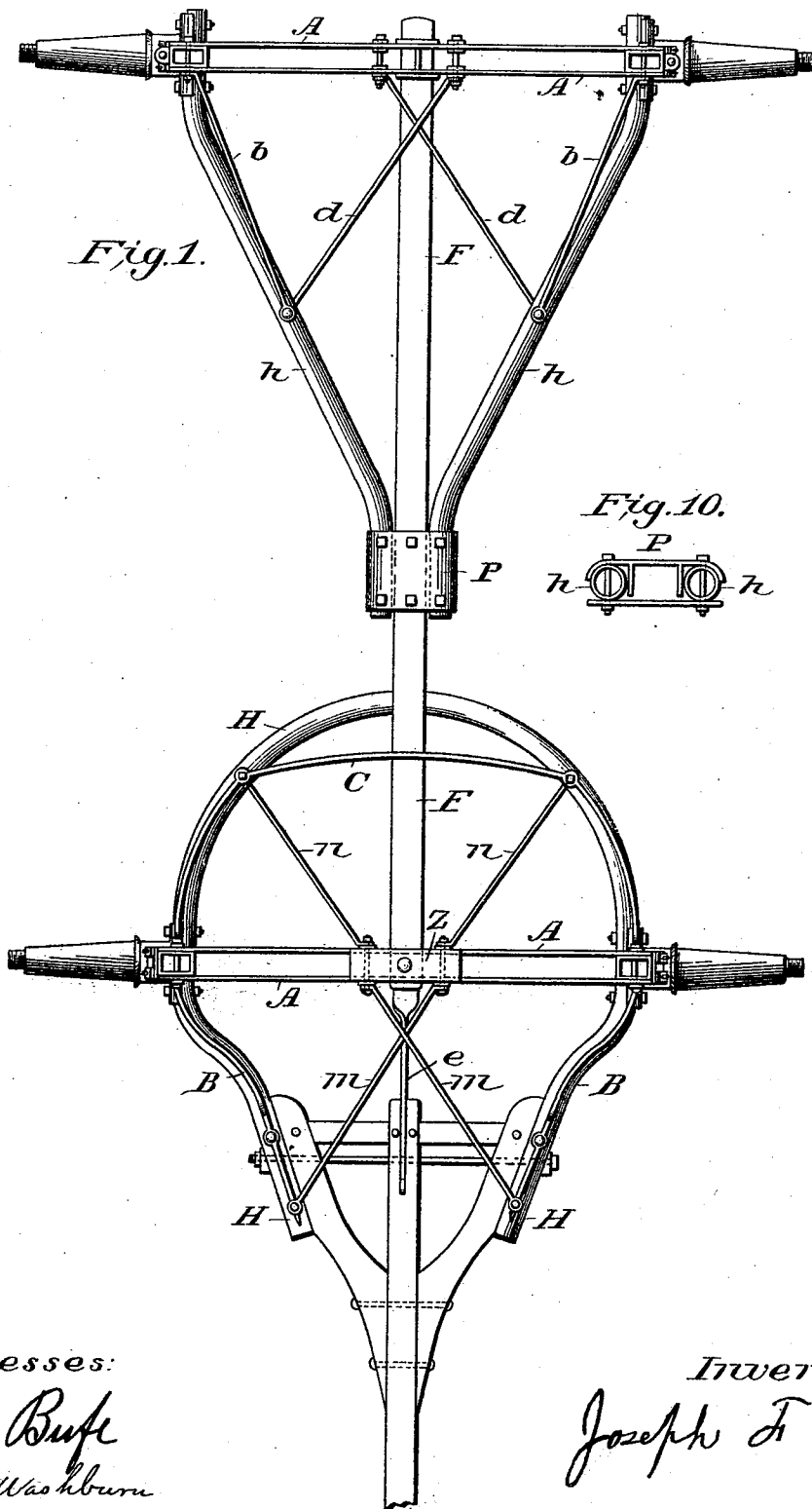
(No Model.)

2 Sheets—Sheet 1.

J. F. FRY.
VEHICLE RUNNING GEAR.

No. 516,567.

Patented Mar. 13, 1894.



Witnesses:

C. J. Buft
Geo. H. Washburn

Inventor:

Joseph F. Fry

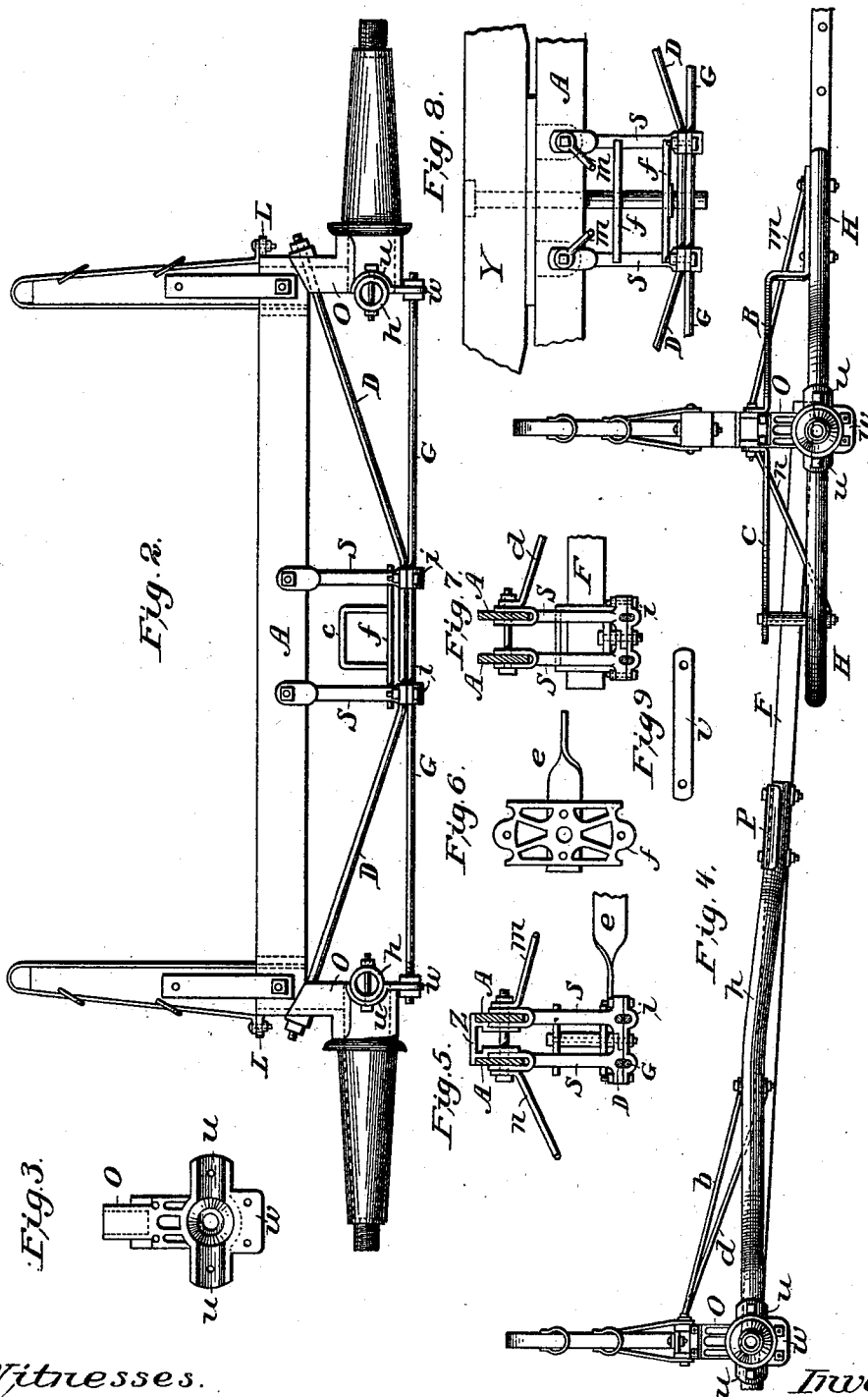
(No Model.)

2 Sheets—Sheet 2.

J. F. FRY.
VEHICLE RUNNING GEAR.

No. 516,567.

Patented Mar. 13, 1894.



Witnesses.

E. J. Bupe
Geo. H. Washburn

Inventor:
Joseph F. Fry

UNITED STATES PATENT OFFICE.

JOSEPH F. FRY, OF WEVER, IOWA.

VEHICLE RUNNING-GEAR.

SPECIFICATION forming part of Letters Patent No. 516,567, dated March 13, 1894.

Application filed September 21, 1893. Serial No. 486,143. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH F. FRY, a citizen of the United States, residing at Wever, in the county of Lee and State of Iowa, have invented a new and useful Metallic Vehicle Running-Gear, of which the following is a specification.

My invention relates to improvements in metallic vehicle running-gears in which the axles are entirely discarded, and in the room of which I use truss and tie rods, and instead of the sandboard and rear bolster I use tie plates, and the hounds both rear and front are bolted directly to the spindles as will be shown hereinafter.

The objects of my improvement are, first, to produce a practically indestructible running-gear, second: to provide suitable mechanism whereby the proper adjustment of the wheels as relates to pitch and gather may be maintained at any stage of use; third: the attachment of the hounds to the spindles reduces the oscillating movement of the tongue and the consequent friction on the animal, and fourth: I attain a line of draft directly in a line with the center of the spindles. I secure these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1. is a top view of the running-gear. Fig. 2. is a rear view of rear truss showing the method of attaching the tie plates, truss rods, and tie rods to the spindles, showing also the struts and stirrup through which the reach passes. Fig. 3. is an inside end view of spindle showing the post containing the housing for the standard, the shoulder on which the tie plates rest and holes through which the truss rods pass showing also the jaws to which the hounds are bolted and lug to which the tie rods are secured. Fig. 4. is a side view of gearing, the front bolster shown in this drawing forming no part of my invention. Fig. 5. is an end view of front struts showing the bolts that hold the two brace rods, said bolts passing through the jaws of the struts, the tie plates and the arms of the bolster plate, this view shows also the construction of the foot or base of the struts, the binding plate that binds the truss rods and tie rods securely to the foot or base of the struts. Fig. 6. is the reach plate and section of twist draft bar, this twist draft bar is

hinged to the bolt that passes through the hound and the tongue, and is riveted at its other end to the reach plate, the king bolt passing through both, a section of this twist draft bar is shown in Fig. 5, the dotted lines showing the bolt that secures the reach plate to the struts the same bolt passing through the reach plate, the struts and the binding plate. Fig. 7. is an end view of the rear struts showing section of reach passing through stirrup; this stirrup is integral with the reach plate, this reach plate fits closely up to and passes half-way around the four struts and is bolted as shown. Fig. 8. is a front view of front struts showing section of tie plates, truss rods and tie rods, the section of bolster shown here forms no part of my invention, the king bolt is shown passing through the bolster plate, the reach plates, the twist draft bar. Fig. 9. is the tie bar that passes between the four struts and is bolted to the same to prevent them from shifting their position on the truss rods and tie rods. Fig. 10. is a front view of the rear hounds at the point where they embrace the reach, showing the flanges that separate the hounds from the reach and the half cylindrical form of the outer parts of the hound plate.

Similar letters refer to similar parts throughout all the views.

The tie plates A are secured to the spindle post *o*, this post has a slanting shoulder upon which the tie plates rest the corner of the plates being cut off to conform to the slant of the shoulder; these tie plates are supported in the center by the struts S, there being two struts to the plate or four struts to the truss.

The truss rods D. (of which the best view is given in Fig. 2) pass through the spindle-post *o*, directly underneath the tie plates, and are secured on the outside of the spindle-post by nuts, these truss rods slant downward from the spindle-post till they reach the foot or base of the struts S, then pass beneath the struts in a line and in contact with the tie rods G. the base of these struts are grooved (as shown in Figs. 5 and 7) and the truss rods fit securely in these grooves, the tie rods G. are secured to the spindle-lug *w*, (the best view of this lug is seen in Fig. 3) at their center the tie rods are held in close contact with the truss rods by the binding plate *i*, said binding plate being shown in Figs. 5 and 7,

this binding plate has a groove which is in a line with the groove in the base of the struts, the tie rod is held in this groove and in contact with the truss rod, this binding plate conforms to the base of the struts and is secured to the same with three bolts.

The brace rods *m m*, (which are shown best in Fig. 1) are secured at one end by the bolt that passes through the jaws of the struts, the tie plates, and the arms of the bolster plate, and at the other end by the bolt which holds the brace B. to hound H, the braces *n n* are secured at one end by the bolt that secures the braces *m m*, and the other end passes beneath the hound H and is held by the bolt passing through the hound and the semi-circular brace C, the semi-circular brace C. and brace B. show to the best advantage in Fig. 4 the brace B abuts against the tie plate and is held by the bolt that holds the tie plates to spindle-post, and at a distance from where it is bolted to the tie plates it is bent at right angles and meets the hound and is bolted thereto, the semi-circular brace C. is held by the same bolt that holds the brace B. it describes a semi-circle somewhat less than that described by the hound, it passes over the reach, and is secured to the hound at a distance from the reach.

The brace rods *d d*, (Fig. 1) are bolted to the under post of the hounds *h h*, at one end, and to the struts and tie plates at the other, the brace rods *b b*, are bolted to the top part of the hounds *h h* at one end and the other end is held by the bolt that holds the tie plates, the standard, and the standard braces to the spindle post, these standards (Fig. 2) form no part of my invention, but the method of holding them does, this spindle-post (or post-spindle whichever way one might be pleased to call it) contains a housing or mortise, the standard is driven into this housing to the depth of the tie plates, the bolt passes through the standard, the standard braces, the tie plate and holds the brace *b*, (Fig. 4) this housing or mortise is shown best in Fig. 3, the dotted lines in spindle-post *o*, showing where the standard is to be driven in, this spindle-post *o*, has the lip L. (Fig. 2.) This lip L forms the rest for the outside standard brace, the brace being bolted thereto, the stirrup *c* (Fig. 2) through which the reach F. (Fig. 7) passes is secured between the struts S, the same bolt passing through the tie bar *v*, (Fig. 9) the binding plate *i*, (Figs. 5 and 7,) the base of the struts and reach plate to which the stirrup *c* is cast.

The twist draft bar *e* (Fig. 6) is hinged to the rod that passes through the hounds and the tongue and is riveted to the reach plate *f*, the reach plate *f*, is secured just above the base of the four front struts (Fig. 8) the reach plate *x* without the twist-draft bar attached is shown embracing the struts just above their center, the king bolt is shown passing through section of bolster, the bolster plate,

the two reach plates and twist-draft bar that is riveted to the lower reach plate, the reach F. (Fig. 4) plays between these two reach plates and the four struts, the king bolt passing through it.

In Fig. 5 the arms of the bolster plate Z, are shown as they form the curve and pass down over the jaws of the struts, the bolt that holds the braces *m n* pass through the jaws of the struts, the tie plates, and the arms of the bolster-plate Z. The spindle jaws *u u*, (Fig. 3) to which the hounds are bolted are in a line with the center of the spindle, the spindle-post O, being above and the spindle-lug *w*, being below them, the ends of the hounds *h h*, and two of the four bolts that hold them to the spindle-jaws *u u*, are shown in Fig. 2.

The hound plate P (Figs. 1 and 10) is bolted to the hounds at the point where they embrace the reach, the outer parts of the hound-plate P are half cylindrical as before stated.

In this running gear the rear and front trusses are duplicates as are the spindles, the struts and the binding-plates, in fact I suppose that the two spindles, two truss-rods, two tie rods, two tie plates, two binding plates and four struts would be considered as forming one truss, the rear and front hounds are bolted to the spindles in the same manner, all of these parts are dependent upon each other, and mutually contribute to produce one result.

Therefore, what I do claim as my invention, and desire to secure by Letters Patent, is—

1. The combination in a metallic vehicle running-gear of a tubular conical-spindle having integral therewith the post O, the jaws *u u*, and the lug *w*, the post O, containing a housing or mortise in which a standard may be driven and secured, and shoulders upon which the tie plates A rest, substantially as described.

2. In a metallic vehicle running-gear, a tubular conical spindle having the post O, which supports the truss rods D. the lug *w*, supporting the tie rods G, the jaws *u u* in a line with the center of the spindle and supporting the hounds H. *h* and the lip L at the top of the post O, which forms a rest for the standard brace, substantially as described.

3. In a metallic vehicle running-gear the tubular conical spindle suitably formed for supporting a standard, tie plates, truss rods, a hound and tie rods in combination with the struts S supporting the center of the tie plates A, of the stirrup *c*, through which the reach passes, said stirrup being integral with the reach plate *f*, which sets upon the base of the struts and is secured thereto substantially as described.

4. In a metallic vehicle running-gear the combination with the struts S which support the center of the tie plates A, of the stirrup *c* integral with the reach plate *f*, the binding plate *i*, having annular grooves which align with the annular grooves in the base of the struts S, said binding plate *i* holding the truss

rods D and the tie rods G to the base of the struts substantially as shown and described.

5 In a metallic vehicle running-gear, the struts S supporting the center of the tie plates A of the bolster plate Z resting on the tie plates, its arms which are between the tie plates form an angle pass down over the jaws of the struts and is held in position by the bolts which pass through its arms, the jaws 10 of the struts, the tie plates, and brace rods *m n*, the opposite end of the brace rods *m. n* being secured to the front and rear part of the hound H. as described.

6. In a metallic vehicle running-gear the 15 combination with the struts S. of the twist draft bar *e* hinged to the tongue bolt at one end and its opposite end rigidly secured to the reach plate *f*. the reach plate *f*. being rigidly secured to the four struts S at their base, 20 the reach plate *x*. secured to the four struts just above their center, the reach F. playing between these two plates and the four struts, the king bolt, passing through the bolster plate Z, the upper reach plate, the reach, the 25 lower reach plate and twist-draft bar, which is secured to the lower reach-plate, substantially as shown and described.

7. The combination with a metallic vehicle running gear of the hound H rigidly secured 30 to the spindle jaws *u u* said hound at the point of intersection with the spindle jaws forming a line parallel with the reach, the rear part forming a semicircle passing under the reach, the front parts being bent inwardly to embrace 35 the tongue hounds, the brace B secured by the bolt passing through the tie plates and spindle post and being bent at a right angle near its center till it embraces the front part of the hound, the brace C whose contour is 40 nearly the same as that of the rear part of the hound H. passes over the reach and is secured to the hound and to the spindle post, substantially as shown and described.

8. The combination in a metallic vehicle 45 running-gear of the rear hounds *h* rigidly secured at their ends to the spindle jaws *u u*,

and at their front ends to the hound plate P said hound plate having inner flanges that separate the hound from the reach and having the outer parts of the plate to conform to 50 the cylindrical hound, of the brace rods *b d*. the brace rods *d* secured to the struts and the under part of the hounds the brace rods *b*, secured to the spindle-post and the upper surface of the hounds all substantially as shown 55 and described.

9. The combination of a metallic vehicle running-gear with a tubular conical spindle having on its inner upper surface a post, on its inner central surface two jaws, and on its 60 inner lower surface a lug, the post being suitably formed to support a standard, two tie plates and two truss rods, the jaws to support a hound, and the lug to support two tie rods the tie plates being supported in their center 65 by struts, reach plates which embrace the struts, the rear reach plate having integral therewith a stirrup in which the reach plays, binding plates which force the truss rods into the annular grooves in the base of the struts 70 and the tie rods into contact with the truss rods, a front reach plate having attached to it one end of a twist draft bar, the opposite end being hinged to the tongue bolt, an upper reach plate forming the upper bearing 75 for the reach, a bolster plate resting on the front tie plates and secured thereto, the rods *m m* bracing the front part of the front truss and the front part of the front hound the rods *n n* bracing the back part of the front truss 80 and the back part of the front hound the semi-circular brace C. forming the guideway for the reach and secured to the hound and truss the rod B bracing the truss and the hound, and the rods *b d*. bracing the rear 85 truss and rear hounds, all substantially as shown and described.

JOSEPH F. FRY.

Witnesses:

GEO. H. WASHBURN,
E. J. BUFE.