

E. E. WHIPPLE.

RUNNING GEAR FOR WAGONS.

No. 340,647.

Patented Apr. 27, 1886.

Fig. 1.

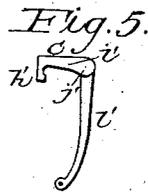
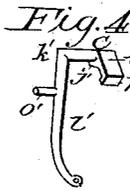
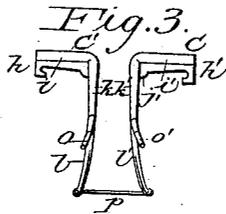
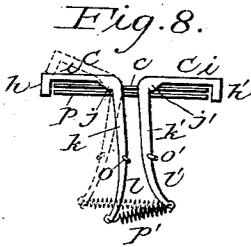
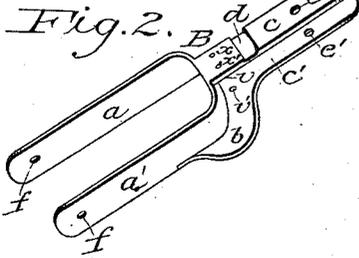
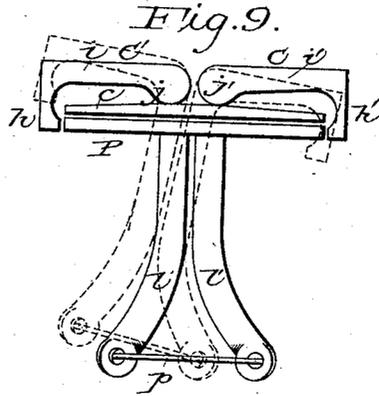
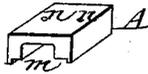


Fig. 6.

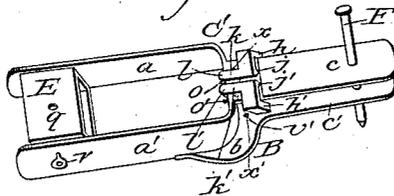
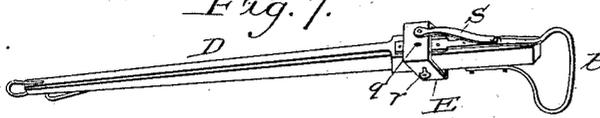


Fig. 7.



Witnesses:

E. S. Harmon
Cushman

Inventor.

Effinger E. Whipple
by Huggins & Smith
his Attorney

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Fig. 10.

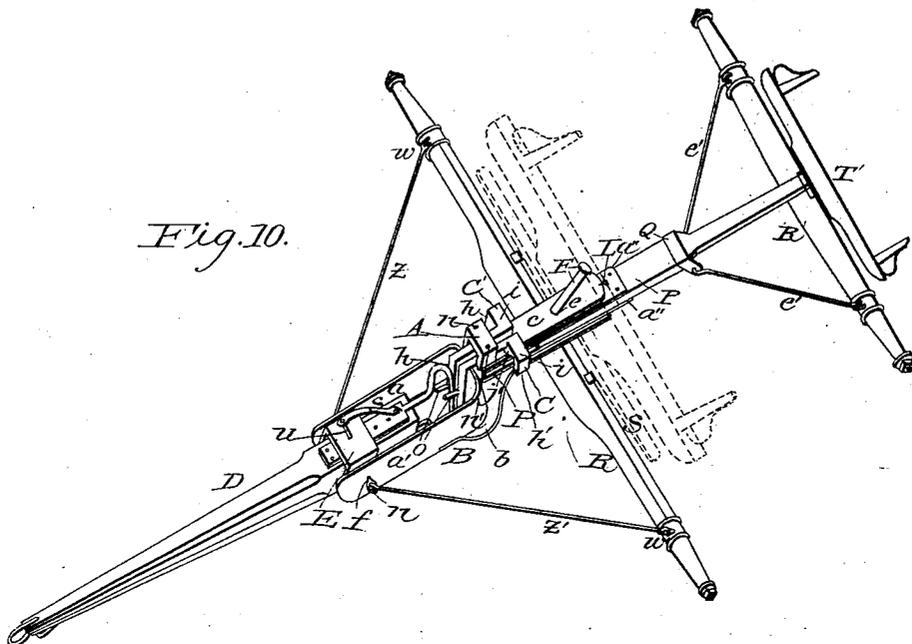
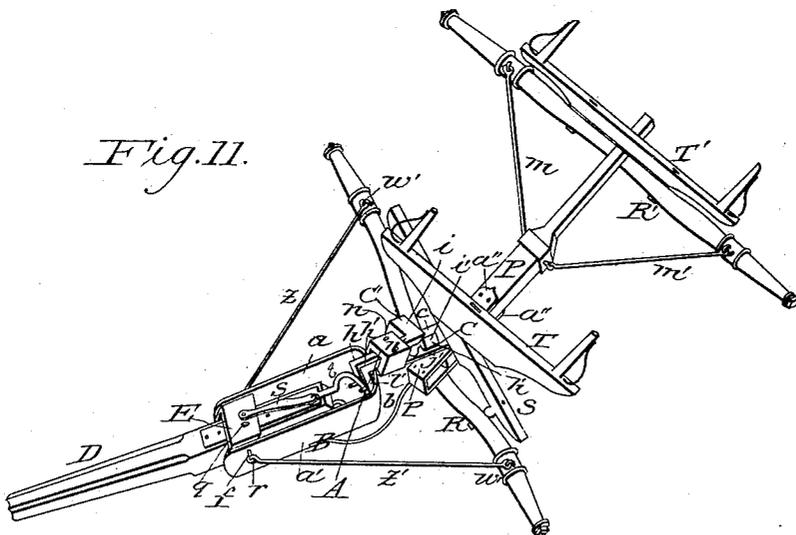


Fig. 11.



Witnesses:

E. L. Kammou
 C. W. Shumate

Inventor.
 Effinger E. Whipple
 by Henggen & Smith
 his Attorneys

(No Model.)

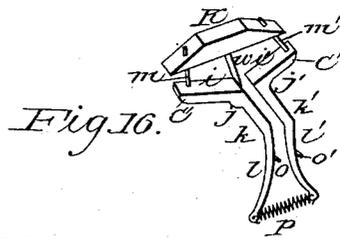
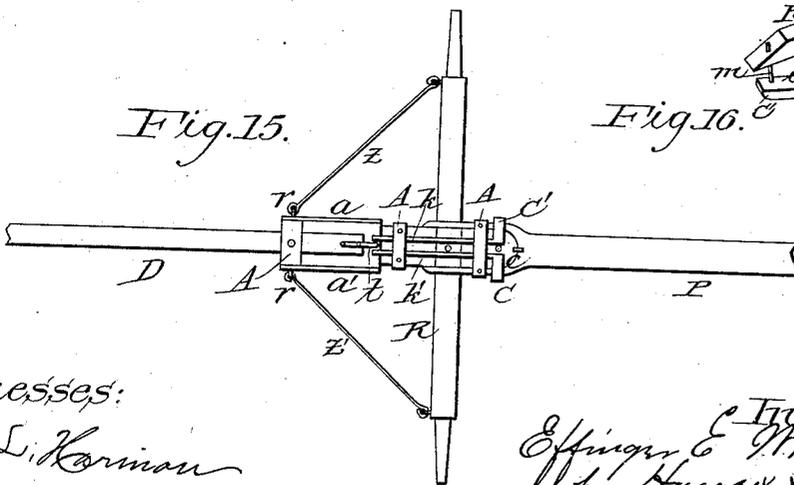
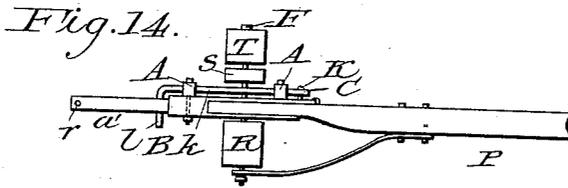
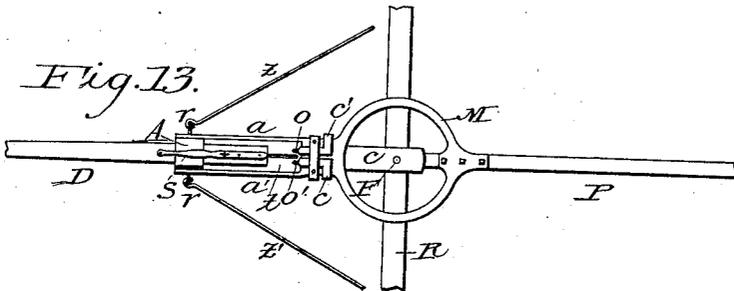
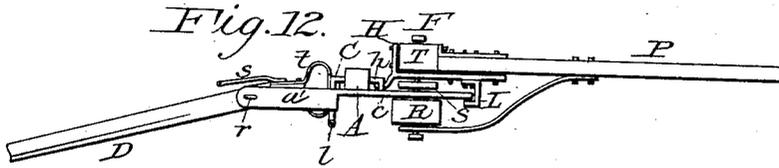
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E. E. WHIPPLE.

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Patented Apr. 27, 1886.



Witnesses:

E. L. Korman

W. S. Sherman

Inventor:
 Effinger & Whipple
 by Huggins & Smith
 his Attorneys

UNITED STATES PATENT OFFICE.

EFFINGER E. WHIPPLE, OF EATON RAPIDS, MICHIGAN.

RUNNING-GEAR FOR WAGONS.

SPECIFICATION forming part of Letters Patent No. 340,647, dated April 27, 1886.

Application filed March 2, 1886. Serial No. 193,793. (No model.)

To all whom it may concern:

Be it known that I, EFFINGER E. WHIPPLE, a resident of the city of Eaton Rapids, in the county of Eaton and State of Michigan, have invented certain new and useful Improvements in Wagons, of which the following is a specification.

My invention relates to improvements in wagons or four-wheeled vehicles such as are used in drawing heavy loads, or where the forward axle is liable to throw the tongue against the horses drawing the wagon.

I do not wish to confine myself to any particular class of wagons, but include any wagon upon which my device, as hereinafter set forth, may be placed; and the objects of my improvements are, first, to prevent the horses from being whipped by the tongue when one of the forward wheels strikes an obstruction or drops into a rut; second, to utilize the momentum acquired by the wagon and load when in motion in assisting the horses to draw the wagon over an obstruction when struck by the forward wheel; third, to facilitate the control and operation of a wagon when in use; fourth, to simplify the construction of a wagon; fifth, to provide an inexpensive and at the same time durable and strong wagon; sixth, to prevent the horses from being jerked or their necks being made sore by the end of the wagon-tongue vibrating between the horses. I attain these objects by the mechanism illustrated in the accompanying drawings, which I hereby declare to be a part of my specification, in which—

Figure 1 is the cap. Fig. 2 is a perspective view of the hounds. Fig. 3 is the clamps. Fig. 4 is a side view of one of the clamps as shown in Fig. 3. Fig. 5 is a rear view of the same. Fig. 6 is a view of the hounds in connection with the tongue-box, king-bolt, and clamps. Fig. 7 is the wagon-tongue placed through the tongue-box. Fig. 8 is a perspective view of the clamps operated by a spring. Fig. 9 is a rear view of the clamps held together by a bar. Fig. 10 is a detailed view in perspective of the wagon-gear with the forward axle held rigidly parallel to the hind axle and locked with the clamps; and Fig. 11 is a like view of the wagon-gear with the forward axle oblique to the hind axle, as in act

of turning, showing one of the clamps raised. Fig. 12 is the reach rigidly attached to the forward bolster, with a plate or bar, also secured to the bolster, extending through under the clamps. Fig. 13 is the reach extended by a circle bolted thereto. Fig. 14 is a sectional view of the bolster, sand-board, and reach, with the clamps locking the hounds to the reach back of the axle. Fig. 15 is a top view of the same; and Fig. 16 is a view in perspective of the arms of the clamps lifting a bolt, when used in preference to the clamps, or when the hounds are locked back of the axle.

Similar letters refer to similar parts throughout the several views.

The cap A is a small cubic metallic block or plate having a groove, *m*, on the underside, and holes *n n*, which can also be made in various ways. The hounds B have an upper and lower plate, *c c'*, with apertures *e e'*, through which the king-bolt F passes. The upper plate also has a slot, *d*, with a top oval surface, and holes *x x'*, corresponding with the holes *v v'* in the lower plate, through which the bolts pass for holding on the cap A. The hounds B are constructed, preferably, of any metallic substance; but wood may be used, and the lower plate, *c'*, has a swell, *b*, upon each side of it, running to the arms *a a'*, for the purpose of strengthening it. The arms *a a'* extend far enough forward to receive the tongue-box E, and have two openings, *f f*, through which pass the bolts *r r*, for receiving the braces *z z'*, running to the ends of the forward axle. The clamps C C' are also cast, or may be forged from any metallic substance, and consist of two similar dogs, with the head-blocks running in opposite direction, connected at the bottom with a small bar, *p*; or a spring may be substituted, if found desirable. When a spring is used for the rod *p*, each clamp will act independent of the other. The clamps have two short horizontal arms, *k k'*, upon one end of which are the plates *i i'*, terminating in perpendicular ends *h h'*. From the other end of the horizontal bars *k k'*, just mentioned extend perpendicular arms *l l'*, from each of which projects a small arm, *o o'*. The clamps C C' turn upon the circular ends *j j'* of the plates. The tongue-box is a small cast metallic box, E, with two opposite sides

open, through which passes the tongue D, and has a hole in each end for admitting the looped bolts $r r$, and a hole, g , in the top for admitting the strap-hammer, or a bolt, if it is found desirable to attach the whiffletree ahead of the tongue-box.

The box E, in connection with the tongue D, turns vertically to the sides $a a'$ of the hounds B, around the looped bolts $r r$ as a center. The tongue D upon one end is ironed off, with the oval guard t projecting beneath and above the tongue.

The wagon-reach P has a plate of iron upon the top and bottom of its forward end, and projects through between the plates $c c'$ of the hounds B, in front of the reach beyond the slot d in the plate c , for the purpose of protecting the wood when the end of the reach strikes against the clamps C C'. The braces $z z'$ at one end are attached to the ends of the forward axle, R, and at their other ends to the looped bolts $r r$, passing through the ends of the hounds B and the side of the tongue-box E. In this connection it will be observed that the objects sought will be attained by locking the forward axle parallel to the hind axle, except while turning, so that the tongue will be in the same straight line with the reach when the wagon is in motion, and also so that the forward wheel, when it strikes an obstruction, instead of yielding or dropping backward, will maintain its fixed relative position and move over the obstruction the same as the hind wheel. It is further noticeable that in wagons as commonly constructed the reach is always perpendicular to the hind axle, and if the forward axle is also locked perpendicularly to the reach the forward and hind axle will be parallel, and the forward and hind wheels will move in the same straight line, which rigid position of the axles is desirable, except when turning.

The reach P, either before or behind the axle R, obviously affords the most convenient means of providing and furnishing a place of locking; but a projection extending out from the forward bolster may also be used, as shown in Fig. 12.

The hounds B, being permanently connected to the reach P by the king-bolt F passing through the hounds B and the reach P, and locked to the reach P by the clamps C C', form a rigid continuation of the reach P, and rods $z z'$, extending from the forward end of the hounds to the ends of the axle R, will hold the axle R perpendicular to reach P and parallel to the hind axle, R', until the forward end of the hounds B moves to the right or left around the king-bolt F as a center, which can only be done by raising the clamp C or C'.

The device I have constructed for securing the hounds to the end of the reach P in the rigid perpendicular position consists of the clamps C C', already described, which, when closed down, so as to hold the forward end of the reach P, form one continued rigid con-

nection with the reach P and the hounds B, as shown in Fig. 10. I do not, however, wish to be confined strictly to the clamps C C', as any device might readily be substituted for the clamps C C', and instead of the sides $h h'$ dropping down outside of the reach P, a bolt, w , Fig. 16, passing through the plate c of the hounds B and the reach P, can be substituted by connecting the extremities of the bar K with the extremities of the arms C C' by the standards $m m'$, and by turning the end of the tongue D the bolt w is thrown up and down through holes passing through the top plate of the hounds, c , and the reach P; or a bolt passing through the top plate, c , and the reach P in advance of the king-bolt F could be raised or lowered by wires extending forward on each side of the tongue D and attached to the neck-yoke. Again, clamps C C', or any equivalent device, can readily be adjusted to the whiffletree and the same purpose subserved, and by lengthening the horizontal arms $k k'$ the plates $i i'$ can be worked either in advance or in the rear of the axle R, as shown in Figs. 14 and 15.

When the hounds B are locked to the reach P in the rear of the axle R, the bolt w , Fig. 16, must be used, since in turning the hounds B by means of the tongue D the rear end of the hounds B slides out over the reach P on the same side that the clamp is raised.

The reach P in the rear of the plate c has a guide, L, under which the end of the plate c turns. I prefer, however, as already stated, to carry out the device for locking the reach P and the hounds B in the same straight line by the clamps C C', as being the most practical and satisfactory, without confining myself entirely to that particular device. The wagon can also be made in the ordinary way with one reach or with two or more reaches attached rigidly to the bolster, with a plate bolted to the front part of the bolster, to which the hounds B may be locked, which would be the same as a continuation of the reach extending through in advance of the axle P, as shown in Fig. 12.

In constructing a wagon comprising the features claimed by my improvements herein set forth, I place the reach P through between the hind axle, R', and the hind bolster, T', having previously placed the band Q upon the center of the reach P, for the purpose of receiving one end of the rods $e' e'$. The other ends of the rods $e' e'$ are attached to the ends of the hind axle by any desirable method; or, if desirable, the hind axle is attached to the reach in the ordinary way. I then rivet or bolt the iron plates $a^2 a^2$ on the forward end of the reach P, after which the guard L is also bolted through the plates $a^2 a^2$ just mentioned. The sand-board S is then bolted to the forward axle, R, and the hounds B are placed between them. I then place the forward end of the reach P through between the plates $c c'$ of the hounds B, and put the king-bolt down through the

forward bolster, T, the sand-board S, the plates *c c'*, the reach P, and the axle R. I now place the clamps C C' upon the top of the plate *c*, with the circular ends *j j'* of the plates *i i'* in the slot *d*, and connect them at the bottom with a small metallic bar, *p*, after which I bolt the cap A or its equivalent down over the clamps C C' by passing a bolt through the openings *n n* of the cap or plate A, *x x'* of the plate *c*, and *v v'* of the plate *c'*.

The clamps C C', when connected by the rod *p*, will turn in unison, as shown in Fig. 9, so that when one rises the other lowers; but when the spring is used in place of the rod only one clamp will rise, as shown in Fig. 8. It is also desirable, in the proper construction of the clamps for easy operation, that the ends *h h'* be nearly on a line of level with the circular ends *j j'*.

The tongue D has the iron guard *t* bolted upon the rear end, together with the hammer-strap *s*. Then I place the tongue D through the tongue-iron E until the hole *q* in the top of the tongue-iron E corresponds in position with the hole in the hammer-strap *s*. The tongue-iron E is then placed between the sides *a a'* of the hounds B and secured by the looped bolts *r r*, passing through the sides *a a'*, and bolted on the inside of the tongue-iron E. The looped bolts *r r* receive the braces *z z'*, attached at the ends *w w* to the end of the axle R, as already mentioned. In this construction the wagon-tongue D and the tongue-iron E turn vertically upon the looped bolts *r r*, and by placing the strap-hammer *u* down through the strap-iron *s*, the tongue-iron E, and the wagon-tongue D the wagon-tongue D is free to turn horizontally around the strap-hammer as a pivotal point. The guard *t* runs a sufficient distance back of the rear end of the tongue D, so that when the strap-hammer passes through the tongue-iron E and the wagon-tongue D the guard *t* stands between the arms *o o'* of the clamps C C'. The guard *t* is of an oval oblong form at the rear end, and terminates in two plates bolted on the top and bottom of the rear end of the tongue. The oval end of the guard *t* is of sufficient length, so that when the forward end of the tongue D is raised or lowered the guard *t* will not pass above or below the arms *o o'* of the clamps C C'.

When the clamps C C' are attached in the manner indicated, and the wagon-tongue D is in the same straight line as reach P and the hounds B, the clamps fall down over the edges of the plate *c* and the reach P, as indicated in Fig. 10. When in this position, if one of the forward wheels strikes an obstruction, the only tendency will be to turn the forward end of the hounds B, which, being previously attached to the reach P at the two points—viz., at the king-bolt F and by the clamps C C' or bolt *w*—fails to move.

In wagons where the forward wheels are left free to give backward or forward when one of them strikes an obstruction, the momentum

acquired by the movement of the wagon and load is lost, and the horses lift the load from a standstill or are jerked violently to one side by the forward end of the wagon-tongue giving with the forward axle.

By turning the forward end of the wagon-tongue to the right the guard *t*, forming the rear end of the wagon-tongue, presses against the arm *o'*, lifts the left clamp, C, and allows the forward end of the hounds B to turn freely around the king-bolt F in the direction of the movement of the forward end of the tongue D, as shown in Fig. 11. A corresponding movement of the forward end of the tongue in an opposite direction presses the guard *t* against the arm *o*, raises the clamp C, and permits the forward end of the hounds B to turn upon the king-bolt F in a correspondingly-opposite direction, which also turns the axle R by means of the rods *z z*, as already stated.

In common wagons the forward axle can be turned at three points—viz., at either forward wheel or the end of the wagon-tongue.

In my device the forward axle can only be turned by the force applied to the end of the tongue, as already shown.

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

1. In wagons, the combination of the forward axle with the hounds, having two plates, between which the reach extends in advance of the axle, and through one end of which passes the king-bolt, also having arms extending laterally forward on each side of the tongue, and held perpendicular to the axle by rods extending from the forward end to the axle, substantially as set forth and described.

2. In wagons, the combination of the reach having a guard back of the forward axle for guiding the rear end of the hounds, and plates of iron on the top and bottom of the forward end, with the hounds having an upper and lower plate extending back on the top or bottom of the reach, and connected with the reach by the king-bolt, and again attached to the reach, either in advance or back of the axle, by clamps or other suitable lockage, substantially as set forth and described.

3. In wagons, the combination of the hounds having an upper and lower plate extending back of the axle, in which the upper plate has a slot or groove, and also having arms extending forward on both sides of the wagon-tongue, with clamps or suitable equivalent devices for attaching the hounds to the reach, either in advance of or behind the axle, and the tongue-iron pivotally connected to the arms of the hounds, substantially as set forth and described.

4. In wagons, the combination of the hounds connected at one end to the center of the axle by the king-bolt, and connected at the other end to the ends of the axle by rods or braces, with the independent dogs or clamps bolted to the hounds by a plate or cap, and connected

at the bottom by a rod or spring, the wagon-tongue connected to the hounds by a swivel-joint, and a suitable guard for tripping the clamps attached to the rear end of the tongue, substantially as set forth and described.

5 The combination, in wagons, of the king-bolt F, the reach P, the axle R, the hounds B, the clamps C C', secured to the hounds B, with

the plate A, the rods z z, the tongue-iron E, and the tongue D, having an oval guard, t, substantially as set forth and described.

EFFINGER E. WHIPPLE.

Witnesses:

J. L. BUELL,

PARM S. DE GRAFF.