

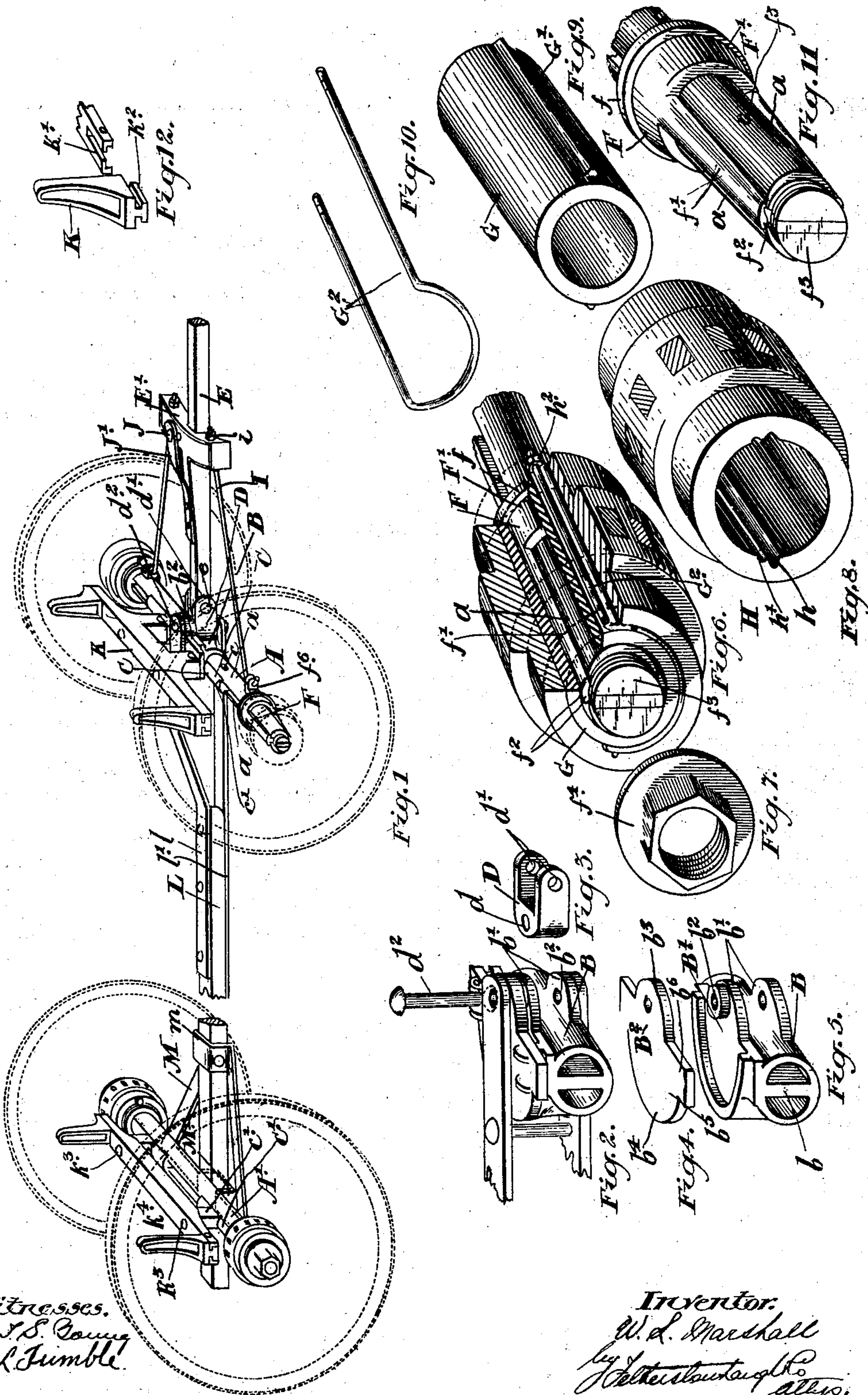
No. 693,977.

Patented Feb. 25, 1902.

W. L. MARSHALL.
VEHICLE GEAR.

(Application filed May 17, 1901.)

(No Model.)



Witnesses.
A. J. S. Goring
H. L. Fumble

Inventor.
W. L. Marshall
by J. H. Stoughton
attys.

UNITED STATES PATENT OFFICE.

WILLIAM LOWERY MARSHALL, OF PORT PERRY, CANADA.

VEHICLE-GEAR.

SPECIFICATION forming part of Letters Patent No. 693,977, dated February 25, 1902.

Application filed May 17, 1901. Serial No. 60,748. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM LOWERY MARSHALL, of the town of Port Perry, in the county of Ontario, Province of Ontario, Canada, have invented certain new and useful Improvements in Vehicle-Gears, of which the following is a specification.

My invention relates to improvements in vehicle-gears; and the objects of the invention are, first, to improve the construction of the axle-arm, so as to minimize the friction of the hub of the wheel when turning on the arm and at the same time so construct the arm that it will be easy to replace when worn or broken; secondly, to improve the construction of the hub, so that the boxing may be readily placed in position in the center thereof or removed when worn preparatory to the insertion of a new boxing; thirdly, to devise a slight, strong, and cheap bolster in which it will not be necessary to brace the end uprights; fourthly, to improve the construction of the rear hounds of the running-gear, and, fifthly, to improve the construction of the reach and the connection of the tongue to the reach and axle, so as to throw the draft directly onto the reach and axle instead of, as heretofore, above the level of the axle. To carry out these objects I have constructed the arm of the axle, the boxing of the hub, the hounds, bolsters, reach, and connections of the tongue to the axle and reach in the manner which I shall now particularly describe, reference being had to the accompanying drawings, forming part thereof.

Figure 1 is a perspective view of a wagon-gear, showing the parts involved in my invention. Fig. 2 is a perspective detail showing the sand-board and fifth-wheel support for same, through which the axle extends, and the connection of the front end of the reach to these parts. Fig. 3 is a detail of the clevis to which the tongue is connected. Fig. 4 is a detail of the sand-board. Fig. 5 is a detail of the fifth-wheel. Fig. 6 is a detail of the hub, showing the hub and axle-box partially in section. Fig. 7 is a detail of the end nut. Fig. 8 is a detail of the hub. Fig. 9 is a detail of the boxing. Fig. 10 is a detail of the staple which secures it in position on the hub. Fig. 11 is a detail of the axle-arm. Fig. 12 is

a detail showing the construction of the end of the bolster and uprights.

A A' are the axles of the wagon or vehicle, which are made in two longitudinal sections or bars *a a*, semicircular in cross-section. The bars *a a* extend from end to end of the axle and arms thereof. The two bars *a a* of the front axle A extend through the divided sleeve B, forming portion of the fifth-wheel B', the central rib *b* of the divided sleeve holding the two bars apart in the center.

C represents blocks located one on each side of the central sleeve B and securely held in position by the bolt *c*, extending therethrough. The blocks C are provided with top and bottom side flanges *c'*, so as to hold them from displacement. The fifth-wheel B' is provided with forwardly-extending lugs *b'*, through which extend holes *b²*.

D is a clevis which is provided with the rear vertical hole *d* and the front holes *d'*, horizontally disposed. The king-bolt *d²* passes through the holes *b²* in the lugs *b'* and the rear hole *d* of the clevis D.

E is a tongue which is connected to the clevis by the cross-bolt *e*, extending through the holes *d'*.

F represents the arms on the ends of the axles, both the rear and front axle being provided with arms formed in identically the same manner. The arms F comprise the inner sleeve portion F', provided with the inner flange *f* and the central bar *f'*, extending through the sleeve portion outwardly. The bar *f'* is provided with the side flanges *f²* both at the top and the bottom, which extend over the bars *a a*. The ends of the bars *f'* and the bars *a a* are both reduced, so as to present a threaded circular end *f³* for the end nut *f⁴*. The arm F is tapered from end to end, the smallest diameter being necessarily at the outer end and is held in position by the rivet *f⁵*. All the arms are constructed in this manner. The boxing G has an internal taper to correspond to the taper of the arm. It will now be seen that between the boxing G and the bars *a a* of the axle there will be oil-spaces formed on each side of the bar *f'*, and thus the arm will be kept perfectly lubricated, and as the boxing is rotating only on the tapered outer edges of the

bar the friction on the arm and boxing will be reduced to a minimum.

The boxing G is held in position in the hub by means of the side ribs G', fitting into corresponding longitudinal recesses *h* in the hub H, and the staple-bolts G², having the arc-shaped end fitting into recesses in the end of the hub and extending through recesses *h'* in proximity to the recesses *h*, the opposite end being provided with nuts *h*².

The means above described securely holds the boxing in place in the hub, preventing both longitudinal and circumferential displacement of the boxing. When the cap-nut *f*¹ is placed in position, the wheel is securely held in place on the arm.

From the above construction it will be readily seen that the boxing-hub may be readily inserted in place or replaced when worn.

On the inner end of the front arms *f* are formed lugs *f*⁶, which are connected by the braces I, hooked into holes in the lugs to the curved metal-bound cross-bar E' on the tongue. The ends of the braces I extend through the metal-bound cross-bar and are provided at the front end with suitable nuts *i*, whereby the tongue may be adjusted to an exact center. The whiffletree (not shown) is secured on the bolt J, which extends through the spring-plate J', held on the tongue, and through the cross-bar E'.

B² is a sand-board which has a forwardly-projecting arc-shaped flange *b*³, having a hole in it, and a circular-projecting rear portion *b*⁴, which rests on the fifth-wheel B'. Lugs *b*⁵ are provided at each side of the laterally-extending wings *b*⁶, and the bolster K fits in between these lugs and is secured in position by the bolts *k*, which pass through the lugs and the bolster, as indicated in Fig. 1. The bolster is preferably a steel bolster, hollow or formed with a channel malleable cast bar, the end being provided with slots or notches *k'*. The uprights K' at the end of the bolster are provided with the depending tongues, reverse T-shape in cross-section, which fit into the slots in the ends of the bolsters, being suitably held in position by bolts.

L is the reach, which is provided at the front with the top and bottom bars *ll'*, respectively, the upper bar *l* extending upwardly at an incline and both bars extending forwardly to a point directly over and underneath the lugs *b'* and *b*³ of the fifth-wheel and sand-board, respectively. The king-bolt *d*², which passes through the aforesaid lugs, passes also through the ends of the reach. The rear bolster K is secured in position by means of bolts *k*³, passing through such bolster and the upwardly-extending projecting portions

c' of the flange-blocks C'. The form of the uprights at the end of the bolster is the same as shown and described as to the front bolster K. The bolt K³ also passes through the ends of the metal hounds M, which extend over the reach L in reverse U-shape form, being held thereto by the bolt *m*. The rear end of the reach passes through a U-shaped strip M', through the ends of which also the bolts *k*³ pass, thereby securely bracing the rear end of the reach to the axle.

It will be noticed from the construction described as to the tongue and the axle that the draft by my construction is exerted directly on the axle and not as heretofore been commonly the case at a point above the level of the axle. The other parts of the device heretofore described are also specially designed to first minimize the friction on the axle-arm and simplify the construction of the remaining gear generally.

What I claim as my invention is—

1. In a running-gear for vehicles, a divided axle comprising two semicylindrical bars suitably held together in the center, the said bars having tapering ends, means for holding the ends apart, said ends being screw-threaded, substantially as described.

2. In a running-gear for vehicles, a divided axle comprising two bars suitably connected together in the center and having end arms with ribs extending between and holding the bars apart at each end and separating-blocks provided with flanges at the top and bottom extending at each side onto the two bars as and for the purpose specified.

3. The combination with the divided axle-bar, of an arm comprising a sleeve-shaped inner end with a tapered central bar attached to or forming parts of the same and extending between the divided axle-bars and provided with flanges and the threaded end formed partially on the divided bar and central bars as and for the purpose specified.

4. The combination with the divided axle-bar, of an arm comprising a sleeve-shaped inner end with a tapered central bar attached to or forming part of the same and extending between the divided axle-bars and provided with flanges and the threaded end formed partially on the divided bar and central bars, a boxing suitably held in the hub through which such arm extends and a cap-nut on the threaded end of the arm and axle as and for the purpose specified.

WILLIAM LOWERY MARSHALL.

Witnesses:

B. BOYD,
R. SHIELDS.