

L. PULLIAM.
Running Gear for Wagons.

No. 218,898.

Patented Aug. 26, 1879.

Fig. 1.

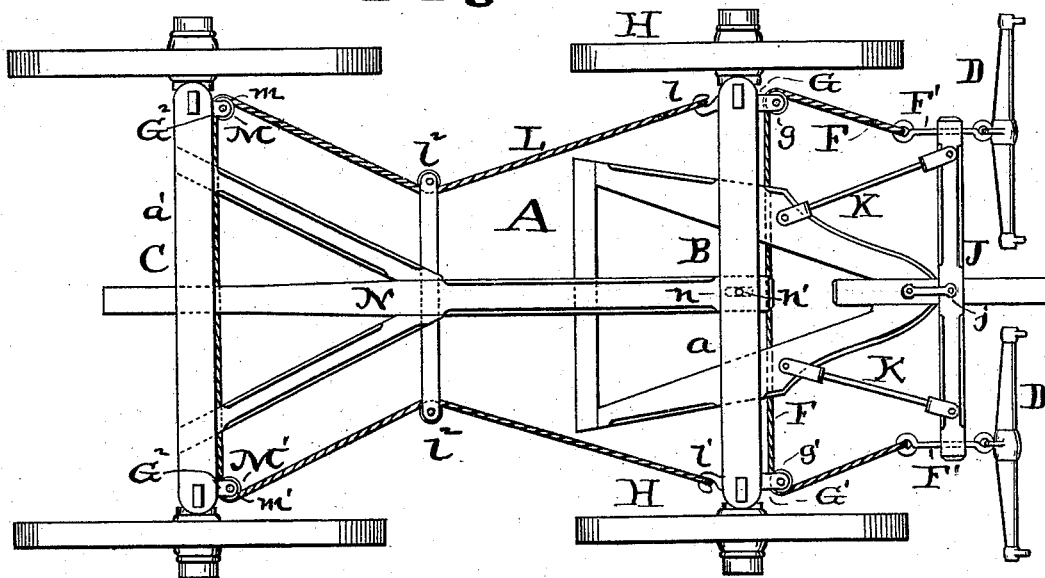


Fig. 2.

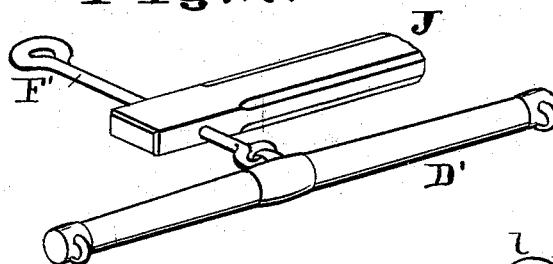
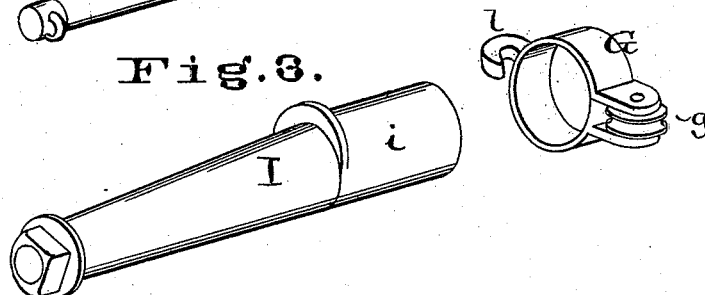


Fig. 3.



Attest.

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UNITED STATES PATENT OFFICE.

LUTHER PULLIAM, OF MIAMI, MISSOURI, ASSIGNOR OF ONE-HALF HIS
RIGHT TO COTTON H. ALLEN, OF CHICAGO, ILLINOIS.

IMPROVEMENT IN RUNNING-GEARS FOR WAGONS.

Specification forming part of Letters Patent No. **218,898**, dated August 26, 1879; application filed
February 26, 1879.

To all whom it may concern:

Be it known that I, LUTHER PULLIAM, of Miami, Saline county, Missouri, have made a new and useful Improvement in Couplings and Draft Attachments for Wagons and Carriages, of which the following is a full, clear, and exact description, reference being had to the annexed drawings, making part of this specification, in which—

Figure 1 is a plan of a wagon having the improvement, the wagon-bed not being shown; Fig. 2, a detail, being a view in perspective of one of the single-trees and of the parts immediately therewith connected; and Fig. 3, a detail, being a perspective of one of the axle-skins and of the clip used thereupon.

The same letters denote the same parts.

The present invention enables the power used in drawing a wagon or carriage to be applied to much better advantage than hitherto has been attainable. The front and hind gears are more firmly coupled, and the vehicle generally is compacted to such a degree as to materially lessen the draft.

It consists in the mode of attaching the single-trees to the front gear, and in the mode of coupling the front and hind gears.

Referring to the drawings, A represents a wagon having the present improvements. B represents the front gear, and C the hind gear. D D' represent the single-trees. Instead of fastening them to a double-tree, they are attached directly to the front axle, *a*, and in the following manner: A cord or chain, F, leads from one single-tree, D, around a bearing in the form of a pulley, *g*, that is journaled in a clip, G, that is upon the axle *a*, thence around another bearing, also a pulley, *g'*, similarly held in a similar clip, G', at the other end of the axle, and thence to the other single-tree, D'.

The clips are attached as closely as is practicable to the wheels H H, being preferably made to fit onto the part *i* of the skein I. (Shown in Fig. 3.) The cord or chain might pass through an eye or hook in the clip; but to reduce the friction I insert the pulleys *g g'*.

Instead of attaching the cord directly to the single-trees, I preferably make the attachment of the cord to rods F' F', which, in turn, are connected with the single-trees.

To guide the cord F and to prevent either single-tree from being drawn backward too far, the rods F' F' are arranged to move in perforations or slots in a bar, J, that is attached rigidly to the gear at *j*.

K K represent braces that aid in holding the bar J in place.

Instead of coupling the front and hind gears by means of a bolt passing through the reach and the front axle at the center of the latter, the connection is as follows: A cord or chain, L, leads from one end of the front axle, *a*, around a bearing, M, at the end of the hind axle, *a'*, thence around a bearing, M', at the other end of the hind axle, *a'*, and thence to the opposite end of the front axle.

The bearings M M' are preferably upon clips G² G², and they are provided with pulleys *m m'* to reduce the friction, and the attachment of the cord to the front axle is preferably to a hook, *l*, that may be an extension upon the clips G G¹.

The clips G² G² upon the hind axle are attached to the skeins of the hind axle in manner similar to the clips upon the front axle.

The cord L is drawn inward toward the perch N, and made to pass around bearings P P, in order to provide room for the front wheels in turning the wagon around.

By the means above described the draft is applied as closely to the points of resistance—the wheels—as is practicable. The draft also is applied to both ends of the axle directly, and the entire vehicle is compacted, so that it can be moved with much less force than hitherto has been needed.

The perch N is slotted at *n* to allow a little play; but no drawing strain is allowed to come upon the pin *n'*, the main function of the perch being to prevent the gears from closing together and to guide the hind wheels.

If desired, the bearings M M' may be arranged in front of the rear axle—say at the points P P—provided the bearings are united with the rear axle.

A further modification would be having the bearings M M' upon the front axle, and attaching the ends of the chain L to the hind axle; or bearings, such as M M', might be arranged upon both front and hind axles, and an end-

less chain might be carried around all four bearings.

I am aware that draft attachments have heretofore been used, and I do not claim such broadly.

I claim—

1. In a wagon, A, the combination of the axle *a*, bearings *g g'*, chain F, bar J, braces K K, and single-trees D D', substantially as described.

2. The combination of the axle *a*, bearings *g g'*, chain F, trees D D', and bar J, the latter being attached rigidly to the front gear, substantially as described.

3. The combination, in a vehicle, of the gears B C, chain L, and bearings M M', substantially as described.

4. The combination of the gears B C, chain L, bearings M M', and bearings *P P*, substantially as described.

5. The combination of the gears B C, bearings *g g'* and M M', chains F L, and trees D D', substantially as described.

L. PULLIAM.

Witnesses:

C. D. MOODY,

C. H. ALLEN.