

No. 719,129.

F. L. NORTON.

PATENTED JAN. 27, 1903.

TRAIL VEHICLE AND CONNECTION THEREFOR.

APPLICATION FILED MAY 6, 1901. RENEWED NOV. 13, 1902.

NO MODEL.

2 SHEETS—SHEET 1.

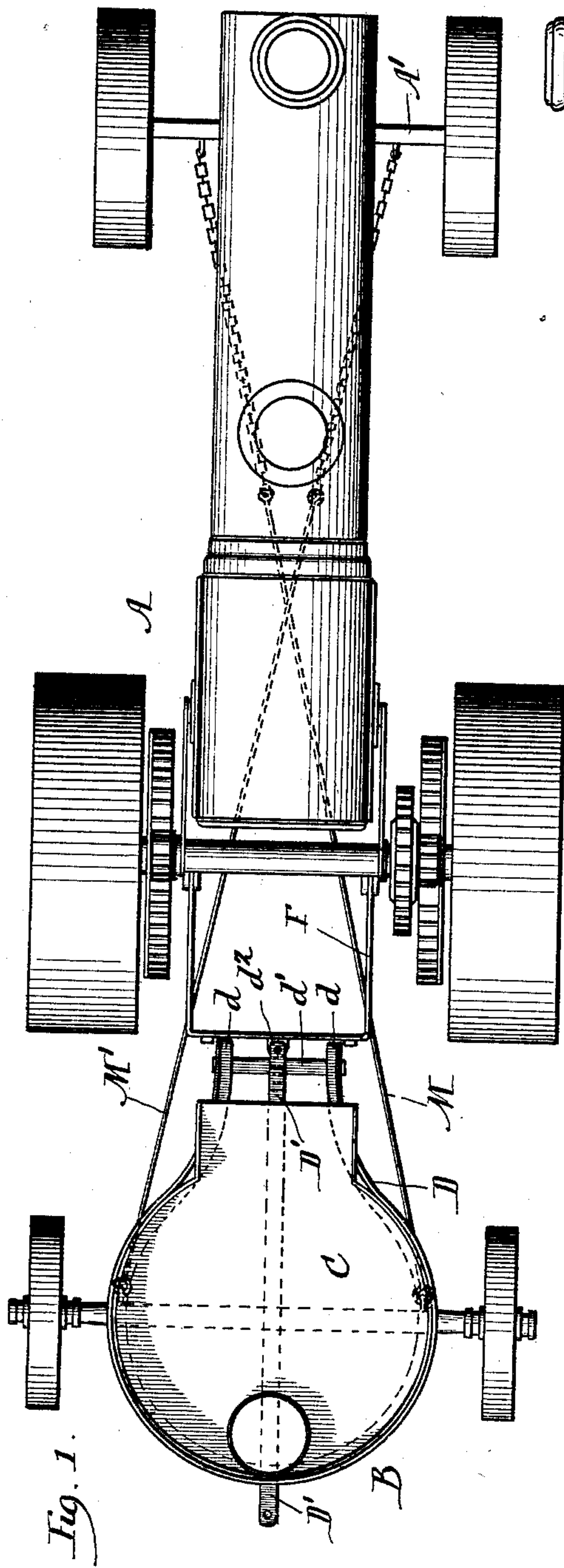


Fig. 1.

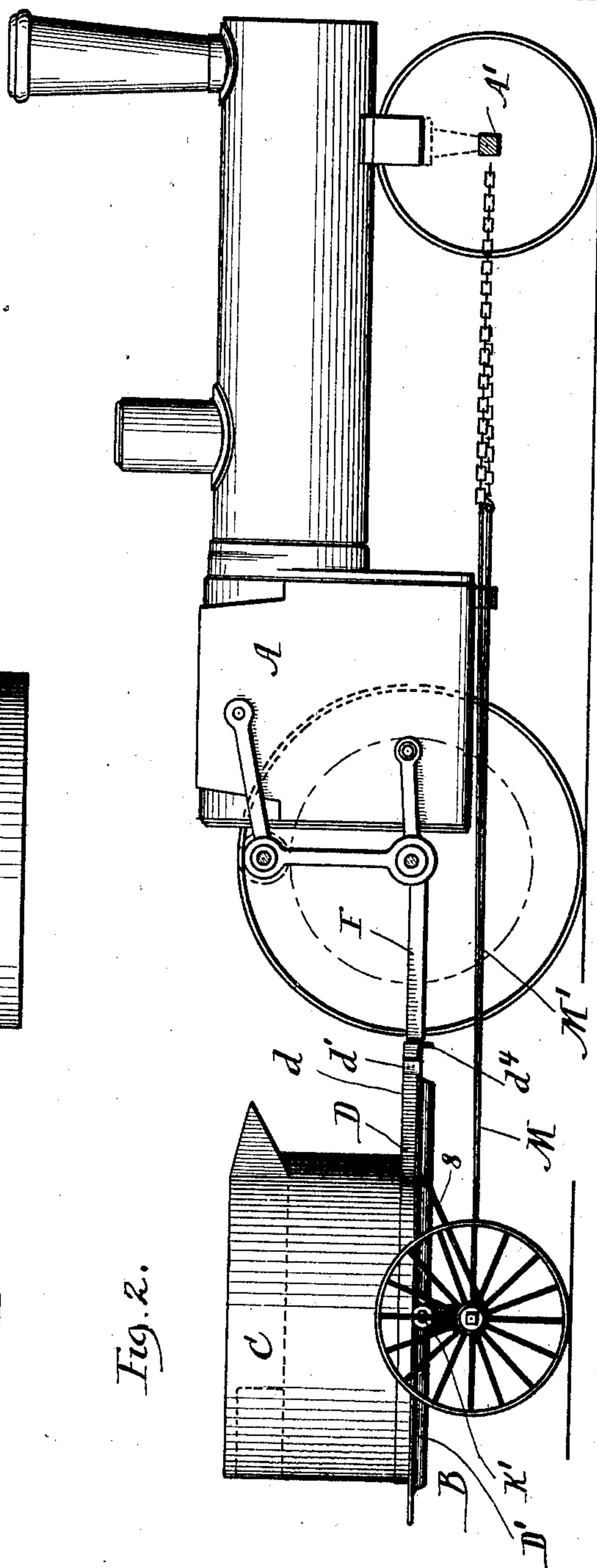


Fig. 2.

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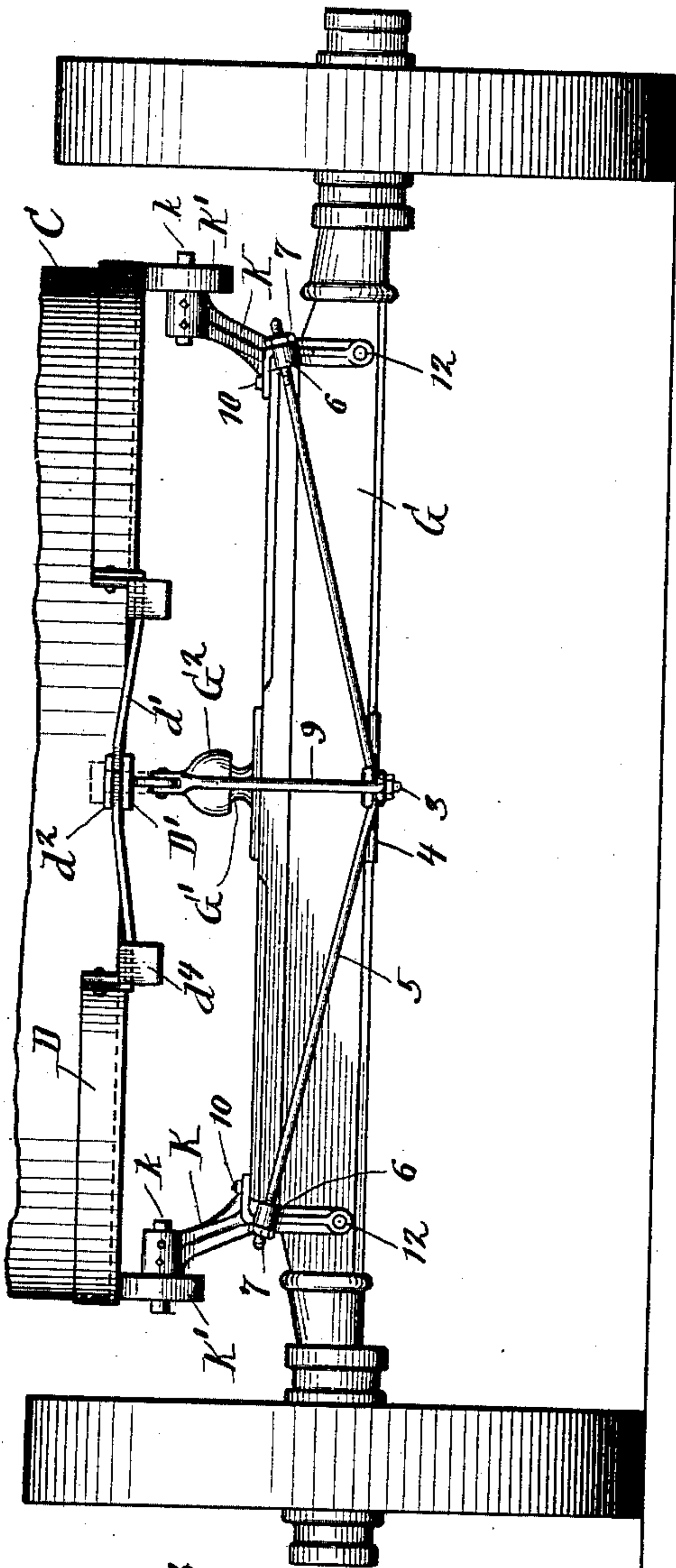


Fig. 3

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Fig. 4.

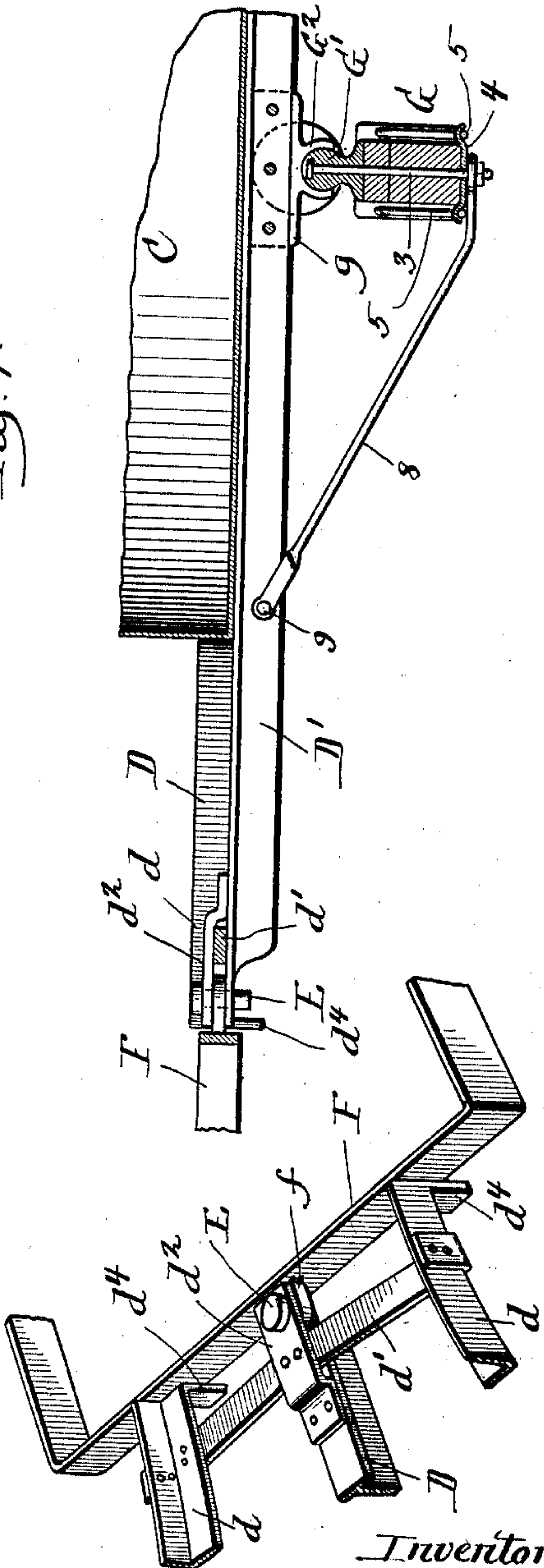


Fig. 5.

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UNITED STATES PATENT OFFICE.

FREDERICK LEE NORTON, OF RACINE, WISCONSIN.

TRAIL-VEHICLE AND CONNECTIONS THEREFOR.

SPECIFICATION forming part of Letters Patent No. 719,129, dated January 27, 1903.

Application filed May 6, 1901. Renewed November 13, 1902. Serial No. 131,265. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK LEE NORTON, a resident of the city and county of Racine, in the State of Wisconsin, have invented certain new and useful Improvements in Trail-Vehicles and Connections Therefor, of which the following is a full, clear, and exact description.

This invention has for its object to provide an improved construction of trail-vehicle and to provide improved means for connecting said trail-vehicle to the lead-vehicle, so that the trail-vehicle shall more promptly respond to the movements of the lead-vehicle in traveling both in forward and backward direction.

In the drawings the invention is illustrated as embodied in a tender connected to a traction-engine, but manifestly the invention is applicable to other styles of vehicles in which it is desirable to connect a trail vehicle or wagon to the vehicle in front of it in such manner that the two vehicles shall have, as it were, a responsive or unison movement when moving in either forward or backward direction.

This object of invention is accomplished by the features of improvement hereinafter described, illustrated in the accompanying drawings, and particularly pointed out in the claims at the end of this specification.

Figure 1 is a plan view of a traction-engine and its tender having my invention applied thereto. Fig. 2 is a view in side elevation of the parts shown in Fig. 1. Fig. 3 is an enlarged detail front view of the tender detached. Fig. 4 is a view in central vertical longitudinal section through the tender or trail-vehicle. Fig. 5 is a detail perspective view showing a part of the engine-platform and the front part of the trail-vehicle.

A designates the traction-engine, and B denotes the trail-vehicle, which, as shown, has mounted thereon a tank C. The frame of the trail-vehicle B consists, preferably, of a metal frame formed from an angle-bar D, the ends d of the angle-bar being brought forward and being connected together by a cross-bar d' . To this cross-bar d' is bolted (see Fig. 5) the front end of a draft-bar D, (preferably T-shaped in cross-section,) that extends beneath the body of the trail-vehicle

and preferably projects rearwardly therefrom, as seen in Fig. 1, in order that other vehicles may be attached thereto, if desired. The draft-bar D' has its front end provided with a suitable clevis or like coupling d^2 , that will be connected by a suitable pin F with a draft-lug f projecting from the rear bar of the platform F of the engine. There will be sufficient looseness in the connections between the joint of the draft-bar D' and the platform F (or other part of a lead-vehicle to which the draft-bar may be connected) to compensate for the irregular movements of the vehicles incident to their travel over rough roads, obstructions, or the like. To prevent the ends d of the trailer-frame from overriding the platform-bar F, the extreme ends of the bar D are bent downwardly, as at d^4 , thereby affording a more extended bearing for said ends.

Upon the axle G of the trail-vehicle is mounted a central ball-shaped bearing G', over which sets a socket G², that is formed upon the under side of a sectional plate g , that straddles the web of the draft-bar D' and is bolted thereto. (See Fig. 4.) The bearing G' is shown as held in place by a through-bolt 3 passing through the axle G and through a plate 4 extending beneath said axle. With the ends of the plate 4 at front and rear of the axle engage the central portions of the truss-rods 5, the upper threaded ends of these rods being passed through bosses 6, that are formed on the brackets K, the ends of the truss-rods being furnished with threaded retaining-nuts 7. Beneath the plate 4 and engaging the bolt 3 is the stay-rod 8, the forward bifurcated end of which is bolted, as at 9, to the web of the draft-bar b' .

Each of the brackets K rests upon the top of the axle G, being bolted thereto, as at 10, and is formed with depending yoke-shaped arms that straddle the axle G and are bolted thereto, as at 12. Each of the brackets K carries at its upper end a stud-axle k , on which is journaled a bearing-wheel K', whereon rests the frame D of the trail-vehicle.

The axle G of the trail-vehicle is united with the front axle A' of the lead-vehicle by crossed connectors M and M', consisting, preferably, of rods and chains, as shown. The purpose of these connectors is to cause the

wheels of the trail-vehicle to respond to the movements of the steering-wheels of the leader-vehicle. Preferably the rear ends of the connectors M and M' are attached to the
 5 axle G of the trail-vehicle at a greater distance from the center of the line of draft than are the points of attachment of the front ends of these connectors from the center of the axle A' of the lead-vehicle.

10 From the foregoing description it will be seen that when the front axle A' of the lead-vehicle is turned a shift will also be given through the crossed connectors to the pivoted axle of the trail-vehicle; but inasmuch as the
 15 body of the trail-vehicle is connected to the lead-vehicle at the center of the line of draft and is guarded against excessive lateral swing by the extended arms d the body of the trail-vehicle will be caused to move in substantial
 20 unison with the body of the lead-vehicle. The effect of these connections is that while the pivoted axle of the trail-vehicle responds to the movement of the pivoted axle of the lead-vehicle the bodies of the two vehicles
 25 move in substantial alinement, and this is true whether the vehicles be traveling in forward direction or are being forced backward.

I am aware that it has been heretofore proposed to connect the pivoted axles of lead
 30 and trail vehicles in a manner similar to that shown in the accompanying drawings; but with such prior constructions the connection of the body of the trail-vehicle to the lead-vehicle is such that the backing of the vehi-

cles could not be effected without the trail- 35 vehicle being forced out of alinement with the lead-vehicle, and thereby causing danger of straining or breaking the parts.

Having thus described my invention, what I claim as new, and desire to secure by Letters 40 Patent, is—

1. The combination with the lead-vehicle having a pivoted axle, of a trail-vehicle having a pivoted axle united by crossed connectors to said axle of the lead-vehicle, the body 45 of said trail-vehicle being provided with a central draft-bar adapted to be pivotally connected at its forward end to the lead-vehicle and having a bent metal frame formed with forwardly-projecting ends extending at the 50 sides of the draft-bar and adapted to engage with the lead-vehicle and prevent excessive lateral swing of the body of the trail-vehicle whereby the bodies of said lead and trail vehicles are caused to move in substantial aline- 55 ment in the forward and backward travel of said vehicles.

2. A trail-vehicle, the body whereof comprises a bent metal frame having forwardly-projecting ends and a central draft-bar hav- 60 ing its front end extended between the forwardly-projecting ends of said frame and secured thereto and an axle for said trail-vehicle whereon said body is pivotally mounted.

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Witnesses:

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