

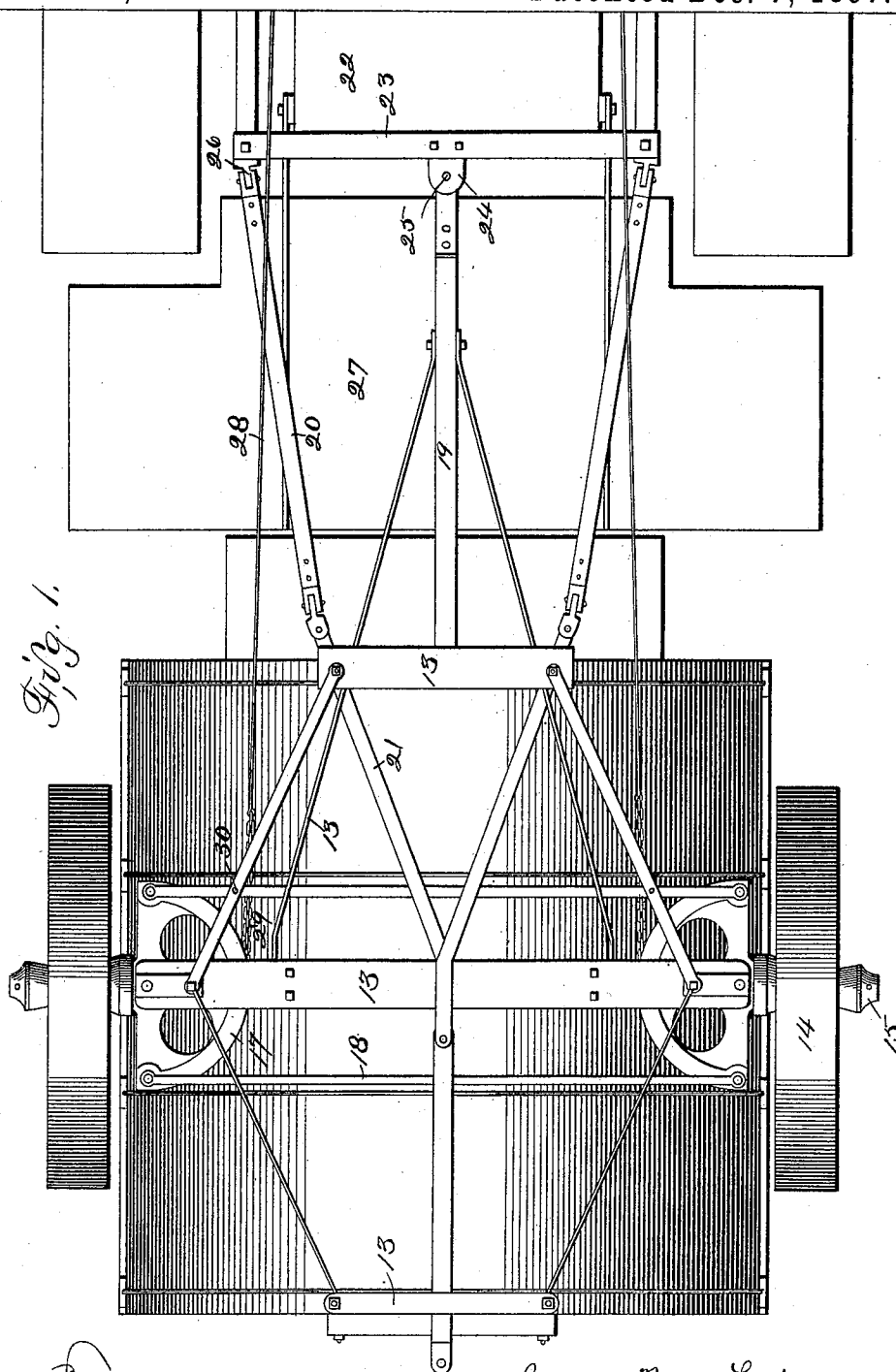
(No Model.)

3 Sheets—Sheet 1.

J. M. FULLER.
TENDER FOR TRACTION ENGINES.

No. 594,866.

Patented Dec. 7, 1897.



Witnesses:
W. J. Sankey,
Jas. Barell.

Inventor: James M. Fuller,
By Thomas G. and J. Ralph Orrig,
Attorneys.

(No Model.)

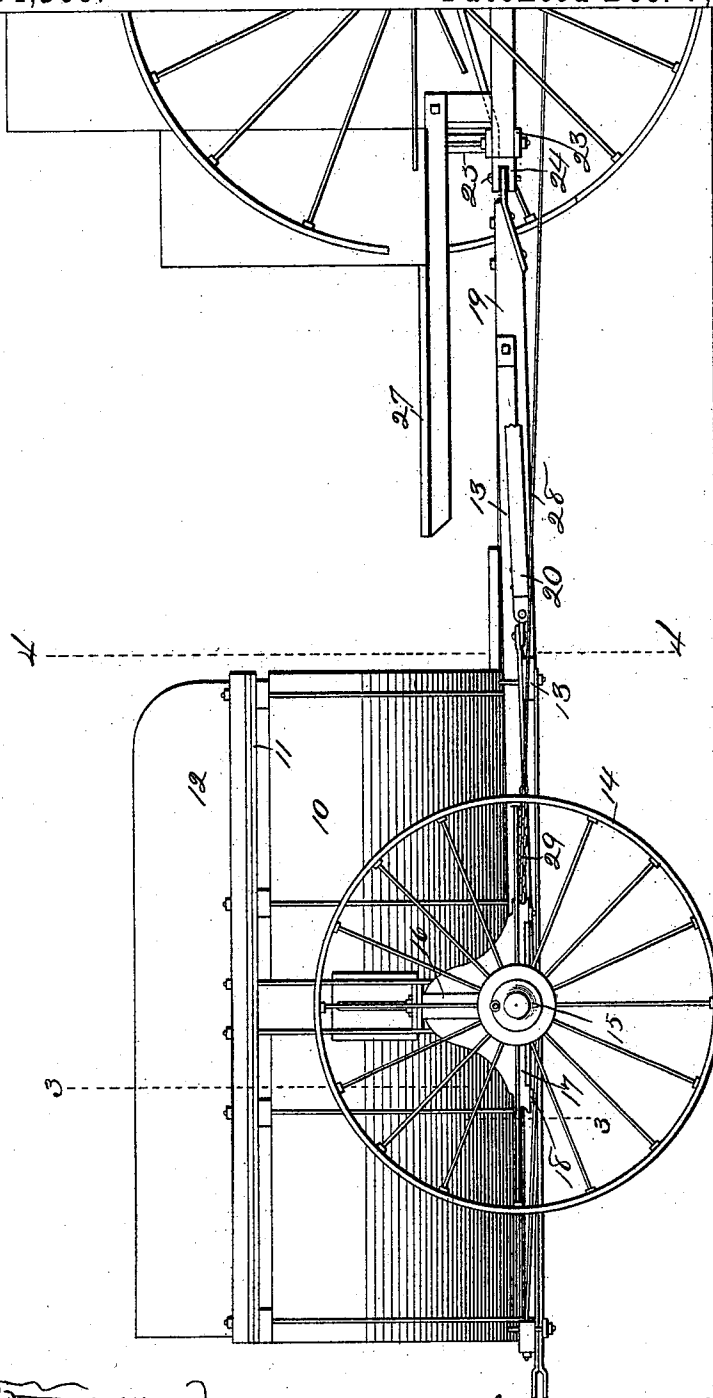
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Fig. 2.



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(No Model.)

3 Sheets—Sheet 3.

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Fig. 5.

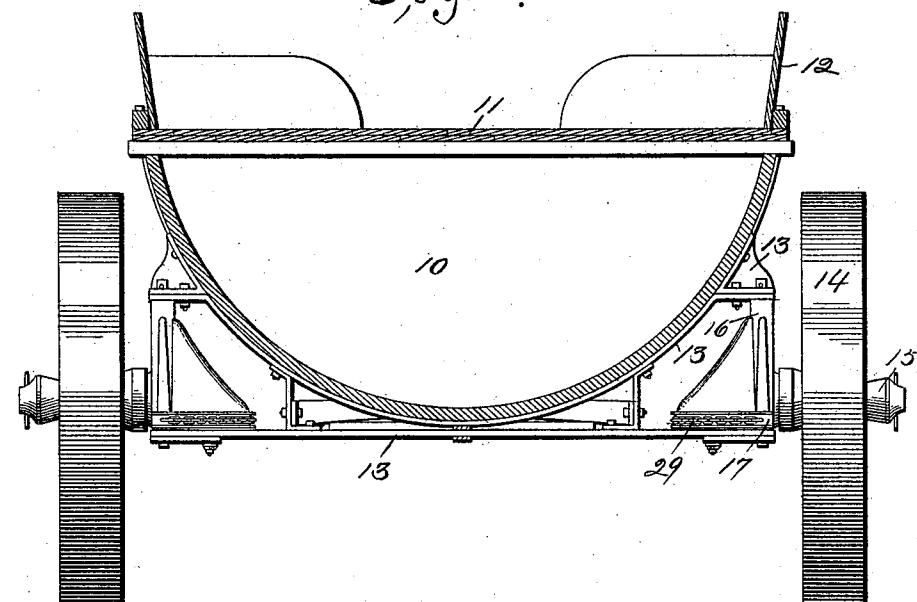
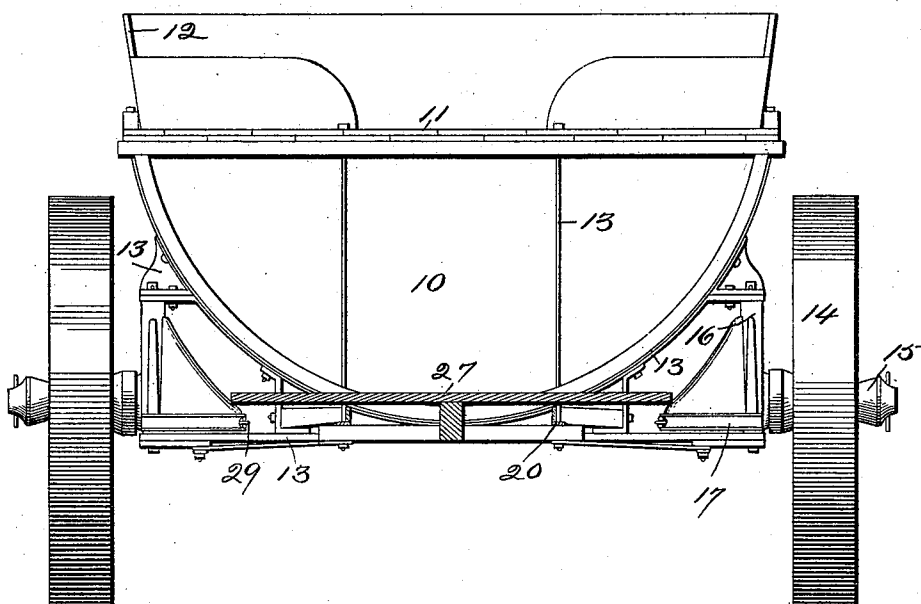


Fig. 4.



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By Thomas G. J. Ralph Orring, Atty.

UNITED STATES PATENT OFFICE.

JAMES M. FULLER, OF SIOUX FALLS, SOUTH DAKOTA.

TENDER FOR TRACTION-ENGINES.

SPECIFICATION forming part of Letters Patent No. 594,866, dated December 7, 1897.

Application filed April 16, 1897. Serial No. 632,526. (No model.)

To all whom it may concern:

Be it known that I, JAMES M. FULLER, a citizen of the United States, residing at Sioux Falls, in the county of Minnehaha and State of South Dakota, have invented a new and useful Tender for Traction-Engines, of which the following is a specification.

The object of this invention is to provide a tender of strong and durable construction designed to contain water and fuel and the like and designed to be coupled to a traction-engine without in any way interfering with the engine in any of its movements, either when rounding curves, backing, or going over irregular surfaces and ditches.

My invention is, further, to provide a tender of this class that may be coupled to any ordinary traction-engine without changing the construction of the engine or the position of the platform at the rear end of the engine. Hence when the tender is not attached the engine will be provided with its own platform, as usual.

A further object is to provide simple, durable, and inexpensive mechanism whereby the wheels of the tender may be connected with the steering-axle of the engine by direct-connecting devices, to thereby dispense with the use of directing pulleys and guides, and at the same time so connect the tender-wheels with the steering-wheels that the latter will track with the former at all times, and, further, to provide means whereby the wheels of the tender may be turned to stand in any direction while the tender is standing still, and this with the application of only a comparatively slight amount of power.

My invention consists, primarily, in the construction, arrangement, and combination of the wheels and axles of the tender, and, further, in the arrangement and combination thereof and the connection therewith of the steering-axle of a traction-engine, as hereinafter more fully set forth, pointed out in my claims, and illustrated in the accompanying drawings, in which—

Figure 1 shows an inverted plan view of the tender and the devices for coupling the same to a traction-engine and also showing diagrammatically the rear end and platform of a traction-engine. Fig. 2 shows a side elevation of the same parts. Fig. 3 shows a ver-

tical transverse sectional view through the line 3 3 of Fig. 2. Fig. 4 shows a like view through the line 4 4 of Fig. 2, looking rearwardly.

Referring to the accompanying drawings, I have used the reference-numeral 10 to indicate the water-tank, which is preferably semi-circular in form, and has a flat platform 11 at its top surrounded by the side boards 12, within which the fuel may be contained. This tank is supported within the frame composed of the cross-beams, braces, and stay-bolts, collectively indicated by the reference-numeral 13.

The traction-wheels 14 are each supported upon an independent stub-axle 15. These axles are formed on or fixed to the uprights 16, which in turn are pivotally mounted in a vertical position between two of the braces of the framework at each side of the tank, and formed on the lower inner end portion of each of said uprights 16 is a semicircular flanged track 17. These tracks 17 on the opposite sides of the machine are connected by means of the rods 18, one of which is pivotally secured at one end to the rear end portion of the track on one side of the machine and at its other end to the rear end portion of the track on the opposite side of the machine. The other connecting-rod 18 is pivoted to the opposite ends of the tracks. By this means the wheels must obviously always stand in the same direction.

The tender is connected with a traction-engine by means of the pole 19, which is attached to the front end of the supporting-frame of the tender and which has an opening in its forward end, whereby it may be coupled to the tender, and also by the coupling-rods 20, which same are pivotally connected with the braces 21 of the frame 13 to be capable of moving in a vertical plane relative thereto and also capable of being pivotally connected at their forward ends with a traction-engine.

The reference-numeral 22 is used to indicate that part of the traction-engine shown. On the under side thereof is a cross-piece 23, having at its central portion a coupling device having an opening therein to admit a pin, which same is to be extended through the front end of the pole 19. The opening in the said pole 19 is preferably made large enough

so that a limited lateral movement of the said pole in the coupling device will be permitted. The projections 26 at the sides of the frame of the traction-engine are provided, to which
5 the forward ends of the coupling-rods 20 may be pivotally connected to swing in a vertical plane.

27 indicates the platform, fixed to the engine-frame at such a distance above the coupling-pole 19 and the coupling-rods 20 that the
10 said platform will not touch the said pole or rods at any time, even though the engine and tender were passing over comparatively deep ditches and uneven ground-surfaces.

15 The reference-numeral 28 is used to indicate rods which are attached at their forward ends to the steering-axle of the traction-engine and at their rear ends to the chains 29. These chains are fixed at their opposite ends
20 to the tracks 17. Hence when the said steering-axle is moved at an angle relative to the engine each of the stub-axes of the tender will also be moved to stand at the same angle as the steering-axle.

25 If it should be desired to hold the stub-axes of the tender at a position at right angles with the longitudinal center of the tender, so that the tender might be advanced without having its steering apparatus connected with
30 the axle of an engine, I simply place a rod or pin through the openings 30, formed in the front connecting-bar 18 and one of the braces of the frame 13. It is obvious that by reason of the use of stub-axes instead of a straight
35 axle the water-tank may be placed in a position much closer to the ground than would be possible if a straight axle were used, and hence it is possible to use larger wheels on
40 the tender than could be used with a straight axle, other conditions being equal. Furthermore, with this construction I may use straight coupling poles and rods to connect
45 with the frame of the traction-engine and may place the same such a distance beneath the platform, which is usually attached to the rear end of a traction-engine, so that when
50 the device is moving over uneven ground or passing through ditches, &c., the said platform will not strike upon the coupling devices. Furthermore, the rods that connect
55 the semicircular tracks 17 of the tender with the steering-axle of the engine are extended straight throughout their entire length and need not be passed over direction-pulleys, as
60 is necessary where crossed connecting rods or chains are used. It is obvious, further, that the wheels of the engine and the tender may be changed to stand at any angle while
65 the engine is standing still with much greater ease than would be possible with a tender having a long axle, for with this device the wheels may each move as though they were on a pivot, while with a single axle it would be
necessary to advance one and force the other
backwardly in order to make them stand at an angle.

I am aware that heretofore vehicles have

been connected so that the wheels thereof would track when rounding curves, &c., by means of chains connecting the axles thereof. 70 However, in such devices it has been necessary heretofore to cross the connecting-chains, which same obviously occasions the use of directing-pulleys and makes the use of chains or flexible connecting devices compulsory. 75 With the use of stub-axes connected together as shown in the accompanying drawings the devices for connecting the axles of the tender with the axles of the engine may be iron rods, and they are extended straight 80 from one point to the other, and hence the use of directing-pulleys or other similar devices is rendered unnecessary.

By the use of my particular arrangement and combination of devices for coupling the 85 tender to the engine unusual and severe strains upon the said coupling devices are prevented from breaking the frame of the tender and the tender is made to follow direct after the engine and maintain the same 90 relative position thereto at all times. The side couplings 20 are arranged so that the tender and engine will be capable of a vertical movement relative to each other, and the coupling-pole 19 is also arranged so that it 95 may have a slight vertical movement. Furthermore, all side strains that would be liable to break the central pole, if used alone, are borne by the said coupling-rods 20.

Having thus described the construction, 100 arrangement, and combination of each feature of the device, what I claim as new therein, and desire to secure by Letters Patent of the United States therefor, is—

1. The combination of an engine and tender, or like vehicle, of stub-axes pivotally 105 connected with the tender at its opposite sides to swing in a horizontal plane, wheels fixed thereto, approximately semicircular tracks or guides connected with the inner ends of said 110 axles, connecting-rods extended parallel with each other beneath the tender-body and pivotally connected with the ends of the said semicircular tracks or guides, and chains or their equivalents fixed to said tracks or guides 115 and designed to be connected with the steering-axle of the engine, for the purposes stated.

2. The combination with a traction-engine and tender, or the like, of a frame in which the tender-body may be mounted, stub-axes 120 at the sides of said frame, an upright formed on or fixed to the inner end of each of said stub-axes and having journals at their ends designed to be pivoted in the said frame, semicircular tracks or guides formed on or 125 fixed to the said uprights, connecting-rods extended parallel with each other beneath the tender-body and pivotally connected with the ends of the said semicircular tracks or guides, chains fixed to the said tracks or guides and 130 designed to be connected with the steering-axle of an engine, and coupling devices for connecting the tender and engine, for the purposes stated.

3. A tender for traction-engines or the like, comprising in combination, a tank, a frame for supporting the tank, stub-axles pivotally mounted in said frame and capable of swinging in a horizontal plane independently of each other, cross-pieces fixed to the inner end portions of said stub-axles, parallel rods to extend under the tender-body and pivotally connected with the opposite ends of the said cross-piece, and having one or more pin-holes in the forward one thereof, a pin or pins designed to be passed through said hole or holes and to engage with a part of the stationary frame of the tender so that the axles will be held stationary relative to the tender-body, for the purposes stated.

4. A tender for traction-engines or the like, comprising in combination, a tank, a frame 13,

wheels 14, stub-axles 15, uprights 16 formed on or fixed to the axles, semicircular grooved guides or tracks 17 formed on or fixed to the said uprights, connecting-rods 18 pivoted to the said tracks or guides 17, a coupling-pole 19 fixed to the frame 13, coupling-rods 20 pivoted to the frame, chains 29 connected with the semicircular tracks or guides, and means for connecting the front connecting-rod 18 with part of the stationary frame of the tender, all arranged and combined substantially in the manner set forth and for the purposes stated.

JAMES M. FULLER.

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