

No. 660,048.

Patented Oct. 16, 1900.

G. F. CONNER.
TRACTION ENGINE.

(Application filed June 14, 1900.)

(No Model.)

2 Sheets—Sheet 1.

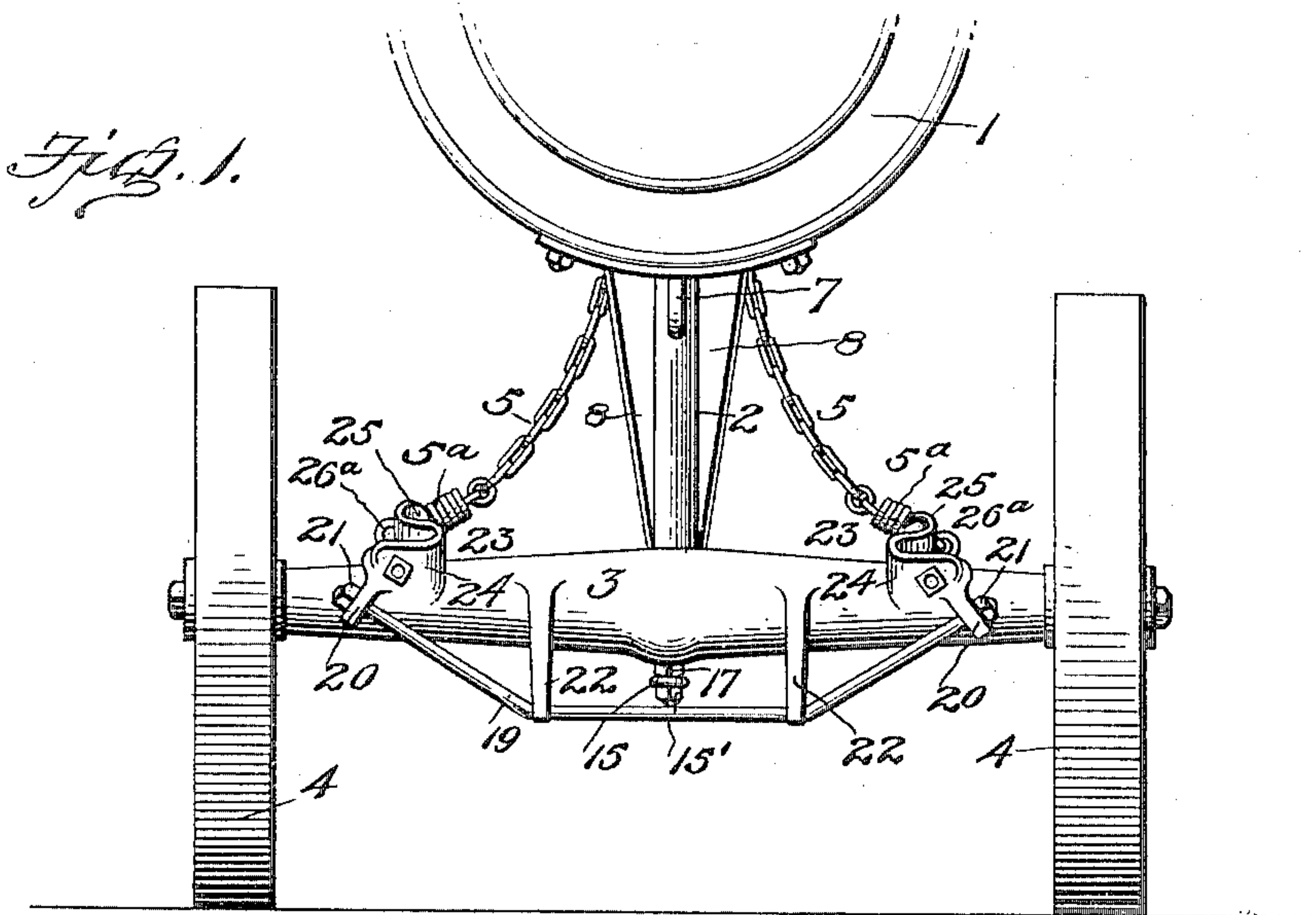
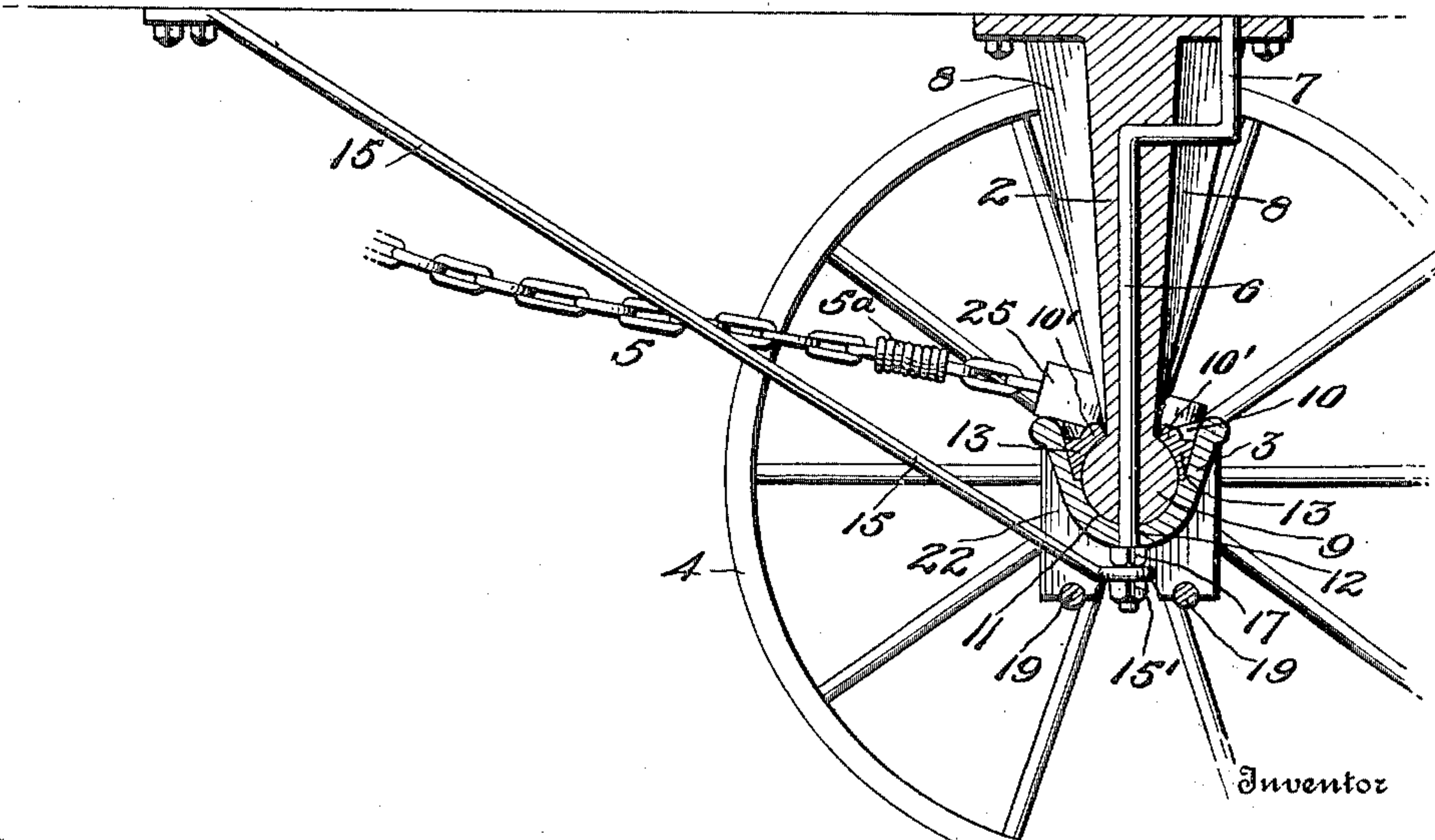


Fig. 2.



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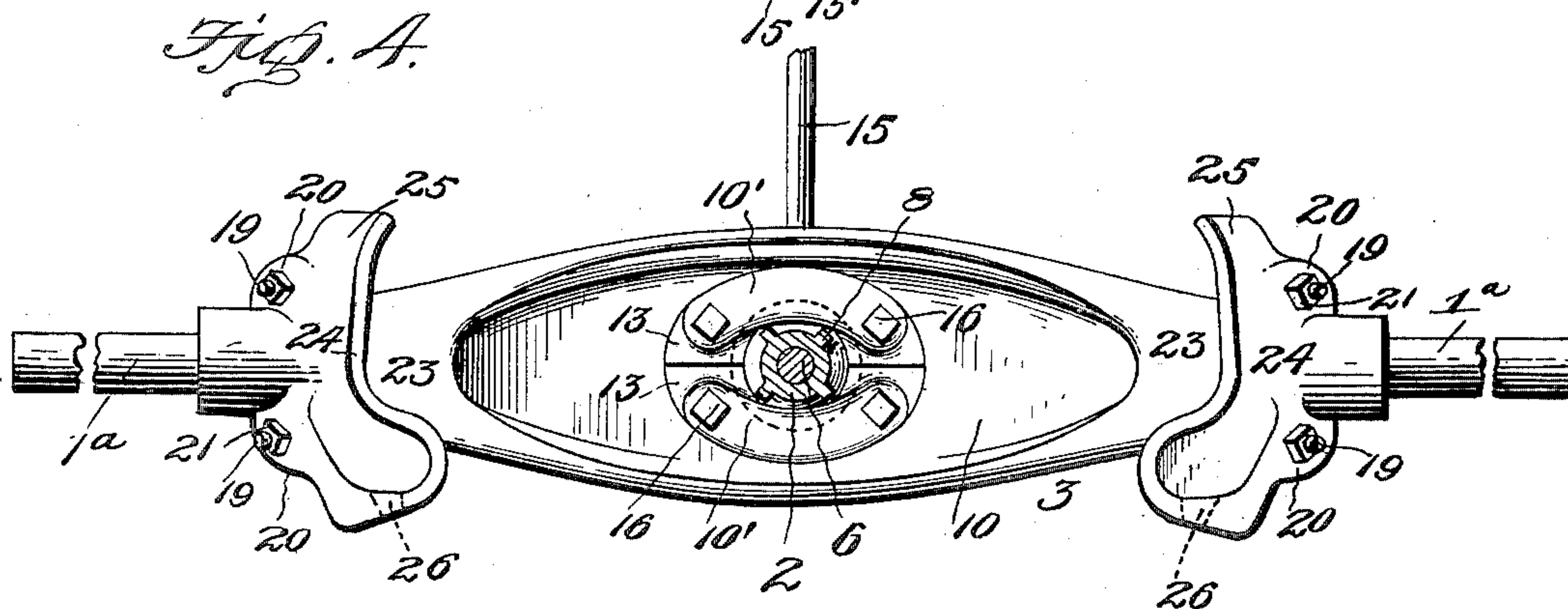
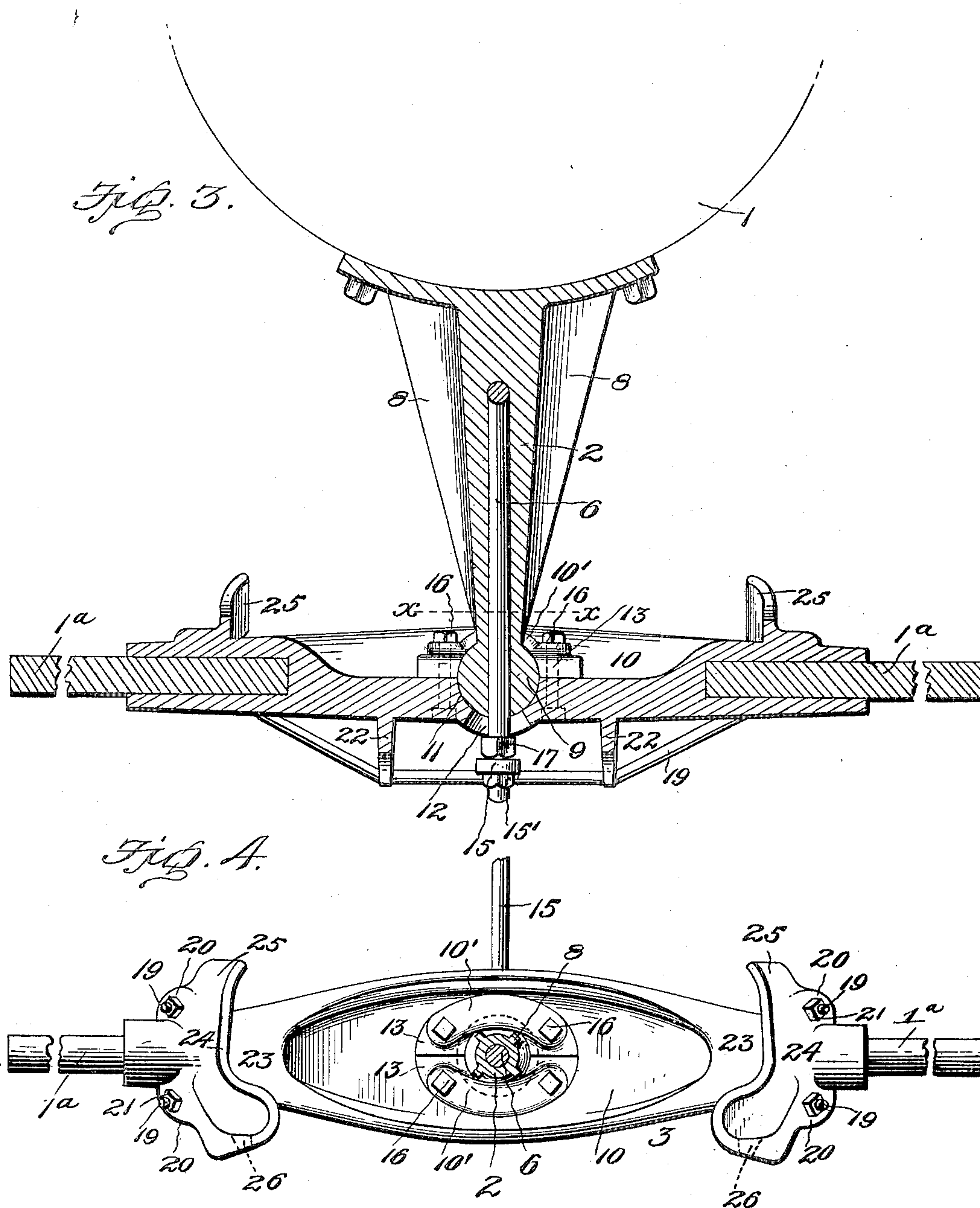
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UNITED STATES PATENT OFFICE

GEORGE F. CONNER, OF PORT HURON, MICHIGAN.

TRACTION-ENGINE.

SPECIFICATION forming part of Letters Patent No. 660,048, dated October 16, 1900.

Application filed June 14, 1900. Serial No. 20,301. (No model.)

To all whom it may concern:

Be it known that I, GEORGE F. CONNER, a citizen of the United States, residing at Port Huron, in the county of St. Clair and State of Michigan, have invented certain new and useful Improvements in Traction-Engines; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The invention relates to traction-engines, and more particularly to the novel manner of connecting the front axle to the boiler of the engine through the medium of the pillar-post and also the manner of connecting the steering-chains to said axle.

Among the objects of the invention may be recited the connection of the pillar-post with the axle at a point coincident with the center line of axis of the axle-stubs, whereby the various strains to which the axles of this class of machines are usually subjected are entirely obviated; the strengthening of the pillar-post by casting it around a malleable-iron or steel core, which is of such construction as to permit of the connection therewith of draft appliances when it is desired to move the engine by animal-power; providing the axle with steering-chain guides, whereby when the axle is turned or cramped to one side the leverage remains unchanged, and, finally, to adapt said chain-guides as means for applying animal draft-power when desired for drawing the engine from one point to another.

With these and other objects in view the invention consists in certain features of construction and combination of parts which will be hereinafter fully set forth.

In the accompanying drawings, Figure 1 is a front view of a traction-engine, illustrating my invention. Fig. 2 is a vertical sectional view taken longitudinally through the axle and illustrating its connection to the pillar of the post. Fig. 3 is a similar view taken at right angles to Fig. 2, and Fig. 4 is a transverse sectional view through the pillar-post on line xx of Fig. 4.

Referring to said drawings, 1 denotes the boiler of a traction-engine; 2, the front pillar-post; 3, the axle; 4, the front steering-wheels, and 5 the steering-chains.

The axle is preferably cast with steel or

wrought-iron axle-stubs 1^a. The pillar-post 2 is cast about a wrought-iron or steel core 6, which has its lower end projecting below the lower end of the pillar-post and its upper end projecting forwardly through the front wall of the post and thence upwardly and cast in the plate which is riveted to the boiler, thus forming a bail 7, to which may be attached any of the usual draft appliances employed when it is desired to draw the traction-engine by animal-power. The pillar-post is also provided with radially-tapering longitudinal strengthening-wings 8 and at its lower end with a spherical head or ball 9.

The axle is provided midway its ends and on its upper face with a recess 10, formed with a central ball-seat 11, communicating with a longitudinal slot 12, through which the lower end of the steel core 6 projects. Cap-plates 13 are seated in the recess 10 and snugly embrace the head of the pillar-post and are provided with longitudinally-curved lugs 10', which embrace the lower end of the pillar-post below its ribs and permit of the lateral tilting of the axle and a horizontal turning of the axle and resist forward and rearward tilting of the axle. The cap-plates are bolted to the axle by bolts 16 and hold the axle connected to the pillar-post. As an additional means for accomplishing this result and to distribute the strain I screw upon the lower end of the core 6 a nut 17. As additional means for preventing the forward and rearward tilting of the axle I employ a brace-rod 15, one end of which is bolted to the under side of the boiler and the other end of which is secured by a nut 15' to the lower end of the core 6.

By referring to Fig. 3 of the drawings it will be noticed that the horizontal axes of the ball and the axle-stubs are coincident, so that when draft is applied to the machine in the act of pulling it or power applied to drive the machine the tipping or twisting strain which in machines of this character have been heretofore generally borne by the joint of the pillar-post with the axle is entirely obviated, thus greatly strengthening the machine at this point.

To strengthen the axle, truss-rods 19 are employed and have their ends engaged with integral lugs 20, formed on the opposite sides of

the axle near their ends, and are provided with tightening-nuts 21. These rods engage intermediate their length with downwardly-projecting integral flanges 22.

5 Each of the steering-chains 5 may have a portion of its length composed of a coil-spring 5^a, which is connected to the axle in a novel manner, whereby when one end of the axle is swung inward or cramped under the
10 boiler the leverage upon the other end of the axle will not be materially reduced when strain is applied to the opposite chain in the act of turning the axle straight or at right angles to the length of the boiler in swinging
15 it under the boiler in the act of turning in the opposite direction. To this end I provide the axle near its ends and on its rear side with chain lugs or guides 23, which are preferably cast integral with the axle and are of
20 the shape shown in Fig. 4. Each lug is composed of a curved web 24, one of the ends of which projects rearwardly to form a lever-arm 25. The inner forward wall of the web is provided with a hole 26, in which is fastened a hook or eyebolt 26^a, with which is engaged the end of the chain 5, while the links
25 of the chain engage the lever-arm 25.

Assuming one of the wheels to be thrown or cramped under the boiler in the act of steering the engine in one direction—that is to say, without the provision of the chain-lugs—the other end of the axle being swung forward while the first-named end was swinging inward under the boiler would naturally be approaching a longitudinal line drawn through the boiler, thus lessening the leverage upon the advanced end of the axle when it is desired to draw the axle around at right angles to the boiler by the other chain. By the provision of these chains I obtain an increased leverage upon the advanced end of the axle, and thereby am enabled to more easily steer the machine. When it is desired to use animal-power for drawing the engine, the eyebolt and chains may be removed and tongue-bolts be fastened in the holes 26.

From the foregoing description, taken in connection with the accompanying drawings, the construction, operation, and advantages
50 of my invention will be readily understood without requiring an extended explanation.

The device is exceedingly useful for the purpose for which it is designed and may be placed upon the market at a comparatively
55 small cost.

Various changes in the form, proportion, and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of
60 this invention.

Having thus fully described my invention, what is claimed as new, and desired to be protected by Letters Patent, is—

1. The combination with an axle having a
65 ball-seat, of a pillar-post provided with a ball-head to engage said seat, and cap-plates bolt-

ed to said axle and embracing said ball-head and provided with longitudinal lugs which engage said pillar-post at a point above the ball-head and prevent forward and rearward rocking of the axle, substantially as set forth. 70

2. The combination with an axle having a ball-seat and a longitudinal slot communicating therewith, of a pillar-post provided with a ball-head to engage said seat, a core projecting from said ball-head through said longitudinal slot, cap-plates bolted to said axle and embracing said ball-head and provided with longitudinal lugs which engage said pillar-post at a point above said head, and a rod secured to the lower end of the core and extending rearward and secured to the under side of the boiler of the engine, substantially as set forth. 75 80

3. The combination with an axle, of a pillar-post, the latter being provided with a ball-head and the former with a ball-seat and a communicating longitudinal slot, a rod projecting from said head through said slot, and a nut screwed upon the lower end of said rod, substantially as set forth. 85 90

4. The combination with an axle, of a pillar-post, the latter being provided with a ball-head and the former with a ball-seat and a communicating longitudinal slot, a rod projecting from said head through said slot and provided with a nut, and cap-plates secured to said axle and embracing said ball-head, substantially as set forth. 95

5. The combination with a pillar-post consisting of a cylindrical body portion, of a core extending through the cylindrical body portion and having an offset to form an attaching means, substantially as set forth. 100

6. The combination with an axle, of a pillar-post connected thereto, and a rod extending vertically through the pillar-post and axle and provided with a nut at its lower end, the upper end of said rod projecting through the side of the pillar-post and forming an attaching-plate, substantially as set forth. 105 110

7. The combination with an axle having arms projecting from it at a point adjacent to the ends of the axle and arranged at an angle to the length of the axle, of steering-chains attached to said arms, substantially as set forth. 115

8. The combination with an axle having lugs cast upon it near its ends, each lug being formed of a curved web projecting forwardly and rearwardly of the axle, of steering-chains attached to the forward end of each lug and bearing against the rear end, substantially as set forth. 120

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses. 125

G. F. CONNER.

Witnesses:

G. R. HAIGH,
E. C. AKERS.