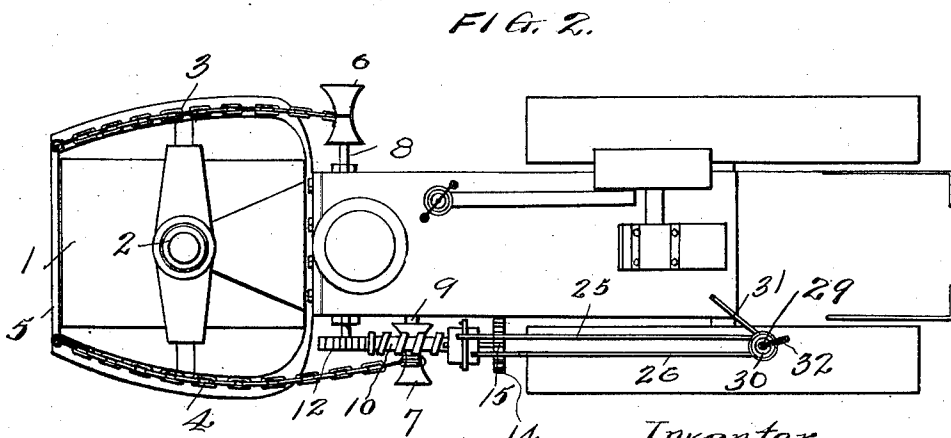
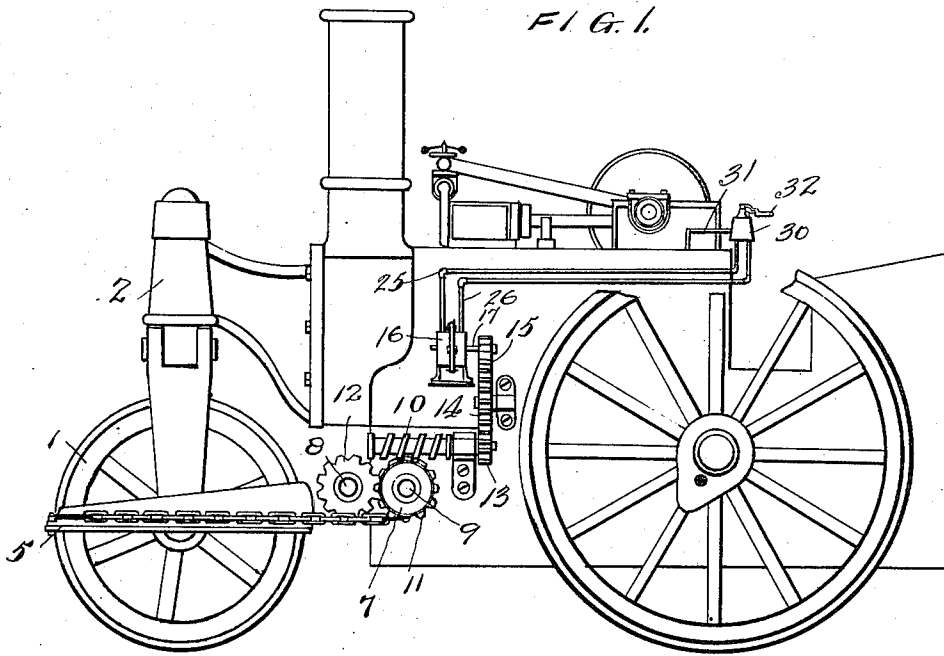


W. E. CHRISTOPHER.
STEERING MECHANISM.
APPLICATION FILED MAY 22, 1911.

1,024,182.

Patented Apr. 23, 1912.



Witnesses

C. K. Davies

E. A. Jordan.

Inventor
William E. Christopher.

By Thomas R. Arney
att'y. L

UNITED STATES PATENT OFFICE.

WILLIAM E. CHRISTOPHER, OF THOMAS, ALABAMA, ASSIGNOR OF ONE-HALF TO
JAMES R. WILKERSON, OF ENSLEY, ALABAMA.

STEERING MECHANISM.

1,024,182.

Specification of Letters Patent.

Patented Apr. 23, 1912.

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To all whom it may concern:

Be it known that I, WILLIAM E. CHRISTOPHER, a citizen of the United States, residing at Thomas, in the county of Jefferson and State of Alabama, have invented certain new and useful Improvements in Steering Mechanism, of which the following is a specification.

The present invention relates to an improved steering mechanism adapted for use in connection with traction engines, steam rollers, and other heavy machinery of this type.

The object of the invention is the provision of mechanism, actuated by live steam from the boiler of the traction engine, for facile manipulation and quickly responding operation, whereby the steering or guiding wheel of the heavy machine may be moved at will of the engineer or attendant.

The invention consists essentially in the adaptation to this class of machinery of a steam actuated turbine, capable of forward and reverse movement, and mechanism operated through the medium of the turbine, for actuating the steering mechanism of the traction engine. And the invention further consists in certain novel combinations and arrangements of parts as will be hereinafter set forth and more particularly pointed out in the appended claim.

In the accompanying drawings I have illustrated an exemplifying structure, in connection with a traction engine, constructed and arranged according to the best mode I have so far devised for the practical application of the principles.

Figure 1 is a side elevation of a traction engine of usual type, parts being broken away or omitted, for convenience of illustration, with my invention applied thereto. Fig. 2 is a plan view of Fig. 1.

I have illustrated the invention as applied to a steam traction engine. The front wheel of the engine is, in this instance, the steering wheel, which may be turned in opposite directions on the pivot 2 by means of the draw chains 3 and 4 attached to a frame 5. The chains 3 and 4 are adapted to be wound

about their respective reels or spools 6 and 7, the former journaled on the transverse shaft 8 and the latter on the shaft 9. The shafts 8 and 9 are rotated through the medium of the worm 10, which meshes with the wheel 11 on shaft 9, and wheel 11 in turn meshes with the toothed wheel 12 on shaft 8. The worm 10 is rotated through the train of gears 13, 14, 15, and these gears are driven by means of the steam turbine to be described.

The turbine as clearly shown in the drawings comprises a casing 16 in which is supported to rotate the shaft 17 for the small gear 15. The turbine is capable of forward and reverse rotary motion, and of imparting this motion to the shaft 17. For this purpose I employ the two feed pipes 25 and 26, entering at opposite sides of the casing, and adapted to supply motive fluid to the turbine.

The admission of steam to either side of the turbine is controlled and regulated from the valve 29, of usual construction, which receives steam in its casing 30 through steam pipe 31. By means of the handle the valve may be turned to position to close both pipes 25 and 26, or it may be turned to close one and open the other of the pipes as desired, to feed steam to the turbine casing for the purpose of steering the apparatus.

The operation of the device is as follows. Steam may be admitted to the turbine case from the controlling valve 30, through either of the pipes 25 or 26. The flow of steam to the casing rotates the turbine and shaft 17. From the shaft 17 the train of gears 15, 14 and 13 are rotated and thereby the worm 10. Worm 10 rotates the worm wheel 11 and spools 6 and 7 as described, the spools turning in opposite directions, as will be understood, and the chains 3 and 4 are moved to turn the wheel 1 as desired.

From the above description taken in connection with the drawings it is evident that I have provided a device which fulfils the purposes set forth as the object of my invention.

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

The combination with the steering mechanism of a traction engine including a shaft, a gear wheel, a winding reel and chain; a shorter shaft, a reel and a worm wheel thereon, said worm wheel engaging said gear wheel, a worm shaft and a worm and

gear wheel thereon, a train of gears meshing with said last mentioned gear wheel, and means for actuating said train.

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM E. CHRISTOPHER.

Witnesses:

M. DICKENSON,
W. W. BURT.