

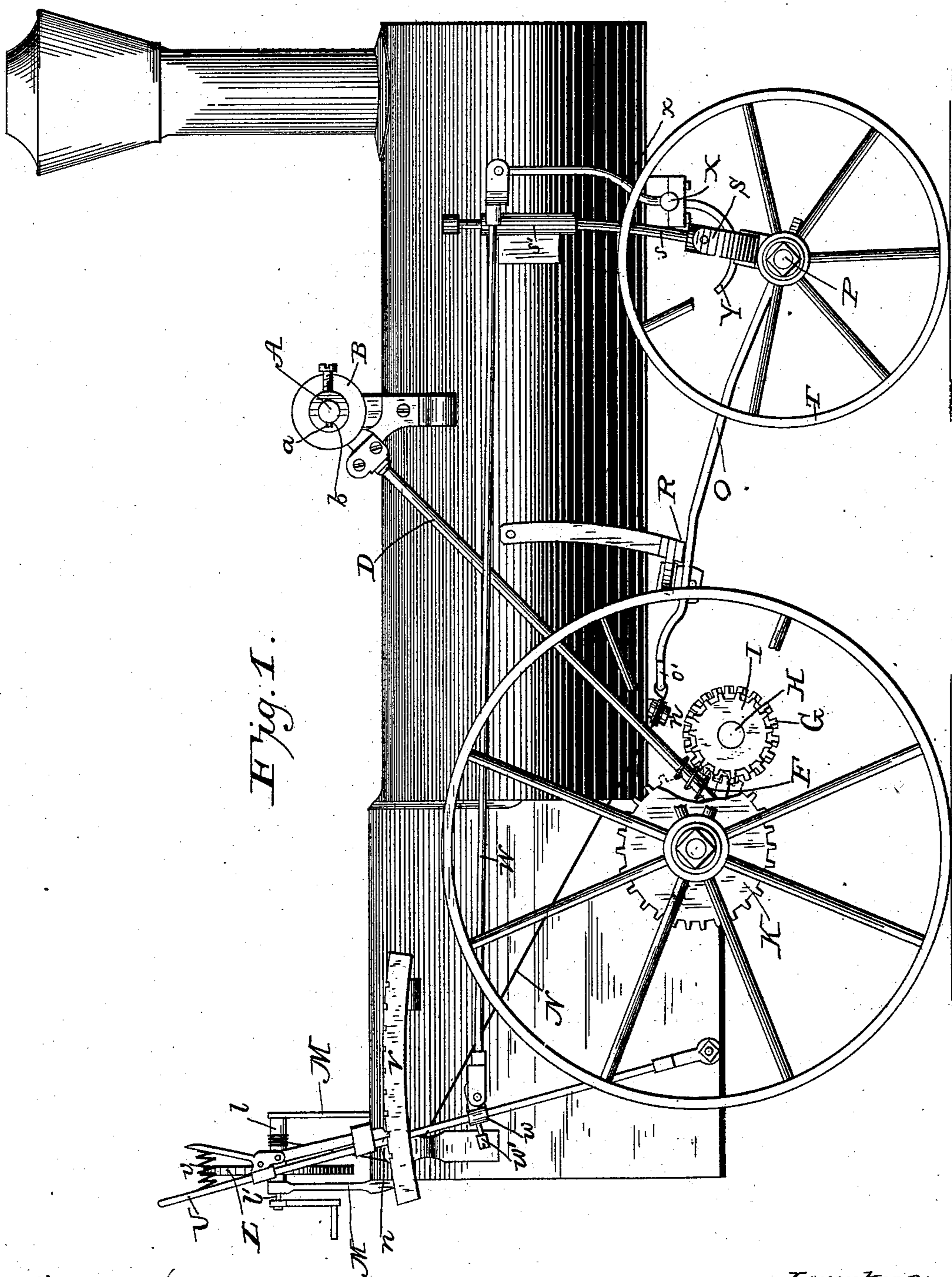
(No Model.)

2 Sheets—Sheet 1.

F. W. BOHN.
TRACTION ENGINE.

No. 310,980.

Patented Jan. 20, 1885.



Witnesses:

E. M. Brigham.

Chas F. Benjamin

Inventor:

Frederick W. Bohn,
By Wm. Conrad

Attij.

(No Model.)

2 Sheets—Sheet 2.

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Fig. 2.

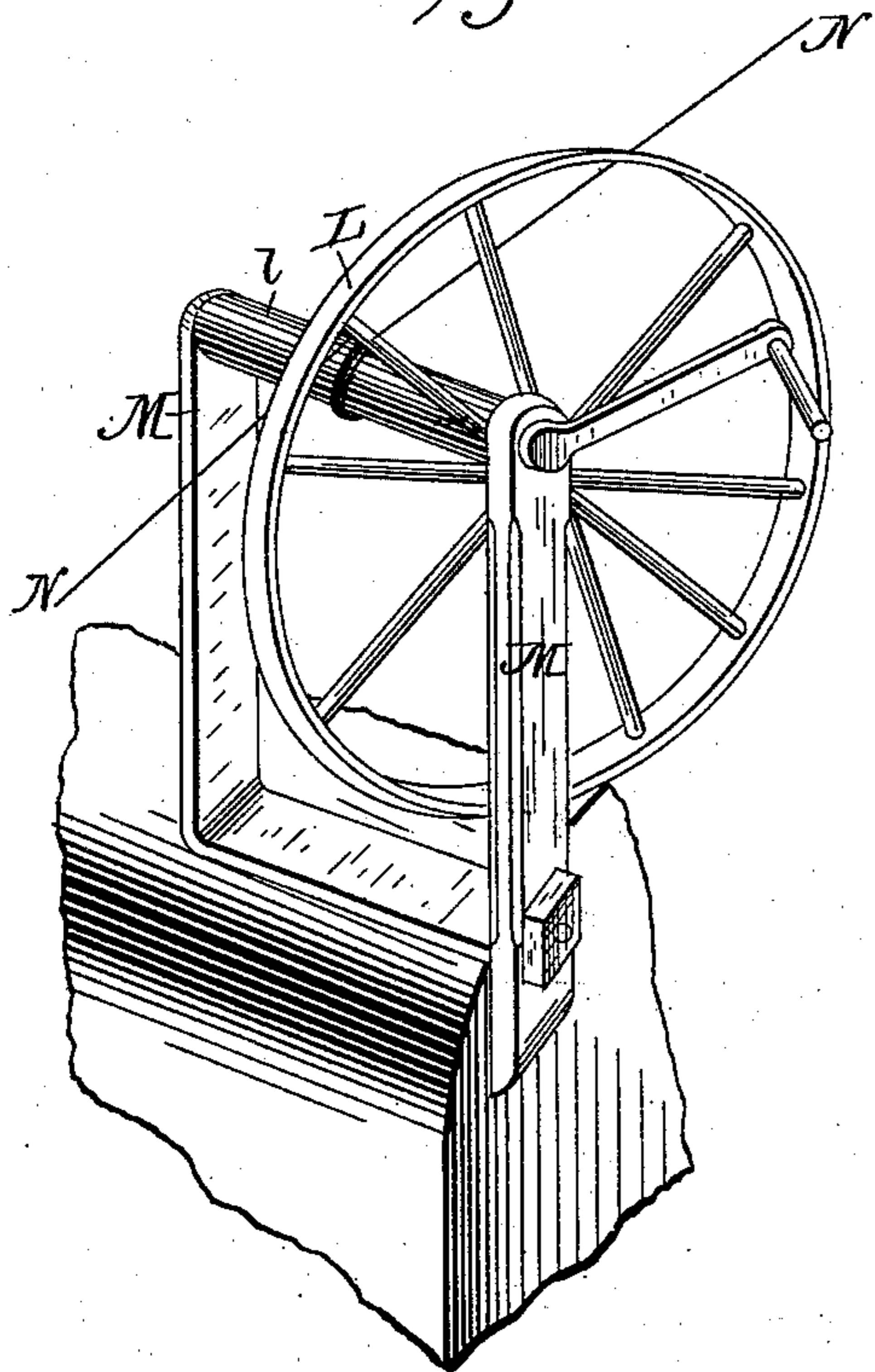


Fig. 4.

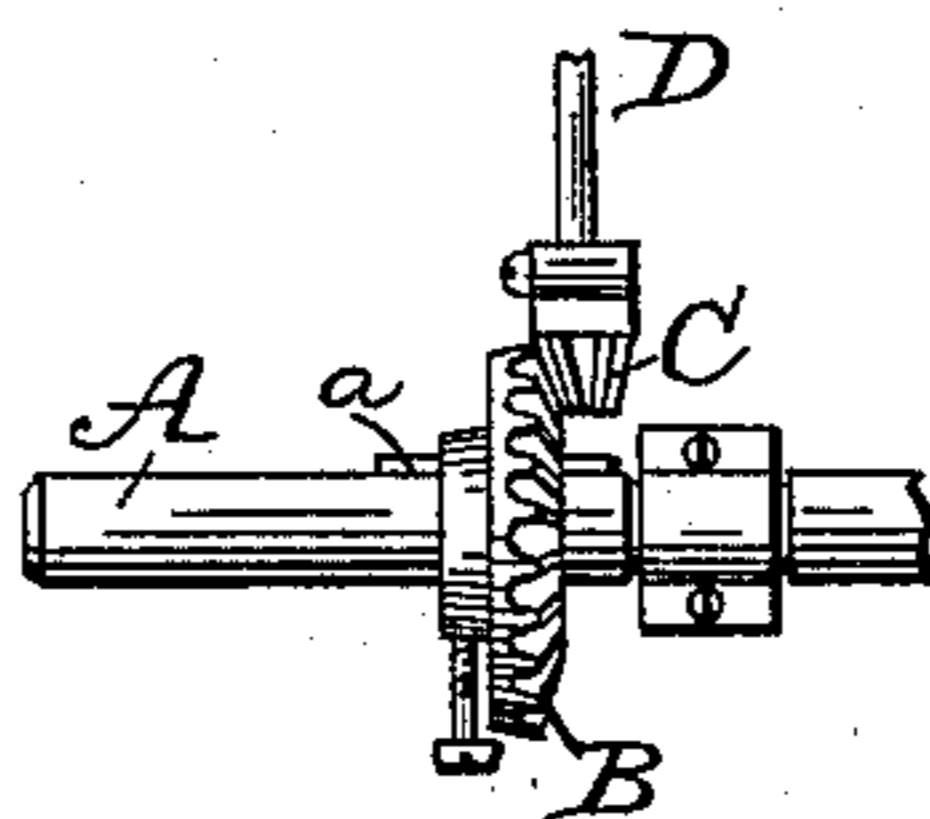
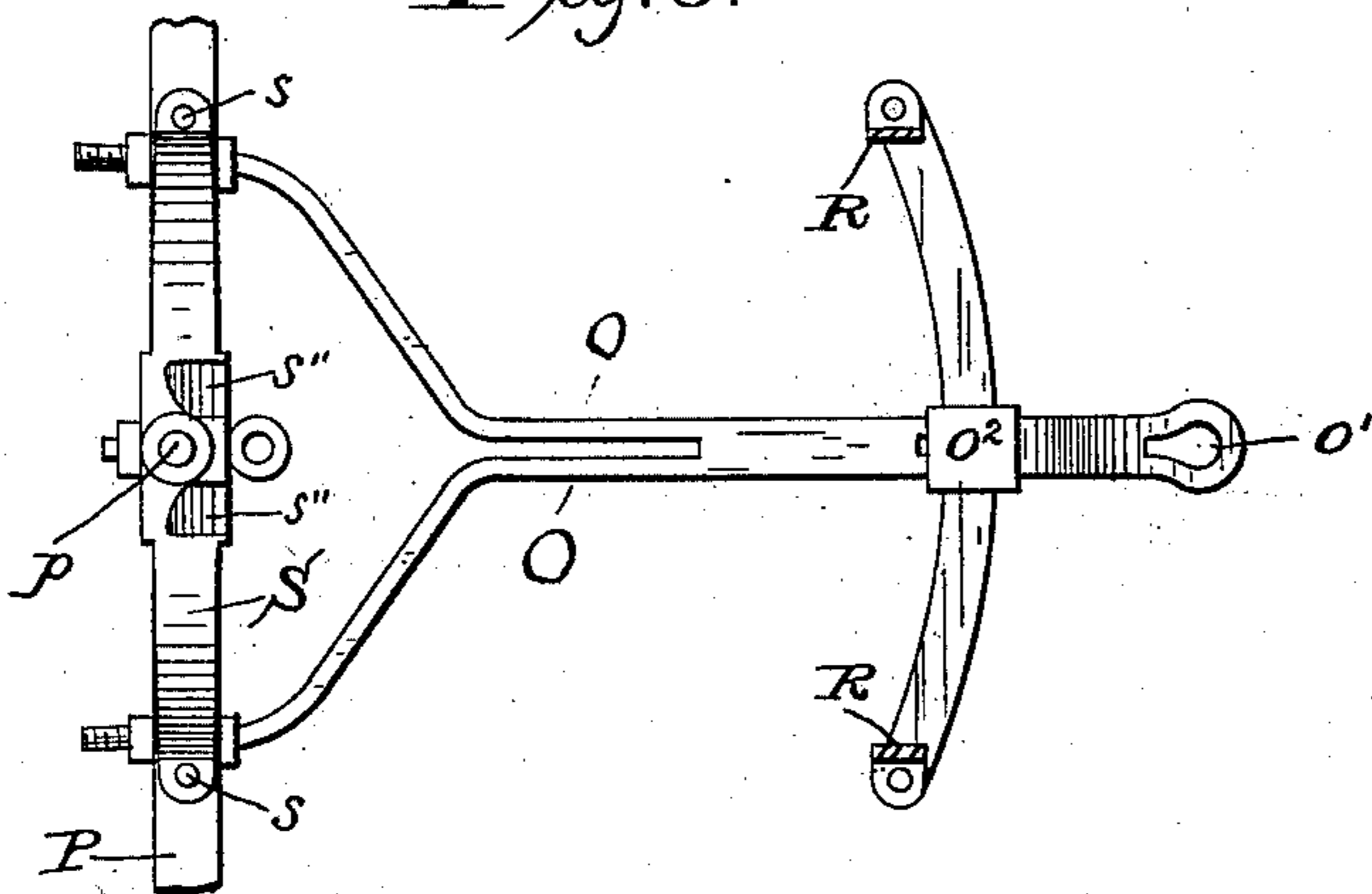


Fig. 3.



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UNITED STATES PATENT OFFICE.

FREDERICK W. BOHN, OF WABASHA, MINNESOTA.

TRACTION-ENGINE.

SPECIFICATION forming part of Letters Patent No. 310,980, dated January 20, 1885.

Application filed March 31, 1884. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK W. BOHN, a citizen of the United States, residing at Wabasha, in the county of Wabasha, and State of Minnesota, 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, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

This invention relates to improvements in the locomotion, guidance, and construction of traction-engines; and its objects are, first, to induce and regulate locomotion by means of a screw-traction; secondly, to guide the engine by means of a tiller-wheel convenient to the hand of the engineer; and, thirdly, to elevate or depress the head of the boiler conformably to the contour of the ground upon which the engine is traveling, so as to keep the fire-tubes surrounded by water along their whole length.

In the accompanying drawings, wherein like letters relate to like parts, Figure 1 is a side elevation, partly in perspective, of so much of a traction-engine as is required to illustrate my invention in a general way. Fig. 2 is a detached view of the steering apparatus. Fig. 3 is a detached view of parts beneath the boiler already shown in Fig. 1, and Fig. 4 is a top interior perspective of some of the parts shown in Fig. 1.

A is a part of the main shaft of a traction-engine, properly supported and journaled upon the boiler thereof, and provided with the bevel-wheel B, which by means of the groove *b* slides upon the key *a*, and may be held fast by an ordinary screw working through an eye in the hub of the wheel. This wheel engages, when so adjusted, with the pinion C, mounted upon the shaft D, which may be journaled to a bracket projecting from the main-shaft support on the boiler, and at its lower end may be journaled in a box attached to the body of the engine. At the lower end of the shaft D is the screw F, the spirals of which engage with

the obliqued and beveled teeth of the wheel G, and so revolve the shaft H, which may be supported by journals projecting from the interior wall of the fire-box, or in any other convenient manner. This shaft carries (in addition to the wheel G) the pinions I, which engage with the cog-wheels K, formed upon the hubs of the driving-wheels of the engine, and so induce locomotion forward or backward, according to the direction given to the main shaft A. The direction and speed of the revolution of the driving-wheels depend upon the co-operation of the screw F and the wheel G, and it follows that no brake is necessary, but that slowing and stopping can be wholly managed by operating upon the main shaft A.

L is a tiller-wheel with spool *l*, supported by and rigidly attached to the shaft *l'*, which is journaled on the posts M M at the front and upon the top of the fire-box. The wheel may be turned in either direction by an ordinary crank upon the shaft or spokes upon the rim. A rope or chain, N, is wound from its middle upon the spool *l*, and the two ends are conducted by guide-pulleys *n n*, on opposite sides of the body of the engine, to the loop *o'*, formed at the extremity of the hounds O, and there fastened. These hounds spread and run to the axle P, to which they are secured. By means of the collar *o''* they slide upon and are supported by the bar R, which may be attached to the body of the engine by ordinary vertical arms. The axle P is provided with a pivot, *p*, which passes through and is loosely bolted to the bow S, which is attached to the engine by the arms *ss*. By turning the wheel L in the proper direction the guiding-wheels T of the engine are obliqued to the right or left, as desired, and the course of the engine changed accordingly. The arms *ss* of the bow S work through and project above cylinders *s'* attached to the boiler, so that the front part of the boiler may be elevated when the engine is proceeding down an incline and a proper water-level preserved to prevent burning of the fire-tubes which traverse the boiler.

The mechanism to elevate the boiler consists of the hand-lever U, pivoted to the lower part of one of the sides of the fire-box by an ordinary pivot-bolt passing through an eye

near the bottom of the lever. The lever works between parallel bars of the ratchet V, and is held in place when adjusted by the spring-pawl *v*. The ratchet may be attached to the body of the engine by brackets, or in any other convenient manner. A connecting-rod, W, is attached adjustably to the lever U by means of a sliding collar, *w*, and screw *w'*, and its other end is pivoted to the lever *x* of the roller-bar X, which is journaled in ordinary bearings supported by the body of the engine. Convexed feet Y project downwardly from the roller-bar and rest in notches *s''*, formed in the upper surface of the bow S, whereby the boiler is supported upon the running-gear at any elevation attained by operating the lever U.

Having thus described my invention, what I claim to be new and useful, and desire to secure by Letters Patent, is the following:

1. The combination, in a traction-engine, of the main or driving shaft thereof with the key *a*, the bevel-wheel B, the bevel-pinion C, the shaft D, the worm F, the gear-wheel G, the shaft H, the pinions I, and the cog-wheel K, all as hereinbefore described, for the purpose of communicating and regulating motion in and to the driving-wheels of such an engine, as hereinbefore set forth.

2. The combination, in a traction engine, of the guide-wheels T, mounted upon an axle, P,

which turns upon a pivot, *p*, the hounds O, uniting in a loop, *o'*, and provided with a collar, *o''*, the bar R, supporting said hounds, and the rope N, secured at both ends to said loop and guided by pulleys *n* to and wound upon a windlass, *l*, attached to the tiller-wheel L, which is mounted in the ordinary manner upon an axle or shaft supported by and journaled in suitable standards, whereby from the winding and unwinding of said rope upon said windlass a turning motion is given to said guide-wheels, all as hereinbefore described.

3. In traction-engines, the combination consisting of the hand-lever U, the ratchet V, the spring-pawl *v*, the connecting-rod W, with the sliding collar *w* and screw *w'*, the roller-bar X, with lever *x*, the convexed feet Y, and the bow S, with arms *s*, cylinders *s'*, and notches *s''*, all as herein described, for the purpose of elevating and depressing the front end of the boiler to preserve a proper level of water within the boiler when ascending or descending sloping ground.

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

FREDERICK W. BOHN.

Witnesses:

R. A. BREITENFELDT,

J. F. MCGOVERN.