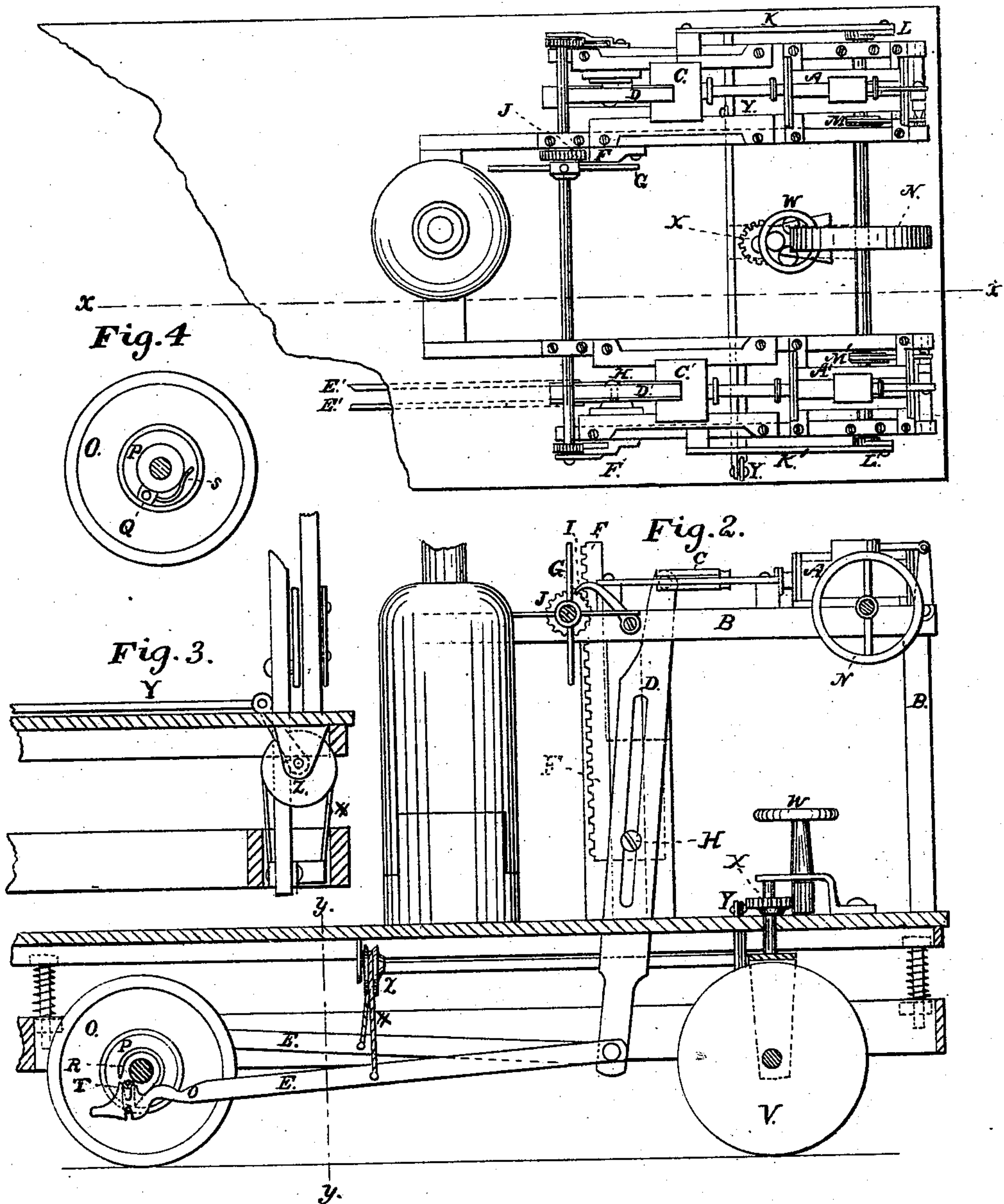


G. N. TIBBLES.  
Traction Engine.

No 96,636.

Patented Nov. 9, 1869.

Fig. 1.



Witnesses:  
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# United States Patent Office.

GEORGE N. TIBBLES, OF HUDSON CITY, NEW JERSEY.

Letters Patent No. 96,636, dated November 9, 1869.

## IMPROVED TRACTION-ENGINE.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, GEORGE N. TIBBLES, of the city of Hudson, in the county of Hudson, and State of New Jersey, have invented a new and improved Traction-Engine; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming a part of this specification.

The present invention relates to certain new and useful improvements in the construction of a traction-engine, which is intended to take the place of the ordinary dummy-engines now in use; the object of which is to avoid the necessity of putting on an extra pressure of steam, to ascend a steep incline, by the use of a movable fulcrum in a slotted lever, connected with the cross-head, hereinafter more fully described, the construction and operation of which will be fully understood from the following description, in which—

Figure 1 represents a plan.

Figure 2 is a longitudinal section through the line *x x*.

Figure 3 is a detached side view of one of the drive-wheels.

Figure 4 is a cross-section through the line *y y*.

Similar letters of reference indicate corresponding parts.

In this case, the letters A A' represent two small steam-cylinders, set on a suitable frame, B.

The piston-rods of the said cylinders are attached to their respective cross-heads, C and C'.

D and D' are slotted levers, which connect the aforesaid cross-heads with the connecting-rods E E and E' E'.

These levers, D and D', are adjustable, so that the length of stroke may be regulated to suit the requirements, either of speed or in order to use additional power in ascending a steep incline.

The said levers are adjusted by means of raising or lowering the sliding racks F F', which are operated upon simultaneously, by turning the hand-wheel G.

The pin or set screw H, which runs through the slot in the aforesaid levers, is fixed in the slide I, thus forming a movable fulcrum for the said lever.

I is a pawl, which locks the pinion J, and thus serves to hold the fulcrum fixed in any desired position.

K K' are connecting-rods, which connect the cross-heads of each engine to their respective cranks, L L', which are intended to stand at right angles to each other, so as to overcome the dead-centre.

These cranks have one shaft, common to both, on which there are two eccentrics, M M', which work the steam-valves.

N is a fly-wheel, on the said shaft, by which to start the engine.

The drive-wheels O O' are constructed with a groove or channel, P, which is turned perfectly true.

In this groove or channel there is a traveller, Q, pivoted to the loose arm R on the axle, and kept in position by the spring S.

The letter T represents a cross-piece on top of the pivot of the traveller, on each end of which there is a pin, over one of which the connecting-rod will hook, so as to cause the said traveller to bite or grip the drive-wheel.

For example, when it is desired to go forward, the connecting-rod will hook on the lower pin, and when it is desired to reverse or run back, the connecting-rod must be raised so as to engage itself in the upper pin.

It will be noticed that the said connecting-rod is bent or cut away at the point marked U, so as to allow the throw of the rod to have a full sweep. These rods E E' are set at right angles to each other.

This traction-engine is steered by a wheel, V, in front, which is operated by the hand-wheel W, on whose stem there are teeth, which mesh in the wheel X on the pivot which supports the said wheel V.

The connecting-rods E E and E' E' are shifted from a forward to a backward motion, or may be disconnected altogether, by means of pushing the levers Y from one side to the other, which will cause the shaft on which the pulleys Z are set, to turn, and thus draw on the band or cord, as shown in red.

Having thus described my invention,

I claim as new, and desire to secure by Letters Patent—

1. The combination of drive-wheel O and traveller Q, with connecting-rods E E, operating as described, to give motion in either direction.

2. The combination of the lever Y, pulley Z, and shaft which rotates it, with band X, all arranged as described, to shift the rods E E' to a forward or backward motion, or to disconnect them altogether.

3. A traction-engine, constructed, arranged, and operating in the manner and for the purpose substantially as herein shown and described.

4. In combination with slotted lever, the rack, pinion, detent, and hand-lever G, to change the fulcrum H, in the manner specified.

5. The combination, with the piston of a steam-cylinder, of an actuating-lever, D, moving upon a fulcrum readily adjustable by the driver, in the manner specified, whereby the power may be easily increased or diminished, without changing the pressure of steam.

The above specification of my invention signed by me, this 4th day of June, 1869.

GEORGE N. TIBBLES.

Witnesses:

FRANK BLOCKLEY,  
ALEX. F. ROBERTS.