2 Sheets—Sheet 1.

M. M. McGREGOR & J. C. CROXTON.

Traction-Engine.

No. 220,631. Patented Oct. 14, 1879.

Fig: 1.

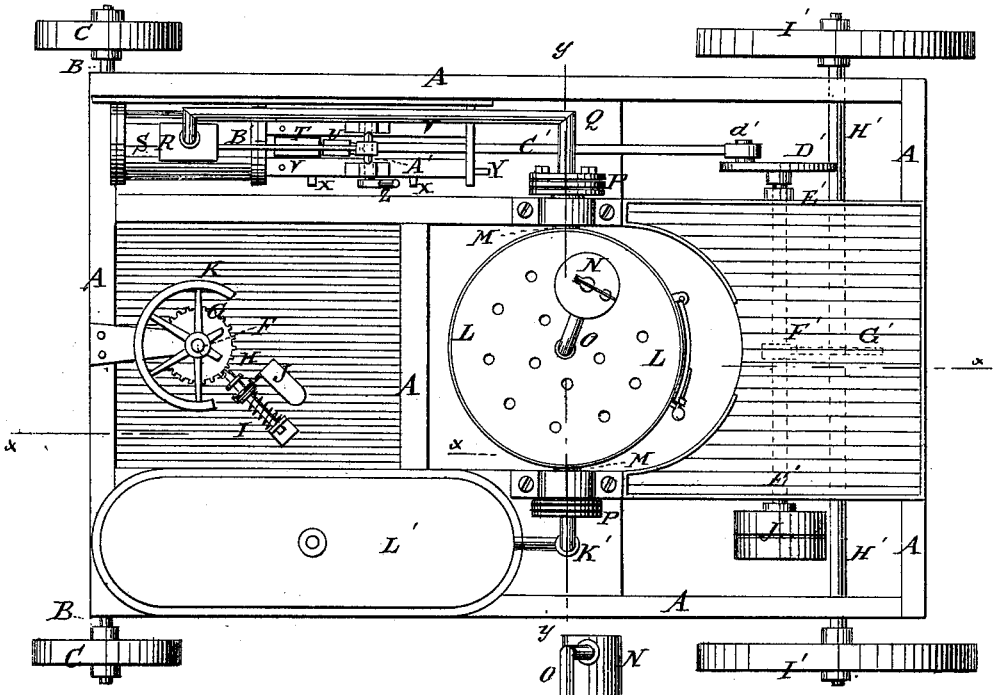
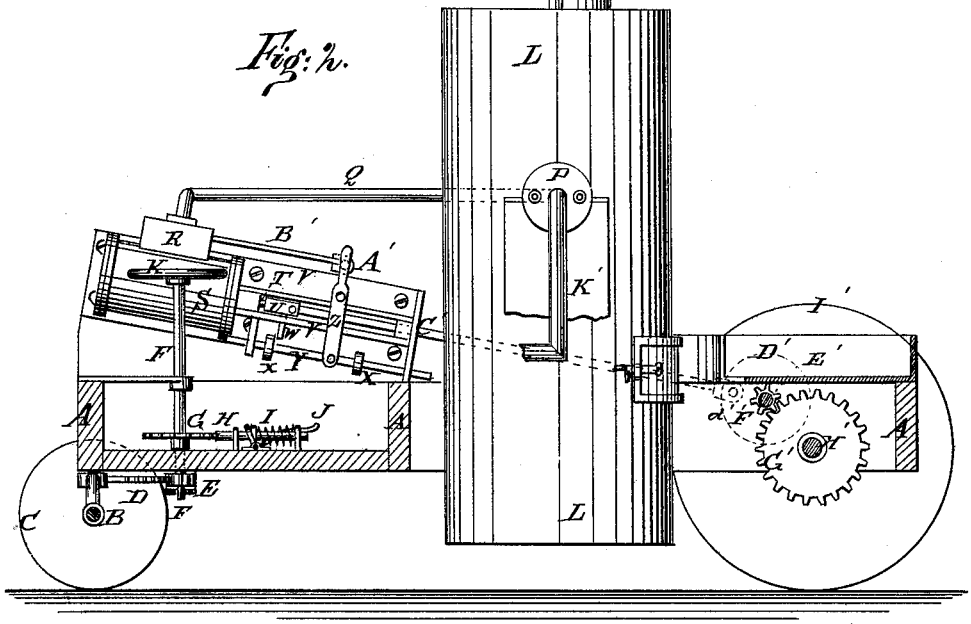


Fig: 2.



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2 Sheets—Sheet 2.

M. M. McGREGOR & J. C. CROXTON.

Traction-Engine.

No. 220,631. Patented Oct. 14, 1879.

Fig. 3.

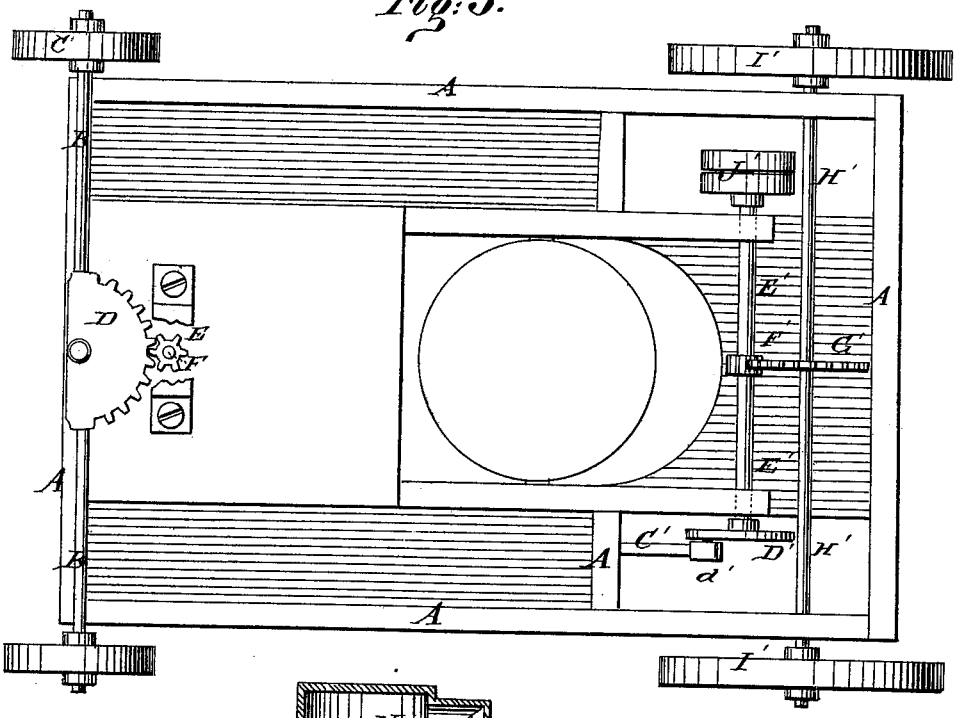
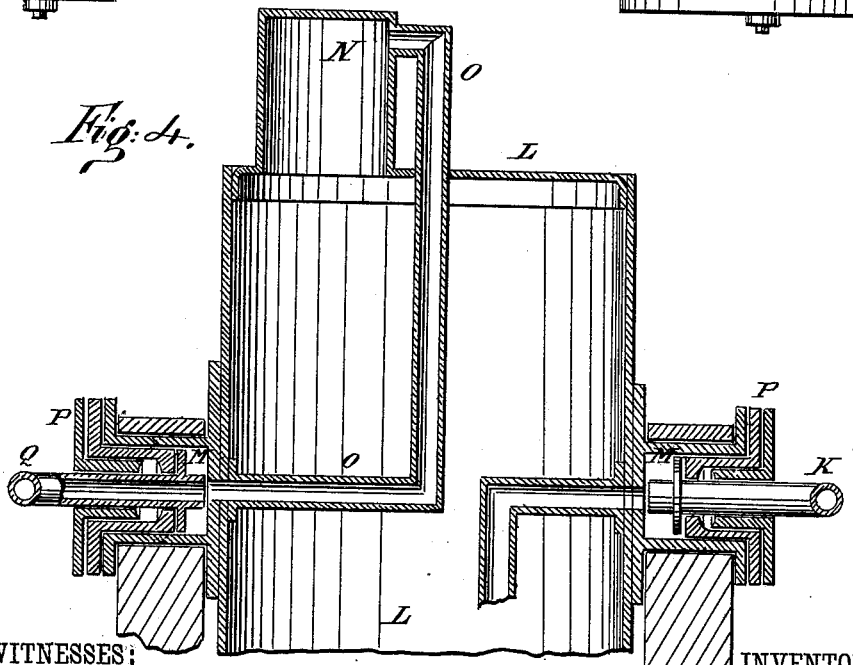


Fig. 4.



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UNITED STATES PATENT OFFICE.

MONTAGUE M. McGREGOR AND JAMES C. CROXTON, OF ROCKWALL, TEXAS.

IMPROVEMENT IN TRACTION-ENGINES.

Specification forming part of Letters Patent No. **220,631**, dated October 14, 1879; application filed March 14, 1879.

To all whom it may concern:

Be it known that we, MONTAGUE M. McGREGOR and JAMES CHURCHILL CROXTON, of Rockwall, in the county of Rockwall and State of Texas, have invented a new and useful Improvement in Traction-Engines, of which the following is a specification.

Figure 1, Sheet 1, is a top view of our improved traction-engine. Fig. 2, Sheet 1, is a vertical longitudinal section of the same, taken through the broken line *x x x*, Fig. 1. Fig. 3, Sheet 2, is an under-side view of the same. Fig. 4, Sheet 2, is a vertical cross-section of the same, taken through the line *y y*, Fig. 1.

Similar letters of reference indicate corresponding parts.

The object of this invention is to furnish an improved traction-engine for hauling freight upon roads and in other places, and for driving various kinds of light machinery, and which shall be so constructed that the boiler will be held in a vertical position, whatever be the grade of the roadway, and that will cut off steam instantly at any desired point of the piston-stroke.

The invention consists in a traction-engine that takes steam from the top of a swinging boiler and returns it through the pivots; in a traction-engine boiler arranged to swing on pivots that serve also as packing or stuffing boxes; and in the combination of the arm, the sliding rod provided with the adjustable collars, the lever, and the crank, with the cross-head of the piston-rod of the steam-cylinder, and with the valve-stem of the valve-chest, as hereinafter fully described.

A represents the frame-work of the engine, the forward end of which is connected with the forward axle, B, by a king-bolt. C are the forward wheels, which run loosely upon the journals of the forward axle, B. To the axle B is attached a semicircular gear-wheel, D, the teeth of which mesh into the teeth of a small gear-wheel, E, attached to the lower part of the vertical shaft F. The vertical shaft F works in bearings attached to the frame A, and to it, just above the platform upon which the steersman stands, is attached a ratchet-wheel, G, with the teeth of which engages a pawl, H. The pawl H slides in supports attached to the steersman's platform, and is held forward against the ratchet-wheel G by a coiled spring, I, connected with it and with the said supports. The pawl H is withdrawn from the ratchet-wheel G, when desired, by means of a foot-lever, J, connected with it and pivoted to the steersman's platform.

To the upper end of the vertical shaft F is attached a hand-wheel, K, for convenience in turning the said shaft to guide the engine.

L is the boiler, to the opposite sides of which, above its center of gravity, are attached two hollow pivots, M, which work in bearings attached to the frame A, or to supports attached to the said frame, so that the boiler L will always be vertical, whatever be the grade of the roadway. Upon the top of the boiler L is placed the steam-drum N, with the upper part of which is connected the steam-pipe O. The steam-pipe O passes through the top of the boiler L, and down through the said boiler to a level with the hollow pivots M, where it is bent outward and secured in one of the said pivots. With the outer end of the pivot M is connected, by a stuffing-box, P, the end of the pipe Q, through which the steam passes to valve-chest R of the cylinder S. To the outer end of the piston-rod T of the cylinder S is attached a cross-head, U, which slides in a bed, V, attached to the frame A. To the cross-head U of the piston-rod T is attached, or upon it is formed, an arm or tappet, W, which, at each movement of the piston in either direction, strikes one or the other of the two collars X, placed upon the rod Y, and secured by set-screws, so that they may be adjusted to cut off the steam and shift the valve at any desired point of the stroke. The rod Y slides in supports attached to the bed V, and to its middle part is pivoted the end of a lever, Z, which is rigidly attached to the end of a crank, A′, which rocks in bearings attached to the bed V, and to which is pivoted the end of the valve-stem B′, so that the valve may be shifted by the movement of the cross-head U of the piston-rod T. The upper end of the lever Z projects, so that it may be used as a hand-lever for reversing the motion when desired.

To the cross-head U of the piston-rod T is pivoted the end of the connecting-rod C′, the

other end of which is pivoted to the pin d' of a crank or crank-wheel, D′, attached to the end of a shaft, E′. The shaft E′ revolves in bearings attached to the rear part of the frame A. To the middle part of the shaft E′ is attached a small gear-wheel, F′, the teeth of which mesh into the teeth of a larger gear-wheel, G′, attached to the middle part of the rear axle, H′. The rear axle, H′, revolves in bearings attached to the rear part of the frame A, and to its ends are rigidly attached the rear wheels, I′, so that the machine may be driven forward by the action of the engine. To the other end of the shaft E′ are attached a fast and a loose pulley, J′, to receive the belt, when machinery is to be driven by the engine. With the other hollow pivot M of the boiler L is connected, by a stuffing-box, P, the end of the feed-water pipe K′. The feed-water is carried in a tank, L′, attached to the forward corner of the frame A, opposite the steam-cylinder S, so as to balance the machine.

Having thus described our invention, we claim as new and desire to secure by Letters Patent—

The combination of the arm W, the sliding rod Y, provided with the adjustable collars X, the lever Z, and the crank A′, with the cross-head U of the piston-rod T of the steam-cylinder S, and with the valve-stem B′ of the valve-chest R, substantially as herein shown and described.

MONTAGUE MONTESVILLE McGREGOR.
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Witnesses:
J. R. TUCKER,
W. D. AUSTIN.