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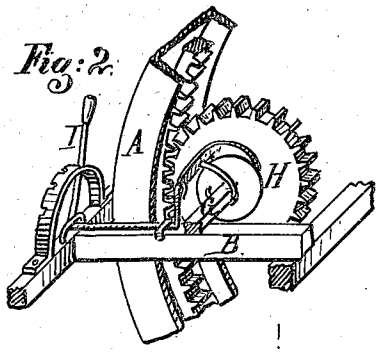
W. C. LUCE.

Traction-Engines.

No. 158,595. Patented Jan. 12, 1875.

Fig: 2.



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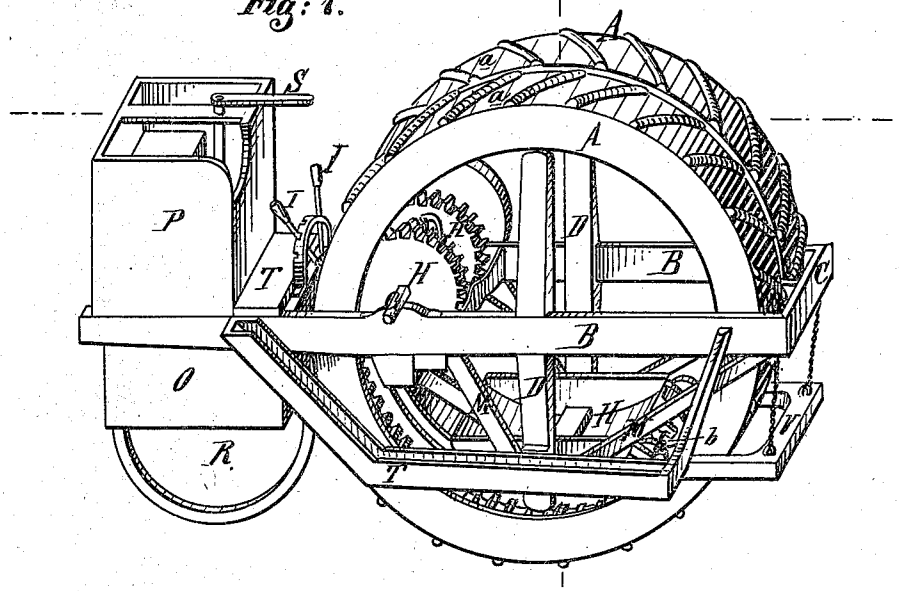

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2 Sheets--Sheet 2.

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Fig: 3

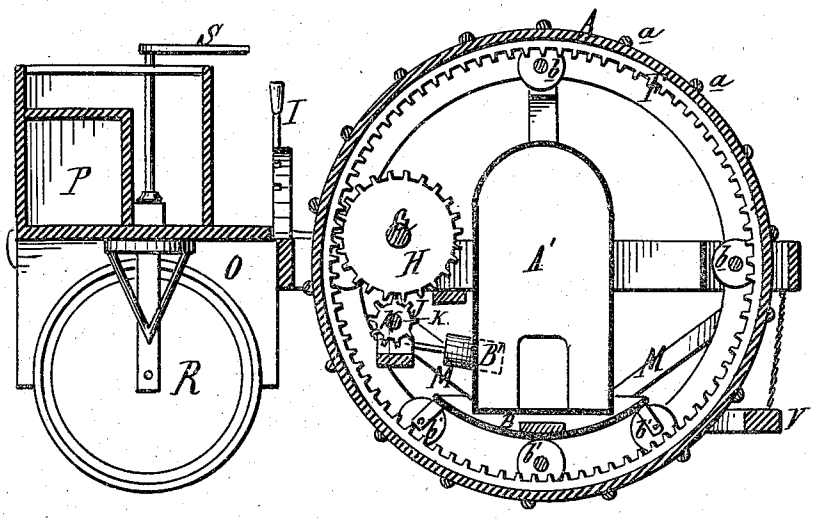
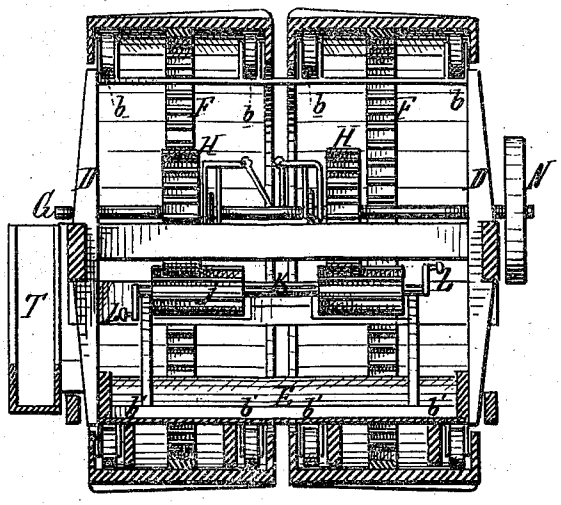


Fig: 4.



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Wm. C. Luce
Per Attorney
Thos. S. Strasser

UNITED STATES PATENT OFFICE.

WILLIAM C. LUCE, OF FORT BYRON, ILLINOIS.

IMPROVEMENT IN TRACTION-ENGINES.

Specification forming part of Letters Patent No. **158,595**, dated January 12, 1875; application filed August 18, 1874.

To all whom it may concern:

Be it known that I, WILLIAM C. LUCE, of Fort Byron, in the county of Rock Island and State of Illinois, have invented an Improvement in Traction-Engines, of which the following is a specification:

The nature of this invention relates to certain new and useful improvements in traction-engines; and its object is to provide a strong, durable, economical, and safe machine.

Figure 1 is a perspective view of my improved machine. Fig. 2 is an enlarged perspective view of a section, showing the gear-wheel and slipping device. Fig. 3 is a vertical longitudinal section, and Fig. 4 is a vertical cross-section.

Like letters refer to like parts in each figure.

In the drawings, A A represent two rims, made preferably of thick sheet metal or boiler-iron, and to the periphery of each are bolted or otherwise rigidly secured the ribs *a*, made preferably of angle-iron, and arranged in opposite directions, as shown, to prevent slippage of the wheels in any direction. These rims are set side by side within a frame composed of side rails B, and end rails C, and uprights D. To this frame are secured suitable hangers, in which rotate small shafts, upon which the bearing-wheels *b* are placed, while similar shafts are carried by hangers or standards attached to the floor E. Each of these shafts is provided with two wheels, *b b'*, one on each end of the shaft, and they are designed to roll against the inner side of the rims and hold the same in place. Bolted to the inner face of these rims, and about the center thereof, are the racks F, preferably cast in segments. G is a square shaft, the ends of which are journaled in suitable boxes secured to the side rails of the frame. H are geared wheels, placed on this shaft so as to mesh and engage with the racks F. These wheels are so arranged that they will rotate with the shaft at all times, but may be thrown out of gear with the racks by slipping them, one or both at a time, by means of any suitable clutches or slipping devices, controlled by means of the levers I, operated from outside the rims, with proper connections leading through the space between the rims. These wheels H also mesh and engage with the pinions J on the shaft K, to the ends of which are secured the cranks L. The pinions J are of sufficient length that the wheels H will at all times engage with them, whether the wheels are in engagement with the racks or not. E is a floor, sustained and supported from the side rails of the frame by the braces and supports M. Upon this floor it is designed to secure a suitable boiler, A', (shown in elevation in Fig. 3,) and a pair of engines, B', (one of which is shown in the same figure.) The piston-rods of these engines connect with the cranks L, thereby giving motion to the shaft K, and, by means of the pinions, geared wheels, and racks hereinbefore mentioned, to the rims of the wheels. Upon one end of the shaft G there is secured a pulley, N, so that when the geared wheels are thrown out of their engagement with the racks, the power of the engine may be utilized by attaching a belt to said pulley, and to any machine it may be desirable to run. In front of the rims, and sustained in part by the frame, is a water-tank, O, and a coal or fuel box, P. A steering or caster wheel, R, suitably secured under or in front of the water-tank, is controlled by the lever S. T is a foot-board, extending down to the plane of the floor, designed for the engineer, that he may readily attend to the engine and boiler when desired and necessary. A frame, V, extends around the rear end of the machine. The front ends of this frame are pivoted to the uprights D, while its rear end is sustained by chains from the main frame, as shown.

When employed as a traction-engine, the wagon, or plow, or other article to be drawn, should be suitably attached to this frame V, thereby bringing the draft near the ground, and preventing any tendency of the machine to upset.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In combination with the uprights D and rails B and C, the floor E, supported from the same by the supports M, for the purpose set forth.

2. In combination with traction-wheels or

rims without hubs, provided with internal segmental racks, the geared wheels H, shaft G, and shifting devices, substantially as specified.

3. In combination with the main frame of a traction-engine, the traction-frame V, substantially as and for the purposes shown.

4. In combination with the wheels or rims, geared wheels H and shaft G, the shaft K and pinions J, substantially as specified.

WILLIAM C. LUCE.

Witnesses:
WM. H. LOTZ,
HERMAN A. KROESCHELL.