

(No Model.)

2 Sheets—Sheet 1.

F. F. LANDIS.
TRACTION ENGINE.

No. 245,841.

Patented Aug. 16, 1881.

Fig. 1.

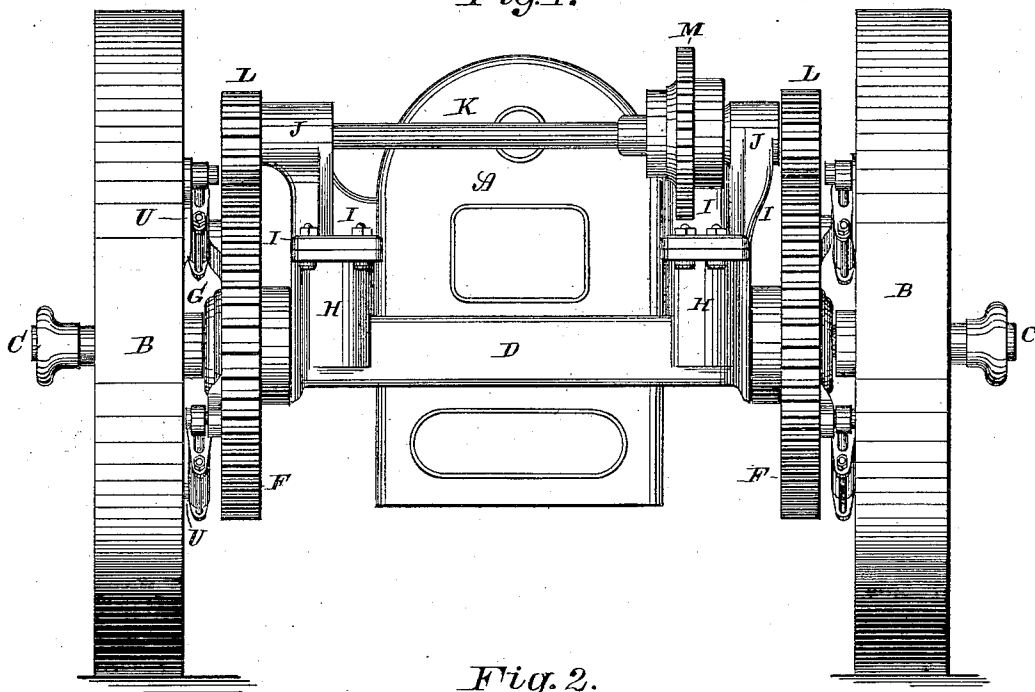
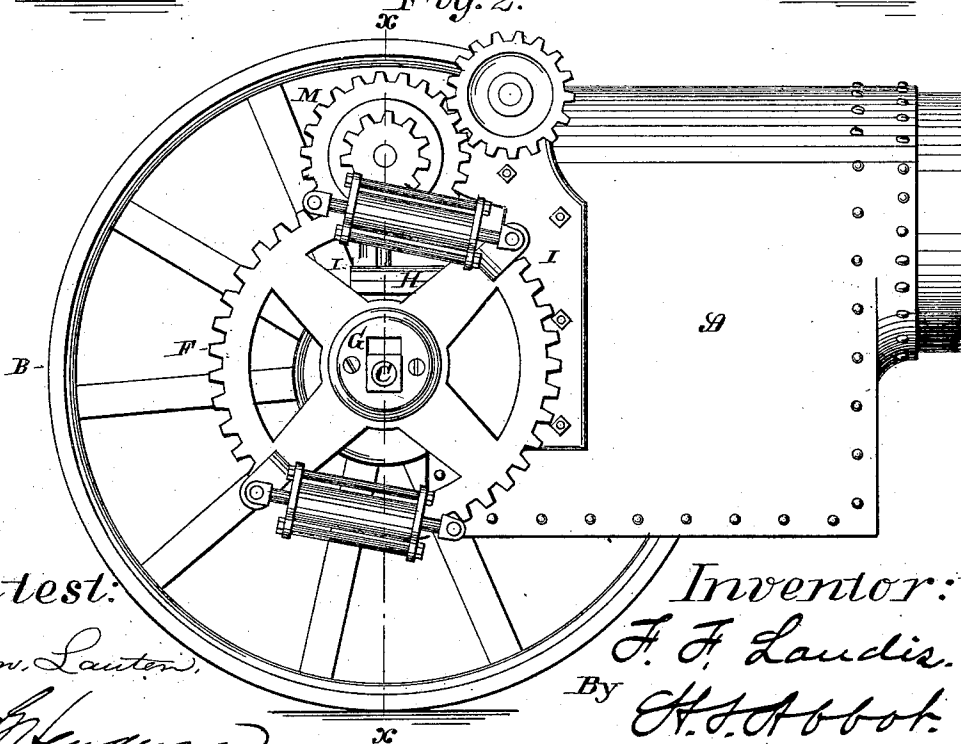


Fig. 2.



Attest:

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Inventor:

F. F. Landis.

By H. J. Abbott.

Attorney.

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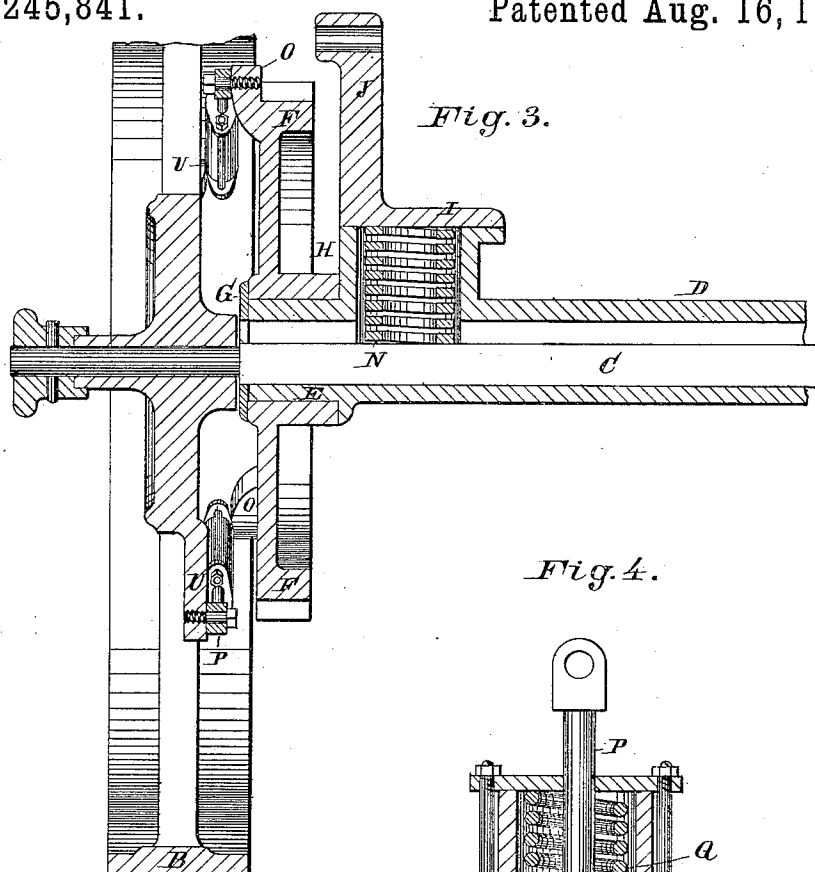
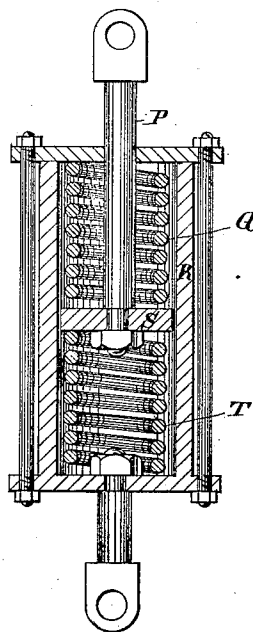


Fig. 3.

Fig. 4.



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Herm. Lauten.

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Inventor:

F. F. Landis.

By

[Signature]

Attorney.

UNITED STATES PATENT OFFICE.

FRANK F. LANDIS, OF WAYNESBOROUGH, PENNSYLVANIA.

TRACTION-ENGINE.

SPECIFICATION forming part of Letters Patent No. 245,841, dated August 16, 1881.

Application filed July 15, 1881. (No model.)

To all whom it may concern:

Be it known that I, FRANK F. LANDIS, a citizen of the United States of America, residing at Waynesborough, in the county of Franklin and State of Pennsylvania, have invented certain new and useful Improvements in Traction-Engines; and I do hereby 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 letters or figures of reference marked thereon, which form a part of this specification, in which—

Figure 1 is an end view. Fig. 2 is a side view with the wheel removed from the axle. Fig. 3 is a vertical cross-section taken on the line *xx* of Fig. 2, and Fig. 4 is a longitudinal section of the spring-case.

My invention relates to the means by which the engine is made self-propelling; and it consists in the construction, arrangement, and operation of parts, as will be hereinafter more fully set forth.

In the drawings, A represents the steam-generator; B B, the traction or driving wheels, and C a square axle-tree. This axle-tree is inclosed within a sleeve or metal case, D, extending from spindle to spindle, and having the ends increased to a cylinder and turned off at E E to form spindles for the driving gear-wheels F F, running parallel with the driving-wheels B B. On these spindles E E the driving gear-wheels F F are held by washers G G, secured firmly to the axle-sleeve D. These washers not only secure the driving gear-wheels F F, but form butting-rings for the driving-wheels. The washers G G, like the axle-sleeve D, have a rectangular opening through the center, allowing the axle-tree C to have a vertical but not a lateral play. The driving-wheels are held on the spindles and against the washers by caps and linchpins. Immediately inside of the driving gear-wheels F F the sleeve D is provided with spring-boxes H H. These boxes may be attached to the sleeve by any suitable means, but preferably they are cast of the same piece of metal, and have a flat finished side in contact with the inner end of the hub of the driving gear-wheel and a flanged flat top and flanged flat front side for the secure

attachment of the hangers I I, that are securely attached to each side of the fire-box of the steam-generator. The flanged flat bottoms of the hangers cover the open tops of the spring-boxes and are bolted down over the spiral springs to the flanges of the spring-boxes, thus securing the sleeve D rigidly to the steam-generator. The hangers are provided with vertical standards J J, having bearings in their upper ends to sustain the shaft K, which is provided at either end with pinions L L for engagement with the driving gear-wheels F F. This shaft carries a spur-wheel, M, for receiving the power of the engine. The spur-wheel M is connected with the shaft K by a system of gearing that will be found more fully described in another application for Letters Patent.

The driving gear-wheels F F are each provided with two arms, O O, to each of which arms is secured the eye of a rod, P. The rod passes through the head of the tube R and the center of a spiral spring, Q, to about the center of the tube R, where it is attached to a piston, S, extending across the tube. Beyond this piston rests a spiral spring, T, bearing against the head of the piston and the end of the tube. The spiral spring Q bears against the end of the tube and the head of the piston. Thus it will be seen that the piston is held between two spiral springs that offer a like yielding resistance, whether the piston is pulled out or pushed in. The ends of the tubes are each secured to an arm, U, of the driving-wheels B B, and the ends of the tubes are secured to each other by rods running through ears attached to each end.

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

1. A spring-connection for the driving-wheel and the driving gear-wheel of a traction-engine, composed of a tube connected with the driving gear-wheel, a rod connected with the driving-wheel, and a piston provided with a coil-spring on each side, substantially as shown and described.

2. In a traction-engine, an axle-tree, C, sleeve D, and springs N, combined and operating substantially as shown and described.

3. In a traction-engine, the combination of a driving-wheel, an elastic connection, a driving gear-wheel mounted upon the sleeve, a

spring, and an axle-tree, whereby the circular movement of the wheel and vertical movement of the engine are simultaneously effected by an obstruction to the driving-wheel, substantially
5 as shown and described.

4. In a traction-engine, the connection of the driving-wheel with the driving gear-wheel of the engine by means permitting of a limited revolution of the wheel forward or backward
10 before effecting the gearing, substantially as shown and described.

5. The combination of the sleeve D, spindle E, washer G, driving gear-wheel F, and driving-wheel B, substantially as shown and de-
15 scribed.

6. In a traction-engine, the combination of the sleeve, driving gear-wheels, and axle-tree, whereby the axle-tree is passed through the sleeve from wheel to wheel and through the center of the driving gear-wheels, substantially
20 as shown and described.

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

FRANK F. LANDIS.

Witnesses:

J. F. OLLER,

A. D. MORGANTHALL.