

(Model.)

2 Sheets—Sheet 1.

F. F. LANDIS.  
TRACTION ENGINE.

No. 246,019.

Patented Aug. 23, 1881.

Fig 1.

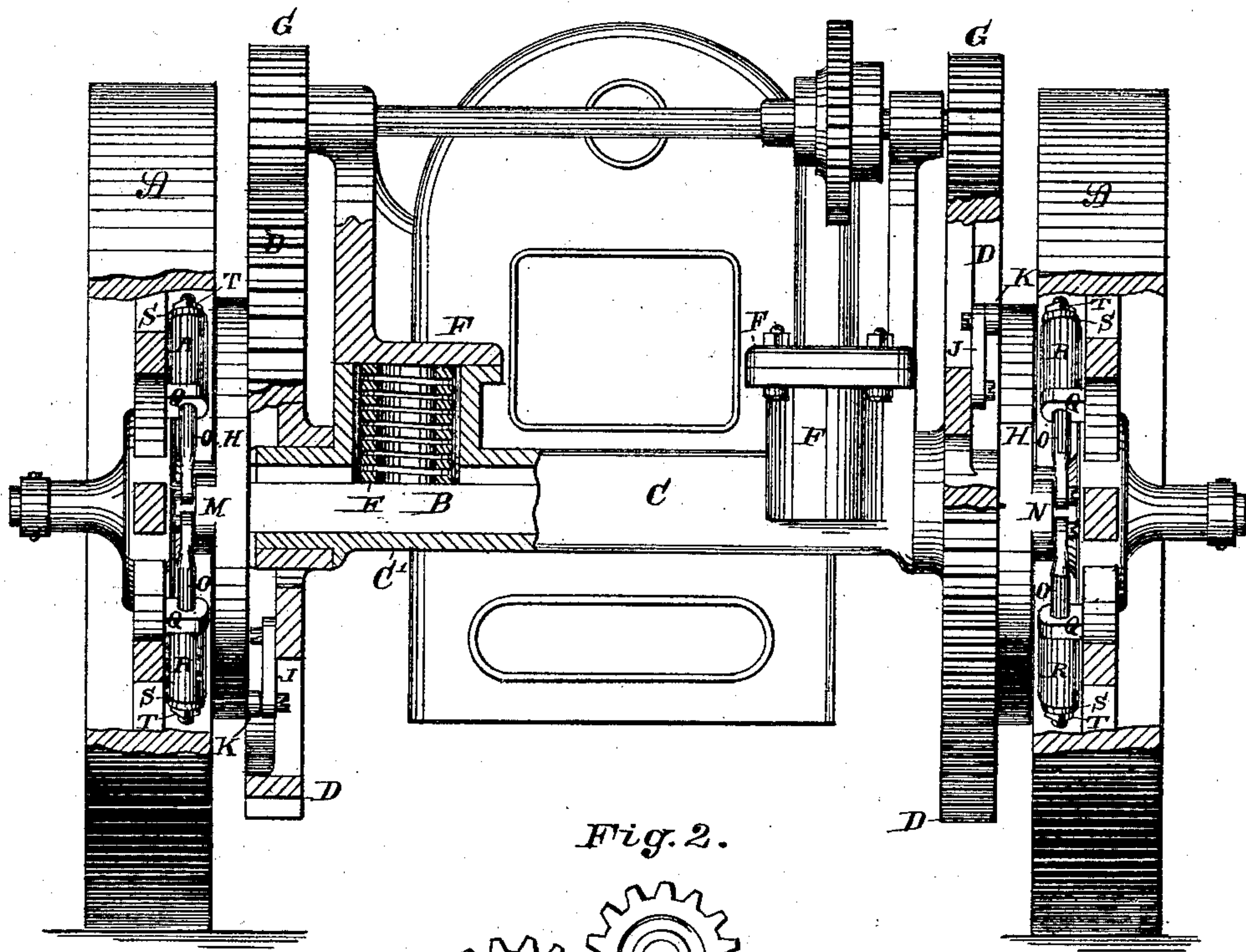
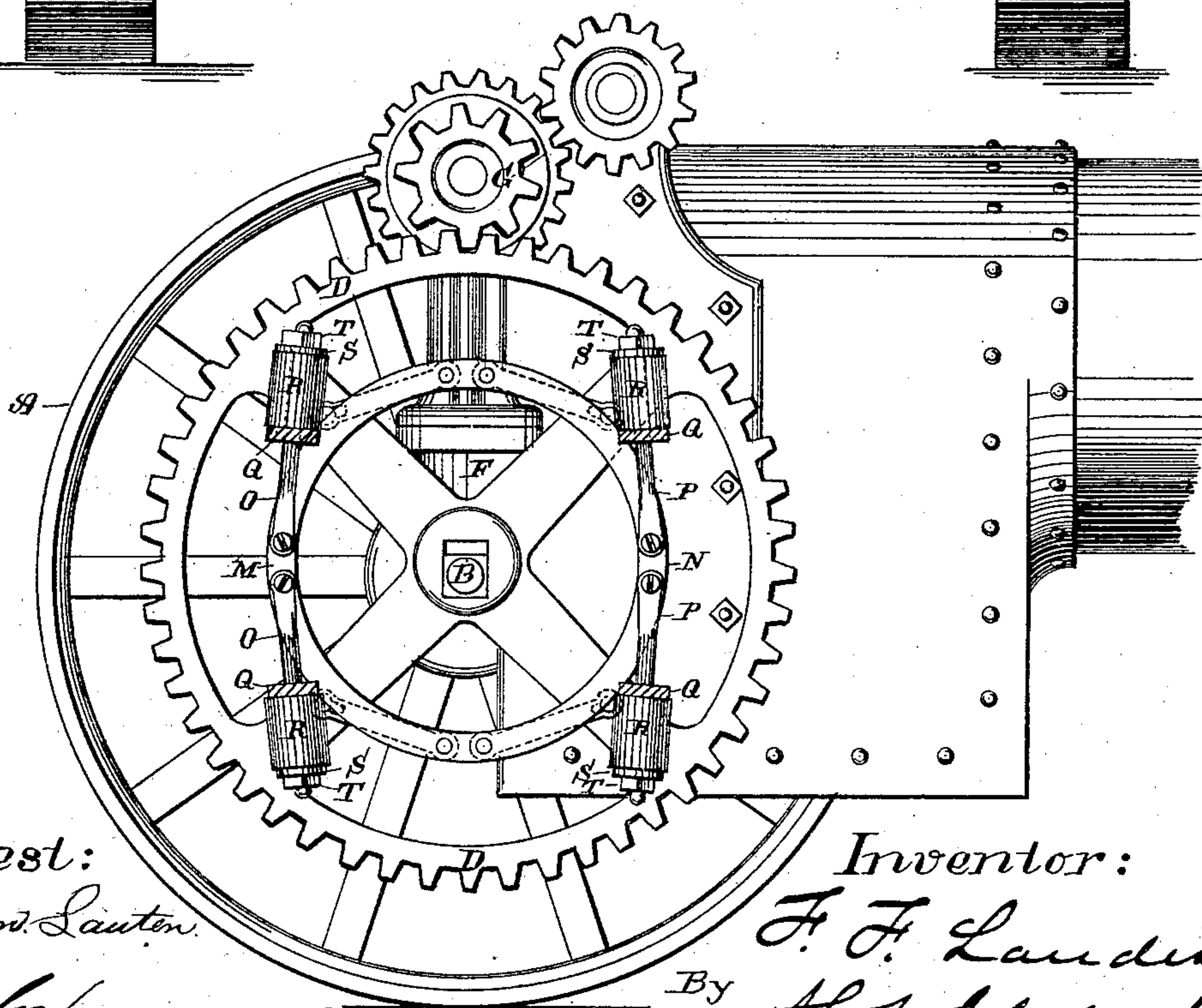


Fig. 2.



Attest:

Therms. Lauten.

*W. E. Newman.*

Inventor:

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By

*H. J. Abbott.*

Attorney.

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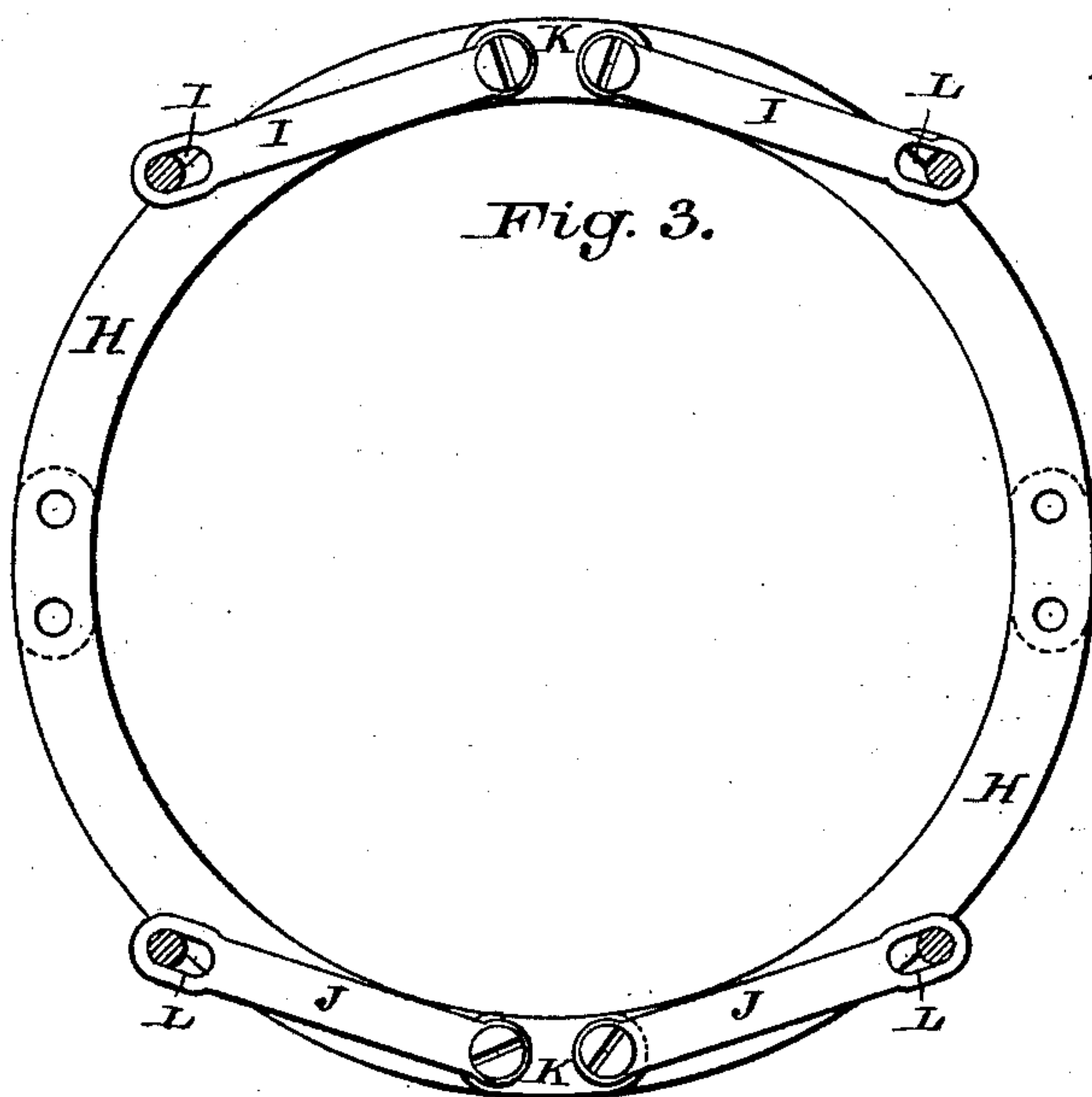
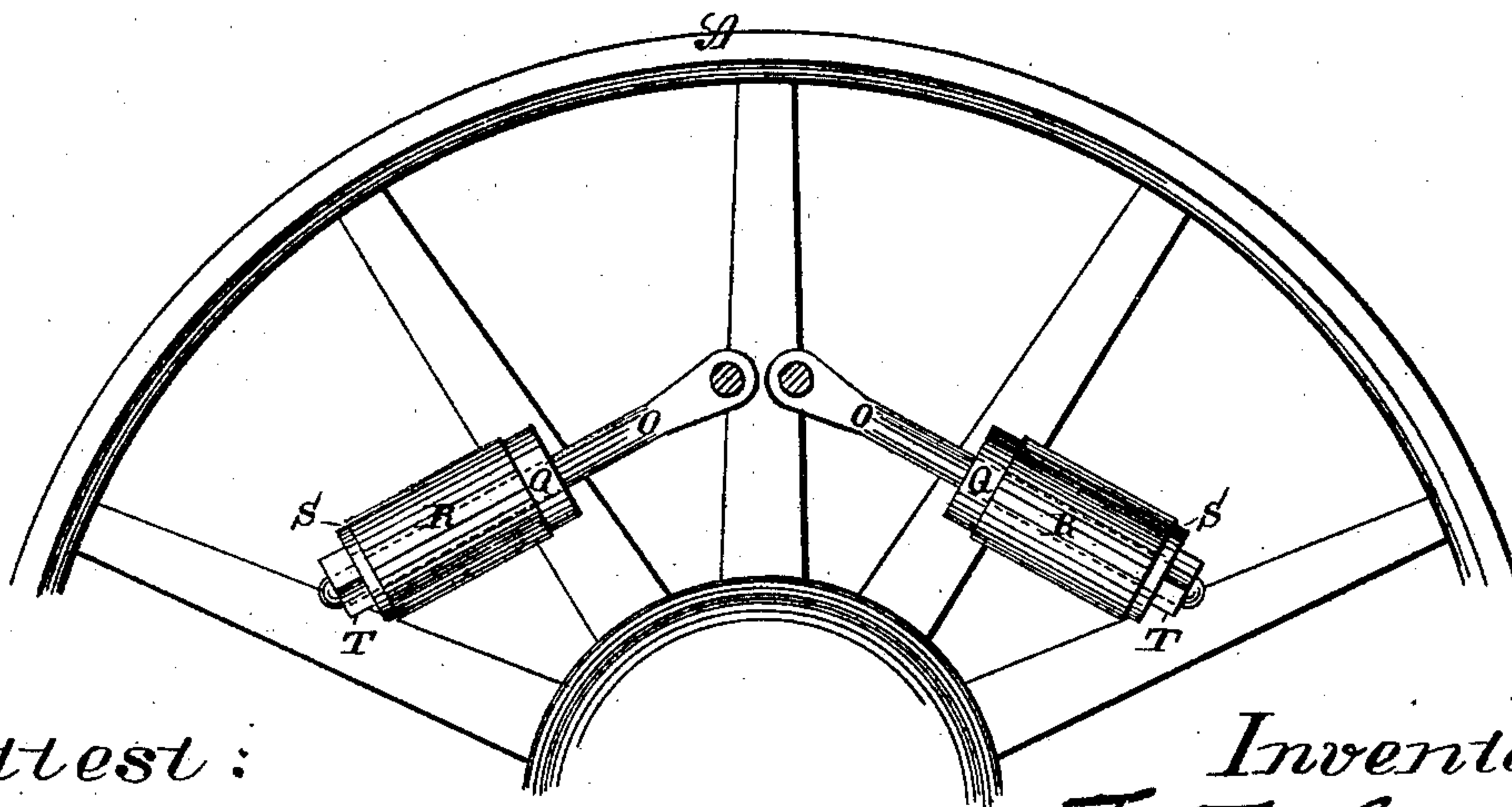


Fig. 4.



Attest:

Herm. Lauter  
*(Signature)*

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. 246,019, dated August 23, 1881.

Application filed July 15, 1881. (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, and in which—

Figure 1 shows an end view of a traction-engine with parts of the wheels broken away to show my device. Fig. 2 is a vertical section on the line *x x* of Fig. 1. Fig. 3 is an enlarged plan of the connecting-ring; and Fig. 4 is an enlarged plan view of a section of the driving-wheel, showing the manner of attaching the rods that connect the ring to the wheel.

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 A represent the driving-wheels; B, the axle; C, the sleeve, which receives the weight of the engine; and D D the driving gear-wheels, mounted upon the end of the sleeve C. The sleeve C incloses the axle B, and is sustained by coiled springs E, inclosed in spring-boxes F F. The axle B is square, and the inside of the sleeve rectangular in shape, so as to permit the sleeve to have a vertical but not a lateral movement.

Each of the driving gear-wheels D receives power from the engine through a pinion, G, and is attached to a connecting-ring, H, by means of two sets of links or connecting-bars, I I and J J. These sets are composed of two links or bars, and are opposite to each other across the diameter of the ring, as shown in Fig. 3 of the drawings, and are secured to lugs K K by means of bolts passing through eyes in the ends of the links and into the lugs, allowing the links to move freely. The links I I, as do the links J J, extend to the right and left from the lugs, and are secured to the spokes of the driving gear-wheel by bolts passing

through short slots L in the ends of the links, allowing a free and easy play for the required distance.

Midway between the two sets of links above described, and on the opposite side of the ring, and diametrically opposite to each other, are two lugs, M and N, to which are attached rods O O and P P, secured by bolts passing through eyes in the ends of the rods, allowing a free circular movement. The rods O O, as do the rods P P, extend to the right and left a suitable distance, passing through lugs Q Q Q Q on the spokes of the driving-wheel A. After passing through the lugs the rods receive sleeves R R R R, made of any suitable material—wood, pulp, or rubber—and held in place by a washer, S, and nut T, upon a thread cut on the end of the rod.

A suitable distance—say about half the length of one of the slots L—is left between each of the sleeves R and its lug. This limited play, with the limited play allowed by the slots L, in connection with the suspension of the connecting-ring by the two sets of links I I and J J on one side, and the two sets of rods O O and P P on the other side, between the driving gear-wheel and the driving-wheel, gives the connecting-ring a movement somewhat similar to that of a gimbal-joint action, as the driving gear-wheel and the driving-wheel change the relative position of their centers as the engine goes over an obstruction in the road and vibrates upon the springs E E, thus forming the required yielding connection between the driving-wheel and the gearing of the engine.

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

1. A connecting-ring or its equivalent attached to the driving-wheel and to the driving gear-wheel of a traction-engine, substantially as shown and described.

2. The combination of the gear-wheel D, links I I and J J, ring H, rods O O and P P, provided with sleeves R, and driving-wheel A, substantially as shown and described.

3. The combination of the axle B, sleeve C, springs E E, driving gear-wheels D D, connecting-rings H H, and driving-wheels A A, substantially as shown and described.

4. The combination of the driving gear-wheel

D, slotted links I I and J J, and ring H, substantially as shown and described.

5 5. The combination of a driving-wheel, A, rods O O and P P, provided with sleeves R, of wood or other suitable material, and ring H, substantially as shown and described.

6. A connecting-ring, substantially as shown and described, provided with two sets of links on one side, diametrically opposite to each

other, and two sets of rods on the opposite side, diametrically opposite to each other, substantially as shown and described.

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

FRANK F. LANDIS.

Witnesses:

WM. S. HENDERSON,

HERM. LAUTEN.