

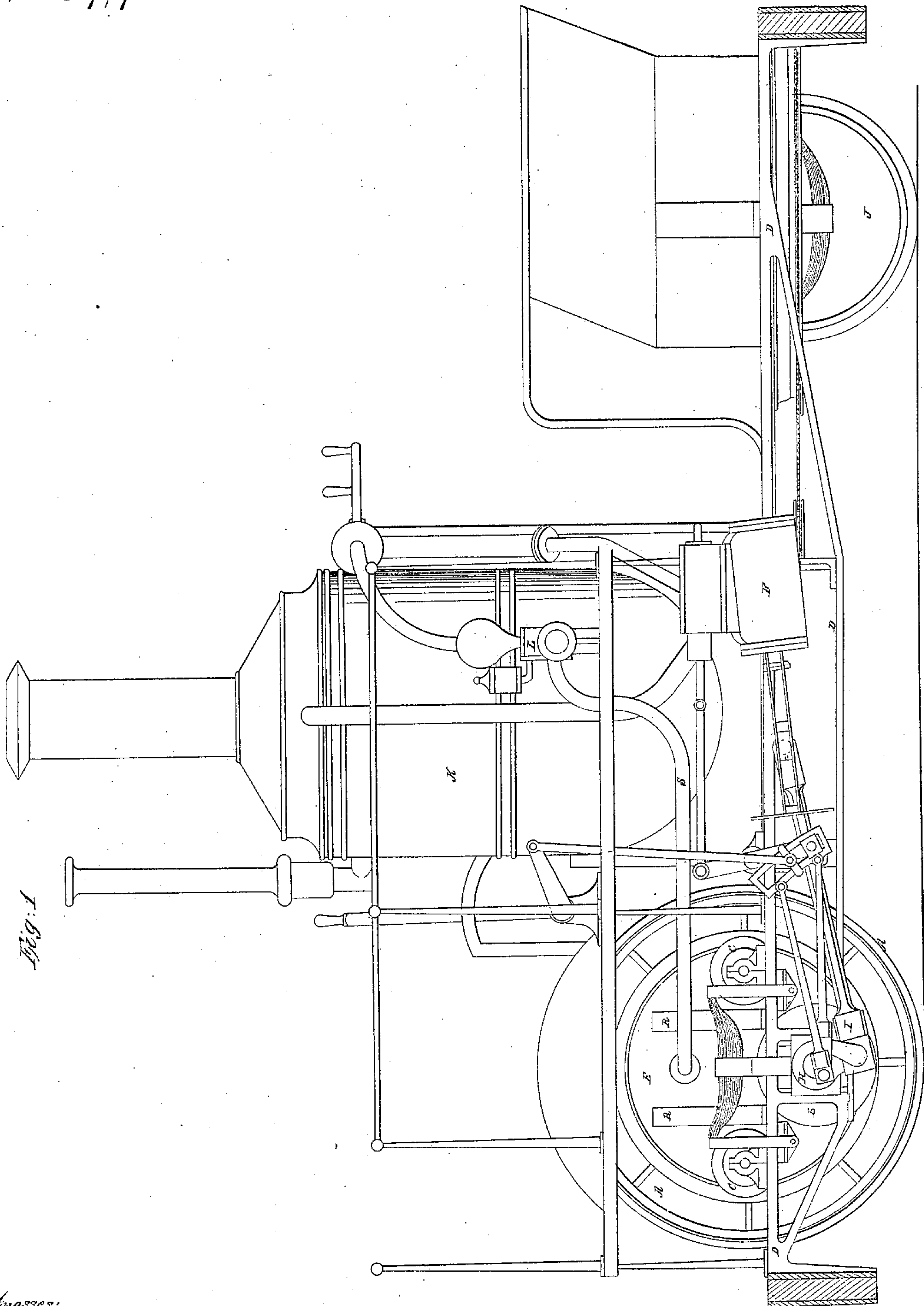
2 Sheets-Sheet 1.

M. W. Wheeler.

Locomotive.

N^o 34,471.

Patented Feb. 18, 1862.



Witnesses:
John Mathey
Mary M. Price

Inventor:
Mumma & Wheeler

2 Sheets- Sheet 2.

M. W. Wheeler,

Locomotive.

N^o 34,471.

Patented Feb. 18, 1862.

Fig. 3

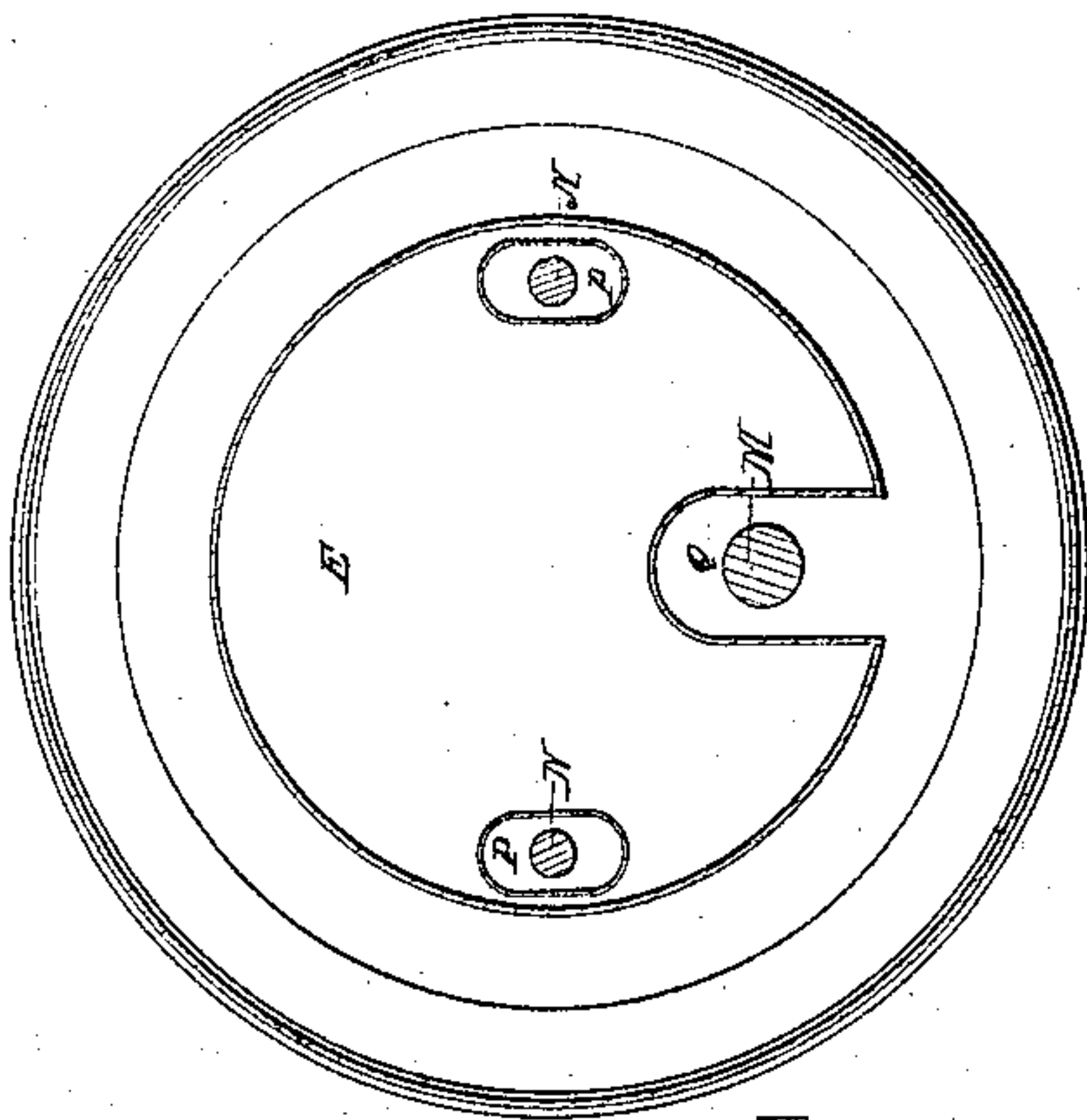
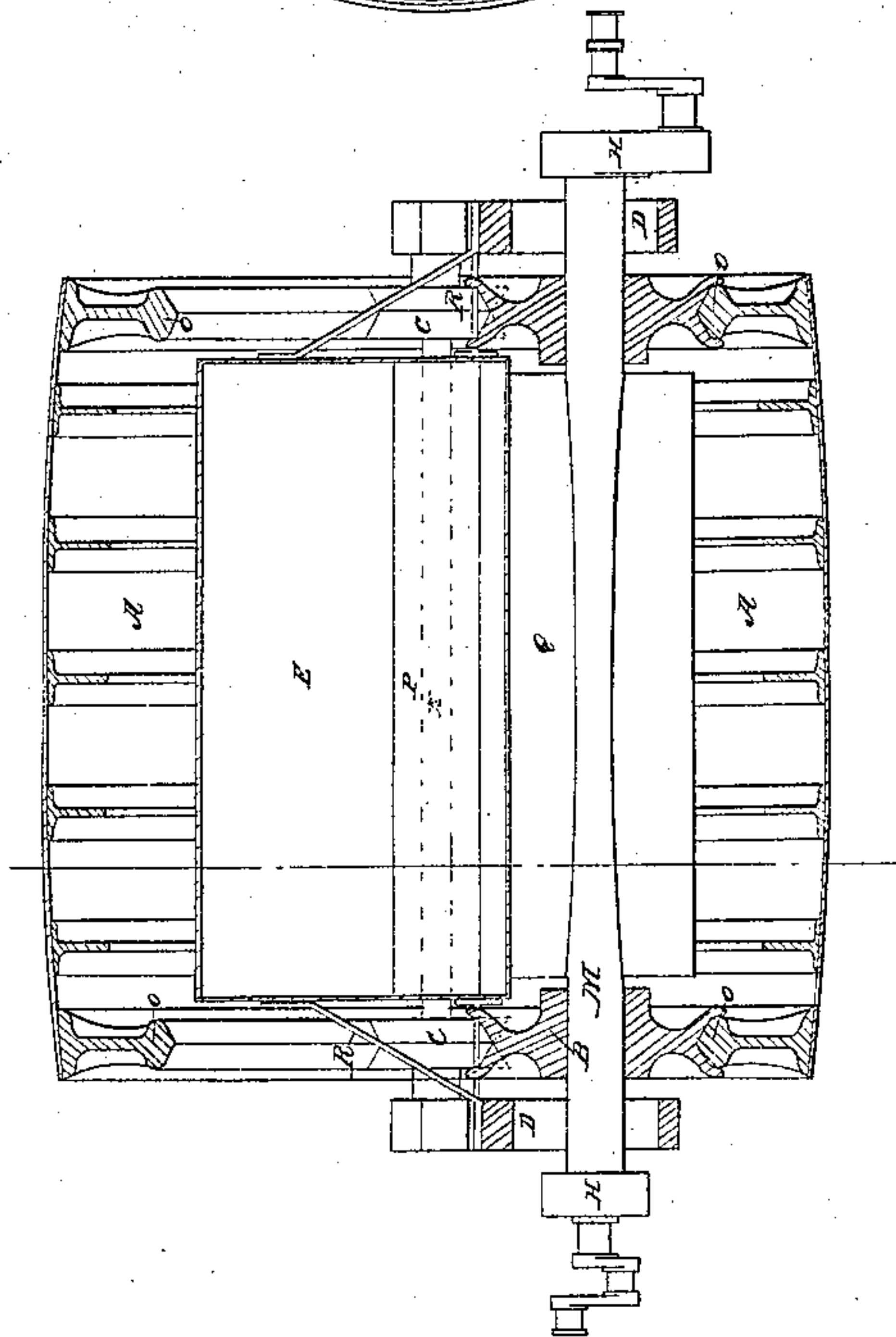


Fig. 2



Witnesses:
John M. Smith
Henry M. Smith

Inventor:
William W. Wheeler

UNITED STATES PATENT OFFICE.

NORMAN W. WHEELER, OF BROOKLYN, NEW YORK, ASSIGNOR TO SIMON STEVENS, OF LANCASTER, PENNSYLVANIA.

IMPROVEMENT IN TRACTO-MOTIVE ENGINES.

Specification forming part of Letters Patent No. 34,471, dated February 18, 1862.

To all whom it may concern:

Be it known that I, NORMAN W. WHEELER, of the city of Brooklyn, county of Kings, and State of New York, have invented a new and useful Improvement in Tracto-Motives or Engines for Running upon Earth or on Common Roads; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1 is an elevation of the engine or machine nearly complete, showing the connection and arrangement of my improvement. Fig. 2 is a sectional view of the drum, water-tank, driving-wheels, circular rails, &c., in the construction and arrangement of which my invention chiefly consists. Fig. 3 is a transverse section of or across Fig. 2, along line x of that figure, showing the position of the water-tank in the drum and the openings through it for the accommodation of the main axle or shaft and the two or more axles of the guide-wheels.

In all the figures the same letters are used to designate the same parts.

The leading object of this invention is to overcome the difficulties that have heretofore attended the application of the steam-engine as a propelling power or tractor on turnpikes or common roads; but it is by no means limited to these purposes. As a locomotive it may be used for propelling mowing and reaping machines, drawing heavy loads of grain, lumber, stone, &c., for building and farming purposes, and as a stationary engine, into which it may be readily and easily converted. It may be used for driving mills, for thrashing-machines, cotton-gins, hemp-brakes, for operating pumps or blowing-machines, hoisting apparatus, and almost every other purpose to which ordinary stationary engines or horse-power can be applied. It may also be used either as a locomotive or stationary engine for plowing, and therefore for this purpose can be rendered almost as available on rolling land as upon the most level prairies. Its adaptability to fire-engines will be hereinafter referred to in a more special manner.

In the drawings herewith submitted and forming a part of this specification, A is the drum or main traction-wheel of the engine. In

its exterior outlines it may be cylindrical; but I prefer giving the bearing-surface a curved or ovoidal outline, as this facilitates turning when the direction of the engine has to be changed. I construct it of a length nearly equal to the distance between the sides of the frames D D. The interior of this drum is hollow and has its surface supported at proper intervals by bars of a T form, as represented. At each end there is a rail just within the ends of the drum very nearly resembling an ordinary T-rail of common railroads, but whose bearing-surface, instead of being flat or slightly rounded, I prefer to have, for reasons hereinafter to be explained, beveled, as shown in the drawings. These rails are designated by the letters O O O O.

B B are two driving-wheels firmly attached to the main driving axle or shaft M. These driving-wheels have their peripheries beveled to correspond to the surfaces of the rails. Experience has shown that where cog-gearing, as heretofore applied, has been used exclusively for connections of this kind the cogs are very liable to be broken out by the springing of the frame. I therefore contemplate dispensing with them, except as adjuncts, obtaining the same advantages as were anticipated from them by increasing the adhesion of the surfaces of contact between the rails and the driving-wheels in the manner described. When, however, there may be serious apprehension that such plane surfaces might not give the necessary adhesion, cogs may be used; or, what might be better, these cogs might be made upon the central part of the rails and the corresponding part of the driving-wheels, the remaining portion of the surfaces being plane, as described. My method of combining toothed gearing with a traction-drum is free from the objections applicable to all other known methods, for the reason that the shaft bearing all the driving toothed wheels is borne upon the frame only at two points, and the frame if not rigid will not break the teeth by throwing an undue strain upon them by twisting or warping of the frame or by the unequal yielding of the supporting-springs. It is so obvious as not to require especial illustration that the adhesion may be greatly increased by dividing the treads and tracks into two or more parts

of a triangular section with acute angles similar to the tongue-and-groove gearing.

C C are guide-wheels mounted upon the frame D D at a height equal or nearly equal to the center of the drum A, and serve to hold the drum in its proper position while running. The frame D D is similar in purpose and arrangement generally to frames in ordinary locomotive-engines.

E E is the feed-water tank, which I introduce, as shown, into and so as nearly to fill up the entire space within the drum A. It is supported upon the frame D D by the brackets R R or in any other equivalent manner, and has running through it longitudinally three cylindrical or flattened tubes to give free passage of the shafts N N of the guide-wheels C C and the main driving axle or shaft M.

F is the steam-cylinder; I, connecting-rod actuating, through the crank H H, the driving axle or shaft M, on which, as before stated, the driving-wheels B B are firmly secured; K, the boiler; L, the force or feed pump; J, truck-wheel or drum for the support of the fore end of the engine; O O O O, the circular railways in the end of the drum, showing the bevel of their surfaces, as before described; P P, tubes, round or flattened, in the water-tank for the passage of the shafts of the guide-wheels; Q, a similar opening through the tank for the passage of the driving-shaft M. Instead, however, of a tube for the passage of the shaft, it may be accommodated to its place by a cavity or recess, as shown in the drawings.

From the variable nature of the surfaces over which engines of this character have to

operate as tractors much greater difficulty occurs in the arrangement and adaptation of the several parts of the machine to render it stable and effective than in an ordinary locomotive. It is of great importance to have the center of gravity of the whole as low as possible, and hence the advantage of placing the water-tank in the driving-drum.

It will be obvious that this machine is in its arrangement most admirably adapted for a steam fire-engine, requiring only the addition of a force-pump of a suitable size and its attachments for this purpose.

To convert this machine into a stationary engine, it is only necessary to raise the after end, by levers, jacks, or otherwise, until the driving-wheel is relieved of its contact with the surface of the rails, when the connection can be made between it and the other apparatus to be operated by any of the well-known means for such purposes.

Having thus described my machine and its general purposes, what I claim, and desire to secure by Letters Patent of the United States, is—

1. The combination of the traction-drum A, driving-wheels B B, and guide-wheels C C C C, substantially as and for the purposes described.

2. Supporting the feed-water tank E within the drum A and upon the frame D D by means of the brackets R R, the whole being arranged substantially as described.

NORMAN W. WHEELER.

Witnesses:

GEO. P. WILLEY,
S. P. FRANCESCA.