

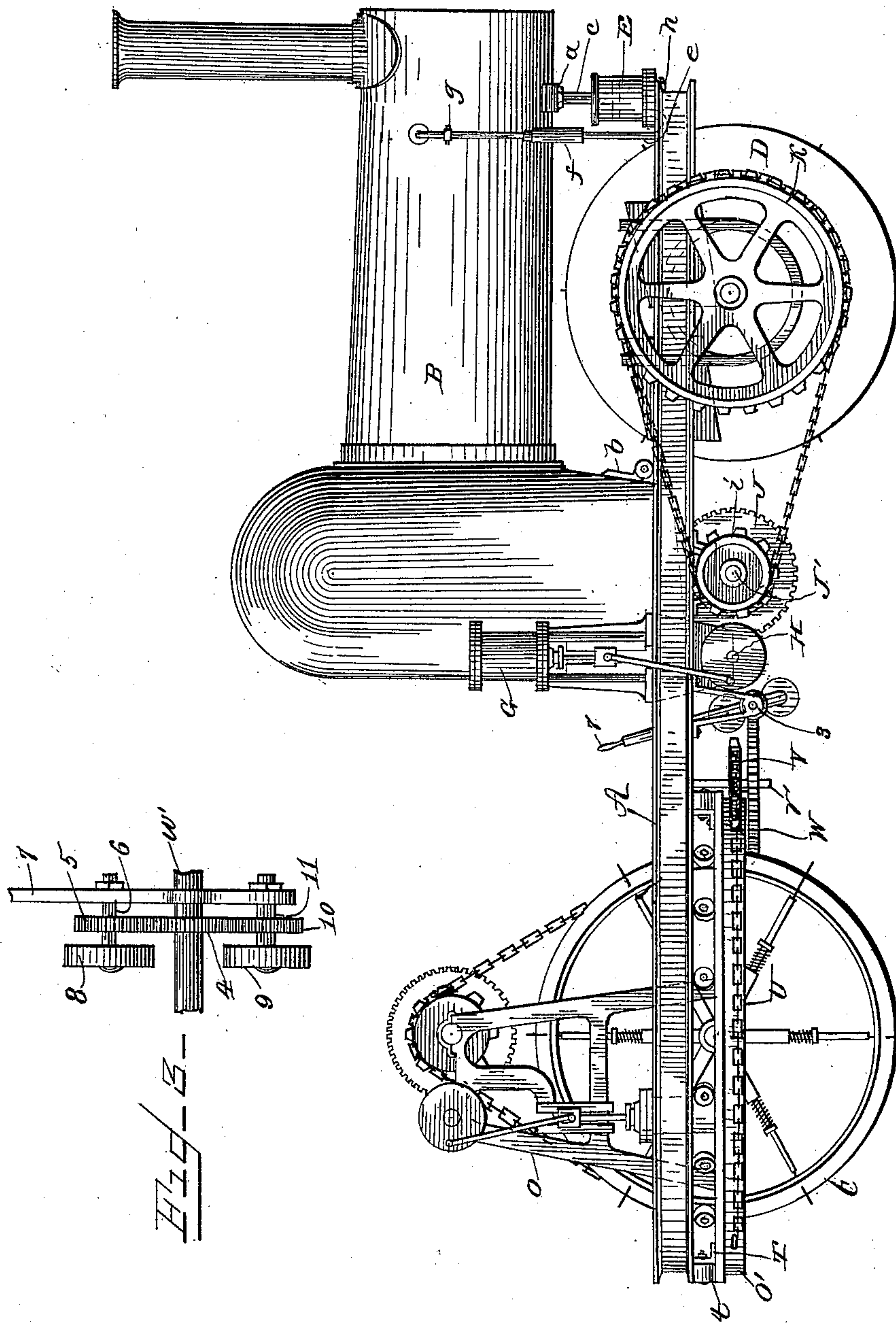
(No Model.)

2 Sheets—Sheet 1.

C. H. ROBERTS.
TRACTION ENGINE.

No. 357,036.

Patented Feb. 1, 1887.



Witnesses
A. W. Bishop.
E. H. Bradford.

Inventor
Charles H. Roberts,
By his Attorney *J. J. Ennis.*

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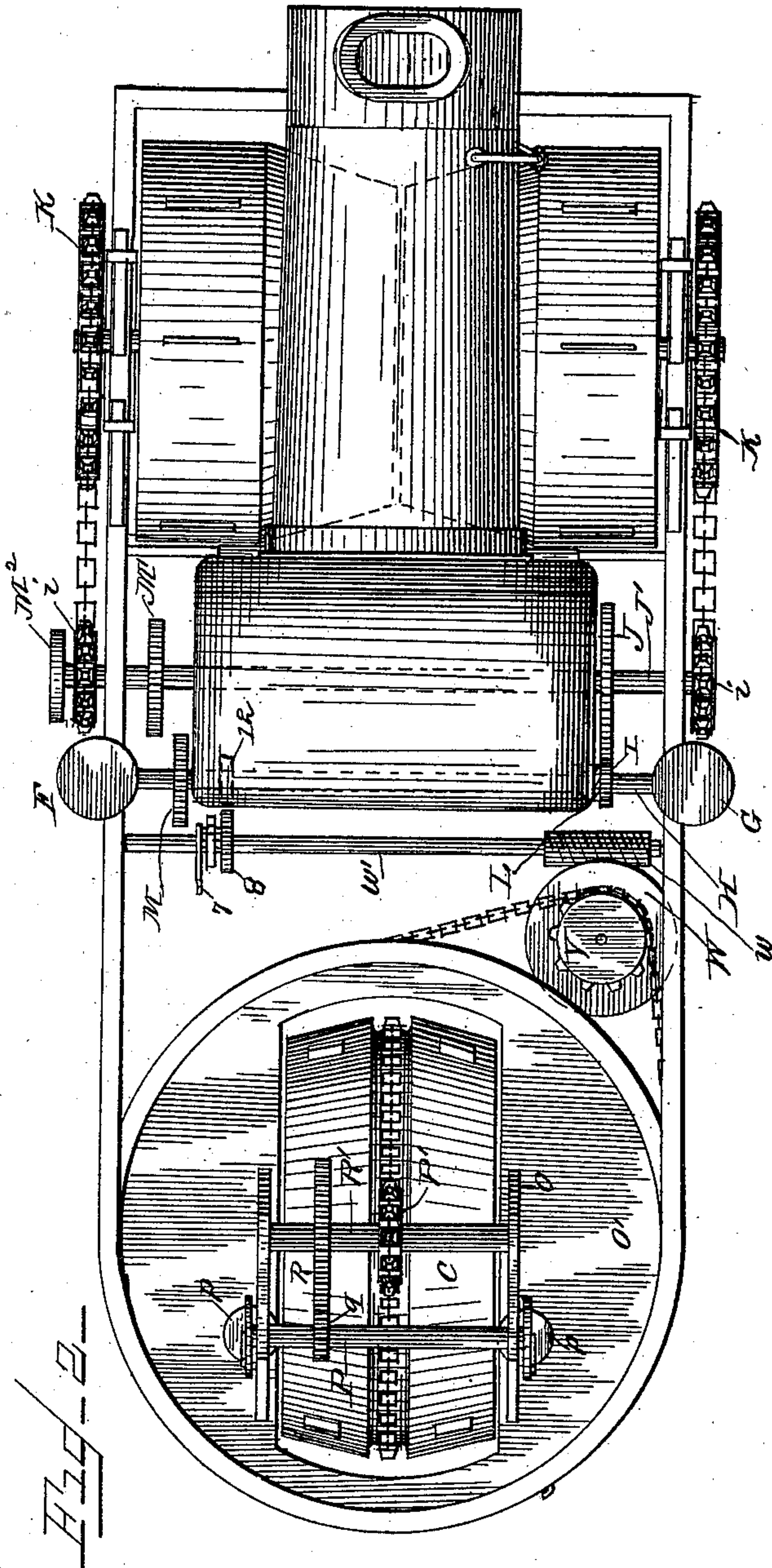
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UNITED STATES PATENT OFFICE.

CHARLES H. ROBERTS, OF WASHINGTON, INDIANA.

TRACTION-ENGINE.

SPECIFICATION forming part of Letters Patent No. 357,036, dated February 1, 1857.

Application filed October 21, 1886. Serial No. 216,898. (No model.)

To all whom it may concern:

Be it known that I, CHARLES H. ROBERTS, a citizen of the United States, residing at Washington, in the county of Davies and State of Indiana, have invented certain new and useful Improvements in Traction-Engines; and I do 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 the letters and figures of reference marked thereon, which form a part of this specification.

My invention has relation to new and useful improvements in traction-engines; and the object is to provide a simple, compact, and powerful machine of this class; and to these ends the novelty consists in the construction, combination, and arrangement of the parts of the same, as will be hereinafter more fully described, and particularly pointed out in the claims.

In the accompanying drawings the same letters of reference indicate similar parts of the invention.

Figure 1 represents a side elevation of my improved traction-engine, the well-known features and those in general use with all engines and boilers—such as the cocks, gages, throttles, and the like—being omitted, as they form no part of my invention. Fig. 2 is a top plan view of the machine; and Fig. 3 is a front view, in detail, of a part of the steering-gear removed from the machine.

A is the frame-work of the machine; B, the boiler; C, the front traction steering-wheel, and D the rear pair of traction driving-wheels. The boiler is mounted to the frame about midway of its balance-point by a pair of hinges, *b*, and the rear end of the boiler is provided with a saddle or shoe, *a*, to which is secured the piston-rod *c* of the cylinder E. The bottom of the said cylinder below the piston has an inlet-pipe, *e*, provided with an expansion-joint, *f*, and stop-cock, *g*, and is connected to any convenient part of the water-space of the boiler. It will thus be seen that the boiler is secured to the frame-work by the hinge-joints and the cylinder under the boiler, and it will readily be understood that the boiler can be instantly leveled to correspond to the position of the machine on the ground. By opening

the cock *g* the steam-pressure will force the water into the cylinder and raise the piston, consequently raising the boiler to a level position, and by closing the cock the water is retained in the cylinder and furnishes a firm rest or support for the boiler. If the end of the boiler is to be lowered, the pet-cock *h* is opened and enough water allowed to escape to bring the end down to a level. Of course, it will readily be understood that the operation of leveling the boiler is accomplished without any manual labor on the part of the operator.

F G are the cylinders, which are connected at a right angle to the main driving-shaft H, which is provided with a small gear, I, meshing with a larger gear-wheel, J, on the shaft J'. This shaft is provided with two sprocket-wheels, *i i*, from which chains pass to the large sprocket-wheels K on the rear traction-wheels, D.

L is a clutch-coupling on the shaft H, which connects said shaft with the pinion or gear I when the engines F G are used to propel the machine; but when the machine is stationary and the engines used to drive any separate machinery—such as thrashing-machines, saw-mills, or the like—the clutch L is disconnected by a lever, (not shown,) and the gear M moved forward in the same plane with the gear M' on the shaft J', so as to revolve it at a greater speed, and the chains removed, so that the whole power of the engine is thrown on the shaft J', from which the power may be transmitted from the pulley M² to any desired point.

Referring to the front traction steering-wheel C, O is an upright frame, secured to the "fifth-wheel" O', and upon it is mounted a pair of engines, *p p*, connected at right angles to a shaft, P, provided with a pinion, *q*, meshing with a gear-wheel, R, on the shaft R'. This shaft has a small sprocket-wheel, P', around which a chain passes endlessly over the drum-wheel C, by means of which the wheel is rotated.

The fifth-wheel O' is provided with a series of knees, T, secured thereto, and having their upper ends projecting inside and above the bottom of the frame A, to keep said wheel O' in place. Each bracket or knee T is provided with an anti-friction roller, *t*, upon which the frame A rests.

U is a chain the ends of which are secured

at suitable points to the fifth-wheel O', as shown, and said chain passes around a sprocket-wheel, V, on the vertical shaft V'. W is a worm-gear on said shaft, and into it meshes a worm-screw, *w*, on the shaft *w'*, journaled in a bracket, 3, secured to the frame A. This shaft *w'* is provided with a pinion, 4, which meshes on its upper side with a similar pinion, 5, on the shaft 6, journaled in the lever-handle 7. This shaft 6 has secured to it a friction-wheel, 8, and a similar friction-wheel, 9, and gear or pinion, 10, are secured to the shaft 11 on the lower end of the lever 7. The two friction-wheels 8 and 9 are in the same plane as the balance 12, and by throwing the lever-handle 7 forward the lower wheel, 9, will bind against the periphery of the balance-wheel, causing said friction-wheel 9 to turn its pinion 10, which in turn rotates the pinion 4 and worm-screw *w*, and thence, through the medium of the chain, turn the fifth-wheel to the right to steer the machine. If the lever 7 is thrown backward the upper friction-wheel binds on the balance-wheel and the machine steered to the left, as above described. Of course, if the machine is going straight ahead, the lever is thrown so that neither of the friction-wheels come in contact with the balance-wheel, and the course of the machine remains unaltered and the labor of steering is reduced to a minimum, as no physical exertion is required.

For a description of the construction of the front and rear traction drums or wheels reference may be had to two applications filed simultaneously herewith, serially numbered 216,896 and 216,897, in which both features are set forth and claimed.

Having thus fully described my invention, what I claim as new and useful, and desire to secure by Letters Patent of the United States, is—

1. The combination, with the frame of a portable engine, of a boiler mounted thereon and provided with a steam-cylinder connecting said boiler and frame, whereby the position of the boiler with reference to the frame may be varied at will, as set forth.

2. In a traction-engine, the combination, with the balance-wheel and frame of the engine, of the steering-wheel, a sprocket-wheel connected to the steering-wheel by chains, worm-gearing driving said sprocket-wheel, and a lever mounted upon the worm-shaft and carrying friction-rollers, which are made to engage the balance-wheel of the engine, as and for the purposes set forth.

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

CHARLES H. ROBERTS.

Witnesses:

H. J. ENNIS,
R. W. BISHOP.