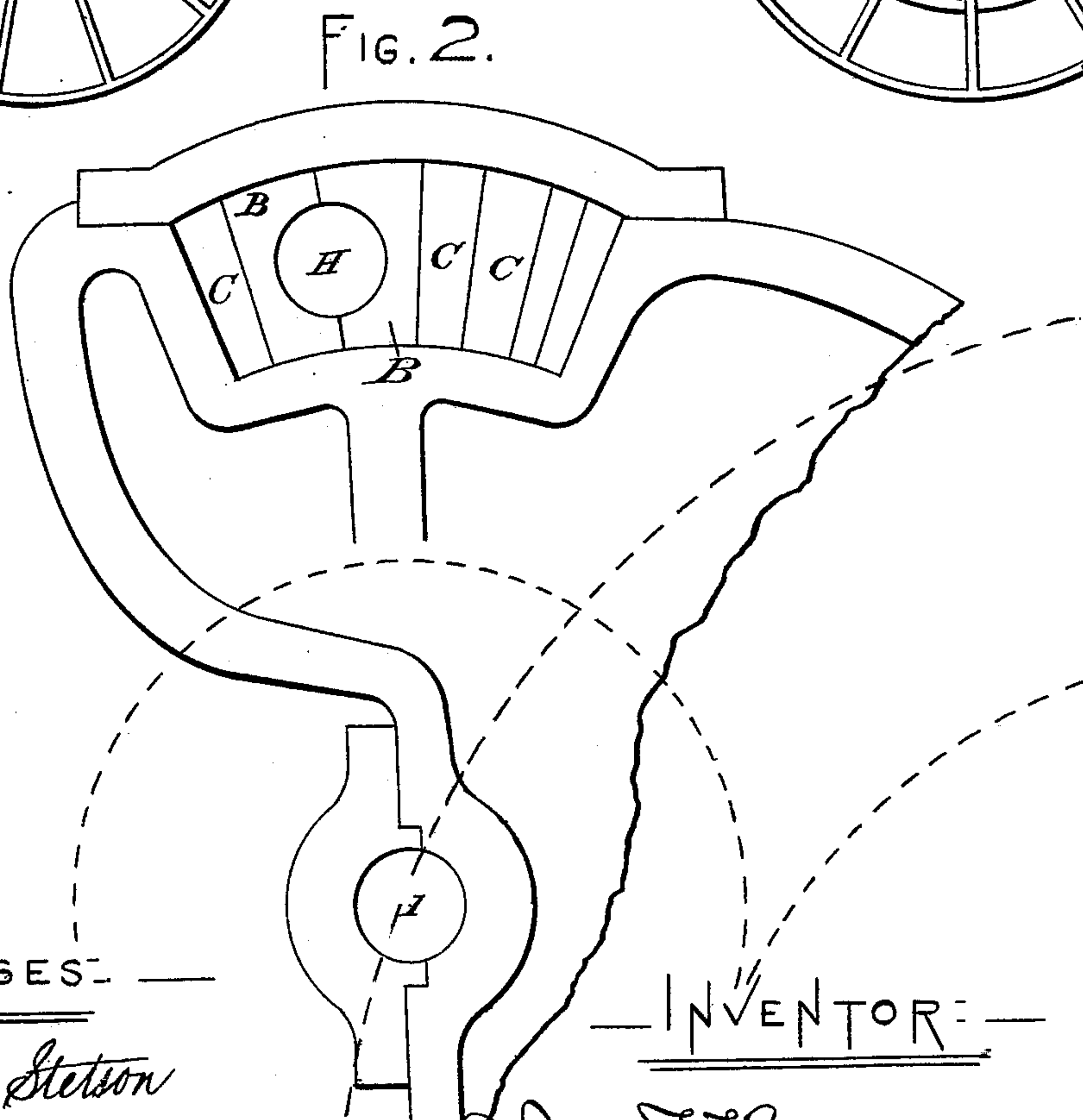
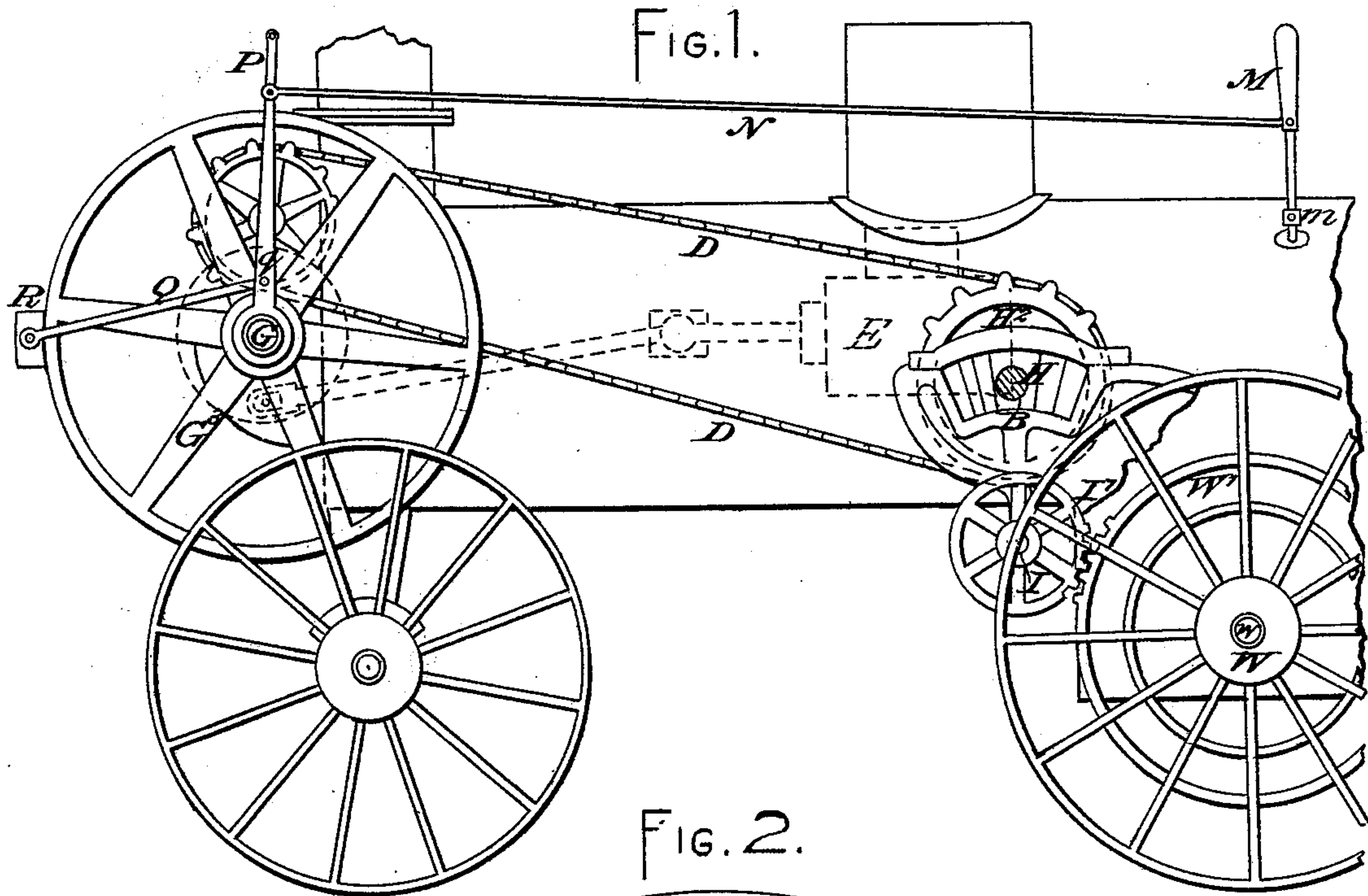


W. T. HATCH.  
Road-Engine.

No. 220,612.

Patented Oct. 14, 1879.



WITNESSES

Charles C. Stetson  
E. B. Bolton

INVENTOR

Willard T. Hatch,  
by his attorney, E. B. Bolton.



# UNITED STATES PATENT OFFICE.

WILLARD T. HATCH, OF INDIANAPOLIS, INDIANA, ASSIGNOR TO ATLAS  
ENGINE WORKS COMPANY, OF SAME PLACE.

## IMPROVEMENT IN ROAD-ENGINES.

Specification forming part of Letters Patent No. **220,612**, dated October 14, 1879; application filed  
June 10, 1879.

*To all whom it may concern:*

Be it known that I, WILLARD T. HATCH, of Indianapolis, in the county of Marion, in the State of Indiana, have invented certain new and useful Improvements relating to Portable Steam-Engines which may also be used as Traction-Engines; and I do hereby declare that the following is a full and exact description thereof.

I have devised an improved arrangement of the parts for transmitting power from the engine to the driving-wheels. I use a single engine, with the obvious economy of construction and repair and the diminished friction due to such, and have connected an efficient device for starting the engine when it is stopped on the center.

The accompanying drawings form a part of this specification, and represent what I consider the best means of carrying out the invention.

Figure 1 is a side elevation of a portion of an engine with my improvements applied thereto. Fig. 2 shows details on a larger scale.

Similar letters of reference indicate like parts in all the figures.

The general features of the machine and their uses and relations to each other will be sufficiently obvious from the drawings. I will confine the description to the peculiar parts.

H is a shaft carrying the chain-wheel H<sup>2</sup> and a spur-gear wheel. (Not shown.) It is supported in a box, B, held by wedges C C at the sides. The housing around the box B allows of motion forward and backward. The box is adjusted forward or back to compensate for variations in the length of chain D. The movement of the box B is not in a right line, but is in the arc of a circle which is concentric with shaft I, so as to always keep the teeth of the gear-wheels engaged to the same depth, however the box B shall be adjusted, and thereby to communicate the power smoothly and reliably to the large gear-wheel W' keyed on the shaft w of the driving-wheels W.

E is a single steam-cylinder, equipped with a piston and connections acting on a crank on

the shaft G, with valve-gear and all the ordinary accompaniments.

In consequence of the frequent stopping and starting incident to miscellaneous work on a farm and in like situations, a single engine is objectionable, on account of its liability to stop on the center. I provide means for conveniently enabling the engineer to assist the starting.

The lever M turns on a center, m, and is in a convenient position to be seized and operated by the engineer on the foot-board. A connection, N, leads therefrom to a lever, P, which turns loosely on the main shaft G. When the engineer pulls the lever M and turns the lever P, it takes a firm hold of the fly-wheel G<sup>3</sup> by means of a rod, Q, pivoted to the lever P at the point q, with its other end taking hold of the periphery of the wheel G<sup>3</sup> by means of a friction-block, R. This block being drawn tightly upon the smooth surface of the wheel G<sup>3</sup>, gives a firm gripe when it is pulled forward; but the connection allows it to let go and to drop by gravity and take a fresh hold so soon as the levers M and P are relaxed.

At each movement of the hand-lever M the fly-wheel G<sup>3</sup> is turned to an extent nearly equal to the motion of the lever P, and by one or more such movements the engine is easily thrown off its center and put in the position for starting.

I have, in my experiments, made the friction-block R of hard wood.

Modifications may be made in the details. I can adjust the shaft H forward and backward by screws instead of wedges. The hand-lever M may be dispensed with, and the hand applied directly to a suitable loop or handle on the end of the rod N.

A lever corresponding to P may be mounted on each side of the fly-wheel G, and the connection Q may be correspondingly duplicated, to take hold more efficiently on the friction-block R.

I claim as my invention—

1. In a portable and traction engine having a chain, D, for communicating power to the

bearing-wheels W, the shaft I, turning on a fixed center, and the shaft II, turning on a movable center, in combination with means, C C, for adjusting the position of the latter in a path concentric to I, as and for the purposes herein set forth.

2. In a portable engine having a single cylinder, the friction-piece R, rod Q, lever P, and connection N, adapted to serve as herein specified.

In testimony whereof I have hereunto set my hand this 3d day of June, 1879, in the presence of two subscribing witnesses.

WILLARD T. HATCH.

Witnesses:

A. M. MORSE,  
IG. McDOWELL.