

J. B. Root,

Locomotive.

N^o 65,012.

Patented May 21, 1867.

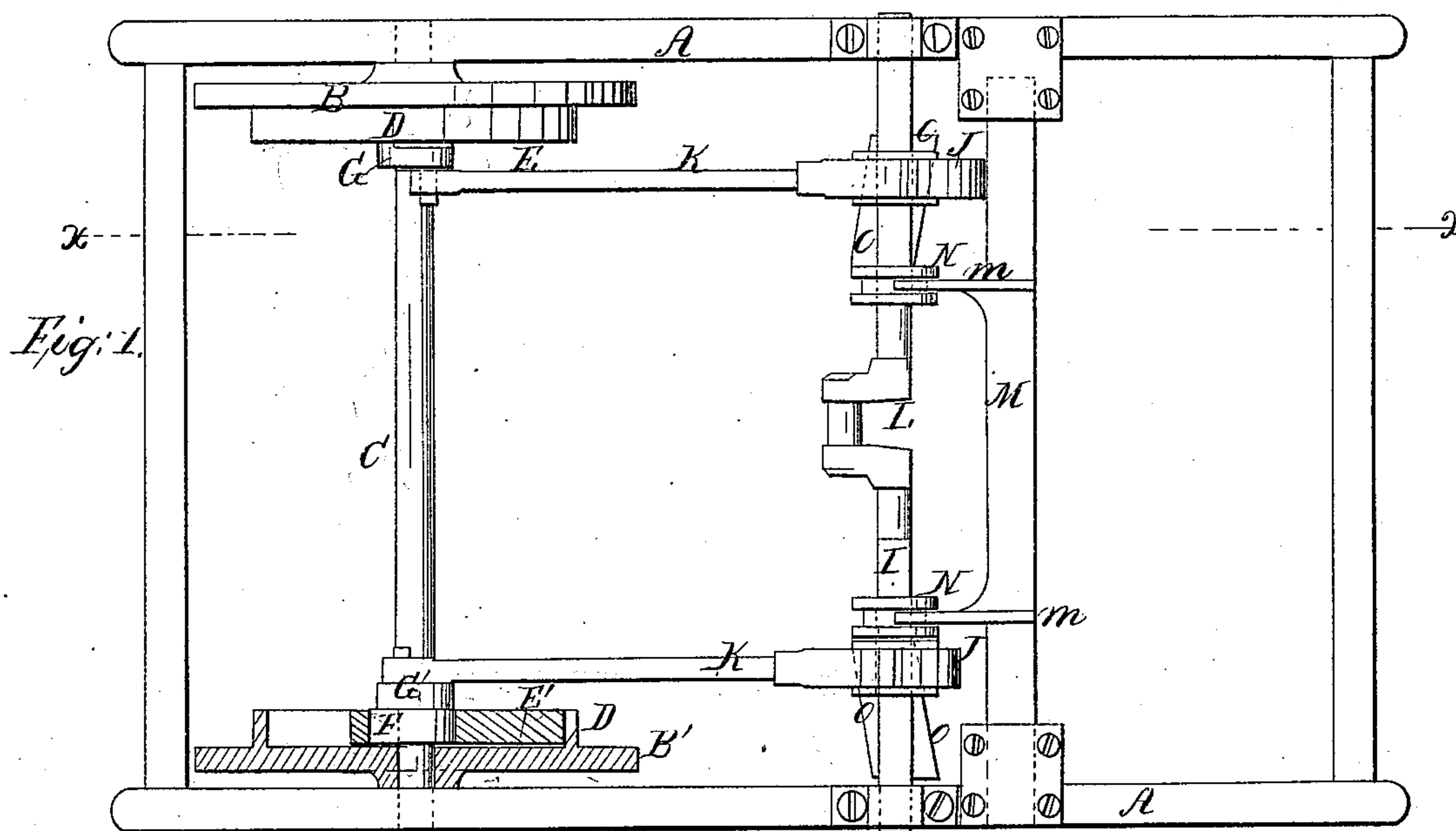
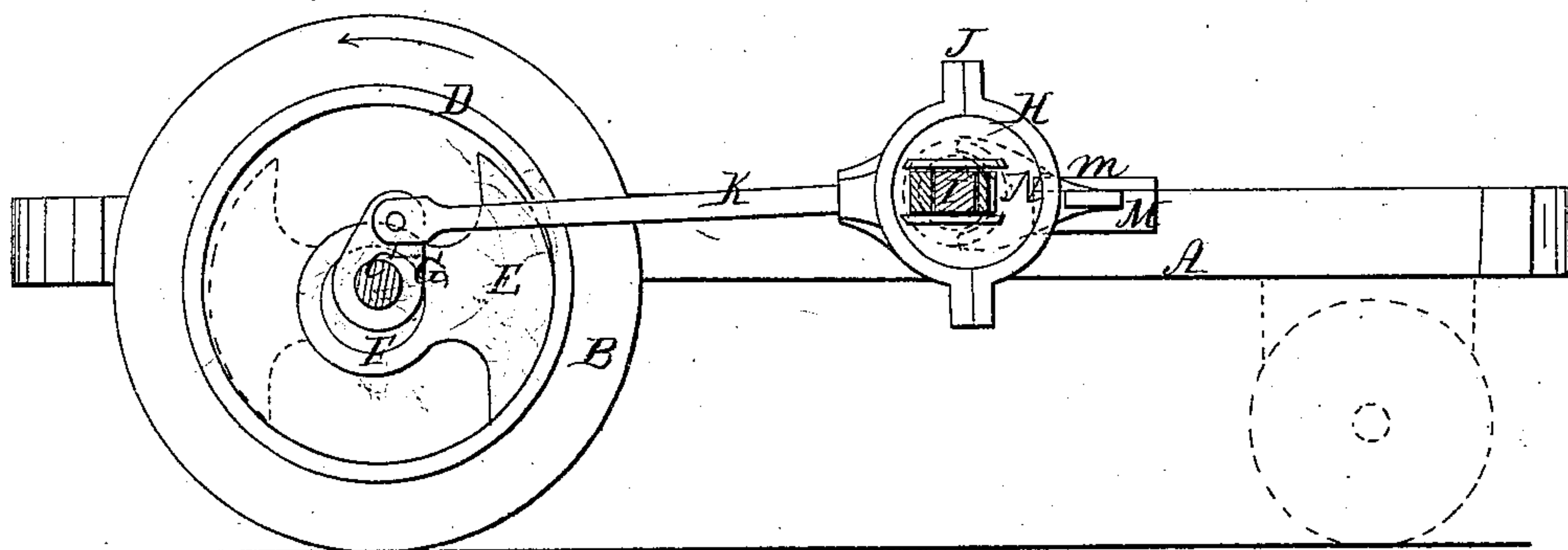


Fig: 2.



Witnesses;
J. W. Coombs
G. W. Reed

Inventor;
John B. Root

United States Patent Office.

JOHN B. ROOT, OF NEW YORK, N. Y.

Letters Patent No. 65,012, dated May 21, 1867.

IMPROVEMENT IN TRACTION ENGINES.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, JOHN B. ROOT, of the city, county, and State of New York, have invented a certain new and useful Improvement in Locomotive or Traction Engines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawing forming part of this specification, and in which—

Figure 1 represents a partly sectional plan of the running or truck portion of the framework of a locomotive or traction engine with my improvement applied thereto; and

Figure 2 a vertical longitudinal section of the same taken through the line *xx* in fig. 1.

Like letters indicate corresponding parts in both figures.

The nature of my invention consists in a combination of variable eccentrics or cranks on a rotating shaft, set in motion by the engine, with reciprocating friction devices driven by said eccentrics or cranks, and acting upon or against wheels connected with the driving-shaft of a locomotive or traction engine to propel the latter by rotating said wheels. By this combination, the driving-wheels of the engine may be rotated fast or slow in a smooth and positive manner without altering the speed of the engine-shaft, to give more or less traction according to the load or deviation from level of the road on which the locomotive travels, or, in the case of the application of the improvement to portable engines, enabling said engines, with the same advantages as regards smoothness of work and variableness in speed, to move from place to place and to continue their driving power at rest without, it may be, stopping the engine-shaft. Under the construction herein represented, too, of frictional devices, the driving-shaft may be reversed without altering the direction in travel of the engine-shaft.

Referring to the accompanying drawing, A represents the lower framework or truck portion in part of a locomotive or traction engine, and B B' its driving-wheels, fast to a driving-shaft, C. On this driving-shaft C are pulleys D D', or such may be mere rims or flange projections on the driving-wheels B B'. Against these rims or pulleys D D' the reciprocating friction-blocks or devices E E' are made to bear alternately, to give a continuous rotary motion to the driving-shaft C. Such frictional devices may be of any suitable description, as, for instance, they may be similar to those heretofore used in operating sewing machines, or they may be constructed according to an improvement in such devices invented by me, but which, separately considered, forms no part of the present invention. Such device, however, as here represented, may be described as follows: The frictional blocks E E', made circular on their rubbing edges, are arranged within the pulleys D D', and of such pitch or size as when thrown against the inner peripheries of said pulleys they produce a long and effective bite thereon, but when relieved from such pressure or bite, are capable of freely turning within said rims. These friction-blocks are loosely hung upon eccentrics F, which are loosely fitted on the driving-shaft C, and have attached to them cranks or arms G G' that, accordingly as they are made to reciprocate in reverse directions, simultaneously serve, by their eccentrics, to make either block E E' alternately bear against the pulleys D D' and give a continuous rotary movement to the driving-shaft C, it only being during one motion of said cranks or arms G G' that the bite of the blocks E or E' is established, the eccentrics in the opposite travel of the cranks relieving the blocks from frictional bite or pressure. To reverse the action of the driving-shaft, the blocks E E' may be swung over so as to act alternately on the pulleys D D' on the opposite side of the driving-shaft C, as represented by red lines in fig. 2. This avoids the necessity of reversing the action of the engine that operates the reciprocating cranks G G'. The cranks G G' are reciprocated in reverse directions simultaneously by means of eccentrics H, placed at opposite throw on the engine-shaft I, and linked by eccentric straps J and rods K with said cranks. L is the engine-crank by which the shaft I is rotated. The eccentrics H, which rotate with the engine-shaft, are made jointly variable or adjustable so as to alter the extent of their throw, and consequently increase or diminish the stroke of the friction-block cranks G G', to modify the velocity of the driving-shaft C without altering the speed of the engine-shaft. This is done to vary the traction or speed of the locomotive to circumstances, such as variations in the load or inclinations in the road on which it travels, and may be effected while the engine-shaft is running at a regular velocity, by simply sliding to the right or left a bar or plate, M, that by means of arms *m m* moves clutches or sliding-sockets N N, to which are attached reversely-arranged wedges O O O O, fitting through transverse slots made in the eccentrics H. These wedges bear on their inner edges against opposite sides of the engine-shaft which may be made

square at the portions carrying the eccentrics, that, accordingly as they have more or less throw given them by the action of the wedges against them in sliding the bar M to the right or left, give more or less action to the friction-blocks; or said eccentrics H may, by sufficiently sliding the wedges to the one side, be made to occupy a concentric position relatively to the engine-shaft, when, although the engine-shaft continues to rotate, the friction-blocks will have no motion. This will be found very serviceable in cases where the locomotive or traction engine is designed to act at times as a stationary engine for driving machinery, as, its locomotive action being stopped, the engine-shaft may then be used to communicate, by pulleys or otherwise, the necessary stationary power.

Thus it will be seen that by the combination of variable eccentrics or cranks on the engine-shaft, with reciprocating friction devices acting to rotate the driving-shaft of the locomotive, many facilities are afforded, without noise, jar, or liability to breakage in making the changes.

What I claim as my invention, and desire to secure by Letters Patent, is—

The combination of variable or adjustable eccentrics or cranks on a rotating shaft, driven by the engine, with reciprocating friction-blocks or devices, acting upon wheels connected with the driving-shaft of a locomotive or traction engine, substantially as specified.

JOHN B. ROOT.

Witnesses:

A. LE CLERC,
J. W. COOMBS.