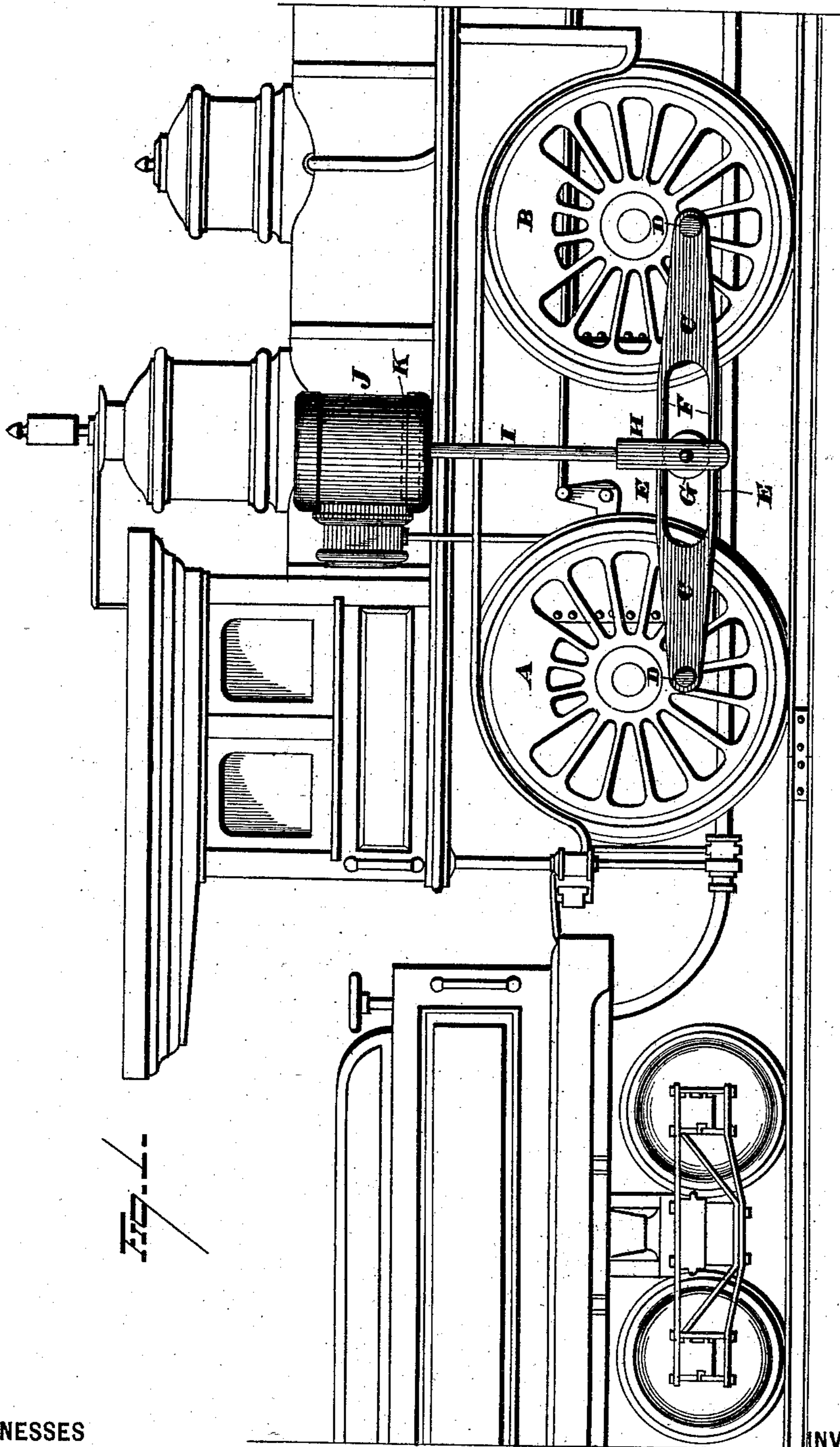


J. W. CLARDY.
Locomotive-Engine.

No. 228,172.

Patented June 1, 1880.



WITNESSES

E. J. Nottingham.
T. P. Hall

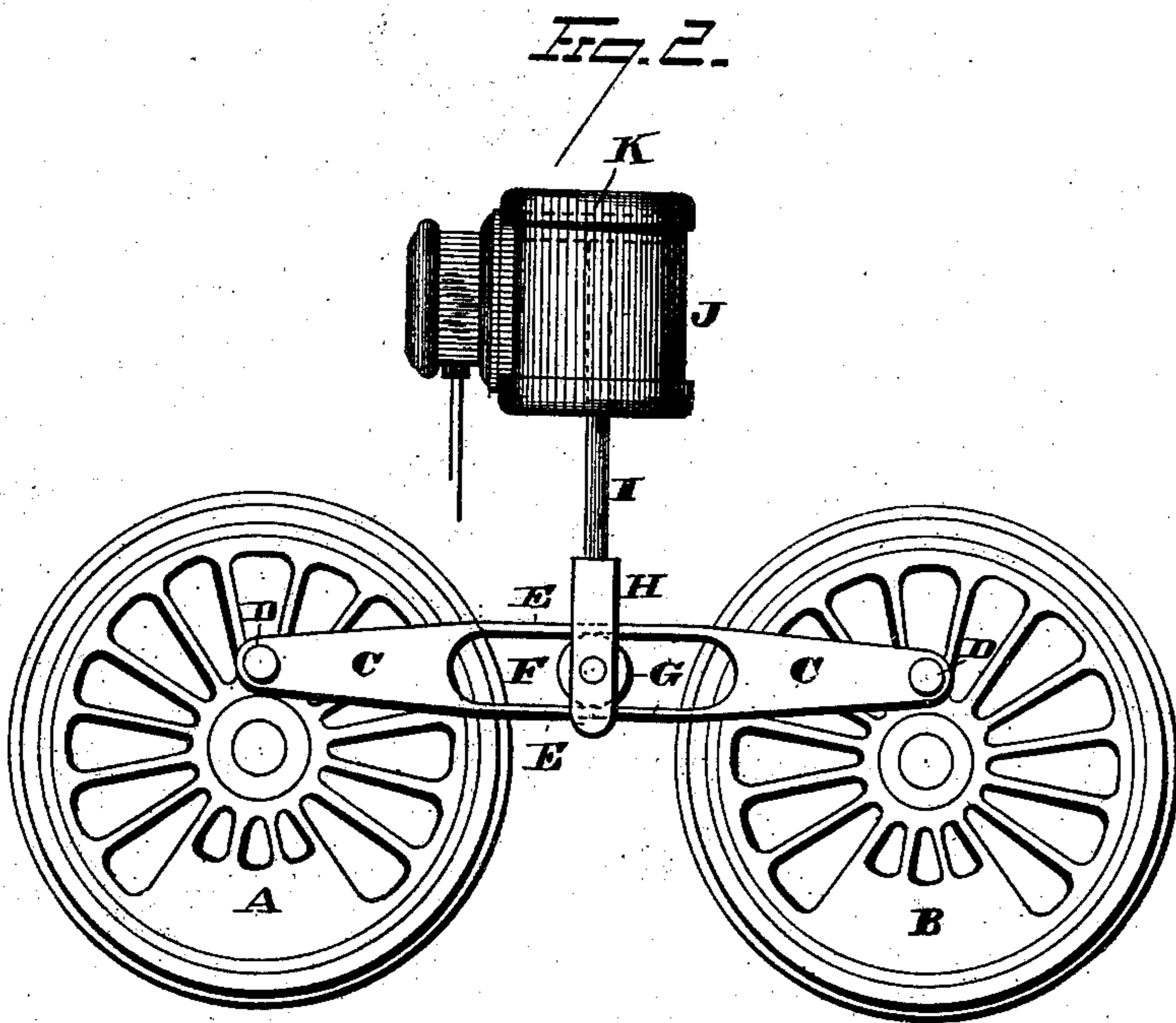
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UNITED STATES PATENT OFFICE.

JOHN W. CLARDY, OF CHILDERSBURG, ALABAMA.

LOCOMOTIVE-ENGINE.

SPECIFICATION forming part of Letters Patent No. 228,172, dated June 1, 1880.

Application filed November 14, 1879.

To all whom it may concern:

Be it known that I, JOHN W. CLARDY, of Childersburg, in the county of Talladega and State of Alabama, have invented certain new and useful Improvements in Locomotive-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 pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to an improvement in locomotive-engines. Heretofore locomotive-engines, as ordinarily constructed, had their steam-cylinders arranged in a horizontal plane and their piston-rods reciprocating in the line of direction of the movement of the engine, and hence the back-stroke of the piston encounters a back-pressure, which retards the speed of the engine.

The object of my invention is to obviate the objectionable features of locomotive-engines as now constructed, and construct and arrange the cylinder and connecting mechanism so as to materially reduce the retarding influence over the motion of the engine due to the reactionary force exerted on the piston when passing through its backward or inefficient portion of its stroke; and to this end my invention consists of certain details of construction and combinations of parts, as will hereinafter be described, and pointed out in the claims.

In the accompanying drawings, Figures 1 and 2 are views, in side elevation, of the driving-wheels of a locomotive-engine in different positions and my improvement applied thereto.

A and B are the two driving-wheels of a locomotive-engine. C is a connecting-rod, the ends of which are journaled upon the wrist-pins D of the drivers. Connecting-rod C is constructed with its central portion cut away and its ends connected by the upper and lower bars, E E, thereby forming an elongated opening, F, within which is located an anti-friction roller, G, journaled in a yoke, H, connected with the lower end of the vertically-arranged piston-rod I. Steam-cylinder J is located between and above the driving-wheels, and is arranged in a vertical position.

K represents the steam-piston, to which the

piston-rod I is connected in any suitable manner.

In the accompanying drawings I have not represented any valve-opening mechanism, as any construction or arrangement of valve-gearing may be resorted to, as my invention does not consist in such details, but relates broadly to the application of power to impart motion to the engine.

In my improvement the piston-rod may be retained in a vertical position by any suitable guide or frame.

It will be observed that the connection between the piston-rod and connecting-rod is such that the latter may freely move either forward or backward, and hence it cannot meet with the resistance which is offered to its movement in the ordinary construction of engines, when a close and practically rigid connection is formed between the connecting-rod and the piston-rod arranged to move in a horizontal plane. In my improvement the power is applied at right angles to the line of movement of the engine, and hence the resistance is materially decreased.

Instead of employing a single roller between two bars, I may use two rollers and arrange them on opposite sides of a single bar on the connecting-rod; but in any construction the parts should be so constructed that the connecting-rod may have a free longitudinal movement independent of the movement of the piston-rod, and thereby obviate the retarding effects on the speed of the engine produced by the reactionary power of the steam on the piston on its back-stroke.

It is evident that many slight changes in the construction and relative arrangement of parts might be resorted to without departing from the spirit of my invention, and hence I would have it understood that I do not limit myself to the exact construction and relative arrangement of parts shown and described; but,

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

1. The combination, with the driving-wheels and connecting-rod of a locomotive-engine, of a steam-cylinder and piston-rod, the latter constructed to engage at its lower end with the

connecting-rod and permit of the free and independent reciprocation of the latter, and to transmit power only in a vertical plane, substantially as set forth.

5 2. The combination, with the driving-wheels and connecting-rod of a locomotive-engine, of a piston-rod working vertically and an anti-friction roller connected therewith and engaging with the connecting-rod, substantially as
10 set forth.

3. The combination, with the driving-wheels and connecting-rod, the latter provided with

an elongated central opening, of a vertically-arranged piston-rod and an anti-friction roller located within the opening in the connecting-rod and journaled within arms on the free end
15 of the piston-rod, substantially as set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 8th day of November, 1879.

JOHN WESLEY CLARDY.

Witnesses:

Z. H. CLARDY,
WM. FINN.