

T. Reese,
Reciprocating Steam Engine,
No 80,011, *Patented July 14, 1868.*

Fig. 1.

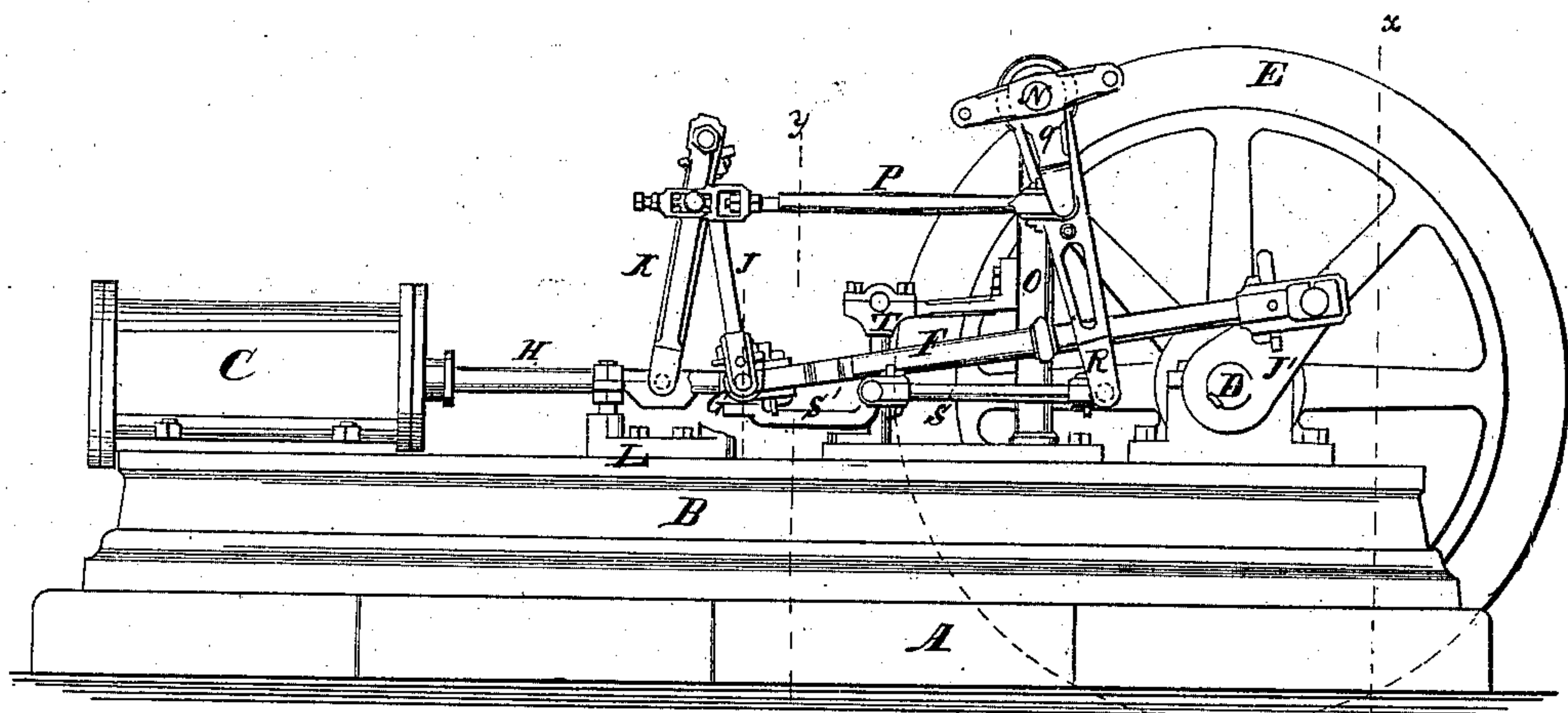
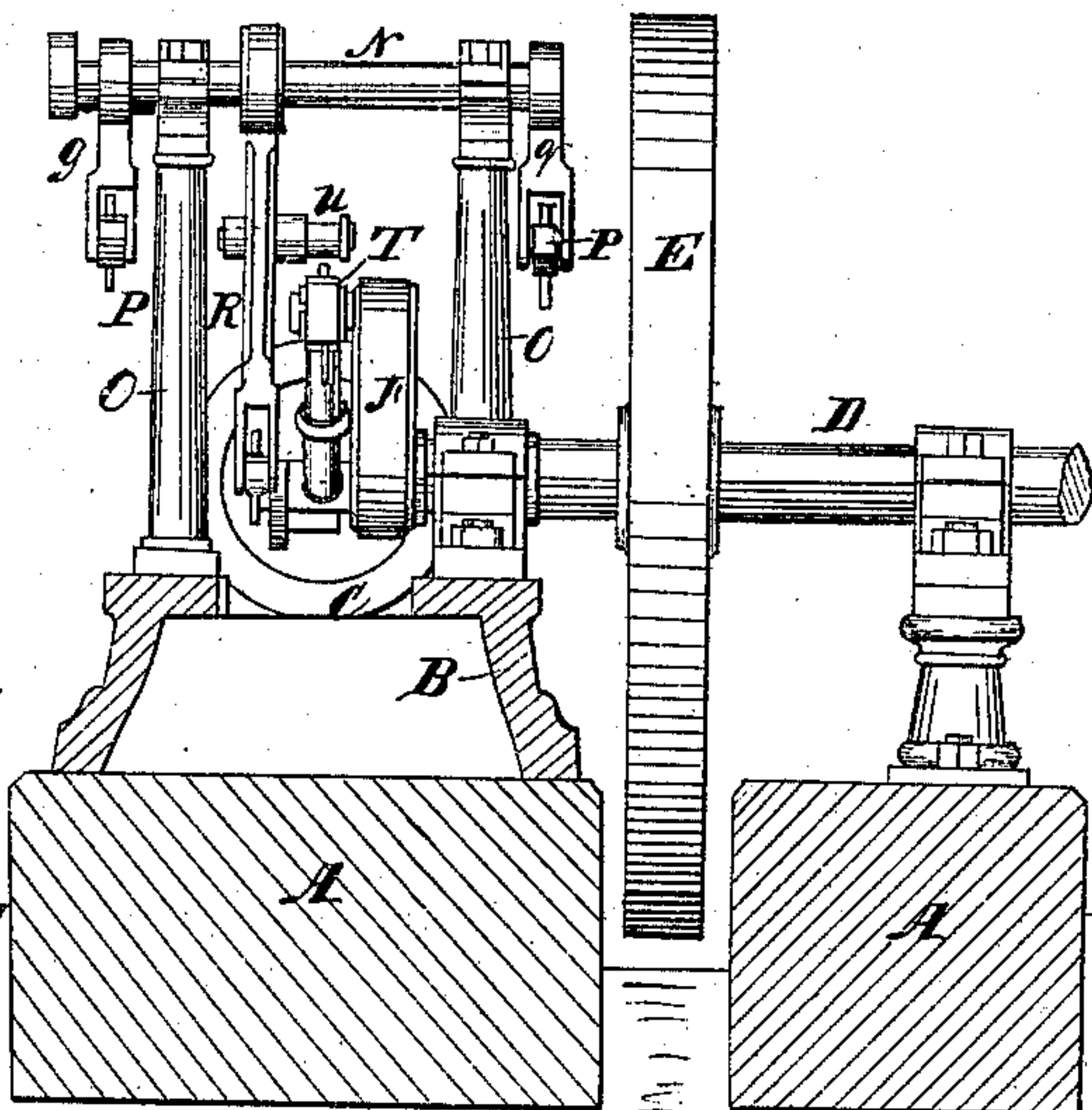
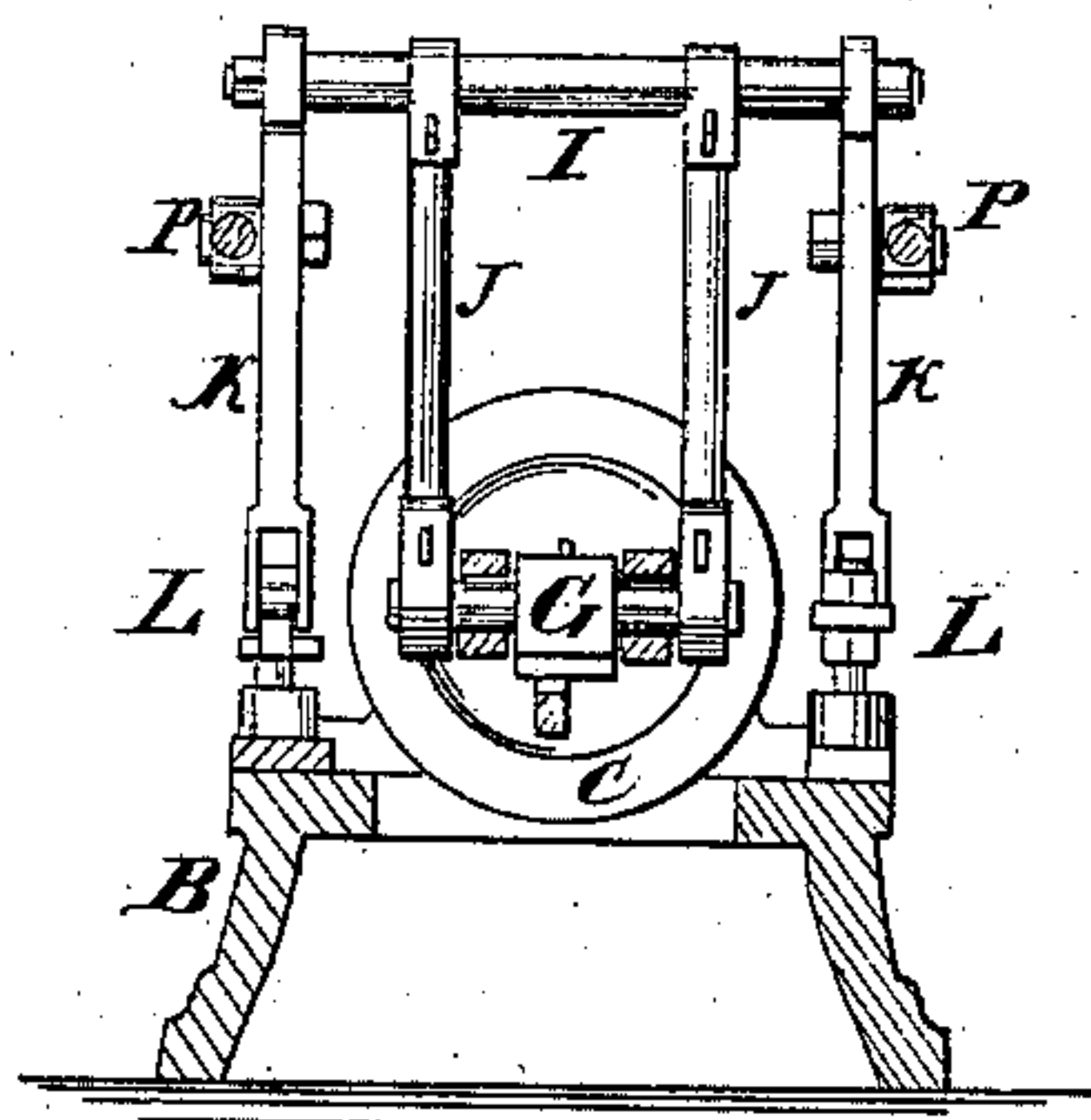


Fig. 3.

Fig. 2.



Witnesses:
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United States Patent Office.

THOMAS REESE, OF ST. LOUIS, MISSOURI.

Letters Patent No. 80,011, dated July 14, 1868.

IMPROVEMENT IN STEAM-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, THOMAS REESE, of St. Louis, in the county of St. Louis, and State of Missouri, have invented a new and useful Improvement in Horizontal Reciprocating Steam and Water-Engines; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable those skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification.

This invention relates to an improvement in horizontal steam, water, or pumping-engines, whereby economy in both space and power is obtained.

And it consists in an arrangement for supporting the cross-head and pitman, and producing a parallel motion without the use of the ordinary guides or "ways," as will be hereinafter more fully described.

Figure 1 represents a longitudinal side view of a steam-engine, constructed according to my invention.

Figure 2 is a vertical cross-section of the same, through the line *x x*.

Figure 3 is a vertical cross-section through the line *y y*.

Similar letters of reference indicate corresponding parts.

The ordinary horizontal steam-engine is provided with ways for guiding and supporting the cross-head and pitman, and insuring a motion for the cross-head and piston-rod which shall be parallel with the cylinder.

If the position of the pitman were always parallel with the "ways," the only friction on the ways or guides would be occasioned by the weight of the cross-head and the parts connected therewith.

But the crank (twice in each revolution) places the pitman at an angle with the ways or guides, so that the ways are constantly exposed not only to increased friction and wear, but to be thrown out of line with the cylinder, which position is destructive to both cylinder and piston, and to the power and usefulness of the engine.

To preserve the full power of the engine, and avoid this unnecessary friction of the cross-head, and its liability to get out of line, is the main object which I have in view in this improvement.

In carrying out my invention, I suspend the cross-head, and the parts connected therewith, from a rock-shaft by adjustable hanging links or rods, thereby bringing the friction and wear upon small journals, and reducing the friction to a minimum, and at the same time preserving a motion to the cross-head parallel with the cylinder.

Referring to the drawing—

A represents the foundation of the engine.

B is the bed or frame of the engine.

C is the cylinder.

D is the main shaft.

E is the fly-wheel on the main shaft.

F is the pitman.

G is the cross-head.

H is the piston-rod.

I is the rock-shaft, from which the cross-head is suspended.

J J are the suspension-rods or links, attached to wrists on the cross-head, as seen in the drawing.

J' represents the engine-crank.

The rock-shaft I is supported on arms, K K, which oscillate with the motion of the cross-head on journals in adjustable boxes, secured to the engine-bed, as seen at L.

These boxes L are movable both horizontally and vertically, so that the cross-head can at any time be readjusted and kept in perfect line with the cylinder.

N is the back rock-shaft, which is supported on the tops of columns marked o.

These columns o are rigidly attached to the engine-bed B.

The oscillating-stands K K are connected with and receive their motion from the rock-shaft N, by the adjustable rods P P and the short arms *q q*.

R is an arm or pendulum on the rock-shaft N, which is connected with the cross-head by the rod S and bar S', and from which arm N receives its motion.

The empty boxes T, (which are attached to the pillars *o*) are designed for a rock-shaft for imparting movement to the engine-valves.

The wrist *u* on the arm R is designed to simplify the connection between the oscillating-arms K and the arm R.

By this wrist I may dispense with the short arms *q q* on the rock-shaft, and use, instead, an adjustable forked connection.

By this arrangement I am enabled to make the pitman much shorter than is usual in the ordinary engine thus economizing room.

Slide-engines frequently get out of line, and are used in that condition till a loss of power and the grinding of the parts give notice of the fact.

When constructed according to my invention they are not liable to get out of line, but should they become so from any cause, the fact is ascertained by a glance of the eye, and the difficulty can be remedied in a comparatively short time.

I do not confine myself in this improvement to steam-engines exclusively.

Other reciprocating horizontal engines, as water or pumping-engines, where a crank-pitman is used, may be constructed in this manner with equal advantage.

I claim as new, and desire to secure by Letters Patent—

The cross-head G suspended by links J from a rock-shaft I mounted in pivoted standards K, said standards being so connected with the reciprocating cross-head as to receive an oscillating motion therefrom, in the manner and by the means substantially as herein described, for the purpose specified.

THOMAS REESE.

Witnesses:

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