

(No Model.)

2 Sheets—Sheet 1.

J. E. GUENTHER.
STEAM ENGINE.

No. 294,226.

Patented Feb. 26, 1884.

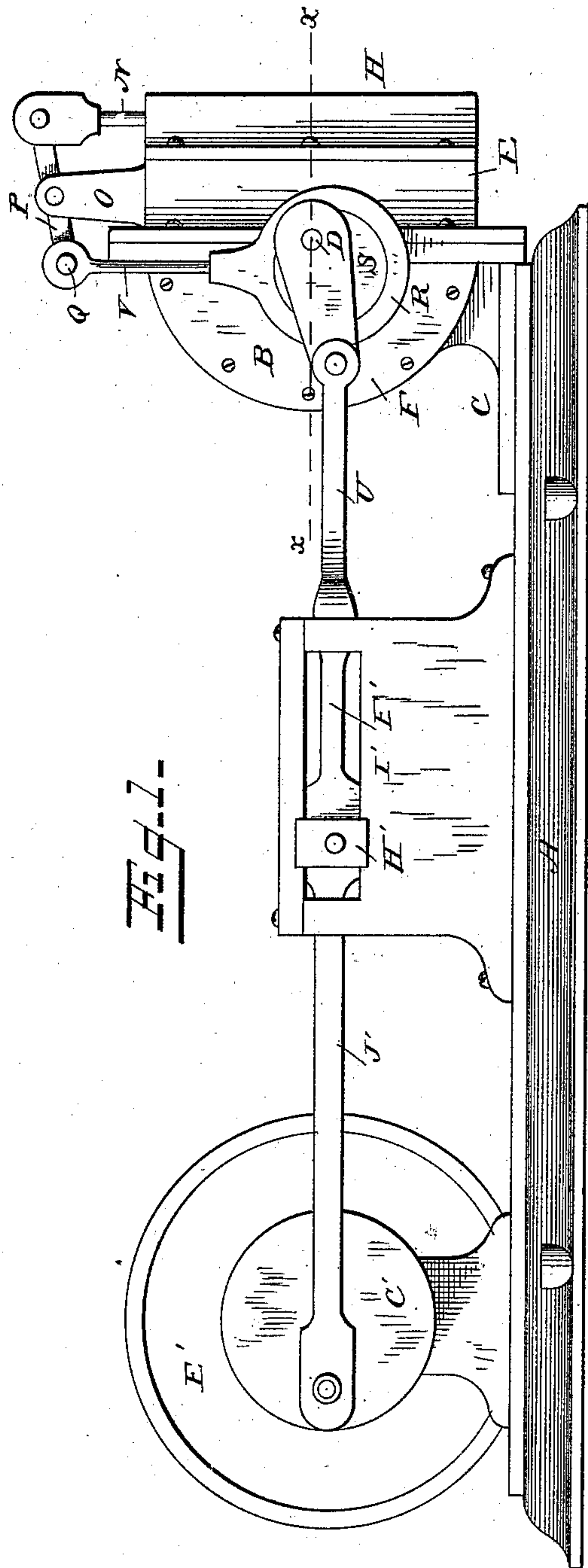


Fig. 1.

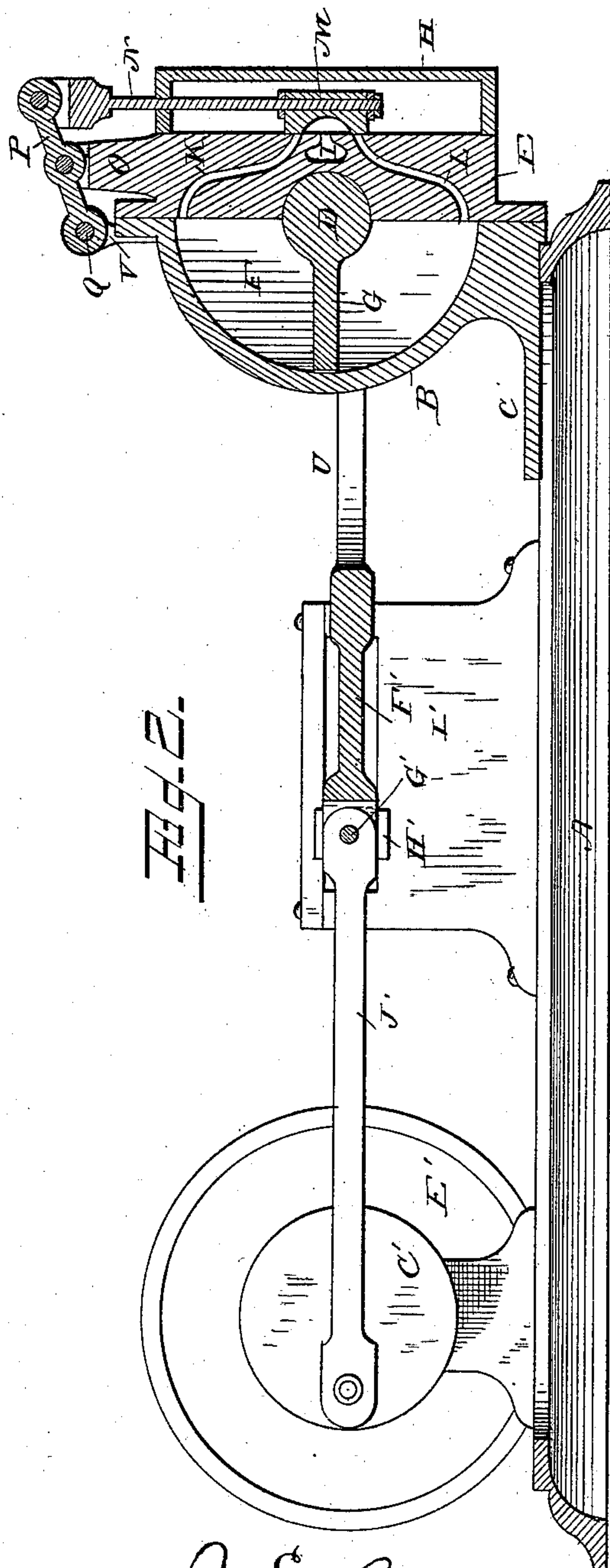


Fig. 2.

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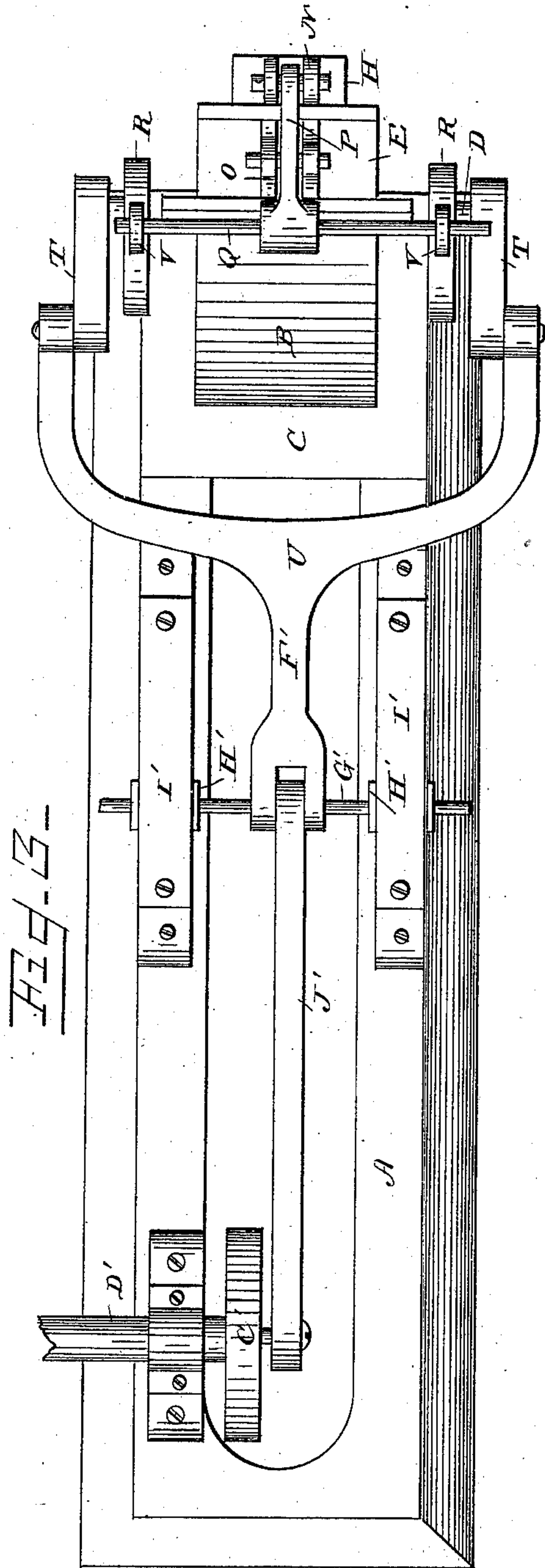


Fig. 3-

Fig. 4-

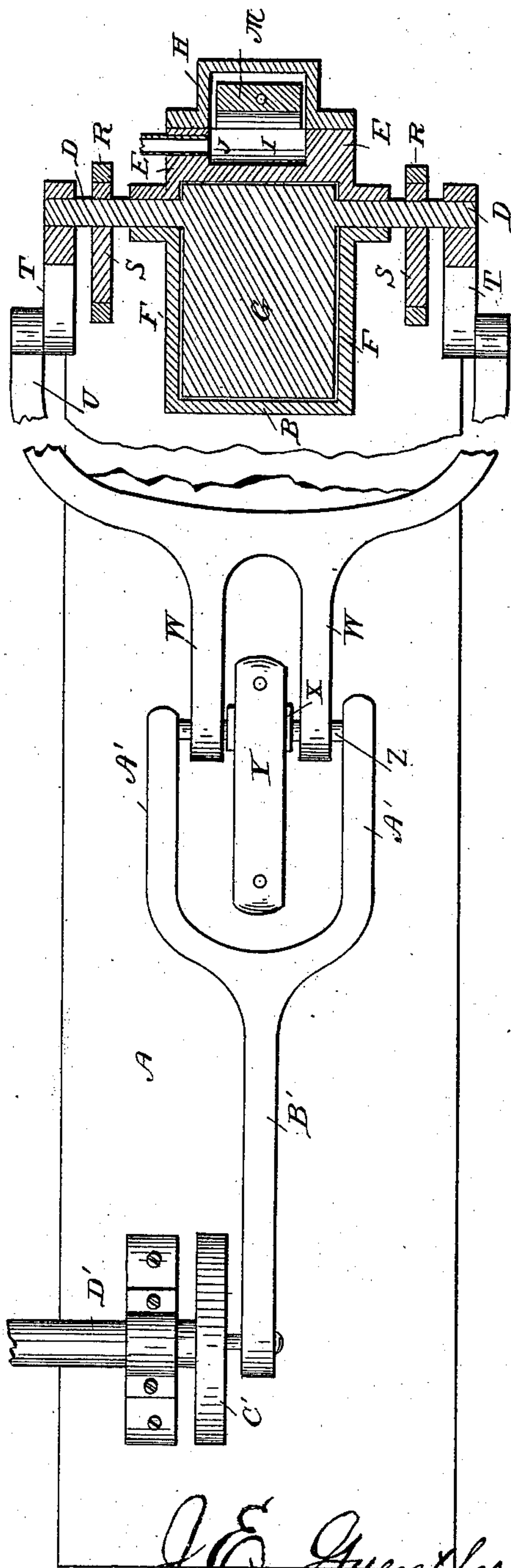


Fig. 5-

WITNESSES

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UNITED STATES PATENT OFFICE.

JOHN EMIL GUENTHER, OF FORT WAYNE, INDIANA.

STEAM-ENGINE.

SPECIFICATION forming part of Letters Patent No. 294,226, dated February 26, 1884.

Application filed November 13, 1883. (No model.)

To all whom it may concern:

Be it known that I, JOHN EMIL GUENTHER, a citizen of the United States, residing at Fort Wayne, in the county of Allen and State of Indiana, have invented a new and useful Steam-Engine, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to steam-engines; and it has for its object to produce a machine which shall possess superior advantages in point of simplicity, durability, and general efficiency, and in which the greatest possible amount of power shall be derived from a minimum expenditure of steam.

To this end the invention consists in the improved construction and arrangement of parts, which will be hereinafter fully described with reference to the drawings, in which—

Figure 1 is a side view of my improved steam-engine. Fig. 2 is a longitudinal vertical sectional view. Fig. 3 is plan view. Fig. 4 is a horizontal sectional view taken on the line *xx* in Fig. 1. Fig. 5 is a plan view, showing a modification.

The same letters refer to the same parts in all the figures.

A in the drawings designates the base, at one end of which is mounted a semi-cylindrical casing, B, having a foot-piece, C, by which it is mounted upon the said base.

D is a shaft journaled centrally in the casing B, the back wall of which, E, is provided with suitable bearings for the said shaft, the ends of which extend through the sides F of the casing. The shaft D carries a leaf or piston, G, which is fitted nicely between the sides and against the curved wall of the said casing, and the edges of which may be provided with suitable packing of any desired construction.

Secured to the rear side of the back wall, E, is the steam-chest H, which has a central exhaust-port, I, communicating with a horizontal exhaust-passage, J, extending laterally through the back wall. Steam-passages K and L lead from the steam-chest H, respectively, to the upper and lower ends of the casing B, said passages extending through the back wall, substantially as shown in the drawings.

M is a valve, which is of ordinary construction,

and provided with a stem, N, extending upward through the upper end of the steam-chest.

Mounted upon the upper end of the back wall, E, is an upright, O, to which is pivoted a lever, P, to the rear end of which the upper end of the valve-stem N is pivotally connected. The front end of the lever P carries a cross-bar, Q, to the ends of which are pivoted rods V V, extending upwardly from rings or bands R R, journaled upon eccentrics S S, which are mounted upon the projecting ends of the shaft D. The ends of the shaft D are provided with cranks T T, the ends of which are pivotally connected with a bail, U, having a forwardly-extending arm, F', carrying at its front end a cross-bar, G', pivotally connected with a pair of cross-heads, H' H', sliding in suitable bearings, I'. The bar G' is in this case connected by an ordinary pitman, J', with the crank C' of the main shaft D'.

In Fig. 5 of the drawings I have shown a modification, which consists in providing the bail U with two arms, W W, between the front ends of which is pivoted the cross-head X, which slides in the bearings Y.

To the ends of the pivoting-rod Z which connects the arms W with the cross-head, are pivoted the arms A' of a forked connecting-rod, B', the front end of which is journaled upon the crank C' of the main shaft D', carrying the balance-wheel E'.

From the foregoing description, taken in connection with the annexed drawings, the operation and advantages of my invention will be readily understood.

Steam is supplied through a pipe entering the rear side of the valve-chest, and passes from the latter through one of the channels K L into either the upper or lower end of the piston-casing.

The valve-gear, the operation of which is obvious, is simple and efficient, and owing to the arrangement of the oscillating piston, the entire surface of which is exposed to the pressure of the steam, a greater proportion of power is derived from the expenditure of steam than is usual in this class of engines.

My invention is equally well adapted for stationary and locomotive engines and for steamships.

I claim as my invention and desire to secure by Letters Patent of the United States—

The combination of the casing, the back wall having steam and exhaust passages, the steam
5 chest and valve, the shaft mounted transversely upon the back wall and carrying the piston, and the valve-gear with the cranks upon the ends of the piston-shaft, a bail connecting the
10 said cranks and having a forwardly-extending arm or arms, the cross head or heads connected pivotally with the said arm or arms, and a

pitman connecting the said cross head or heads with the crank upon the main shaft, substantially as set forth.

In testimony that I claim the foregoing as
15 my own I have hereto affixed my signature in presence of two witnesses.

JOHN EMIL GUENTHER.

Witnesses:

O. E. BRADWAY,
ANDREW WEBER.