J. B. ROOT.

STEAM-ENGINE.

No. 171,174. Patented Dec. 14, 1875.

Fig. 1.

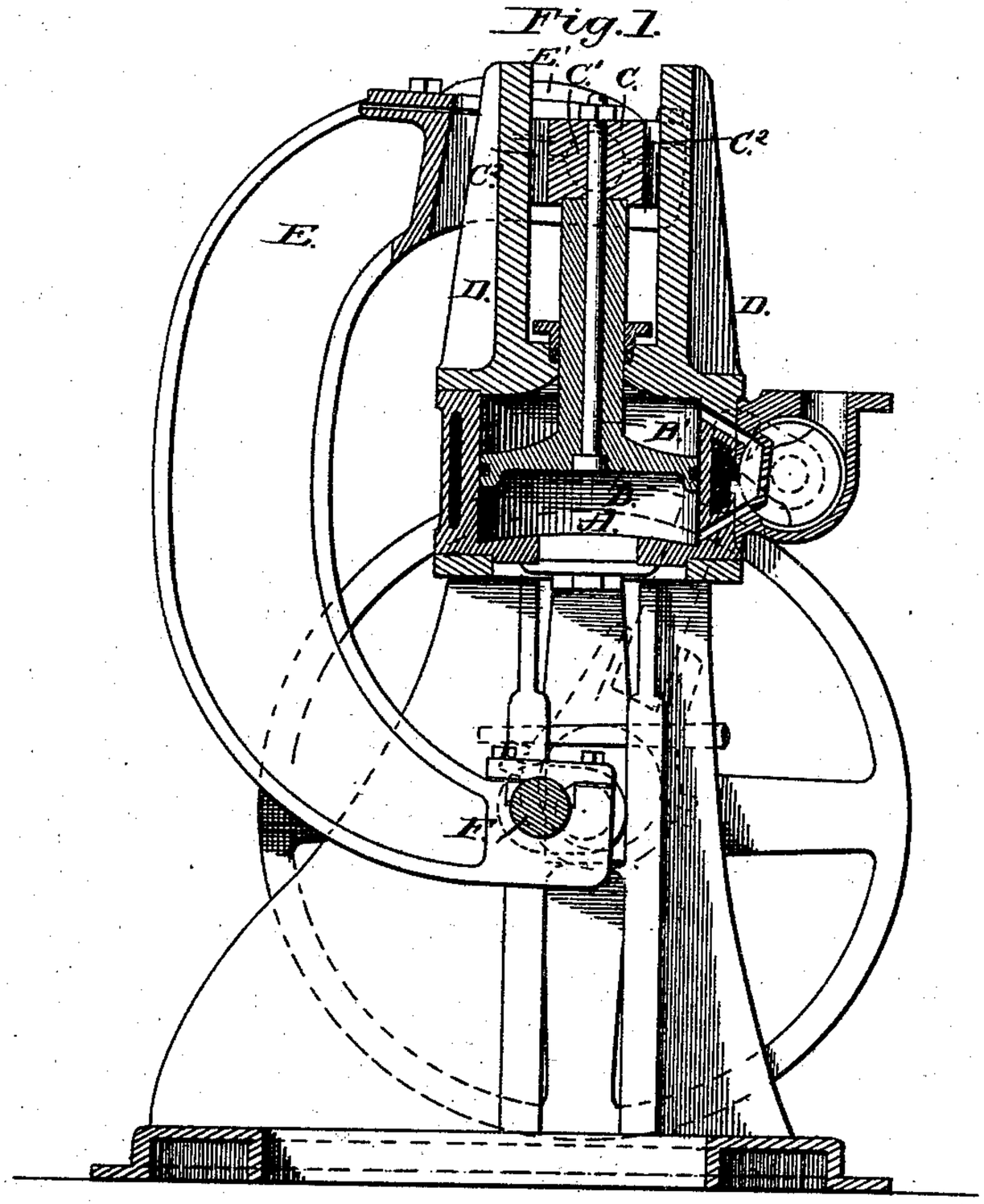
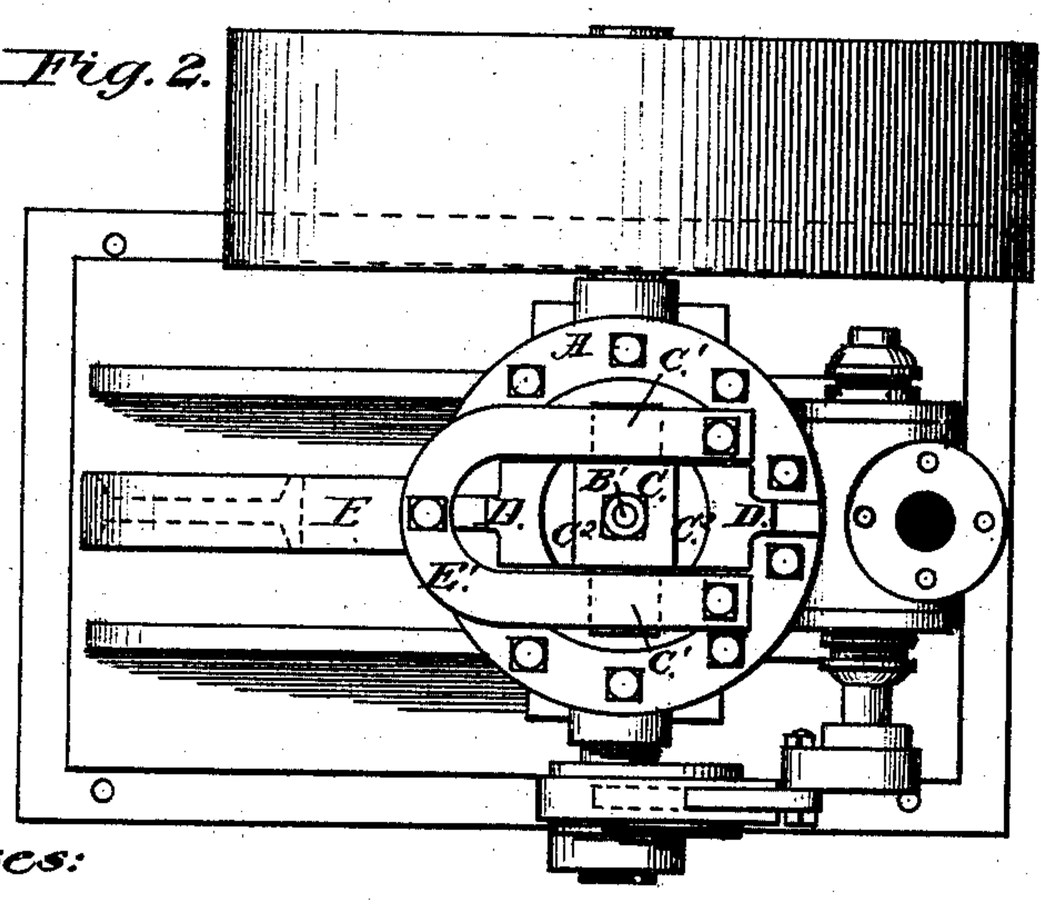


Fig. 2.



Witnesses:

John Abendroth

Hoha Swarttag

Inventor:

J. Benjamin Root

UNITED STATES PATENT OFFICE.

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

IMPROVEMENT IN STEAM-ENGINES.

Specification forming part of Letters Patent No. **171,174**, dated December 14, 1875; application filed April 28, 1875.

To all whom it may concern:

Be it known that I, JOHN B. ROOT, of the city and State of New York, have invented Improvements in Steam-Engines, of which the following is a specification:

These improvements consist of a method of arranging and constructing steam-engines with a view to increased compactness, durability, efficiency, and cheapness, as illustrated in the accompanying drawings, of which—

Figure 1 is a vertical section. Fig. 2 is a plan or top view.

Of the letters, A is the cylinder. B is the piston and its rod. B′ is the bolt of the piston-rod. C is the cross-head. C^1 C^1 are the trunnions of the cross-head. C^2 C^2 are the gibs of the cross-head. D D are the slides. E is the curved connecting rod or crescent. E′ is the double cap of the crescent. F is the crank. The piston and piston-rod are made of one piece, B, bored for the bolt C^1, which secures it to the cross-head C, consisting of the cross-head proper C, with its trunnions C^1 C^1 and the gibs C^2 C^2, which travel in the slides D D. The crescent E is secured to the trunnions C^1 C^1 by the double cap E′, and, swinging thereon, accommodates itself to the lateral motion of the crank F, which is placed at the rear or bottom of the cylinder, reducing the space occupied by an engine of given length of stroke to a minimum.

I claim as my invention—

The crescent E, in combination with the piston, cross-head, and guides, when constructed substantially as described.

JOHN BENJAMIN ROOT.

Witnesses:

ALOHA VIVARTTAS,

JOHN ABENDROTH.