

United States Patent Office.

WESLEY B. CAMPBELL, OF ABINGDON, IOWA.

Letters Patent No. 77,869, dated May 12, 1868.

IMPROVEMENT IN ROTARY 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, WESLEY B. CAMPBELL, of Abingdon, in the county of Jefferson, and State of Iowa, have invented a new and useful Improvement in Rotary Steam-Engines; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making part of this specification, in which—

Figure 1 is a perspective view, and

Figure 2 is a vertical longitudinal section.

The same letters are employed in both figures in the indication of the same parts.

My invention relates to that class of engines in which the steam is applied directly to floats upon a wheel, to which a rotary motion is communicated, and the character of my improvements will be fully set forth in the following specification and claims.

A is the induction-pipe, through which the steam is conveyed from the steam-generator to the rotary wheel. B is a metallic case, enclosing the wheel, which runs in a recess in the lower part of the case. The wheel C is a solid metallic disk, turning on a shaft, having suitable bearings on a frame, and carrying a fly-wheel pulley. The periphery of the wheel is formed by a series of four or more eccentric-faces, as shown in fig. 2. The points of these faces run in close proximity to the inner surface of the semicircular chamber in the case, to prevent steam flowing from one of the compartments, formed between the eccentric-faces and the case, into another. An arc of Babbit metal is set into the side of the recess in the casing, which, by means of set-screws, may be compressed against the side of the disk C, to form a steam-tight packing, and prevent the escape of the steam over the sides of the disk, through the space between the induction and eduction-pipes.

The steam entering through the induction-pipe presses with its full expansive force against the vertical side of the chamber formed by the eccentric-faces, driving the wheel forward towards the eduction-pipe G, through which the steam escapes. The back pressure of the steam against the inclined eccentric-faces of the disk is prevented by a valve, E, which fills the chamber between the wheel and the case. As the wheel travels forward, this valve is forced up by the inclination of the eccentric-face into a recess cut in the case. When the point passes from under it, it is instantly forced down by the spiral spring F. The expansive force of the steam backwards being expended on this valve, its full force is directed towards the vertical face, the steam acting expansively, until that chamber is cut off by another receiving the steam, when the steam is permitted to escape through the pipe G.

The cap, B¹, is formed and packed like the ordinary steam-chest. B² is a stuffing-box, through which the valve steam passes.

In order that the engine may be made to run in either direction, a second wheel is placed on the same shaft, the inclined faces of which are reversed, the case being formed by an addition to the one shown, so as to duplicate the recess. Then a branched steam-pipe is employed, so that the steam may be directed upon either wheel, as it may be desired to have the shaft revolve in one direction or the other.

The case is set upon the heads of the frame, resting upon India-rubber springs, and secured by bolts, so that as the points of the wheel are worn from long use, the case may be drawn down to maintain the tightness of the joints. The pressure for driving this wheel may be derived from steam, water, or any other fluid capable of such application.

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

The arrangement of the following parts: The induction-pipe A, the case B, wheel C, packing D, valve E, spring F, and eduction-pipe G, substantially as set forth.

In testimony whereof, I have signed my name to this specification in the presence of two subscribing witnesses.

W. B. CAMPBELL.

Witnesses:

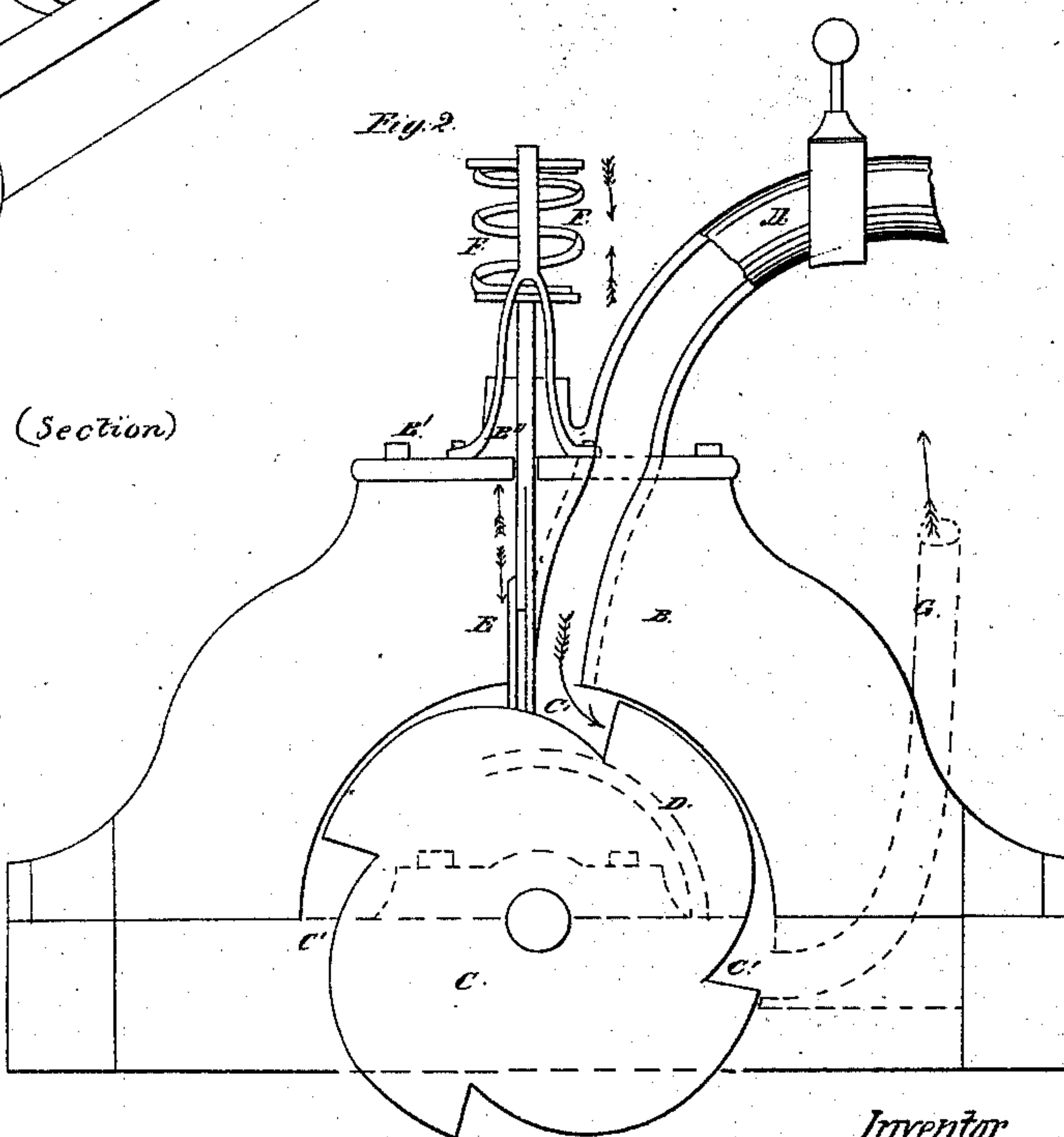
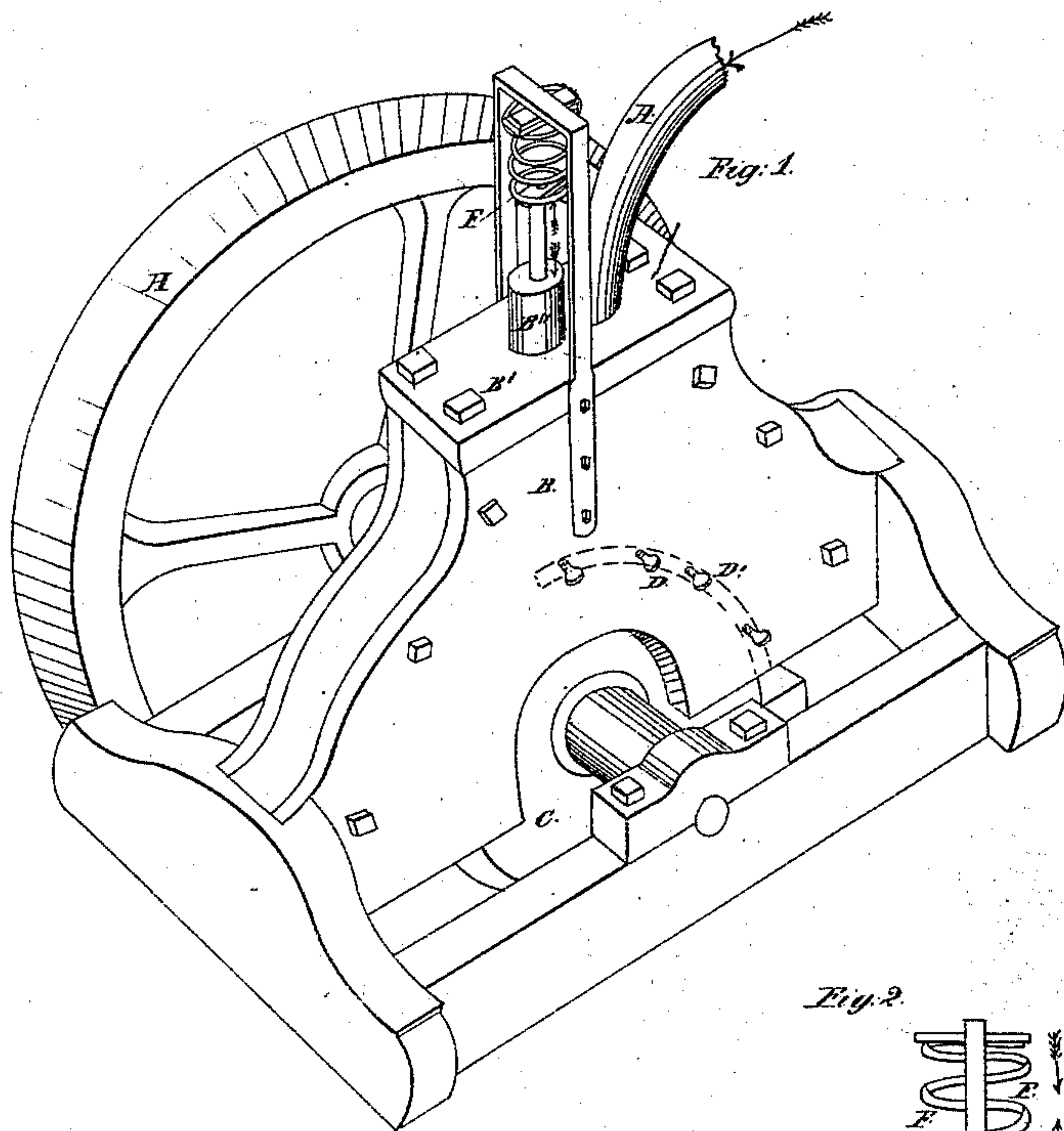
JOHN D. BLOOR,

JOHN S. HOLLINGSHEAD.

No. 77,869.

PATENTED MAY 12, 1868.

W. B. CAMPBELL.
ROTARY STEAM ENGINE.



Witnesses:
A. A. Sprague
E. H. Clauson

Inventor
W. B. Campbell
by
D. P. Hollway & Co
his Attys.