

W. B. CAMPBELL.
 ROTARY STEAM ENGINE.

No. 78,425.

Patented June 2, 1868.

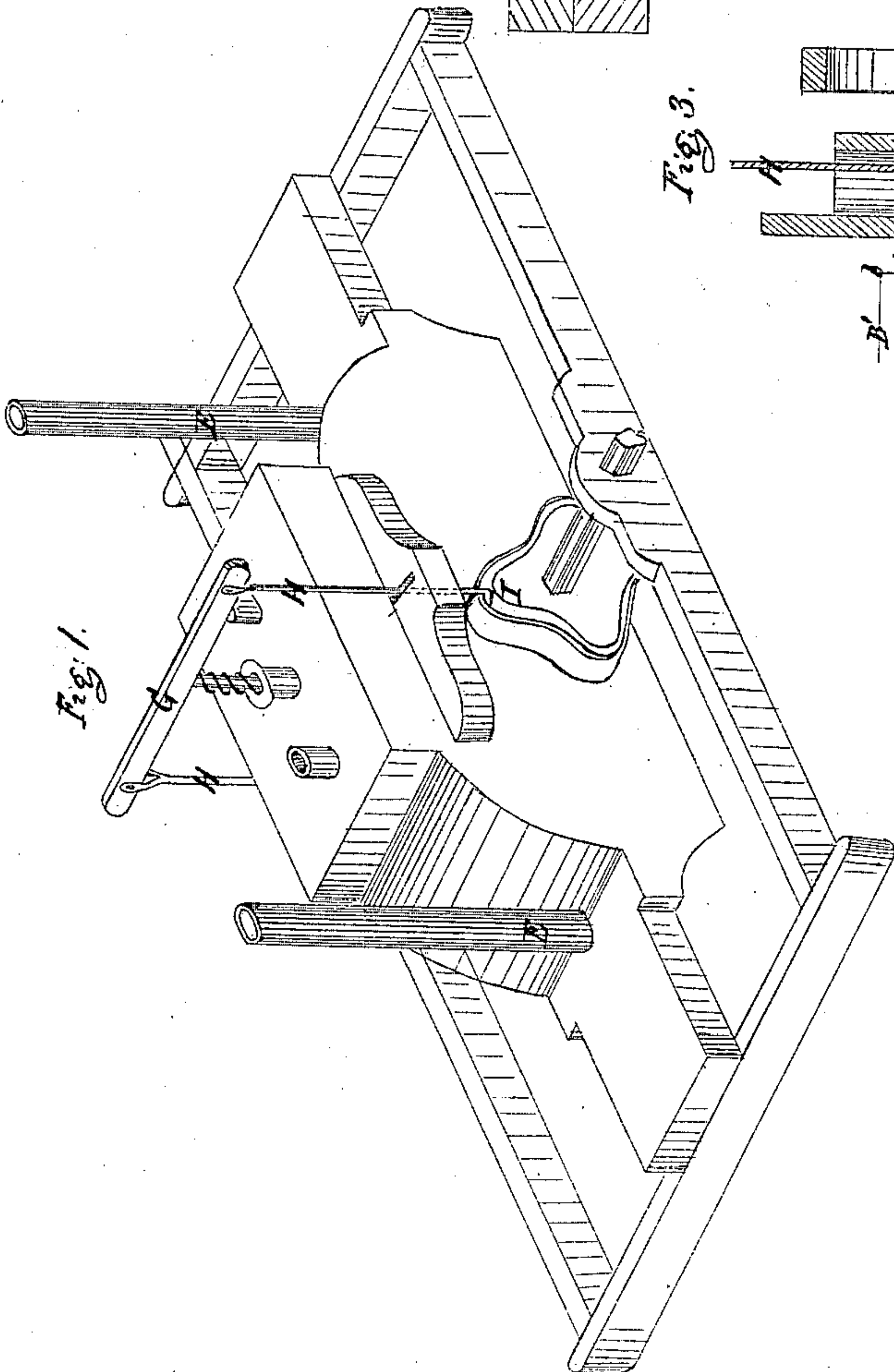
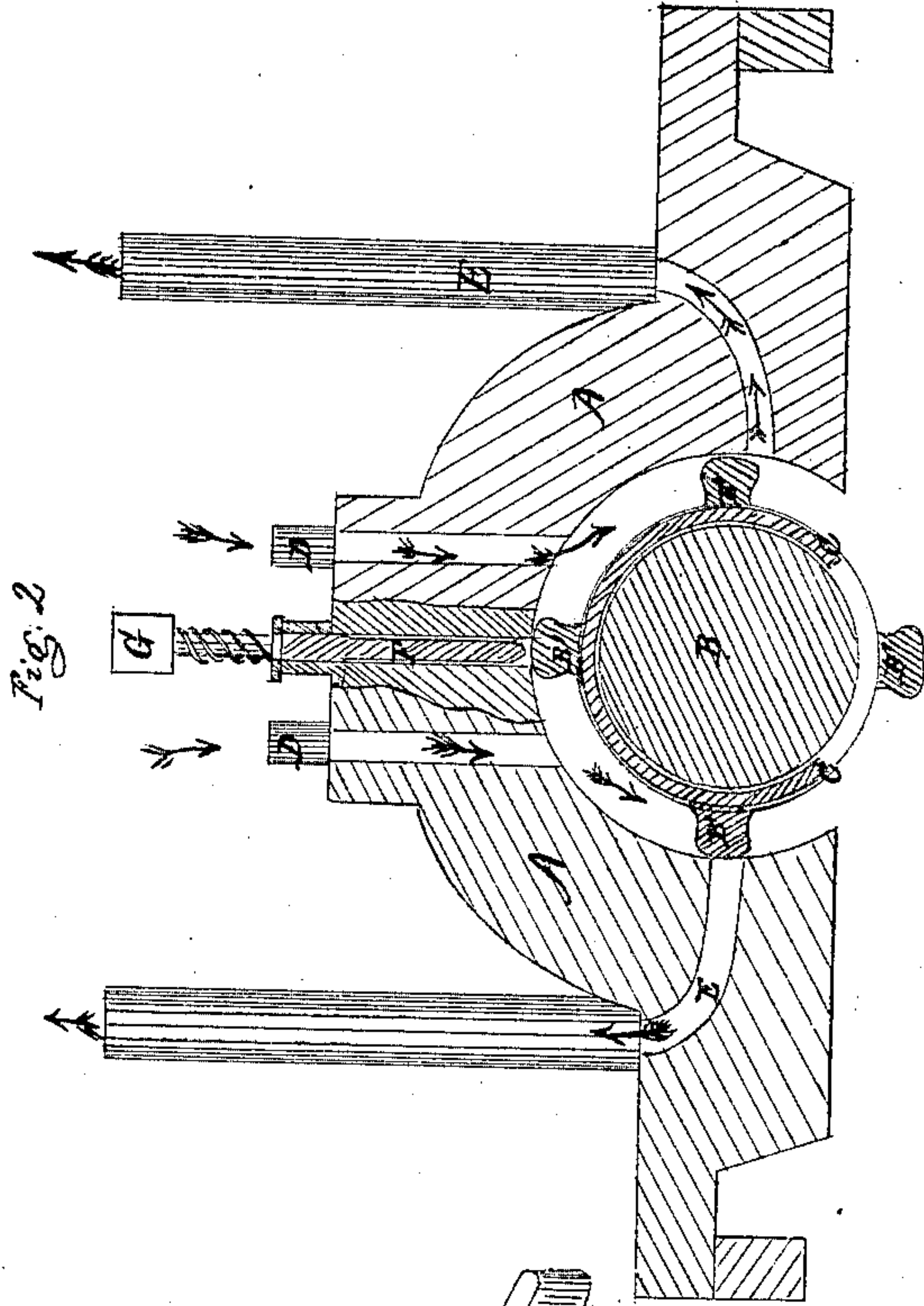
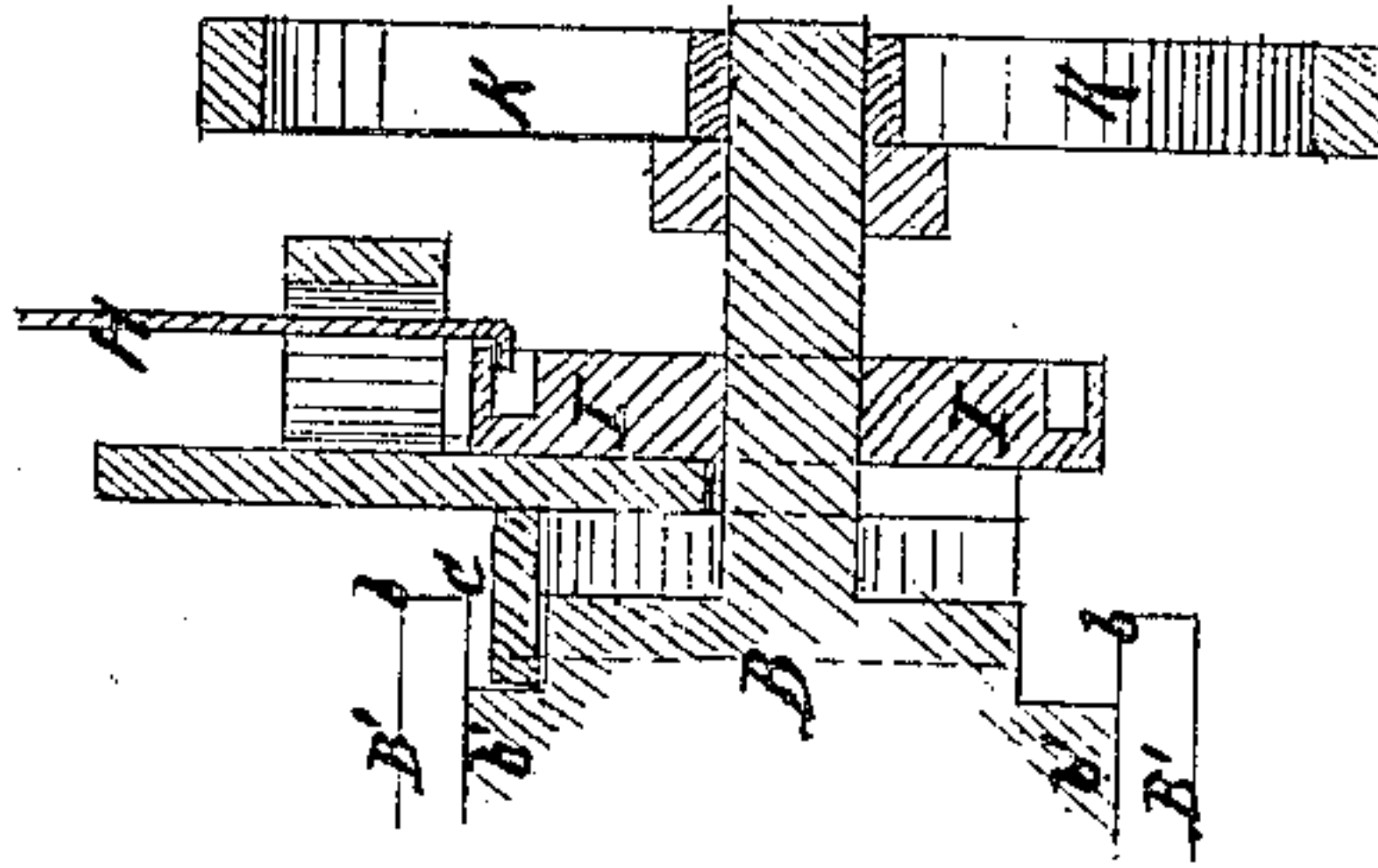


Fig. 3.



W. B. Campbell
 Inventor
by
D. J. Woodway & Co.
Attys.

Witnesses
Chas. H. Claugen
W. B. Campbell

United States Patent Office.

WESLEY B. CAMPBELL, OF ABINGDON, IOWA, ASSIGNOR TO HIMSELF AND
HARRISON SMITH, OF SAME PLACE.

Letters Patent No. 78,425, dated June 2, 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, of 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 side elevation, partly in section.

Figure 3 is a vertical transverse section of the cams and part of the case.

The same letters in all the figures indicate the same parts.

My improvements relate to that class of steam-engines in which revolution is communicated to a wheel by the direct impact of the steam pressing against one side of the floats upon the wheel continuously; and my invention consists in the construction of the case and wheel, whereby the steam shall act on the floats, and not press with its full force against the hub of the wheel; and also, in the arrangement of the cams for actuating the cut-off, which directs the action of the steam against one side of the floats only.

In the annexed drawings, A is the steam-chest or case, enclosing the wheel, B, which revolves upon journals running on the main frame. The wheel B runs in a chamber in the steam-chest, and is constructed with a series of radial floats, B', arranged upon its periphery, against which the pressure of the steam acts, to drive the wheel.

The floats are attached to the hub of the wheel only at their middle portion, *b'*, the ends *b* extending over the hub, leaving a space between the floats and the hub sufficient to receive the flange *c* of the side-pieces C of the steam-chest. These flanges on each side operate to relieve the hub from the pressure of the steam, which, entering at D, presses against one side of the float B', driving it before it, until the float, passing the eduction-pipe E, allows the steam to escape. The ends of the flanges are fitted neatly to a central band on the wheel B, to which the floats are attached.

In order to direct the pressure of the steam against one side of the floats only, the cut-off valve, F, is arranged in the top of the steam-chest, standing vertically, and pressing its point against the hub of the wheel and the top of the flanges C C, so as to separate the steam-chest into two compartments. It is necessary, of course, that this valve should be raised when the floats are passing. This is accomplished by the following mechanism.

The arms, G, are attached to the top of the valve-stem, and are connected on each side by rods, H, with the cams I, which, being set on the driving-shaft of the wheel B, are so constructed as to raise the rods H, and with them the valve F, at the instant the floats, in revolving, approach said valve, closing again instantly as soon as the floats have passed.

K is a fly-wheel and pulley, placed on the end of the driving-shaft.

The steam-chest is constructed with two sets of induction-pipes, D, and eduction-pipes, E, placed on opposite sides of the valve F, so that by directing the steam into one or the other side, the wheel may be driven in either direction, as required.

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

1. The arrangement of the wheel B, floats B', the ends *b*, flanges *c*, side-plates C, and steam-chest A, whereby to relieve the hub from the pressure of the steam, substantially as set forth.

2. The arrangement of the wheel B, the valves F, arms G, rods H, and cams I, substantially as set forth.

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

WESLEY B. CAMPBELL.

Witnesses:

E. M. Fobus,

C. H. McCulloch.