L. Begon.

Steam Rotary Valves.

No. 71267 Patented Nov. 26, 1867.

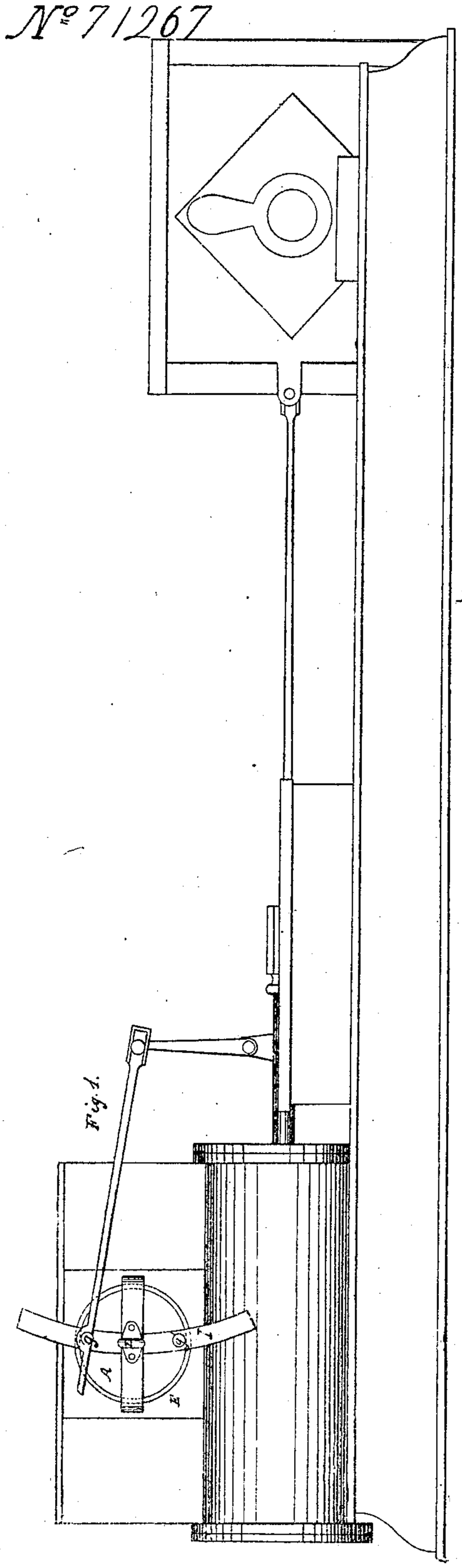

Fig. 1.

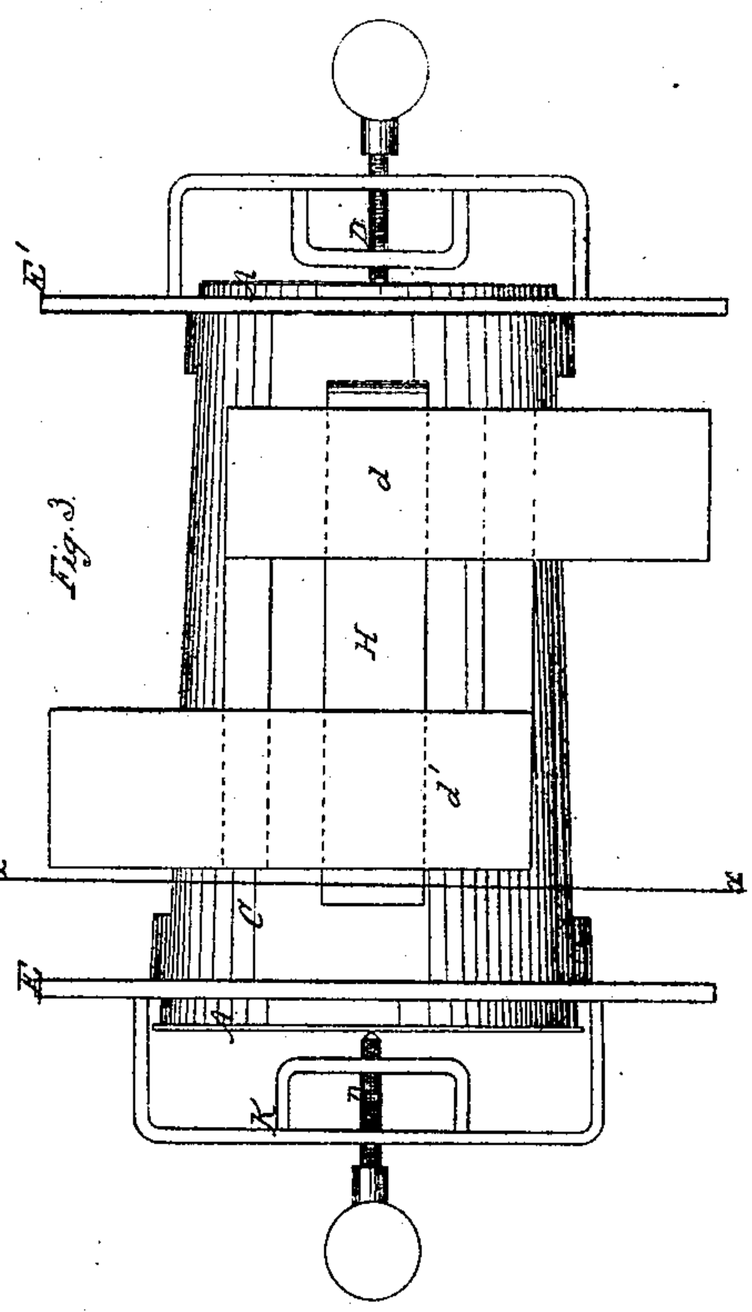

Fig. 3.

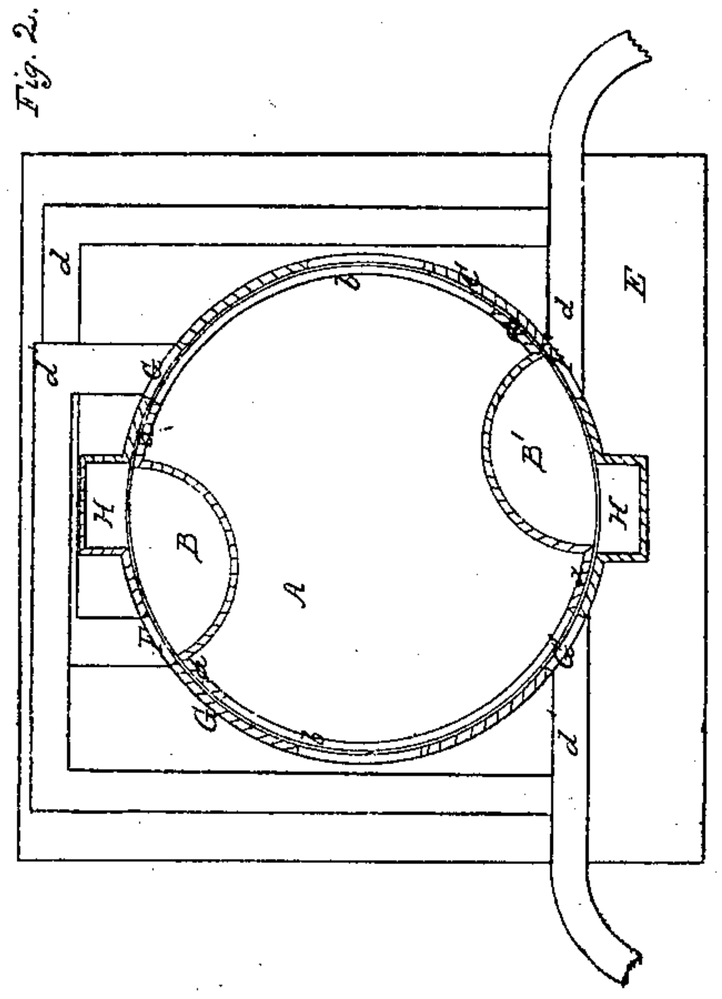

Fig. 2.

United States Patent Office.

LOUIS BEGON, OF SAN FRANCISCO, CALIFORNIA.

Letters Patent No. 71,267, *dated November* 26, 1867.

IMPROVEMENT IN STEAM ROTARY-VALVES.

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, LOUIS BEGON, of San Francisco city, San Francisco county, State of California, have invented certain new and useful Improvements in "Steam Balance-Valves;" and I do hereby declare the following description and accompanying drawings are sufficient to enable any person skilled in the art or science to which it most nearly appertains to make and use my said invention or improvements without further invention or experiment.

The nature of my invention is to provide an improved valve for steam-engines, which is so constructed as to be exactly balanced, and move with the least possible friction. It also relates to cutting off the steam at any desired point, so that it may be expansively used for a greater or less portion of the stroke.

In order to accomplish this, I construct a valve, formed like the frustum of a cone. This valve is placed in a case which it fits steam-tight, and which has flanges, by which it is bolted to the sides of the steam-chest, the case in which the valve moves being entirely surrounded by steam. The valve and its case have openings at the sides, so as to allow the steam to circulate freely through it. The valve, which is supported at each end, may be moved by an ordinary eccentric, or by a cam, by which it is made to revolve so far as to admit steam to the passages connecting with one end of the cylinder, from opposite sides of the valve at the same time, while the ports, which open to the other end of the cylinder, also on the opposite sides of the valve, are closed, thereby making the pressure on one side of the valve counteract that on the other. The valve has an arm, which allows the end of the eccentric-rod to be moved to a greater or less distance from the centre of oscillation, thus opening the ports to a greater or less degree, as required. When a cam is used to move the valve, it is placed on the shaft in such a position that, by its motion, the valve will be completely opened at once, and, by a second cam, it will be closed at any point at which it is desired to cut off steam from the cylinder, these quick motions being rendered possible by the perfect balance of the valve.

To more fully explain my invention, reference is had to the accompanying drawings, forming part of this specification, of which—

Figure 1 is a front view of the valve and case.

Figure 2, a vertical section of the valve and case.

Figure 3 is a top view.

A is the valve, which is conical in form, and of sufficient length to cover the ports. B and B′ are the passages in the valve, through which the exhaust-steam passes at each alternate motion of the valve. *a a a a* are the valve-faces, which may be proportioned to the size of the ports, as may be found most effective. *b b* are openings in the sides of the valve, corresponding with similar openings in the case, through which the steam in the chest is allowed to pass freely to the interior of the valve, the ends of which are tight. The case C is of the same form of the valve, so that it will fit steam-tight, the position of the valve being regulated by the supporting-screws D and D′, at each end, so that there will be the least possible friction. The case has flanges E and E′, by which it may be fastened to each side of the steam-chest. The ports F and F′ connect, by suitable pipes *d d*, with one end of the cylinder, and the ports G and G′ are similarly connected with the other end. H and H′ are the exhaust-ports. I is a curved arm attached to the end of the valve, to which the end of the rod which moves it is attached, either to the pin *g*, when the engine moves in one direction, or to *g′*, when it is to move in the other. These pins may be moved to a greater distance from the centre of oscillation, by means of the governor, or otherwise, thereby giving the valve a greater or less throw, as desired.

The operation of my valve is as follows: When it is in position, so as to cover all the ports, and admit no steam to the cylinder, the pressure exerted by the steam from its interior will be equal upon every side, so that the valve will not be pressed against the case, in any direction, any more than if it were a plain, hollow cone, with a pressure exerted from the interior. As the valve moves about its centre, so as to admit steam to the ports connecting with one end of the cylinder, the pressure is removed from two points diagonally opposite in the valve, at the same time, while the pressure in the direction of the remaining ports and the exhaust-passage remains; but, being at opposite points, still it is neutralized, and is of no effect.

In manufacturing the valve, the ports may be in the same plane, in order to equalize the pressure. To gain the greatest benefit from the lessening of the friction, the valve should be placed with its axis of revolution

vertical, when the whole weight will rest on the lower set-screw. These screws may be moved, so as to allow just enough friction to prevent the valve from leaking. The screw D passes through a frame, *k*, so attached that it can be easily repaired or removed.

My improved valve may be used in constructing new engines, or it may be applied to old ones, where the slide-valve has been used, and where three ports are used near the centre of the cylinder, and, where four ports (two at each end) are used, two valves may be used, each forming half the system, and connected by an arm, so as to work together.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

The arrangement of the openings *b b* and two exhaust-passages B B′, in the conical valve A, in combination with the ports F F′, G G′, and exhaust-ports H and H′, in the case C, substantially as described.

In witness whereof I have hereunto set my hand and seal.

L. BEGON. [L. S.]

Witnesses:
C. W. M. SMITH,
GEO. H. STRONG.