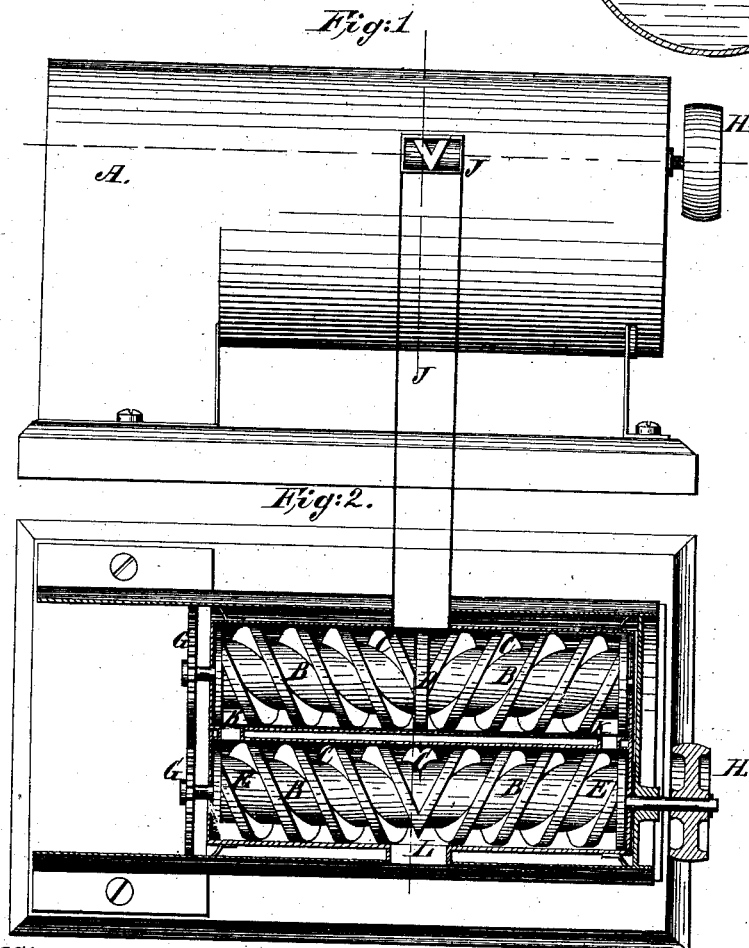
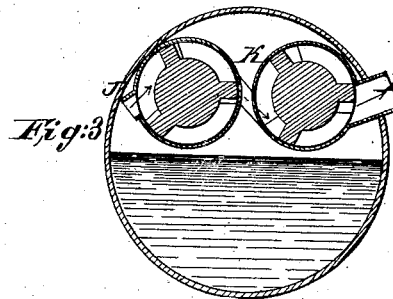


T. WELHAM.
STEAM ENGINE.

No. 46,165.

Patented Jan. 31, 1865.



Witnesses:

A Franklin Reigart
L Luchs

Inventor:

T. Welham

UNITED STATES PATENT OFFICE.

THOMAS WELHAM, OF WASHINGTON, DISTRICT OF COLUMBIA.

IMPROVEMENT IN STEAM-ENGINES.

Specification forming part of Letters Patent No. 46,165, dated January 31, 1865.

To all whom it may concern:

Be it known that I, THOMAS WELHAM, formerly of Nebraska, but now of Washington city, District of Columbia, have invented new and useful Improvements in Steam or Gas Engines; and I do hereby declare the following to be an exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, making a part of this specification—

The nature of my invention consists in placing one, two, or more cylinders (having right and left hand screws therein) on the inside or outside of a steam or gas boiler, for the purpose of receiving and discharging the steam or gas.

To enable others to make and use my invention, I will proceed to describe its construction and operation as follows:

Figure 1 represents the boiler and exhaust-pipe. Fig. 2 represents the cylinders operating on the inside of the boiler; and Fig. 3 shows the ends of the cylinders, the receiving and exhaust pipes, and the course of the steam or air as indicated by the arrows.

A represents an ordinary boiler. B B are one, two, or more flanged inclosed cylinders, screw-shaped, as right and left hand screws, to be placed either aside of each other or one above the other, the flanges C C being connected at the center of the cylinders and running from their centers to the outer ends of the axles or inner cylinders in opposite directions. On the one cylinder, B, as seen at Fig. 2, I have a circular flange, D, at the center of the cylinder, and on the other cylinder B, I have a flange, E E, on each end and no circular flange in the center of the cylinder. The cylinders are connected by cog-wheels G, or any ordinary mode of gearing for the pur-

pose of driving the cylinders simultaneously. On the opposite end of one of the cylinders, I have a driving-wheel, H, to propel the machinery to which the engine may be attached by belt or other ordinary gearing. The cylinders are located inside of the boiler A above the water, as shown at Fig. 3, for the purpose of receiving the steam or gas (at the receiving-pipe J) which passes on each side of the circular flange D to one side over the right-hand screw and to the other side over the left-hand screw in opposite directions to both ends of the cylinder, causing the rotary motion, thence through a chute, K, at each end of the cylinder to the ends of the next cylinder, the steam passing on between the flanges C C to the center of the cylinder, and thence escaping and discharged at the discharge-pipe L, through the boiler A to the outside, and thus I intend to use two or a series of cylinders placed alternately, so that the steam will pass from the ends of one to the center of the other, and from its center to the circular flange D on the center of the next cylinder.

By running my cylinders on the inside of the boiler, I prevent the steam from condensing; but I may place the cylinders on the outside, if I think proper, so as to again condense the steam.

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

Placing one, two, or more right and left hand screws in the cylinders, as herein described, on the inside or outside of a steam or gas boiler, so as to receive and discharge the steam or gas, substantially as and for the purposes set forth.

THOS. WELHAM.

Witnesses:

J. FRANKLIN REIGART,
EDM. F. BROWN.