J. C. JOHNSON.

Rotary Steam-Engine.

No. 169,269. Patented Oct. 26, 1875.

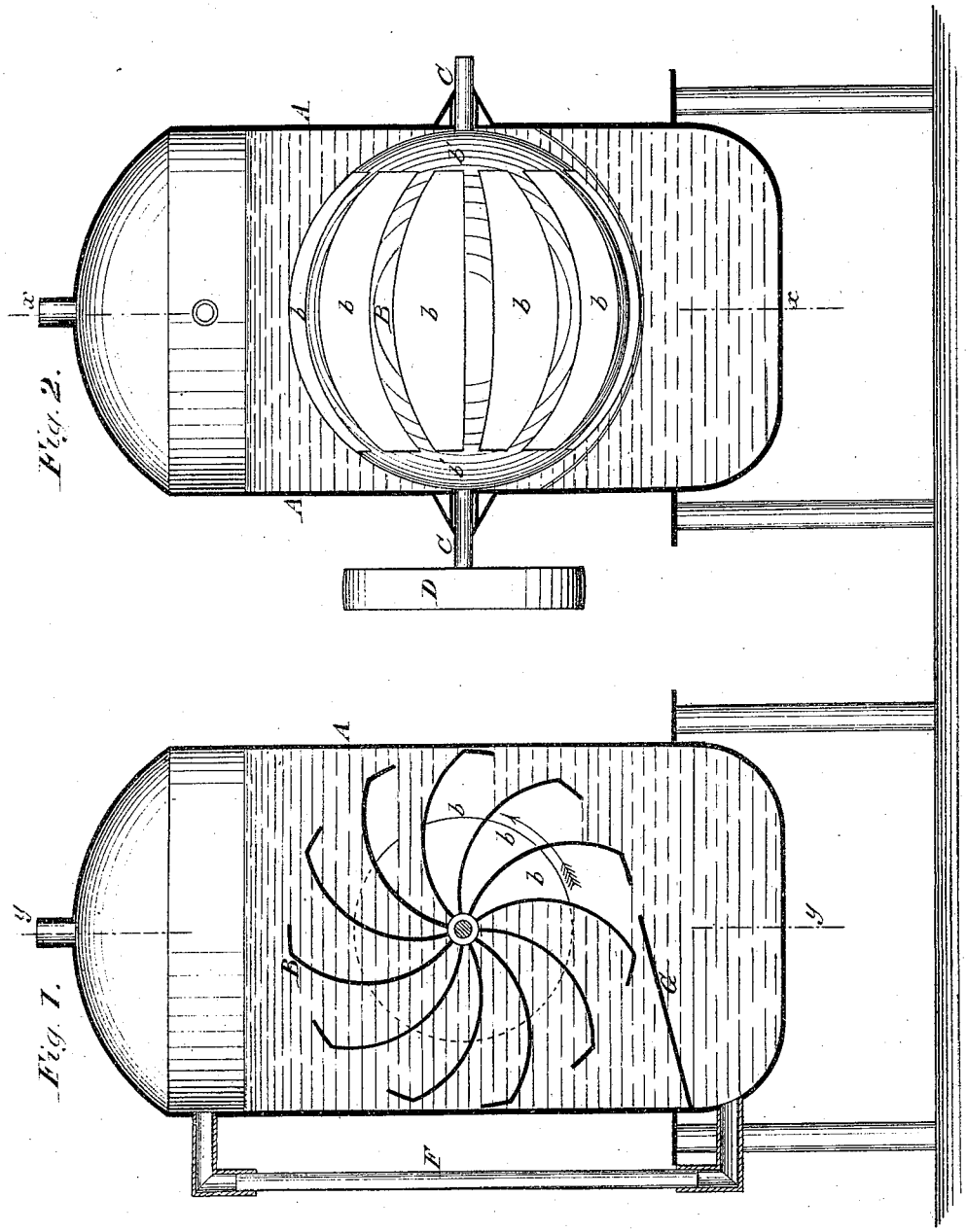

Fig. 2.

Fig. 1.

Witnesses:
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JAMES C. JOHNSON, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN ROTARY STEAM-ENGINES.

Specification forming part of Letters Patent No. **169,269**, dated October 26, 1875; application filed October 12, 1875.

To all whom it may concern:

Be it known that I, JAMES C. JOHNSON, of the city of Boston, in the county of Suffolk and State of Massachusetts, have invented certain Improvements in Rotary Engines, of which the following is a specification:

This invention consists of a spherical wheel provided with deep concave buckets arranged in a boiler filled with water. As the steam is generated by a fire under the boiler the water in the buckets is displaced, and the wheel forced around. To guide the steam generated from the side of the boiler a partition is arranged therein, extending across a little more than one-half of the diameter of the boiler, or across any fractional part of the diameter. To prevent the steam from escaping too soon from the wheel, the axial ends thereof are provided with closed segments.

To more definitely describe my invention, reference is made to the accompanying drawing, in which—

Figure 1 is a vertical section on line *x x*. Fig. 2 is a vertical section on line *y y*.

In the drawing, A represents the boiler, in which the spherical wheel B is journaled a short distance from the bottom of said boiler. The wheel B is provided with a number of deep concave buckets, *b b*, having at their outer edge a narrow flange, and at the axial ends of the wheel closed segments *b b* assist in retaining the steam in said wheel. The wheel B is fitted on a shaft, C, journaled in the sides of the boiler, and is provided with a pulley, D, for driving the machinery. Suitable stuffing-boxes are arranged in the journals of the shaft to prevent leakage. The boiler is also provided with a safety-valve, E, and a glass or other gage, F, to indicate the amount of water in the boiler. A partition, G, extends across one-half and any fractional part of the remainder of the diameter of the boiler to guide the steam generated below into the buckets *b b* of the wheel toward the right side. Any other shaped wheel, such as a cylindrical one, may be used, which is provided with the deep concave buckets, extending from the periphery to the shaft, as this is an important feature of my invention.

The advantages of my improved rotary engine are, that the buckets, being of a concave form and very deep, will retain a greater amount of steam, and thereby greater power can be exerted, and the expansive force of the steam used, which cannot be done in the common shallow bucket-wheels heretofore used, and of which I am aware, and do not claim. The engine is very simple, and readily repaired.

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

1. The combination of a wheel, B, provided with buckets *b b*, with the boiler A, arranged substantially as and for the purpose specified.

2. The combination of a spherical wheel, B, having deep concave buckets *b b* and segmental ends *b′ b′*, with the boiler A, constructed and arranged substantially as shown and described.

3. The combination of a partition, G, with the wheel B and boiler A, when arranged substantially as and for the purpose set forth.

JAMES C. JOHNSON.

Witnesses:

A. MOORE,

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