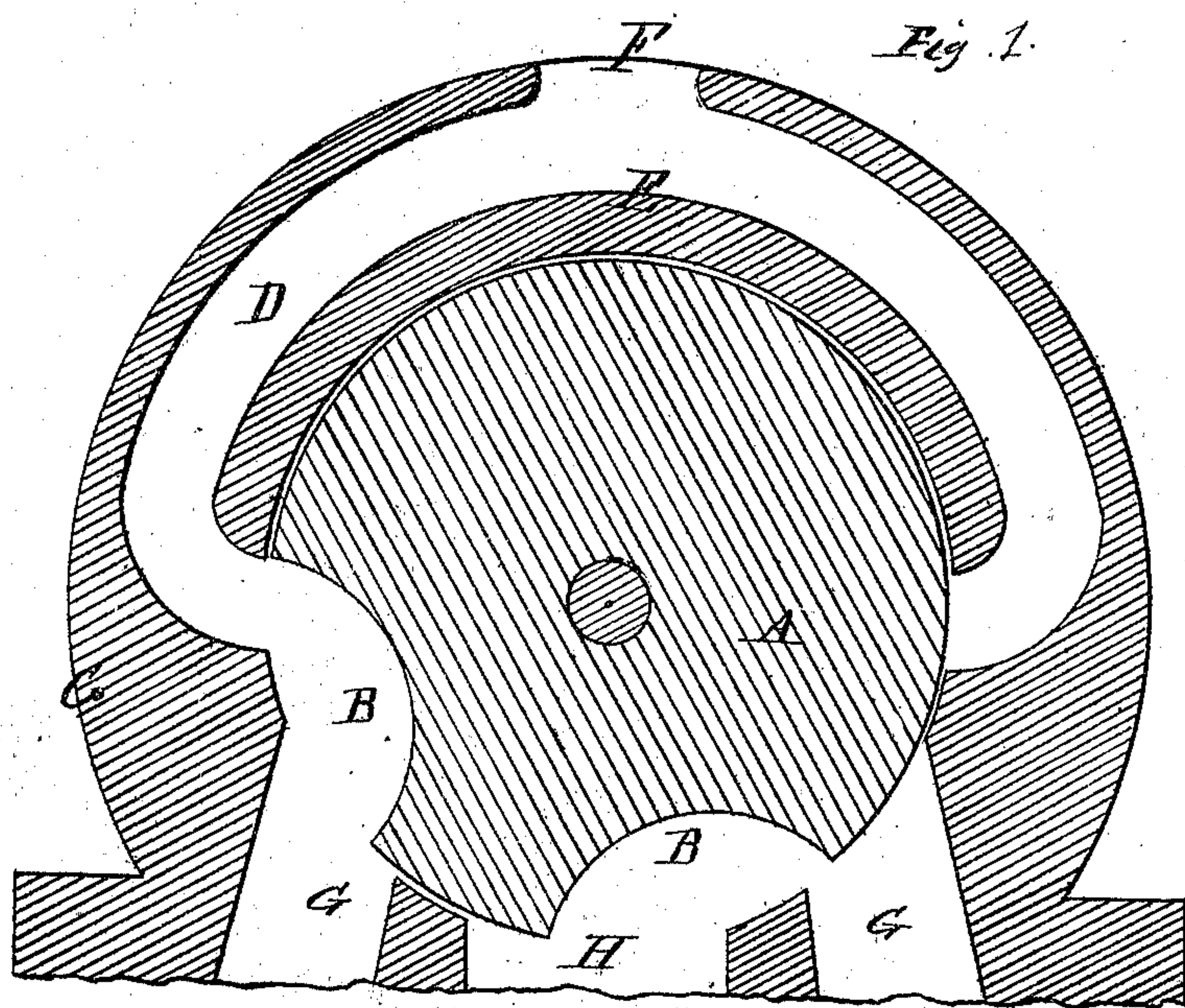


# J.F. TALLANT.

# ROTARY STEAM VALVE.

No. 121,018.

Patented Nov. 14, 1871.



*Witnesses*

*E. A. Bates*  
*J. A. Connolly*

*Inventor.*

*J. F. Tallant,*  
*Chipman & Foster & Co.,*  
*Atty.*



# UNITED STATES PATENT OFFICE.

JULIUS F. TALLANT, OF BURLINGTON, IOWA.

## IMPROVEMENT IN ROTARY STEAM-VALVES.

Specification forming part of Letters Patent No. 121,018, dated November 14, 1871.

*To all whom it may concern:*

Be it known that I, JULIUS F. TALLANT, of Burlington, in the county of Des Moines and State of Iowa, have invented a new and valuable Improvement in Valves for Steam-Engines; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawing making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawing is a representation of a vertical transverse section of my invention.

This invention has relation to oscillating valves for steam-engines; and the novelty consists in the construction and novel arrangement of the cylindrical valve and of the valve-chest with its steam-guard and ports; the object being to provide a steam-valve which will have its exhaust-port at all times open, so that there shall be perfect exhaust from the cylinder, while at the same time the valve is designed to operate with ease, being relieved from all unnecessary pressure and friction.

In the accompanying drawing illustrating this invention, A represents my improved valve, cylindrical in form, and arranged to work upon journals, in the usual manner, back and forth. In the lower half of the periphery of this valve two steam-passages or grooves of equal size are formed. In the drawing these passages are lettered B. Their shape is that of concave grooves or channels running lengthwise of the valve, and each is designed to be of sufficient space to connect the steam-port of its side either with the exhaust or with the induction-port, as the case may be. C designates the steam-chest, constructed with an interior cylindrical valve-chamber concentric with and fitting closely the cylindrical surface of the valve above described. A steam-passage, D, in the wall of said chest surrounds the upper part of the valve, but is separated therefrom, except at its ports D' D, by the arch E, which protects the cylindrical surface of the valve from the corroding action of the impinging steam entering through the main inlet or induction-port F. The lower ends of this passage D

open on each side of the valve into the valve-chamber, and alternately communicate with the chambers B as the valve oscillates from side to side. G designates the steam-ports which conduct the steam to and from the cylinder in alternate order. These ports open into the valve-cavity in the steam-chest, a short distance from the lower end of the passage D, so as to allow a continuous communication between said passage and one of the ports G when steam is admitted to the cylinder. The exhaust-port is located between the ports G, and is lettered H on the drawing. The distance between the exhaust-port H and either port G is about equal to the distance between the latter and the passage D of the same side. Hence there is an exhaust from one end of the cylinder, through the medium of one of the chambers B, at the same instant that steam is admitted to the opposite end of the cylinder.

The exhaust-port in this valve is never fully closed. The port H is wider than the valve surface between the grooves B B. At the same time that, or even before, its communication with one end of the cylinder is interrupted it has communication with the opposite end, so that the operation of the piston is never hindered by superfluous steam.

In the construction of the valve-chest the arch E is designed to span about one-half of the cylindrical cavity, all the openings for the admission, eduction, and exhaust of steam being arranged in the other half of the said cavity. The main induction-port F is placed preferably diametrically opposite to the exhaust, and about the center of the arch E, in order that the full benefit of the protection of the arch may be secured to the valve.

In the construction of the valve its form is designed to be that of a true cylinder, with the exception of the longitudinal grooves B B, which are both below the horizontal plane of the axis of the valve when it is upright or at the half-stroke. By this construction the direct force of the steam current operates upon the valve through the port D' and assists in its movement. In this arrangement the exhaust is always open. All back pressure and compression, whether of

air or steam, is thus designed to be avoided in the cylinder. When thus arranged the valve will work with extraordinary speed and power, the escape passing off noiselessly, without loud puffing.

I claim as my invention—

The oscillating steam-valve, having the induction-port F, the protecting arch E, the steam-chamber D, the open exhaust H, the steam-ports G, and the oscillating cylinder A with its con-

necting grooves B, all constructed, arranged, and operated as specified.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

J. F. TALLANT.

Witnesses:

A. N. PARSONS,  
E. MCKITTERICK.

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