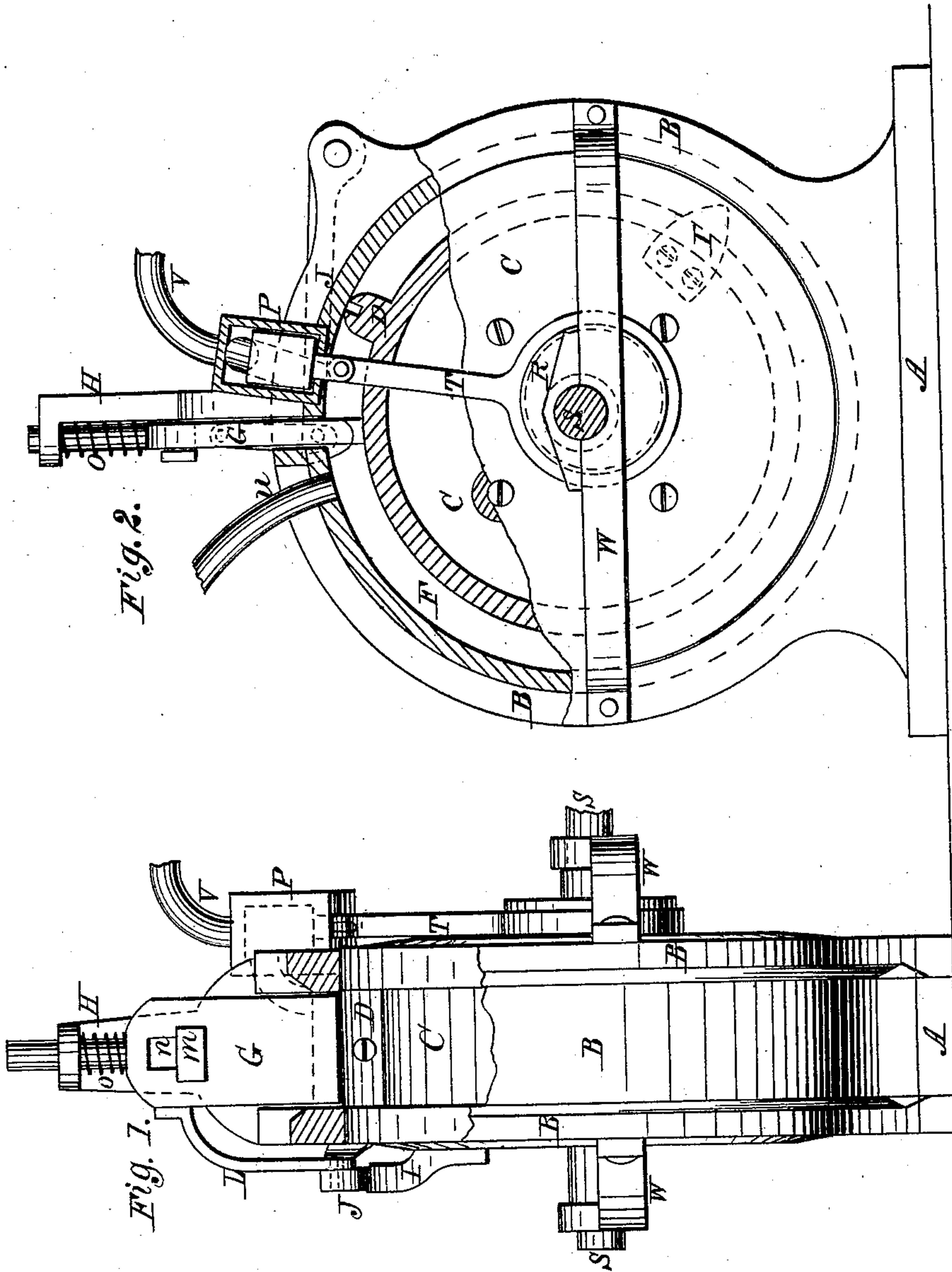


A. C. Gallahue,

Steam Engine.

No. 89,650.

Patented May 4, 1869.



Witnesses:
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United States Patent Office.

ALPHEUS C. GALLAHUE, OF MORRISANIA, NEW YORK, ASSIGNOR
TO HIMSELF AND DAVID GILLISPIE, OF NEW YORK CITY.

Letters Patent No. 89,650, dated May 4, 1869.

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, ALPHEUS C. GALLAHUE, of Morrisania, in the county of Westchester, and State of New York, have invented a new and improved Rotary Steam-Engine; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable those skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification.

This invention relates to a useful improvement in steam-engines, and is confined to the class known as rotary engines; and

It consists in such a construction and arrangement of the parts that a continuous action of the steam upon the piston is obtained, and a uniform rotary motion is produced on the main shaft, as will be hereinafter more fully described.

In the accompanying plate of drawings—

Figure 1 represents an edge view of the engine, with a part of the shell broken away in order to show the piston and a portion of the revolving wheel.

Figure 2 is a side view, also partly in section, to show the piston and wheel, and sliding abutment, and the valve-movement.

Similar letters of reference indicate corresponding parts.

A represents the foundation-plate.

B is the shell, which, with the revolving steam-wheel C, (which wheel is attached to the shaft,) forms the cylinder in which the piston works.

D is the piston, which is rigidly attached to the wheel C, as seen in the drawing.

Its outer edge is grooved, as seen at *e*, for packing and thereby forming a steam-tight joint with the surface of the cylinder.

F represents the cylinder. This is formed by a groove in the face of the wheel C. The shell B forms the covering to the groove, and consequently the circle of greatest diameter.

The piston is a rectangular-shaped block, which fits the groove in the wheel transversely, as seen in fig. 2, so that its outer-grooved edge only needs packing to form a steam-tight joint in the cylinder.

G is the sliding abutment. This abutment is suitably supported by the shell B by means of a stand, H, and is arranged to slide up and down and form the cylinder F as the piston revolves.

The abutment is raised from the cylinder so as to let the piston pass by a cam which is fixed to one side of the wheel, as seen in dotted lines at I. This cam, as it revolves, raises the end of a horizontal bar, which is seen in dotted lines in fig. 2 at J, attached to a rock-shaft K. The end of it is also seen in fig. 1, as is also an edge view of the cam I. This bar J is connected with the abutment C by the curved bar L.

m is a pin, which passes through the abutment and is fixed to the stand H. It has a broad head, which confines the abutment to the stand.

n is a slot in the abutment, which allows the abutment to play up and down.

When the abutment has been raised and the cam has ceased to operate on the bar J, it is forced down by a spiral spring, *o*, which reacts against the cap of the stand, as seen in the drawing; or it may be forced down by any other suitable device.

The arrangement of the cam, in regard to the piston, is such that the abutment is raised at every revolution, so as to allow the piston to pass, when it is immediately forced down into the cylinder again, as before stated, and the piston is ready to take steam.

P represents the steam-chest.

This steam-chest has a slide-valve, which is actuated by an eccentric, R, on the main shaft S.

T is the eccentric-rod. As seen in the drawing, the engine is ready to take steam.

The steam reacts against the abutment, and drives the piston nearly a whole revolution, or until it passes the exhaust-pipe *u*, and is ready to again pass the abutment, and take steam, unless the steam is previously cut off.

U represents the pipe, which conveys the steam from the boiler to the steam-chest.

The slide-valve is arranged to cut off the steam at any part of the revolution.

The engine is readily arranged for reversing the motion, so as to adapt it to steamboats and locomotives.

The main shaft is supported by the shell of the engine, by means of the transverse bars W, upon each side of the engine, on which the shaft has its bearings.

The joint between the wheel C and the shell may be provided with packing-rings, or any other suitable adjustable packing-device for insuring a tight joint.

I claim as new, and desire to secure by Letters Patent—

1. The arrangement of cam I, arm J, pivoted bar L, with the abutment G, and flanged cylinder C, and the piston D, as herein set forth.

2. The arrangement of the flanged cylinder C, carrying the piston D, with reference to the construction of the case B, as herein set forth.

3. The arrangement of the steam-chest P, with its slide-valve, and the ingress and egress-ports, whereby the abutment G is enabled to move at the proper given time, so as to avoid the pressure of steam therein, as herein set forth.

ALPHEUS C. GALLAHUE.

Witnesses:

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