

(No Model.)

T. JOYCE.

BALANCED PISTON FOR STEAM CYLINDERS.

No. 342,966.

Patented June 1, 1886.

Fig: 1.

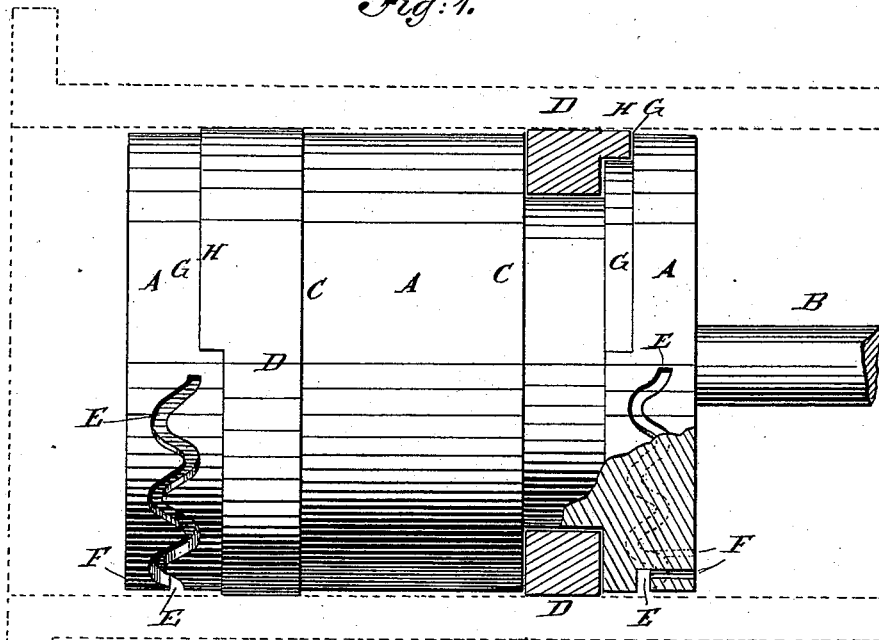
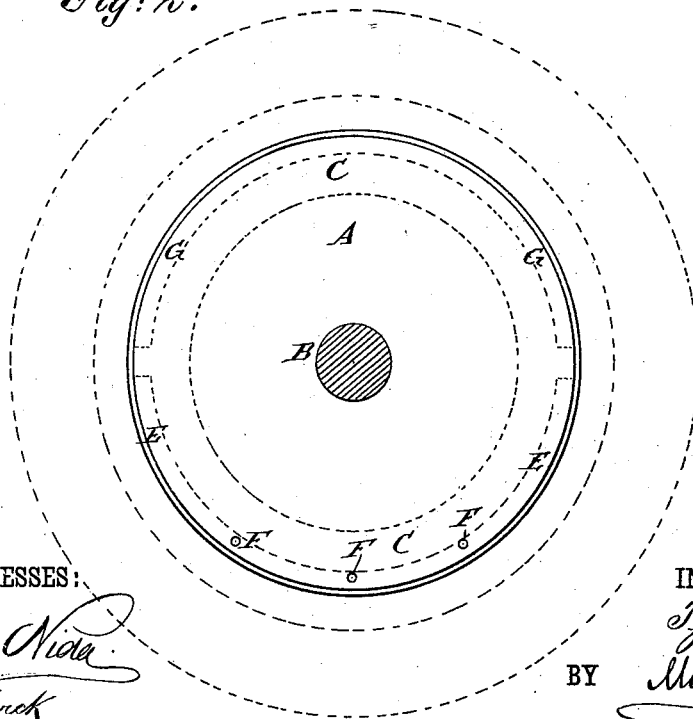


Fig: 2.



WITNESSES:

Chas. Nida
C. Sedgwick

INVENTOR:

T. Joyce

BY

Munn & Co.
ATTORNEYS.

UNITED STATES PATENT OFFICE.

THOMAS JOYCE, OF SCRANTON, PENNSYLVANIA.

BALANCED PISTON FOR STEAM-CYLINDERS.

SPECIFICATION forming part of Letters Patent No. 342,966, dated June 1, 1886.

Application filed February 19, 1886. Serial No. 192,544. (No model.)

To all whom it may concern:

Be it known that I, THOMAS JOYCE, of the city of Scranton, in the county of Lackawanna and State of Pennsylvania, have invented a new and useful Improvement in Balanced Pistons for Steam-Cylinders, of which the following is a full, clear, and exact description.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in both the figures.

Figure 1 is a side elevation of my improved piston, partly in section and part being broken away. Fig. 2 is an end elevation of the same, the piston-rod being shown in section.

The object of this invention is to provide pistons for steam-cylinders constructed in such manner that the said pistons will be supported above the bottoms of the said cylinders, or balanced, so as to equalize the wear.

The invention consists in the construction and combination of various parts of the piston, as will be hereinafter fully described.

A is the piston, to which the piston-rod B is secured in the ordinary manner. Around the piston A, near each end, are formed annular grooves C, to receive the packing-rings D. In the lower side of the end parts of the piston A are formed zigzag grooves E, extending up nearly to the level of the center of the said piston. In the lower parts of the ends of the piston A are formed one or more holes or perforations, F, opening into the grooves E, so that the steam will enter the said grooves, and by its elasticity will support the weight of the piston, and thus prevent the lower side of the piston A and the lower part of the inner surface of the cylinder in which the piston works from being worn.

In the upper side of the end parts of the piston A, at the outer sides of the grooves C, are formed rabbets G, to receive flanges H, formed upon the outer edges of the upper parts of the packing-rings D, as shown in Fig. 1. The rabbets G and flanges H extend to or

nearly to the level of the center of the piston A. By this construction the surface of the upper parts of the ends of the piston exposed to the steam-pressure will be reduced, so that the downward pressure of the steam will be less than the upward pressure to assist in carrying the weight of the piston, and thus lessen the wear on the lower side of the piston and on the lower part of the cylinder.

Having thus fully described my invention, I claim as new and desire to secure by Letters Patent—

1. A piston, A, made substantially as herein shown and described, with grooves E in the lower sides of its ends, and with one or more perforations, F, in the ends of the said piston and leading into the said grooves, whereby the weight of the piston will be carried by the said steam and the undue wear of the lower side of the piston will be prevented, as set forth.

2. The combination, with the piston A, having rabbets G in its end parts, at the outer sides of the upper parts of its packing-grooves C, of the packing-rings D, having flanges H on the outer side edges of their upper parts, substantially as herein shown and described, whereby the surfaces of the end parts of the piston exposed to the downward pressure of the steam will be lessened, so that the steam will be made to carry the weight of the piston, as set forth.

3. The herein-described piston A, provided with the zigzag grooves E in the lower sides of its ends, perforations F, extending through the ends into the said grooves, the rabbets G in the upper and outer parts of the packing-grooves C, and the packing-rings D, having flanges H on the outer sides of their upper parts fitting in the said rabbets, as specified.

THOMAS JOYCE.

Witnesses:

JAMES T. GRAHAM,
C. SEDGWICK.