



# United States Patent Office.

FRANCIS A. BROWN, OF ITHACA, NEW YORK.

*Letters Patent No. 85,561, dated January 5, 1869.*

## IMPROVEMENT IN STEAM-ENGINE-PISTON PACKING.

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, FRANCIS A. BROWN, of Ithaca, in the county of Tompkins, and State of New York, have invented a new and improved Piston-Packing; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others 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 new and improved metallic packing for pistons; and

It consists in a novel and improved construction and arrangement, whereby a closely-fitting piston is obtained, and one which will not be liable to become affected by wear.

In the accompanying sheet of drawings—

Figure 1 is a side sectional view of my invention.

Figure 2, a horizontal section of the same, taken in the line *x x*, fig. 1.

Similar letters of reference indicate corresponding parts.

A represents the piston-rod, which has a circular disk or plate, B, permanently attached, and a hub or boss, C, keyed upon it, in contact with the under side of the disk or plate B, said hub or boss having four radial arms, *a*, terminating in cylindrical projections *b*, as shown clearly in fig. 2.

On this hub or boss C there are fitted two rings D D, which are of L-shape in their transverse section, as shown in fig. 1, and a ring, E, and the cut rings F F are also fitted on the hub or boss, the cut rings F being

fitted in the recesses of the rings D D, the solid or uncut ring E being between the cut rings F F.

The slits or cuts *c*, which divide the rings F, are slotted at each side, to receive pins *d*, in the ring E, and these pins *d* have such a position as to keep the slits or cuts *c*, of the two rings F F, out of line with each other, the solid or uncut ring being prevented from turning on account of a pin, *e*, which projects laterally from it, fitting into a hole in a cylinder, *b*, of one of the arms *a* of the hub or boss.

By this arrangement, a good bearing-surface is given the piston, five rings being used, two elastic ones, F F, of which, by their elasticity, press or bear against the inner surface of the cylinder, and compensate for any wear; and, in consequence of having the cuts or slits *c* out of line with each other, the rings F F are allowed to bear or press against the interior of the cylinder, entirely around it.

To the under side of the hub or boss C, a disk, G, is attached, by screws *a*<sup>x</sup>, as shown in fig. 1.

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

The construction and arrangement of the uncut rings E and D, and the cut rings F, as herein set forth.

The above specification of my invention signed by me, this 2d day of October, 1867.

FRANCIS A. BROWN.

Witnesses:

WM. F. McNAMARA,

ALEX. F. ROBERTS.