

D. Maydole,

Piston Packing.

No. 106,495.

Patented Aug. 16, 1870.

Fig. 1.

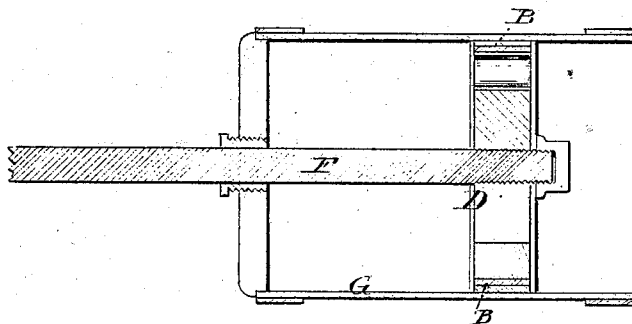


Fig. 2.

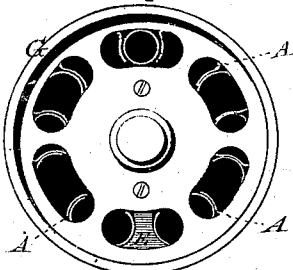


Fig. 3.

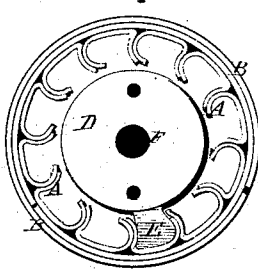


Fig. 4.

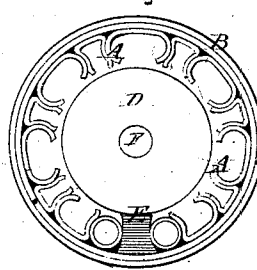


Fig. 5.

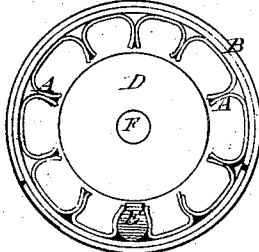


Fig. 6.

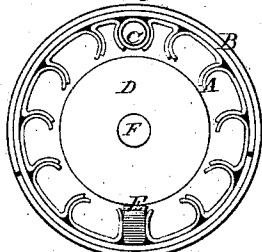
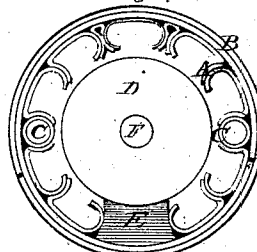


Fig. 7.



Witnesses.

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United States Patent Office.

DAVID MAYDOLE, OF NORWICH, NEW YORK.

Letters Patent No. 106,495, dated August 16, 1870.

IMPROVEMENT IN SPRINGS FOR 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, DAVID MAYDOLE, of Norwich, in the county of Chenango and in the State of New York, have invented certain new and useful Improvements in Springs for Piston Packing; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing making a part of this specification, in which—

Figure 1 is a vertical longitudinal section of a cylinder and piston showing my improved springs in place;

Figure 2 is an end elevation of said piston with portions of the follower removed, so as to show the arrangement of the springs; and

Figures 3, 4, 5, 6, and 7 are like views of a piston with the follower removed, each showing a modification of my invention.

Letters of like name and kind refer to like parts in each of the figures.

My invention is an improvement in springs for imparting to piston packing-rings an elastic outward pressure; and

It consists in a series of open springs, having a semicircular or other equivalent form, arranged around the interior of the rings in such a manner as that their lateral pressure against each other produces a uniform outward pressure upon said rings, independent of the piston, as is hereinafter set forth.

In packing-springs, as heretofore constructed, each spring had a bearing upon both piston and packing-rings, and its tension and outward pressure was adjusted by means of wedges, screws, or other equivalent devices, the result of which has been that, as said springs did not exert an equal pressure upon said rings, the latter were caused to bear with unequal force upon the cylinder, and thereby cause an unequal wear of both rings and cylinder.

Another difficulty has arisen from the want of a sufficient degree of elasticity in the rings, to enable them to conform to any irregularities of the bore of the cylinder, and to cause them to exert the required amount of pressure upon the rings without frequent adjustment, all of which my invention is designed to obviate.

As seen in the drawing, my springs, A, are formed of plates of steel, having their ends curved inward, so that, when arranged around the interior of the packing-rings B, with the ends of each bearing against those of the next adjoining springs, any outward pressure exerted by one of said springs will be communicated to the others, causing the entire circle to expand equally, and exert a uniform outward pressure upon each portion of the circumference of the interior of said packing-rings.

The portion of each spring, immediately adjoining the packing-rings, should conform to the shape of the same, but the ends of said springs may have any desired form or curve, so long as they conform to each

other and furnish for each a uniform bearing, whether the springs are compressed or expanded to their natural shape; or, if desired, cylinders of metal or other material, C, may be interposed between said springs, so as to lessen their number, but, as in either case, their operation would be the same, such changes would be modifications only of my invention.

As the outward pressure of the springs A is entirely independent of any other bearing than that had upon each other, they should not touch the center or spider of the piston, D, in vertical engines, themselves and the packing-rings remaining free to move laterally, as any want of perfect alignment of the engine might require; but in horizontal engines it is deemed best to insert a block of metal, E, between the bottom springs, for the support of said piston, as, otherwise, its weight would cause it to sag downward, so as to wear the rod F or cylinder G.

In adjusting the springs to a piston, the required degree of pressure may be usually obtained by slightly increasing or diminishing the curve of one or more, but when such change is impracticable, or when, after use, it is desired to increase the pressure of said springs, strips of sheet metal may be inserted between their ends.

The especial advantages possessed by these springs are:

First, as they exert an equal outward pressure upon each part of the packing-rings, the wear of said rings and of the cylinder is rendered uniform, their durability largely increased, and little liability exists to the cutting of their bearing-surfaces.

Second, by reason of the uniform outward pressure upon each portion of the packing-rings, less expansive force is required to keep the latter tight, and, consequently, said rings are enabled to conform more easily to any variations in the size of the interior of the cylinder.

Third, as the springs are easily made, and require no especial adjusting or expanding devices, their cost is less than one-fourth that of ordinary springs.

Having thus fully set forth the nature and merits of my invention,

What I claim as new, is—

A series of open springs, having substantially the form shown and described, and arranged within the interior of piston packing-rings, so that the lateral and outward pressure of each spring against the others, or against suitable interposing blocks, shall produce a uniform outward pressure upon said rings entirely independent of or from the piston spider, or other central support, substantially as shown and set forth.

In testimony that I claim the foregoing, I have hereunto set my hand this 24th day of June, 1870.

DAVID MAYDOLE.

Witnesses:

GEO. S. PRINDLE,
EDM. F. BROWN.