W. Ord.

Piston Packing.

No. 89,428. Patented Apr. 27, 1869

Fig: 1.

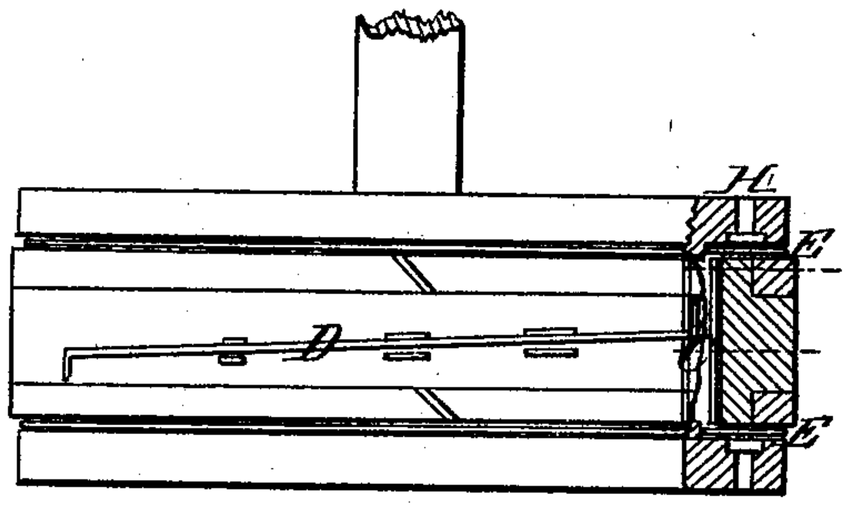


Fig: 2.

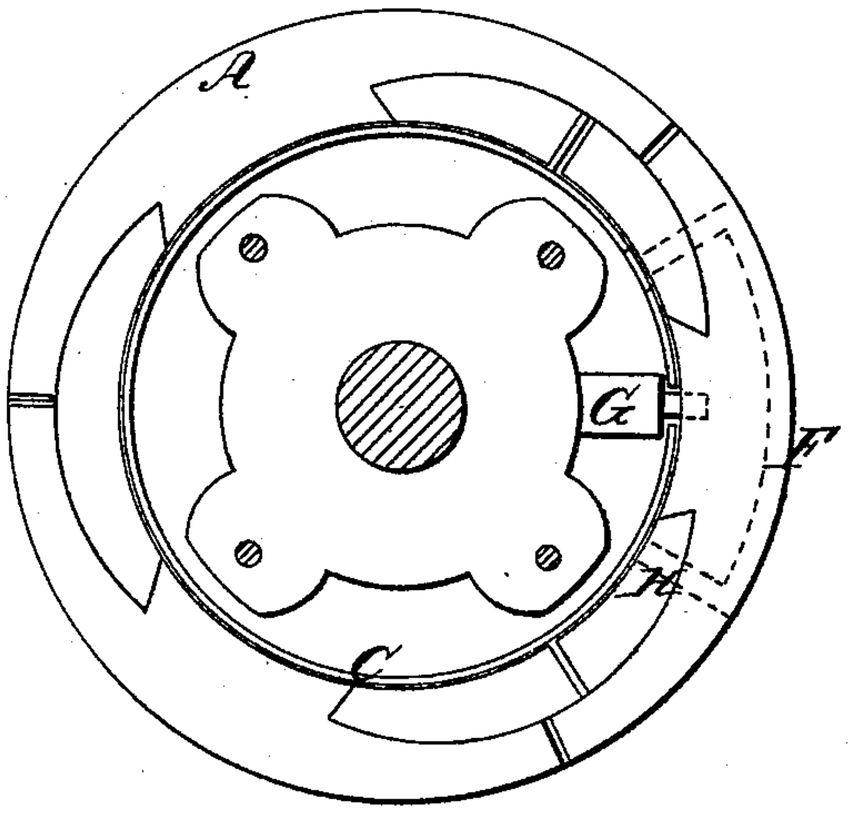
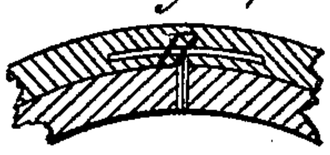


Fig: 3.

Fig: 4.



Witnesses;
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United States Patent Office.

WILLIAM ORD, OF BROOKLYN, OHIO.

Letters Patent No. 89,428, *dated April* 27, 1869.

IMPROVEMENT IN STEAM-ENGINE PISTONS.

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, WILLIAM ORD, of Brooklyn, in the county of Cuyahoga, and State of Ohio, 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 improvements in piston-packing, designed to provide an arrangement of simple and cheap construction, capable of more perfectly fitting the cylinder, simple of adjustment, and less liable to spring away from the cylinder, after being set out, than any arrangement now in use.

Figure 1 represents a side elevation of a piston provided with my improvement, with a part broken out;

Figure 2 is an end elevation, with the follower removed; and

Figures 3 and 4 are detail views.

Similar letters of reference indicate corresponding parts.

A cast-metal ring, A, is formed of three segmental pieces, having an annular groove in its face, also dovetail recesses in its interior surface, extending across the breadth of the ring, as represented in fig. 2.

The said annular groove and recesses are filled with "Babbit" or other similar metal, by casting therein, when the ring A is suitably arranged in a mould.

The whole thus constitutes a packing-ring capable of expansion by stretching or bending the "Babbit" metal, and which will not have a tendency to retract after being expanded.

To strengthen the soft-metal portion, at the joints of the segments, and to afford a uniform expansion, sheet-metal stiffening-pieces, B, are arranged in the mould opposite the joints, and thereby incorporated with the soft or "Babbit" metal, when it is cast.

The ring so formed may be expanded by a steel ring, C, or by steam admitted within the ring.

A strip of sheet-metal, D, is also arranged in the mould, so as to form a separation of the soft-metal portion, the two separated parts lapping each other, as clearly shown in fig. 1, to avoid the necessity of separating it after being cast.

This arrangement I consider the best calculated to cause the ring to conform to the surface of the cylinder as they both wear.

I arrange the ring somewhat loosely between the head-plate and follower, and to prevent the admission of steam within the ring, I introduce the thin sheet-metal rings E, firmly secured near the centre to the head-plate and follower, by any preferred means, and provide annular grooves in the inner faces of the said head-plate and follower, having holes opening from the outer faces thereto.

The steam entering the said grooves will press the outer edges of the rings firmly against the sides of the ring and prevent the passage of steam.

If, however, it be preferred to admit steam within the ring to adjust the packing, it is only necessary to disconnect the said rings E from the head-plate and follower.

If it be desired to limit the outward pressure of the steam within the ring, a thin strip of soft metal may be introduced, having the ends lapping considerably, whereby the friction of the said lapping ends will counteract the pressure of the steam.

A cavity F, represented in dotted lines in fig. 2, is provided in that part of the ring working on the bottom of the cylinder, when arranged horizontally, for the introduction of live steam to support, in a measure, the weight of the piston, and a stud-pin, G, is introduced between the inner face of the ring and the core of the piston-head, to prevent the latter falling below its central position, and prevent the follower from rubbing on the bottom of the cylinder.

The steam may be admitted to the cavity F through holes leading from the interior, as represented in dotted lines at H

By this arrangement, it will be observed that the ring is made in one piece of many parts, and every parting effectually covered, so that steam cannot pass in any direction.

It will also be observed that, by reason of the peculiar construction, it requires very little force to expand it, and when expanded it has little or no tendency to contract.

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

1. The construction of the packing-ring A, composed of three or more hard-metal segments, united by a single piece of soft metal, substantially as specified.

2. The combination, with the soft-metal portion of the ring, of the T-shaped pieces B, substantially as specified.

3. The combination, with the piston-head and the packing-ring, of the sheet-metal rings E, when all arranged as specified.

4. The ring A, provided with the recess F, and opening H leading thereto, substantially as specified.

The above specification of my invention signed by me, this 11th day of January, 1869.

WILLIAM ORD.

Witnesses:

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