J. A. FULTON.

Metallic Packing for Piston-Rods of Steam-Engines, &c.

No. 164,158. Patented June 8, 1875.

FIG. 1.

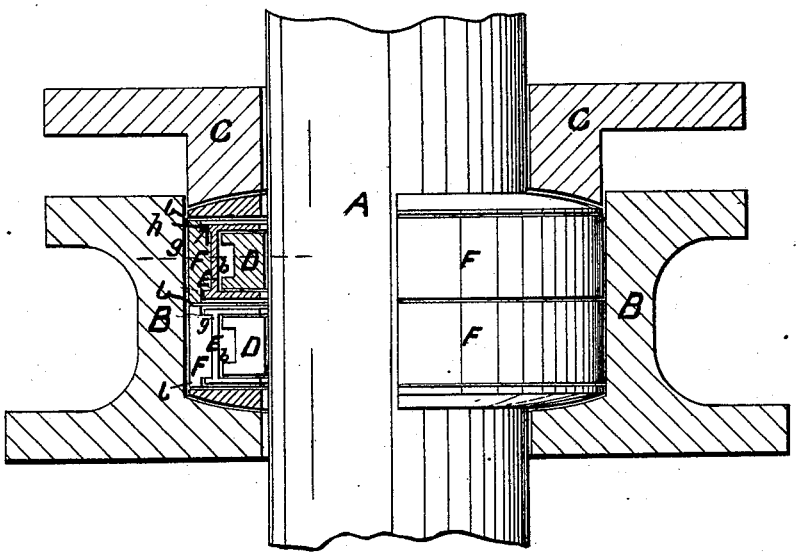
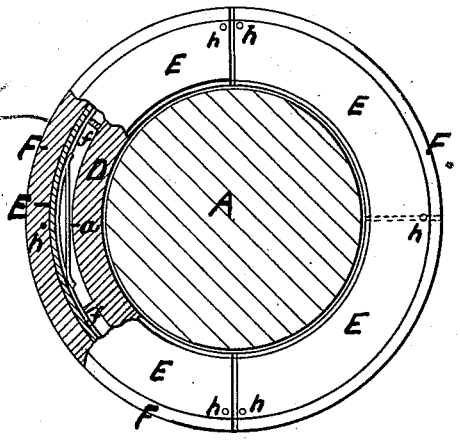


FIG. 2.



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UNITED STATES PATENT OFFICE.

JOHN A. FULTON, OF CAMBRIDGE, MASSACHUSETTS.

IMPROVEMENT IN METALLIC PACKINGS FOR PISTON-RODS OF STEAM-ENGINES, &c.

Specification forming part of Letters Patent No. **164,158**, dated June 8, 1875; application filed February 26, 1875.

To all whom it may concern:

Be it known that I, JOHN A. FULTON, of Cambridge, in the county of Middlesex and State of Massachusetts, have invented new and useful Improvements in Metallic Packing for Piston-Rods of Steam-Engines, &c., of which the following is a specification:

This invention relates to that class of metallic packing for piston and other rods of steam-engines, &c., in which the rod is packed against the escape of steam with metallic rings made in sections, and held to the rods by a spring-pressure back of the sections, and in such class of packings this invention has reference only to the construction of parts by which the sectional rings are located and held in position in the stuffing-box and about the rod. This improved metallic packing consists substantially of the combination of a sectional packing-ring with an outer ring, grooved in its internal periphery to receive the sectional packing-ring and its pressing spring or springs.

In the accompanying plate of drawings, Figure 1 is a section of a stuffing-box and its gland, showing my improved packing at one side in section, and at the other in side view, and the rod packed by it in side view. Fig. 2 is a plan view of the packing shown in Fig. 1, but removed from the stuffing-box, and broken away at one side for more complete illustration of its construction.

In the drawings, A represents a rod to be packed; B, the stuffing-box for the reception of packing to pack the rod, and C the cover or gland to the box B, all as ordinarily; D, a metallic packing-ring split in sections in any of the ordinary ways, and interiorly fitting about the rod A; E, a sectional ring interiorly surrounding the external periphery of the packing-ring, and externally surrounded with india-rubber or other elastic material to pack and fill up the space between the external periphery of the ring E and the internal periphery of the stuffing-box B; *a*, a bent spring, located in the groove *b* of the outer sectional ring E, which groove receives the packing sectional ring D—a separate spring, *a*, is used for each section of the packing-ring D—and *f*, stops on each section of packing-ring D, for confining each spring more perfectly to the central portion of each section, and preventing its slipping out of such position. Spiral springs may be used in place of bent springs. The external periphery of the outer ring E is grooved at *g*, to receive the india-rubber packing F, which is in the form of a band. The packing F is fastened in the ring-groove *g* by pins *h*, which are driven through the ring and into the india-rubber, (see Fig. 1 more particularly,) and the packing F at its outer periphery is wider than the width or thickness of the ring E, which receives it, so that it will project slightly beyond each face of the ring, as shown at *l*, Fig. 1.

In packing a rod with the packing above described two sectional packing-rings, D, each with their accompanying outer ring E at least, must be employed, and in their disposition about the rod the splits of the two packing-rings D must break bond with each other. The rubber surrounding each outer ring E packs each between its external periphery and the internal periphery of the stuffing-box, and, as this rubber projects at each face of each outer ring, by forcing the gland down the rubber of the outer rings packs the ring between their contiguous faces and the ends of the stuffing-box, and thus the outer rings are made close and tight to the escape of steam about them.

The rubber packing is not absolutely necessary, as the outer rings E themselves may be made to fit the internal periphery of the stuffing-box, but it is preferable to use india-rubber or other elastic material, as it secures a perfect packing of the outer rings E within the stuffing-box B and between themselves. The rubber packing may be also independent of the outer ring, but it is more convenient to have it attached to it.

Forcing the packing into the stuffing-box by screwing down the gland does not interfere with the proper play of the packing-rings, as they are within the grooves *b* of the outer ring, the walls of which protect them against the bind from screwing down the gland.

The outer ring, in order to receive a sectional packing-ring into its groove, as described, obviously must be made in sections, but after receiving the sectional packing-ring

the parts of the outer ring may be fastened together.

Having now described my invention, what I claim, and desire to secure by Letters Patent, is—

The combination of the sectional packing-ring D, grooved on its external periphery for the reception of the spring *a*, with the external packing-ring E, grooved on its internal periphery in such manner as to set over the periphery of the internal ring D, as and for the purpose described.

The above specification of my invention signed by me this 16th day of February, A. D. 1875.

JOHN A. FULTON.

Witnesses:
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