

P.W.RICHARDS. STUFFING-BOX.

117928

PATENTED AUG 8 1871

FIG. 1.

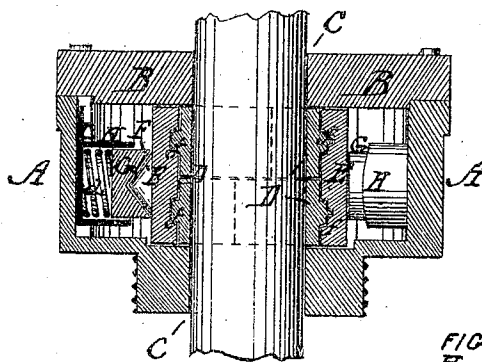


FIG. 2.

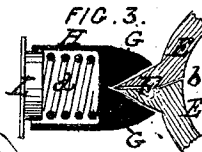
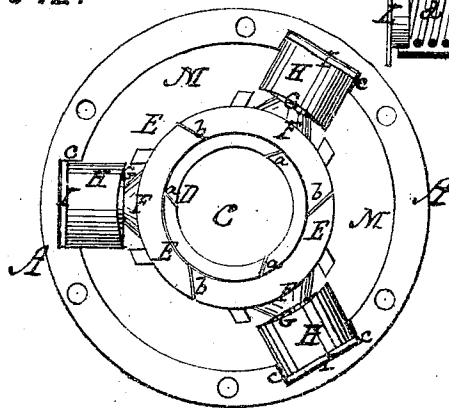
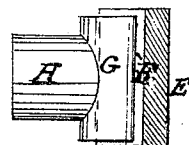


FIG. 4.



WITNESSES.

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IMPROVEMENT IN STUFFING-BOXES AND STUFFING-BOX PACKINGS.

Specification forming part of Letters Patent No. 117,928, dated August 8, 1871.

To all whom it may concern:

Be it known that I, PHILLIP W. RICHARDS, of Boston Highlands, in the county of Suffolk and State of Massachusetts, have invented a new and useful Improvement in Stuffing-Boxes, of which the following is a full, clear, and exact description, reference being had to the accompanying drawing forming part of this specification.

The present invention relates to stuffing-boxes, more particularly for use in connection with the piston-rod of steam-engines, although it is applicable for other engines and purposes. The invention consists mainly of a novel arrangement of sectional rings within the box about the piston-rods, in combination with spiral or other springs so applied as to hold the said sectional rings with an elastic and yielding pressure about the rod, and to keep the joint always tight by compensating for the wear of the bearing-surfaces of the sectional rings and rod in the inward and outward movement of the piston-rod.

In the accompanying drawing my improvement in stuffing-boxes is illustrated, Figure 1 being a central transverse section of a stuffing-box constructed according thereto; Fig. 2, a plan view of the interior of the stuffing-box; Figs. 3 and 4, views showing a modification.

A in the drawing represents the stuffing-box, made in the present instance of a cylindrical shape, and as provided with a removable head, B. This box A exteriorly may be constructed in any suitable manner for being secured in position for use, and through the center of both head-plates it is provided with a circular opening, C, of about the size of the rod to which it is to be applied. D and E, the sectional rings, composed of two series, arranged within the box A between its head plates; the one series, D, of these rings and that one, the inner, is in six distinct parts of similar size and shape, and adapted, by flaring ends *a*, to be nicely jointed together, three of the parts, when placed together, constituting one ring, the internal diameter of which is the same as the external diameter of the rod. The two rings thus made from the series D are placed one upon the other, breaking joints, as shown in Fig. 1, the two by their

combined width equaling that between the inner faces of the head-plates of stuffing-box. Surrounding and outside of the ring series D is the other series, E, of rings, which series is in three similar parts or sections, flared at their end *b*, and adapted to be nicely jointed together, and to break joints with the inner series D, as shown in Fig. 2. The width of ring made by the series E is equal to that between the head-plates of stuffing-box A. Each section of the ring series E is provided with a conical head, F, upon which fits a plug or head, G, conically countersunk, and arranged to be guided and to play within a tube, H, secured in position by sliding its end plate I into the ways C made in the inner periphery of the body of stuffing-box. Within each tube H is arranged a spiral spring, *d*, so as to press and confine the plug G of the tube to its bearing on its section of the ring series E, and thus to press them about and to adapt them to the piston-rod, packing their joint with the piston-rod, and compensating, by their elasticity and spring, for the wear of the bearing-surfaces between inner series D and piston-rod. By breaking the joints of the two series D and E, when applied and arranged together, the leakage of steam to the interior of stuffing-box is to a great extent prevented. But, however, to more fully provide against leakage of steam through the rings D and E, their contiguous and contact surfaces are provided with a corresponding rib and groove construction, as shown at *f*, Fig. 1, which may be either of a square, round, triangular, or other shape in transverse section.

In lieu of arranging the springs *d* to press on the ring series E through the combination of plug G, as described, they may be arranged with a construction of parts, such as shown in Figs. 3 and 4—that is, with the tube as a part of the plugs G, and adapted to move therewith, and with the conical heads F on sectional rings E at their joints, and split in continuation of such joints, as shown more particularly in Fig. 3.

L, a projecting cylindrical head, located on inner periphery of stuffing-box or case A, in position to fit within the tube of movable heads F, and to seal, as it were, the said tubes to the entrance

of steam to corrode the springs should steam, by any possible chance, enter the chamber M of stuffing-box.

Having thus described my invention, I shall state my claim, as follows:

A stuffing-box, constructed with ring series D and E in section, in combination with springs *d*, adapted to hold said rings D and E against and about the rod, moving in the core or opening of

the stuffing-box, substantially as and for the purpose specified.

The above specification of my invention signed by me this 20th day of April, A. D. 1871.

PHILLIP W. RICHARDS.

Witnesses:

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