

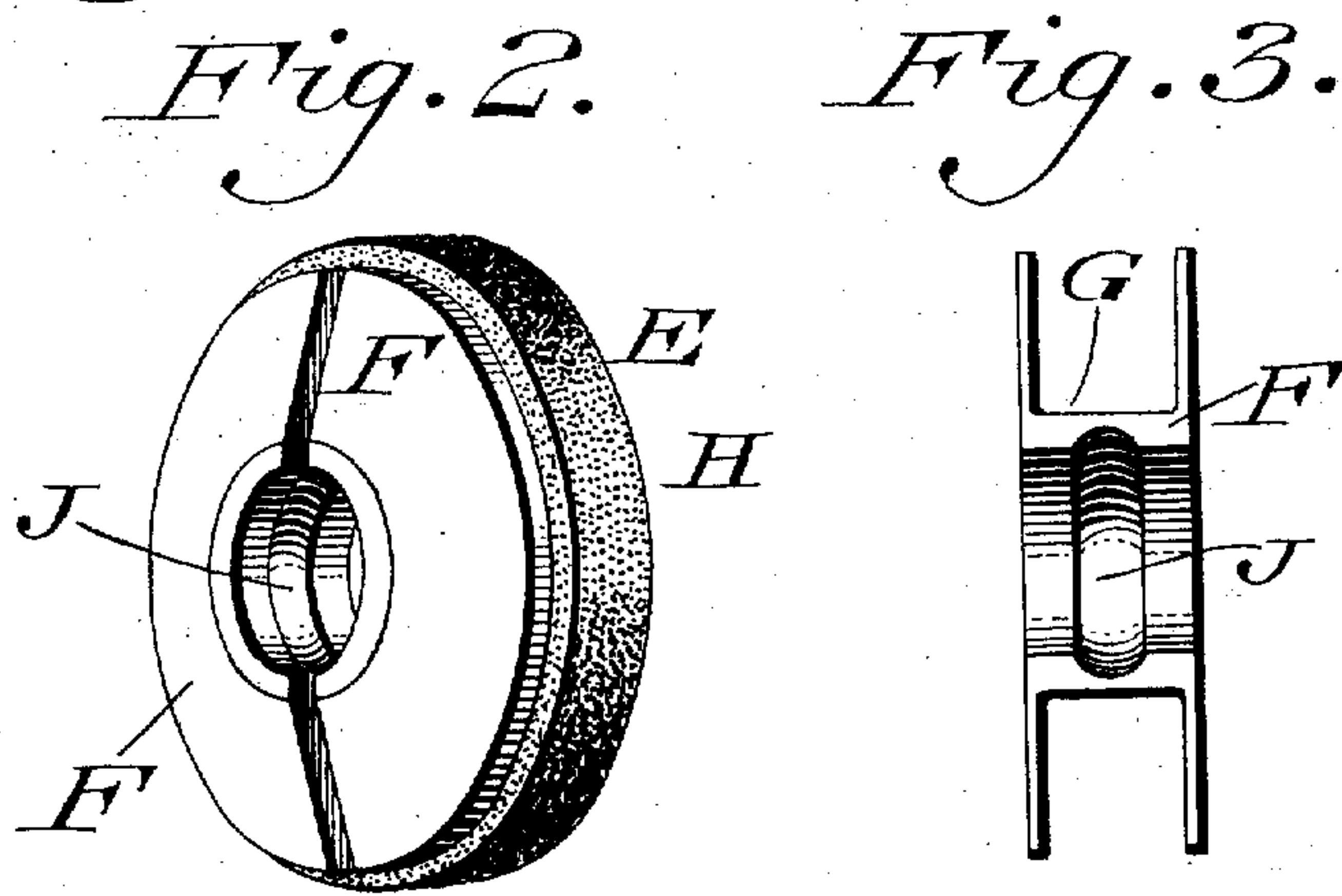
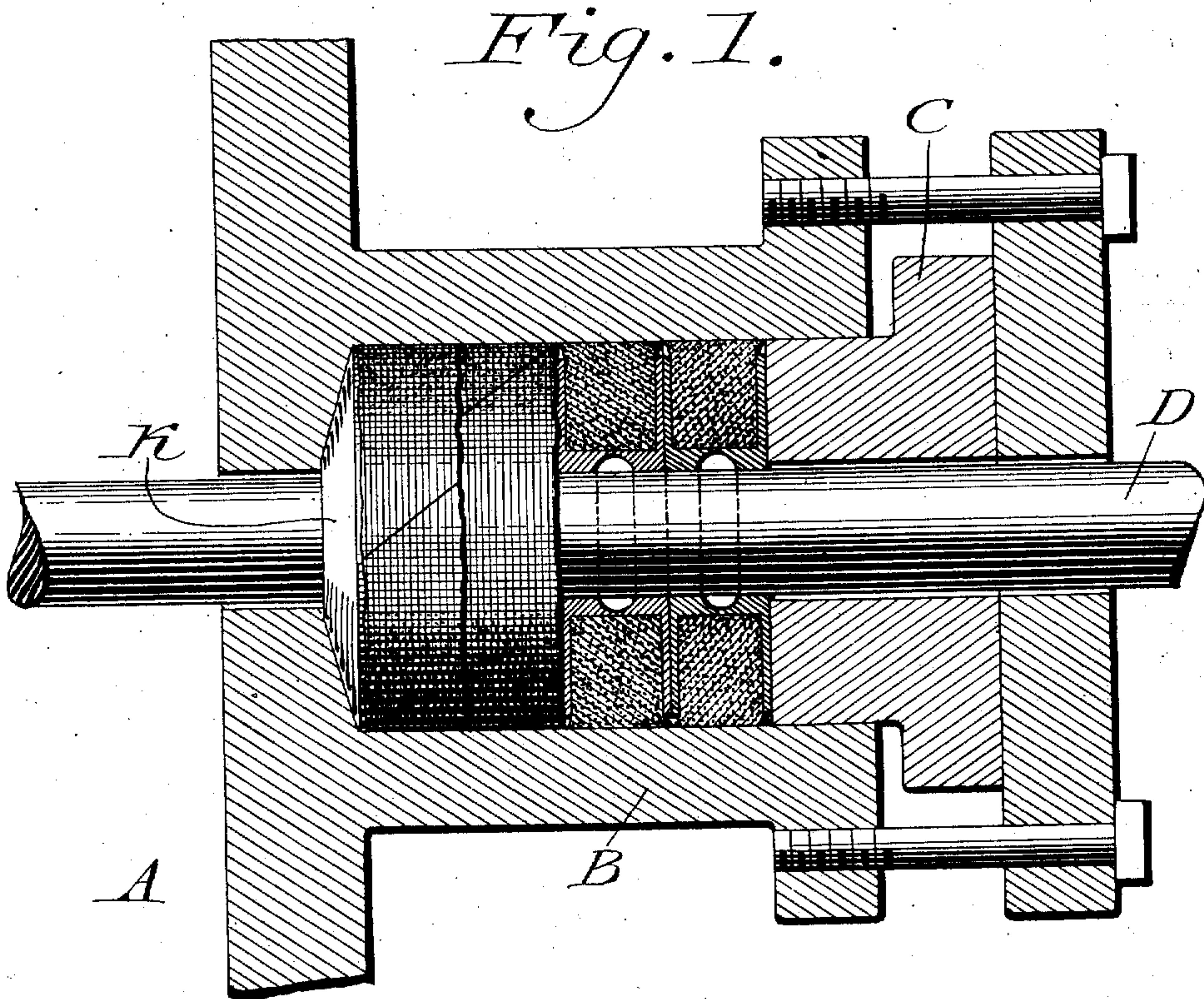
No. 688,730.

Patented Dec. 10, 1901.

J. M. HARPER.
PACKING.

(Application filed July 24, 1901.)

(No Model.)



Witnesses

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UNITED STATES PATENT OFFICE.

JOSEPH M. HARPER, OF CHESTER, PENNSYLVANIA.

PACKING.

SPECIFICATION forming part of Letters Patent No. 688,730, dated December 10, 1901.

Application filed July 24, 1901. Serial No. 69,485. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH M. HARPER, a citizen of the United States, residing at Chester, in the county of Delaware, State of Pennsylvania, have invented a new and useful Improvement in Packing, of which the following is a specification.

My invention consists of an improved packing-ring for packing piston and valve rods and the like, as will be hereinafter fully described and claimed.

Figure 1 represents a longitudinal section of a stuffing-box with packing-rings embodying my invention applied to a piston-rod passing therethrough. Fig. 2 represents a perspective view of a packing-ring embodying my invention. Fig. 3 represents an elevation of one of the sections of the ring.

Similar letters of reference indicate corresponding parts in the figures.

Referring to the drawings, A designates the head of a cylinder; B, the packing-casing or stuffing-box; C, the gland, and D the piston-rod. The packing-rings (designated by E) consist of two sections F, each of which is provided with a deep peripheral groove G to receive the fiber or soft packing H, said packing extending around both sections F and having overlapping ends, as shown in Fig. 1.

On the interior of the sections F are grooves J, which reduce the thickness of the section at this point to weaken the same and permit a slight longitudinal compression thereof, so as to expand the fiber packing H in close contact with the walls of the stuffing-box and to cause the said fiber packings of adjacent rings to contact at their periphery to form steam-joints, as will be referred to hereinafter.

The operation is as follows: It will be noted that in Fig. 1 the left-hand packing-ring is provided with an inclined face K to fit the inclined side of the stuffing-box and that the remaining packing-rings are flat-sided, as shown in Fig. 3. When the rings are first applied to the rods, the bore is such that the ends of the rings are partially separated, as shown in Figs. 1 and 2. The fiber packings H rest in the bottom of the grooves G and ex-

tend beyond the periphery of the sections F and under pressure of the gland C are held in contact with the walls of the stuffing-box, so as to maintain steam-joints between the peripheries of each fiber packing H and the stuffing-box. The compression of said sections upon the inclosed fiber packings and their contact with the walls of the stuffing-box has the effect of expanding the peripheral portions thereof laterally, so that adjacent fiber packings H contact and maintain steam-joints between them. The rings E are assembled within the stuffing-box so that the sections break joints. As the bore of the sections F wears and said sections contract upon the rod the pressure secured by the gland C forces the sides of the rings together in consequence of the weakening due to the presence of the groove J, and thereby expands the fiber packings H, so as to keep them always in contact with the walls of the stuffing-box and with each other.

It will be apparent that by uniting in a single packing-ring section, as F, the feature of a deep peripheral external groove, as G, the inner grooves J, and the flat ends I am enabled to attain in practice results which cannot be reached in a packing-ring wherein either the exterior groove G or the internal groove J is omitted, and I herein make no claim to either of these features singly, but confine myself to the particular construction of packing-ring wherein are embodied both the features above referred to.

It will be apparent that slight changes may be made by those skilled in the art which will come within the scope of my invention, and I do not therefore desire to be limited in every instance to the exact construction herein shown and described.

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

1. A packing-ring having an external peripheral groove, and flat ends, an interior groove in the bore of said packing-ring for weakening the same longitudinally, and soft packing in said external peripheral groove.

2. In a rod-packing, a packing-case, a plurality of peripherally-grooved longitudinally-

compressible packing-rings, having flat ends
and situated therein, said rings forming
steam-joints between their ends, soft expan-
sible packing in said grooves, each of said
5 rings having an interior groove in the bore
thereof, whereby the thickness of said ring at
this point is reduced, and means for compress-

ing said rings longitudinally and maintain-
ing the soft packing in contact with the walls
of the casing.

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