(No Model.)

P. REILLY.

PISTON PACKING.

No. 500,297. Patented June 27, 1893.

Fig 1

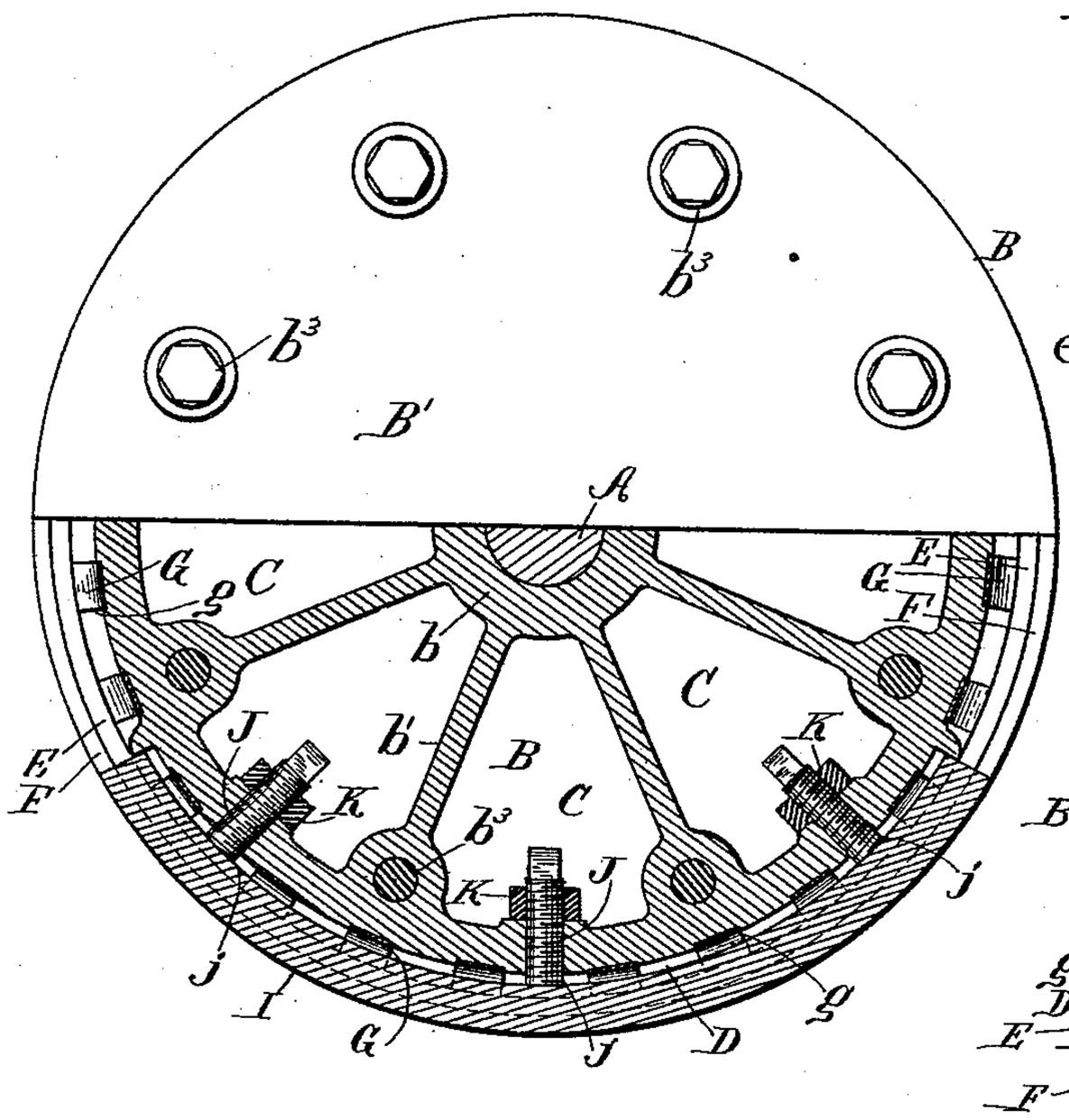

Fig 2

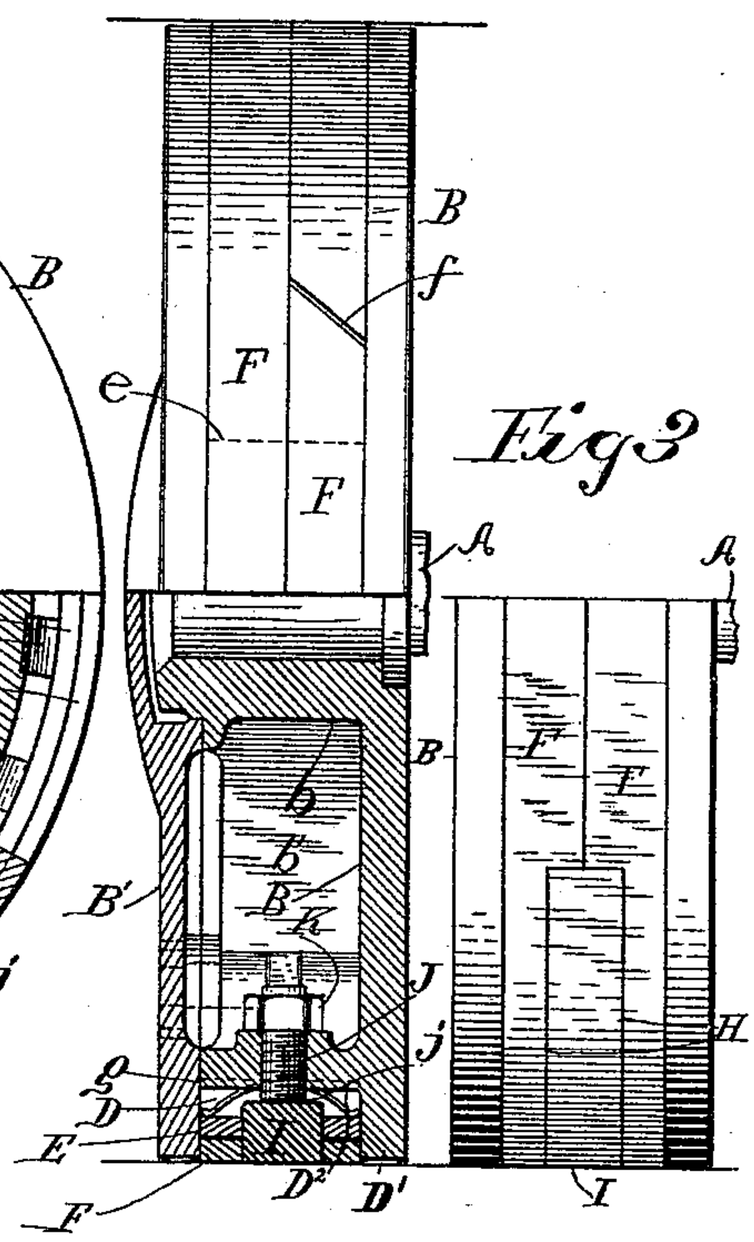

Fig 3

Witnesses
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UNITED STATES PATENT OFFICE.

PATRICK REILLY, OF NEWBURG, NEW YORK.

PISTON-PACKING.

SPECIFICATION forming part of Letters Patent No. 500,297, dated June 27, 1893.

Application filed March 16, 1893. Serial No. 466,254. (No model.)

To all whom it may concern:

Be it known that I, PATRICK REILLY, a citizen of the United States, residing at Newburg, in the county of Orange and State of New York, have invented certain new and useful Improvements in Piston-Packing; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

My invention relates to an improved piston-packing for steam-engines, and has particular reference to an improvement in that general class known as metallic packing; and my object is to provide a packing which will not cut into the cylinder sides or wear away prematurely, and at the same time be as effective or more effective than any heretofore known.

To this end my invention consists of certain peculiarities of construction and combinations and arrangements of parts all of which will be now fully described and finally embodied in the claims.

Referring to the accompanying drawings, which illustrate a steam-engine piston in which the essential elements of my invention are comprised: Figure 1 represents an end elevation thereof partly in section; Fig. 2 a side elevation partly in section; Fig. 3 a side elevation of the lower portion of the piston, the remaining part being broken away.

The reference letter A indicates the piston-rod and B the piston-body to which the piston is secured in any preferred manner. The piston is constructed in two sections B, B′, the main portion B being formed substantially pan-shaped with the bossed opening *b* in which the piston-rod is secured as aforesaid, and the radial ribs or braces *b′*. Fitting over the portion B of the piston is the second section B′ bolted in place by the bolts b^3, and of such a shape as to leave a series of chambers C in the interior of the piston, the function of which will hereinafter appear.

When the two sections of the piston have been secured in place, a groove or depression D is formed. This depression D extends along the entire circumference of the piston and is formed by the flange D′ of the section B of the piston, and the outer rim of section B′ which is secured to the section B directly opposite the flange D′ and comprising the companion flange, thereby completing the groove, the outer edge D^2 of the section B forming its bottom. In this groove the piston-packing is arranged. This comprises four metallic packing-rings E and F located in tiers of two each, one tier upon the other. The rings of the inner tier E are each divided by a square-cut at *e*, and held in engagement with the outer tier F by means of the elliptical-springs G, seated in transverse grooves or depressions *g* of the edge D^2, and extending longitudinally with the piston-rod. The rings F are, as before stated, located upon the lower tier and have each of their contiguous ends *f* arranged diagonally to prevent cutting the cylinder sides, and are arranged at points opposite each other so as to prevent the steam which may pass one, from passing the other also and thus leading past the piston. By this construction it will be obvious the outer tier of rings will be pressed by the tier E strongly against the cylinder's interior sides, and that such inner tier derives its outward tendency from the springs G, thus adjusting the packing to all inaccuracies if any should exist, of the cylinder and insuring its effective operation.

Formed in each of the tiers of rings E and F, and at the lower side of the piston, is an elongated opening H extending about one-third the distance of the piston's circumference and of such a size as to leave a portion of the rings on each side. In this opening the piston-shoe I is located. The shoe I consists of a brass segment of such dimensions that it will fit snugly within the opening H, but capable of independent movement therein. The purpose of this independent movement is to adjust the shoe to compensate for wear, which adjustment is effected by the threaded bolts J extending through the part D^2 of the section B, and revolubly secured in the shoe at *j*. The heads of these bolts each extend into one of the chambers C, whereat they are provided with the locking nuts K. When so ar-

ranged easy access may be had to the bolts J, the reception of which being the province of the chambers C.

From the above description it will be seen that the shoe I being on the lower side of the piston, supports its weight, and being formed of soft metal will not cut into the cylinder side as would the rings F, but will gradually wear away. To compensate for this the adjusting bolts J are provided.

The shoe I is preferably formed from any integral ring of cast brass, or other soft metal, of a size equal to the diameter of the piston. It is then turned true, finished and divided into three parts, thus forming three shoes. While I regard this as the preferred method of producing the shoe, it will be obvious that many other modes probably as good, could be used.

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

1. In a piston the combination with a packing ring or rings, of a shoe or carrier extending through the same and independently movable in relation thereto for supporting the weight of the piston, substantially as described and set forth.

2. In a piston, the combination with two spring-pressed packing-rings each having an opening formed in their adjacent sides, a shoe or carrier fitting in the openings and provided with means by which it may be adjusted independently of the rings, substantially as described, and set forth.

3. In a piston, the combination with a groove or depression extending along its circumference, packing rings located therein, elliptical springs arranged in the groove and actuating the rings, said rings having an opening formed therein, a shoe or carrier located in the opening, and bolts for adjusting the shoe, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

PATRICK REILLY.

Witnesses:
THOMAS V. REILLY,
FRANK H. CASSEDY.