G. B. MALTBY.

METALLIC ROD PACKING.

APPLICATION FILED SEPT. 30, 1908.

943,835. Patented Dec. 21, 1909.

FIG. 1.

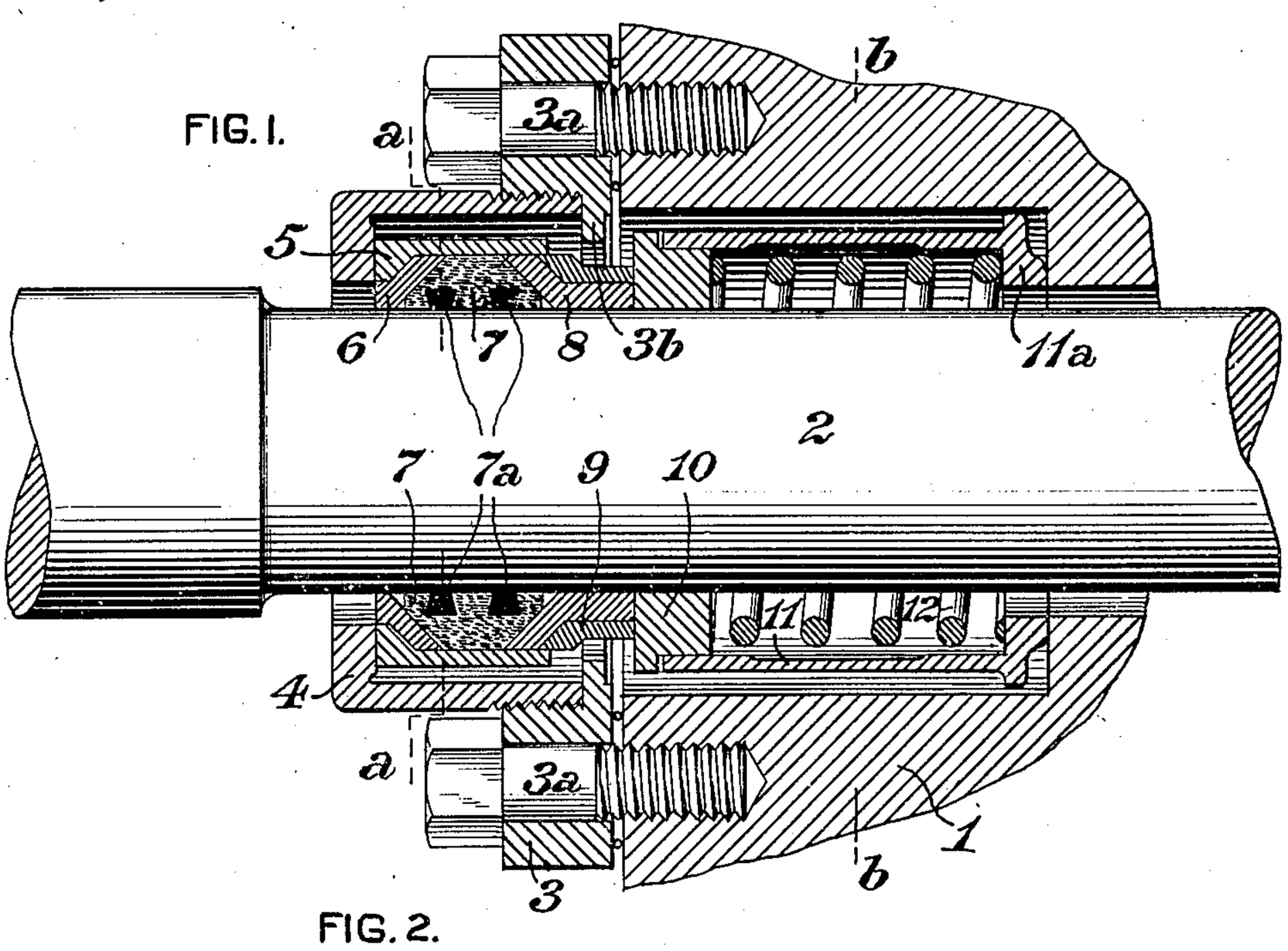


FIG. 2.

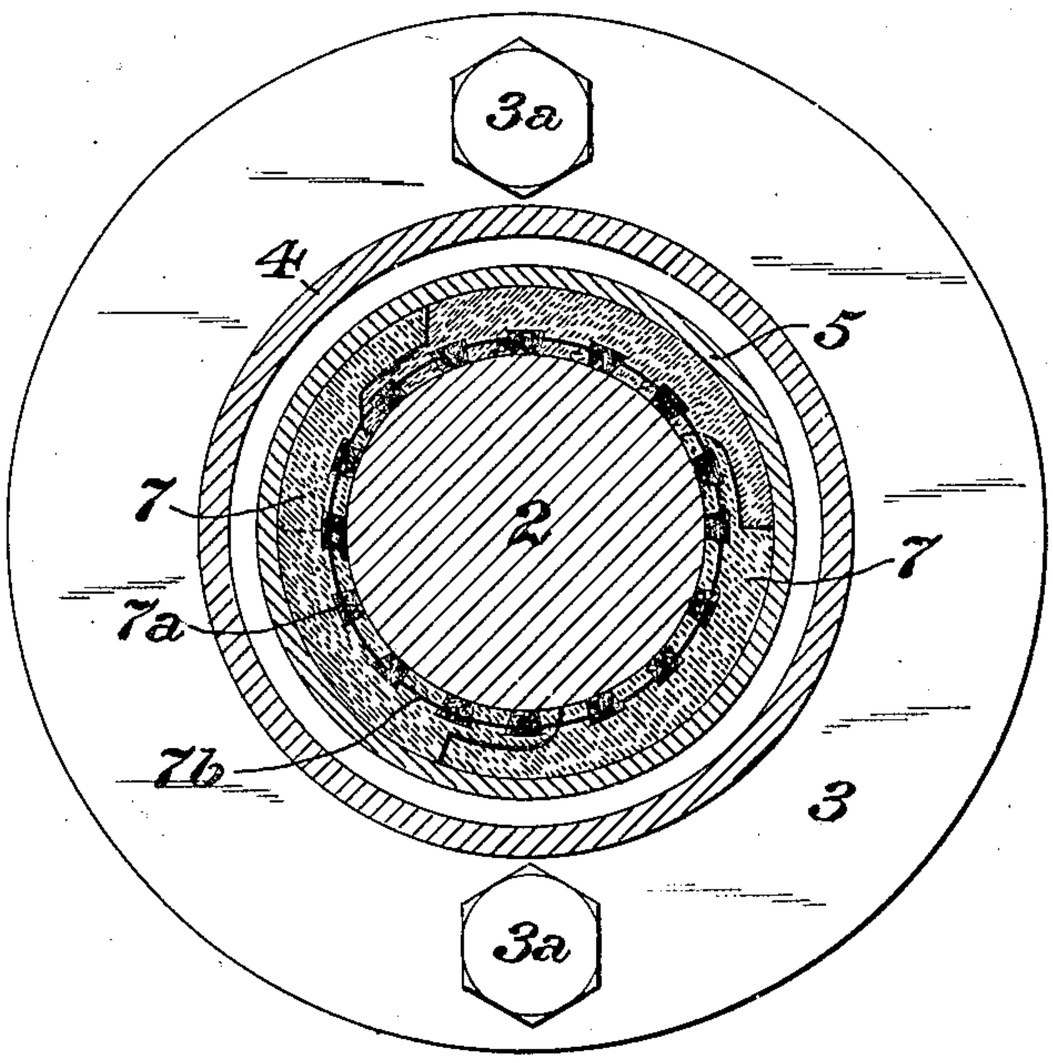
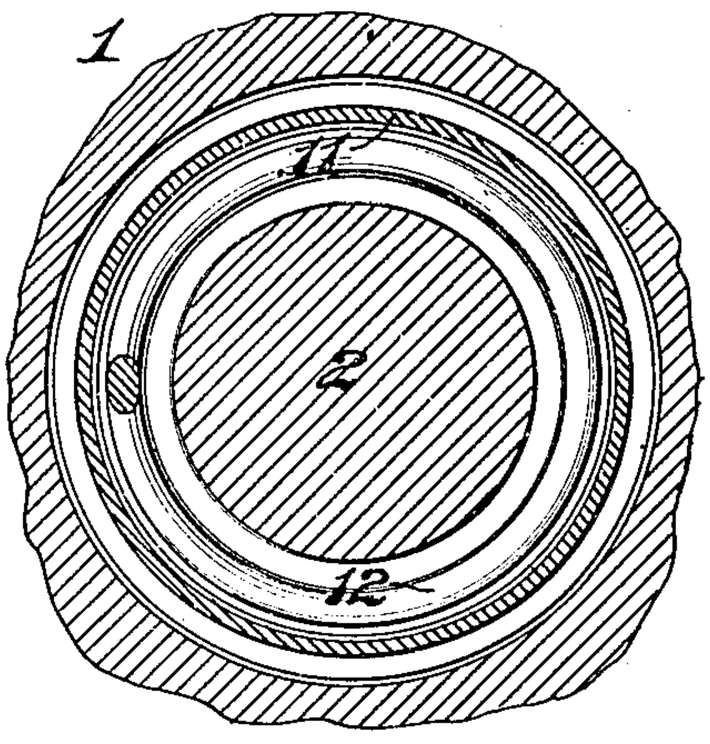


FIG. 3.



WITNESSES

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GEORGE B. MALTBY, OF CLEVELAND, OHIO.

METALLIC ROD-PACKING.

943,835. Specification of Letters Patent. Patented Dec. 21, 1909.

Application filed September 30, 1908. Serial No. 455,546.

To all whom it may concern:

Be it known that I, GEORGE B. MALTBY, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented a certain new and useful Improvement in Metallic Rod-Packing, of which improvement the following is a specification.

My invention relates to metallic packing for piston and other rods, of the general class or type of that set forth in the Patents of John Badeker, No. 777,655, December 20, 1904; Nos. 801,959 and 801,960, October 17, 1905, and Dalton Risley, No. 845,122, February 26, 1907, and its objects are to provide simple, effective and inexpensive means for furnishing the segmental packing rings with a suitable lubricant, and for maintaining a steam tight joint between the packing rings and the rod.

The improvement claimed is hereinafter fully set forth.

In the accompanying drawings: Figure 1 is a longitudinal central section through a stuffing box, illustrating an application of my invention; and, Figs. 2 and 3, transverse sections through the same, on the lines *a a* and *b b*, respectively, of Fig. 1.

My invention is herein exemplified as applied in connection with the stuffing box, 1, of a piston rod, 2, said stuffing box being closed at its outer end by a gland, 3, which is connected to it by tap bolts, 3^a, and is internally screw threaded for the engagement of an external thread on a cap, 4, forming a packing chamber in the gland, within which chamber the packing is located and through which chamber the piston rod, 2, passes freely.

A packing ring, 7, of soft metal, composed of two or more interlocking segments, having inclined outer end faces, is fitted around the piston rod, 2, between an abutment ring, 6, and a follower, 8, which encircle the piston rod on opposite ends of the packing ring, 7, their faces which fit against said ring being inclined in correspondence therewith. The abutment ring and follower are each made in two halves, so as to be applied to upset rods, and are inclosed, respectively, by a retaining ring, 5, which abuts against the outer end wall of the gland cap, 4, and by a retaining ring, 9, the inner end of which stands in or near the plane of the inner end of the follower, 8.

An inwardly projecting abutment flange, 3^b, is formed on the gland, 3, adjacent to the stuffing box, 1, the bore of said flange being sufficiently great to admit of the packing ring, 7, and its accessories above described, to be passed freely through it.

A spring cage, comprising an annular follower, 10, which fits practically steam tight on the piston rod, 2, and a cylindrical shell, 11, surrounding said follower through the major portion of the width thereof and having an inwardly projecting end stop flange, 11^a, on its opposite end, is located in the stuffing box, 1, and incloses a helical spring, 12, which abuts, at its ends, on the flange, 11^a, and on the follower, 10, respectively. The end of the shell, 11, nearer the gland, abuts on a shoulder on the follower, 10, and said follower, in turn, abuts against the adjoining end faces of the follower, 8, and retaining ring, 9. The flange, 11^a, at the opposite end of the shell, 11, abuts against the inner end wall of the stuffing box, 1, and its inner diameter is such as to leave a free space between it and the piston rod, 2.

It will be seen that under the above construction, the followers, 10 and 8, are pressed outwardly, so as to cause the follower, 8, to bear on the packing ring, 7, and maintain an absolutely tight joint between the same and the piston rod, both by the spring 12, and the pressure of the steam in the spring cage, acting on the inner side of the follower 10. If it is desired to remove the packing ring, whether the engine is under steam or not, the cap, 4, is unscrewed from the gland, 3, and moved outwardly along the rod for a sufficient distance. As the cap is withdrawn, the follower, 10, is forced outwardly by the spring, 12, and by the steam pressure in the cage, if any, until it bears against the inwardly projecting abutment flange, 3^b, of the gland, which flange prevents its further traverse, and with which flange it makes a tight joint, so that there will be no escape of steam, in the case of a leaky throttle, when the packing ring is removed.

In order to provide for the lubrication of the piston rod, 2, a plurality of sections of lubricating material, 7^a, composed of graphite or other suitable substance, are inserted in the inner faces of the segments of the packing ring, their outer ends being in position to make contact with the rod, 2. The lubricating sections may be of any desired form, as conical, cylindrical, or polygonal, and are preferably fixed in position in the packing ring segments by being placed in

a mold in which the latter are cast around them. In such case the lubricating sections may be held in proper relative positions by being attached to thin metal plates or copper wire netting, 7b, as shown in Fig. 2. I do not, however, limit myself to this means of connection, as the sections may, if desired, be pressed into suitably formed recesses in the packing ring segments.

I claim as my invention and desire to secure by Letters Patent:

1. In a metallic rod packing, the combination, with a stuffing box, of a gland having a packing chamber and an internally projecting abutment flange, a segmental packing ring in the packing chamber of the gland, a packing ring follower bearing on said packing ring, a spring cage comprising an annular follower fitting in a cylinder in the stuffing box and bearing on the packing ring follower, the traverse of said annular follower being limited by the abutment flange, and a spring bearing on an end stop in the cylinder and on the annular follower.

2. In a metallic rod packing, the combination, with a stuffing box, of a gland having a packing chamber and internally projecting flange, a segmental metallic packing ring located in said packing chamber and having a plurality of sections of lubricating material inserted in its inner face, and means for compressing the segments of the packing ring upon a rod, said means being limited in its movement by engaging the internally projecting flange.

GEORGE B. MALTBY.

Witnesses:
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