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J. BRYAN & E. P. HAINES.

ROD PACKING.

APPLICATION FILED MAY 20, 1904.

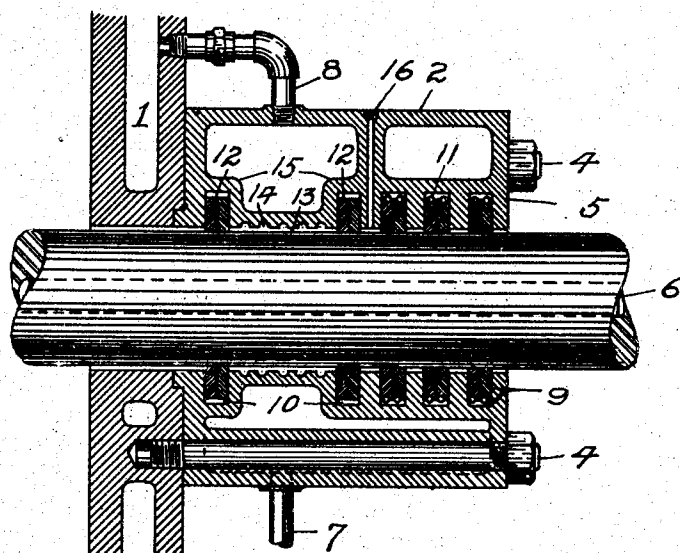


Fig. 1

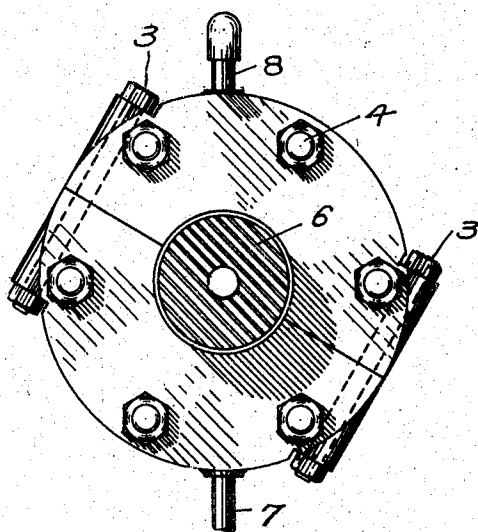


Fig. 2

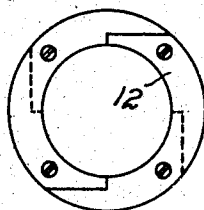


Fig. 3

Witnesses:

Lindsey & Little
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UNITED STATES PATENT OFFICE.

JAMES BRYAN AND EDWARD P. HAINES, OF PITTSBURG, PENNSYLVANIA.

ROD-PACKING.

SPECIFICATION forming part of Letters Patent No. 781,266, dated January 31, 1905.

Application filed May 20, 1904. Serial No. 208,854.

To all whom it may concern:

Be it known that we, JAMES BRYAN and EDWARD P. HAINES, citizens of the United States, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Rod-Packing, of which the following is a specification.

The object of our invention is to provide a new and improved rod-packing; and to this end our invention consists of a new rod-packing, in the novel features of construction, and in the combination and arrangement of parts, all as hereinafter described and claimed.

In the accompanying drawings, which illustrate an application of our invention, Figure 1 is a central sectional view of a rod-packing constructed in accordance with our invention; Fig. 2, an end view; and Fig. 3, a detail view of a form of metallic ring.

Referring to the drawings, 1 represents a portion of a water-jacketed cylinder-head of an explosive-engine, and 2 a stuffing-box, as illustrated and as preferred. The box is made in two parts fastened together by bolts 3 and attached to the cylinder-head by means of bolts 4. When the box is formed of two parts, each part is provided with an inner wall or casing 5, and when assembled on a piston-rod 6, as shown, a fluid-passageway is provided between the inner surface of the outer wall of the box and the outer surface of the inner wall or casing 5. Fluid is introduced to this passage through a pipe 7 and exhausted therefrom through a pipe 8. The inner wall 5 is provided with grooves or recesses 9 and 10, adapted to receive packing-rings 11 and throttling-rings 12, respectively.

Our invention is particularly applicable for use in connection with an explosive-engine piston-rod, and is designed to obviate the serious difficulties encountered with piston-rod packings used on explosive-engines as heretofore constructed.

Characteristic and important features of our invention are means for throttling the force of cooling and reducing the pressure of the gases of explosion, whereby we are enabled in connection with either metallic rings,

as 11, or other suitable packing to provide a highly-efficient rod-packing.

The throttling and pressure-reducing means comprise the two rings 12 and a condensing-chamber 13. Rings 12 may be solid or of the form particularly shown by Fig. 3. The purpose of making the rings of two or more segments is to permit them to be readily applied to the piston-rod without disconnecting the rod.

The sectional ring employed should have tight or ground joints and the segments so fastened together as to practically form a solid ring. In the construction shown we employ two rings 12, each bored out to make a neat running fit with the piston-rod and each located in a groove or recess 10, which latter is of sufficient size to allow the ring to adjust itself to the alinement of the rod. The condensing-chamber 13 is formed between the rings 12 and the inner surface of the inner wall or casing 5. In the form illustrated we employ grooves 14 in the wall of the condensing-chamber, the effect of which is to cause eddy-currents in the gases and to provide additional cooling-surface; but these grooves may be dispensed with. In order to bring the cooling fluid into close proximity with the condensing-surface, we cut away a portion of the inner wall, as shown at 15. The gases of explosion from the cylinder of the engine coming in contact with the first ring 12 are throttled thereby, and the temperature of the gases passing said ring greatly reduced in the condensing-chamber. The function of the second ring 12 is to still further throttle the gases and retain the gases in the condensing-chamber. The gases passing the second throttling-ring will be sufficiently reduced in pressure and temperature to be effectively stopped by the packing-rings 11 or some other suitable packing medium similarly situated.

A lubricant may be introduced through small passage 16.

The difficulties heretofore encountered in packings for explosive-engine piston-rods have been chiefly caused by the hot high-pressure gases from the cylinder coming immediately in contact with the packing medium. Our inven-

tion avoids this and cools and reduces the pressure of the gases to such a degree that a metallic-ring packing or soft packing may be used effectively.

5 What we claim is—

1. In rod-packing, the combination, with a casing provided with annular recesses, throttling-rings surrounding the rod, said rings of less diameter than the annular recesses and
10 located therein, a condensing-chamber between the throttling-rings, and a packing medium beyond the condensing-chamber.

2. In rod-packing, the combination, with an outer and an inner casing, the inner casing
15 having a series of annular recesses, throttling-rings of less diameter than the recesses and located therein, a condensing-chamber formed in the inner casing and located between the

throttling-rings and a packing medium beyond the condensing-chamber. 20

3. In rod-packing, the combination with an outer and an inner casing, a water-passage surrounding the inner casing, the inner casing provided with a series of annular recesses, throttling-rings of less diameter than the
25 recesses and located therein, a condensing-chamber in the inner casing located between the throttling-rings, and a packing medium beyond the condensing-chamber.

In testimony whereof we affix our signatures 30 in presence of two witnesses.

JAMES BRYAN.

EDWARD P. HAINES.

Witnesses:

W. G. DOOLITTLE,
LAURA E. HUBBARD.