(No Model.)

G. B. BRAYTON.

Metallic Piston Rod Packing.

No. 235,733. Patented Dec. 21, 1880.

Fig. 2.

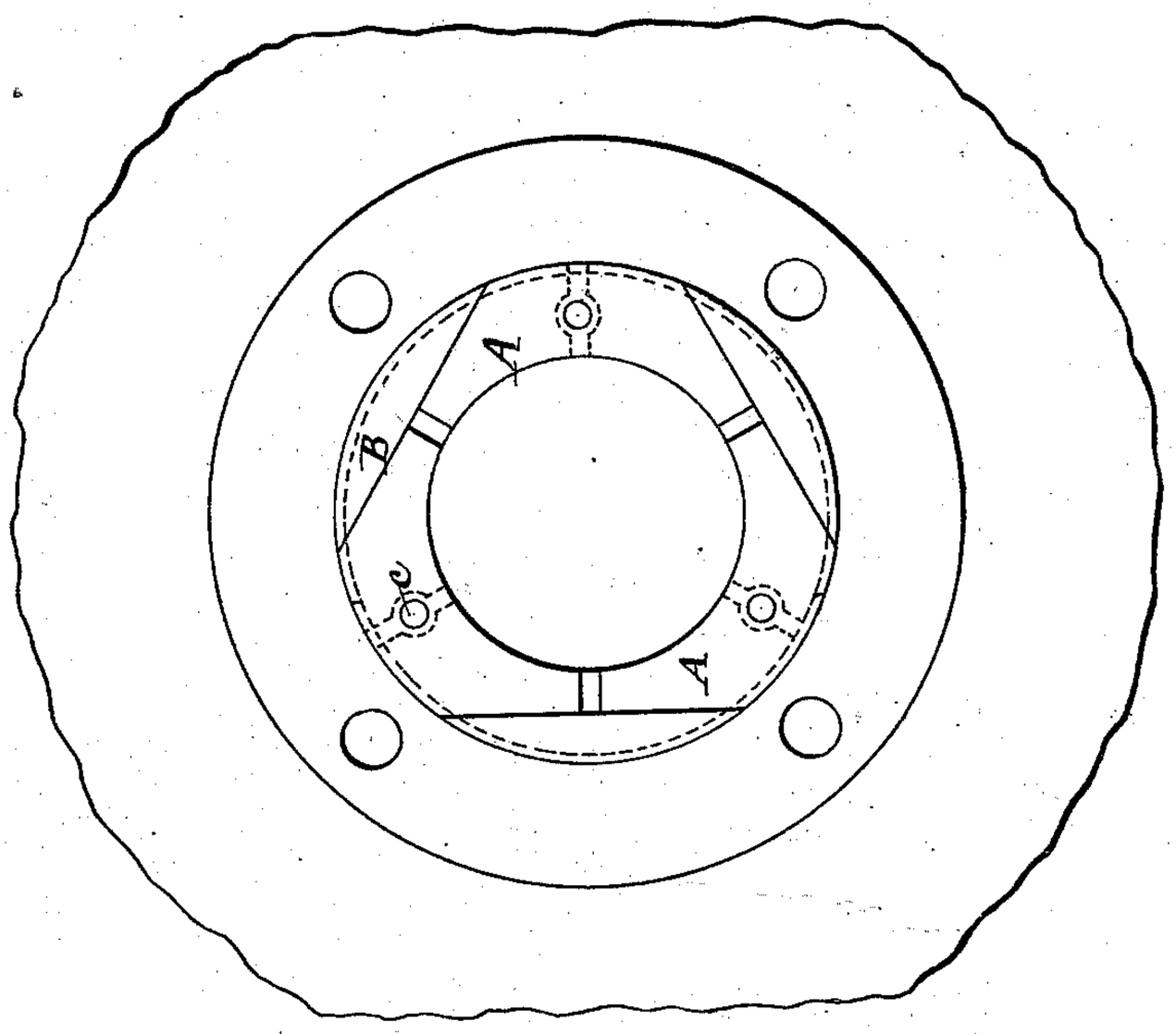

Fig. 1

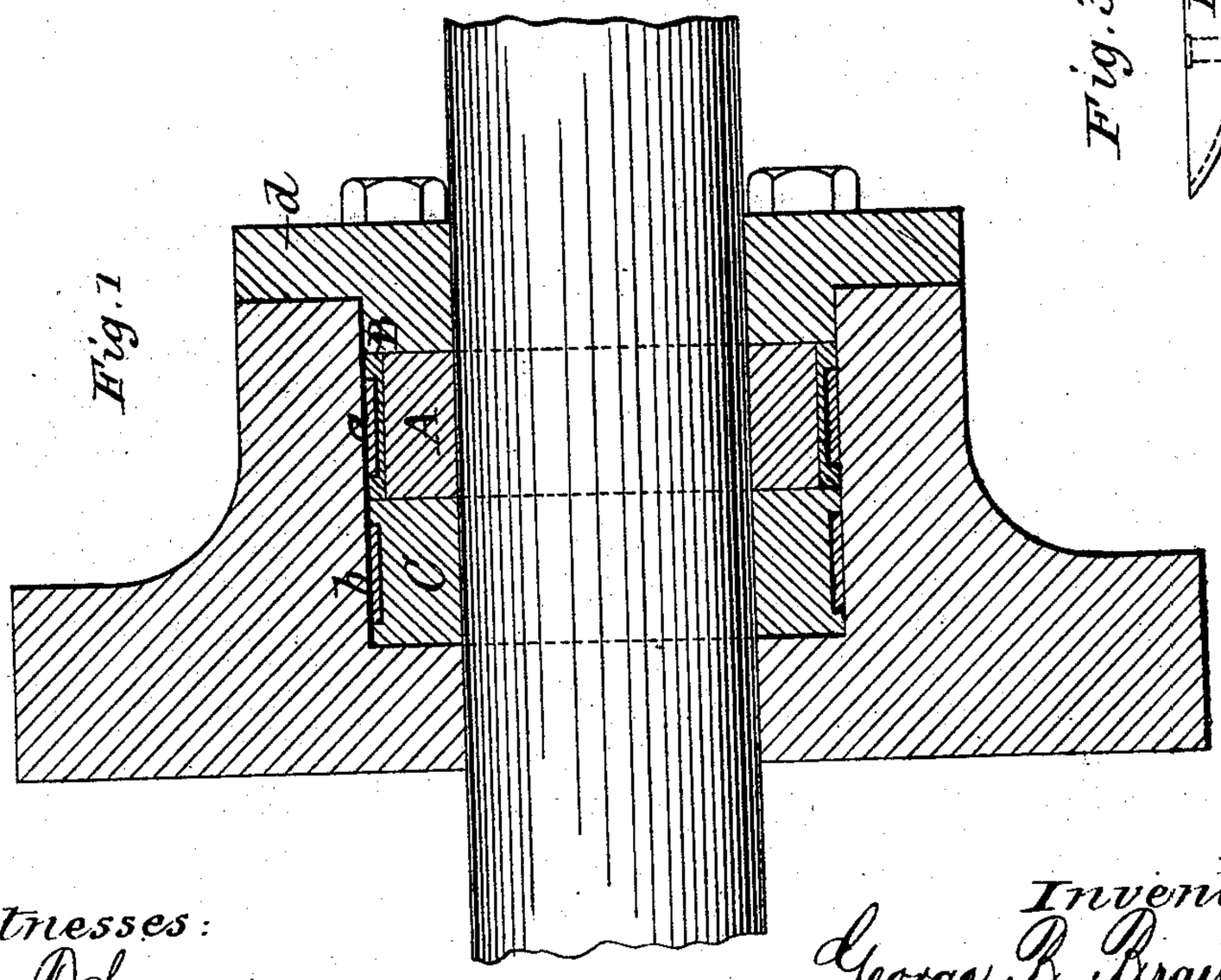

Fig. 3.

Witnesses:
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UNITED STATES PATENT OFFICE.

GEORGE B. BRAYTON, OF BOSTON, MASS., ASSIGNOR TO THE BRAYTON PETROLEUM ENGINE COMPANY, OF HARTFORD, CONN.

METALLIC PISTON-ROD PACKING.

SPECIFICATION forming part of Letters Patent No. 235,733, dated December 21, 1880.

Application filed June 7, 1880. (No model.)

To all whom it may concern:

Be it known that I, GEORGE B. BRAYTON, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Metallic Piston-Rod Packing; and I do hereby declare that the following specification, taken in connection with the drawings furnished and forming a part thereof, is a clear, true, and complete description of my invention.

My improved packing is specially intended for use with the piston-rods of such motors as involve combustion within the cylinder—as, for instance, such hydrocarbon-engines as have heretofore been patented by me—and my packing belongs to that general class in which segmental sections, guide-blocks, and springs are employed.

The objects of my invention are to provide for good packing-contact; for uniformity in the dimensions and form of the segments, thereby attaining uniformity in wear and in the contraction and expansion of the segments; for a minimum number of radial joints between the segments consistent with good packing-contact and compensation for wear, and for such an arrangement of guide-blocks and springs with relation to the segments that the joints between the latter shall be well guarded by the guide-blocks, and also so that each of the segments shall be influenced by two guide-blocks.

My invention consists, mainly, in a piston-packing embodying in combination three metallic segments of practically-uniform shape and dimensions and three spring guide-blocks each of which bear upon two of the packing-segments and guards the radial joint between their ends. Two or more complete series of the segments and guide-blocks may be employed for packing one rod, in which case the segments of one series are so placed with reference to those of the next adjacent series that the radial joints in each series are respectively located opposite the central portion of the segments of other series. I find, however, that good results are attainable if one series of the segments and blocks be employed in connection with a sectional ring, as hereinafter described.

To more particularly describe my invention, I will refer to the accompanying drawings, in which—

Figure 1 is a central sectional view of a portion of a cylinder-head and its packing-box containing my packing and a piston-rod. Fig. 2 is an end view of the same with the gland of the box removed. Fig. 3 is a view of a guide-block and spring detached.

The three packing-segments A are each constructed for packing-contact with about one-third of the periphery of the piston-rod, and they are all of exactly the same form and dimensions, which enables them to be economically constructed, to wear with uniformity, and to expand and contract alike when heated and cooled, as in daily use. Each segment at its ends is squared off on radial lines, and from thence to its outer side it is cut away on lines rectangular to the radial lines, which results in attaining a wedge-like form to each segment. When placed in working position the adjacent rectangular lines of each two segments are exactly coincident, and those portions of the segments afford an extensive bearing-surface for the face of each guide-block B, which extends equally on both sides of the radial joint between the segments.

The three guide-blocks B are of equal size, form, and dimensions. They are perfectly straight on their faces, and their backs conform in outline with the interior wall of the packing-box. Each guide-block has a flat spring, *a*, secured to its outer side by a screw or rivet.

It will be seen that the springs of the guide-blocks constantly induce an inward pressure of the segments against the piston-rod notwithstanding the fact that the line of contact between the blocks and segments is rectangular to the radial joints between the segments.

I am well aware that segments and spring guide-blocks have heretofore been combined in various ways in the construction of metallic packing; but I know of none in which three segments and three blocks were so constructed and arranged that the segments encircled the piston-rod and each of the three segments was acted upon by two of the blocks, or in which each block acted equally upon two segments

for forcing them inward against the rod, nor in which the three segments were radially jointed and faced off at right angles to said radial joints for contact with straight-faced guide-blocks.

In Fig. 1, at C, I show, in section, an inner auxiliary packing composed of a plain ring cut on radial lines into three parts of equal size, each of them being provided with a spring, *b*, at its back. In some extraordinary cases it may be advisable to also employ springs for each of the packing-segments A; but ordinarily the guide-block springs will only be required. The joints between these pieces of the auxiliary packing are sufficiently wide or open to admit of inward movement to compensate for wear, and also to receive pins *c*, projecting rearward from the packing-segments, as shown in Fig. 2, whereby their respective relations are securely maintained against any tendency of either of the parts to independently rotate on the rod within the box. As indicated in dotted lines in Fig. 2, the radial joints of the auxiliary packing-ring are located equidistant between the joints of the main packing, and it will be seen that the joints between the guide-blocks and their segments are well guarded on one side by the plain surface of the auxiliary packing-ring, and on the other by the inner face of the gland *d*, all of which is conducive to good packing results at points other than immediately adjacent to the piston-rod.

I make no claim, broadly, to the auxiliary packing-ring; but said ring, in combination with the segments and guide-blocks, as described, constitutes another feature of my invention.

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

1. The piston-rod packing embodying the three segmental sections for encircling the rod, radially jointed and faced off at right angles to said joints, in combination with the straight-faced guide-blocks and their springs, substantially as described.

2. The combination of the three segmental sections radially jointed and faced off at right angles to said joints, the spring guide-blocks, and the auxiliary packing-ring, constructed in sections and provided with springs, substantially as described.

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Witnesses:
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