

Thomas Hanson.

Impt. in Packing Steam. Pistons.

117071

Fig: 1.

PATENTED JUL 18 1871

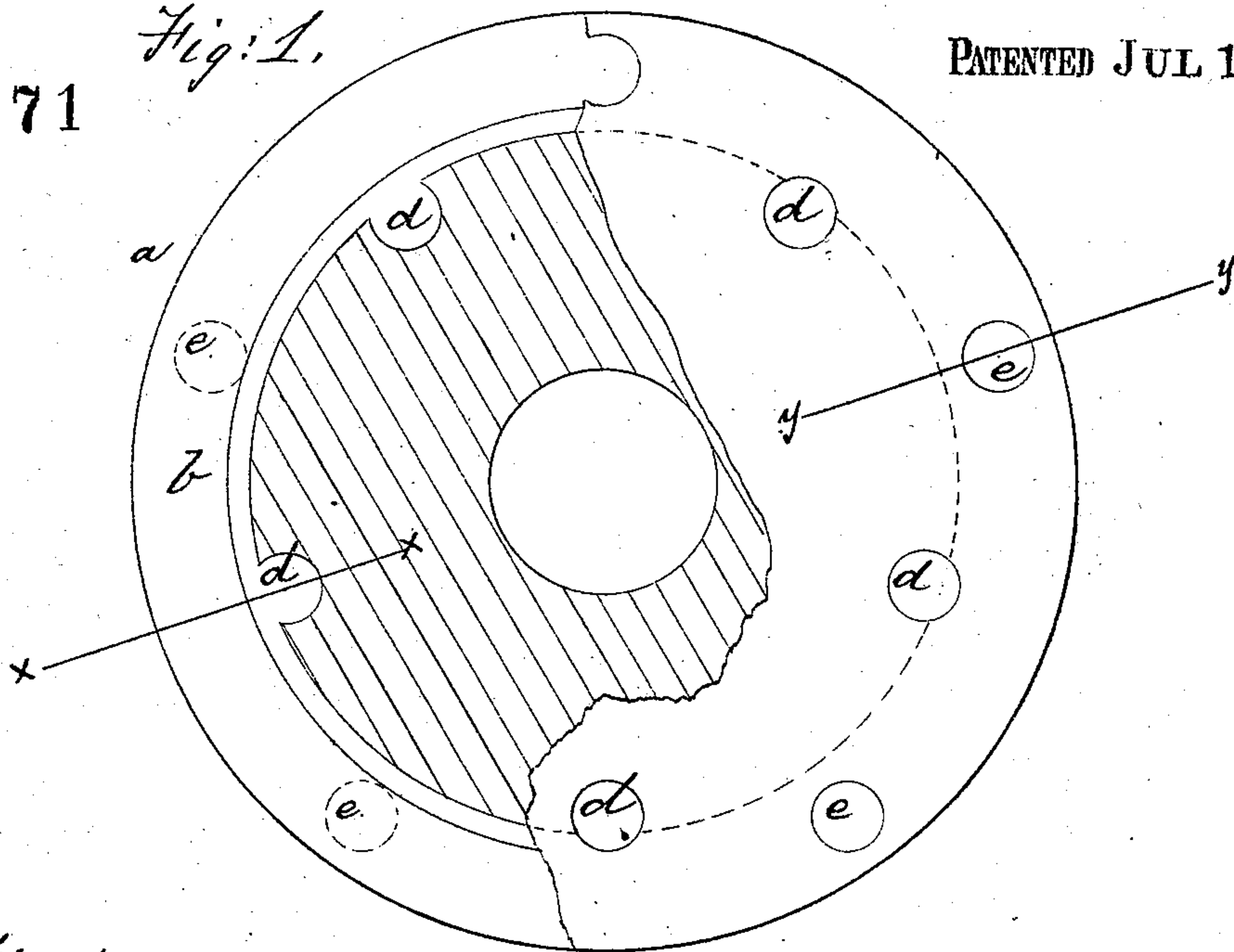


Fig: 3. x.x.

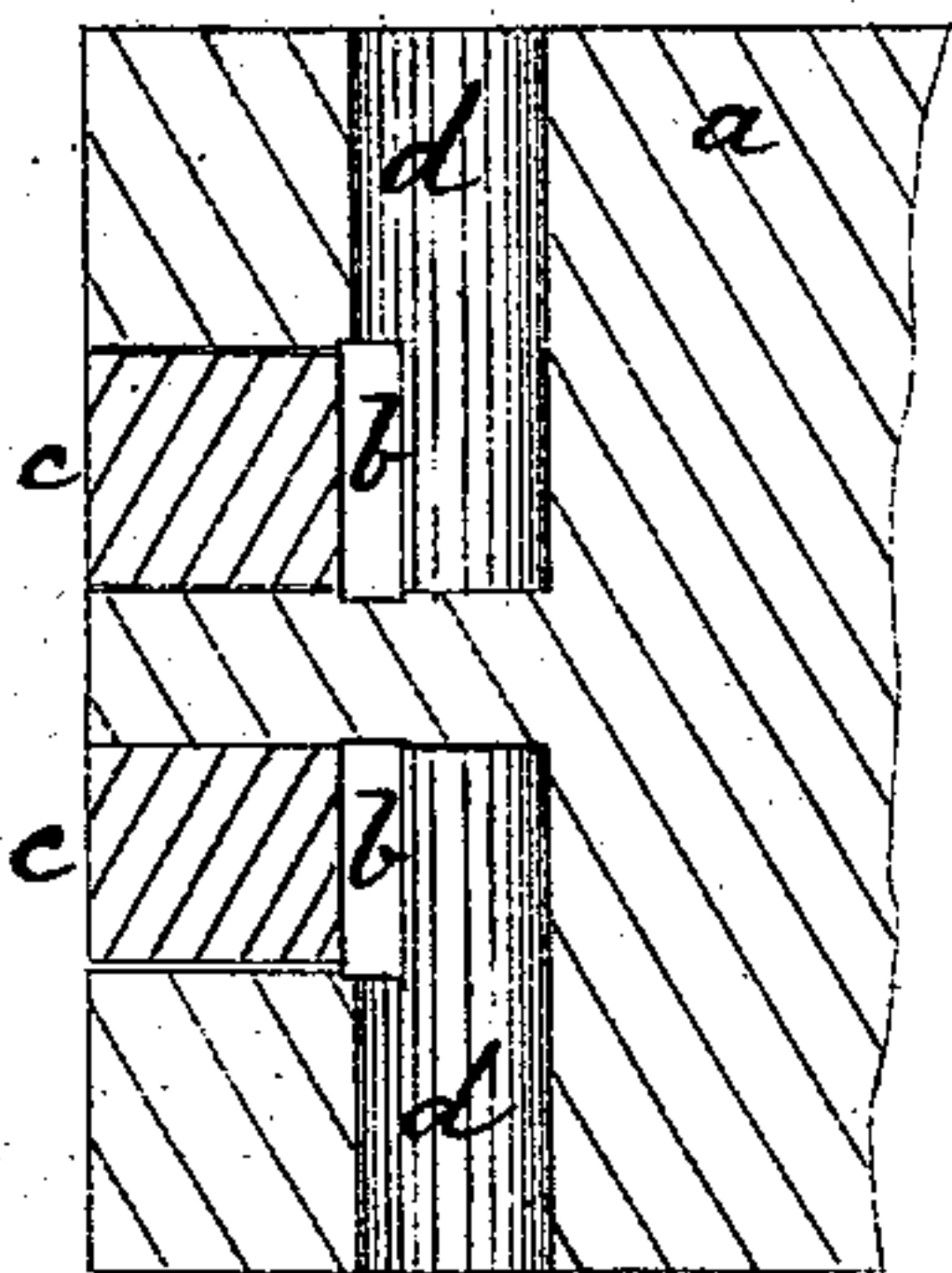


Fig: 2.

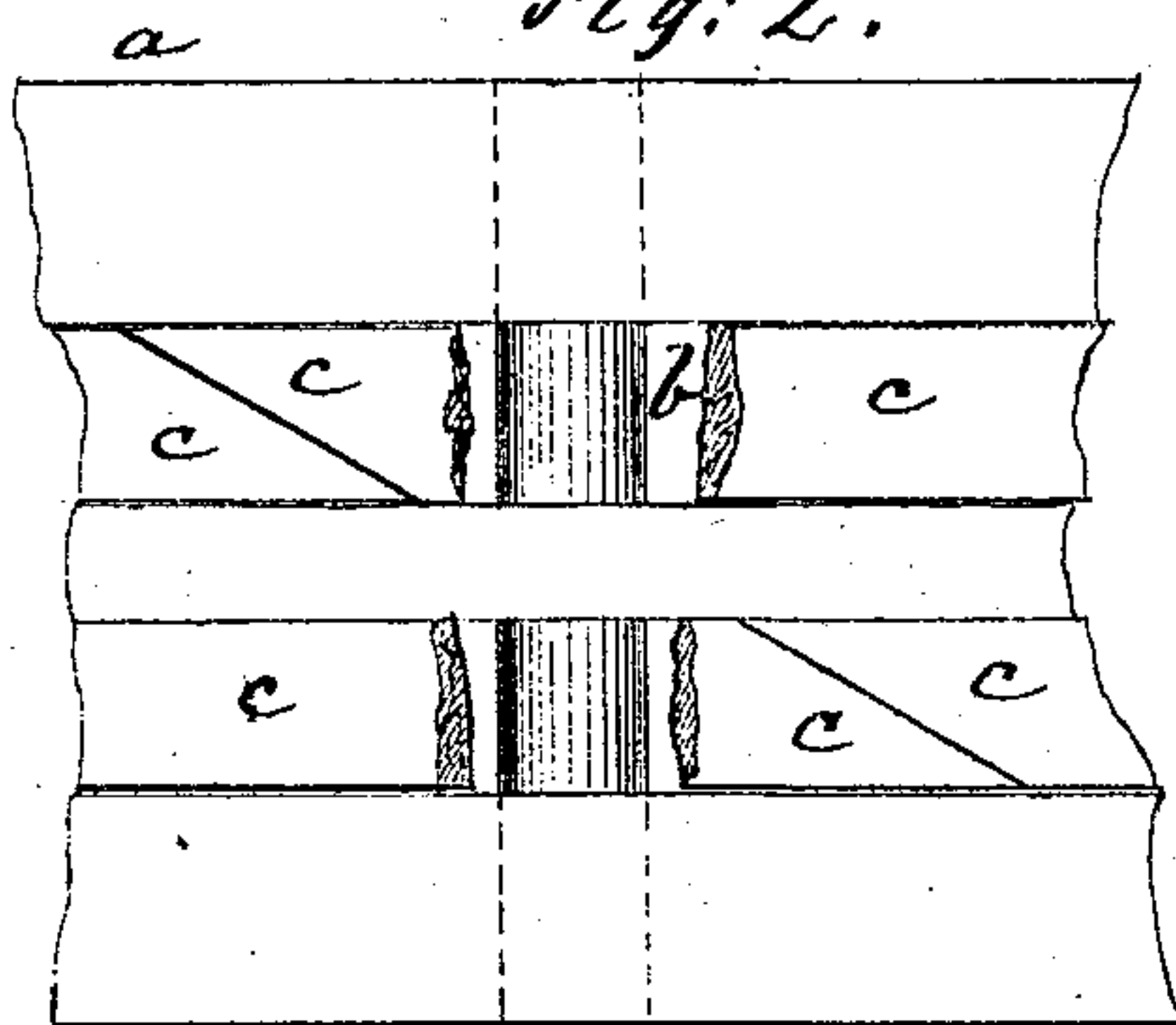
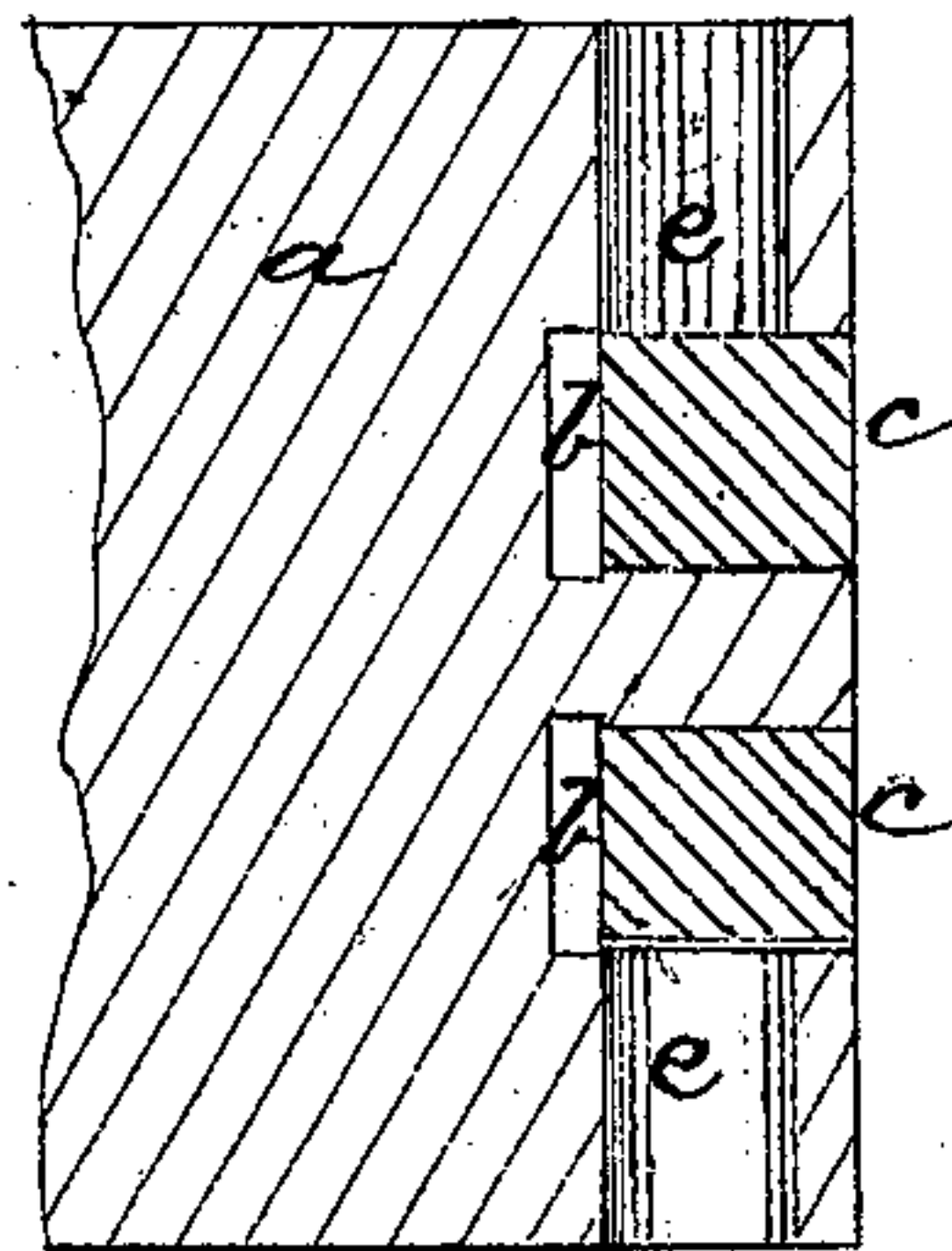


Fig: 4. y.y.



Witnesses
Wm H Bishop
J L Mathews

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UNITED STATES PATENT OFFICE.

THOMAS HANSON, OF NEW YORK, N. Y.

IMPROVEMENT IN PACKING STEAM-PISTONS.

Specification forming part of Letters Patent No. 117,071, dated July 18, 1871.

To all whom it may concern:

Be it known that I, THOMAS HANSON, of the city, county, and State of New York, have invented a new and useful Improvement in Packing Steam-Pistons; and I do hereby declare that the following is a full, clear, and exact description thereof.

My invention relates to that kind of steam-piston packing in which a tight joint is insured between the periphery or face of the piston and the internal face or bore of the cylinder by means of metallic rings, (designated, generally, split-rings,) which are distended circumferentially by the pressure, upon their internal surfaces, of the steam confined in the cylinder; and my invention has for its object to effect a perfect packing of the piston by the employment of such split packing-rings distended by the action of the steam, and at the same time afford a simple and economic construction of piston-head and packing device, and such as shall be durable and not at all liable to derangement; and to these ends my invention consists in a piston formed with a series of annular grooves in its face, and two sets of steam-ports or openings communicating with said grooves or channels, in combination with split packing-rings, which are arranged in said grooves and operating as hereinafter more fully explained.

To enable those skilled in the art to make and use my invention, I will proceed to more particularly describe it, referring by letters to the accompanying drawing, in which—

Figure 1 is a side elevation, partly in section; Fig. 2, a face or edge view with a portion of the packing-rings in section; Fig. 3, a section at *xx* of Fig. 1; and Fig. 4, a section at *yy*, Fig. 1, of a piston-head with my invention embraced in its construction.

In the several figures, the same part will be found designated by the same letter of reference.

a is the piston-head, which may be of about the usual proportions, and in the face of which are cut two annular grooves *bb*, into which are loosely fitted the two split packing-rings *cc*. In each side of the piston-head *a* are two sets of steam-ports or holes, *d* and *e*. I have shown but one plan view of these steam-holes, but as the opposite side of the piston-head is a duplicate a description of the arrangement of the steam-holes on one side and their relation to one of the packing-rings will suffice to explain the whole. As will be clearly seen from the drawing, the ports *d* communicate with the grooves *b* at their

bottoms, or, in other words, in such a manner that steam passing through said holes *d* presses directly on the inner cylindrical face of the packing-ring *c*, and the holes or ports *e* communicate with the side of the groove *b*; or, in other words, steam passing through these ports *e* will press directly on one side of the packing-ring *c*.

The operation of each packing-ring in and with the piston-head will be as follows, viz.: When steam is admitted to one side of the piston-head it will fill the ports or holes *d* and *e*; the pressure of steam in the ports *d* will tend to distend the packing-ring *c* outward toward the bore of the cylinder and pack the piston; while the pressure of steam in ports *e* will act against that side of ring *c* which is adjacent to the steam-space, or to that side of the piston on which the steam is pressing, and, forcing it tight against the side of the groove *b*, will pack the joint between the ring and its side seat in the piston-head, and thus prevent any tendency of the steam to get in between the packing-ring and cylinder-face. It will be seen that by means of the two sets of steam-ports, through which the steam passes and operates in the manner described on the packing-ring, the latter is made to perfectly pack the joint between the cylinder and piston without creating any unnecessary friction or pressure. And it will also be seen that the whole arrangement of ring-seats and steam-ports is effected by simply turning annular grooves in the face of the piston and boring two sets of holes (in the manner shown) in each side of the piston-head; and that this inexpensive mode of construction affords not only a means of perfectly packing the piston, but also one in which there is no liability of derangement of parts, and which is very durable.

Having fully explained my invention so that one skilled in the art can make and use it, what I claim as new, and desire to secure by Letters Patent, is—

Combining with a piston-head formed with grooves in its face, which are provided each with an ordinary packing split-ring, two sets of steam passages which communicate with each ring, the whole so arranged and operating that steam will be supplied simultaneously to the inner circumference of each ring to distend it and to the side of each ring to pack it laterally, substantially as herein described.

THOMAS HANSON.

Witnesses:

FRANK L. MATHEWS,
WM. H. BISHOP.