

(No Model.)

R. McKENNA.
PACKING FOR PISTONS.

No. 277,764.

Patented May 15, 1883.

Fig. 1.

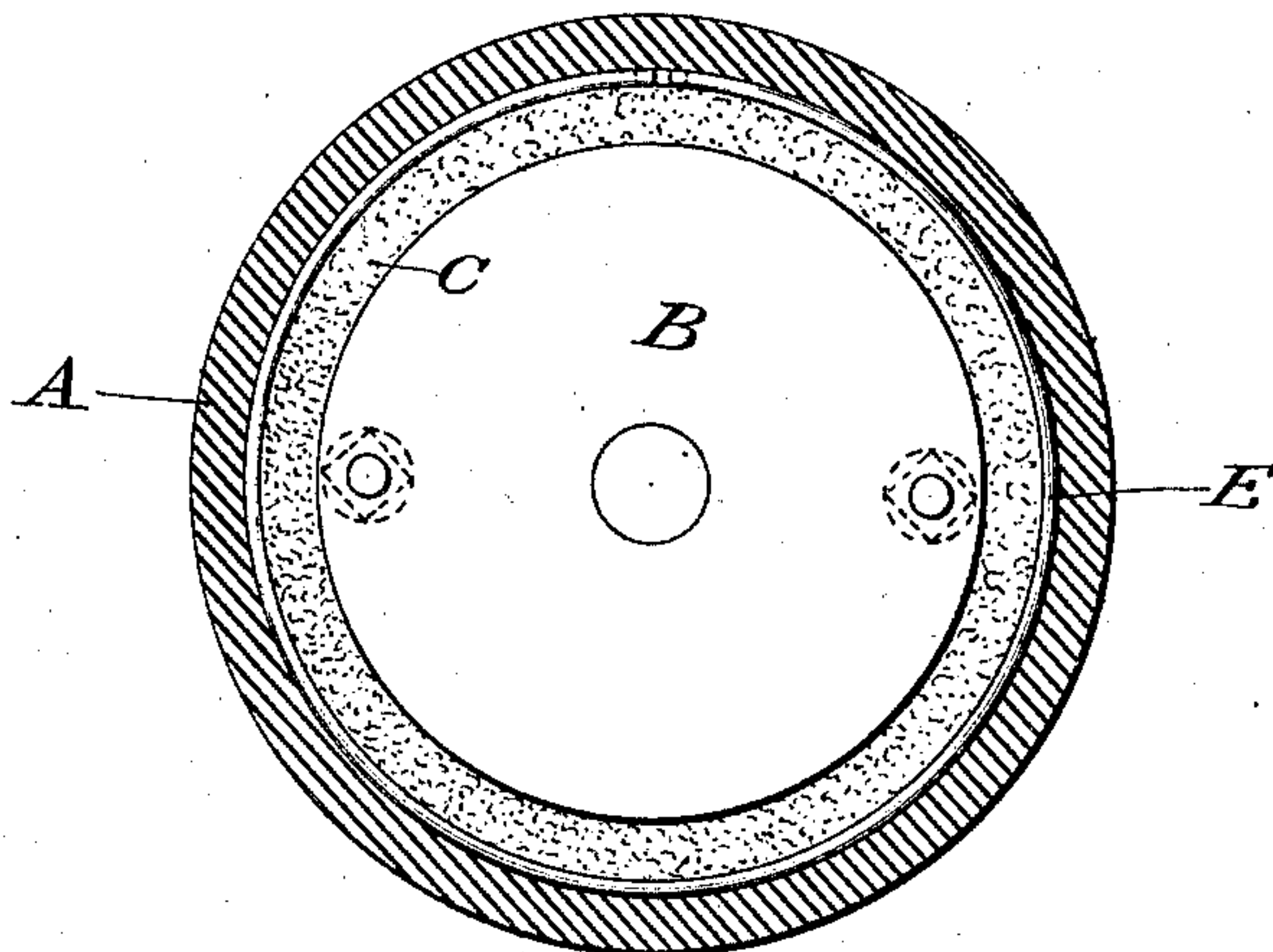


Fig. 2.

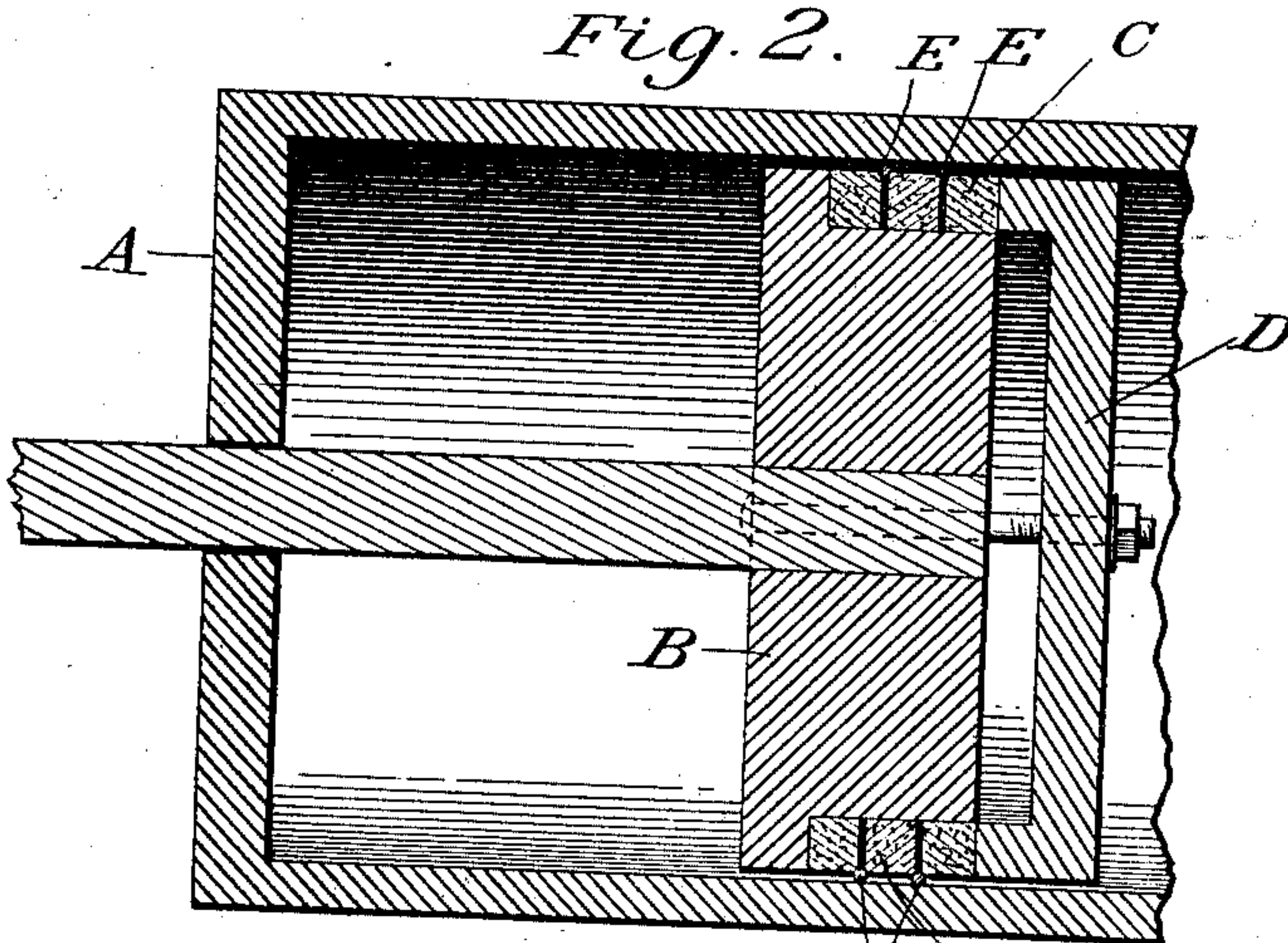
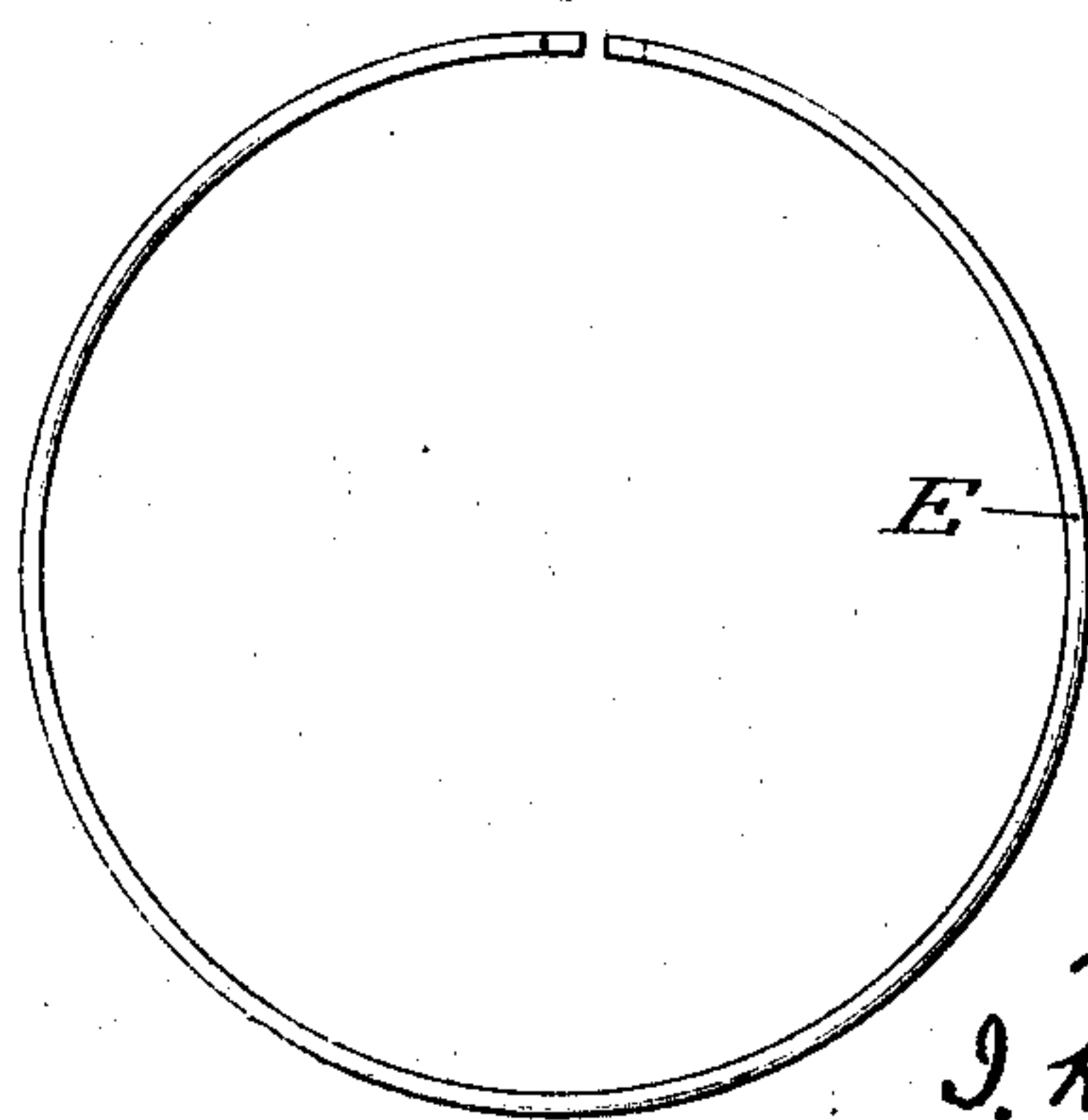


Fig. 3.



Witnesses:

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PACKING FOR PISTONS.

SPECIFICATION forming part of Letters Patent No. 277,764, dated May 15, 1883.

Application filed February 24, 1883. (No model.)

To all whom it may concern :

Be it known that I, ROBERT McKENNA, a citizen of the United States, residing at White's Station, in the county of Shelby, State of Tennessee, have invented a new and useful Packing for Pistons of Steam-Engines, of which the following is a specification.

My invention relates to a new and improved piston-packing for steam or other engines; and it consists in one or more wire rings whose periphery is coincident with the surface of the inside of the cylinder, said ring or rings being held in position and their coincidence assured by means of any suitable yielding material, such as cotton, hemp, or other fibrous or elastic material.

The object of my invention is to provide a piston-packing which is easily and quickly put in place by any person, whether skilled or unskilled in the art, is self-adjusting, which will prevent steam from passing the piston, and one in which friction is reduced to a minimum. The construction and arrangement of the several parts will be hereinafter more fully set forth in the specification, and pointed out in the accompanying drawings, in which—

Figure 1 is a transverse section of a cylinder of a steam-engine in which my improved packing-ring is shown; Fig. 2, a vertical section of a steam-engine cylinder, showing the wire packing held in position by the fibrous material; and Fig. 3 is a detail view of the wire packing-ring.

Referring more particularly to the drawings, A represents a cylinder of a steam-engine, provided with a piston, B, and follower D, of the usual construction. The packing of the piston is accomplished in the following manner: On the head of the piston I first place the elastic material C. On this I place the wire packing E, which consists of a wire ring unconnected at a point of its circumference to allow it to expand, and provided at this unconnected point with a lap-joint to enable it to retain a continuous circumference under expansion. Upon this I place another layer C of the elastic or fibrous material, and I can now put on the follower D, and the packing of the piston is completed. A pressure ex-

erted by the follower D on the material C is by the latter communicated to the inside circumference of the wire packing E, causing it to expand, so that the coincidence of its periphery with the surface of the inside of the cylinder A may always be assured. By this means steam is prevented from passing the piston. Thus it will be seen that it is not necessary for the fibrous material C to press against the surface of the inside of the cylinder in order to prevent steam from passing the piston, as this is accomplished by the wire packing.

In all piston-cylinders, no matter how carefully the inside surface is turned, there will be hard and soft places in the metal, which will wear unevenly, and therefore give passage to the steam unless the packing can be automatically adjusted to these inequalities. This is accomplished by my device, as there is but a small touching surface of the packing-wire and cylinder-surface, and the packing is made to conform to all of the inequalities by virtue of the lap-joint and compressed or expanded, as described.

I am aware that previous to my invention metal packing-bands, which are cast and turned off, have been used; but in such bands there are often flaws in the metal, which are only developed by wear, and these flaws allow the passage of steam. There is then no remedy but to again turn off the band and again adjust it to the cylinder. If this occurs more than once, a new band must be provided, as there will be too much space left between the surface of the cylinder and band. Again, in these cast-metal packing-bands, when they are adjusted in the cylinder, the inequalities of the surfaces cause great friction until a seat has been formed, and any inequality of wear requires a new adjustment, which will break the conformation already formed by the wear between the band and cylinder and the band and follower and flange of the piston, and steam is liable to pass over and under by reason of these inequalities. These objections are obviated by my wire packing E, which continuously adapts itself to any inequality of the surface, and requires no pressure outwardly after a coincidence is formed. Moreover, my pack-

ing is not injuriously affected by oils, acids, or gases.

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

5 The combination, with a cylinder, a piston, and a piston-follower, of one or more wire packing-rings provided with a lap-joint, as de-

scribed, said ring or rings adapted to be held in contact with the surface of the cylinder by means of suitable yielding material, as described.

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Witnesses:

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