No. 684,617. Patented Oct. 15, 1901.

E. RATHBUN.

PACKING RING FOR STEAM ENGINES.

(Application filed July 17, 1901.)

(No Model.)

Fig. 1.

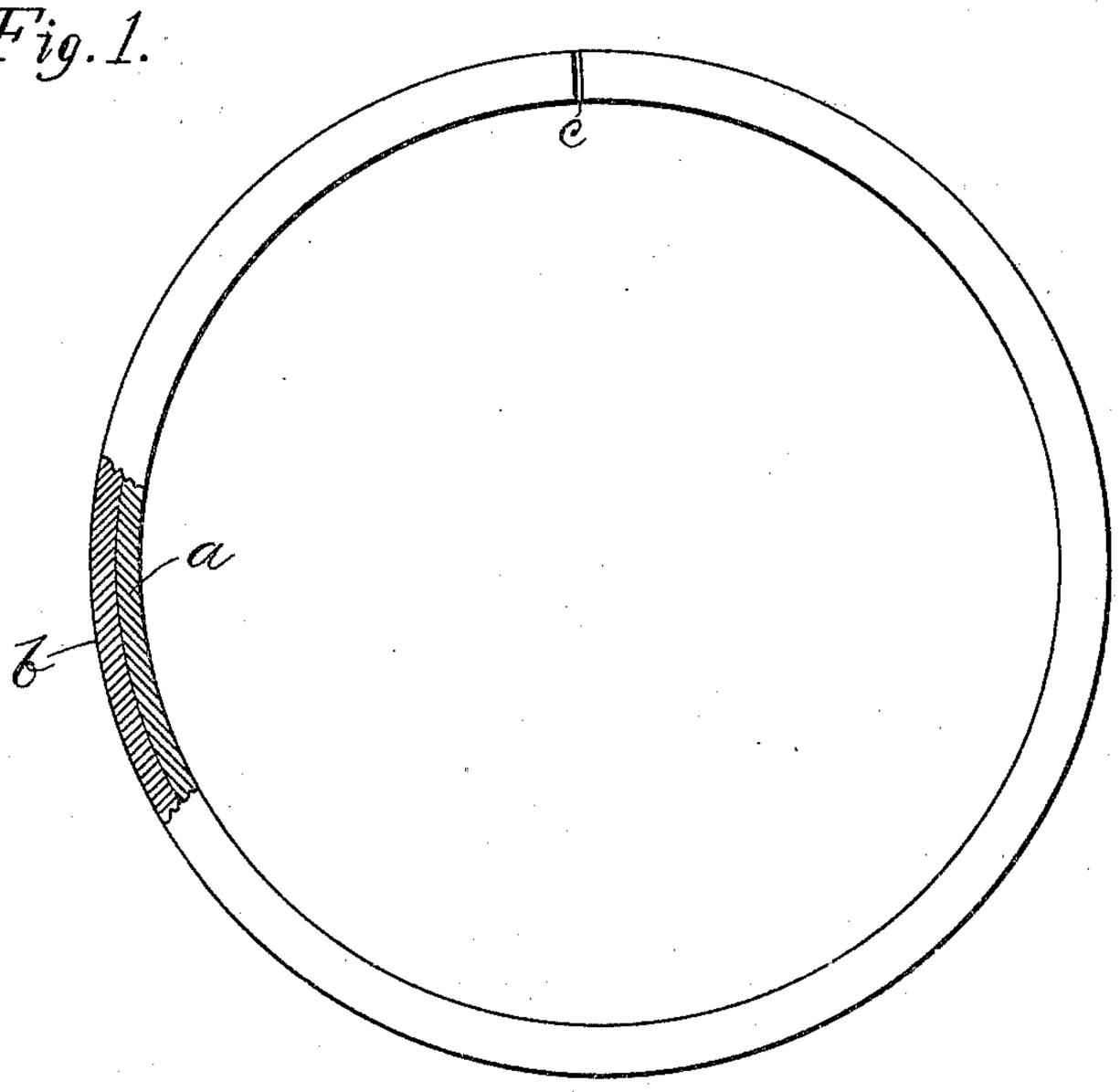
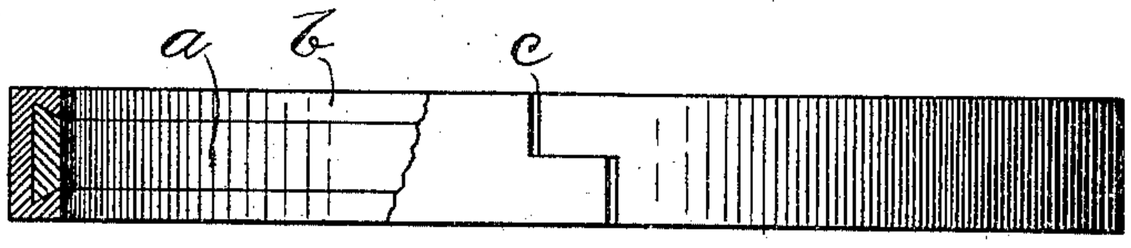


Fig. 2.



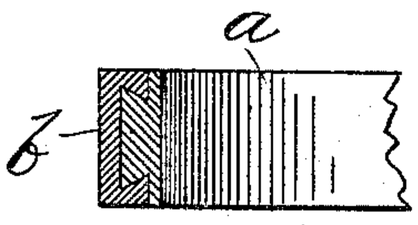


Fig. 3.

WITNESSES:

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PACKING-RING FOR STEAM-ENGINES.

SPECIFICATION forming part of Letters Patent No. 684,617, dated October 15, 1901.

Application filed July 17, 1901. Serial No. 68,574. (No model.)

To all whom it may concern:

Be it known that I, EDWARD RATHBUN, a citizen of the United States, residing at Toledo, in the county of Lucas and State of Ohio, have invented certain new and useful Improvements in Packing-Rings for Steam-Engines; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

A familiar difficulty encountered in the use of packing-rings for the pistons of steam-engines is that such antifriction metals as are suitable for contact with the interior surface of the engine-cylinder have no resiliency, and consequently do not preserve their contact with the cylinder, nor do they take up the wear of the ring by expansion. On the other hand, if metal having suitable elasticity for these purposes be employed—such, for instance, as steel or brass—the friction and wear of the contacting parts are so great as to forbid their use.

My invention relates to a device for overcoming the difficulties here indicated, and its object is to furnish an expanding packing-ring which shall have any required amount of resiliency and in which any desired antifriction metal may be employed. I attain these objects by means of the devices and arrangement of parts hereinafter described and shown, and illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of my ring, partly in circumferential section; Fig. 2, an edge view of the same with a portion of the ring broken away to show its interior construction; and Fig. 3 is a view of a portion of my ring in transverse section, showing a modified form of my ring.

My packing-ring consists of a steel ring *a* of any desired form in transverse section, but preferably of the dovetail contour illustrated in Fig. 2, and a ring *b* of suitable antifriction metal, such as Babbitt, in which the ring *a* is embedded. The two rings are split by transverse and circumferential cuts, as illustrated in Fig. 2, so that the meeting ends overlap each other side by side, as at *c*.

My packing-ring is formed by placing the steel expansion-ring in a mold and then casting the Babbitt metal around the steel ring. The inner periphery of the steel ring is preferably left exposed, for to cover this ring entirely would interfere somewhat with its resilient action. The two rings are now split or sawed transversely, as above described, or the steel ring may, if preferred, be split before the casting of the Babbitt metal around it.

In case a more powerful spring is required the thickness of the steel ring may be increased to any extent by widening and thickening that portion of the ring *a* which is not embedded in the outer ring, as illustrated in Fig. 3.

Various other forms in transverse section of the two rings will suggest themselves to those skilled in the art, and I do not therefore limit my invention to the forms here shown by way of illustration.

It will be obvious that my packing-ring is also adapted for use in connection with the plungers and pistons of machines other than steam-engines—as, for instance, pumps, gas-engines, and kindred devices.

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

1. In a packing-ring for steam-engines, an outer ring of suitable antifriction metal, such as Babbitt metal, and an inner ring of suitable resilient metal, such as steel, embedded in the outer ring.

2. In a packing-ring, an outer ring, an inner ring of resilient metal embedded in the outer ring, said two rings being split transversely, substantially as described.

3. A packing-ring comprising an outer ring of antifriction metal having in its interior face a channel or groove, an inner ring of resilient metal the outer circumference of which is engaged by said channel or groove, said two rings being split longitudinally and transversely to form portions which overlap each other side by side at the meeting ends of the rings.

In testimony whereof I affix my signature in presence of two witnesses.

EDWARD RATHBUN.

Witnesses:
C. B. PHILLIPS,
L. E. BROWN.