

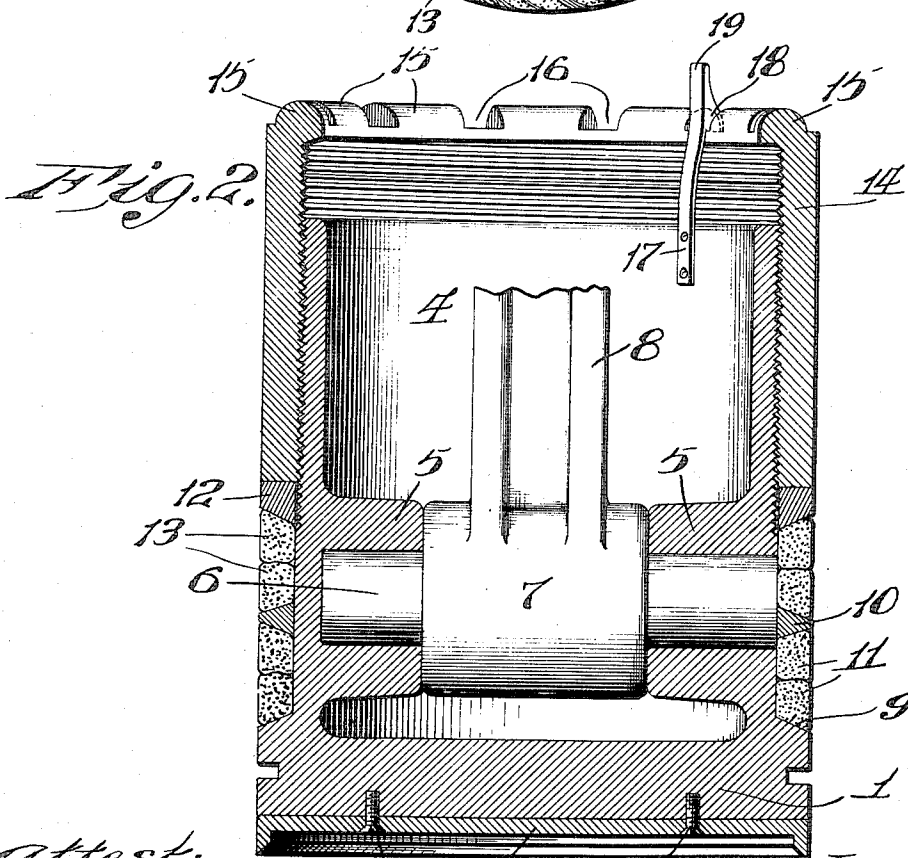
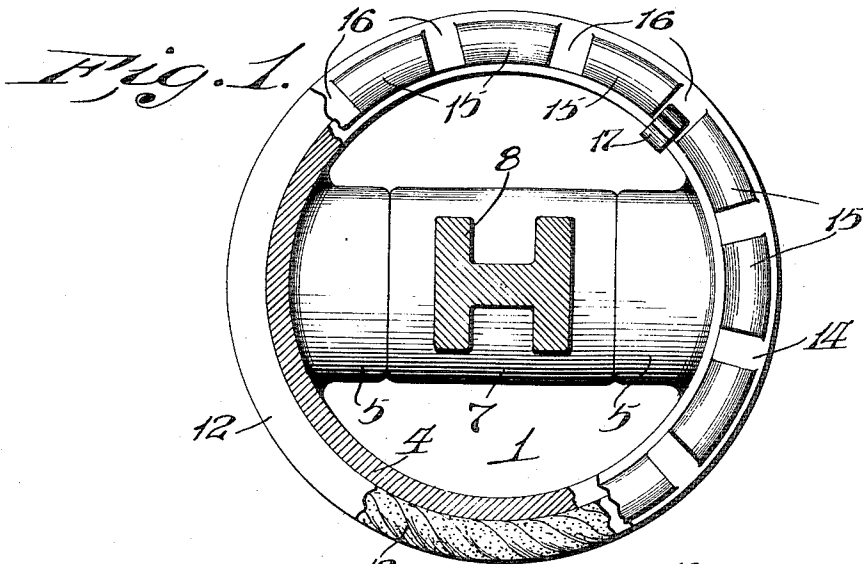
E. T. ROBINSON.

PISTON.

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1,038,510.

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UNITED STATES PATENT OFFICE.

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PISTON.

1,038,510.

Specification of Letters Patent.

Patented Sept. 10, 1912.

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To all whom it may concern:

Be it known that I, EARLE T. ROBINSON, a citizen of the United States, residing at the city of University, county of St. Louis, State of Missouri, have invented certain new and useful Improvements in Pistons, of which the following is a specification.

This invention relates more especially to that class of pistons in which means are provided for expanding an adjustable piston packing; and has for its primary object to provide an improved construction, combination and arrangement of parts in pistons of this character.

One of the objects of the present invention is to provide improved means whereby the packing-expanding means may be locked to hold the packing in its expanded position.

Other and further objects will appear in the specification and be specifically pointed out in the appended claims, reference being had to the accompanying drawings exemplifying the invention in its application to a gas engine piston.

In the drawings Figure 1 is a top plan view of a piston embodying the features of the present invention, parts being broken away and parts shown in section. Fig. 2 is an axial section of the same, parts being shown in elevation.

Referring more particularly to the drawings and to the embodiment shown therein, the piston head comprises a heavy end portion or plate 1 to which is secured a cup leather 2 by means of screws 3. Said piston has integrally constructed therein an upwardly contracted annular shell 4 from the inner cylindrical wall of which adjacent the end portion 1, project a pair of integral rod-pin bearing lugs or bosses 5 for receiving the pin 6. For this purpose, the bosses 5 are provided with journal bearings, as shown, the circular hole in the right hand boss 5 being extended through to the outside of the piston head to permit the pin 6 to be introduced endwise therethrough into position. As shown in the drawings, the rod end 7 of a connecting rod 8 is journaled upon the pin 6 for transmitting power in the usual manner.

By an inspection of Fig. 2 of the drawings, it will be noted that the contracted portion of the piston head extends to a point well below the bearing bosses 5. A

wedging shoulder 9, which is provided between the solid end 1 and the contracted portion of the piston head, coöperates with a wedging and spacing ring 10 for the packing, said ring 10 being slidably mounted upon the outer cylindrical wall of said contracted portion of the piston head. Interposed between the shoulder 9 and the wedging ring 10 are a pair of packing rings 11, while between the wedging ring 10 and a follower or compressing ring 12 are interposed packing rings 13.

In order to provide means for moving the follower or compressing ring 12 along the outer wall of the contracted portion 4 so as to compress the rings 11 and 13 to expand them circumferentially, the upper contracted portion 4 of the piston head is threaded to receive a threaded ring 14 which, when turned on its axis in one direction moves the follower or compressing ring 12 toward the solid end 1 of the piston, thereby expanding the piston rings 11 and 13 circumferentially. As preferably constructed, the upper annular edge of the threaded ring 14 is beaded at 15, said bead 15 being provided with a plurality of radially disposed notches 16, which may be used for the reception of a wrench of any suitable construction for turning the ring 14.

In order to provide means for locking the threaded ring 14 in any desired position, to prevent it from working loose and so defeating the ends of its employment, a spring latch 17, which may be rigidly mounted on the inner wall of the contracted portion 4, has a radially projecting nose 18 which is resiliently held in engagement with any one of a series of notches 16. Said latch is also provided with an upwardly projecting lug or finger hold 19 whereby the nose 18 may be drawn out of the notch within which it is seated to permit an adjustment of the ring 14. The adjusting ring 14 is thus releasably held against displacement and so prevents axial movement of the follower or compressing ring 12.

It will be seen from this description that the follower 12 and spacing ring 10 provide a pair of oppositely-disposed wedging members, while at the same time the spacing ring 10 and the wedging shoulder 9 provide a similar pair of wedging members, which members are adapted to bring about a circumferential enlargement of the packing.

Having thus described my invention, the following is what I claim as new therein, and desire to secure by Letters Patent:

1. In a piston, the combination of a piston head having a rearwardly contracted portion, a ring slidably mounted on said contracted portion toward and away from said piston head, said ring and head being provided with oppositely disposed beveled surfaces, and packing disposed about said contracted portion between said beveled surfaces.

2. In a piston, the combination of a piston head contracted rearwardly and provided with a beveled shoulder at the forward end of said contracted portion, packing disposed about said contracted portion adjacent said beveled shoulder, and a member slidable axially on said contracted portion and provided with a beveled shoulder adapted to cooperate with the first said beveled shoulder to expand the packing radially by its axial movement.

3. In a piston, the combination of a piston head having a rearwardly extending contracted portion and a beveled shoulder at the forward end of said contracted portion, a follower ring slidable axially along said contracted portion and having a beveled shoulder adapted to cooperate with the first said beveled shoulder, packing disposed between said beveled shoulders, and means threaded to said contracted portion for moving said follower ring.

4. In a piston, the combination of a piston head having a rearwardly extending contracted portion and a beveled shoulder at the forward end of said contracted portion, a follower ring slidable axially along said contracted portion, and having a beveled shoulder adapted to cooperate with the first said beveled shoulder, packing disposed between said beveled shoulders, means threaded to said contracted portion for moving said follower ring, and means releasably engaging said threaded means to hold it against rotation.

5. In a piston, a piston head having a contracted rear portion, packing surrounding said contracted rear portion, a packing expansion follower also surrounding said contracted rear portion, a ring threaded to said contracted rear portion, and a ring abutting said follower to operate the latter.

6. In a piston, a piston head having a contracted rear portion packing surrounding said contracted rear portion, a packing expansion follower also surrounding said contracted rear portion, a ring threaded to

said contracted rear portion, and means for holding said ring in adjusted position.

7. In a piston, a piston head having a contracted rear portion, packing rings surrounding said contracted rear portion, an anti-climbing ring inserted between said packing rings, means for expanding said packing rings, and means locking said expansion means in adjusted position.

8. In a piston, the combination of the piston head, a packing carried thereby and the ring for adjusting said packing having notches in its upper edge, and a locking device carried by the piston head and adapted to engage said notches to lock the ring in adjusted position.

9. In a piston, the combination of a piston head having a rearwardly projecting portion, said head being provided with a beveled shoulder adjoining said contracted portion, a follower ring slidable axially along said contracted portion and having a beveled shoulder cooperatively disposed with respect to the first said beveled shoulder, a wedging ring slidable on said contracted portion intermediately of said beveled shoulders, said wedging ring being provided with bevels on opposite sides, packing rings disposed between said wedging ring and each of said beveled shoulders, respectively, and means for forcing said follower ring toward said piston head to expand the packing rings.

10. In a piston, the combination of a piston head having a rearwardly projecting portion, said head being provided with a beveled shoulder adjoining said contracted portion, a follower ring slidable axially along said contracted portion and having a beveled shoulder cooperatively disposed with respect to the first said beveled shoulder, a wedging ring slidable on said contracted portion intermediately of said beveled shoulders, said wedging ring being provided with bevels on opposite sides, packing rings disposed between said wedging ring and each of said beveled shoulders, respectively, and means for forcing said follower ring toward said piston head to expand the packing rings, said means comprising a ring threaded to said contracted portion and having notches in its outer edge and a spring latch secured to said contracted portion and releasably engaging in said notches.

EARLE T. ROBINSON.

Witnesses:

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