

No. 687,276.

Patented Nov. 26, 1901.

L. B. SMYSER.
PISTON FOR STEAM OR OTHER ENGINES.

(Application filed Jan. 5, 1901.)

(No Model.)

Fig. 1.

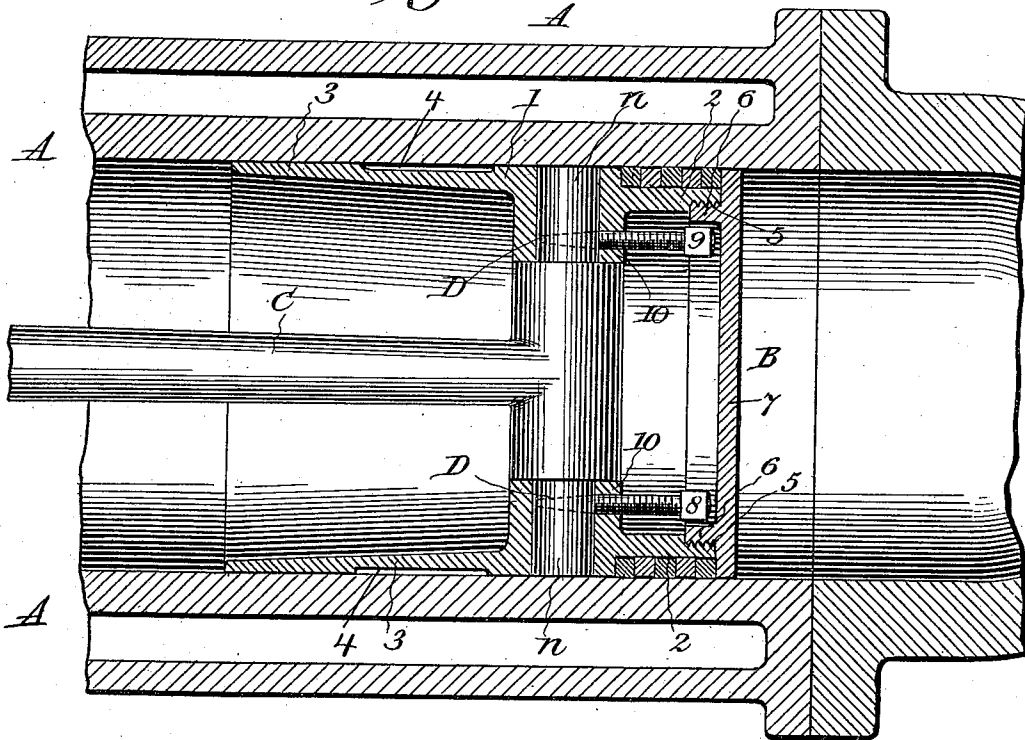
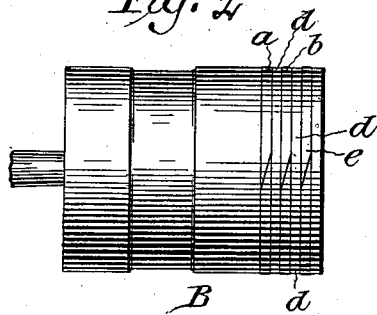


Fig. 2.



WITNESSES:

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PISTON FOR STEAM OR OTHER ENGINES.

SPECIFICATION forming part of Letters Patent No. 687,276, dated November 26, 1901.

Application filed January 5, 1901. Serial No. 42,157. (No model.)

To all whom it may concern:

Be it known that I, LOUIS B. SMYSER, a citizen of the United States, residing at Elizabeth, in the county of Union and State of New Jersey, have invented certain new and useful Improvements in Pistons for Steam or other Engines; and I do hereby 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.

My invention relates to the manufacture of pistons, plungers, and the like and to packing for the same, adapted to steam cylinders and engines of any kind where close fittings are required in order to obviate waste of steam or other energy employed and of fuel.

Some of the objects of my invention are to render more simple the construction of pistons, plungers, and packings and to make the same less expensive than heretofore, to improve the construction of pistons, plungers, and packings used in steam and other engines and at the same time manufacture pistons, plungers, and packings that they may be easily and quickly repaired when required, and to furnish pistons, plungers, and packings that are durable and those that will obviate the waste of the motor energies employed. I attain these and other objects by the construction illustrated in the accompanying drawings, in which—

Figure 1 is a longitudinal section through the cylinder and showing the head of the piston partly in section, and Fig. 2 is a view showing the construction of the rings of the piston.

Similar characters refer to like parts throughout both views.

The letter A represents the cylinder of a steam or other engine.

The letter B refers to the piston-head, and the numeral 1 designates the body or hub portion of the same, into which the two tenons *nn* upon the cross-bar D of the piston-rod C are inserted. The numerals 2 and 3, respectively, represent the upper and lower annular flanges of the piston-head B, the latter of which (flange 3) is provided with an annular cut-away portion or recess 4 upon its outer or cylinder contact-surface. The former or upper flange 2 is recessed or cut away

from the body or hub portion 1 of the piston-head B upon its outer or cylinder surface throughout its entire length for the reception of the solid loose packing-rings *a b c* and the solid springs *d* and *e*. The inner face of the upper flange 2 is screw-threaded, as at 5, to receive the outer screw-threaded flange 6 of the cap 7 of the piston-head B.

The numerals 8 and 9 designate screw-threaded bolts which pass through the inner projecting rim 10 of the hub or body portion 1 of the piston-head B and are buried into the cross-bar D of the piston-rod C. After the screw-threaded bolts 8 and 9 are securely placed in position the cap 7 of the piston is then screwed in place, thereby preventing the said bolts from being dislodged during the rapid reciprocating action of the piston. Before, however, the cap 7 of the piston-head is secured into its place upon the inner screw-threaded flange 2 of the piston-head the loose spring diagonally-cut ring *a* is placed in position upon the outer recessed flanges of the piston-head. The solid loose ring *d* is then placed over the outer recessed flange 2 upon the spring-ring *a*. The spring-ring *b* is next put in place over the outer recessed flange 2 upon the last-mentioned solid loose ring *d*. The spring *b* is then placed upon the ring *d*, and the solid loose ring *e* is placed upon ring *b*, and, last, the diagonally-cut spring-ring *c* is put in position over the flange 2 upon the solid loose ring *e* and the cap 7 screwed securely in place. I may make my piston-head of any desired number of solid loose and spring rings.

The advantages of my construction of pistons, plungers, and packings are obvious and manifest. Further detailed description of the function of the parts is deemed unnecessary.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a piston-head, a recessed flange projecting from the same, solid and spring rings in said recess, inwardly-extending hubs formed in the piston, a journal on the piston-rod adapted to engage said hub, and a screw-cap adapted to be inserted in the head of the piston and compress the packing upon the same.

2. In a piston-head, inwardly-extending hubs formed on the same, a piston-rod, journals formed on the piston-rod and adapted to

engage the hubs, bolts passing through the hubs and adapted to secure the journal in connection with the same, and a screw-cap upon the head of the piston.

5 3. In a piston, inwardly-extending hubs formed in the same, a piston-rod provided with journals engaging said hub, screws securing the journals in the hubs, a flange extending from the hub, a recess formed in said
10 flange, packing-rings adapted to be placed in said recess, and a screw-cap adapted to secure the packing and screws of the hubs in their operative position.

15 4. A piston-head having hubs provided with inner projecting perforated rims, screw-bolts, an adjustable cap-plate for securing the screw-bolts in place; and means for operating the same.

20 5. A piston-head provided with a screw-threaded flange and hubs, the hubs having in-

ner and outer projecting rims, means for fastening the inner rim to the piston-pin, loose and spring rings, screw-threaded cap-plate, and means for securing inner rim to piston-pin and rings upon said flange.

25 6. A piston-head provided with flanges recessed on cylinder-surface, and hubs having inner and outer projecting rims, inner rim perforated, screw-bolts for securing the hubs to the piston-pin, solid loose and spring rings
30 on one of said recessed flanges, screw-threaded flange, screw-threaded flanged cap-plate, and means for operating the head.

In testimony whereof I have hereunto affixed my signature in presence of two witnesses.

LOUIS B. SMYSER.

Witnesses:

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