

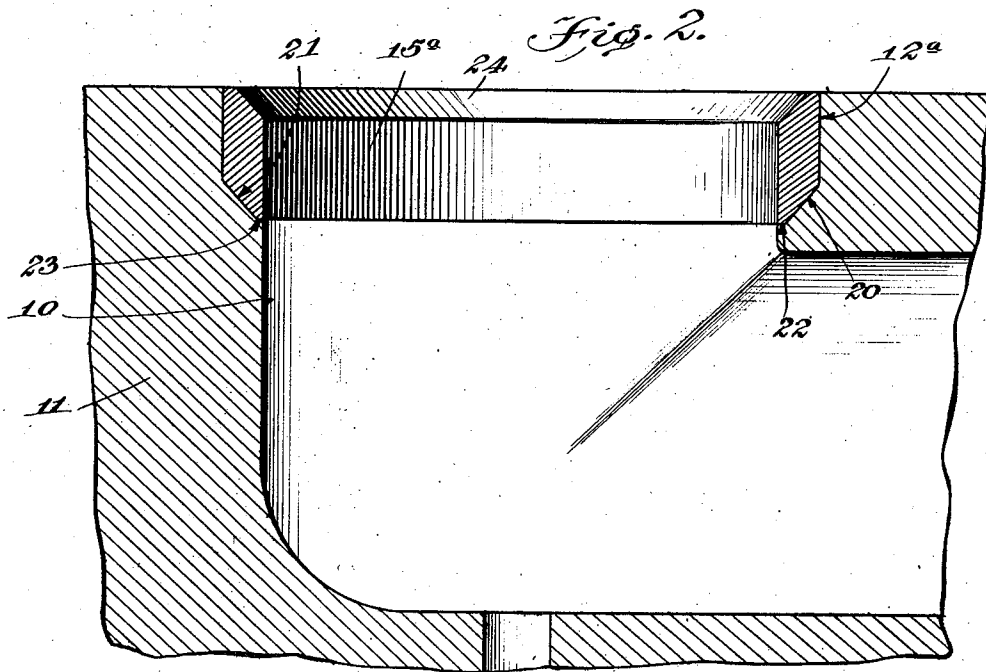
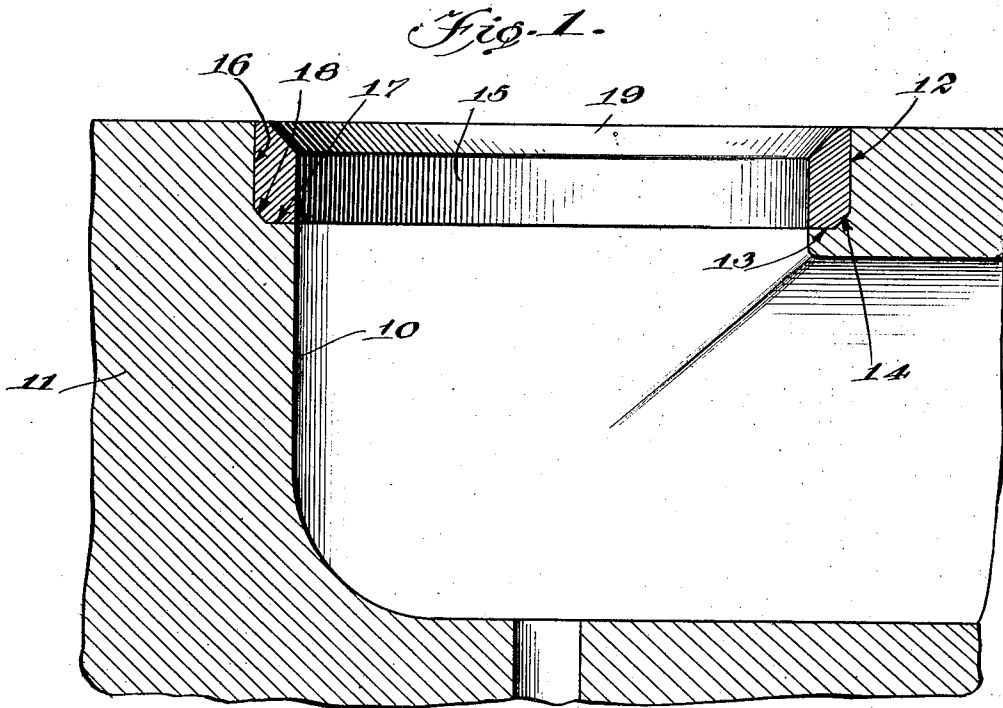
April 16, 1929.

T. S. PURNIS

1,709,807

LINER FOR VALVE SEATS

Original Filed Feb. 20, 1926



WITNESSES

Laurence O. Mumkin

INVENTOR

Theodore S. Purnis.

BY *Mumkin & Co.*

ATTORNEYS

UNITED STATES PATENT OFFICE.

THEODORE S. PURNIS, OF ABERDEEN, SOUTH DAKOTA, ASSIGNOR TO THE K. O. LEE & SON COMPANY, OF ABERDEEN, SOUTH DAKOTA, A CORPORATION OF SOUTH DAKOTA.

LINER FOR VALVE SEATS.

Application filed February 20, 1926, Serial No. 89,692. Renewed January 25, 1929.

This invention relates to liners for valve seats and has for its object the provision of a device which is adapted to be inserted in a recess in the intake or exhaust passage of a cylinder block after said passage has been re-bored to form the recess, the liner being adapted to be planed to provide a bevelled edge to properly seat the valve.

A further object of the invention is the provision of a liner adapted to fit a recess which has been re-bored at the outer end of an inlet or exhaust passage of a cylinder block and which liner is formed of cast iron turned slightly larger in diameter than the diameter of the re-bored recess so that the liner may be forced into the recess under pressure and held firmly in place, the constant tapping of the valve when seating aiding in expanding the liner and thereby causing the liner to be retained more firmly in position.

A still further object of the invention is the provision of a liner having a sheared lower end which will facilitate the insertion of the liner in a re-bored recess at the outer end of an intake or exhaust passage in the cylinder block.

This invention will be best understood from a consideration of the following detailed description, in view of the accompanying drawings forming a part of the specification; nevertheless it is to be understood that the invention is not confined to the disclosure, being susceptible of such changes and modifications which shall define no material departure from the salient features of the invention as expressed in the appended claim.

In the drawings:

Figure 1 is a vertical section of a cylinder block showing the liner, constructed according to the principles of my invention, in position.

Figure 2 is a vertical section of a cylinder block showing a modified form of the liner.

In carrying out my invention the wall of the passage 10 in the cylinder block 11 may be either an intake or an exhaust passage and when the valve seat has been injured to an extent where it is impossible to plane said seat to receive the valve, I re-bore the pas-

sage adjacent the valve seat to provide a recess 12. This seat is re-bored in a manner to conform to the shape of the liner employed for the purpose and in the construction shown in Figure 1 the recess has a vertical cylindrical portion, a horizontal base portion 13 and a small tapering portion 14 connecting the two. In this recess 12 is seated a liner 15 constructed in accordance with the principles of my invention and the liner has a greater external diameter than the diameter of the recess 12 so that the liner must be forced into the recess and be maintained by the frictional contact between the liner and the walls of the recess and by the pressure exerted when the liner is forced into position.

The liner has an outer cylindrical wall 16, a horizontal base portion 17 and a tapered portion 18 adapted to engage the tapering portion 14 of the recess 12 while the base portion 17 of the liner is seated upon the horizontal base 13 of the recess. After the liner has been forced in place it is planed along its upper inner edge as shown at 19 to provide a seat for the valve by a planer described and claimed in my co-pending application Serial No. 119,909, filed July 1, 1926.

The modified form of liner shown at 15^a in Figure 2 is seated within a modified form of recess 12^a which has an inclined base 20 extending from the outer wall of the liner to a point adjacent the inner end, leaving a very narrow flat portion 22 which will facilitate the insertion of the liner when said liner is forced into the recess 12 and seat on an annular shoulder 23. The liner in this case likewise has a greater diameter than the recess so that the liner must be forced into the recess under pressure whereby the liner will be held in frictional contact within the recess. This liner is also sheared by means of a planer to form a seat 24 to receive the usual valve.

What I claim is:

A cylinder block construction having a vertical passage opening through the top of the block, said block being provided with a recess countersunk in said block at the opening of the passage, said recess having a cylindrical vertical wall with an annular inclined

bottom portion, a liner fitted in said recess and of greater diameter than the diameter of said recess whereby said liner will be frictionally held in said recess, the inner upper 5 edge of the liner being sheared off to form a valve seat, said liner being provided at its inner end with an inclined portion conforming to the inclination of the bottom portion of the recess and the inclined portion of the inner end of the liner being adapted to snugly 10 engage the inclined portion of the bottom of the recess.

THEODORE S. PURNIS.