No. 889,732. PATENTED JUNE 2, 1908.

W. SNYDER & R. I. MINER.

PISTON.

APPLICATION FILED NOV. 18, 1907.

Fig. 1.

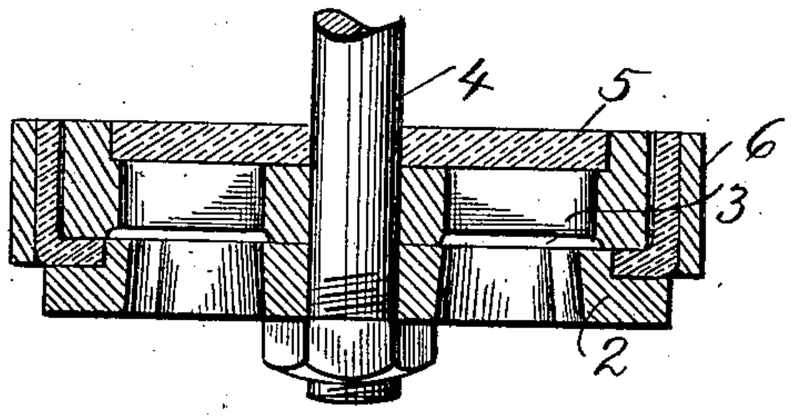


Fig. 2.

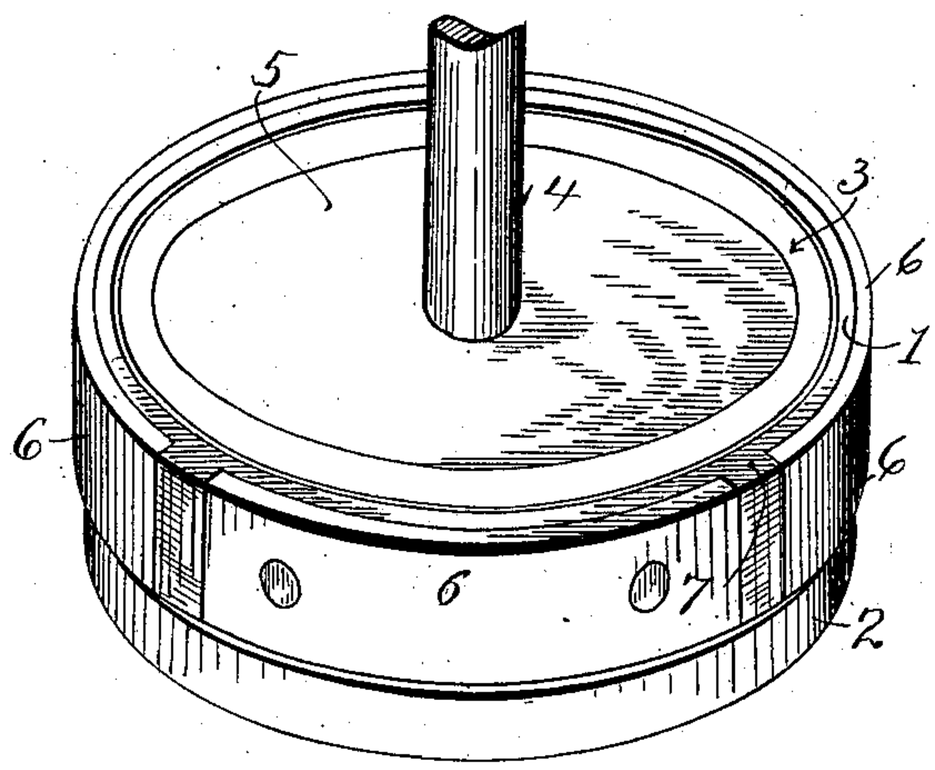
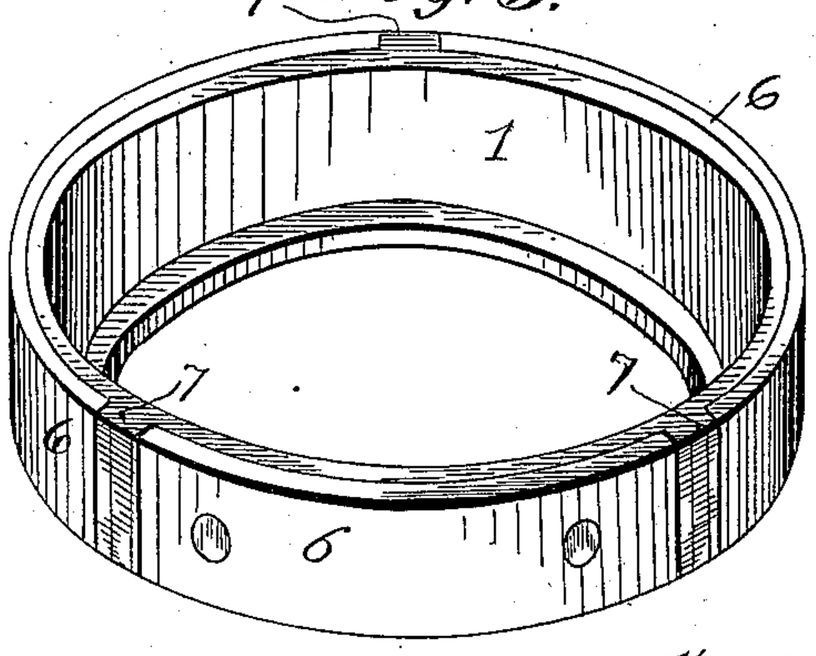


Fig. 3.



Witnesses

W. P. Woodson

Inventors

William Snyder

R. I. Miner

By R. A. & R. Lacey, Attorneys

UNITED STATES PATENT OFFICE.

WILLIAM SNYDER AND REUBEN I. MINER, OF MONTGOMERY, MICHIGAN.

PISTON.

No. 889,732. Specification of Letters Patent. Patented June 2, 1908.

Application filed November 18, 1907. Serial No. 402,717.

To all whom it may concern:

Be it known that we, WILLIAM SNYDER and REUBEN I. MINER, citizens of the United States, residing at Montgomery, in the county of Hillsdale and State of Michigan, have invented certain new and useful Improvements in Pistons, of which the following is a specification.

The present invention relates to valves, pistons, plungers and like devices arranged to reciprocate in a cylinder or barrel and requiring packing to insure and maintain a tight joint.

The invention deals more particularly with the packing, which is of the self-expansible type so as to automatically compensate for wear. In pistons for pumps, packing of the cup type is most generally used and is preferred because of its self-expanding characteristic and the great amount of surface in contact with the walls of the cylinder or barrel, hence the present invention is adapted more particularly to this type of packing.

For a full understanding of the invention and the merits thereof and also to acquire a knowledge of the details of construction and the means for effecting the result, reference is to be had to the following description and accompanying drawings.

While the invention may be adapted to different forms and conditions by changes in the structure and minor details without departing from the spirit or essential features thereof, still the preferred embodiment is shown in the accompanying drawings, in which:

Figure 1 is a vertical sectional section of a piston embodying the invention. Fig. 2 is a perspective view of the piston. Fig. 3 is a perspective view of the packing.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawings by the same reference characters.

The packing forming the salient feature of the invention comprises a cup 1 of leather, rubber or like flexible material commonly employed in the formation of valve cups for pumps and like apparatus. The cup 1 may be of any size and construction and embodies a horizontal portion to be secured to the body of the piston, plunger or like part, and a rim encircling the edge of the piston body and adapted to come between the same and the inner walls of the cylinder barrel or like part in which the piston may be placed. The valve body, as shown, consists of two disks 2 and 3, each having a central opening for the passage of the rod 4 and having other openings about the central opening for the free passage of the liquid or fluid intended to pass through the piston. The horizontal portion of the cup is clamped between the two disks 2 and 3 in any well known manner, whereas the rim of the cup encircles the disk 3. The upper disk 3 is recessed in its top side to receive a valve 5 consisting of a disk of leather, rubber or like material, the same being secured at a central point and having its edge portions free to move away from the disk 3 upon the in or down stroke of the piston to permit of liquid passing through and by the valve so as to be lifted thereby upon the up or out stroke of the piston.

Wear pieces 6 are secured to the outer surface of the rim of the cup packing 1 and these wear pieces are of metal, such as brass, copper or the like, which will resist wear, yet prevent injury to the walls of the cylinder or barrel in which the valve is arranged to operate. The wear pieces 6 may be secured to the rim of the cup packing in any manner and may be provided in any number of sections so as to encircle the cup packing and move with the rim thereof. The wear pieces may be flexible or of any thickness depending upon the size and character of work of the piston. It will be understood that the wear pieces 6 constitute, in effect, metallic packing, whereas the cup packing 1 forms a flexible connection between said metallic packing and the body of the piston to admit of the said metallic packing moving to maintain a close fit between the piston or like part and the walls of the cylinder or barrel in which said piston is arranged to reciprocate. In the event of the ends of the wear pieces or metallic packing sections being separated, the rim of the cup packing will be thickened, as shown at 7, to fill the spaces so as to insure a close fit between the packing and the barrel or cylinder at every point.

Having thus described the invention, what is claimed as new is:

1. In combination with the body of a piston or like part, a sectional metallic packing encircling the same and having the ends of the sections spaced apart, and an annular flexible connection between the metallic packing sections and the said piston, said flexible connection having thickened portions to fill the spaces formed between the

adjacent ends of the metallic packing sections.

2. As a new article of manufacture, a cup packing of flexible material having its rim portion outwardly thickened at intervals, and wear pieces secured to the outer surface of said rim and arranged between the thickened portions thereof.

In testimony whereof we affix our signatures in presence of two witnesses.

WILLIAM SNYDER. [L. S.]
REUBEN I. MINER. [L. S.]

Witnesses:
JAY WARREN,
G. B. HEWITT.