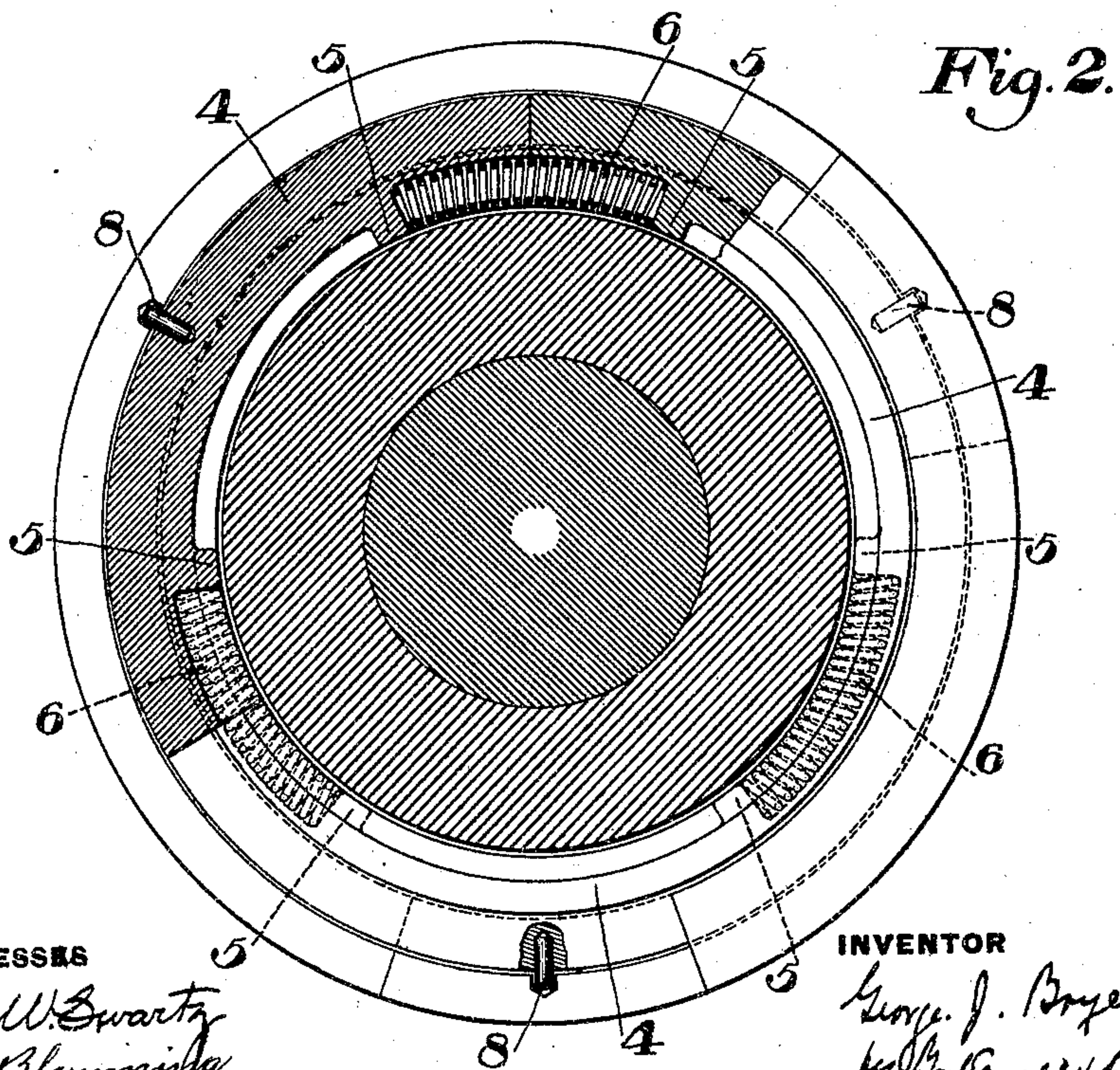
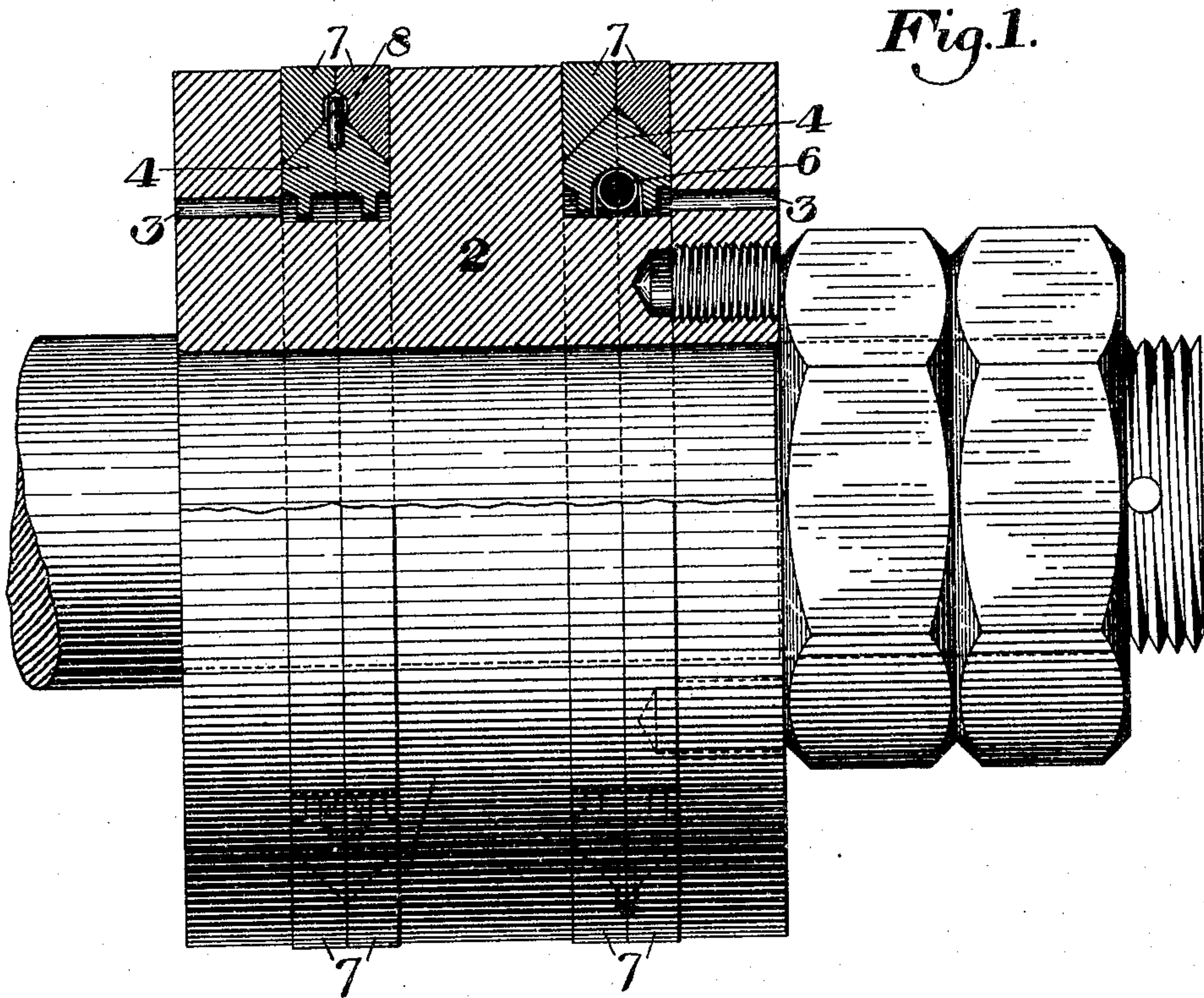


No. 794,341.

PATENTED JULY 11, 1905.

G. J. BRYEN.  
HYDRAULIC PACKING.  
APPLICATION FILED MAR. 3, 1899.



WITNESSES

Warren W. Swartz  
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his attys.



# UNITED STATES PATENT OFFICE.

GEORGE J. BRYEN, OF DUQUESNE, PENNSYLVANIA.

## HYDRAULIC PACKING.

SPECIFICATION forming part of Letters Patent No. 794,341, dated July 11, 1905.

Application filed March 3, 1899. Serial No. 707,618.

*To all whom it may concern:*

Be it known that I, GEORGE J. BRYEN, of Duquesne, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Hydraulic Packings, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which--

Figure 1 is a sectional side elevation showing my improved packing applied to a hydraulic piston, and Fig. 2 is a cross-section with a part of the expanding-ring broken away.

My invention relates to that class of metallic packings wherein fluid under pressure is admitted to expand the packing-rings; and its object is to improve the construction of such packings, to prevent the passage of fluid around the piston, and to give the packings a much longer life than formerly.

In the drawings, 2 represents a hydraulic-piston head having two deep annular grooves cut therein and into the lower portions of which lead the end ports 3. In each of these grooves is placed an expander consisting of a ring cut into three segments 4, each segment having beveled outer faces forming a central ridge, and near each end the segments are provided with lugs 5. Springs 6 are interposed between the lugs of the adjacent sections, so as to bear upon these lugs and give an outward pressure upon the expander. The outer inclined faces of the expanding-ring bear upon two packing-rings 7, having correspondingly-inclined inner faces to fit thereon. Each packing-ring is provided with a butt-joint, these joints being staggered relatively to each other. The segments of the inner expanding-ring are held in proper position relatively to the packing-rings by pins 8, which project from each segment into a small recess formed therefor between the packing-rings.

In applying the packing-rings and placing the head in the cylinder the segments of the inner ring are placed within the grooves with the springs between them. The packing-rings are then forced inwardly to place and a re-

tainer, in the form of a sheet-iron case, is slipped over the head. The piston-head then being slid into the cylinder, the case is drawn off as the head moves in. As soon as the head is placed within the cylinder the springs, acting through the expanding-ring segments, force out the packing-rings into contact with the inner surface of the cylinder, and fluid admitted on either side of the head will pass in through the ports 3 and hold the packing-rings out in their proper place, preventing leakage past the head.

The parts are simple and easily made and assembled, and actual trial has proven that the packing is much longer lived than former split-ring packings of this description.

In former packings where pressure through ports was relied upon to expand the packing-rings I have found that as the fluid will tend to pass around the head more rapidly than into the small ports the pressure in the cylinder will tend to force in the packing-rings by pressure on their outer faces, and consequently the rings will not properly perform their function. In my device by providing means for initially forcing out the rings and then admitting the pressure in their rear I prevent the fluid from leaking past the piston and forcing in the packing-rings.

Another important feature of my invention lies in the fact that the pressure of the expanding-ring being applied to the inclined faces of the packing-rings not only forces them outwardly against the inner surface of the cylinder, but also forces them sidewise against the sides of the groove and thus prevents leakage along their side faces. Any wear at their sides is thus automatically taken up, and this is the point wherein former metallic packings were inefficient, as they would wear away at the sides and allow leakage.

Many variations may be made in the form and arrangement of the piston-head, the expanding-ring, and the packing-rings without departing from my invention, since

I claim--

In hydraulic packings, a piston-head having an annular groove with valveless, transverse ports leading through the head into said

groove, a segmented expander-ring seated in  
said groove, said ring having oppositely-bev-  
eled outer faces forming a central ridge, outer  
radially-extending pins and inwardly-extend-  
5 ing lugs, two packing-rings having oppo-  
sately-inclined inner faces fitting on the ex-  
pander-ring and recesses to receive said ra-  
dially-extending pins, and spiral springs held  
between the inwardly-extending lugs on ad-

jacent segments of the expander-ring; sub- 10  
stantially as described.

In testimony whereof I have hereunto set  
my hand.

GEORGE J. BRYEN.

Witnesses:

F. E. GAITHER,

H. M. CORWIN.