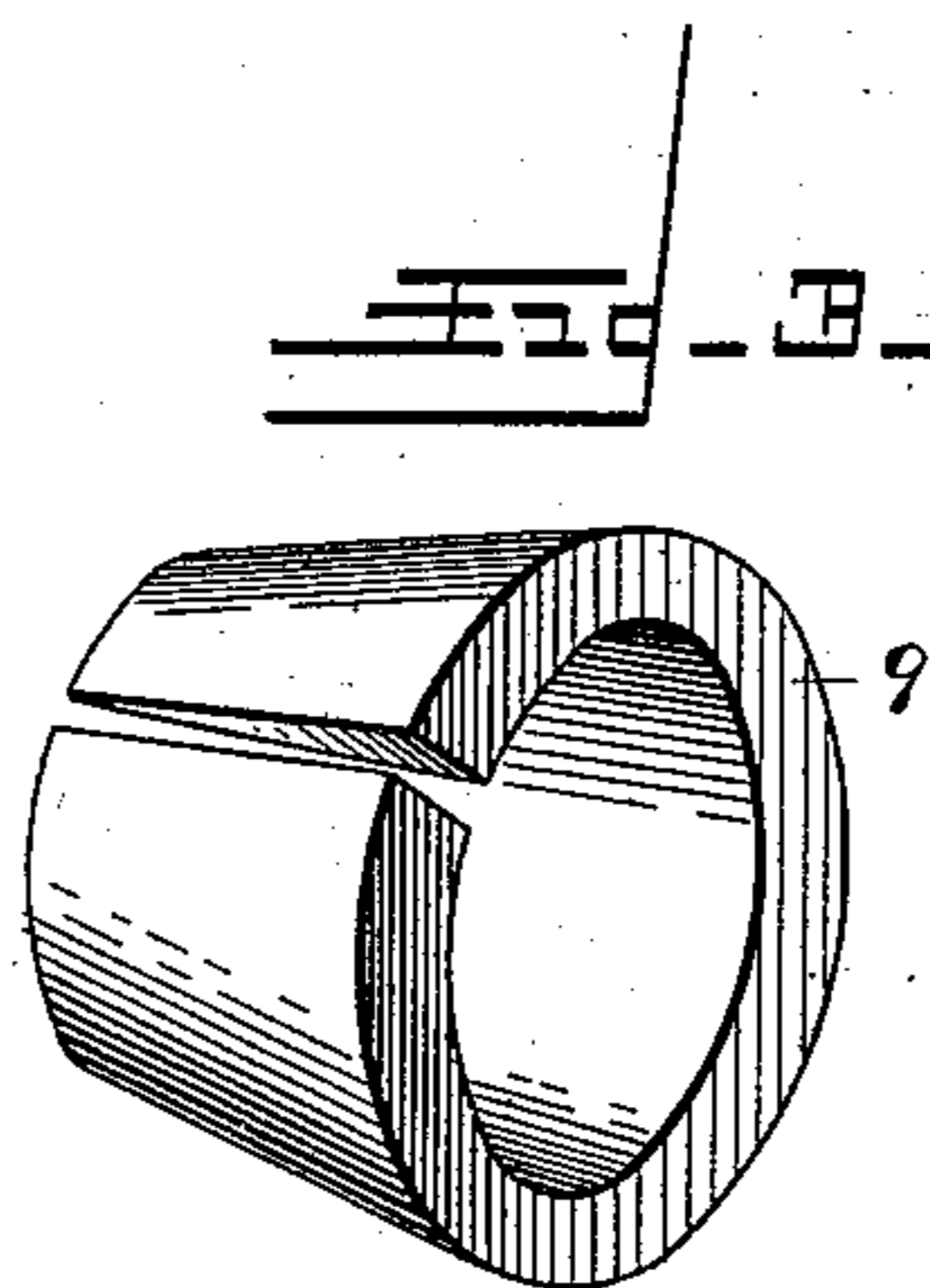
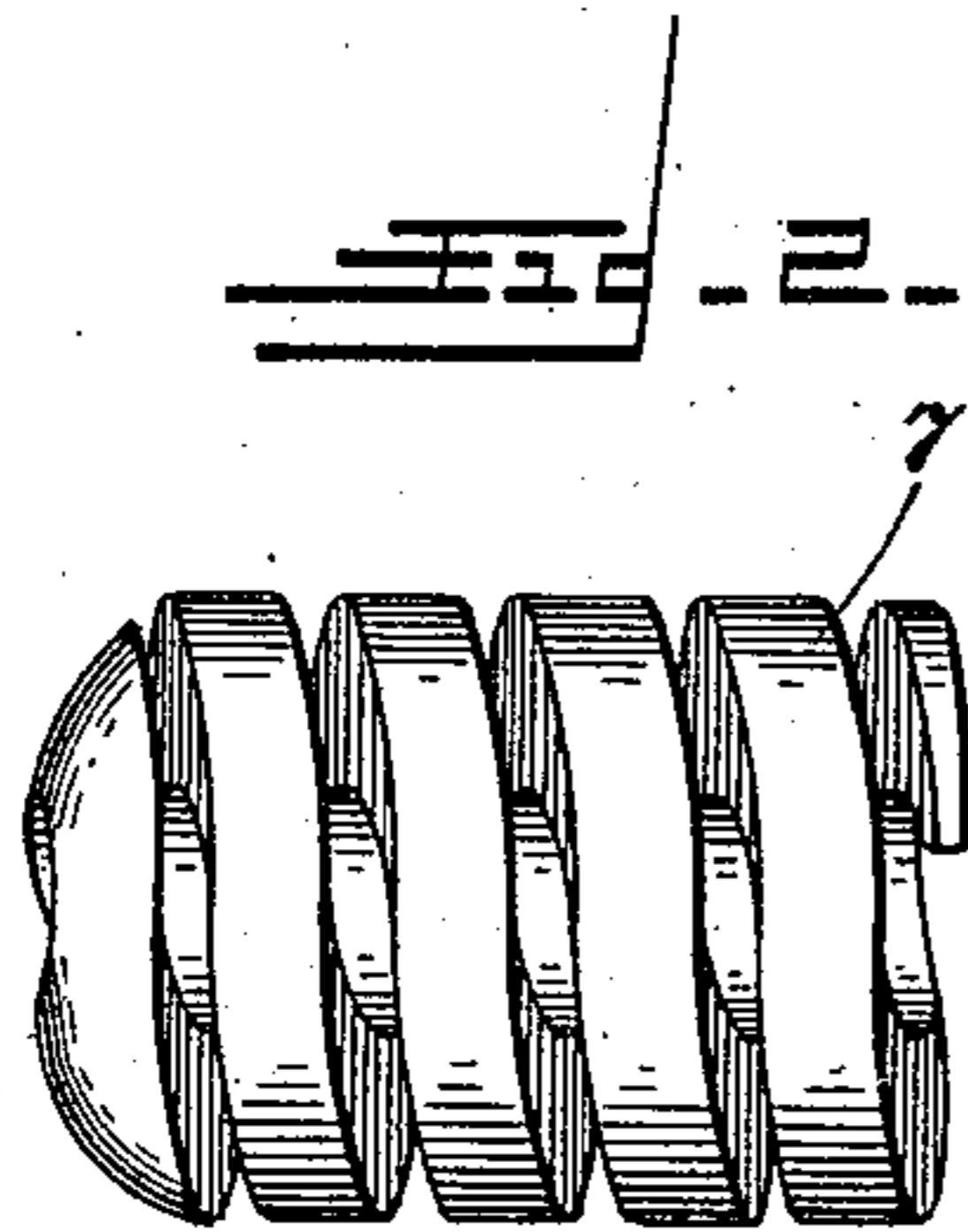
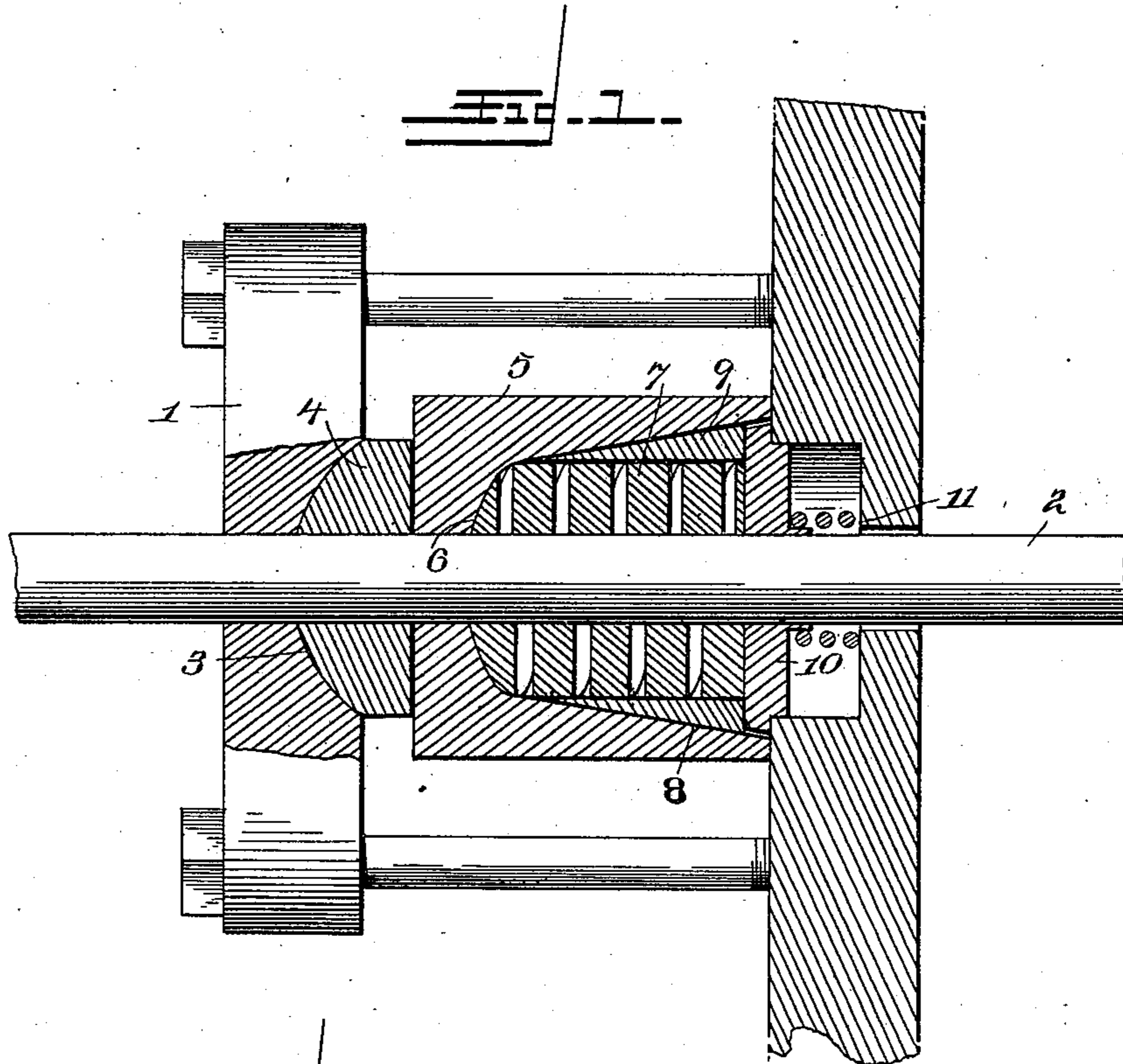


(No Model.)

E. A. BRYANT.  
METALLIC PACKING.

No. 563,445.

Patented July 7, 1896.



Witnesses  
*Thos. W. Riley.*  
*A. E. H. Hays*

By His Attorneys,

Inventor  
*Eugene A. Bryant*  
*C. A. Snow & Co.*

# UNITED STATES PATENT OFFICE.

EUGENE A. BRYANT, OF MINNEAPOLIS, MINNESOTA.

## METALLIC PACKING.

SPECIFICATION forming part of Letters Patent No. 563,445, dated July 7, 1896.

Application filed November 12, 1895. Serial No. 568,698. (No model.)

*To all whom it may concern:*

Be it known that I, EUGENE A. BRYANT, a citizen of the United States, residing at Minneapolis, in the county of Hennepin and State of Minnesota, have invented a new and useful Metallic Packing, of which the following is a specification.

My invention relates to metallic packing for piston-rods and similar reciprocating parts of machinery, and the object in view is to provide simple and efficient means for preventing the leakage or reduction of pressure by the escape of a fluid under pressure through a stuffing-box in which the reciprocatory rod or member operates.

Further objects and advantages of this invention will appear in the following description, and the novel features thereof will be particularly pointed out in the appended claims.

In the drawings, Figure 1 is a longitudinal central section of a stuffing-box provided with packing embodying my invention. Fig. 2 is a detail side view of the compressible packing-ring. Fig. 3 is a detail view in perspective of the conical compressing-ring.

Similar numerals of reference indicate corresponding parts in all the figures of the drawings.

1 designates a gland-plate through which extends the reciprocatory rod or member 2, the interior surface of said gland-plate being reamed around the opening for the reciprocatory rod or member to form a socket 3, which is spherical in cross-section. Fitted in said cross-sectionally spherical socket is a cross-sectionally spherical packing-ring 4, said ring having an opening through which the rod extends, and the seating of the ring in the socket being such as to allow a slight rocking or vibratory motion of the rod without impairing the accuracy of the fit.

Seated upon the inner flat surface of the rounded packing-ring 4 is the outer end of a cylindrical casing or shell 5, having the outer end of its bore around the opening through which the rod passes constructed to form a seat 6 of cross-sectionally conical or spherical shape, and in this casing or shell is arranged a coiled compressible packing-ring 7, having a conical or rounded extremity to fit in the

seat at the outer end of the casing or shell. The coils of said compressible packing-ring are cross-sectionally rectangular, whereby when the ring is compressed axially to force its inner conical or spherical end firmly into the seat in the shell or casing the coils are forced toward each other and tend to form an unbroken cylinder. This axial compression of the coiled packing-ring not only firmly seats the outer end thereof in the socket at the contiguous end of the shell or casing, but causes the inner surfaces of the coils to bear snugly against the surface of the rod or member passing through the box.

The inner end of the bore of the shell or casing is flared to form a conical or tapered seat 8, in which is fitted the conical split packing-ring 9, the bore of said ring being adapted to fit snugly around the cylindrical exterior surface of the coiled compressible packing-ring 7, whereby when forced into the conical seat it will be contracted and will bear firmly against the said surface of the coiled ring.

Fitted in the inner end of the shell or casing around the reciprocatory rod or member and adapted to bear upon the contiguous ends of the coiled and conical packing-rings 7 and 9 is a follower-disk 10, which is normally held in operative relation with the other parts of the device by means of a coiled retaining-spring 11, said spring being interposed between the follower-disk and the exterior surface of the head of the cylinder or other fixed object.

From the above description it will be seen that the retaining-spring forces the follower-disk into the shell or casing with sufficient force to normally hold the parts in operative position, but as the pressure within the cylinder, in connection with which the device is used, increases said follower-plate will be actuated thereby and seat the conical packing-ring and compress the coiled packing-ring, in order to force its extremity into the seat of the shell or casing. Thus fluid under pressure is prevented from escaping around the reciprocatory rod contiguous to its surface or through the casing or shell around the coiled packing-ring without applying unnecessary friction to the reciprocatory member. The spherical packing-ring, which is interposed

between the outer end of the shell or casing and the gland or cap-plate, prevents escape of pressure at that point.

Various changes in the form, proportion, 5 and the minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of this invention.

Having described my invention, what I 10 claim is—

1. A rod-packing having a shell or casing, a coiled compressible packing-ring arranged in the shell or casing, a conical contraction packing-ring fitted in a conical seat in the 15 inner end of the shell or casing and surrounding the contiguous extremity of the coiled packing-ring, and a follower-plate arranged in contact with said packing-rings and exposed to fluid-pressure, substantially as specified. 20

2. A rod-packing having a shell or casing provided at one end with a conical or spherical seat, a coiled compressible packing-ring constructed at one end to fit said seat, a conical contraction packing-ring fitted in a corresponding seat in the other end of the shell 25 or casing and surrounding the contiguous extremity of the coiled packing-ring, and a fol-

lower-plate arranged in contact with the contiguous ends of the said packing-rings and 30 exposed to fluid-pressure, substantially as specified.

3. A rod-packing having a shell or casing provided at one end with a conical or spherical seat, a coiled compressible packing-ring 35 arranged within the shell or casing and constructed at one end to fit said seat, a split contraction packing-ring of tapered or conical construction fitted in a corresponding seat at the opposite end of the shell or casing and 40 surrounding the contiguous end of the coiled packing-ring, a follower-plate fitted in the shell or casing in contact with the contiguous extremities of said packing-rings, and a retaining-spring arranged in contact with the 45 surface of the follower-plate to permanently maintain the parts in operative relation, substantially as specified.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in 50 the presence of two witnesses.

EUGENE A. BRYANT.

Witnesses:

A. T. MOE,

D. P. DEANE.