

No. 760,313.

PATENTED MAY 17, 1904.

D. CROCKER.  
SELF ADJUSTING POLISH ROD PACKING.

APPLICATION FILED NOV. 6, 1903.

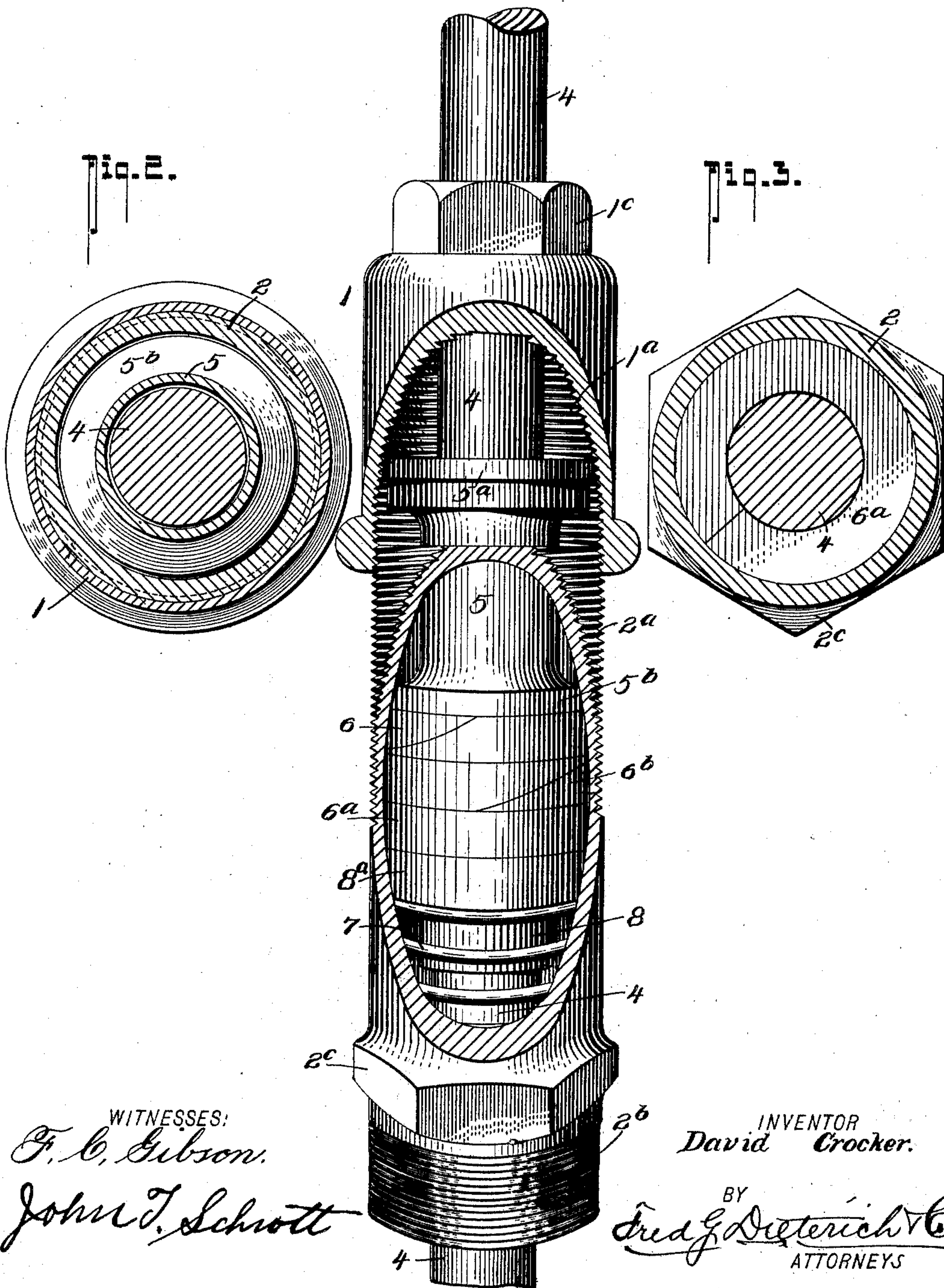
NO MODEL.

2 SHEETS—SHEET 1.

Fig. 1.

Fig. 2.

Fig. 3.



WITNESSES:

*F. C. Gibson.*

*John T. Schrott*

INVENTOR

*David Crocker.*

BY

*Fred G. Dietrich & Co.*  
ATTORNEYS

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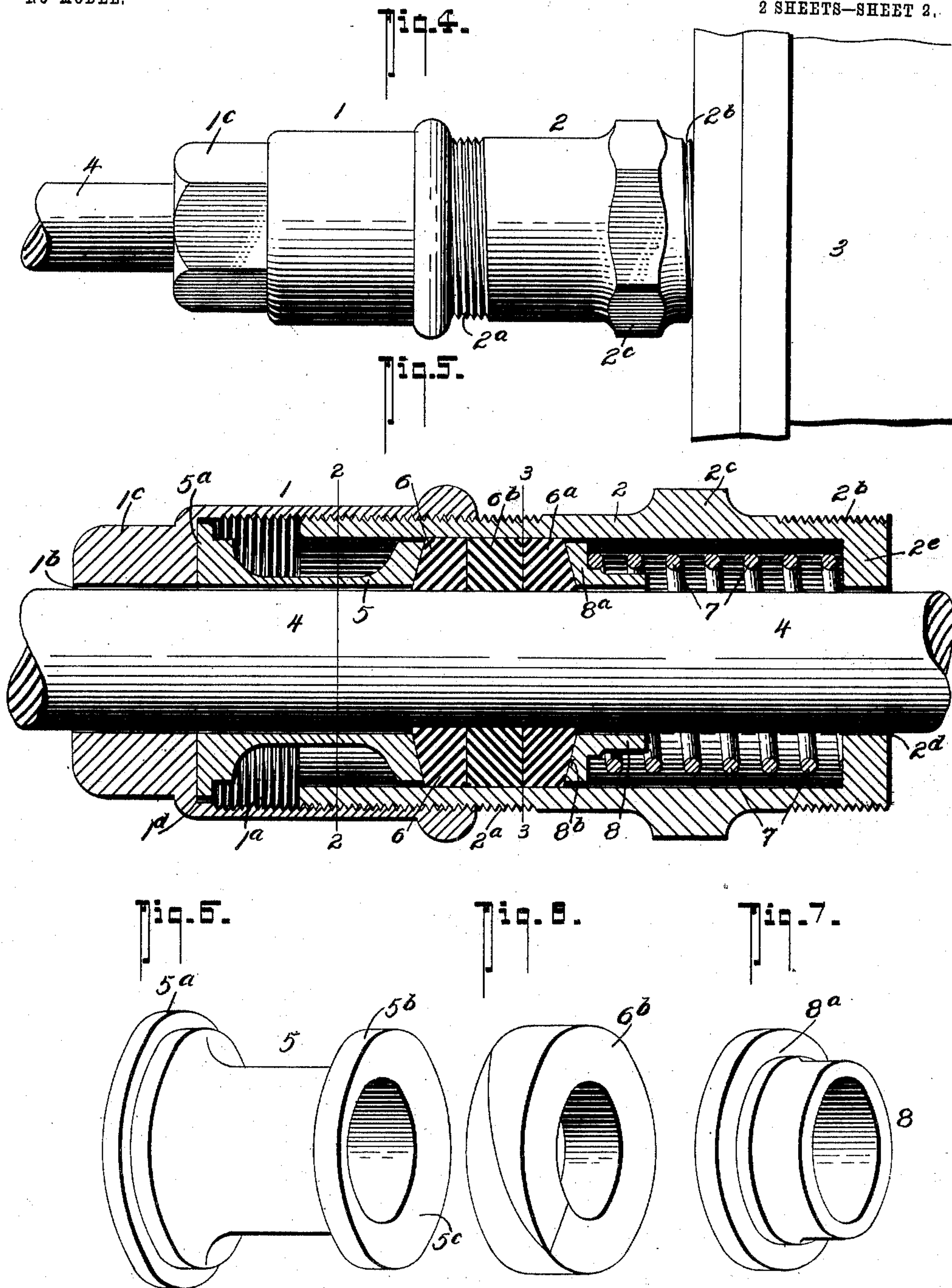
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# UNITED STATES PATENT OFFICE.

DAVID CROCKER, OF SANDYLAKE, PENNSYLVANIA, ASSIGNOR OF ONE-HALF TO WILLIAM H. UNBEHAUN, OF FRANKLIN, PENNSYLVANIA.

## SELF-ADJUSTING POLISH-ROD PACKING.

SPECIFICATION forming part of Letters Patent No. 760,313, dated May 17, 1904.

Application filed November 6, 1903. Serial No. 180,139. (No model.)

*To all whom it may concern:*

Be it known that I, DAVID CROCKER, residing at Sandylake, in the county of Mercer and State of Pennsylvania, have invented a new and Improved Self-Adjusting Polish-Rod Packing, of which the following is a specification.

My invention seeks to provide an improved rod-packing of that class wherein two opposing sections are arranged to be adjustably moved one within the other whereby to properly compress the packing members when they become worn by the reciprocation of the rod therebetween; and primarily my invention has for its object to provide an appliance of the character stated of a simple and economical construction in which the several parts are especially designed to effect a close conforming of the packing around the rod and self-adjusting, whereby the packing is maintained in the desired contact with the rod or shaft at all times to afford a continuous unbroken bearing-surface around the rod or shaft, said special design or arrangement of parts constituting my appliance being also such as to admit of the ready removal of the packing members when worn out and the substitution of new packing members.

In its more subordinate features my invention consists in certain peculiar arrangements and novel combination of parts, all of which will be hereinafter fully described in detail, and specifically pointed out in the appended claims, reference being had to the accompanying drawings, in which—

Figure 1 is a perspective view of my improved rod-packing applied to the piston rod or shaft, parts being broken away to illustrate more clearly the internal construction. Fig. 2 is a transverse section of the same on the line 2 2 of Fig. 5. Fig. 3 is a similar view on the line 3 3 of Fig. 5. Fig. 4 is a side elevation of the same attached to a cylinder-head. Fig. 5 is a longitudinal section of the packing devices and the rod or shaft operable therein. Fig. 6 is a detail view of the stationary packing-ring sleeve bearing or seat. Fig. 7 is a similar view of the opposite or fol-

lower sleeve. Fig. 8 is a detail view of one of the packing-rings used in my complete packing appliance.

My improved packing, while especially adapted for use with pumping or polish rods of oil-wells, is applicable for use on piston-rods, valve-stems, air and water pumps, and all kinds of engines where packing devices of the character above referred to are used.

In the practical construction my invention comprehends a casing consisting of two sections 1 and 2 of different diameters in cross-section, as clearly shown in Figs. 1 and 5, and which fit one within the other, the section 2, which forms the nipple portion, having its outer end threaded externally, as at 2<sup>a</sup>, to engage the internally-threaded end 1<sup>a</sup> of the section 1, and the nipple-section 2 has the usual threaded end 2<sup>b</sup> for connecting with the cylinder-head (indicated by 3 in the drawings) or such other body through or within which the rod 4 operates, and the said member 2 also has the usual wrench-receiving portion 2<sup>c</sup> and the piston or rod aperture 2<sup>d</sup> in the inclosed end 2<sup>e</sup>, as shown. The section or cap member 1 has the usual aperture 1<sup>b</sup> and the wrench-receiving portion 1<sup>c</sup> in its solid end, and in my improved construction it is also formed with a seat 1<sup>d</sup> on the inner face of the solid end that surrounds the aperture 1<sup>b</sup> to receive the flat base 5<sup>a</sup> of the bearing-sleeve 5, the outer end of which terminates with the head 5<sup>b</sup>, having a concaved seat 5<sup>c</sup> to snugly bear against the packing-ring 6, and the said head 5<sup>b</sup> is of sufficiently less diameter than the diameter of the member 2, into which it projects, to allow for a free endwise adjustment of the open end of the member 2 between it and the threaded end of the cap member 1, as clearly shown in Figs. 1 and 5. The nipple member 2 is also provided with a flat seat that surrounds its rod-aperture to receive one end of the stout coil or cushion spring 7, the outer end of which encircles and bears against a follower-sleeve 8, which opposes the bearing-sleeve 5 and in conjunction with the sleeve 5 clamps and compresses the packing-rings. The sleeve 8 includes a short hub 8<sup>a</sup>,



which projects within the spring 7, and the head 8<sup>a</sup>, that has the concaved seat 8<sup>b</sup> to receive the packing-ring 6<sup>a</sup>.

In the practical arrangement of my invention a suitable number of packing-rings is provided, and each of the rings is of a diameter to snugly fit within the smooth barrel portion of the nipple member 1 and which ring is suitably apertured to snugly fit upon the rod 4.

10 In the drawings I have shown three packing-rings, two end rings 6 and 6<sup>a</sup> and the center ring 6<sup>b</sup>; but I desire it understood that a plurality of center rings may be used as conditions may make desirable. The center rings

15 are ordinary flat disks; but the end rings 6 and 6<sup>a</sup> have their outer faces, that bear against their respective bearing members 5 and 8, convexed to snugly bear against the concaved seats of the rings 6 and 6<sup>a</sup>, and all of the said

20 rings are formed from any suitable or well-known compressible material.

From the foregoing, taken in connection with the accompanying drawings, it is believed the complete construction, advantages,

25 and the operation of my improved packing appliance will be readily apparent to those skilled in the art to which it appertains.

I am aware that packing means of the same general character above referred to have been

30 provided in which is included a nipple portion and cap which engages the nipple and means within the nipple and cap for compressing the packing-rings.

My invention, so far as I know, differentiates from what has heretofore been provided in this art in the peculiar manner in which the nipple and cap members adjustably connect the opposing bearing-sleeves 8 and 5 and the special coöperation of the said sleeve with

40 the peculiarly-arranged packing-rings and the nipple and the cap members.

By providing the peculiarly-constructed sleeves 5 and 8 the sleeve 5, by reason of its flat base and its head portion, is held solid

45 above as against the packing-rings and the base of the cap, whereby it is supported in a fixed position relative to the rod 4 to relieve the rod from frictional contact therewith, and the sleeve 8 is likewise held above the ring 6<sup>a</sup> and the spring 7. Again, by reason of the flat-spring packing-ring and the convex or disk outer ring 6 and 6<sup>a</sup> and the concaved seat on the bearing-head of the sleeves 8 and 5 when

50 endwise pressure is applied to the compressible rings they are expanded radially, and thereby caused to come in a tight frictional bight both as against the rod and the barrel of the member 2. To replace the rings, it is only necessary to uncouple the cap from

55 the nipple and remove the head 5, when access can be had to the rings 6 and 6<sup>a</sup>.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

65 1. In a packing as described in combination

with an axially-disposed rod, a nipple or barrel member externally threaded at its open end and provided with a rod-aperture in its solid end, and a bearing surrounding said aperture, a cap adjustably attached to the

70 threaded end of the barrel member provided with a rod-aperture in its solid end and having a bearing portion surrounding the said aperture, a sleeve loosely mounted upon the shaft and supportable within the barrel out

75 of direct engagement with the rod, a second sleeve supportable within the barrel member out of engagement with the rod, packing-rings mounted on the rod between the two

80 sleeves, a spring interposed between the second sleeve and the solid or bearing portions of the barrel or nipple member, as set forth.

2. The hereinbefore-described packing appliance, comprising the following elements in combination; a barrel member adapted to

85 be attached to the body in which the rod reciprocates, said barrel member having a rod-aperture in its solid end, and an integrally-formed internal bearing-surface surrounding said aperture, a cap member adjustably at-

90 tachable to the barrel member having a rod-aperture in its solid end, and an integrally-formed internally-flat bearing-surface surrounding said aperture, the sleeve 5 having a flat base to engage the flat bearing-surface of

95 the cap and having a head 5<sup>a</sup> of less diameter than the barrel member within which it projects, said sleeve 5 being held within cap and barrel out of direct engagement with the rod upon which the packing appliance is mounted,

100 said sleeve-head 5<sup>a</sup> having a concaved bearing-seat, the coiled spring 7 bearing at one end against the solid portion of the barrel member, the follower-sleeve 8 said sleeve including a hub that projects into the outer end

105 of the coil-spring 7, and a head portion 8<sup>a</sup> provided with a concaved seat, and a series of packing-rings held between the two sleeves aforesaid, the outermost ones of said rings having convexed faces to engage the concaved

110 seats in the sleeves, all being arranged substantially as shown and described.

3. The hereinbefore-described packing appliance, comprising the following elements in combination; a barrel member adapted to be

115 attached to the body in which the rod reciprocates, said barrel member having a wrench-receiving portion, said barrel member being externally threaded and having a rod-aperture in its solid end and an integrally-formed

120 internal bearing-surfaces surrounding said rod-aperture, a cap member adjustably attached to the barrel member and having its end formed with a nut portion, said end also having a rod-aperture, said cap member being

125 internally threaded and provided with a seat and an internal flat bearing-surface surrounding said rod-aperture in the cap member, a sleeve 5 having a flat base to engage the flat bearing-surface of the cap and rest in said

130



cap-seat, said sleeve 5 also having a head 5<sup>a</sup> of less diameter than the member within which it projects, said sleeve 5 being held within said cap and barrel out of direct engagement with the rod upon which the packing appliance is mounted, said sleeve-head 5<sup>b</sup> having a concave bearing-seat, coil-spring 7 bearing at one end against the solid portion of the barrel member, the follower-sleeve 8 said sleeve including a hub that projects into the outer end of the coil-spring 7, and the

hub portion 8<sup>a</sup> provided with a concave seat and a series of packing-rings held between the two aforesaid sleeves, the outermost ones of said rings having convexed faces to engage the concave seats in the sleeves for the purposes specified.

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Witnesses:

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W. J. POND.