

(No Model.)

J. H. SHEPHEARD.  
ROD PACKING.

No. 468,730.

Patented Feb. 9, 1892.

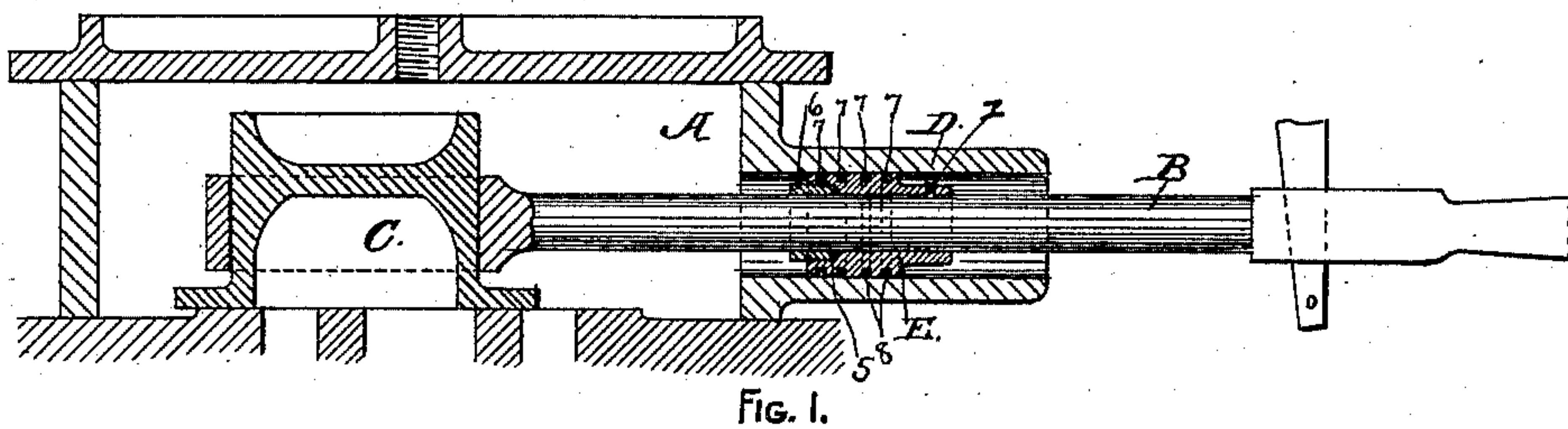


FIG. 1.

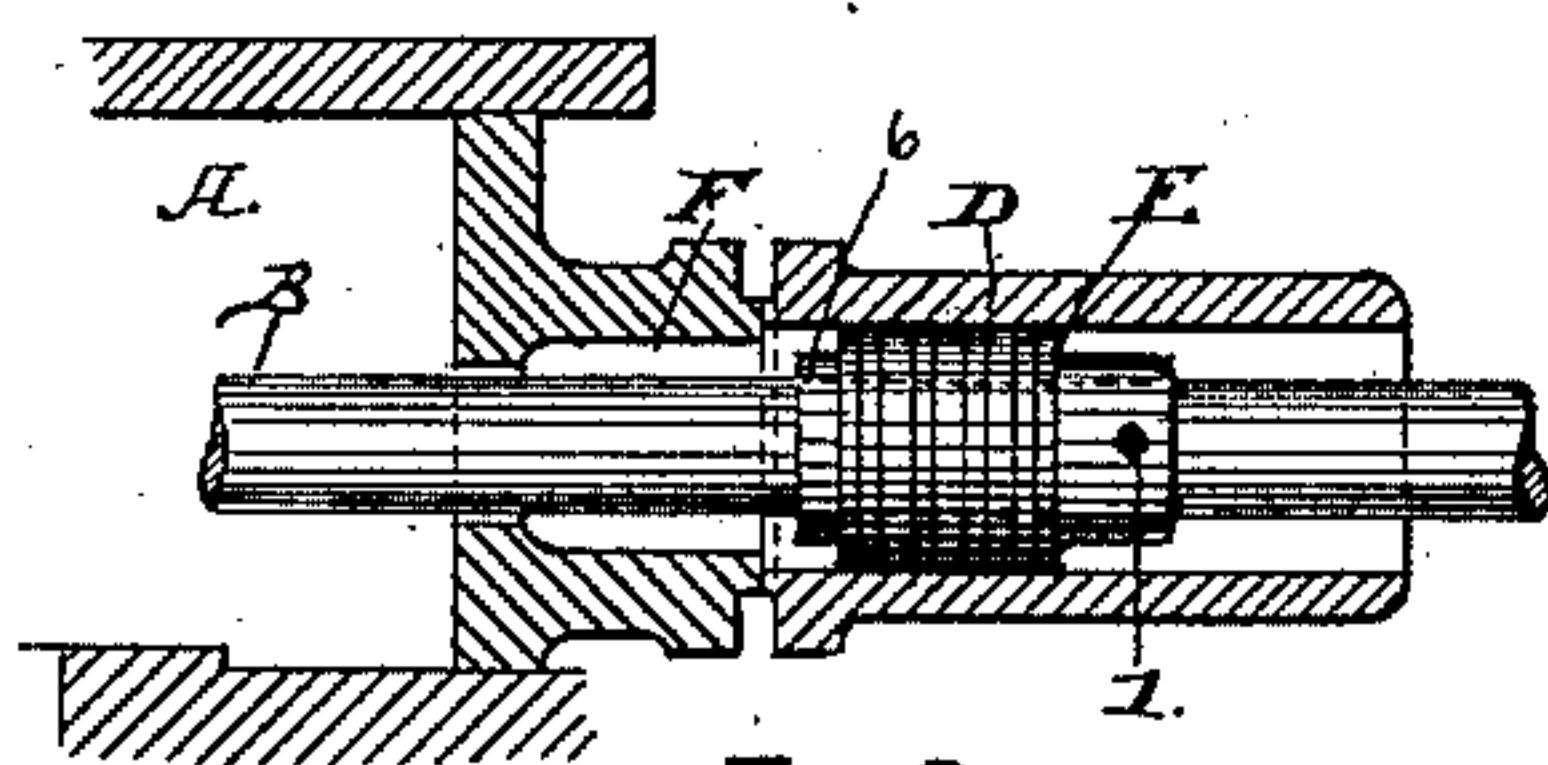


FIG. 2.

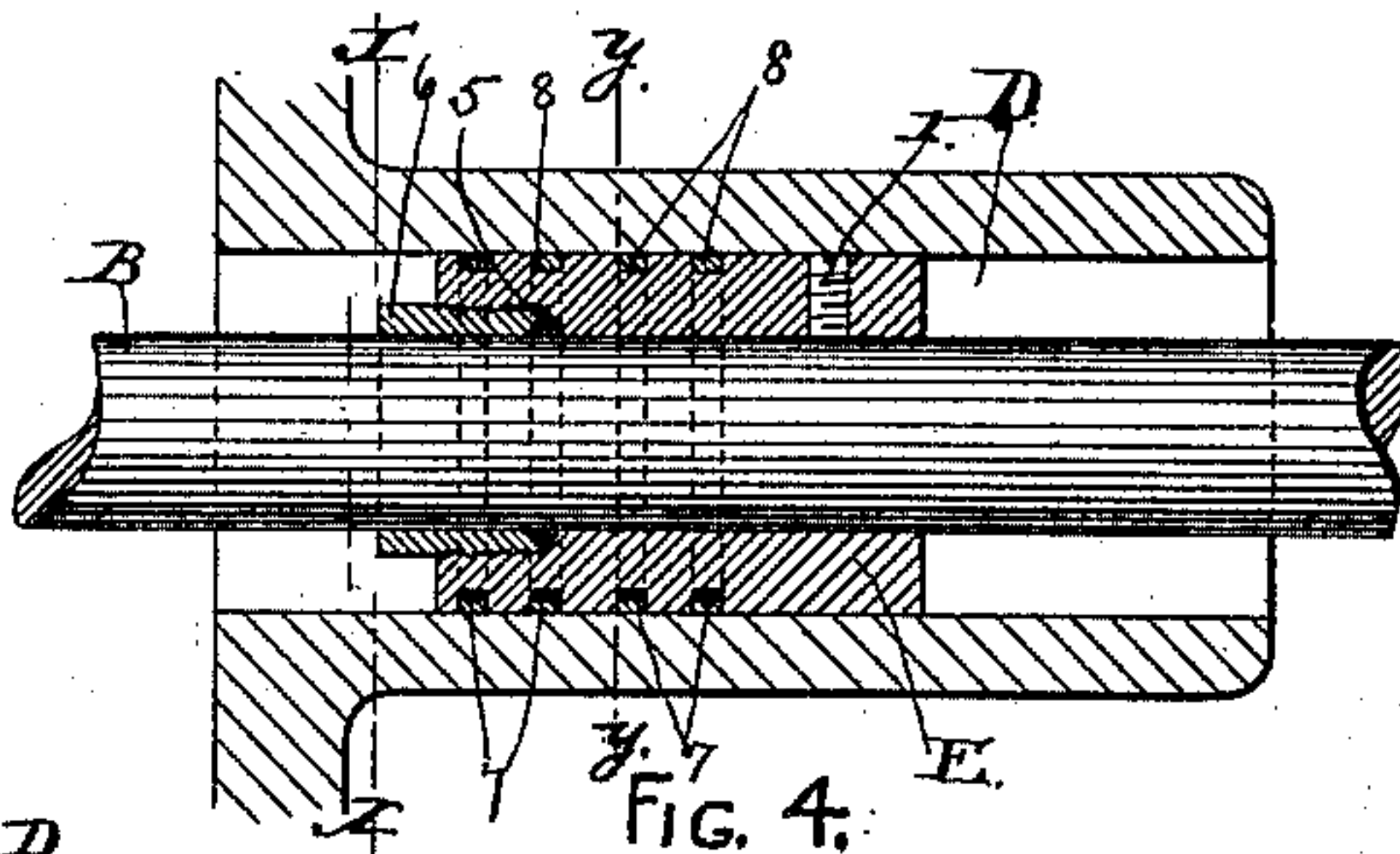


FIG. 4.

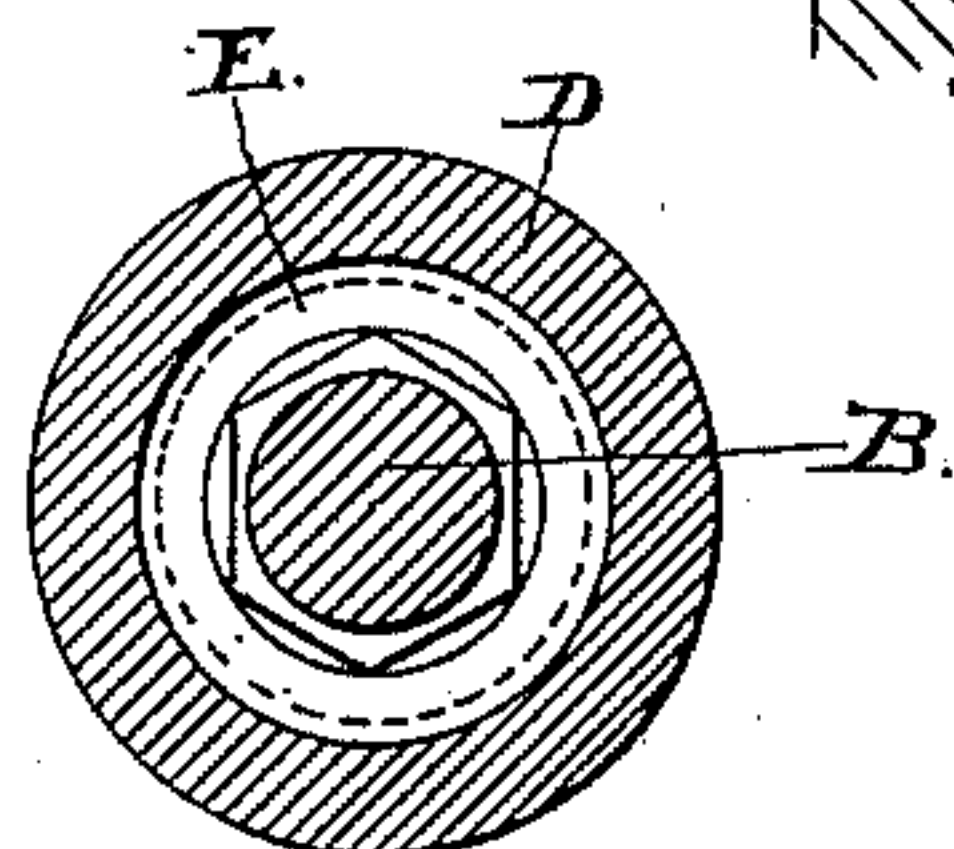


FIG. 5.

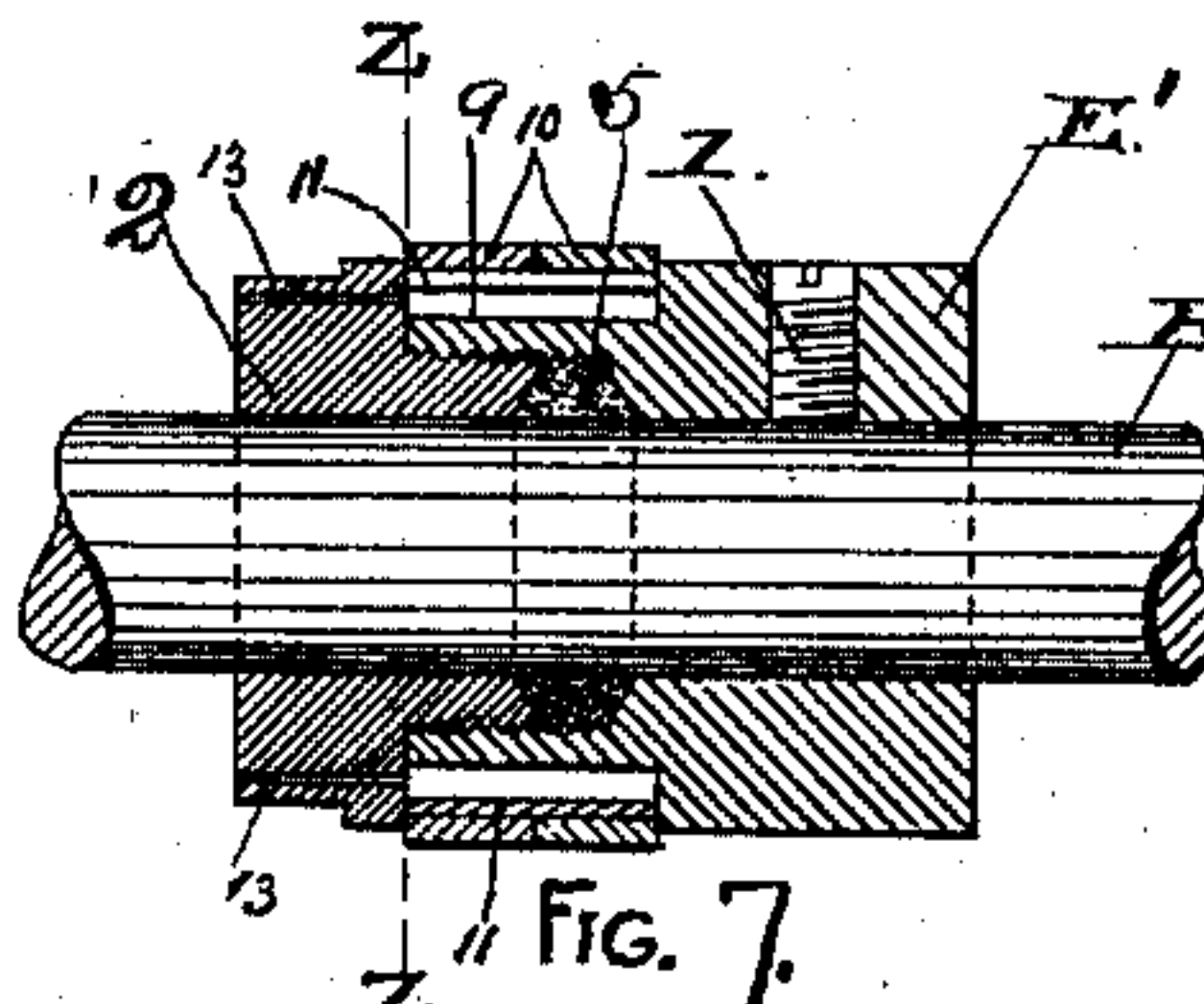


FIG. 7.

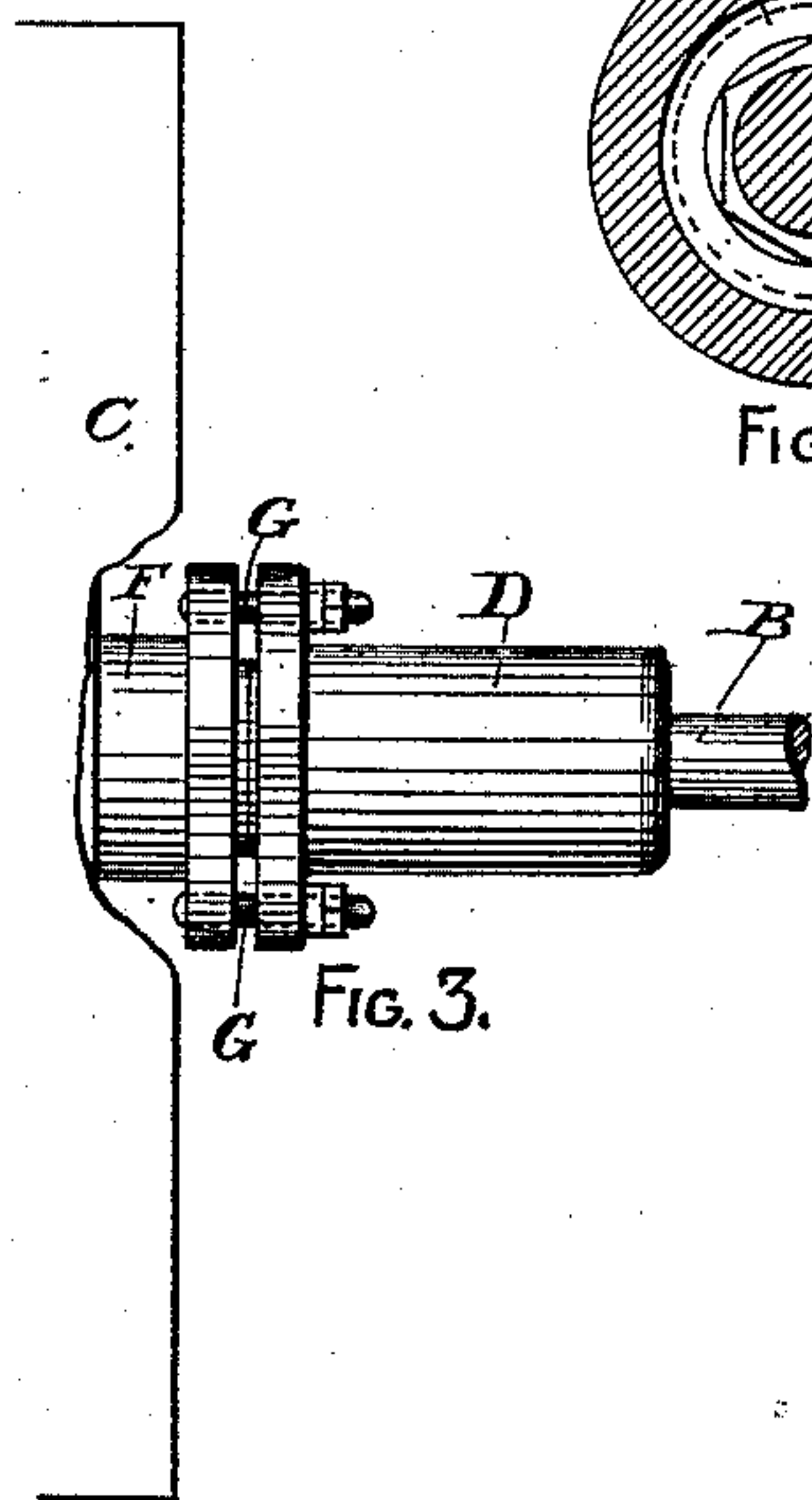


FIG. 3.

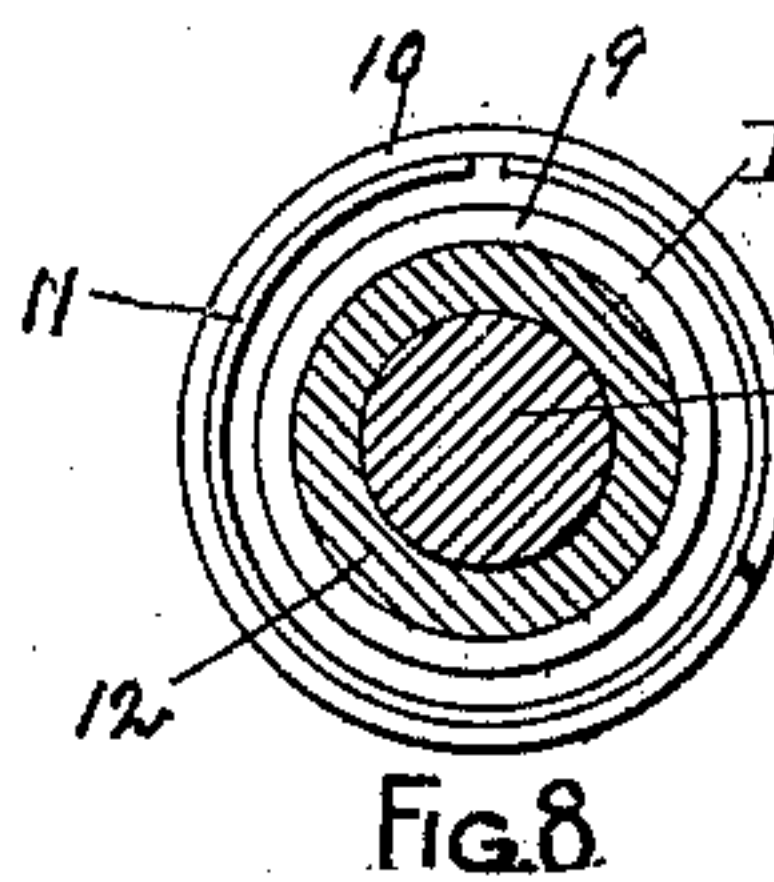


FIG. 8.

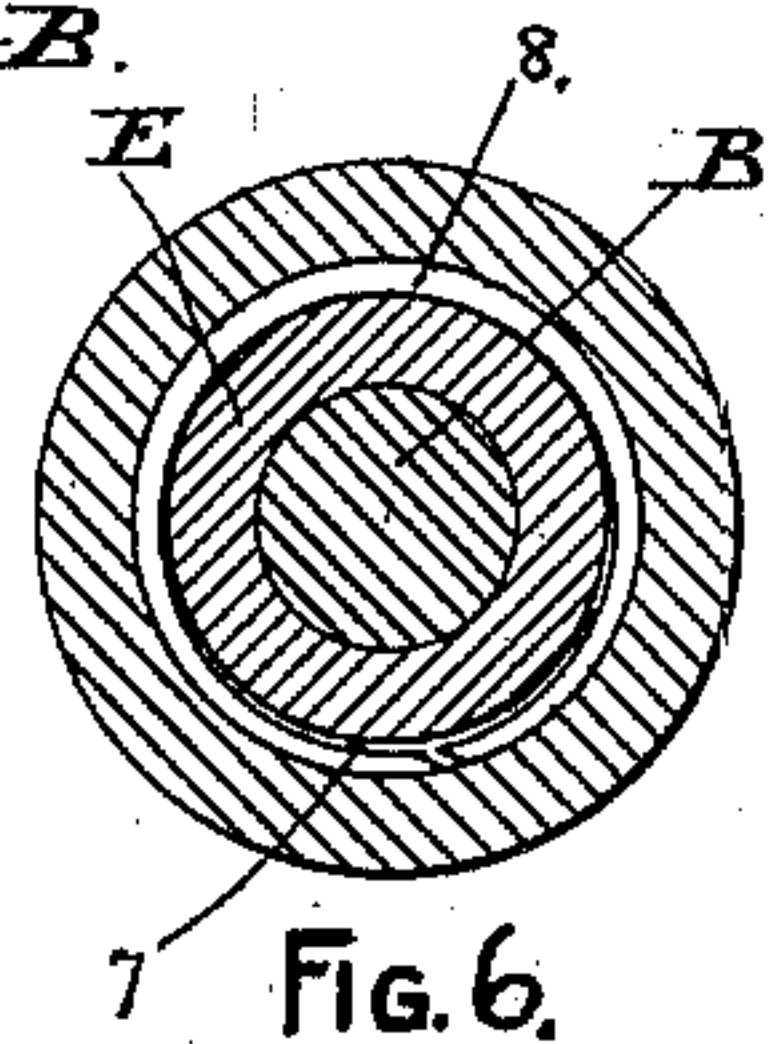


FIG. 6.

WITNESSES:

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# UNITED STATES PATENT OFFICE.

JOHN H. SHEPHEARD, OF ALBANY, NEW YORK, ASSIGNOR OF ONE-HALF TO  
ROBERT C. BLACKALL, OF SAME PLACE.

## ROD-PACKING.

SPECIFICATION forming part of Letters Patent No. 468,730, dated February 9, 1892.

Application filed June 6, 1891. Serial No. 395,362. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN H. SHEPHEARD, of the city and county of Albany, in the State of New York, have invented new and useful  
5 Improvements in Packing for Valve-Rods of Steam-Engines and for other Similar Purposes, of which the following is a specification.

My invention relates to improvements in packing for rods of steam-engines, pumps, and  
10 other machines whose reciprocating rods require to be provided with a packing to prevent the leakage of steam or other fluids; and the object of my invention is to provide a simple, durable, and efficient packing for such  
15 purposes. This object I attain by the means illustrated in the accompanying drawings, which are herein referred to and form part of this specification, and in which—

Figure 1 is a longitudinal section of my invention applied to the valve-rod of a steam-engine when the steam-chest is specially made for the purpose. Fig. 2 is a like section showing the mode of applying my invention to a steam-chest provided with an ordinary form  
25 of stuffing-box for the valve-rod. Fig. 3 is a plan view of the construction shown in Fig. 2. Fig. 4 is an enlarged longitudinal section of the cylindrical sleeve and packing-head of my invention applied to a valve-rod, a slight modification of the form of said packing-head being  
30 shown in said figure. Fig. 5 is a transverse section of Fig. 4, showing the inner end of the packing-head, said section being taken at the line X X. Fig. 6 is a transverse section at the line Y Y  
35 of Fig. 4. Fig. 7 is a longitudinal section of a modified form of the packing-head adapted to use with concentric packing-rings, and Fig. 8 is a transverse section at the line Z Z of Fig. 7.

40 As illustrated in the drawings, A designates the steam-chest of an ordinary form of steam-engine, B the valve-rod, and C the slide-valve of same.

The steam-chest A is provided with a cylindrical sleeve D, whose inner end is open to the interior of the steam-chest, and whose outer end is open to the atmosphere. Said sleeve should be bored smoothly to a uniform diameter so as to allow a packing-head E to  
45 reciprocate freely back and forth therein. In the form of my invention shown in Figs. 2 and

3 the sleeve D' is made separately from the steam-chest A and is fitted to secure to the outer end of the stuffing-box F by the gland-bolts G, by which the gland of the stuffing-  
55 box had formerly been adjusted. This form of my invention is intended for steam-chests that have been provided with the ordinary and well-known form of stuffing-box for containing packing, whereby a steam-tight joint  
60 was formed for the valve-rod; but when my invention is used thereon the packing and gland commonly employed are dispensed with. The hole for the valve-rod at the bottom of the stuffing-box is allowed to remain in its  
65 previous condition, so that the steam leaking through said hole can enter the bore of the sleeve D' and exert its pressure against the inner end of the packing-head E.

The packing-head E is bored to fit snugly  
70 on the valve-rod C, and it is adjustably secured to the latter by means of a set-screw 1, of which there may be one or several, as the occasion may require. The inner end of the packing-head E, provided with a stuffing-box  
75 for containing packing 5 and a gland 6, is fitted to screw into said stuffing-box so as to compress the packing 5 and thereby form a steam-tight joint that will prevent a leakage  
80 of steam through the bore of the packing-head by disconnecting the valve-rod C from the rocker-arm or other mechanism employed for imparting a reciprocating movement to said rod. The latter can be moved outwardly  
85 for the purpose of obtaining access to the set-screw 1 so as to loosen the packing-head E from the valve-rod C. When that act is accomplished, the packing-head can be drawn out from the sleeve D, thereby affording access to the gland 6 whenever the packing 5  
90 may need adjustment, as shown in Figs. 1, 2, and 4. The packing-head E is provided with several circumferential grooves 7, each containing an eccentrically-bored packing-ring 8, which fits snugly into the bore of the sleeve  
95 D and forms a steam-tight joint therewith in such manner that a leakage of steam through the bore of said sleeve will be prevented. Each packing-ring 8 is cut through its thinner side and is sprung apart to pass over the body  
100 of the packing-head until it is in position to enter one of the grooves 7. When this is at-



tained the packing-ring 8 will return to its normal diameter and remain in the groove in which it was entered. This form of packing has been used for piston-heads with success  
5 for many years. Therefore I do not claim it as my invention.

In Figs. 7 and 8 a modified form of packing-head is shown, the same being designated as E'. In the latter form the inner extremity  
10 of the packing-head is reduced in diameter, as at 9, to form a circumferential rabbet for receiving the metallic packing-rings of a common and well-known form, consisting of two outer rings 10 and a single inner ring 11.  
15 When made in the latter form, the gland 12 for the stuffing-box of the packing-head E' forms a follower for the packing-rings. Preferably said gland is provided with minute openings 13 for the purpose of admitting steam  
20 to enter the space formed between the inner side of the packing-rings and the periphery of the packing-head, thereby effecting the expansion of the packing-rings by steam-pressure.

My invention operates in the following manner: The packing-rings in the packing-head  
25 will form a steam-tight joint with the bore of the cylindrical sleeve D, and a steam-tight joint is formed in the bore of the packing-head by the means hereinbefore described.  
30 By the reciprocating motion imparted to the valve-rod C the packing-head is moved correspondingly in the cylindrical sleeve D, and the pressure of the steam acting upon the inner end of said packing-head will push the  
35 valve-rod and its connected parts outwardly, and thereby any lost motion between the valve-moving mechanism and the valve-rod will be

taken up and all thumping or rattling incident to such lost motion will be entirely avoided.

I do not confine myself to the precise kind of packing for the periphery of the packing-head herein shown and described, as I am aware that the same results can be produced  
40 by the employment of other packings for said packing-head.

I am aware that rod-packings have heretofore been constructed to embrace a packing-head provided with metallic rings and fitted to reciprocate in an open-ended cylindrical  
50 sleeve. Therefore I do not broadly claim such constructions; but in those earlier constructions, where the packing-head was made as an independent part of the mechanism, no provision was made for preventing an escape  
55 of steam between the bore of the packing-head and the periphery of the valve-rod.

What I claim as my invention, and desire to secure by Letters Patent, is—

A rod-packing consisting of a packing-head  
60 which is adjustably attachable to a reciprocating rod and fitted to reciprocate in a cylindrical sleeve, said packing-head being provided with metallic packing-rings on its periphery and with a stuffing-box for receiving  
65 packing between the bore of said packing-head and the rod to which it is attached, the inner end of said packing-head being exposed to the fluid-pressure, substantially as herein specified.

JOHN H. SHEPHEARD.

Witnesses:

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