L. B. JOYNER.

PACKING GLAND.

APPLICATION FILED MAY 17, 1920.

1,404,299.

Patented Jan. 24, 1922.

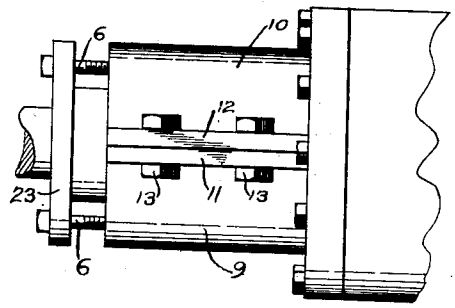



Fig. 1.

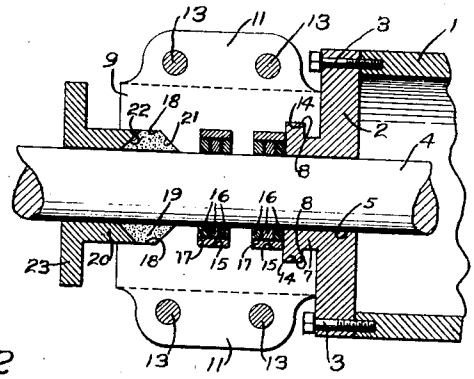



Fig. 2.

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# UNITED STATES PATENT OFFICE.

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## PACKING GLAND.

1,404,299. Specification of Letters Patent. Patented Jan. 24, 1922.

Original application filed March 29, 1920, Serial No. 369,762. Divided and this application filed May 17, 1920. Serial No. 382,139.

*To all whom it may concern:*

Be it known that I, LANSON B. JOYNER, a citizen of the United States, and a resident of Washington, parish of St. Landry, and State of Louisiana, have invented a new and useful Improvement in Packing-Glands, of which the following is a full, clear, and exact description.

My invention relates to improvements in packing glands, and it consists in the combinations, constructions, and arrangements herein described and claimed.

An object of my invention is to provide a novel form of packing gland that is particularly adapted for application to a cylinder of an internal combustion engine.

A further object of my invention is to provide an effective and practical means for effecting a tight connection between a cylinder and the parts associated therewith in such a manner as to permit such associated parts to satisfactorily perform the functions for which designed.

A further object of my invention is to provide a device of the type described that is strong and durable in construction and not likely to get out of order easily.

Other objects and advantages will appear in the following specification, and the novel features of the invention will be particularly pointed out in the appended claims.

This application is a division of the application for patent on internal combustion engine, filed by me March 29, 1920, Serial No. 369,762.

My invention is illustrated in the accompanying drawings, forming part of this application, in which—

Fig. 1 is a side view of the device as operatively applied,

Fig. 2 is a horizontal sectional view of the mechanism shown in Fig. 1.

In carrying out my invention, I make use of a cylinder, a fragmentary portion of which is denoted by 1 in the drawings. The cylinder 1 is provided with a cylinder head 2 which is secured thereto in an ordinary manner as by means of bolts 3. A piston rod 4 is arranged to move in its reciprocation through a central opening 5 provided in the cylinder head 2. The cylinder head 2 is formed with a central outwardly extending integral extension 7 which surrounds the central opening 5. The integral extension 7 has an outwardly extending annular rib or flange 8 at its outer end.

It is to be understood that the extension 7 may be formed separately from the cylinder head 2 and rigidly secured thereto by any suitable means, as by welding.

I then provide a pair of semi-cylindrical members 9 and 10, which have similar lateral lugs 11 and 12 which afford a means for clamping the members 9 and 10 together about the piston rod 4, bolts 13 being used to accomplish this result.

In Fig. 2 of the drawings, the construction of the member 9 is shown in detail. The following description of the member 9 applies also to the member 10, since these members are precisely identical.

The semi-cylindrical member 9 is formed with internal semi-annular recess 14, which is adapted to receive the annular rib or flange 8. Additional semi-annular recesses 15 are provided in the inner wall of the member 9 intermediate its length. A recess 18 in the inner wall of the member 9 extends inwardly from the outer end thereof, the wall of the recess being tapered at 21 as shown in the drawings. A plurality of relatively thin inner packing rings 16 are disposed about the piston rod 4 and are maintained in position by an outer packing ring 17 which is disposed within the recess 15. The inner packing rings are preferably formed of brass or a like composition while the outer packing rings are preferably formed of cast iron or the like.

A suitable packing 19 is disposed within the recess 18 about the piston rod 4. This packing is compressed by means of a sleeve member 20, which has its tapered end portion 22 inserted within the recess 18, as shown. The sleeve 20 is formed with a flange 23 and is adjustably secured to the members 9 and 10 by means of bolts 6. It will be noted that the packing 19 can be compressed as desired by screwing the bolts 6 into the members 9 and 10, thus moving the tapered end 22 of the sleeve 20 inwardly.

From the foregoing description of the various parts of the device, the operation thereof may be readily understood. The semi-cylindrical members 9 and 10 are secured together by the bolts 13, thus maintaining the packing rings and the packing about the pitson rod 4 in the positions shown in the drawings, while permitting a free reciprocating movement of the latter. The device provides a strong and durable means for effectively packing the connection

of a cylinder or the like and a movable portion, such as a piston rod, whereby the escape of gas, steam, or the like, is prevented and the parts to which the device is applied are enabled to satisfactorily perform their normal functions.

It will be understood that the piston rod will in service be lubricated in any suitable manner, no means for accomplishing this object being shown in the accompanying drawings. The packing 19 may also be impregnated with a lubricant.

I claim:

1. The combination with a cylinder having a cylinder head formed with an outwardly extending integral rib surrounding a central opening and a piston rod extending through said central opening, of a packing gland arranged to connect with said cylinder head, said packing gland being formed with an annular recess adjacent one end thereof adapted to receive said annular rib, whereby said packing gland is maintained in position, an intermediate annular recess adapted to receive an outer relatively hard packing ring and a plurality of inner relatively soft packing rings arranged concentrically therewith, a recess adjacent the other end of said packing gland adapted to receive packing, and a flanged sleeve having a portion inserted within said last named recess for compressing the packing disposed therein, said flanged sleeve being adjustably secured to said packing gland.

2. The combination with a cylinder having a cylinder head formed with an outwardly extending integral rib surrounding the central opening and a piston rod arranged to extend through said central opening, of a packing gland arranged to connect with said cylinder head, said packing gland being formed of supplementary sections formed with cooperating semi-annular recesses in their inner walls adjacent one end thereof adapted to receive said annular rib, and with additional cooperating semi-annular recesses in their inner walls communicating with said first named annular recesses, means for securing said sections together to maintain said packing gland in determined position relative said cylinder head, an outer packing ring disposed within said last named recesses, and a plurality of circumferentially alined inner packing rings arranged concentrically with said outer packing ring and having their inner walls engaging the piston rod.

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