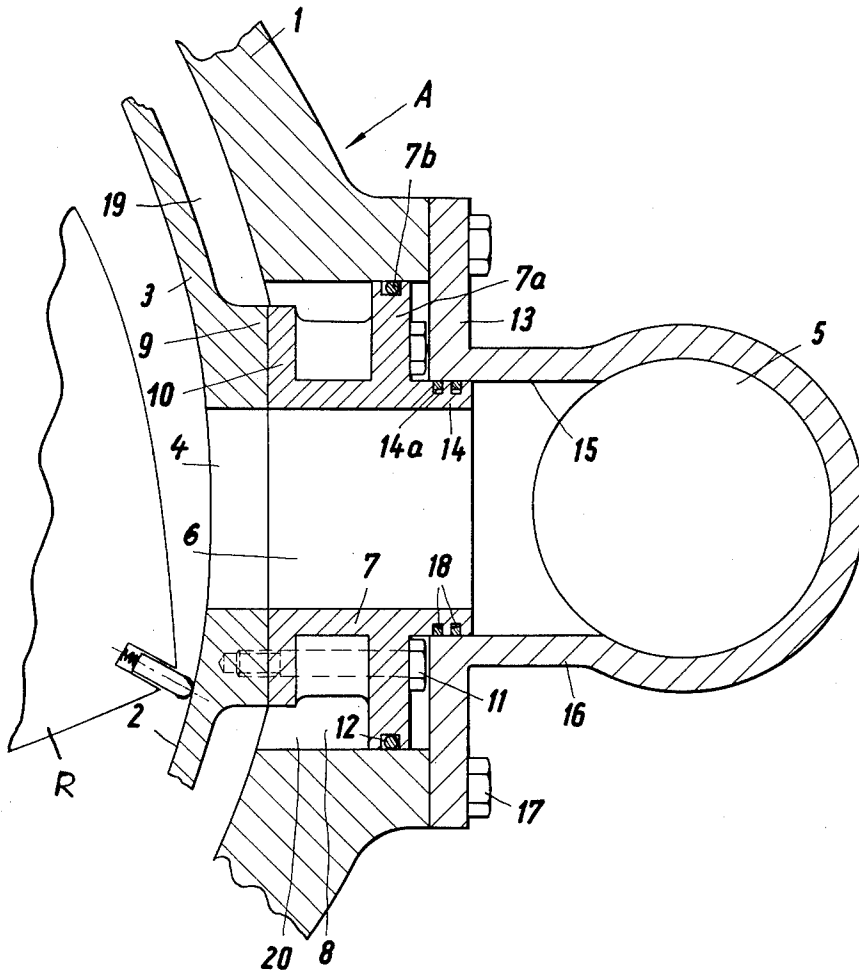


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ROTARY PISTON MACHINE
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ROTARY PISTON MACHINE

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The present invention relates to a rotary piston machine which comprises an outer body with inner tooth-like contour and an inner body with tooth-like outer contour in cooperation with the tooth-like contour of the outer body. More specifically, the present invention relates to a rotary piston machine of the above mentioned type in which the inner contour of the outer body is formed by a thin-walled bushing inserted in a housing while the openings to be connected to the inlet and outlet manifolds are provided in said bushing.

With a rotary piston machine of the above mentioned general type, the said manifolds are connected from the outside to the outer body.

It is an object of the present invention to connect such manifolds in an improved manner with the respective openings in the bushing.

It is another object of this invention to provide an arrangement as set forth in the preceding paragraph which is simple in construction and reliable.

It is a still further object of this invention to provide an arrangement as set forth in the preceding paragraphs, in which the bushing will be relieved of all forces which might be caused by heat expansion or by outer forces which may be conveyed through the exhaust manifold.

These and other objects and advantages of the invention will appear more clearly from the attached drawing illustrating in section a portion of a rotary piston machine having its outer body provided with a bushing according to the present invention.

The above mentioned objects have been realized according to the present invention by a construction which is characterized primarily in that the outer body, which comprises a housing member and a bushing within said housing member, has conduit means sealingly inserted in a corresponding bore of said housing member and mounted upon a portion of the bushing confining opening means to be connected to the respective manifold.

More specifically, referring to the drawings, the outer body generally designated A comprises a housing member 1 and a bushing 3 arranged within said housing member 1 and having its inner surface 2 provided in customary manner with tooth-like surfaces (not shown) for cooperation with corresponding outer surfaces of the rotor R (a portion thereof only being shown). While the arrangement according to the invention may apply both to the inlet opening and the outlet opening of a rotary piston machine, it will be described only in connection with the outlet opening 4 inasmuch as the structure is the same also for use in connection with the inlet opening.

As will be evident from the drawing, the outlet or exhaust opening 4 communicates with the exhaust manifold 5 connected in any convenient manner, for instance by screws 17, to the housing member 1. The communication between the exhaust manifold 5 and the exhaust opening 4 is established by a tubular member 7.

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The tubular member 7 is by means of flanges 10 mounted on flange-like extensions 9 on the bushing 3 and is connected thereto by screws 11. The tubular member 7 is furthermore provided with a flange 7a the peripheral portion of which has recess means 7b carrying sealing means, for instance in the form of a round rubber seal 12. In this way, the tubular member 7 sealingly engages the bore 8 of the housing member 1. As will be evident from the drawing, the tubular member 7 is adapted to displace itself in bore 8 to the extent that it is necessary under the influence of heat expansion.

As will furthermore be evident from the drawing, the tubular member 7 has a collar 14 by means of which it extends into the cylindrical bore 15 of the manifold connection 16. The said collar 14 is provided with annular grooves 14a having arranged therein piston rings 18 for sealing the outer peripheral surface of collar 14 with regard to the bore 15. Collar 14 is adapted to displace itself in the cylindrical bore 15 of connection 16 to the extent it is necessary by heat expansion. It is, of course, to be understood that, if desired, the collar 14 may also be replaced by any suitable yieldable connection.

As shown in the drawing, the bushing 3 which is rather thin-walled confines with housing member 1 a chamber 19 which represents a cooling chamber. This cooling chamber communicates with a chamber 20 adapted to receive a cooling medium and surrounding the tubular member 7.

The connection of the exhaust manifold 5 to the exhaust opening 4 in conformity with the present invention yields a reliable seal of the cooling chambers while the thin-walled bushing 3 is relieved from all forces which might occur in view of heat expansion. It is also obvious from the drawing that any forces which might occur on the outside of the machine cannot be conveyed to the thin-walled bushing 3 through the manifold 5.

If the thin-walled bushing 3 is provided with an inlet opening, the arrangement described above in connection with the outlet opening 4 may be duplicated for connecting such inlet opening to the respective inlet manifold.

It is, of course, to be understood that the present invention is, by no means, limited to the particular construction shown in the drawing but also comprises any modifications within the scope of the appended claims. It is furthermore to be understood that the invention is not limited to rotary piston internal combustion engines but is also applicable to rotary piston engines such as compressors and pumps.

What I claim is:

1. A rotary piston machine which includes a rotor and an outer body comprising a housing member and a bushing arranged within said housing member and provided with an inner surface for cooperation with said rotor, said bushing having passage means therein for the passage of a fluid medium therethrough, said housing member being provided with a bore, conduit means connected to said bushing and confining a conduit communicating with said passage means, and manifold means mounted on and connected to said housing member, said conduit means having a peripheral portion sealingly engaging said bore and also having an extension freely expandably extending into and engaging said manifold means.

2. A rotary piston machine according to claim 1, in which said extension sealingly engages said manifold means.

3. In a rotary piston machine in which an outer body has inner surface means for cooperation with the rotor of the rotary piston machine: said outer body comprising a housing member and a bushing arranged within said housing member and provided with an inner surface for cooperation with said rotor, said bushing confining with said outer body a cooling chamber, said bushing having passage means therein for the passage of a fluid medium therethrough, said housing member being provided with a bore, a tubular member mounted on said bushing and arranged within said bore and having a peripheral portion in sealing arrangement with said bore, another peripheral portion of said tubular member confining with said bore a cooling medium receiving chamber communicat-

ing with said cooling chamber, said tubular member confining conduit means communicating with said passage means, and manifold means mounted on and connected to said housing member, said tubular member having an extension freely expandably extending into said manifold means.

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