

[54] **METHOD OF PREASSEMBLY AND
ASSEMBLY OF A MULTIPARTITE SEAL**

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[56] **References Cited**

UNITED STATES PATENTS

3,685,922 8/1972 Lamm..... 418/121
3,556,695 1/1971 Yamamoto 418/122

3,400,691 9/1968 Jones 418/121
3,286,912 11/1966 Tado 418/120
3,263,912 8/1966 Frenzel 418/120
3,268,157 8/1966 Frenzel 418/122
3,180,561 4/1965 Paschke 418/120
3,173,406 3/1965 Campos 418/122

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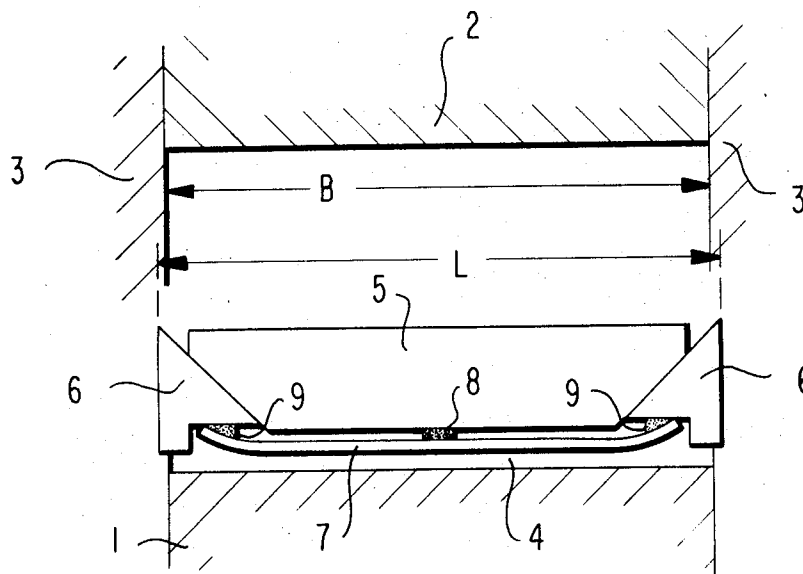
Assistant Examiner—D. C. Crane

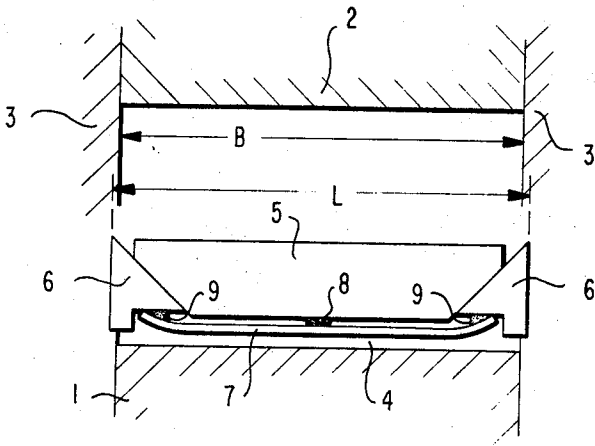
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[57] **ABSTRACT**

A method for preassembling and assembling a multi-partite sealing bar and associated spring for the piston of a rotary piston engine provided with a housing casing and lateral disks in which the parts of the sealing bar are preassembled, utilizing an adhesive dissolving under heat in such a manner that the over-all length of the sealing bar is slightly larger than the width of the housing casing; the sealing bar is then reduced in its length to the width of the housing casing when the lateral disks of the engine are assembled onto the housing casing which cause at least some of the bonded connections to be broken.

4 Claims, 1 Drawing Figure





METHOD OF PREASSEMBLY AND ASSEMBLY OF A MULTIPARTITE SEAL

The present invention relates to a method for the pre-assembly and the assembly of a multi-partite sealing bar and of the associated spring for the piston of a rotary piston internal combustion engine provided with a housing casing and lateral disks by means of an adhesive dissolving when heated up. In particular the present invention relates to the preassembly and assembly of a sealing bar consisting of a center section and two lateral sections adjoining the center section by way of inclined surfaces.

The assembly of multi-partite sealing bars requires an extraordinarily large amount of skill and care. Hence, one has recourse to the use of an adhesive in that one keeps together the individual parts of the sealing bar and the associated spring preassembled with an adhesive which dissolves when heated. In the bonded-together condition, the over-all length of the sealing bar corresponds to the width of the housing casing.

However, it is disadvantageous in connection therewith that no gas tightness exists with the sealing parts bonded or glued together. If the rotary piston engine is constructed as internal combustion engine, the engine then fails to start. The bonded places dissolve and become loose only after lengthy external drive.

The present invention is concerned with the task to avoid the described disadvantages.

According to the present invention, the underlying problems are solved in that during the preassembly the parts of the sealing bar are bonded together under formation of an over-all length of the sealing bar which is larger than the width of the housing casing, and in that the larger over-all length of the sealing bar is reduced during the assembly to a dimension corresponding to the width of the housing casing by mounting the lateral disks at the housing casing thereby eliminating the bonding action of the adhesive.

It is achieved by the present invention in a very simple manner that in case of a three-partite sealing bar, during the pressing-together of the lateral disks at least two bonding places are eliminated so that the sealing bar attains the gas tightness required at least for the starting of the internal combustion engine.

In one advantageous embodiment of the method according to the present invention, during the preassembly the spring may be adhesively bonded or glued to the sealing bar so as to be offset unilaterally in relation to its length because it is achieved thereby that the center part of the sealing bar determined the initial tightness disengages from the spring.

Accordingly, it is an object of the present invention to provide a method for preassembling and assembling a multi-partite sealing bar which avoids the aforementioned shortcomings and drawbacks encountered in the prior art.

Another object of the present invention resides in a method for assembling a multi-partite sealing bar for a rotary piston internal combustion engine which eliminates the great skill and care previously required.

A further object of the present invention resides in a method for preassembling and assembling a sealing bar consisting of several parts in a rotary piston internal combustion engine which assures gas tightness from the start.

Another object of the present invention resides in a preassembly and assembly of a multi-partite sealing bar which eliminates the need for extensive external drive of the engine before the adhesive material dissolves.

These and further objects, features, and advantages of the present invention will become more apparent from the following description when taken in connection with the accompanying drawing which shows, for purposes of illustration only, one embodiment in accordance with the present invention, and wherein:

The single FIGURE is a somewhat schematic, partial cross-sectional view through a rotary piston internal combustion engine provided with a sealing bar preassembled in accordance with the present invention.

Referring now to the single FIGURE of the drawing, a sealing bar consisting of a center part 5 and of two lateral parts 6, to which also belongs spring 7, is provided in a groove 4 within the piston 1 for sealing a piston 1 in a housing of a rotary piston engine consisting of housing casing 2 and lateral disks 3.

For the preassembly of the sealing bar and its spring, the spring 7 is bonded by means of a conventional adhesive to the center part 5 of the sealing bar at the place 8 and to the lateral parts at the places 9; an adhesive material is thereby used of conventional type which dissolves when heated up. According to the present invention, an over-all length L is thereby given to the sealing bar during such preassembly which is larger than the width B of the housing casing 2.

During the subsequent assembly of the internal combustion engine, the individual parts of the sealing bar are pressed together to the dimension of the width B of the housing casing 2 by eliminating at least two bonding places 8 and 9 when the lateral disks 3 are tightened onto the housing casing 2.

After the destruction of the bonded places, the sealing bar attains so much freedom that it can establish the gas tightness. During the subsequent heating-up, the remainder of the adhesive material then dissolves thereby completely eliminating any remaining bonding action.

While I have shown and described only one embodiment in accordance with the present invention, it is understood that the same is not limited thereto but is susceptible of numerous changes and modifications as known to those skilled in the art, and I therefore do not wish to be limited to the details shown and described herein but intended to cover all such changes and modifications as are encompassed by the scope of the appended claims.

What I claim is:

1. A method for the preassembly and assembly of a multi-partite sealing bar and of an associated spring for the piston of a rotary piston engine provided with a housing casing and lateral disks, comprising the steps of adhesively bonding together the parts of the sealing bar by preassembling the same while forming an over-all length of the sealing bar which is larger than the width of the housing casing, and thereupon reducing the length of the sealing bar, during the assembly of the engine when mounting the lateral disks onto the housing casing which forcibly causes the sealing bar to be reduced to a dimension corresponding to the width of the housing casing.

2. A method according to claim 1, characterized in that the spring during the preassembly is connected to

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the sealing bar offset to one side in relation to its length.

3. A method according to claim 2, characterized in that the parts of the sealing bar to be assembled include a center portion and two lateral portions adjoining the center portion by way of complementary inclined surfaces.

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4. A method according to claim 1, characterized in that the parts of the sealing bar to be assembled include a center portion and two lateral portions adjoining the center portion by way of complementary inclined surfaces.

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