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Huf

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[54] **PACKING STRIP ARRANGEMENT FOR HIGHLY SUPERHEATED GASES IN ENGINES AND OTHER WORKING MACHINES**

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[73] Assignee: **Dornier System GmbH**

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[63] Continuation of Ser. No. 274,726, July 24, 1972, abandoned.

[30] **Foreign Application Priority Data**

Aug. 4, 1971 Germany 2138988

[52] **U.S. Cl.** **418/123;** 418/124; 418/129

[51] **Int. Cl.** **F01c 19/02;** F04c 27/00

[58] **Field of Search** 418/122–125, 418/129, 267, 268

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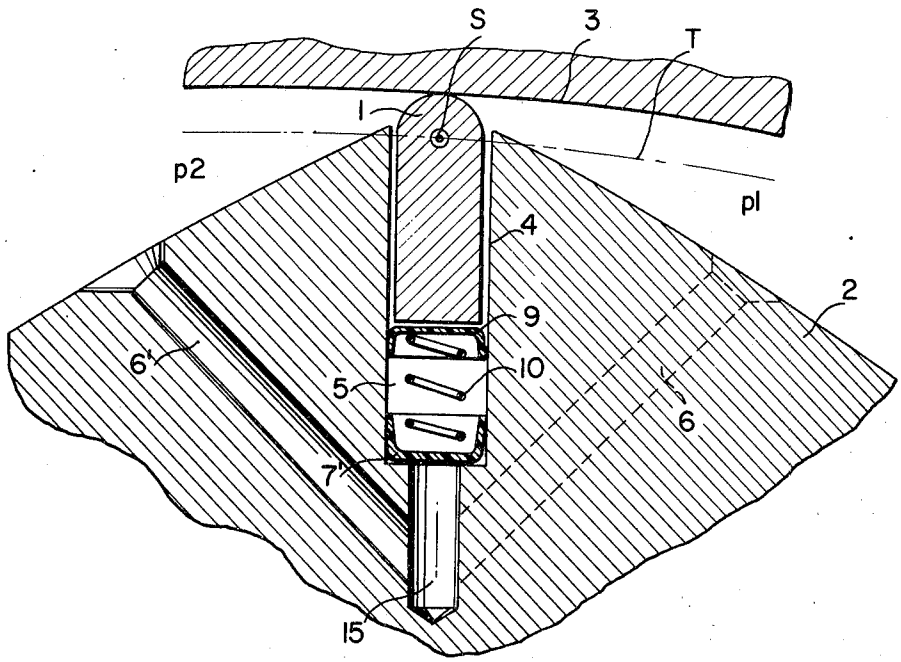
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[57] **ABSTRACT**

This invention relates to an improved sealing strip arrangement for sealing highly superheated gases in engines or other working machines having chambers under different pressures wherein the sealing strips are elastically mounted in a groove and bear against a coordinated bearing or rolling surface. The improvement comprises at least one sealing strip means guided in a gas-tight manner against the groove flanks, at least one bore means extending from the chamber of higher pressure to the groove at a point behind the sealing strip means, and valve means for closing-off said bore means.

6 Claims, 12 Drawing Figures



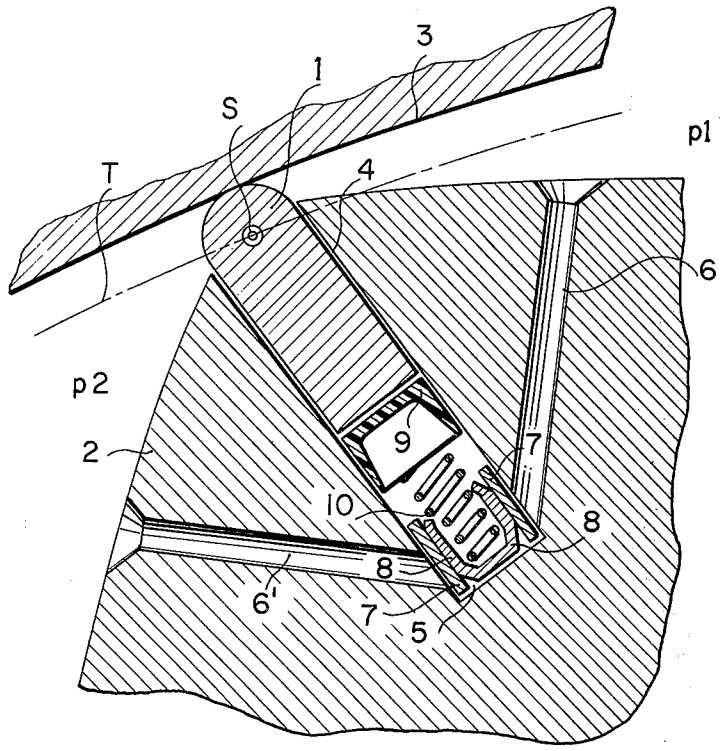


FIG. 1

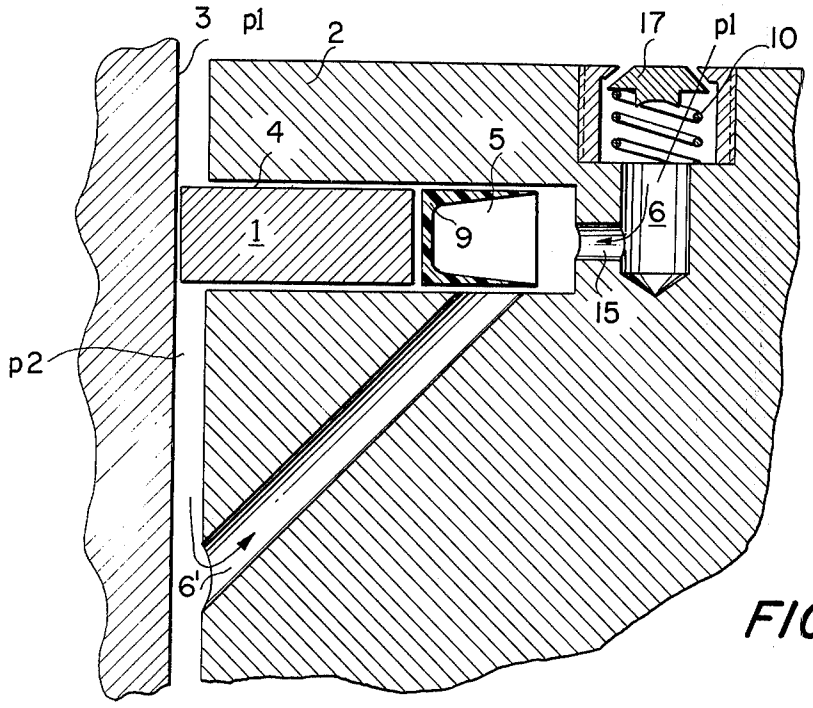


FIG. 3

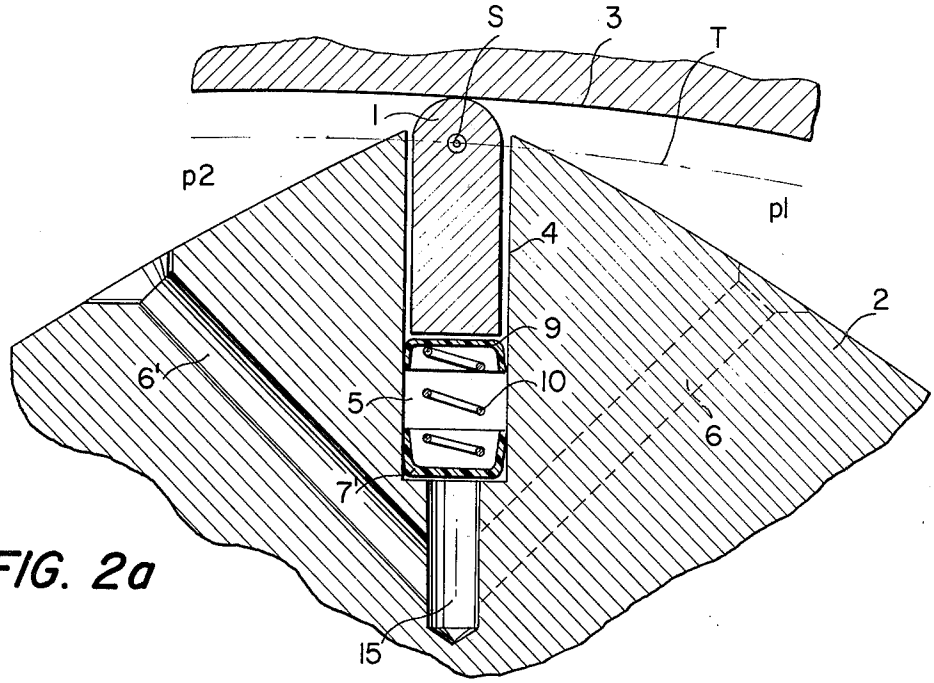


FIG. 2a

FIG. 2b

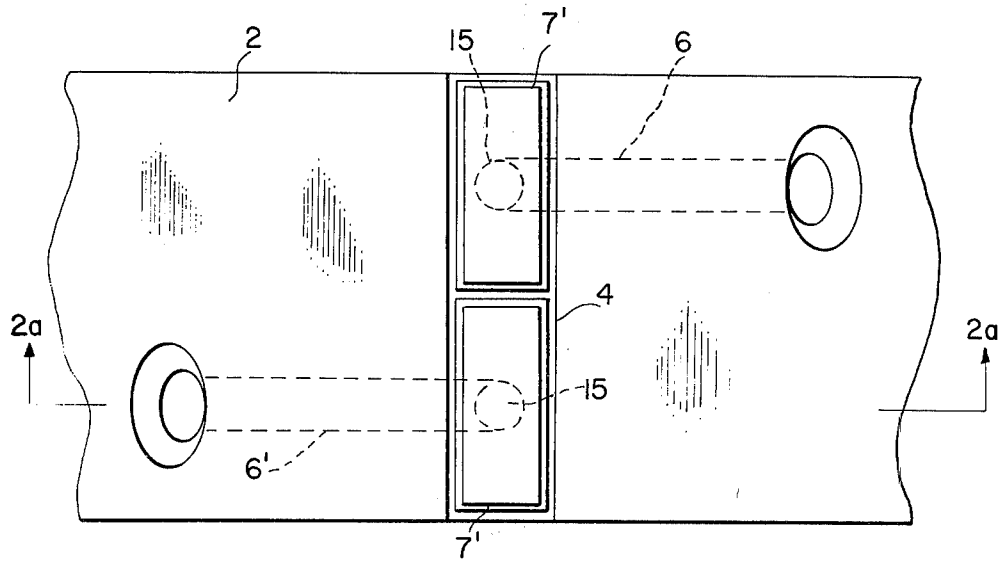


FIG. 4

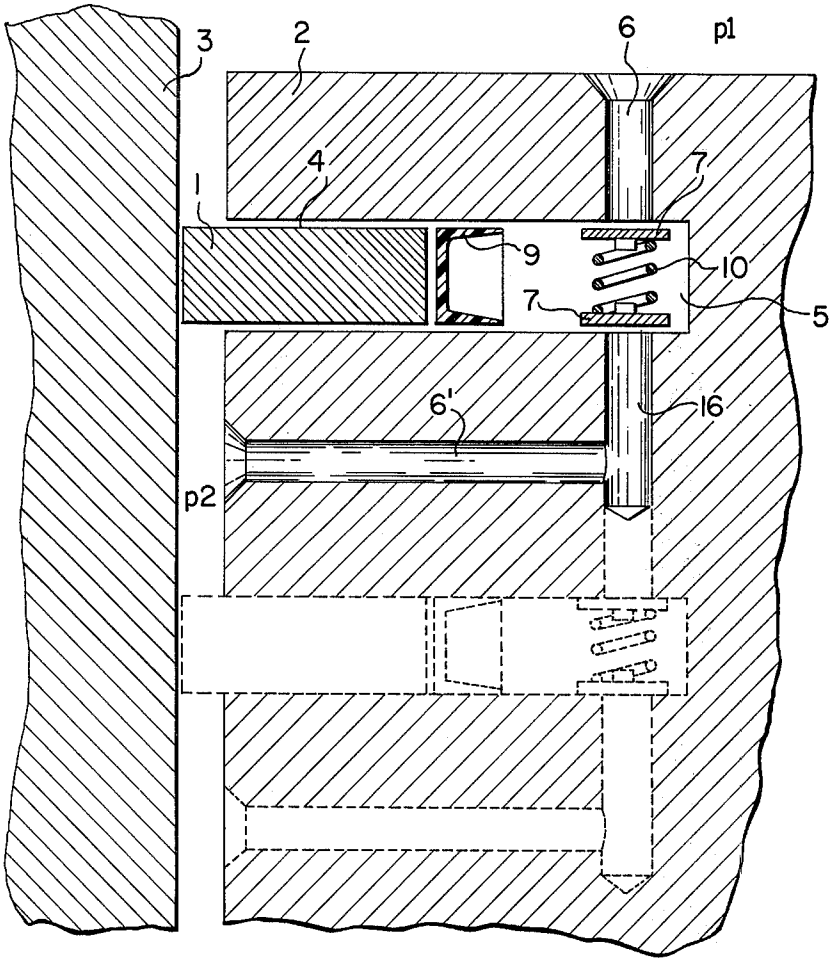
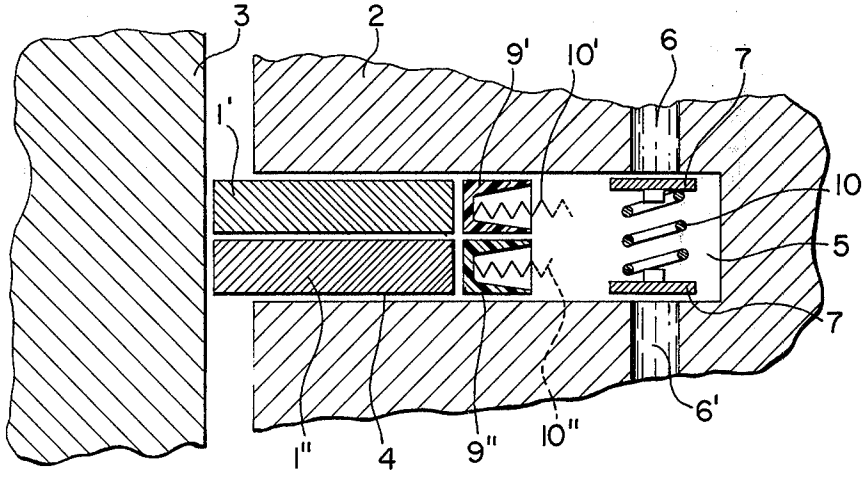


FIG. 5



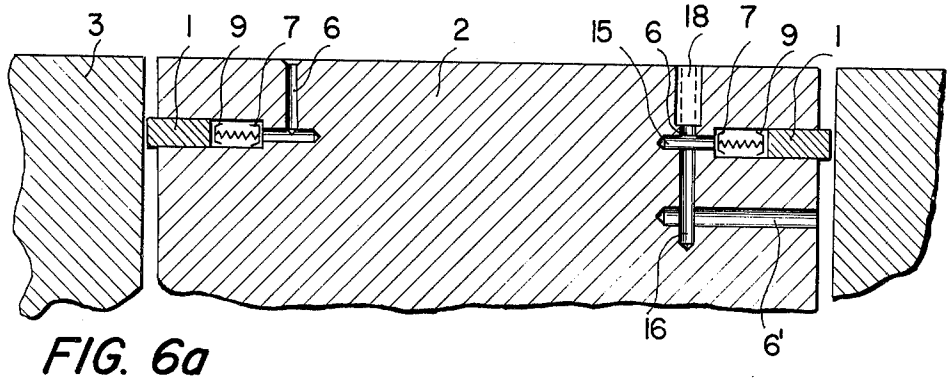


FIG. 6a

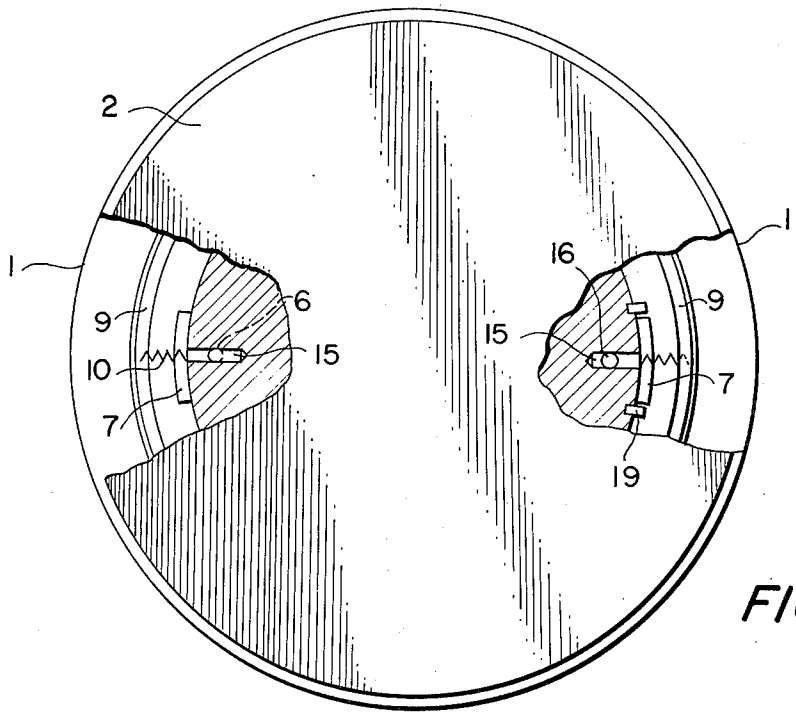


FIG. 6b

FIG. 7

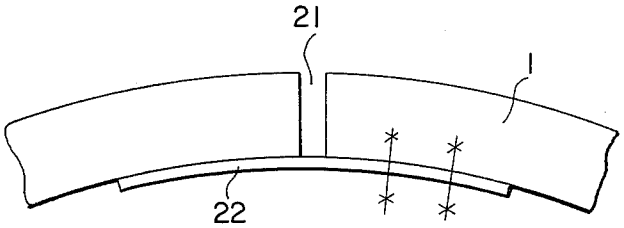


FIG. 9

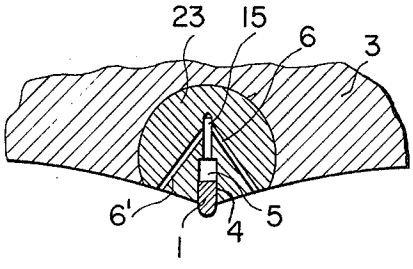


FIG. 8a

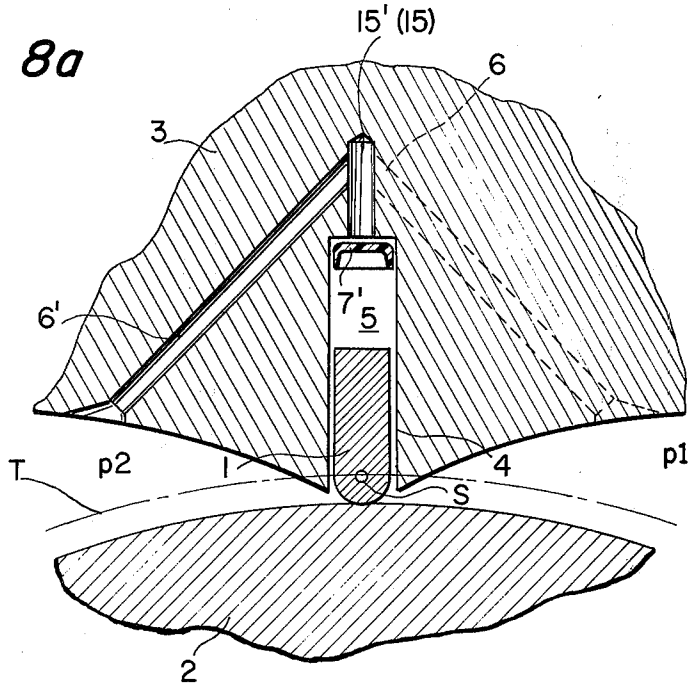
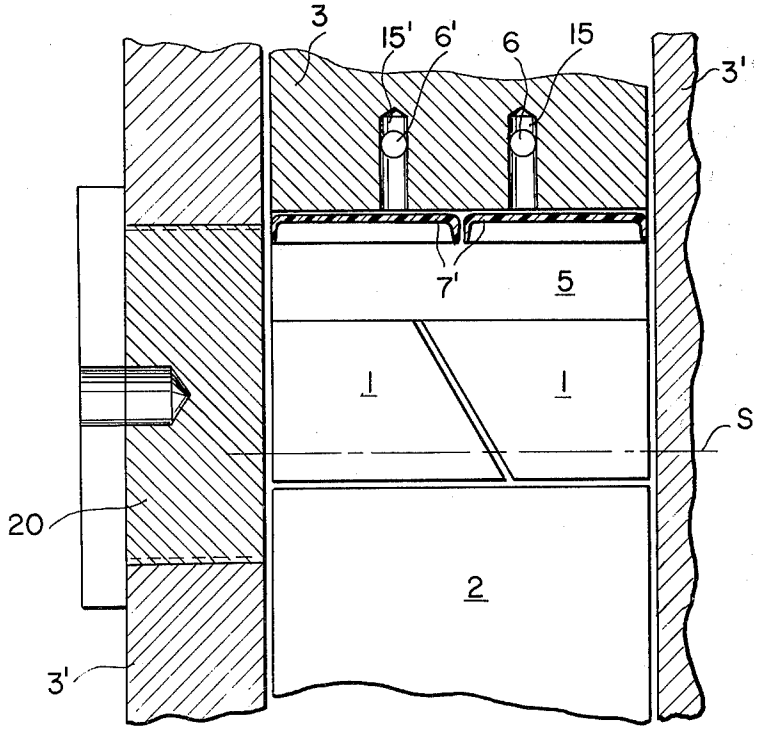


FIG. 8b



PACKING STRIP ARRANGEMENT FOR HIGHLY SUPERHEATED GASES IN ENGINES AND OTHER WORKING MACHINES

This is a continuation, of application Ser. No. 274,726, filed July 24, 1972, now abandoned.

The present invention relates to a packing or sealing strip arrangement composed of straight and/or curved packing or sealing strips for sealing highly superheated gases in power engines and working machines having a working or operating space or chamber, in which the packing or sealing strips are accommodated elastically against the bearing or rolling surface thereof within a groove. The prior art piston rings for reciprocating engines and also the so-called radial packing or sealing strips of rotary piston engines are examples of arrangements of this type.

It is well known that an important problem of the sealing or packing strip construction resides in pressing the packing or sealing strips sufficiently firmly or strongly against the coordinated bearing or rolling surface thereof so that an increased gas sealing is obtained. In order to obtain a contact or bearing pressure, the sealing strips themselves also have been already mounted elastically, or springs were inserted under the sealing or packing strips into the groove which then displaced the sealing strips outwardly within the bed thereof. These constructions were, however, totally inadequate in the effect thereof so that the gas pressure of the working or operating medium itself was employed as an aid to the bearing or contact pressure. For this purpose, the packing or sealing strips have heretofore been so positioned in the sealing strip groove thereof that, with an arising one-sided excess gas pressure, or positive gas pressure, the sealing strips were pressed against the oppositely-positioned sealing strip groove wall and, due to the gap between the sealing strip and the groove wall, the gas pressure could arrive at, or reach, the sealing strip underside, whereupon the sealing strip was pressed out of the groove against the coordinated rolling or bearing surface thereof and, respectively, against the wall to be sealed, in a gas-tight manner. The gas pressure in this case produces the main portion of the contact or bearing force. This system produces, in reciprocating engines, rattling of the piston rings in the grooves. It is disadvantageous in this construction that the gap between a piston ring and a groove wall will, in time, be filled with carbon, and as a result the sealing effect will be impaired. Likewise, the flattening of the piston ring groove is a very disadvantageous consequence of this gas sealing system.

The use of the gas pressure as the contact or bearing pressure or force is equally known in connection with rotary piston engines having a trochoidal construction, and in this case the groove is again wider than the sealing or packing strip so that a gap is formed. A fault which occurs as a result thereof is a forcible movement of the radial sealing strip in the sealing strip groove thereof in the radial direction and, in addition to producing the same disadvantages as in the case of reciprocating engines, is the main cause for the formation of chatter marks. The latter are produced also at points where neither combustion residues nor other particles are forced in ahead of the packing or sealing strips. The principal cause for the formation of chatter marks is that, because of the gap between the sealing strip and the groove, the sealing strip can become displaced and,

as a result thereof, the center of the circular semicylindrical dome of the radial sealing or packing strip does not stay in the simultaneous point, i.e., the point of intersection of the trochoid and the envelope curve, where it actually should be positioned.

The present invention was conceived with the object of creating a high contact or bearing pressure or force for the packing or sealing strips with the use of the gas pressure, while eliminating the above-described disadvantages with respect to damage to the sealing or packing strips themselves and to those parts or elements which are either assigned thereto or in operative engagement therewith. It is further intended by the present invention to be possible to employ the same principle in the most diversified types of sealing or packing strips; in other words, in the case of curved sealing strips of the type of piston rings just as in flat or straight radial packing or sealing strips of rotary piston engines.

This object is obtained, in accordance with the present invention, in that

a. the sealing or packing strips are guided in a gas-tight manner at the lateral faces against the groove sides, and

b. at least from the space or chamber having a higher pressure, at least one bore extends into the groove space positioned behind the sealing strip, this bore being closed off by means of elements that act in the manner of valves.

According to a further embodiment of the present invention, bores extend into the groove space from the two spaces or chambers having a different pressure and being separated from each other by means of the sealing strip. In order to assure that the sealing or packing strips are guided in a gas-tight manner against the groove flanks or sides, not only are the sealing strips exactly fitted into the groove, but if so desired sealing elements are additionally positioned at the underside of the sealing strips, and will come to be positioned against the groove flanks or sides. These sealing elements are provided, for example, as sealing cuffs. The provision of the valve-like elements designed for closing-off the bores may be quite varied. In the most simple case, strips or platelets may be employed which will come to be elastically positioned against the wall of the groove where the bores terminate in the groove space or chamber. The principle of the present invention, of course, also may be employed in the case where two or even more sealing or packing strips are disposed in pairs in juxtaposition in a common groove.

Several embodiments of the present invention will now be described hereinafter in further detail, taken in connection with the accompanying drawings, wherein

FIG. 1 illustrates the principle of the present invention in a rotary piston engine;

FIGS. 2*a* and 2*b* illustrate a modified embodiment of the construction according to FIG. 1 in a cross-sectional view and a top plan view, respectively;

FIG. 3 illustrates the principle of the present invention in a reciprocating engine;

FIG. 4 illustrates a modified embodiment of the construction according to FIG. 3;

FIG. 5 illustrates the use of the principle of the present invention for sealing or packing strips in pairs in a common groove;

FIGS. 6*a* and 6*b* schematically illustrate a manufacturing possibility for an arrangement according to the construction of FIG. 3;

FIG. 7 illustrates a detail at the gap of a piston ring;

FIGS. 8*a* and 8*b* illustrates the use of the present invention in connection with a rotary piston - combing engagement machine, and

FIG. 9 is a modified embodiment of FIG. 8.

FIG. 1 illustrates a rotary piston engine, the design of which is based on the trochoid T shown in dash-dotted lines. The housing wall 3 extends equidistantly with respect to this trochoid. The piston 2 corresponds in its form or configuration to the inner envelope curve toward the trochoid T; yet this envelope curve itself has not been shown and the edge of the piston 2 extends again equidistantly with respect to this envelope curve. The point of intersection between the mathematically exact trochoid and the envelope curve, the so-called simultaneous point, has been identified with reference symbol S. The radial sealing or packing strip 1 is so arranged in the sealing strip groove 4 thereof that the center of the circular semicylindrical dome of the sealing strip is positioned in the simultaneous point S and, respectively, in the straight line passing through S, at a right angle to the plane of the drawing. The radius of the semicylinder corresponds to the distance of the equidistant line with respect to the trochoid T. The sealing or packing strip 1 is precisely guided in the groove 4 thereof within the range of the manufacturing tolerance. In this manner, no undesired gap is present between the sealing strip and the groove wall. The center of the sealing strip therefore can no longer travel away from the simultaneous point in a lateral direction. As a result thereof, chatter marks are eliminated from the beginning to the greatest possible extent. Disposed on both sides of the sealing or packing strip 1 are working or operating spaces or chambers in which the gas pressures *p*1 and/or *p*2 prevail. From these spaces or chambers, the bores 6 and/or 6′ extend into the groove space or chamber 5 below the packing or sealing strip 1. In the example shown herein, these bores terminate in proximity to the groove bottom. They are both closed off by means of the platelets 7 which are pressed by means of a spring 8 against the bore opening. Beow the sealing strip 1, an additional sealing element 9 is provided which assures a gas check of the groove space or chamber 5 with regard to the outer spaces or chambers. This sealing element 9 may consist, for example of a cuff whose lateral walls will come to be positioned against the grove walls because of the gas pressure prevailing in the groove space 5. Also shown is a spring 10 which presses the sealing strip 1 against the coordinated rolling or bearing surface 3 thereof in a manner known per se.

The operation of this arrangement is such that, in case the pressure p1 in the right chamber is greater than the pressure p2 in the left chamber, the gas pressure can pass through the bore 6 via the platelet 7 acting in a valve-like fashion into the groove space or chamber 5 if the pressure p1 is sufficient to overcome the elastic force of the pressure spring 8. The gas pressure prevailing within the groove space or chamber 5 will then press the sealing strip 1 against the rolling or bearing surface thereof with the interposition of the sealing element 9. The bore 6′ extending to the space or chamber having the lower pressure p2 remains closed by means of the spring 8 and the platelet 7. In case of a change of the pressure conditions, the contact or bearing pressure for the sealing or packing strip 1 will analogously pass from the chamber or space having the pressure *p*2, which is now assumed to be the higher pressure, via the bore 6′ into the groove space or chamber 5. The advantage of this provision is that the elements 7 acting in a valve-like fashion will not be distrubed in the operation or function thereof by the centrifugal force. For reasons of greater clarity and simplicity, the sealing or packing strip has not been shown in the drawing as being precisely resting against the groove wall, and the gap recognizable from the drawing is not present in the actual device.

FIG. 2 again shows a construction or provision for rotary piston engines which corresponds, in the basic outlines thereof, to FIG. 1. For this reason, only the respective differences need be explained in this connection. The embodiment of FIG. 2*a* illustrates a radial sealing or packing strip 1 in the piston rotor 2 in a cross-sectional view thereof. FIG. 2*b* provides the top plan view in this connection. In contrast to FIG. 1, the bores terminate in this case not directly into the groove space or chamber 5 with an inclined access; rather, this embodiment represents and provides for a bore 15, from the groove space or chamber 5 in the elongation of this groove, into which terminates the bore 6 and/or 6′ extending to the working or operating spaces or chambers. The arrangement has been so made that in each case one or several of the bores 6 and/or 6′ extending from the working or operating spaces or chambers having a different pressure *p*1 and/or *p*2 are arranged offset in number and with respect to each other in the longitudinal extension of the groove; i.e., in the axial direction of the piston rotor. Assigned to each individual bore 6 and/or 6′ is an extension bore 15 from the groove bottom. In this connection, each extension bore 15 is closed off with respect to the groove space or chamber 5 by means of a respectively coordinated element 7′ which acts in a valve-like fashion. The element that acts in a valve-like fashion may be provided for in the manner or type of a sealing cuff, in a way similar to the sealing element 9 disposed at the sealing strip underside. A spring 10 is arranged between the valve element 7′ and the sealing strip underside, and respectively, between the sealing element 9, which spring, in the position of rest, not only presses the sealing or packing strip 1 against the bearing or rolling surface 3 thereof, but also produces the elastic or spring force for the valve element 7′. The advantage of this construction is that only one spring is needed as compared to two springs according to the construction shown in FIG. 1. FIG. 2*b* shows clearly that the bores 6 and/or 6′ along the sealing or packing strip 1 terminate alternately from one and from the other space having a different pressure into the groove space or chamber. Also shown in FIG. 2*b* with the line of intersection A—A is the cross-section for FIG. 2*a*.

In the same manner as in the construction according to FIG. 1, the embodiment of FIG. 2 also shows that the gas pressure passes from the working spaces or chambers via the bores 6 and/or 6′, the elongated bore 15, and the valve element 7′ into the groove space 5, and may from then on be considered as the contact or bearing pressure or force for the sealing strip 1. Not only is the arrangement of the sealing or packing strip so provided for that a gas-tight closure is present between the sealing strip 1 and the groove wall 4, but the sealing strip 1 is so precisely guided that the center thereof will at all times remain the simultaneous point S, so that the

disadvantages and drawbacks referred to hereinabove are effectively eliminated.

According to a further development of the inventive concept, the arrangement may be simply made in such a manner that not only the sealing or packing strip but also the sealing elements and the valve-like parts together with the springs thereof are adapted to be laterally inserted into the groove. The entire sealing or packing strip arrangement or provision is therefore very easy to assemble or exchange. The embodiments of FIGS. 1 and 2 represent rotary piston engines in which a piston rotor is coordinated to the trochoid according to the respectively assigned inner envelope curve. The basic concept of the present invention is applicable also to those rotary piston engines in which the piston rotor has a trochoidal configuration and the housing corresponds to the respectively assigned outer envelope curve, i.e., in connection with combing engagement machines. It is well known that, in these machines, the radial sealing or packing strips are disposed in the housing end wall. In this case, there exists not only the possibility of laterally inserting the sealing or packing strips and the coordinated further elements into the sealing strip groove, as has been outlined hereinabove, but rather it is possible to dispose closable openings in the lateral housing wall at those parts which are positioned laterally with respect to the sealing or packing strip arrangement or system. In this manner it is possible, simply by opening the closure, to directly obtain access to the sealing strip arrangement without the need for dismantling the lateral housing wall.

FIG. 3 represents the principle of the present invention employed in connection with a reciprocating engine. Reference numeral 3 is used in this case to identify the engine block wall; reference numeral 2 identifies a piston, and reference numeral 1 is used to identify the sealing strip and, respectively, the piston ring that is inserted into the groove 4. In this particular case, there are again bores 6 and 6′ provided for, which extend from the spaces or chambers having a varying or different gas pressure $p1$ and/or $p2$ into the groove space or chamber 5. In the embodiment that was chosen for this case, inventive features have been used that already have been referred to and explained, on the one hand, in connection with FIG. 1 and, on the other hand, in connection with FIG. 2. In a manner similar to FIG. 1, the oblique bore 6′ terminates, in direct proximity to the groove bottom or base, into the groove space or chamber 5. In this case, the sealing element 9 being positioned behind the sealing strip 1 is so provided and arranged that one wall thereof elastically covers the opening of the bore 6′, thus acting in a sealing manner not only with respect to the sealing or packing strip 1, but assuming at the same time also the function or operation of the valve-type acting element for the bore 6′. In this manner the gas pressure of $p2$ can reach or pass into the groove space or chamber 5 in the direction of the arrow as shown.

The bore extending from the working or operating chamber having the pressure p1 terminates here, in this embodiment, not directly into the groove space or chamber 5, but instead, here again an elongated or extension bore 15 is provided for from the groove base or bottom which is in operative engagement with the bore 6 originating from the piston surface. The element acting in a valve-type manner is in this example not disposed within the groove space or chamber 5, but rather on the piston surface, and it is constructed as a kind of disc valve 17. The valve spring has again been designated with reference numeral 10 in this case. Here again, the direction of action or effect of the gas pressure p1 has been shown with an arrow. Also shown in the drawing is that the entire valve element may be threaded, for example, into the piston surface in a simple manner. In the manner described it is possible that, both during the compression and the combustion, the pressure $p1$, and also during the intake operation, the pressure $p2$ becomes effective in the groove space or chamber 5 without impairment.

The provision and arrangement of FIG. 4 is similar to that of FIG. 3, but in the latter case, the bore 6′ extending from the pressure $p2$ is not obliquely guided to the groove space or chamber 5, but instead is disposed radially within the piston 2. It terminates in an elongated bore 16 which passes from the pressure chamber p1 through the groove chamber 5. The elements acting in a valve-type manner are, here again, provided for as platelets or strips 7 which cover the bore openings in the lateral groove wall and are pressed against the openings by means of a spring 10. The advantage of this particular construction and embodiment resides in the simple way of obtaining or making the bores. It has also been indicated in phantom in FIG. 4 that the basic principle of the present invention is applicable and usable without difficulty for several successive sealing or packing strip systems in the same piston. In that case, the elongated or extended bore 16 simply will be extended further through the groove of the successive piston ring and is in operative connection with a further radial bore. The operation of this additional arrangement corresponds in toto to the example described hereinabove, so that a more detailed description thereof is not necessary here.

FIG. 5 illustrates a modification of the inventive concept as compared to the construction according to FIG. 4. It has been assumed in this case that two sealing elements 1′ and 1″ are arranged within a common groove 4. Such an arrangement is conceivable, for example, for the first piston ring of a reciprocating engine. The arrangement of the bores 6 and/or 6′ corresponds fully to the construction already described hereinabove. One difference with respect thereto is that, for each of the two sealing elements 1′ and 1″, a separate sealing element 9′ and/or 9″ is provided for. In an analogous fashion, also springs 10′ and 10″, if desired, are provided for each sealing or packing strip. These springs — which have not been shown in FIG. 4 for the sake of simplicity — and which may be omitted under certain circumstances when the piston ring 1 itself is elastically provided, have been only schematically indicated in FIG. 5. The two piston rings 1′ and 1″ are rotated with respect to each other about 180° for example. In this manner, the butt gap of the piston ring will not constitute a gas passage from the pressure area p1 toward the pressure area or zone $p2$.

FIG. 6*a* is an axial cross-sectional view through a piston, and FIG. 6*b* is a top view (partially in cross-section) of the piston of FIG. 6*a*. It is shown on the basis of these figures that, in the longitudinal extension of one sealing strip groove, bores terminate alternately from one pressure chamber to the other pressure chamber into the groove space or chamber. Reference numeral 1 identifies here again the sealing or packing strip and, respectively, the piston ring. Reference nu-

meral 2 is used here to designate the piston, and reference numeral 3 represents the engine block wall. Disposed on the sealing strip underside and schematically shown is here again a sealing element 9. The sealing element 9 is circular in shape and is adapted to tightly close the butt gap of the piston ring. Since the sealing or packing strip and, respectively, the piston ring are exactly and gas-tightly guided within the groove thereof, the specific sealing elements 9 on the sealing strip underside may, if desired, be omitted; for example in case of the afore-mentioned pair-like arrangement of piston rings. Radial elongated or extension bores 15 extend again from the groove bottom or base. Into these elongated bores 15 terminate from the upper piston side the bores 6. In the particular case in which the gas pressure from the outer pressure chamber is intended to become effective via the bores 6', the bores 6 are further extended from the upper piston side as elongated bores 16 until they coincide with the radial bore 6'. The opening of the bores 6 is, in this case, closed off upwardly by means of a plug or stopper, for example, by means of a screw 18, so that no gas pressure can reach into the groove space or chamber from this side, but merely through the bore 6' from the opposite side. In this manner, it is possible to employ simple valve-type elements, for example platelets 7, which are inserted into the groove bottom or base ahead of the mouth or termination of the extended or elongated bore 15 and which are subject to the action of the spring 10. In order to prevent a lateral displacement of the platelets 7, simple stops 19 or the like may be provided for. It is also possible to position the valve elements 7 closely adjacent each other so they will constitute a closed ring within the groove bottom or base. A very simple construction consists, for example, also in disposing on the underside of the valve platelets 7 a projection, for example a reinforcing seam, or to solder thereupon a small body, for example, an eyelet, which engages into the opening of the bore, thus preventing a lateral displacement of the platelets 7. In the embodiment of FIG. 6, only one effective bore 6 and one effective bore 6', respectively, have been shown. It is understood that several such bores, of course, could be provided for distributed over the circumference of the sealing strip groove, and being in operative connection with the chambers having different pressures.

FIG. 7 illustrates a detail of the construction according to FIG. 6. Illustrated therein specifically is the gap of a piston ring 1. It is possible that the gas pressure being built up within the groove bottom or base could escape via the butt gap 21. This is prevented, however, by means of the sealing elements 9, as has been set forth hereinabove. It is a necessary prerequisite in this case that the sealing elements 9 bridge the butt gap 21. In the case in which — as mentioned hereinabove — specific sealing elements 9 may be omitted, it is possible, in the manner illustrated in FIG. 7, to secure to the piston ring 1 a tongue 22, for example to solder it thereto, this tongue extending beyond the gap and ending below the other end of the piston ring 1. During the manufacture thereof, the piston ring and the tongue are exactly machined laterally so that both have the required exact and gas-tight guidance within the sealing strip groove. In this manner the butt gap 21 is effectively sealed against the groove bottom or base.

FIGS. 8*a* and 8*b* illustrate the use of the present invention in the case of a rotary piston combing engagement machine. The arrangement in this case does not materially differ from the construction of FIG. 3. The trochoid T is again shown therein in dash-dotted lines and extends through the simultaneous point S, and therewith also through the center of the sealing strip dome of the sealing strip 1. Reference numeral 2 designates the piston rotor, and reference numeral 3 defines the housing. From the groove space or chamber 5 there extends again an extension or elongated bore 15 and/or 15' into which terminate the bores 6 and 6' extending to the working or operating spaces or chambers. The elongated bore 15 is here again closed off by means of elements 7' which act in a valve-like manner. The springs required therefor have not been further shown herein for the sake of simplicity of illustration. In the two working chambers being separated from each other by virtue of the sealing or packing strip 1 there prevail again the gas pressures $p1$ and $p2$. The difference between FIG. 8a and FIG. 2 is merely in that now the sealing or packing strip arrangement or system is positioned within the housing 3 rather than in the piston 2.

FIG. 8b is an axial cross-sectional view of FIG. 8a. Again apparent therefrom are the elongated bores 15 and 15' being disposed from the groove space or chamber 5. They are distributed in the longitudinal direction of the groove, and the pressure bores 6 and 6' terminate thereinto alternately from the working chamber on the one side and from the working chamber on the other side. The sealing or packing strip 1 itself is subdivided in this case into two portions by means of a diagonal separating section or line. The lateral housing wall 3' is provided with an opening, at the height or level of the sealing strip arrangement, which is again closed off by means of a closing element 20. In this manner it is possible, after opening of the closure 20, to laterally insert the parts of the sealing strip arrangement, i.e., the sealing strip itself, the elements 7' acting in a valve-like fashion, and the coordinated springs, as well as the possibly provided sealing elements, easily into the groove without requiring that the entire machine be disassembled.

FIG. 9 is a modified embodiment of FIG. 8*a* for the formation or provision of the housing portion with the sealing strip groove and the sealing strip. The sealing strip groove 4 and the elongated bore 15 and, respectively, the pressure bores 6 and 6' are in this case machined into a specific groove body 23. The exact machining of the groove takes place therefore in a simple manner in the easily machinable groove body and involves no difficulty whatsoever. The entire, completely machined groove body 23 thereupon may be inserted into a corresponding space or chamber of the basic body of the housing 3. It is also possible, of course, to make the groove body smaller than has been illustrated herein so that it encloses or encompasses only the groove proper which — as has been set forth hereinabove — must be precisely machined. The bores still may be provided for at a later time with the groove body being already inserted.

For sealing or packing strips of the most diversified types of construction, i.e., for example for the straight sealing strips of rotary piston engines, as well as for curved sealing strips of the type of piston rings, a faultless contact pressure against the rolling or bearing surface thereof is effectively obtained by means of the respective gas pressure by virtue of the present invention.

The sealing or packing strips are so precisely guided in the grooves thereof that rattling piston rings with the ensuing disadvantages thereof are completely eliminated, and also in the case of rotary piston engines not only a perfect gas check is achieved due to the exact fitting and guiding of the sealing or packing strips, but the formation of chatter marks is also effectively suppressed. The advantage of the present invention resides particularly in that it is possible to obtain the aforementioned advantages with simple means. The gas pressure which is required for pressing on the sealing or packing strip may be built up at all times unimpaired in the sealing strip groove behind the sealing or packing strip itself.

It will be obvious to those skilled in the art that many modifications may be made within the scope of the present invention without departing from the spirit thereof, and the invention includes all such modifications.

What is claimed is:

1. In a sealing strip arrangement for a rotary piston engine of trochoidal construction with an inner or outer envelope curve and having a plurality of working chambers, radial grooves in the periphery of that one of the housing and piston of said engine which corresponds to said envelope curve, sealing strip means mounted in said grooves, smaller in radial dimension than said grooves to form a groove space beneath said sealing strip means and having arch-shaped domes on the edge thereof facing the other of said housing and piston, and a pair of bores connecting said groove space with first and second working chambers, respectively, of said engine, the improvement comprising, said domes having their center of curvature positioned on the exact point of intersection of the trochoid and said envelope curve, said sealing strip means having both sides thereof in sufficiently tight contact with the corresponding side walls of said grooves to prevent said sealing strip means from moving transversely in said grooves throughout operation of said engine and thereby maintain said center of curvature of said domes on said point of intersection at all times and maintain an essentially gas tight relation between both sides of said sealing strip means and said side walls of said grooves, a pair of second bores radially extending from said grooves and each connecting said groove space with a respective one of the first-mentioned bores, sealing element means mounted in said grooves at the base of said sealing strip means and resting against said side walls of said grooves, sealing cuff means mounted in said groove space and adapted to close off said second bores and spring means mounted in said groove space between said sealing element means and said sealing cuff means to simultaneously act against said sealing cuff means and said sealing element means and thereby urge said sealing strip means outwardly.

2. A sealing strip arrangement in accordance with claim **1** wherein the first pair of bores are paraxially offset with respect to the engine working chambers.

3. A sealing strip arrangement in accordance with claim **1** wherein the engine has the sealing strips mounted in separate bodies in which the groove is machined and said bodies are radially mounted in corresponding recesses in the engine housing.

4. A sealing strip arrangement in accordance with claim **1** wherein the groove and the sealing strip means are in the piston.

5. A sealing strip arrangement in accordance with claim **1** wherein means are provided whereby the sealing strip means may be laterally inserted in the grooves.

6. A sealing strip arrangement in accordance with claim **5** wherein the sealing strip means are radially mounted in the housing of the engine and include closable openings and closure means in said housing wall at the point of sealing strip mounting.

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