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B. V. ANOSCHENKO

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PACKING

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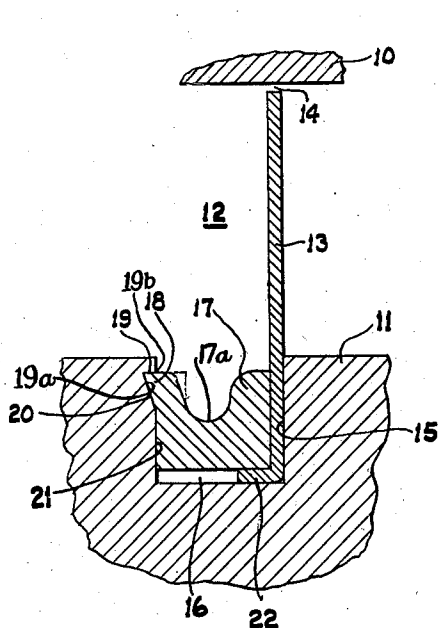


FIG. 1.

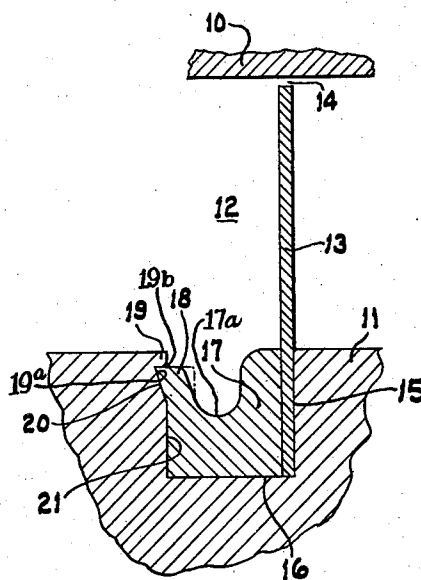


FIG. 2.

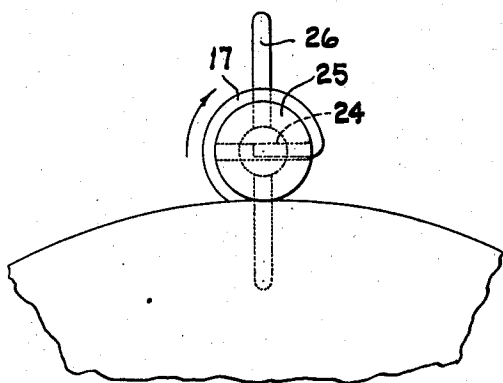


FIG. 3.

WITNESSES:

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PACKING

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3 Claims. (Cl. 286—10)

My invention relates to metallic sealing strips for interposing resistance to leakage of fluid between spaced members and it has for an object to provide an improved type of strip as well as means for fastening the latter to its supporting member.

More particularly, my invention relates to relatively rotatable members wherein the space therebetween is sealed by a thin metallic strip, which may be carried by either member, the strip being disposed in and fitting against one side wall of a groove provided in a member and being held in the groove by a caulking strip which is deformed so that a portion thereof is engaged underneath or behind a shoulder provided by recessing the opposite wall of the groove. This type of packing is advantageous in that the metallic strip may be made quite thin and susceptible of being worn down in case of rubbing. Also, the caulking strip may be made of material which is suitably soft, not only to facilitate deformation of the strip incident to fastening the sealing strip in place, but also to provide for easy removal of both strips, the deformed portion of the caulking strip engaging underneath the shoulder being sheared off by the latter incident to upward withdrawal of the caulking strip from the groove. The sealing strip should, of course, be tough, resistant to corrosion, capable of being deformed to fit circular grooves, and susceptible of being worn down in case of rubbing, and I have found that molybdenum stainless steel satisfies these needs. Hence, a further object of my invention is to provide packing having these advantageous features of construction and of operation.

These and other objects are effected by my invention as will be apparent from the following description and claims taken in connection with the accompanying drawing, forming a part of this application, in which:

Fig. 1 is a sectional detail view showing my improved packing;

Fig. 2 shows a modified form; and

Fig. 3 indicates diagrammatically how a caulking strip may be removed.

In Fig. 1, I show members 10 and 11 having a space 12 therebetween, the space being sealed by the sealing strip 13 shown as being carried by the member 11 and having its outer edge defining close clearance, as indicated at 14, with respect to the member 10 in order to minimize leakage between the members. It is to be understood that the packing may be used in any suitable situation. The members 10 and 11 may be fixed relatively or they may have relative movement, and the sealing

strip may be carried either by a fixed or by a movable member. This type of packing may be advantageously employed in many situations, for example, with glands and dummies of steam turbines and with bearings.

Referring now to the sealing strip 13 and the manner in which it is connected to its supporting member, in Figs. 1 and 2, I show the strip bearing against one side wall 15 of a groove 16 provided in the supporting member. A caulking strip 17 is disposed in the groove and it has a lip 18 deformed to engage behind the shoulder provided by the recess 20 formed in the opposite side wall 21 of the groove.

The sealing strip 13 and the caulking strip 17 are easily insertable into the groove 16 prior to deformation of the lip 18, the position of the lip prior to deformation being indicated by dotted lines in Figs. 1 and 2. The lip is preferably provided by grooving the top portion of the caulking strip, as shown at 17a. After insertion of both strips then the lip 18 is deformed, this operation being conveniently performed by rolling, swaging or the like, the lip being engaged in the recess and behind the shoulder and this operation causing the strip to be pushed against the strip 13 so as to grip the latter with respect to the wall groove 15.

The gripping action referred to is in itself sufficient to hold the sealing strip 13 in place; however, a more secure fastening may be had by having the sealing strip 13 provided with a foot 22 which engages the bottom of the groove 16, the top of the foot being engaged by the caulking strip 17. In Fig. 2, I show a form of my invention wherein the strip 13 has no foot and is held in place by the gripping action of the caulking strip 17.

I find that, if the strip 13 is made of relatively thin molybdenum stainless steel, it has all of the properties generally desirable for a sealing strip. First of all, such material is highly resistant to corrosion, is tough, may be readily bent to fit the circular conformation of a member to which it is connected, and will wear down readily in case of rubbing. The caulking strip 17 is preferably made of soft steel as it should deform easily incident to mounting of the sealing strip and should have a portion thereof readily shearable as hereinafter pointed out.

Referring to the radial recess 20 and to the caulking strip 17 more specifically, it will be noted that the recess is disposed adjacent to the top portion of the groove 16 and that the upper or outer portion of the deformable strip

is deformed so as to engage in the recess. The annular recess 20 is preferably provided by a cylindrical surface 19 and a conical surface 19a. The cylindrical surface faces inwardly to form the shoulder behind which the deformable portion of the strip engages and it intersects the side surface or wall 21 of the groove to provide a sharp corner or shearing edge 19b.

In case it is desired to replace the sealing strip, this may be readily done, as the caulking strip is made of such material and is so connected in the groove that it may be readily removed. As indicated in Fig. 3, it is only necessary to pry up one end of the caulking strip 17 so that the end may be engaged by the diametral opening 24 in a key 25 having a handle 26, whereupon the key may be turned and the caulking strip wrapped therearound, upward withdrawal of the caulking strip in this manner resulting in shearing off of the deformed portion engaging underneath the shoulder 19.

From the foregoing, it will be apparent that the annular recess for the deformable portion of the caulking strip is arranged adjacent to the top of the groove 16 and that the outer portion of the caulking strip is deformed to fit into the recess. Furthermore, the recess has a cylindrical surface which intersects the groove side-wall to provide an annular shearable or shearing edge. Not only do these features provide for ready tight insertion of the caulking strip and deformation thereof to engage in the recess, but also the shearing edge is effectively positioned relatively to the caulking strip to secure shearing thereof incident to removal of the strip.

While I have shown my invention in but one form, it will be obvious to those skilled in the art that it is not so limited, but is susceptible of various changes and modifications, without depart-

ing from the spirit thereof, and I desire, therefore, that only such limitations shall be placed thereupon as are imposed by the prior art or as are specifically set forth in the appended claims.

What I claim is:

1. The combination with a pair of members having a space therebetween, of sealing means for said space including a thin metallic strip fitting against one side wall of a groove provided in one of said members and having its outer edge defining close clearance with respect to the other member; the opposite wall of said groove having a recess formed therein near to the top of the groove; and a caulking strip in said groove, fitting against the strip and against said opposite wall inwardly of the recess, and having its outer portion deformed to engage in the recess.

2. The combination with a pair of members having a space therebetween, of sealing means for said space including a thin metallic strip fitting against one side wall of a groove provided in one of said members and having its outer edge defining close clearance with respect to the other member; the opposite wall of said groove having an annular recess near to the top thereof and the recess being defined by surfaces including a surface providing an inwardly facing shoulder and intersecting the groove side wall to define a sharp corner or shearing edge; and a caulking strip fitting against the sealing strip and against said opposite wall radially inward of the recess, and having its outer portion deformed to engage in said recess and behind said shoulder.

3. The combination as claimed in claim 2 wherein the caulking strip is grooved at its top to provide a lip portion deformable to engage in said recess.

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