

PATENT SPECIFICATION

(11) 1 561 703

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- (21) Application No. 13451/77 (22) Filed 30 Mar. 1977 (19)
(31) Convention Application No. 2625507 (32) Filed 5 Jun. 1976 in
(33) Fed. Rep of Germany (DE)
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(51) INT. CL.³ F16B 2/24
F16C 11/06
(52) Index at Acceptance
E2A 357 372 GU
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(54) CLAMPING SEALING BELLOWS

(71) We, A. EHRENREICH GmbH & CO. KG, a German Kommanditgesellschaft, of 4000 Dusseldorf 11, Hansaallee 190, Germany, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:

The invention relates to the clamping of a sealing bellows to a grooved component, especially the housing or the ball pin of a ball-and-socket joint.

An elastic sealing bellows is normally used to seal the opening where the ball pin of a ball-and-socket joint issues from its housing. In order to be able to follow the deflection movement of the ball pin without the one or the other opening of the bellows lifting away from the annular surface to be sealed, the bellows openings are held fast radially by a clamping ring. Closed plastic rings or open spring rings of steel wire have proved their value as clamping rings. In specific cases plastic rings are not usable. If then moreover the bellows opening to be retained lies in a groove, the fitting of a steel clamping ring on the bellows is difficult and involves the danger of stretching the ring beyond its yield point in lifting the ring over the bead defining the groove.

Therefore the problem of the invention consists in producing an open spring ring of steel wire which can be opened wider than the steel clamping rings used hitherto, without permanent deformation.

According to the present invention there is provided an open spring ring of steel wire fitted around an annular groove in a component and clamping a sealing bellows as a fluid tight fit in the groove, characterised in that the spring ring consists of at least two strands of wire twisted around one another along the length of the strands.

Embodiments of the invention are illustrated by way of example in the accompanying

ing drawing, in which:

Figure 1 shows a ball joint with a sealing bellows of known construction, which is fixed at the top and bottom by clamping rings according to the invention;

Figure 2 shows, as a detail of Figure 1, one of the clamping rings in its groove in the bellows, and

Figure 3 shows in perspective view one of the clamping rings of the joint of Figure 1.

In Figure 1 a ball joint housing is designated by 1. The head of a ball pin 4 is mounted in a ball socket 3 and is fixed in the housing 1 by a closure ring 2. The ball pin 4 has a groove 5 and the housing 1 has a groove 7 for the axial fixing of a sealing bellows 6. The lower and upper edges of the bellows 6 lie in the grooves 5, 7 respectively, and are axially made fast there by a large clamping ring 8 and a small clamping ring 9. Each of the rings 8, 9 comprises an open spring ring consisting of three strands of steel wire twisted around one another along the length of the strands.

Now by the use of the clamping ring in accordance with the invention it is possible for example to stretch the clamping ring 8, without permanent deformation, so far that it can be inserted into its groove over the diameter of the bead 10 on the bellows.

WHAT WE CLAIM IS:-

1. An open spring ring of steel wire fitted around an annular groove in a component and clamping a sealing bellows as a fluid tight fit in the groove, characterised in that the spring ring consists of at least two strands of wire twisted around one another along the length of the strands.

2. An open spring ring of steel wire fitted around an annular groove in a component and clamping a sealing bellows as a fluid tight fit in the groove, the ring being constructed substantially as hereinbefore described with reference to Figures 2 and 3.

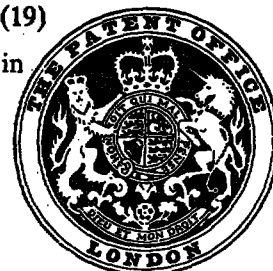
3. An assembly of two components each

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2. An open spring ring of steel wire fitted around an annular groove in a component and clamping a sealing bellows as a fluid tight fit in the groove, the ring being constructed substantially as hereinbefore described with reference to Figures 2 and 3.

3. An assembly of two components each



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5 having an annular groove thereon, a sealing bellows extending between the two components and engaged in the grooves thereon, and two open spring rings of steel wire fitted one around each of the grooves and clamping the sealing bellows as a fluid tight fit in the grooves, characterised in that each spring ring consists of at least two strands of wire twisted around one another along the length of the strands.

10 4. A ball-and-socket joint having bellows clamped as a fluid tight fit in grooves in the housing and ball pin of the joint by open spring rings of steel wire, substantially as hereinbefore described with reference to the
15 accompanying drawing.

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