

(19)



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(11)

EP 0 924 677 B1

(12)

EUROPEAN PATENT SPECIFICATION

(45) Date of publication and mention
of the grant of the patent:

28.01.2004 Bulletin 2004/05

(51) Int Cl.7: **G09F 3/03**

(21) Application number: **98124020.3**

(22) Date of filing: **17.12.1998**

(54) **Improved seal**

Verbessertes Siegel

Sceau amélioré

(84) Designated Contracting States:
AT BE CH DE DK FI FR GB GR IE IT LI NL PT SE

(30) Priority: **18.12.1997 ES 9703287**

(43) Date of publication of application:
23.06.1999 Bulletin 1999/25

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**US-A- 3 712 655 US-A- 3 816 879
US-A- 4 240 183 US-A- 4 854 014**

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Description

Objective of the invention

[0001] As the heading indicates, the present invention is a seal of the type that includes a flat plate from which a tailpiece extends, said tailpiece being provided with a peripheral dentate in an intermediate area. This plate is linked sideways to a tubular passage, the inside of which has defined retainers which prevent the dentated piece passed through it from slipping back. The seal has as distinctive features the tubular tailpiece which defines both an annular reinforcement in the connecting area with the flat plate, and a thickening at the front end of the dentated piece, which enable it to be inserted into the tubular passage one way only.

Background to the invention

[0002] Mention should be made of Utility Model 9200430 by the same applicant as the forerunner to the invention. It refers to a seal of the aforementioned type and its distinctive features are a mouthpiece at one end of the tubular passage to facilitate the insertion of the defined dentate in the intermediate part of the flexible tailpiece, and at the opposite end dentate retainers made up of flexible fins which lean slightly towards the centre part of the tubular passage.

[0003] US-A-3 712 655 describes a seal also with such a mouthpiece of one end of a tubular receiving passage, where the dentate is at the very end of the tailpiece, and is preceded by a thickening of said tailpiece.

[0004] The dentate located in the intermediate area of the flexible tailpiece includes a series of frusto-conical teeth, the diameter of which increases towards the back.

[0005] In the commercialisation of this seal and its subsequent employment by the final user, two different problems have come to light. The first of these is that once the flexible tailpiece has been subjected to successive bending and twisting, either during its handling or when it is placed over any product, significant fatigue in the material is caused in the area of connection with the flat plate, to such a degree that the tailpiece finally breaks, rendering the seal unfit.

[0006] The other problem detected is the chance of the final user inserting the dentate into the tubular passage in a manner contrary to that intended by the manufacturer. This is possible due to the tapering of the teeth that cause the opening of the retention fins. The incorrect, which is to say backward, introduction of the tailpiece may cause the dentate to slip out easily from the tubular passage, since it will not be blocked by the retaining fins, thus making the seal ineffective.

Description of the invention

[0007] With a basic configuration very similar to the objective of Utility Model 9200430, the improved seal,

which is the objective of this invention, includes extremely simple building details which solve the aforementioned problems.

[0008] In accordance with the invention, the flexible tailpiece has a spherical reinforcement in the connecting area with the flat plate. This is designed to absorb whatever strain may be caused by bending and/or twisting the tailpiece, thus preventing breakage in this area.

[0009] To provide greater resistance in this area, both the flat plate and the flexible tailpiece will have an increasing section in the area next to the spherical reinforcement, thus distributing the possible strain over a longer area.

[0010] Also in accordance with the invention, the inclusion has been planned of a thickening at the front end of the dentated part which has constant cross section equal to the larger section of the teeth. Because this thickening is not conically-shaped, only through the mouthpiece end may be inserted into the tubular passage. This eliminates whatever possibility that previously existed of the user erroneously inserting in the incorrect end since, should he try to do so, the thickening will collide frontally against the retention fins which, in turn, will prevent it from entering.

Description of the drawings

[0011] To complement this description, and to bring about a better understanding of the features of the invention, a set of diagrams has been included. These are to be considered as illustrative and without any kind of limitations.

Figure 1 shows an elevational view of the improved seal, objective of this invention, with an enlarged detail of the spherical reinforcement and a detail of the thickening defined at the front end of the dentate.

Figure 2 is a section-drawing of the tubular passage labelled A-A in the preceding figure.

Figure 3 shows a plan view of the same seal shown in figure 1.

Preferred embodiment of the invention

[0012] As can be seen in the figures to which we have made reference, the improved seal which is the subject matter of this invention has a flat plate (1) to which the tailpiece (2) and tubular passage (3) are linked.

[0013] In the connecting area of the plate (1) and the tailpiece (2), the seal has a spherical reinforcement (4). Both the flexible tailpiece (2) and the flat plate (1) have enlarged sections (2a) and (1a), respectively, in the connecting area with the spherical reinforcement (4).

[0014] The tubular passage (3) has a mouthpiece (3a) at one of its ends which extends towards the back area of the former in a cylindrical configuration (3b), finishing in retainers made up of flexible fins (3c).

[0015] The flexible tailpiece (2) includes an intermediate dentated piece in which the frusto-conical teeth (5) are larger at the back.

[0016] The front end of the dentated piece includes a thickening (6) which has constant cross section and equal to the larger base of the teeth (5). This thickening (6) can only be inserted into the tubular passage (3) with the mouthpiece end (3a) first. This is because its section, like that of the back end of the teeth, is slightly larger than the passage defined by the flexible fins (3), thus preventing it from being inserted in the rear end of the tubular passage first.

[0017] In the example shown, the tailpiece (2) is extended from the thickening (6) in a final segment (2b) that is equipped with small peripheral nerves (2c) which prevent slippage when it is pulled to let pass the thickening (6) and all or some of the teeth (5) through the tubular passage (3) in order to obtain the closing and adjustment of the seal on any product whatsoever.

[0018] Further description is deemed unnecessary for any expert in the field to understand the scope of the invention and the advantages to be had from it.

[0019] The terms in which this paper has been written are to be interpreted in a wide as opposed to a limited sense at all times.

Claims

1. An improved seal of the type that includes a flat plate (1) from which a tailpiece (2) extends, which is provided with a peripheral dentate in an intermediate area, said plate (1) being linked sideways to a tubular passage (3), the ends of which are defined by a frusto-conical mouthpiece (3a) and retainers (3c) which prevent the slippage of the dentated section once it is inserted via the aforementioned mouthpiece; whereby the dentated tailpiece (2) has a spherical reinforcement (4) in the connecting area with the plate (1); **characterised by** a thickening (6) at the front end of the dentated piece (5) which only enables its introduction in to the tubular passage (3) through of the end corresponding to mouthpiece (3a).
2. A seal which, according to Claim 1, **characterised in that** both the flexible tailpiece (2) and the flat plate (1) have an increasing section in the connecting area with the spherical reinforcement (4).
3. A seal, according to Claim 1, **characterised in that** the thickening (6) defined at the front end of the dentated piece has a constant cross section and equal to the larger portion of said dentated piece and slightly larger than the orifice defined by the retainers (3c) inside the tubular passage (3).

Patentansprüche

1. Perfektionierter Verschluss jenes Typs, der aus einer flachen Platte (1) besteht, von der ein in seinem mittleren Bereich um Umfang mit einer Verzahnung versehener Fortsatz (2) ausgeht, wobei die Platte (1) seitlich mit einem zylindrischen Durchgang (3) verbunden ist, an dessen Ende eine kegelstumpfförmige Einführungsöffnung (3a) und die Rückführung des verzahnten Abschnittes nach Einführung desselben durch die genannte Öffnung verhindernde Retentionsmittel (3c) ausgebildet sind, und bei dem der verzahnte Fortsatz (2) im Verbindungsbe-
reich mit der Platte (1) eine kugelförmige Verstärkung (4) aufweist, **dadurch gekennzeichnet dass** der verzahnte Abschnitt (5) an seinem vorderen Ende eine Verdickung (6) aufweist, welche die Einführung desselben durch den zylindrischen Durchgang (3) nur an dem mit der Einführungsöffnung (3a) versehenen Ende zulässt.
2. Verschluss nach Anspruch 1, **dadurch gekennzeichnet dass** sowohl der biegsame Fortsatz (2) als auch die flache Platte (1) im Verbindungsbe-
reich mit der kugelförmigen Verstärkung (4) eine Querschnittserweiterung aufweisen.
3. Verschluss nach Anspruch 1, **dadurch gekennzeichnet, dass** die am vorderen Ende des verzahnten Abschnittes ausgebildete Verdickung (6) einen gleichbleibenden Querschnitt aufweist, welcher mit dem größten Querschnitt des genannten Abschnittes ident und etwas größer als die durch die Retentionsmittel (3c) innerhalb des zylindrischen Durchgangs (3) gebildete Öffnung ist.

Revendications

1. Scellé perfectionné, du type de ceux qui comprennent une plaque plate (1) d'où part un appendice (2) muni d'une denture périphérique dans une zone intermédiaire, cette plaque étant associée latéralement à un passage tubulaire (3) aux extrémités duquel se trouvent définis une embouchure tronconique (3a) et des moyens de retenue (3c) empêchant le recul de la portion dentée une fois celle-ci introduite dans l'embouchure mentionnée, au milieu duquel l'appendice denté (2) présente un renforcement sphérique (4) dans la zone de jonction avec la plaque (1); **caractérisé en ce qu'un** épaississement (6) à l'extrémité antérieure de la portion dentée (5) ne permet son introduction que dans le passage tubulaire (3) par l'extrémité correspondante à l'embouchure (3a).
2. Scellé, suivant la revendication 1, **caractérisé en ce que** l'appendice flexible (2) comme la plaque

plate (1) présentent une section croissante dans la zone de jonction avec le renforcement sphérique (4).

3. Scellé, suivant la revendication 1, **caractérisé en ce que** l'épaississement (6) défini à l'extrémité antérieure de la portion dentée présente une section transversale constante, pareille à la section plus grande de cette portion dentée, et légèrement supérieure à l'orifice défini par les moyens de retenue (3c) à l'intérieur du passage tubulaire (3).

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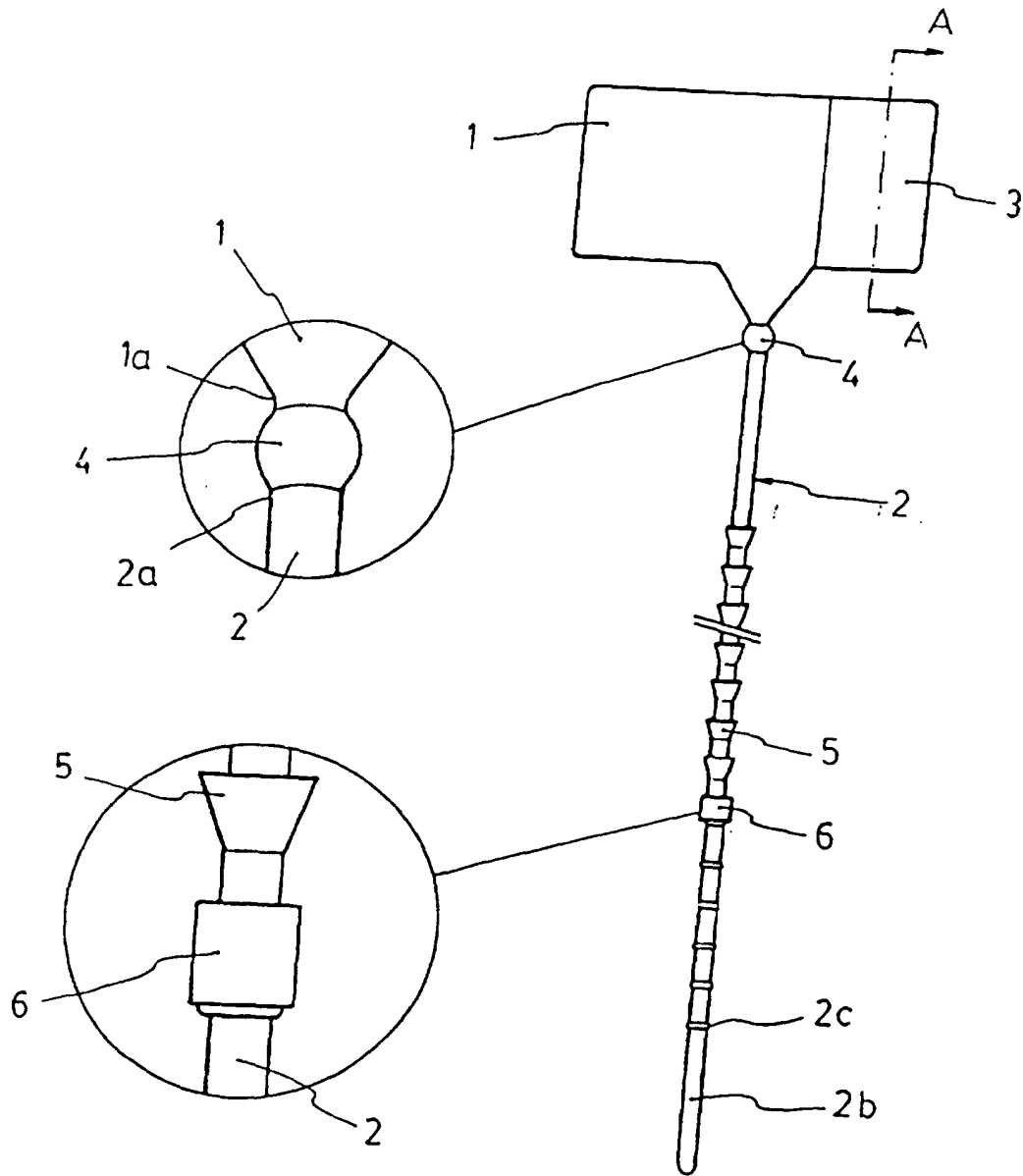


FIG. 1

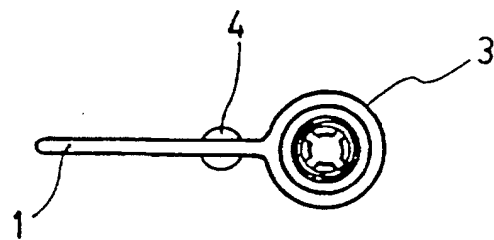
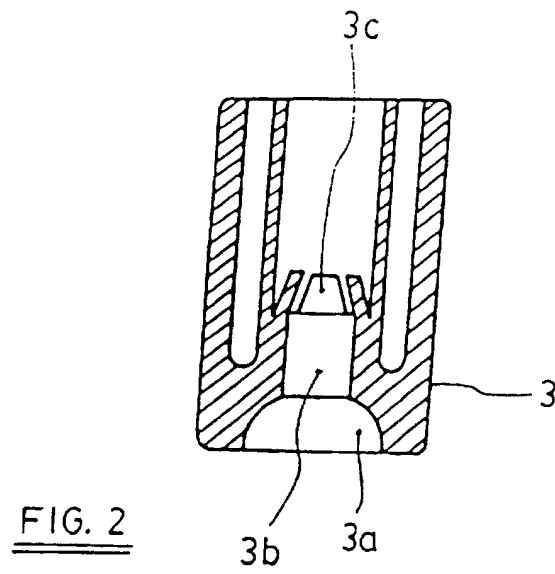


FIG. 3