

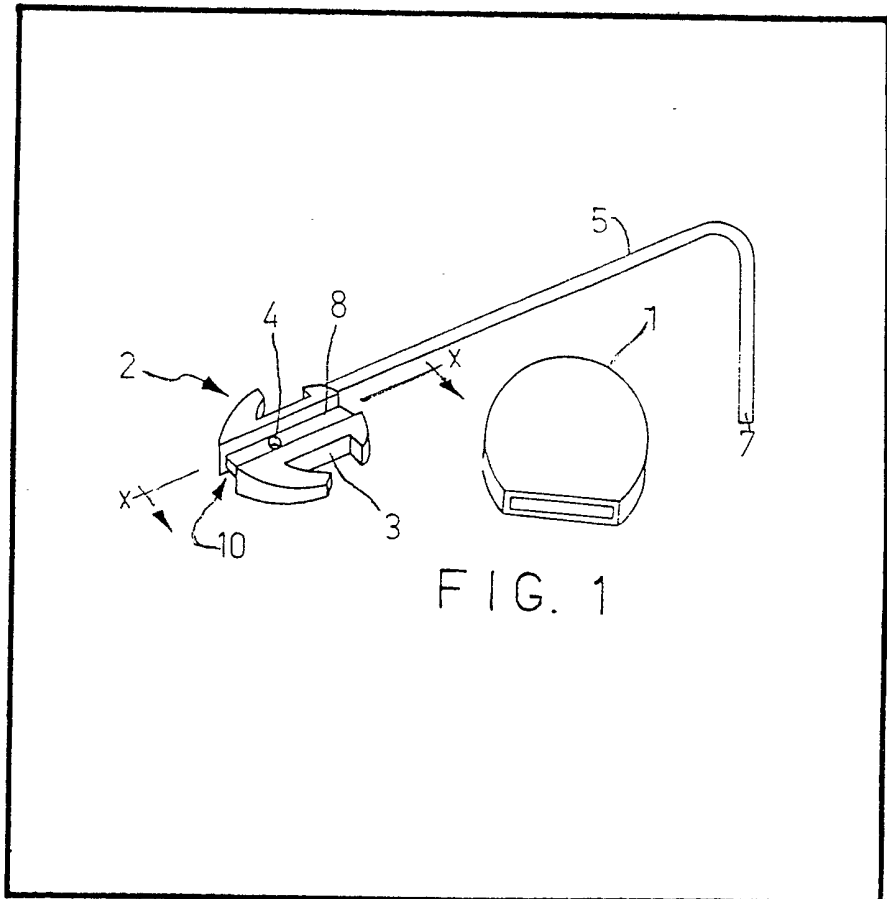
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(54) **Security seal**

(57) A Security Seal of the type including an insert (2) and a capsule (1) which retains the insert when it is inserted in the capsule, the insert (2)

being formed with one or more openings (4) to permit a more secure fixing of a sealing filament 5 having a smooth surface. The opening (4) is also shown in one embodiment in which it retains a separate, pre-assembled filament to the insert (2).



GB 2 126 957 A

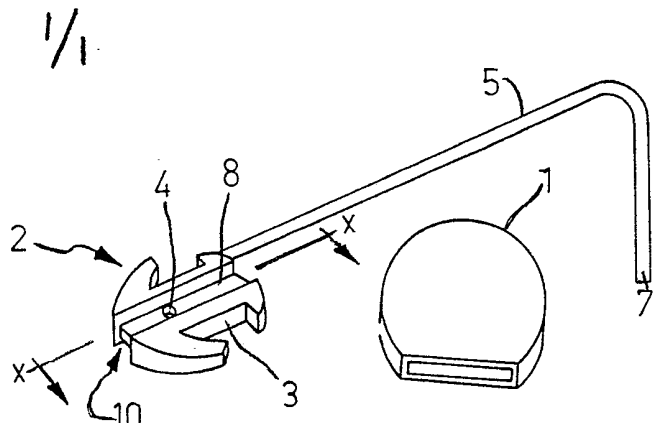


FIG. 1

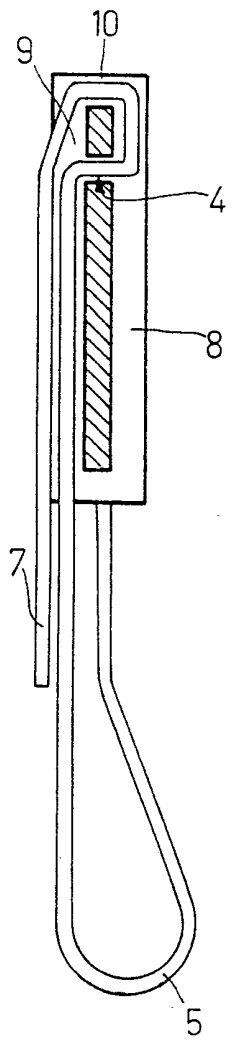


FIG. 2

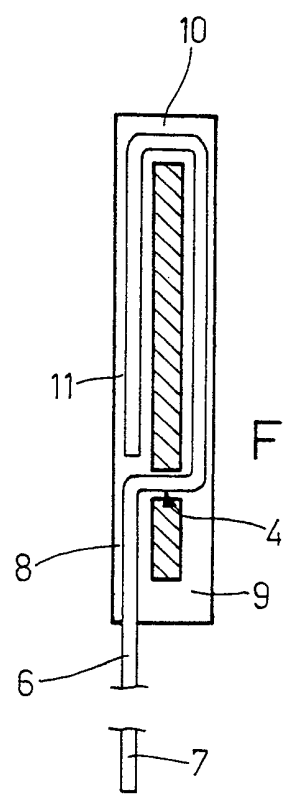


FIG. 3

SPECIFICATION

Security seal

There is already known from British Patent No. 1400760, a basic security seal comprising a capsule and an insert which, when inserted into the capsule by elastic deformation, may not be withdrawn therefrom again without damaging one or other of the parts. The insert is formed with two grooves which pass respectively along opposing surfaces of the insert, the grooves being connected by a depression in the extremity of the insert which enters the capsule. The groove and recess serve in use, to receive a filament or thread which is held captive when the seal is closed.

Said Patent No. 1400760 deals with an improvement on this type of seal, which comprises a filament integrally moulded with the capsule or the insert, which filament has a free end which may be passed through orifices in an object to be sealed, after which the filament is folded about the insert, being received in the grooves and the recess before the insert is inserted into the capsule.

Due to the reduced friction, the basic type of seal mentioned above was observed not to be totally satisfactory in retaining a sealing filament made of smooth material, permitting the filament to be withdrawn from the seal without opening it. Although this does not prejudice the security of the seal, as the filament once removed may not be replaced, a greater fixing force on the filament to avoid its removal would make the seal more acceptable to the consumer.

A principal objective of the present invention is to provide a security seal which will effectively hold a smooth filament to prevent its removal.

A second objective of the present invention is to provide a security seal of the basic type described in the British Patent cited above, which is pre-assembled with a sealing filament, the sealing filament being capable of having a length considerably greater than the length of the filament which may be obtained when the seal and the filament are integrally moulded.

In accordance with the present invention, a security seal of the basic type described in the above patent is characterised by the fact that the insert is additionally formed with one or more openings penetrating it between the two said surface and openings into the grooves.

In one embodiment for use with a plastics filament, the opening penetrating the insert has a size equal, or substantially equal to the cross-section of the plastics filament. In use, the plastics filament passes in one direction along the groove in one side of the insert, through the opening, and in the opposite direction along the groove in the other side of the insert.

In a preferred embodiment, the seal is provided as in Patent No. 1400760, with an integral filament, extending from one or other part of this seal. In this case, the opening in the insert will have a shape equal, or substantially equal, to the cross-section of the filament.

In an alternative embodiment, the seal is used with a separate pre-assembled filament passing along the groove in the direction of its free end, through the opening in the insert, continuing along the groove on the other side of the insert, around the extremity, a portion of the extremity of the filament being situated within the groove on the first side of the insert between the opening and its extremity. The filament in this embodiment will be of a deformable material; preferably a metal strip or wire.

The present invention will now be described by way of example, with reference to the accompanying drawings, in which:

Figure 1 is a perspective view of a seal with an integral filament;

Figure 2 shows a longitudinal section of the insert of the seal of Figure 1, to an enlarged scale, before closing the seal showing the insert in combination with a plastics filament;

Figure 3 shows an insert, a preformed metallic filament and the seal, in longitudinal section and to enlarged scale.

In Figure 1 there is shown the seal of the present invention, including a capsule 1 and an insert 2. The insert has a central stem 3, with a groove 8, 9 or both sides, and an opening 4 which penetrates the stem and opens into the grooves. A filament 5 is formed integrally on the insert.

Figure 2 shows a longitudinal section taken on line X—X of Figure 1, with the insert and the integral plastics filament in the position ready for closing the seal. The filament 5 is passed through the object to be sealed and the free end of the filament is then passed through opening 4 in the stem. The filament is folded, passing around the free end of insert 2 and returning by the same groove 9 as that by which it entered. The capsule 1 is finally placed over the insert 2 to complete the sealing process. It will be observed that the filament 5 and the opening 4 have the same cross-section.

Figure 3 shows the insert and premolded filament, the filament being of a deformable material such as metallic wire or strip. Filament 6 passes along groove 8 in one side of the insert, through opening 4 and continues along groove 9 in the other side up to the end 10. An extremity 11 of filament 6 terminates in groove 8 on the first side of the insert. The other extremity 7 of the filament extends away from the insert terminating at a free end 7. To seal an object, free end 7 is passed through the object or objects to be sealed and is then curved so as to pass along groove 9, around end 10, and return by groove 8 of insert 2. The capsule is then applied to complete the sealing process.

The construction illustrated in Figure 3 shows another use for the seal with an opening in its insert, as in the specific case where the filament comprises a wire or flat metal strip with would not present the problem of being removable with the seal closed, even without the opening 4. In this case, the opening 4 permits the pre-assembly of one extremity of the wire or metal strip to the

insert so that the assembly may be manipulated prior to use without the wire or metal strip becoming detached from the seal.

5 The filaments used in connection with the seal of the present invention could, thus, be of any length and are not limited simply to the capacity of the mould for the formation of integral to the capacity of the mould for the formation of integral filaments.

10 The embodiments thus shown provide a seal which may be used with filaments with reduced frictional coefficient and which effectively retain those filaments in the seal, and may also be used with pre-assembled filaments from durable metal or any other resistant material.

Claims

1. A security seal comprising a capsule and an insert which, when inserted into the capsule by elastic deformation, may not be subsequently withdrawn from the capsule without damaging either one of the parts, the insert having two grooves which pass respectively along its opposed surfaces and are connected by a recess at the extremity of the insert which enters the

25 capsule, so that a filament or thread disposed in the said grooves and depression is held captive when the seal is closed, characterised by the fact that the insert is additionally formed with one or more openings (4) penetrating the insert between its two said surfaces and opening into the said grooves (8, 9).

2. A security seal according to Claim 1, and additionally having a sealing filament extending from the base of the insert or from the capsule characterised by the fact that the size of the opening (4) is equal to the transverse section of the filament (5).

3. A security seal according to Claim 1, characterised by the fact of additionally comprising a filament retained to the insert (2) of the seal, with one extremity positioned in one of the grooves (8, 9) of the insert (2), extending up to the end (10) of the insert remote from its base, towards the said base, passing then through the said opening (4) and continuing past the said base to terminate in a free end (7).

4. A security seal according to Claim 3, characterised by the fact that the filament is a metal strip or wire.