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(54) A spigot applicable to containers

(57) This spigot consists of a main body incorporating a shut-off valve, one rear mouth and one front mouth; the rear mouth may terminate in an end lid attached to the same, or present different outer zones fitted with means designed to provide a leak-proof connection between the spigot and the container and, optionally, a perforating device that allows a hole to be made in the lid or wall of the container for attachment of the spigot, or an accessory lid selected from among the several with different diameters that are supplied with the spigot, these lids incorporating a central hole to allow attachment to the rear mouth of the spigot and their subsequent immobilisation by the means for sealing the connection.

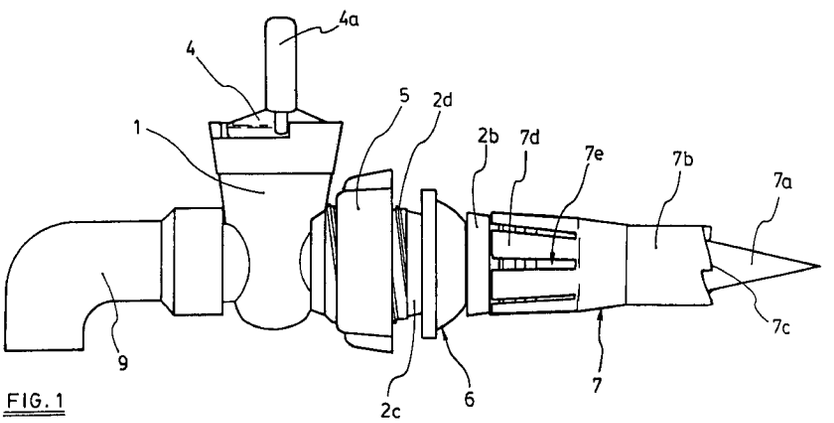

FIG. 1

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Description

OBJECT OF THE INVENTION

As its title indicates, the present invention refers to a spigot destined to be attached to containers and which presents on its rear part a removable or fixed means to permit this attachment.

BACKGROUND TO THE INVENTION

At present, it is a usual practice to use containers for marketing liquids. These containers generally present some means of closure consisting by a lid that is screwed to the mouth of the container. In addition, it may also include a seal that indicates whether the container has been previously opened.

When these containers are of a certain volume, it becomes difficult to handle them and to manage the controlled pouring of their contents. In addition, when the lid has been opened, breaking the seal, the contents are exposed to the outside, allowing the entry of insects, dust or any other foreign body.

DESCRIPTION OF THE INVENTION

The spigot applicable to containers, object of the present invention, has been devised to resolve these problems. It consists of a main body which incorporates two mouths, one at each end, and a revolving valve that, when operated, opens or closes the passage through the inside of the main body.

According to the invention, the exterior of the rear mouth of the spigot may present different zones designed to permit the attachment of a device destined to puncture the wall or lid of the container, a leak-proof seal, and a pressure nut that acts on the material of the container surrounding the hole made in the container to establish a leak-proof seal of connection between the rear mouth of the spigot and the container.

This spigot therefore has an important advantage which consists of the fact that when the spigot is being fitted to the container, through puncturing the wall or lid of the container, it is not necessary to open the container nor break the seal on the lid, eliminating any possibility of foreign bodies gaining access to the container. Furthermore, it enables the content of the container to be emptied in a controlled way, by opening or closing the spigot, making it unnecessary to invert the container in question.

In the event that the rear mouth defines certain differentiated zones for the attachment of the mentioned elements, these will be composed of: an end part fitted with some means for attaching the perforating device, a rear tapered part that acts as an interior stop against the previously punctured wall or lid of the container, a front tapered part for attachment of the leak-proof seal, and a threaded part for attachment of the pressure nut of the leak-proof seal.

According to the invention, the perforating device consists of a conical point whose base is made up of, toward the front part, a cylindrical part that terminates in a toothed edge and, toward the rear part, some slightly divergent fins which define radial grooves that allow liquid to pass into the interior of the rear mouth of the spigot.

These fins have an internal attachment means that fits onto that defined on the end of the rear mouth of the spigot, allowing them to be coupled together by pressure.

This attachment means between the end of the rear mouth and the fins of the perforating device is composed of a peripheral channel and internal teeth.

The fins of the perforating device define a tapered surface which extends, once positioned on the rear mouth of the spigot, over the tapered rear part of the mouth.

The spigot is placed on the container by simply perforating the wall or lid of the container using the conical point. The perforating device is then turned so that the toothed edge makes a hole in the material of the wall or lid of the container. The device is axially then pushed into the container so that the hole is deformed by the tapered shape of the fins on the perforating device and the tapered shape of the rear part of the mouth. Once the tapered rear part has passed through the hole, the elasticity of the material used to form the container or the lid of the same will cause the hole to close and form a seal between the two tapered parts of the rear part of the spigot.

In order to prevent any possible leak in the joint, it is then necessary to screw down the nut mounted on the threaded part of the rear mouth; this nut will press the leak-proof seal against the outer surface of the wall of the container.

According to the invention, the leak-proof seal consists of a front circular part that extends toward the rear of a curved lip of diminishing thickness.

The pressure nut that applies force to the seal presents outer diametrically opposite wings to simplify tightening by hand.

This spigot fitted with the perforating device and the elements required to establish a leak-proof union can be applied to the plastic lids of any container and even to the container wall itself, in the event that it is made of plastic material.

The spigot is to be supplied with several accessory lids of different sizes that incorporate a central hole of suitable size to permit attachment between the rear and front tapered parts of the rear mouth of the spigot, the area of the union between the lid selected as accessory and the spigot being sealed by the pressure applied to the leak-proof seal by the pressure nut.

In the event that any of the accessory nuts that accompany the spigot correspond with the mouth of the container in question, it can be attached directly on the

rear mouth of the spigot as indicated, not being necessary to use the perforating device to make a hole in the wall or lid of the container. In this case, the lid of the container is removed and the selected accessory lid used to attach the spigot to the mouth of the container.

In a variation in construction that provides greater simplicity, the invention also envisages that the rear mouth of the spigot could terminate in an integrally formed fixed lid with a central hole corresponding with the interior diameter of the rear mouth. This arrangement presents some limitations in use since the spigot will be only be able to be attached to those containers whose mouth corresponds with the fixed lid fitted to the rear mouth. Nevertheless, this considerably simplifies the manufacturing process for the spigot as it eliminates the different areas of the rear mouth and the different elements that fit onto this rear mouth.

The front mouth of the spigot incorporates in its periphery attachment means for a screw-on pourer, preferably in the shape of a tube with an elbow to allow it to be directed downwards.

According to the invention, the complementary attachment means provided in the front mouth of the spigot and the pourer will be composed of an outer ridge and an inner circular channel.

DESCRIPTION OF THE DRAWINGS

As a complement to the description being made and in order to aid in a better understanding of the characteristics of the invention this descriptive report is accompanied by, as an integral part of the same, a set of drawings, which with illustrative and in no way restrictive character, show the following details:

Figure 1 shows an elevation view of an example of the construction of the spigot object of the invention showing the punch device, the leak-proof seal and the pressure nut mounted on the different zones of the rear mouth; the valve of the spigot is shown in the closed position.

Figure 2 shows an elevation view of the construction of the previous figure and the attachment of the different elements designed to be fitted to the front and rear mouths, these elements have been partially or totally sectioned by a vertical plane.

Figure 3 shows a partial detail, in elevation, of the spigot, showing how it is fitted to the material forming the lid or the wall of the container in question; in this figure the leak-proof seal has been sectioned vertically in order to be able to show how it is deformed by the pressure applied by the nut against the material of the container.

Figure 4 shows an elevation view of the body of the spigot, with the leak-proof seal, the pressure nut and an accessory lid fitted to the rear mouth. This accessory lid is sectioned vertically to show how it is fixed by pressure to the mouth of the container in question.

Figure 5 shows a profile view of a variation of the accessory lid, sectioned vertically. In this example, it is fitted with an interior screw for attachment onto the mouth of the container.

Figure 6 shows an elevation view, sectioned vertically, of a variation of the spigot object of the invention. In this case, it is fitted with a fixed lid, united to the rear mouth, which is shown partially sectioned.

PREFERRED EMBODIMENT OF THE INVENTION

As can be seen in Figures 1 and 2, the spigot object of the invention consists of a main body (1) with an interior passage that unites the two mouths (2 and 3), rear and front respectively.

The main body houses a revolving valve (4) operated by a butterfly nut (4a) which, when in the open position connects the mouths (2) and (3), or when in the closed position shuts off the passage inside the main body.

The following differentiated zones are included on the rear mouth (2): an end piece (2a), a rear tapered part (2b), a front tapered part (2c) and a threaded part (2d).

The threaded part (2d) is fitted with a nut (5); the front tapered part (2c) with a leak-proof seal (6); and the end part (2a) with a device (7) designed to perforate the wall of the container in question (8) and penetrate its interior.

The device (7) consists of a conical point (7a) whose base is fitted, toward the front part, with a cylindrical part (7b) that terminates in a toothed edge (7c) and, toward the rear part, some slightly divergent fins (7d), between which are some radial grooves (7e) that form inlets allowing the liquid contained inside the container (8) to pass into the rear mouth (2) of the spigot.

These fins (7d) incorporate teeth (7f) on the inner edge designed to fit into a peripheral groove (2e) incorporated in the end part (2a) of the rear mouth.

The device (7) is fitted to the rear mouth (2) by applying pressure and, once attached, the rear tapered part (2b) forms an extension of the surface defined by the fins (7d).

This arrangement elements to fix the spigot to a container (8) requires penetrating the wall or the lid of the container with the point (7a) and then turning the device (7) to make a hole in the wall of the container (8) by the action of the toothed edge (7c). Once this hole has been made, the device (7) must be axially pressed toward the interior of the container, so that the hole is deformed elastically by the tapered shape of the fins (7d) and the tapered part (2b). The hole then closes

partially when it reaches the zone between the tapered surfaces (2b) and (2c).

When this position is reached, the larger base of the rear tapered part (2b) acts as a stop on the inner surface of the material surrounding the hole. The pressure nut (5) is then tightened to press the leak-proof seal (6) against the outer surface of the material (8), preventing the liquid from leaking through the area of the union between the spigot and the container.

As shown in figure 2, the front mouth (3) of the spigot has a peripheral ridge (3a) that enables the attachment of a pourer (9), with an internal circular channel (9a).

The pourer (9) has the shape of a bent tube and may be turned relative to the front mouth (3), so that the outlet of the pourer points downwards, independently of the position of the spigot, provided its axis is horizontal.

The spigot may be accompanied by several accessory lids (10); similar to those represented in figures 4 and 5. These lids have different sizes to enable attachment of the spigot to containers with different sized mouths.

The lids (10) have a central hole whose size allows passage of the rear tapered part (2b), with a slight elastic deformation so that once the part (2b) is introduced, the hole contracts due to the elasticity of the material forming the lid (10) locking it between the tapered parts (2b and 2c).

The union between the lid (10) and the mouth (2) is made leak-proof by the action of the seal (6), pressed by the pressure nut (5).

The lids (10) incorporate an internal cylindrical prolongation (10b) designed to be fitted to the neck of the container in question and means for fixing it to the mouth of the container. This mounting means may be by means of a ridge (10c), as shown in Figure 4, that will fit onto the possible ridge around the outside of the neck of the container, or an inner screw thread (10d), as shown in Figure (5), that will fit onto the screw thread on the mouth of the container.

In the event of having an accessory lid which is suitable to attach the spigot to the mouth of the container in question, it will not be necessary to mount the perforating device on the rear mouth of the spigot.

Figure 6 shows a variation of the spigot in which the rear mouth of the spigot does not have the different areas mentioned in the previous examples. It terminates in a lid (11), which is an integral part of the spigot and with is designed to be attached to the mouth of the container, fitting the spigot to the container.

The lid (11) is provided with a central hole (11a), which coincides with the passage through the rear mouth.

It is not considered necessary to make this description any more detailed as any expert in the matter can understand the scope of the invention and the advantages that it provides.

The terms in which this report has been drafted are to be taken in widest sense and in no way restrictive.

The materials, shape, size and arrangement of the elements will be susceptible to variation provided this does not imply any alteration of the essential characteristics of the invention, as claimed below.

Claims

1. A spigot applicable to containers of the type that includes a main body fitted with two end mouths and a revolving valve whose operation opens or closes the interior passage of the main body; characterized in that the rear mouth of the main body presents means for its direct attachment to the mouth of the container in question or differentiated areas that are used to attach a seal system and optionally, an accessory lid designed to be fixed to the mouth of the container or a device destined to puncture the wall or the lid of the container while the front mouth of the spigot incorporates some peripheral means for attaching an adjustable pourer.

2. A spigot, according to the previous claim, characterized in that the differentiated zones defined on the outside of the rear mouth are: a cylindrical end part, a rear tapered part, a front tapered part, and a threaded part.

3. A spigot, according to the previous claims, characterized in that the end of the rear mouth is fitted with some means for attaching the perforating device.

4. A spigot, according to the previous claims, characterized in that the perforating device incorporates a conical point from whose base emerges, toward the front, a cylindrical part that terminates in a toothed edge and, toward the rear, a series of slightly divergent fins which define radial grooves that allow liquid to pass into the interior of the rear mouth of the spigot.

5. A spigot, according to the previous claims, characterized in that the fins of the perforating device present an internal attachment mechanism that is complementary to that defined in the end part of the rear mouth of the spigot.

6. A spigot, according to the previous claims, characterized in that the complementary means of attachment defined in the end part of the rear mouth of the spigot and in the fins of the perforating device are respectively composed of a circular channel and inner teeth.

7. A spigot, according to the previous claims, characterized in that the fins of the perforating device, taken as a whole, define a tapered surface that extends, once placed in position, over the rear

tapered part of the rear mouth of the spigot.

8. A spigot, according to the previous claims, characterized in that the means of leak-proof attachment is composed of an elastic seal that is assembled on the front tapered part and a pressure nut that is mounted on the threaded part.

9. A spigot, according to the previous claims, characterized in that the leak-proof seal consists of a circular part that extends toward the rear in a curved lip of diminishing thickness.

10. A spigot, according to the previous claims, characterized in that the nut that applies the pressure to the seal presents outwardly two diametrically opposite nerves to simplify manual tightening.

11. A spigot, according to claim 1, characterized in that the accessory lids incorporate a central hole of suitable size to allow insertion, under pressure, of the rear tapered part, permitting the positioning of any of the said lids between the two tapered parts.

12. A spigot, according to claims 1 and 11, characterized in that the accessory lids have different sizes to allow the attachment of the spigot to different sized container mouths.

13. A spigot, according to claims 1 and 11, characterized in that the accessory lids have an inner cylindrical prolongation, designed to be introduced into the neck of the container in question, its end incorporating a ridge designed to fit over the possible ridges in the neck of the container, or a threaded part designed to be attached to the screw thread in the mouth of the container.

14. A spigot, according to claim 1, characterized in that the rear mouth of the spigot terminates in a fixed lid, manufactured together with the spigot and designed to attach it to the mouth of a container, the lid being provided with a central hole that coincides with the interior passage of the main body of the spigot.

15. A spigot, according to claim 1, characterized in that the pourer to be positioned on the front mouth of the spigot has a tubular configuration in the form of an elbow.

16. A spigot, according to claims 1 and 15, characterized in that the complementary means of attachment defined in the front mouth of the spigot and the pourer, are composed respectively of an outer ridge and an inner peripheral channel.

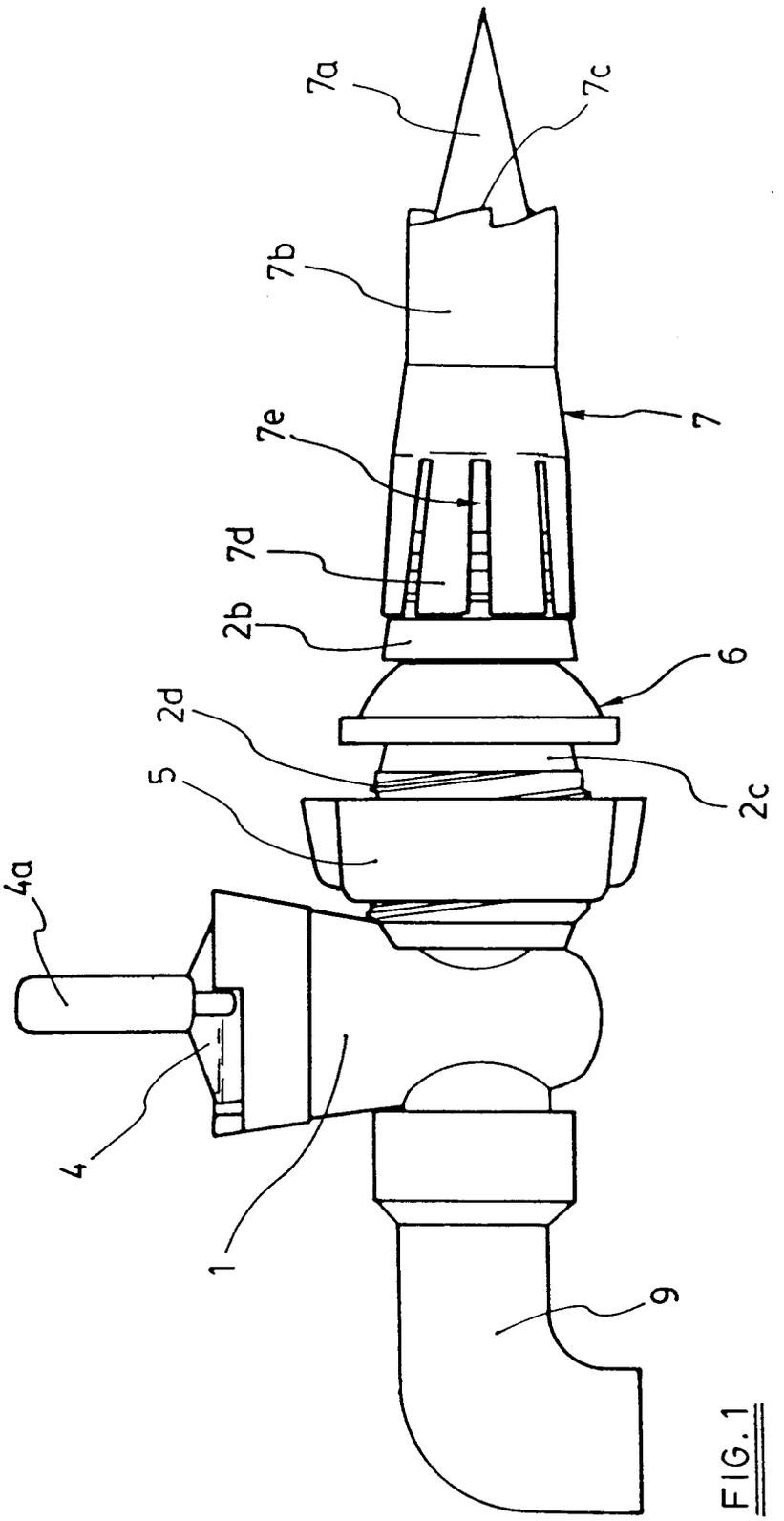

FIG.1

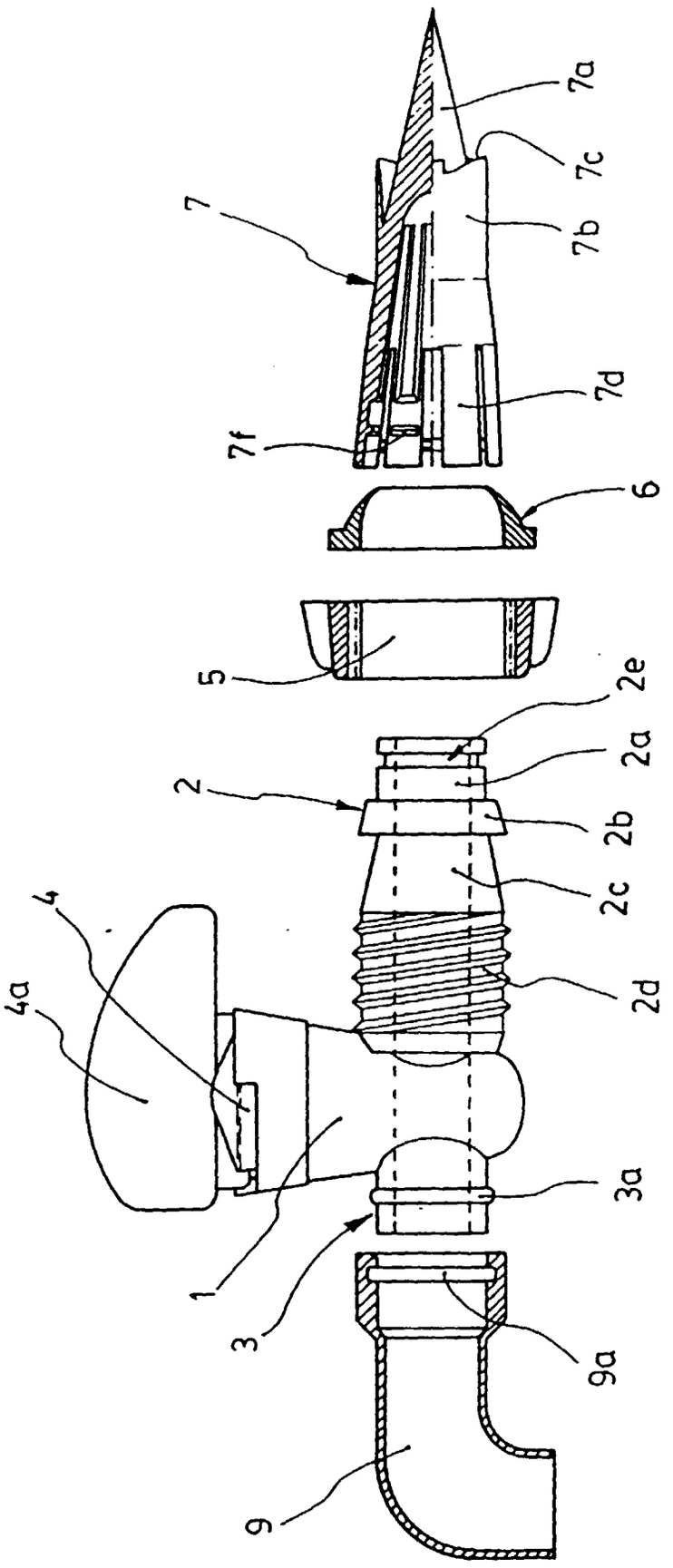

FIG. 2

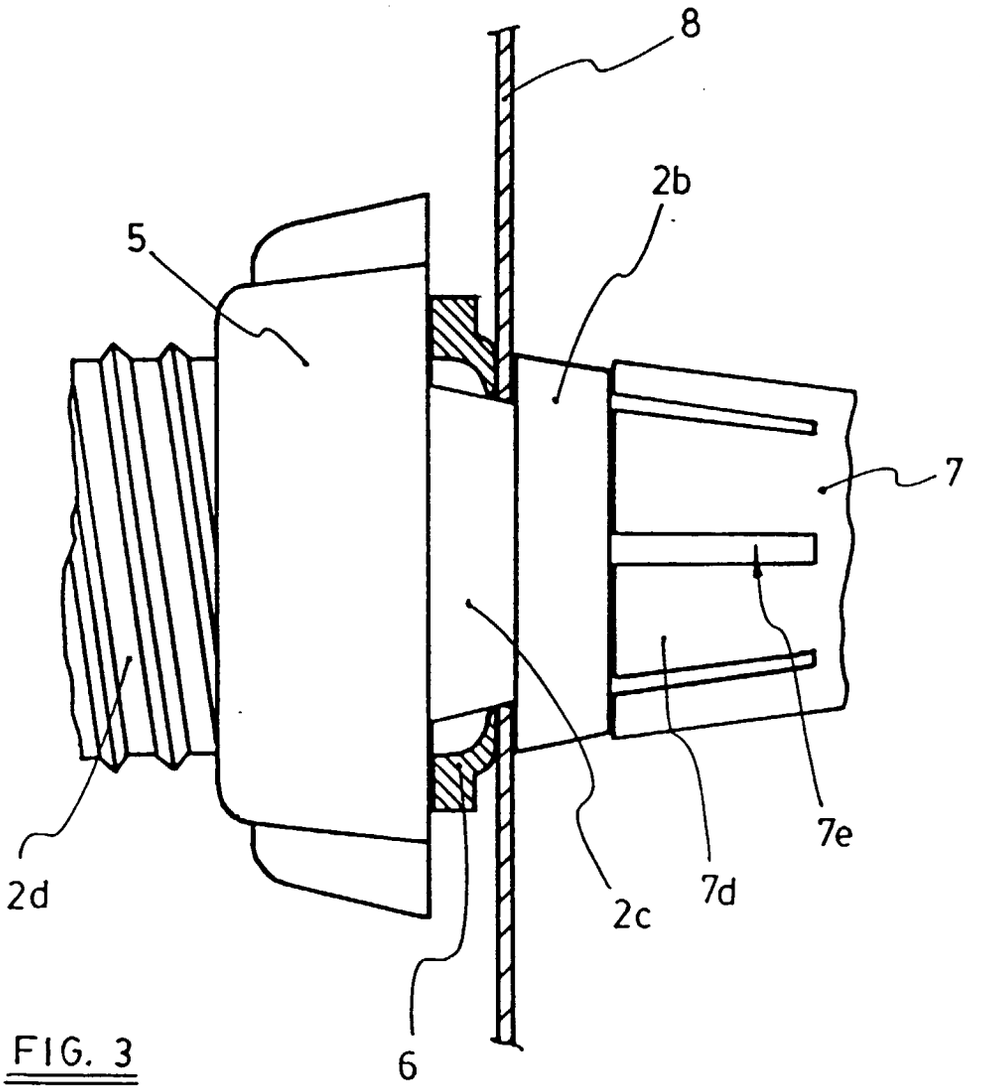

FIG. 3

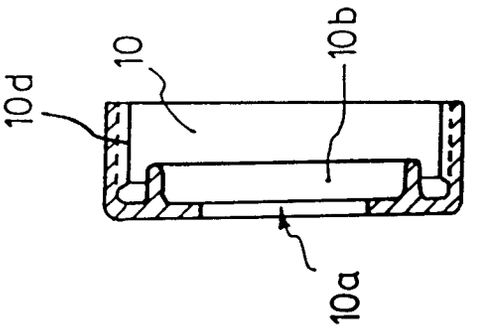

FIG. 5

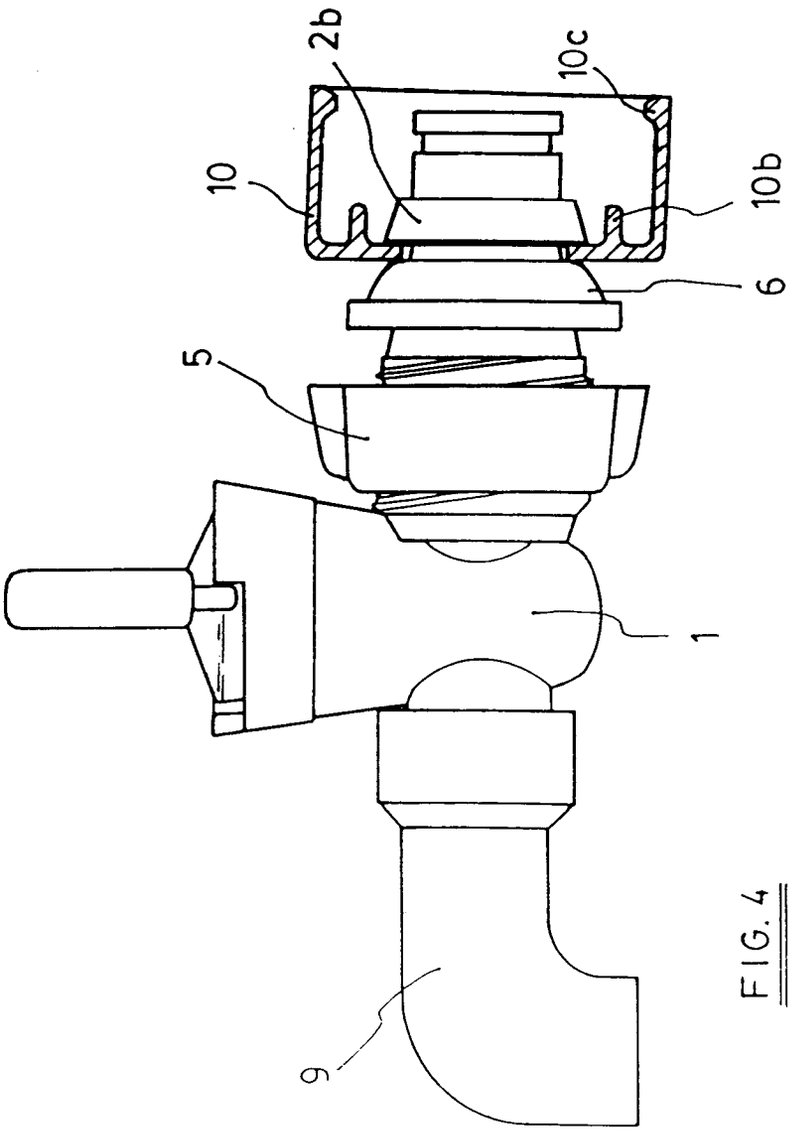

FIG. 4

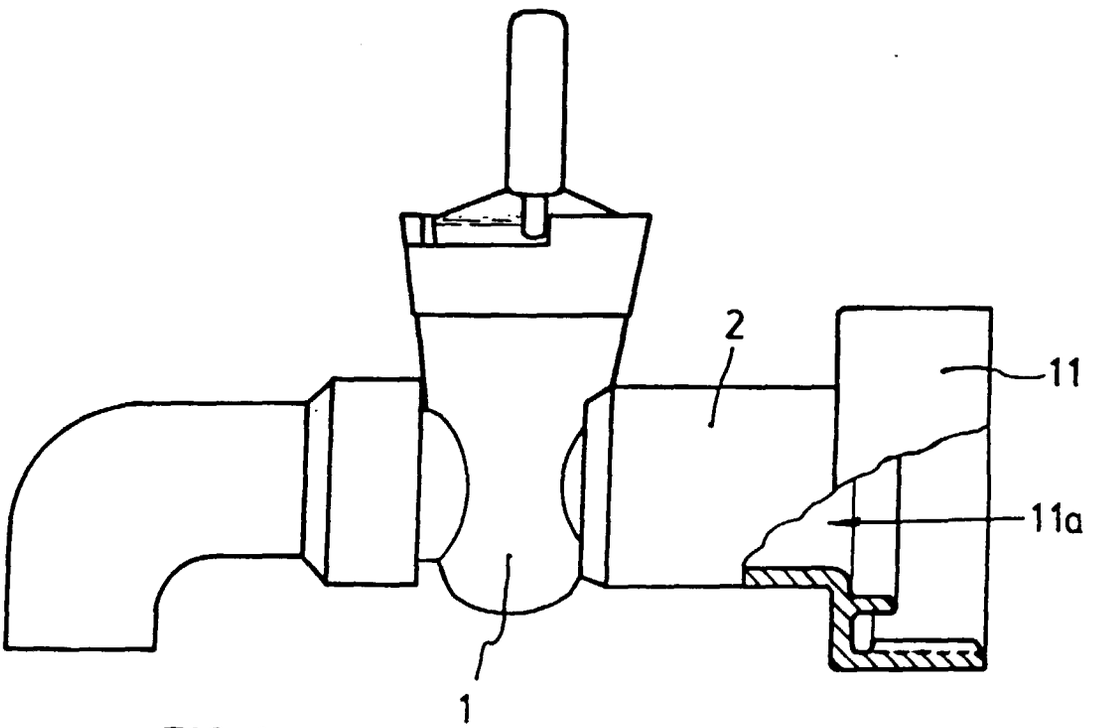

FIG. 6

European Patent Office

EUROPEAN SEARCH REPORT

Application Number
EP 98 20 2308

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
X	GB 185 108 A (MOORE WILLIAM M.) 1 November 1923 * page 1, line 68 - line 78; figures 1,2 *	1,15	B67B7/20 B67D3/04
X	DE 90 996 C (CREDGINGTON, HERBERT) 12 March 1897 * page 2, column 1, line 4 - line 20; figures 1-4 *	1,3	
A	GB 449 764 A (TREVALLON, FREDERICK J) 30 July 1936		
A	GB N12224 A (STOREY, FREDERICK J.) 15 January 1914		
A	FR 2 560 161 A (SOCAR) 30 August 1985		
A	FR 2 516 496 A (VILLEMANDY BRUNO DE) 20 May 1983		
A	FR 2 243 869 A (ELBATAINER KUNSTSTOFF) 11 April 1975		

TECHNICAL FIELDS SEARCHED (Int.Cl.6)

B67B
B67D

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	15 October 1998	Müller, C

CATEGORY OF CITED DOCUMENTS

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