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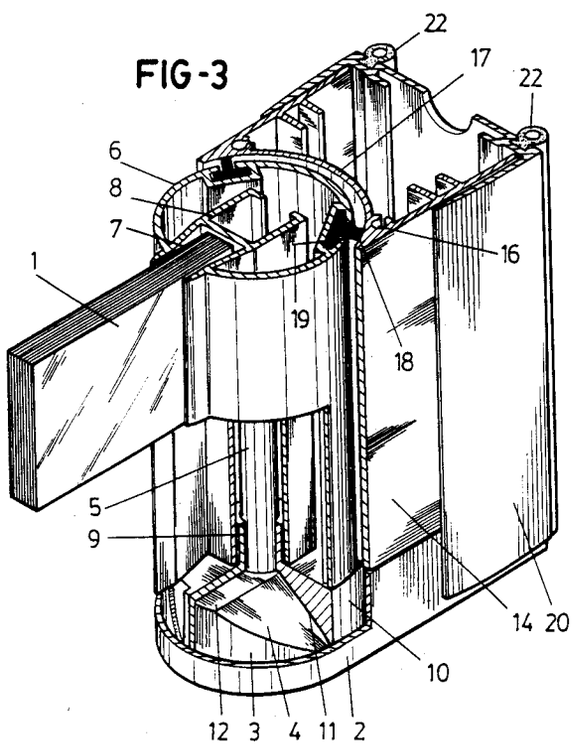
(54) Bath screen.

(57) Bath screen incorporating at least one swing panel (1), with a base part (2) and an upper head (13) linked by means of two vertical profiles (14) and (20) whose position can be adjusted so that the former is plumb and contains a semicircular seat (17) for a cylindrical profile (6) to which panel (1) is fixed by means of the groove (7). Said plumb adjustment on the screen is performed with a wedge (24) which can be controlled by means of a screw (35). The cylindrical profile (6) which acts a rotation shaft for the screen is tipped at the bottom with two planes, with a sloping underside, opposite and complementary to others (4) on a lower table (3) fitted on the base component (2) so that said inclined planes cause the screen to "close" automatically, except when fully open.

FIG-3



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PURPOSE OF THE INVENTION

This invention refers to a bath screen, specifically of the type made on the basis of a swing panel which, with or without fixed panels, forms an openable closure for a bath, shower or the like.

BACKGROUND TO THE INVENTION

As is known, in the field of bathroom screens, an increasingly used design is that of one or more swing panels appropriately hinged on one of their vertical edges so that, from the open position, they can be moved to the closed plane so as to create a barrier for water splashed while the bath or shower are being used.

Irrespective of their degree of structural complexity, bath screens of this type have basic problems in terms of a lack of seal on their swing axis, as well as requiring a special profile which can be fixed to the edge of the bath, to seal the door or screen in that zone, not only thereby negatively affecting the appearance of the bath when the door is opened but also creating an area where dirt accumulates which is difficult to clean.

DESCRIPTION OF THE INVENTION

The bath screen put forward in this invention is of the last of the types referred to, namely those structured on the basis of a swing panel, and resolves the abovementioned problems entirely satisfactorily, assuring a completely hermetic seal on the swing axis, as well as along the edge of the bath, without the need for any ancillary profile secured to the bath, all with an increased ease of adjustment of position in terms of the regulation or plumb of the swing axis. To all these benefits must be added the complete stability obtained for the door when it is in its extreme open and closed positions but with the particular feature that, from any intermediate position, the door tends of itself, i.e. automatically, to move to the closed position.

For these purposes, and more specifically, the screen put forward is structured upon a base element of a cantered semicircular ground plan on which, in the zone of the semicircular end, there is a coaxial circular table from the center of which a spindle emerges vertically, forming a lower swing shaft for a cylindrical profile inside which said spindle operates: said cylindrical profile forms a single unit with the plate, made of polycarbonate or any other suitable material, which forms the panel of the screen.

Said spindle is fixed to the core of the cylindrical profile with the aid of a two-part bush, the upper of whose said parts has the same external polygonal shape as the core of the cylindrical profile, while the inside is cylindrical, in accordance with that of the spindle or rotation shaft: the lower sector is of a considerably greater diameter, and on it rests the bottom end of said cylindrical profile, inside which there are two complementary inclined planes to match two others on the table on which its stands so that said inclined planes tend to make said bush rotate on said table, thereby moving the door, under the effect of its own weight, to a limit situation where it is closed and stable.

At the upper end, in similar form, that is, with the aid of a further bush, the cylindrical profile receives a second spindle which completes the door's swivel axis: it emerges from an inverted table which is identical to the one at the bottom, but with its planes inclined out of phase at 90°: it is in turn fixed to an upper head, identical to the aforementioned base element, also in this case inverted.

In association with the structure described there is a wall fixing profile, roughly U-shaped, which is screwed to the wall or secured by any other suitable means, and with a pair of seal gaskets intercalated. Inside this fixing profile are the lateral sectors of an auxiliary profile, which is also U-shaped, and whose concave formation is opposite the previous one, of which the middle sector is semi-circular in shape so that the aforementioned cylindrical profile fits into it.

Said cylindrical profile incorporates a pair of channels with a pinched opening inside which two gaskets are incorporated and which rub as the door swings on the concave face of the auxiliary profile, so cleaning said profile and particularly acting as a hermetic seal between the two profiles.

Both the base element and the upper head are screwed to their ends of the auxiliary profile which, for these purposes, has the pertinent cylindrical throats: this means that, in its coupling to the wall fixing profile, the remainder of the bath screen will tend, under its own weight, to lean against the bottom end of said profile and to separate from the upper end.

These profiles are eventually fixed together by means of an expanding element with lateral ribs which fit into lateral guides on the auxiliary profile: said expanding element is fitted to the upper end of the auxiliary profile with the screws which are also used to fix the head to said profile, defining an inclined plane facing downwards and outwards, in other words, toward the wall fixing profile. Said inclined plane has a pair of dovetailed grooves of the same cross-section, on a regulating wedge which, for its part, has lateral ribs fitting into guides on the wall fixing profile: said regulating wedge has a vertical threaded opening containing an adjustment screw with a keyed top in an opening formed in the head, so that the expanding element and the

regulating wedge provide a means by which to secure the auxiliary profile to the wall fixing profile, with which the distance between said profiles can be adjusted according to the height of the regulating wedge. This not only means that the auxiliary profile is secured to the wall fixing profile, but that, as well, said auxiliary profile – the swivel axis of the screen panel or door – can be brought exactly into plumb.

Finally, another of the features of the invention, and as a means to hermetically seal the panel against the edge of the bath, there is provision for the bottom edge of said swing panel or door to be fitted simply by pressure with a type of U-shaped strip, preferably of firm rubber, with pronounced soft rubber ribs on its side sectors and inside face, which acts as the means for pressure fitting on to said lower edge of the panel forming the screen door. In turn, the side sectors of this U-shaped component extend downwards in the form of broad divergent sectors, with a profile in the form of an isosceles trapezoid, as two partitions, also made of firm rubber, which frame the strip as such which consists of a second U-shaped element of soft rubber which is secured at the ends of its lateral sectors to the middle sector of the aforementioned U-shaped element and which, along its own middle sector which projects significantly downward in relation to the rigid sectors framing it, comes into contact with the edge of the bath, deforming on it and establishing the hermetic seal required.

DESCRIPTION OF THE DRAWINGS

To complement the description being given and in order to assist in a better understanding of the characteristics of the invention, these specifications are accompanied by a set of drawings, forming an integral part hereof, and which by way of illustration and without limitation, show the following:

Figure 1 is a front elevation view of a bath screen made according to the subject of this invention.

Figure 2 is a ground plan view of the same screen.

Figure 3 is a partial perspective detail, in cross-section, of the bottom part of the screen.

Figure 4 shows the detail of the previous figure, in an exploded view.

Figure 5 is a further partial detail, in perspective, similar to that in figure 3, now of the upper part of the screen.

Figure 6 is once more a perspective detail of the upper end of the screen, but in the reverse position to that of figure 5, specifically showing the elements for the adjustment of the position of the door swivel axis.

Figure 7 finally shows a profile detail of the screen panel or door, particularly the strip on its lower edge.

A PREFERENTIAL DESIGN OF THE INVENTION

From these figures, it can be seen how, on the bath screen put forward, the panel (1), made up of a folding component, is linked by one of its vertical sides to a structure containing the means by which to open and close it: said structure has a lower base section (2) of a cantered semicircular ground plan, from which, at the end close to panel (1), a circular table (3) emerges, of a diameter similar to that of said base section (2). On the top of the base there are two inclined opposing planes (4) of considerable breadth, while from its centre there emerges a vertical cylindrical spindle (5) forming part of the actual swing axis of the panel (1), specifically for a cylindrical profile (6) of virtually the same diameter as the semicircular sector of the base section (2) and, coaxial therewith: said cylindrical profile (6) has a lateral groove (7) for the coupling and fixing in place of the associated edge of the panel or door (1) and a prismatic core (8) which houses the aforesaid cylindrical spindle (5). A bush is interposed which is formed of two sections, one above (9) which is adapted to said cylindrical spindle (5) while the outside is of the same prismatic form as the core (8) so that it may adapt thereto, and the other below (10), which is cylindrical, of considerably greater diameter, on which the bottom end of the cylindrical profile (6) stands, the diameter of which coincides with the maximum diameter of said cylindrical profile, and whose bottom side incorporates two inclined planes (11) to complement the inclined planes (4) on the circular table (3). As a result, when the door is closed, planes (4) and (11) are adapted one to the other but, when one part tends to turn upon the other, as the door is opened, said inclined planes (4) and (11) move out of phase, thereby progressively lifting the door. In other words, this has to be done against the weight of the door itself so that, if the movement ceases before reaching the limit position in which the bush (10) reaches the flat table as such (12), the door will automatically tend to return to the closed position.

As a complement to the upper end of the cylindrical profile (6) a further bush is fitted (10') which is identical to bush (10), but upside down: it houses a further spindle (5') which is coaxial and opposite spindle (5), emerging from a table (3') which also coincides with table (3) but upside down, and forming a unit with an upper head (13) which, for its part, is approximately symmetrical with the base section (2), except that the inclined planes (4') of this upper table (3') are 90° out of

phase with those on the lower table (4) so as to absorb the elevation of the unit.

Both the base section (2) and the head (13) are secured to the ends of an auxiliary profile (14) with the aid of screws (not shown in the figures) which are fitted through openings (15) in said elements and which thread into throats (16) on the auxiliary profile (14) so that these elements – base (2), head (13) and auxiliary profile (14) – form a monobloc assembly in which the cylindrical profile (6) and therefore the door (1) associated with it can swivel.

The auxiliary profile (14) is generally U-shaped, but its middle sector (17) is semicircular, so that, inside it, the associated sector of the cylindrical profile (6) operates, providing a permanent contact between the two profiles by means of a pair of seal gaskets (18) which rub against the concave face (17) of the profile (14), and which are secured in grooves (19) with a pinched opening suitably located along the generatrices of the cylindrical profile (6).

The auxiliary profile (14) operates between the lateral sectors of a wall fixing profile (20), which is also U-shaped, but whose concave shape is contrary to that of the auxiliary profile: said wall fixture (20) has grooving (21) in its middle sector for the introduction of seal gaskets (22) which must ensure that the profile is hermetically sealed against the wall, to which it is secured by screws or by any other suitable means.

The auxiliary profile (14) is linked to the wall fixture (20) by means of an expanding element (23) and a regulating wedge (24). More specifically, said expanding element (23) forms a unit with the upper end of the auxiliary profile (14) and with the head (13) by means of the screws used to secure said head in place, through holes (25) which are coaxial with the openings (15) in the head and with the throats (16): at the same time, said expanding element (23) incorporates lateral ribs (26) which fit into guides (27) on the inside face of the lateral sectors of auxiliary profile (14). Said expanding element (23) offers a fundamental characteristic in the form of an inclined plane (28) oriented toward the middle sector of the wall fixture (20) at the bottom of which there are two semi-circular flanges forming a dovetailed groove, in which there is a rib (29') on the regulating wedge (24) which, in turn, has an inclined plane (28') that is complementary to the plane (28) already referred to: said regulating wedge (24) is, further, linked to the wall fixture (20) by means of lateral ribbing (31) on said wedge and which fits into guides (32) on said wall fixing profile (20) as particularly shown in figure 5.

A cap (30) covers the head of the securing screws in the openings (15), the head (35) of the adjustment screw and the associated hole (36).

In line with this structure, the regulating wedge (24) acts as the link for profiles (14) and (20) and also as a means for adjusting the position of said wedge in terms of its vertical line and more specifically of the vertical line of the shaft (5') which forms a unit with the expanding element (23) on which the screen panel (1) swings: said shaft changes position according to the differences in height of said regulating wedge (24). This adjustment to the position of said wedge (24) is possible with the help of a vertical screw (33) fitted into a threaded opening (34) in the wedge (24): the head (35) of said screw (33) is keyed in an opening (36) in the head (13), for example by means of a perimeter throat (37) in the screw head, complementing a similarly perimeter rib (38) in the opening (36), made in order to enable the normal sideways movements of the head (13) with its associated assembly, when the regulating wedge (24) rises or falls in the search for a precise vertical position or plumb for the shaft (5) on which the panel or door (1) swings.

As already pointed out, the seal gaskets (18) seal the rotary coupling between the door hermetically, specifically that between the cylindrical profile (6) and the auxiliary profile (14), also acting as self-cleaning elements. At the same time, the hermetic seal between panel (1) and the upper edge (39) of the bath, shown in figure 6, is obtained with the help of a type of strip which forms a sector (40) which is U-shaped and of an appropriate size to admit the lower edge of the panel (1) with two lower, diverging, rigid skirtings (41) which do not make contact with the edge (39) of the bath, and which frame said strip (42), made of soft rubber, and forming two inside partitions which emerge from the aforesaid skirtings (41) of a height which necessarily comes to rest on the edge (39) of the bath and against it.

Said strip (40) is secured both to the bottom edge of the panel (1) and, where it ends on the cylindrical profile (6), to an additional component which has a plug (43) for its insertion into said strip, and an arched, notched base (44) for coupling to said profile.

It is not felt necessary to make this description more extensive in order for any expert in the field to grasp the scope of the invention and the benefits which will arise from it.

The materials, shape, size and arrangement of the elements can be varied provided that this does not represent an alteration to the essence of the invention.

These specifications must be interpreted in broad terms, without limitation.

Claims

1. A bath screen of the type comprising at least one swing panel wherein, essentially, there is a base section of a cantered semicircular ground plan, on the semi-circular end of which a circular table is fitted coaxially with the semi-circular sector of said base section, from the center of which a spindle emerges vertically to act as a swivel shaft for the panel or door. It is formed into a unit along one side on a cylindrical profile which has a lateral groove in which to place the associated edge of the panel, and a prismatic central core on the bottom end of which a bush is coupled. The upper sector of said bush adapts to said cylindrical spindle and to the prismatic core of the cylindrical profile while its lower sector, which is of greater diameter, provides the seat for the bottom end of the cylindrical profile and, in turn, adapts to the circular table on said base section. The cylindrical profile contains a further similar bushing at its upper end, through which it is coupled to a second cylindrical spindle which is coaxial to the bottom one, running through a second table, similar to that at the bottom but upside down and which, in turn, emerges from an upper head which is symmetrical with the lower base section.

2. A bath screen as set forth in claim 1, wherein both the upper head and the base section are secured to the ends of a U-shaped auxiliary vertical profile, the middle sector of which is semicircular in shape, with the concave face pointing outwards and admitting the cylindrical profile in relation to which it stands coaxially: said cylindrical profile has two channels with a pinched opening, in line with two generatrices and, in these, seal gaskets are fitted which rub permanently against the curved-concave surface of the auxiliary profile.

3. A bath screen as set forth in previous claims, wherein both the circular table on the base section and the inverted table of the upper head include two broad inclined planes, while in the corresponding sector of the associated bushes, there are, in turn, complementary inclined planes so that the lower bush rests on the lower circular table on said inclined planes, thereby lifting the door as it swings open while also causing it to tend automatically to close.

4. A bath screen as set forth in previous claims, wherein, as well, there is a generally U-shaped wall fixing profile, whose concave face points toward the auxiliary profile, and between whose lateral sectors the lateral sectors of said auxiliary profile fit. The upper end of said auxiliary profile forms a unit with an expanding element from which the spindle emerges which acts as a shaft, with lateral ribbing coupled into lateral guides on the auxiliary profile, also secured to said auxiliary profile with the aid of the screws used to tighten the upper head on to said profile. A particular feature is that said expanding element has a broad inclined plane facing downward and outward toward the wall fixture and, at its bottom, a pair of dovetailed grooves containing additional ribbing on a regulating wedge which, for its part, includes a complementary inclined plane of the expanding element and lateral ribs which fit into lateral guides on the wall fixture. Said regulating wedge includes a vertical threaded opening containing an adjustment screw whose head is keyed in a threaded opening in the head so that by turning it one way or the other the regulating wedge is raised or lowered, thereby swinging the expanding element to one side or the other, with its associated auxiliary profile, so that the screen panel swivel shaft swings in order to find the vertical position or plumb of said shaft. This screw is covered by an upper cap.

5. A bath screen as set forth in previous claims, wherein the lower edge of the panel or door is pressure-fitted with a strip containing a U-shaped sector made of hard rubber, whose dimensions are in line with the panel section, in order to pressure-fit on to its bottom edge and, by means of internal soft rubber ribs or flaps, the side sections of said U shape extend downward in two markedly divergent skirtings, also of hard rubber, which are cut off close to the upper edge of the bath and which frame the strip as such, forming a further U shape, now of soft rubber, which is secured at the ends of its sectors to the middle sector of the hard-rubber U-shaped element; said middle sector is deformed on the edges of the bath, because it is longer than the skirtings framing it.

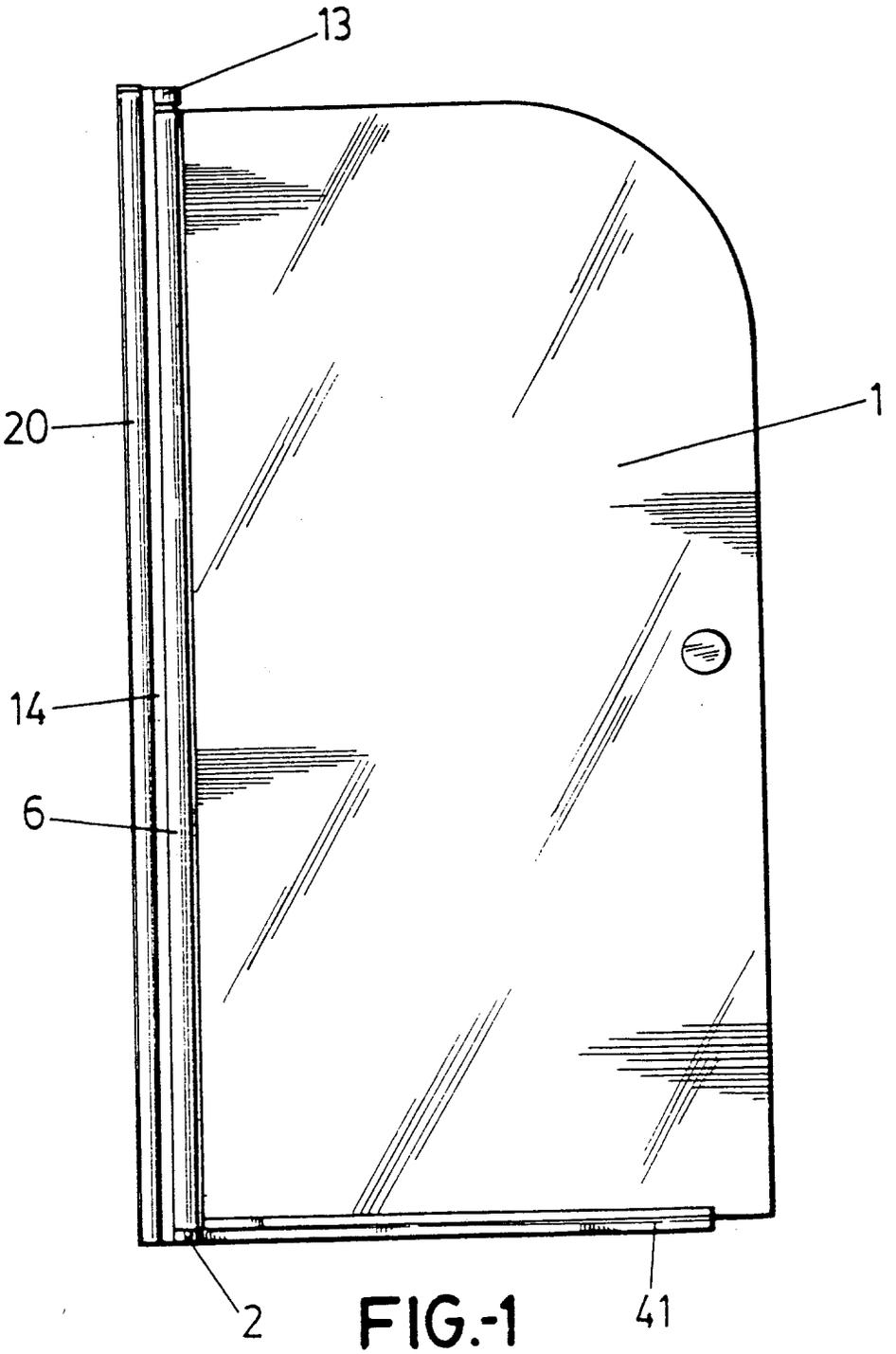


FIG.-1

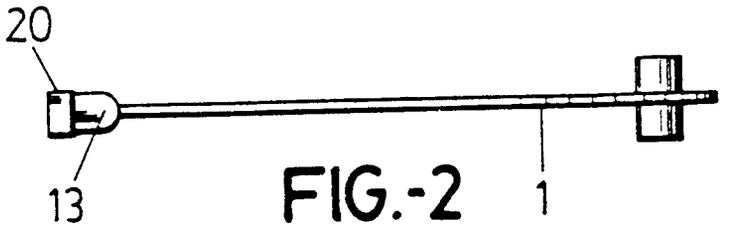
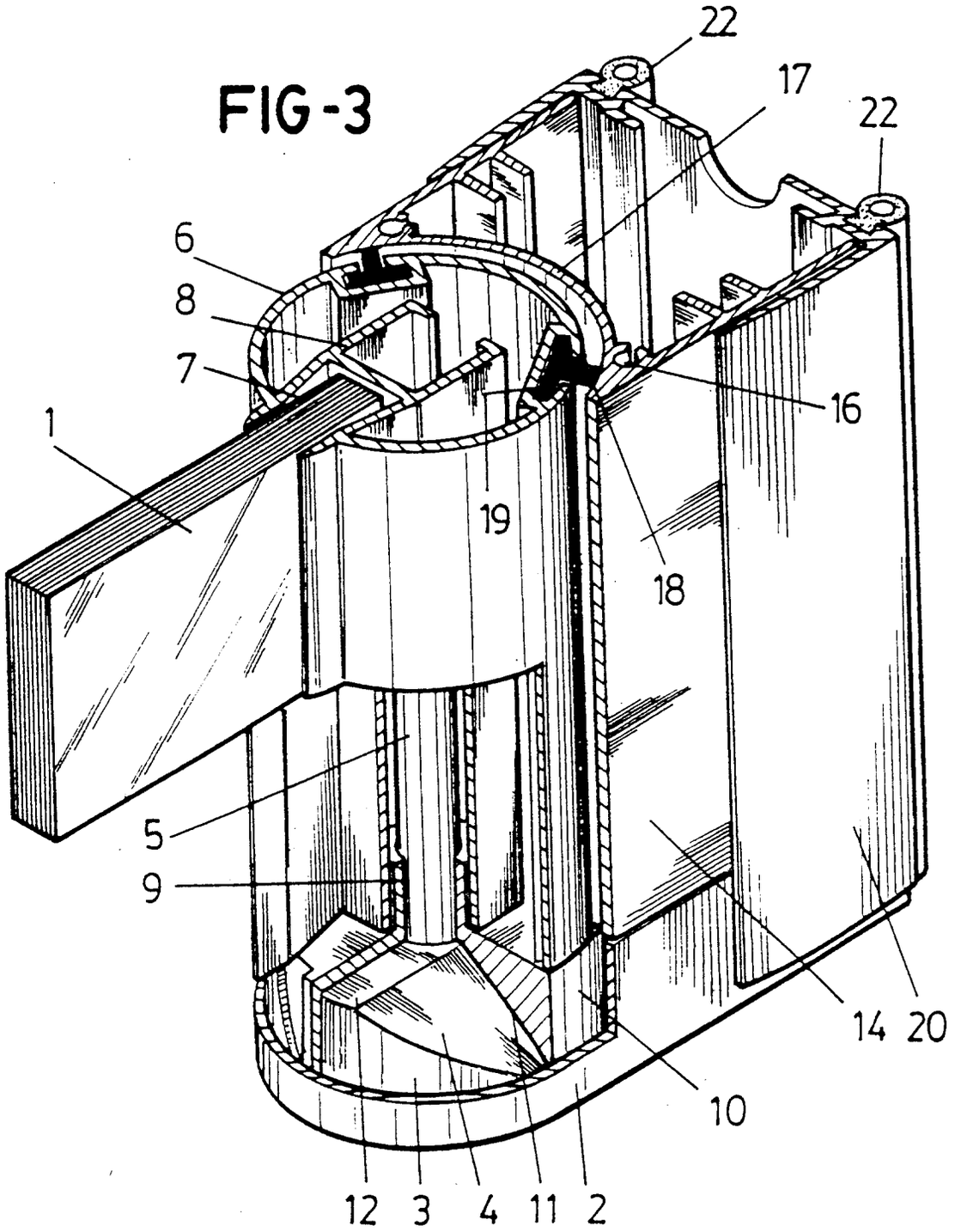


FIG.-2

FIG-3



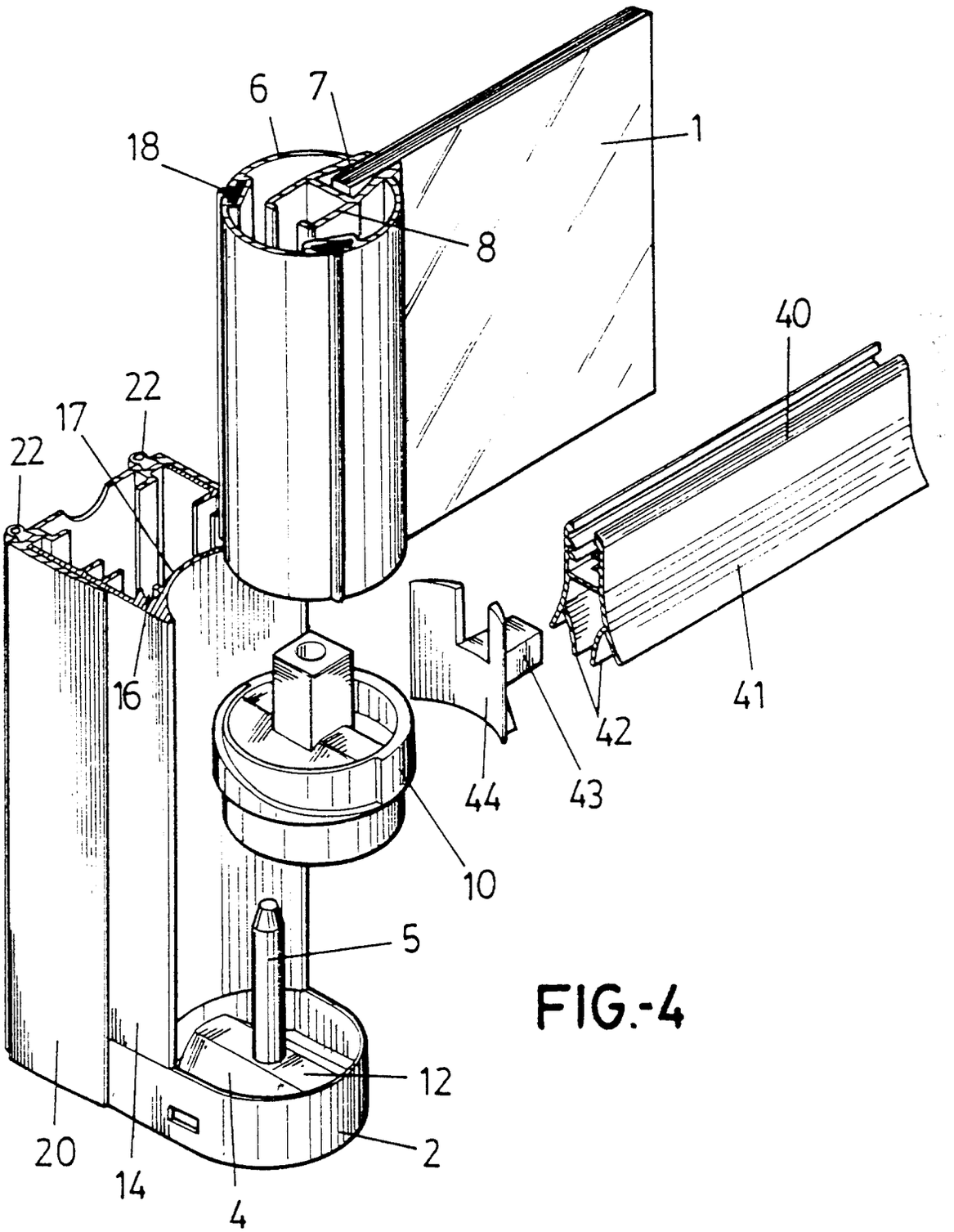


FIG.-4

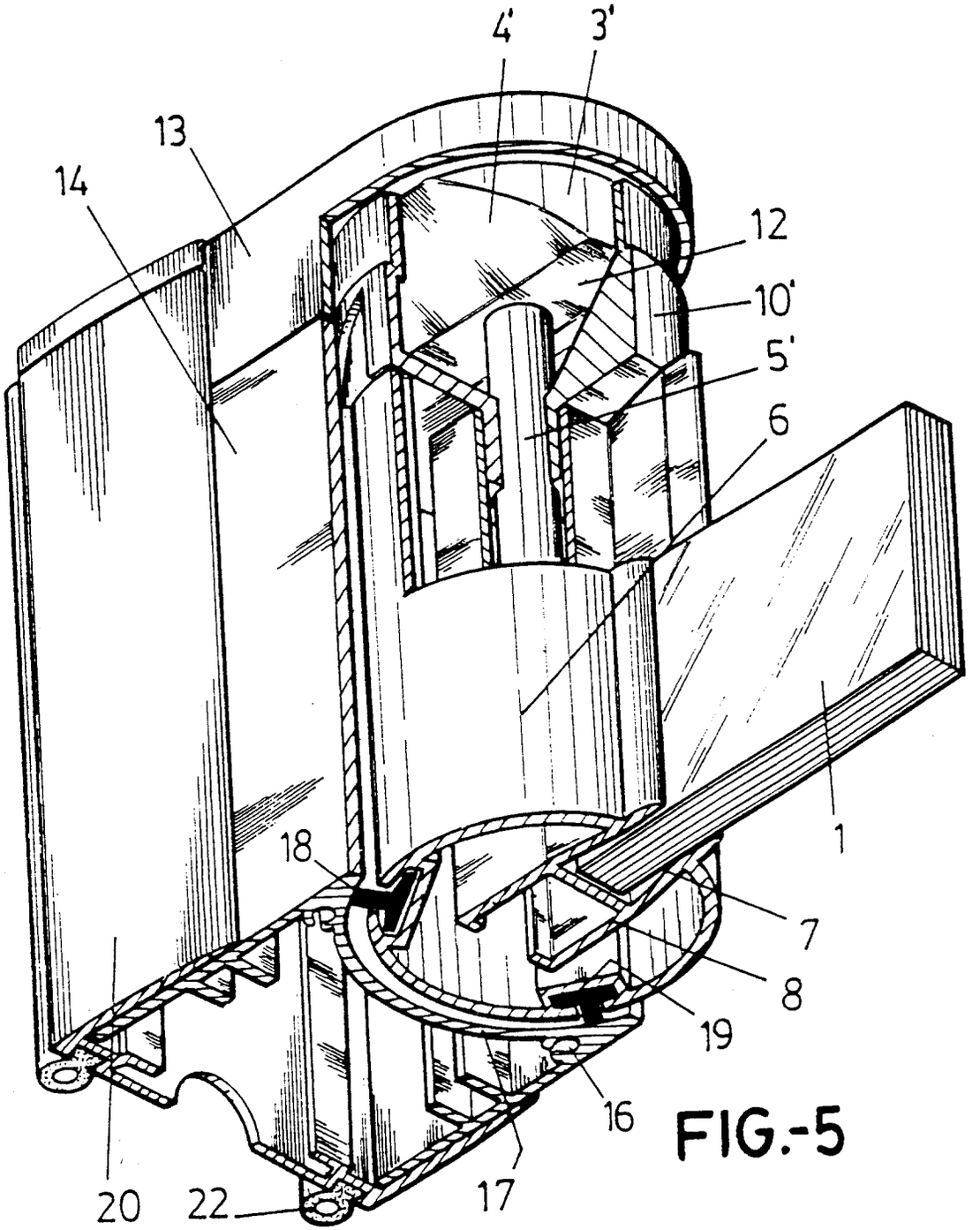


FIG.-5

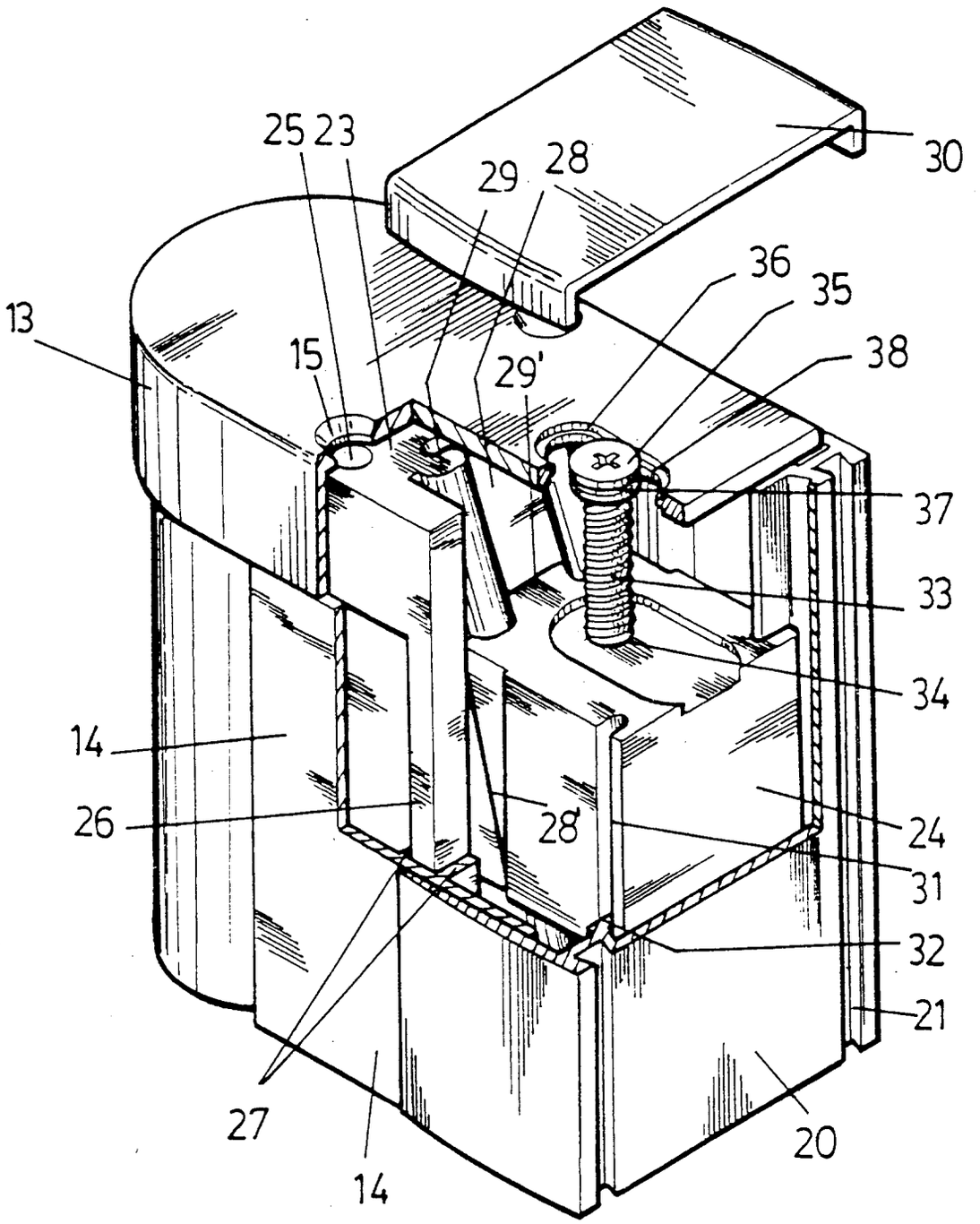


FIG.-6

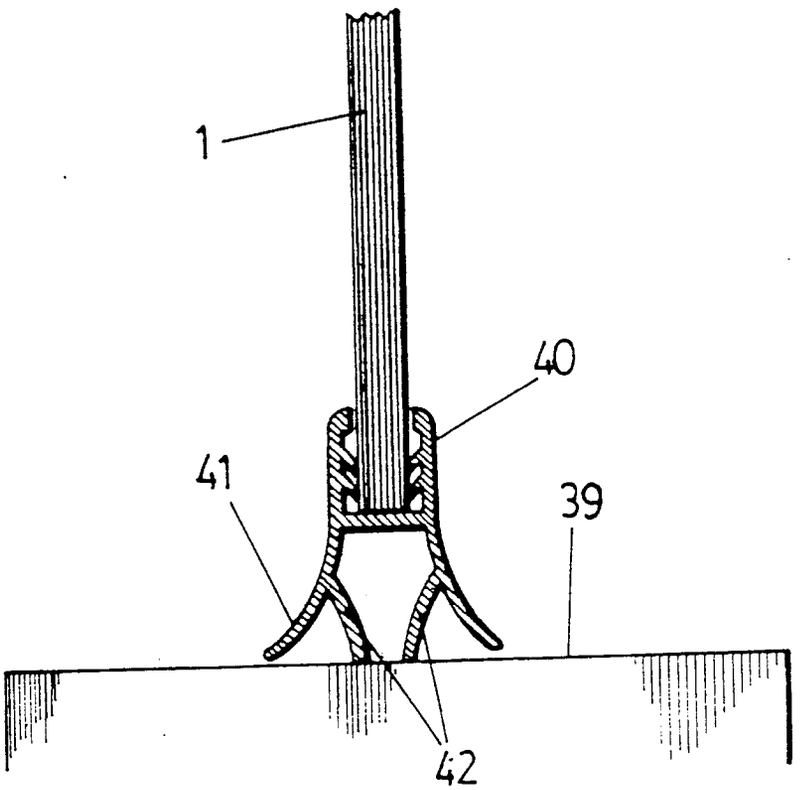


FIG.-7

European Patent Office

EUROPEAN SEARCH REPORT

Application Number

EP 91 50 0126

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.5)
A	DE-A-1 926 341 (SPIEGELGLAS- UND GU&GLAS-VERKAUFSGESELLSCHAFT MBH) * page 4 - page 5 *	1,3	A47K3/22
A	EP-A-0 279 337 (BAUS) * column 4, line 5 - line 26 * * column 4, line 55 - column 5, line 33 * * column 7, line 7 - line 17 * * column 7, line 41 - line 53; figures 1-7 *	1-4	
A	EP-A-0 386 342 (HÜPPE GMBH & CO) * column 3, line 54 - column 4, line 57; figures 1-3 *	1-3	
A	DE-U-9 004 257 (KORALLE-SANITÄRPRODUKTE GMBH & CO) * page 4, line 15 - page 5, line 17; figures 1,3,5,6 *	1,2,5	
A	DE-A-3 401 135 (DREIER-WERK GMBH) * page 17, last paragraph * * page 19, paragraph 2; figures 7,11 *	2,4	TECHNICAL FIELDS SEARCHED (Int. Cl.5)
A	DE-A-3 338 146 (BAUS) * page 9, last paragraph - page 10, paragraph 2; figure 3 *	4	A47K

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	03 JULY 1992	VAN KESSEL J.

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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