(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) **EP 1 840 299 A1**

(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
03.10.2007 Bulletin 2007/40

(51) Int Cl.:
E04H 4/10 *(2006.01)*

(21) Application number: **06381013.9**

(22) Date of filing: **29.03.2006**

(84) Designated Contracting States:
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IS IT LI LT LU LV MC NL PL PT RO SE SI SK TR
Designated Extension States:
AL BA HR MK YU

(71) Applicant: **IASO, S.A.**
25194 Lerida (Lerida) (ES)

(72) Inventor: **Giralt Rabentos, Juan**
25194, Lerida (ES)

(74) Representative: **Esteban Perez-Serrano, Maria Isabel**
UDAPI & ASOCIADOS
Explanada, 8
28040 Madrid (ES)

(54) **Device for protecting swimming pools and the like**

(57) Device for protecting swimming pools and the like, constituted by a cover attached to profiles provided with rolling elements on their ends, so that it facilitates collecting and extending the cover using a reel placed on an end of the pool. The reel fixed on one end of the pool facilitates collecting the cover and has a profile on its ends that increases the winding diameter, reducing the number of turns required to collect the cover completely.

EP 1 840 299 A1

Description

OBJECT OF THE INVENTION

[0001] The present invention relates to a device initially conceived to protect swimming pools, but also applicable for covering other type of tanks.

[0002] The device is constituted by a cover attached to some profiles provided with rolling elements on their ends, thereby facilitating its retraction and positioning using a reel placed on one end of the pool.

[0003] The device of the invention protects persons and animals from the risks related to falling into the swimming pool, while keeping the pool clean by preventing the entry of foreign objects. It also facilitates the extension and retraction of the cover that forms part of the assembly of the device.

[0004] The reel fixed on one end of the pool allows collecting the cover. It has a profile on one of its ends that increases the winding diameter, thereby reducing the number of turns needed to collect the cover.

BACKGROUND OF THE INVENTION

[0005] Devices for covering swimming pools are known that consist of a plastified fabric cover with a number of transverse profiles that sustain the cover preventing it from sinking in the water and provided with elements to facilitate its extension and retraction.

[0006] The object of these swimming pool covers is to cover the pools when they are not used, in order to prevent accidents such as children or animals falling in them.

[0007] Pools are covered by covers of this type in winter to prevent leaves and dirt in general from falling into the pool.

[0008] Devices of this type are described in patent documents such as document with publication number EP0724049, which protects a roll-up covering device for pools with transverse reinforcements in the form of triangular profiles, the base of the triangle resting on the edge of the pool. The sides of the profiles have a suitable curvature for allowing the assembly to be rolled up.

[0009] Patent document with publication number EP1564347 protects another swimming pool cover with a number of parallel and transverse stiffening rods and tension cables joined on the sides to facilitate winding it.

[0010] Finally, the device described in patent with publication number protects a modular swimming pool cover comprising several cloth modules joined to one another by transverse profiles, the ends of which rest on the edge of the pool.

[0011] Currently known swimming pool covers can be wound using a collection device consisting of a small machine with a handle, which rolls up the cover and rods on the end bar with the cover extended on the floor without moving, thereby rolling up the fabric and the tubes advancing until reaching its the end.

[0012] In this way, this device does not move the cover but instead is wound upon itself together with the profiles and the cloth.

[0013] To execute the winding a person must move along the entire length of the pool. The winding is performed on the cloth, so that the dirt gathered on it stays there in the final roll produced.

[0014] In currently known covers, as mentioned above, the ends rest on the edge of the pool and can be scraped and damaged in the winding action.

[0015] With the device of the present invention the cover is retracted to an end of the pool, where the fixed reel is placed, so that the dirt is not contained in the collected roll and the assembly does not scrape against the edge of the pool.

DESCRIPTION OF THE INVENTION

[0016] The device of the invention is constituted by a swimming pool cover or the like to be collected, and a reel that remains fixed while the cover is extended or retracted.

[0017] The cover is made of a single piece and is provided along its entire length of guides that are attached to rigid transverse profiles.

[0018] The rigid transverse profiles are provided with:

- A lower central groove for connection to the cover guides and insertion on each end of a protrusion of a profile supporting the rolling elements; and
- Corresponding lateral grooves for inserting, in each end of the transverse profiles, the lateral protrusions of said profiles supporting the rolling elements. These grooves can also be used to insert straps that connect the cover to the reel, as well as straps for pulling and dragging the cover when it is extended.

[0019] The profile supporting the rolling elements is provided with:

- An upper central protrusion for inserting the transverse profile in the central groove;
- Two lateral protrusions in the top part in a clip arrangement for insertion in the end grooves of the transverse profiles; and
- C-shaped extensions on the ends for inserting the rolling elements.

[0020] The rolling elements facilitate the retraction and extension of the cover with its stiffening elements to the fixed reel.

[0021] The profile supporting the rolling elements determines a separation between the transverse profile and the ground that allows the profiles to pass over the edge of the pool, preventing a direct contact of the transverse profile with the ground and the protrusion of the pool edge.

[0022] In addition, as the profiles supporting the rolling elements are placed on the ends of the rigid transverse

profiles, they block a possible escape of the cover guides inserted in the central groove of the transverse profiles.

[0023] The guides are made of the same continuous material of the cover, stuffed with a stiffening material.

[0024] The cover has straps for attachment to the fixed reel, so that to retract the cover when it will be removed from the pool it suffices to tie the straps to the drum of the reel placed on a side of the pool, retracting the cover.

[0025] This action is simplified by the rolling elements, which also prevent the cover from scraping the edge of the pool.

[0026] The cover is collected by a reel which, in addition to the usual elements provided in fixed reels such as a stand and a drum, is provided with segments attached to both ends of the drum in order to reduce the number of turns required to roll up the device of the invention by increasing the radius of the drum.

[0027] The retracted cover and profiles with rolling elements is very large and cannot be performed with currently known reels, as the device when rolled up is too large and, because profiles with their rolling elements are collected on each other in the rolling operation, the circle produced in irregular. In addition, the weight of the profiles makes them slide on the downward moving side of the reel, carrying the cover with them, thereby forming a hanging bulge that unbalances the rolling operation and makes it impossible.

[0028] For this reason, the reel of the invention is provided with radial segments on the end of the reel drum, reducing the number of turns to make to a minimum and preventing the accumulation of material on the drum.

[0029] The reel has a gear reducer driven by a conventional handle or an electric device, thereby facilitating the winding action.

[0030] In addition, the reel is provided with a clutch system to release the rotation of the main drum in order to pull on the end of the cover when unwinding and extending it.

DESCRIPTION OF THE DRAWINGS

[0031] To present descriptive memory is completed by a set of drawings that illustrate an example of a preferred embodiment and in no way limit the invention.

Figure 1 is a cross section of the profile that supports the rolling elements inserted in the rigid transverse profile.

Figure 2 is a cross section of the reel drum with the radial segments inserted in it.

Figure 3 is a schematic representation of the collection of the cover.

Figure 4 is a detailed view of a possible arrangement of the segments on one of the ends of the drum.

PREFERRED EMBODIMENT OF THE INVENTION

[0032] The device of the invention consists at least of the following:

- A cover (1) made of a plastic material of a suitable size for covering the surface area of a swimming pool, provided with uniformly spaced transverse guides along its entire length;
- Transverse profiles (2), provided with:
    - o A central groove (2.1) in which are inserted:
        - The transverse guides of the cover; and
        - On the ends of the central groove (2.1), profiles (3) that support rolling elements through a central protrusion (3.1), which also acts as a stop for the guides, preventing them from escaping the central groove (2.1).
- The profiles (3) that support the rolling elements, in addition to having the central protrusion (3.1) and the lateral protrusions (3.2) for attachment to the transverse profile (2), are provided with corresponding C-shaped end pieces (3.3) for inserting at least one wheel (4) in each end piece (3.3). Introduced in said end pieces (3.3) are corresponding grooved flanges in order to lock inside it the shaft of the wheel (4) that facilitates the motion of the cover and improves its stability.
- A reel (5), its drum (5.1) being provided with segments (6) inserted radially in the grooves (5.1.1), so that the working radius of the drum is increased by the length of said segments. The segments (6), which in this example of embodiment are inserted in the number of four in each end, are easily removable and insertable. The reel (5) can be transported as it has wheels (5.2) on its base. It includes a gear reducer that simplifies the action of winding the cover (1). The gear reducer is provided with a clutch system.

[0033] The clutch system simplifies the action of unwinding the cover (1) by removing a pin incorporated in said clutch system which, when removed, allows the drum to turn freely.

[0034] At the time of unwinding the cover, straps are attached joined to a lateral groove (2.2) of the transverse profile nearest the reel (5). When winding the cover on a non-solid surface, the transverse profile (2) are partly pressed against the central space and the wheel (4) will hang and protrude out of the ends of the reel structure, pressing against each other and repositioning themselves.

[0035] The winding surface will not be circular but instead polygonal, divided into areas or sides with a concave appearance in which the transverse profiles (2) are positioned. This characteristic means that when it is unwound the cylinder does not gather momentum, instead unwinding one by one without requiring a brake to control

said momentum.

[0036] In a second example of embodiment, as shown in figure 4, two sets of segments (6) are inserted in each end of the drum (5.1) at a certain distance from each other, joined by pairs by means of tubes (7).

[0037] The essence of this invention is not affected by changes in the materials, shape, size and arrangement of its component elements, described in a nonlimiting manner that should allow its reproduction by an expert.

Claims

1. Device for protecting swimming pools and the like, among those provided with a cover and a fixed reel, **characterised in that**:

   • the single-piece cover (1) has transverse guides (1.1) along the entire piece, which are inserted in transverse profiles (2) which have a central groove (2.1), in which are inserted said transverse guides of the cover, and lateral grooves (2.2); inserted in the transverse profiles (2) are profiles (3) that support the rolling elements; and
   • the reel (5) has a drum (5.1) in which segments (6) are inserted radially, so that the working radius of the drum is increased by the length of said segments.

2. Device according to claim 1, **characterised in that** the profile (3) that supports the rolling elements has a central protrusion (3.1) and lateral protrusions (3.2) for attachment to the transverse profile (2), and corresponding C-shaped end pieces (3.3) for inserting at least one wheel (4) in each end piece (3.3).

3. Device according to claim 2, **characterised in that** corresponding grooved flanges are inserted in the end pieces (3.3) in order to lock inside them the shaft of the wheel.

4. Device according to claim 1, **characterised in that** the drum (5.1) of the reel (5) has grooves (5.1.1) for inserting the segments (6) radially.

5. Device according to claim 1, **characterised in that** four radial segments (6) are inserted in each end of the drum (5.1).

6. Device according to claim 1, **characterised in that** two sets of segments (6) are inserted in each end of the drum (5.1) at a certain distance, joining them by pairs with tubes (7).

7. Device according to claim 1, **characterised in that** the reel (5) has a gear reducer (5.3) that facilitates the action of winding the cover (1) and **in that** the gear reducer (5.3) is provided with a clutch system.

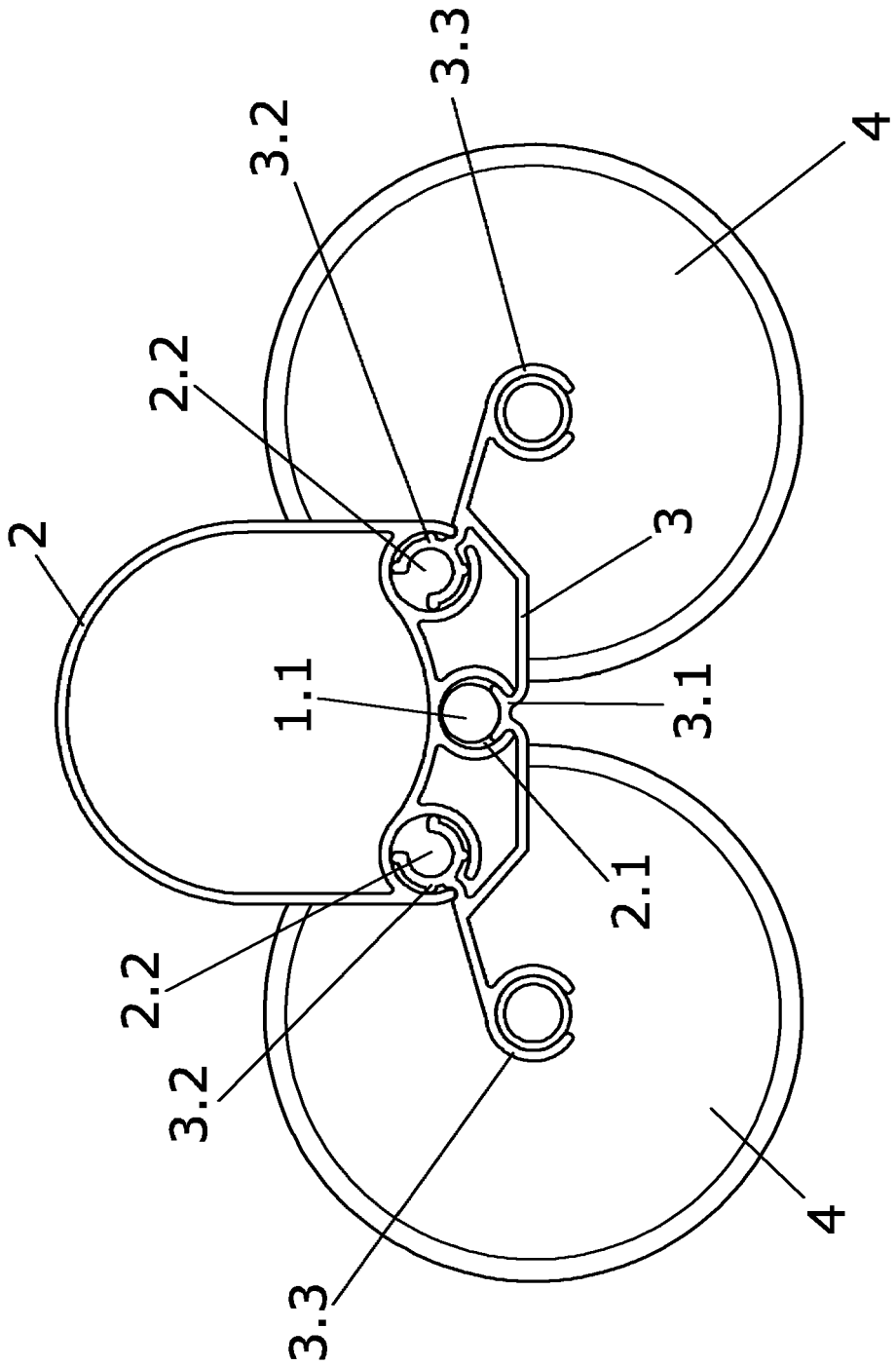

FIG.1

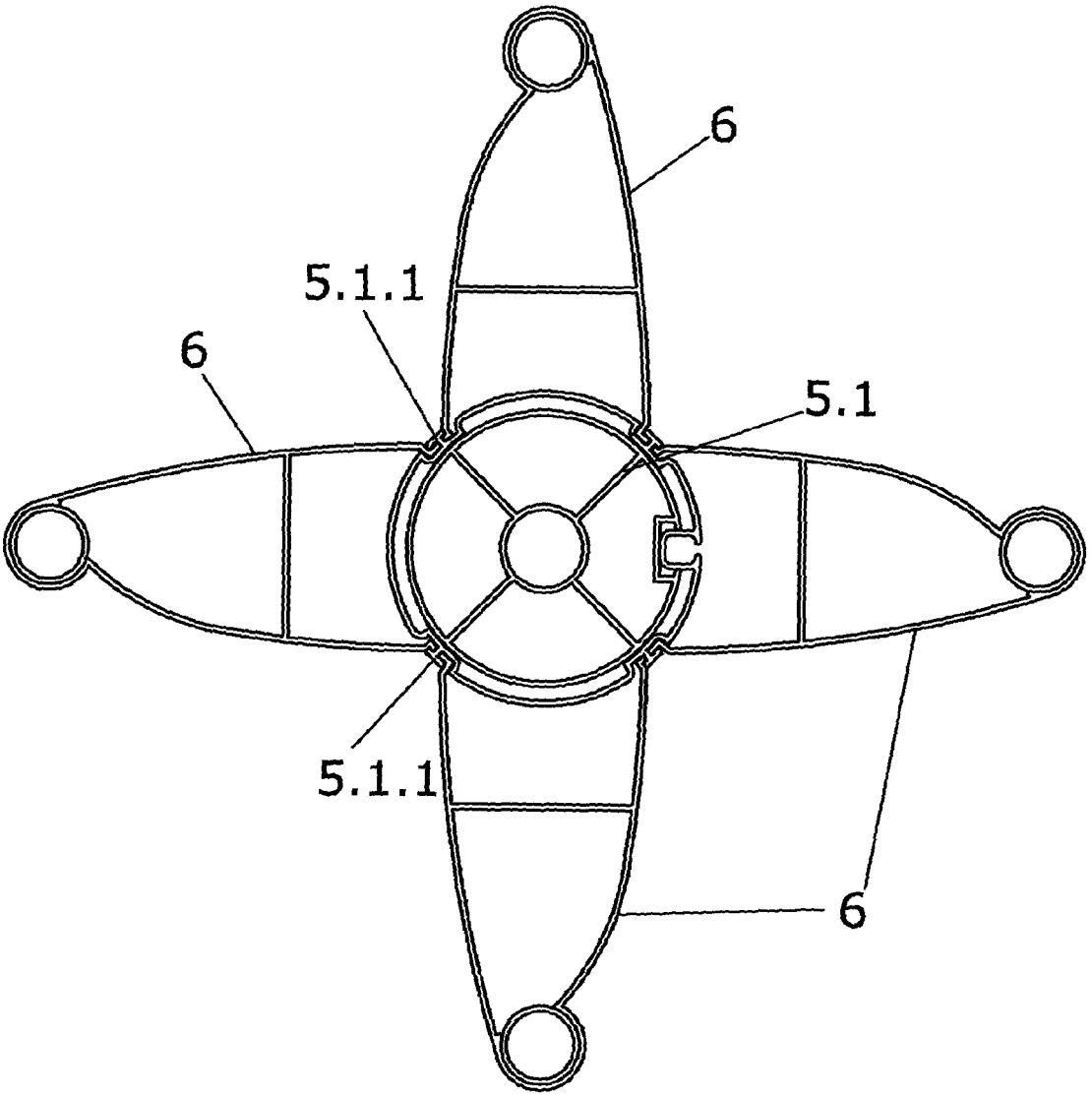

FIG.2

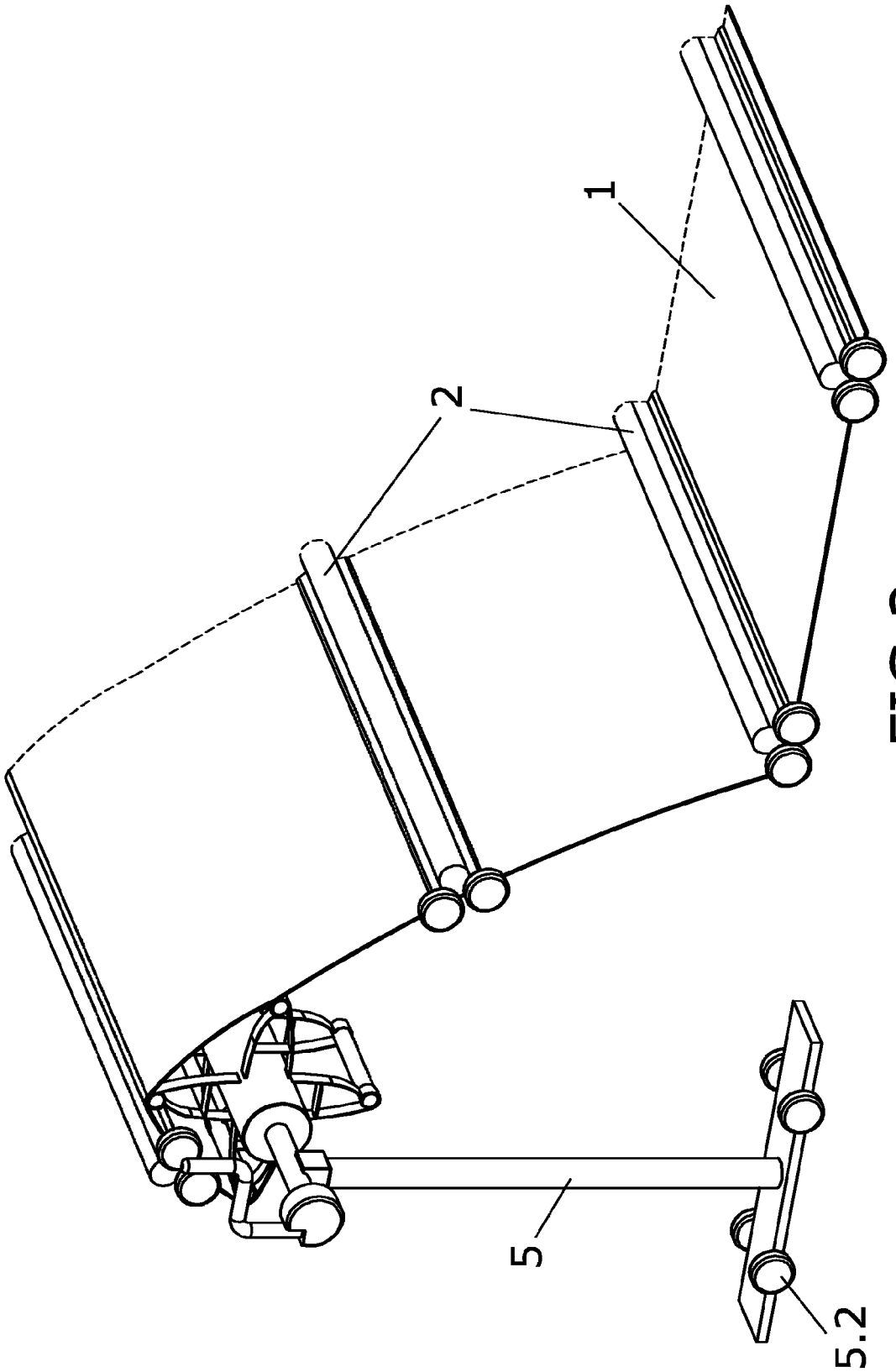

FIG.3

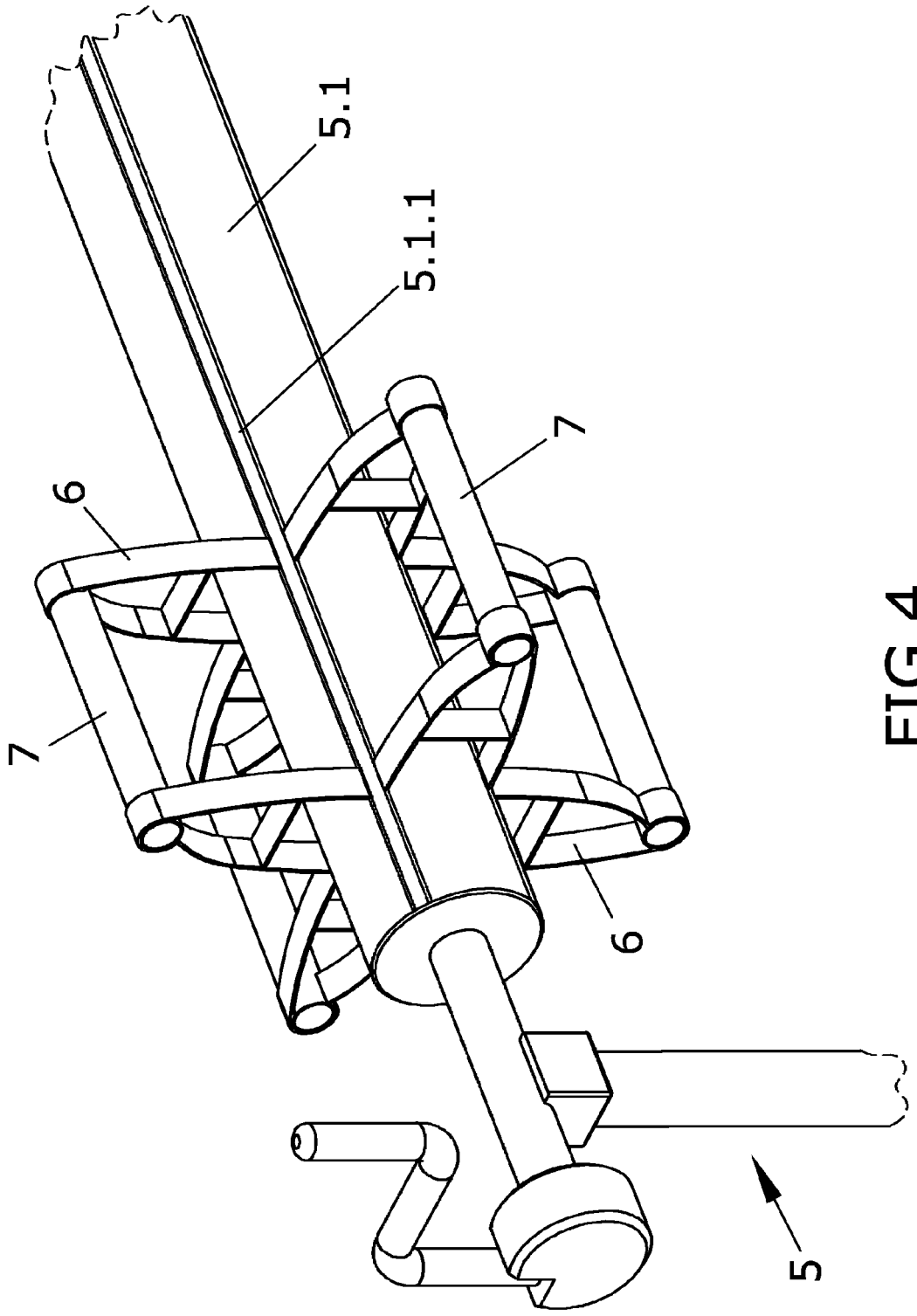

FIG.4

European Patent Office

EUROPEAN SEARCH REPORT

Application Number
EP 06 38 1013

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
A	FR 2 763 089 A (ZECH GUY) 13 November 1998 (1998-11-13) * page 3, line 1 - page 5, line 3; figures 1-3 * -----	1	INV. E04H4/10

TECHNICAL FIELDS SEARCHED (IPC)

E04H

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	14 July 2006	Zuurveld, G

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
Y : particularly relevant if combined with another document of the same category
A : technological background
O : non-written disclosure
P : intermediate document

T : theory or principle underlying the invention
E : earlier patent document, but published on, or after the filing date
D : document cited in the application
L : document cited for other reasons

& : member of the same patent family, corresponding document

EPO FORM 1503 03.82 (P04C01)

ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 06 38 1013

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

14-07-2006

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
FR 2763089 A	13-11-1998	NONE	

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

REFERENCES CITED IN THE DESCRIPTION

This list of references cited by the applicant is for the reader's convenience only. It does not form part of the European patent document. Even though great care has been taken in compiling the references, errors or omissions cannot be excluded and the EPO disclaims all liability in this regard.

Patent documents cited in the description

- EP 0724049 A **[0008]**
- EP 1564347 A **[0009]**