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(54) **Safety ladder for above the ground swimming pools**

(57) Safety ladder for above ground swimming pools, comprising two portions (1, 2) which have pairs of lengthened tubes (4) linked by rungs (5), further comprising a number of intermediate inverted "U" shaped frames (3), which connect to at least one rear portion (2) by means of a dismantlable connection, where a number of upper narrowings (4b) of a number of lengthened tubes (4) are adjusted within a number of end stretches of the two

frames (3), which reinforce the relative immobilisation thereof by means of a number of anchoring elements (13, 14, 16, 17, 18). In the state when one of the portions is dismantled, the free ends (3a) of the intermediate frames (3) constitute a number of upper supports on a free edge (19a) of the pool wall, wherein the not dismantled portion is located within the pool (19).

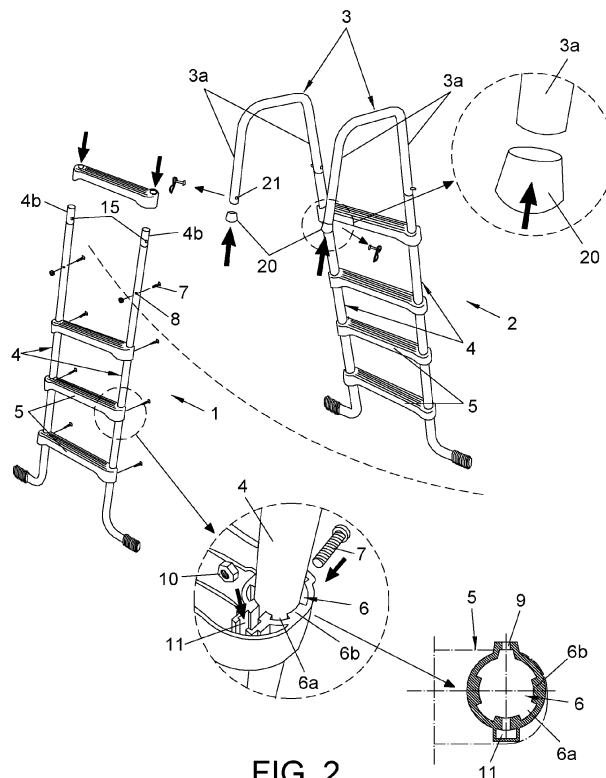


FIG. 2

EP 2 738 321 A1

Description**OBJECT OF THE INVENTION**

[0001] According to that expressed in the present descriptive specification, the present invention refers to a safety ladder for a dismantlable swimming pool, used in order to access raised vessel swimming pools, more specifically applicable to dismantlable swimming pools mounted above the ground and sat on the same.

[0002] Moving on from this premise, the aim of the present invention is to achieve quick, simple mounting and dismantling of the ladder, the same therefore comprising a simple and practical structure, formed by various independent parts with a number of coupling means between them, which make it possible to mount and dismantle the ladder in a short space of time.

[0003] Therefore, the essence of the invention lies in the fact that it makes it much simpler to leave the ladder inoperative, in order to prevent it being used by children when they are not being supervised by adults.

BACKGROUND OF THE INVENTION

[0004] Currently, the use of raised vessel swimming pools in which the access ladder does not incorporate means for preventing it being used by children when they are not being supervised by adults has not been conceived.

[0005] If the ladder may be used at all times, this could result in accidents and even drowning.

[0006] Therefore, manufacturers of this kind of raised vessel swimming pool have always sought different solutions to render these ladders ineffective at will.

[0007] Spanish invention patent P-200202714 consists of a safety ladder for swimming pools of the variety in which part or all of the steps form a rotational element, which may be lifted relative to the fixed posts.

[0008] A number of hooking means for the lifted rotational element comprise hooking pieces in inverse hooks, one of them being fixed to the rotational element and the other to the fixed post facing it, one of the hooks being transversally mounted to an elastically deformable arm and provided with manual fastening means to facilitate the lateral displacement thereof when the liftable element is hooked or to facilitate the uncoupling thereof.

[0009] Spanish utility model U 200300020 is also known of, this application consisting of a modular dismantlable swimming pool ladder.

DESCRIPTION OF THE INVENTION

[0010] The ladder for a dismantlable swimming pool, object of the present invention, comprises a frontal portion and a rear portion, both being provided with pairs of parallel lengthened tubes, linked by means of rungs, where both portions converge upwards.

[0011] Furthermore, it includes a number of interme-

mediate "U" shaped frames with a tubular structure.

[0012] The intermediate frames connect to at least the rear portion by means of a dismantlable connection, where a number of upper narrowings of the lengthened tubes are adjusted within a number of end stretches of the two intermediate inverted "U" shaped frames, which also comprise a tubular structure.

[0013] The upper narrowings and end stretches of the intermediate frames immobilise the relative position thereof by means of a number of second anchoring elements.

[0014] The free ends of the intermediate frames connected to the rear portion constitute a number of support seats at the free edge of the dismantlable swimming pool, where the rear portion is located within the dismantlable swimming pool.

[0015] The intermediate inverted "U" shaped frames comprise a number of downwards divergent branches, which are a continuation in the direction of the lengthened tubes of both the frontal and rear portions of the ladder.

[0016] The rungs are linked to the pairs of lengthened tubes of the frontal and rear portions by means of a dismantlable connection, where the lengthened tubes are introduced through a number of centred hollows made in the end stretches of the rungs. The join is ensured by means of a number of first anchoring elements.

[0017] The centred hollows of the rungs form part of a number of through openings with pairs of opposing channels, where a number of nuts are threaded in a number of screws, which form the anchoring elements, these passing through a number of first perforations made in the lengthened tubes and in a number of openings made in the end stretches of the rungs.

[0018] The centred hollows comprise a combination of grooves and projections, where the lengthened tubes are adjusted against the projections.

[0019] The second anchoring elements, which join the intermediate frames and lengthened tubes of both parts of the ladder, are fitted in a number of opposing openings made in the narrowings of the lengthened tubes and the end stretches of the intermediate frames, respectively.

[0020] The second anchoring elements, which join the intermediate frames and lengthened tubes, comprise a number of elements selected from a number of second screws and a number of pins.

[0021] The second screws mentioned above are axially immobilised by means of a blind nut, a washer being placed between.

[0022] In contrast, the pins are axially immobilised by means of an end element, which is introduced through an end perforation located in the respective pin.

[0023] The ladder object of the present invention furthermore comprises a number of ferrules by way of end lids, which are adjusted on a couple of free ends of the intermediate frames, when an element of the ladder is dismantled, the elements of the ladder being either the frontal or rear portion, where the ferrules are supported on a free edge of the dismantlable swimming pool.

[0024] In order to facilitate a better understanding of the present descriptive specification, below is a set of figures intrinsic to the same, which serve as an illustrative and non-limiting example thereof.

BRIEF DESCRIPTION OF THE DRAWINGS

[0025]

Figure 1. - A perspective view of safety ladder for a dismountable swimming pool, object of the present invention.

Figure 2.- An exploded perspective view of the ladder, object of the present invention.

Figure 3.- A profile view of the ladder, wherein it is possible to observe its application in a dismountable swimming pool.

DESCRIPTION OF AN EMBODIMENT OF THE INVENTION

[0026] With reference to the numbering adopted in the figures, the following names are employed in the description of the safety ladder for dismountable swimming pools:

- 1.- Frontal portion
- 2.- Rear portion
- 3.- Intermediate frames
- 3a.- Divergent branches
- 4.- Lengthened tubes
- 4a - Lower bent stretches
- 4b.- Upper stretches
- 5.- Dismountable rungs
- 6.- Centred hollows
- 6a.- Grooves
- 6b.- Projections
- 7.- First screws
- 8.- First perforations
- 9.- Openings
- 10.- Nuts
- 11.- Channels
- 12.- End supports
- 13.- Second screws
- 14.- Pins
- 14a.- End perforations
- 15.- Openings
- 16.- Blind nut
- 17.- Washer
- 18.- End element
- 19.- Dismountable swimming pool
- 19a.- Free edge
- 20.- Ferrule
- 21.- Openings

[0027] It comprises a frontal portion 1 and a rear portion 2, which converge upwards and are linked in a dismountable fashion by means of a couple of intermediate invert-

ed "U" shaped frames 3, with downwards divergent branches 3a thereof and being tubular in structure.

[0028] Each one of the portions, both frontal 1 and rear 2, comprises a couple of lengthened tubes 4, which are parallel and joined by means of a number of dismountable rungs 5. Therefore, the end stretches of the rungs 5 have through openings that include a number of centred hollows 6, where the lengthened tubes 4 are adjusted, these rungs 5 thereby immobilising the lengthened tubes 4 by means of a number of first anchoring elements determined by a number of first screws 7, which are introduced through a number of first perforations 8 made in the lengthened tubes 4 and in a number of openings 9 made in the end stretches of the dismountable rungs 5.

[0029] These first screws 7 are threaded in a number of nuts 10, fitted into pairs of opposing channels 11, which form part of the through openings of the dismountable rungs 5.

[0030] The centred hollows 6 of the through openings of the rungs 5 comprise a combination of grooves 6a and projections 6b, the lengthened tubes 4 being adjusted against the projections 6b.

[0031] The lower ends of the lengthened tubes 4 are extended outwards in a number of lower bent stretches 4a, these lower bent stretches 4a having a number of end supports 12 built into them, which sit on the ground.

[0032] In contrast, the upper stretches of the lengthened tubes 4 comprise a number of upper narrowings 4b, which are adjusted on the end stretches of the divergent branches 3a of the intermediate "U" shaped branches, which link both the frontal 1 and rear 2 portions of the ladder together.

[0033] The join between both portions 1-2 and intermediate frames 3 is ensured by means of a number of second anchoring elements, selected from a number of second screws 13 and a number of pins 14, which are introduced through a number of opposing openings 15-21 made in the upper narrowings 4b of the lengthened tubes 4 and in the end stretches of the intermediate "U" shaped frames 3, respectively.

[0034] In the event of the second screws 13 being used, the fastening thereof is ensured by means of a blind nut 16 with a washer 17 placed between, whilst in the event of the pins 14 being used, the fastening thereof is ensured by an end element 18, which is introduced through an end perforation 14a made in the respective pin 14.

[0035] In an embodiment shown in Figure 3, use may be made of the ladder without its frontal portion 1 or its rear portion 2, where a number of ends of the intermediate frames 3 would be supported on a free edge 19a of a dismountable swimming pool 19, with a number of ferrules 20 between by way of lids, which are adjusted on these free ends of the intermediate frames 3.

[0036] These ferrules 20 improve the support and the seating of the ladder 5.

[0037] Naturally, it is also possible to make use of the ladder object of the invention, comprising these two por-

tions, both frontal 1 and rear 2, in addition to the intermediate inverted "U" shaped frames 3.

Claims

1. Safety ladder for dismountable swimming pool, comprising:

- a frontal portion and a rear portion, both of which have pairs of lengthened tubes linked by means of rungs, where both portions converge upwards,
- intermediate inverted "U" shaped frames, with a tubular structure, **characterised in that:**
- the intermediate frames (3) connect to at least the rear portion (2) by means of a dismountable connection, where a number of upper narrowings (4b) of the lengthened tubes are adjusted within a number of end stretches of the two intermediate inverted "U" shaped frames (3),
- the upper narrowings (4b) and the end stretches of the intermediate frames (3) reinforce the relative immobilisation thereof by means of second anchoring elements,
- the free ends of the intermediate frames (3) connected to the rear portion (2) constitute support seats on the free edge (19a) of a dismountable swimming pool (19), where the rear portion is located within the dismountable swimming pool (19).

2. Safety ladder for dismountable swimming pool according to claim 1, **characterised in that** the intermediate inverted "U" shaped frames (3) comprise downwards divergent branches (3a), which continue in the direction of the lengthened tubes (4) of the two portions, i.e. both the frontal (1) and rear (2) portions.

3. Safety ladder for dismountable swimming pool according to any one of the previous claims, **characterised in that** the rungs (5) are linked to the pairs of lengthened tubes (4) of the frontal portion (1) and rear portion (2), by means of a dismountable connection, where the lengthened tubes (4) are introduced through centred hollows (6) made in the end stretches of the rungs (5), the join being ensured by means of first anchoring elements.

4. Safety ladder for dismountable swimming pool according to claim 3, **characterised in that** the centred hollows (6) of the rungs (5) form part of a number of through openings, which have pairs of opposing channels (11), where a number of nuts (10) are threaded into a number of screws (7), which form the first anchoring elements, which pass through first perforations (8) made in the lengthened tubes (4) and openings (9) made in the end stretches of the

rungs (5).

5. Safety ladder for dismountable swimming pool according to any one of the claims 3 or 4, **characterised in that** the centred hollows (6) comprise a combination of grooves (6a) and projections (6b), where the lengthened tubes (4) are adjusted against the projections (6b).

6. Safety ladder for dismountable swimming pool according to any one of the previous claims, **characterised in that** the second anchoring elements that join the intermediate frames (3) and lengthened tubes (4) of both portions (1-2) are fitted into opposing openings (15-21), made in the upper narrowings (4b) of the lengthened tubes (4) and the end stretches of the intermediate frames (3) respectively.

7. Safety ladder for dismountable swimming pool according to any one of the previous claims, **characterised in that** the second anchoring elements that join the intermediate frames (3) and lengthened tubes (4) comprise elements selected from second screws (13) and pins (14).

8. Safety ladder for dismountable swimming pool according to claim 7, **characterised in that** the second screws (13) are axially immobilised by means of a blind nut (16), with a washer (17) between.

9. Safety ladder for dismountable swimming pool according to claim 7, **characterised in that** the pins (14) are axially immobilised by means of an end element (18), which is introduced through an end perforation (14a) located in the respective pin (14).

10. Safety ladder for dismountable swimming pool according to any one of the previous claims, **characterised in that** it comprises ferrules (20) by way of end lids, which are adjusted on a couple of free ends of the intermediate frames (3), where the ferrules (20) are installed when an element of the ladder selected from the frontal portion (1) and the rear portion (2) is dismounted and where the ferrules (20) are supported on the free edge (19a) of the dismountable swimming pool (19).

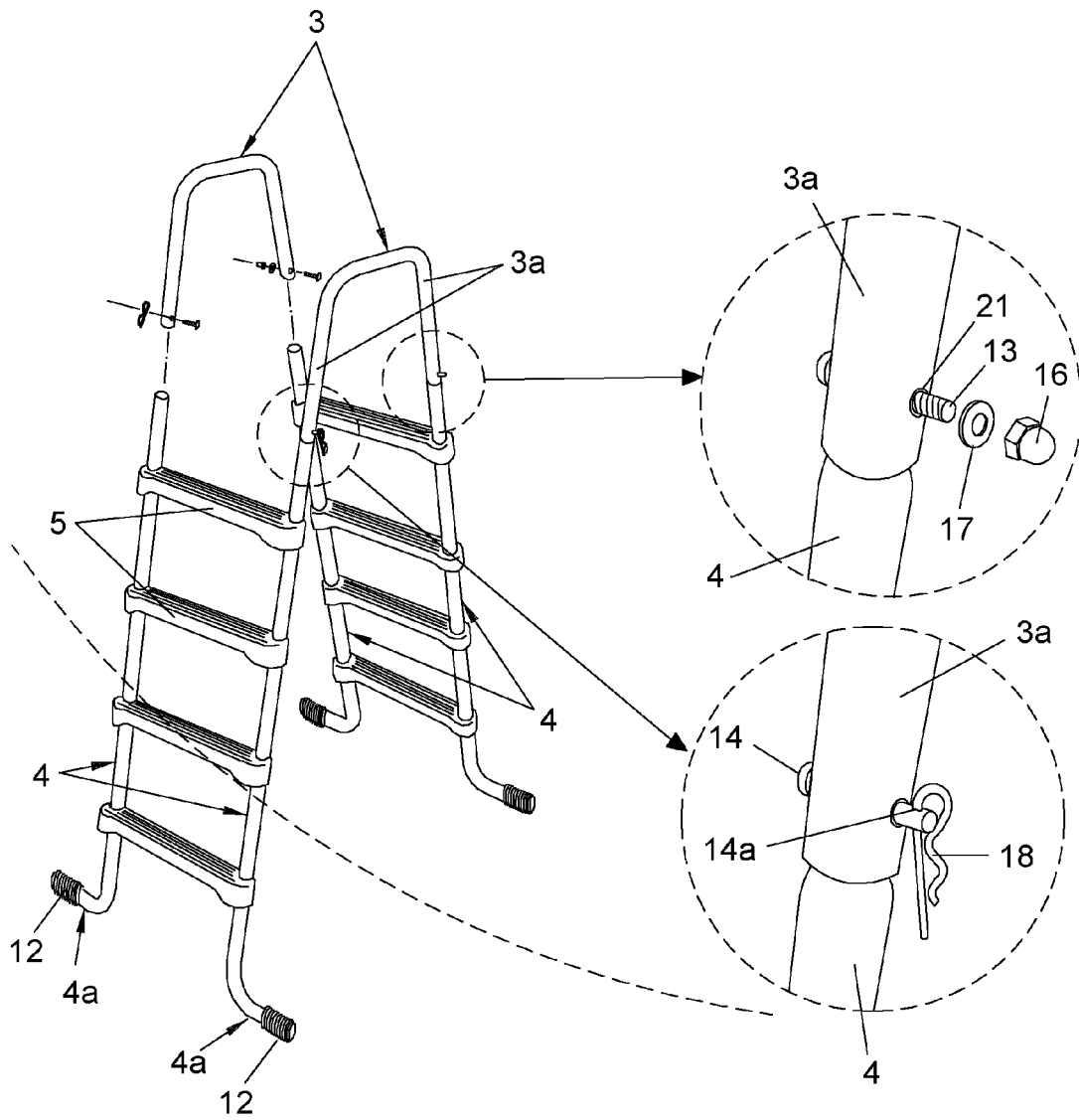


FIG. 1

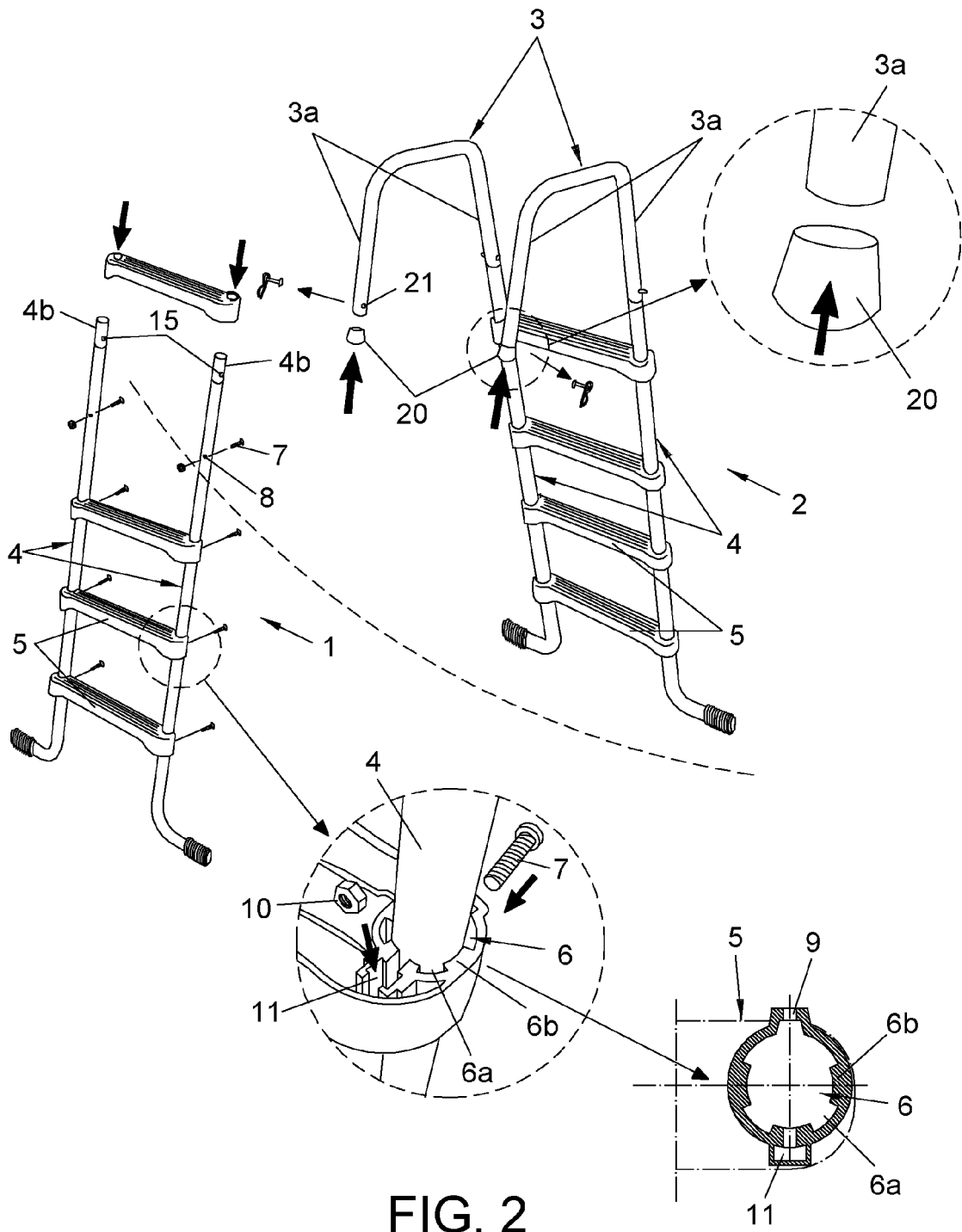


FIG. 2

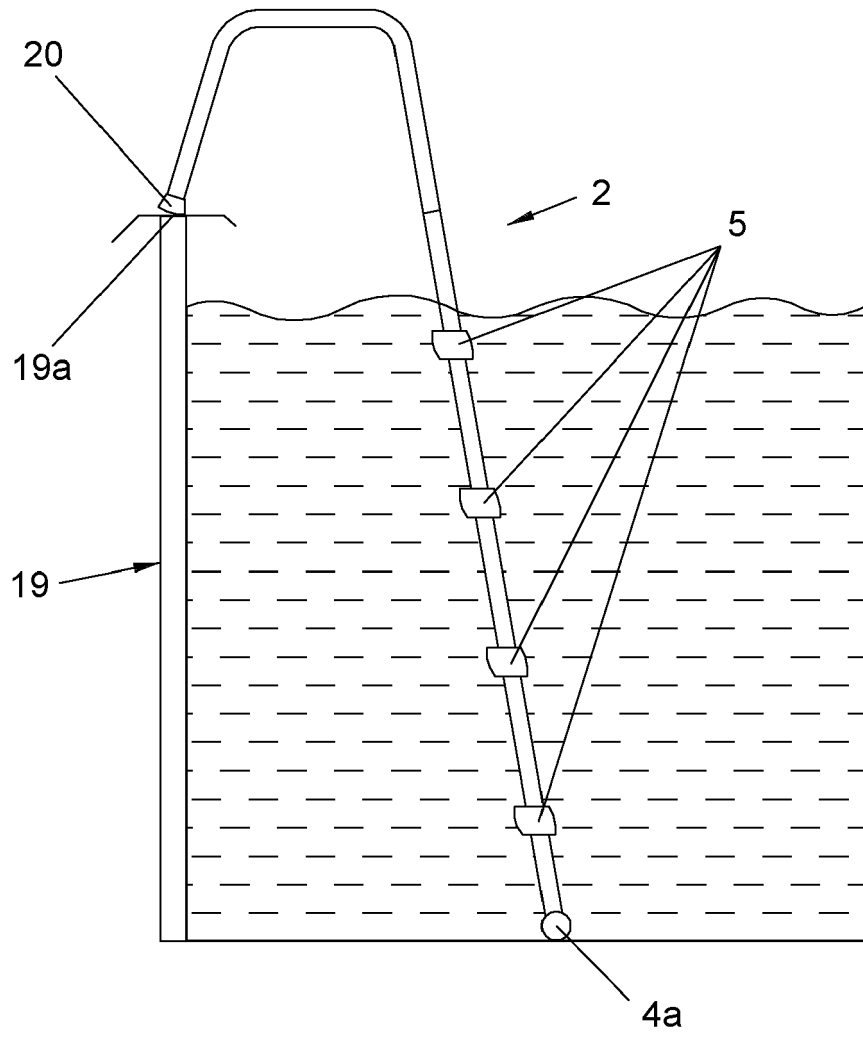


FIG. 3



EUROPEAN SEARCH REPORT

Application Number
EP 13 19 4823

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Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
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Place of search Munich		Date of completion of the search 5 March 2014	Examiner Decker, Robert
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	

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EPO FORM 1503 03/82 (P04001)

**ANNEX TO THE EUROPEAN SEARCH REPORT
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