



(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
18.05.2016 Bulletin 2016/20

(51) Int Cl.:
E04H 4/00 (2006.01) *E04H 4/14 (2006.01)*

(21) Application number: **15194863.5**

(22) Date of filing: **17.11.2015**

(84) Designated Contracting States:
**AL AT BE BG CH CY CZ DE DK EE ES FI FR GB
GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO
PL PT RO RS SE SI SK SM TR**
Designated Extension States:
BA ME
Designated Validation States:
MA MD

(71) Applicant: **Covimex NV**
8830 Hooglede (BE)

(72) Inventor: **VALCKE, Luc**
8830 GITS (BE)

(74) Representative: **Hostens, Veerle et al**
KOB NV
Patents
President Kennedypark 31 C
8500 Kortrijk (BE)

(30) Priority: **17.11.2014 BE 201405067**

(54) **SWIMMING POOL ASSEMBLY AND METHOD FOR INSTALLING A SWIMMING POOL**

(57) This invention relates to a swimming pool assembly (1) comprising columns (2), transverse beams (4) for the mutual fastening of the columns (2), and wall elements (3), which are made of multi-wall plastic and which are fastenable to the transverse beams (4), in order

to fasten the wall elements (3) to the columns (2), for the formation of an erected wall of a swimming pool. This invention additionally relates to a method for installing a swimming pool with the aid of such a swimming pool assembly (1).

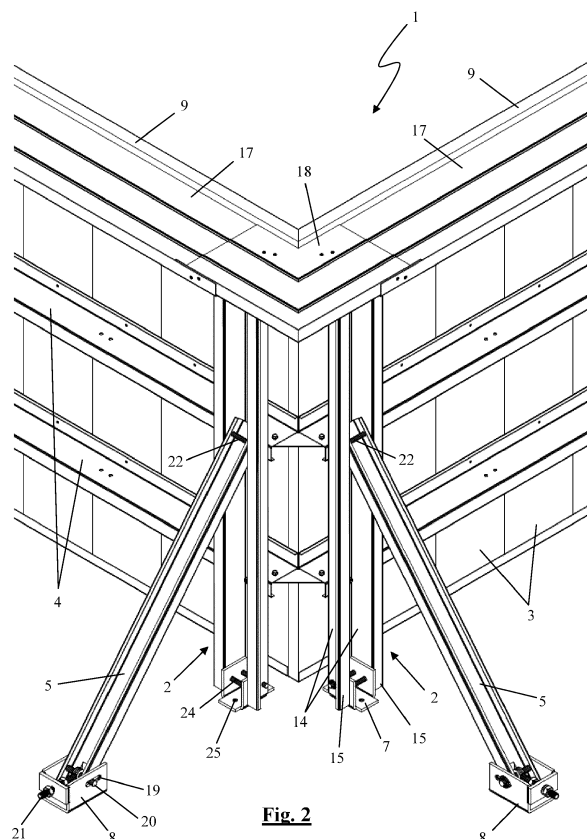


Fig. 2

Description

[0001] This invention relates to a swimming pool assembly comprising columns and wall elements which are fastenable to the columns, for the formation of an erected wall of a swimming pool.

[0002] Various types of swimming pools exist.

A first distinction can be made between swimming pools of the permanent type and swimming pools which are temporarily erected.

This invention relates to permanent-type swimming pools which are intended to remain erected for a long period. These are preferably (but not exclusively) buried in the ground.

A second distinction can be made between swimming pools which per se are of watertight construction and swimming pools which are made watertight with the aid of a canvas. This canvas can be made of various materials and can assume various shapes and thicknesses. Swimming pools which per se are of watertight construction are typically produced from one piece. These are, for example, polyester shells or seamless concrete swimming pools. These require a great deal of specialist knowledge for their production and/or installation. The delivery of polyester swimming pools and the installation thereof is work for professionals. Concrete swimming pools are typically cast on site. The various techniques for these (traditional construction, completely from reinforced concrete, from shotcrete, with permanent shuttering, etc.) demand a great deal of time, both for preparation, installation and finishing and for drying times. Moreover, these also demand the necessary craftsmanship to be able to ensure a watertight product. It is thus certainly not appropriate to install these without the necessary expertise.

This invention relates to swimming pools which are made watertight with the aid of a watertight canvas. More specifically, this invention relates to swimming pools of the type which are modularly constructed. There are already a number of swimming pool assemblies on the market for installing a modular-type swimming pool, of which it is claimed that they can be quite easily installed by private individuals. These usually require the installation of a base plate and in this case comprise columns to be mounted on this base plate and wall elements to be fastened between these columns. After this, the canvas has to be fitted in the herewith formed basin, which has to be filled with water and has to be banked up on the outside. In practice, however, this is no easy matter. The assembly of the modules has to be realized particularly accurately, so that, when the canvas is fitted, this canvas does not begin to tear, and so that, even after the passage of time, this canvas does not begin to tear. A further problem is that, when a swimming pool is buried, the walls thereof have to withstand the pressures applied thereto, that is to say the pressure of the earth and groundwater present herein, on the outside, on the one hand, and water pressure of water introduced into the swimming pool, on the

other hand. This demands a sufficiently solid construction of the swimming pool itself and also demands the necessary knowledge and attention in order to introduce the earth and the water into the swimming pool at the correct moment, in the correct sequence.

An example of a modular swimming pool of this type is known, for example, from US 2005/0091934 A1.

An alternative modular swimming pool is described in FR 2 846 991 A1. In the case of this swimming pool, circular beams have additionally to be cast from concrete, which once again makes the installation of the swimming pool more laborious, makes it more prone to installation errors and requires the necessary drying time.

[0003] The object of this invention is to provide a swimming pool assembly and a method for installing a swimming pool with which it becomes easier for private individuals to themselves install a permanently watertight swimming pool.

[0004] This object of the invention is achieved by providing a swimming pool assembly comprising columns and wall elements which are fastenable to the columns, for the formation of an erected wall of a swimming pool, wherein the swimming pool assembly comprises transverse beams for the mutual fastening of the columns, wherein the wall elements are designed for fastening to the transverse beams for the fastening of the wall elements to the columns, and wherein the wall elements are made of multi-walled plastic.

[0005] By not fastening the wall elements directly to the columns, but firstly constructing a supporting frame from columns and hereto fastened transverse beams, a particularly solid wall can be readily erected. The frame can firstly be more easily trued than when individual columns have to be trued or a fully erected wall has to be trued. Only after the truing of this frame should the wall elements be fastened hereto. Deviations which hereupon arise will be less pronounced than in the erection of a swimming pool according to the prior art.

Since a herewith erected wall can be made particularly solid, it can better absorb external pressures, so that the risks involved in the introduction of water into the swimming pool and banking-up of the swimming pool on the outside are more limited. With a suitable choice of columns and transverse elements, it is even possible to construct the structure such that it is fully self-supporting. Thus a swimming pool erected in this way no longer has to be filled with water and banked up in a totally secure manner, step by step, but, in contrast to swimming pools of this type according to the prior art, can be immediately filled up with water. This swimming pool can then be banked up on all sides, or not, according to choice. Moreover, the wall elements themselves can be made lighter than in the prior art, i.e. from multi-wall plastic, so that they are easy to handle. The adoption of multi-wall wall elements allows these to be easily fastened to the transverse beams with screws, for example, which engage in one of the walls, but not in all the walls, such that the wall element does not have to be fully perforated.

Moreover, multiple wall elements have an insulating function as an additional advantage.

[0006] A swimming pool assembly according to this invention is preferably designed such that, in the mounted state, the columns extend on the other side of the transverse beams from the wall elements. The rigidity of the construction is thereby further increased in a simple manner. Moreover, it is in this way easier to obtain an aligned plane of the frame against which the wall elements can be placed, with virtually no loss of accuracy.

[0007] Preferably, a swimming pool assembly according to this invention also comprises struts, for supporting the columns and/or the transverse beams.

A strut of this type is, in the mounted state, a beam, post or stanchion placed obliquely against a respective column or transverse beam. Such struts are added to increase the rigidity of the construction. In order to keep the assembly process as simple as possible, these struts are preferably designed to support the columns. This simplifies the truing of the erected wall of the swimming pool.

[0008] A particularly preferred embodiment of a swimming pool assembly according to this invention comprises for each column a column base, for the hinge-fastening of the column on a foundation, and for each strut a strut base, for the fastening of the strut on the foundation, wherein each strut is hinge-fastenable to a respective said column or a respective said transverse beam and is displaceable, in a direction virtually transversely to this column or transversely to this transverse beam, relative to the respective strut base.

With the aid of a displaceably erected strut of this type, it is particularly easy to true the columns and thus the frame of columns and transverse beams. The columns, the frame and the struts are firstly put in place. After this, by correcting the position of the struts, the whole can be trued in a simple manner. As a result it also becomes possible, following fastening of the wall elements to the frame, to still further correct, if necessary, the position of the whole. Preferably, following the truing, each column is fixed still further relative to the corresponding column base.

[0009] The wall elements of a swimming pool assembly according to this invention are preferably mutually connectable with the aid of a tongue and groove joint.

With such a tongue and groove joint, wall elements can be neatly linked to one another in a simple manner.

By fastening the wall elements to the transverse beams, a situation in which the mutual connection of the wall elements could accidentally come loose again is subsequently avoided.

[0010] Alternatively or additionally, these wall elements are preferably mutually connectable with the aid of a click joint.

Also with a click joint of this type, wall elements can be neatly linked to one another in a simple manner. With the aid of such a click joint, plastic wall elements will also be slower to accidentally come loose again. This simplifies the assembly thereof.

[0011] The columns and/or the transverse beams of a swimming pool assembly according to this invention are preferably made of metal.

[0012] The columns can more specifically be constructed as profiles having a substantially Ω -shaped cross section.

[0013] The transverse beams can more specifically be constructed as profiles having a substantially Z-shaped cross section.

[0014] In order to be able to finish the top edge of a swimming pool erected with the swimming pool assembly, this swimming pool assembly preferably comprises edging elements, for fastening at the top of the wall elements. With edging elements of this type, a continuous edging can be formed at the top of the wall of this swimming pool.

[0015] Besides these edging elements, or forming part of these edging elements, a swimming pool assembly of this type further preferably also comprises auxiliary edging elements, which are designed to, in the mounted state, following fastening of the edging elements at the top of the wall elements, extend on the side of the columns over a certain distance transversely to these wall elements. These auxiliary edging elements can be fastened to or form part of the edging elements, or can be fastened, for example, on top of one or more transverse beams. With auxiliary edging elements of this type, a continuous edging can be formed next to the top edge of the wall of a swimming pool erected with the swimming pool assembly. Such an edging is particularly suitable for the placement of edging stones hereon, so that these edging stones do not, over time, subside relative to the top edge of the swimming pool.

[0016] A swimming pool assembly according to this invention also further preferably comprises a base plate, for the fastening of the columns hereon, and a canvas, for the screening of the wall elements and the base plate. When a swimming pool assembly of this type comprises the abovementioned edging elements, then these edging elements are preferably provided with a slot, in which the canvas is fittable, for the fastening of the canvas. This allows simple assembly of the canvas.

[0017] The object of this invention is additionally also achieved by providing a method for installing a swimming pool, wherein a base plate is provided, wherein columns of an above-described swimming pool assembly according to this invention are fastened on this base plate, wherein the transverse beams of this swimming pool assembly are fastened to these columns, and wherein the wall elements of this swimming pool assembly are fastened to these transverse beams.

[0018] In a preferred method according to this invention, the columns are fastened on the base plate with the aid of the abovementioned column bases, the struts are fastened on the base plate with the aid of the abovementioned strut bases and hinge-fastened to the respective column, and the position of the struts is adjusted relative to the strut bases until the respective column stands true.

[0019] This invention is now explained in greater detail on the basis of the hereinafter following detailed description of a preferred swimming pool assembly and a preferred method according to this invention. The intention of this description is solely to provide illustrative examples and to indicate further advantages and particularities of this invention, and thus cannot be interpreted as a limitation of the field of application of the invention or of the patent rights claimed in the claims.

[0020] In this detailed description, reference is made by means of reference numerals to the accompanying drawings, wherein in

- Figure 1 a part of a swimming pool assembly according to this invention is depicted in the mounted state in perspective;
- Figure 2 a part of the swimming pool assembly from Figure 1 is represented in greater detail;
- Figure 3 a part of the swimming pool assembly from Figure 1 is represented in side view;
- Figure 4 a wall element of the swimming pool assembly from Figure 1 is represented in cross section.

[0021] The depicted swimming pool assembly (1) comprises a base plate (16), which is preferably constructed in reinforced concrete. This base plate (16) has a larger surface area than the surface area of the swimming pool, so that the swimming pool is completely encircled by an edging of the base plate (16).

[0022] On this base plate (16) are mounted a plurality of columns (2), which are arranged at regular intervals. These columns (2) are fastened with the aid of bolts (24) to column bases (7), which in turn are fastened with the aid of bolts (25) to the base plate (16). These columns (2) are metal profiles having a substantially Ω -shaped cross section.

[0023] On the end of the legs (14) of the Ω -shape, flanges (15) project outwards relative to these legs (14).

[0024] On the back (23) of the columns (2) are fastened, virtually parallel to one another, three rows of transverse beams (4). These transverse beams (4) are metal profiles having a substantially Z-shaped cross section. With a first vertical flange of this Z-shape, these are fastened to the columns (2). On the other vertical flange of this Z-shape, wall elements (3) are fastened to these transverse beams (4).

[0025] The wall elements (3) are double-walled plastics profiles, which can be made, for example, from PVC. On a first longitudinal side these comprise a tongue (10), and on their opposite longitudinal side these comprise a groove (11). With the aid of their tongues (10) and grooves (11), these wall elements (3) can be mutually coupled with the aid of a tongue and groove joint (10, 11). These tongues (10) are provided, moreover, with first click elements (12), and the grooves are provided, moreover, with corresponding second click elements (13), so that these wall elements (3), upon mutual coupling thereof, are also mutually fastened with a click joint

(12, 13).

[0026] The columns (2) of the swimming pool assembly (1) are supported with the aid of struts (5), which at their one end are fastened to the base plate (16) with the aid of a strut base (8) and at their other end are hinge-fastened to the corresponding column (2) with the aid of a bolt (22). The strut bases (8) are provided with slots (19), through which a bolt (20), which is likewise fitted through the corresponding strut (5), is displaceably fitted, in order to fasten this strut (5) to this strut base (8). In addition, a screw shaft (21), with which the position of the last-named bolt (20) can be adjusted relative to the slot (19) in order thus to displace the corresponding end of the strut (5) in a direction transversely to the corresponding column (2), is provided.

[0027] At the top of the wall elements (3), edging elements (9) are mounted. Beside these edging elements (9) extend auxiliary edging elements (17, 18), which are mounted on top of the uppermost transverse beams (4). These auxiliary edging elements (17, 18) offer support for the placement of edging stones herein, so that these edging stones do not, over time, subside relative to the top edge of the swimming pool.

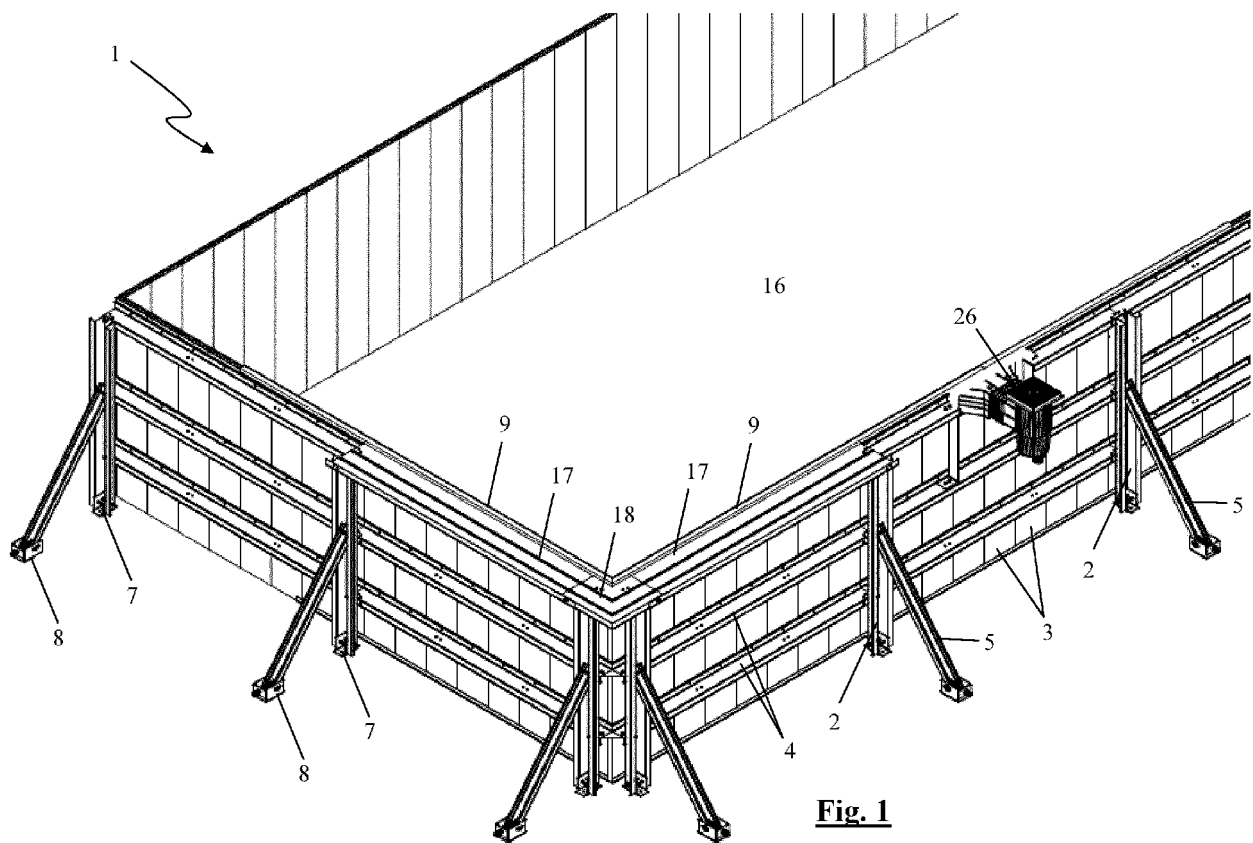
On the non-depicted side of the edging elements (9), these edging elements (9) are provided with a slot, in which a non-depicted canvas is fittable in order to make the swimming pool watertight.

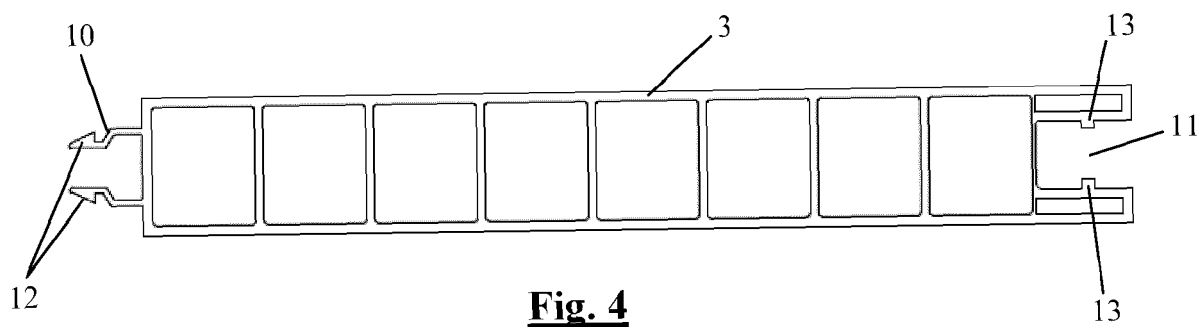
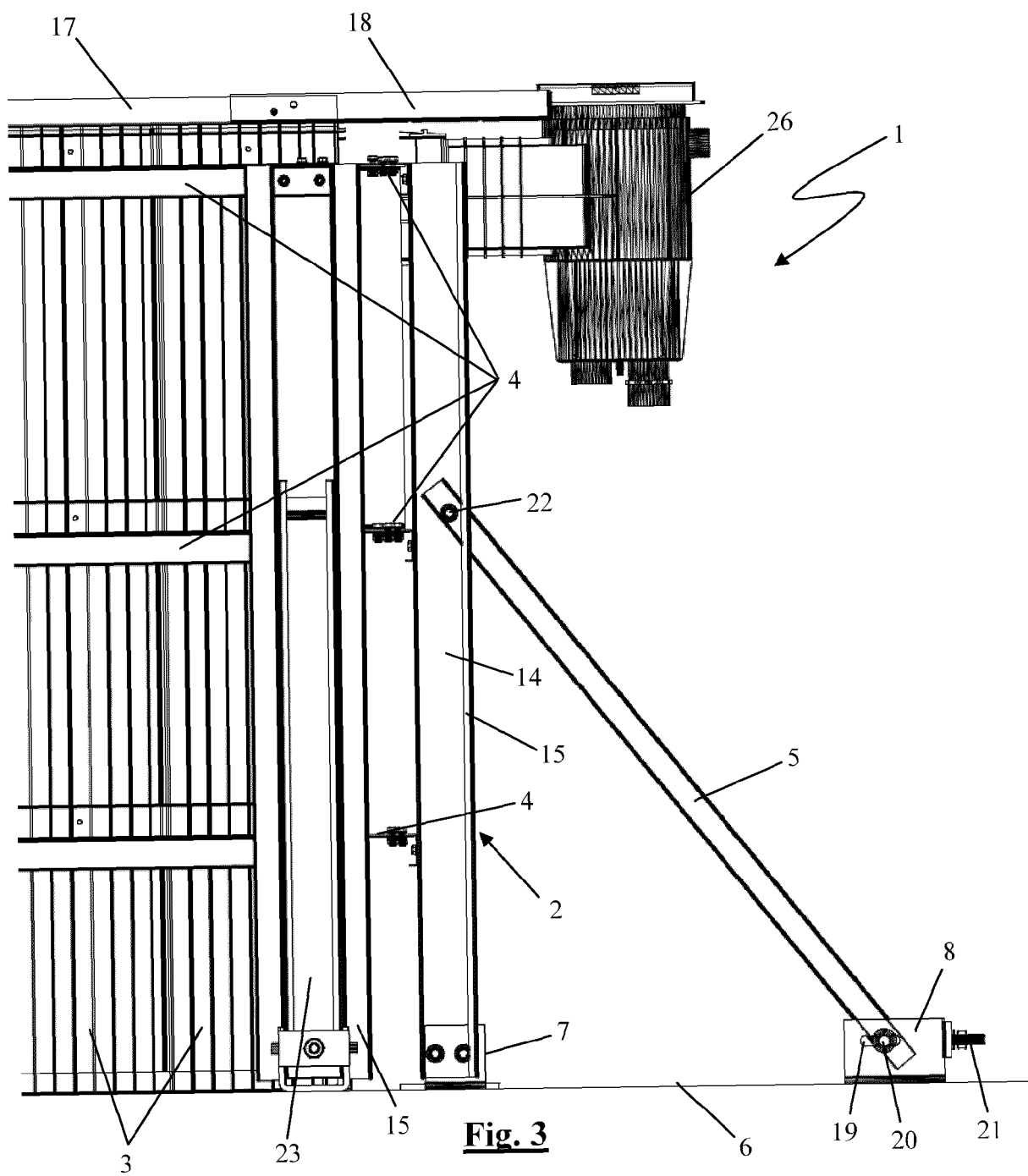
[0028] In order to erect a swimming pool with the aid of this depicted swimming pool assembly, a base plate (16), made of reinforced concrete, will first be provided. After this, the columns (2) are placed with the aid of the column bases (7) onto this base plate (16). Onto the columns (2) are bolted the transverse beams (4). The struts (5) are on the one hand fastened to the base plate (16) with the aid of the strut bases (8) and are on the other hand bolted to the respective columns (2). The position of the struts (5) relative to the strut bases (8) is adjusted until the whole stands true. After this, the wall elements (3) are bolted to the transverse beams (4). The edging elements (9) are mounted at the top of the wall elements (3) and the auxiliary edging elements (17, 18) are mounted at the top of the transverse beams (4). The necessary apparatus (26) is mounted and the canvas is fitted into the slot in the edging elements (9). The swimming pool is then filled with water. Given that the depicted swimming pool assembly, following installation, is fully self-supporting, it is in this case unnecessary to bank this up on the outside. It is banked up on the outside when it is wished to bury the swimming pool.

Claims

1. Swimming pool assembly (1) comprising columns (2) and wall elements (3) which are fastenable to the columns (2), for the formation of an erected wall of a swimming pool, **characterized in that** the swimming pool assembly (1) comprises transverse

- beams (4) for the mutual fastening of the columns (2), **in that** the wall elements (3) are designed for fastening to the transverse beams (4) for the fastening of the wall elements (3) to the columns (2), and **in that** the wall elements (3) are made of multi-wall plastic.
2. Swimming pool assembly (1) according to Claim 1, **characterized in that** the swimming pool assembly (1) is designed such that, in the mounted state, the columns (2) extend on the other side of the transverse beams (4) from the wall elements (3). 10
 3. Swimming pool assembly (1) according to one of the preceding claims, **characterized in that** the swimming pool assembly (1) comprises struts (5), for supporting the columns (2) and/or the transverse beams (4). 15
 4. Swimming pool assembly (1) according to Claim 3, **characterized in that** the swimming pool assembly (1) comprises for each column (2) a column base (7), for the hinge-fastening of the column (2) on a foundation (6), and for each strut (5) a strut base (8), for the fastening of the strut (5) on the foundation (6), wherein each strut (5) is hinge-fastenable to a respective said column (2) or a respective said transverse beam (4) and is displaceable, in a direction virtually transversely to this column (2) or transversely to this transverse beam (4), relative to the respective strut base (8). 20 25 30
 5. Swimming pool assembly (1) according to one of the preceding claims, **characterized in that** the wall elements (3) are mutually connectable with the aid of a tongue and groove joint (10, 11). 35
 6. Swimming pool assembly (1) according to one of the preceding claims, **characterized in that** the wall elements (3) are mutually connectable with the aid of a click joint (12, 13). 40
 7. Swimming pool assembly (1) according to one of the preceding claims, **characterized in that** the columns (2) and/or the transverse beams (4) are made of metal. 45
 8. Swimming pool assembly (1) according to one of the preceding claims, **characterized in that** the columns (2) are profiles having a substantially Ω -shaped cross section. 50
 9. Swimming pool assembly (1) according to one of the preceding claims, **characterized in that** the transverse beams (4) are profiles having a substantially Z-shaped cross section. 55
 10. Swimming pool assembly (1) according to one of the preceding claims, **characterized in that** the swimming pool assembly (1) comprises edging elements (9), for fastening at the top of the wall elements (3).
 11. Swimming pool assembly (1) according to Claim 10, **characterized in that** the swimming pool assembly comprises auxiliary edging elements (17, 18), which are designed to in the mounted state, following fastening of the edging elements (9) at the top of the wall elements (3), extend on the side of the columns (2) over a certain distance transversely to these wall elements (3).
 12. Swimming pool assembly (1) according to Claim 10 or 11, **characterized in that** the swimming pool assembly (1) comprises a base plate (16), for the fastening of the columns (2) hereon, that the swimming pool assembly (1) comprises a canvas, for the screening of the wall elements (3) and the base plate (16), and **in that** the edging elements (9) are provided with a slot, in which the canvas is fittable, for the fastening of the canvas.
 13. Method for installing a swimming pool, **characterized in that** a base plate (16) is provided, **in that** columns (2) of a swimming pool assembly (1) according to one of the preceding claims are fastened on this base plate (16), **in that** the transverse beams (4) of this swimming pool assembly (1) are fastened to these columns (2), and **in that** the wall elements (3) of this swimming pool assembly (1) are fastened to these transverse beams (4).
 14. Method according to Claim 13, **characterized in that** the swimming pool assembly (1) is a swimming pool assembly (1) according to Claim 4, **in that** the columns (2) are fastened on the base plate (16) with the aid of the column bases (7), **in that** the struts (5) are fastened on the base plate (16) with the aid of the strut bases (8) and are hinge-fastened to the respective column (2) or transverse beam (4), and **in that** the position of the struts (5) is adjusted relative to the strut bases (8) until the columns (2) stand true.







EUROPEAN SEARCH REPORT

Application Number
EP 15 19 4863

5

10

15

20

25

30

35

40

45

50

55

2

EPO FORM 1503 03.82 (P04C01)

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	US 3 974 605 A (BEATTY GORDON WESLEY ET AL) 17 August 1976 (1976-08-17)	1,3,5, 9-11	INV. E04H4/00
Y	* column 4, line 1 - column 7, line 25; figures 1-9,11,12 *	6-8,12, 13	ADD. E04H4/14
Y	US 4 137 576 A (GREENE SAMUEL) 6 February 1979 (1979-02-06)	7,12,13	
A	* column 2, line 5 - column 5, line 29; figures 1-12 *	1,3,4,9, 14	
Y	FR 2 843 769 A1 (SEVYLOR INTERNAT [FR]) 27 February 2004 (2004-02-27)	8	
A	* page 1, line 7 - line 10 * * page 4, line 19 - page 6, line 29; figures 1,2 *	1	
Y	DE 196 20 686 A1 (SEVERING KLAUS UWE PAUL [DE]) 27 November 1997 (1997-11-27) * abstract; figures 1-3,5,7 *	6	
			TECHNICAL FIELDS SEARCHED (IPC)
			E04H
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 17 March 2016	Examiner Stefanescu, Radu
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			

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 15 19 4863

5

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.

17-03-2016

10

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 3974605 A	17-08-1976	NONE	
US 4137576 A	06-02-1979	NONE	
FR 2843769 A1	27-02-2004	CA 2437211 A1	21-02-2004
		DE 10337827 A1	01-04-2004
		ES 2255358 A1	16-06-2006
		FR 2843769 A1	27-02-2004
		US 2004103472 A1	03-06-2004
DE 19620686 A1	27-11-1997	NONE	

15

20

25

30

35

40

45

50

55

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

- US 20050091934 A1 [0002]
- FR 2846991 A1 [0002]