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(72) Inventors:  
• **Pedrola Marques, M<sup>a</sup> Del Carmen**  
17401 Arbucies (Girona) (ES)  
• **Roig Lorenzo, Ignacio**  
17401 Arbucies (Girona) (ES)

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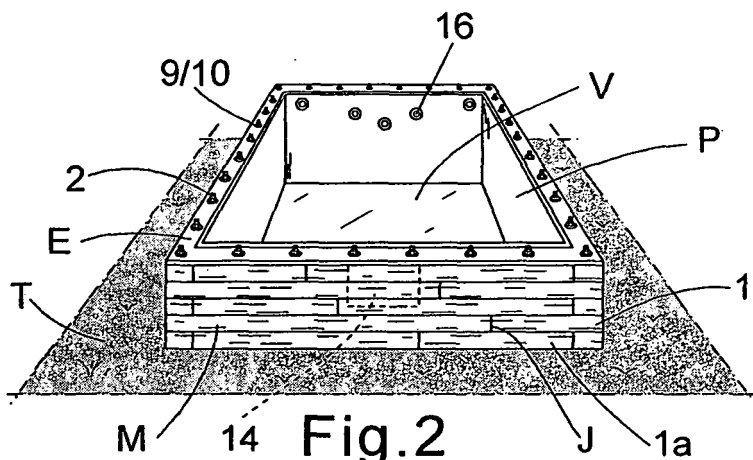
(71) Applicants:  
• **Pedrola Marques, M<sup>a</sup> Del Carmen**  
17401 Arbucies (Girona) (ES)  
• **Roig Lorenzo, Ignacio**  
17401 Arbucies (Girona) (ES)

(74) Representative: **Morgades y Manonelles, Juan Antonio**  
**Morgades & Del Rio, S.L.**  
C/Rector Ubach, 37-39, bj 2.o  
08021 Barcelona (ES)

(54) **SOLID WOOD OR PLYWOOD SWIMMING POOL**

(57) The walls of the swimming pool include a series of solid wooden or plywood boards stacked and assembled together by means of threaded studs that join matching drill holes made in the boards, assembled from the bottom (ground) to the top (rim of the swimming pool), the studs thereof being longitudinally aligned and spaced out along the stacked boards of each wall. Of the plurality

of stacked boards that make up each wall of the swimming pool, one or more pairs of stacked and assembled boards have, on the opposite surfaces thereof, a series of matching longitudinal or transverse recesses or channels which house the longitudinal pipes and bends that accommodate the swimming pool water circulation and illumination elements to the swimming pool basin.



**Fig.2**

## Description

### OBJECT OF THE INVENTION

**[0001]** This invention refers to a solid wooden or plywood swimming pool, made from solid wooden beams, boards or similar solid or laminated materials, which are stacked and fitted together, making a swimming pool that can be installed either indoors or outdoors.

### FIELD OF THE INVENTION

**[0002]** The swimming pool sector is very diverse, with built swimming pools, i.e., basically made of bricks and cement, as well as polymer or fibreglass swimming pools made in moulds and swimming pools made with metal plates. However, current swimming pools require space and work levelling the terrain, etc. that make them costly.

**[0003]** Current wooden swimming pools have the problem that for the walls to bear the water pressure and maintain stability, they have to be polygonal in shape, an octagon for example, with angles greater than 90° requiring bracing elements, implying more work and materials, with the resulting increased cost.

**[0004]** In addition, fibreglass and metal swimming pools have the drawback of their size when installing them, because access can often be difficult.

**[0005]** However, the swimming pool described in this invention, allows the use of any difference in level of the terrain, and of any space, from a minimum surface area, and any configuration, as well as being highly ecological.

**[0006]** Additionally, the wooden swimming pool in the present invention, having a very solid wall structure and not needing bracing supports means that the walls can form 90° angles, in rectangular or square shape, for instance. In addition, there are no problems to take the boards to the construction site of the swimming pool.

### BACKGROUND OF THE INVENTION

**[0007]** The inventors and holders of the present invention regarding a swimming pool, also hold previous inventions related to this swimming pool.

**[0008]** Thus, the inventors hold the following Spanish patents no. 200500631 which refers to a "System for assembling boards for forming structures" which enables any type of structure to be built; no. 200502342, which refers to a "System of construction for walls for making tanks and similar objects", and no. 200701239, which refers to a "System for building movable flower boxes and similar items".

**[0009]** The aforementioned previous patents held by the inventors and holders of the present invention, have also patented a system (denominated "ROIPE System") for the construction of walls for any application, including those used for tanks or others, which can contain liquids, especially water.

**[0010]** As indicated in this description, claims and de-

signs, the same aforementioned system of construction is used for the construction of the walls of the swimming pool. However, this invention presents technical and special features, for the construction of swimming pools described in it, which are different from known swimming pools.

### SUMMARY OF THE INVENTION

**[0011]** This invention solves known swimming pool construction problems by applying the aforementioned system of inventions, and it provides an ecological swimming pool, built of solid wooden or plywood, made of boards, beams and similar solid or laminated elements, worked on one by one, producing a high quality swimming pool.

**[0012]** This swimming pool is built using the aforementioned "ROIPE system", based on boards stacked and joined together, using studded rods or similar elements spaced apart and joining the superimposed boards from top to bottom, securing them together by tightening with nuts and/or plates/washers and similar elements, at top and bottom, and distributed in intermediate positions, these boards can be placed discontinuously, i.e., in accordance with the length of the board or of the wall to be built, without the construction of the wall needing the end joints of the consecutive horizontal boards to coincide horizontally.

**[0013]** Hence, the assembled boards, when tightened down, form a corresponding continuous, preferably vertical, wall, with studs or similar devices of a length corresponding to the height of the wall and if they are shorter than the height of the wall, this is done by means of extensions by axial coupling of several section of studded rod or sections of studded rod at different levels and staggered if necessary, at the ends of which the corresponding nuts and washers are fitted. Of the rows of stacked and assembled boards, the lower row rests directly on the ground or directly on a concrete floor, or directly on concrete flooring made on the terrain with the studded rods embedded /anchored to the concrete flooring, and the corresponding wall is formed from the lower row, by placing the stacked boards onto the spaced out studs, so that the boards of each wall and the boards of all the walls forming the outline of the swimming pool are "sewn" together, forming a solid and strong unit. Then, a flexible sheet of waterproof material lines the inside of the walls and the floor between these walls; this sheet material is kept in place along the edge by means of an upper support strip.

**[0014]** The upper edge of the swimming pool has a rim or finishing trim, which covers the ends of the studs, nuts, and washers, and the aforementioned upper support strip.

**[0015]** According to the present invention, the plurality of stacked boards which form the pool walls have in opposite superimposed surfaces complementary longitudinal and/or transversal recesses or channels for housing

water pipes, electric cables or similar elements between them and transversal coupling elbow joints for fitting filtering elements, upper and lower suction pipes, pumping water into or out of the pool and for light fittings for the inside of the pool. The filtering elements being visible on the inner walls of the pool, with their pipes located inside the walls that constitute the structure of the pool.

**[0016]** The invention establishes that the stacked boards which form the pool walls and that have complementary recesses or channels, also have on the inner face of the walls some grooves into which the aforementioned filtration, suction, pumping, capturing, illumination and other similar elements are fitted and which are flush with the inner face.

**[0017]** According to the invention, on one of the side walls of pool, the body of the upper suction element or skimmer is fitted, whose mouth is on the inner face of the swimming pool basin, and the pumping mechanisms such as the equipment for pumping or treating the water such as filtering, ultraviolet and others, which are connected to said pipes via elbow-shaped conduits which project from the side wall.

**[0018]** In addition, the mentioned mechanisms, equipment and the water recirculation and filtration motor are in a protective cabinet that can be used as a gangway.

**[0019]** These and other characterizing features will be best made apparent by the following detailed description whose understanding will be made easier by the accompanying two sheets of drawings showing a practical embodiment being cited only by way of example not limiting the scope of the present invention.

## DESCRIPTION OF THE DRAWINGS

**[0020]** In the drawings:

Figure 1 is a perspective view of the site when beginning to build the swimming pool this invention refers to.

Figure 2 is a view similar to Figure 1 but when the swimming pool is practically finished or in an advanced stage of construction.

Figure 3 is a section elevation view depicting the construction of the swimming pool walls.

Figure 4 illustrates a slightly upper perspective view of the walls joining at a 90° angle in the swimming pool, illustrating the complementary recesses or channels for pipes and wires, in one of the boards of the pair of stacked and assembled boards.

Figure 4A is a view taken along the plane IV-IV in Figure 4.

Figure 5 illustrates another view similar to figure 4 and for a similar purpose.

Figure 5A is a view taken along the plane V-V in Figure 5.

Figure 6 illustrates a view similar to figures 4 and 5 and for a similar purpose.

Figure 6A is a view taken along the plane VI-VI in

Figure 6.

Figure 7 is a view from inside the swimming pool facing one of its end walls, showing the skimmer or top suction and the bottom suction point.

Figure 8 is a perspective view from outside and from one end of the swimming pool, opposite to figure 7, showing the pumps at the end wall of the swimming pool and the body of the upper suction element or skimmer and with the conduits leading outside the wall opposite the end of the swimming pool, also showing a cabinet being built to hold the corresponding pumps, water treatment (filtering), ultraviolet, etc. equipment.

Figure 9 is a side perspective view of the finished swimming pool, with the adjoining cabinet also finished, which acts as a gangway, and has an access ladder.

Figure 10 is a partial section view of the upper part of a wall of the swimming pool, showing the upper end or crown that finishes rim of the swimming pool.

## DETAILED DESCRIPTION OF A FORM OF A PREFERRED EMBODIMENT OF THE INVENTION

**[0021]** According to the designs, the solid wooden or plywood swimming pool swimming pool referred to in this invention, with the general reference (P) is made of boards, beams and similar elements of solid wooden or plywood (1a, 1) which are stacked and assembled together, using studded rods (2) or similar elements spaced along each wall (M) and which the boards (1a) are inserted onto, (1) superimposed from bottom to top, namely from the ground to the rim of the pool (V), the studded rods (2) pass through drilled holes (8) made in the stacked boards and are secured together by tightening sets of nuts and/or plates/washers (3, 7, 9, 10) and similar elements, which are placed at the top and bottom and distributed in intermediate positions, the boards -1a-, -1-, can be placed unaligned -J-, i.e., the boards -1a-, -1- are fitted to form the wall -M- in question, according to the length of the board or of the wall to be built, without taking into account if the joints (J) coincide or not in the different rows of boards, which are assembled and tightened together forming the corresponding continuous wall (M), preferably vertical.

**[0022]** These studded rods (2) or similar elements have a length corresponding to the height of the wall, and when their length is less than the height of the wall, they are extended by axial coupling of several sections of studded rod placed at a different level and if necessary staggered, to the ends of which the corresponding nuts (9) and washers (10) are fitted.

**[0023]** Of the rows of boards (1a), (1) superimposed and fitted together, the lower row (1a) is directly on the ground (T), or directly on a concrete floor (H), or indirectly on concrete (H) laid on the terrain (T), with the studded rods (2) embedded/anchored to this concrete flooring (H), from the lower row the corresponding wall (M) is

formed by inserting the boards (1a), (1) onto the spaced out studded rods (2).

**[0024]** The boards (1a), (1) of each wall (M), and the boards of all the walls, which form the outline of the swimming pool, are "sewn" together creating a single strong unit.

**[0025]** The swimming pool (P) is completed with a sheet of flexible and waterproof material (L) which lines the inside of the side walls of the structure and the ground between the walls (M), and is kept in place along the rim (E) of the swimming pool (P) by a conventional support strip.

**[0026]** The finish of the swimming pool edge (E) is made with a strip or finishing crown (CA) which constitutes the top edge or free edge, covering the free end of the studded rods (2) and nuts and washers (9), (10), whose finishing crown (CA) has a series of grooves (22) which house the ends of the studs (9) and the nuts (9) and washers (10).

**[0027]** As illustrated especially in Figures 3 and 10 the strips or finishing crowns (CA) are secured onto each wall (M) with screws (19) with finishing caps (20) that fit to the grooves (21), forming an overhang to the inside of the swimming pool basin (V), to avoid the water overflowing (AG).

**[0028]** The plurality of boards (1a), (1) in this invention, which are stacked and assembled together by means of studded rods (2) and nuts (7), forming the walls (M) of the swimming pool basin or receptacle (V), have on their opposite superimposed surfaces, see figures 4 and 4A, 5 and 5A, and 6 and 6A, their respective complementary longitudinal (RL) and/or transversal (RT) recesses or channels -R- for housing between them the longitudinal water pipes (11) and electrical wires and similar elements and the transversal elbow joints (12) for coupling these pipes (11) for filter elements, upper suction or skimmer (14) and lower (18), upper inlet (16) and for taking water from the basin (V) and of light fittings for the interior of the basin, whose elements for filtering, suction upper and lower, pumping in and out, lighting and similar are visible on the inner face of the basin (V) walls, whose pipes (11), (12) are located on the inside of the walls (M) which constitute the structure of the basin (V).

**[0029]** In addition the stacked boards (1a), (1) which form the basin (V) walls (M) and that have complementary recesses or channels (R), also have on the inner face of the walls (M) some grooves (13) into which the aforementioned filtration, suction, pumping, capturing, illumination and other similar elements are fitted and which are flush with the inner face (see figure 6A).

**[0030]** According to the invention, on one of the side walls of pool (P) basin, the body of the upper suction element or skimmer (14) is fitted, whose mouth is on the inner face of the swimming pool basin, and the pumping mechanisms such as the equipment for pumping or treating the water such as filtering, ultraviolet and others, which are connected to said pipes via elbow-shaped conduits (15) which project from the side wall (see figure 8).

**[0031]** The mentioned mechanisms, equipment and the water recirculation and filtration motor, according to the invention, are in a protective cabinet (17) that can be used as a gangway.

5 **[0032]** The swimming pool may have a side ladder (ES), and an access ladder (ES) to enter the basin (V), made of stainless steel.

10 **[0033]** The swimming pool of this invention is made of solid wooden or plywood, the boards, beams or similar elements of which form the walls and are solid or laminated.

15 **[0034]** The water circulation in the wooden swimming pool described in this invention is conventional, therefore the upper inlets or skimmer (14) and lower (18) suck the swimming pool water and send it through the pipes (11) and (12) to the respective conduits (15) to subject the water to the corresponding filtering, UV, etc. treatments, in the equipment contained in the cabinet (17), and after being treated, the water is pumped through the conduits (15) to the pipes (11) and (12), from which the pumps (16) move the water to the swimming pool basin (V), and the cycle starts again.

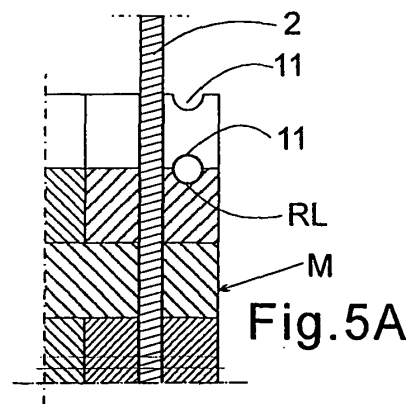
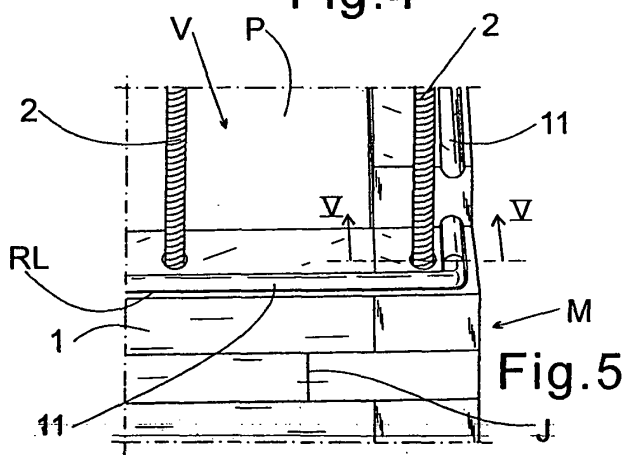
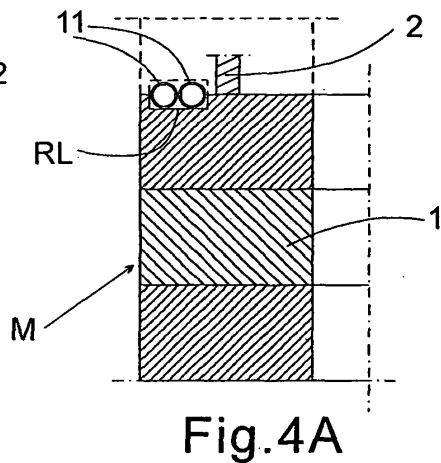
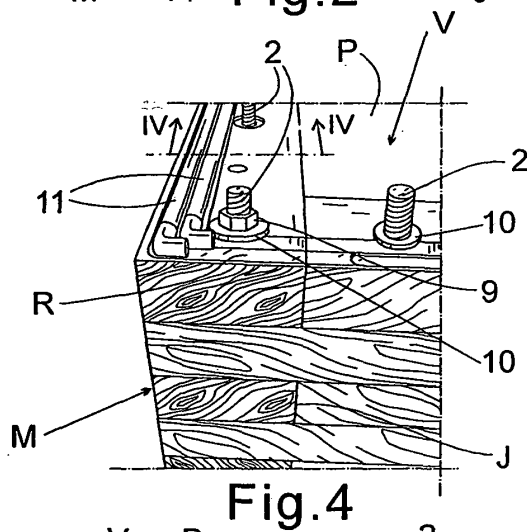
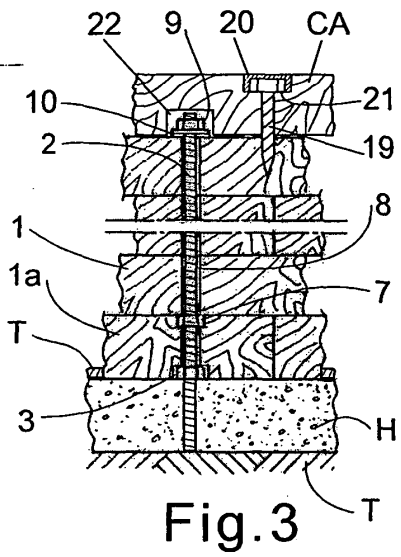
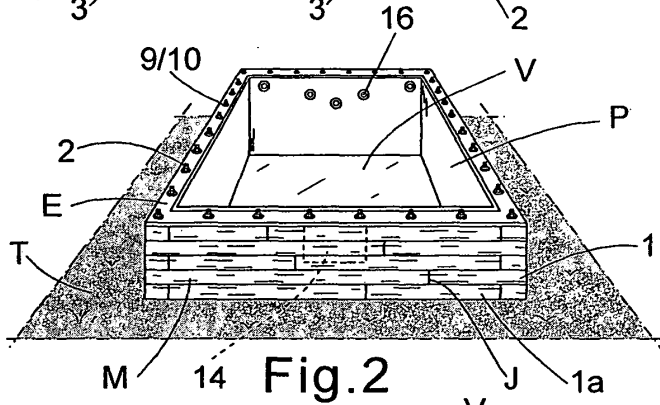
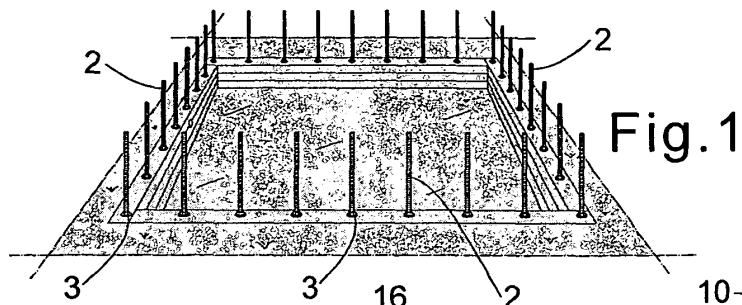
20 **[0035]** The invention can within its essentiality be put into practice in other embodiments differing only in detail from the one having been described above only by way of example, said other embodiments also falling within the scope of the protection being claimed. This wooden swimming pool may thus be manufactured in any shape and size, with the most suitable means and materials and with the most convenient accessories, and the components may be replaced by others that are technically equivalent, as all of this is contained within the spirit of the claims.

### 35 Claims

1. A solid wooden or plywood swimming pool, with boards (1a, 1) joined by studded rods (2) or similar devices spaced out, onto which the stacked boards (1a, 1) are inserted from bottom to top of each side wall of the swimming pool from the ground (T) to the rim (E), the studded rods of which (2) go through the drilled holes (8) in the stacked boards, and are secured together by tightening their nuts and/or plates/washers (3, 7, 9, 10) and similar elements, placed at the top and bottom and distributed in intermediate positions, the assembled boards (1a, 1) of which, when the nuts are tightened, form the corresponding continuous and preferably vertical wall (M), whose studded rods (2) or similar elements have a length corresponding to the height of the wall and when the length is less than the height of the wall, the studded rods are extended by axial coupling of several sections or by sections of studded rod at different levels and staggered if necessary, onto the ends of which the corresponding nuts (9) and washers (10) are fitted, of the rows of superimposed and assembled

stacked boards (1a, 1), the lower row (1a) is directly in contact with the ground (T), directly on a concrete flooring (H) or directly on concrete flooring (H) made on site (T), with the studded rods (2) embedded /anchored in the concrete flooring (H), from the lower row of which the corresponding wall (M) is formed by inserting the superimposed boards (1a, 1) onto the spaced out studded rods (2) and a sheet of flexible waterproof material (L) lines the inside of these side walls and the floor of the structure between the walls (M), this sheet material (L) is kept in place along the rim (E) by means of a conventional support placed inside, and the rim has a trim element, **characterised in that** the plurality of stacked boards (1a, 1), which forming the walls (M) of the swimming pool -P- basin (V), are from solid wooden or plywood, and at least a pair of stacked boards (1a, 1), have on their opposite superimposed surfaces, their respective complementary longitudinal (RL) and/or transversal (RT) recesses or channels (R) for housing between them the longitudinal water pipes (11) and electrical wires and similar elements and the transversal elbow joints (12) for coupling these pipes (11) for filter elements, upper suction or skimmer (14) and lower (18), upper inlet (16) and for taking water and of light fittings for the interior of the basin, whose active elements for lighting and similar are visible on the inner face of the basin (V) walls.

2. Solid wooden or plywood swimming pool, according to the claim 1, **characterised in that** the stacked boards (1a, 1) which form the basin (V) walls (M) and that have complementary recesses or channels (R), have on the inner face of said walls (M) some grooves (13) into which the aforementioned filtration, suction (14, 18), pumping 16, capturing, illumination and other similar elements are fitted and which are flush with the inner face of the basin (V) wall (M).
3. Solid wooden or plywood swimming pool, according to the claims 1 and 2, **characterised in that** on one of the side walls of pool basin (V), the body of the upper suction element or skimmer (14) is fitted, whose mouth is on the inner face, and the pumping mechanisms such as the equipment for pumping or treating the water such as filtering, ultraviolet and others, which are connected to said pipes via elbow-shaped conduits (15) which project from the side wall.
4. Solid wooden or plywood swimming pool, according to the claim 3, **characterised in that** the mentioned mechanisms, equipment and the water recirculation and filtration motor, are in a protective cabinet (17) that can be used as a gangway.



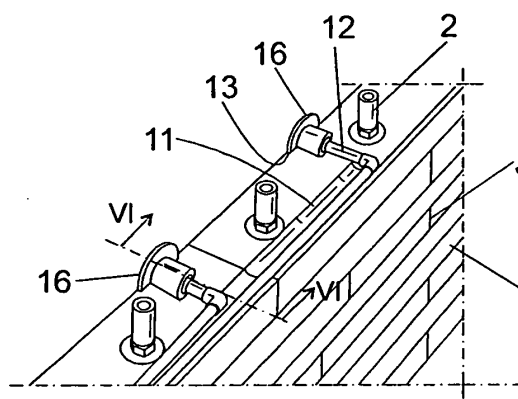


Fig. 6

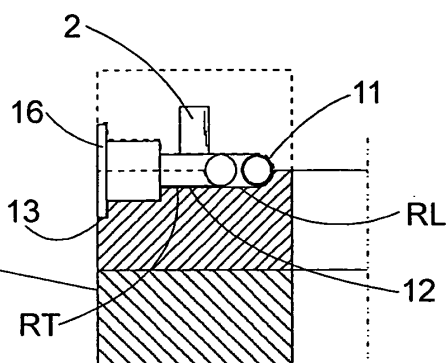


Fig. 6A

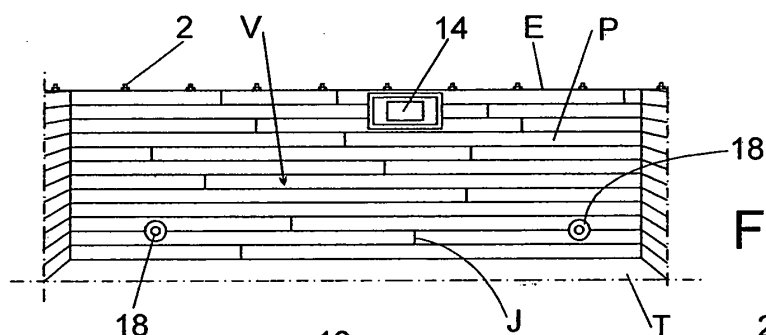


Fig. 7

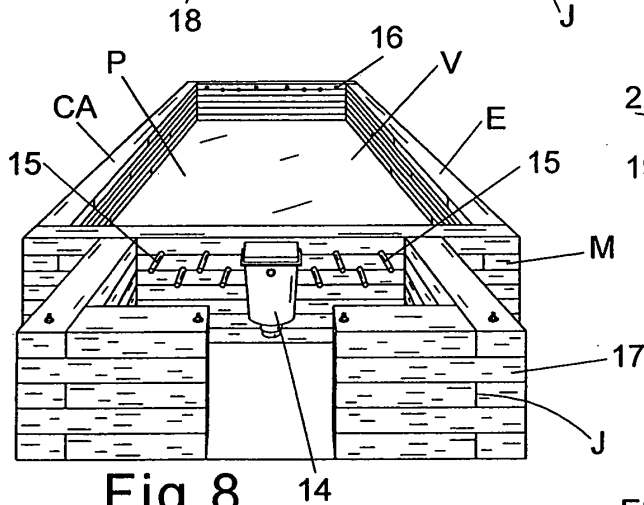


Fig. 8

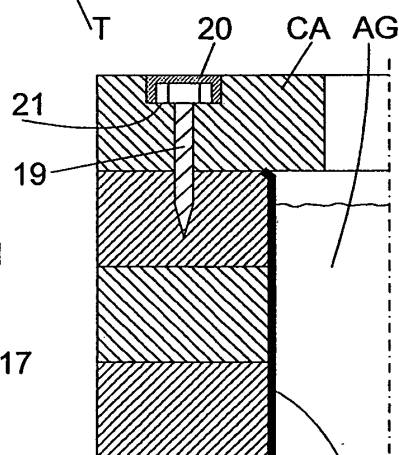


Fig. 10

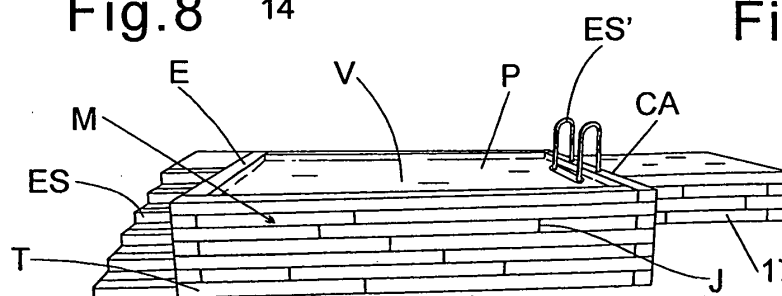


Fig. 9

## INTERNATIONAL SEARCH REPORT

International application No.  
PCT/ ES 2009/070631

## A. CLASSIFICATION OF SUBJECT MATTER

see extra sheet

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

E04H 4/04, E04B 2/70

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

INVENES,EPODOC

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	DE 19739787 A1 (KLAFS SAUNABAU) 01.04.1990, abstract; figures.	1,
A	EP 1934409 A1 (MOERNHOUT ERIC) 25.06.2008, abstract; figures.	1,2
A	FR 2785003 A (RELISATIONS EN BATIMENTS ) 28.04.2000, pág.2,line.33-pág.5,line.20; figures.	1
A	FR 2809428 A (MENUISERIE CHARPENTE CARADOT) 30.11.2001, abstract; figures.	1
A	US 5713085 A (BECKETT CORP.) 03.02.1998, column. 1,line.45-column.3,line.51; figures.	1
A	ES 2282002 A1 (PEDROLA MARQUES) 01.10.2007, the whole document.	1

☐ Further documents are listed in the continuation of Box C.☒ See patent family annex.

* Special categories of cited documents:	"T"	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A" document defining the general state of the art which is not considered to be of particular relevance.		
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Date of the actual completion of the international search

19 April 2010 (19.04.2010)

Date of mailing of the international search report

(03/05/2010)

Name and mailing address of the ISA/  
O.E.P.M.Paseo de la Castellana, 75 28071 Madrid, España.  
Facsimile No. 34 91 3495304

Authorized officer

B. Hernández Agustí

Telephone No. +34 91 349 55 53

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**INTERNATIONAL SEARCH REPORT**

Information on patent family members

International application No.

PCT/ ES 2009/070631

Patent document cited in the search report	Publication date	Patent family member(s)	Publication date
DE 19739787 A C	01.04.1999	NONE	-----
EP 1934409 A	25.06.2008	WO 2007028658 A CA 2621812 A AU 2006289285 A NO 20081498 A EP 20060725451 EA 200800746 A EA 013042 B CN 101292071 A US 2008263988 A JP 2009507153 T	15.03.2007 15.03.2007 15.03.2007 27.05.2008 30.03.2006 29.08.2008 26.02.2010 22.10.2008 30.10.2008 19.02.2009
FR 2785003 A B	28.04.2000	NONE	-----
FR 2809428 A B	30.11.2001	NONE	-----
US 5713085 A	03.02.1998	NONE	-----
ES 2282002 A B	01.10.2007	NONE	-----

Form PCT/ISA/210 (patent family annex) (July 2009)

INTERNATIONAL SEARCH REPORT

International application No.

PCT/ ES 2009/070631

CLASSIFICATION OF SUBJECT MATTER

*E04H 4/04* (2006.01)

*E04B 2/70* (2006.01)

**REFERENCES CITED IN THE DESCRIPTION**

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**Patent documents cited in the description**

- ES 200500631 [0008]
- ES 200502342 [0008]
- ES 200701239 [0008]