IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

App. No.	:	Filed Herewith
Inventors	:	Hua Hsiang Lin, deceased, et al.
Filed	:	May 16, 2023
Title	:	JOINT FOR ABOVE GROUND POOL FRAME
TC/A.U.	:	*To be Assigned*
Examiner	:	*To be Assigned*
Docket No.	:	IRC-0042-04-US
Customer No.	:	27268
Con. No.	:	*To be Assigned*

PRELIMINARY AMENDMENT

Sir:

Please amend the above-identified application as follows:

Amendments to the Specification begin on Page 2 of this Paper;

Remarks begin on Page 3 of this Paper.

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AMENDMENTS TO THE SPECIFICATION

Please amend paragraph [0001] of the specification for the present application as follows:

CROSS REFERENCE TO RELATED APPLICATIONS

[0001] The present application is a continuation of U.S. Patent Application No. 17/962,979, filed October 10, 2022, which is a continuation of U.S. Patent Application No. 16/220,484, filed December 14, 2018, which is a National Stage Entry of International Patent Application No. US2017/037892, filed June 16, 2017, which claims priority to the following Chinese patent applications, the disclosures of which are hereby expressly incorporated by reference herein in their entirety:

Application Number	Filing Date
CN 201620598406.9	June 17, 2016
CN 201630270359.0	June 22, 2016
CN 201621039473.3	September 6, 2016

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REMARKS

Applicant respectfully requests this Preliminary Amendment be entered, where the priority information of the present application has been amended.

If any additional fees are believed to be due for this submission, the Commissioner is hereby authorized to charge any additional fees which may be required for this Amendment and Response, or credit any overpayment, to Deposit Account No. 02-0390.

Respectfully submitted,

/Robert D. Null/
Robert D. Null
Registration No. 40,746
Attorney for Applicant

Date: May 16, 2023

FAEGRE DRINKER BIDDLE & REATH LLP
300 North Meridian Street
Suite 2500
Indianapolis, IN 46204
Telephone: (317) 237-8327
Facsimile: (317) 237-1000

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Electronic Acknowledgement Receipt	
EFS ID:	48007543
Application Number:	18197788
International Application Number:	
Confirmation Number:	1052
Title of Invention:	JOINT FOR ABOVE GROUND POOL FRAME
First Named Inventor/Applicant Name:	Hua Hsiang Lin, deceased
Customer Number:	27268
Filer:	Robert D. Null./Melissa Russell
Filer Authorized By:	Robert D. Null.
Attorney Docket Number:	IRC-0042-04-US
Receipt Date:	16-MAY-2023
Filing Date:	
Time Stamp:	10:26:02
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Application Data Sheet	IRC_0042_04_US_ADS.pdf	2226390 f27332cd569435e46d1c3e07f26744c669f7a56d	no	9

Warnings:

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Information:					
2	Oath or Declaration filed	IRC_0042_04_US_Declarations.pdf	305801 5c4d476f3f1df320b482fdacde4e33a9481fa284	no	3
Warnings:					
Information:					
3	Power of Attorney	IRC_0042_04_US_POA.pdf	2372739 b0dee011738b3b43ce97d40ac1ed7cbdb22e49b6	no	1
Warnings:					
Information:					
4	Drawings-only black and white line drawings	IRC_0042_04_US_Drawings.pdf	66102 4067dfafc0af64de55e91202a84605e87e0c5d67	no	4
Warnings:					
Information:					
5		IRC_0042_04_US_Specification.pdf	512464 515393455191d25759e017756b946bb64e652250	yes	13

Multipart Description/PDF files in .zip description		
Document Description	**Start**	**End**
Specification	1	8
Claims	9	12
Abstract	13	13

Warnings:					
Information:					
6		IRC_0042_04_US_Preliminary_Amendment.pdf	120420 de6dadc650eb6707620e77b73bb65bd89c0a10a7	yes	3

Multipart Description/PDF files in .zip description		
Document Description	**Start**	**End**
Preliminary Amendment	1	1
Specification	2	2

	Applicant Arguments/Remarks Made in an Amendment	3	3
Warnings:			
Information:			
	Total Files Size (in bytes):	5603916	

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.
National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.
New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	IRC-0042-04-US
	Application Number	
Title of Invention	JOINT FOR ABOVE GROUND POOL FRAME	

The application data sheet is part of the provisional or nonprovisional application for which it is being submitted. The following form contains the bibliographic data arranged in a format specified by the United States Patent and Trademark Office as outlined in 37 CFR 1.76.
This document may be completed electronically and submitted to the Office in electronic format using the Electronic Filing System (EFS) or the document may be printed and included in a paper filed application.

Secrecy Order 37 CFR 5.2:

☐ Portions or all of the application associated with this Application Data Sheet may fall under a Secrecy Order pursuant to 37 CFR 5.2 (Paper filers only. Applications that fall under Secrecy Order may not be filed electronically.)

Inventor Information:

Inventor 1 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Hua	Hsiang	Lin, deceased	

Residence Information (Select One) US Residency ● Non US Residency Active US Military Service

City	Country of Residence [i]
Fujian	CN

Mailing Address of Inventor:

Address 1	No. 858 Wengjiao Road
Address 2	Xinyang Industrial Zone, Haicang, Xiamen
City	Fujian
State/Province	
Postal Code	
Country [i]	CN

Inventor 2 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Yaw	Yuan	Hsu	

Residence Information (Select One) US Residency ◉ Non US Residency Active US Military Service

City	Country of Residence [i]
Fujian	CN

Mailing Address of Inventor:

Address 1	No. 858 Wengjiao Road
Address 2	Xinyang Industrial Zone, Haicang, Xiamen
City	Fujian
State/Province	
Postal Code	
Country [i]	CN

All Inventors Must Be Listed - Additional Inventor Information blocks may be generated within this form by selecting the **Add** button. Add

Correspondence Information:

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	IRC-0042-04-US
	Application Number	
Title of Invention	JOINT FOR ABOVE GROUND POOL FRAME	

Enter either Customer Number or complete the Correspondence Information section below.
For further information see 37 CFR 1.33(a).

☐ **An Address is being provided for the correspondence Information of this application.**

Customer Number	27268		
Email Address	inteas@faegredrinker.com	Add Email	Remove Email

Application Information:

Title of the Invention	JOINT FOR ABOVE GROUND POOL FRAME		
Attorney Docket Number	IRC-0042-04-US	**Small Entity Status Claimed**	☐
Application Type	Nonprovisional		
Subject Matter	Utility		
Total Number of Drawing Sheets (if any)	4	**Suggested Figure for Publication (if any)**	

Filing By Reference:

Only complete this section when filing an application by reference under 35 U.S.C. 111(c) and 37 CFR 1.57(a). Do not complete this section if application papers including a specification and any drawings are being filed. Any domestic benefit or foreign priority information must be provided in the appropriate section(s) below (i.e., "Domestic Benefit/National Stage Information" and "Foreign Priority Information").

For the purposes of a filing date under 37 CFR 1.53(b), the description and any drawings of the present application are replaced by this reference to the previously filed application, subject to conditions and requirements of 37 CFR 1.57(a).

Application number of the previously filed application	Filing date (YYYY-MM-DD)	Intellectual Property Authority or Country

Publication Information:

☐ Request Early Publication (Fee required at time of Request 37 CFR 1.219)

☐ **Request Not to Publish.** I hereby request that the attached application not be published under 35 U.S.C. 122(b) and certify that the invention disclosed in the attached application **has not and will not** be the subject of an application filed in another country, or under a multilateral international agreement, that requires publication at eighteen months after filing.

Representative Information:

Representative information should be provided for all practitioners having a power of attorney in the application. Providing this information in the Application Data Sheet does not constitute a power of attorney in the application (see 37 CFR 1.32).
Either enter Customer Number or complete the Representative Name section below. If both sections are completed the customer Number will be used for the Representative Information during processing.

Please Select One:	● Customer Number	US Patent Practitioner	○ Limited Recognition (37 CFR 11.9)
Customer Number	27268		

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	IRC-0042-04-US
	Application Number	
Title of Invention	JOINT FOR ABOVE GROUND POOL FRAME	

Domestic Benefit/National Stage Information:

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, 365(c), or 386(c) or indicate National Stage entry from a PCT application. Providing benefit claim information in the Application Data Sheet constitutes the specific reference required by 35 U.S.C. 119(e) or 120, and 37 CFR 1.78.
When referring to the current application, please leave the "Application Number" field blank.

Prior Application Status	Pending		Remove
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
	Continuation of	17962979	2022-10-10
Prior Application Status	Pending		Remove
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
17962979	Continuation of	16220484	2018-12-14
Prior Application Status	Pending		Remove
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
16220484	a 371 of international	PCT/US2017/037892	2017-06-16

Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the **Add** button. Add

Foreign Priority Information:

This section allows for the applicant to claim priority to a foreign application. Providing this information in the application data sheet constitutes the claim for priority as required by 35 U.S.C. 119(b) and 37 CFR 1.55. When priority is claimed to a foreign application that is eligible for retrieval under the priority document exchange program (PDX)[i] the information will be used by the Office to automatically attempt retrieval pursuant to 37 CFR 1.55(i)(1) and (2). Under the PDX program, applicant bears the ultimate responsibility for ensuring that a copy of the foreign application is received by the Office from the participating foreign intellectual property office, or a certified copy of the foreign priority application is filed, within the time period specified in 37 CFR 1.55(g)(1).

			Remove
Application Number	Country[i]	Filing Date (YYYY-MM-DD)	Access Code[i] (if applicable)
201620598406.9	CN	2016-06-17	
			Remove
Application Number	Country[i]	Filing Date (YYYY-MM-DD)	Access Code[i] (if applicable)
201630270359.0	CN	2016-06-22	

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	IRC-0042-04-US
	Application Number	
Title of Invention	JOINT FOR ABOVE GROUND POOL FRAME	

Remove

Application Number	Country[i]	Filing Date (YYYY-MM-DD)	Access Code[i] (if applicable)
201621039473.3	CN	2016-09-06	

Additional Foreign Priority Data may be generated within this form by selecting the **Add** button. Add

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications

☐ This application (1) claims priority to or the benefit of an application filed before March 16, 2013 and (2) also contains, or contained at any time, a claim to a claimed invention that has an effective filing date on or after March 16, 2013.
NOTE: By providing this statement under 37 CFR 1.55 or 1.78, this application, with a filing date on or after March 16, 2013, will be examined under the first inventor to file provisions of the AIA.

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	IRC-0042-04-US
	Application Number	
Title of Invention	JOINT FOR ABOVE GROUND POOL FRAME	

Authorization or Opt-Out of Authorization to Permit Access:

When this Application Data Sheet is properly signed and filed with the application, applicant has provided written authority to permit a participating foreign intellectual property (IP) office access to the instant application-as-filed (see paragraph A in subsection 1 below) and the European Patent Office (EPO) access to any search results from the instant application (see paragraph B in subsection 1 below).

Should applicant choose not to provide an authorization identified in subsection 1 below, applicant **must opt-out** of the authorization by checking the corresponding box A or B or both in subsection 2 below.

NOTE: This section of the Application Data Sheet is **ONLY** reviewed and processed with the **INITIAL** filing of an application. After the initial filing of an application, an Application Data Sheet cannot be used to provide or rescind authorization for access by a foreign IP office(s). Instead, Form PTO/SB/39 or PTO/SB/69 must be used as appropriate.

1. Authorization to Permit Access by a Foreign Intellectual Property Office(s)

A. Priority Document Exchange (PDX) - Unless box A in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the European Patent Office (EPO), the Japan Patent Office (JPO), the Korean Intellectual Property Office (KIPO), the State Intellectual Property Office of the People's Republic of China (SIPO), the World Intellectual Property Organization (WIPO), and any other foreign intellectual property office participating with the USPTO in a bilateral or multilateral priority document exchange agreement in which a foreign application claiming priority to the instant patent application is filed, access to: (1) the instant patent application-as-filed and its related bibliographic data, (2) any foreign or domestic application to which priority or benefit is claimed by the instant application and its related bibliographic data, and (3) the date of filing of this Authorization. See 37 CFR 1.14(h)(1).

B. Search Results from U.S. Application to EPO - Unless box B in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the EPO access to the bibliographic data and search results from the instant patent application when a European patent application claiming priority to the instant patent application is filed. See 37 CFR 1.14(h)(2).

The applicant is reminded that the EPO's Rule 141(1) EPC (European Patent Convention) requires applicants to submit a copy of search results from the instant application without delay in a European patent application that claims priority to the instant application.

2. Opt-Out of Authorizations to Permit Access by a Foreign Intellectual Property Office(s)

☐ A. Applicant **DOES NOT** authorize the USPTO to permit a participating foreign IP office access to the instant application-as-filed. If this box is checked, the USPTO will not be providing a participating foreign IP office with any documents and information identified in subsection 1A above.

☐ B. Applicant **DOES NOT** authorize the USPTO to transmit to the EPO any search results from the instant patent application. If this box is checked, the USPTO will not be providing the EPO with search results from the instant application.

NOTE: Once the application has published or is otherwise publicly available, the USPTO may provide access to the application in accordance with 37 CFR 1.14.

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	IRC-0042-04-US
	Application Number	
Title of Invention	JOINT FOR ABOVE GROUND POOL FRAME	

Applicant Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

Applicant 1 — Remove

If the applicant is the inventor (or the remaining joint inventor or inventors under 37 CFR 1.45), this section should not be completed. The information to be provided in this section is the name and address of the legal representative who is the applicant under 37 CFR 1.43; or the name and address of the assignee, person to whom the inventor is under an obligation to assign the invention, or person who otherwise shows sufficient proprietary interest in the matter who is the applicant under 37 CFR 1.46. If the applicant is an applicant under 37 CFR 1.46 (assignee, person to whom the inventor is obligated to assign, or person who otherwise shows sufficient proprietary interest) together with one or more joint inventors, then the joint inventor or inventors who are also the applicant should be identified in this section.

Clear

● Assignee	Legal Representative under 35 U.S.C. 117	Joint Inventor
Person to whom the inventor is obligated to assign.	Person who shows sufficient proprietary interest	

If applicant is the legal representative, indicate the authority to file the patent application, the inventor is:

Name of the Deceased or Legally Incapacitated Inventor:

If the Applicant is an Organization check here. ☒

Organization Name	Intex Marketing Ltd.		
Mailing Address Information For Applicant:			
Address 1	Wickham's Cay, P.O. Box 662		
Address 2	Road Town		
City	Tortola	**State/Province**	
Country	VG	Postal Code	VG1110
Phone Number		Fax Number	
Email Address			

Additional Applicant Data may be generated within this form by selecting the Add button. Add

Assignee Information including Non-Applicant Assignee Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	IRC-0042-04-US
	Application Number	
Title of Invention	JOINT FOR ABOVE GROUND POOL FRAME	

Assignee 1

Complete this section if assignee information, including non-applicant assignee information, is desired to be included on the patent application publication. An assignee-applicant identified in the "Applicant Information" section will appear on the patent application publication as an applicant. For an assignee-applicant, complete this section only if identification as an assignee is also desired on the patent application publication.

Remove

If the Assignee or Non-Applicant Assignee is an Organization check here. ☒

Organization Name	Intex Marketing Ltd.

Mailing Address Information For Assignee including Non-Applicant Assignee:

Address 1	Wickham's Cay, P.O. Box 662		
Address 2	Road Town		
City	Tortola	**State/Province**	
Country i	VG	Postal Code	VG1110
Phone Number		Fax Number	
Email Address			

Additional Assignee or Non-Applicant Assignee Data may be generated within this form by selecting the Add button. Add

Signature:

Remove

NOTE: This Application Data Sheet must be signed in accordance with 37 CFR 1.33(b). **However, if this Application Data Sheet is submitted with the INITIAL filing of the application and either box A or B is not checked in subsection 2 of the "Authorization or Opt-Out of Authorization to Permit Access" section, then this form must also be signed in accordance with 37 CFR 1.14(c).**

This Application Data Sheet **must** be signed by a patent practitioner if one or more of the applicants is a **juristic entity** (e.g., corporation or association). If the applicant is two or more joint inventors, this form must be signed by a patent practitioner, **all** joint inventors who are the applicant, or one or more joint inventor-applicants who have been given power of attorney (e.g., see USPTO Form PTO/AIA/81) on behalf of **all** joint inventor-applicants.

See 37 CFR 1.4(d) for the manner of making signatures and certifications.

Signature	/Robert D. Null/			Date (YYYY-MM-DD)	2023-05-16
First Name	Robert D.	Last Name	Null	Registration Number	40746

Additional Signature may be generated within this form by selecting the Add button. Add

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	IRC-0042-04-US
	Application Number	
Title of Invention	JOINT FOR ABOVE GROUND POOL FRAME	

This collection of information is required by 37 CFR 1.76. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 23 minutes to complete, including gathering, preparing, and submitting the completed application data sheet form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1 The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these records.

2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

3 A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent CooperationTreaty.

6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

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Doc code: Oath
Document Description: Oath or declaration filed

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SUBSTITUTE STATEMENT IN LIEU OF AN OATH OR DECLARATION FOR UTILITY OR DESIGN PATENT APPLICATION (35 U.S.C. 115(d) AND 37 CFR 1.64)

Title of Invention	JOINT FOR ABOVE GROUND POOL FRAME

This statement is directed to:

☒ The attached application,

OR

☐ United States application or PCT international application number _____ filed on _____

LEGAL NAME of inventor to whom this substitute statement applies:

(*E.g.*, Given Name (first and middle (if any)) and Family Name or Surname)

Hua Hsiang Lin

Residence (except for a deceased or legally incapacitated inventor):

City	State	Country

Mailing Address (except for a deceased or legally incapacitated inventor):

City	State	Zip	Country

I believe the above-named inventor or joint inventor to be the original inventor or an original joint inventor of a claimed invention in the application.

The above-identified application was made or authorized to be made by me.

I hereby acknowledge that any willful false statement made in this statement is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.

Relationship to the inventor to whom this substitute statement applies:

- ☐ Legal Representative (for deceased or legally incapacitated inventor only),
- ☒ Assignee,
- ☐ Person to whom the inventor is under an obligation to assign,
- ☐ Person who otherwise shows a sufficient proprietary interest in the matter (petition under 37 CFR 1.46 is required), or
- ☐ Joint Inventor.

This collection of information is required by 35 U.S.C. 115 and 37 CFR 1.63. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 1 minute to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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PTO/SB/AIA02 (07-13)
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SUBSTITUTE STATEMENT

Circumstances permitting execution of this substitute statement:

- [x] Inventor is deceased,
- [ ] Inventor is under legal incapacity,
- [ ] Inventor cannot be found or reached after diligent effort, or
- [ ] Inventor has refused to execute the oath or declaration under 37 CFR 1.63.

If there are joint inventors, please check the appropriate box below:

- [x] An application data sheet under 37 CFR 1.76 (PTO/AIA/14 or equivalent) naming the entire inventive entity has been or is currently submitted.

OR

- [ ] An application data sheet under 37 CFR 1.76 (PTO/AIA/14 or equivalent) has not been submitted. Thus, a Substitute Statement Supplemental Sheet (PTO/AIA/11 or equivalent) naming the entire inventive entity and providing inventor information is attached. See 37 CFR 1.64(b).

WARNING:

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PERSON EXECUTING THIS SUBSTITUTE STATEMENT:

Name: William G. Smith | Date (Optional):

Signature:

APPLICANT NAME AND TITLE OF PERSON EXECUTING THIS SUBSTITUTE STATEMENT:

If the applicant is a juristic entity, list the applicant name and the title of the signer:

Applicant Name: Intex Marketing Ltd.

Title of Person Executing This Substitute Statement: Attorney in Fact

The signer, whose title is supplied above, is authorized to act on behalf of the applicant.

Residence of the signer (unless provided in an application data sheet, PTO/AIA/14 or equivalent):

City | State | Country

Mailing Address of the signer (unless provided in an application data sheet, PTO/AIA/14 or equivalent)

Wickham's Cay, P.O. Box 662
Road Town

City Tortola | State | Zip VG1110 | Country VG

Note: Use an additional PTO/AIA/02 form for each inventor who is deceased, legally incapacitated, cannot be found or reached after diligent effort, or has refused to execute the oath or declaration under 37 CFR 1.63.

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DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN APPLICATION DATA SHEET (37 CFR 1.76)

Title of Invention	JOINT FOR ABOVE GROUND POOL FRAME

As the below named inventor, I hereby declare that:

This declaration is directed to:

- [x] The attached application, or
- [ ] United States application or PCT international application number _____

  filed on _____

The above-identified application was made or authorized to be made by me.

I believe that I am the original inventor or an original joint inventor of a claimed invention in the application.

I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.

WARNING:

Petitioner/applicant is cautioned to avoid submitting personal information in documents filed in a patent application that may contribute to identity theft. Personal information such as social security numbers, bank account numbers, or credit card numbers (other than a check or credit card authorization form PTO-2038 submitted for payment purposes) is never required by the USPTO to support a petition or an application. If this type of personal information is included in documents submitted to the USPTO, petitioners/applicants should consider redacting such personal information from the documents before submitting them to the USPTO. Petitioner/applicant is advised that the record of a patent application is available to the public after publication of the application (unless a non-publication request in compliance with 37 CFR 1.213(a) is made in the application) or issuance of a patent. Furthermore, the record from an abandoned application may also be available to the public if the application is referenced in a published application or an issued patent (see 37 CFR 1.14). Checks and credit card authorization forms PTO-2038 submitted for payment purposes are not retained in the application file and therefore are not publicly available.

LEGAL NAME OF INVENTOR

Inventor: Yaw Yuan Hsu Date (Optional): _____

Signature: _____

Note: An application data sheet (PTO/SB/14 or equivalent), including naming the entire inventive entity, must accompany this form or must have been previously filed. Use an additional PTO/AIA/01 form for each additional inventor.

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Doc Code: PA..
Document Description: Power of Attorney

PTO/AIA/82B (07-13)
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POWER OF ATTORNEY BY APPLICANT

I hereby revoke all previous powers of attorney given in the application identified in either the attached transmittal letter or the boxes below.

Application Number	Filing Date

(Note: The boxes above may be left blank if information is provided on form PTO/AIA/82A.)

☑ I hereby appoint the Patent Practitioner(s) associated with the following Customer Number as my/our attorney(s) or agent(s), and to transact all business in the United States Patent and Trademark Office connected therewith for the application referenced in the attached transmittal letter (form PTO/AIA/82A) or identified above: 27268

OR

☐ I hereby appoint Practitioner(s) named in the attached list (form PTO/AIA/82C) as my/our attorney(s) or agent(s), and to transact all business in the United States Patent and Trademark Office connected therewith for the patent application referenced in the attached transmittal letter (form PTO/AIA/82A) or identified above. (Note: Complete form PTO/AIA/82C.)

Please recognize or change the correspondence address for the application identified in the attached transmittal letter or the boxes above to:

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OR

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OR

☐ Firm or Individual Name					
Address					
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Country					
Telephone		Email			

I am the Applicant (if the Applicant is a juristic entity, list the Applicant name in the box):

Intex Marketing Ltd.

☐ Inventor or Joint Inventor (title not required below)

☐ Legal Representative of a Deceased or Legally Incapacitated Inventor (title not required below)

☑ Assignee or Person to Whom the Inventor is Under an Obligation to Assign (provide signer's title if applicant is a juristic entity)

☐ Person Who Otherwise Shows Sufficient Proprietary Interest (e.g., a petition under 37 CFR 1.46(b)(2) was granted in the application or is concurrently being filed with this document) (provide signer's title if applicant is a juristic entity)

SIGNATURE of Applicant for Patent

The undersigned (whose title is supplied below) is authorized to act on behalf of the applicant (e.g., where the applicant is a juristic entity).

Signature	/William G. Smith/	Date (Optional)	
Name	William G. Smith		
Title	Attorney in Fact		

NOTE: Signature - This form must be signed by the applicant in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications. If more than one applicant, use multiple forms.

☑ Total of 1 forms are submitted.

This collection of information is required by 37 CFR 1.131, 1.32, and 1.33. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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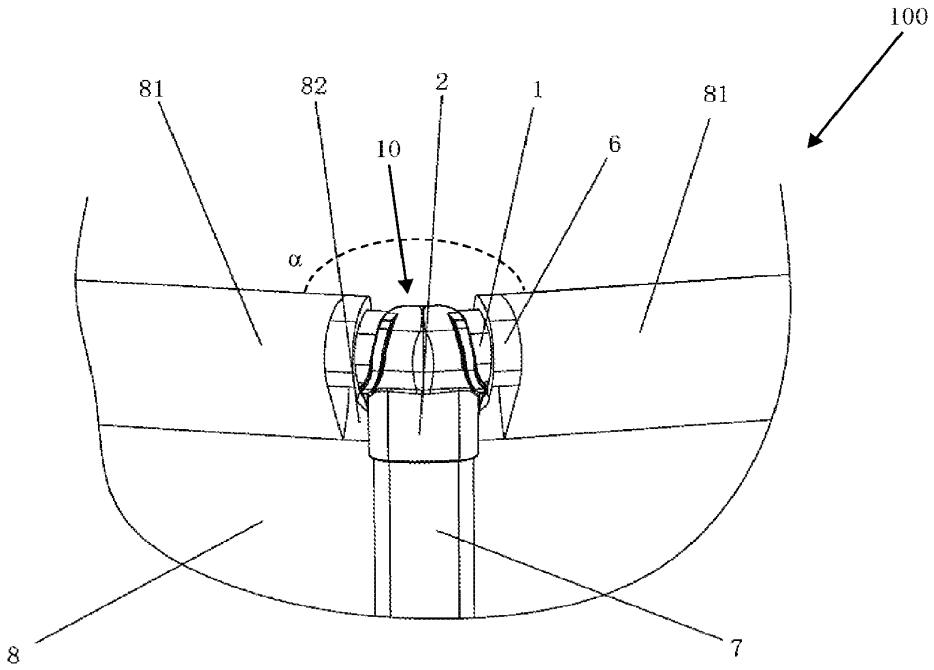


FIG. 1

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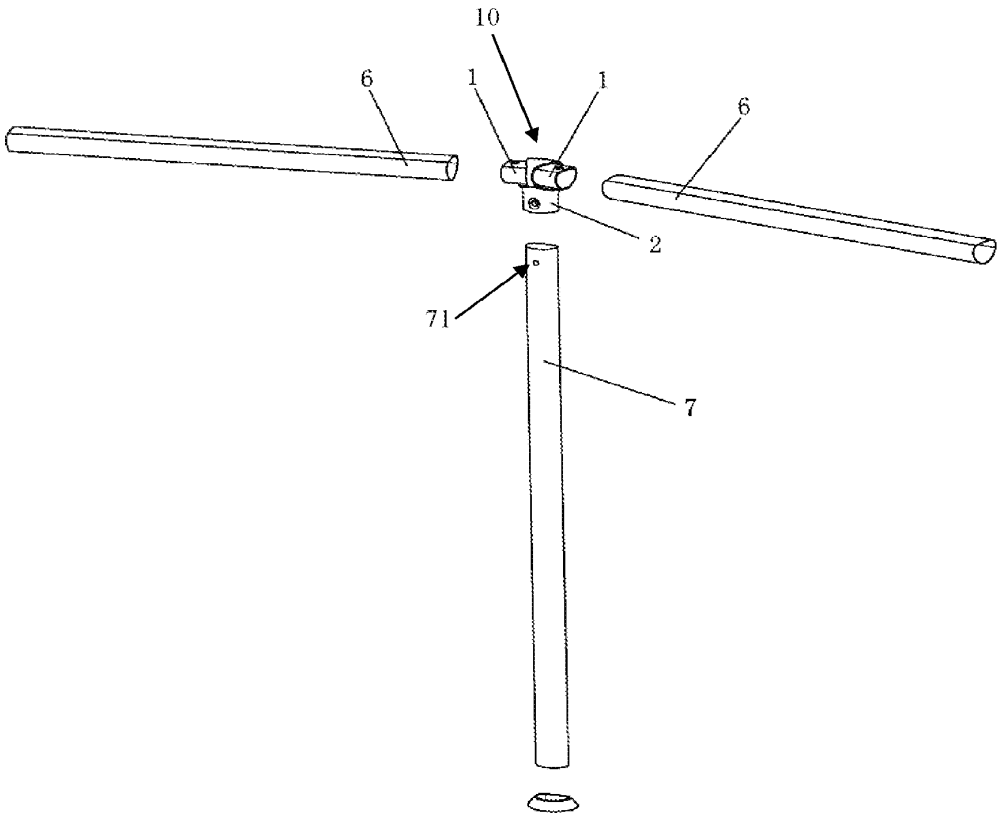


FIG. 2

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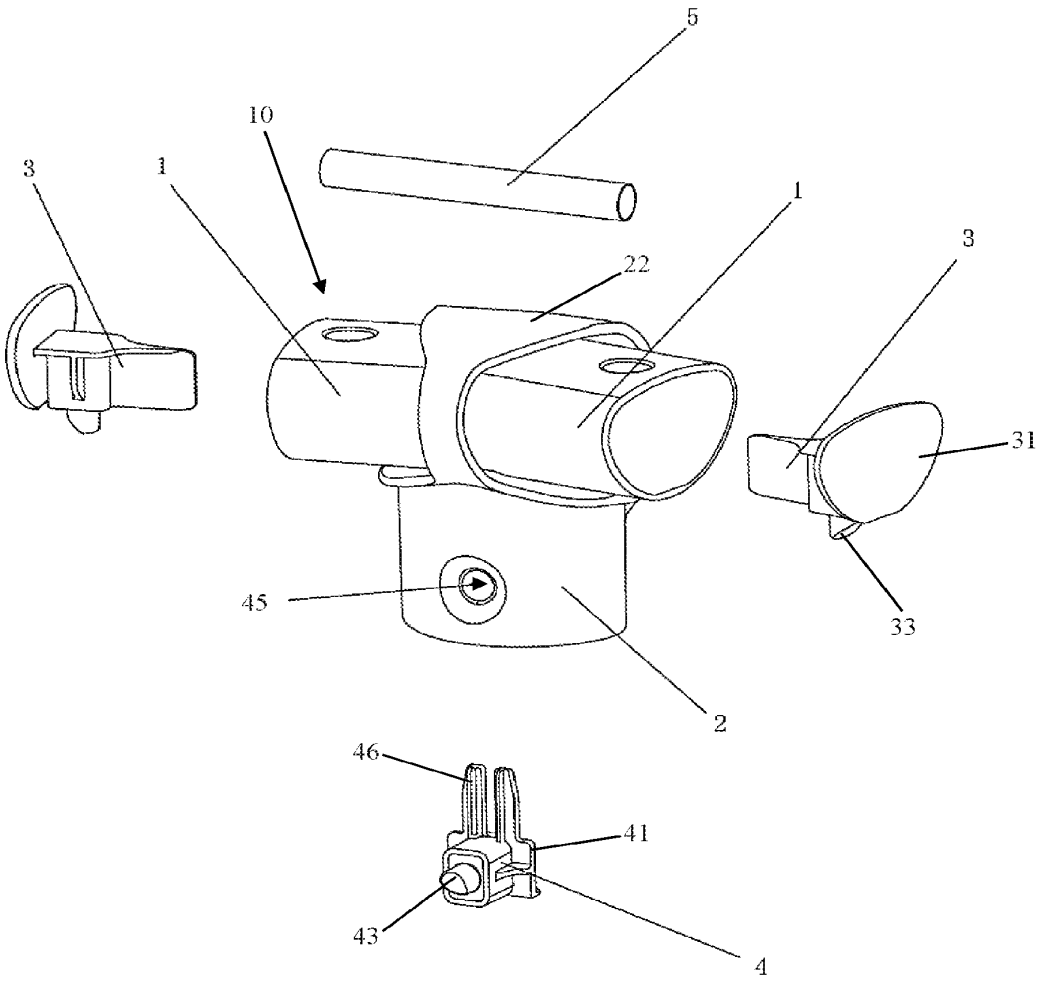


FIG. 3

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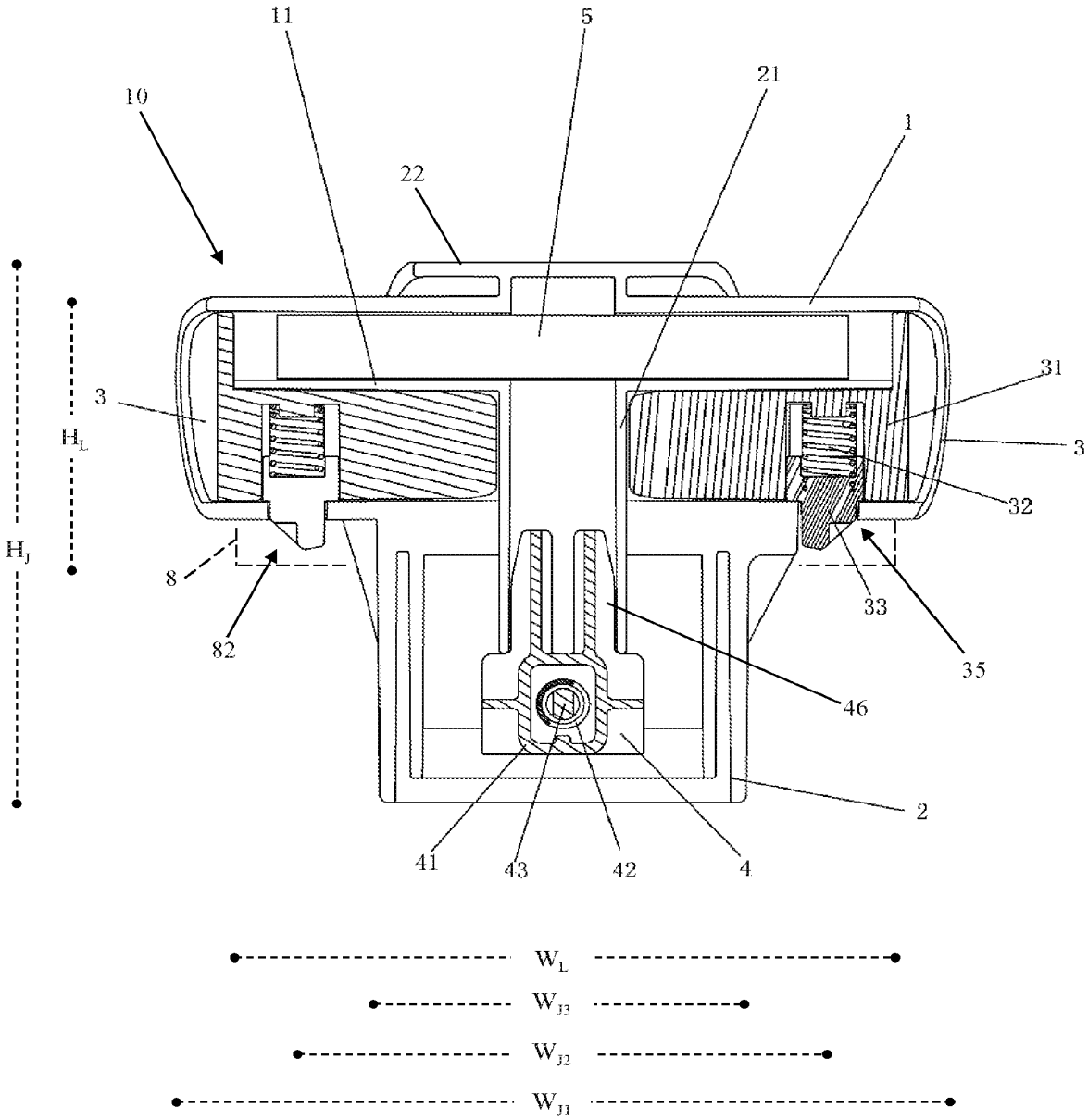


FIG. 4

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Hua Hsiang Lin
Yaw Yuan Hsu

JOINT FOR ABOVE GROUND POOL FRAME

CROSS REFERENCE TO RELATED APPLICATIONS

[0001] The present application claims priority to the following Chinese patent applications, the disclosures of which are hereby expressly incorporated by reference herein in their entirety:

Application Number	Filing Date
CN 201620598406.9	June 17, 2016
CN 201630270359.0	June 22, 2016
CN 201621039473.3	September 6, 2016

FIELD OF THE DISCLOSURE

[0002] The present disclosure relates to an above ground pool. More particularly, the present disclosure relates to a joint for an above ground pool, and to a method for using the same.

BACKGROUND OF THE DISCLOSURE

[0003] A frame pool may include a frame assembly and a pool liner supported by the frame assembly to form a water cavity of the pool. The frame assembly may include one or more horizontal frame members (e.g., horizontal pipes) that form an upper rim of the pool and one or more vertical frame members (e.g., vertical pipes) that extend downward from the horizontal frame members to the ground. To allow the frame assembly to be disassembled for storage and assembled for use, the horizontal frame members and the vertical frame members may be removably coupled together via a plurality of T-shaped joints. Existing T-shaped joints are formed of metal, which may be susceptible to galling and corrosion, especially as any protective coating on the metal becomes worn or damaged. Also, existing T-shaped joints are relatively wide, so existing pool liners may require wide holes or gaps to accommodate such T-shaped joints, which may impact the pool's appearance and ability to contain water.

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SUMMARY

[0004] The present disclosure provides a frame pool including a frame assembly and a pool liner, the frame assembly including horizontal frame members and a vertical frame member coupled together via a T-shaped joint. The T-shaped joint may be constructed of plastic to facilitate attachment and detachment to the adjacent frame members and to resist galling and corrosion. The T-shaped joint may also be relatively small to improve the appearance and water containment of the frame pool.

[0005] According to an embodiment of the present disclosure, a frame joint is disclosed for an above ground pool frame having a first horizontal frame member, a second horizontal frame member, and a vertical frame member. The frame joint includes: a first horizontal joint portion including a first coupling assembly configured to couple with the first horizontal frame member; a second horizontal joint portion including a second coupling assembly configured to couple with the second horizontal frame member; and a vertical joint portion fixedly coupled to the first and second horizontal joint portions and configured to couple with the vertical frame member; wherein a width of the vertical joint portion accounts for at least 50% of a width between the first and second coupling assemblies of the first and second horizontal joint portions.

[0006] According to another embodiment of the present disclosure, a frame joint is disclosed for an above ground pool frame having a first horizontal frame member, a second horizontal frame member, and a vertical frame member. The frame joint includes: a first horizontal joint portion configured to couple with the first horizontal frame member, the first horizontal joint portion being constructed of plastic; a second horizontal joint portion configured to couple with the second horizontal frame member, the second horizontal joint portion being constructed of plastic; and a vertical joint portion fixedly coupled to the first and second horizontal joint portions and configured to couple with the vertical frame member, the vertical joint portion being constructed of plastic.

[0007] According to yet another embodiment of the present disclosure, a method is disclosed for assembling an above ground pool. The method includes: coupling a first horizontal joint portion of a frame joint to a first horizontal frame member with a first coupling assembly;

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coupling a second horizontal joint portion of the frame joint to a second horizontal frame member with a second coupling assembly; and coupling a vertical joint portion of the frame joint to a vertical frame member, wherein a width of the vertical joint portion accounts for a majority of a width between the first and second coupling assemblies of the first and second horizontal joint portions.

BRIEF DESCRIPTION OF THE DRAWINGS

[0008] The above-mentioned and other features and advantages of this disclosure, and the manner of attaining them, will become more apparent and will be better understood by reference to the following description of embodiments of the invention taken in conjunction with the accompanying drawings, wherein:

[0009] FIG. 1 is a partial perspective view of a frame pool including a frame assembly and a pool liner, the frame assembly including horizontal frame members and a vertical frame member coupled together via an exemplary T-shaped joint of the present disclosure;

[0010] FIG. 2 is an exploded perspective view of the frame assembly of FIG. 1;

[0011] FIG. 3 is an exploded perspective view of the T-shaped joint of FIG. 1; and

[0012] FIG. 4 is an assembled cross-sectional view of the T-shaped joint of FIG. 3.

[0013] Corresponding reference characters indicate corresponding parts throughout the several views. The exemplifications set out herein illustrate exemplary embodiments of the invention and such exemplifications are not to be construed as limiting the scope of the invention in any manner.

DETAILED DESCRIPTION

[0014] A portion of an exemplary frame pool 100 is shown in FIGS. 1 and 2. The illustrative portion of the frame pool 100 includes two adjacent horizontal frame members 6 (e.g., horizontal pipes) that cooperate to form an upper rim of the frame pool 100 and a vertical frame member 7 (e.g., vertical pipe) that extends downward from the horizontal frame members 6 to support the frame pool 100 on the ground. Although not shown in FIGS. 1 and 2, similar frame members 6 and 7 may be provided around the remaining perimeter of the frame pool 100.

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The frame pool 100 may vary in size and shape. For example, the frame pool 100 may be rectangular, circular, elliptical, or other suitable shapes.

[0015] Referring still to FIGS. 1 and 2, a T-shaped joint 10 may be used to removably couple the two adjacent horizontal frame members 6 to the adjacent vertical frame member 7. Although a single T-shaped joint 10 is shown in FIGS. 1 and 2, similar T-shaped joints 10 may be provided around the remaining perimeter of the frame pool 100. Each T-shaped joint 10 illustratively includes two horizontal joint portions 1 configured to couple to the horizontal frame members 6 and a vertical joint portion 2 configured to couple to the vertical frame member 7. To form the T-shape, the vertical joint portion 2 is centered between and perpendicular to the two horizontal joint portions 1. The orientation of the horizontal joint portions 1 determines the orientation of the adjacent horizontal frame members 6. In the illustrated embodiment of FIG. 1, for example, the horizontal joint portions 1 define an obtuse angle α therebetween, so the horizontal frame members 6 define the same angle α therebetween. In another embodiment, the horizontal joint portions 1 may be collinear with each other, so the horizontal frame members 6 would also be collinear with each other. In another embodiment, the horizontal joint portions 1 may be perpendicular to each other, so the horizontal frame members 6 would also be perpendicular to each other, such as along a corner of a rectangular frame pool 100.

[0016] Some or all components of the frame assembly, including the horizontal frame members 6, the vertical frame members 7, and/or the T-shaped joints 10, may be constructed of a polymer, specifically plastic, such as by injection molding. Compared to metallic components, the plastic components may be smooth and elastic to facilitate assembly and disassembly of the frame assembly. Also, the plastic components may be more resistant to galling and corrosion to promote extended use. With respect to the T-shaped joint 10, in particular, the horizontal joint portions 1 and the vertical joint portion 2 may be integrally formed as a single piece of plastic. Alternatively, the horizontal joint portions 1 and the vertical joint portion 2 may be formed as multiple pieces of plastic and then fixedly coupled (e.g., adhered, welded) together. The upper end of the T-shaped joint 10 may include a raised rim 22 (FIG. 3) to give the appearance that the vertical joint portion 2 wraps around the horizontal joint portions 1.

[0017] The illustrative frame pool 100 of FIG. 1 also includes a pool liner 8 supported by the frame members 6 and 7 to form an interior water cavity for swimming and/or bathing. The

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pool liner 8 may be wrapped and secured around the horizontal frame member 6 to form a loop or fold 81. The fold 81 of the pool liner 8 may also define a gap or hole 82 to expose the T-shaped joint 10, as described further below.

[0018] The illustrative T-shaped joint 10 is described in more detail with reference to FIGS. 3 and 4.

[0019] The horizontal joint portions 1 of the illustrative T-shaped joint 10 are configured to couple with the adjacent horizontal frame members 6 (FIG. 2). The horizontal joint portions 1 may be configured to fit within the adjacent horizontal frame members 6 in a sleeved manner. Thus, the external cross-section of the horizontal joint portions 1 may match the internal cross-section of the horizontal frame members 6. In the illustrated embodiment of FIG. 3, the external cross-section of the horizontal joint portions 1 is generally triangular with rounded edges to resist rotation between the horizontal joint portions 1 and the horizontal frame members 6. It is also within the scope of the present disclosure for the external cross-section to be circular, rectangular, elliptical, or another suitable shape to match the internal cross-section of the horizontal frame members 6.

[0020] Each horizontal joint portion 1 of the T-shaped joint 10 includes a coupling assembly 3 for removable attachment to the adjacent horizontal frame member 6 (FIG. 2). As shown in FIGS. 3 and 4, each coupling assembly 3 includes a base 31 received in the horizontal joint portion 1, a helical spring 32 held in place by the base 31, and a pin 33 extending radially outward (e.g., downward) through a hole 35 in the horizontal joint portion 1. Each horizontal joint portion 1 may include an internal horizontal reinforcing rib 11 and/or an internal horizontal support member 5 to help support base 31 within the T-shaped joint 10. In an assembled or locked state, spring 32 may bias pin 33 radially outward through hole 35 to engage a corresponding recess or hole (not shown) of the horizontal frame member 6 (FIG. 2). In a disassembled or unlocked state, a user may press pin 33 radially inward to compress spring 32 and disengage the horizontal frame member 6 (FIG. 2).

[0021] The vertical joint portion 2 of the illustrative T-shaped joint 10 is configured to couple with the adjacent vertical frame member 7 (FIG. 2). The vertical joint portion 2 may be configured to fit within the adjacent vertical frame member 7 in a sleeved manner. Thus, the external cross-section of the vertical joint portion 2 may match the internal cross-section of the

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vertical frame member 7. In the illustrated embodiment of FIG. 3, the external cross-section of the vertical joint portion 2 is generally triangular with rounded edges to resist rotation between the vertical joint portion 2 and the vertical frame member 7. It is also within the scope of the present disclosure for the external cross-section to be circular, rectangular, elliptical, or another suitable shape to match the internal cross-section of the vertical frame member 7.

[0022] The vertical joint portion 2 of the T-shaped joint 10 includes a coupling assembly 4 for removable attachment to the adjacent vertical frame member 7 (FIG. 2). As shown in FIGS. 3 and 4, each coupling assembly 4 includes a base 41 received in the vertical joint portion 2, a helical spring 42 held in place by the base 41, and a pin 43 extending radially outward (e.g., rearward) through a hole 45 in the vertical joint portion 2. The vertical joint portion 2 may include one or more internal vertical reinforcing ribs 21 to help support base 41 within the T-shaped joint 10, such as by compressing fingers 46 of base 41 together within the T-shaped joint 10. In an assembled or locked state, spring 42 may bias pin 43 radially outward through hole 45 to engage a corresponding recess or hole 71 of the vertical frame member 7 (FIG. 2). In a disassembled or unlocked state, a user may press pin 43 radially inward to compress spring 42 and disengage the hole 71 of the vertical frame member 7 (FIG. 2).

[0023] According to an exemplary embodiment of the present disclosure, and as shown in FIG. 4, the size of the T-shaped joint 10 may be minimized such that the size of the corresponding hole 82 in the pool liner 8 (shown in phantom) may also be minimized. The small hole 82 in the pool liner 8 may improve the appearance and water containment of the frame pool 100 (FIG. 1) while still leaving the coupling assemblies 3 and 4, specifically the pins 33 and 43 of the coupling assemblies 3 and 4, accessible for subsequent disassembly.

[0024] The width of the T-shaped joint 10 may be minimized such that the width of the corresponding hole 82 in the pool liner 8 may also be minimized. For example, the total width W_{J1} of the T-shaped joint 10 may be about 5 inches to about 7 inches, specifically about 5 3/4 inches, the width W_{J2} between the pins 33 of the coupling assemblies 3 may be about 3 inches to about 5 inches, specifically about 3 13/16 inches, and the width W_{J3} of the vertical joint portion 2 may be about 1 inches to about 3 inches, specifically about 2 3/8 inches. In the illustrated embodiment of FIG. 4, the width W_L of the hole 82 in the pool liner 8 is greater than both the width W_{J3} of the vertical joint portion 2 and the width W_{J2} between the pins 33 to expose the pins

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33 of the coupling assemblies 3 for subsequent disassembly while being less than the total width W_{J1} of the T-shaped joint 10. For example, the width W_L of the hole 82 in the pool liner 8 is about 3 inches to about 7 inches, specifically about 4 1/2 inches.

[0025] To help minimize the size of the T-shaped joint 10, the pins 33 of the coupling assemblies 3 may be positioned close to the vertical joint portion 2. Due to this close positioning, the width W_{J3} of the vertical joint portion 2 may account for a majority of the width W_{J2} between the pins 33 of the coupling assemblies 3. For example, the width W_{J3} of the vertical joint portion 2 may account for 50%, 60%, 70%, 80%, or more of the width W_{J2} between the pins 33 of the coupling assemblies 3. In the illustrated embodiment of FIG. 4, in particular, the width W_{J3} of the vertical joint portion 2 accounts for about 70% of the width W_{J2} between the pins 33 of the coupling assemblies 3. The width W_{J3} of the vertical joint portion 2 may also account for a significant portion of the total width W_{J1} of the T-shaped joint 10. For example, the width W_{J3} of the vertical joint portion 2 may account for 40%, 50%, 60%, 70%, or more of the total width W_{J1} of the T-shaped joint 10. In the illustrated embodiment of FIG. 4, in particular, the width W_{J3} of the vertical joint portion 2 accounts for about 50% of the of the total width W_{J1} of the T-shaped joint 10.

[0026] Additionally, the height of the T-shaped joint 10 may be minimized such that the height of the corresponding hole 82 in the pool liner 8 may be minimized. For example, the total height H_J of the T-shaped joint 10 may be about 3 inches to about 5 inches, specifically about 3 7/8 inches. Because the pin 43 of the coupling assembly 4 may be accessible in front of the pool liner 8 and behind the T-shaped joint 10, the hole 82 in the pool liner 8 need not extend downward beneath the pin 43. Thus, in the illustrated embodiment of FIG. 4, the height H_L of the hole 82 in the pool liner 8 is less than the total height H_J of the T-shaped joint 10 while still allowing access to the pin 33 of the coupling assembly 3 and the pin 43 of the coupling assembly 4 for subsequent disassembly.

[0027] While this invention has been described as having exemplary designs, the present invention can be further modified within the spirit and scope of this disclosure. This application is therefore intended to cover any variations, uses, or adaptations of the invention using its general principles. Further, this application is intended to cover such departures from the present

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disclosure as come within known or customary practice in the art to which this invention pertains and which fall within the limits of the appended claims.

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WHAT IS CLAIMED IS:

1. A frame joint for an above ground pool frame having a first horizontal frame member, a second horizontal frame member, and a vertical frame member, the frame joint comprising:

a first horizontal joint portion including a first coupling assembly configured to couple with the first horizontal frame member;

a second horizontal joint portion including a second coupling assembly configured to couple with the second horizontal frame member; and

a vertical joint portion fixedly coupled to the first and second horizontal joint portions and configured to couple with the vertical frame member;

wherein a width of the vertical joint portion accounts for at least 50% of a width between the first and second coupling assemblies of the first and second horizontal joint portions.

2. The frame joint of claim 1, wherein the width of the vertical joint portion accounts for at least 40% of a total width of the frame joint.

3. The frame joint of claim 2, wherein the width of the vertical joint portion accounts for about 50% of the total width of the frame joint.

4. The frame joint of claim 1, wherein each of the first and second coupling assemblies comprises a base, a helical spring supported by the base, and a pin biased outward through a hole in the respective horizontal joint portion by the helical spring to engage a corresponding recess of the respective horizontal frame member.

5. The frame joint of claim 4, wherein the width of the vertical joint portion accounts for about 70% of a width between the pins of the first and second coupling assemblies.

6. The frame joint of claim 1, further comprising a liner wrapped around the first and second horizontal frame members, the liner defining a hole that is sized to expose the first and second coupling assemblies.

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7. The frame joint of claim 6, wherein a width of the frame joint exceeds a width of the hole in the liner.

8. The frame joint of claim 6, wherein a height of the frame joint exceeds a height of the hole in the liner.

9. A frame joint for an above ground pool frame having a first horizontal frame member, a second horizontal frame member, and a vertical frame member, the frame joint comprising:

a first horizontal joint portion configured to couple with the first horizontal frame member, the first horizontal joint portion being constructed of plastic;

a second horizontal joint portion configured to couple with the second horizontal frame member, the second horizontal joint portion being constructed of plastic; and

a vertical joint portion fixedly coupled to the first and second horizontal joint portions and configured to couple with the vertical frame member, the vertical joint portion being constructed of plastic.

10. The frame joint of claim 9, wherein the vertical joint portion is centered between the first and second horizontal joint portions to form a T-shaped frame joint.

11. The frame joint of claim 9, wherein the first and second horizontal joint portions cooperate to form an obtuse angle that defines a water cavity.

12. The frame joint of claim 9, wherein the vertical joint portion is integrally formed with the first and second horizontal joint portions as a single piece.

13. The frame joint of claim 9, further comprising:

a first coupling assembly associated with the first horizontal joint portion; and

a second coupling assembly associated with the second horizontal joint portion;

wherein a width of the vertical joint portion accounts for a majority of a width between the first and second coupling assemblies.

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14. A method of assembling an above ground pool, the method comprising:

coupling a first horizontal joint portion of a frame joint to a first horizontal frame member with a first coupling assembly;

coupling a second horizontal joint portion of the frame joint to a second horizontal frame member with a second coupling assembly; and

coupling a vertical joint portion of the frame joint to a vertical frame member;

wherein a width of the vertical joint portion accounts for a majority of a width between the first and second coupling assemblies of the first and second horizontal joint portions.

15. The method of claim 14, wherein:

an external cross-section of the first horizontal joint portion matches an internal cross-section of the first horizontal frame member;

an external cross-section of the second horizontal joint portion matches an internal cross-section of the second horizontal frame member; and

an external cross-section of the vertical joint portion matches an internal cross-section of the vertical frame member.

16. The method of claim 14, wherein the first horizontal joint portion, the second horizontal joint portion, and the vertical joint portion are constructed of plastic.

17. The method of claim 14, wherein:

coupling the first horizontal joint portion to the first horizontal frame member comprises depressing a first pin into the first horizontal joint portion and releasing the first pin into engagement with the first horizontal frame member; and

coupling the second horizontal joint portion to the second horizontal frame member comprises depressing a second pin into the second horizontal joint portion and releasing the second pin into engagement with the second horizontal frame member.

18. The method of claim 14, further comprising wrapping a liner around the first and second horizontal frame members with a hole exposing the first and second coupling assemblies.

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19. The method of claim 18, wherein a width of the hole in the liner exceeds a width between the first and second coupling assemblies.

20. The method of claim 18, wherein the vertical joint portion of the frame joint is coupled to the vertical frame member with a third coupling assembly, and wherein a height of the hole in the liner is less than a distance between the first and third coupling assemblies.

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ABSTRACT

A frame pool is disclosed including a frame assembly and a pool liner, the frame assembly including horizontal frame members and a vertical frame member coupled together via a T-shaped joint. The T-shaped joint may be constructed of plastic to facilitate attachment and detachment to the adjacent frame members and to resist galling and corrosion. The T-shaped joint may also be relatively small to improve the appearance and water containment of the frame pool.

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APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	TOT CLAIMS	IND CLAIMS
18/197,788	05/16/2023		0	IRC-0042-04-US	20	3

CONFIRMATION NO. 1052

FILING RECEIPT

27268
FAEGRE DRINKER BIDDLE & REATH LLP
300 NORTH MERIDIAN STREET
SUITE 2500
INDIANAPOLIS, IN 46204

Date Mailed: 06/02/2023

Receipt is acknowledged of this non-provisional utility patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF FIRST INVENTOR, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection.

Please verify the accuracy of the data presented on this receipt. If an error is noted on this Filing Receipt, please submit a written request for a corrected Filing Receipt, including a properly marked-up ADS showing the changes with strike-through for deletions and underlining for additions. If you received a "Notice to File Missing Parts" or other Notice requiring a response for this application, please submit any request for correction to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections provided that the request is grantable.

Inventor(s)

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Yaw Yuan Hsu, Fujian, CHINA;

Applicant(s)

Intex Marketing Ltd., Tortola, VIRGIN ISLANDS, BRITISH;

Assignment For Published Patent Application

Intex Marketing Ltd., Tortola, VIRGIN ISLANDS, BRITISH

Power of Attorney: The patent practitioners associated with Customer Number 27268

Domestic Priority data as claimed by applicant

This application is a CON of 17/962,979 10/10/2022
which is a CON of 16/220,484 12/14/2018
which is a 371 of PCT/US2017/037892 06/16/2017

Foreign Applications (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see http://www.uspto.gov for more information.)
CHINA 201620598406.9 06/17/2016 No Access Code Provided
CHINA 201630270359.0 06/22/2016 No Access Code Provided
CHINA 201621039473.3 09/06/2016 No Access Code Provided

Permission to Access Application via Priority Document Exchange: Yes

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Permission to Access Search Results: Yes

Applicant may provide or rescind an authorization for access using Form PTO/SB/39 or Form PTO/SB/69 as appropriate.

If Required, Foreign Filing License Granted: 05/31/2023

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 18/197,788**

Projected Publication Date: To Be Determined - pending completion of Missing Parts.

Non-Publication Request: No

Early Publication Request: No

Title

JOINT FOR ABOVE GROUND POOL FRAME

Preliminary Class

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications: No

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Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

Almost every country has its own patent law, and a person desiring a patent in a particular country must make an application for patent in that country in accordance with its particular laws. Since the laws of many countries differ in various respects from the patent law of the United States, applicants are advised to seek guidance from specific foreign countries to ensure that patent rights are not lost prematurely.

Applicants also are advised that in the case of inventions made in the United States, the Director of the USPTO must issue a license before applicants can apply for a patent in a foreign country. The filing of a U.S. patent application serves as a request for a foreign filing license. The application's filing receipt contains further information and guidance as to the status of applicant's license for foreign filing.

Applicants may wish to consult the USPTO booklet, "General Information Concerning Patents" (specifically, the section entitled "Treaties and Foreign Patents") for more information on timeframes and deadlines for filing foreign patent applications. The guide is available either by contacting the USPTO Contact Center at 800-786-9199, or it can be viewed on the USPTO website at http://www.uspto.gov/web/offices/pac/doc/general/index.html.

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, http://www.stopfakes.gov. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific

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countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4258).

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Title 35, United States Code, Section 184

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PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

Application or Docket Number: 18/197,788

APPLICATION AS FILED - PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	SMALL ENTITY RATE($)	SMALL ENTITY FEE($)	OR	OTHER THAN SMALL ENTITY RATE($)	OTHER THAN SMALL ENTITY FEE($)
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A			N/A	320
SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A			N/A	700
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A	800
TOTAL CLAIMS (37 CFR 1.16(i))	20 minus 20 =	* 0			OR	x =	0
INDEPENDENT CLAIMS (37 CFR 1.16(h))	3 minus 3 =	*				x =	0
APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).						0
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))							0
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL			TOTAL	1820

APPLICATION AS AMENDED - PART II

		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE($)	SMALL ENTITY ADDITIONAL FEE($)	OR	OTHER THAN SMALL ENTITY RATE($)	OTHER THAN SMALL ENTITY ADDITIONAL FEE($)
AMENDMENT A	Total (37 CFR 1.16(i))	*	Minus	**	=	x =		OR	x =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x =		OR	x =	
	Application Size Fee (37 CFR 1.16(s))									
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE($)	ADDITIONAL FEE($)	OR	RATE($)	ADDITIONAL FEE($)
AMENDMENT B	Total (37 CFR 1.16(i))	*	Minus	**	=	x =		OR	x =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x =		OR	x =	
	Application Size Fee (37 CFR 1.16(s))									
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".
The "Highest Number Previously Paid For" (Total or Independent) is the highest found in the appropriate box in column 1.

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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
18/197,788	05/16/2023	Hua Hsiang Lin	IRC-0042-04-US

CONFIRMATION NO. 1052

27268
FAEGRE DRINKER BIDDLE & REATH LLP
300 NORTH MERIDIAN STREET
SUITE 2500
INDIANAPOLIS, IN 46204

FORMALITIES LETTER

OC000000057252834

Date Mailed: 06/02/2023

NOTICE TO FILE MISSING PARTS OF NONPROVISIONAL APPLICATION

FILED UNDER 37 CFR 1.53(b)

Filing Date Granted

An application number and filing date have been accorded to the above-identified nonprovisional application. The item(s) indicated below, however, are missing. Applicant is given **TWO MONTHS** from the date of this Notice within which to file all required items below to avoid abandonment. Extensions of time may be obtained by filing a petition accompanied by the extension fee under the provisions of 37 CFR 1.136(a).

- The statutory basic filing fee has not been received.
- The application search fee must be submitted.
- The application examination fee must be submitted.
- Surcharge as set forth in 37 CFR 1.16(f) has not been received.

  The surcharge is due for any one of:
  - late submission of the basic filing fee, search fee, or examination fee,
  - late submission of inventor's oath or declaration,
  - filing an application that does not contain at least one claim on filing, or
  - submission of an application filed by reference to a previously filed application.

SUMMARY OF FEES DUE:

The fee(s) required (including the fees noted above) are as follows. No entity status discount is in effect. If applicant is qualified for small entity status, a written assertion of small entity status must be submitted to establish small entity status. (See 37 CFR 1.27). If applicant is qualified for micro entity status, an acceptable Certification of Micro Entity Status must be submitted to establish micro entity status. (See 37 CFR 1.29 and forms PTO/SB/15A and 15B.)

- $**320** basic filing fee.
- $**160** surcharge.
- $**700** search fee.
- $**800** examination fee.
- $(**0**) previous unapplied payment amount.
- $**1980** TOTAL FEE BALANCE DUE.

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Replies must be received in the USPTO within the set time period or must include a proper Certificate of Mailing or Transmission under 37 CFR 1.8 with a mailing or transmission date within the set time period. For more information and a suggested format, see Form PTO/SB/92 and MPEP 512.

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A reply may be submitted via electronic filing only by registered users of the appropriate USPTO patent electronic filing system and must include:

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/lqchau/

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Bestway v. Intex PGR2024-00036

PTO/SB/08a (01-22)
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT
(Not for submission under 37 CFR 1.99)

Application Number	18197788
Filing Date	2023-05-16
First Named Inventor	Hua Hsiang Lin
Art Unit	TBA
Examiner Name	TBA
Attorney Docket Number	IRC-0042-04-US

U.S.PATENTS Remove

Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	1786613		1930-12-30	HOOPER JAMES P	
	2	1884410		1932-10-25	VINCENT JESSE G	
	3	D174950		1955-06-14	BERNARD FRISHBERG	
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	5	3424178		1969-01-28	YAZAKI YOSHIMI	
	6	3595180		1971-07-27	SWOYER VINCENT H	
	7	3654640		1972-04-11	KATZMAN FREDERICK	
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Bestway v. Intex PGR2024-00036

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	18197788
	Filing Date	2023-05-16
	First Named Inventor	Hua Hsiang Lin
	Art Unit	TBA
	Examiner Name	TBA
	Attorney Docket Number	IRC-0042-04-US

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	10	3877491		1975-04-15	THASTRUP OVE	
	11	4323319		1982-04-06	ADAMS BEVOLEY C	
	12	4356933		1982-11-02	CONNOLLY JAMES P	
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	14	4890343		1990-01-02	SCHLAGS MICHAEL L	
	15	5054135		1991-10-08	DALLAIRE et al.	
	16	5083327		1992-01-28	GILLEBAARD HENDRIK C	
	17	5143476	A	1992-09-01	PRUIS HARRY	
	18	D343889	S	1994-02-01	STONECYPHER BOBBY B	
	19	D348723	S	1994-07-12	CARROLL RICKY W	

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Bestway v. Intex PGR2024-00036

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	18197788
	Filing Date	2023-05-16
	First Named Inventor	Hua Hsiang Lin
	Art Unit	TBA
	Examiner Name	TBA
	Attorney Docket Number	IRC-0042-04-US

	20	D361847	S	1995-08-29	CETRULO MARC E	
	21	5927363	A	1999-07-27	OLSEN TODD C	
	22	D417918		1999-12-21	MUSSA EDUARDO ALBERTO	
	23	D420145		2000-02-01	MUSSA EDUARDO ALBERTO	
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	18197788
	Filing Date	2023-05-16
	First Named Inventor	Hua Hsiang Lin
	Art Unit	TBA
	Examiner Name	TBA
	Attorney Docket Number	IRC-0042-04-US

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	32	D472648	S	2003-04-01	LINSLEY DONALD	
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	18197788
	Filing Date	2023-05-16
	First Named Inventor	Hua Hsiang Lin
	Art Unit	TBA
	Examiner Name	TBA
	Attorney Docket Number	IRC-0042-04-US

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	43	D626405	S	2010-11-02	GOAD EUGINE W	
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	48	D755940	S	2016-05-10	SCHULZE MICHAEL	
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Bestway v. Intex PGR2024-00036

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	18197788
	Filing Date	2023-05-16
	First Named Inventor	Hua Hsiang Lin
	Art Unit	TBA
	Examiner Name	TBA
	Attorney Docket Number	IRC-0042-04-US

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	55	D874021	S	2020-01-28	HUANG et al.	
	56	D900286	S	2020-10-27	DAUGHTERS DANA L	
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	18197788
	Filing Date	2023-05-16
	First Named Inventor	Hua Hsiang Lin
	Art Unit	TBA
	Examiner Name	TBA
	Attorney Docket Number	IRC-0042-04-US

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	18197788
	Filing Date	2023-05-16
	First Named Inventor	Hua Hsiang Lin
	Art Unit	TBA
	Examiner Name	TBA
	Attorney Docket Number	IRC-0042-04-US

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Examiner Initial*	Cite No	Publication Number	Kind Code[1]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	20010037620	A1	2001-11-08	CHOI SOO-HONG	
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	18197788
	Filing Date	2023-05-16
	First Named Inventor	Hua Hsiang Lin
	Art Unit	TBA
	Examiner Name	TBA
	Attorney Docket Number	IRC-0042-04-US

	8	20090144892	A1	2009-06-11	Brindle Christopher Charles	
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	18197788
	Filing Date	2023-05-16
	First Named Inventor	Hua Hsiang Lin
	Art Unit	TBA
	Examiner Name	TBA
	Attorney Docket Number	IRC-0042-04-US

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	20	20190178275	A1	2019-06-13	LIN et al.	
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Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2] i	Kind Code[4]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	T[5]

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	18197788
	Filing Date	2023-05-16
	First Named Inventor	Hua Hsiang Lin
	Art Unit	TBA
	Examiner Name	TBA
	Attorney Docket Number	IRC-0042-04-US

	1	201502321	CL		2015-08-19	CORRAL SANTELICES HERNAN CLAUDIO		
	2	2195595	CN	Y	1995-04-26	YUAN WENZHANG	English Abstract Submitted	
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	18197788
	Filing Date	2023-05-16
	First Named Inventor	Hua Hsiang Lin
	Art Unit	TBA
	Examiner Name	TBA
	Attorney Docket Number	IRC-0042-04-US

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	18197788
	Filing Date	2023-05-16
	First Named Inventor	Hua Hsiang Lin
	Art Unit	TBA
	Examiner Name	TBA
	Attorney Docket Number	IRC-0042-04-US

	23	009029	RU	U1	1999-01-16	Limited Liability Company	English Abstract Submitted	☐
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Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T[5]
	1	Appellant's Brief on Appeal (37 C.F.R. 41.31), filed with the U.S. Patent and Trademark Office, dated April 5, 2022, for U.S. Patent Application No. 16/220,484; 14 pages.	
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	18197788
	Filing Date	2023-05-16
	First Named Inventor	Hua Hsiang Lin
	Art Unit	TBA
	Examiner Name	TBA
	Attorney Docket Number	IRC-0042-04-US

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	18197788
	Filing Date	2023-05-16
	First Named Inventor	Hua Hsiang Lin
	Art Unit	TBA
	Examiner Name	TBA
	Attorney Docket Number	IRC-0042-04-US

	16	Non-Final Office Action, issued by the U.S. Patent and Trademark Office, dated April 17, 2020, for U.S. Patent Application No. 16/220,484; 12 pages.	
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	Filing Date	2023-05-16
	First Named Inventor	Hua Hsiang Lin
	Art Unit	TBA
	Examiner Name	TBA
	Attorney Docket Number	IRC-0042-04-US

	27	Response to Non-Final Office Action, filed with the U.S. Patent and Trademark Office, dated March 20, 2023, for U.S. Patent Application No. 17/962,979; 11 pages.	
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	18197788
	Filing Date	2023-05-16
	First Named Inventor	Hua Hsiang Lin
	Art Unit	TBA
	Examiner Name	TBA
	Attorney Docket Number	IRC-0042-04-US

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

See attached certification statement.

The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☒ A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Robert D. Null/	Date (YYYY-MM-DD)	2023-07-24
Name/Print	Robert D. Null	Registration Number	40,746

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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EFS ID:	48335487
Application Number:	18197788
International Application Number:	
Confirmation Number:	1052
Title of Invention:	JOINT FOR ABOVE GROUND POOL FRAME
First Named Inventor/Applicant Name:	Hua Hsiang Lin
Customer Number:	27268
Filer:	Robert D. Null./Melissa Russell
Filer Authorized By:	Robert D. Null.
Attorney Docket Number:	IRC-0042-04-US
Receipt Date:	24-JUL-2023
Filing Date:	16-MAY-2023
Time Stamp:	15:42:38
Application Type:	Utility under 35 USC 111(a)

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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Non Patent Literature	NPL_10_WO2017218904IPR_969010.pdf	506728 724ca27211c4b5b8f5abd50f3491e8b285eb2532	no	9

Warnings:

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2	Non Patent Literature	NPL_11_977652_1282138.pdf	347199 35b977d815bef1397892e6dbfa2196b97fbe1d84	no	9
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3	Non Patent Literature	NPL_12_WO2017218904ISR_969020.pdf	545437 4a4e1d0c4331ff5c042fb4b497385e070472c5ff	no	9
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4	Non Patent Literature	NPL_13_1189464_1282142.pdf	307123 585d4aff461cdd866d94691791b85729c59d1020	no	3
Warnings:					
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5	Non Patent Literature	NPL_14_27268_17276885__1282140.pdf	8117532 65223d6d83500a63a8f0b4c52c64a195e3d328aa	no	13
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6	Non Patent Literature	NPL_15_intex_ultra_fra_1282141.pdf	1387873 2f1744836084cbb2ae5b3d5fb80333a2e0071eab	no	17
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7	Non Patent Literature	NPL_16_12_NFOA_0417202_1652291.pdf	515836 6a4ebe7c3a741288f1245e710abef6d143973148	no	12
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Information:					
11	Non Patent Literature	NPL_1_14_16220484_1652300.pdf	630057 d239fdd9e169b041709515eadfe0187dafc9a8ca	no	14
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15	Non Patent Literature	NPL_23_27268_162204840_1652307.pdf	298715 9faddc5b941619ad9beebe192a42053d4546dc12	no	7
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16	Non Patent Literature	NPL_24_11_16220484_165230 2.pdf	403290 55f452f80965e8c73b8c4912ad0a040b9a4e b4cf	no	11
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19	Non Patent Literature	NPL_27_27268_162204840_16 52304.pdf	407006 8baab2a47ee53d0ad43225f09ffe265bd691 9a54	no	11
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21	Non Patent Literature	NPL_29_27268_162204840_16 57697.pdf	275184 767b231d95fe3a219ca247fff0b90fa9b507e f34	no	8
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23	Non Patent Literature	NPL_30_Summer_httpswww_1282143.pdf	259870 2acc49b9eb41702355679862d01afcc4fb0d122b	no	3
Warnings:					
Information:					
24	Non Patent Literature	NPL_3_194295_1471220.pdf	221443 761781659d0d94b0c95518483b8ec0e60c50926d	no	7
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Information:					
27	Non Patent Literature	NPL_6_17_1652297.pdf	726863 279c9bb8a0549ce89162c9fff19b4bf624310dc9	no	17
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Information:					
28	Non Patent Literature	NPL_7_15_1652293.pdf	609730 97fc166c333e083b9631a9a9c29f41cc1f4e5874	no	15
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Information:					
29	Non Patent Literature	NPL_8_9ab935847824409_799031.pdf	48218 26543209bf76b61c349f954bab40362bc1a8209a	no	1
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Information:					

30	Non Patent Literature	NPL_9_1280199_1282136.pdf	276735 86859f8eb5aa86eee52846ecb718ad2af3022955	no	7
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31	Foreign Reference	FOR_10_CN204475914U_970632.pdf	1694731 de669858f60c262a56f313897592e927250958fb	no	16
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32	Foreign Reference	FOR_11_CN204531509U_1507240.pdf	1219316 7888af01c2b192865d1f0d6353a2f3a2ce706917	no	36
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44	Foreign Reference	FOR_22_GB2349412A_1650112.pdf	775199 ac71031c2ea150bb5b003d70105aa76ffbb52d0a	no	22
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51	Foreign Reference	FOR_3_CN2480479Y_1282253.pdf	172013 bbc9a82da4b74342aafd5f756521b872d1e2bcf9	no	6
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53	Foreign Reference	FOR_5_CN200968073Y_970633.pdf	538866 87cfc592d45971ecf941a06c23b2003604476731	no	11
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54	Foreign Reference	FOR_6_CN201487444U_1650806.pdf	274717 e857183ff8c0609a808e5c089ae34526080d674a	no	8
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55	Foreign Reference	FOR_7_CN101787807A_12822 55.pdf	529862 41b3d728578591eac07648a80ecc721c1147b8a9	no	10
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56	Foreign Reference	FOR_8_CN202745430U_12822 56.pdf	327831 24f9ee2cdafa1b8b04cdd629c6e4c231b047e0b2	no	6
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57	Foreign Reference	FOR_9_CN204475913U_12822 57.pdf	523888 a93fef81dfff1606eef72738bac1646d655486f5	no	11
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58	Information Disclosure Statement (IDS) Form (SB08)	IDS_18197788_1.pdf	1287750 c4d8818f3358df0081cfbcb4a92223fc2aee955e	no	18
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Information:					
			Total Files Size (in bytes):	49693065	

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PATENT COOPERATION TREATY

ADVANCE E-MAIL

From the INTERNATIONAL BUREAU

PCT

NOTIFICATION CONCERNING TRANSMITTAL OF COPY OF INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY (CHAPTER I OF THE PATENT COOPERATION TREATY)
(PCT Rule 44bis.1(c))

To:

DREWRY, Jamie M.
300 N. Meridian Street
Suite 2700
Indianapolis, Indiana 46204
ETATS-UNIS D'AMERIQUE

Date of mailing *(day/month/year)* 27 December 2018 (27.12.2018)	
Applicant's or agent's file reference IRC004202WO	**IMPORTANT NOTICE**

International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/US2017/037892	16 June 2017 (16.06.2017)	17 June 2016 (17.06.2016)

Applicant
INTEX RECREATION CORP.

The International Bureau transmits herewith a copy of the international preliminary report on patentability (Chapter I of the Patent Cooperation Treaty)

The International Bureau of WIPO
34, chemin des Colombettes
1211 Geneva 20, Switzerland

Facsimile No. +41 22 338 82 70

Authorized officer
Kihwan Moon

e-mail: pct.team1@wipo.int

Form PCT/IB/326 (January 2004)

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PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY
(Chapter I of the Patent Cooperation Treaty)

(PCT Rule 44*bis*)

Applicant's or agent's file reference IRC004202WO	**FOR FURTHER ACTION**	See item 4 below
International application No. PCT/US2017/037892	International filing date *(day/month/year)* 16 June 2017 (16.06.2017)	Priority date *(day/month/year)* 17 June 2016 (17.06.2016)
International Patent Classification (8th edition unless older edition indicated) See relevant information in Form PCT/ISA/237		
Applicant INTEX RECREATION CORP.		

1. This international preliminary report on patentability (Chapter I) is issued by the International Bureau on behalf of the International Searching Authority under Rule 44 *bis*.1(a).

2. This REPORT consists of a total of 8 sheets, including this cover sheet.

   In the attached sheets, any reference to the written opinion of the International Searching Authority should be read as a reference to the international preliminary report on patentability (Chapter I) instead.

3. This report contains indications relating to the following items:

☒	Box No. I	Basis of the report
☐	Box No. II	Priority
☐	Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
☐	Box No. IV	Lack of unity of invention
☒	Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
☐	Box No. VI	Certain documents cited
☐	Box No. VII	Certain defects in the international application
☒	Box No. VIII	Certain observations on the international application

4. The International Bureau will communicate this report to designated Offices in accordance with Rules 44*bis*.3(c) and 93*bis*.1 but not, except where the applicant makes an express request under Article 23(2), before the expiration of 30 months from the priority date (Rule 44*bis* .2).

	Date of issuance of this report 18 December 2018 (18.12.2018)
The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerlaud Facsimile No. +41 22 338 82 70	Authorized officer Kihwan Moon e-mail: pct.team1@wipo.int

Form PCT/IB/373 (January 2004)

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PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To: JAMIE M. DREWRY
300 N. MERIDIAN STREET
SUITE 2700
INDIANAPOLIS, IN 46204

PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43*bis*.1)

Date of mailing *(day/month/year)*	24 AUG 2017
Applicant's or agent's file reference IRC004202WO	**FOR FURTHER ACTION** See paragraph 2 below

International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/US2017/037892	16 June 2017	17 June 2016

International Patent Classification (IPC) or both national classification and IPC
IPC(8) - E04H 4/00; A47B 9/14; E04H 4/02; E04H 4/04; E04H 4/14; F16B 7/10; F16B 7/14 (2017.01)
CPC - E04H 4/0056; E04B 2/766; E04H 2004/146 (2017.08)

Applicant INTEX RECREATION CORP.

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step and industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☒ Box No. VIII Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1*bis*(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

Name and mailing address of the ISA/US	Date of completion of this opinion	Authorized officer
Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450, Alexandria, VA 22313-1450 Facsimile No. 571-273-8300	04 August 2017	Blaine R. Copenheaver PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774

Form PCT/ISA/237 (cover sheet) (January 2015)

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US2017/037892

Box No. I Basis of this opinion

1. With regard to the **language**, this opinion has been established on the basis of:

☒ the international application in the language in which it was filed.

☐ a translation of the international application into _____ which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).

2. ☐ This opinion has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43*bis*.1(a)).

3. ☐ With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, this opinion has been established on the basis of a sequence listing:

a. ☐ forming part of the international application as filed:

☐ in the form of an Annex C/ST.25 text file.

☐ on paper or in the form of an image file.

b. ☐ furnished together with the international application under PCT Rule 13*ter*.1(a) for the purposes of international search only in the form of an Annex C/ST.25 text file.

c. ☐ furnished subsequent to the international filing date for the purposes of international search only:

☐ in the form of an Annex C/ST.25 text file (Rule 13*ter*.1(a)).

☐ on paper or in the form of an image file (Rule 13*ter*.1(b) and Administrative Instructions, Section 713).

4. ☐ In addition, in the case that more than one version or copy of a sequence listing has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that forming part of the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

5. Additional comments:

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WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

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PCT/US2017/037892

Box No. V **Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step and industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N)	Claims	1-8, 11, 13-20	YES
	Claims	9, 10, 12	NO
Inventive step (IS)	Claims	None	YES
	Claims	1-20	NO
Industrial applicability (IA)	Claims	1-20	YES
	Claims	None	NO

2. Citations and explanations:

Claims 9, 10, and 12 lack novelty under PCT Article 33(2) as being anticipated by Hake.

Regarding claims 9, 10, 12, Hake discloses [Cl. 9] a frame joint ((11); fig. 4) for an above ground pool frame (intended use; figs. 7-8) having a first horizontal frame member (14), a second horizontal frame member (14), and a vertical frame member (18), the frame joint (11) comprising: a first horizontal joint portion (left side of (11); fig. 4) configured to couple with the first horizontal frame member (14), the first horizontal joint portion (left side of (11); fig. 4) being constructed of plastic ([0057], lines 1-5), a second horizontal joint portion (right side of (11); fig. 4) configured to couple with the second horizontal frame member (14), the second horizontal joint portion (right side of (11); fig. 4) being constructed of plastic ([0057], lines 1-5), and a vertical joint portion (vertical portion of (11); fig. 4) fixedly coupled to the first and second horizontal joint portions (left and right portions of (11); fig. 4) and configured to couple with the vertical frame member (18), the vertical joint portion (vertical portion of (11); fig. 4) being constructed of plastic ([0057], lines 1-5); [Cl. 10] wherein the vertical joint portion (vertical portion of (11); fig. 4) is centered between the first and second horizontal joint portions (left and right portions of (11); fig. 4) to form a T-shaped frame joint (figs. 4, 7-8); and [Cl. 12]; wherein the vertical joint portion (vertical portion of (11); fig. 4) is integrally formed with the first and second horizontal joint portions (left and right portions of (11); fig. 4) as a single piece (figs. 4, 7-8; [0057], lines 1-5).

Claims 1-3, 14, 15, and 17 lack an inventive step under PCT Article 33(3) as being obvious over Lee.

Regarding claims 1-3, Lee discloses [Cl. 1] a frame joint (130) for an above ground pool frame (100) having a first horizontal frame member (left side (120)), a second horizontal frame member (right side (120)), and a vertical frame member (110), the frame joint (130) comprising: a first horizontal joint portion (left side (132)) including a first coupling assembly (134, 135) configured to couple with the first horizontal frame member (left side (120)), a second horizontal joint portion (right side (132)) including a second coupling assembly (134, 135) configured to couple with the second horizontal frame member (right side (120)), and a vertical joint portion (vertical portion (131)) fixedly coupled to (figs. 3-4) the first and second horizontal joint portions (left and right sides (132)) and configured to couple with the vertical frame member (110).

Lee fails to specifically disclose that [Cl. 1] a width of the vertical joint portion accounts for at least 50% of a width between the first and second coupling assemblies of the first and second horizontal joint portions; [Cl. 2] wherein the width of the vertical joint portion accounts for at least 40% of a total width of the frame joint; and [Cl. 3] wherein the width of the vertical joint portion accounts for about 50% of the total width of the frame joint.

However, modifications regarding dimensions and relative dimensions are generally considered to be modifications that are obvious to and well within the purview of one with ordinary skill in the art. Further, it is known that in the course of ordinary research and discovery a skilled artisan will attempt to design a device comprised of elements having dimensions and relative dimensions that will allow the device to operate in an optimal manner in its intended environment and/or application.

Therefore, it would have been obvious to one with ordinary skill in this art at the time of the invention to modify the joint of Lee by forming the joint such that a width of the vertical joint portion accounts for at least 50% of a width between the first and second coupling assemblies of the first and second horizontal joint portions, wherein the width of the vertical joint portion accounts for at least 40% of a total width of the frame joint, and wherein the width of the vertical joint portion accounts for about 50% of the total width of the frame joint, as a matter of preference based on the intended application, e.g. material of the joint, size of the frame, etc., for the purpose of improving the strength a stability of the joint, and thus the strength and stability of the pool frame.

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WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.
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Box No. VIII Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

Claim 11 is objected to under PCT Rule 66.2(a)(v) as lacking clarity under PCT Article 6, because claim 16 is indefinite for the following reason(s):
In claim 11, the recitation "to form an obtuse angle that defines a water cavity" is vague and lacking in clarity. In this regard, the specification provides no support for this recitation,and it is unclear as to what this recitation is referring or how the obtuse angle formed by the first and second horizontal joint portions "defines a water cavity".

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WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

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Supplemental Box

In case **the space in any of the preceding boxes is not sufficient.**
Continuation of:

Regarding claims 14, 15, 17, Lee discloses [Cl. 14] a method of assembling an above ground pool (abstract; figs. 1-9), the method comprising: coupling a first horizontal joint portion (left side (132)) of a frame joint (130) to a first horizontal frame member (left side (120)) with a first coupling assembly (134, 135), coupling a second horizontal joint portion (right side (132)) of the frame joint (130) to a second horizontal frame member (right side (120)) with a second coupling assembly (134, 135), and coupling a vertical joint portion (vertical portion (131)) of the frame joint (130) to a vertical frame member (110); [Cl. 15] wherein, an external cross-section (figs. 4, 5, 6) of the first horizontal joint portion (left side (132)) matches an internal cross-section (figs. 4, 5, 6) of the first horizontal frame member (left side (120)), an external cross-section (figs. 4, 5, 6) of the second horizontal joint portion (right side (132)) matches an internal cross-section (figs. 4, 5, 6) of the second horizontal frame member (right side (120)), and an external cross-section (fig. 4) of the vertical joint portion (vertical portion (131)) matches an internal cross-section (fig. 4) of the vertical frame member (110); and [Cl. 17] wherein: coupling the first horizontal joint portion (left side (132)) to the first horizontal frame member (left side (120)) comprises depressing a first pin (134) into the first horizontal joint portion (left side (132)) and releasing the first pin (134) into engagement with (via (121)) the first horizontal frame member (left side (120), and coupling the second horizontal joint portion (right side (132)) to the second horizontal frame member (right side (120)) comprises depressing a second pin (134) into the second horizontal joint portion (right side (132)) and releasing the second pin (134) into engagement (via (121)) with the second horizontal frame member (right side (120)).

Lee fails to disclose [Cl. 14] that a width of the vertical joint portion accounts for a majority of a width between the first and second coupling assemblies of the first and second horizontal joint portions.

However, modifications regarding dimensions and relative dimensions are generally considered to be modifications that are obvious to and well within the purview of one with ordinary skill in the art. Further, it is known that in the course of ordinary research and discovery a skilled artisan will attempt to design a device comprised of elements having dimensions and relative dimensions that will allow the device to operate in an optimal manner in its intended environment and/or application.

Therefore, it would have been obvious to one with ordinary skill in this art at the time of the invention to modify the method of Lee by forming the joint such that a width of the vertical joint portion accounts for a majority of a width between the first and second coupling assemblies of the first and second horizontal joint portions, as a matter of preference based on the intended application, e.g. material of the joint, size of the frame, etc., for the purpose of improving the strength a stability of the joint, and thus the strength and stability of the pool frame.

Claims 4 and 5 lack an inventive step under PCT Article 33(3) as being obvious over Lee in view of Obitts.

Regarding claim 4, the modified Lee discloses the joint of claim 1, including that [Cl. 4] each of the first and second coupling assemblies (134, 135) comprises a spring (135), which may be a helical spring ((135); [0067], lines 1-2), and a pin (134) biased outward through a hole (unreferenced; fig. 7) in the respective horizontal joint portion (left and right sides (132)) by the helical spring ((135); [0067], lines 1-2) to engage a corresponding recess (121) of the respective horizontal frame member (left and right sides (120)).

The modified Lee fails to disclose that [Cl. 4] each of the first and second coupling assemblies comprises a base, with the helical spring supported by the base.

However, Obitts discloses a similar coupling assembly (figs. 6-7) for telescoping tubular members (12, 24), wherein the coupling assembly (figs. 6-7) includes a base (158), a helical spring (170) supported by the base (158), and a pin (144) biased outward through a hole (44) in the an inner tube (24) by the helical spring (170) to engage a corresponding recess (14) of an outer tube (12).

Therefore, it would have been obvious to one with ordinary skill in this art at the time of the invention to modify the joint of Lee by providing each of the first and second coupling assemblies with a base, with the helical spring supported by the base, as taught by Obitts, for the purpose of making the coupling assemblies self-contained, as well as making them easier to place and to have the springs remain properly in place within the frame joint.

Regarding claim 5, the modified Lee discloses the joint of claim 4, but fails to specifically disclose that [Cl. 5] the width of the vertical joint portion accounts for about 70% of a width between the pins of the first and second coupling assemblies.

However, modifications regarding dimensions and relative dimensions are generally considered to be modifications that are obvious to and well within the purview of one with ordinary skill in the art. Further, it is known that in the course of ordinary research and discovery a skilled artisan will attempt to design a device comprised of elements having dimensions and relative dimensions that will allow the device to operate in an optimal manner in its intended environment and/or application.

Therefore, it would have been obvious to one with ordinary skill in this art at the time of the invention to modify the joint of Lee by forming the joint such that the width of the vertical joint portion accounts for about 70% of a width between the pins of the first and second coupling assemblies, as a matter of preference based on the intended application, e.g. material of the joint, size of the frame, etc., for the purpose of improving the strength a stability of the joint, and thus the strength and stability of the pool frame.

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WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US2017/037892

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.
Continuation of:

Claims 6-8 and 18-20 lack an inventive step under PCT Article 33(3) as being obvious over Lee in view of Shanghai Bestway Inflatables & Material Corp (hereinafter Shanghai Bestway).

Regarding claims 6, 8, the modified Lee discloses the joint of claim 1, including [Cl. 6] a liner (220, 221) wrapped around (via (221)) the first and second horizontal frame members (left and right side (120)), the liner defining a hole (222); and [Cl. 8] wherein a height of the frame joint (130) exceeds a height of the hole (222) in the liner (220, 221) (figs. 2, 9).

Lee fails to specifically disclose that [Cl. 6] the hole is sized to expose the first and second coupling assemblies.

Initially, it is noted that modifications regarding dimensions and relative dimensions are generally considered to be modifications that are obvious to and well within the purview of one with ordinary skill in the art. Further, it is known that in the course of ordinary research and discovery a skilled artisan will attempt to design a device have dimensions and relative dimensions that will allow the device to operate in an optimal manner in its intended environment and/or application. In addition, Shanghai Bestway discloses a similar frame joint ((4); figs. 7-9) and pool liner (B), wherein the liner (B) is wrapped around (fig. 7; (b11)) first and second horizontal frame members (left and right (111, 121)), the liner (B) defining a hole (unreferenced; figs. 1, 7, 9), wherein a height of the frame joint (4) exceeds a height of the hole (unreferenced; figs. 1, 7, 9) in the liner (B), and wherein the hole (unreferenced; figs. 1, 7, 9) is sized to expose (figs. 1, 7, 9) first and second coupling assemblies (5).

Therefore, it would have been obvious to one with ordinary skill in this art at the time of the invention to modify the joint of Lee by making the hole in the liner sized to expose the first and second coupling assemblies by making the hole wider than the distance between the coupling assemblies, in view of Shanghai Bestway, as a matter of preference based on the application and for the purpose of making it easier to assemble and disassemble the frame and frame joints by leaving the coupling assemblies exposed for easy access.

Regarding claim 7, the modified Lee discloses the joint of claim 6, but fails to specifically disclose that [Cl. 7] a width of the frame joint exceeds a width of the hole in the liner.

Initially, it is again noted that modifications regarding dimensions and relative dimensions are generally considered to be modifications that are obvious to and well within the purview of one with ordinary skill in the art. Further, it is known that in the course of ordinary research and discovery a skilled artisan will attempt to design a device have dimensions and relative dimensions that will allow the device to operate in an optimal manner in its intended environment and/or application. It is also noted that Lee discloses a frame joint (130) that exceeds a width of the hole (222) in the liner (220, 221), but that does not expose the coupling assemblies (134, 135), and that Shanghai Bestway discloses a hole (figs. 1, 7, 9) in the liner (B) that exposes coupling assemblies (5), but exceeds a width of the frame joint (4).

It would have been obvious to and well within the purview of one with ordinary skill in this art at the time of the invention to merely modify the liner hole and frame joint dimensions of Lee such that the liner hole exposes the coupling assemblies, but does not exceed the width of the frame joint, as a matter of preference based on the application for the purpose of helping to prevent water from entering the frame joint at the seam between the frame joint and the horizontal members.

Regarding claims 18-19, the modified Lee discloses the method of claim 14, including [Cl. 18] wrapping (via. (221) a liner (220, 221) around the first and second horizontal frame members (left and right (120)) with a hole (222).

Lee fails to disclose [Cl. 18] that the liner hole exposes the first and second coupling assemblies; [Cl. 19] wherein a width of the hole in the liner exceeds a width between the first and second coupling assemblies.

Initially, it is noted that modifications regarding dimensions and relative dimensions are generally considered to be modifications that are obvious to and well within the purview of one with ordinary skill in the art. Further, it is known that in the course of ordinary research and discovery a skilled artisan will attempt to design a device have dimensions and relative dimensions that will allow the device to operate in an optimal manner in its intended environment and/or application. In addition, Shanghai Bestway discloses a similar frame joint ((4); figs. 7-9) and pool liner (B), wherein the liner (B) is wrapped around (fig. 7; (b11)) first and second horizontal frame members (left and right (111, 121)), the liner (B) defining a hole (unreferenced; figs. 1, 7, 9), wherein a width of the hole (unreferenced; figs. 1, 7, 9) in the liner (B) exceeds a width (figs. 1, 7, 9) between first and second coupling assemblies (left and right (5)), and wherein the hole (unreferenced; figs. 1, 7, 9) is sized to expose (figs. 1, 7, 9) the first and second coupling assemblies (5).

Therefore, it would have been obvious to one with ordinary skill in this art at the time of the invention to modify the method of Lee by making the hole in the liner sized to expose the first and second coupling assemblies by making the hole wider than the distance between the coupling assemblies, in view of Shanghai Bestway, as a matter of preference based on the application and for the purpose of making it easier to assemble and disassemble the frame and frame joints by leaving the coupling assemblies exposed for easy access.

Regarding claim 20, the modified Lee discloses the method of claim 18, but fails to specifically disclose [Cl. 20] the vertical joint portion of the frame joint is coupled to the vertical frame member with a third coupling assembly, and wherein a height of the hole in the liner is less than a distance between the first and third coupling assemblies.

However, Shanghai Bestway discloses a similar method of assembling an above ground pool (abstract; figs. 1-9) that includes a frame joint (4) having a vertical portion (figs. 6-9) that is coupled to a vertical frame member (2) with a third coupling assembly (6).

It would have been obvious to one with ordinary skill in this art at the time of the invention to modify the method of Lee by provide a third coupling assembly that couples the vertical portion of the frame joint to the vertical frame member, as taught by Shanghai Bestway, for the purpose of making sure that the vertical frame members do not disengage accidentally from the vertical portions of the frame joints. Regarding the limitation that a height of the hole in the liner is less than a distance between the first and third coupling assemblies, it is noted that the height of the hole (222) in the liner (220, 221) of Lee would be less than a distance between the first and third coupling assemblies.

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WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US2017/037892

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.
Continuation of:

Claims 9, 11, 13, and 16 lack an inventive step under PCT Article 33(3) as being obvious over Lee in view of Pruis.

Regarding claims 9, 11, Lee discloses [Cl. 9] a frame joint (130) for an above ground pool frame (100) having a first horizontal frame member (left side (120)), a second horizontal frame member (right side (120)), and a vertical frame member (110), the frame joint (130) comprising: a first horizontal joint portion (left side (132)) configured to couple with the first horizontal frame member (left side (120)), a second horizontal joint portion (right side (132)) configured to couple with the second horizontal frame member (right side (120)), and a vertical joint portion (vertical portion (131)) fixedly coupled to the first and second horizontal joint portions (left and right sides (132)) and configured to couple with the vertical frame member (110); [Cl. 11] wherein the first and second horizontal joint portions (left and right side (132)) cooperate to form an obtuse angle (figs. 1, 2, 8, 9) that defines a water cavity (Lee's obtuse angle forms "a water cavity" to the extent that the obtuse angle of applicant's invention defines "a water cavity").

Lee fails to disclose [Cl. 9] the first horizontal joint portion being constructed of plastic, the second horizontal joint portion being constructed of plastic, and the vertical joint portion being constructed of plastic.

Initially, it is noted that modifications regarding materials are generally considered to be modifications that are obvious to and well within the purview of one with ordinary skill in the art. Further, it is known that in the course of ordinary research and discovery a skilled artisan will attempt to design a device using materials that will allow the device to operate in an optimal manner in its intended environment and/or application. And, Pruis discloses a similar joint ((10); figs. 1-2) that may be used as a frame joint having a first horizontal joint portion ((18) left side) being constructed of plastic (col. 3, lines 26-28), a second horizontal joint portion ((18) right side) constructed of plastic (col. 3, lines 26-28) and a vertical joint portion ((18) vertical portion) constructed of plastic (col. 3, lines 26-28).

Therefore, it would have been obvious to one with ordinary skill in this art at the time of the invention to modify the joint of Lee by forming the first, second and vertical joint portions of plastic, as a matter of preference and in view of the teachings of Pruis, for the purpose of making the joint more light weight, as well as easier and cheaper to manufacture.

Regarding claim 13, the modified Lee discloses the joint of claim 9, including [Cl. 13] a first coupling assembly (134, 135) associated with the first horizontal joint portion (left side (132)), and a second coupling assembly (134, 135) associated with the second horizontal joint portion (right side (132)), but fails to disclose that [Cl. 13] a width of the vertical joint portion accounts for a majority of a width between the first and second coupling assemblies.

However, modifications regarding dimensions and relative dimensions are generally considered to be modifications that are obvious to and well within the purview of one with ordinary skill in the art. Further, it is known that in the course of ordinary research and discovery a skilled artisan will attempt to design a device having dimensions and relative dimensions that will allow the device to operate in an optimal manner in its intended environment and/or application.

Therefore, it would have been obvious to one with ordinary skill in this art at the time of the invention to modify the joint of Lee by forming the joint such that the vertical joint portion accounts for a majority of a width between the first and second coupling assemblies, as a matter of preference based on the application and for the purpose if increasing the strength and stability of the vertical joint portion and the vertical frame member.

Regarding claim 16, the modified Lee discloses the method of claim 14, but fails to specifically disclose that [Cl. 16] the first horizontal joint portion, the second horizontal joint portion, and the vertical joint portion are constructed of plastic.

Initially, it is noted that modifications regarding materials are generally considered to be modifications that are obvious to and well within the purview of one with ordinary skill in the art. Further, it is known that in the course of ordinary research and discovery a skilled artisan will attempt to design a device using materials that will allow the device to operate in an optimal manner in its intended environment and/or application. And, Pruis discloses a similar joint ((10); figs. 1-2) that may be used as a frame joint having a first horizontal joint portion ((18) left side) being constructed of plastic (col. 3, lines 26-28), a second horizontal joint portion ((18) right side) constructed of plastic (col. 3, lines 26-28) and a vertical joint portion ((18) vertical portion) constructed of plastic (col. 3, lines 26-28).

Therefore, it would have been obvious to one with ordinary skill in this art at the time of the invention to modify the joint of Lee by forming the first, second and vertical joint portions of plastic, as a matter of preference and in view of the teachings of Pruis, for the purpose of making the joint more light weight, as well as easier and cheaper to manufacture.

Claims 1-20 meet the criteria set out in PCT Article 33(4), and thus have industrial applicability because the subject matter claimed can be made or used in industry.

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PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference **IRC-0112-01-WO**	**FOR FURTHER ACTION**	see Form PCT/ISA/220 as well as, where applicable, item 5 below.
International application No. **PCT/IB2019/057831**	International filing date *(day/month/year)* **17 September 2019**	(Earliest) Priority Date *(day/month/year)* **17 September 2018**
Applicant **INTEX INDUSTRIES XIAMEN CO.LTD**		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of **4** sheets.

☐ It is also accompanied by a copy of each prior art document cited in this report.

1. **Basis of the report**

   a. With regard to the **language**, the international search was carried out on the basis of:

   ☑ the international application in the language in which it was filed.

   ☐ a translation of the international application into _____ which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).

   b. ☐ This international search report has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43.6*bis*(a)).

   c. ☐ With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.

2. ☐ **Certain claims were found unsearchable** (see Box No. II).

3. ☐ **Unity of invention is lacking** (see Box No. III).

4. With regard to the **title**,

   ☑ the text is approved as submitted by the applicant.

   ☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

   ☐ the text is approved as submitted by the applicant.

   ☑ the text has been established, according to Rule 38.2, by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regard to the **drawings**,

   a. the figure of the **drawings** to be published with the abstract is Figure No. **1**

   ☑ as suggested by the applicant.

   ☐ as selected by this Authority, because the applicant failed to suggest a figure.

   ☐ as selected by this Authority, because this figure better characterizes the invention.

   b. ☐ none of the figures is to be published with the abstract.

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/IB2019/057831

Box No. IV **Text of the abstract (Continuation of item 5 of the first sheet)**

An above ground frame pool (10) includes a frame assembly (20) and a liner (40) supported by the frame assembly (20). The frame assembly (20) includes a plurality of horizontal pipes (22), a plurality of vertical pipes (24), and a plurality of T-shaped joints (30). The joints (30) may lack mechanical fasteners with adjacent pipes or corresponding apertures. The joints (30) may be one-piece or multi-piece structures. Such joints (30) maybe water-resistant and convenient to manufacture, assemble, disassemble, and store.

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/IB2019/057831

A. CLASSIFICATION OF SUBJECT MATTER

E04H 4/04(2006.01)i

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

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)

CNPAT,WPI,EPODOC,CNKI:pool, frame?, assembl+, pipe?, joint

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
PX	CN 209130364 U (MINGDA XIAMENG CO., LTD.) 19 July 2019 (2019-07-19) the whole document	1-20
X	CN 2195595 Y (Yuan, Wenzhang) 26 April 1995 (1995-04-26) paragraph 2, figures 1, 2	1-9, 12-18, 20
Y	CN 2195595 Y (Yuan, Wenzhang) 26 April 1995 (1995-04-26) paragraph 2, figures 1, 2	10-11, 19
Y	FR 2774416 A1 (TORRENTE IND.) 06 August 1999 (1999-08-06) pages 3-5, figures 1, 2	10-11, 19
A	CN 200968073 Y (MINGDA XIAMENG CO., LTD.) 31 October 2007 (2007-10-31) the whole document	1-20
A	CN 2480479 Y (Liao, Weiping) 06 March 2002 (2002-03-06) the whole document	1-20
A	CN 202745430 U (SHANGHAI JILONG PLASTIC CO., LTD.) 20 February 2013 (2013-02-20) the whole document	1-20

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

* Special categories of cited documents:
"A" document defining the general state of the art which is not considered to be of particular relevance
"D" document cited by the applicant in the international application
"E" earlier application or patent but published on or after the international filing date
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
"O" document referring to an oral disclosure, use, exhibition or other means
"P" document published prior to the international filing date but later than the priority date claimed
"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
"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
27 November 2019	**20 December 2019**
Name and mailing address of the ISA/CN **National Intellectual Property Administration, PRC** **6, Xitucheng Rd., Jimen Bridge, Haidian District, Beijing** **100088** **China** Facsimile No. **(86-10)62019451**	Authorized officer **LI,Li** Telephone No. **86-10-53961160**

Form PCT/ISA/210 (second sheet) (January 2015)

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INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/IB2019/057831

Patent document cited in search report	Publication date (day/month/year)	Patent family member(s)	Publication date (day/month/year)
CN 209130364 U	19 July 2019	None	
CN 2195595 Y	26 April 1995	None	
FR 2774416 A1	06 August 1999	ES 1039479 U	16 December 1998
		DE 19904335 A1	05 August 1999
CN 200968073 Y	31 October 2007	None	
CN 2480479 Y	06 March 2002	None	
CN 202745430 U	20 February 2013	None	

Form PCT/ISA/210 (patent family annex) (January 2015)

PATENT COOPERATION TREATY

From the INTERNATIONAL SEARCHING AUTHORITY

To:
46204
China Faegre Baker Daniels LLP 300 N.Meridian Street Suite 2500 Indianapolis, Indiana, United States of America

DREWRYJamie M.

PCT

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43*bis*.1)

Date of mailing *(day/month/year)*	**20 December 2019**
Applicant's or agent's file reference **IRC-0112-01-WO**	**FOR FURTHER ACTION** See paragraph 2 below

International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/IB2019/057831	**17 September 2019**	**17 September 2018**

International Patent Classification (IPC) or both national classification and IPC
E04H 4/04(2006.01)i

Applicant
INTEX INDUSTRIES XIAMEN CO.LTD

1. This opinion contains indications relating to the following items:
   - ☑ Box No. I Basis of the opinion
   - ☑ Box No. II Priority
   - ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
   - ☐ Box No. IV Lack of unity of invention
   - ☑ Box No. V Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step and industrial applicability; citations and explanations supporting such statement
   - ☐ Box No. VI Certain documents cited
   - ☐ Box No. VII Certain defects in the international application
   - ☐ Box No. VIII Certain observations on the international application

2. **FURTHER ACTION**

   If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1*bis*(b) that written opinions of this International Searching Authority will not be so considered.

   If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

   For further options, see Form PCT/ISA/220.

Name and mailing address of the ISA/	Date of completion of this opinion	Authorized officer
National Intellectual Property Administration, PRC **China 6, Xitucheng Rd., Jimen Bridge, Haidian District, Beijing 100088**	**16 December 2019**	**LI,Li**
Facsimile No. **(86—10) 62019451**		Telephone No. **86-10-53961160**

Form PCT/ISA/237 (Cover sheet) (January 2015)

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WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/IB2019/057831

Box No. I Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of:
   - [x] the international application in the language in which it was filed.
   - [ ] a translation of the international application into _____ which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).

2. [ ] This opinion has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43*bis*.1(a)).

3. [ ] With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, this opinion has been established on the basis of a sequence listing:
   - a. [ ] forming part of the international application as filed:
     - [ ] in the form of an Annex C/ST.25 text file.
     - [ ] on paper or in the form of an image file.
   - b. [ ] furnished together with the international application under PCT Rule 13*ter*.1(a) for the purposes of international search only in the form of an Annex C/ST.25 text file.
   - c. [ ] furnished subsequent to the international filing date for the purposes of international search only:
     - [ ] in the form of an Annex C/ST.25 text file (Rule 13*ter*.1(a)).
     - [ ] on paper or in the form of an image file (Rule 13*ter*.1(b) and Administrative Instructions, Section 713).

4. [ ] In addition, in the case that more than one version or copy of a sequence listing has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that forming part of the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

5. Additional comments:

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WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

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Box No. II Priority

1. ☐ The validity of the priority claim has not been considered because the International Searching Authority does not have in its possession a copy of the earlier application whose priority has been claimed or, where required, a translation of that earlier application. This opinion has nevertheless been established on the assumption that the relevant date (Rules 43*bis*.1 and 64.1) is the claimed priority date.

2. ☐ This opinion has been established as if no priority had been claimed due to the fact that the priority claim has been found invalid (Rules 43*bis*.1 and 64.1). Thus for the purposes of this opinion, the international filing date indicated above is considered to be the relevant date.

3. Additional observations, if necessary:

[1] (1) Regarding to claims 1-2, 4-6, 8, the priority claim of priority document cn201821518351.1 is considered to be valid.

[2] (2) Regarding to claims 3, 7, 9-16, 18-20, the priority claim of priority document cn201920498611.1 is considered to be valid.

[3] (3) Regarding to claim 17, the priority claim is considered to be invalid, because none of the priority documents explicitly or implicitly disclose the feature 'the multi-piece joint friction-fit to the horizontal frame and the vertical frame without any mechanical fasteners'.

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WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

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Box No. V **Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step and industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N)	Claims	4-8, 10-11, 14-15, 17, 19	YES
	Claims	1-3, 9, 12-13, 16, 18, 20	NO
Inventive step (IS)	Claims	None	YES
	Claims	1-20	NO
Industrial applicability (IA)	Claims	1-20	YES
	Claims	None	NO

2. Citations and explanations :

[1] D1: CN2195595Y

[2] D2: FR2774416A1

[3] I. Novelty:

[4] (1) Claim 1 relates to a joint. D1 discloses (see paragraph 2, figures 1, 2): a joint 81 for an above ground pool having a frame assembly 8 and a liner 87 supported by the frame assembly 8, the frame assembly 8 including a first horizontal frame 85, a second horizontal frame 85, and a vertical frame 83, the joint 81 comprising: a first horizontal portion having a continuous outer wall configured to surround a first end of the first horizontal frame 85; a second horizontal portion having a continuous outer wall configured to surround a second end of the second horizontal frame 85; and a vertical portion positioned between the first and second horizontal portions, the vertical portion having a continuous outer wall configured to surround an upper end of the vertical frame 83. The first horizontal portion has an inner circular cross-section; the second horizontal portion has an inner circular cross-section.

[5] Claim 9 relates to an above ground pool. D1 discloses (see paragraph 2, figures 1, 2): an above ground pool comprising: a frame assembly 8 comprising a first horizontal frame 85, a second horizontal frame 85, a vertical frame 83; and a T-shaped joint 81 friction-fit to the first horizontal frame 85, the second horizontal frame 85, and the vertical frame 83 without any mechanical fasteners; and a liner 87 supported by the frame assembly 8.

[6] Claim 18 relates to a method of assembling an above ground pool. D1 discloses (see paragraph 2, figures 1, 2): a method of assembling an above ground pool comprising the steps of assembling a frame assembly 8 including a plurality of T-shaped joints 81, the assembling step comprising coupling each joint 81 to first and second horizontal frames 85 without any mechanical fasteners and to an upper end of a vertical frame 83 without any mechanical fasteners; positioning a lower end of the vertical frame 83 on a support surface; and supporting a liner 87 on the frame assembly 8.

[7] The additional technical features of claims 2, 3, 12, 13, 16, 20 are disclosed by D1.

[8] Claims 1-3, 9, 12, 13, 16, 18, 20 are not novel, and do not meet the criteria of Article 33(2) PCT.

[9] (2) Claim 4 differs from D1 in "the vertical portion has an inner elliptical cross-section", each of the claims 5-8, 10-11, 14-15, 17, 19 differs from D1 in its additional technical feature.

[10] Claims 4-8, 10-11, 14-15, 17, 19 are novel, and meet the criteria of Article 33(2) PCT.

[11] II. Inventive Step:

[12] (1) Based on the difference between claim 4 and D1, the technical problem to be solved by the present invention may be regarded as how to prevent the rotation between the vertical portion and the joint. Based on the differences between claims 5, 14 and D1, the technical problems to be solved may be regarded as how to securely assemble the frame. Based on the differences between claims 6,7,15 and D1, the technical problems to be solved may be regarded as how to reduce the weight of the frame. Based on the differences between claims 8, 17 and D1, the technical problems to be solved may be regarded as how to easily replace the damaged parts.

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Box No. V **Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step and industrial applicability; citations and explanations supporting such statement**

[13] The technical feature "the vertical portion has an inner elliptical cross-section" and the additional technical features of claims 5-8, 14-15, 17 are common knowledge in the art, claims 4-8, 14-15, 17 do not meet the requirements of PCT Article 33(3).

[14] (2) Based on the differences between claims 10-11, 19 and D1, the technical problems to be solved may be regarded as how to securely fix the frame and the liner.

[15] D2 discloses (see pages 3-5, figures 1, 2): a liner includes an upper sleeve 4 configured to receive the first and second horizontal frames, the upper sleeve 4 defining a first horizontal area; and a side wall that defines a water cavity 5, the water cavity 5 having a second horizontal area smaller than the first horizontal area. The side wall being located radially inward of the upper sleeve 4. The supporting step comprises inserting the first and second horizontal frames in an upper sleeve 4 of the liner; and positioning a side wall of the liner radially inward of the upper sleeve 4. Therefore, it would be obvious to a person skilled in the art to reach the technical solution in claims 10-11, 19 by combining D1, D2. Claims 10-11, 19 do not involve an inventive step, and do not meet the requirements of PCT Article 33(3).

[16] III. Industrial applicability:

[17] Claims 1-20 can be manufactured and used in the technical field of pool and thus meet the requirements of PCT Article 33 (4).

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PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference IRC004202WO	**FOR FURTHER ACTION**	see Form PCT/ISA/220 as well as, where applicable, item 5 below.
International application No. PCT/US2017/037892	International filing date *(day/month/year)* 16 June 2017	(Earliest) Priority Date *(day/month/year)* 17 June 2016
Applicant INTEX RECREATION CORP.		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 2 sheets.

☐ It is also accompanied by a copy of each prior art document cited in this report.

1. **Basis of the report**

a. With regard to the **language**, the international search was carried out on the basis of:

☒ the international application in the language in which it was filed.

☐ a translation of the international application into _____ which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).

b. ☐ This international search report has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43.6*bis*(a)).

c. ☐ With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.

2. ☐ **Certain claims were found unsearchable** (see Box No. II).

3. ☐ **Unity of invention is lacking** (see Box No. III).

4. With regard to the **title**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2, by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regard to the **drawings**,

a. the figure of the **drawings** to be published with the abstract is Figure No. 1

☒ as suggested by the applicant.

☐ as selected by this Authority, because the applicant failed to suggest a figure.

☐ as selected by this Authority, because this figure better characterizes the invention.

b. ☐ none of the figures is to be published with the abstract.

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2017/037892

A. CLASSIFICATION OF SUBJECT MATTER
IPC(8) - E04H 4/00; A47B 9/14; E04H 4/02; E04H 4/04; E04H 4/14; F16B 7/10; F16B 7/14 (2017.01)
CPC - E04H 4/0056; E04B 2/766; E04H 2004/146 (2017.08)

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)
See Search History document

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

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

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2014/0325751 A1 (HAKE) 06 November 2014 (06.11.2014) entire document	9, 10, 12
X	US 2002/0042948 A1 (LEE) 18 April 2002 (18.04.2002) entire document	1-3, 14, 15, 17
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Y		4-9, 11, 13, 16, 18-20
Y	US 6,079,894 A (OBITTS) 27 June 2000 (27.06.2000) entire document	4, 5
Y	CN 204475914 U (SHANGHAI BESTWAY INFLATABLES & MATERIAL CORP) 15 July 2015 (15.07.2015) see machine translation	6-8, 18-20
Y	US 5,143,476 A (PRUIS) 01 September 1992 (01.09.1992) entire document	9, 11, 13, 16
A	US 4,323,319 A (ADAMS) 06 April 1982 (06.04.1982) entire document	1-20
A	US 2004/0118644 A1 (BENNETT et al) 24 June 2004 (24.06.2004) entire document	1-20
A	CN 200968073 Y (INTEX INDUSTRIES (XIAMEN) CO., LTD) 31 October 2007 (31.10.2007) see machine translation	1-20

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

* Special categories of cited documents:
"A" document defining the general state of the art which is not considered to be of particular relevance
"E" earlier application or patent but published on or after the international filing date
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
"O" document referring to an oral disclosure, use, exhibition or other means
"P" document published prior to the international filing date but later than the priority date claimed
"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
"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
04 August 2017	24 AUG 2017
Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US, Commissioner for Patents P.O. Box 1450, Alexandria, VA 22313-1450 Facsimile No. 571-273-8300	Authorized officer Blaine R. Copenheaver PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774

Form PCT/ISA/210 (second sheet) (January 2015)

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To: JAMIE M. DREWRY
300 N. MERIDIAN STREET
SUITE 2700
INDIANAPOLIS, IN 46204

PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43*bis*.1)

Date of mailing *(day/month/year)*	24 AUG 2017
Applicant's or agent's file reference: IRC004202WO	**FOR FURTHER ACTION** See paragraph 2 below

International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/US2017/037892	16 June 2017	17 June 2016

International Patent Classification (IPC) or both national classification and IPC
IPC(8) - E04H 4/00; A47B 9/14; E04H 4/02; E04H 4/04; E04H 4/14; F16B 7/10; F16B 7/14 (2017.01)
CPC - E04H 4/0056; E04B 2/766; E04H 2004/146 (2017.08)

Applicant INTEX RECREATION CORP.

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step and industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☒ Box No. VIII Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1*bis*(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

Name and mailing address of the ISA/US	Date of completion of this opinion	Authorized officer
Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450, Alexandria, VA 22313-1450 Facsimile No. 571-273-8300	04 August 2017	Blaine R. Copenheaver PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774

Form PCT/ISA/237 (cover sheet) (January 2015)

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US2017/037892

Box No. I Basis of this opinion

1. With regard to the **language**, this opinion has been established on the basis of:

☒ the international application in the language in which it was filed.

☐ a translation of the international application into _____ which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).

2. ☐ This opinion has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43*bis*.1(a)).

3. ☐ With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, this opinion has been established on the basis of a sequence listing:

a. ☐ forming part of the international application as filed:

☐ in the form of an Annex C/ST.25 text file.

☐ on paper or in the form of an image file.

b. ☐ furnished together with the international application under PCT Rule 13*ter*.1(a) for the purposes of international search only in the form of an Annex C/ST.25 text file.

c. ☐ furnished subsequent to the international filing date for the purposes of international search only:

☐ in the form of an Annex C/ST.25 text file (Rule 13*ter*.1(a)).

☐ on paper or in the form of an image file (Rule 13*ter*.1(b) and Administrative Instructions, Section 713).

4. ☐ In addition, in the case that more than one version or copy of a sequence listing has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that forming part of the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

5. Additional comments:

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WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

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Box No. V **Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step and industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N)	Claims	1-8, 11, 13-20	YES
	Claims	9, 10, 12	NO
Inventive step (IS)	Claims	None	YES
	Claims	1-20	NO
Industrial applicability (IA)	Claims	1-20	YES
	Claims	None	NO

2. Citations and explanations:

Claims 9, 10, and 12 lack novelty under PCT Article 33(2) as being anticipated by Hake.

Regarding claims 9, 10, 12, Hake discloses [Cl. 9] a frame joint ((11); fig. 4) for an above ground pool frame (intended use; figs. 7-8) having a first horizontal frame member (14), a second horizontal frame member (14), and a vertical frame member (18), the frame joint (11) comprising: a first horizontal joint portion (left side of (11); fig. 4) configured to couple with the first horizontal frame member (14), the first horizontal joint portion (left side of (11); fig. 4) being constructed of plastic ([0057], lines 1-5), a second horizontal joint portion (right side of (11); fig. 4) configured to couple with the second horizontal frame member (14), the second horizontal joint portion (right side of (11); fig. 4) being constructed of plastic ([0057], lines 1-5), and a vertical joint portion (vertical portion of (11); fig. 4) fixedly coupled to the first and second horizontal joint portions (left and right portions of (11); fig. 4) and configured to couple with the vertical frame member (18), the vertical joint portion (vertical portion of (11); fig. 4) being constructed of plastic ([0057], lines 1-5); [Cl. 10] wherein the vertical joint portion (vertical portion of (11); fig. 4) is centered between the first and second horizontal joint portions (left and right portions of (11); fig. 4) to form a T-shaped frame joint (figs. 4, 7-8); and [Cl. 12]; wherein the vertical joint portion (vertical portion of (11); fig. 4) is integrally formed with the first and second horizontal joint portions (left and right portions of (11); fig. 4) as a single piece (figs. 4, 7-8; [0057], lines 1-5).

Claims 1-3, 14, 15, and 17 lack an inventive step under PCT Article 33(3) as being obvious over Lee.

Regarding claims 1-3, Lee discloses [Cl. 1] a frame joint (130) for an above ground pool frame (100) having a first horizontal frame member (left side (120)), a second horizontal frame member (right side (120)), and a vertical frame member (110), the frame joint (130) comprising: a first horizontal joint portion (left side (132)) including a first coupling assembly (134, 135) configured to couple with the first horizontal frame member (left side (120)), a second horizontal joint portion (right side (132)) including a second coupling assembly (134, 135) configured to couple with the second horizontal frame member (right side (120)), and a vertical joint portion (vertical portion (131)) fixedly coupled to (figs. 3-4) the first and second horizontal joint portions (left and right sides (132)) and configured to couple with the vertical frame member (110).

Lee fails to specifically disclose that [Cl. 1] a width of the vertical joint portion accounts for at least 50% of a width between the first and second coupling assemblies of the first and second horizontal joint portions; [Cl. 2] wherein the width of the vertical joint portion accounts for at least 40% of a total width of the frame joint; and [Cl. 3] wherein the width of the vertical joint portion accounts for about 50% of the total width of the frame joint.

However, modifications regarding dimensions and relative dimensions are generally considered to be modifications that are obvious to and well within the purview of one with ordinary skill in the art. Further, it is known that in the course of ordinary research and discovery a skilled artisan will attempt to design a device comprised of elements having dimensions and relative dimensions that will allow the device to operate in an optimal manner in its intended environment and/or application.

Therefore, it would have been obvious to one with ordinary skill in this art at the time of the invention to modify the joint of Lee by forming the joint such that a width of the vertical joint portion accounts for at least 50% of a width between the first and second coupling assemblies of the first and second horizontal joint portions, wherein the width of the vertical joint portion accounts for at least 40% of a total width of the frame joint, and wherein the width of the vertical joint portion accounts for about 50% of the total width of the frame joint, as a matter of preference based on the intended application, e.g. material of the joint, size of the frame, etc., for the purpose of improving the strength a stability of the joint, and thus the strength and stability of the pool frame.

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WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.
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Box No. VIII Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

Claim 11 is objected to under PCT Rule 66.2(a)(v) as lacking clarity under PCT Article 6, because claim 16 is indefinite for the following reason(s):
In claim 11, the recitation "to form an obtuse angle that defines a water cavity" is vague and lacking in clarity. In this regard, the specification provides no support for this recitation,and it is unclear as to what this recitation is referring or how the obtuse angle formed by the first and second horizontal joint portions "defines a water cavity".

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WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US2017/037892

Supplemental Box

In case **the space in any of the preceding boxes is not sufficient.**
Continuation of:

Regarding claims 14, 15, 17, Lee discloses [Cl. 14] a method of assembling an above ground pool (abstract; figs. 1-9), the method comprising: coupling a first horizontal joint portion (left side (132)) of a frame joint (130) to a first horizontal frame member (left side (120)) with a first coupling assembly (134, 135), coupling a second horizontal joint portion (right side (132)) of the frame joint (130) to a second horizontal frame member (right side (120)) with a second coupling assembly (134, 135), and coupling a vertical joint portion (vertical portion (131)) of the frame joint (130) to a vertical frame member (110); [Cl. 15] wherein, an external cross-section (figs. 4, 5, 6) of the first horizontal joint portion (left side (132)) matches an internal cross-section (figs. 4, 5, 6) of the first horizontal frame member (left side (120)), an external cross-section (figs. 4, 5, 6) of the second horizontal joint portion (right side (132)) matches an internal cross-section (figs. 4, 5, 6) of the second horizontal frame member (right side (120)), and an external cross-section (fig. 4) of the vertical joint portion (vertical portion (131)) matches an internal cross-section (fig. 4) of the vertical frame member (110); and [Cl. 17] wherein: coupling the first horizontal joint portion (left side (132)) to the first horizontal frame member (left side (120)) comprises depressing a first pin (134) into the first horizontal joint portion (left side (132)) and releasing the first pin (134) into engagement with (via (121)) the first horizontal frame member (left side (120), and coupling the second horizontal joint portion (right side (132)) to the second horizontal frame member (right side (120)) comprises depressing a second pin (134) into the second horizontal joint portion (right side (132)) and releasing the second pin (134) into engagement (via (121)) with the second horizontal frame member (right side (120)).

Lee fails to disclose [Cl. 14] that a width of the vertical joint portion accounts for a majority of a width between the first and second coupling assemblies of the first and second horizontal joint portions.

However, modifications regarding dimensions and relative dimensions are generally considered to be modifications that are obvious to and well within the purview of one with ordinary skill in the art. Further, it is known that in the course of ordinary research and discovery a skilled artisan will attempt to design a device comprised of elements having dimensions and relative dimensions that will allow the device to operate in an optimal manner in its intended environment and/or application.

Therefore, it would have been obvious to one with ordinary skill in this art at the time of the invention to modify the method of Lee by forming the joint such that a width of the vertical joint portion accounts for a majority of a width between the first and second coupling assemblies of the first and second horizontal joint portions, as a matter of preference based on the intended application, e.g. material of the joint, size of the frame, etc., for the purpose of improving the strength a stability of the joint, and thus the strength and stability of the pool frame.

Claims 4 and 5 lack an inventive step under PCT Article 33(3) as being obvious over Lee in view of Obitts.

Regarding claim 4, the modified Lee discloses the joint of claim 1, including that [Cl. 4] each of the first and second coupling assemblies (134, 135) comprises a spring (135), which may be a helical spring ((135); [0067], lines 1-2), and a pin (134) biased outward through a hole (unreferenced; fig. 7) in the respective horizontal joint portion (left and right sides (132)) by the helical spring ((135); [0067], lines 1-2) to engage a corresponding recess (121) of the respective horizontal frame member (left and right sides (120)).

The modified Lee fails to disclose that [Cl. 4] each of the first and second coupling assemblies comprises a base, with the helical spring supported by the base.

However, Obitts discloses a similar coupling assembly (figs. 6-7) for telescoping tubular members (12, 24), wherein the coupling assembly (figs. 6-7) includes a base (158), a helical spring (170) supported by the base (158), and a pin (144) biased outward through a hole (44) in the an inner tube (24) by the helical spring (170) to engage a corresponding recess (14) of an outer tube (12).

Therefore, it would have been obvious to one with ordinary skill in this art at the time of the invention to modify the joint of Lee by providing each of the first and second coupling assemblies with a base, with the helical spring supported by the base, as taught by Obitts, for the purpose of making the coupling assemblies self-contained, as well as making them easier to place and to have the springs remain properly in place within the frame joint.

Regarding claim 5, the modified Lee discloses the joint of claim 4, but fails to specifically disclose that [Cl. 5] the width of the vertical joint portion accounts for about 70% of a width between the pins of the first and second coupling assemblies.

However, modifications regarding dimensions and relative dimensions are generally considered to be modifications that are obvious to and well within the purview of one with ordinary skill in the art. Further, it is known that in the course of ordinary research and discovery a skilled artisan will attempt to design a device comprised of elements having dimensions and relative dimensions that will allow the device to operate in an optimal manner in its intended environment and/or application.

Therefore, it would have been obvious to one with ordinary skill in this art at the time of the invention to modify the joint of Lee by forming the joint such that the width of the vertical joint portion accounts for about 70% of a width between the pins of the first and second coupling assemblies, as a matter of preference based on the intended application, e.g. material of the joint, size of the frame, etc., for the purpose of improving the strength a stability of the joint, and thus the strength and stability of the pool frame.

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WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
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Supplemental Box

In case the space in any of the preceding boxes is not sufficient.
Continuation of:

Claims 6-8 and 18-20 lack an inventive step under PCT Article 33(3) as being obvious over Lee in view of Shanghai Bestway Inflatables & Material Corp (hereinafter Shanghai Bestway).

Regarding claims 6, 8, the modified Lee discloses the joint of claim 1, including [Cl. 6] a liner (220, 221) wrapped around (via (221)) the first and second horizontal frame members (left and right side (120)), the liner defining a hole (222); and [Cl. 8] wherein a height of the frame joint (130) exceeds a height of the hole (222) in the liner (220, 221) (figs. 2, 9).

Lee fails to specifically disclose that [Cl. 6] the hole is sized to expose the first and second coupling assemblies.

Initially, it is noted that modifications regarding dimensions and relative dimensions are generally considered to be modifications that are obvious to and well within the purview of one with ordinary skill in the art. Further, it is known that in the course of ordinary research and discovery a skilled artisan will attempt to design a device have dimensions and relative dimensions that will allow the device to operate in an optimal manner in its intended environment and/or application. In addition, Shanghai Bestway discloses a similar frame joint ((4); figs. 7-9) and pool liner (B), wherein the liner (B) is wrapped around (fig. 7; (b11)) first and second horizontal frame members (left and right (111, 121)), the liner (B) defining a hole (unreferenced; figs. 1, 7, 9), wherein a height of the frame joint (4) exceeds a height of the hole (unreferenced; figs. 1, 7, 9) in the liner (B), and wherein the hole (unreferenced; figs. 1, 7, 9) is sized to expose (figs. 1, 7, 9) first and second coupling assemblies (5).

Therefore, it would have been obvious to one with ordinary skill in this art at the time of the invention to modify the joint of Lee by making the hole in the liner sized to expose the first and second coupling assemblies by making the hole wider than the distance between the coupling assemblies, in view of Shanghai Bestway, as a matter of preference based on the application and for the purpose of making it easier to assemble and disassemble the frame and frame joints by leaving the coupling assemblies exposed for easy access.

Regarding claim 7, the modified Lee discloses the joint of claim 6, but fails to specifically disclose that [Cl. 7] a width of the frame joint exceeds a width of the hole in the liner.

Initially, it is again noted that modifications regarding dimensions and relative dimensions are generally considered to be modifications that are obvious to and well within the purview of one with ordinary skill in the art. Further, it is known that in the course of ordinary research and discovery a skilled artisan will attempt to design a device have dimensions and relative dimensions that will allow the device to operate in an optimal manner in its intended environment and/or application. It is also noted that Lee discloses a frame joint (130) that exceeds a width of the hole (222) in the liner (220, 221), but that does not expose the coupling assemblies (134, 135), and that Shanghai Bestway discloses a hole (figs. 1, 7, 9) in the liner (B) that exposes coupling assemblies (5), but exceeds a width of the frame joint (4).

It would have been obvious to and well within the purview of one with ordinary skill in this art at the time of the invention to merely modify the liner hole and frame joint dimensions of Lee such that the liner hole exposes the coupling assemblies, but does not exceed the width of the frame joint, as a matter of preference based on the application for the purpose of helping to prevent water from entering the frame joint at the seam between the frame joint and the horizontal members.

Regarding claims 18-19, the modified Lee discloses the method of claim 14, including [Cl. 18] wrapping (via. (221) a liner (220, 221) around the first and second horizontal frame members (left and right (120)) with a hole (222).

Lee fails to disclose [Cl. 18] that the liner hole exposes the first and second coupling assemblies; [Cl. 19] wherein a width of the hole in the liner exceeds a width between the first and second coupling assemblies.

Initially, it is noted that modifications regarding dimensions and relative dimensions are generally considered to be modifications that are obvious to and well within the purview of one with ordinary skill in the art. Further, it is known that in the course of ordinary research and discovery a skilled artisan will attempt to design a device have dimensions and relative dimensions that will allow the device to operate in an optimal manner in its intended environment and/or application. In addition, Shanghai Bestway discloses a similar frame joint ((4); figs. 7-9) and pool liner (B), wherein the liner (B) is wrapped around (fig. 7; (b11)) first and second horizontal frame members (left and right (111, 121)), the liner (B) defining a hole (unreferenced; figs. 1, 7, 9), wherein a width of the hole (unreferenced; figs. 1, 7, 9) in the liner (B) exceeds a width (figs. 1, 7, 9) between first and second coupling assemblies (left and right (5)), and wherein the hole (unreferenced; figs. 1, 7, 9) is sized to expose (figs. 1, 7, 9) the first and second coupling assemblies (5).

Therefore, it would have been obvious to one with ordinary skill in this art at the time of the invention to modify the method of Lee by making the hole in the liner sized to expose the first and second coupling assemblies by making the hole wider than the distance between the coupling assemblies, in view of Shanghai Bestway, as a matter of preference based on the application and for the purpose of making it easier to assemble and disassemble the frame and frame joints by leaving the coupling assemblies exposed for easy access.

Regarding claim 20, the modified Lee discloses the method of claim 18, but fails to specifically disclose [Cl. 20] the vertical joint portion of the frame joint is coupled to the vertical frame member with a third coupling assembly, and wherein a height of the hole in the liner is less than a distance between the first and third coupling assemblies.

However, Shanghai Bestway discloses a similar method of assembling an above ground pool (abstract; figs. 1-9) that includes a frame joint (4) having a vertical portion (figs. 6-9) that is coupled to a vertical frame member (2) with a third coupling assembly (6).

It would have been obvious to one with ordinary skill in this art at the time of the invention to modify the method of Lee by provide a third coupling assembly that couples the vertical portion of the frame joint to the vertical frame member, as taught by Shanghai Bestway, for the purpose of making sure that the vertical frame members do not disengage accidentally from the vertical portions of the frame joints. Regarding the limitation that a height of the hole in the liner is less than a distance between the first and third coupling assemblies, it is noted that the height of the hole (222) in the liner (220, 221) of Lee would be less than a distance between the first and third coupling assemblies.

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WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US2017/037892

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.
Continuation of:

Claims 9, 11, 13, and 16 lack an inventive step under PCT Article 33(3) as being obvious over Lee in view of Pruis.

Regarding claims 9, 11, Lee discloses [Cl. 9] a frame joint (130) for an above ground pool frame (100) having a first horizontal frame member (left side (120)), a second horizontal frame member (right side (120)), and a vertical frame member (110), the frame joint (130) comprising: a first horizontal joint portion (left side (132)) configured to couple with the first horizontal frame member (left side (120)), a second horizontal joint portion (right side (132)) configured to couple with the second horizontal frame member (right side (120)), and a vertical joint portion (vertical portion (131)) fixedly coupled to the first and second horizontal joint portions (left and right sides (132)) and configured to couple with the vertical frame member (110); [Cl. 11] wherein the first and second horizontal joint portions (left and right side (132)) cooperate to form an obtuse angle (figs. 1, 2, 8, 9) that defines a water cavity (Lee's obtuse angle forms "a water cavity" to the extent that the obtuse angle of applicant's invention defines "a water cavity").

Lee fails to disclose [Cl. 9] the first horizontal joint portion being constructed of plastic, the second horizontal joint portion being constructed of plastic, and the vertical joint portion being constructed of plastic.

Initially, it is noted that modifications regarding materials are generally considered to be modifications that are obvious to and well within the purview of one with ordinary skill in the art. Further, it is known that in the course of ordinary research and discovery a skilled artisan will attempt to design a device using materials that will allow the device to operate in an optimal manner in its intended environment and/or application. And, Pruis discloses a similar joint ((10); figs. 1-2) that may be used as a frame joint having a first horizontal joint portion ((18) left side) being constructed of plastic (col. 3, lines 26-28), a second horizontal joint portion ((18) right side) constructed of plastic (col. 3, lines 26-28) and a vertical joint portion ((18) vertical portion) constructed of plastic (col. 3, lines 26-28).

Therefore, it would have been obvious to one with ordinary skill in this art at the time of the invention to modify the joint of Lee by forming the first, second and vertical joint portions of plastic, as a matter of preference and in view of the teachings of Pruis, for the purpose of making the joint more light weight, as well as easier and cheaper to manufacture.

Regarding claim 13, the modified Lee discloses the joint of claim 9, including [Cl. 13] a first coupling assembly (134, 135) associated with the first horizontal joint portion (left side (132)), and a second coupling assembly (134, 135) associated with the second horizontal joint portion (right side (132)), but fails to disclose that [Cl. 13] a width of the vertical joint portion accounts for a majority of a width between the first and second coupling assemblies.

However, modifications regarding dimensions and relative dimensions are generally considered to be modifications that are obvious to and well within the purview of one with ordinary skill in the art. Further, it is known that in the course of ordinary research and discovery a skilled artisan will attempt to design a device having dimensions and relative dimensions that will allow the device to operate in an optimal manner in its intended environment and/or application.

Therefore, it would have been obvious to one with ordinary skill in this art at the time of the invention to modify the joint of Lee by forming the joint such that the vertical joint portion accounts for a majority of a width between the first and second coupling assemblies, as a matter of preference based on the application and for the purpose if increasing the strength and stability of the vertical joint portion and the vertical frame member.

Regarding claim 16, the modified Lee discloses the method of claim 14, but fails to specifically disclose that [Cl. 16] the first horizontal joint portion, the second horizontal joint portion, and the vertical joint portion are constructed of plastic.

Initially, it is noted that modifications regarding materials are generally considered to be modifications that are obvious to and well within the purview of one with ordinary skill in the art. Further, it is known that in the course of ordinary research and discovery a skilled artisan will attempt to design a device using materials that will allow the device to operate in an optimal manner in its intended environment and/or application. And, Pruis discloses a similar joint ((10); figs. 1-2) that may be used as a frame joint having a first horizontal joint portion ((18) left side) being constructed of plastic (col. 3, lines 26-28), a second horizontal joint portion ((18) right side) constructed of plastic (col. 3, lines 26-28) and a vertical joint portion ((18) vertical portion) constructed of plastic (col. 3, lines 26-28).

Therefore, it would have been obvious to one with ordinary skill in this art at the time of the invention to modify the joint of Lee by forming the first, second and vertical joint portions of plastic, as a matter of preference and in view of the teachings of Pruis, for the purpose of making the joint more light weight, as well as easier and cheaper to manufacture.

Claims 1-20 meet the criteria set out in PCT Article 33(4), and thus have industrial applicability because the subject matter claimed can be made or used in industry.

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From the INTERNATIONAL BUREAU

PCT

NOTIFICATION CONCERNING
TRANSMITTAL OF COPY OF INTERNATIONAL
PRELIMINARY REPORT ON PATENTABILITY
(CHAPTER I OF THE PATENT COOPERATION TREATY)

(PCT Rule 44bis.1(c))

To:

DREWRY, Jamie M.
Faegre Baker Daniels LLP
300 N. Meridian Street
Suite 2500
Indianapolis, Indiana 46204
ÉTATS-UNIS D'AMÉRIQUE

Date of mailing *(day/month/year)* 25 March 2021 (25.03.2021)		
Applicant's or agent's file reference IRC-0112-01-WO		**IMPORTANT NOTICE**
International application No. PCT/IB2019/057831	International filing date *(day/month/year)* 17 September 2019 (17.09.2019)	Priority date *(day/month/year)* 17 September 2018 (17.09.2018)
Applicant INTEX INDUSTRIES XIAMEN CO. LTD		

The International Bureau transmits herewith a copy of the international preliminary report on patentability (Chapter I of the Patent Cooperation Treaty)

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland	Authorized officer Cécile Chatel e-mail ro.ib@wipo.int Telephone No. +41 22 338 92 22

Form PCT/IB/326 (revised January 2020)

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PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY
(Chapter I of the Patent Cooperation Treaty)

(PCT Rule 44*bis*)

Applicant's or agent's file reference IRC-0112-01-WO	**FOR FURTHER ACTION**	See item 4 below
International application No. PCT/IB2019/057831	International filing date *(day/month/year)* 17 September 2019 (17.09.2019)	Priority date *(day/month/year)* 17 September 2018 (17.09.2018)
International Patent Classification (8th edition unless older edition indicated) See relevant information in Form PCT/ISA/237		
Applicant INTEX INDUSTRIES XIAMEN CO. LTD		

1. This international preliminary report on patentability (Chapter I) is issued by the International Bureau on behalf of the International Searching Authority under Rule 44 *bis*.1(a).

2. This REPORT consists of a total of 6 sheets, including this cover sheet.

   In the attached sheets, any reference to the written opinion of the International Searching Authority should be read as a reference to the international preliminary report on patentability (Chapter I) instead.

3. This report contains indications relating to the following items:

☒	Box No. I	Basis of the report
☒	Box No. II	Priority
☐	Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
☐	Box No. IV	Lack of unity of invention
☒	Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
☐	Box No. VI	Certain documents cited
☐	Box No. VII	Certain defects in the international application
☐	Box No. VIII	Certain observations on the international application

4. The International Bureau will communicate this report to designated Offices in accordance with Rules 44*bis*.3(c) and 93*bis*.1 but not, except where the applicant makes an express request under Article 23(2), before the expiration of 30 months from the priority date (Rule 44*bis* .2).

	Date of issuance of this report 09 March 2021 (09.03.2021)
The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland	Authorized officer Cécile Chatel e-mail ro.ib@wipo.int

Form PCT/IB/373 (revised January 2020)

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PATENT COOPERATION TREATY

From the INTERNATIONAL SEARCHING AUTHORITY

To:
46204
China Faegre Baker Daniels LLP 300 N.Meridian Street Suite 2500 Indianapolis, Indiana, United States of America

DREWRYJamie M.

PCT

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43*bis*.1)

Date of mailing *(day/month/year)*	**20 December 2019**
Applicant's or agent's file reference **IRC-0112-01-WO**	**FOR FURTHER ACTION** See paragraph 2 below

International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/IB2019/057831	**17 September 2019**	**17 September 2018**

International Patent Classification (IPC) or both national classification and IPC
E04H 4/04(2006.01)i

Applicant
INTEX INDUSTRIES XIAMEN CO.LTD

1. This opinion contains indications relating to the following items:
   - ☑ Box No. I Basis of the opinion
   - ☑ Box No. II Priority
   - ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
   - ☐ Box No. IV Lack of unity of invention
   - ☑ Box No. V Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step and industrial applicability; citations and explanations supporting such statement
   - ☐ Box No. VI Certain documents cited
   - ☐ Box No. VII Certain defects in the international application
   - ☐ Box No. VIII Certain observations on the international application

2. **FURTHER ACTION**

   If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1*bis*(b) that written opinions of this International Searching Authority will not be so considered.

   If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

   For further options, see Form PCT/ISA/220.

Name and mailing address of the ISA/	Date of completion of this opinion	Authorized officer
National Intellectual Property Administration, PRC **China 6, Xitucheng Rd., Jimen Bridge, Haidian District, Beijing 100088**	**16 December 2019**	**LI,Li**
Facsimile No. **(86—10) 62019451**		Telephone No. **86-10-53961160**

Form PCT/ISA/237 (Cover sheet) (January 2015)

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WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/IB2019/057831

Box No. I Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of:
   - [x] the international application in the language in which it was filed.
   - [ ] a translation of the international application into _____ which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).

2. [ ] This opinion has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43*bis*.1(a)).

3. [ ] With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, this opinion has been established on the basis of a sequence listing:
   a. [ ] forming part of the international application as filed:
      - [ ] in the form of an Annex C/ST.25 text file.
      - [ ] on paper or in the form of an image file.
   b. [ ] furnished together with the international application under PCT Rule 13*ter*.1(a) for the purposes of international search only in the form of an Annex C/ST.25 text file.
   c. [ ] furnished subsequent to the international filing date for the purposes of international search only:
      - [ ] in the form of an Annex C/ST.25 text file (Rule 13*ter*.1(a)).
      - [ ] on paper or in the form of an image file (Rule 13*ter*.1(b) and Administrative Instructions, Section 713).

4. [ ] In addition, in the case that more than one version or copy of a sequence listing has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that forming part of the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

5. Additional comments:

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WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

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Box No. II Priority

1. ☐ The validity of the priority claim has not been considered because the International Searching Authority does not have in its possession a copy of the earlier application whose priority has been claimed or, where required, a translation of that earlier application. This opinion has nevertheless been established on the assumption that the relevant date (Rules 43*bis*.1 and 64.1) is the claimed priority date.

2. ☐ This opinion has been established as if no priority had been claimed due to the fact that the priority claim has been found invalid (Rules 43*bis*.1 and 64.1). Thus for the purposes of this opinion, the international filing date indicated above is considered to be the relevant date.

3. Additional observations, if necessary:

[1] (1) Regarding to claims 1-2, 4-6, 8, the priority claim of priority document cn201821518351.1 is considered to be valid.

[2] (2) Regarding to claims 3, 7, 9-16, 18-20, the priority claim of priority document cn201920498611.1 is considered to be valid.

[3] (3) Regarding to claim 17, the priority claim is considered to be invalid, because none of the priority documents explicitly or implicitly disclose the feature 'the multi-piece joint friction-fit to the horizontal frame and the vertical frame without any mechanical fasteners'.

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WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

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Box No. V **Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step and industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N)	Claims	4-8, 10-11, 14-15, 17, 19	YES
	Claims	1-3, 9, 12-13, 16, 18, 20	NO
Inventive step (IS)	Claims	None	YES
	Claims	1-20	NO
Industrial applicability (IA)	Claims	1-20	YES
	Claims	None	NO

2. Citations and explanations :

[1] D1: CN2195595Y

[2] D2: FR2774416A1

[3] I. Novelty:

[4] (1) Claim 1 relates to a joint. D1 discloses (see paragraph 2, figures 1, 2): a joint 81 for an above ground pool having a frame assembly 8 and a liner 87 supported by the frame assembly 8, the frame assembly 8 including a first horizontal frame 85, a second horizontal frame 85, and a vertical frame 83, the joint 81 comprising: a first horizontal portion having a continuous outer wall configured to surround a first end of the first horizontal frame 85; a second horizontal portion having a continuous outer wall configured to surround a second end of the second horizontal frame 85; and a vertical portion positioned between the first and second horizontal portions, the vertical portion having a continuous outer wall configured to surround an upper end of the vertical frame 83. The first horizontal portion has an inner circular cross-section; the second horizontal portion has an inner circular cross-section.

[5] Claim 9 relates to an above ground pool. D1 discloses (see paragraph 2, figures 1, 2): an above ground pool comprising: a frame assembly 8 comprising a first horizontal frame 85, a second horizontal frame 85, a vertical frame 83; and a T-shaped joint 81 friction-fit to the first horizontal frame 85, the second horizontal frame 85, and the vertical frame 83 without any mechanical fasteners; and a liner 87 supported by the frame assembly 8.

[6] Claim 18 relates to a method of assembling an above ground pool. D1 discloses (see paragraph 2, figures 1, 2): a method of assembling an above ground pool comprising the steps of assembling a frame assembly 8 including a plurality of T-shaped joints 81, the assembling step comprising coupling each joint 81 to first and second horizontal frames 85 without any mechanical fasteners and to an upper end of a vertical frame 83 without any mechanical fasteners; positioning a lower end of the vertical frame 83 on a support surface; and supporting a liner 87 on the frame assembly 8.

[7] The additional technical features of claims 2, 3, 12, 13, 16, 20 are disclosed by D1.

[8] Claims 1-3, 9, 12, 13, 16, 18, 20 are not novel, and do not meet the criteria of Article 33(2) PCT.

[9] (2) Claim 4 differs from D1 in "the vertical portion has an inner elliptical cross-section", each of the claims 5-8, 10-11, 14-15, 17, 19 differs from D1 in its additional technical feature.

[10] Claims 4-8, 10-11, 14-15, 17, 19 are novel, and meet the criteria of Article 33(2) PCT.

[11] II. Inventive Step:

[12] (1) Based on the difference between claim 4 and D1, the technical problem to be solved by the present invention may be regarded as how to prevent the rotation between the vertical portion and the joint. Based on the differences between claims 5, 14 and D1, the technical problems to be solved may be regarded as how to securely assemble the frame. Based on the differences between claims 6,7,15 and D1, the technical problems to be solved may be regarded as how to reduce the weight of the frame. Based on the differences between claims 8, 17 and D1, the technical problems to be solved may be regarded as how to easily replace the damaged parts.

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Box No. V **Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step and industrial applicability; citations and explanations supporting such statement**

[13] The technical feature "the vertical portion has an inner elliptical cross-section" and the additional technical features of claims 5-8, 14-15, 17 are common knowledge in the art, claims 4-8, 14-15, 17 do not meet the requirements of PCT Article 33(3).

[14] (2) Based on the differences between claims 10-11, 19 and D1, the technical problems to be solved may be regarded as how to securely fix the frame and the liner.

[15] D2 discloses (see pages 3-5, figures 1, 2): a liner includes an upper sleeve 4 configured to receive the first and second horizontal frames, the upper sleeve 4 defining a first horizontal area; and a side wall that defines a water cavity 5, the water cavity 5 having a second horizontal area smaller than the first horizontal area. The side wall being located radially inward of the upper sleeve 4. The supporting step comprises inserting the first and second horizontal frames in an upper sleeve 4 of the liner; and positioning a side wall of the liner radially inward of the upper sleeve 4. Therefore, it would be obvious to a person skilled in the art to reach the technical solution in claims 10-11, 19 by combining D1, D2. Claims 10-11, 19 do not involve an inventive step, and do not meet the requirements of PCT Article 33(3).

[16] III. Industrial applicability:

[17] Claims 1-20 can be manufactured and used in the technical field of pool and thus meet the requirements of PCT Article 33 (4).

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Publication Number: CN 204475914 U
Publication Date: Jul 15, 2015

Abstract

The utility model provides an oval support pool comprising a supporting frame and a soft film pool liner which is used for accommodating water. The supporting frame comprises a horizontal oval upper frame and a plurality of vertical and oblique supporting pins supporting the upper frame. Two ends of the long axis of the oval upper frame are provided with two arc frames in opposite positions, the arc frames are connected through two parallel and isometric straight frames respectively, and the enclosure upper frame is obtained through the arc frames and the straight frames. The oval support pool is simple in structure, convenient to assemble, solid and stable, high in safety, attractive in shape and high in space utilization rate.

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(19)中华人民共和国国家知识产权局

(12)实用新型专利

(10)授权公告号 CN 204475914 U
(45)授权公告日 2015.07.15

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(51)Int.Cl.
E04H 4/04(2006.01)

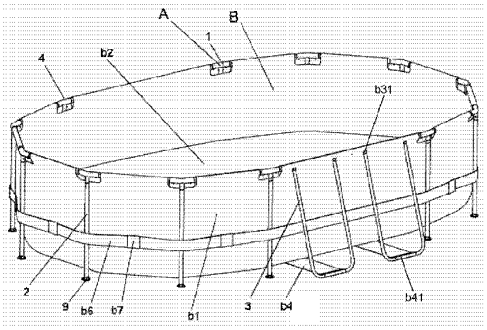
权利要求书1页 说明书5页 附图8页

(54)实用新型名称

椭圆形支架泳池

(57)摘要

本实用新型提供一种椭圆形支架泳池，包括一个支撑框架和一个由支撑框架支撑的用于容纳水体的柔性薄膜水池内衬；支撑框架包括一个水平的、整体呈椭圆形的上框架、支撑上框架的若干垂直支撑脚管和斜支撑脚管；上框架的椭圆形长轴方向的两端为两段位置相对的弧形框架，两段弧形框架之间由两段相互平行且长度相等的直框架分别连接，弧形框架和直框架构成闭合的上框架。本实用新型的支架泳池结构简单、安装方便、牢固稳定、安全性高、外形美观以及空间利用率高。



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1. 一种椭圆形支架泳池，其特征在于，包括一个支撑框架 (A) 和一个由所述支撑框架 (A) 支撑的用于容纳水体的柔性薄膜水池内衬 (B)；

所述支撑框架 (A) 包括一个水平的、整体呈椭圆形的上框架 (1)、支撑所述上框架 (1) 的若干垂直支撑脚管 (2) 和斜支撑脚管 (3)；所述上框架 (1) 的椭圆形长轴方向的两端为两段位置相对的弧形框架 (11)，两段所述弧形框架 (11) 之间由两段相互平行且长度相等的直框架 (12) 分别连接，所述弧形框架 (11) 和所述直框架 (12) 构成闭合的所述上框架 (1)。

2. 根据权利要求 1 所述的椭圆形支架泳池，其特征在于，每段所述弧形框架 (11) 由至少两根第一水平支撑管 (111) 相互连接而成；每段所述直框架 (12) 由至少一根第二水平支撑管 (121) 构成。

3. 根据权利要求 2 所述的椭圆形支架泳池，其特征在于，每段所述直框架 (12) 包括至少两根第二水平支撑管 (121)，所述第二水平支撑管 (121) 之间相互对插并通过弹销结构固定连接。

4. 根据权利要求 3 所述的椭圆形支架泳池，其特征在于，两根所述第一水平支撑管 (111) 与一根所述垂直支撑脚管 (2) 之间以及一根所述第一水平支撑管 (111)、一根所述第二水平支撑管 (121) 与一根所述垂直支撑脚管 (2) 之间均是通过 T 形接头 (4) 辅以弹销结构相互连接的。

5. 根据权利要求 2 或 3 所述的椭圆形支架泳池，其特征在于，所述第二水平支撑管 (121) 的下表面具有至少一对或者至少一个直径大于所述斜支撑脚管 (3) 外径的斜支撑开孔 (1211)。

6. 根据权利要求 5 所述的椭圆形支架泳池，其特征在于，所述斜支撑脚管 (3) 为 U 形管，其两端分别插入一对所述斜支撑开孔 (1211) 内，以支撑所述直框架 (12)。

7. 根据权利要求 5 所述的椭圆形支架泳池，其特征在于，所述斜支撑脚管 (3) 为倒 T 形管，其上端插入一个所述斜支撑开孔 (1211) 内，以支撑所述直框架 (12)。

8. 根据权利要求 1 所述的椭圆形支架泳池，其特征在于，所述柔性薄膜水池内衬 (B) 由夹设有网布的柔性增强 PVC 胶布或者 PU 胶布制成。

9. 根据权利要求 8 所述的椭圆形支架泳池，其特征在于，所述柔性薄膜水池内衬 (B) 的包括池壁 (b1) 和椭圆形的池底 (b2)，所述池壁 (b1) 的上边缘设有穿套所述上框架 (1) 的所述第一水平支撑管 (111) 和所述第二水平支撑管 (121) 的多个第一套管 (b11)，将所述柔性薄膜水池内衬 (B) 与所述上框架 (1) 之间固定。

10. 根据权利要求 9 所述的椭圆形支架泳池，其特征在于，所述柔性薄膜水池内衬 (B) 的所述池底 (b2) 与所述斜支撑脚管 (3) 的底端之间设有斜支撑管拉带 (b4)；所述斜支撑管拉带 (b4) 的一端与所述池底 (b2) 固定连接，另一端设有第二套管 (b41)，所述斜支撑脚管 (3) 的底端穿套于所述第二套管 (b41) 中，位置受所述斜支撑管拉带 (b4) 的限制。

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椭圆形支架泳池

技术领域

[0001] 本实用新型涉及可以在家庭的庭院、花园等地方使用的便携式家用地上泳池技术领域，具体来说，本实用新型涉及一种包含支撑框架和柔性薄膜水池内衬的椭圆形支架泳池。

背景技术

[0002] 便携式家用地上泳池是放在家庭的庭院、花园、草坪或其它空地上供成人和儿童使用的，它具有拆装方便，易于收藏等优点。地上泳池有很多种不同的结构，主要分为有金属（或塑胶）支架的支架泳池和没有金属（或塑胶）支架的无支架泳池。地上泳池的形式多样，种类繁多。但是，现有技术中的支架泳池主要存在以下缺陷：

[0003] 1、相对于其它圆形支架泳池和椭圆形支架泳池，矩形支架泳池支架部分采用的钢管数量要多，材料成本缺乏优势，而且造成整套泳池的重量较大，不易搬运。其次，由于矩形支架泳池的四边都采用斜支架，使得泳池的占地面积较大，在一些较为狭窄的场地会限制泳池的安装和使用。再次，矩形支架泳池的上框架四条边框的钢管是通过形直角钢管以非固定方式连接的，用户使用时容易被相邻两边的上框架钢管夹伤，故存在一定的安全隐患。

[0004] 2、圆形支架泳池由于是圆形设计，因此泳池的长度是比较有限的，会影响到用户的使用。

[0005] 3、现有技术的椭圆形支架泳池，只在泳池的两侧设有支撑钢管，其它部位没有任何的支撑框架或钢管，使得整个泳池的结构不太稳固。用户在泳池中使用时，泳池会随着水的晃动而产生一定的晃动。另外，在没有支架支撑的部分，泳池的池壁受到向下重压时，水会从池壁被压低的部位流出来。

实用新型内容

[0006] 本实用新型所要解决的技术问题是针对现有技术中存在的缺陷，提供一种便携式椭圆形支架泳池，其结构简单、安装方便、牢固稳定、安全性高、外形美观以及空间利用率高。

[0007] 为解决上述技术问题，本实用新型提供一种椭圆形支架泳池，包括一个支撑框架和一个由所述支撑框架支撑的用于容纳水体的柔性薄膜水池内衬；

[0008] 所述支撑框架包括一个水平的、整体呈椭圆形的上框架、支撑所述上框架的若干垂直支撑脚管和斜支撑脚管；所述上框架的椭圆形长轴方向的两端为两段位置相对的弧形框架，两段所述弧形框架之间由两段相互平行且长度相等的直框架分别连接，所述弧形框架和所述直框架构成闭合的所述上框架。

[0009] 可选地，每段所述弧形框架由至少两根第一水平支撑管相互连接而成；每段所述直框架由至少一根第二水平支撑管构成。

[0010] 可选地，每段所述直框架包括至少两根第二水平支撑管，所述第二水平支撑管之间相互对插并通过弹销结构固定连接。

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[0011] 可选地，两根所述第一水平支撑管与一根所述垂直支撑脚管之间以及一根所述第一水平支撑管、一根所述第二水平支撑管与一根所述垂直支撑脚管之间均是通过 T 形接头辅以弹销结构相互连接的。

[0012] 可选地，所述第二水平支撑管的下表面具有至少一对或者至少一个直径大于所述斜支撑脚管外径的斜支撑开孔。

[0013] 可选地，所述斜支撑脚管为 U 形管，其两端分别插入一对所述斜支撑开孔内，以支撑所述直框架。

[0014] 可选地，所述斜支撑脚管为倒 T 形管，其上端插入一个所述斜支撑开孔内，以支撑所述直框架。

[0015] 可选地，所述柔性薄膜水池内衬由夹设有网布的柔性增强 PVC 胶布或者 PU 胶布制成。

[0016] 可选地，所述柔性薄膜水池内衬的包括池壁和椭圆形的池底，所述池壁的上边缘设有穿套所述上框架的所述第一水平支撑管和所述第二水平支撑管的多个第一套管，将所述柔性薄膜水池内衬与所述上框架之间固定。

[0017] 可选地，所述柔性薄膜水池内衬的所述池底与所述斜支撑脚管的底端之间设有斜支撑管拉带；所述斜支撑管拉带的一端与所述池底固定连接，另一端设有第二套管，所述斜支撑脚管的底端穿套于所述第二套管中，位置受所述斜支撑管拉带的限制。

[0018] 与现有技术相比，本实用新型具有以下优点：

[0019] 本实用新型具有结构简单、安装方便、结构牢固稳定、安全性高、外形美观以及空间利用率高（占地面积小）等一系列优点。

附图说明

[0020] 本实用新型的上述的以及其他的特征、性质和优势将通过下面结合附图和实施例的描述而变得更加明显，其中：

[0021] 图 1 为本实用新型实施例一的椭圆形支架泳池的立体结构示意图；

[0022] 图 2 为图 1 所示实施例一的椭圆形支架泳池中支撑框架的立体结构示意图；

[0023] 图 3 为图 2 所示实施例一的椭圆形支架泳池中支撑框架的俯视结构图；

[0024] 图 4 为图 2 所示实施例一的椭圆形支架泳池中支撑框架的正视结构图；

[0025] 图 5 为图 2 所示实施例一的椭圆形支架泳池中支撑框架的侧视结构图；

[0026] 图 6 为本实用新型实施例一的椭圆形支架泳池中弧形框架的两根第一水平支撑管、一根垂直支撑脚管和 T 形接头的组装前的爆炸示意图；

[0027] 图 7 为图 6 所示实施例一的椭圆形支架泳池中弧形框架的两根第一水平支撑管、一根垂直支撑脚管、T 形接头和柔性薄膜水池内衬的组装后的局部示意图；

[0028] 图 8 为本实用新型实施例一的椭圆形支架泳池中弧形框架的一根第一水平支撑管、直框架的一根第二水平支撑管、一根垂直支撑脚管和 T 形接头的组装前的爆炸示意图；

[0029] 图 9 为图 8 所示实施例一的椭圆形支架泳池中弧形框架的一根第一水平支撑管、直框架的一根第二水平支撑管、一根垂直支撑脚管、T 形接头和柔性薄膜水池内衬的组装后的局部示意图；

[0030] 图 10 为本实用新型实施例一的椭圆形支架泳池中直框架的第二水平支撑管和斜

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支撑脚管的组装示意图；

[0031] 图 11 为本实用新型实施例一的椭圆形支架泳池中直框架的第二水平支撑管、斜支撑脚管以及柔性薄膜水池内衬的组装后的立体结构图；

[0032] 图 12 为图 11 所示实施例一的椭圆形支架泳池中直框架的第二水平支撑管、斜支撑脚管以及柔性薄膜水池内衬的组装后的侧视结构图；

[0033] 图 13 为本实用新型实施例二的椭圆形支架泳池的两段弧形框架的第一水平支撑管为弧形的俯视结构图。

[0034] 附图标记集中说明：

[0035]	A：支撑框架	B：柔性薄膜水池内衬	1：上框架
[0036]	11：弧形框架	111：第一水平支撑管	12：直框架
[0037]	121：第二水平支撑管	1211：斜支撑开孔	2：垂直支撑脚管
[0038]	3：斜支撑脚管	4：T 形接头	5：第一弹销
[0039]	6：第二弹销	7：第三弹销	8：护套
[0040]	9：脚垫	b1：池壁	b11：第一套管
[0041]	b2：池底	b31：斜支撑开口	b4：斜支撑管拉带
[0042]	b41：第二套管	b6：增强带	b7：贴片。

具体实施方式

[0043] 下面结合具体实施例和附图对本实用新型作进一步说明，在以下的描述中阐述了更多的细节以便于充分理解本实用新型，但是本实用新型显然能够以多种不同于此描述的其它方式来实施，本领域技术人员可以在不违背本实用新型内涵的情况下根据实际应用情况作类似推广、演绎，因此不应以此具体实施例的内容限制本实用新型的保护范围。

[0044] 图 1 为本实用新型实施例一的椭圆形支架泳池的立体结构示意图；图 2 为图 1 所示实施例一的椭圆形支架泳池中支撑框架的立体结构示意图；图 3 为图 2 所示实施例一的椭圆形支架泳池中支撑框架的俯视结构图；图 4 为图 2 所示实施例一的椭圆形支架泳池中支撑框架的正视结构图；图 5 为图 2 所示实施例一的椭圆形支架泳池中支撑框架的侧视结构图。需要注意的是，这些以及后续其他的附图均仅作为示例，其并非是按照等比例的条件绘制的，并且不应该以此作为对本实用新型实际要求的保护范围构成限制。

[0045] 结合图 1 至图 5 所示，本实用新型实施例一的椭圆形支架泳池主要包括一个支撑框架 A 和一个由支撑框架 A 支撑的用于容纳水体的柔性薄膜水池内衬 B。其中，支撑框架 A 由多根钢管通过钢管接头连接构成，柔性薄膜水池内衬 B 由夹设有网布的柔性增强 PVC 胶布或者 PU 胶布制成。下面会对支撑框架 A 和柔性薄膜水池内衬 B 进行详细描述。

[0046] 支撑框架 A 包括一个水平的、整体呈椭圆形的上框架 1、支撑上框架 1 的若干垂直支撑脚管 2 和斜支撑脚管 3。上框架 1 的椭圆形长轴方向的两端为两段位置相对的弧形框架 11，两段弧形框架 11 之间由两段相互平行且长度相等的直框架 12 分别连接，弧形框架 11 和直框架 12 构成闭合的上框架 1。在每一段弧形框架 11 中，其可以由至少两根第一水平支撑管 111 相互连接而成，而每根该第一水平支撑管 111 可以为直形管。在每一段直框架 12 中，其可以由至少一根第二水平支撑管 121 构成。

[0047] 图 6 为本实用新型实施例一的椭圆形支架泳池中弧形框架的两根第一水平支撑

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管、一根垂直支撑脚管和T形接头的组装前的爆炸示意图；而图7为图6所示实施例一的椭圆形支架泳池中弧形框架的两根第一水平支撑管、一根垂直支撑脚管、T形接头和柔性薄膜水池内衬的组装后的局部示意图；图8为本实用新型实施例一的椭圆形支架泳池中弧形框架的一根第一水平支撑管、直框架的一根第二水平支撑管、一根垂直支撑脚管和T形接头的组装前的爆炸示意图；而图9为图8所示实施例一的椭圆形支架泳池中弧形框架的一根第一水平支撑管、直框架的一根第二水平支撑管、一根垂直支撑脚管、T形接头和柔性薄膜水池内衬的组装后的局部示意图。

[0048] 结合图1至图9所示，弧形框架11中相邻的两根第一水平支撑管111与一根垂直支撑脚管2之间，以及弧形框架11中的一根第一水平支撑管111、直框架12中的一根第二水平支撑管121与一根垂直支撑脚管2之间都是通过弯曲的T形接头4辅以弹销结构相互固定连接的。

[0049] 结合图6和图7所示，弧形框架11中相邻的两根第一水平支撑管111、一根垂直支撑脚管2和T形接头4之间相互固定连接的具体方式是：第一水平支撑管111末端和T形接头4的末端相互对插，并以第一弹销5穿过第一水平支撑管111末端和T形接头4的末端的圆孔以固定连接；垂直支撑脚管2的上端与T形接头4的下端对插，并通过垂直支撑脚管2内的第二弹销6穿过垂直支撑脚管2的上端与T形接头4的下端的圆孔进行固定连接。

[0050] 结合图8和图9所示，弧形框架11中的一根水平支撑管111、直框架12中的一根水平支撑管121、一根垂直支撑脚管2和T形接头4之间相互固定连接的具体方式是：弧形框架11的第一水平支撑管111、直框架12的第二水平支撑管121的末端和T形接头4的左右两个末端相互对插，并以第一弹销5穿过第一水平支撑管111末端、第二水平支撑管121末端和T形接头4的末端的圆孔以固定连接；垂直支撑脚管2的上端与T形接头4的下端对插，并通过垂直支撑脚管2内的第二弹销6穿过垂直支撑脚管2的上端与T形接头4的下端的圆孔进行固定连接。垂直支撑脚管2的下端设有脚垫9。

[0051] 结合图2至图5所示，直框架12两侧的第二水平支撑管121的下方都设置了底部平直的、整体呈U形的斜支撑脚管3对第二水平支撑管121进行向上和向内方向的支撑，以防止泳池充满水以后直框架12向泳池外侧弯曲变形。当然，该斜支撑脚管3的整体形状并不仅限于U形，还可以例如为倒T形状（未图示），其与第二水平支撑管121之间的安装方式与U形的斜支撑脚管3类似。

[0052] 图10为本实用新型实施例一的椭圆形支架泳池中直框架的第二水平支撑管和斜支撑脚管的组装示意图。如图10所示，首先，每一段直框架12也可以包括至少两根第二水平支撑管121，两根第二水平支撑管121之间相互对插，并通过第一弹销5固定连接。其次，直框架12的第二水平支撑管121与斜支撑脚管3的固定连接方式可以是：每根第二水平支撑管121的下表面设有至少一对或者至少一个直径略大于斜支撑脚管3外径的斜支撑开孔1211（图10中示出的是一对的方案）。U形的斜支撑脚管3两端均设有塑胶护套8和第三弹销7，斜支撑脚管3的两端分别插入直框架12的第二水平支撑管121的下方的一对斜支撑开孔1211内，利用斜支撑脚管3的第三弹销7卡在第二水平支撑管121的内壁，以此与直框架12的第二水平支撑管121进行连接固定，以支撑直框架12。当然，若该斜支撑脚管不是U形管，而是倒T形管，则该斜支撑脚管的上端也可设有塑胶护套和第三弹销，然后其

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上端插入第二水平支撑管 121 的下方的一个斜支撑开孔 1211 内，用以支撑直框架 12。

[0053] 图 11 为本实用新型实施例一的椭圆形支架泳池中直框架的第二水平支撑管、斜支撑脚管以及柔性薄膜水池内衬的组装后的立体结构图。请结合图 1、图 7、图 9 和图 11 所示，该柔性薄膜水池内衬 B 置于支撑框架 A 的内侧，其包括池壁 b1 和椭圆形的池底 b2。池壁 b1 的下边缘与池底 b2 的边缘相互连接，形成一个可以容纳水体的敞开容器。池壁 b1 的上边缘设有穿套上框架 1 的第一水平支撑管 111 和第二水平支撑管 121 的多个第一套管 b11，将柔性薄膜水池内衬 B 与上框架 1 之间固定。第二水平支撑管 121 位置处的每个第一套管 b11 上设有与第二水平支撑管 121 的下表面的斜支撑开孔 1211 对应的一对或者一个斜支撑开口 b31，用于使斜支撑脚管 3 的两端或者上端透过其与里面的斜支撑开孔 1211 连接。

[0054] 另外，在池壁 b1 上从下往上四分之一至二分之一高度（例如三分之一高度）的位置处设有环绕四周的增强带 b6，该增强带 b6 可通过池壁 b1 上的多个贴片 b7 附在池壁 b1 上。垂直支撑脚管 2 置于池壁 b1 和增强带 b6 之间，这样的结构设计可以很好地限定柔性薄膜水池内衬 B 的形状和垂直支撑脚管 2 的位置，防止柔性薄膜水池内衬 B 充满水之后池壁 b1 向外鼓出以及垂直支撑脚管 2 发生位移。

[0055] 图 12 为图 11 所示实施例一的椭圆形支架泳池中直框架的第二水平支撑管、斜支撑脚管以及柔性薄膜水池内衬的组装后的侧视结构图。结合图 11 和图 12 所示，柔性薄膜水池内衬 B 的池底 b2 与斜支撑脚管 3 的底端之间设有多个斜支撑管拉带 b4。斜支撑管拉带 b4 的一端与池底 b2 固定连接，另一端设有第二套管 b41。斜支撑脚管 3 的底端穿套于斜支撑管拉带 b4 的第二套管 b41 中，使斜支撑脚管 3 的位置受斜支撑管拉带 b4 的限制。当水池内衬 B 充满水之后，防止斜支撑脚管 3 向外侧滑动。

[0056] 图 13 为本实用新型实施例二的椭圆形支架泳池的两段弧形框架的第一水平支撑管为弧形的俯视结构图。本实施例二沿用前述实施例一的元件标号与绝大部分内容，其中采用相同的标号来表示相同或近似的元件，并且选择性地省略了相同技术内容的说明。关于省略部分的说明可参照前述实施例，本实施例不再重复赘述。

[0057] 在本实施例二中，两段弧形框架 11 的第一水平支撑管 111 均可以为弧形管，使得支架泳池的支撑框架 A 的椭圆形外形更加圆润，其它结构与实施例一相同即可。

[0058] 综上所述，本实用新型具有结构简单、安装方便、结构牢固稳定、安全性高、外形美观以及空间利用率高（占地面积小）等一系列优点。

[0059] 本实用新型虽然以较佳实施例公开如上，但其并不是用来限定本实用新型，任何本领域技术人员在不脱离本实用新型的精神和范围内，都可以做出可能的变动和修改。因此，凡是未脱离本实用新型技术方案的内容，依据本实用新型的技术实质对以上实施例所作的任何修改、等同变化及修饰，均落入本实用新型权利要求所界定的保护范围之内。

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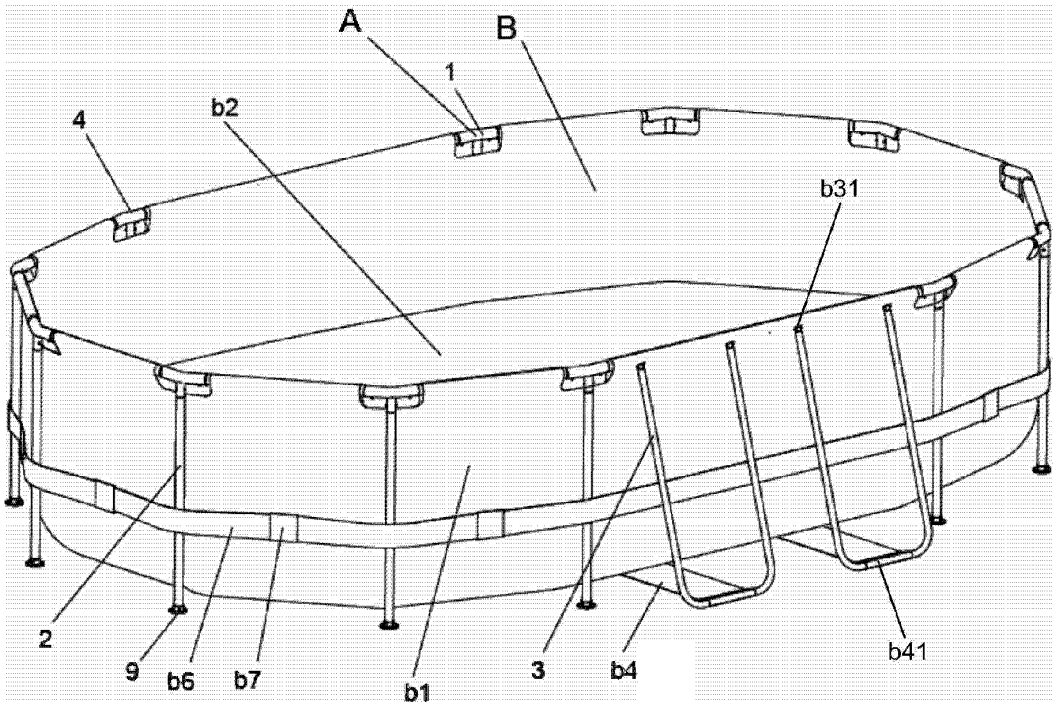


图 1

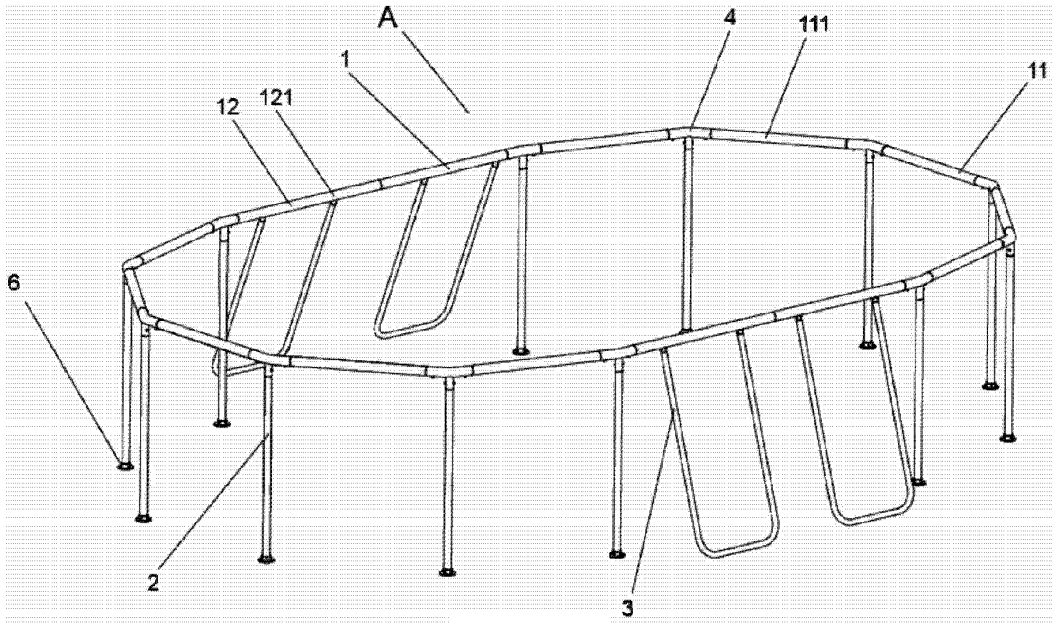


图 2

BESTWAY EX. 1003; Pg 114
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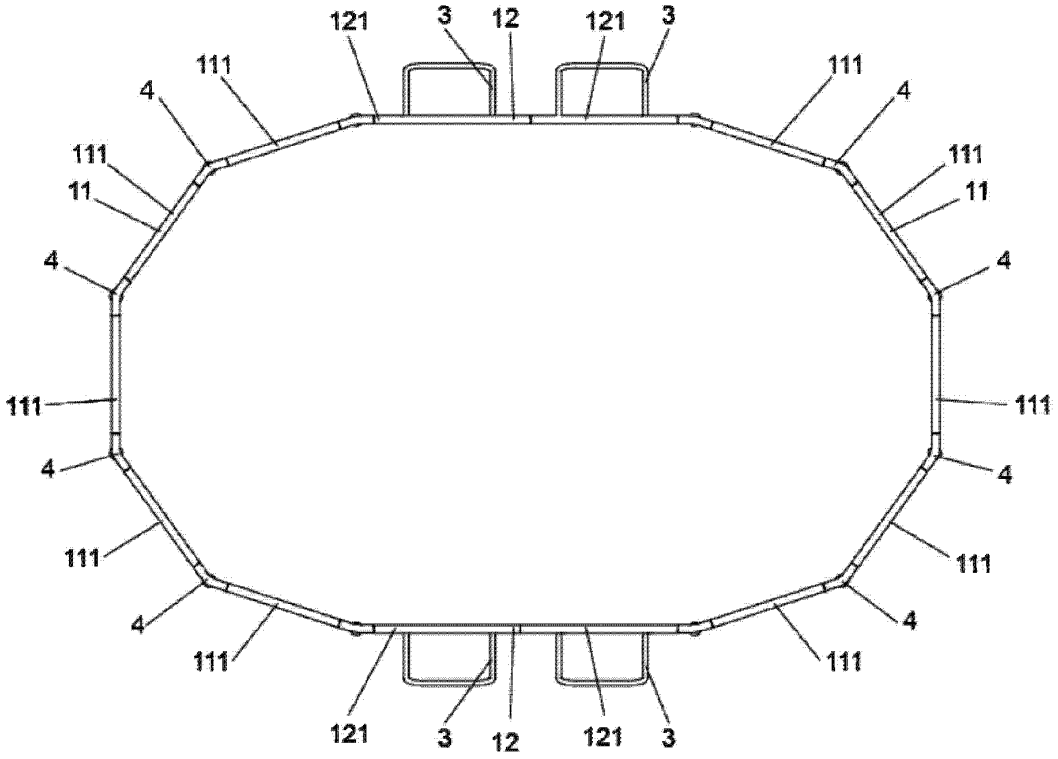


图 3

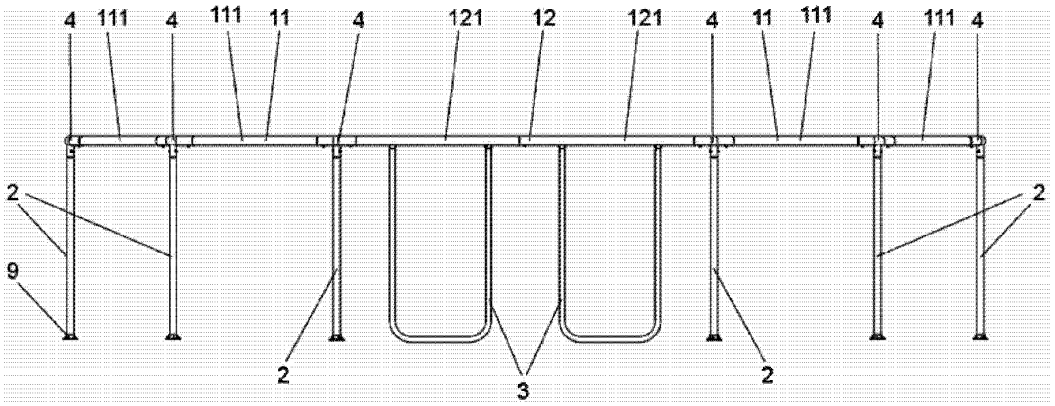


图 4

BESTWAY EX. 1003; Pg 115
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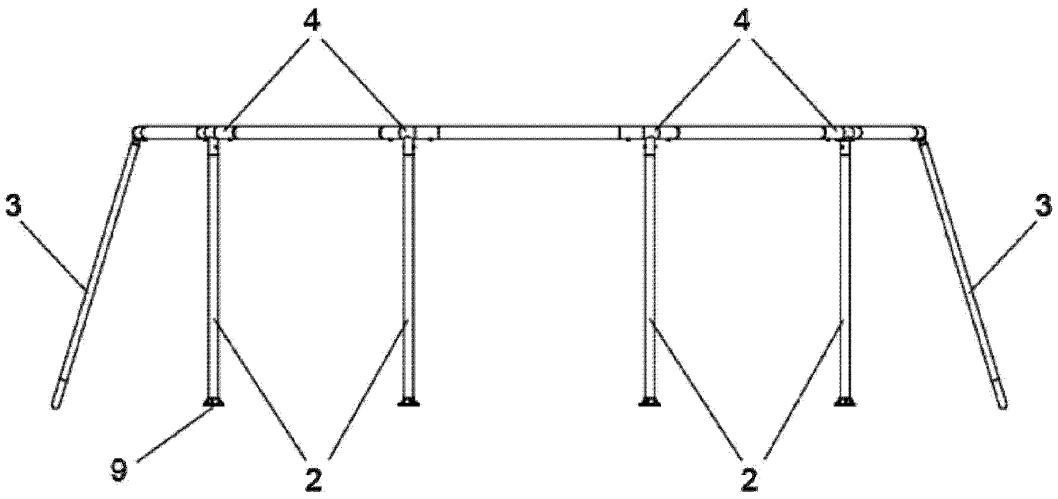


图 5

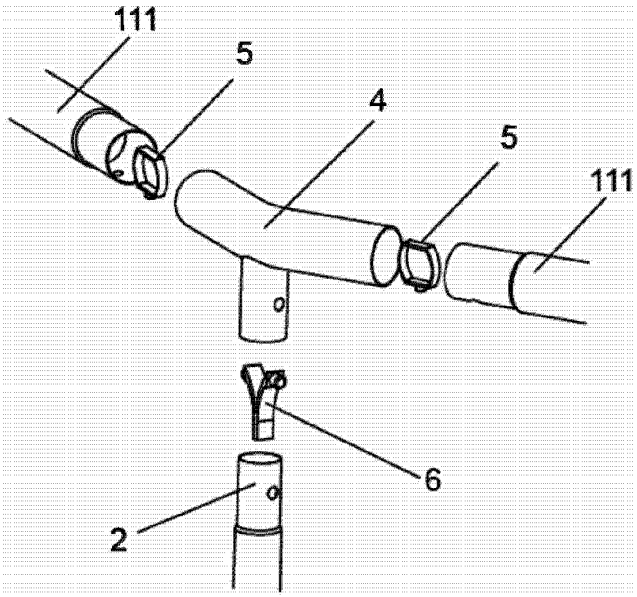


图 6

BESTWAY EX. 1003; Pg 116
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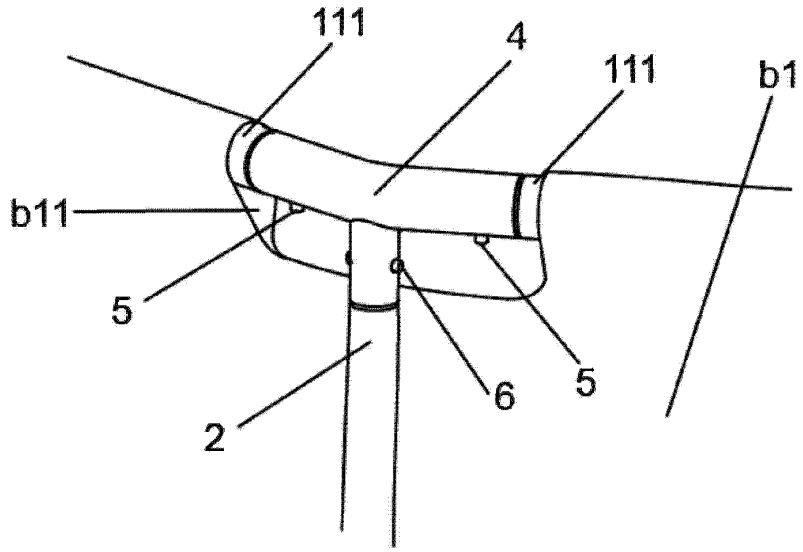


图 7

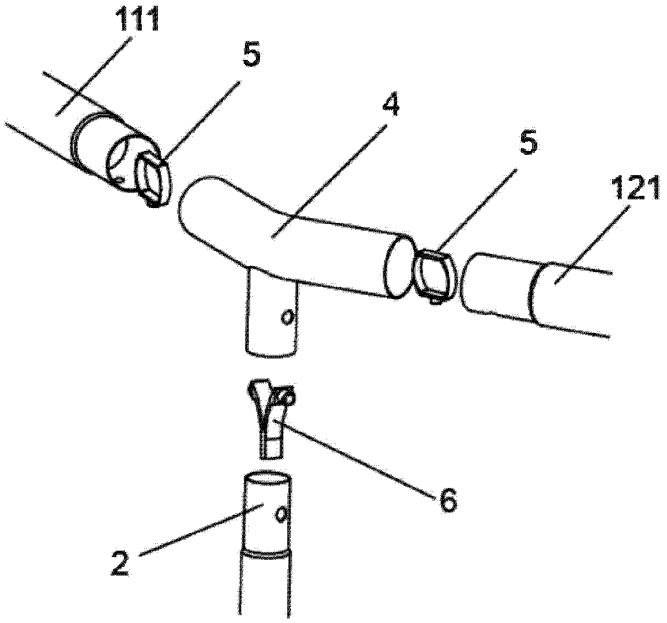


图 8

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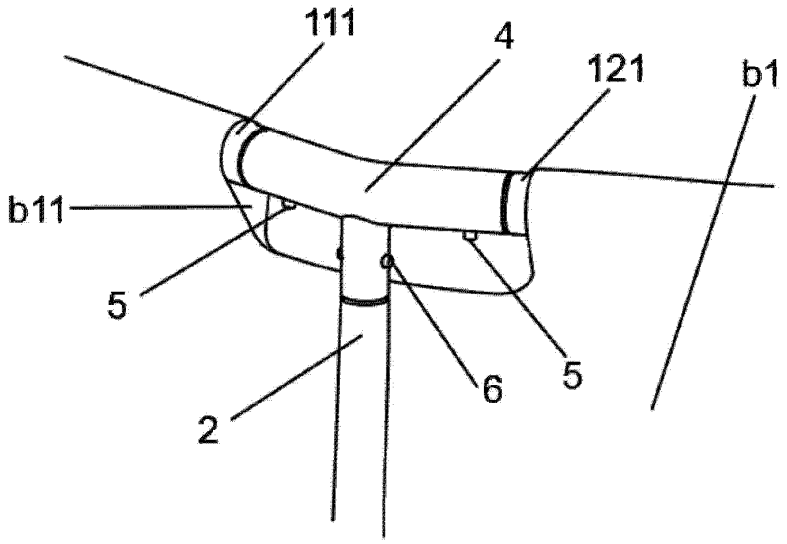


图 9

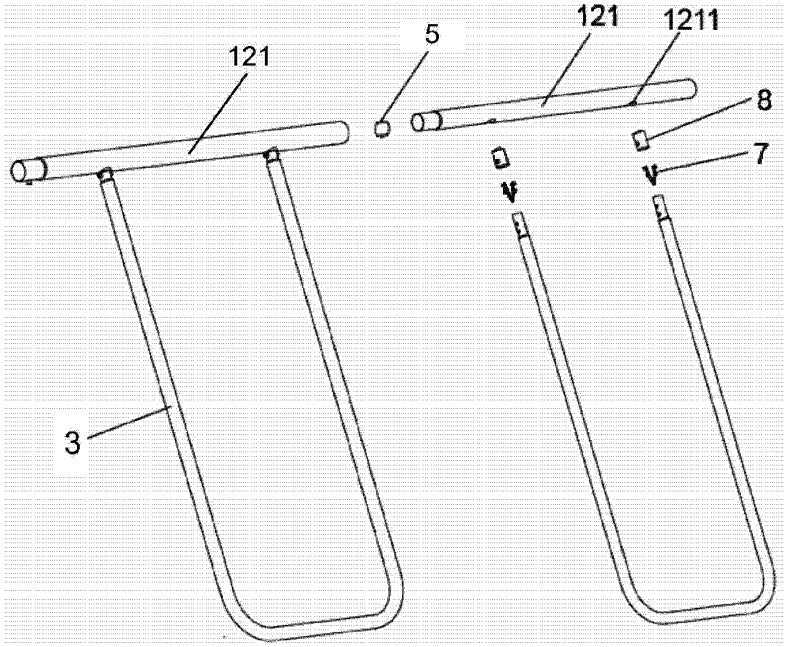


图 10

BESTWAY EX. 1003; Pg 118
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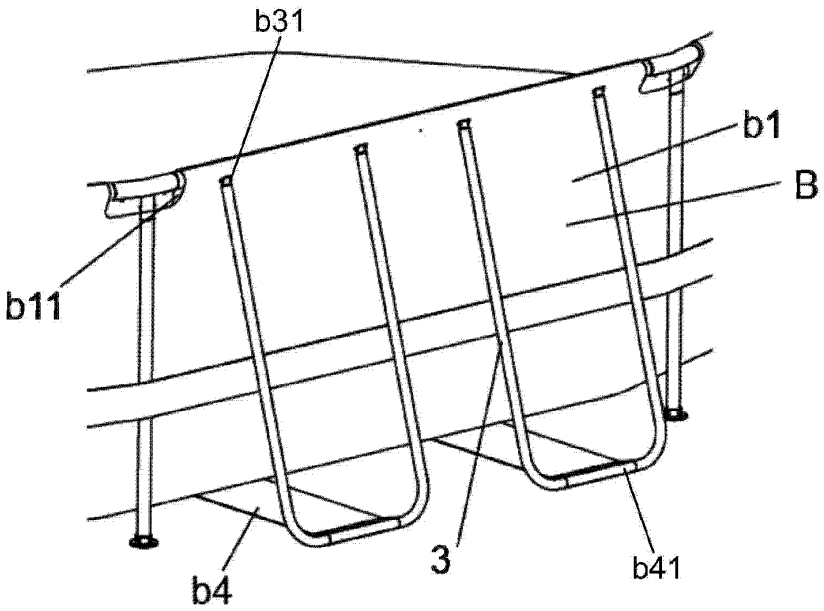


图 11

BESTWAY EX. 1003; Pg 119
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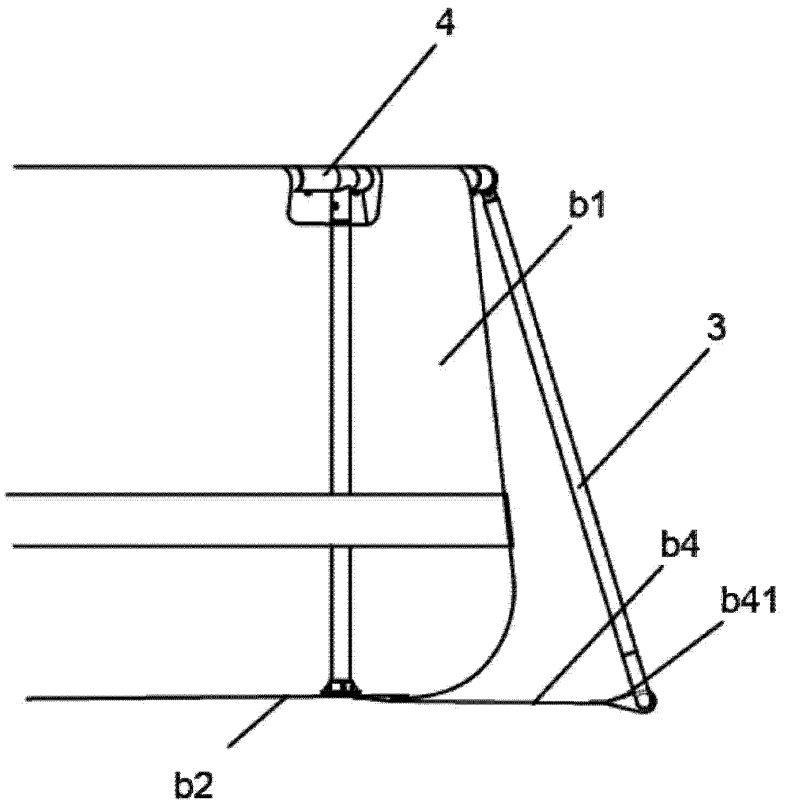


图 12

BESTWAY EX. 1003; Pg 120
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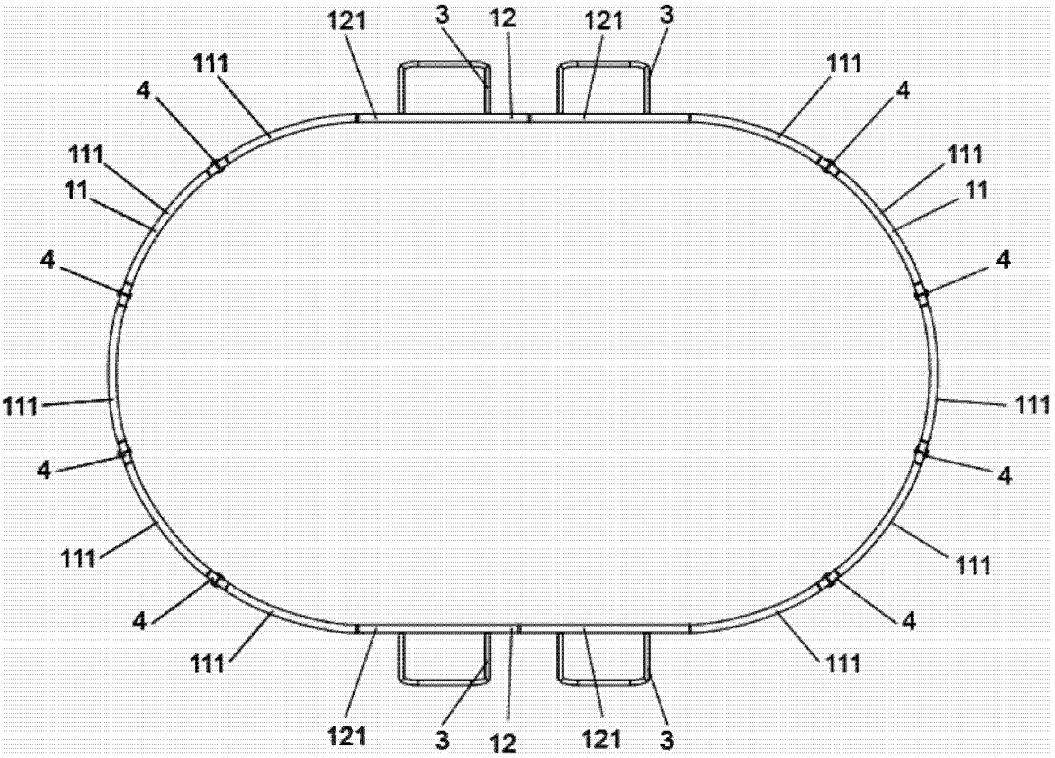


图 13

BESTWAY EX. 1003; Pg 121
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Publication Number: CN 204531509 U
Publication Date: Aug 05, 2015

Abstract of equivalent US 20170009475 A1

The utility model provides a ground forebay and be used for ground forebay braced frame, an automobile emergency starting power supply which comprises an outer shell. Horizontal support spare and every the vertical bracing piece all has oval cross section, and the pond inside lining, fix extremely said braced frame, said pond inside lining by braced frame supports and forms the pond main part for store the water in the pond. The utility model discloses the braced frame cross section that adopts partly at least of ground forebay is the oval-shaped pipe, because the shape of cross section of elliptical tube symmetry, the return bend processing degree of difficulty is little for the tubulation degree of difficulty reduces, has effectively improved stability, is favorable to the quality management and control. Simultaneously, it is little that the bian guanyu of elliptical tube connects the fit clearance, and mechanical stress is big and stability is strong. In addition, the bian guanyu of elliptical tube adopts bolt connection between connecting, and this kind of connected mode is more firm, and intensity is better.

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代理人 陈亮

(51)Int.Cl.
E04H 4/04(2006.01)
E04H 4/14(2006.01)

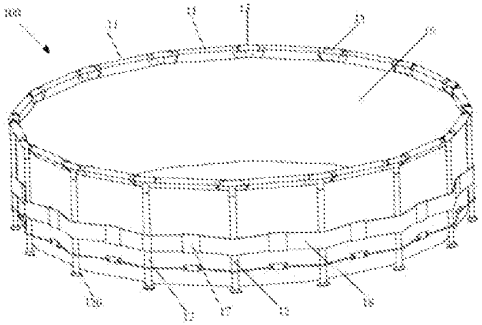
权利要求书4页 说明书12页 附图18页

(54)实用新型名称

地上水池及用于地上水池的支撑框架

(57)摘要

本实用新型提供了一种地上水池及用于地上水池的支撑框架，所述地上水池包括：支撑框架，包括一系列水平支撑件和垂直支撑件，每个所述水平支撑件和每个所述垂直支撑件均具有椭圆形横截面；以及水池内衬，固定至所述支撑框架，所述水池内衬由所述支撑框架支撑形成水池主体，用于储存水池内的水。本实用新型地上水池的支撑框架至少一部分采用横截面为椭圆形的管子，由于椭圆管的横截面形状对称，弯管加工难度小，使得制管难度降低，有效提高了稳定性，有利于品质管控。同时，椭圆管的边管与接头配合间隙小，机械应力大且稳定性强。另外，椭圆管的边管与接头之间采用插销连接，这种连接方式更加牢固，强度更好。



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1. 一种地上水池，其特征在于，所述地上水池包括：

支撑框架，包括一系列水平支撑件和垂直支撑件，每个所述水平支撑件和每个所述垂直支撑件均具有椭圆形横截面；以及

水池内衬，固定至所述支撑框架，所述水池内衬由所述支撑框架支撑形成水池主体，用于储存水池内的水。

2. 如权利要求 1 所述的地上水池，其特征在于，所述支撑框架还包括多个 T 型接头，用于使所述水平支撑件和所述垂直支撑件联接在一起，所述 T 型接头包括水平管状部件和垂直管状部件，所述垂直管状部件横向于所述水平管状部件，每个所述水平管状部件和每个所述垂直管状部件均具有椭圆形横截面。

3. 如权利要求 2 所述的地上水池，其特征在于，所述多个 T 型接头依次使两个相应的所述水平支撑件联接在一起，以形成大致圆形的环形结构。

4. 如权利要求 2 所述的地上水池，其特征在于，所述垂直管状部件与相应的所述垂直支撑件联接。

5. 如权利要求 3 所述的地上水池，其特征在于，所述环形结构为椭圆形。

6. 如权利要求 3 所述的地上水池，其特征在于，所述水平管状部件的第一端可拆装地连接至相应的第一水平支撑件的端部，所述水平管状部件的第二端可拆装地连接至相应的第二水平支撑件的端部，相应的所述第一水平支撑件和相应的所述第二水平支撑件通过固定件连接至所述水平管状部件的第一端和所述水平管状部件的第二端，所述固定件位于对应附连点的近侧。

7. 如权利要求 6 所述的地上水池，其特征在于，所述固定件为固定销，所述固定销构造成穿过第一组定位孔和相应的第二组定位孔，所述第一组定位孔设置在所述水平管状部件的第一端和所述水平管状部件的第二端，相应的所述 第二组定位孔设置在相应的所述水平支撑件的端部，所述固定销使所述水平管状部件和相应的所述水平支撑件锁定在一起。

8. 如权利要求 4 所述的地上水池，其特征在于，所述垂直管状部件通过弹簧负载闭锁件可拆装地连接至相应的所述垂直支撑件，所述弹簧负载闭锁件与所述垂直支撑件的端部联接，所述闭锁件构造成与设置在所述垂直管状部件的开口端处的孔卡合。

9. 如权利要求 8 所述的地上水池，其特征在于，所述弹簧负载闭锁件包括销座，所述销座用于容纳弹性元件和定位销，所述销座装配在所述垂直支撑件的一端的内部，并构造成使得所述定位销由所述弹性元件向外偏置，以卡合所述孔，所述定位销使所述垂直管状部件和所述垂直支撑件锁定在一起。

10. 如权利要求 1 所述的地上水池，其特征在于，所述地上水池还包括多个张力支撑装置和张力支撑带，所述张力支撑装置联接至所述水池主体的外表面，其中每个所述张力支撑装置联接于两个相邻的所述垂直支撑件之间的外表面，所述张力支撑带交互地穿过所述张力支撑装置，且位于所述垂直支撑件上，环绕所述水池主体的外表面，以保持使所述垂直支撑件贴靠所述水池主体。

11. 如权利要求 10 所述的地上水池，其特征在于，所述张力支撑带设置在所述水池主体上的高度约等于所述水池主体的高度的 1/3 处。

12. 如权利要求 1 所述的地上水池，其特征在于，所述地上水池还包括多个支承基部，所述支承基座联接于所述垂直支撑件的底端。

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13. 一种地上水池，其特征在于，所述地上水池包括 ；

支撑框架，包括一系列水平支撑件、连接器和 U 型支撑件，每个所述水平支撑件和每个所述连接器均具有圆形横截面，所述 U 型支撑件具有椭圆形横截面 ；以及

水池内衬，固定至所述支撑框架，所述水池内衬通过所述支撑框架支撑形成水池主体，用于储存水池内的水。

14. 如权利要求 13 所述的地上水池，其特征在于，所述水平支撑件由多个所述连接器串联在一起形成环形结构。

15. 如权利要求 13 所述的地上水池，其特征在于，多个所述连接器均为 L 型。

16. 如权利要求 14 所述的地上水池，其特征在于，所述地上水池还包括联接件，所述联接件联接于所述 U 型支撑件的自由端，其中所述联接件使所述 U 型支撑件可拆装地连接至所述环形结构，并以倾斜的方式支撑所述环形结构。

17. 如权利要求 14 所述的地上水池，其特征在于，所述环形结构形成矩形或多边形。

18. 如权利要求 16 所述的地上水池，其特征在于，所述 U 型支撑件的各自由端具有缩小直径部分，所述缩小直径部分具有间隔开的第一组闭锁孔和第二组闭锁孔。

19. 如权利要求 18 所述的地上水池，其特征在于，所述联接件还包括 ：

柔性 V 型销，包括间隔开的第一对凸块和第二对凸块 ；以及

中空壳体，包括一对孔口，所述柔性销设置在所述 U 型支撑件的缩小直径部分内，以使得所述第一对凸块延伸穿过所述第二组闭锁孔与所述一对孔口卡合，所述第二对凸块延伸穿过所述第一组闭锁孔。

20. 如权利要求 19 所述的地上水池，其特征在于，所述壳体为具有椭圆形横截面的管子，所述管子的椭圆形横截面与所述 U 型支撑件的横截面相对应。

21. 如权利要求 14 所述的地上水池，其特征在于，所述地上水池还包括多个支撑带，所述支撑带联接至且设置于所述水池主体的底部，每个所述支撑带联接在所述水池主体的底部和相应所述 U 型支撑件的水平部分之间。

22. 如权利要求 21 所述的地上水池，其特征在于，每个所述支撑带包括套管，用于使所述 U 型支撑件的水平部分穿过。

23. 一种用于地上水池的支撑框架，其特征在于，所述框架包括 ：

多个水平支撑件，每个所述水平支撑件具有椭圆形横截面 ；以及

多个垂直支撑件，联接于所述多个水平支撑件，每个所述垂直支撑件具有椭圆形横截面 ；

其中水池内衬能固定至所述支撑框架，并且通过所述支撑框架支撑形成水池主体，用于储存水池内的水。

24. 如权利要求 23 所述的支撑框架，其特征在于，所述支撑框架还包括多个 T 型接头，用于使所述水平支撑件和所述垂直支撑件联接在一起，所述 T 型接头包括水平管状部件和垂直管状部件，所述垂直管状部件横向于所述水平管状部件，每个所述水平管状部件和每个所述垂直管状部件均具有椭圆形横截面。

25. 如权利要求 24 所述的支撑框架，其特征在于，所述多个 T 型接头依次使两个相应的所述水平支撑件联接在一起，以形成大致圆形的环形结构。

26. 如权利要求 24 所述的支撑框架，其特征在于，所述垂直管状部件与相应的所述垂

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直支撑件联接。

27. 如权利要求 25 所述的支撑框架，其特征在于，所述环形结构为椭圆形。

28. 如权利要求 25 所述的支撑框架，其特征在于，所述水平管状部件的第一端可拆装地连接至相应的第一水平支撑件的端部，所述水平管状部件的第二端可拆装地连接至相应的第二水平支撑件的端部，相应的所述第一水平支撑件和相应的所述第二水平支撑件通过固定件连接至所述水平管状部件的第一端和所述水平管状部件的第二端，所述固定件位于对应附连点的近侧。

29. 如权利要求 28 所述的支撑框架，其特征在于，所述固定件为固定销， 所述固定销构造成穿过第一组定位孔和相应的第二组定位孔，所述第一组定位孔设置在所述水平管状部件的第一端和所述水平管状部件的第二端，所述第二组定位孔设置在相应的所述水平支撑件的端部，所述固定销使所述水平管状部件和相应的所述水平支撑件锁定在一起。

30. 如权利要求 26 所述的支撑框架，其特征在于，所述垂直管状部件通过弹簧负载闭锁件可拆装地连接至相应的所述垂直支撑件，所述弹簧负载闭锁件与所述垂直支撑件的端部联接，所述闭锁件构造成与设置在所述垂直管状部件的开口端处的孔卡合。

31. 如权利要求 30 所述的支撑框架，其特征在于，所述弹簧负载闭锁件包括销座，所述销座用于容纳弹性元件和定位销，所述销座装配在所述垂直支撑件的一端的内部，并构造成使得所述定位销由所述弹性元件向外偏置，以卡合所述孔，所述定位销使所述垂直管状部件和所述垂直支撑件锁定在一起。

32. 如权利要求 23 所述的支撑框架，其特征在于，所述地上水池还包括多个张力支撑装置和张力支撑带，所述张力支撑装置联接至所述水池主体的外表面，其中每个所述张力支撑装置联接于两个相邻的所述垂直支撑件之间的外表面，所述张力支撑带交互地穿过所述张力支撑装置，且位于所述垂直支撑件上，环绕所述水池主体的外表面，以保持使所述垂直支撑件贴靠所述水池主体。

33. 如权利要求 32 所述的支撑框架，其特征在于，所述张力支撑带设置在所述水池主体上的高度约等于所述水池主体的高度的 1/3 处。

34. 如权利要求 23 所述的支撑框架，其特征在于，所述地上水池还包括多个支承基部，所述支承基座联接于所述垂直支撑件的底端。

35. 一种用于地上水池的支撑框架，其特征在于，所述框架包括 ：

多个水平支撑件，每个所述水平支撑件具有圆形横截面 ；

多个连接器，用于使相应的所述水平支撑件联接在一起，每个连接器为 L 型，且具有圆形横截面 ；以及

多个 U 型支撑件，每个 U 型支撑件具有椭圆形横截面 ；

其中水池内衬能固定至所述支撑框架，并且通过所述支撑框架支撑形成水池主体，用于储存水池内的水。

36. 如权利要求 35 所述的支撑框架，其特征在于，所述水平支撑件由多个所述连接器串联在一起形成环形结构。

37. 如权利要求 36 所述的支撑框架，其特征在于，所述地上水池还包括联接件，所述联接件联接于所述 U 型支撑件的自由端，其中所述联接件使所述 U 型支撑件可拆装地连接至所述环形结构，并以倾斜的方式支撑所述环形结构。

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38. 如权利要求 36 所述的支撑框架，其特征在于，所述环形结构形成矩形或多边形。

39. 如权利要求 35 所述的支撑框架，其特征在于，所述 U 型支撑件的各自由端具有缩小直径部分，所述缩小直径部分具有间隔开的第一组闭锁孔和第二组闭锁孔。

40. 如权利要求 39 所述的支撑框架，其特征在于，所述联接件还包括：

柔性 V 型销，包括间隔开的第一对凸块和第二对凸块；以及

中空壳体，包括一对孔口，所述柔性销设置在所述 U 型支撑件的缩小直径部分内，以使得所述第一对凸块延伸穿过所述第二组闭锁孔与所述一对孔口卡合，所述第二对凸块延伸穿过所述第一组闭锁孔。

41. 如权利要求 40 所述的支撑框架，其特征在于，所述壳体为具有椭圆形横截面的管子，所述管子的椭圆形横截面与所述 U 型支撑件的横截面相对应。

42. 如权利要求 35 所述的支撑框架，其特征在于，所述地上水池还包括多个支撑带，所述支撑带联接至且设置于所述水池主体的底部，每个所述支撑带联接在所述水池主体的底部和相应所述 U 型支撑件的水平部分之间。

43. 如权利要求 42 所述的支撑框架，其特征在于，每个所述支撑带包括套管，用于使所述 U 型支撑件的水平部分穿过。

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地上水池及用于地上水池的支撑框架

技术领域

[0001] 本实用新型涉及水池领域，特别涉及一种地上水池。

背景技术

[0002] 地上水池是一种安装在室外空地上使用的休闲娱乐产品，例如可以将其安装在家里的院子里或其他空地上，供成人和儿童一同玩耍。地上水池由于安装方便，使用效果好而广受人们的喜爱。

[0003] 目前，地上水池主要包括支架水池和充气水池两类。在支架水池中，其结构和形式多种多样。其中，圆形支架水池是最为典型的地上水池，其主要通过一系列的水平支撑件、垂直支撑件和水池内衬构成。水平支撑将依次通过连接件连接形成圆形结构，垂直支撑件支撑所述圆形结构形成一个支撑框架，再将水池内衬固定在所述支撑框架上形成一个水池主体。这样的水池主体即可实现储存水的地上水池。这种结构的支架水池在充满水之后，水体对于水池主体的压力会很大，这就意味着支撑框架需要承受非常大的压力。

[0004] 然而，传统圆形支架水池的支撑框架所采用的水平支撑件、垂直支撑件以及连接件大多为 D 型管。在实际运用中，D 型管具有如下诸多缺点：由于 D 型管的横截面的形状不对称，使得其制管工艺难度较大，生产工艺难管控。D 型管为不缩口结构，其边管与接头配合间隙较大，导致整体稳定性较差。D 型管的管子形状不对称，其圆弧角较难切割成型，而且相应的制造成本较高，这就造成接头弯管的加工难度较大。另外，D 型管之间的连接方式采用单点扣紧的方式连接，其连接的牢固度和强度较差。因此，由上述 D 型管安装形成的支撑框架的承压能力较低，对于地上水池的性能造成了极大的隐患。

[0005] 综上所述，地上水池的支撑框架的承压性能会直接影响到整个地上水池的稳定性，容易发生水池倒塌和人员受伤的事故。

实用新型内容

[0006] 本实用新型要解决的技术问题是为了克服现有技术中地上水池的支撑框架 承压力差的缺陷，提供一种地上水池。

[0007] 本实用新型是通过下述技术方案来解决上述技术问题的：一种地上水池，其特点在于，所述地上水池包括：支撑框架，包括一系列水平支撑件和垂直支撑件，每个所述水平支撑件和每个所述垂直支撑件均具有椭圆形横截面；以及

[0008] 水池内衬，固定至所述支撑框架，所述水池内衬由所述支撑框架支撑形成水池主体，用于储存水池内的水。

[0009] 较佳地，所述支撑框架还包括多个 T 型接头，用于使所述水平支撑件和所述垂直支撑件联接在一起，所述 T 型接头包括水平管状部件和垂直管状部件，所述垂直管状部件横向于所述水平管状部件，每个所述水平管状部件和每个所述垂直管状部件均具有椭圆形横截面。

[0010] 较佳地，所述多个 T 型接头依次使两个相应的所述水平支撑件联接在一起，以形

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成大致圆形的环形结构。

[0011] 较佳地，所述垂直管状部件与相应的所述垂直支撑件联接。

[0012] 较佳地，所述环形结构为椭圆形。

[0013] 较佳地，所述水平管状部件的第一端可拆装地连接至相应的第一水平支撑件的端部，所述水平管状部件的第二端可拆装地连接至相应的第二水平支撑件的端部，相应的所述第一水平支撑件和相应的所述第二水平支撑件通过固定件连接至所述水平管状部件的第一端和所述水平管状部件的第二端，所述固定件位于对应附连点的近侧。

[0014] 较佳地，所述固定件为固定销，所述固定销构造成穿过第一组定位孔和相应的第二组定位孔，所述第一组定位孔设置在所述水平管状部件的第一端和所述水平管状部件的第二端，相应的所述第二组定位孔设置在相应的所述水平支撑件的端部，所述固定销使所述水平管状部件和相应的所述水平支撑件锁定在一起。

[0015] 较佳地，所述垂直管状部件通过弹簧负载闭锁件可拆装地连接至相应的所述垂直支撑件，所述弹簧负载闭锁件与所述垂直支撑件的端部联接，所述闭锁件构造成与设置在所述垂直管状部件的开口端处的孔卡合。

[0016] 较佳地，所述弹簧负载闭锁件包括销座，所述销座用于容纳弹性元件和定位销，所述销座装配在所述垂直支撑件的一端的内部，并构造成使得所述定位销由所述弹性元件向外偏置，以卡合所述孔，所述定位销使所述垂直管状部件和所述垂直支撑件锁定在一起。

[0017] 较佳地，所述地上水池还包括多个张力支撑装置和张力支撑带，所述张力支撑装置联接至所述水池主体的外表面，其中每个所述张力支撑装置联接于两个相邻的所述垂直支撑件之间的外表面，所述张力支撑带交互地穿过所述张力支撑装置，且位于所述垂直支撑件上，环绕所述水池主体的外表面，以保持使所述垂直支撑件贴靠所述水池主体。

[0018] 较佳地，所述张力支撑带设置在所述水池主体上的高度约等于所述水池主体的高度的 1/3 处。

[0019] 较佳地，所述地上水池还包括多个支承基部，所述支承基座联接于所述垂直支撑件的底端。

[0020] 本实用新型还提供了一种地上水池，其特点在于，所述地上水池包括 ；

[0021] 支撑框架，包括一系列水平支撑件、连接器和 U 型支撑件，每个所述水平支撑件和每个所述连接器均具有圆形横截面，所述 U 型支撑件具有椭圆形横截面 ；以及

[0022] 水池内衬，固定至所述支撑框架，所述水池内衬通过所述支撑框架支撑形成水池主体，用于储存水池内的水。

[0023] 较佳地，所述水平支撑件由多个所述连接器串联在一起形成环形结构。

[0024] 较佳地，多个所述连接器均为 L 型。

[0025] 较佳地，所述地上水池还包括联接件，所述联接件联接于所述 U 型支撑件的自由端，其中所述联接件使所述 U 型支撑件可拆装地连接至所述环形结构，并以倾斜的方式支撑所述环形结构。

[0026] 较佳地，所述环形结构形成矩形或多边形。

[0027] 较佳地，所述 U 型支撑件的各自由端具有缩小直径部分，所述缩小直径部分具有间隔开的第一组闭锁孔和第二组闭锁孔。

[0028] 较佳地，所述联接件还包括 ：柔性 V 型销，包括间隔开的第一对凸块和第二对凸

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块；以及

[0029] 中空壳体，包括一对孔口，所述柔性销设置在所述 U 型支撑件的缩小直径部分内，以使得所述第一对凸块延伸穿过所述第二组闭锁孔与所述一对孔口卡合，所述第二对凸块延伸穿过所述第一组闭锁孔。

[0030] 较佳地，所述壳体为具有椭圆形横截面的管子，所述管子的椭圆形横截面与所述 U 型支撑件的横截面相对应。

[0031] 较佳地，所述地上水池还包括多个支撑带，所述支撑带联接至且设置于所 述水池主体的底部，每个所述支撑带联接在所述水池主体的底部和相应所述 U 型支撑件的水平部分之间。

[0032] 较佳地，每个所述支撑带包括套管，用于使所述 U 型支撑件的水平部分穿过。

[0033] 本实用新型还提供了一种用于地上水池的支撑框架，其特点在于，所述框架包括：

[0034] 多个水平支撑件，每个所述水平支撑件具有椭圆形横截面；以及

[0035] 多个垂直支撑件，联接于所述多个水平支撑件，每个所述垂直支撑件具有椭圆形横截面；

[0036] 其中水池内衬能固定至所述支撑框架，并且通过所述支撑框架支撑形成水池主体，用于储存水池内的水。

[0037] 较佳地，所述支撑框架还包括多个 T 型接头，用于使所述水平支撑件和所述垂直支撑件联接在一起，所述 T 型接头包括水平管状部件和垂直管状部件，所述垂直管状部件横向于所述水平管状部件，每个所述水平管状部件和每个所述垂直管状部件均具有椭圆形横截面。

[0038] 较佳地，所述多个 T 型接头依次使两个相应的所述水平支撑件联接在一起，以形成大致圆形的环形结构。

[0039] 较佳地，所述垂直管状部件与相应的所述垂直支撑件联接。

[0040] 较佳地，所述环形结构为椭圆形。

[0041] 较佳地，所述水平管状部件的第一端可拆装地连接至相应的第一水平支撑件的端部，所述水平管状部件的第二端可拆装地连接至相应的第二水平支撑件的端部，相应的所述第一水平支撑件和相应的所述第二水平支撑件通过固定件连接至所述水平管状部件的第一端和所述水平管状部件的第二端，所述固定件位于对应附连点的近侧。

[0042] 较佳地，所述固定件为固定销，所述固定销构造成穿过第一组定位孔和相应的第二组定位孔，所述第一组定位孔设置在所述水平管状部件的第一端和所述水平管状部件的第二端，所述第二组定位孔设置在相应的所述水平支撑件的端部，所述固定销使所述水平管状部件和相应的所述水平支撑件锁定在一起。

[0043] 较佳地，所述垂直管状部件通过弹簧负载闭锁件可拆装地连接至相应的所述垂直支撑件，所述弹簧负载闭锁件与所述垂直支撑件的端部联接，所述闭锁件构造成与设置在所述垂直管状部件的开口端处的孔卡合。

[0044] 较佳地，所述弹簧负载闭锁件包括销座，所述销座用于容纳弹性元件和定位销，所述销座装配在所述垂直支撑件的一端的内部，并构造成使得所述定位销由所述弹性元件向外偏置，以卡合所述孔，所述定位销使所述垂直管状部件和所述垂直支撑件锁定在一起。

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[0045] 较佳地，所述地上水池还包括多个张力支撑装置和张力支撑带，所述张力支撑装置联接至所述水池主体的外表面，其中每个所述张力支撑装置联接于两个相邻的所述垂直支撑件之间的外表面，所述张力支撑带交互地穿过所述张力支撑装置，且位于所述垂直支撑件上，环绕所述水池主体的外表面，以保持使所述垂直支撑件贴靠所述水池主体。

[0046] 较佳地，所述张力支撑带设置在所述水池主体上的高度约等于所述水池主体的高度的 1/3 处。

[0047] 较佳地，所述地上水池还包括多个支承基部，所述支承基座联接于所述垂直支撑件的底端。

[0048] 本实用新型还提供了一种用于地上水池的支撑框架，其特点在于，所述框架包括：多个水平支撑件，每个所述水平支撑件具有圆形横截面；

[0049] 多个连接器，用于使相应的所述水平支撑件联接在一起，每个连接器为 L 型，且具有圆形横截面；以及

[0050] 多个 U 型支撑件，每个 U 型支撑件具有椭圆形横截面；

[0051] 其中水池内衬能固定至所述支撑框架，并且通过所述支撑框架支撑形成水池主体，用于储存水池内的水。

[0052] 较佳地，所述水平支撑件由多个所述连接器串联在一起形成环形结构。

[0053] 较佳地，所述地上水池还包括联接件，所述联接件联接于所述 U 型支撑件的自由端，其中所述联接件使所述 U 型支撑件可拆装地连接至所述环形结构，并以倾斜的方式支撑所述环形结构。

[0054] 较佳地，所述环形结构形成矩形或多边形。

[0055] 较佳地，所述 U 型支撑件的各自由端具有缩小直径部分，所述缩小直径部分具有间隔开的第一组闭锁孔和第二组闭锁孔。

[0056] 较佳地，所述联接件还包括：柔性 V 型销，包括间隔开的第一对凸块和第二对凸块；以及

[0057] 中空壳体，包括一对孔口，所述柔性销设置在所述 U 型支撑件的缩小直径部分内，以使得所述第一对凸块延伸穿过所述第二组闭锁孔与所述一对孔口卡 合，所述第二对凸块延伸穿过所述第一组闭锁孔。

[0058] 较佳地，所述壳体为具有椭圆形横截面的管子，所述管子的椭圆形横截面与所述 U 型支撑件的横截面相对应。

[0059] 较佳地，所述地上水池还包括多个支撑带，所述支撑带联接至且设置于所述水池主体的底部，每个所述支撑带联接在所述水池主体的底部和相应所述 U 型支撑件的水平部分之间。

[0060] 较佳地，每个所述支撑带包括套管，用于使所述 U 型支撑件的水平部分穿过。

[0061] 本实用新型的积极进步效果在于：本实用新型地上水池的支撑框架至少一部分采用横截面为椭圆形的管子，由于椭圆管的横截面形状对称，弯管加工难度小，使得制管难度降低，有效提高了稳定性，有利于品质管控。同时，椭圆管的边管与接头配合间隙小，机械应力大且稳定性强。另外，椭圆管的边管与接头之间采用特制的插销连接，这种连接方式更加牢固，强度更好。因此采用椭圆管制成的支撑框架具有更好的承压性能，提高了地上水池的整体稳定性，使其具有很好的安全性能。

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附图说明

[0062] 图 1 为本实用新型地上水池中支撑框架的实施例一的立体图。

[0063] 图 2 为本实用新型地上水池中支撑框架的实施例一的主视图。

[0064] 图 3 为本实用新型地上水池中支撑框架的实施例一的俯视图。

[0065] 图 4 为本实用新型地上水池中支撑框架的水平支撑杆、垂直支撑杆及 T 型接头的连接结构示意图一。

[0066] 图 5 为本实用新型地上水池中支撑框架的水平支撑杆、垂直支撑杆及 T 型接头的连接结构示意图二。

[0067] 图 6 为本实用新型地上水池中支撑框架的水平支撑杆与 T 型接头的连接结构示意图。

[0068] 图 7 为本实用新型地上水池中支撑框架的用于连接垂直支撑件和 T 型接头的弹簧负载闭锁件的立体图。

[0069] 图 8 为本实用新型地上水池中支撑框架的用于连接垂直支撑件和 T 型接头的弹簧负载闭锁件的主视图。

[0070] 图 9 为本实用新型地上水池中支撑框架的用于连接垂直支撑件和 T 型接头 的弹簧负载闭锁件的侧视图。

[0071] 图 10 为本实用新型地上水池中支撑框架的用于连接垂直支撑件和 T 型接头的弹簧负载闭锁件的俯视图。

[0072] 图 11 为本实用新型地上水池中支撑框架的用于连接垂直支撑件和 T 型接头的弹簧负载闭锁件的分解示意图。

[0073] 图 12 为本实用新型地上水池的实施例一的立体图。

[0074] 图 13 为本实用新型地上水池中支撑框架的实施例二的立体图。

[0075] 图 14 为本实用新型地上水池中支撑框架的实施例二的俯视图。

[0076] 图 15 为本实用新型地上水池中支撑框架的实施例二的主视图。

[0077] 图 16 为本实用新型地上水池中支撑框架的实施例二的侧视图。

[0078] 图 17 为本实用新型地上水池中支撑框架的水平支撑件和 U 型支撑件的连接结构的分解示意图。

[0079] 图 18 为本实用新型地上水池中支撑框架的水平支撑件的立体图。

[0080] 图 19 为本实用新型地上水池中支撑框架的水平支撑件的主视图。

[0081] 图 20 为本实用新型地上水池中支撑框架的 U 型支撑件的立体图。

[0082] 图 21 为本实用新型地上水池中支撑框架的 U 型支撑件的主视图。

[0083] 图 22 为本实用新型地上水池中支撑框架的 U 型支撑件联接于水平支撑件的连接结构示意图。

[0084] 图 23 为本实用新型地上水池中支撑框架的相邻两个水平支撑件之间的连接结构示意图。

[0085] 图 24 为本实用新型地上水池中支撑框架的用于连接水平支撑件的定位件的立体图。

[0086] 图 25 为本实用新型地上水池中支撑框架的用于连接水平支撑件的定位件的主视

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图。

[0087] 图 26 为本实用新型地上水池中支撑框架的用于连接水平支撑件的定位件的俯视图。

[0088] 图 27 为本实用新型地上水池中支撑框架的用于连接水平支撑件的定位件的侧视图。

[0089] 图 28 为本实用新型地上水池的实施例二的立体图。

[0090] 图 29 为本实用新型地上水池中支撑框架的实施例三的立体图。

[0091] 图 30 为图 29 中 A 部分的放大图。

[0092] 图 31 为本实用新型地上水池中支撑框架的实施例三的主视图。

[0093] 图 32 为本实用新型地上水池中支撑框架的实施例三的侧视图。

[0094] 图 33 为本实用新型地上水池中支撑框架的实施例三的俯视图。

[0095] 图 34 为本实用新型地上水池的实施例三的立体图。

[0096] 图 35 为本实用新型地上水池中支撑框架的实施例四的结构示意图。

具体实施方式

[0097] 下面结合附图给出本实用新型的较佳实施例，以详细说明本实用新型的技术方案。

[0098] 实施例一：

[0099] 图 1 为本实用新型地上水池中支撑框架的实施例一的立体图。图 2 为本实用新型地上水池中支撑框架的实施例一的主视图。图 3 为本实用新型地上水池中支撑框架的实施例一的俯视图。

[0100] 如图 1 至图 3 所示，本实施例公开了一种用于地上水池的支撑框架 10，支撑框架 10 包括多个水平支撑件 11 和多个垂直支撑件 12。其中，每个水平支撑件 11 具有椭圆形横截面，每个垂直支撑件 12 具有椭圆形横截面，并且垂直支撑件 12 联接于多个水平支撑件 11。优选地，支撑框架 10 还包括多个 T 型接头 13，其主要用于将水平支撑件 11 和垂直支撑件 12 联接在一起。

[0101] 图 4 为本实用新型地上水池中支撑框架的水平支撑杆、垂直支撑杆及 T 型接头的连接结构示意图一。图 5 为本实用新型地上水池中支撑框架的水平支撑杆、垂直支撑杆及 T 型接头的连接结构示意图二。图 6 为本实用新型地上水池中支撑框架的水平支撑杆与 T 型接头的连接结构示意图。

[0102] 如图 4 至图 6 所示，T 型接头 13 包括水平管状部件 130 和垂直管状部件 131，且垂直管状部件 131 横向地设置在水平管状部件 130 上。特别优选地，垂直管状部件 131 与水平管状部件 130 之间为横向垂直的。此处，水平管状部件 130 和垂直管状部件 131 均具有椭圆形横截面。

[0103] 其中，多个 T 型接头 13 通过水平管状部件 130 依次使两个相邻的水平支撑件 11 联接在一起，从而使得多个水平支撑件 11 相互联接形成大致为圆形的环形结构（如图 3 所示）。具体地说，如图 4 和图 5 所示，每一 T 型接头 13 的水平管状部件 130 的第一端 132 以可拆装的方式连接至相应的第一水平支撑件 110 的端部 112，而水平管状部件 130 的第二端 133 同样也以可拆装的方式 连接至相应的第二水平支撑件 111 的端部 113。此处，相应的

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第一水平支撑件 110 和相应的第二水平支撑件 111 分别通过一个固定件连接至水平管状部件 130 的第一端 132 和水平管状部件 130 的第二端 133，并且为了保证联接的稳定性与牢固度，需要将所述固定件设置在对应附连点的近侧。

[0104] 进一步具体地，所述固定件可以优选为固定销 14。如图 4 至图 6 所示，在水平管状部件 130 的第一端 132 和第二端 133 上开设有第一组定位孔 134，在相应的第一水平支撑件 110 的端部 112 和第二水平支撑件 111 的端部 113 上开设有第二组定位孔 114。当 T 型接头 13 的水平管状部件 130 的第一端 132 和第二端 133 分别与第一水平支撑件 110 的端部 112 和第二水平支撑件 111 的端部 113 对接时，使得第一组定位孔 134 和第二组定位孔 114 相应地对准，然后将固定销 14 穿过第一组定位孔 134 和相应的第二组定位孔 114（如图 6 所示），从而使得 T 型接头 13 的水平管状部件 130 和相应的水平支撑件（此处为第一水平支撑件 110 和第二水平支撑件 111）锁定（例如卡锁）在一起。另外，在固定销 14 与水平管状部件 130 之间加设垫片 140，可以有效地减小固定销 14 与水平管状部件 130 之间的磨损及增加两者之间的稳固性。

[0105] 同时，T 型接头 13 的垂直管状部件 131 与相应的垂直支撑件 12 联接。进一步具体地，如图 4 和图 5 所示，每一 T 型接头 13 的垂直管状部件 131 通过弹簧负载闭锁件 15 采用可拆装地方式连接至相应的垂直支撑件 12。在进行连接时，将弹簧负载闭锁件 15 与垂直支撑件 12 的端部 121 联接，此处端部 121 的开口端处设有孔 122，将弹簧负载闭锁件 15 设置在垂直管状部件 131 的端部 121 内，并与孔 122 卡合锁紧。

[0106] 图 7 为本实用新型地上水池中支撑框架的用于连接垂直支撑件和 T 型接头的弹簧负载闭锁件的立体图。图 8 为本实用新型地上水池中支撑框架的用于连接垂直支撑件和 T 型接头的弹簧负载闭锁件的主视图。图 9 为本实用新型地上水池中支撑框架的用于连接垂直支撑件和 T 型接头的弹簧负载闭锁件的侧视图。图 10 为本实用新型地上水池中支撑框架的用于连接垂直支撑件和 T 型接头的弹簧负载闭锁件的俯视图。图 11 为本实用新型地上水池中支撑框架的用于连接垂直支撑件和 T 型接头的弹簧负载闭锁件的分解示意图。

[0107] 如图 7 至图 11 所示，弹簧负载闭锁件 15 包括销座 150。此处销座 150 主要用于容纳弹性元件 151 和定位销 152。销座 150 具有中空的圆环形外壁 153，沿圆环形外壁 153 的一端向外凸出设置一个容纳腔 154，弹性元件 151 安装在 容纳腔 154，使得定位销 152 的一端穿设在容纳腔 154 内与弹性元件 151 相抵，另一端向外偏置。圆环形外壁 153 的形状与垂直支撑件 12 的端部 121 的横截面形状相匹配（如图 4 和图 5 所示）。当弹簧负载闭锁件 15 装配至垂直支撑件 12 的端部 121 内时，将销座 150 的圆环形外壁 153 嵌设入垂直支撑件 12 的端部 121 的内部，使得定位销 152 在弹性元件 151 的弹力作用下卡入垂直支撑件 12 的端部 121 上的孔 122 内。T 型接头 13 的垂直管状部件 131 的端部开口处设有孔 135，将垂直管状部件 131 与垂直支撑件 12 的端部 121 对接，使得垂直管状部件 131 上的孔 135 与垂直支撑件 12 上的孔 122 对准，从而使得定位销 152 穿过孔 135，这样即可通过定位销 152 使 T 型接头 13 的垂直管状部件 131 和垂直支撑件 12 锁定（例如卡锁）在一起。

[0108] 图 12 为本实用新型地上水池的实施例一的立体图。如图 12 所示，根据上述支撑框架的结构，本实施例提供了一种采用上述支撑框架结构的地上水池 100，其包括支撑框架 10（如图 1 所示）和水池内衬 16，水池内衬 16 固定至支承框架 10 上，通过整个支撑框架 10 的支撑形成用于储存水的水池主体。优选地可以将水池内衬 16 的上部套设在水平支撑件

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11 上，水池内衬 16 的周边贴靠在垂直支撑件 12 上。

[0109] 另外，为了进一步固定水池内衬 16，地上水池 100 还包括了多个张力支撑装置 17 和张力支撑带 18，将张力支撑装置 17 联接在水池主体的外表面。优选地，每个张力支撑装置 17 联接于两个相邻的垂直支撑件 12 之间的所述水池主体的外表面，张力支撑带 18 交互地穿过张力支撑装置 17，并且位于垂直支撑件 12 上，环绕所述水池主体的外表面，以保持使得垂直支撑件 12 贴靠所述水池主体，从而提高所述水池主体的张紧力。特别优选地，张力支撑带 18 设置在所述水池主体上的高度约等于所述水池主体的高度的 1/3 处，可以有效地加固所述水池主体的下部结构，使其具有更大的承压力。此外，地上水池 100 还包括多个支承基部 120，将支承基座 120 联接于垂直支撑件 12 的底端，用于增加地上水池 100 的整体稳固性。

[0110] 实施例二：

[0111] 图 13 为本实用新型地上水池中支撑框架的实施例二的立体图。图 14 为本实用新型地上水池中支撑框架的实施例二的俯视图。图 15 为本实用新型地上水池中支撑框架的实施例二的主视图。图 16 为本实用新型地上水池中支撑框 架的实施例二的侧视图。

[0112] 如图 13 至图 16 所示，本实施例公开了另一种用于地上水池的支撑框架 20，其包括多个水平支撑件 21、多个连接器 22 和多个 U 型支撑件 23。每个水平支撑件 21 具有圆形横截面。连接器 22 用于使相应的水平支撑件 21 联接在一起，并且每个连接器 22 具有圆形横截面。U 型支撑件 23 的自由端与相应的水平支撑件 21 连接，且每个 U 型支撑件 23 具有椭圆形横截面。水平支撑件 21 由多个连接器 22 串联在一起形成环形结构，此处连接器 22 可优选为 L 型，使得所述环形结构形成为矩形。当然，连接器 22 也可以为其他形状，例如 V 型，使得所述环形结构形成为多边形。本实施例中以所述环形结构为矩形为例。

[0113] 图 17 为本实用新型地上水池中支撑框架的水平支撑件和 U 型支撑件的连接结构的分解示意图。如图 17 所示，当所述环形结构为矩形或多边形时，所述矩形或多边形的侧边由水平支撑件 21 两两依次串联形成，所述矩形的侧边拐角部分通过 L 型连接器 22 连接水平支撑件 21 形成。此外，每一水平支撑件 21 与相应的 U 型支撑件 23 连接。其中，水平支撑件 21 之间通过定位件 25 相互固定，同样水平支撑件 21 与连接器 22 之间也通过定位件 25 相互固定，而 U 型支撑件 23 与水平支撑件 21 之间需要通过联接件 24 相互连接固定。

[0114] 图 18 为本实用新型地上水池中支撑框架的水平支撑件的立体图。图 19 为本实用新型地上水池中支撑框架的水平支撑件的主视图。如图 18 和图 19 所示，进一步具体地，水平支撑件 21 的一端 211 设置为缩小直径的部分，并在一端 211 上开设有第一孔 212，水平支撑件 21 的另一端 213 开设有第二孔 215。另外在水平支撑件 21 的杆件表面上开设有连接口 214，用于连接 U 型支撑件 23。

[0115] 图 20 为本实用新型地上水池中支撑框架的 U 型支撑件的立体图。图 21 为本实用新型地上水池中支撑框架的 U 型支撑件的主视图。如图 20 和图 21 所示，U 型支撑件 23 的各自由端具有缩小直径部分 231，在缩小直径部分 231 上分别具有间隔开的第一组闭锁孔 232 和第二组闭锁孔 233。

[0116] 图 22 为本实用新型地上水池中支撑框架的 U 型支撑件联接于水平支撑件的连接结构示意图。如图 22 所示，结合图 17，联接件 24 联接于 U 型支撑件 23 的自由端的缩小直径部分 231 内，通过联接件 24 使 U 型支撑件 23 采用可拆装的方式连接至所述环形结构，并

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且 U 型支撑件 23 以倾斜的方式支撑所述环形结构，例如 U 型支撑件 23 沿所述环形结构向外倾斜 30° 。进一步具体地，联接件 24 包括柔性 V 型销 241 和中空壳体 242，其中柔性 V 型销 241 上设有相 互间隔开的第一对凸块 243 和第二对凸块 244。中空壳体 242 上包括一对孔口 245，将中空壳体 242 套设在 U 型支撑件 23 的缩小直径部分 231 外部，使得第一组闭锁孔 232 和第二组闭锁孔 233 分别与对应的孔口 245 对准。柔性 V 型销 241 设置在 U 型支撑件 23 的缩小直径部分 231 内，以使得第一对凸块 243 延伸穿过第二组闭锁孔 233 与对应的孔口 245 卡合，第二对凸块 244 延伸穿过第一组闭锁孔 232，这样即可通过联接件 24 使 U 型支撑件 23 和水平支撑件 21 锁定（例如卡锁）在一起。此处，中空壳体 242 为具有椭圆形横截面的管子，所述管子的椭圆形横截面与 U 型支撑件 23 的横截面相对应，从而使得 U 型支撑件 23 与水平支撑件 21 之间连接更加地牢固。

[0117] 图 23 为本实用新型地上水池中支撑框架的相邻两个水平支撑件之间的连接结构示意图。如图 23 所示，结合图 17 至图 19，所述矩形或多边形的支撑框架的侧边由水平支撑件 21 通过定位件 25 两两依次串联形成。定位件 25 套设在其中一水平支撑件 21 的一端 211 的缩小直径部分上，另一相邻水平支撑件 21 的另一端 213 套设在定位件 25 的外部，使得两个相邻的水平支撑件 21 之间相互固定。

[0118] 图 24 为本实用新型地上水池中支撑框架的用于连接水平支撑件的定位件的立体图。图 25 为本实用新型地上水池中支撑框架的用于连接水平支撑件的定位件的主视图。图 26 为本实用新型地上水池中支撑框架的用于连接水平支撑件的定位件的俯视图。图 27 为本实用新型地上水池中支撑框架的用于连接水平支撑件的定位件的侧视图。

[0119] 如图 24 至图 27 所示，结合图 17 至图 19，定位件 25 为一中空套件 251，其具有圆形横截面的管子，所述管子的圆形横截面与水平支撑件 21 的缩小直径部分的横截面相对应。定位件 25 的一端具有环形凸台 252，环形凸台 252 的横截面与水平支撑件 21 的横截面相对于。定位件 25 的另一端设有锁紧扣 253。在进行相邻两个水平支撑件 21 的连接时，定位件 25 的一端套设在其中一水平支撑件 21 的一端 211 的缩小直径部分上，另一相邻水平支撑件 21 的另一端 213 套设在定位件 25 的外部，其锁紧扣 253 穿过水平支撑件 21 的另一端 213 上的第二孔 215，这样就可以实现两个相邻的水平支撑件 21 之间的锁紧。

[0120] 同理，L 型连接器 22 与相应的水平支撑件 21 也通过定位件 25 相互锁紧固定。其具体实施方式为：定位件 25 的一端套设在 L 型连接器 22 的端部，水平支撑件 21 的另一端 213 套设在定位件 25 上，使得锁紧扣 253 穿过水平支撑件 21 的另一端 213 上的第二孔 215，即实现水平支撑件 21 与 L 型连接器 22 的相互锁紧（图中未示）。

[0121] 图 28 为本实用新型地上水池的实施例二的立体图。如图 28 所示，根据上述支撑框架的结构，本实施例提供了一种采用上述支撑框架结构的地上水池 200，其包括支撑框架 20（如图 13 所示）和水池内衬 26，水池内衬 26 固定至支承框架 20 上，通过整个支撑框架 20 的支撑形成用于储存水的水池主体。优选地可以将水池内衬 26 的上部套设在水平支撑件 21 上，水池内衬 26 的周边贴靠在 U 型支撑件 23 上。

[0122] 另外，为了进一步固定水池内衬 26，地上水池 200 还包括了多个支撑带 27，支撑带 27 联接至且设置于所述水池主体的底部，每个支撑带 27 联接在所述水池主体的底部和相应的 U 型支撑件 23 的水平部分之间。特别地，为了进一步提高支撑带 27 的支撑力度，每个支撑带 27 包括套管 271，U 型支撑件 23 的水平部分穿过支撑带 27 的套管 271，将整个支撑

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带 27 绷紧。

[0123] 实施例三：

[0124] 图 29 为本实用新型地上水池中支撑框架的实施例三的立体图。图 30 为图 29 中 A 部分的放大图。图 31 为本实用新型地上水池中支撑框架的实施例三的主视图。图 32 为本实用新型地上水池中支撑框架的实施例三的侧视图。图 33 为本实用新型地上水池中支撑框架的实施例三的俯视图。

[0125] 如图 29 至图 33 所示，本实施例公开了又一种用于地上水池的支撑框架 30，其包括多个水平支撑件 31、多个垂直支撑件 32 和多个 U 型支撑件 34。其中，每个水平支撑件 31 具有椭圆形横截面，每个垂直支撑件 32 具有椭圆形横截面，并且垂直支撑件 32 联接于多个水平支撑件 31。

[0126] 支撑框架 30 还包括多个 T 型接头 33，其主要用于将水平支撑件 31 和垂直支撑件 32 联接在一起。T 型接头 33 包括水平管状部件 330 和垂直管状部件 331，且垂直管状部件 331 横向地设置在水平管状部件 330 上。特别优选地，垂直管状部件 331 与水平管状部件 330 之间为横向垂直的。此处，水平管状部件 330 和垂直管状部件 331 均具有椭圆形横截面。多个 T 型接头 33 通过水平管状部件 330 依次使两个相邻的水平支撑件 31 联接在一起。同时，至少有部分相邻的水平支撑件 31 之间通过定位件 35 串联。这样通过 T 型接头 33 和定位件 35 可以使得多个水平支撑件 31 相互联接形成大致为椭圆形的环形结构。

[0127] 具体地说，如图 30 所示，每一 T 型接头 33 的水平管状部件 330 的两端 332 以可拆装的方式连接至相应的水平支撑件 31 的端部。此处，相应的水平支撑件 31 分别通过一个固定件连接至水平管状部件 330 的两端 332，并且为了保证联接的稳定性与牢固度，需要将所述固定件设置在对应附连点的近侧。同时，T 型接头 33 的垂直管状部件 331 与相应的垂直支撑件 32 联接。每一 T 型接头 33 的垂直管状部件 331 通过弹簧负载闭锁件采用可拆装地方式连接至相应的垂直支撑件 32。

[0128] 值得注意的是，本实施例中 T 型接头 33 的结构与实施例一中 T 型接头 13 相同，T 型接头 33 联接于水平支撑件 31 和垂直支撑件 32 的连接方式与实施例一中相应的连接方式相同。本实施例中定位件 35 的结构与实施例二中定位件 25 相同，定位件 35 与水平支撑件 31 的连接方式与实施例一中相应的连接方式相同，此处均不再赘述。

[0129] 另外，U 型支撑件 34 通过联接件采用可拆装的方式连接至所述环形结构，并且 U 型支撑件 34 以倾斜的方式支撑所述环形结构，例如 U 型支撑件 34 沿所述环形结构向外倾斜 30°。也就是说，U 型支撑件 34 的自由端与相应的水平支撑件 31 联接，且每个 U 型支撑件 34 具有椭圆形横截面。值得注意的是，本实施例中 U 型支撑件 34 的结构与实施例二中 U 型支撑件 23 相同，U 型支撑件 34 联接于水平支撑件 31 的连接方式与实施例二中相应的连接方式相同，此处不再赘述。

[0130] 图 34 为本实用新型地上水池的实施例三的立体图。如图 34 所示，根据上述支撑框架的结构，本实施例提供了一种采用上述支撑框架结构的地上水池 300，其包括支撑框架 30（如图 29 所示）和水池内衬 36，水池内衬 36 固定至支承框架 30 上，通过整个支撑框架 30 的支撑形成用于储存水的水池主体。优选地可以将水池内衬 36 的上部套设在水平支撑件 31 上，水池内衬 36 的周边贴靠在垂直支撑件 32 上。

[0131] 为了进一步固定水池内衬 36，地上水池 300 还包括了多个张力支撑装置 37 和张

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力支撑带 38，将张力支撑装置 37 联接在水池主体的外表面。优选地，每个张力支撑装置 37 联接于两个相邻的垂直支撑件 32 之间的所述水池主体的外表面，张力支撑带 38 交互地穿过张力支撑装置 37，并且位于垂直支撑件 32 上，环绕所述水池主体的外表面，以保持使得垂直支撑件 32 靠近所述水池主体，从而提高所述水池主体的张紧力。特别优选地，张力支撑带 38 设置在所述水 池主体上的高度约等于所述水池主体的高度的 1/3 处，可以有效地加固所述水池主体的下部结构，使其具有更大的承压力。此外，地上水池 300 还包括多个支承基部 320，将支承基座 320 联接于垂直支撑件 32 的底端，用于增加地上水池 300 的整体稳固性。

[0132] 另外，地上水池 300 还包括了多个支撑带 39，支撑带 39 联接至且设置于所述水池主体的底部，每个支撑带 39 联接在所述水池主体的底部和相应的 U 型支撑件 34 的水平部分之间。特别地，为了进一步提高支撑带 39 的支撑力度，每个支撑带 39 包括套管 391，U 型支撑件 34 的水平部分穿过支撑带 39 的套管 391，将整个支撑带 39 绷紧。

[0133] 实施例四：

[0134] 图 35 为本实用新型地上水池中支撑框架的实施例四的结构示意图。如图 35 所示，本实施例公开了又一种用于地上水池的支撑框架 40，本实施例的结构与实施例三基本相同，其不同之处在于：支撑框架 40 包括多个水平支撑件 41、多个弧形支撑件 42、多个垂直支撑件（图中未示）和多个 U 型支撑件 44。其中，每个水平支撑件 41、每个弧形支撑件 42、每个 U 型支撑件 44 及所述垂直支撑件均具有椭圆形横截面，并且所述垂直支撑件联接于多个弧形支撑件 42，U 型支撑件 44 以倾斜地方式联接于水平支撑件 41 上。

[0135] 支撑框架 40 还包括多个 T 型接头 43，T 型接头 43 包括水平管状部件和垂直管状部件，且所述垂直管状部件横向地设置在所述水平管状部件上。特别优选地，所述垂直管状部件与所述水平管状部件之间为横向垂直的。此处，所述水平管状部件和所述垂直管状部件均具有椭圆形横截面。多个 T 型接头 43 通过所述水平管状部件依次使两个相邻的弧形支撑件 42 联接在一起。同时，水平支撑件 41 之间通过定位件 45 串联。这样通过 T 型接头 43 和定位件 45 可以使得多个水平支撑件 41 和多个弧形支撑件 42 相互联接形成椭圆形的环形结构。

[0136] 值得注意的是，本实施例中 T 型接头 43 的结构与实施例一中 T 型接头 13 相同，T 型接头 43 联接于弧形支撑件 42 和所述垂直支撑件的连接方式与实施例一中相应的连接方式相同。本实施例中定位件 45 的结构与实施例二中定位件 25 相同，定位件 45 与水平支撑件 41 的连接方式与实施例一中相应的连接方式相同。本实施例中 U 型支撑件 44 的结构与实施例二中 U 型支撑件 23 相同，U 型支撑件 44 联接于水平支撑件 41 的连接方式与实施例二中相应的连接方式相同，此处均不再赘述。

[0137] 综上所述，本实用新型地上水池通过对支撑框架的结构进行改进，实现了更加稳固且承压能力更强的地上水池结构。其中，支撑框架的至少一部分采用横截面为椭圆形的管子，由于椭圆管的横截面形状对称，使得制管难度降低，有效提高了稳定性。椭圆管的边管与接头配合间隙小，机械应力大且稳定性强。另外，椭圆管的边管与接头之间采用特制的插销连接，这种连接方式更加牢固，强度更好。因此本实用新型地上水池具有更好的承压性能，提高了整体稳定性和安全性能。

[0138] 虽然以上描述了本实用新型的具体实施方式，但是本领域的技术人员应当理解，

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这些仅是举例说明，本实用新型的保护范围是由所附权利要求书限定的。本领域的技术人员在不背离本实用新型的原理和实质的前提下，可以对这些实施方式作出多种变更或修改，但这些变更和修改均落入本实用新型的保护范围。

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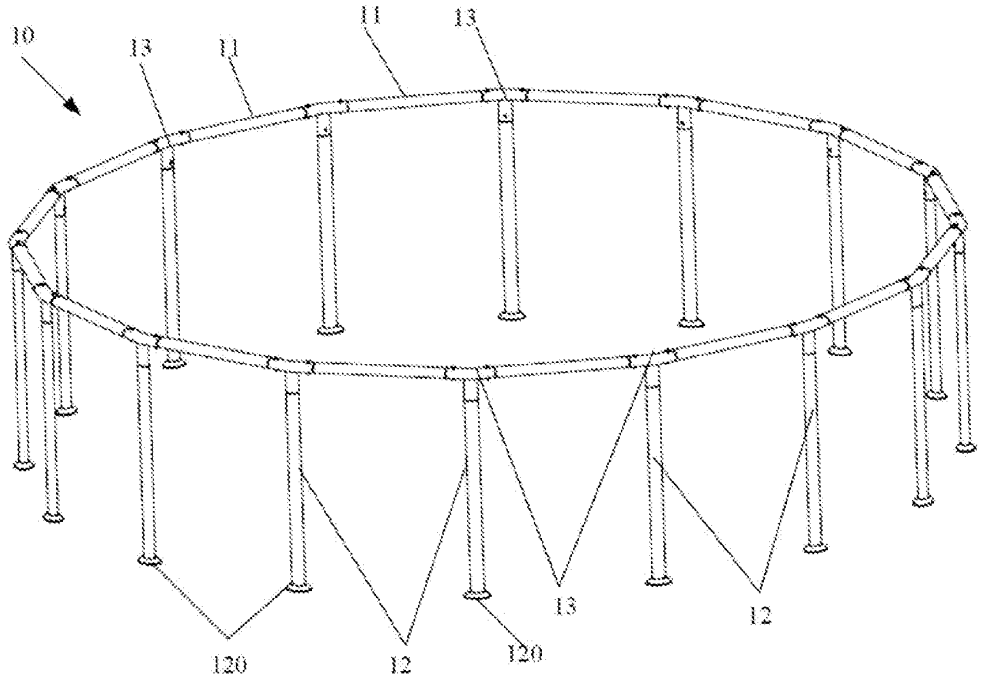


图 1

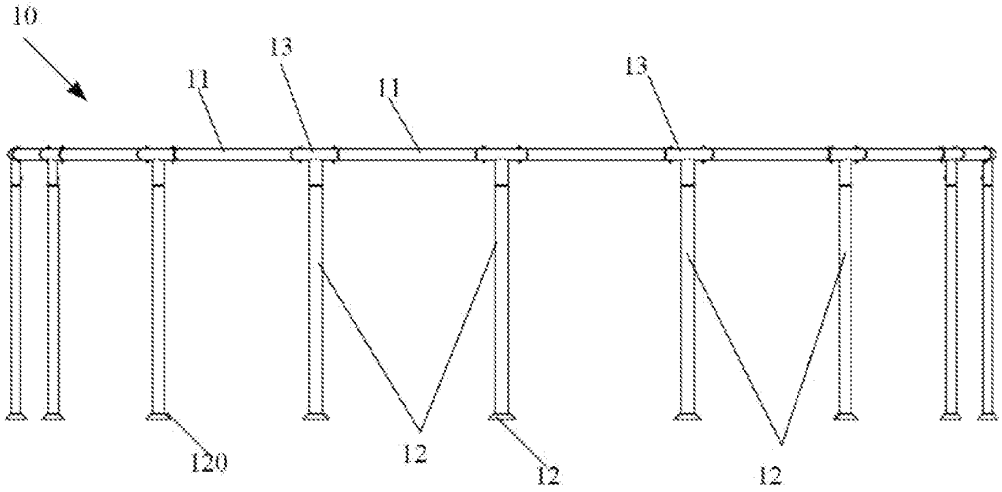


图 2

BESTWAY EX. 1003; Pg 140
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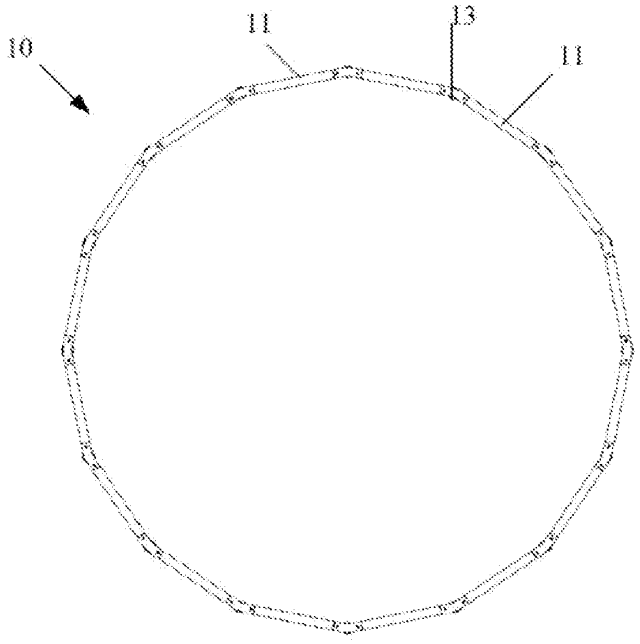


图 3

BESTWAY EX. 1003; Pg 141
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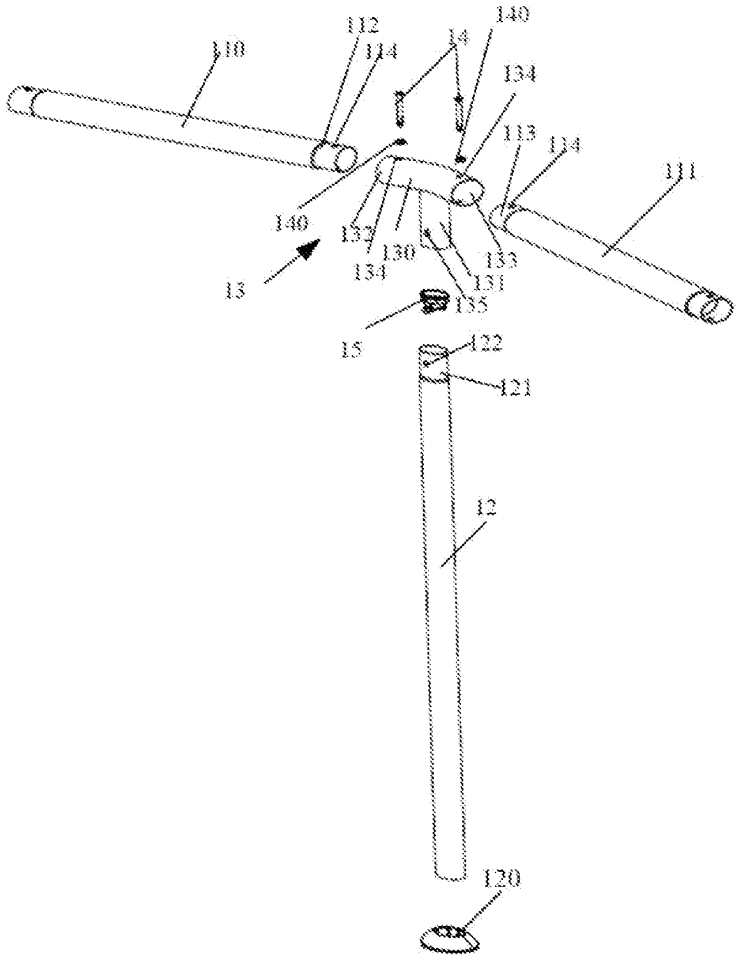


图 4

BESTWAY EX. 1003; Pg 142
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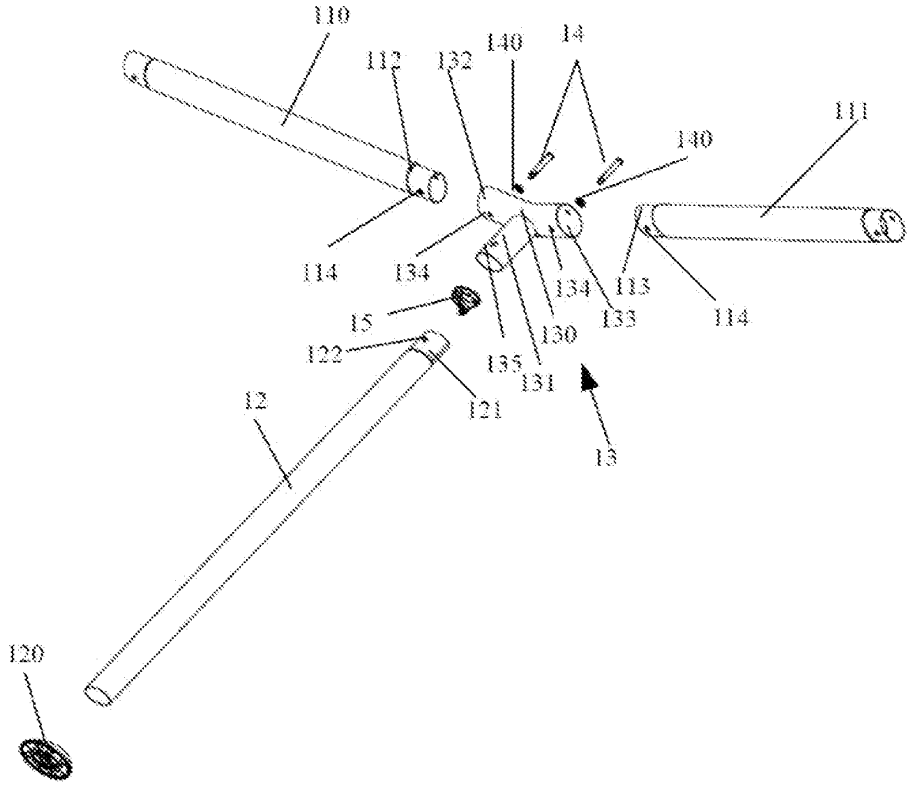


图 5

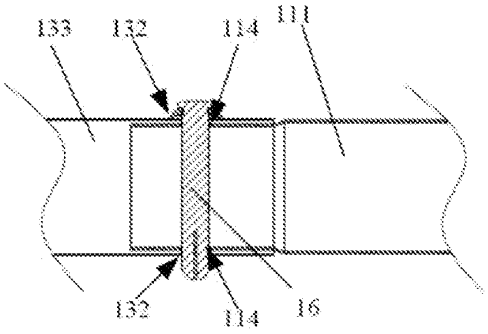


图 6

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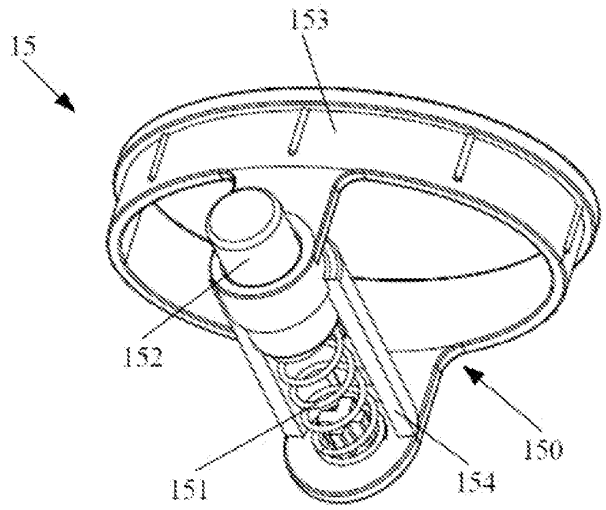


图 7

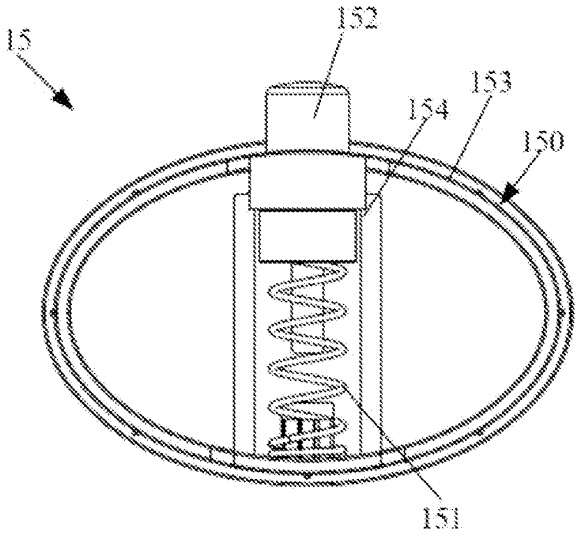


图 8

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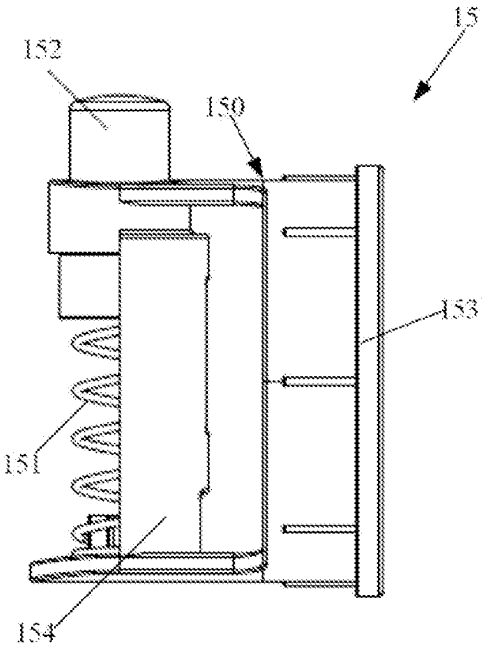


图 9

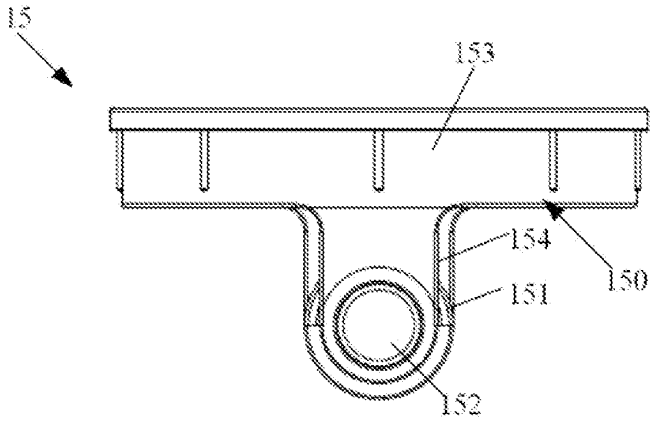


图 10

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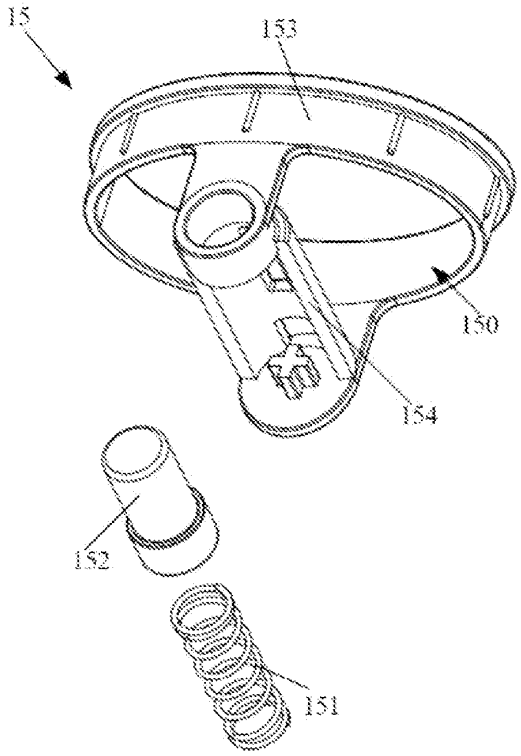


图 11

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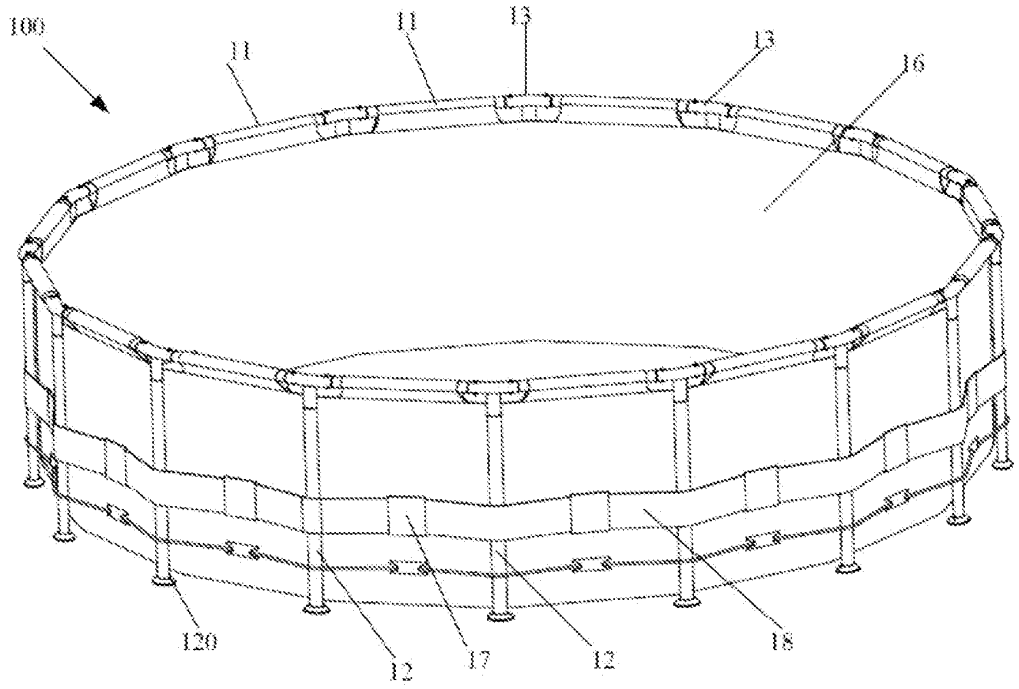


图 12

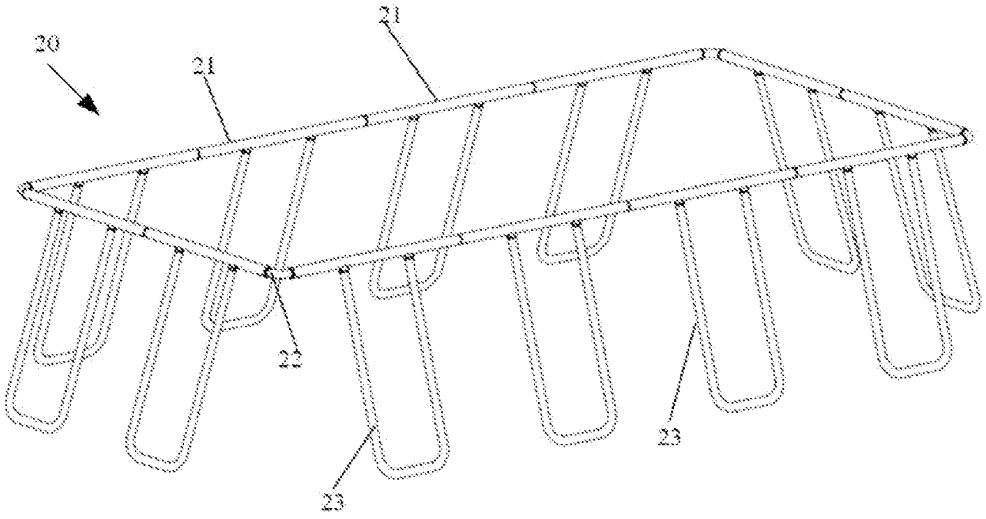


图 13

BESTWAY EX. 1003; Pg 147
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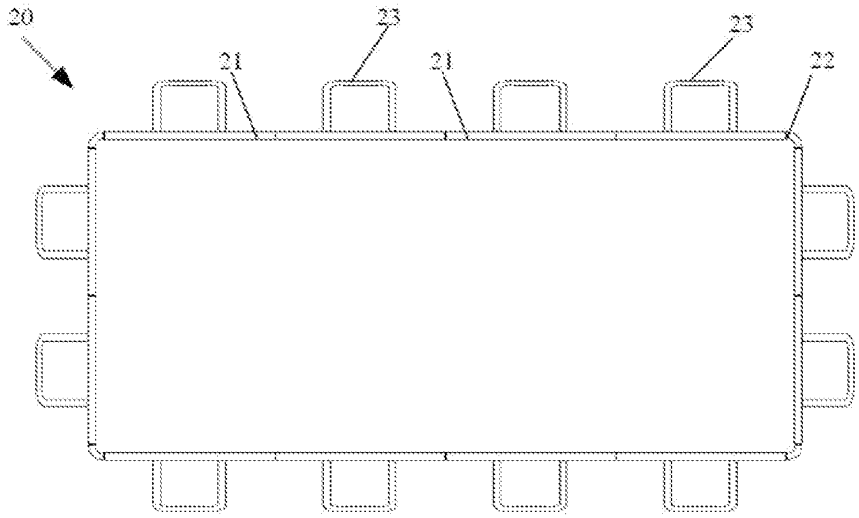


图 14

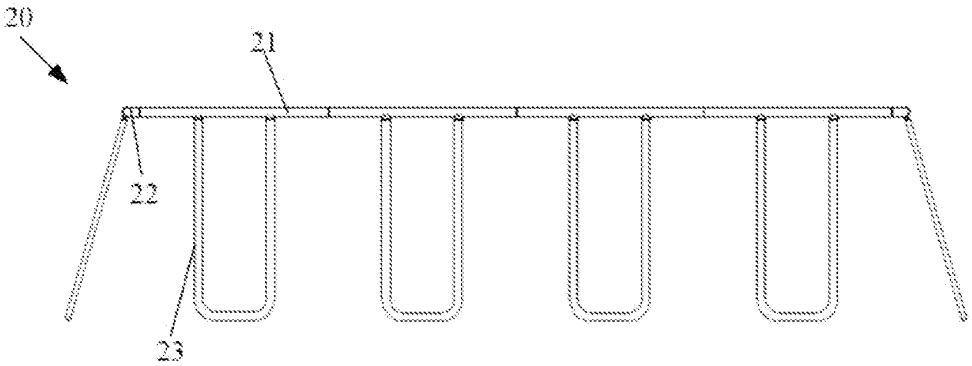


图 15

BESTWAY EX. 1003; Pg 148
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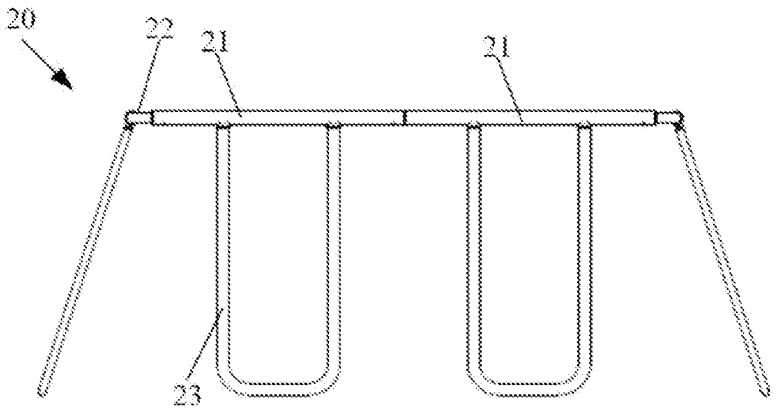


图 16

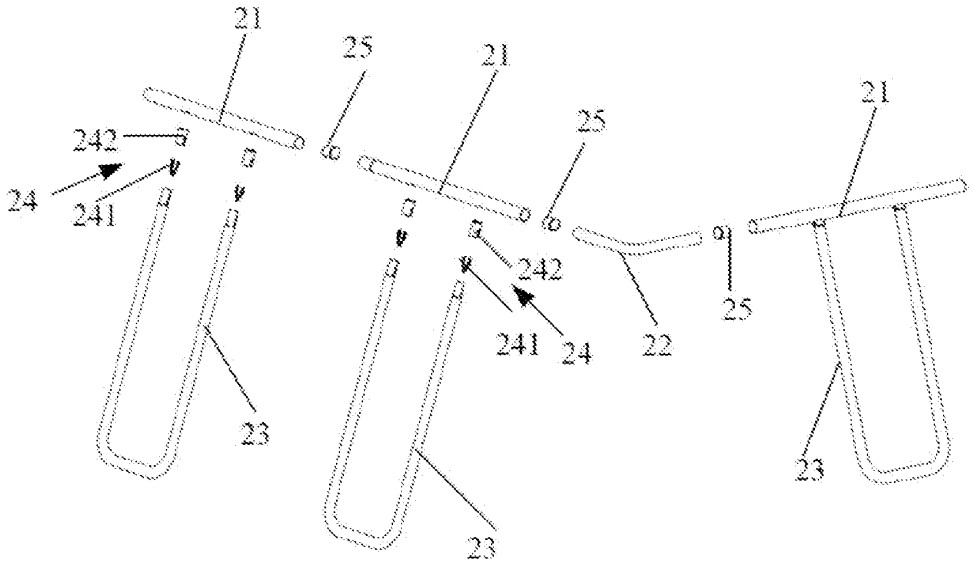


图 17

BESTWAY EX. 1003; Pg 149
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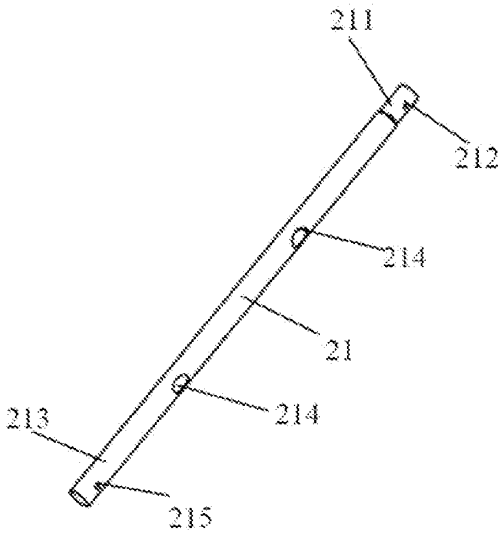


图 18

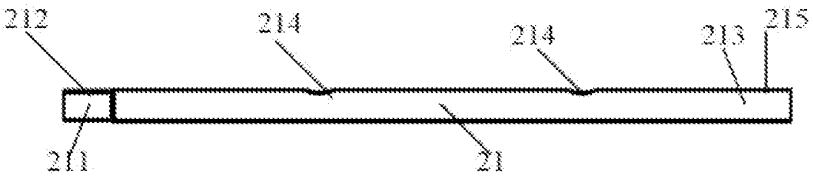


图 19

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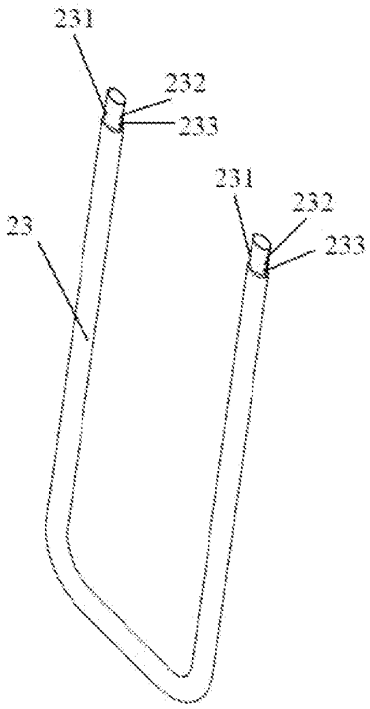


图 20

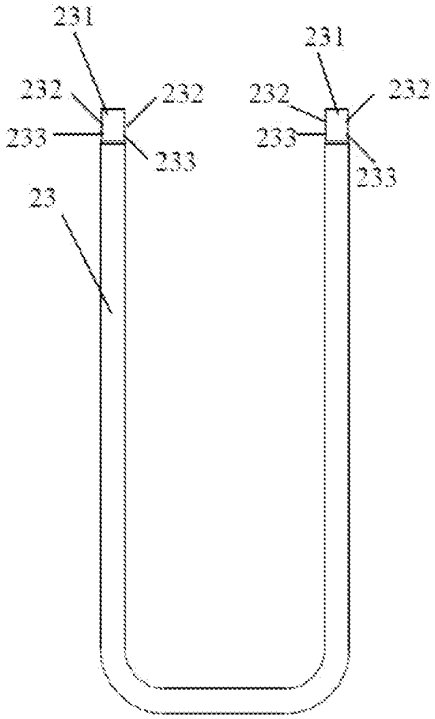


图 21

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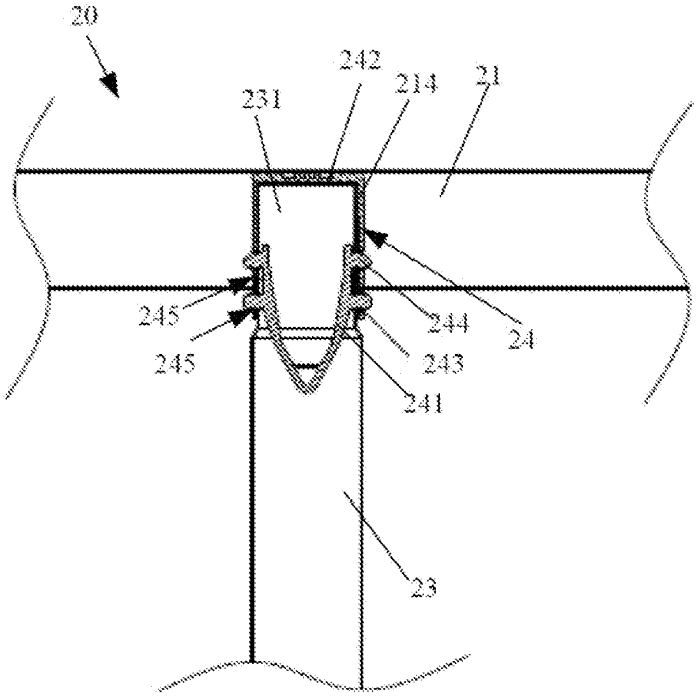


图 22

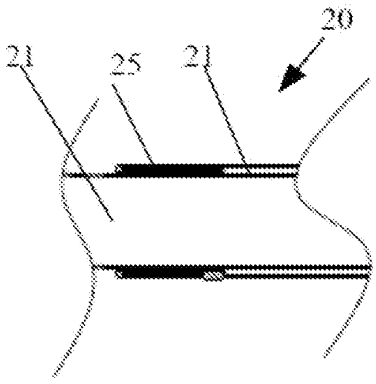


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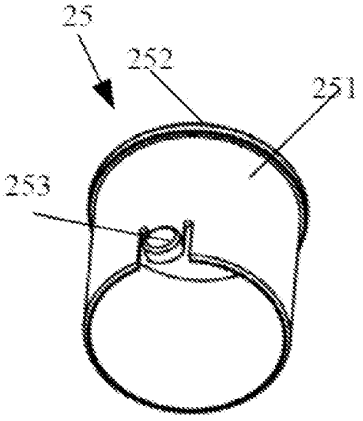


图 24

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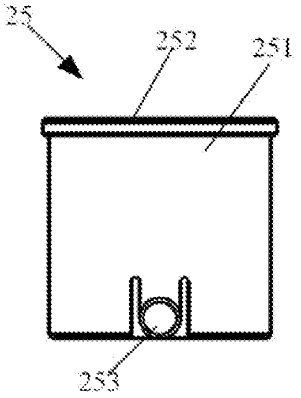


图 25

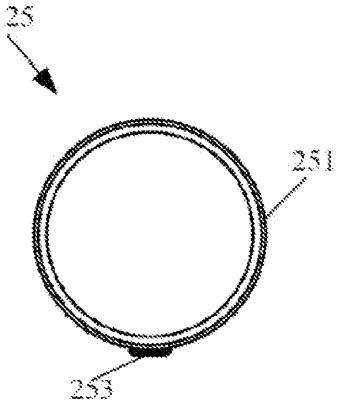


图 26

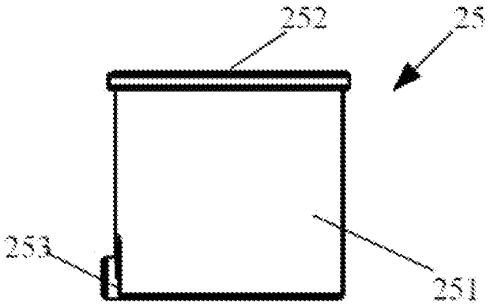


图 27

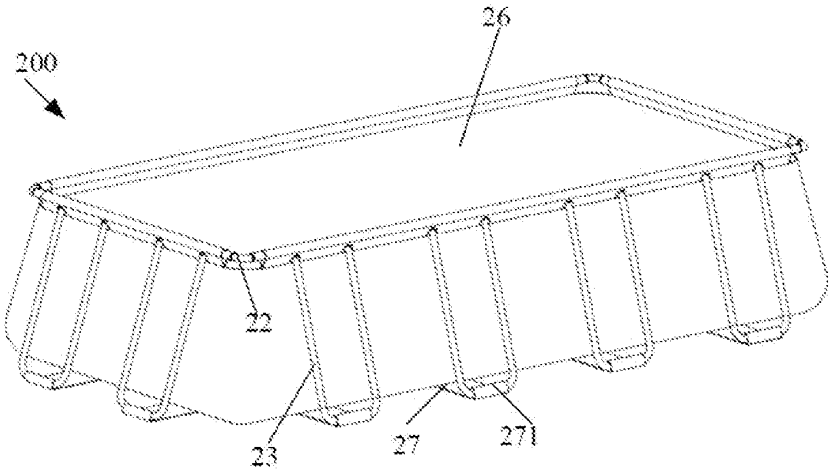


图 28

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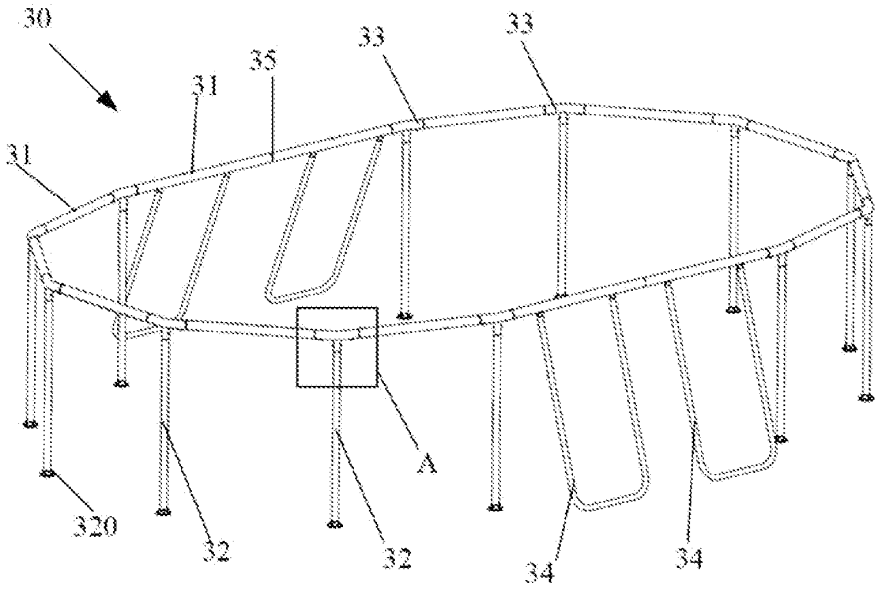


图 29

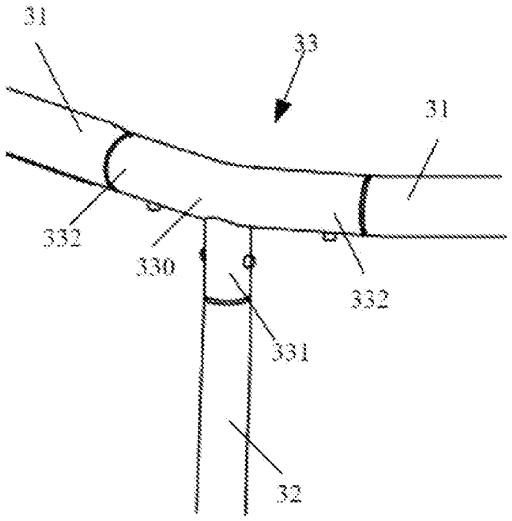


图 30

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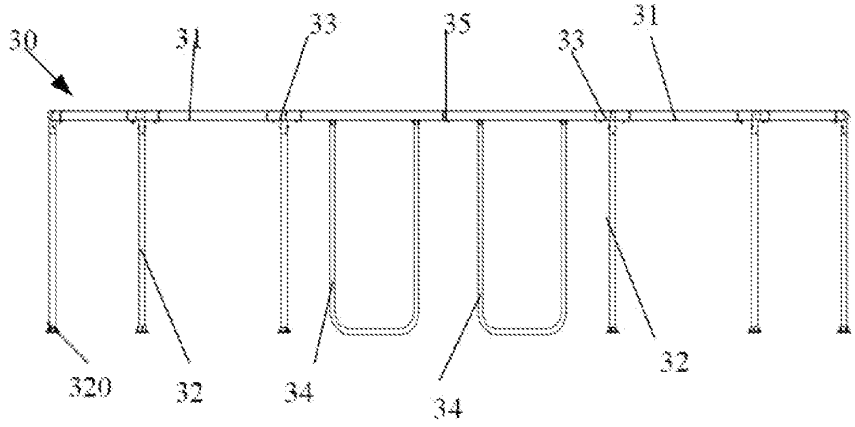


图 31

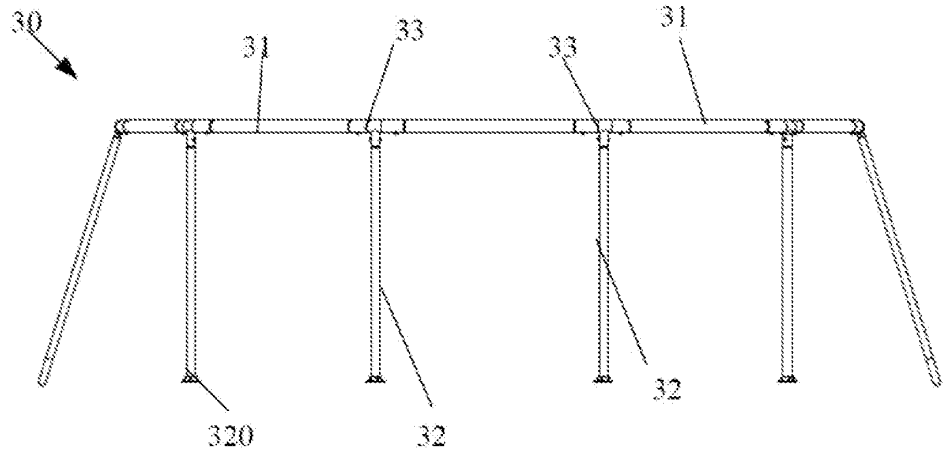


图 32

BESTWAY EX. 1003; Pg 155
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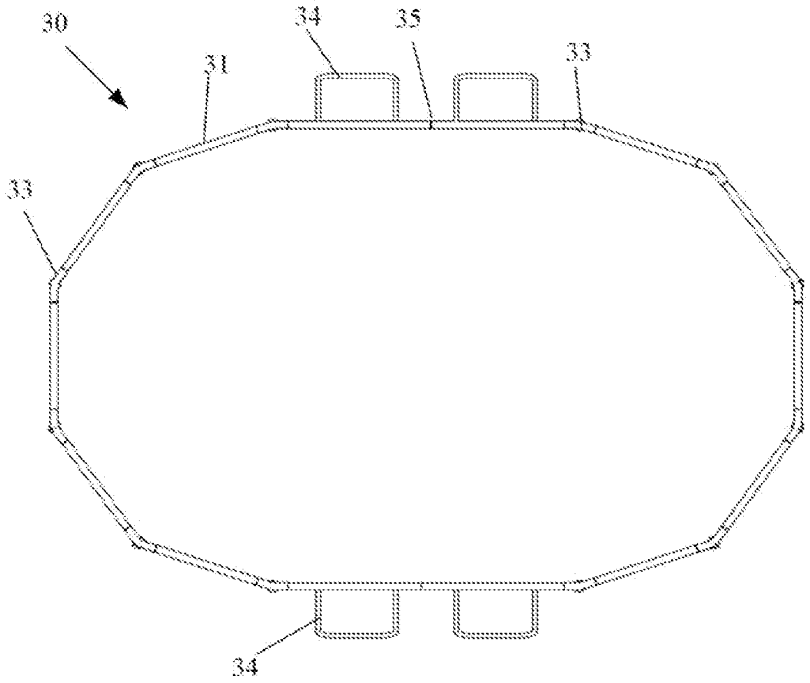


图 33

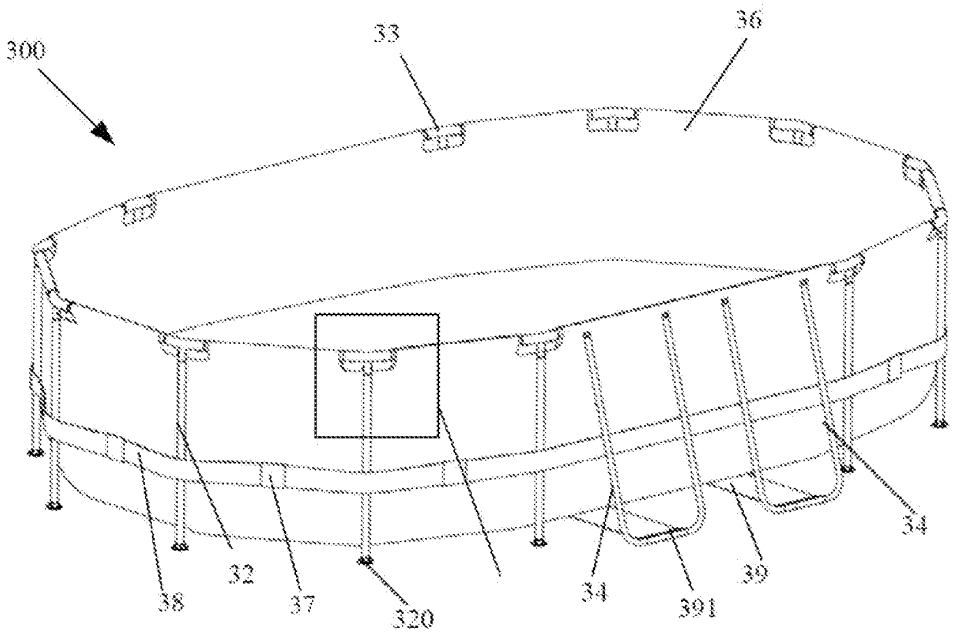


图 34

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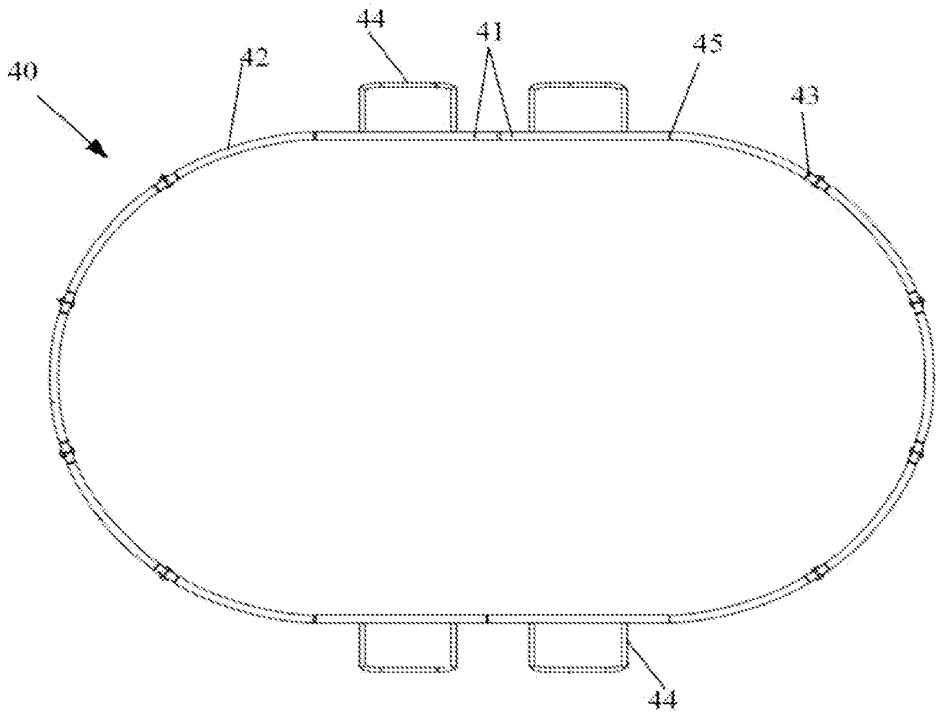


图 35

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Publication Number: CN 205777703 U
Publication Date: Dec 07, 2016

Abstract of equivalent US 20170356206 A1

The utility model provides a take support pond of sheath, it includes: the support frame comprises a plurality of interconnect's holder member, the pond inside lining includes bottom of the pool and the pool wall of being connected and upwards extending with the outward flange of bottom of the pool, the top edge of pool wall is hung and is located on the support frame, and locate the inboard of support frame to an and at least sheath, the sheath sets up at least two holder member's combination department. The utility model discloses take support pond of sheath simple structure, low cost and convenient assembling. It is mainly in the junction of the horizontal limit in support pond pipe and T venturi tube joint to and set up the sheath respectively in the junction that stay tube and T venturi tube connect, can overcome prior art effectively in support pond in assembling process or in the use, between horizontal limit pipe connects with the T venturi tube and the stay tube connect with the T venturi tube between frequent friction result in the horizontal limit to manage and the coating of the stay tube surface rusty defect of messenger's body of wearing and tearing easily.

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代理人 陈亮

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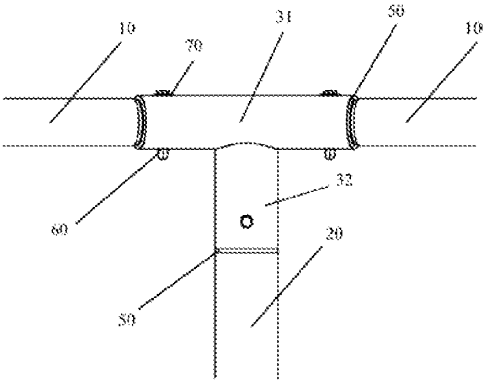
权利要求书2页 说明书6页 附图10页

(54)实用新型名称

带护套的支架水池

(57)摘要

本实用新型提供了一种带护套的支架水池，其包括：支撑架，由多个相互连接的支架部件组成；水池内衬，包括池底和与池底的外边缘连接且向上延伸的池壁，所述池壁的上边缘挂设于所述支撑架上，且设于所述支撑架的内侧，以及至少一护套，所述护套设置在至少两个所述支架部件的结合处。本实用新型带护套的支架水池结构简单、成本低廉且装配方便。其主要在支架水池的水平边管和T形管接头的连接处，以及在支撑管和T形管接头的连接处分别设置了护套，可以有效地克服现有技术中支架水池在装配过程中或使用过程中，水平边管与T形管接头之间以及支撑管与T形管接头之间频繁摩擦容易导致水平边管和支撑管外表面的涂层磨损使管体生锈的缺陷。



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1.一种带护套的支架水池，其特征在于，所述带护套的支架水池包括：

支撑架，由多个相互连接的支架部件组成；

水池内衬，包括池底和与池底的外边缘连接且向上延伸的池壁，所述池壁的上边缘挂设于所述支撑架上，且设于所述支撑架的内侧，以及

至少一护套，所述护套设置在至少两个所述支架部件的结合处。

2.如权利要求1所述的带护套的支架水池，其特征在于，所述支架部件包括：

多个水平边管，每一所述水平边管的两端分别设有连接部；

多个支撑管，每一所述支撑管的上端设有连接部；以及

多个T形管接头，所述T形管接头包括水平部和与水平部相连接的垂直部；

其中，所述多个水平边管的连接部分别插入相邻的所述T形管接头的水平部的两端以形成上框架结构，所述支撑管的连接部插入所述T形管接头的垂直部的下端以支撑所述上框架结构，所述护套设于所述水平边管的连接部与所述T形管接头的水平部两端的连接处所述多个水平边管穿设于所述池壁上边缘的套管中。

3.如权利要求2所述的带护套的支架水池，其特征在于，所述护套还设于所述支撑管的连接部与所述T形管接头的下端的连接处。

4.如权利要求2所述的带护套的支架水池，其特征在于，所述护套至少部分设于所述T形管接头的水平部两端的内表面与所述水平边管的连接部的外表面之间。

5.如权利要求3所述的带护套的支架水池，其特征在于，所述护套至少部分设于所述T形管接头的垂直部下端的内表面与所述支撑管的连接部的外表面之间。

6.如权利要求3所述的带护套的支架水池，其特征在于，所述水平边管的连接部上设有至少一个第一固定孔，所述支撑管的连接部上设有至少一个第二固定孔，所述T形管接头的水平部的两端和所述T形管接头的垂直部的下端设有至少一个第三固定孔。

7.如权利要求6所述的带护套的支架水池，其特征在于，所述护套包括：

护套本体，为中空的管型结构；

所述护套本体的管壁上设有至少一个第四固定孔。

8.如权利要求7所述的带护套的支架水池，其特征在于，所述护套还包括至少一个环形结构，所述至少一个环形结构设于所述护套本体的外表面上。

9.如权利要求7所述的带护套的支架水池，其特征在于，所述第四固定孔的边缘设有向内伸展的环形固定环，所述固定环至少部分穿设于所述第一固定孔的内侧。

10.如权利要求8所述的带护套的支架水池，其特征在于，所述环形结构为环形凸筋，所述环形凸筋与所述护套本体连接且高于所述护套本体的外表面。

11.如权利要求8所述的带护套的支架水池，其特征在于，所述环形结构为O型圈。

12.如权利要求11所述的带护套的支架水池，其特征在于，所述护套本体的外表面设有至少一个环形凹槽，所述O型圈至少部分嵌设于所述环形凹槽内，且所述O型圈高出于所述护套本体的外表面。

13.如权利要求7所述的带护套的支架水池，其特征在于，所述护套本体的第一端设有向外延伸的第一环形限位环，连接所述护套本体的外表面。

14.如权利要求13所述的带护套的支架水池，其特征在于，所述护套本体的第二端设有向内延伸的第二环形限位环，连接所述护套本体的内表面。

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15.如权利要求4所述的带护套的支架水池，其特征在于，所述护套包括：

护套本体，为中空的管型结构；

伸展部，所述伸展部的上端与所述护套本体的下端连接，且所述伸展部自上而下的尺寸逐步递增。

16.如权利要求15所述的带护套的支架水池，其特征在于，所述护套本体的管壁上设有至少一个第四固定孔。

17.如权利要求6所述的带护套的支架水池，其特征在于，所述支架部件还包括多个插销，所述插销穿设于所述水平边管的第一固定孔、T形管接头水平部上的第三固定孔和所述护套的第四固定孔中，以使所述水平边管、所述T形管接头和所述护套对应地相互固定连接。

18.如权利要求17所述的带护套的支架水池，其特征在于，所述插销穿设于所述支撑管的连接部上的第二固定孔、所述T形管接头垂直部上的第三固定孔和所述护套的第四固定孔中，以使所述支撑管、T形管接头和所述护套对应地相互固定连接。

19.如权利要求18所述的带护套的支架水池，其特征在于，所述插销包括：

插销本体，为圆柱体，下端设有至少两个分叉，

顶盖，设于所述插销本体的顶部，具有向外伸展的边缘，以及

凸点，设于所述两个分叉末端的外侧。

20.如权利要求19所述的带护套的支架水池，其特征在于，所述插销还包括碗形挡水片，所述挡水片设有通孔，所述插销本体穿设于所述通孔中，且所述碗形挡水片设于所述插销的顶盖与所述T形管接头水平部的外表面之间。

21.如权利要求2所述的带护套的支架水池，其特征在于，所述水平边管、所述支撑管和所述T形管接头的截面为圆形、椭圆形、D形的其中之一。

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带护套的支架水池

技术领域

[0001] 本实用新型涉及地上水池，特别涉及一种带护套的支架水池。

背景技术

[0002] 在水池领域中，地上水池具有许多不同的类型，其中包括支架水池。

[0003] 图1为支架水池的结构示意图。如图1所示，现有技术中的支架水池通常包括钢管制成的水平边管10、支撑管20和连接水平边管10及支撑管20的T形管接头30以及水池内衬40。

[0004] 其中，水平边管10和支撑管20都是以端部插入T形管接头30的方式装配成一体。为了达到防锈的目的，水平边管10、支撑管20和T形管接头30的外表面一般都有防锈涂层，例如环氧树脂、漆等。在水平边管10、支撑管20插入T形管接头30的过程中，防锈涂层很容易因为相互间的摩擦使防锈涂层损坏，从而导致水平边管10、支撑管20和T形管接头30生锈。

[0005] 支架水池在使用过程中，水池的晃动也会使水平边管10、支撑管20和T形管接头30的结合处产生摩擦损坏防锈涂层。

[0006] 此外，水平边管10、支撑管20插入T形管接头30后相互之间存在有间隙，雨水和水池在使用过程中溅出的水容易从间隙流入到管体的内部，造成管体生锈。

实用新型内容

[0007] 本实用新型要解决的技术问题是为了克服现有技术中支架水池的各个部件之间的连接处容易产生摩擦，损坏防锈涂层的缺陷，提供一种带护套的支架水池。

[0008] 本实用新型是通过下述技术方案来解决上述技术问题的：一种带护套的支架水池，其特点在于，所述带护套的支架水池包括：

[0009] 支撑架，由多个相互连接的支架部件组成；

[0010] 水池内衬，包括池底和与池底的外边缘连接且向上延伸的池壁，所述池壁的上边缘挂设于所述支撑架上，且设于所述支撑架的内侧，以及

[0011] 至少一护套，所述护套设置在至少两个所述支架部件的结合处。

[0012] 较佳地，所述支架部件包括：

[0013] 多个水平边管，每一所述水平边管的两端分别设有连接部；

[0014] 多个支撑管，每一所述支撑管的上端设有连接部；以及

[0015] 多个T形管接头，所述T形管接头包括水平部和与水平部相连接的垂直部；

[0016] 其中，所述多个水平边管的连接部分别插入相邻的所述T形管接头的水平部的两端以形成上框架结构，所述支撑管的连接部插入所述T形管接头的垂直部的下端以支撑所述上框架结构，所述护套设于所述水平边管的连接部与所述T形管接头的水平部两端的连接处所述多个水平边管穿设于所述池壁上边缘的套管中。

[0017] 较佳地，所述护套还设于所述支撑管的连接部与所述T形管接头的下端的连接处。

[0018] 较佳地，所述护套至少部分设于所述T形管接头的水平部两端的内表面与所述水

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平边管的连接部的外表面之间。

[0019] 较佳地，所述护套至少部分设于所述T形管接头的垂直部下端的内表面与所述支撑管的连接部的外表面之间。

[0020] 较佳地，所述水平边管的连接部上设有至少一个第一固定孔，所述支撑管的连接部上设有至少一个第二固定孔，所述T形管接头的水平部的两端和所述T形管接头的垂直部的下端设有至少一个第三固定孔。

[0021] 较佳地，所述护套包括：

[0022] 护套本体，为中空的管型结构；

[0023] 所述护套本体的管壁上设有至少一个第四固定孔。

[0024] 较佳地，所述护套还包括至少一个环形结构，所述至少一个环形结构设于所述护套本体的外表面上。

[0025] 较佳地，所述第四固定孔的边缘设有向内伸展的环形固定环，所述固定环至少部分穿设于所述第一固定孔的内侧。

[0026] 较佳地，所述环形结构为环形凸筋，所述环形凸筋与所述护套本体连接且高于所述护套本体的外表面。

[0027] 较佳地，所述环形结构为O型圈。

[0028] 较佳地，所述护套本体的外表面设有至少一个环形凹槽，所述O型圈至少部分嵌设于所述环形凹槽内，且所述O型圈高出于所述护套本体的外表面。

[0029] 较佳地，所述护套本体的第一端设有向外延伸的第一环形限位环，连接所述护套本体的外表面。

[0030] 较佳地，所述护套本体的第二端设有向内延伸的第二环形限位环，连接所述护套本体的内表面。

[0031] 较佳地，所述护套包括：

[0032] 护套本体，为中空的管型结构；

[0033] 伸展部，所述伸展部的上端与所述护套本体的下端连接，且所述伸展部自上而下的尺寸逐步递增。

[0034] 较佳地，所述护套本体的管壁上设有至少一个第四固定孔。

[0035] 较佳地，所述支架部件还包括多个插销，所述插销穿设于所述水平边管的第一固定孔、T形管接头水平部上的第三固定孔和所述护套的第四固定孔中，以使所述水平边管、所述T形管接头和所述护套对应地相互固定连接。

[0036] 较佳地，所述插销穿设于所述支撑管的连接部上的第二固定孔、所述T形管接头垂直部上的第三固定孔和所述护套的第四固定孔中，以使所述支撑管、T形管接头和所述护套对应地相互固定连接。

[0037] 较佳地，所述插销包括：

[0038] 插销本体，为圆柱体，下端设有至少两个分叉，

[0039] 顶盖，设于所述插销本体的顶部，具有向外伸展的边缘，以及

[0040] 凸点，设于所述两个分叉末端的外侧。

[0041] 较佳地，所述插销还包括碗形挡水片，所述挡水片设有通孔，所述插销本体穿设于所述通孔中，且所述碗形挡水片设于所述插销的顶盖与所述T形管接头水平部的外表面之

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间。

[0042] 较佳地，所述水平边管、所述支撑管和所述T形管接头的截面为圆形、椭圆形、D形的其中之一。

[0043] 本实用新型的积极进步效果在于：

[0044] 本实用新型带护套的支架水池结构简单、成本低廉且装配方便。其主要在支架水池的水平边管和T形管接头的连接处，以及在支撑管和T形管接头的连接处分别设置了护套，可以有效地克服现有技术中支架水池在装配过程中或使用过程中，水平边管与T形管接头之间以及支撑管与T形管接头之间频繁摩擦容易导致水平边管和支撑管外表面的涂层磨损使管体生锈的缺陷。

[0045] 此外，在护套上设置有一个或多个环形结构，其可以阻挡水从水平边管、支撑管和T形管接头之间的间隙流入管体内部，有效地防止管体生锈，能大大延长支架水池的使用寿命。

附图说明

[0046] 本实用新型上述的以及其他的特征、性质和优势将通过下面结合附图和实施例的描述而变的更加明显，在附图中相同的附图标记始终表示相同的特征，其中：

[0047] 图1为支架水池的结构示意图。

[0048] 图2为本实用新型带护套的支架水池组装后的局部示意图一。

[0049] 图3为本实用新型带护套的支架水池组装后的局部示意图二。

[0050] 图4为本实用新型带护套的支架水池中各部件的爆炸示意图一。

[0051] 图5为本实用新型带护套的支架水池中各部件的爆炸示意图二。

[0052] 图6为本实用新型带护套的支架水池的实施例一中护套的立体图。

[0053] 图7为本实用新型带护套的支架水池的实施例一中护套的主视图。

[0054] 图8为本实用新型带护套的支架水池的实施例一中护套的右视图。

[0055] 图9为本实用新型带护套的支架水池的实施例一中护套的俯视图。

[0056] 图10为本实用新型带护套的支架水池的实施例一中水平边管和T形管接头连接处的剖视图。

[0057] 图11为本实用新型带护套的支架水池的实施例二中护套的立体图。

[0058] 图12为本实用新型带护套的支架水池的实施例二中护套的分解示意图。

[0059] 图13为本实用新型带护套的支架水池的实施例二中水平管和T形管接头连接处的剖视图。

[0060] 图14为本实用新型带护套的支架水池的实施例三中护套的立体图。

[0061] 图15为本实用新型带护套的支架水池的实施例三中护套的主视图。

[0062] 图16为本实用新型带护套的支架水池的实施例三中护套的右视图。

[0063] 图17为本实用新型带护套的支架水池的实施例三中护套的俯视图。

[0064] 图18为本实用新型带护套的支架水池的实施例三中T形管接头和支撑管连接处的剖视图。

具体实施方式

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[0065] 为让本实用新型的上述目的、特征和优点能更明显易懂，以下结合附图对本实用新型的具体实施方式作详细说明。

[0066] 现在将详细参考附图描述本实用新型的实施例。现在将详细参考本实用新型的优选实施例，其示例在附图中示出。在任何可能的情况下，在所有附图中将使用相同的标记来表示相同或相似的部分。此外，尽管本实用新型中所使用的术语是从公知公用的术语中选择的，但是本实用新型说明书中所提及的一些术语可能是申请人按他或她的判断来选择的，其详细含义在本文的描述的相关部分中说明。此外，要求不仅仅通过所使用的实际术语，而是还要通过每个术语所蕴含的意义来理解本实用新型。

[0067] 实施例一：

[0068] 图1为支架水池的结构示意图。图2为本实用新型带护套的支架水池组装后的局部示意图一。图3为本实用新型带护套的支架水池组装后的局部示意图二。图4为本实用新型带护套的支架水池中各部件的爆炸示意图一。图5为本实用新型带护套的支架水池中各部件的爆炸示意图二。

[0069] 如图1至图5所示，本实用新型公开了一种带护套的支架水池，其包括支撑架、水池内衬40和至少一护套50。其中，所述支撑架由多个相互连接的支架部件组成。水池内衬40包括池底42和与池底42的外边缘连接且向上延伸的池壁41，池壁41的上边缘挂设于设在所述支撑架上，且设于所述支撑架的内侧，而护套50设置在至少两个所述支架部件的结合处。

[0070] 优选地，所述支架部件包括多个水平边管10、多个支撑管20和多个T形管接头30。其中，每一水平边管10的两端分别设有连接部11，每一支撑管20的上端设有连接部21。T形管接头30包括水平部31以及与水平部31相连接的垂直部32。

[0071] 其中，多个水平边管10的连接部11分别插入相邻的T形管接头30的水平部31的两端以形成闭合的上框架结构，支撑管20的连接部21插入T形管接头30的垂直部32的下端以支撑所述上框架结构，护套50设于水平边管10的连接部11与T形管接头30的水平部31两端的连接处，所述多个水平边管穿设于所述池壁上边缘的套管中。

[0072] 此外，护套50还设于支撑管20的连接部21与T形管接头30的下端的连接处。这里的护套50至少部分地设于T形管接头30的水平部31两端的内表面与水平边管10的连接部的外表面之间。护套50至少部分设于T形管接头30的垂直部32下端的内表面与支撑管20的连接部21的外表面之间。

[0073] 进一步具体地，在水平边管10的连接部11上设有至少一个第一固定孔12，在支撑管20的连接部21上设有至少一个第二固定孔22，T形管接头30的水平部31的两端和T形管接头30的垂直部32的下端设有至少一个第三固定孔33。

[0074] 图6为本实用新型带护套的支架水池的实施例一中护套的立体图。图7为本实用新型带护套的支架水池的实施例一中护套的主视图。图8为本实用新型带护套的支架水池的实施例一中护套的右视图。图9为本实用新型带护套的支架水池的实施例一中护套的俯视图。

[0075] 如图6至图9所示，护套50包括护套本体51，护套本体51优选地设置为中空的管型结构，在护套本体51的管壁上设有至少一个第四固定孔52。

[0076] 同时，护套50还包括至少一个环形结构，所述至少一个环形结构设于护套本体51的外表面上。第四固定孔52的边缘设有向外伸展的环形固定环521，固定环521至少部分穿

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设于第一固定孔12的内侧。当水平边管10的连接部11插入护套50时，环形固定环521嵌入第一固定孔12内，可以防止护套50滑动或旋转。

[0077] 优选地，所述环形结构采用多个环形凸筋53，环形凸筋53与护套本体51连接且高于护套本体51的外表面，环形凸筋53可以阻挡水进入水平边管10连接部11外表面与T形管接头30内表面之间的间隙，防止管体内部受潮生锈。

[0078] 图10为本实用新型带护套的支架水池的实施例一中水平边管和T形管接头连接处的剖视图。

[0079] 如图10所示，所述支架部件还包括多个插销60，将插销60穿设在水平边管10的第一固定孔11、T形管接头30水平部31上的第三固定孔33和护套50的第四固定孔52中，以使水平边管10、T形管接头30和护套50对应地相互固定连接。

[0080] 同样，插销60也可以穿设在支撑管20的连接部21上的第二固定孔22、T形管接头30垂直部32上的第三固定孔33和护套50的第四固定孔52中，以使支撑管20、T形管接头30和护套50对应地相互固定连接。

[0081] 进一步优选地，插销60包括插销本体61、顶盖62和凸点63。其中，插销本体61为圆柱体，下端设有至少两个分叉64。顶盖62设置在插销本体61的顶部，具有向外伸展的边缘。凸点63设置在两个分叉64末端的外侧。

[0082] 另外，插销60还包括碗形挡水片70，在挡水片70上设置通孔，使得插销本体61穿设于所述通孔中，且碗形挡水片70设于插销60的顶盖62与水平边管10的外表面之间，碗形挡水片70可选择采用有弹性的PVC或橡胶等材料。

[0083] 特别地，在护套本体51的第一端设有向外延伸的第一环形限位环54，连接护套本体51的外表面。护套本体51的第二端设有向内延伸的第二环形限位环55，连接护套本体51的内表面。第一环形限位环54可以限定护套50和T形管接头30装配位置。第二环形限位环55可以限定水平边管10的连接部11与护套50的装配位置。

[0084] 上述结构中，水平边管10、支撑管20和T形管接头30的径向截面优选为圆形、椭圆形、D形的其中之一。

[0085] 实施例二：

[0086] 图11为本实用新型带护套的支架水池的实施例二中护套的立体图。图12为本实用新型带护套的支架水池的实施例二中护套的分解示意图。图13为本实用新型带护套的支架水池的实施例二中水平管和T形管接头连接处的剖视图。

[0087] 如图11至图13所示，本实施例的结构与实施一的结构基本相同，其不同之处在于：护套50上的环形结构优选为O型圈57。具体地，在护套本体51的外表面设置至少一个环形凹槽56，将O型圈57至少部分地嵌设于环形凹槽56内，且使得O型圈57高出于护套本体51的外表面，同样，O型圈57也可以阻挡水进入水平边管10连接部11外表面与T形管接头30内表面之间的间隙，防止管体内部受潮生锈。

[0088] 实施例三：

[0089] 图14为本实用新型带护套的支架水池的实施例三中护套的立体图。图15为本实用新型带护套的支架水池的实施例三中护套的主视图。图16为本实用新型带护套的支架水池的实施例三中护套的右视图。图17为本实用新型带护套的支架水池的实施例三中护套的俯视图。图18为本实用新型带护套的支架水池的实施例三中T形管接头和支撑管连接处的剖

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视图。

[0090] 如图11至图13所示，本实施例的结构与实施例一的结构基本相同，其不同之处在于：支撑管20和T形管接头30之间采用另一种结构形式的护套。具体地说，护套50包括护套本体51和伸展部58。其中，护套本体51为中空的管型结构。伸展部58的上端与护套本体51的下端连接，且伸展部58自上而下的尺寸逐步递增。在具体实施中可以在护套本体51的管壁上设有至少一个第四固定孔(未图示)。在此结构上，通过插销60穿过护套本体51上的第四固定孔和T形管接头30的垂直部32的第三固定孔33将支撑管20和T形管接头30固定为一体。在图18的实施例中，插销10为设置在支撑管内的弹销。在具体实施中，可以选择其它结构的插销。

[0091] 综上所述，本实用新型带护套的支架水池结构简单、成本低廉且装配方便。其主要在支架水池的水平边管和T形管接头的连接处，以及在支撑管和T形管接头的连接处分别设置了护套，可以有效地克服现有技术中支架水池在装配过程中或使用过程中，水平边管与T形管接头之间以及支撑管与T形管接头之间频繁摩擦容易导致水平边管和支撑管外表面的涂层磨损使管体生锈的缺陷。

[0092] 此外，在护套上设置有一个或多个环形结构，其可以阻挡水从水平边管、支撑管和T形管接头之间的间隙流入管体内部，有效地防止管体受潮生锈，能大大延长支架水池的使用寿命。

[0093] 虽然以上描述了本实用新型的具体实施方式，但是本领域的技术人员应当理解，这些仅是举例说明，本实用新型的保护范围是由所附权利要求书限定的。本领域的技术人员在不背离本实用新型的原理和实质的前提下，可以对这些实施方式作出多种变更或修改，但这些变更和修改均落入本实用新型的保护范围。

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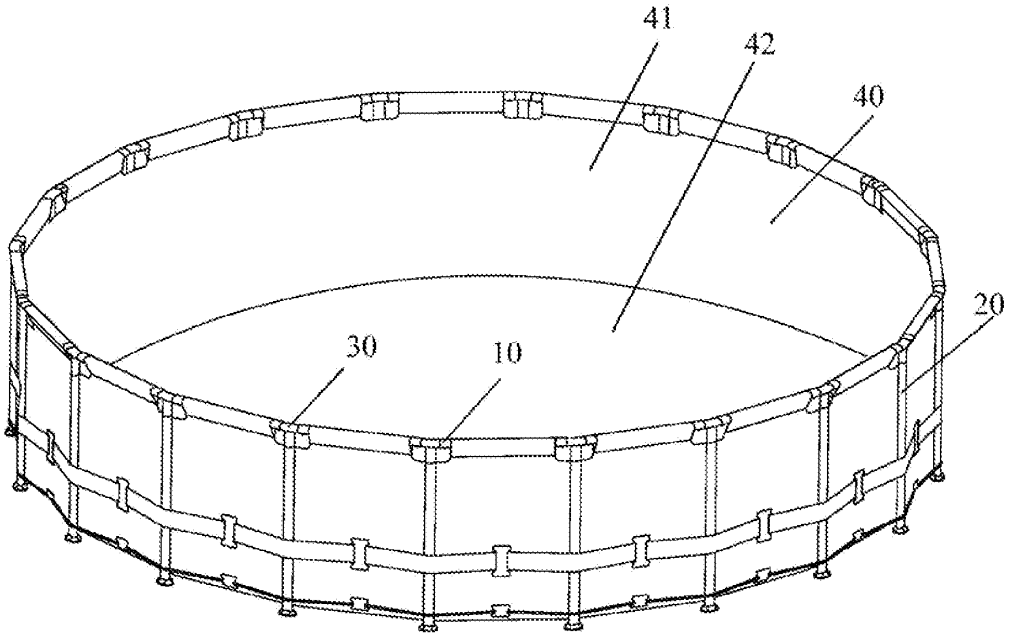


图1

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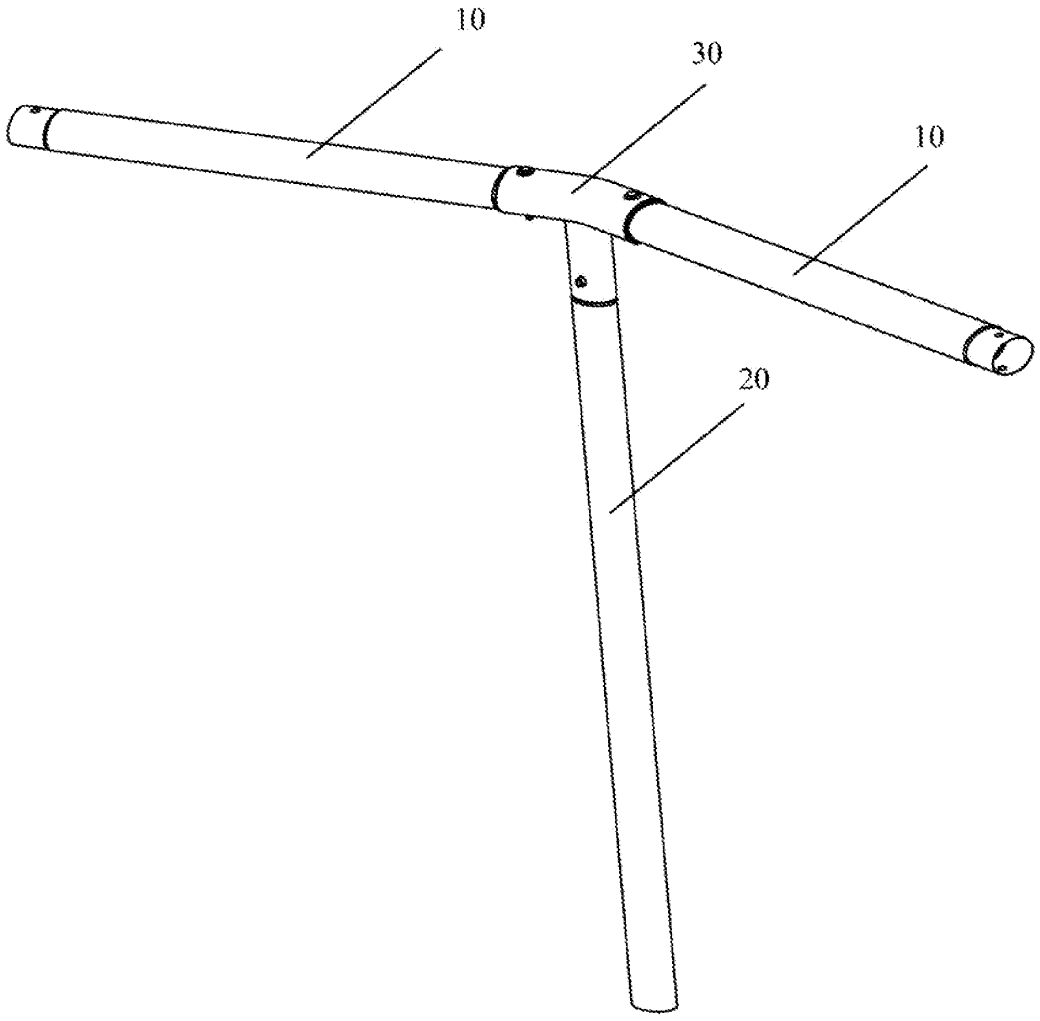


图2

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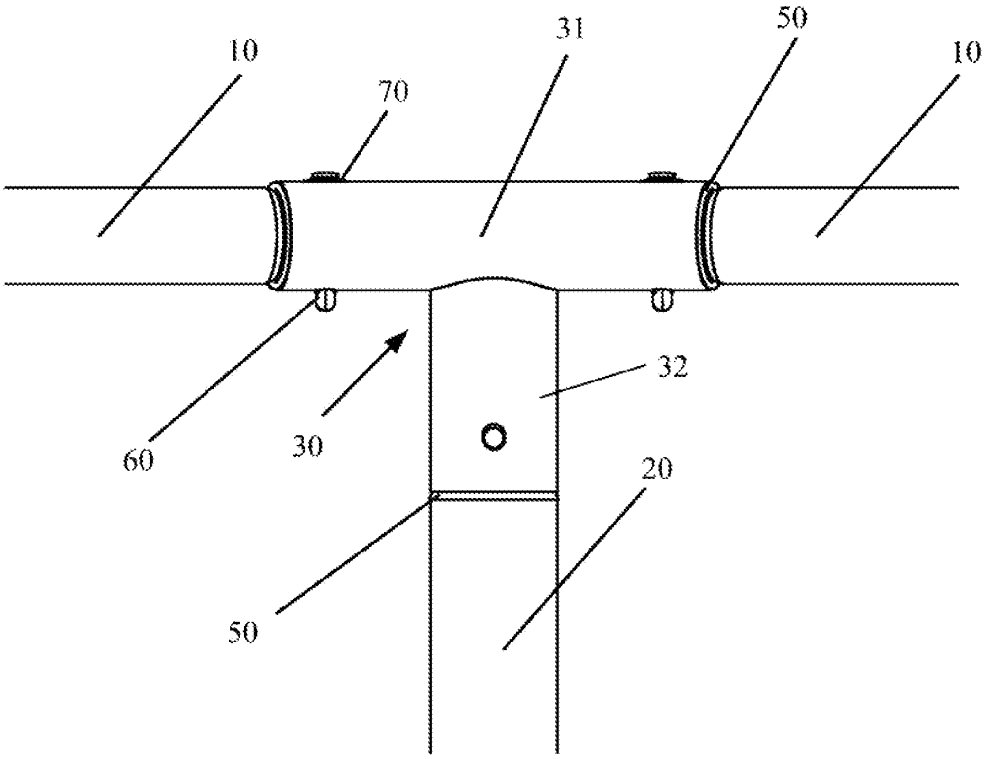


图3

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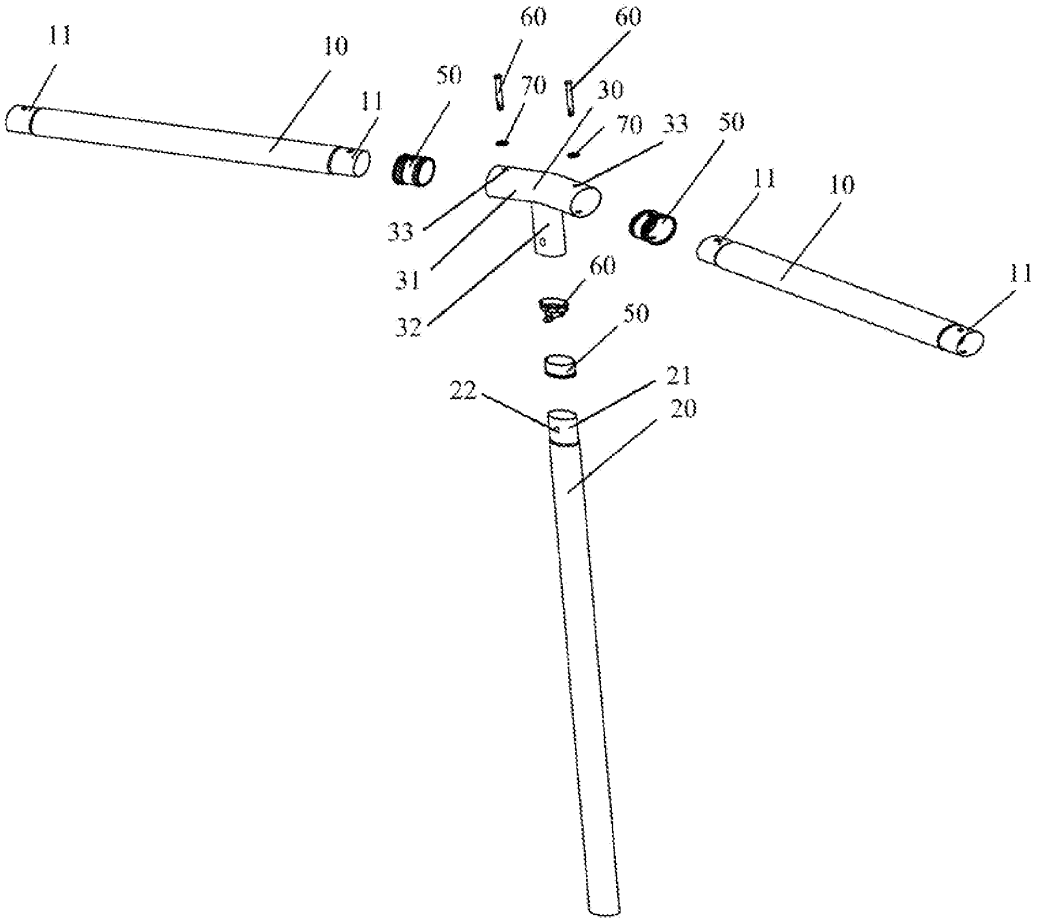


图4

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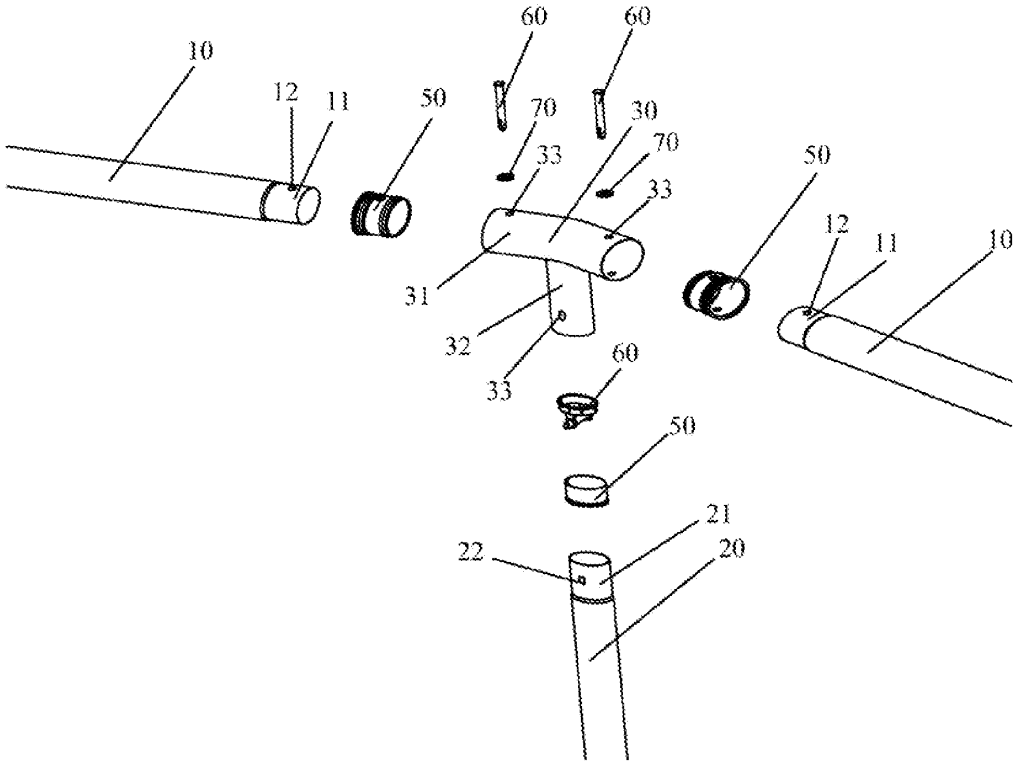


图5

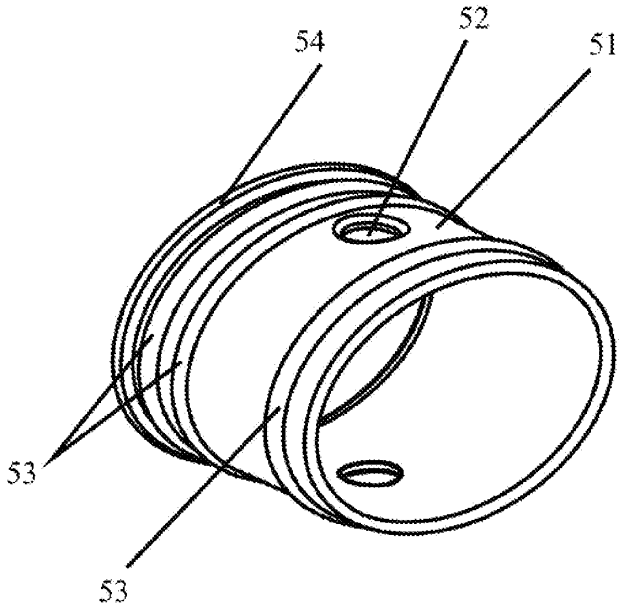


图6

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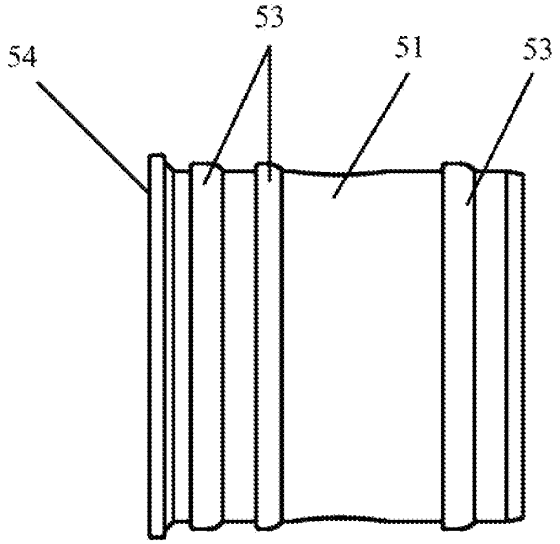


图7

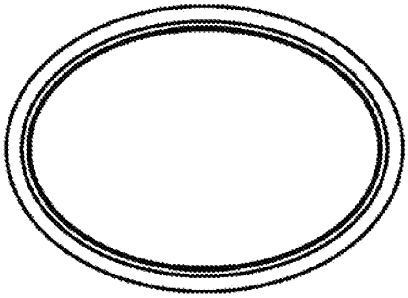


图8

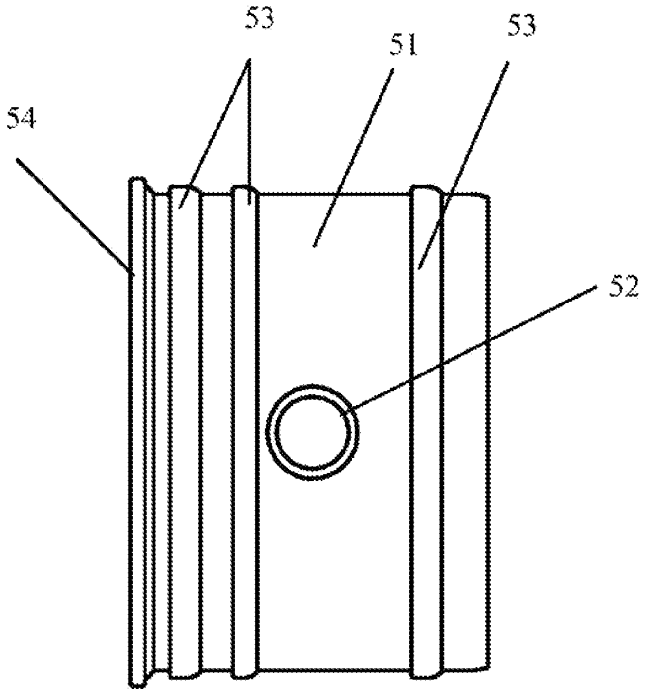


图9

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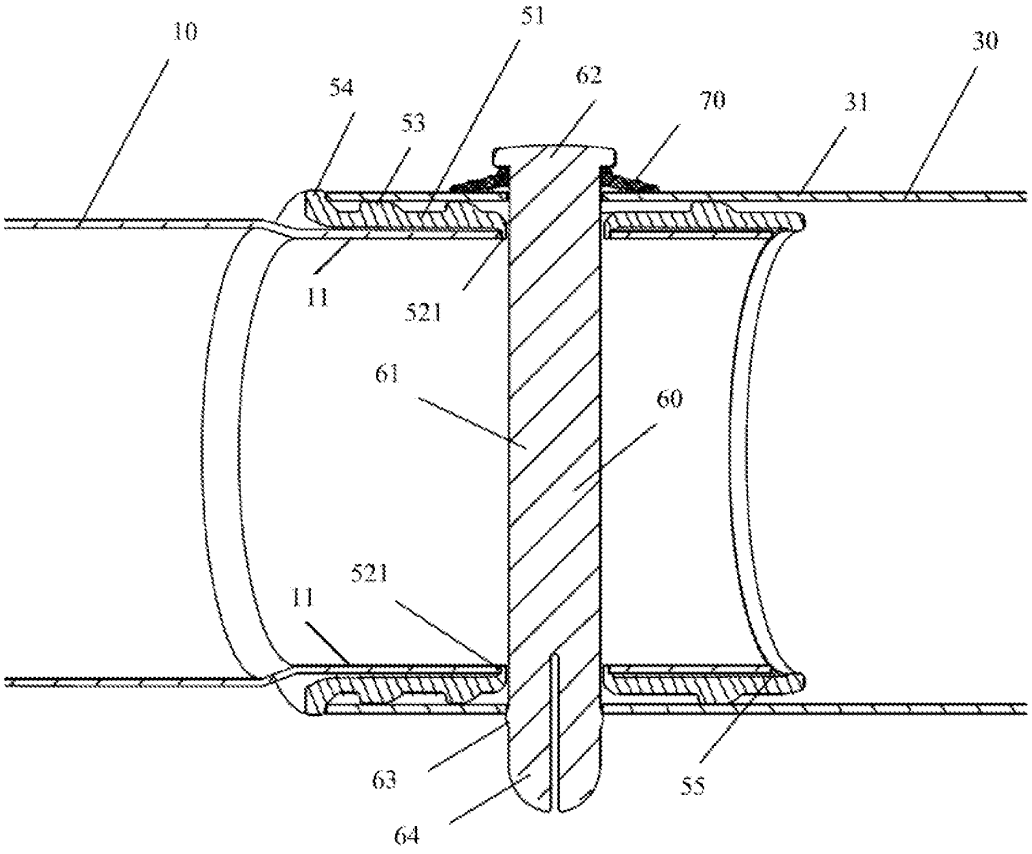


图10

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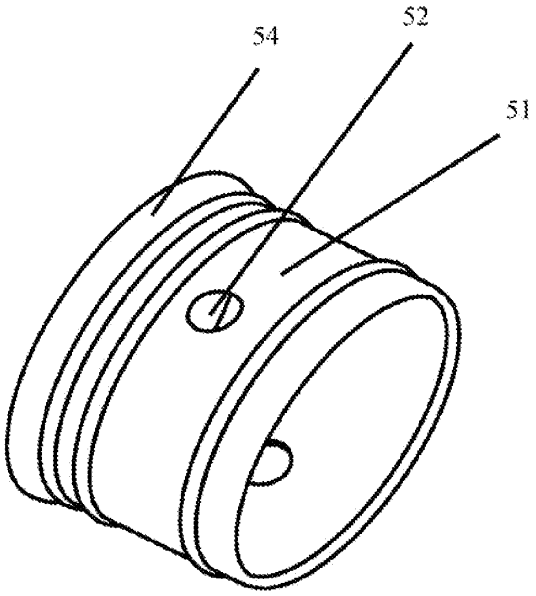


图11

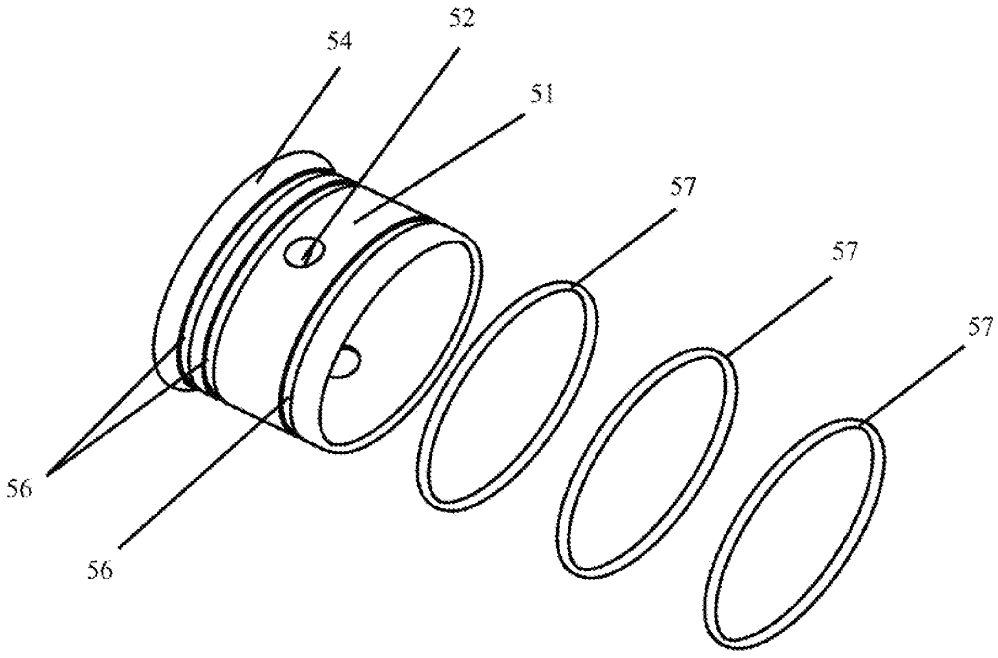


图12

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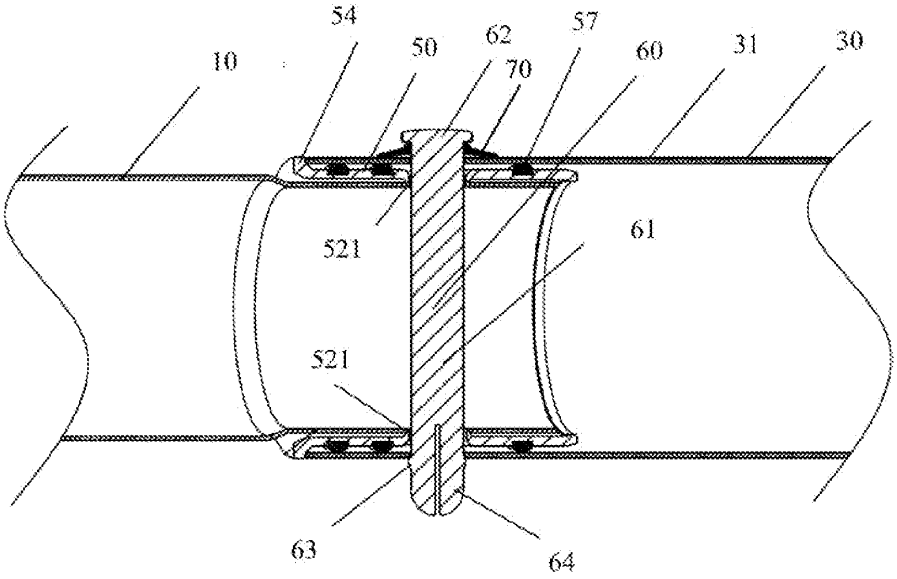


图13

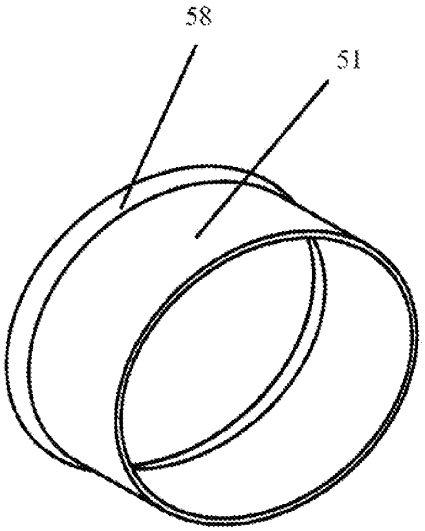


图14

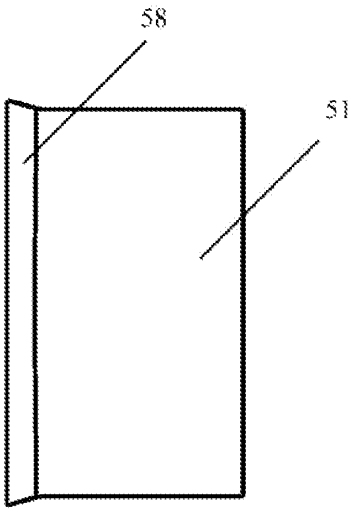


图15

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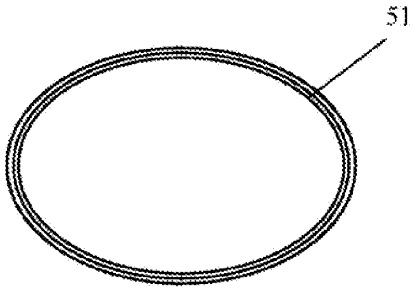


图16

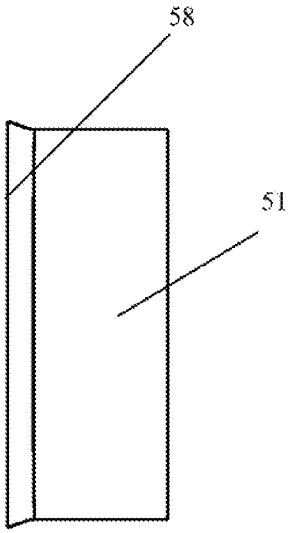


图17

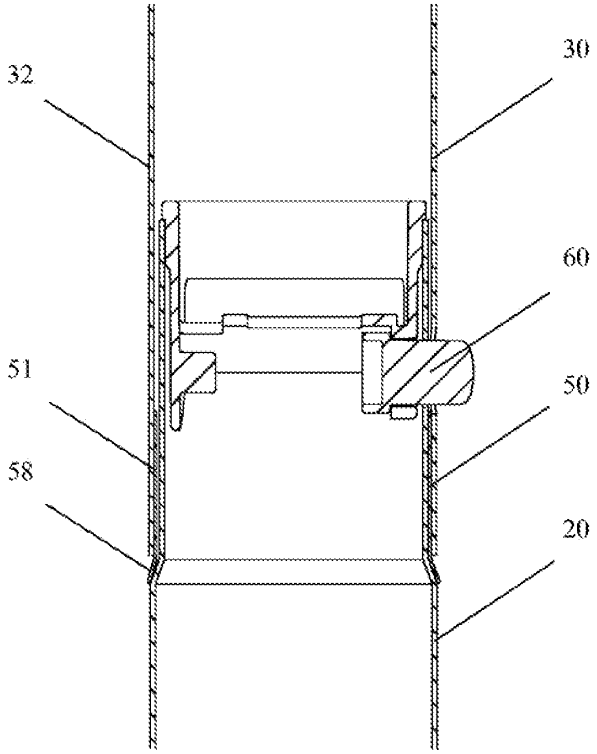


图18

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Publication Number: CN 206054469 U
Publication Date: Mar 29, 2017

Abstract

The utility model discloses a T venturi tube connects for connect two limit pipes and a foot pipe, including two limit couplings and a foot coupling, two limit couplings and a foot coupling are the injection molding, and integrated into one piece to constitute the T venturi tube connects structure, two limit couplings are adorned respectively and have been met limit pipe elastic pin group, the limit pipe is equipped with the pinhole, and when this limit coupling and limit pipe box connect the cooperation, this limit pipe elastic pin group card was arranged in the pinhole of limit pipe, foot coupling dress has met foot pipe elastic pin group, the foot pipe is equipped with the pinhole, and when this foot coupling and foot pipe box connect the cooperation, this foot pipe elastic pin group card was arranged in the pinhole of foot pipe. The utility model provides a being applicable to the T venturi tube connects in pipe support pond, having reduced the friction between coupling and body, prevented the corrosion of body, prolonged the life of product, easy dismounting is simple to use simultaneously.

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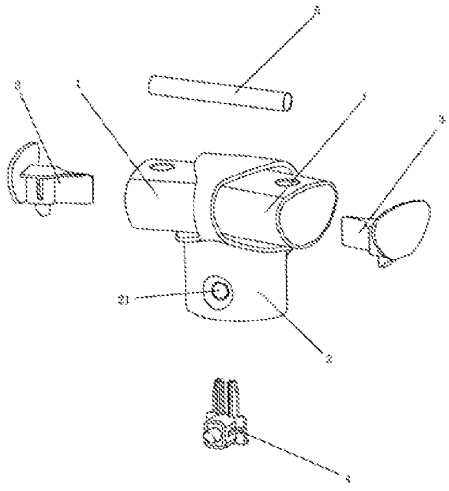
权利要求书1页 说明书3页 附图4页

(54)实用新型名称

一种T形管接头

(57)摘要

本实用新型公开了一种T形管接头，用于连接二个边管和一个脚管，包括二个边管接头和一个脚管接头，所述二个边管接头和一个脚管接头为注塑件，且一体成型，并构成T形管接头结构；所述二个边管接头分别装接有边管弹销组，所述边管设有销孔，在该边管接头与边管套接配合时，该边管弹销组卡置于所述边管的销孔；所述脚管接头装接有脚管弹销组，所述脚管设有销孔，在该脚管接头与脚管套接配合时，该脚管弹销组卡置于所述脚管的销孔。本实用新型提供了一种适用于管架水池的T形管接头，减少了管接头与管体间的摩擦，防止了管体的锈蚀，延长了产品的使用寿命，同时拆装方便，使用简单。



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1.一种T形管接头，用于连接二个边管和一个脚管，其特征在于：包括二个边管接头和一个脚管接头，所述二个边管接头和一个脚管接头为注塑件，且一体成型，并构成T形管接头结构；所述二个边管接头的轴线之间具有一定的夹角。

2.根据权利要求1所述的一种T形管接头，其特征在于：所述二个边管接头分别装接有边管弹销组，所述边管设有销孔，在该边管接头与边管套接配合时，该边管弹销组卡置于所述边管的销孔；所述脚管接头装接有脚管弹销组，所述脚管设有销孔，在该脚管接头与脚管套接配合时，该脚管弹销组卡置于所述脚管的销孔。

3.根据权利要求1所述的一种T形管接头，其特征在于：所述边管接头的截面为圆缺形状、圆形、椭圆形或矩形，相应的，所述边管的截面形状与所述边管接头的截面形状相同。

4.根据权利要求1所述的一种T形管接头，其特征在于：所述脚管接头的截面为圆缺形状、圆形、椭圆形或矩形，相应的，所述脚管的截面形状与所述脚管接头的截面形状相同。

5.根据权利要求1所述的一种T形管接头，其特征在于：还包括设置于所述脚管接头的纵向加强筋，所述脚管弹销组卡装于该纵向加强筋。

6.根据权利要求1所述的一种T形管接头，其特征在于：还包括横向加强筋，该横向加强筋贯通所述二个边管接头。

7.根据权利要求5所述的一种T形管接头，其特征在于：还包括补强管，所述补强管卡装与所述横向加强筋。

8.根据权利要求1所述的一种T形管接头，其特征在于：所述边管弹销组包括边管弹销座、边管弹簧和边管弹销，所述边管弹销座具有纵向的槽孔，所述边管弹销通过所述边管弹簧装接于所述边管弹销座。

9.根据权利要求1所述的一种T形管接头，其特征在于：所述脚管弹销组包括脚管弹销座、脚管弹簧和脚管弹销，所述脚管弹销座具有横向的槽孔，所述脚管弹销通过所述边管脚管装接于所述脚管弹销座。

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一种T形管接头

技术领域

[0001] 本实用新型涉及一种T形管接头，特别是涉及一种应用于管架水池的T形管接头。

背景技术

[0002] 管架水池是以管体为支架搭建的水池结构，通过若干个边管和脚管搭接构件水池的框架，而后在水池的框架上固定装接水池布，以形成水池结构。其中，边管和脚管需要通过T形管接头进行固定套接。现有技术中的T形管接头包括一竖直设置的脚管接头和由一段铁质管体弯折形成的二个边管接头。一方面，T形管接头、边管和脚管均为金属材质，装接和运输过程中易发生摩擦和挤压，使表面的镀层受到磨损，产生锈蚀；另一方面，T形管接头的整体尺寸较大，由于水池布绕过边管反折固定时，T形管接头的部分无法被水池布覆盖，形成了较大的反折孔，影响了水池的整体外观。

实用新型内容

[0003] 本实用新型的目的在于克服现有技术之不足，提供一种适用于管架水池的T形管接头，减少了管接头与管体间的摩擦，防止了管体的锈蚀，延长了产品的使用寿命，同时拆装方便，使用简单。

[0004] 本实用新型解决其技术问题所采用的技术方案是：一种T形管接头，用于连接二个边管和一个脚管，其特征在于：包括二个边管接头和一个脚管接头，所述二个边管接头和一个脚管接头为注塑件，且一体成型，并构成T形管接头结构；所述二个边管接头的轴线之间具有一定的夹角。即T形管接头所连接的二个边管具有一定夹角，当若干个边管通过T形管接头串联在一起后，可形成圆环形水池构架。

[0005] 作为一种优选，所述二个边管接头分别装接有边管弹销组，所述边管设有销孔，在该边管接头与边管套接配合时，该边管弹销组卡置于所述边管的销孔；所述脚管接头装接有脚管弹销组，所述脚管设有销孔，在该脚管接头与脚管套接配合时，该脚管弹销组卡置于所述脚管的销孔。

[0006] 作为一种优选，所述边管接头的截面为圆缺形状、圆形、椭圆形或矩形，相应的，所述边管的截面形状与所述边管接头的截面形状相同。

[0007] 作为一种优选，所述脚管接头的截面为圆缺形状、圆形、椭圆形或矩形，相应的，所述脚管的截面形状与所述脚管接头的截面形状相同。

[0008] 作为一种优选，还包括设置于所述脚管接头的纵向加强筋，所述脚管弹销组卡装于该纵向加强筋。

[0009] 作为一种优选，还包括横向加强筋，该横向加强筋贯通所述二个边管接头。

[0010] 作为一种优选，还包括补强管，所述补强管卡装与所述横向加强筋。

[0011] 作为一种优选，所述边管弹销组包括边管弹销座、边管弹簧和边管弹销，所述边管弹销座具有纵向的槽孔，所述边管弹销通过所述边管弹簧装接于所述边管弹销座。

[0012] 作为一种优选，所述脚管弹销组包括脚管弹销座、脚管弹簧和脚管弹销，所述脚管

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弹销座具有横向的槽孔，所述脚管弹销通过所述边管脚管装接于所述脚管弹销座。

[0013] 本实用新型的有益效果是：

[0014] 1、本实用新型的T形管接头整体采用注塑成型，与边管和脚管装接在一起时，由于注塑件弹性较好，且质地比金属材质的边管和脚管更软，故不会磨伤边管或脚管的表面涂层，进而使边管和脚管不易发生锈蚀。延长了产品的使用寿命，改善了用户体验。

[0015] 2、本实用新型的T形管接头通过弹销组与边管的销孔或脚管的销孔卡装配合，仅需按下弹销，即可实现边管或脚管的拆装，拆装方便，使用简单。

[0016] 3、本实用新型的T形管接头整体尺寸较小，即无法被水池布覆盖到的部分减小；当水池布绕过边管反折固定时，相邻反折片之间所形成的反折孔较小，使整体外观得到提升。

[0017] 以下结合附图及实施例对本实用新型作进一步详细说明；但本实用新型的一种T形管接头不局限于实施例。

附图说明

[0018] 图1是本实用新型的爆炸示意图；

[0019] 图2是本实用新型的侧面剖视图；

[0020] 图3是本实用新型的配合示意图；

[0021] 图4是本实用新型的安装示意图。

具体实施方式

[0022] 实施例：

[0023] 参见图1至图2所示，本实用新型的一种T形管接头，用于连接二个边管6和一个脚管7，其特征在于：包括二个边管接头1和一个脚管接头2，所述二个边管接头1和一个脚管接头2为注塑件，且一体成型，并构成T形管接头结构；

[0024] 所述二个边管接头1分别装接有边管弹销组3，所述边管6设有销孔，在该边管接头1与边管6套接配合时，该边管弹销组3卡置于所述边管6的销孔；所述脚管接头2装接有脚管弹销组4，所述脚管7设有销孔，在该脚管接头2与脚管7套接配合时，该脚管弹销组4卡置于所述脚管7的销孔。

[0025] 所述边管接头1的截面为圆缺形状、圆形、椭圆形或矩形，相应的，所述边管6的截面形状与所述边管接头1的截面形状相同。

[0026] 所述脚管接头2的截面为圆缺形状、圆形、椭圆形或矩形，相应的，所述脚管7的截面形状与所述脚管接头2的截面形状相同。

[0027] 还包括设置于所述脚管接头2的纵向加强筋21，所述脚管弹销组4卡装于该纵向加强筋21。

[0028] 还包括横向加强筋11，该横向加强筋11贯通所述二个边管接头1。

[0029] 还包括补强管5，所述补强管5卡装与所述横向加强筋11。

[0030] 参见图3所示，所述边管弹销组3包括边管弹销座31、边管弹簧32和边管弹销33，所述边管弹销座31具有纵向的槽孔，所述边管弹销33通过所述边管弹簧32装接于所述边管弹销座31。当边管接头1与边管6相互卡装时，按压所述边管弹销33，并将边管6套接于边管接头1，直到边管弹销33卡置于边管6的销孔中。

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[0031] 所述脚管弹销组4包括脚管弹销座41、脚管弹簧42和脚管弹销43，所述脚管弹销座41具有横向的槽孔，所述脚管弹销43通过所述边管6脚管7装接于所述脚管弹销座41。当脚管接头2与脚管7相互卡装时，按压所述脚管弹销43，并将脚管6套接于脚管接头2，直到脚管弹销43卡置于脚管7的销孔中。

[0032] 所述二个边管接头1的轴线之间具有一定夹角。即T形管接头所连接的二个边管6具有一定夹角，当若干个边管6通过T形管接头串联在一起后，可形成圆环形水池构架。

[0033] 参见图4所示，边管接头1与边管6相套接，底管接头2与底管7相套接；通过将水池布8所设置的反折片81翻折固定在所述边管6上，可构成管架水池结构。其中二个相邻的反折片81之间形成一反折孔82。由于边管接头1的长度较短，所以反折孔82尺寸也相应缩小，使整体外观得到改善。

[0034] 上述实施例仅用来进一步说明本实用新型的一种T形管接头，但本实用新型并不局限于实施例，凡是依据本实用新型的技术实质对以上实施例所作的任何简单修改、等同变化与修饰，均落入本实用新型技术方案的保护范围内。

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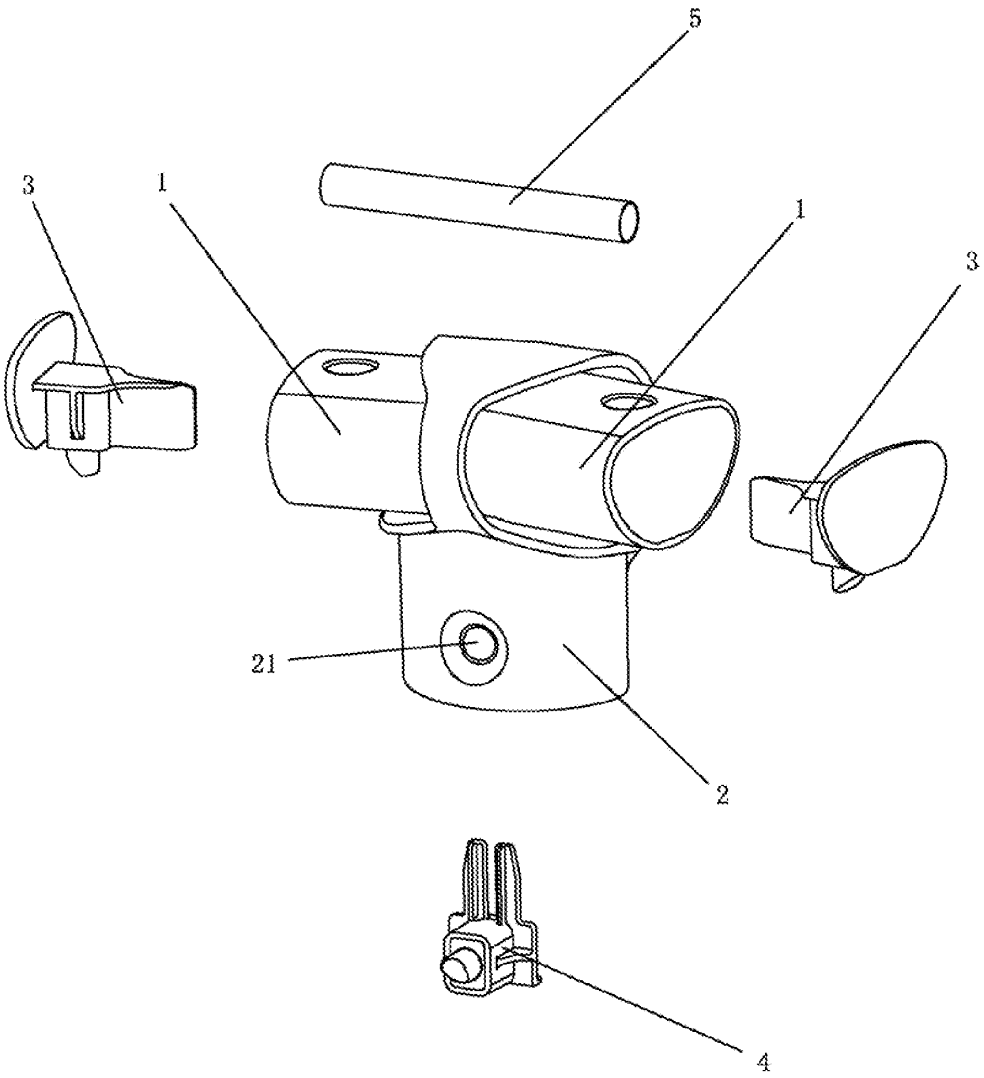


图1

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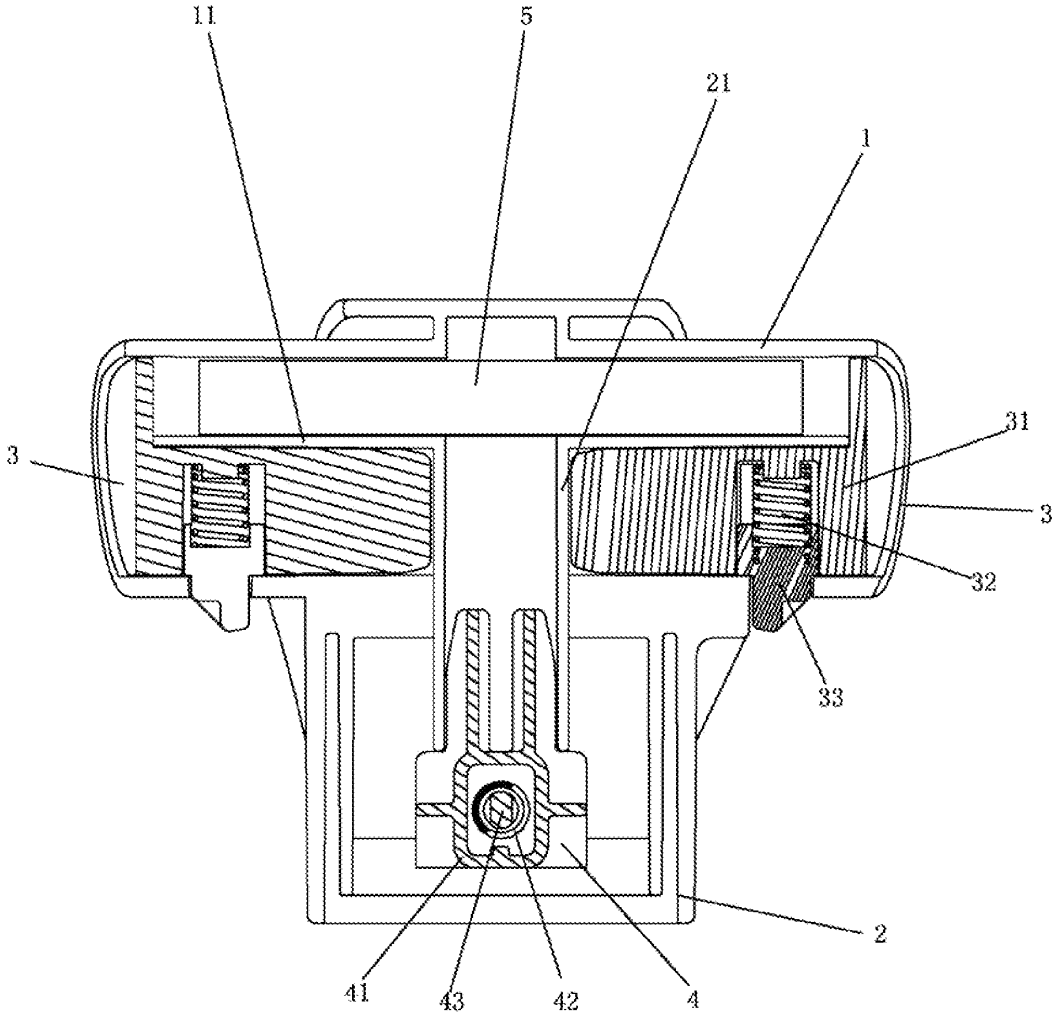


图2

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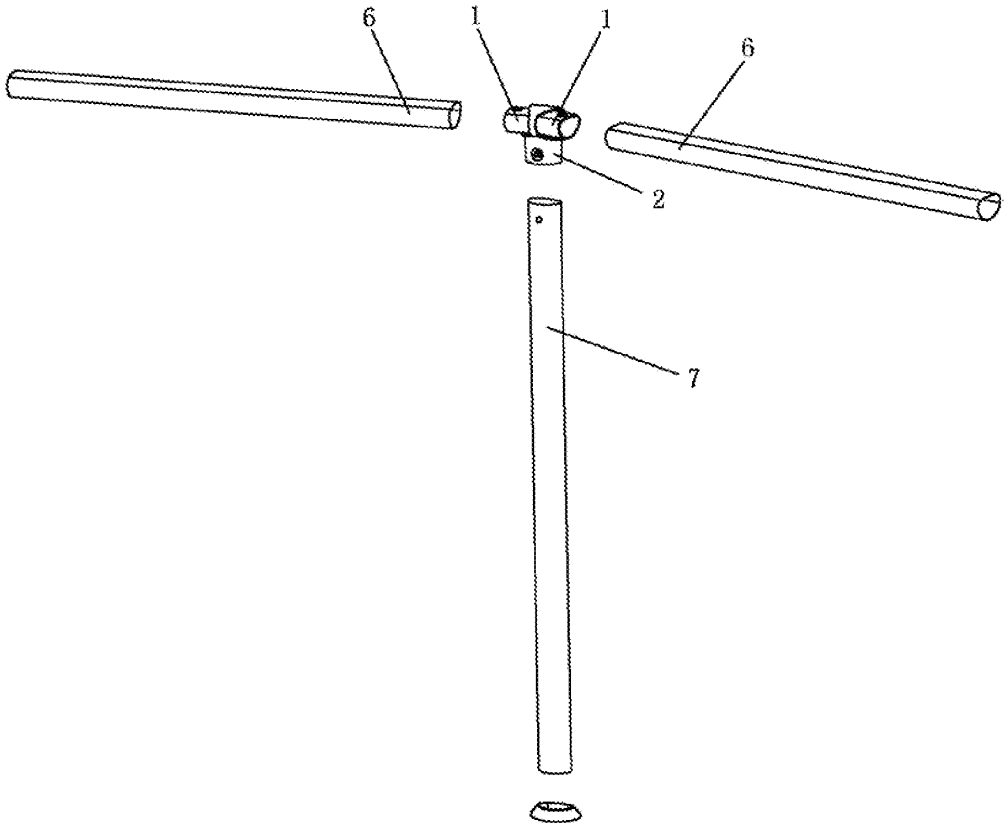


图3

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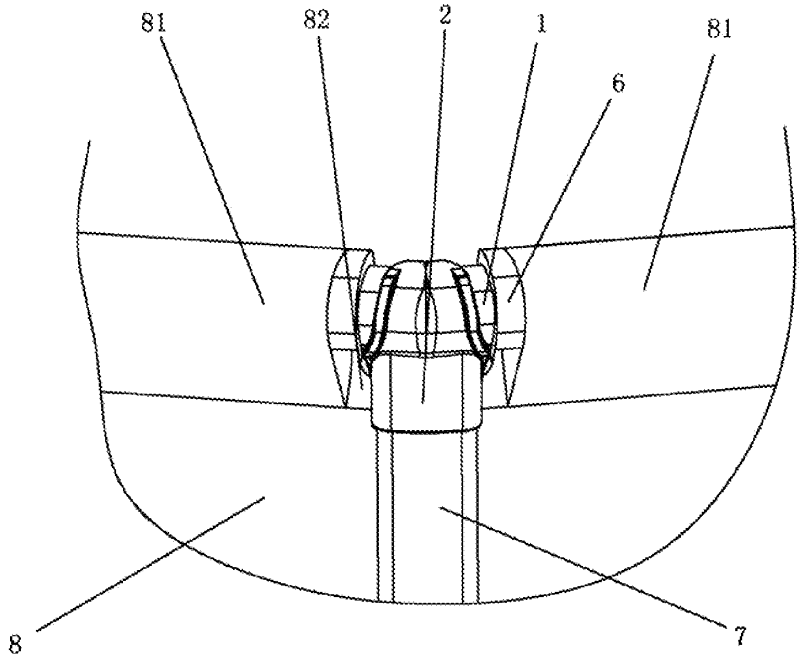


图4

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Abstract

The utility model provides a ground forebay and pond support, wherein the pond support includes: a plurality of support piece connect gradually and form the annular along a circumference, a plurality of the 2nd support piece follow circumference distributes and supports all a support piece, connect, connect adjacent two a support piece, and adjacent two the 2nd support piece between the support piece, wherein, it is plastics to connect the part that contacts with at least one support piece. In this technical scheme, shake the measured time at the pond support, plastics can take place to be out of shape, and are less to rust preventives's wearing and tearing, prevent that rust preventives is impaired to come off. Rust preventives can maintain the long period and not drop, and this is effectively avoided taking place the corrosion between joint and the corresponding support piece to, the pond support has longer life.

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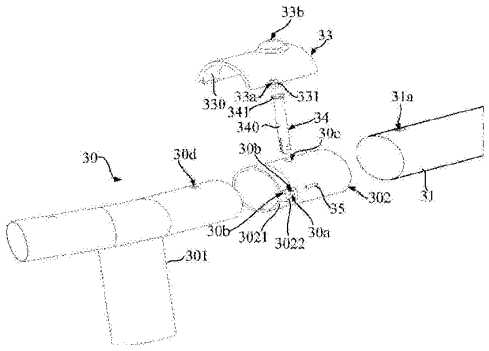
权利要求书3页 说明书9页 附图6页

(54)实用新型名称

地上水池和水池支架

(57)摘要

一种地上水池和水池支架，其中水池支架包括：若干第一支撑件，沿一周向依次连接而形成环形；若干第二支撑件，沿所述周向分布并支撑所有所述第一支撑件；接头，连接相邻两个所述第一支撑件、及相邻两个所述第一支撑件之间的第二支撑件，其中，所述接头与至少一个支撑件接触的部分为塑料。在本技术方案中，在水池支架晃动时，塑料可以发生变形，对防锈材料的磨损较小，防止防锈材料受损脱落。防锈材料可以维持较长时间而不脱落，这有效避免接头与相应支撑件之间发生锈蚀，从而，水池支架具有较长的使用寿命。



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1.一种地上水池，其特征在于，包括：水池支架及水池内衬；

所述水池支架包括：

若干第一支撑件，沿一周向依次连接而形成环形；

若干第二支撑件，沿所述周向分布并支撑所有所述第一支撑件；

接头，连接相邻两个所述第一支撑件、及相邻两个所述第一支撑件之间的第二支撑件，其中，所述接头与其中至少一个支撑件接触的部分为塑料；

所述水池内衬包括：池底、及沿所述周向排布且连接所述池底的池壁，所述水池内衬支撑在所述水池支架内侧。

2.如权利要求1所述的地上水池，其特征在于，所述接头为塑料接头。

3.如权利要求2所述的地上水池，其特征在于，所述接头包括：

内管；外管，环绕所述内管，且与所述内管定义一环形插槽；

所述第一支撑件和第二支撑件分别插入各自对应的所述插槽内。

4.如权利要求3所述的地上水池，其特征在于，还包括：

连接件，穿过所述内管、外管及插入所述内管和外管之间的对应支撑件，以连接所述接头及所述对应支撑件。

5.如权利要求1所述的地上水池，其特征在于，所述接头包括：

接头本体，所述接头通过所述接头本体连接相邻两个所述第一支撑件、及相邻两个所述第一支撑件之间的第二支撑件；

塑料层，作为所述接头与所述至少一个支撑件接触的部分，位于所述接头本体及相应支撑件之间。

6.如权利要求5所述的地上水池，其特征在于，所述塑料层为塑料衬套，所述塑料衬套与所述接头本体形成面接触，且所述塑料衬套与所述相应支撑件形成面接触。

7.如权利要求6所述的地上水池，其特征在于，所述塑料衬套具有：

突出部，沿所述塑料衬套的轴向，所述突出部面对所述相应支撑件。

8.如权利要求7所述的地上水池，其特征在于，至少一个所述第一支撑件作为所述相应支撑件，所述水池支架还包括：

防水盖，至少位于所述第一支撑件背对第二支撑件的一侧，从所述第一支撑件一侧延伸至所述突出部一侧。

9.如权利要求8所述的地上水池，其特征在于，所述防水盖具有：

止挡部，沿所述塑料衬套的轴向，所述止挡部位于所述突出部远离所述第一支撑件的一侧，且面对所述突出部。

10.如权利要求8所述的地上水池，其特征在于，还包括：

连接件，依次穿过所述防水盖、第一支撑件及接头，固定连接所述防水盖、第一支撑件及接头。

11.如权利要求10所述的地上水池，其特征在于，所述连接件包括：

杆部，依次穿过所述防水盖、第一支撑件及接头；

支撑部，位于所述杆部一端且支撑于所述防水盖上；

所述杆部的另一端卡设于所述第一支撑件和接头内。

12.如权利要求11所述的地上水池，其特征在于，所述连接件还包括：

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至少两个爪部，呈夹角连接于所述杆部的另一端，且呈张紧状态地卡设于所述第一支撑件和接头内。

13.如权利要求10所述的地上水池，其特征在于，所述连接件和所述防水盖为一体成型。

14.如权利要求8所述的地上水池，其特征在于，沿所述塑料衬套的周向，所述防水盖的两端与所述突出部固定连接。

15.如权利要求5所述的地上水池，其特征在于，在所述接头本体与至少一个支撑件面对面的两个面中，至少一个面附着有塑料涂层，所述塑料涂层作为所述塑料层。

16.如权利要求1所述的地上水池，其特征在于，还包括：

防水盖，至少位于所述第一支撑件背对第二支撑件的一侧，从所述第一支撑件一侧延伸至所述接头一侧。

17.一种水池支架，其特征在于，包括：

若干第一支撑件，沿一周向依次连接而形成环形；

若干第二支撑件，沿所述周向分布并支撑所有所述第一支撑件；

接头，连接相邻两个所述第一支撑件、及相邻两个所述第一支撑件之间的第二支撑件，其中，所述接头与至少一个支撑件接触的部分为塑料。

18.如权利要求17所述的水池支架，其特征在于，所述接头为塑料接头。

19.如权利要求18所述的水池支架，其特征在于，所述接头包括：

内管；外管，环绕所述内管，且与所述内管定义一环形插槽；

所述第一支撑件和第二支撑件分别插入对应的所述环形插槽内。

20.如权利要求19所述的水池支架，其特征在于，还包括：

连接件，穿过所述内管、外管及所述内管和外管之间的对应支撑件，以连接所述接头及所述对应支撑件。

21.如权利要求17所述的水池支架，其特征在于，所述接头包括：

接头本体，所述接头通过所述接头本体连接相邻两个所述第一支撑件、及相邻两个所述第一支撑件之间的第二支撑件；

塑料层，作为所述接头与所述至少一个支撑件接触的部分，位于所述接头本体及相应支撑件之间。

22.如权利要求21所述的水池支架，其特征在于，所述塑料层为塑料衬套，所述塑料衬套与所述接头本体形成面接触且所述塑料衬套与所述相应支撑件形成面接触。

23.如权利要求22所述的水池支架，其特征在于，所述塑料衬套具有：

突出部，沿所述塑料衬套的轴向，所述突出部面对所述相应支撑件。

24.如权利要求23所述的水池支架，其特征在于，至少一个所述第一支撑件作为所述相应支撑件，所述水池支架还包括：

防水盖，至少位于所述第一支撑件背对第二支撑件的一侧，从所述第一支撑件一侧延伸至所述突出部一侧。

25.如权利要求24所述的水池支架，其特征在于，所述防水盖包括：

止挡部，沿所述塑料衬套的轴向，所述止挡部位于所述突出部远离所述第一支撑件的一侧，且面对所述突出部。

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26.如权利要求24所述的水池支架，其特征在于，还包括：

连接件，依次穿过所述防水盖、第一支撑件及接头，固定连接所述防水盖、第一支撑件及接头。

27.如权利要求26所述的水池支架，其特征在于，所述连接件包括：

杆部，依次穿过所述防水盖、第一支撑件及接头；

支撑部，位于所述杆部一端且支撑于所述防水盖；

所述杆部的另一端卡设于所述第一支撑件和接头内。

28.如权利要求27所述的水池支架，其特征在于，所述连接件还包括：

至少两个爪部，呈夹角连接于所述杆部的另一端，且呈张紧状态地卡设于所述第一支撑件和接头内。

29.如权利要求26所述的水池支架，其特征在于，所述连接件和所述防水盖为一体成型。

30.如权利要求24所述的水池支架，其特征在于，沿所述塑料衬套的周向，所述防水盖的两端与所述突出部固定连接。

31.如权利要求21所述的水池支架，其特征在于，在所述接头本体与至少一个支撑件面对面的两个面中，至少一个面附着有塑料涂层，所述塑料涂层作为所述塑料层。

32.如权利要求17所述的水池支架，其特征在于，还包括：

防水盖，至少位于所述第一支撑件背对第二支撑件的一侧，从所述第一支撑件一侧延伸至所述接头一侧。

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地上水池和水池支架

技术领域

[0001] 本实用新型涉及地上水池技术领域，特别涉及一种地上水池和水池支架。

背景技术

[0002] 随着人们对于户外休闲活动的需求日益增加，可供人们戏水的产品也越来越多，其中，以地上水池最为普遍。其中，支架水池为最常见的一种地上水池种类。

[0003] 通常，支架水池包括水池支架及水池内衬。水池支架包括若干第一支撑件及第二支撑件，其中所有第一孔支撑件沿一周向依次连接而形成环形。所有第二支撑件沿周向分布并支撑所有第一支撑件。相邻两个第一支撑件、及相邻两个第一支撑件之间的第二支撑件通过接头连接起来，这样水池支架呈环形，水池内衬限定于其内侧，水池内衬依附于水池支架，形成地上水池。

[0004] 一般情况下，第一支撑件、第二支撑件及接头的材料为钢，且在第一支撑件、第二支撑件及接头的表面具有防锈涂层。地上水池在使用过程中，由于水池晃动，第一支撑件与接头之间、及第二支撑件与接头之间发生相互摩擦，由于钢强度大，从而造成防锈涂层脱落，进而造成第一支撑件、第二支撑件及接头发生锈蚀，水池支架的连接强度受到影响。

实用新型内容

[0005] 本实用新型解决的问题是，现有地上水池中的水池支架发生锈蚀的几率大。

[0006] 为解决上述问题，本实用新型提供一种地上水池。该地上水池包括：水池支架及水池内衬；

[0007] 所述水池支架包括：

[0008] 若干第一支撑件，沿一周向依次连接而形成环形；

[0009] 若干第二支撑件，沿所述周向分布并支撑所有所述第一支撑件；

[0010] 接头，连接相邻两个所述第一支撑件、及相邻两个所述第一支撑件之间的第二支撑件，其中，所述接头与其中至少一个支撑件接触的部分为塑料；

[0011] 所述水池内衬包括池底、及沿所述周向排布且连接所述池底的池壁，所述水池内衬支撑在所述水池支架内侧。

[0012] 可选地，所述接头为塑料接头。

[0013] 可选地，所述接头包括：

[0014] 内管；

[0015] 外管，环绕所述内管，且与所述内管定义一环形插槽；

[0016] 所述第一支撑件和第二支撑件分别插入各自对应的所述插槽内。

[0017] 可选地，地上水池还包括：

[0018] 连接件，穿过所述内管、外管及插入所述内管和外管之间的对应支撑件，以连接所述接头及所述对应支撑件。

[0019] 可选地，所述接头包括：

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[0020] 接头本体，所述接头通过所述接头本体连接相邻两个所述第一支撑件、及相邻两个所述第一支撑件之间的第二支撑件；

[0021] 塑料层，作为所述接头与所述至少一个支撑件接触的部分，位于所述接头本体及相应支撑件之间。

[0022] 可选地，所述塑料层为塑料衬套，所述塑料衬套与所述接头本体形成面接触且所述塑料衬套与所述相应支撑件形成面接触。

[0023] 可选地，所述塑料衬套具有：

[0024] 突出部，沿所述塑料衬套的轴向，所述突出部面对所述相应支撑件。

[0025] 可选地，至少一个所述第一支撑件作为所述相应支撑件，所述水池支架还包括：

[0026] 防水盖，至少位于所述第一支撑件背对第二支撑件的一侧，从所述第一支撑件一侧延伸至所述突出部一侧。

[0027] 可选地，所述防水盖具有：

[0028] 止挡部，沿所述塑料衬套的轴向，所述止挡部位于所述突出部远离所述第一支撑件的一侧，且面对所述突出部。

[0029] 可选地，地上水池还包括：

[0030] 连接件，依次穿过所述防水盖、第一支撑件及接头，固定连接所述防水盖、第一支撑件及接头。

[0031] 可选地，所述连接件包括：

[0032] 杆部，依次穿过所述防水盖、第一支撑件及接头；

[0033] 支撑部，位于所述杆部一端且支撑于所述防水盖上；

[0034] 所述杆部的另一端卡设于所述第一支撑件和接头内。

[0035] 可选地，所述连接件还包括：

[0036] 至少两个爪部，呈夹角连接于所述杆部的另一端，且呈张紧状态地卡设于所述第一支撑件和接头内。

[0037] 可选地，所述连接件和所述防水盖为一体成型。

[0038] 可选地，沿所述塑料衬套的周向，所述防水盖的两端与所述突出部固定连接。

[0039] 可选地，在所述接头与至少一个支撑件面对面的两个面中，至少一个面附着有塑料涂层，所述塑料涂层作为所述塑料层。

[0040] 可选地，地上水池还包括：

[0041] 防水盖，至少位于所述第一支撑件背对第二支撑件的一侧，从所述第一支撑件一侧延伸至所述接头一侧。

[0042] 本实用新型还提供一种水池支架。所述水池支架包括：

[0043] 若干第一支撑件，沿一周向依次连接而形成环形；

[0044] 若干第二支撑件，沿所述周向分布并支撑所有所述第一支撑件；

[0045] 接头，连接相邻两个所述第一支撑件、及相邻两个所述第一支撑件之间的第二支撑件，其中，所述接头与至少一个支撑件接触的部分为塑料。

[0046] 可选地，所述接头为塑料接头。

[0047] 可选地，所述接头包括：

[0048] 内管；

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[0049] 外管，环绕所述内管，且与所述内管定义一环形插槽；

[0050] 所述第一支撑件和第二支撑件分别插入对应的所述插槽内。

[0051] 可选地，所述水池支架还包括：

[0052] 连接件，穿过所述内管、外管及所述内管和外管之间的对应支撑件，以连接所述接头及所述对应支撑件。

[0053] 可选地，所述接头包括：

[0054] 接头本体，所述接头通过所述接头本体连接相邻两个所述第一支撑件、及相邻两个所述第一支撑件之间的第二支撑件；

[0055] 塑料层，作为所述接头与所述至少一个支撑件接触的部分，位于所述接头本体及相应支撑件之间。

[0056] 可选地，所述塑料层为塑料衬套，所述塑料衬套与所述接头本体形成面接触且所述塑料衬套与所述相应支撑件形成面接触。

[0057] 可选地，所述塑料衬套具有：

[0058] 突出部，沿所述塑料衬套的轴向，所述突出部面对所述相应支撑件。

[0059] 可选地，至少一个所述第一支撑件作为所述相应支撑件，所述水池支架还包括：

[0060] 防水盖，至少位于所述第一支撑件背对第二支撑件的一侧，从所述第一支撑件一侧延伸至所述突出部一侧。

[0061] 可选地，所述防水盖包括：

[0062] 止挡部，沿所述塑料衬套的轴向，所述止挡部位于所述突出部远离所述第一支撑件的一侧，且面对所述突出部。

[0063] 可选地，所述水池支架还包括：

[0064] 连接件，依次穿过所述防水盖、第一支撑件及接头，固定连接所述防水盖、第一支撑件及接头。

[0065] 可选地，所述连接件包括：

[0066] 杆部，依次穿过所述防水盖、第一支撑件及接头；

[0067] 支撑部，位于所述杆部一端且支撑于所述防水盖；

[0068] 所述杆部的另一端卡设于所述第一支撑件和接头内。

[0069] 可选地，所述连接件还包括：

[0070] 至少两个爪部，呈夹角连接于所述杆部的另一端，且呈张紧状态地卡设于所述第一支撑件和接头内。

[0071] 可选地，所述连接件和所述防水盖为一体成型。

[0072] 可选地，沿所述塑料衬套的周向，所述防水盖的两端与所述突出部固定连接。

[0073] 可选地，在所述接头本体与至少一个支撑件面对面的两个面中，至少一个面附着有塑料涂层，所述塑料涂层作为所述塑料层。

[0074] 可选地，所述水池支架还包括：

[0075] 防水盖，至少位于所述第一支撑件背对第二支撑件的一侧，从所述第一支撑件一侧延伸至所述接头一侧。

[0076] 与现有技术相比，本实用新型的技术方案具有以下优点：

[0077] 在接头与至少一个支撑件之间的配合处，接头与至少一个支撑件接触的部分为塑

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料。塑料硬度小，在接头以及与其连接配合的支撑件之间发生相互摩擦时，塑料可以发生变形，从而对防锈材料的磨损较小，防止防锈材料受损脱落。防锈材料可以维持较长时间而不脱落，这有效避免接头与相应支撑件之间发生锈蚀，从而，水池支架具有较长的使用寿命。

[0078] 进一步地，水池支架包括防水盖。防水盖从第一支撑件一侧延伸至接头一侧。从而，防水盖能够覆盖接头与第一支撑件之间的结构缝隙，有效避免水渗入第一支撑件与接头之间，防止第一支撑件和/或接头生锈。

附图说明

[0079] 图1是本实用新型第一实施例的地上水池的立体图；

[0080] 图2为图1中虚线框A的放大图；

[0081] 图3为本实用新型第一实施例的水池支架中接头的立体图；

[0082] 图4是本实用新型第二实施例的地上水池的立体图；

[0083] 图5是图4中虚线框B的放大图；

[0084] 图6示出了本实用新型第二实施例的水池支架中的接头和第一支撑件的连接状态；

[0085] 图7是本实用新型第二实施例的水池支架中的接头与第一支撑件的分解图；

[0086] 图8是本实用新型第三实施例的水池支架中的接头与第一支撑件的分解图；

[0087] 图9是本实用新型第三实施例的水池支架中防水盖的立体图；

[0088] 图10示出了本实用新型第四实施例的水池支架中接头结构；

[0089] 图11示出了本实用新型第五实施例的水池支架中接头结构。

具体实施方式

[0090] 本实用新型提供一种水池框架及包含该水池框架的地上水池，有效解决水池框架中各个支撑件在配合处磨损生锈的问题。

[0091] 为使本实用新型的上述目的、特征和优点能够更为明显易懂，下面结合附图对本实用新型的具体实施例做详细的说明。

[0092] 第一实施例

[0093] 图1为本实用新型第一实施例的地上水池的立体图，图2为图1中虚线框A的放大图，图3为本实用新型第一实施例的水池支架中接头的立体图。

[0094] 参照图1和图2，地上水池包括水池支架1及水池内衬2。其中，水池支架1包括若干第一支撑件11、第二支撑件12及接头13。所有第一支撑件11沿一周向F依次连接而形成环形，而所有第二支撑件12沿周向F分布并支撑所有第一支撑件11，相邻两个第一支撑件11、及相邻两个第一支撑件11之间的第二支撑件12通过接头13连接。所有第一支撑件11及第二支撑件12连接在一起形成环形的水池支架1。

[0095] 其中，水池内衬2包括池底(未示出)、及沿周向F排布且连接池底的池壁20。水池支架1呈环形，水池内衬2支撑在水池支架1内侧，水池支架1限定了水池内衬2的形状及位置。

[0096] 其中，在配合处，接头13与至少一个支撑件接触的部分为塑料，这包括：仅接头13与第一支撑件11接触的部分为塑料；或者，仅接头13与第二支撑件12接触的部分为塑料；或者，接头13与第一支撑件11之间，以及接头13与第二支撑件12这两个支撑件接触的部分均

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为塑料。

[0097] 在第一实施例中，接头13为塑料接头，实现接头13与第一支撑件11之间、及接头13与第二支撑件12之间接触的部分为塑料。第一支撑件11和第二支撑件12的材料为钢，并且在支撑件表面设有防锈材料。相比于钢，塑料硬度小，在接头13以及与其连接配合的支撑件之间发生相互摩擦时，塑料可以发生变形，从而对防锈材料的磨损较小，防止防锈材料受损脱落。

[0098] 因此，在接头13与第一支撑件11之间的配合处，及在接头13与第二支撑件12之间的配合处，防锈材料可以维持较长时间而不脱落，这有效避免第一支撑件11和第二支撑件12发生锈蚀，从而，第一支撑件11、第二支撑件12及水池支架1具有较长的使用寿命。

[0099] 所述接头13的材料为塑料包括：接头13连接第一支撑件11和第二支撑件12的三个端头130为塑料接头；或者接头13使用塑料一体成型，这使得接头13全部为塑料制造。从而实现，接头13与第一支撑件11之间、以及接头13与第二支撑件12之间的接触部分为塑料。

[0100] 在一种变形例中，第一支撑件和第二支撑件具有与接头配合的连接段，第一支撑件和第二支撑件中至少连接段的材料为塑料，且接头的材料为钢；或者，第一支撑件和第二支撑件中至少连接段的材料为塑料，且接头的材料为塑料。这可以实现：接头与至少一个支撑件接触的部分为塑料。

[0101] 结合参照图3，接头13为T型接头，包括分别连接两个第一支撑件11及一个第二支撑件12的三个端头130。其中，在连接两个第一支撑件11的左右两个端头130，接头13包括内管131及外管132，其中外管132环绕内管131且与内管131定义一环形插槽13a。其中，第一支撑件11和第二支撑件12分别插入各自对应的插槽13a内，实现插接配合。

[0102] 其中，接头13的材料为塑料，内管131和外管132均为塑料制造。在第一支撑件11和第二支撑件12中，每个支撑件同时与对应的内管131和外管132接触，实现防磨损及防脱锈配合。

[0103] 此时，在第一支撑件11和第二支撑件12中，每个支撑件与对应插槽13a之间形成紧配合，实现固定连接。

[0104] 为实现更牢固连接，在接头13与第一支撑件11之间设置有第一插销14。第一插销14作为连接件，穿过内管131、外管132及插入内管131和外管132之间的对应第一支撑件11，以连接接头13及所述对应第一支撑件11。其中，内管131和外管132之间对应的第一支撑件是指：在两个第一支撑件11中，与该内管131和外管132形成插接配合的第一支撑件11。

[0105] 利用第一插销14，第一支撑件11与接头13之间形成牢固连接，所有第一支撑件11之间的连接强度较大，水池支架1的结构稳定性好。

[0106] 在接头13的左右两个端头130设有通孔13b，通孔13b形成于内管131和外管132中。相应地，第一支撑件11及第二支撑件12各自设有安装孔(图中未示出)。在第一支撑件11和第二支撑件12插入对应插槽13a内后，使安装孔与对应通孔13b对准。接着，操作第一插销14依次穿过安装孔和通孔13b，实现固定连接。

[0107] 第一插销14的其中一端具有凸头140，凸头140支撑于第一支撑件31。第一插销14的另一端连接一限位件(图中未示出)，限制第一插销14窜动。

[0108] 在一种变形例中，第二支撑件和接头之间通过第一插销固定连接，此时，第一插销穿过内管、外管及插入内管和外管之间的第二支撑件。

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[0109] 除了使用第一插销14作为连接件之外，在一种变形例中，连接件可以是螺钉或螺栓，将接头与对应支撑件固定连接。

[0110] 因此，在具体实施例中，水池支架可以包括连接件，连接件穿过内管、外管及插入内管和外管之间的对应支撑件，以连接接头及对应支撑件。

[0111] 第二实施例

[0112] 图4为第二实施例的地上水池的立体图，图5是图4中虚线框B的放大图，图6是第二实施例的水池支架中的接头和第一支撑件在连接状态的剖视图，图7是第二实施例的水池支架中的接头与第一支撑件的分解图。

[0113] 参照图4-图7，接头30包括接头本体301和塑料衬套302，其中塑料衬套302作为一种实施例的塑料层。接头30通过接头本体301连接相邻两个第一支撑件31、及相邻两个第一支撑件31之间的第二支撑件32。同时，塑料衬套302位于接头本体301与第一支撑件31之间，作为接头30与第一支撑件31之间接触的部分，这可以实现接头30与第一支撑件31接触的部分为塑料。从而，塑料衬套302与接头本体301形成面接触，且塑料衬套302与第一支撑件31形成面接触。

[0114] 一方面，第一支撑件31与接头本体301之间形成防磨损配合。在第一支撑件31与接头30之间发生摩擦时，塑料衬套302不会破坏第一支撑件31表面的防锈材料，在较长时间内保持第一支撑件31表面的防锈材料，防锈材料在较长时间内防止第一支撑件31生锈受损。

[0115] 另一方面，在本实施例中，接头本体301的材料可以为钢，此时塑料衬套302亦不会破坏接头本体301表面的防锈材料，有效维持接头本体301的完整性及较长使用寿命。重要的是，接头本体301的材料为钢，与第一支撑件31及第二支撑件32之间的连接强度大，避免在水池支架3晃动时发生断裂。这能够维持水池支架3的结构强度，水池支架3能够对水池内衬4提供强大支撑力。

[0116] 在本实施例中，在第二支撑件32与接头本体301之间未设置有塑料衬套。由于第一支撑件31为水平放置，在水池支架3晃动时，第一支撑件31与接头30之间更容易发生摩擦，因此至少在第一支撑件31与接头本体301之间设有塑料衬套302。

[0117] 在一种变形例中，在第二支撑件与接头本体之间设置有塑料衬套。

[0118] 综合之上实施例，塑料衬套可以作为接头与至少一个支撑件接触的部分，塑料衬套位于接头本体及相应支撑件之间。

[0119] 塑料衬套302具有突出部3021，在塑料衬套302位于相应第一支撑件31与接头本体301之间时，沿塑料衬套302的轴向，突出部3021位于第一支撑件31与接头本体301之外，并面对相应第一支撑件31。

[0120] 此时，突出部3021沿塑料衬套302的径向向外突出于塑料衬套302。

[0121] 其中，突出部3021面对第一支撑件31。一方面，在装配时，突出部3021起到定位效果，待突出部3021与相应第一支撑件31抵靠后，指示安装到位。另一方面，在水池支架3晃动时，突出部3021能够限制塑料衬套302向第一支撑件31内窜动，从而保证塑料衬套302有效且长期发挥防磨损作用。

[0122] 其中，突出部3021为环形，与塑料衬套302同轴，突出部3021抵挡限位作用更好。

[0123] 在一种变形例，在第二支撑件与接头本体之间设置有塑料衬套时，该塑料衬套的突出部面对第二支撑件。

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[0124] 综合以上实施例，突出部沿塑料衬套的轴向面对相应支撑件，有效发挥抵挡限位作用。

[0125] 第一支撑件31作为相应支撑件，水池支架3还包括防水盖33。其中，防水盖33至少位于第一支撑件31背对第二支撑件32的一侧，从第一支撑件31一侧延伸至突出部3021一侧。

[0126] 防水盖33起到防水效果。由于地上水池放置于室外，雨水会渗入第一支撑件31与突出部3021之间的缝隙而增加锈蚀的机率，另外，使用过程中池水的溅出，亦会容易从所述间隙流入到塑料衬套302与第一支撑件31之间。防水盖33从第一支撑件31一侧延伸至突出部3021一侧，从而覆盖突出部3021及第一支撑件31之间的结构缝隙，有效避免水渗入第一支撑件31与突出部3021之间的缝隙，防止第一支撑件31内部生锈。

[0127] 其中，防水盖33至少位于第一支撑件31背对第二支撑件32的一侧，使得防水盖33覆盖在第一支撑件31和突出部3021的上方。此时，防水盖33沿塑料衬套的周向具有两端。这是因为，在第一支撑件31上方，也就是第一支撑件31背对第二支撑件32的一侧，落水可能会流向第一支撑件31和突出部3021之间，因此，沿塑料衬套302的周向，防水盖33无需环绕一周。

[0128] 沿塑料衬套302的周向，防水盖33具有两端。沿塑料衬套302的周向，防水盖33的两端与突出部3021固定连接。此时，防水盖33与塑料衬套302之间固定连接，而塑料衬套302限制于接头本体301与第一支撑件31之间，因此，防水盖33的位置被限制，防水盖33的位置稳定性好，从而能够长期保持防水效果。

[0129] 其中，防水盖33的两端与突出部3021通过销子35固定连接。具体地，防水盖33的两端具有第一延伸部331，第一延伸部331具有第一通孔33a。相应地，突出部3021外表面设有第二延伸部3022，第二延伸部3022具有由两侧侧壁限定的容纳槽30a。沿塑料衬套302的轴向，容纳槽30a具有两侧侧壁及形成于侧壁的第二通孔30b，第二通孔30c通向容纳槽30a，且两侧侧壁上的第二通孔30b对准。防水盖33的第一延伸部331容纳在容纳槽30a内，并且第一通孔33a与第二通孔30b对准，此时，将销子35依次穿过第一通孔33a和第二通孔30b，实现固定连接。

[0130] 防水盖33的两端与突出部3021之间的固定连接方式不限于本实施例。在一种变形例中，防水盖与突出部之间为螺钉连接或卡接等连接方式。

[0131] 在一种变形例中，防水盖沿塑料衬套的周向环绕一周。

[0132] 其中，防水盖33从第一支撑件31一侧延伸至突出部3021一侧，使得防水盖33具有覆盖第一支撑件31的一部分，及覆盖突出部3021的另一部分。

[0133] 进一步地，所述防水盖33具有止挡部330。其中，止挡部330沿塑料衬套302的轴向，止挡部330位于突出部3021远离第一支撑件31的一侧，且面对突出部3021。

[0134] 一方面，止挡部330位于突出部3021远离第一支撑件31的一侧，从而，防水盖33从第一支撑件31一侧延伸至接头30一侧，防水盖33覆盖第一支撑件31的一部分、覆盖突出部3021的一部分及覆盖接头本体301的一部分。因此，防水盖33能够阻挡水从接头本体301与突出部3021之间的缝隙渗入接头本体301与突出部3021，避免接头本体301生锈。

[0135] 另一方面，在防水盖33装配时，止挡部330起到定位效果。待止挡部330与接头本体301抵靠，指示安装到位。

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[0136] 水池支架3还包括第二插销34。其中，第二插销34作为连接件，依次穿过防水盖33、第一支撑件31及接头30，固定连接防水盖33、第一支撑件31及接头30。其中，第二插销34在穿过接头30时，同时穿过接头本体301和塑料衬套302。

[0137] 此时，防水盖33通过第二插销34固定于第一支撑件31，防水盖33的稳定性较好。

[0138] 同时，接头30与第一支撑件31之间通过第二插销34固定连接，这可以使得接头30与第一支撑件31之间牢固连接，水池支架3的整体性、牢固性及稳定性较好。

[0139] 第二插销34可以包括杆部340及支撑部341。其中，杆部340依次穿过防水盖33、第一支撑件31及接头30，同时支撑部341位于杆部340一端且支撑于防水盖33。杆部340的另一端卡设于第一支撑件31和接头30内，从而第二插销34实现固定。

[0140] 与第二插销34相配合，防水盖33、第一支撑件31、塑料衬套302及接头本体301依次设有孔33b、31a、30c、30d，以供杆部340依次穿过。因此，防水盖33与第二插销34之间为两个独立部件，并连接在一起。

[0141] 第三实施例

[0142] 图8是第三实施例的水池支架中的接头与第一支撑件的分解图，图9是第三实施例的水池支架中防水盖的立体图。

[0143] 参照图8和图9，与第二实施例相比，本实施例的不同之处在于：第二插销34′和防水盖33′为一体成型。具体地，第二插销34′的其中一端与防水盖33′的内表面固定连接，且另一端卡设于第一支撑件31′和接头30′内。

[0144] 第二插销34′还包括两个爪部342。这两个爪部342呈夹角连接于杆部340′的另一端，且呈张紧状态地卡设于第一支撑件31′和接头30′内。依靠两个爪部342所形成的张力，第二插销34′的位置被限制。

[0145] 在一种变形例中，第二插销包括多于两个爪部。

[0146] 因此，第二插销可以包括至少两个爪部，这些爪部呈夹角连接于杆部的另一端，且呈张紧状态地卡设于第一支撑件和接头内。

[0147] 第四实施例

[0148] 图10示出了第四实施例的水池支架中接头结构。

[0149] 参照图10，在接头4中，接头本体40的全部表面附着有塑料涂层41，该塑料涂层41作为另一种实施例的塑料层。具体地，接头本体40的内表面及外表面均具有塑料涂层41。

[0150] 从而，接头本体40通过塑料涂层41与第一支撑件(图中未示出)之间及与第二支撑件(图中未示出)之间形成面接触。塑料涂层41使得接头4与每个支撑件接触的部分为塑料，这可以防止第一支撑件和第二支撑件表面的防锈材料被破坏，从而维持防锈效果。

[0151] 同时，接头本体40的材料为钢，接头本体40整体被塑料涂层41所覆盖，这可以防止接头本体40生锈，提升其防锈效果。

[0152] 在制作阶段，对接头本体40整体浸塑或整体作二次包塑处理，从而形成塑料涂层41。在整体浸塑或整体作二次包塑处理后，接头本体40的内表面及外表面均形成塑料涂层41。

[0153] 除此之外，在一种变形例中，接头本体仅在面向第一支撑件及第二支撑件的内表面或者外表面具有塑料涂层。

[0154] 除了在接头本体40表面附着有塑料涂层41之外，在一种变形例中，在第一支撑件

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和第二支撑件表面附着有塑料涂层，并通过该塑料涂层与接头形成面接触。

[0155] 第五实施例

[0156] 图11示出了第五实施例的水池支架中接头结构。

[0157] 参照图11，接头本体50的三个端头51、52、53中，仅在每个端头面向支撑件的表面附着有塑料涂层。具体地，接头本体50在面向第一支撑件(图中未示出)的左右两个端头51、52的外表面附着有塑料涂层61，接头本体50在面向第二支撑件(图中未示出)的端头53的内表面附着有塑料涂层62。

[0158] 在制作阶段，仅对接头本体50的三个端头51、52、53中面向相应支撑件的表面进行局部浸塑或作局部二次包塑，形成塑料涂层61、62。

[0159] 在一种变形例中，在配合处，水池支架中的至少一个支撑件面向接头的表面附着有塑料涂层。

[0160] 综合多个实施例，在接头与至少一个支撑件面对面的两个面中，至少一个面附着有塑料涂层。

[0161] 虽然本实用新型披露如上，但本实用新型并非限定于此。任何本领域技术人员，在不脱离本实用新型的精神和范围内，均可作各种更动与修改，因此本实用新型的保护范围应当以权利要求所限定的范围为准。

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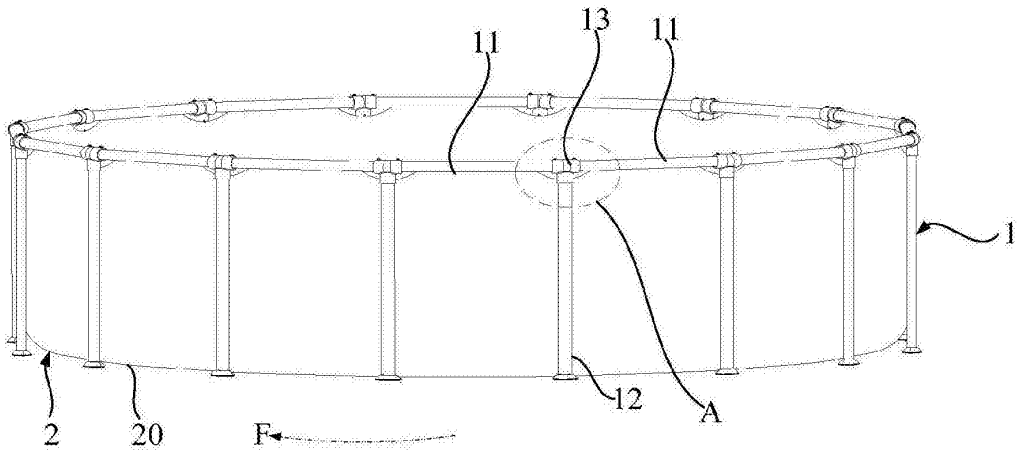


图1

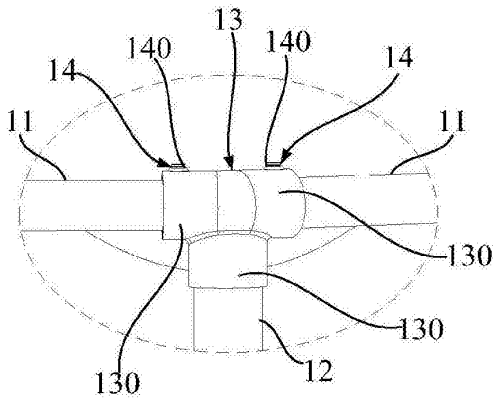


图2

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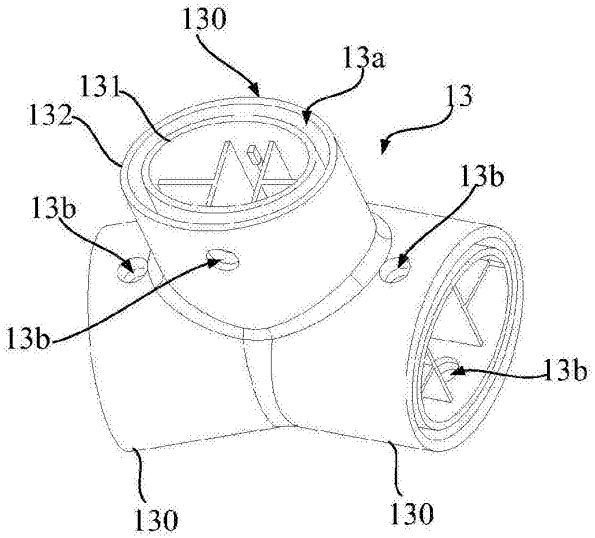


图3

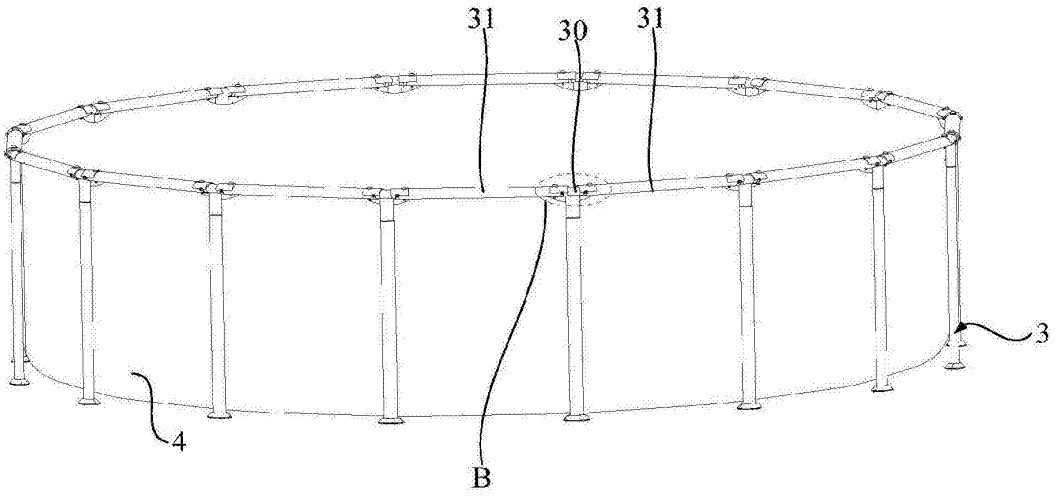


图4

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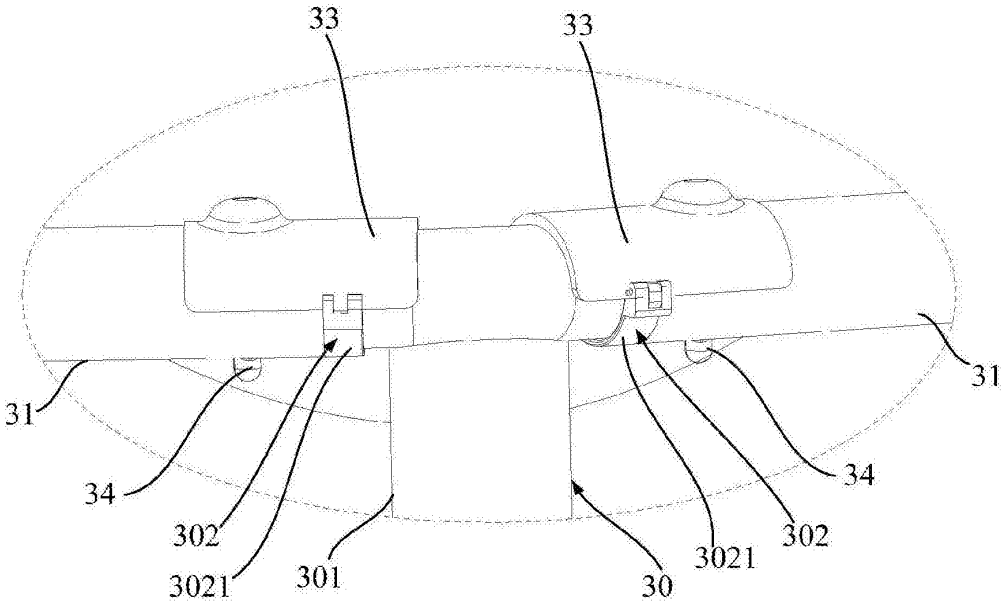


图5

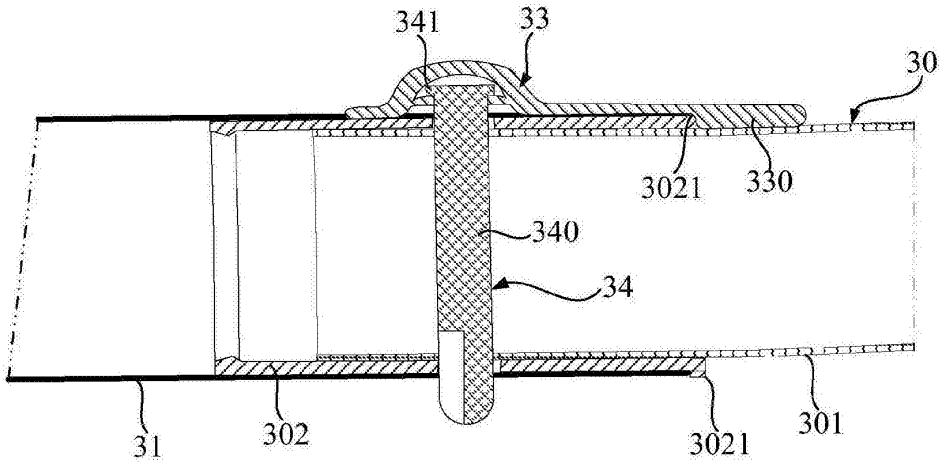


图6

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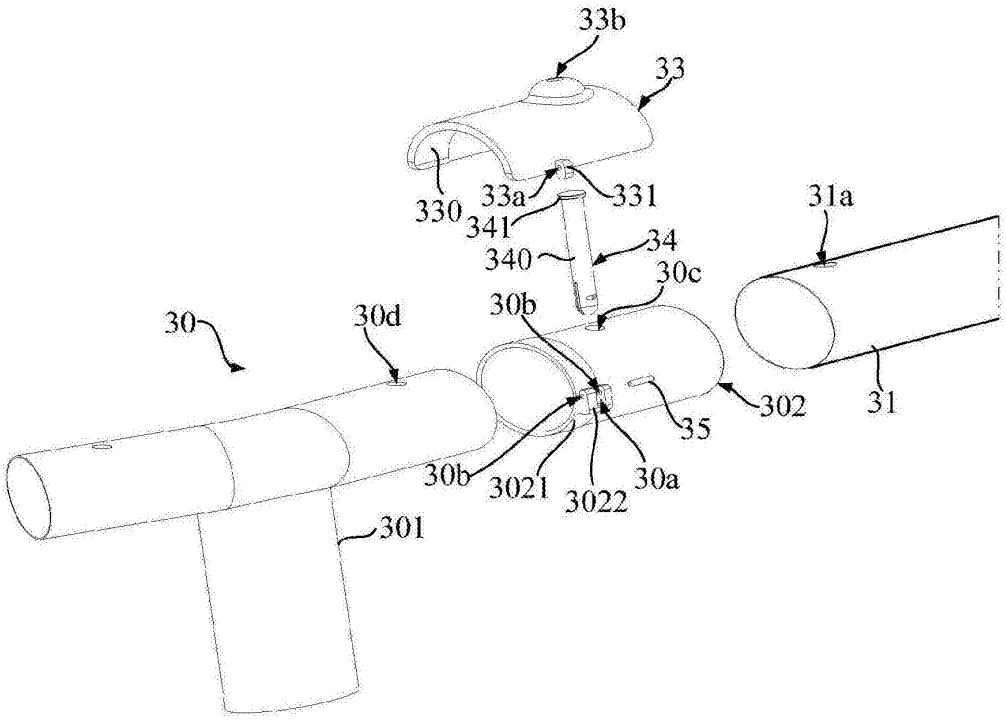


图7

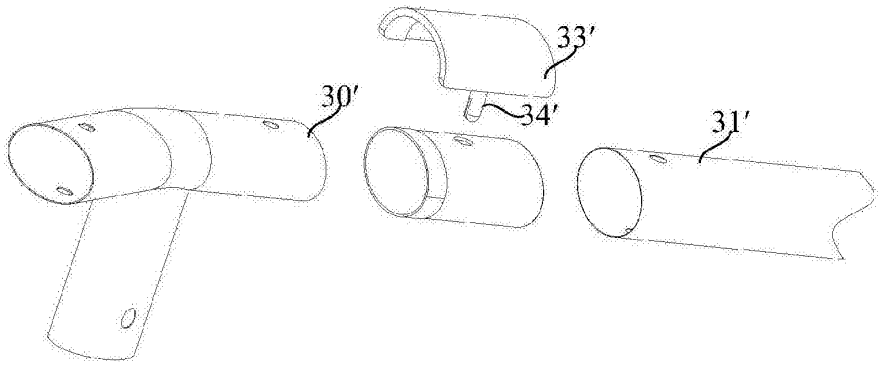


图8

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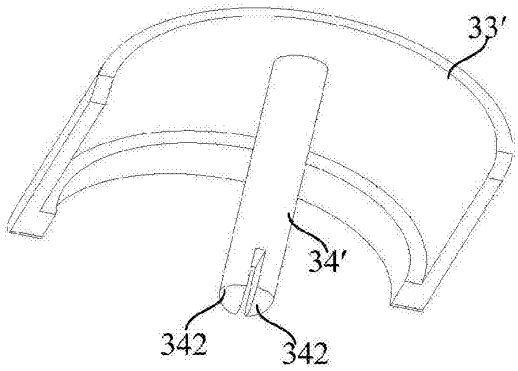


图9

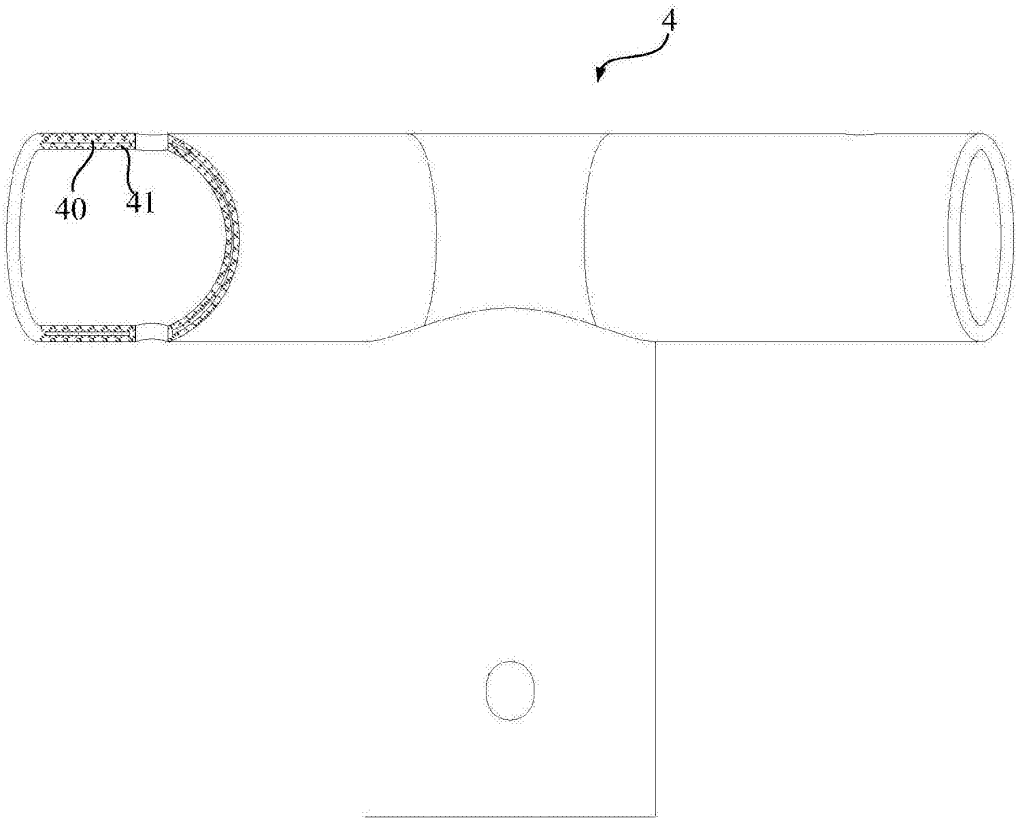


图10

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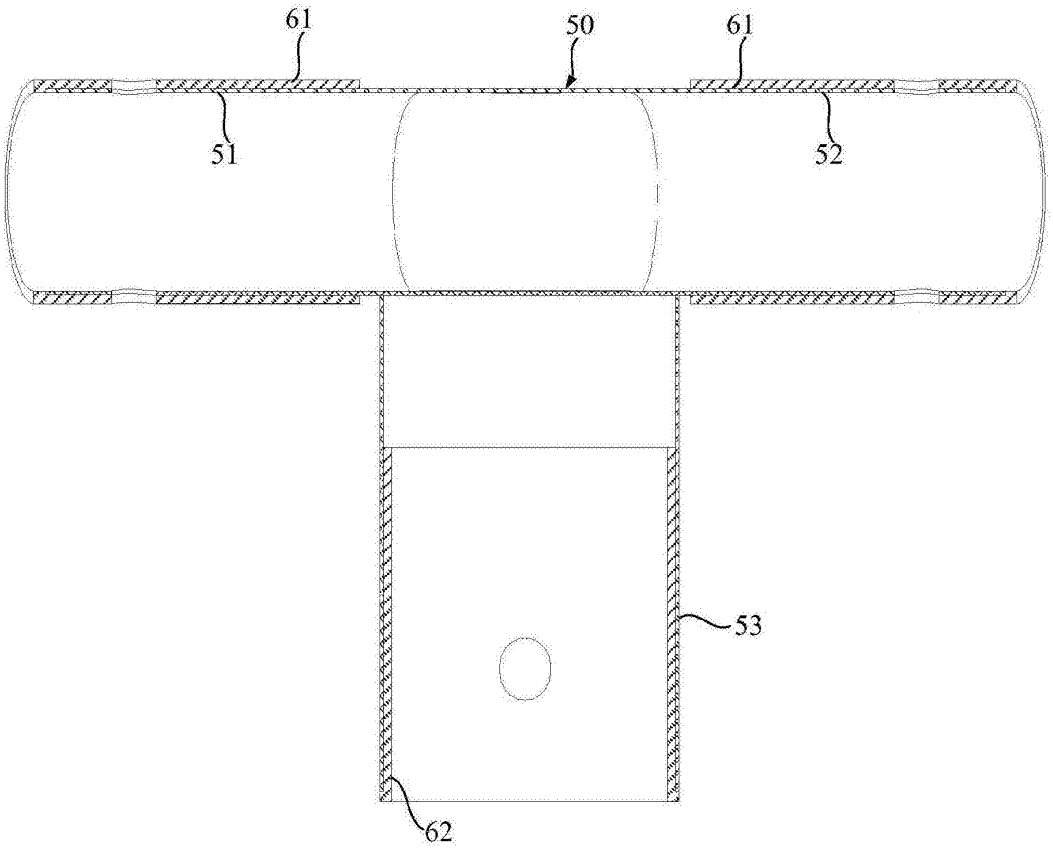


图11

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Abstract

The utility model relates to a connect waterproof construction, it includes waterproof area, waterproof area parcel is in the connecting portion periphery between the tubular metal resonator or between tubular metal resonator and the adapter. The utility model discloses a with waterproof area parcel in tubular metal resonator connecting portion periphery to cover the clearance that the tubular metal resonator is connected, avoid water to flow in tubular metal resonator internal corrosion tubular metal resonator by the clearance department of tubular metal resonator connecting portion, therebyit rusts to delay the tubular metal resonator, prolongs the live time of tubular metal resonator.

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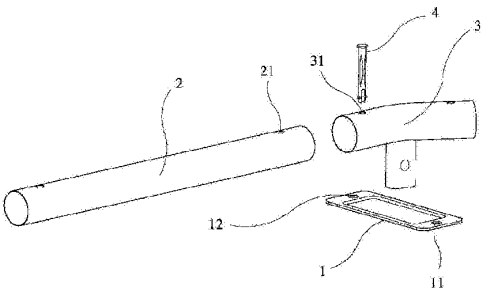
权利要求书1页 说明书2页 附图12页

(54)实用新型名称

一种接头防水结构

(57)摘要

本实用新型涉及一种接头防水结构，其包括防水带，所述防水带包裹在金属管之间或金属管与转接头之间的连接部外周。本实用新型通过将防水带包裹在金属管连接部外周，以覆盖住金属管连接的间隙，避免水由金属管连接部的间隙处流入金属管内锈蚀金属管，从而延缓金属管生锈，延长金属管的使用时间。



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1.一种接头防水结构，其特征在于：包括防水带，所述防水带包裹在金属管之间或金属管与转接头之间的连接部外周。

2.根据权利要求1所述的接头防水结构，其特征在于：所述金属管连接部以及转接头连接部上设有插销孔，该插销孔上穿设有插销。

3.根据权利要求2所述的接头防水结构，其特征在于：所述防水带为片状结构，防水带的两端均设有一供插销穿过的孔。

4.根据权利要求3所述的接头防水结构，其特征在于：所述防水带的一端还设有一定位凸柱，另一端设有一供定位凸柱穿过的孔。

5.根据权利要求3所述的接头防水结构，其特征在于：所述防水带的两端设有相互配合的魔术贴。

6.根据权利要求2所述的接头防水结构，其特征在于：所述防水带为管状结构，所述插销包裹在防水带内。

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一种接头防水结构

技术领域

[0001] 本实用新型涉及一种防水结构，具体涉及一种接头防水结构。

背景技术

[0002] 家庭用泳池的支撑架一般由多根金属管相互连接构成，各金属管之间直接连接或者通过转接头连接。直接连接时，各金属管的连接部套接在一起；通过转接头连接时，金属管与转接头进行套接。各金属管的连接部一端会设有插销孔，然后直接采用插销穿过两金属管的插销孔来实现两钢管之间的固定连接；而转接头与金属管之间也通过插销来固定连接。

[0003] 泳池在使用时，其支撑架一般会接触到水，为了防止支撑架因接触到水而生锈，支撑架的各金属管外表面一般会涂覆保护漆。这样泳池内的水外溅到金属外表面时，水无法直接渗入金属管内。但是，水会由金属管与金属管之间的间隙流入金属管内，使得金属管内部生锈。此外，金属管的插销连接处没有任何防护，水也会由插销与插销孔之间的间隙进入到金属管内部，因金属管内部没有涂覆保护漆，所以金属管内部会发生生锈，从而影响金属管的强度，降低了金属管的使用时间。

实用新型内容

[0004] 本实用新型的目的是提供一种接头防水结构，其能够防止金属管外部的水通过金属管之间的间隙流入金属管内部，从而达到延缓金属管生锈的目的。

[0005] 为实现上述目的，本实用新型采用的技术方案是：

[0006] 一种接头防水结构，其包括防水带，所述防水带包裹在金属管之间或金属管与转接头之间的连接部外周。

[0007] 所述金属管连接部以及转接头连接部上设有插销孔，该插销孔上穿设有插销。

[0008] 所述防水带为片状结构，防水带的两端均设有一供插销穿过的孔。

[0009] 所述防水带的一端还设有一定位凸柱，另一端设有一供定位凸柱穿过的孔。

[0010] 所述防水带的两端设有相互配合的魔术贴。

[0011] 所述防水带为管状结构，所述插销包裹在防水带内。

[0012] 采用上述方案后，本实用新型通过将防水带包裹在金属管连接部外周，以覆盖住金属管连接部的间隙，即金属管之间的间隙、金属管与转接头之间的间隙以及插销与插销孔处形成的间隙，避免水由金属管连接部的间隙处流入金属管内锈蚀金属管，从而延缓金属管生锈，延长金属管的使用时间。

附图说明

[0013] 图1为本实用新型实施例一结构分解示意图；

[0014] 图2为本实用新型实施例一结构组合示意图；

[0015] 图3为本实用新型实施例一剖视图；

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[0016] 图4为本实用新型实施例二结构分解示意图；

[0017] 图5为本实用新型实施例二结构组合示意图；

[0018] 图6为本实用新型实施例二剖视图；

[0019] 图7为本实用新型实施例三结构分解示意图；

[0020] 图8为本实用新型实施例三结构组合示意图；

[0021] 图9为本实用新型实施例三剖视图；

[0022] 图10为本实用新型实施例四结构分解示意图；

[0023] 图11为本实用新型实施例四结构组合示意图；

[0024] 图12为本实用新型实施例四剖视图。

具体实施方式

[0025] 为详尽本实用新型内容，以下将列举实施例并配合说明书附图进行详述。

[0026] 本实用新型揭示了一种接头防水结构，其包括防水带1，该防水带1包裹在金属管2之间或金属管2与转接头3之间的连接部外周。

[0027] 如图1至图3所示，当金属管2之间或者金属管2与转接头3之间通过插销4进一步固定时，金属管2连接部以及转接头3连接部上设有插销孔21、31，该插销孔21、31上穿设有插销4，插销4包括头部和杆部。防水带1为片状结构，防水带1的两端均设有一供插销穿过的孔11、12，当金属管2上的插销4组装到位后，插销4的杆部部分裸露在金属管外。此时，将防水带1的一端的孔11套在插销4的杆部上，包裹金属管2连接部一圈后，防水带1另一端的孔12也套在插销4的杆部，实现防水带1的固定。

[0028] 如图4至图6所示，为保证防水带1能够稳固包裹在金属管2连接部外周，在防水带1的一端还可以增设一定位凸柱13，另一端增设一供定位凸柱13穿过的孔14。这样，防水带1包裹在金属管2外周时，防水带1通过插销4的杆部和凸柱13进行定位固定，加强了防水带的固定稳定性。

[0029] 如图7至图9所示，为加强防水带1连接的稳定型，可以在防水带1的两端设有相互配合的魔术贴15。当插销4杆部穿设在防水带1两端的孔11、12后，防水带1两端的魔术贴15相互贴合，以进一步保证防水带1在连接部外周的稳定性，保证防水带1始终紧密包裹住金属管2连接部的间隙。

[0030] 如图10至图12所示，当插销4的杆部没有露出金属管2或者杆部露出部分较短时，可以将防水带1设置为管状结构。在插销4组装前，先将防水带1套设在金属管2上，当插销4组装完成后，将防水带1移动到金属管2连接部，将插销4包裹在防水带1内，覆盖住金属管2之间的间隙以及插销4与插销孔21、31之间的间隙即可。

[0031] 本实用新型的关键在于，本实用新型通过将防水带1包裹在金属管2连接部外周，以覆盖住金属管2连接部的间隙，即金属管2之间的间隙、金属管2与转接头3之间的间隙以及插销4与插销孔21、31处形成的间隙，避免水由金属管2连接部的间隙处流入金属管2内锈蚀金属管，从而延缓金属管2生锈，延长金属管2的使用时间。

[0032] 以上所述，仅是本实用新型实施例而已，并非对本实用新型的技术范围作任何限制，故凡是依据本实用新型的技术实质对以上实施例所作的任何细微修改、等同变化与修饰，均仍属于本实用新型技术方案的范围内。

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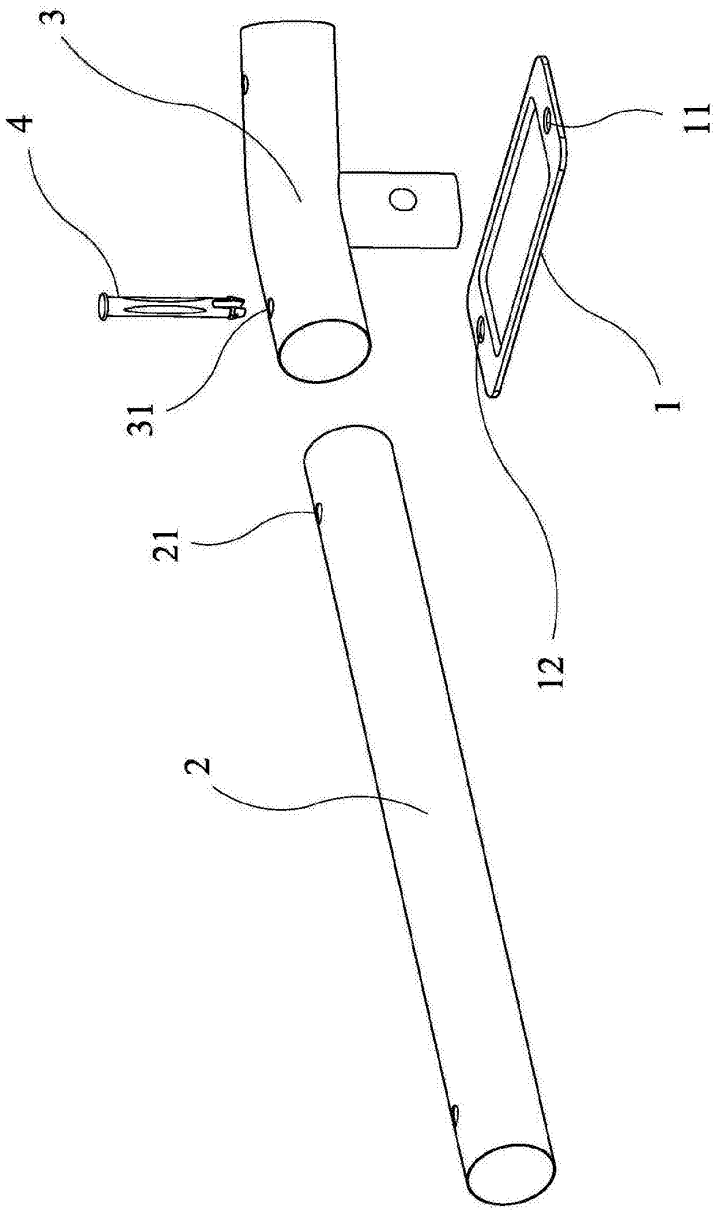


图1

BESTWAY EX. 1003; Pg 213
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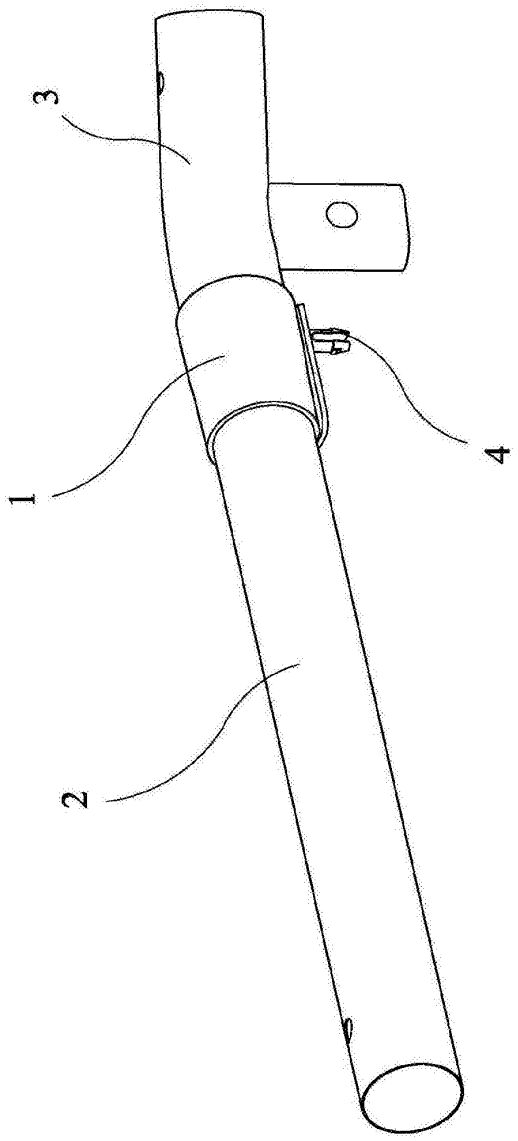


图2

BESTWAY EX. 1003; Pg 214
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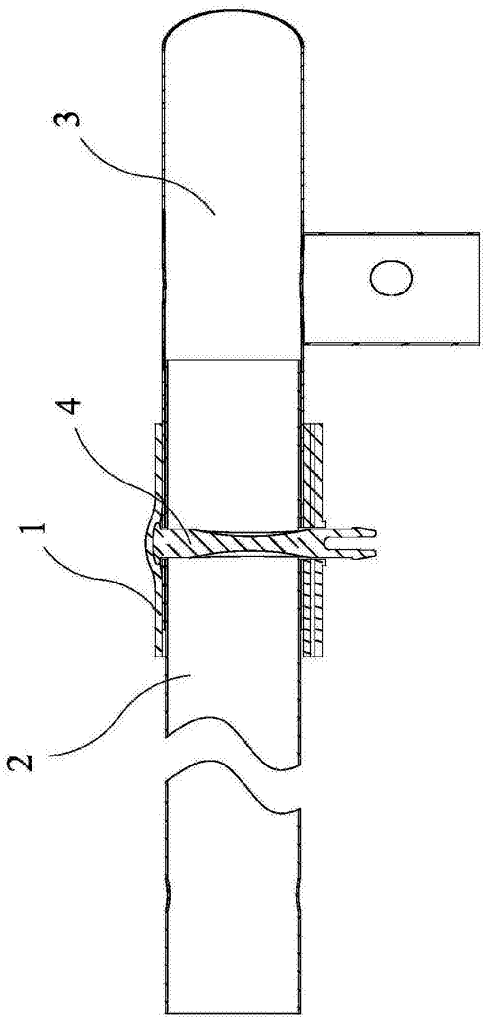


图3

BESTWAY EX. 1003; Pg 215
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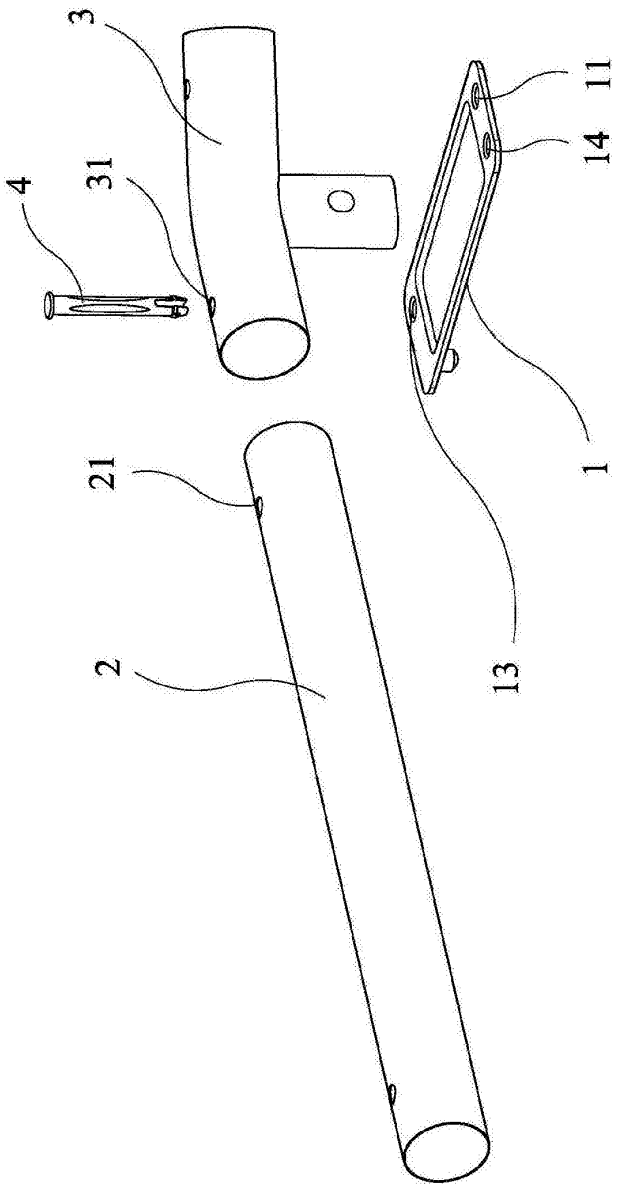


图1

BESTWAY EX. 1003; Pg 216
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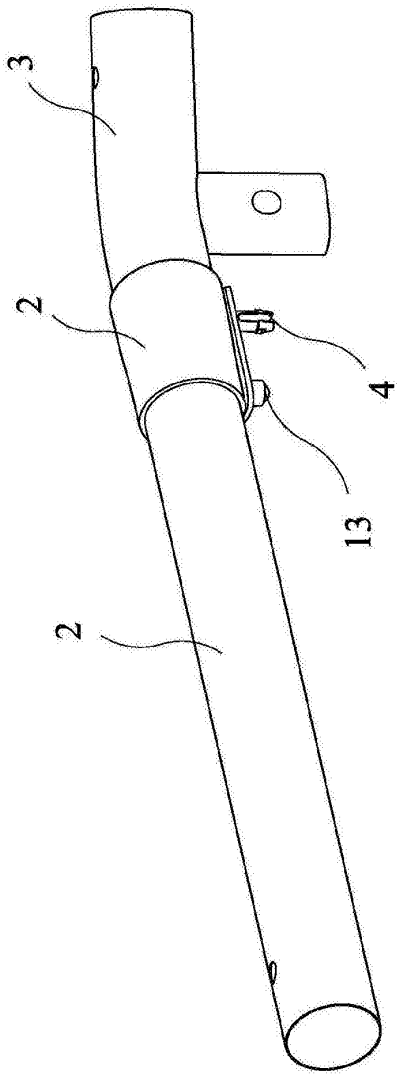


图5

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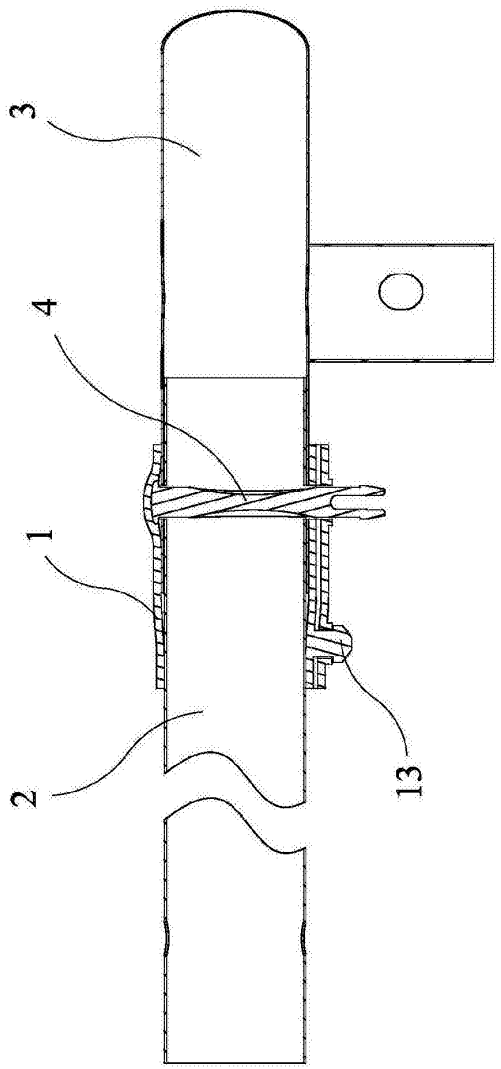


图6

BESTWAY EX. 1003; Pg 218
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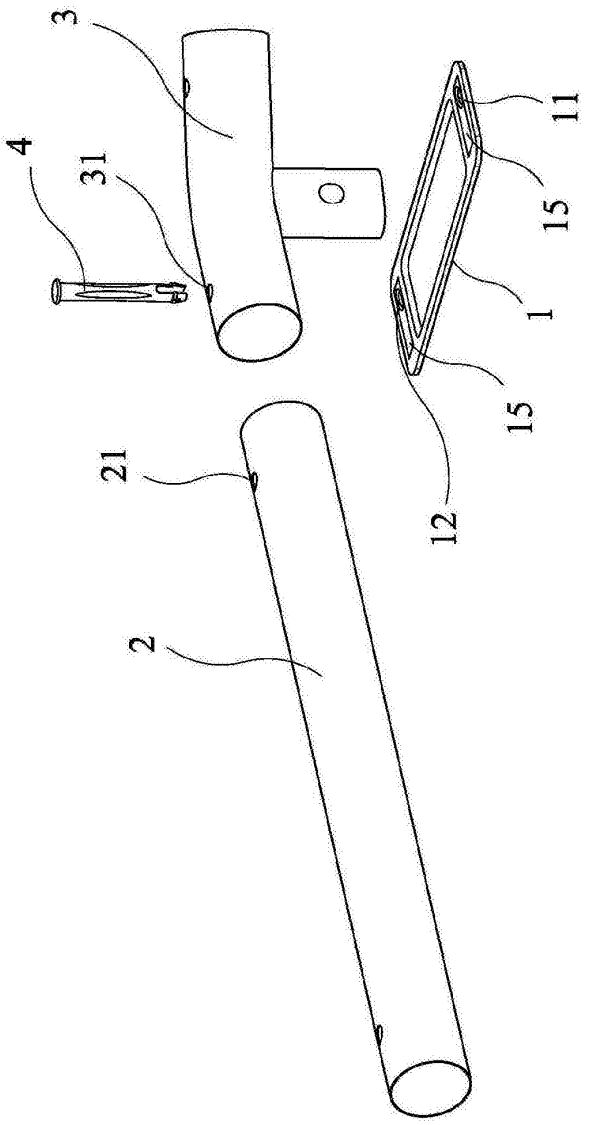


图7

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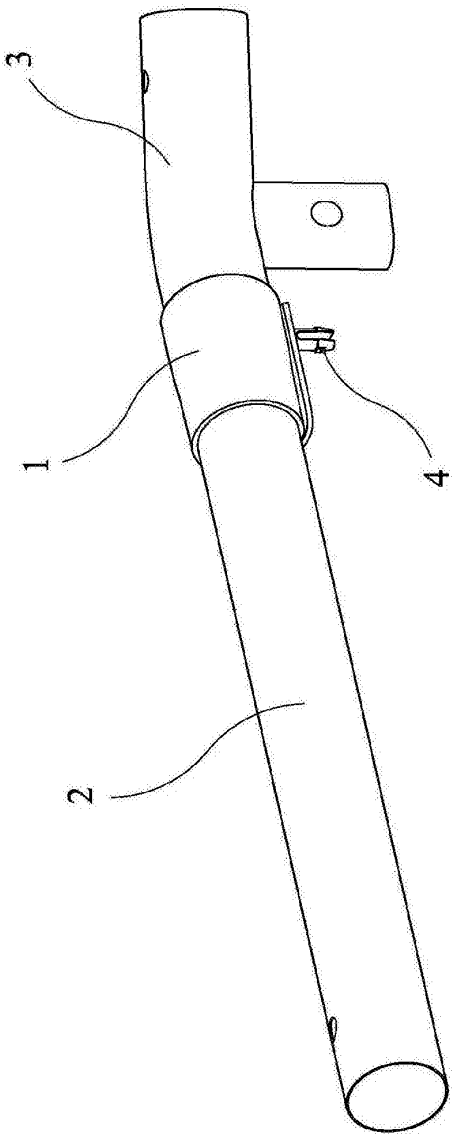


图8

BESTWAY EX. 1003; Pg 220
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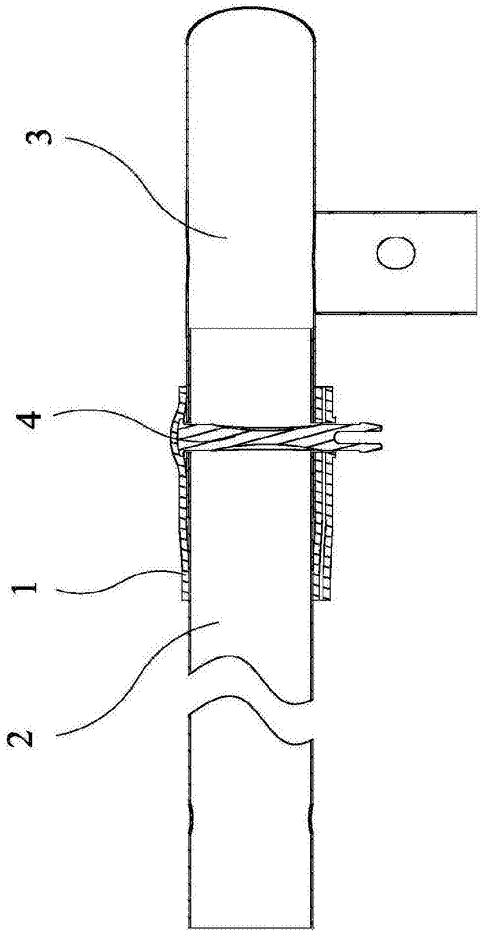


图9

BESTWAY EX. 1003; Pg 221
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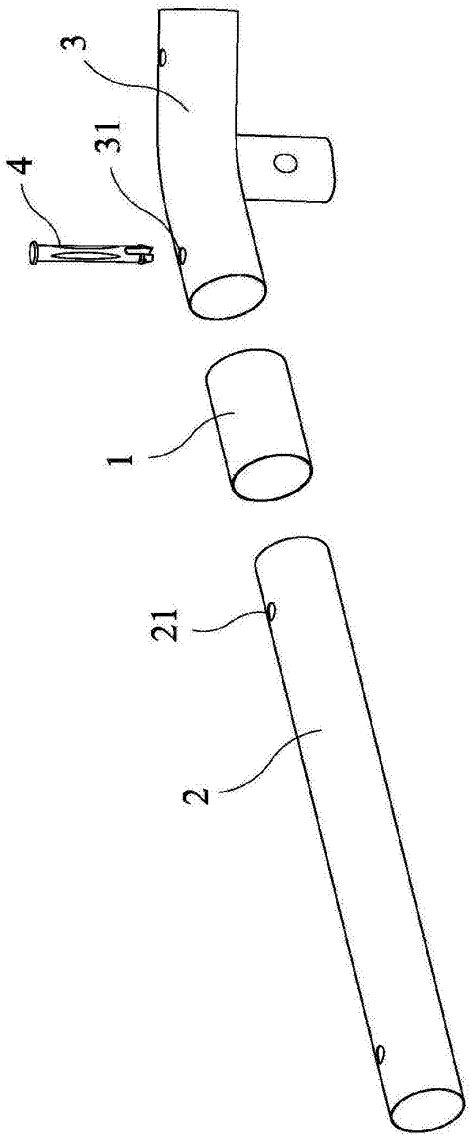


图10

BESTWAY EX. 1003; Pg 222
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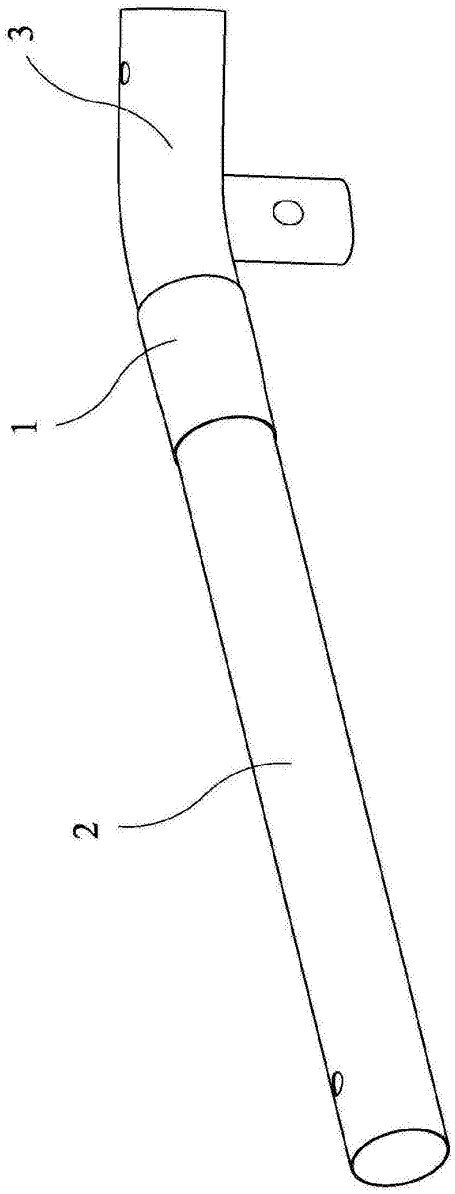


图11

BESTWAY EX. 1003; Pg 223
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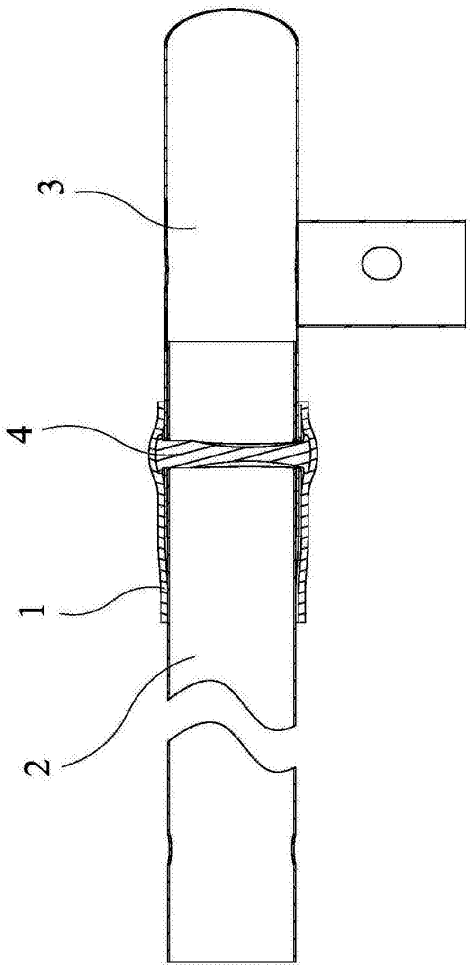


图12

BESTWAY EX. 1003; Pg 224
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Publication Number: CN 209040623 U
Publication Date: Jun 28, 2019

Abstract

The utility model provides an annular pool. The pool comprises a pool body, a plurality of side pipes and a plurality of elastic pins, the plurality of corner joints, the plurality of U-shaped foot tubes, the plurality of V-shaped foot tube springs and the plurality of drawstrings, the side tubes and the corner joints are mutually connected through mutual matching of the elastic pins and the connecting holes, the side tubes are connected and matched together end to end through the elastic pins and form an annular structure through the corner joints, and oversleeves are arranged on the pool body and penetrate through the oversleeves to form the pool with the pool body. The U-shaped foot tubes are matched with the side tubes through the V-shaped foot tube springs, the U-shaped foot tubes support the pool body in an inclined supporting mode, one ends of the pull belts are fixed to the bottom of the pool, the other ends of the pull belts penetrate through horizontal tubes at the bottoms ofthe U-shaped foot tubes, and the pull belts are tightened. The annular pool has the advantages of being easy to disassemble and assemble, high in safety performance and high in stability performance.

(19)中华人民共和国国家知识产权局

(12)实用新型专利

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代理人 郝学江

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E04H 4/00(2006.01)
E04H 4/14(2006.01)

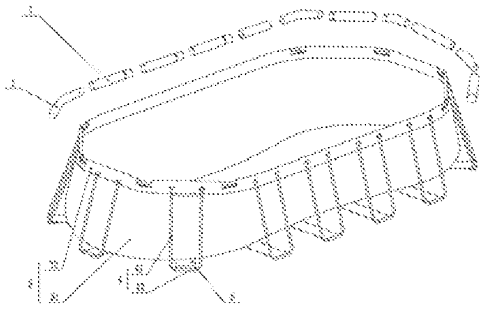
权利要求书1页 说明书3页 附图2页

(54)实用新型名称

一种环形水池

(57)摘要

本实用新型给出了一种环形水池，包括水池体、多个边管、多个弹销，多个角接头，多个U形脚管，多个V形脚管弹簧和多个拉带，边管和角接头通过弹销与连接孔的相互配合来相互连接，边管通过弹销首尾连接配合在一起，并且通过角接头形成环状结构，水池体上设有袖套，边管穿过袖套与水池体形成水池。U形脚管通过V形脚管弹簧与边管配合，U形脚管以斜支撑的方式支撑所述水池体，拉带一端固定于水池底部，另一端穿过U形脚管底部水平管，使拉带绷紧。本实用新型所述的环形水池具有拆装简单、安全性能高和稳定性能强的特点。



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1.一种环形水池，其特征在于，包括水池体、多个边管、多个弹销，多个角接头，所述边管的一端具有缩小的径向尺寸，并设有销孔，所述弹销置于销孔内，所述边管的另一端设有连接孔，所述边管通过所述弹销与所述连接孔的相互配合来相互连接，所述边管通过所述弹销首尾连接配合在一起，并且通过所述角接头形成环状结构，所述水池体上设有袖套，所述边管穿过所述袖套与所述水池体形成水池。

2.根据权利要求1所述的环形水池，其特征在于所述角接头的一端具有缩小的径向尺寸，并设有销孔，所述弹销置于所述销孔内，所述角接头的另一端设有连接孔，所述角接头通过所述弹销与所述连接孔的相互配合来与所述边管相互连接。

3.根据权利要求1所述的环形水池，其特征在于，还包括多个U形脚管、多个脚管套、多个V形脚管弹簧，所述U形脚管臂管顶部设有两对销孔，所述脚管套上设有相对应的两对销孔，所述脚管套能够通过V形脚管弹销与所述U形脚管连接在一起。

4.根据权利要求3所述的环形水池，其特征在于所述U形脚管包括两根臂管和一根水平管，所述两根臂管顶端具有缩小的径向尺寸，与所述脚管套的内腔相耦合。

5.根据权利要求3所述的环形水池，其特征在于所述水池体袖套和所述边管上设有与脚管套配合的孔位，所述脚管套嵌入所述边管孔内，所述U形脚管的臂管插入所述脚管套中，以斜支撑的方式支撑所述水池体，所述U形脚管与地面成60°。

6.根据权利要求3所述的环形水池，其特征在于，还包括多个拉带，所述拉带一端固定于所述水池底部，另一端穿过所述U形脚管底部水平管，使所述拉带绷紧。

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一种环形水池

技术领域

[0001] 本实用新型涉及一种地上水池，尤其是一种环形水池。

背景技术

[0002] 地上水池是目前十分流行的游乐设施，因其可以安装在室外空地上或者家里的院子里，供成人和儿童娱乐，受到许多家庭的喜爱。支架水池是目前市面上比较常见的地上水池，传统的这类水池主要由支撑架和水池体两部分构成，支撑架一般由多跟支撑管、脚管和T形三通接头通过连接构成，水池体一般采用柔性增强PVC胶布材质。目前市场上的支架水池安装和拆卸较为繁琐、支架支撑力不强，水池在充水后，水位越深，水压越大，水池体向外膨胀，脚管容易发生移位，造成水池体倾倒，此结构因素会直接影响到整个支架水池的稳定性，存在安全隐患，容易发生水池倒塌造成人身安全事故。

实用新型内容

[0003] 有鉴于此，本实用新型针对现有技术的不足，提出了一种拆装便捷、稳定性能强和安全系数高的环形水池。

[0004] 为实现上述目的，本实用新型提出了一种环形水池，包括水池体、多个边管、多个弹销，多个角接头，边管的一端具有缩小的径向尺寸，并设有销孔，弹销置于销孔内，边管的另一端设有连接孔，边管通过弹销与连接孔的相互配合来相互连接，边管通过弹销首尾连接配合在一起，并且通过角接头形成环状结构，水池体上设有袖套，边管穿过袖套与水池体形成水池。

[0005] 优选地，角接头的一端具有缩小的径向尺寸，并设有销孔，弹销置于销孔内，角接头的另一端设有连接孔，角接头通过弹销与连接孔的相互配合来与边管相互连接。

[0006] 优选地，该环形水池还包括多个U形脚管、多个脚管套、多个V形脚管弹簧，U形脚管臂管顶部设有两对销孔，脚管套上设有相对应的两对销孔，脚管套能够通过V形脚管弹销与U形脚管连接在一起。

[0007] 优选地，U形脚管包括两根臂管和一根水平管，两臂管顶端具有缩小的径向尺寸，与脚管套的内腔相耦合。

[0008] 优选地，水池体袖套和所述边管上设有与脚管套配合的孔位，脚管套嵌入边管孔内，U形脚管的臂管插入边管的孔内的脚管套中，以斜支撑的方式支撑所述水池体，U形脚管与地面成60°。

[0009] 优选地，该环形水池还包括多个拉带，拉带一端固定于水池底部，另一端穿过U形脚管底部水平管，使拉带绷紧。

[0010] 本实用新型的环形水池通过弹销使各边管配合，使其拆装便捷，利用U形脚管的斜支撑和拉带的作用，使其不易发生滑移，稳定性能强，安全系数高。本实用新型的环形水池设计结构简单、使用方便，美观，方便生产和组装，利于推广使用。

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附图说明

[0011] 下面结合附图对本实用新型的具体实施方式作进一步详细说明。

[0012] 图1是本实用新型的环形水池的外观结构示意图；

[0013] 图2是本实用新型的环形水池的边管的结构示意图；

[0014] 图3是本实用新型的环形水池的U形脚管与脚管套配合的爆炸图。

具体实施方式

[0015] 为使本实用新型实施例的目的、技术方案和优点更加清楚，下面将结合本实用新型实施例中的附图，对本实用新型实施例中的技术方案进行清楚、完整地描述。

[0016] 下面详细描述本实用新型的实施例，实施例的示例在附图中示出，其中自始至终相同或类似的标号表示相同或类似的元件或具有相同或类似功能的元件。下面通过参考附图描述的实施例是示例性的，旨在用于解释本实用新型，而不能理解为对本实用新型的限制。

[0017] 如图1所示，本实用新型揭示了一种环形水池，其包括多个边管1、多个角接头2、水池体3、多个U形脚管4和拉带5，其中水池体3包括水池主体31和袖套32，U形脚管4包括臂管41和水平管42。如图2所示，边管1的一端具有缩小的径向尺寸，并设有销孔11，弹销6置于边管1缩小的径向尺寸一端内，且弹销6上的定位销61穿过销孔11，边管1的另一端设有连接孔12，前一边管的销孔11与后一边管的销孔12相对应，通过弹销6的定位销61连接配合在一起，边管1中部还设有两个孔13，用以嵌入脚管套7。

[0018] 如图3所示，U形脚管4两臂管41顶端具有缩小的径向尺寸，并设有两对销孔411，脚管套7上设有相对应的两对销孔71，V形脚管弹销8置于U形脚管4臂管内，V形脚管弹销8上的两对定位销81穿过对应的销孔411，U形脚管4臂管顶端可以插入脚管套7的内腔中，脚管套7上的两对销孔71与销孔411相对，且定位销81同时穿过销孔411和销孔81，使U形脚管4与脚管套7固定。

[0019] 在具体示例中，角接头2与边管1有相同的结构，一端具有缩小的径向尺寸，并设有销孔，弹销6置于销孔内，另一端设有连接孔，角接头可通过弹销与连接孔的相互配合来与边管相互连接，形成环状结构。边管1和角接头2穿过水池体3的袖套32，利用弹销6首尾相接，与水池主体31连接形成水池。可替代的，角接头和边管的连接方式可以有除了弹销之外的其他形式，例如，使用插销的方式把角接头和边管连接起来。

[0020] 其中，在具体示例中，边管1上设有与脚管套7配合的孔位13，脚管套7嵌入边管孔13内，U形脚管4插入边管1上的孔位13中的脚管套7内，通过V型弹销8固定，U形脚管4与地面成60°，以斜支撑的方式支撑水池体3。

[0021] 另外，在具体示例中，拉带5一端固定于水池主体31底部，另一端穿过U形脚管4底部水平管42，拉带处于绷紧状态，可以有效的防止U形脚管4滑移，进一步提高水池的稳定性。

[0022] 由此可见，本实用新型的环形水池通过弹销使各边管配合，边管的拆装更加便捷，利用U形脚管的斜支撑和拉带绷紧的作用下，U形脚管不易发生滑移，稳定性能强，安全系数高。本实用新型的环形水池设计结构简单、使用方便，美观，方便生产和组装，利于推广使用。

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[0023] 显然，本领域技术人员在不偏离本实用新型的精神和范围的情况下可以作出对本实用新型的实施例的各种修改和改变。以该方式，如果这些修改和改变处于本实用新型的权利要求及其等同形式的范围内，则本实用新型还旨在涵盖这些修改和改变。词语“包括”不排除未在权利要求中列出的其它元件或步骤的存在。某些措施记载在相互不同的从属权利要求中的简单事实不表明这些措施的组合不能被用于获利。权利要求中的任何附图标记不应当被认为限制范围。

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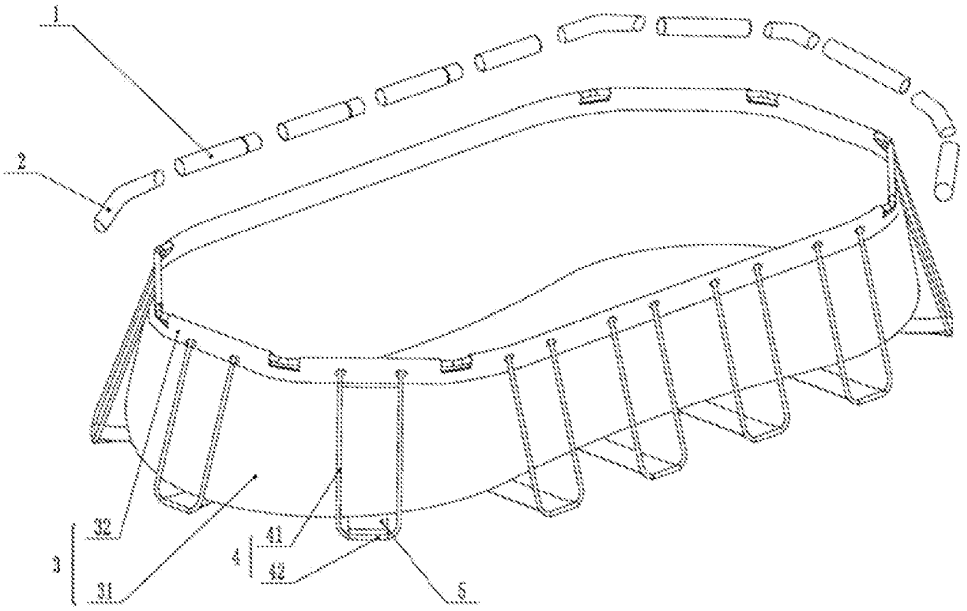


图1

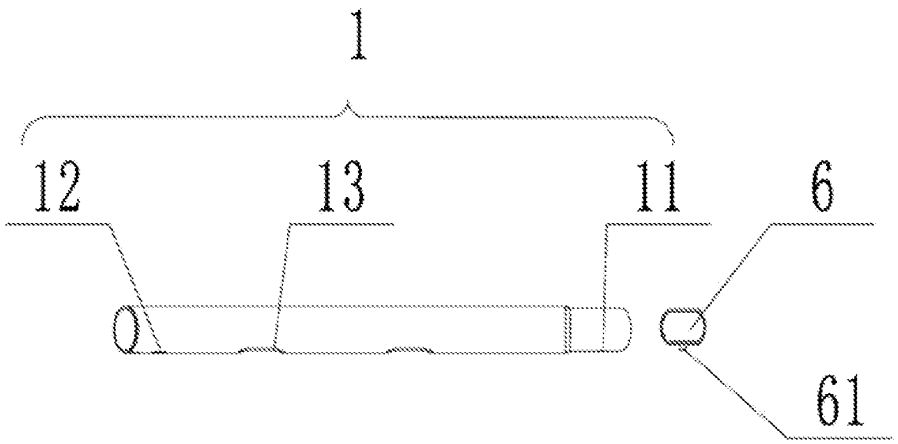


图2

BESTWAY EX. 1003; Pg 231
Bestway v. Intex PGR2024-00036

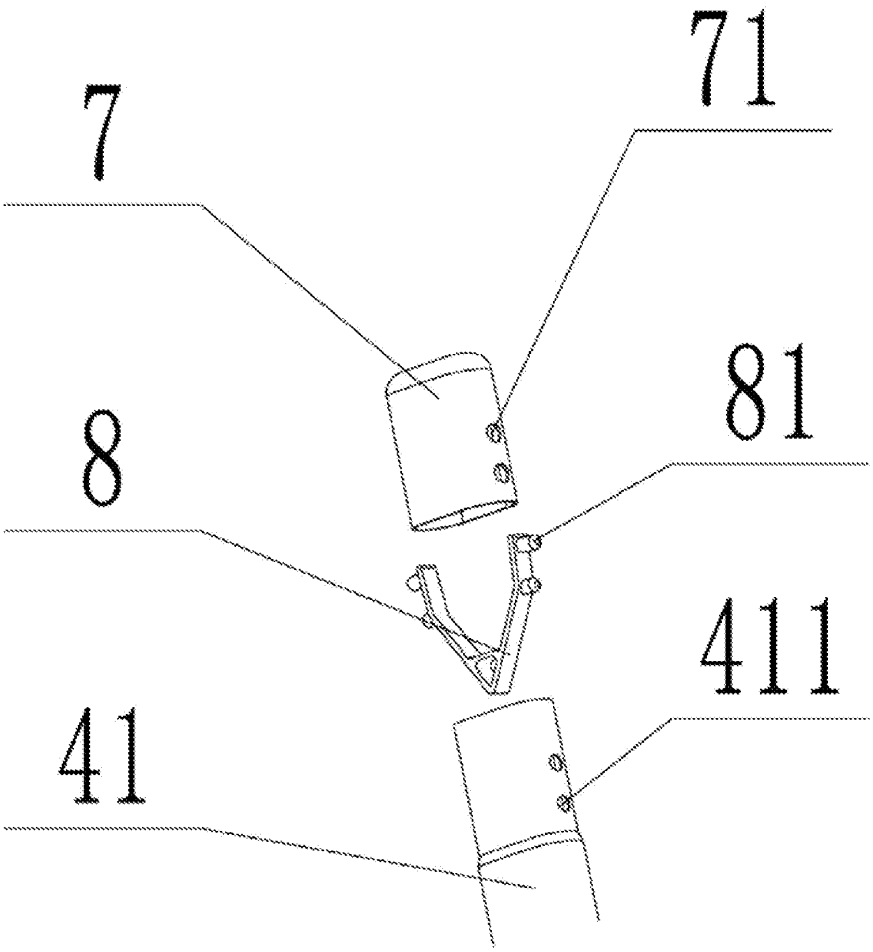


图3

BESTWAY EX. 1003; Pg 232
Bestway v. Intex PGR2024-00036

Publication Number: CN 209130364 U
Publication Date: Jul 19, 2019

Abstract

The utility model discloses a split type T-shaped joint for being connected with a pipe frame water pool. The pipe joint comprises two side pipe joints and a foot pipe joint, wherein the two side pipejoints and the foot pipe joint are matched to form a T-shaped structure, the T-shaped joint is divided into at least two parts which are independently made of plastic, and the at least two parts canbe assembled, disassembled and fixedly assembled together to form the T-shaped structure comprising the two side pipe joints and the foot pipe joint. The utility model has the advantages that modularproduction is convenient to realize so as to reduce the production cost; the production precision of each joint can be improved, a gap between a pipe and the joint is reduced, water is prevented fromentering, and pipe rusting (such as metal pipe selection) is reduced or delayed; simplified mold.

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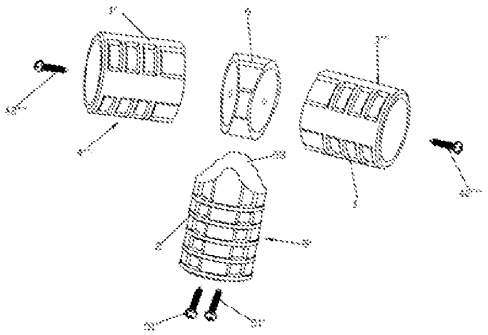
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(54)实用新型名称

用于连接管架水池的分体式T形接头

(57)摘要

本实用新型公开了用于连接管架水池的分体式T形接头，包括两个边管接头和一个脚管接头，该两个边管接头和一个脚管接头配合形成T形结构，该T形接头分成至少两个由塑胶独立制成的部件，该至少两个部件能装拆固定装接在一起且构成上述包含有两个边管接头和一个脚管接头的T形结构。它具有如下优点：方便实现模块化生产，以降低生产成本；可提高各接头生产精度，减少管和接头之间的间隙，避免水进入，减少或延误管生锈(如选用金属管)；简化模具。



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1.用于连接管架水池的分体式T形接头，包括两个边管接头和一个脚管接头，该两个边管接头和一个脚管接头配合形成T形结构，其特征在于：该T形接头分成至少两个由塑胶独立制成的部件，该至少两个部件能装拆固定装接在一起且构成上述包含有两个边管接头和一个脚管接头的T形结构。

2.根据权利要求1所述的用于连接管架水池的分体式T形接头，其特征在于：该T形接头分成两个由塑胶独立制成的部件，该两个部件分别为第一部件和第二部件；该第一部件包括一体成型的两个边管接头，该两个边管接头形成夹角；该第二部件包括一体成型的脚管接头。

3.根据权利要求2所述的用于连接管架水池的分体式T形接头，其特征在于：该第一部件还具有一介于两个边管接头之间的中间座，该中间座包括一围壁和一固接在围壁内的第一固接座；该第二部件还包括一固接在脚管接头内的第二固接座；该脚管接头和围壁适配套接，另设锁接件穿过脚管接头并固接该第一固接座和第二固接座。

4.根据权利要求1所述的用于连接管架水池的分体式T形接头，其特征在于：该T形接头分成两个由塑胶独立制成的部件，该两个边管接头形成夹角且分别为第一边管接头和第二边管接头；该两个部件分别为第一部件和第二部件，该第一部件包括一体成型的第一边管接头和脚管接头，该第二部件包括第二边管接头。

5.根据权利要求4所述的用于连接管架水池的分体式T形接头，其特征在于：该第一部件还具有一连接第一边管接头和脚管接头的中间座，该中间座包括一围壁和一固接在围壁内的第一固接座；该第二部件还包括一固接在第二边管接头内的第二固接座；该第二边管接头和围壁适配套接，另设锁接件穿过第二边管接头或第一边管接头并固接该第一固接座和第二固接座。

6.根据权利要求1所述的用于连接管架水池的分体式T形接头，其特征在于：该T形接头分成三个由塑胶独立制成的部件，该两个边管接头形成夹角且分别为第一边管接头和第二边管接头；该三个部件分别为第一部件、第二部件和第三部件，该第一部件包括第一边管接头，该第二部件包括第二边管接头，该第三部件包括脚管接头。

7.根据权利要求6所述的用于连接管架水池的分体式T形接头，其特征在于：该第一边管接头内固接有第一固接座，该第二边管接头内固接有第二固接座，该脚管接头内固接有第三固接座；另配设第一锁接件和两第二锁接件，该第一锁接件锁接该第一边管接头和第二边管接头，一第二锁接件锁接该脚管接头和第一边管接头，另一第二锁接件锁接该脚管接头和第二边管接头。

8.根据权利要求1所述的用于连接管架水池的分体式T形接头，其特征在于：该T形接头分成四个由塑胶独立制成的部件，该两个边管接头形成夹角且分别为第一边管接头和第二边管接头；该四个部件分别为第一部件、第二部件、第三部件和第四部件，该第一部件包括第一边管接头，该第二部件包括第二边管接头，该第三部件包括脚管接头，该第四部件包括中间座。

9.根据权利要求8所述的用于连接管架水池的分体式T形接头，其特征在于：该第一边管接头内固接有第一固接座，该第二边管接头内固接有第二固接座，该脚管接头内固接有第三固接座，该中间座介于该第一边管接头和第二边管接头之间；另配设两第一锁接件和第二锁接件，一第一锁接件锁接该第一边管接头和中间座，另一第一锁接件锁接该第二边

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管接头和中间座，该第二锁接件锁接该脚管接头和中间座。

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用于连接管架水池的分体式T形接头

技术领域

[0001] 本实用新型涉及一种管架水池的零部件，尤其涉及一种用于连接管架水池的分体式T形接头。

背景技术

[0002] 传统的用于连接管架水池的分体式T形接头都采用金属制成，由于金属制成的T形接头存在有接触水易生锈及金属硬度过高装配过程中可能损害水池管架或水池的不足，因此本申请人曾提出了一种采用注塑件一体成型出T形接头的解决方案，如CN206054469U所公告的实用新型。T形接头包括两个边管接头和一个脚管接头，该两个边管接头和一个脚管接头配合形成T形结构。由于T形接头包括有三个接头，三个接头一体成型因此存在有如下待改进之处：其一，需同时确保三个接头的精度，才能方便管架和接头的插接，因此T形接头的精度要求较高；其二，损坏任一接头就会导致整个T形接头无法使用；其三，模具复杂，占用空间大，生产成品率有待提高。

实用新型内容

[0003] 本实用新型提供了用于连接管架水池的分体式T形接头，其克服了背景技术中一体成型T形接头所存在的不足。

[0004] 本实用新型解决其技术问题的所采用的技术方案是：

[0005] 用于连接管架水池的分体式T形接头，包括两个边管接头和一个脚管接头，该两个边管接头和一个脚管接头配合形成T形结构，该T形接头分成至少两个由塑胶独立制成的部件，该至少两个部件能装拆固定装接在一起且构成上述包含有两个边管接头和一个脚管接头的T形结构。

[0006] 该T形接头分成两个由塑胶独立制成的部件，该两个部件分别为第一部件和第二部件；该第一部件包括一体成型的两个边管接头，该两个边管接头形成夹角；该第二部件包括一体成型的脚管接头。

[0007] 该第一部件还具有一介于两个边管接头之间的中间座，该中间座包括一围壁和一固接在围壁内的第一固接座；该第二部件还包括一固接在脚管接头内的第二固接座；该脚管接头和围壁适配套接，另设锁接件穿过脚管接头并固接该第一固接座和第二固接座。

[0008] 该T形接头分成两个由塑胶独立制成的部件，该两个边管接头形成夹角且分别为第一边管接头和第二边管接头；该两个部件分别为第一部件和第二部件，该第一部件包括一体成型的第一边管接头和脚管接头，该第二部件包括第二边管接头。

[0009] 该第一部件还具有一连接第一边管接头和脚管接头的中间座，该中间座包括一围壁和一固接在围壁内的第一固接座；该第二部件还包括一固接在第二边管接头内的第二固接座；该第二边管接头和围壁适配套接，另设锁接件穿过第二边管接头或第一边管接头并固接该第一固接座和第二固接座。

[0010] 该T形接头分成三个由塑胶独立制成的部件，该两个边管接头形成夹角且分别为

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第一边管接头和第二边管接头；该三个部件分别为第一部件、第二部件和第三部件，该第一部件包括第一边管接头，该第二部件包括第二边管接头，该第三部件包括脚管接头。

[0011] 该第一边管接头内固接有第一固接座，该第二边管接头内固接有第二固接座，该脚管接头内固接有第三固接座；另配设第一锁接件和两第二锁接件，该第一锁接件锁接该第一边管接头和第二边管接头，一第二锁接件锁接该脚管接头和第一边管接头，另一第二锁接件锁接该脚管接头和第二边管接头。

[0012] 该T形接头分成四个由塑胶独立制成的部件，该两个边管接头形成夹角且分别为第一边管接头和第二边管接头；该四个部件分别为第一部件、第二部件、第三部件和第四部件，该第一部件包括第一边管接头，该第二部件包括第二边管接头，该第三部件包括脚管接头，该第四部件包括中间座。

[0013] 该第一边管接头内固接有第一固接座，该第二边管接头内固接有第二固接座，该脚管接头内固接有第三固接座，该中间座介于该第一边管接头和第二边管接头之间；另配设两第一锁接件和第二锁接件，一第一锁接件锁接该第一边管接头和中间座，另一第一锁接件锁接该第二边管接头和中间座，该第二锁接件锁接该脚管接头和中间座。

[0014] 本技术方案与背景技术相比，它具有如下优点：

[0015] 由于先独立制成部件再组装，因此具有如下技术效果：其一，方便实现模块化生产，以降低生产成本；其二，可提高各接头生产精度，减少管和接头之间的间隙，避免水进入，减少或延误管生锈(如选用金属管)；其三，简化模具。

[0016] T形接头分成两个由塑胶独立制成的部件，第一部件包括一体成型的两个边管接头，第二部件包括一体成型的脚管接头，结构简单，而且组装方便。

[0017] 脚管接头和围壁适配套接，另设锁接件穿过脚管接头并固接该第一固接座和第二固接座，连接强度高。

[0018] 两个部件分别为第一部件和第二部件，第一部件包括一体成型的第一边管接头和脚管接头，第二部件包括第二边管接头，结构简单，而且组装方便。

[0019] 三个部件分别为第一部件、第二部件和第三部件，第一部件包括第一边管接头，第二部件包括第二边管接头，第三部件包括脚管接头，结构简单，而且组装方便。

[0020] 第一部件包括第一边管接头，第二部件包括第二边管接头，第三部件包括脚管接头，第四部件包括中间座，结构简单，而且组装方便。

附图说明

[0021] 下面结合附图和具体实施方式对本实用新型作进一步说明。

[0022] 图1是实施例一的分体式T形接头的结构示意图。

[0023] 图2是实施例一的分体式T形接头、边管及脚管装接在一起的结构示意图。

[0024] 图3是实施例一的分体式T形接头、边管及脚管装接在一起的分解结构示意图。

[0025] 图4是实施例一的分体式T形接头、边管及脚管装接在一起的剖面示意图。

[0026] 图5是实施例一的脚管的截面示意图。

[0027] 图6是实施例二的分体式T形接头、边管及脚管装接在一起的分解结构示意图。

[0028] 图7是实施例三的分体式T形接头、边管及脚管装接在一起的剖面示意图。

[0029] 图8是实施例四的分体式T形接头的结构示意图。

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[0030] 图9是实施例五的分体式T形接头的结构示意图。

[0031] 图10是实施例六的分体式T形接头的结构示意图。

具体实施方式

[0032] 实施例一

[0033] 用于连接管架水池的分体式T形接头，请查阅图1至图5，包括两个边管接头1和一个脚管接头2，该两个边管接头1和一个脚管接头2配合形成T形结构，该两边管接头1的夹角可为多角度。该T形接头分成至少两个由塑胶独立制成的部件，该至少两个部件能装拆固定装接在一起且构成上述包含有两个边管接头和一个脚管接头的T形结构。该部件例如为塑胶射出件。由于先独立制成部件再组装，因此一方面，可选用配套不同直径管的部件进行组装，方便实现模块化生产，以降低生产成本；另一方面，可提高各接头生产精度，减少管和接头之间的间隙，避免水进入，减少或延误管生锈(如选用金属管)。该管根据需要可选用金属或非金属管。

[0034] 本具体实施方式之中：该T形接头分成两个由塑胶独立制成的部件，该两个部件分别为第一部件3和第二部件4；该第一部件3包括一体成型的两个边管接头1，该两个边管接头1形成夹角，该夹角如90-180度；该第二部件4包括一体成型的脚管接头2。该第一部件3还具有一介于两个边管接头1之间的中间座31，该中间座31包括一围壁和一固接在围壁内的第一固接座；该第二部件4还包括一固接在脚管接头内的第二固接座41；该脚管接头和围壁适配套接，另设锁接件42，该锁接件如螺钉，穿过脚管接头并固接该第一固接座和第二固接座。

[0035] 使用过程中，两个边管A分别能装拆地插接在两个边管接头1之内，脚管B能装拆地插接在脚管接头2之内，该脚管B的截面如为跑道型。该边管A和边管接头1之间，及，该脚管B和脚管接头2之间，都设有能松释的锁接结构，该锁接结构的结构如：该边管接头1或脚管接头2设有未封闭且贯穿内外的切缝C1，使该切缝C1中围有一个悬臂C2，该悬臂C2之内壁凸设有锁凸C3；该边管或脚管凹设有通至该边管或脚管一端面的滑槽C4，该滑槽C4之槽壁的内末端凹设有锁槽C5；使用过程中，该滑槽C4对齐该锁凸C3，插入边管或脚管，使锁凸C3和锁槽C5配合实现卡扣锁接，用力拔出即可松释该锁接。采用该结构，一方面通过锁凸和锁槽配合实现锁接，另一方面该滑槽和锁凸配合还能为插接提供导向。

[0036] 实施例二

[0037] 它与实施例一不同之处在于：请查阅图6，该边管A和边管接头1之间的锁接结构采用如下结构：该边管接头1设有贯穿上下的第一通孔D1，该边管A设有贯穿上下的第二通孔D2；另配设插销，该插销一端设有插销头D3，另一端端面凹设有横向贯穿的切缝D4，通过切缝使另一端形成至少两个悬空臂，该悬空臂末端凸设有锁接舌D5；使用过程中：插销的另一端穿过该第一通孔D1和第二通孔D2，该插销头D3和锁接舌D5分别顶抵在边管接头1之顶壁和底壁以将边管接头1和边管A锁接在一起；按压该锁接舌D5即可拔出插销实现锁接机构的松释。根据需要，该插销还可配套有垫圈D6，该垫圈D6套接插销且顶抵在插销头和边管接头1之间。

[0038] 实施例三

[0039] 它与实施例二不同之处在于：请查阅图7，该边管A和边管接头1之间的锁接结构采

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用如下结构：该边管接头1设有贯穿内外的第一贯穿孔E1，该边管A设有贯穿内外的第二贯穿孔E2；该边管A内固设有固座E3，该固座E3设有滑动的锁接头E4，该锁接头E4和固座E3之间设有弹簧E5；该锁接头E4穿过第二贯穿孔并插入第一贯穿孔，以此实现锁接；按压该锁接头E4使其内缩以脱离第一贯穿孔，即可实现松释。

[0040] 实施例四

[0041] 它与实施例一、二、三不同之处在于：请查阅图8，该T形接头分成两个由塑胶独立制成的部件，该两个边管接头形成夹角且分别为第一边管接头1和第二边管接头1'；该两个部件分别为第一部件3'和第二部件4'，该第一部件3'包括一体成型的第一边管接头1和脚管接头2，该第二部件4'包括第二边管接头1'。该第一部件还具有一连接第一边管接头和脚管接头的中间座31'，该中间座包括一围壁和一固接在围壁内的第一固接座；该第二部件还包括一固接在第二边管接头内的第二固接座41'；该第二边管接头1'和围壁适配套接，另设锁接件42'，锁接件42'例如螺钉，穿过第二边管接头或第一边管接头并固接该第一固接座和第二固接座。

[0042] 实施例五

[0043] 它与实施例四不同之处在于：请查阅图9，该T形接头分成三个由塑胶独立制成的部件，该两个边管接头形成夹角且分别为第一边管接头1和第二边管接头1'；该三个部件分别为第一部件3"、第二部件4"和第三部件5，该第一部件3"包括第一边管接头，该第二部件4"包括第二边管接头，该第三部件5包括脚管接头。该第一边管接头内固接有第一固接座，该第二边管接头内固接有第二固接座，该脚管接头内固接有第三固接座；另配设第一锁接件42"和两第二锁接件51，该第一锁接件锁接该第一边管接头和第二边管接头，一第二锁接件锁接该脚管接头和第一边管接头，另一第二锁接件锁接该脚管接头和第二边管接头。而且，具体结构中，该第三部件之脚管接头上周缘的前后向局部向上延伸成保护壁53，该第一部件和第二部件介于该前后的保护壁53之间，以增强连接强度。该保护壁53在沿前后投影中呈顶角在上的三角形。

[0044] 实施例六

[0045] 它与实施例五不同之处在于：请查阅图10，该T形接头分成四个由塑胶独立制成的部件，该两个边管接头形成夹角且分别为第一边管接头和第二边管接头；该四个部件分别为第一部件3"'、第二部件4"'、第三部件5'和第四部件6，该第一部件包括第一边管接头，该第二部件包括第二边管接头，该第三部件包括脚管接头，该第四部件包括中间座。该第一边管接头内固接有第一固接座，该第二边管接头内固接有第二固接座，该脚管接头内固接有第三固接座，该中间座介于该第一边管接头和第二边管接头之间；另配设两第一锁接件42"'和第二锁接件52'，一第一锁接件锁接该第一边管接头和中间座，另一第一锁接件锁接该第二边管接头和中间座，该第二锁接件锁接该脚管接头和中间座。

[0046] 以上所述，仅为本实用新型较佳实施例而已，故不能依此限定本实用新型实施的范围，即依本实用新型专利范围及说明书内容所作的等效变化与修饰，皆应仍属本实用新型涵盖的范围内。

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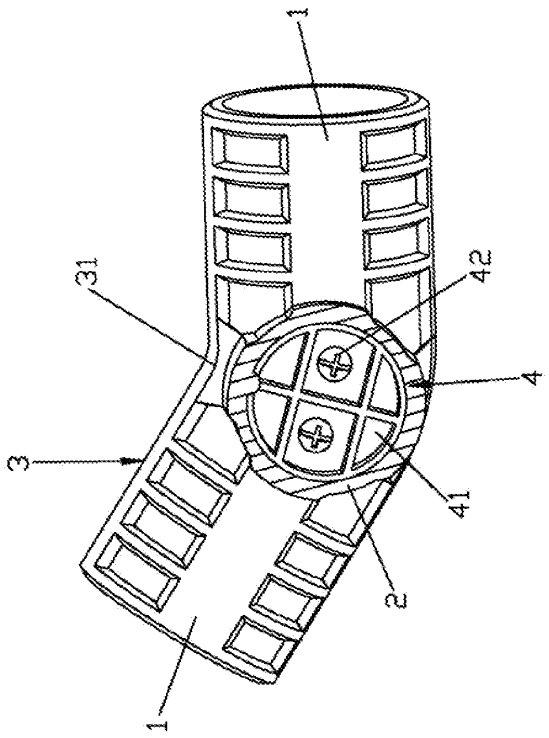


图1

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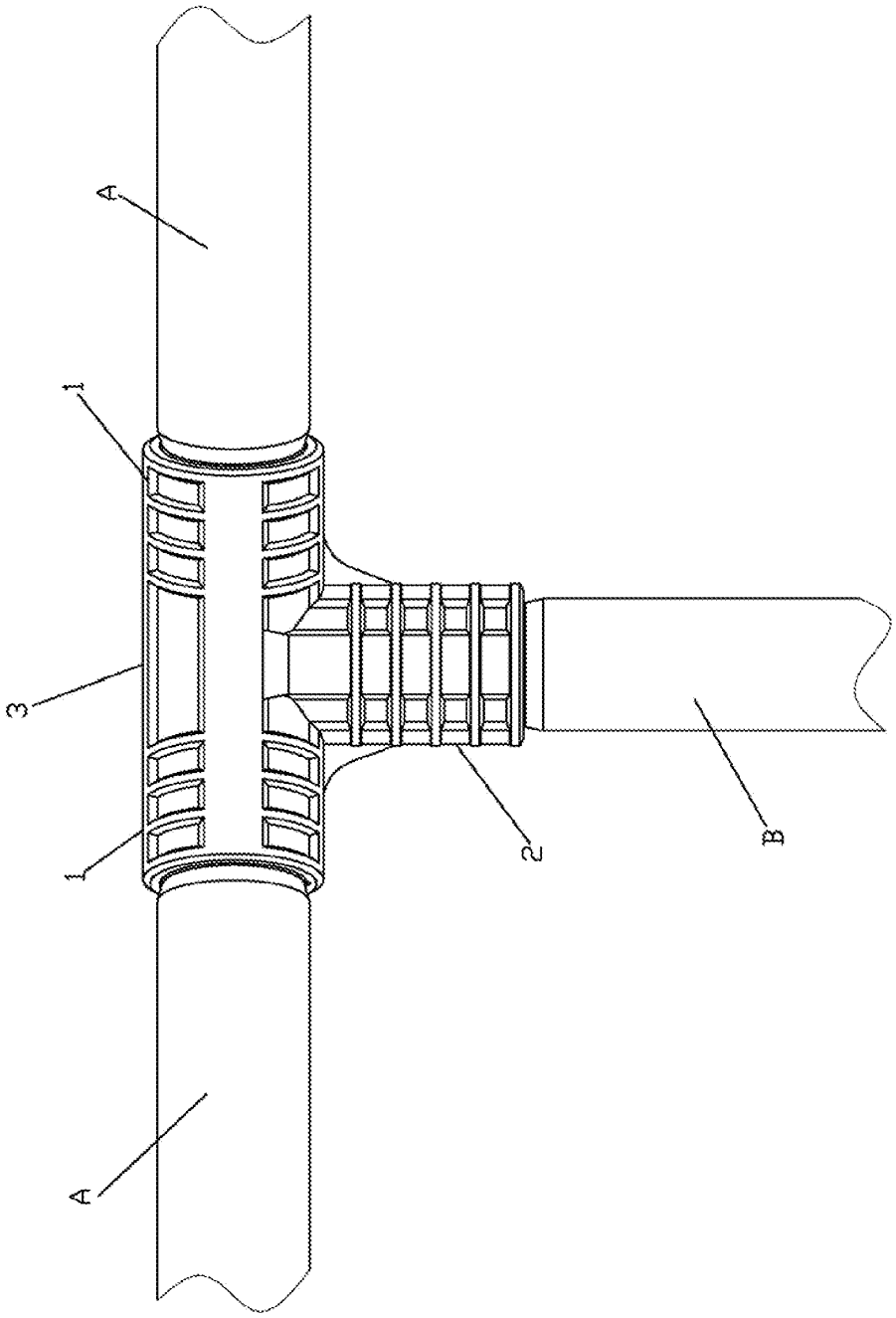


图2

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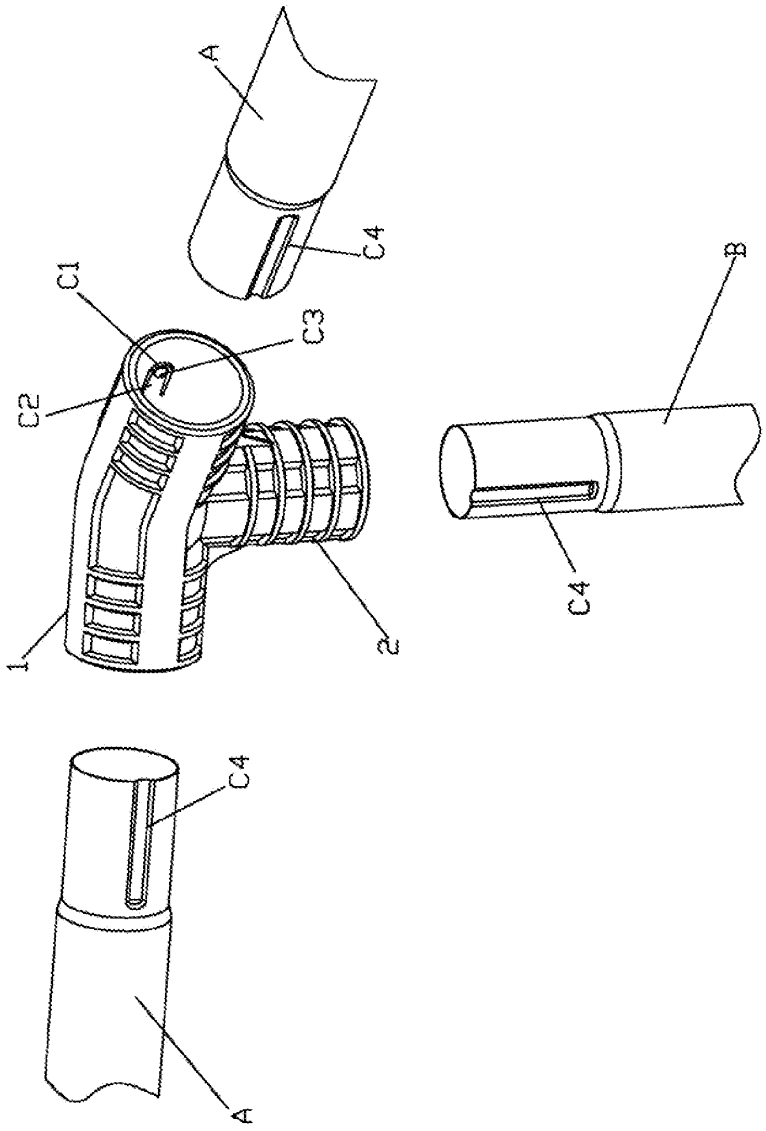


图3

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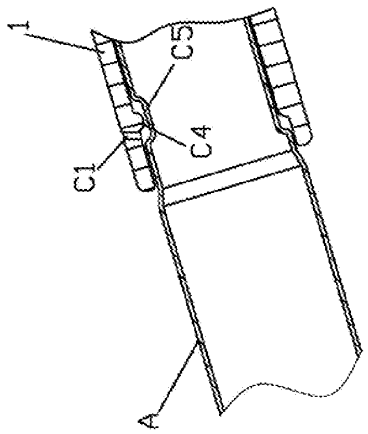


图4

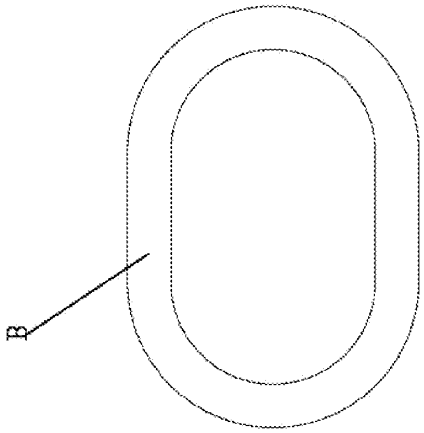


图5

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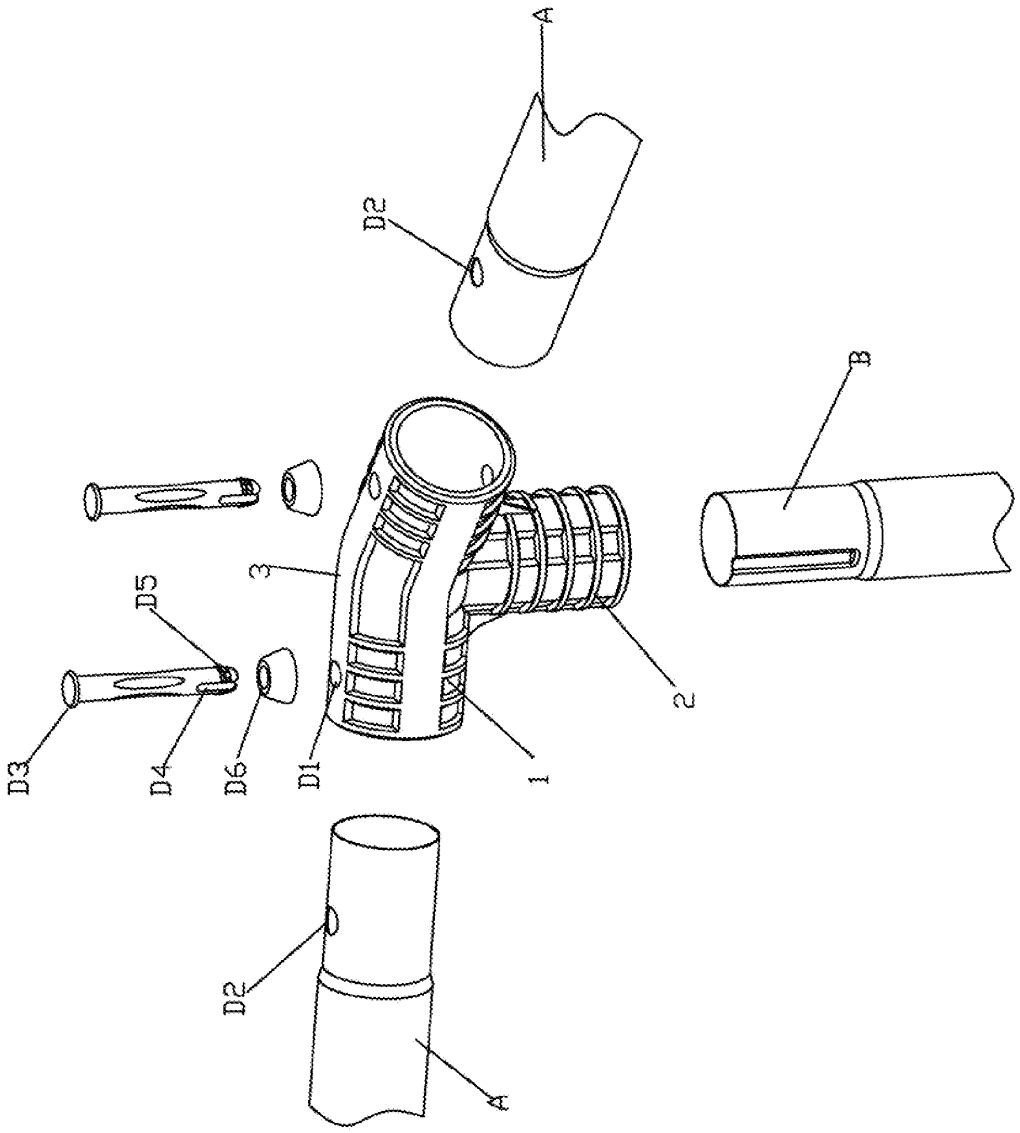


图6

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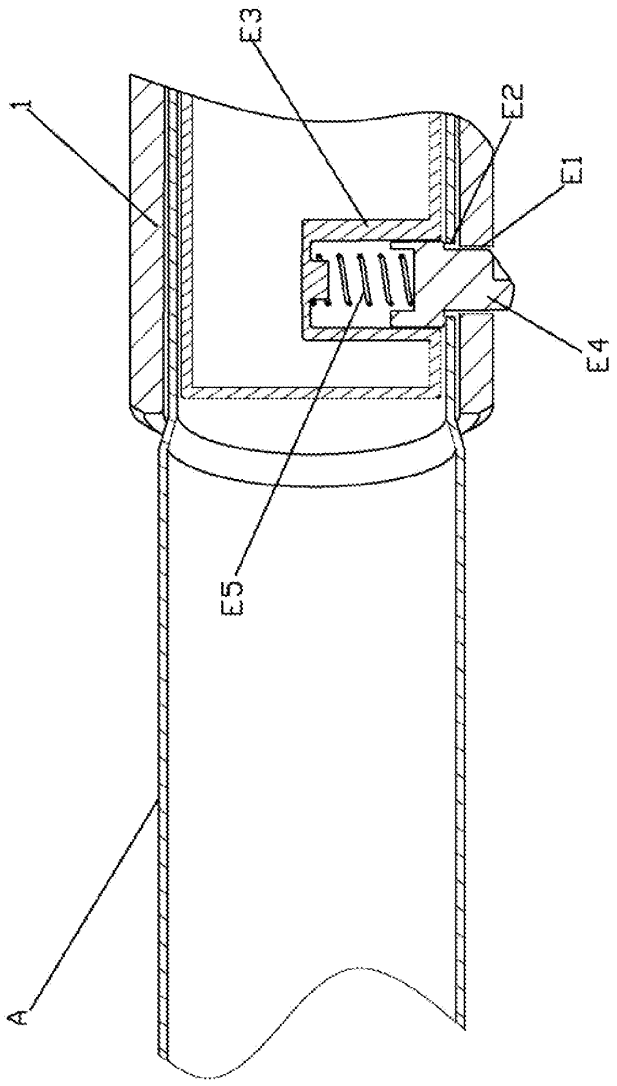


图7

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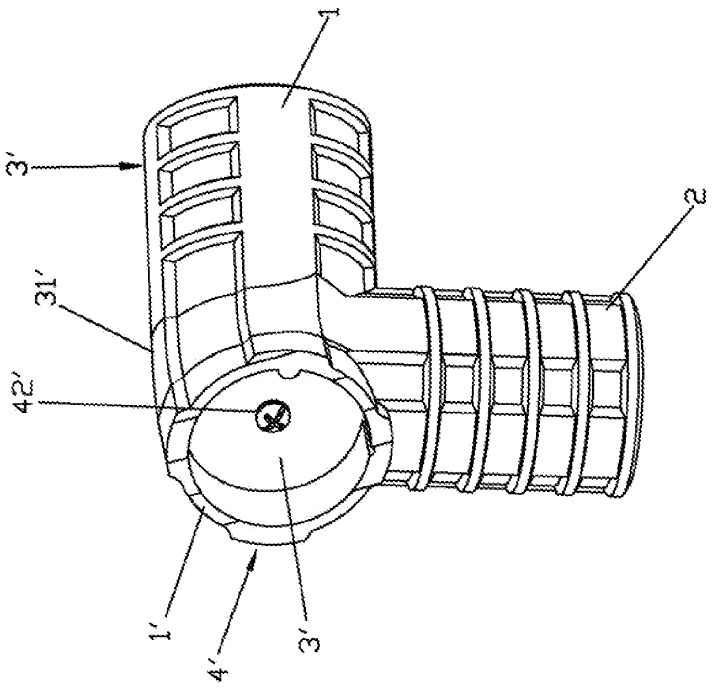


图8

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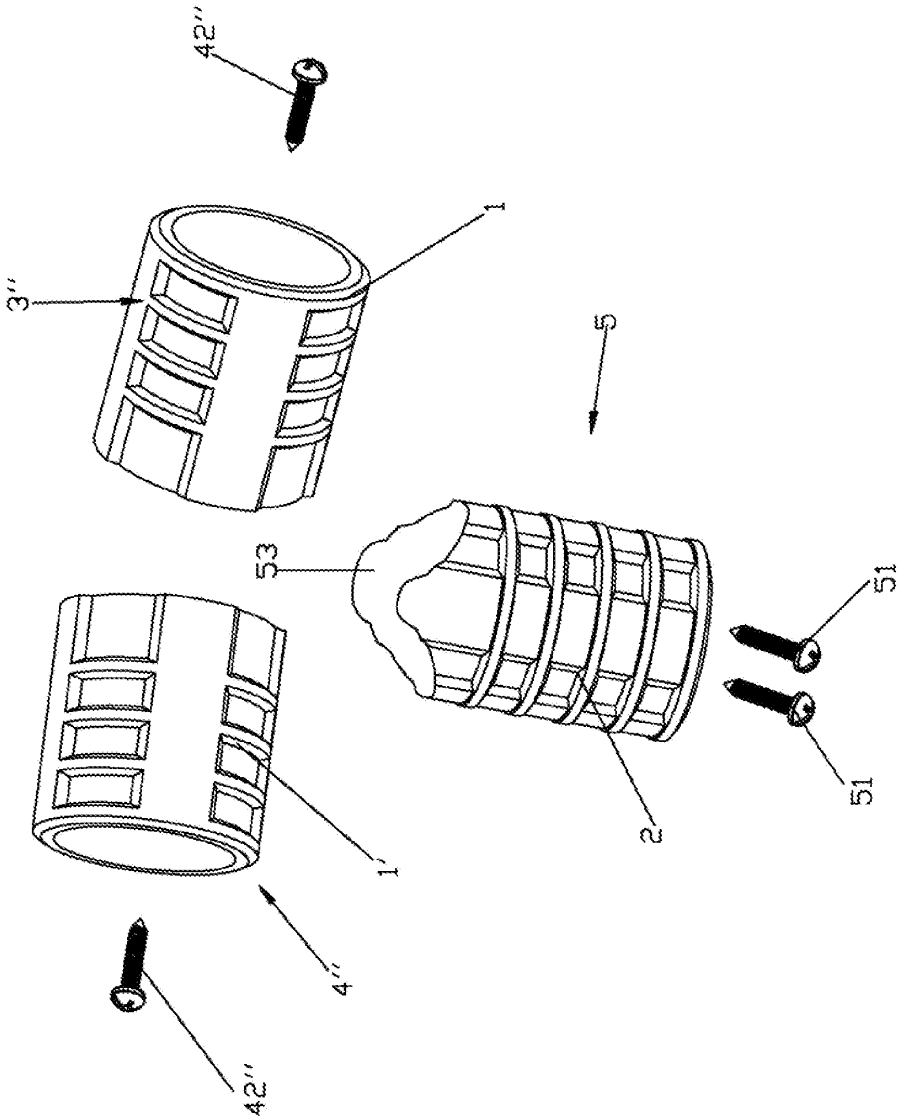


图9

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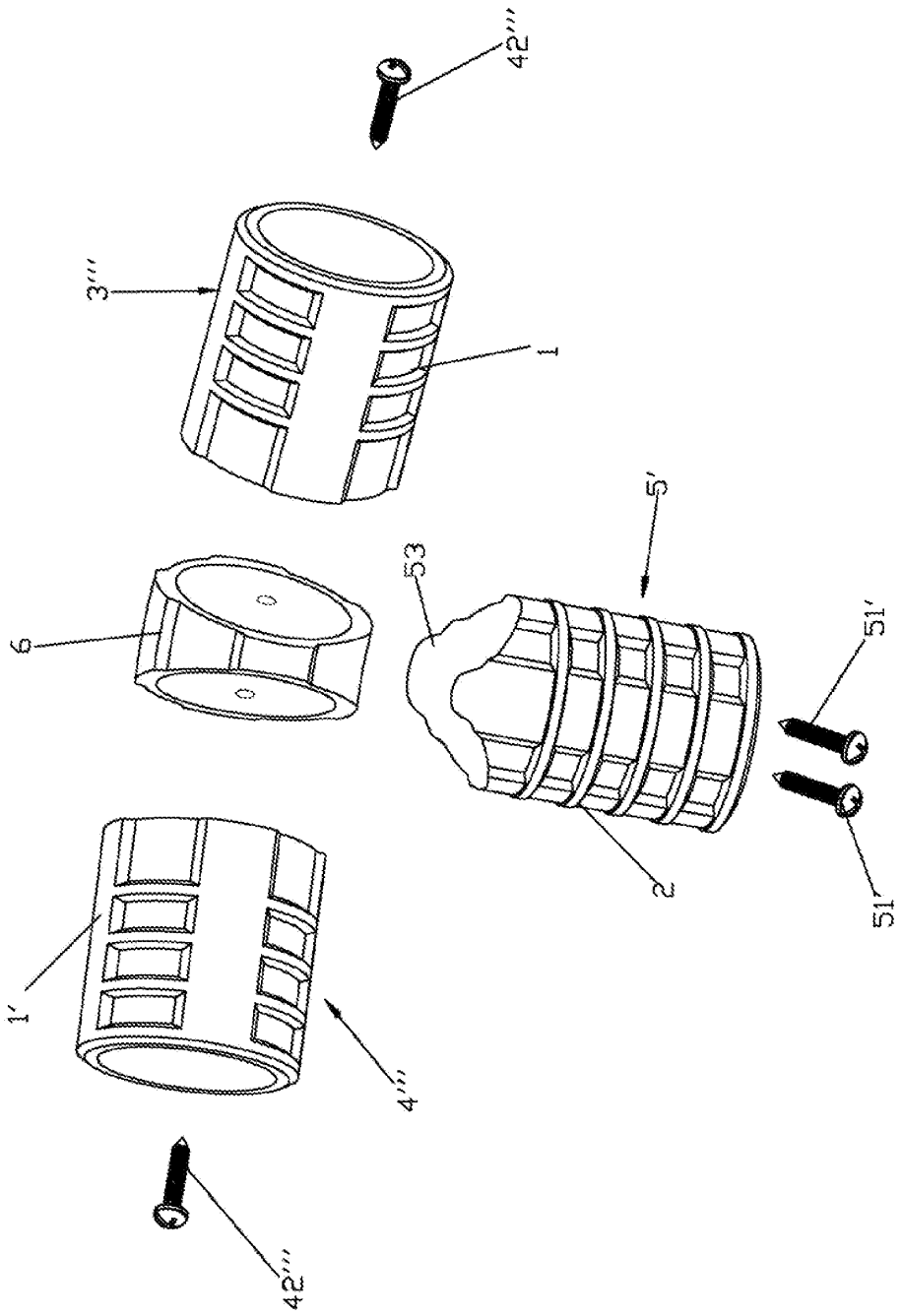


图10

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Publication Date: Oct 13, 1988

Espacenet

DE8810857U1 null

Applicants: CHIANG-HSIUNG, LIU, TAIPEH/T'AI-PEI, TW

Inventors:

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CPC **E04H4/0056 (EP);** E04H2004/146 (EP);

Priorities: DE8810857U 1988-08-27

Application: DE8810857U·1988-08-27

Publication: DE8810857U1·1988-10-13

Published as: DE8810857U1

null

Abstract

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DESCRIPTION DE8810857U1

[0001]

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Mobile pool that can be assembled

[0002]

The innovation relates to a portable pool that can be assembled.

[0003]

Traditionally, swimming pools and paddling pools,i for children are made of one?

manufactured in a submerged container.

The inflation with air involves considerable effort, which brings with it many inconveniences as well as unnecessary physical efforts and a lot of time.

A weak point of such inflatable containers is that they are very susceptible to mechanical stresses, especially by sharp objects, are easily pierced and then after the repair, if such is still possible with reasonable effort, it is necessary to mobilize the container inflate again with the already mentioned inconveniences.

[0004]

The object of the present innovation is to create a swimming pool in which the disadvantages mentioned above are avoided.

[0005]

This object is achieved with a transportable, collapsible swimming pool according to claim 1;

[0006]

The modernization of the design of the pool is achieved in advantageous Meise that this very quickly and in a very simple manner

[0007]

•· · · · · ll

[0008]

can be easily assembled at any location and - if necessary - disassembled again.

In addition, the swimming pool according to the innovation is characterized by a simple structural design and thus more favorable economic manufacturability as well as a high level of operational safety and a long service life.

[0009]

The innovation is shown in the drawing in an embodiment and will be described with reference to this below.

[0010]

Show it:

Figure 1 is a perspective view of a

[0011]

composite pool according to the innovation,

[0012]

FIG. 2 in an enlarged section from FIG. 1 a detail,

Figure 3 in a perspective view and

[0013]

on a slightly larger scale, a three-way connector and

[0014]

Figure 4 is a partially sectioned view of the swimming pool of Figure 1, also on a slightly larger scale.

[0015]

As can also be seen from FIG. 1 and from FIG. 4, the trough-like container 11 is formed with the hollow upper edge 12 and the hollow lower edge 13 .

At the bottom hollow edge 13 is in one piece. the bottom 10 formed.

According to FIGS. 1 and 2, both the upper and the lower hollow edge 12 or 13 are preferably at equal distances from one another around the circumference of the container 11

[0016]

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[0017]

arranged openings 14 provided.

Arranged in the hollow obesien and lower edge 12 and 13 are the circularly curved horizontal tubular supporting and stiffening elements 16, which are connected to one another in the area Uer the openings 14 by means of the three-way connecting members 15 and supported against one another via the vertical tubular supporting and stiffening elements 17 are.

[0018]

For this purpose, the three-way connectors 15 are provided, as shown in Figure 3, with a transverse tubular member 18 and a vertical tubular member 19 disposed in the center thereof and extending perpendicularly thereto, the tubular members 18 and 19 being of course designed to connect »it let the horizontal support and stiffening elements 16 and the vertical support and support parts 17 fit together in a simple Heise.

In order to increase the rigidity and thus the supporting effect, the three-way connecting links 15 are additionally provided with the stiffening angles 20.

[0019]

As can be seen from the figures of the drawing, a very simple supporting frame is realized by means of the horizontal supporting and stiffening elements 16 and the vertical supporting and stiffening elements 17 and the three-way connecting link 15 connecting them to one another, which can be assembled and disassembled very easily .

This framework makes the use of an inflatable container with all its disadvantages, in particular its complicated inflation and its susceptibilility to mechanical stress, superfluous and, on the contrary, makes it possible to use it

[0020]

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[0021]

||

a container 11, whose wall thickness can be dimensioned

[0022]

f

that it can also withstand heavy use.

[0023]

The embodiment shown in the drawing of the swimming pool according to innovation can in the context

[0024]

- the innovation of course in many ways

[0025]

be modified.

So it is of course possible to realize a rectangular or square shape or any other shape instead of the shown circular shape of the swimming pool.

Likewise, it is not absolutely necessary to form the parts 15, 16 and 17 with a circular tube cross-section; rather, other cross-sectional shapes could also be considered, although the round cross-sectional shape has the advantage that corners and edges are largely avoided.

[0026]

The three-way connecting link 15 is expediently designed in such a way that the ends of its transverse horizontal part 18 protrude into the horizontal support and stiffening elements 16 on the inside, while its vertical tube part 19, as shown in Figure 2,

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has the vertical support tube element 17 on the outside spread over or can also reach into this on the inside.

Furthermore, it could be provided that the center piece of the horizontal part 18 is thickened or that the lateral ends are connected to the center piece with a stepped shoulder, so that on the one hand the center piece can be provided with the same cross-sectional dimensions as the horizontal support elements 16

[0027]

te, on the other hand, there would be a stop for the part of the support elements 16 that overlaps the ends of the part 18 .

Of course, the one or

[0028]

-Overlapping ends of the parts '18 and 19 dimensioned so that a sufficiently secure connection is guaranteed.

In addition, it could also be provided that the ends of the support tubes 16 are slotted for the engagement of the angle reinforcements 20.

Although this would mean that the parts would have to be plugged together in an oriented manner, this would hardly be a disadvantage given the very simple design of the parts.

[0029]

Correspondingly suitable known plastics are preferably considered as the material for the swimming pool, but other materials could also be used for the parts of the supporting framework, for example light metals such as sufficiently strong aluminum alloys or the like.

[0030]

Finally, it should be mentioned that the dimensions of the parts of the swimming pool are of course also selected in such a way that they correspond to the size of the swimming pool or the amount of water to be filled into it or that the required strength is ensured.

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CLAIMS DE8810857U1

1.

PROTECTION CLAIMS

2.

1. Portable pool that can be assembled, characterized by the following characteristics

3.

a) a container (11) having a hollow top rim (12) and a hollow bottom rim (13), both of which are provided with a number of spaced apertures (14),

4.

b) a number of three-way connectors (15) disposed in the openings (14) of the upper and lower hollow rims (12) and (13) respectively and formed with a transverse tubular portion (187 and a tubular part (19) connected thereto and extending in the middle perpendicular thereto,

5.

c) a number of support tube elements (16) arranged in the hollow upper and lower edges (12) and (13) and connected to one another by means of the transverse tubular parts (18) of the three-way connecting elements (15),

6.

d) a number of supporting tube elements (17), arranged between and connected to the tube part (19) each in the upper and in the lower hollow edge (12) or (13) of the container (11) disordered three-way connecting element (15) .

7.

2. Transportable, assemblable swimming pool according to Anep-uch 1, characterized in that reinforcing brackets (200) are arranged between the tubular parts (18) and (19) of the three-way connecting elements (15).

9.

94

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11.

are.

12.

3. Transportable, assemblable swimming pool according to Claim 1 or 2, characterized in that the tube parts (16, 17, 18, 19) have a circular cross-section.

13.

4. Transportable, assemblable swimming pool according to one of Claims 1 to 3, characterized in that the tube parts (16, 18) are bent in a circular shape.

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(19) BUNDESREPUBLIK DEUTSCHLAND

DEUTSCHES PATENTAMT

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(51) Hauptklasse E04H 3/18

(22) Anmeldetag 27.08.88

(47) Eintragungstag 13.10.88

(43) Bekanntmachung im Patentblatt 24.11.88

(54) Bezeichnung des Gegenstandes
Transportables zusammensetzbares Schwimmbecken

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Chiang-Hsiung, Liu, Taipeh/T'ai-pei, TW

(74) Name und Wohnsitz des Vertreters
Klöpsch, G., Dipl.-Ing. Dr.-Ing., Pat.-Anw., 5000 Köln

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Transportables zusammensetzbares Schwimmbecken

Die Neuerung bezieht sich auf ein transportables zusammensetzbares Schwimmbecken.

Herkömmlicherweise werden Schwimmbecken und Planschbecken für Kinder aus einem aufblasbaren Behälter hergestellt. Das Aufblasen mit Luft ist dabei mit erheblichen Anstrengungen verbunden, was viele Unannehmlichkeiten wie auch an sich überflüssige physikalische Anstrengungen sowie den Aufwand einer Menge Zeit mit sich bringt. Ein Schwachpunkt solcher aufblasbarer Behälter ist auch, daß sie gegen mechanische Beanspruchungen sehr anfällig sind, insbesondere von spitzen Gegenständen leicht durchbohrt werden und es dann nach erfolgter Reparatur, sofern eine solche mit vertretbarem Aufwand überhaupt noch möglich ist, notwendig ist, den Behälter unter Aufbietung der schon erwähnten Unannehmlichkeiten erneut aufzublasen.

Aufgabe der vorliegenden Neuerung ist es, ein Schwimmbecken zu schaffen, bei dem die vorstehend erwähnten Nachteile vermieden werden.

Diese Aufgabe wird mit einem transportablen zusammensetzbaren Schwimmbecken gemäß Anspruch 1 gelöst. Zweckmäßige weitere Ausgestaltungen der Neuerung sind in den Unteransprüchen beschrieben.

Durch die neuerungsgemäße Ausbildung des Schwimmbeckens wird in vorteilhafter Weise erreicht, daß dieses in sehr einfacher Weise sehr schnell und

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leicht an beliebigen Orten sowohl zusammengesetzt wie auch - falls erforderlich - wieder auseinandergenommen werden kann. Darüberhinaus zeichnet sich das neuerungsgemäße Schwimmbecken durch einen einfachen konstruktiven Aufbau und damit günstiger wirtschaftlicher Herstellbarkeit sowie durch eine hohe Gebrauchssicherheit und eine lange Gebrauchsdauer aus.

Die Neuerung ist in der Zeichnung in einem Ausführungsbeispiel gezeigt und wird anhand dieses im folgenden beschrieben.

Es zeigen:

Figur 1 eine perspektivische Ansicht eines zusammengesetzten Schwimmbeckens gemäß der Neuerung,

Figur 2 in einem vergrößerten Ausschnitt aus Figur 1 eine Einzelheit,

Figur 3 in einer perspektivischen Ansicht und in etwas größerem Maßstab ein Dreiwege-Verbindungsglied und

Figur 4 ebenfalls in etwas größerem Maßstab eine Teilschnitt-Ansicht des Schwimmbeckens der Figur 1.

Wie aus Figur 1 und aus Figur 4 auch ersichtlich, ist der trogartige Behälter 11 mit dem hohlen oberen Rand 12 und dem hohlen unteren Rand 13 ausgebildet. An den unteren hohlen Rand 13 ist einstückig der Boden 10 angeformt. Sowohl der obere wie auch der untere hohle Rand 12 bzw. 13 ist gemäß den Figuren 1 und 2 mit einer Anzahl von vorzugsweise in gleichmäßigen Abständen voneinander über den Umfang des Behälters 11

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angeordneten Öffnungen 14 versehen. In dem hohlen oberen und unteren Rand 12 bzw. 13 sind die kreisringförmig gebogenen horizontalen rohrförmigen Trag- und Versteifungselemente 16 angeordnet, die im Bereich der Öffnungen 14 mittels der Dreiweg-Verbindungsglieder 15 miteinander verbunden und über die vertikalen rohrförmigen Stütz- und Versteifungselemente 17 gegeneinander abgestützt sind.

Die Dreiweg-Verbindungsglieder 15 sind gemäß Figur 3 zu diesem Zweck mit einem querverlaufenden rohrförmigen Teil 18 und mit einem in dessen Mitte angeordneten sich senkrecht dazu erstreckenden vertikalen Rohrteil 19 versehen, wobei die Rohrteile 18 und 19 selbstverständlich so ausgebildet sind, daß sie sich mit den horizontalen Trag- und Versteifungselementen 16 und den vertikalen Trag- und Stützteilen 17 in einfacher Weise passend zusammenfügen lassen. Zwecks Erhöhung der Steifigkeit und damit der Stützwirkung sind die Dreiweg-Verbindungsglieder 15 zusätzlich mit den Versteifungswinkeln 20 versehen.

Wie sich den Figuren der Zeichnung entnehmen lässt, wird mittels der horizontalen Trag- und Versteifungselemente 16 sowie den vertikalen Stütz- und Versteifungselementen 17 sowie den diese miteinander verbindenden Dreiweg-Verbindungsgliedern 15 ein sehr einfaches Tragegerüst realisiert, das sich sehr leicht zusammenbauen und wieder auseinandernehmen läßt. Dieses Gerüst macht die Verwendung eines aufblasbaren Behälters mit all seinen geschilderten Nachteilen, insbesondere seines aufwendigen Aufblasens und seiner Anfälligkeit gegen mechanische Beanspruchung, entbehrlich und ermöglicht im Gegensatz dazu die Verwendung

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eines Behälters 11, dessen Wanddicke so bemessen sein kann, daß er auch robusten Beanspruchungen standhält.

Das in der Zeichnung dargestellte Ausführungsbeispiel des neuerungsgemäßen Schwimmbeckens kann im Rahmen der Neuerung selbstverständlich in vielfältiger Weise modifiziert werden. So ist es selbstverständlich möglich, anstelle der gezeigten kreisrunden Form des Schwimmbeckens eine rechteckige oder quadratische oder aber auch eine beliebige andere Form zu realisieren. Desgleichen ist es auch nicht zwingend notwendig, die Teile 15, 16 und 17 mit kreisrundem Rohrquerschnitt auszubilden, vielmehr könnten auch andere Querschnittsformen in Betracht gezogen werden, wenngleich die runde Querschnittform den Vorteil hat, daß Ecken und Kanten weitgehend vermieden werden.

Das Dreiweg-Verbindungglied 15 wird zweckmäßig so ausgebildet, daß es mit den Enden seines querverlaufenden horizontalen Teils 18 innenseitig in die horizontalen Trag- und Versteifungselemente 16 hineinragt, wogegen sein vertikales Rohrteil 19 so wie in Figur 2 gezeigt, das vertikale Stützrohrelement 17 außenseitig übergreifen oder aber ebenfalls innenseitig in dieses hineingreifen kann. Desweiteren könnte vorgesehen werden, das Mittelstück des horizontalen Teils 18 verdickt auszubilden bzw. die seitlichen Enden mit einem stufenförmigen Absatz an das Mittelstück anschließen zu lassen, so daß einerseits das Mittelstück mit gleichen Querschnittsabmessungen wie die horizontalen Tragelemente 16 versehen sein könnte, andererseits für den die Enden des Teils 18 übergreifenden Teil der Tragelemente 16 ein Anschlag gegeben wäre. Selbstverständlich werden die ein- bzw.

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übergreifenden Enden der Teile 18 und 19 so bemessen, daß eine ausreichend sichere Verbindung gewährleistet ist. Zusätzlich könnte auch noch vorgesehen werden, daß die Enden der Tragrohre 16 für den Eingriff der Winkelverstärkungen 20 geschlitzt werden. Dies hätte zwar zur Folge, daß die Teile orientiert zusammengesteckt werden müßten, bei der sehr einfachen Ausbildung der Teile wäre dies jedoch kaum von Nachteil.

Als Material für das Schwimmbecken kommen bevozugt entsprechend geeignete bekannte Kunststoffe in Betracht, für die Teile des Traggerüstes könnten ebenso aber auch andere Materialien Verwendung finden, beispielsweise Leichtmetalle wie genügend feste Aluminiumlegierungen oder dergleichen.

Schließlich ist zu erwähnen, daß die Abmessungen der Teile des Schwimmbeckens selbstverständlich auch so gewählt werden, daß sie der Größe des Schwimmbeckens bzw. der in dieses einzufüllenden Wassermenge entsprechen bzw. die erforderliche Festigkeit sichergestellt ist.

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S C H U T Z A N S P R Ü C H E

1. Transportables zusammensetzbares Schwimmbecken, gekennzeichnet durch folgende Merkmale

a) einen Behälter (11) mit einem hohlen oberen Rand (12) und einen hohlen unteren Rand (13), die beide mit einer Anzahl von in Abständen voneinander angeordneten Öffnungen (14) versehen sind,

b) eine Anzahl von Dreiweg-Verbindungselementen (15), angeordnet in den Öffnungen (14) des oberen und den unteren hohlen Randes (12) bzw. (13) und ausgebildet mit einem querverlaufenden Rohrteil (18) und einem mit diesem verbundenen und sich mittig senkrecht dazu erstreckenden Rohrteil (19),

c) eine Anzahl von in dem hohlen oberen und unteren Rand (12) bzw. (13) angeordneten und mittels der querverlaufenden Rohrteile (18) der Dreiweg-Verbindungselemente (15) miteinander verbundenen Tragrohrelementen (16),

d) eine Anzahl von Stützrohrelementen (17), angeordnet zwischen und verbunden mit dem Rohrteil (19) je eines sich im oberen und im unteren hohlen Rand (12) bzw. (13) des Behälters (11) angeordneten Dreiweg-Verbindungselementes (15).

2. Transportables zusammensetzbares Schwimmbecken nach Anspruch 1, dadurch gekennzeichnet, daß zwischen den Rohrteilen (18) und (19) der Dreiweg-Verbindungselemente (15) Verstärkungswinkel (20) angeordnet

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sind.

3. Transportables zusammensetzbares Schwimmbecken nach Anspruch 1 oder 2, dadurch gekennzeichnet, daß die Rohrteile (16, 17, 18, 19) kreisringförmigen Querschnitt aufweisen.

4. Transportables zusammensetzbares Schwimmbecken nach einem der Ansprüche 1 bis 3, dadurch gekennzeichnet, daß die Rohrteile (16, 18) kreisförmig gebogen sind.

BAD ORIGINAL

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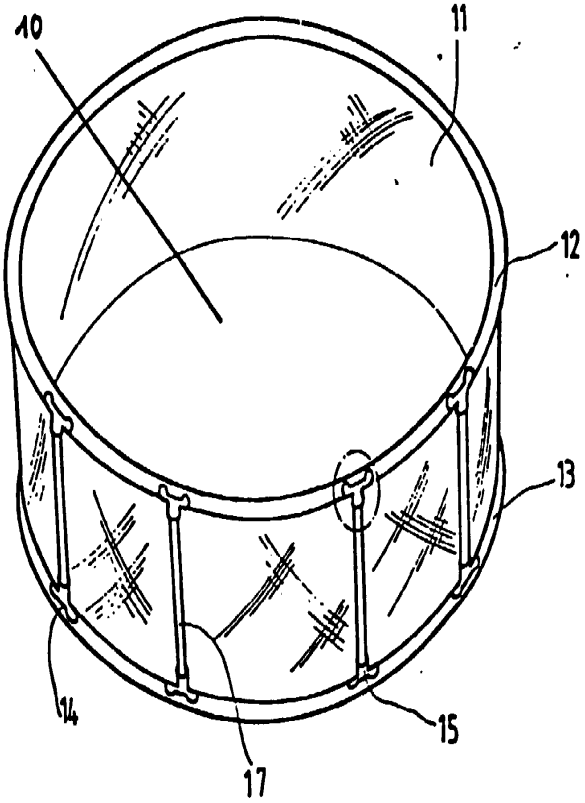


FIG-1

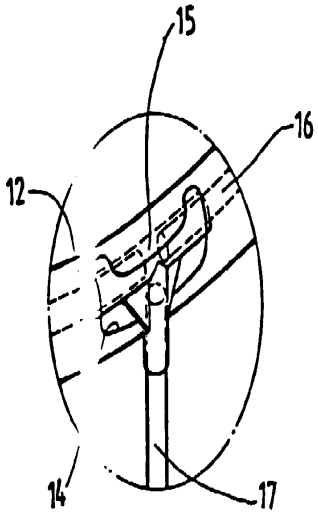


FIG-2

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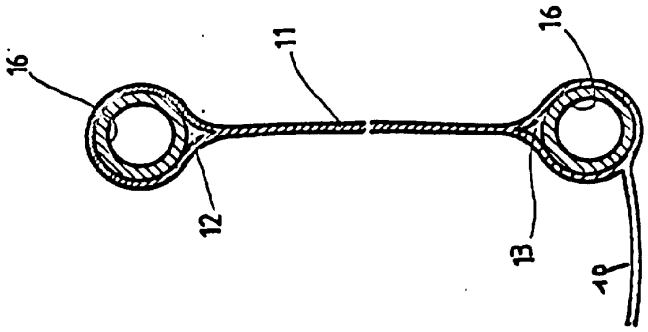


FIG-4

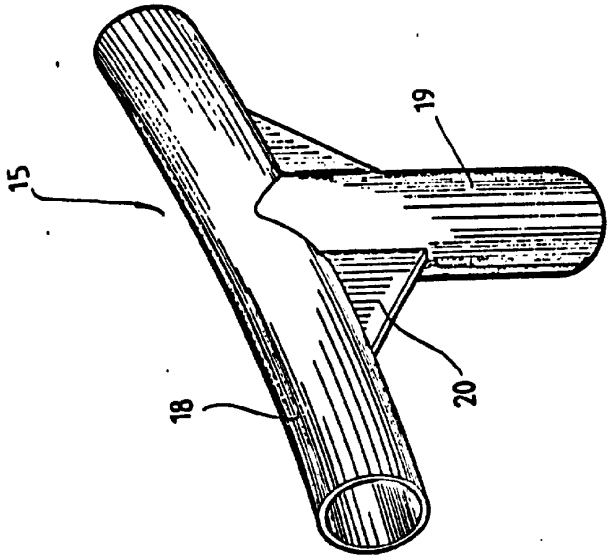


FIG-3

881057

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Abstract not available for DE9104915 (U1)

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DESCRIPTION DE9104915

Swimming pool that can be assembled using the modular principle

[0001]

The present invention relates to a modular swimming pool and in particular to a modular swimming pool which has connections and can be easily and quickly disassembled and assembled without the use of tools.

[0002]

The modular pool systems currently available on the market can be divided into inflatable swimming pools, mountable swimming pools and non-assembled swimming pools, which are described in more detail below.

[0003]

An inflatable swimming pool is a relatively expensive outdoor recreation facility due to its high manufacturing cost.

Because of its size, it can be transported quite cumbersome.

An air pump is also essential for this pool. When in use, it can collapse suddenly relatively easily when the swimmer leans against the side wall of the pool.

[0004]

The mountable swimming pool is limited to a rectangular or square shape. It is also a tiring task to disassemble or assemble the mountable swimming pool, which requires a lot of screws. The welded joints are susceptible to rust, which weakens the structure of the pool. The joints formed by plastic extrusion often have sharp edges that are dangerous for the swimmers.

[0005]

The edge portion of this swimming pool is formed by a rigid and foldable circular body, whereas the wall of the pool is made of a waterproof plastic material. This swimming pool as such has an unstable structure, the water can be easily poured out of the pool.

[0006]

The basic object of the present invention is to create a swimming pool which can be assembled on a modular basis, which supports or Has support bracket (hereinafter referred to as brackets) which engage in connections on which connecting grooves are arranged with different clamping angles. An insert groove is arranged in a position near the open end of the connection

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groove, which is used to receive the flange of the crossbar, both ends of which are received in the connection grooves of the connections. This arrangement described above can easily be carried out without the use of tools.

[0007]

It is a further object of the present invention to provide a modular swimming pool which has connections on which connecting grooves are arranged with different clamping angles, so that a polygonal construction of the swimming pool without sharp edges is possible, which affect the safety of the swimmer could.

[0008]

These tasks are solved by a swimming pool that can be assembled in a modular principle according to protection claim 1.

[0009]

The attached drawings show:

[0010]

Figure 1 is an exploded view of part of the preferred embodiment of the present invention;

[0011]

Figure 2 is an exploded view of part of another preferred embodiment of the present invention;

[0012]

Figure 3 is a plan view of Figure 1; Figure 4 is a plan view of Figure 2;

[0013]

Figure 5 is a top view of the preferred embodiment constructed with the elements shown in Figure 1;

[0014]

Figure 6 is a top plan view of the preferred embodiment constructed with the elements shown in Figure 2;

[0015]

FIG. 7: a top view of a further preferred embodiment which is constructed with the elements shown in FIG. 2 and

[0016]

Figure 8 is a three dimensional view of the preferred embodiment of this invention.

[0017]

The embodiment of the present invention shown in FIG. 1 comprises a connection 10, a holder 16 and a cross bar 18.

The connection 10 has a vertical T-shaped connection groove 24, which is arranged in its upper section.

Two corresponding insert grooves 26 are arranged at the opening of the connecting groove 24.

The connecting groove 24 of the connection 10 serves to receive the end section of the cross bar 18, the corresponding flanges 28, which are arranged at both ends, are firmly received in the corresponding insertion grooves of the connecting groove 24, as shown in FIG. 3.

For aesthetic reasons and to protect against finger injuries from the cross bar 18, a filling or

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Cover 30 arranged.

The connection 10 has a connection hole 22, which is arranged at the lower, narrower end, it serves to insert one end of the holder 16, while the other end of the holder 16 engages in the bore 20 of the support disk 14, on which ribs 32 are arranged to improve their strength and stability.

[0018]

Reference is now made to Figures 3 and 5 which show this embodiment of the present invention.

The cross bars 18 are received in the connecting grooves 24 of the connection 10, which is coupled to the holder 16.

The corresponding

[0019]

The corresponding flanges 28 of the cross bars 18 engage in the corresponding insert grooves 26 of the connecting groove 24, thus ensuring that the cross bar 18 does not slip out of the connecting groove 24.

Since the connecting groove 24 of the connection 10 has a T-shaped vertical structure, a square swimming pool can be constructed by the end of the cross bars 18 engaging in the connecting groove 24.

If a curved or rectangular swimming pool is desired, an additional cross bar 18 must be added to each of the corresponding sides or a certain number of brackets 16. The cross bars 18 must be connected linearly one after the other so that a large square or rectangular swimming pool is formed, as shown in FIG.

[0020]

Figure 2 shows a further embodiment of the present invention, the connection 12 shown comprises a concave Y-shaped connecting groove 24 which has corresponding insert grooves 26 which are arranged in the vicinity of their opening. The assembly method of this embodiment is the same as that previously described.

[0021]

Figures 4, 6 and 7 show a further embodiment of the invention, the connection 12 shown comprises a connecting groove 24 with a Y-shaped structure. Each end of the cross bar 18 engages in the connecting groove 24 of the connection 12 in the same manner as described above, so that an angle A is formed which has 120 *, so that the formation of a hexagonal structure is possible, as is shown in FIG. 6 is shown. When each end of the cross bar 18 engages the connecting groove 24 of the connector 12 to form an angle B having 135 *, an octagonal swimming pool is formed, as shown in FIG.

[0022]

It has to be emphasized here that the connecting groove 24 with a T-shaped and Y-shaped structure arranged on the connections 10 and 12 can be arranged interchangeably. If the connecting groove 24 of the connection 10 has a T-shaped

[0023]

a square or rectangular swimming pool can be built. If the connecting groove 24 of the connection 12 has a Y-shaped structure and the angles formed 120 * or 135 *, a hexagonal or an octagonal swimming pool can be built. If the two angles formed by the Y-shaped connecting groove 24 of the connection 12 have different sizes, two different types of polygonal swimming pools can be produced. In other words, the shape of the swimming pool that is built depends on the change in the angles formed by the connecting grooves 24 of the connections 10 and 12. Thus, the swimming pools embodied by the present invention can be easily constructed with different shapes according to the personal imagination and the size of the place where the swimming pool is to be located.

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CLAIMS DE9104915

Protection claims

1.

Swimming pool that can be assembled using the modular principle, characterized by a connection (10), on which connection grooves (24) are arranged with different clamping angles, the connection being connected to a holder (16) which comprises connection groove (24) insert grooves (26), which are arranged near their opening and are adapted to the flanges (28) which are arranged at the ends of the crossbars (18).

2.

Swimming pool which can be assembled according to the modular principle according to claim 1, characterized in that a plurality of cross bars (18) and connections (10) are arranged on the corresponding sides of the swimming pool.

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(54) Bezeichnung des Gegenstandes
Im Baukastenprinzip zusammensetzbarer Swimming Pool

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Im Baukastenprinzip zusammensetzbarer Swimming Pool

Die vorliegende Erfindung bezieht sich auf einen im Baukastenprinzip zusammensetzbaren Swimming Pool und insbesondere auf einen im Baukastenprinzip zusammensetzbaren Swimming Pool, der Verbindungen aufweist und einfach und schnell, ohne Verwendung von Werkzeug auseinander- und zusammengebaut werden kann.

Die gegenwärtig auf dem Markt erhältlichen im Baukastenprinzip zusammensetzbaren Swimming Pools können in aufblasbare Swimming Pools, montierbare Swimming Pools und nicht zusammenbaubare Swimming Pools unterteilt werden, die nachfolgend ausführlicher beschrieben werden.

Ein aufblasbarer Swimming Pool ist aufgrund seiner hohen Herstellungskosten eine relativ teure Einrichtung zur Erholung im Freien. Aufgrund seiner Größe läßt er sich ziemlich umständlich transportieren. Außerdem ist für diesen Pool unbedingt eine Luftpumpe erforderlich. Bei Verwendung kann er relativ leicht plötzlich zusammenklappen, wenn sich der Schwimmer gegen die Seitenwand des Pools lehnt.

Der montierbare Swimming Pool ist auf eine rechtwinklige oder quadratische Form begrenzt. Es ist außerdem eine ermüdende Aufgabe, den montierbaren Swimming Pool, der eine Menge Schrauben benötigt, auseinander- oder zusammenzubauen. Die Schweißverbindungen sind rostanfällig, dies schwächt die Struktur des Pools. Die durch Kunststoffextrusion gebildeten Verbindungen weisen oft scharfe Kanten auf, die für die Schwimmer gefährlich sind.

Der Randabschnitt dieses Swimming Pools wird von einem starren und faltbaren kreisförmigen Körper gebildet, wohingegen die Wand des Pools aus einem wasserdichten Kunststoffmaterial besteht. Dieser Swimming Pool als solcher weist eine instabile Struktur auf, das Wasser kann leicht aus dem Pool ausgeschüttet werden.

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Die grundlegende Aufgabe der vorliegenden Erfindung besteht in der Schaffung eines im Baukastenprinzip zusammensetzbaren Swimming Pools, der Halterungen bzw. Stützträger (nachfolgend als Halterungen bezeichnet) aufweist, die in Verbindungen eingreifen, auf denen Verbindungsnuten mit unterschiedlichen Klemmwinkeln angeordnet sind. Eine Einsatznut ist in einer Position in der Nähe des offenen Endes der Verbindungsnut angeordnet, die zur Aufnahme des Flansches des Querstabs dient, dessen beide Enden in den Verbindungsnuten der Verbindungen aufgenommen werden. Diese oben beschriebene Anordnung kann leicht, ohne Zuhilfenahme von Werkzeug, vorgenommen werden.

Es ist weiterhin Aufgabe der vorliegenden Erfindung, einen im Baukastenprinzip zusammensetzbaren Swimming Pool zu schaffen, der Verbindungen aufweist, auf denen Verbindungsnuten mit unterschiedlichen Klemmwinkeln angeordnet sind, so daß ein polygonaler Aufbau des Swimming Pools ohne scharfe Kanten möglich wird, die die Sicherheit des Schwimmers beeinträchtigen könnten.

Diese Aufgaben werden durch einen im Baukastenprinzip zusammensetzbaren Swimming Pool gemäß dem Schutzanspruch 1 gelöst.

Die beigefügten Zeichnungen zeigen:

Figur 1: eine auseinandergezogene Darstellung eines Teils der bevorzugten Ausführungsform der vorliegenden Erfindung;

Figur 2: eine auseinandergezogene Darstellung eines Teils einer weiteren bevorzugten Ausführungsform der vorliegenden Erfindung;

Figur 3: eine Draufsicht von Figur 1;

Figur 4: eine Draufsicht von Figur 2;

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Figur 5: eine Draufsicht der bevorzugten Ausführungsform, die mit den in Figur 1 gezeigten Elementen aufgebaut ist;

Figur 6: eine Draufsicht der bevorzugten Ausführungsform, die mit den in Figur 2 gezeigten Elementen aufgebaut ist;

Figur 7: eine Draufsicht einer weiteren bevorzugten Ausführungsform die mit den in Figur 2 gezeigten Elementen aufgebaut ist und

Figur 8: eine dreidimensionale Ansicht der bevorzugten Ausführungsform dieser Erfindung.

Die in Figur 1 gezeigte Ausführungform der vorliegenden Erfindung umfaßt eine Verbindung 10, eine Halterung 16 und einen Querstab 18. Die Verbindung 10 weist eine senkrechte T-förmige Verbindungsnut 24 auf, die in ihrem oberen Abschnitt angeordnet ist. An der Öffnung der Verbindungsnut 24 sind zwei entsprechende Einsatznuten 26 angeordnet. Die Verbindungsnut 24 der Verbindung 10 dient der Aufnahme des Endabschnittes des Querstabes 18, dessen entsprechende Flansche 28, die an beiden Enden angeordnet sind, fest in den entsprechenden Einsatznuten 26 der Verbindungsnut 24 aufgenommen werden, wie es in Figur 3 gezeigt ist. Aus ästhetischen Gründen und zum Schutz vor Fingerverletzungen durch den Querstab 18 ist an einem Ende des Querstabes 18 eine Füllung bzw. Abdeckung 30 angeordnet. Die Verbindung 10 weist ein Verbindungsloch 22 auf, das am unteren schmaleren Ende angeordnet ist, es dient dem Einsetzen von einem Ende der Halterung 16, während das andere Ende der Halterung 16 in die Bohrung 20 der Stützscheibe 14 eingreift, auf der Rippen 32 angeordnet sind, um deren Festigkeit und Stabilität zu verbessern.

Es wird nun auf die Figuren 3 und 5 Bezug genommen, die diese Ausführungsform der vorliegenden Erfindung zeigen. Die Querstäbe 18 sind in den Verbindungsnuten 24 der Verbindung 10 aufgenommen, die mit der Halterung 16 gekoppelt ist. Die entspre-

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chenden Flansche 28 der Querstäbe 18 greifen in die entsprechenden Einsatznuten 26 der Verbindungsnut 24 ein, somit wird gesichert, daß der Querstab 18 nicht aus der Verbindungsnut 24 herausrutscht. Da die Verbindungsnut 24 der Verbindung 10 einen T-förmigen senkrechten Aufbau aufweist, kann ein quadratischer Swimming Pool aufgebaut werden, indem das Ende der Querstäbe 18 in die Verbindungsnut 24 eingreift. Wenn ein kurvenförmiger oder rechtwinkliger Swimming Pool gewünscht wird, muß ein zusätzlicher Querstab 18 an jede der entsprechenden Seiten oder eine bestimmte Anzahl von Halterungen 16 angefügt werden. Die Querstäbe 18 müssen hintereinander linear verbunden werden, so daß ein großer quadratischer oder rechtwinkliger Swimming Pool entsteht, wie es in Figur 8 gezeigt ist.

Figur 2 zeigt eine weitere Ausführungsform der vorliegenden Erfindung, dabei umfaßt die gezeigte Verbindung 12 eine konkave Y-förmige Verbindungsnut 24, die entsprechende Einsatznuten 26 aufweist, die in der Nähe ihrer Öffnung angeordnet sind. Das Zusammenbauverfahren dieser Ausführungsform ist das gleiche wie bei der vorher beschriebenen.

Figuren 4, 6 und 7 zeigen eine weitere Ausführungsform der Erfindung, die gezeigte Verbindung 12 umfaßt eine Verbindungsnut 24 mit Y-förmigem Aufbau. Jedes Ende des Querstabes 18 greift in die Verbindungsnut 24 der Verbindung 12 in der gleichen Weise wie oben beschrieben ein, so daß ein Winkel A gebildet wird, der 120° aufweist, so daß die Ausbildung eines hexagonalen Aufbaus ermöglicht wird, wie es in Figur 6 gezeigt ist. Wenn jedes Ende des Querstabes 18 in die Verbindungsnut 24 der Verbindung 12 eingreift, so daß ein Winkel B gebildet wird, der 135° aufweist, wird ein oktagonaler Swimming Pool gebildet, wie es in Figur 7 gezeigt ist.

Es muß hier hervorgehoben werden, daß die auf den Verbindungen 10 bzw. 12 angeordnete Verbindungsnut 24 mit T-förmigem und Y-förmigem Aufbau untereinander austauschbar angeordnet werden kann. Wenn die Verbindungsnut 24 der Verbindung 10 einen T-för-

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migen Aufbau aufweist, kann ein quadratischer oder rechtwinkliger Swimming Pool aufgebaut werden. Wenn die Verbindungsnut 24 der Verbindung 12 einen Y-förmigen Aufbau aufweist und die gebildeten Winkel 120° bzw. 135° aufweisen, kann ein hexagonaler oder ein oktagonaler Swimming Pool gebaut werden. Wenn die beiden Winkel, die durch die Y-förmige Verbindungsnut 24 der Verbindung 12 gebildet werden, unterschiedliche Größen aufweisen, können zwei unterschiedliche Arten polygonaler Swimming Pools gefertigt werden. Mit anderen Worten: Die Form des aufgebauten Swimming Pools hängt von der Veränderung der Winkel ab, die durch die Verbindungsnuten 24 der Verbindungen 10 und 12 gebildet werden. Somit können die durch die vorliegende Erfindung verkörperten Swimming Pools entsprechend der persönlichen Vorstellung und der Größe des Platzes, wo der Swimming Pool angeordnet werden soll, leicht mit unterschiedlichen Formen aufgebaut werden.

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Schutzansprüche

1. Im Baukastenprinzip zusammensetzbarer Swimming Pool, g e - k e n n z e i c h n e t durch eine Verbindung (10), auf der Verbindungnuten (24) mit unterschiedlichen Klemmwinkeln angeordnet sind, wobei die Verbindung mit einer Halterung (16) verbunden ist, die Verbindungsnut (24) Einsatznuten (26) umfaßt, die in der Nähe ihrer Öffnung angeordnet sind und den Flanschen (28) angepaßt sind, die an den Enden der Querstäbe (18) angeordnet sind.

2. Im Baukastenprinzip zusammensetzbarer Swimming Pool nach Anspruch 1, dadurch g e k e n n z e i c h n e t , daß auf den ensprechenden Seiten des Swimming Pools eine Vielzahl von Querstäben (18) und Verbindungen (10) angeordnet sind.

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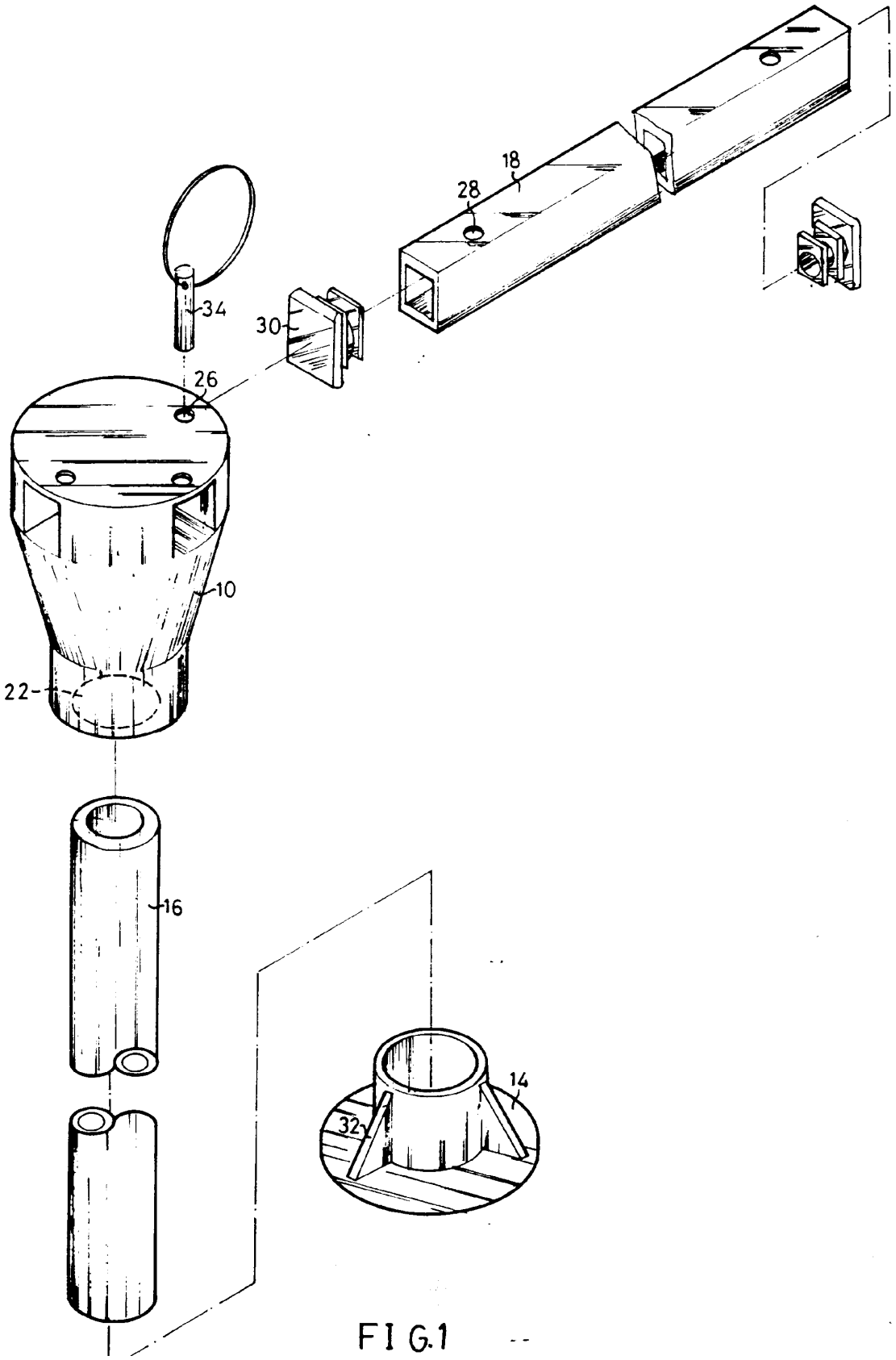


FIG.1

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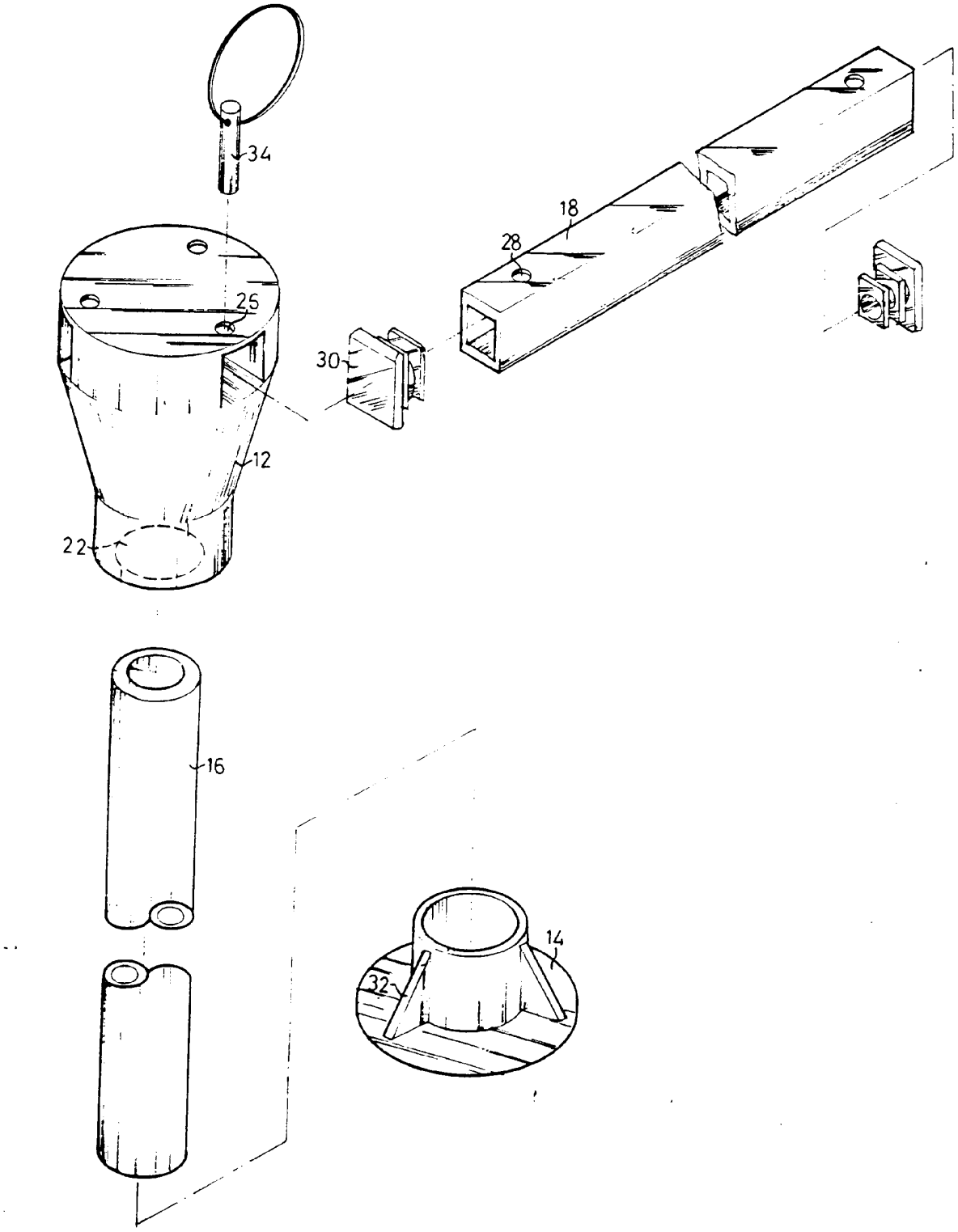


FIG.2

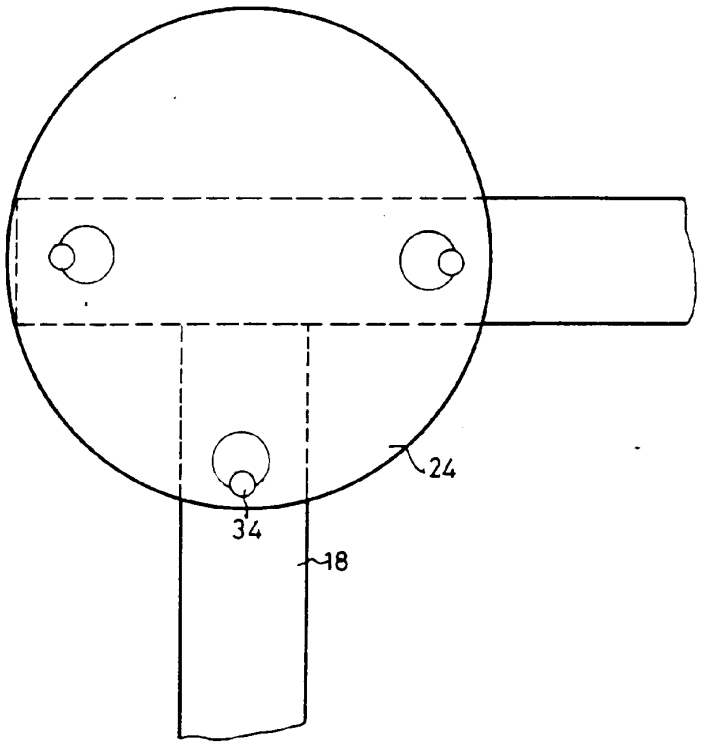


FIG. 3

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22-04-91

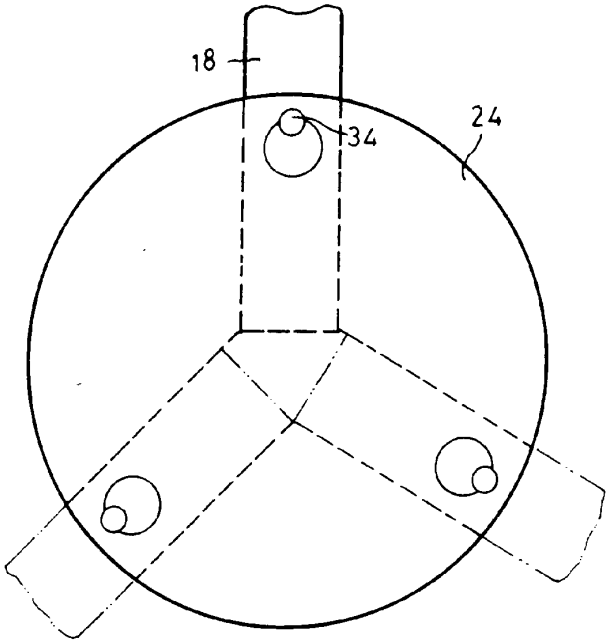


FIG. 4

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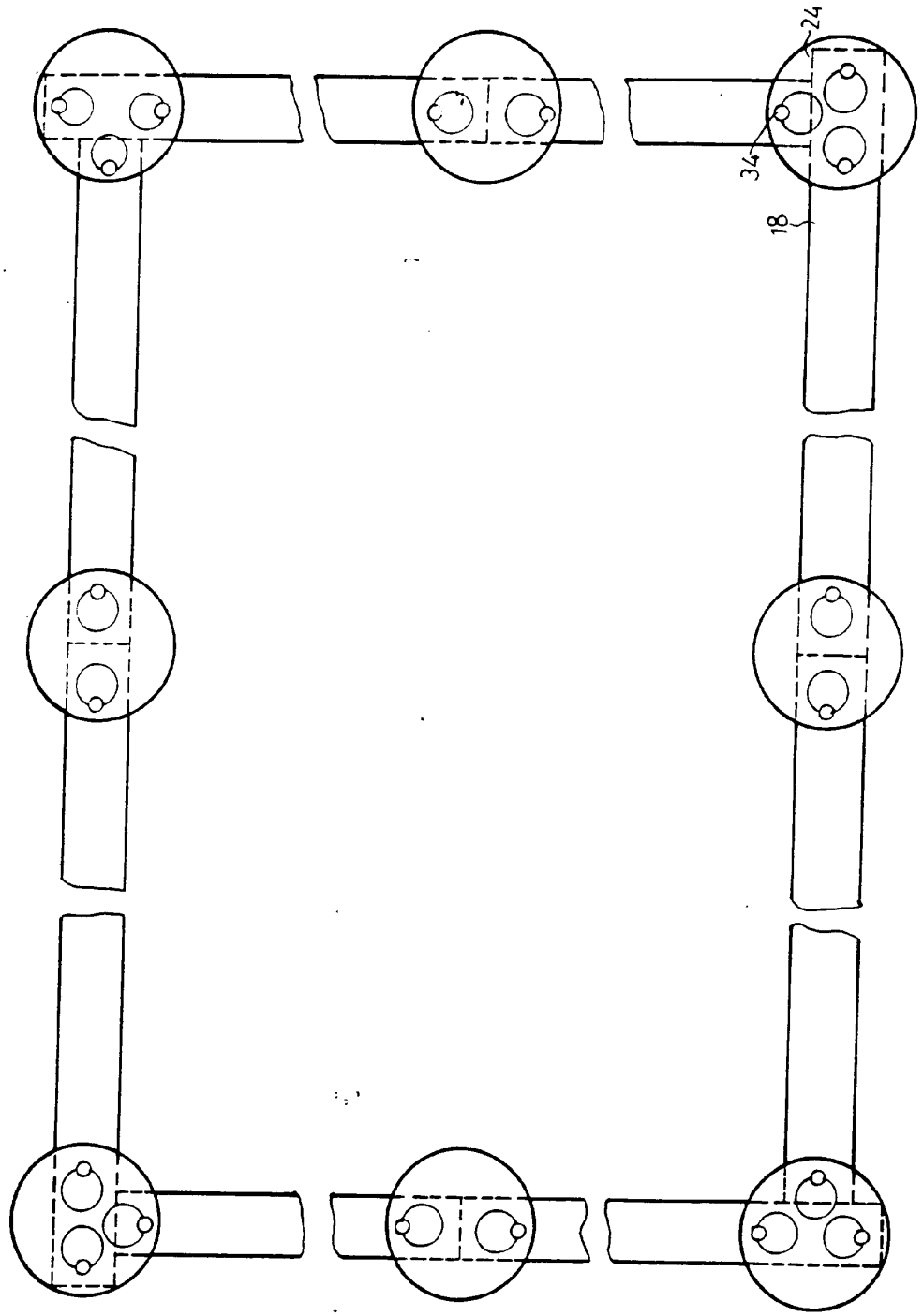


FIG.5

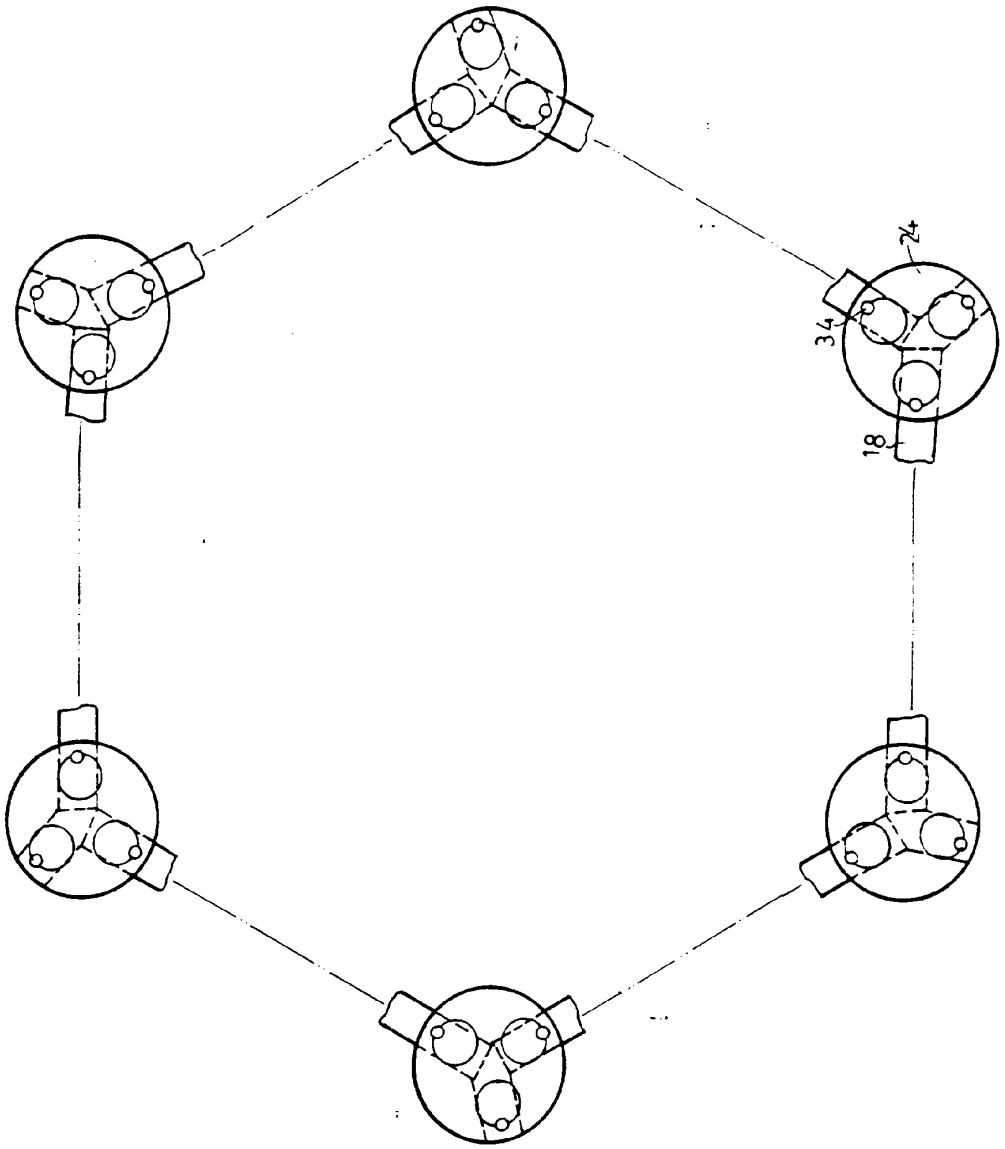


FIG.6

22.04.01

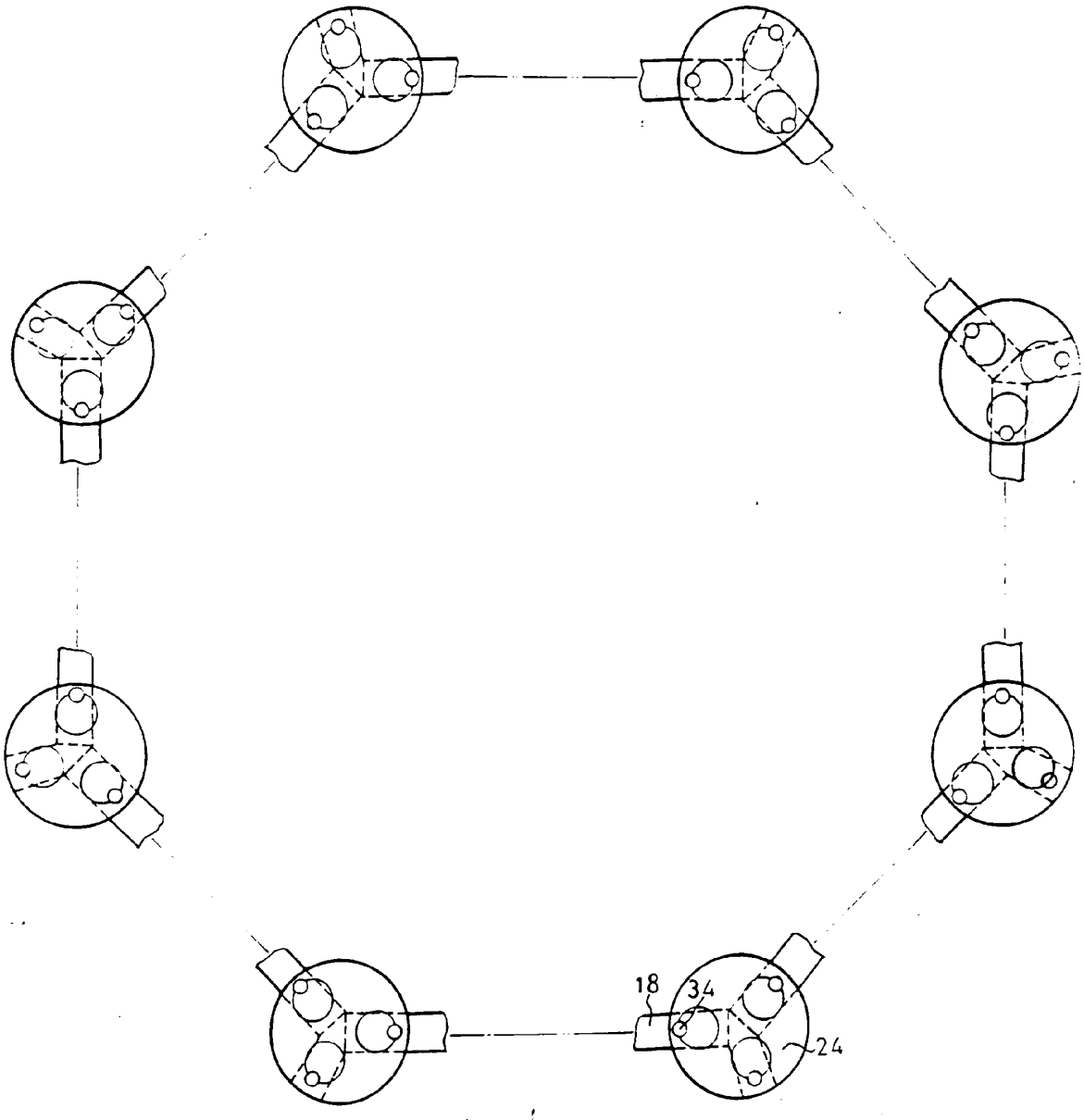


FIG.7

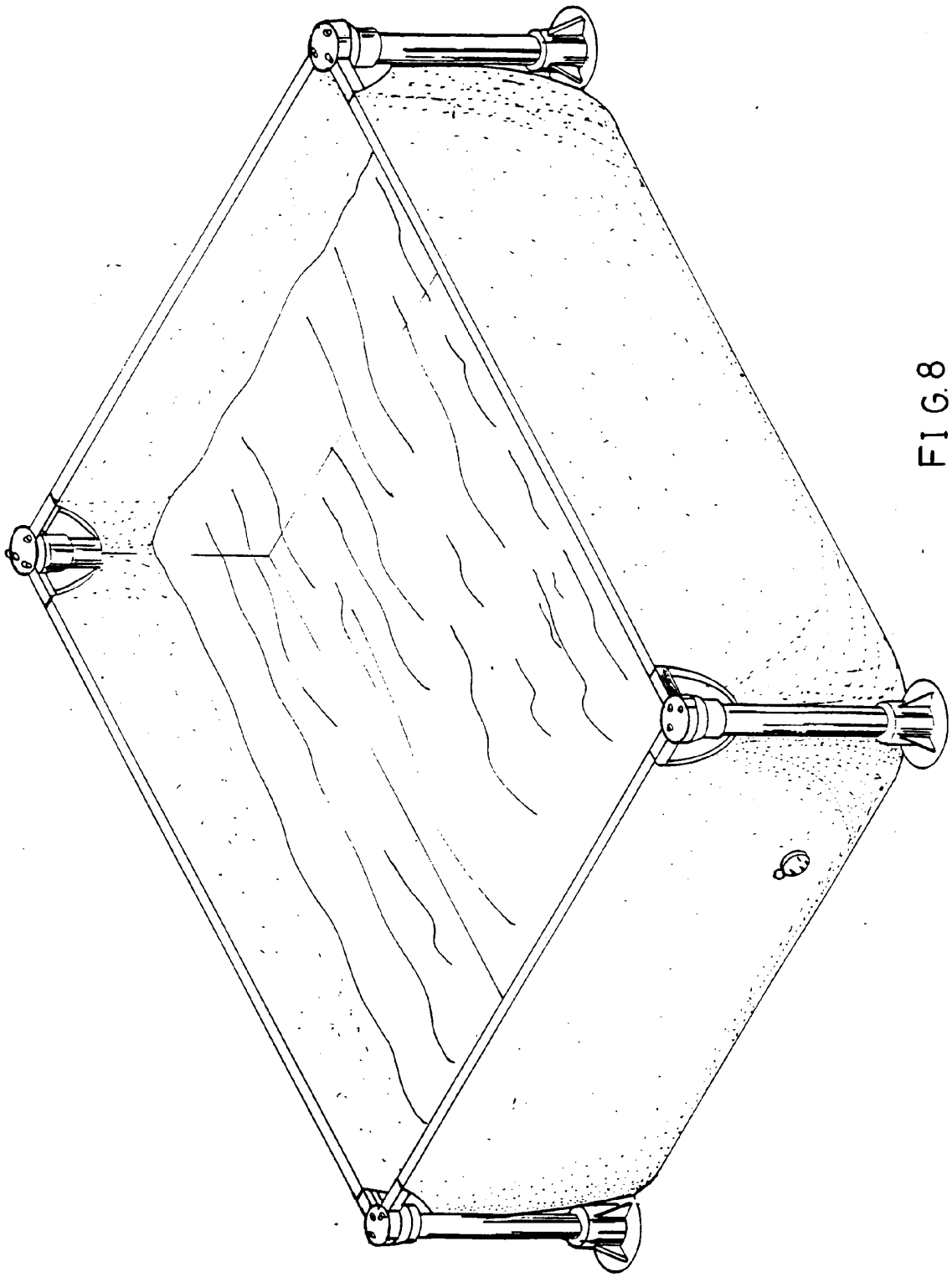


FIG.8

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N Application:	201502321	Application date:	08/19/2015
Publication date:	07/29/2016	State:	Abandoned
N Patent Registration:		Registration date:	
Type of request:	Invention Patent		
Priority:			
IPC Ratings (5):	E04H4 / 00 E04H4 / 04		

Title or Subject of the Request

MODULAR PREFABRICATED POOL

Summary

MODULAR PREFABRICATED SWIMMING POOL INCLUDING TWO OR MORE CORNER MODULES, TWO OR MORE CENTRAL MODULES, TWO OR MORE ACCESS CORNER MODULES, IN WHICH SUCH MODULES ARE ASSEMBLED BY MEANS OF BOLTS AND SEALED CAVITIES WITH A SIMILAR EPISODE MORTAR, SEALED WITH A SIMILAR MORTARED MORTAR WITH A MORING EITHER. COMPLEMENTED WITH THE EPOXIC SEAL OR SIMILAR ON ALL THE SURFACE JOINTS OF THE MODULES ALREADY CONNECTED; PROCESS.

Applicant

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Commune:	Rancagua

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Administrative Instances

Date	Description	Observations
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07/21/2016	Publication payment made (Official Gazette)	
07/29/2016	Publication in the Official Gazette (new law)	
10/12/2016	Resolution of warning of payment of expert fee (new law)	
02/02/2017	Resolution of abandonment due to non-payment of expert fee	
04/08/2017	Resolution of definitive abandonment due to non-payment of expert fee	

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BESTWAY EX. 1003; Pg 290
Bestway v. Intex PGR2024-00036

Publication Number: DE 19904335 A1
Publication Date: Aug 05, 1999

Abstract

A frame is provided for the suspension of a flexible bath for filling with water. The horizontal bearers (2) are divided into individual sections (8,7) with devices for connecting them together, so that the dismantled sides with their packing have the smallest possible dimensions. The devices for the connection of the sections of the bearers are of the insert type. One section (7) has an end piece of reduced diameter, which can be inserted in an end piece of the other section (8). Alternatively, the individual sections can have the same diameter throughout and the connecting devices are formed as bushes insertable in the end pieces of two sections.

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(19) BUNDESREPUBLIK DEUTSCHLAND

DEUTSCHES PATENT- UND MARKENAMT

(12) **Offenlegungsschrift**

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(51) Int. Cl.[6]: E 04 H 4/04

(21) Aktenzeichen: 199 04 335.3
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Die folgenden Angaben sind den vom Anmelder eingereichten Unterlagen entnommen

(54) Zerlegbares Schwimm- oder Planschbecken

(57) Eine Anzahl senkrechter Stützen und waagerechter Träger sind an ihren Enden über Armaturen miteinander verbindbar, um ein Gestell für die Aufhängung einer mit Wasser zu füllenden flexiblen Wanne zu bilden. Die Träger sind in einzelne, mit Einrichtungen für die Verbindung miteinander versehene Abschnitte unterteilt, so daß das zerlegte Becken mit seiner Verpackung geringstmögliche Abmessungen aufweist. Die Einrichtungen zum Verbinden der Abschnitte miteinander sind vorzugsweise als Steckverbinder ausgebildet.

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Beschreibung

Die Erfindung bezieht sich auf ein zerlegbares Schwimm- oder Planschbecken.

Ein Ziel der Erfindung ist die Schaffung eines solchen Beckens, welches in zerlegtem und in einem Behältnis verpacktem Zustand möglichst kleine Abmessungen aufweist, um damit die Lagerung des zerlegten und verpackten Bekkens sowie auch seinen Transport vom Hersteller zu Verkaufsstellen und von dort zu einzelnen Kunden zu erleichtern.

Ein weiteres Ziel der Erfindung ist die Schaffung von Verbindungsarmaturen, welche zum Verbinden von Profilen mit kreisförmigem, quadratischem oder anders gestaltetem Querschnitt einsetzbar sind.

Es sind zerlegbare Schwimm- oder Planschbecken bekannt, welche ein aus senkrechten Stützen und waagerechten Trägern gebildetes Gestell als Aufhängung für eine mit Wasser zu füllende flexible Wanne aufweisen.

Diese Becken haben den Nachteil, daß die waagerechten Träger eine beträchtliche Länge aufweisen und dementsprechend Verpackungen von großen Abmessungen benötigen, was zu beträchtlichen Schwierigkeiten bei der Lagerung dem Produkts sowie auch beim Transport desselben führt und die Verwendung von genormten Paletten z. B. für internationale Transporte ausschließt.

Um die genannten Ziele zu erreichen und die vorstehend erläuterten Mängel zu beseitigen, ist bei einem zerlegbaren Schwimm- oder Planschbecken der eingangs genannten Art gemäß der Erfindung vorgesehen, daß die waagerechten Träger in einzelne, mit Einrichtungen für ihre Verbindung miteinander versehene Abschnitte unterteilt sind, so daß das zerlegte Becken mit seiner Verpackung geringstmögliche Abmessungen aufweist.

Die Einrichtungen für die Verbindung der Abschnitte miteinander sind vorzugsweise als Steckverbindungen ausgebildet, wobei der eine Abschnitt ein ausreichend langes Endstück verringerten Durchmessers aufweist, welches in ein Endstück des anderen Abschnitts einsteckbar ist. Dadurch hat der aus den, Abschnitten zusammengefügte Träger im wesentlichen die gleiche Steifigkeit wie ein einstückiger Träger von entsprechender Länge, es ergibt sich jedoch der Vorteil, daß die Abmessungen des zerlegten Beckens in seiner Verpackung beträchtlich verringert sind.

In einer anderen Ausführungsform ist für die Steckverbindung eine in einander zugewandte Endstücke zweier Abschnitte einsteckbare Buchse vorgesehen.

Die Armaturen für die Verbindung der Träger mit den Stützen sind an der Innenseite vorzugsweise mit sich längs erstreckenden, radial einwärts stehenden Stegen gleicher Höhe versehen, so daß es möglich ist, Profile mit kreisförmigem, quadratischem oder sonstwie gestaltetem Querschnitt einzustecken.

Unabhängig davon, ob für die Stützen und Träger des Gestells Profile mit kreisförmigem, quadratischem oder sonstwie gestaltetem Querschnitt verwendet werden, finden in jedem Falle die Steckverbindungen zwischen den Abschnitten der Träger Verwendung, so daß die Abmessungen des zerlegten Beckens stets beträchtlich kleiner sind als im Falle eines herkömmlichen Schwimmbeckens mit einstückig ausgebildeten Trägern.

Im folgenden sind Ausführungsbeispiele der Erfindung anhand der Zeichnungen erläutert. Es zeigen:

Fig. 1 eine Schrägansicht eines zerlegbaren Schwimm- oder Planschbeckens in einer Ausführungsform der Erfindung in aufgebautem Zustand, mit einem Ausschnitt zur Darstellung einer Steckverbindung zwischen zwei Abschnitten eines Trägers,

Fig. 2 eine Längsschnittansicht der Steckverbindung zwischen zwei Abschnitten eines Trägers des in **Fig.** 1 dargestellten Beckens,

Fig. 3 eine Querschnittansicht einer Verbindungsarmatur im Gestell des Beckens mit einem eingesteckten Profil kreisförmigen Querschnitts,

Fig. 4 eine **Fig.** 3 entsprechende Schnittansicht einer Armatur mit einem eingesteckten Profil quadratischen Querschnitts,

Fig. 5 eine Schrägansicht einer Buchse zum Herstellen einer Steckverbindung in einer anderen Ausführungsform der Erfindung, und

Fig. 6 eine Längsschnittansicht einer mit Hilfe der Buchse nach **Fig.** 5 hergestellten Steckverbindung zweier Abschnitte.

Ein in einer Ausführungsform der Erfindung in **Fig.** 1 dargestelltes zerlegbares Schwimm- oder Planschbecken hat ein Gestell aus senkrechten Stützen **1** und waagerechten Trägern **2**, welche durch Einstecken ihrer jeweiligen Endstücke in Verbindungsarmaturen **3** miteinander verbunden sind.

Vor dem Zusammenfügen der Stützen **1** und Träger **2** sind die Träger **2** in eine schlauchartige Hohlnaht **4** an den oberen Rändern einer flexiblen Wanne **5** eingezogen, so daß dann das aus den Stützen **1**, den Trägern **2** und den Armaturen **3** gebildete Gestell das Gewicht der Wanne **5** und des in diese eingefüllten Wassers **6** trägt.

Soweit bisher beschrieben, ist der Aufbau des zerlegbaren Schwimm- oder Planschbeckens bekannt. Ein besonderes Merkmal der Erfindung besteht nun darin, daß jeder Träger **2** in mehrere, über Steckverbindungen miteinander verbindbare Abschnitte unterteilt ist. Im dargestellten Beispiel setzt sich jeder Träger **2** aus zwei Abschnitten **7** und **8** zusammen.

Von diesen hat der eine Abschnitt **7** ein ausreichend langes Endstück **9** verringerten Durchmessers, welches in satter Passung in ein Endstück des anderen Abschnitts **8** einsteckbar ist, um eine Steckverbindung **10** zu bilden, welche dem so zusammengesetzten Träger **2** eine Steifigkeit verleiht, welche im wesentlichen der eines einstückigen Trägers entspricht. Die äußeren Endstücke der Abschnitte **7** und **8** sind in gewohnter Weide in die Armaturen **3** eingesteckt.

In anderen Ausführungsformen können die Träger **2** zwar in mehr als zwei über Steckverbindungen miteinander verbindbare Abschnitte unterteilt sein, die dargestellte Unterteilung in zwei Abschnitte **7** und **8** erbringt jedoch bereits eine ausreichende Verringerung der Abmessungen des zerlegten Beckens entsprechend dem eingangs genannten Ziel der Erfindung.

Die Steckverbindung zwischen den Abschnitten **7** und **8** findet Anwendung bei Abschnitten mit kreisförmigem, quadratischem oder sonstwie gestaltetem Querschnitt.

Gemäß einem weiteren Merkmal der Erfindung sind die Verbindungsarmaturen **3** an der Innenseite mit sich längs erstreckenden, radial einwärts ragenden Stegen **11** gleicher Höhe versehen. Diese Stege **11** ermöglichen eine Verbindung mit Trägern **2** sowohl von kreisförmigem als auch von quadratischem oder sonstwie gestaltetem Querschnitt, wie in **Fig.** 3 und 4 dargestellt, wobei ein Träger **12** von quadratischem Querschnitt gegen Verdrehen um seine Achse gesichert ist.

In einer anderen Ausführungsform finden Trägerabschnitte **8** von durchgehend gleichbleibendem Durchmesser Verwendung, welche über in ihre einander zugewandten Endstücke eingesteckte Buchse **13** miteinander verbunden sind, wie in Fig **5** und **6** dargestellt.

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Patentansprüche

1. Zerlegbares Schwimm- oder Planschbecken mit einer Anzahl von senkrechten Stützen und waagerechten Trägern, welche an ihren Enden mittels Armaturen verbindbar sind und ein Gestell für die Aufhängung einer mit Wasser zu füllenden flexiblen Wanne bilden, **dadurch gekennzeichnet**, daß die waagerechten Träger (**2**) in einzelne, mit Einrichtungen für die Verbindung miteinander versehene Abschnitte (**7**, **8**) unterteilt sind, so daß das zerlegte Backen mit seiner Verpackung geringstmögliche Abmessungen aufweist.

2. Zerlegbares Schwimm- oder Planschbecken nach Anspruch 1, dadurch gekennzeichnet, daß die Einrichtungen für die Verbindung der Abschnitte (**7**, **8**) der Träger (**2**) miteinander als Steckverbindungen ausgebildet sind.

3. Zerlegbares Schwimm- oder Planschbecken nach Anspruch 2, dadurch gekennzeichnet, daß ein Abschnitt (**7**) ein Endstück (**9**) verringerten Durchmessers aufweist, welches in ein Endstück des anderen Abschnitts (**8**) einsteckbar ist.

4. Zerlegbares Schwimm- oder Planschbecken nach Anspruch 1, dadurch gekennzeichnet, daß jedem Träger (**2**) in zwei einzelne Abschnitte (**7**, **8**) unterteilt ist.

5. Zerlegbares Schwimm- oder Planschbecken nach Anspruch 1, dadurch gekennzeichnet, daß die Armaturen (**3**) in ihren Verbindungsbereichen an der Innenseite mit sich längs erstreckenden, radial einwärts stehenden Stegen (**11**) gleicher Höhe versehen sind, so daß Träger (**2**) mit kreisförmigem Querschnitt sowie auch Träger (**12**) mit quadratischem oder anderem Querschnitt darin einsteckbar sind.

6. Zerlegbares Schwimm- oder Planschbecken nach Anspruch 1, dadurch gekennzeichnet, daß die einzelnen Abschnitte (**8**) durchgehend gleichen Durchmesser aufweisen und daß die Verbindungseinrichtungen als in die Endstücke zweier Abschnitte einsteckbare Buchsen (**13**) ausgebildet sind.

Hierzu 3 Seite(n) Zeichnungen

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Nummer: **DE 199 04 335 A1**
Int. Cl.[6]: **E 04 H 4/04**
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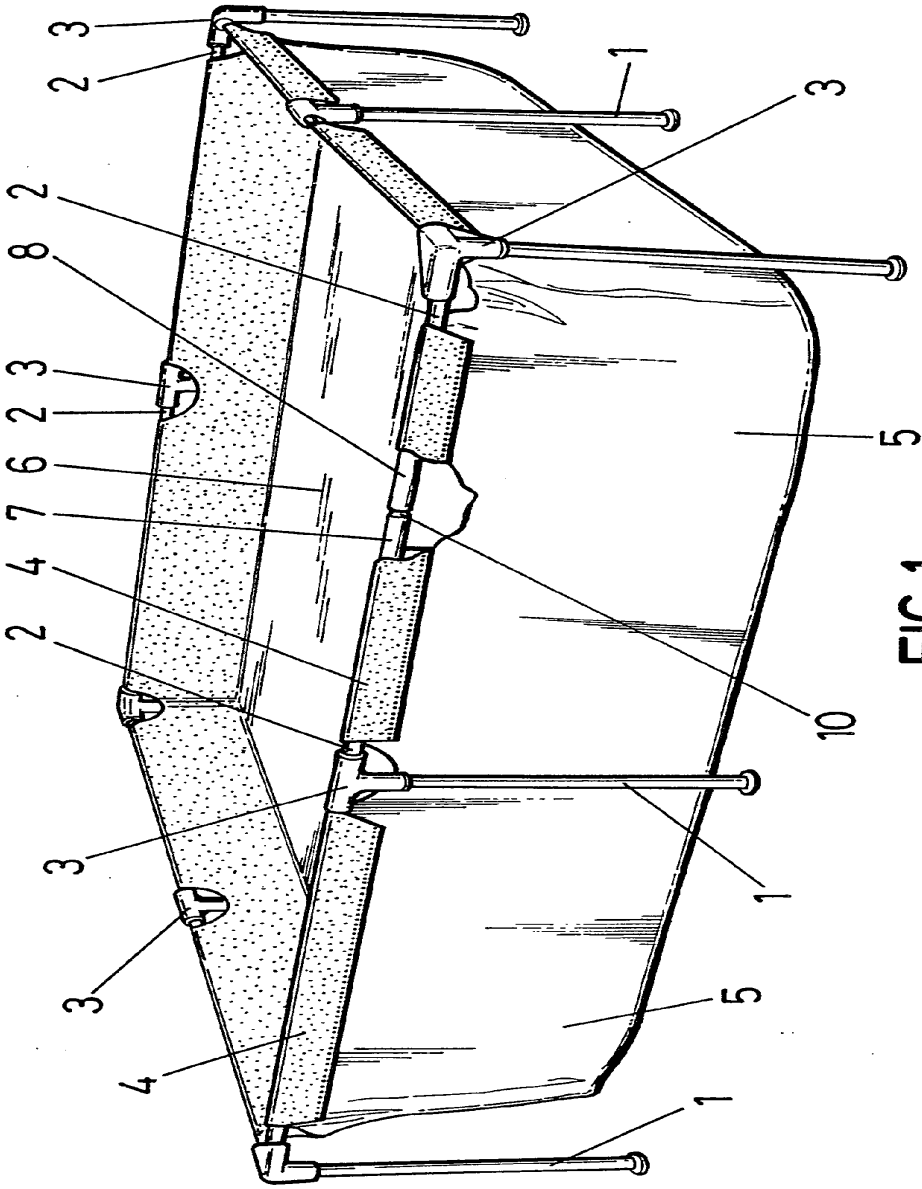


FIG.1

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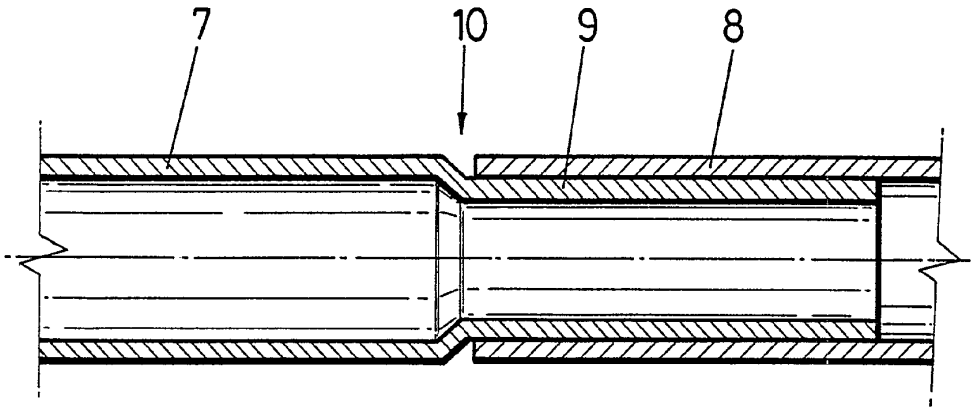


FIG. 2

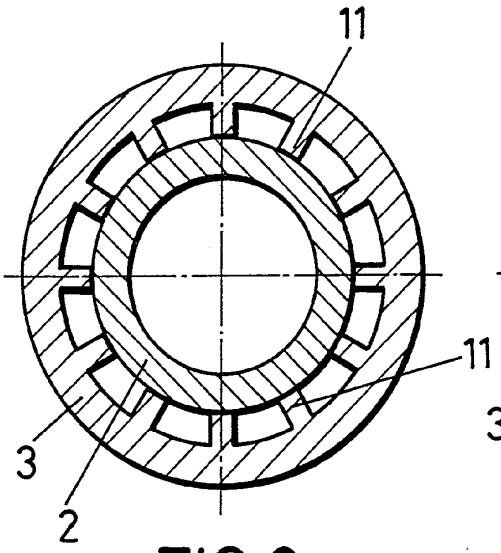


FIG. 3

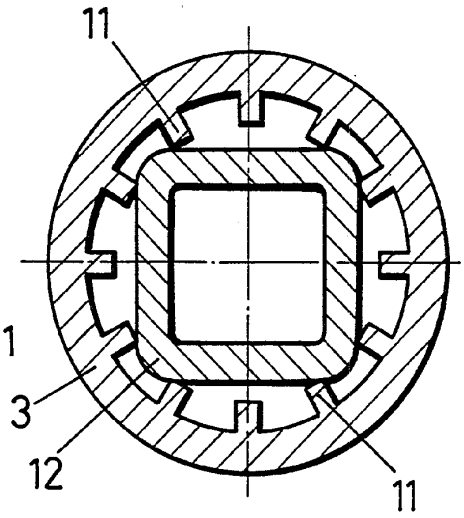


FIG. 4

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Int. Cl.[6]: **E 04 H 4/04**
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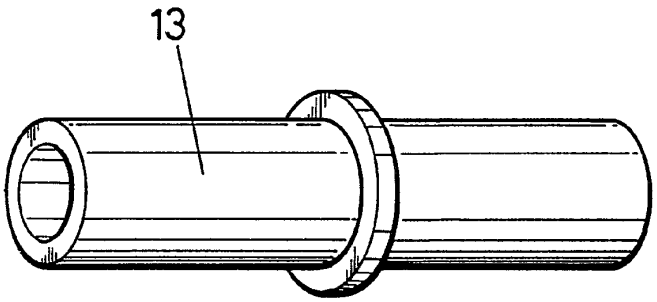


FIG. 5

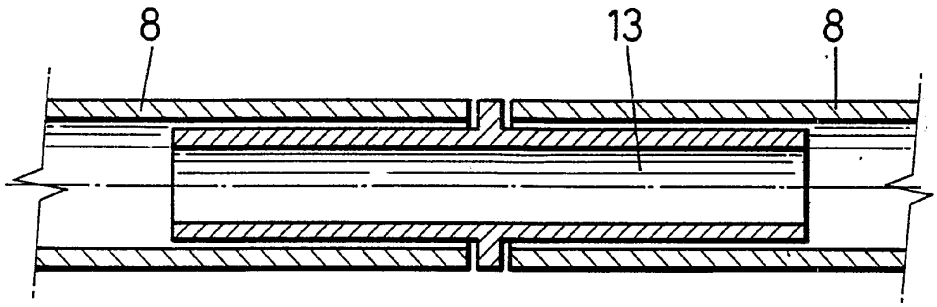


FIG. 6

BESTWAY EX. 1003; Pg 297
Bestway v. Intex PGR2024-00036

Publication Number: FR 2774416 A1
Publication Date: Aug 06, 1999

Abstract

<P> Improved removable pool. It has vertical legs (1) and horizontal rails (2), connected at their ends with pieces or knots (3), thus forming a structure which supports a container flexible (5), containing the corresponding water (6). The crosspieces (2) mentioned are divided into independent sections (7 and 8) which have means of joining together, in order to facilitate a reduced volume occupancy of the folded swimming pool and introduced in its packaging. The joining means preferably consist of an interlocking between the sections mentioned (7 and 8). </P>

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(51) Int Cl[6] : **E 04 H 4/04,** E 04 H 4/14

(12) DEMANDE DE BREVET D'INVENTION A1

(22) **Date de dépôt :** 03.02.99.

(30) **Priorité :** 04.02.98 ES 09800304.

(43) **Date de mise à la disposition du public de la demande :** 06.08.99 Bulletin 99/31.

(56) **Liste des documents cités dans le rapport de recherche préliminaire :** *Ce dernier n'a pas été établi à la date de publication de la demande.*

(60) **Références à d'autres documents nationaux apparentés :**

(71) **Demandeur(s) :** *TORRENTE INDUSTRIAL S.L.* — ES.

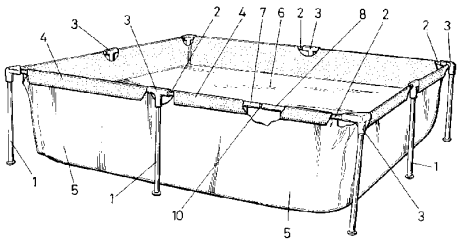
(72) **Inventeur(s) :** AGUILAR DE KEGEL DIMAS.

(73) **Titulaire(s) :**

(74) **Mandataire(s) :** CABINET BEAU DE LOMENIE.

(54) PISCINE DEMONTABLE AMELIOREE.

(57) Piscine démontable améliorée.
Elle est dotée de pattes verticales (1) et de traverses horizontales (2), reliées sur leurs extrémités à l'aide de pièces ou de noeuds (3), en formant ainsi une structure qui supporte un récipient flexible (5), contenant l'eau correspondante (6). Les traverses (2) mentionnées sont divisées en tronçons indépendants (7 et 8) qui disposent de moyens d'union entre eux, afin de faciliter une occupation réduite de volume de la piscine pliée et introduite dans son emballage. Les moyens d'union consistent de préférence en un emboîtement entre les tronçons mentionnés (7 et 8).



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OBJET DE L'INVENTION

Comme il est exprimé dans l'énoncé de ce mémoire descriptif, la présente invention se réfère à une piscine démontable améliorée dont la finalité consiste à réduire considérablement le volume occupé par la piscine une fois pliée et introduite dans son emballage ou caisse, pour cela, les profils de formation de la piscine sont divisés en parties ou tronçons qui s'encastrent. De cette manière, la piscine démontée occupera moins d'espace, ce qui facilitera son transport et stockage, ainsi que sa mise en place sur les points de vente et dans la propre maison de l'usager.

Une autre finalité consiste à fournir des noeuds d'union entre les profils qui s'adapteront aussi bien aux profils de section circulaire qu'à des profils de section quadrangulaire ou d'autres formes.

ANTÉCÉDENTS DE L'INVENTION

On connaît les piscines démontables qui sont constituées de pattes et de traverses qui s'assemblent à l'aide de noeuds et qui supportent un récipient flexible prévu pour contenir l'eau correspondante de la piscine conformée.

Ces piscines présentent l'inconvénient de ce que les traverses mentionnées sont d'une longueur considérable qui rend nécessaire l'emploi d'emballages de grandes dimensions qui provoquent des problèmes importants au moment de transporter le produit, le ramasser ou le stocker et y compris le palettiser pour les transports internationaux.

DESCRIPTION DE L'INVENTION

Pour atteindre les objectifs et éviter les inconvénients indiqués dans les alinéas antérieurs, l'invention consiste en une piscine démontable améliorée qui est dotée de pattes verticales qui s'assemblent à l'aide de noeuds sur des traverses horizontales qui

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conforment l'embouchure ou bord supérieur de la piscine et qui supportent un récipient flexible dans lequel l'eau de la piscine correspondante est déposée.

Nouvellement, les traverses mentionnées sont divisées en tronçons qui s'assemblent en s'encastrant, de manière que un des tronçons présent une vaste extrémité moins grosse qui s'introduit dans l'extrémité du tronçon adjacent. L'on obtient ainsi une rigidité des tronçons qui conforment la traverse similaire à la rigidité que présenterait une traverse constituée par un seul tronçon de longueur supérieure, mais avec l'avantage de ce que la taille de l'emballage de la piscine démontée est grandement réduit. Dans une autre réalisation l'encastrement entre les tronçons consiste à insérer une pièce tubulaire auxiliaire sur les extrémités de deux tronçons adjacents.

De plus, les noeuds d'union entre les traverses et les pattes présentent intérieurement une matrice radiale à reliefs longitudinaux de la même hauteur qui favorise l'introduction d'un profil à section circulaire aussi bien qu'à section carrée et d'autres formes géométriques.

Tant si l'on utilise des profils à section circulaire que si l'on emploie des profils à section carrée ou d'autres formes géométriques pour les pattes et les traverses de la piscine, on maintient le système d'encastrement de tronçons qui configure les traverses, de manière que la taille de la piscine démontée est toujours très inférieure que celle d'une piscine conventionnelle ayant des traverses formées par un tronçon unique.

Afin de faciliter une meilleure compréhension de ce mémoire descriptif et comme faisant partie de ce dernier, nous joignons par la suite des figures qui ont un caractère illustratif et non limitatif sur lesquelles on a reproduit l'objet de l'invention.

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BRÈVE DESCRIPTION DES FIGURES

Figure 1.- Elle représente une vue en perspective d'une piscine démontable améliorée réalisée selon la présente invention, la piscine mentionnée étant montée et présentant une déchirure qui montre l'union encastrée de tronçons sur la constitution des traverses.

Figure 2.- Elle représente une vue de profil sectionnée longitudinalement de l'union entre deux tronçons montés par encastrement et constituant une traverse de la piscine démontable améliorée de la présente invention.

Figure 3.- Elle représente une vue sectionnée transversalement d'un noeud comme ceux que comporte la piscine démontable améliorée de l'invention, un profil à section circulaire étant monté sur ce noeud.

Figure 4.- Elle représente une vue sectionnée transversalement d'un noeud comme ceux que comporte la piscine démontable améliorée de l'invention, un profil à section quadrangulaire étant monté sur ce noeud.

Figure 5.- Elle représente une vue en perspective d'une pièce tubulaire auxiliaire, employée dans une autre réalisation d'union de tronçons dans la piscine démontable améliorée de l'invention.

Figure 6.- Elle représente une vue de profil sectionnée longitudinalement d'une union entre des tronçons, selon la réalisation à laquelle il est fait référence dans la figure 5.

DESCRIPTION D'UN EXEMPLE DE RÉALISATION DE L'INVENTION

Nous réalisons par la suite une description d'un exemple de l'invention, en faisant référence à la numération adoptée sur les figures.

Ainsi, la piscine démontable améliorée de cet exemple de réalisation, est dotée de pattes verticales 1 et de traverses horizontales 2 qui sont unies entre elles par des noeuds 3 sur lesquels sont insérées les extrémités de ces pattes 1 et traverses 2.

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Avant l'union des pattes 1 et des traverses 2, les traverses 2 sont introduites dans une espèce de pli supérieur 4 présenté par les bords supérieurs d'un récipient flexible 5 prévu pour contenir l'eau 6 de la piscine, de manière à ce qu'une fois cette piscine montée, la structure formée par les noeuds 3, pattes 1 et traverses 2, supporte le poids du récipient 5 et de l'eau 6, qui est finalement introduite dans le récipient 5 mentionné.

Jusqu'ici cette configuration de piscine démontable est connue. Une des nouveautés de l'invention consiste en ce que chaque traverse 2 est divisée en parties qui s'assemblent entre elles en s'encastrant. Concrètement dans cet exemple, chaque traverse 2 se compose de deux tronçons 7 et 8. Le tronçon 7 est un tronçon mâle qui présente une vaste extrémité 9 d'une grosseur inférieure qui s'introduit de manière ajustée dans une extrémité de l'autre tronçon ou tronçon femelle 8; en configurant une zone d'union 10 qui présente pratiquement autant de résistance que s'il s'agissait d'un tronçon unique. Les autres extrémités ou extrémités les plus externes des tronçons 7 et 8 sont montées normalement sur les noeuds 3.

Dans d'autres exemples, les traverses 2 peuvent être divisées en plus de deux tronçons qui s'assemblent également en s'encastrant, bien que la division en deux tronçons 7 et 8 de cet exemple fournit une réduction suffisante du volume de la piscine démontée, ce qui est le but poursuivi.

La disposition d'encastrement des tronçons 7 et 8 est valable pour des tronçons à section circulaire, quadrangulaire et ayant d'autres formes géométriques.

Une autre nouveauté de l'invention consiste en ce que l'intérieur des noeuds 3 présente des nerfs longitudinaux 11 de même hauteur et placés radialement. Ces nerfs 11 facilitent le montage des traverses 2 à section circulaire aussi bien que celui de traverses à section quadrangulaire

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12 ou d'autres formes géométriques, comme le montrent les figures 3 et 4, en évitant, dans le cas des traverses à section quadrangulaire 12 mentionnées, leur rotation dans le sens axial.

Selon une autre réalisation, chaque traverse 2 se divise en plusieurs tronçons femelle 8 dont les extrémités sont unies entre elles à l'aide de pièces tubulaires auxiliaires 13 qui pénètrent dans les extrémités adjacentes correspondantes.

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REVENDICATIONS

1.- PISCINE DÉMONTABLE AMÉLIORÉE, qui dispose de pattes verticales (1) et de traverses horizontales (2) unies par leurs extrémités à l'aide de noeuds (3) de manière à ce que la structure formée supporte un récipient flexible (5) prévu pour contenir l'eau correspondante (6); elle est caractérisée par le fait que les traverses mentionnées (2) se trouvent divisées en tronçons indépendants (7 et 8) avec des moyens d'union entre eux, ce qui facilite ainsi une occupation minimum de volume de la piscine pliée et introduite dans son emballage.

2.- PISCINE DÉMONTABLE AMÉLIORÉE, selon la revendication 1, caractérisée par les moyens d'union qui consistent en un encastrement entre les tronçons (7 et 8) constituant la traverse (2).

3.- PISCINE DÉMONTABLE AMÉLIORÉE, selon la revendication 2, caractérisée par l'encastrement mentionné qui consiste en une ample extrémité mince (9) d'un tronçon mâle (7) qui est introduit justement dans l'extrémité d'un tronçon femelle (8).

4.- PISCINE DÉMONTABLE AMÉLIORÉE, selon la revendication 1, caractérisée par le fait que la division mentionnée des traverses (2), en tronçons indépendants (7 et 8) est réalisée sur deux tronçons indépendants par traverse.

5.- PISCINE DÉMONTABLE AMÉLIORÉE, selon la revendication 1, caractérisée par le fait que l'intérieur des noeuds (3) présente dans leurs zones de montage des nerfs longitudinaux (11) de même hauteur et placés radialement, ce qui facilite l'introduction des traverses à section circulaire (2) aussi bien que des traverses à section quadrangulaire (12) ou de traverses ayant d'autres formes géométriques.

6.- PISCINE DÉMONTABLE AMÉLIORÉE, selon la revendication 1, caractérisée par le fait que les tronçons

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indépendants mentionnés sont plusieurs tronçons femelle (8) et que les moyens d'union consistent en des pièces tubulaires auxiliaires (13) qui sont introduites dans les extrémités correspondantes adjacentes des tronçons femelles (8).

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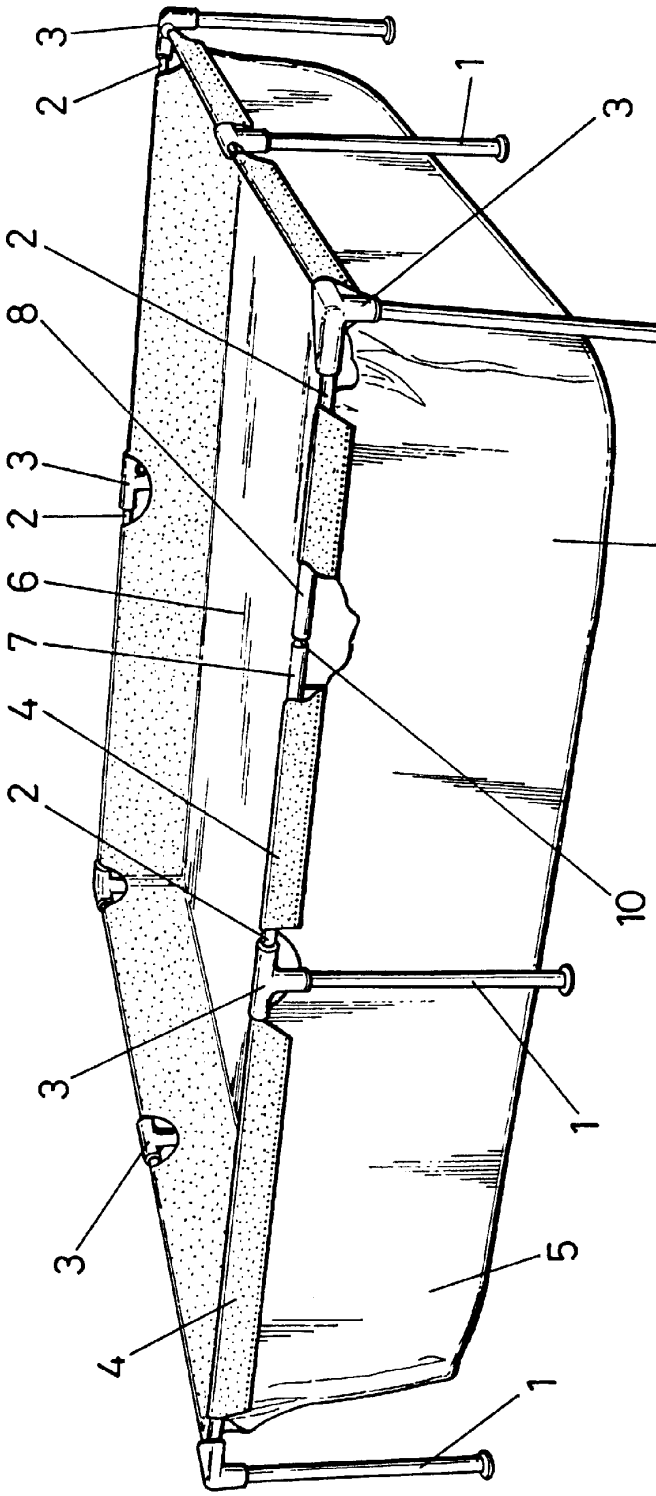


FIG.1

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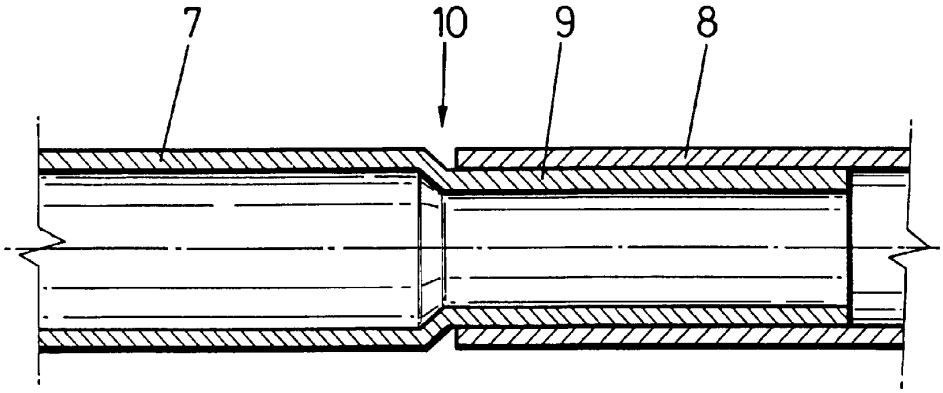


FIG.2

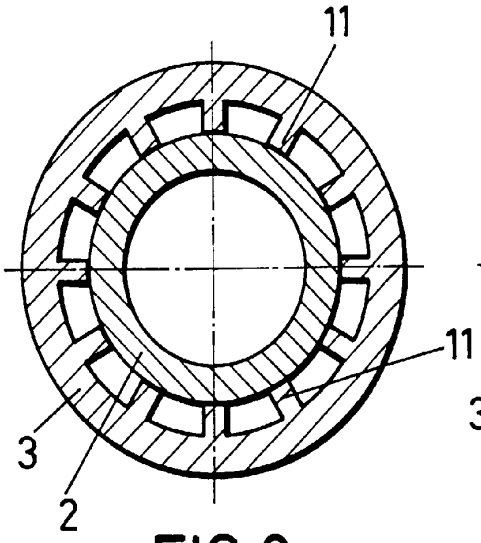


FIG.3

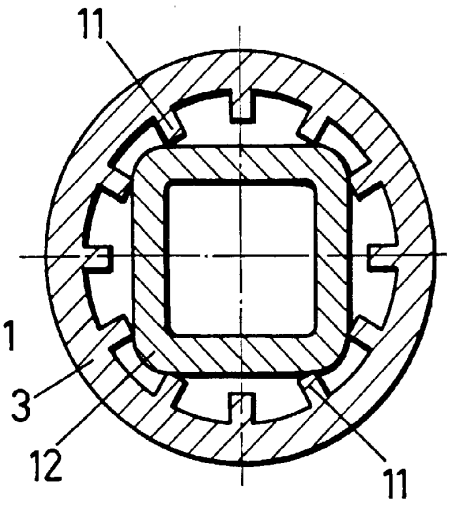


FIG.4

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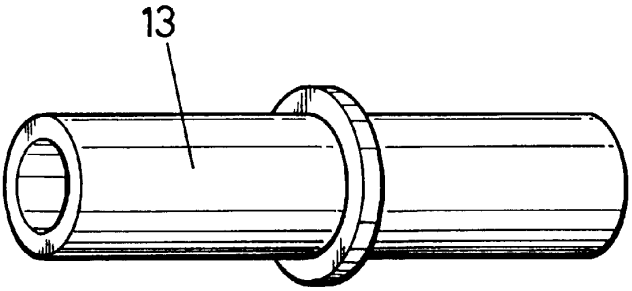


FIG.5

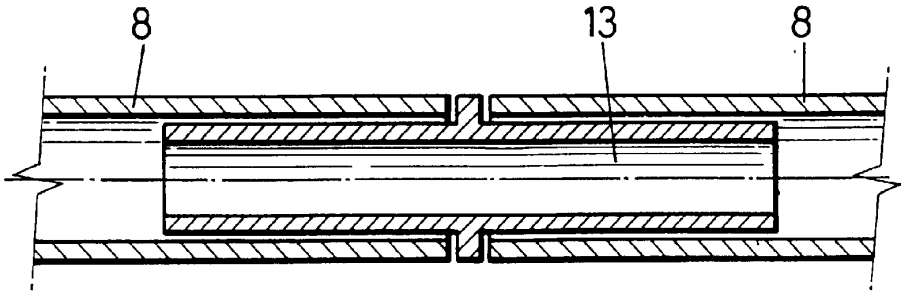


FIG.6

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Publication Date: Nov 01, 2000

Abstract

A clip 10 for retaining a first member within a second tubular member comprises a pin 12 for insertion through aligned apertures in the two members to be fixed. The clip also includes a U shaped spring 14 adapted to resiliently engage the outside of the second tubular member to hold the pin in the inserted position. In another embodiment the first member is also tubular and the spring on the clip is adapted to engage the inner surface of the first member with the pin extending radially outwards through the aligned apertures in the two tubes.

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F16B 7/04

(52) UK CL (Edition R)
E2A ACSS A110

(56) Documents Cited
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US 4647241 A US 4627761 A US 4183691 A
US 2110397 A

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INT CL[7] F16B 7/04 21/08
Online : WPI, PAJ, EPODOC;

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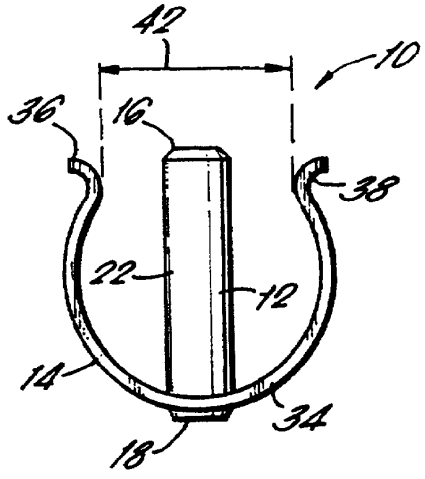
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WC1X 8BT, United Kingdom

(54) Abstract Title
Clip having a pin for insertion through aligned openings in two parts and resilient means to retain the pin in position.

(57) A clip 10 for retaining a first member within a second tubular member comprises a pin 12 for insertion through aligned apertures in the two members to be fixed. The clip also includes a U shaped spring 14 adapted to resiliently engage the outside of the second tubular member to hold the pin in the inserted position. In another embodiment the first member is also tubular and the spring on the clip is adapted to engage the inner surface of the first member with the pin extending radially outwards through the aligned apertures in the two tubes.

FIG. 1.



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At least one drawing originally filed was informal and the print reproduced here is taken from a later filed formal copy.

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FIG. 1.

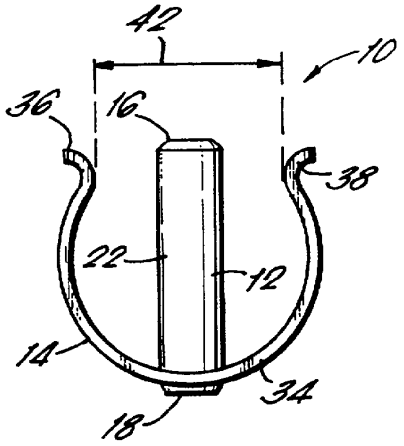


FIG. 2.

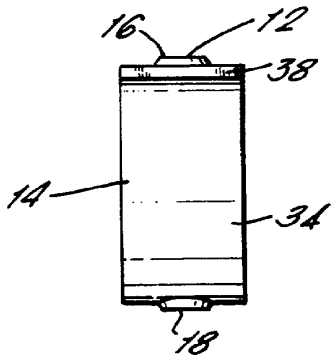


FIG. 3.

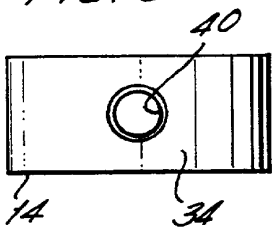
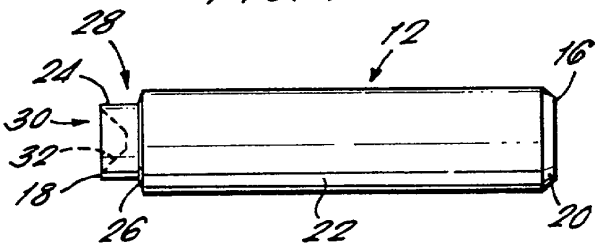


FIG. 4.



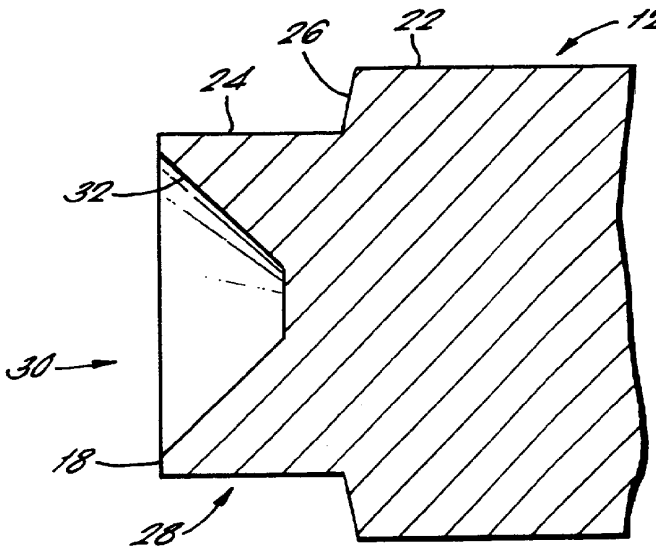


FIG. 5.

FIG. 6.

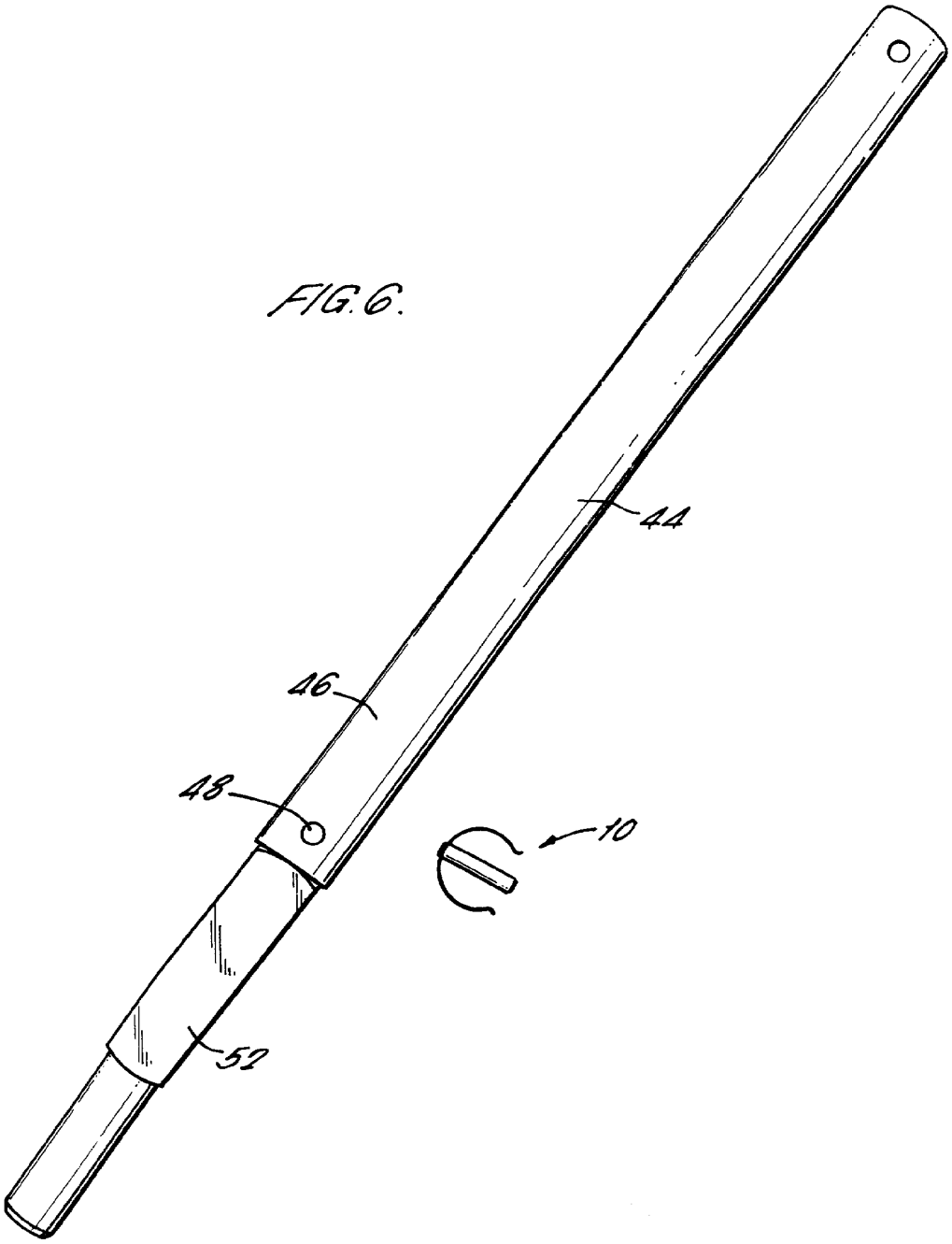


FIG. 7.

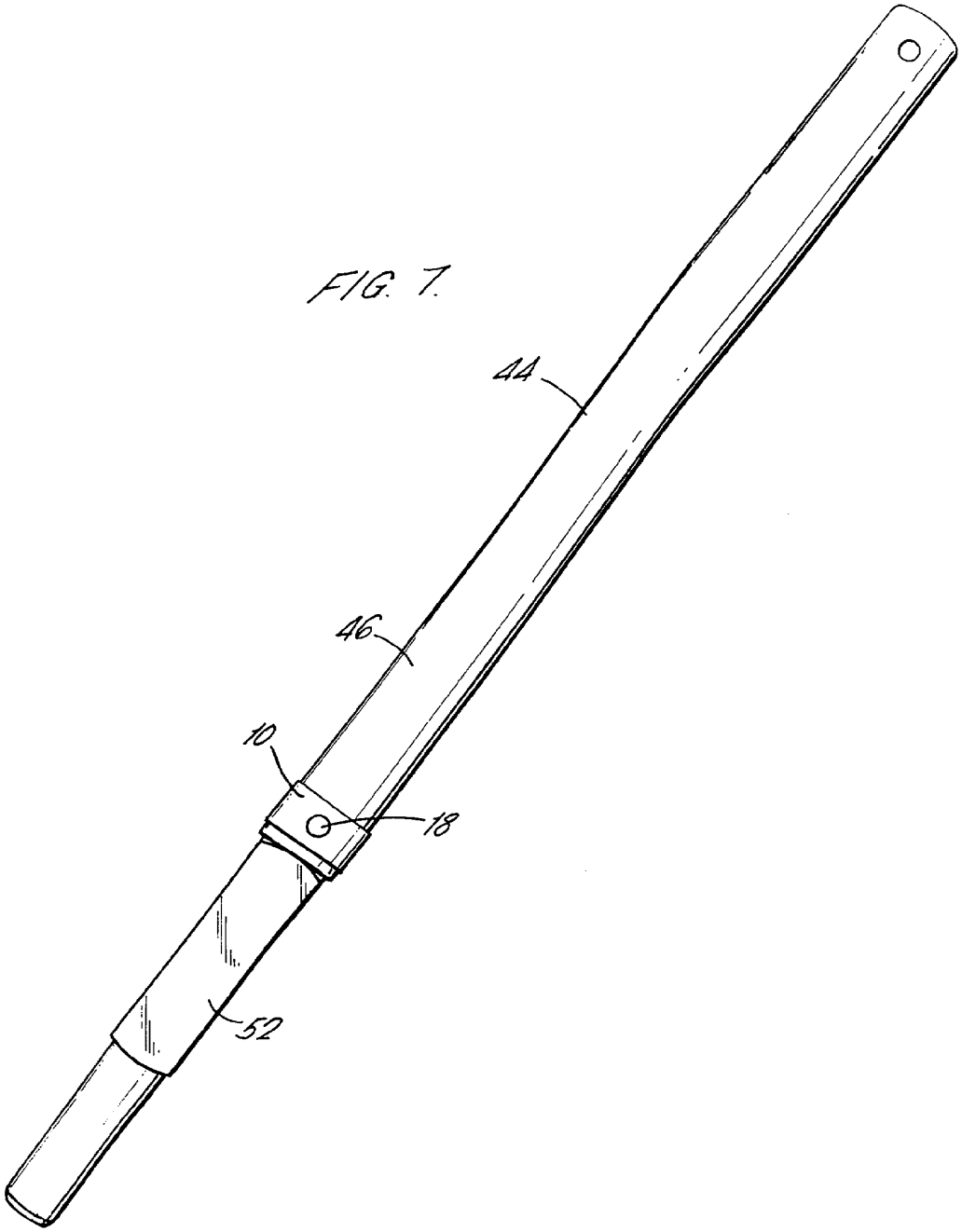
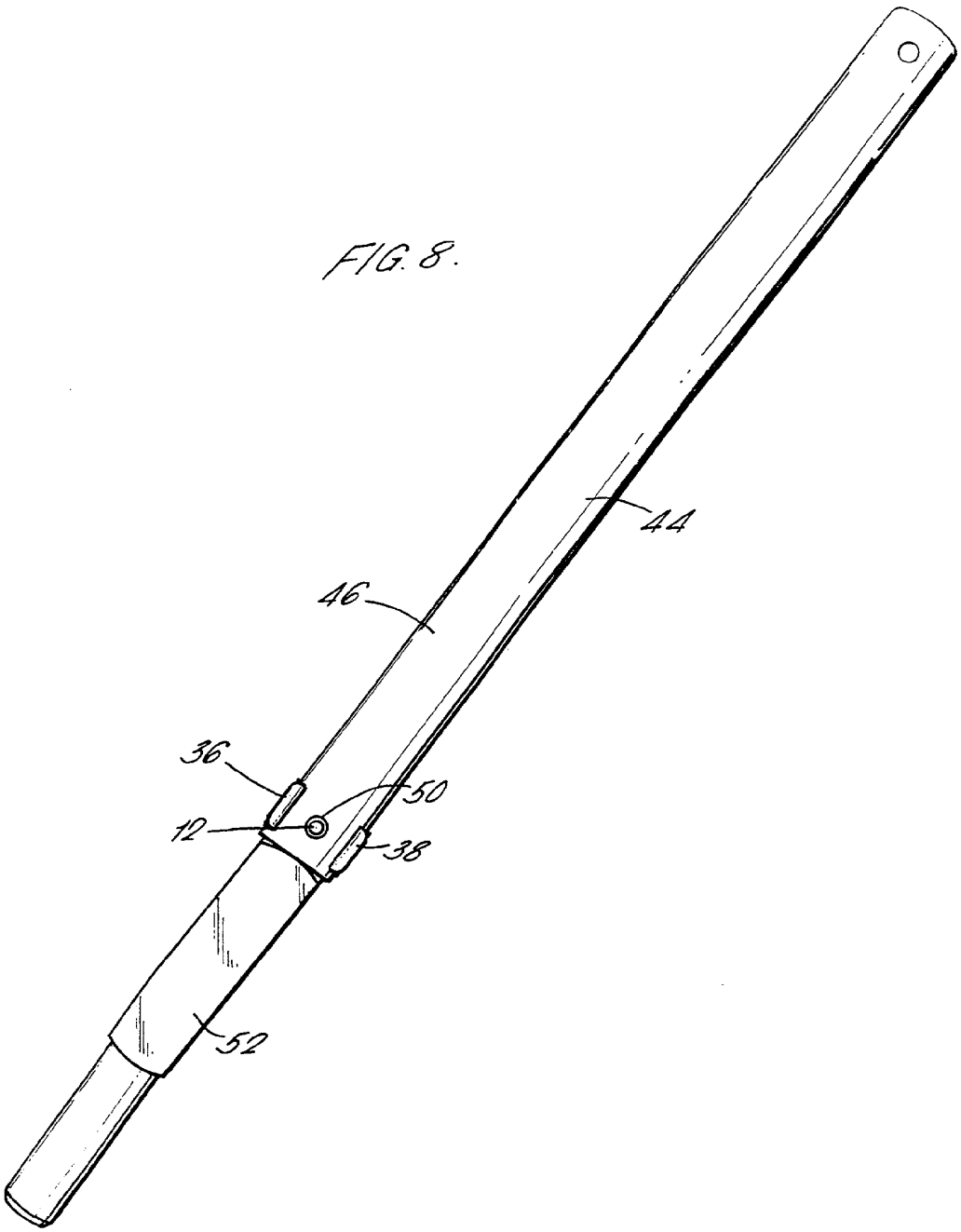


FIG. 8.



CLIP

The present invention relates to a clip for retaining a first member in fixed relation to second member and also relates to an assembly comprising the first and second members and the clip.

It has been known for many years that one way of retaining two members in fixed relation to each other is by providing each of the two members with a respective aperture, positioning the members so that the two apertures are aligned and then retaining the members in this position by inserting a dowel or similar pin through the two apertures. In particular, where one of the members comprises a hollow cylinder and the other member includes a stud portion for receipt within that cylinder, the two members may be retained in fixed relationship by drilling a hole through the cylinder wall and through the stud portion such that when the stud portion is inserted into the hollow cylinder the two apertures may be aligned. A dowel passing through the aperture in the cylinder wall and into the aperture in the stud portion will then serve to hold the two members together. For added security, the hollow cylinder may comprise a second aperture diametrically opposed to the first so that the dowel not only passes through the first aperture in the cylinder wall and into the stud portion but in addition, on exiting the stud portion, also passes through the second aperture.

Typically the dowel or similar pin is of substantially circular cross-section and is formed somewhat oversize with respect to the aligned apertures so that when it is inserted it often needs to be hammered home and is consequently held in position in an interference fit. In the past this has

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led to problems where, if the person assembling the two members does not possess the appropriately sized drill bit and uses the closest, somewhat larger size drill bit in their possession to form the necessary apertures, the resulting apertures may be too large to securely retain the dowel in an interference fit. As a result the dowel may work loose and eventually fall out, enabling the two members to become separated. Accordingly, for the prior art system to work the tolerance on an aperture designed to receive a dowel must be quite tight. For example, for a pin of, say, 4.0mm diameter, the tolerance on the aperture must be of the order of 0.1-0.2mm.

In addition, with the prior art system it is often impossible to disassemble the two members once the dowel or similar pin has been inserted should this ever be desired. The only thing that can be done is to drill out the dowel which takes time, destroys the dowel and possibly compromises the dimensional integrity of the apertures through which it was inserted.

In view of the limitations associated with the prior art fixing system it is desirable to provide a means for retaining two members in fixed relationship to each other which does not require so tight a tolerance of any parts to be drilled or otherwise machined and furthermore enables the parts to be quickly and easily disassembled if so desired.

According to a first aspect of the present invention there is provided a clip for retaining a first member in fixed relation to a second member, said first and second members defining respective apertures therethrough and being adapted so as to be capable of being mutually positioned such that said respective apertures are aligned, the clip comprising

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a pin for insertion through said aligned apertures and spring means adapted to resiliently engage at least one of said first and second members to hold said pin in said inserted position. In this way the pin may be retained in position by means other than an interference fit, thereby enabling the tolerances of the apertures and pin to be relaxed.

Advantageously the apertures may be aligned as a result of one of the first and second members being at least partially received within the other, the spring means being adapted to resiliently engage the member in which said one of the first and second members is at least partially received. That is, the spring means may resiliently engage the outer of the two members. In such an arrangement the pin may be inserted from the outside. In other words, the pin may be adapted to be inserted through the aperture in the member in which said one of the first and second members is at least partially received and then through the aperture in said one of the first and second members which is at least partially received within the other.

In another arrangement the spring means may be adapted to resiliently engage said one of the first and second members which is at least partially received within the other. Under such conditions the pin may be inserted from the inside and hence be adapted to be inserted through the aperture in said one of the first and second members which is at least partially received within the other and then through the aperture in said other member.

Advantageously the spring means may substantially conform to the shape of the or each member with which it resiliently engages. In particular, if the member with which the spring means resiliently engages is of

substantially circular cross-section, the spring means may also be of substantially circular cross-section or at least part circular cross-section.

Advantageously the spring means may include a formation for releasable engagement with a complementary formation provided on the or each member with which the spring means resiliently engages. For example, the formation and complementary formation may comprise a projection and complementary recess or aperture.

According to a second aspect of the present invention there is provided an assembly comprising a first member, a second member and a clip, the clip being as previously described, said first and second members defining respective apertures therethrough and being mutually positioned such that said apertures are aligned, the pin of the clip being inserted through said aligned apertures and said spring means resiliently engaging at least one of said first and second members to hold said pin in said inserted position to thereby retain said first member in fixed relation to said second member.

An embodiment of the present invention will now be described by way of example with reference to the accompanying drawings in which:

FIG. 1 is a view of a clip in accordance with one embodiment of the present invention;

FIG. 2 is a side view of the clip of Figure 1;

FIG. 3 is an end view of the clip of Figure 1;

FIG. 4 is a side view of a pin of the clip of Figure 1;

FIG. 5 is an enlarged cross-sectional view of one end of the pin of Figure 4;

FIG. 6 is a plan view of two members each defining a respective aperture with the members

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mutually positioned such that the apertures are aligned and with the clip of Figure 1 shown to one side;

FIG. 7 is a plan view of the members of Figure 6 with the pin of the clip inserted through the aligned apertures; and

FIG. 8 is a plan view similar to that of Figure 7 but with the members and clip rotated through 180°.

As can be seen from Figure 1, the clip 10 comprises a pin 12 and a substantially U-shaped member or circlip 14. As can be seen more clearly from Figures 4 and 5, the pin 12 is a substantially circular cross-section and defines first and second ends 16 and 18. Adjacent the first end 16, the pin 12 is provided with a chamfer of typically 45° which defines a frustro conical surface 20. This frustro conical surface 20 merges with a cylindrical surface of the pin 22 while, towards the other end 18, the cylindrical surface 22 merges with a second cylindrical surface of reduced diameter 24 via an inclined annular surface 26. The second cylindrical surface 24 is not only of reduced diameter in comparison to the cylindrical surface 22 but is also of very much reduced axial length and serves to define a stub portion 28 at an end of which, remote from the inclined annular surface 26, is provided a dimple 30 defined by a frustro conical internal surface 32.

By contrast, the U-shaped member 14 can be seen from Figures 1 to 3 to comprise a first arcuate portion 34 which, in cross-section, extends along the circumference of a circle and subtends an angle at the centre of approximately 260°. This first arcuate portion merges at its respective opposite ends with two further out-turned arcuate portions 36 and 38 which, in cross-section, curve radially outwardly away

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from the centre of curvature defined by the first arcuate portion 34. As can be seen from Figure 2, the U-shaped member has a width greater than the diameter of the pin 12 and, as shown in Figure 3, the first arcuate portion 34 comprises a circular aperture 40 located midway between the two further arcuate portions 36 and 38 and centrally of its width. The circular aperture 40 preferably has a diameter somewhat greater than that of the stub portion 28 but less than that of the cylindrical surface 22.

The components of the clip and in particular the pin 12 and U-shaped member 14 may be formed of any suitable material. For example, the clip may be formed of plastics material in which case the pin 12 and U-shaped member 14 may be moulded integrally as one piece. Alternatively, the pin 12 and U-shaped member 14 may be formed separately and subsequently joined together. However, in the embodiment shown in the accompanying drawings the pin 12 and U-shaped member 14 are both formed of metal. Under such circumstances the U-shaped member 14 may be formed from a flat sheet using press tools having first been cropped to size. The circular aperture 40 may be formed by piercing the metal sheet either before or after bending the metal sheet to provide the member 14 with its characteristic U-shape.

Similarly, the pin 12 may also be formed from a flat metal sheet, either by tightly rolling the sheet to form a cylinder which is subsequently machined to the shape illustrated or by stamping the pin from a somewhat thicker sheet.

Where the pin 12 and U-shaped member 14 are both formed of metal, the clip may be assembled by inserting the stub portion 28 of the pin 12 through the circular aperture 40 and then swaging the two

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together by striking the dimpled end of the pin 12 with a suitable die to deform that part of the stub portion 28 protruding through the circular aperture 40 to form a rivet.

Of course, it will be apparent to those skilled in the art that the pin 12 and U-shaped member 14 may be secured together by any other suitable means. For example, the second cylindrical surface of reduced diameter 24 might be provided with an external screw thread so that the stub portion 28 might threadingly engage a corresponding thread provided within the circular aperture 40. Alternatively, the pin 12 and U-shaped member 14 may simply be formed as one piece.

As shown in Figure 1, when the clip is assembled, the out-turned opposing further arcuate portions 36 and 38 define an opening 42 which is narrower than the diameter of the first arcuate portion 34 and through which the pin 12 projects. Although the pin 12 may be of any suitable length, in the embodiments shown the axial length of the cylindrical surface 22 is of substantially the same dimension as the diameter of the first arcuate portion 34.

It will be apparent to those skilled in the art that the illustrated clip may be scaled to any suitable size. However, in one currently preferred embodiment the pin 12 has an axial length of 17.4mm from the first end 16 to the second end 18 made up of a stub portion 28 having an axial length of 1.5mm, a cylindrical surface 22 having an axial length of 15.4mm and a frustro conical surface 20 having an axial length of 0.5mm. In this embodiment the cylindrical surface 22 preferably has a diameter of 4.0mm while the second cylindrical surface 24 has a reduced diameter of 2.85-2.95mm. The inclined annular surface 26 slopes at an angle of 12° to the

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perpendicular while the dimple 30 is defined by a frustro conical internal surface 32 which tapers at 45° from an end diameter of 2.6mm to a reduced diameter of 0.6mm. In this arrangement the dimple 30 may be made with an 8 x 90° spot drill.

In use the clip 10 may be used to retain a first member in fixed relation to a second member. In the assembly shown in Figures 6 to 8 the first member 44 comprises a hollow metal cylinder defined by a continuous wall surface 46. In this wall surface 46 adjacent one end of the metal cylinder there are provided two diametrically opposed and aligned circular apertures 48 and 50.

By contrast, the second member of the assembly 52 comprises a solid metal cylindrical stud (not shown) which is sized so as to be capable of being received within the hollow metal cylinder of the first member 44. The solid metal cylindrical stud is provided with a throughbore (again not shown) which extends perpendicularly to the axis of the solid metal cylindrical stud and is of substantially the same diameter as the circular apertures 48 and 50.

In order to assemble the first and second members 44 and 52 together the solid metal cylindrical stud is inserted into the apertured end of the hollow metal cylinder and positioned so that the throughbore is aligned with the circular apertures 48 and 50. With the first and second members 44 and 52 in this position, the clip 10 is offered up to the combination in such a way that the chamfered end 16 of the pin 12 is received within a first of the diametrically opposed circular apertures 48. The annular chamfer represented by the frustro conical surface 20 facilitates this process and serves to guide the pin 12 into position. Nevertheless, further insertion of

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the pin into the throughbore of the solid metal cylindrical stud is resisted by the abutment against the surface 46 of the hollow metal cylinder of the out-turned shoulders of the U-shaped member 14 defined by the further arcuate portions 36 and 38. This is because the opening 42 is narrower than the diameter of the hollow metal cylinder. Nevertheless, as further pressure is applied to the clip in the direction of insertion of the pin, the two limbs of the U-shaped member 14 on either side of the pin 12 flex outwardly as the further arcuate portions 36 and 38 slide over the wall surface 46 on either side of the circular aperture 48. This increases the size of the opening 42 to a dimension comparable to the diameter of the hollow metal cylinder and allows its receipt within the first arcuate portion 34 before the further arcuate portions 36 and 38, having passed the widest point of the hollow metal cylinder, snap back to retain the hollow metal cylinder within the U-shaped member 14. At the same time the pin 12 is urged through the first circular aperture 48 into the throughbore and, if sufficiently long, out of the throughbore and through the second circular aperture 50. This is the position of the clip shown in Figures 7 and 8.

Using the described clip it is no longer necessary for the diametrically opposed circular apertures 48 and 50 or the throughbore to be drilled to the same high tolerances as previously required since the pin 12 is held in position not simply by an interference fit but additionally by (or even solely by) the resilient engagement of the U-shaped member 14 with the hollow metal cylinder 44. Indeed, whereas in the prior art case of a dowel having a diameter of 4.0mm the apertures 48 and 50 and the throughbore

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needed to be drilled to a tolerance of between 0.1mm and 0.2mm, with the present clip and again with a pin of 4.0mm diameter the circular apertures 48 and 50 and the throughbore could be made oversized by as much as 1.0mm to 2.0mm and the clip still function to hold the first and second members 44 and 52 in fixed relationship.

Furthermore, it will be apparent to those skilled in the art that whereas in the prior art case it was not possible to easily disassemble the first and second members once the dowel pin had been hammered home, with the present clip it is possible to quickly and easily disassemble the first and second members 44 and 52 if so desired. For example, by pressing the two further arcuate portions 36 and 38 in a direction that would tend to withdraw the pin 12 from the circular apertures 48 and 50 and from the throughbore the first arcuate portion 34 can be made to flex and the two further arcuate portions 36 and 38 to slide over the surface of the hollow metal cylinder thereby increasing the size of the opening 42. When the opening 42 has been increased to a size comparable to the diameter of the hollow metal cylinder it may be withdrawn from its receipt by the first arcuate portion 34. Indeed, continued pressure on the further arcuate portions 36 and 38 beyond the widest point of the hollow metal cylinder will cause the further arcuate portions to snap back, expelling the hollow metal cylinder from its engagement with the first arcuate portion 34.

Although the clip has been described as comprising a pin 12 in combination with a U-shaped member 14, it will be apparent to those skilled in the art that one of the limbs of the U-shaped member (ie one of the parts of the U-shaped member to one side of

the pin comprising just under half of the first arcuate portion 34 and one of the further arcuate portions 36 or 38) may be omitted while still enabling the clip to function in the manner described. Likewise, although the clip has been described as comprising a U-shaped member for engagement with a first member of circular cross-section, the U-shaped member may be replaced with spring means of a different shape which is nevertheless adapted to conform to the shape of the member with which it resiliently engages. For example, the spring means may be partially elliptical in shape or else may be formed to resiliently engage a member of any polygonal cross-section including members of triangular, square and rectangular cross-section.

Although the described clip is intended for insertion from the outside (that is, where one of the members is at least partially received within the other, the pin is adapted to pass through an aperture in the outer member and into a aperture provided in the inner member and the U-shaped member or other spring means is adapted to engage a surface of the outer member) nevertheless, the clip of the present invention could equally be adapted to be inserted from the inside. In other words, where one of the members is received within the other, the pin may be adapted to be pushed outwardly through an aperture in the inner member and into an aperture provided in the outer member. At the same time, the spring means may be adapted to engage a surface of the inner member. In such an arrangement the spring means may still comprise a U-shaped member although the pin, rather than projecting from the mid-point of the arcuate portion through the centre of curvature, would project outwardly from the arcuate portion and extend away

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from the centre of curvature. Similarly, the two further arcuate portions, rather than curving radially outwardly away from the first arcuate portion would curve away from the first arcuate portion in a radially inward direction.

CLAIMS:

1. A clip for retaining a first member in fixed relation to a second member, said first and second members defining respective apertures therethrough and being adapted so as to be capable of being mutually positioned such that said respective apertures are aligned, the clip comprising a pin for insertion through said aligned apertures and spring means adapted to resiliently engage at least one of said first and second members to hold said pin in said inserted position.

2. A clip in accordance with claim 1, wherein said apertures may be aligned as a result of one of said first and second members being at least partially received within the other, said spring means being adapted to resiliently engage the member in which said one of said first and second members is at least partially received.

3. A clip in accordance with claim 2, wherein said pin is adapted to be inserted through the aperture in the member in which said one said first and second members is at least partially received and then through the aperture in said one of said first and second members which is at least partially received within the other.

4. A clip in accordance with claim 1, wherein said apertures may be aligned as a result of one of said first and second members being at least partially received within the other, said spring means being adapted to resiliently engage said one of said first and second members which is at least partially

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received within the other.

5. A clip in accordance with claim 4, wherein said pin is adapted to be inserted through the aperture in said one of said first and second members which is at least partially received within the other and then through the aperture in said other member.

6. A clip in accordance with any preceding claim, wherein said spring means substantially conforms to the shape of the or each member with which it resiliently engages.

7. A clip in accordance with any preceding claim, wherein said spring means includes a formation for releasable engagement with a complementary formation provided on the or each member with which said spring means resiliently engages.

8. A clip in accordance with claim 7, wherein said formation and complementary formation comprise a projection and complementary recess or aperture.

9. An assembly comprising a first member, a second member and a clip, the clip being in accordance with any preceding claim, said first and second members defining respective apertures therethrough and being mutually positioned such that said apertures are aligned, the pin of the clip being inserted through said aligned apertures and said spring means resiliently engaging at least one of said first and second members to hold said pin in said inserted position to thereby retain said first member in fixed relation to said second member.

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10. A clip substantially as herein described with reference to the accompanying drawings.

11. An assembly substantially as herein described with reference to the accompanying drawings.

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INVESTOR IN PEOPLE

Application No: GB 9907226.6 **Examiner:** Phil Thorpe
Claims searched: 1-11 **Date of search:** 24 August 2000

Patents Act 1977
Search Report under Section 17

Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK Cl (Ed.R): E2A (ACAM, ACSS) ;

Int Cl (Ed.7): F16B (7/04, 21/08) ;

Other: Online : WPI, EPODOC, PAJ ;

Documents considered to be relevant:

Category	Identity of document and relevant passage		Relevant to claims
X	US5797696A	Nastech - see fastener 21 in figures 7a and 7b.	1-3,6,9
X	US5590974A	Yang - see fastener 30 in figures.	1,4,5,9.
X	US4183691A	Van Melle - see whole document.	1-3,6,9
X	US4711595A	Magid et al - see fastener 30A in figure 4.	1,4-6.
X	US4647241A	Weber - see fastener 46 in figures 3 and 5.	1-3,6,9
X	US4627761A	Snap on Tools Ltd - see fastener 30 in figures 1 and 7.	1-3, 6-9.
X	US2110397A	Kangas - see fastener 16 in figures	1-3,6-9

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.

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Publication Number: RU 009029 U1
Publication Date: Jan 16, 1999

Abstract

[0001]
Joint assembly for tubular elements
[0002]
The claimed utility model relates to the field of mechanical engineering.
[0003]
The task of the utility model is to ensure the connection of coaxial closed tubular parts.
[0004]
The problem is solved by the fact that the joint unit containing two tubular elements located in the same plane, and the connecting element made in the form of a plate, additionally contains a fastening element, and the tubular elements are arranged coaxially and have a box-shaped section, and the connecting element additionally contains a plate with a threaded hole, while both plates are bent at the edges and tightly adjacent to each other in the center and rigidly fixed at one end in one of the tubular elements, the other end of which is installed in another tubular element having a hole coaxial with the threaded hole of the plate of the connecting element for installation into it a fastening element made in the form of a screw installed with the possibility of interaction of its end part with the plate of the connecting element.
[0005]
ESSAY

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РОССИЙСКАЯ ФЕДЕРАЦИЯ

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H03H 21/00 (2000.01)

ФЕДЕРАЛЬНАЯ СЛУЖБА
ПО ИНТЕЛЛЕКТУАЛЬНОЙ СОБСТВЕННОСТИ,
ПАТЕНТАМ И ТОВАРНЫМ ЗНАКАМ

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RU 39029 U1

(54) УСТРОЙСТВО АДАПТИВНОЙ ФИЛЬТРАЦИИ ШИРОКОПОЛОСНОЙ СИСТЕМЫ СВЯЗИ

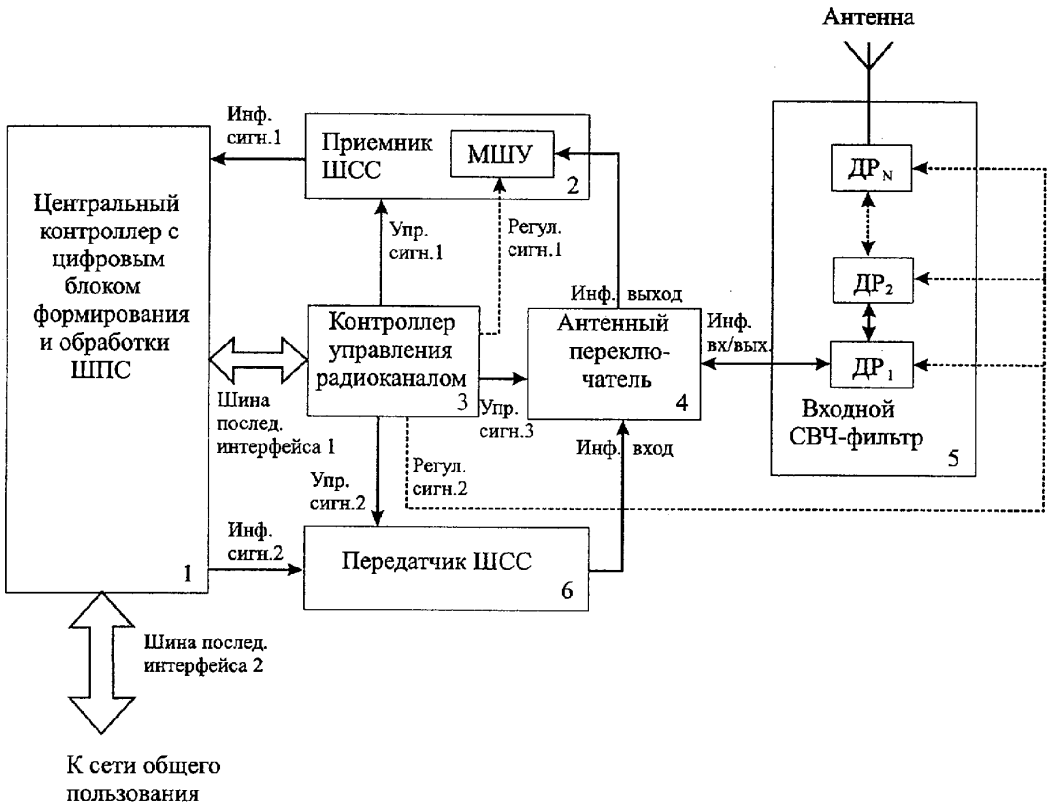
Формула полезной модели

Устройство адаптивной фильтрации широкополосной системы связи, содержащее центральный контроллер, контроллер управления радиоканалом, приемник широкополосной системы связи с малошумящим усилителем, передатчик широкополосной системы связи, антенный переключатель, входной СВЧ-фильтр, первую и вторую шины последовательного интерфейса и антенну, причем центральный контроллер соединен первой и второй шинами последовательного интерфейса с сетью общего пользования и контроллером управления радиоканалом соответственно, выходным вторым информационным сигналом с входом передатчика широкополосной системы связи, а входным первым информационным сигналом с выходом приемника широкополосной системы связи; контроллер управления радиоканалом связан первым и вторым управляющими сигналами с приемником и передатчиком широкополосной системы связи соответственно, первым регулирующим сигналом - с малошумящим усилителем приемника широкополосной системы связи, а третьим управляющим сигналом - с командным входом антенного переключателя, информационный вход последнего соединен с выходом передатчика широкополосной системы связи, информационный выход - с входом приемника широкополосной системы связи, а информационный вход/выход - с входом/выходом СВЧ-фильтра, отличающееся тем, что СВЧ-фильтр выполнен на диэлектрических резонаторах, соединенных в последовательную линейку, которая включена между антенным переключателем и антенной, а управляющие входы линейки вторым регулирующим сигналом соединены с выходом контроллера управления радиоканалом.

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Publication Number: RU 9029 U1
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УЗЕЛ СОЕДИНЕНИЯ ТРУБЧАТЫХ ЭЛЕМЕНТОВ

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Applicant(s): Общество с ограниченной ответственностью "U.T.M."

Classification: **- international:** ***F16B7/00;*** (IPC1-7): F16B7/00
- cooperative:

Application number: RU19980111874U 19980624

Priority number(s): RU19980111874U 19980624

Abstract not available for RU9029 (U1)

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DESCRIPTION RU9029U1

TUBE ELEMENT CONNECTION UNIT

[0002]

Joint for tubular elements

[0003]

The technical solution declared as a useful model relates to the field of mechanical engineering and can be used to connect tubular closed structural elements.

[0004]

Known node for connecting tubular elements along.with.

USSR N 1620706 dated 02.02.89, M.cl.

F16B 7/00, B62D 27/00, 33/06, containing tubular elements, a connecting element and elements of their fastening to each other.

The tubular element has a window in which the connecting element is installed with its protruding part.

[0005]

The structure described above is intended for connecting tubular elements, the axes of which are perpendicular to each other, and cannot be used for connecting coaxial tubular parts.

[0006]

In addition, due to the presence of a large number of threaded fasteners and the complex configuration of the connecting element, the above-described technical solution does not provide fast and reliable fixation under dynamic loads.

[0007]

MKI F16B 7 /00

[0008]

The closest in technical essence to the claimed technical solution is the connection unit along.with.

USSR N 1805232 dated 02.11.90, Moscow cl.

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F16B 2/22, 7/00, containing two hollow parts located in one plane with grooves on reciprocal surfaces and a connecting element made in the form of a plate with fixing heads at the ends.

[0009]

The above technical solution is intended for connecting tubular parts, the axes of which are parallel to each other, and cannot be used to connect coaxial tubular parts.

[0010]

The task of the utility model is to ensure the connection of coaxial tubular parts.

[0011]

The problem is solved by the fact that the joint unit containing two tubular elements located in the same plane and the connecting element made in the form of a plate additionally contains a fastening element, and the tubular elements are arranged coaxially and have a box-shaped section, and the connecting element additionally contains a plate with a threaded hole, with both plates bent at the edges and tightly adjacent to each other in the center and rigidly fixed at one end in one of the tubular elements.

[0012]

the other end of which is installed in another tubular element having a hole coaxial with the threaded hole of the connecting element plate for installing a fastening element made in the form of a screw installed so that its end part interacts with the connecting element plate.

[0013]

The essence of the proposed technical solution is illustrated by drawings, where figure 1 shows a joint assembly of tubular elements in an exploded view, figure 2 is a joint assembly in the assembly, and FIG.

H - section A-A in Fig. 2.

[0014]

The connection unit contains coaxially arranged tubular box-section elements 1, 2 and a connecting element made in the form of two plates 3, 4 bent along the edges and tightly adjacent to each other in the center of plates 3, 4, and plate 4 has a threaded hole 5 for installing a fastening element in it, made in the form of a screw 7.

Both plates 3, 4 are rigidly fixed (for example, by welding through a technological window) with one end in the tubular element 1, the other (free) end of these plates 3, 4 is installed in the tubular element 2 having a hole b, coaxial with the threaded hole 5 of the plate 4 of the connecting element to install an element in it

[0015]

fastening made in the form of a screw 7 installed with the possibility of interaction of its end part with the plate 3 of the connecting element.

[0016]

The connection is carried out as follows.

[0017]

The free part of the connecting element formed by the ends of the plates 3, 4 is installed in the cavity of the tubular element 2 until it stops.

In this case, the hole b in the tubular element 2 is coaxial with the threaded hole 5 of the plate 4.

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The resulting joint is secured with a screw 7.

In this case, the screw 7 in the end position abuts the plate 3 with its end and pushes the plates 3 and 4 pressed against each other, creating an additional locking device and thereby increasing the reliability of the connection and preventing the self-unscrewing of the threaded connection under various dynamic loads.

[0018]

The disconnection of the tubular elements is carried out in the reverse order.

[0019]

The technical solution declared as a useful model provides a reliable connection of tubular coaxial elements, simplifies installation, allows you to quickly assemble and disassemble frames of any size and configuration, capable of taking significant static and dynamic loads.

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CLAIMS RU9029U1

1.

A joint unit containing two tubular elements located in the same plane, and a connecting element made in the form of a plate, characterized in that it additionally contains a fastening element, and the tubular elements are arranged coaxially and have a box-shaped section, and the connecting element additionally contains a plate with a threaded hole , while both plates are made bent at the edges tightly adjacent to each other in the center and are rigidly fixed at one end of tubular elements, the other end of which is installed in another tubular element having a hole coaxial with the threaded hole of the plate of the connecting element for installing the fastening element in it, made in the form of a screw, installed with the possibility of interaction of its end part with the plate of the connecting element.

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РОССИЙСКАЯ ФЕДЕРАЦИЯ

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(51) МПК
H03H 21/00 (2000.01)

ФЕДЕРАЛЬНАЯ СЛУЖБА
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ПАТЕНТАМ И ТОВАРНЫМ ЗНАКАМ

(12) ОПИСАНИЕ ПОЛЕЗНОЙ МОДЕЛИ К ПАТЕНТУ

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(54) УСТРОЙСТВО АДАПТИВНОЙ ФИЛЬТРАЦИИ ШИРОКОПОЛОСНОЙ СИСТЕМЫ СВЯЗИ

Формула полезной модели

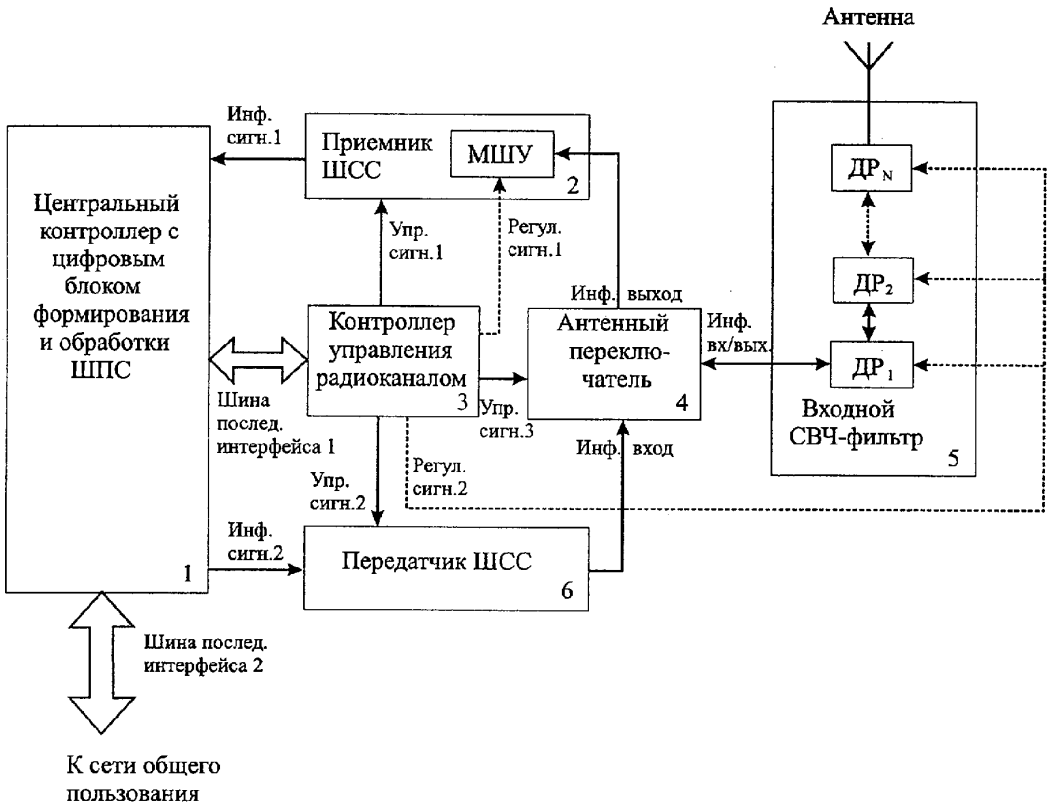
Устройство адаптивной фильтрации широкополосной системы связи, содержащее центральный контроллер, контроллер управления радиоканалом, приемник широкополосной системы связи с малошумящим усилителем, передатчик широкополосной системы связи, антенный переключатель, входной СВЧ-фильтр, первую и вторую шины последовательного интерфейса и антенну, причем центральный контроллер соединен первой и второй шинами последовательного интерфейса с сетью общего пользования и контроллером управления радиоканалом соответственно, выходным вторым информационным сигналом с входом передатчика широкополосной системы связи, а входным первым информационным сигналом с выходом приемника широкополосной системы связи; контроллер управления радиоканалом связан первым и вторым управляющими сигналами с приемником и передатчиком широкополосной системы связи соответственно, первым регулирующим сигналом - с малошумящим усилителем приемника широкополосной системы связи, а третьим управляющим сигналом - с командным входом антенного переключателя, информационный вход последнего соединен с выходом передатчика широкополосной системы связи, информационный выход - с входом приемника широкополосной системы связи, а информационный вход/выход - с входом/выходом СВЧ-фильтра, отличающееся тем, что СВЧ-фильтр выполнен на диэлектрических резонаторах, соединенных в последовательную линейку, которая включена между антенным переключателем и антенной, а управляющие входы линейки вторым регулирующим сигналом соединены с выходом контроллера управления радиоканалом.

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ABSTRACT RU28886U1

1.

13 A swimming pool containing a supporting support frame and an elastic shell installed inside, characterized in that the supporting frame is made of U-shaped rigid frame racks, the vertical generatrices of which are fastened together in pairs, and the elastic shell is made in the form of a panel forming a single structure of the bottom and sides , and is equipped around the perimeter with loops for frame racks.2. The pool according to claim 1, characterized in that the panel has dimensions in plan, determined by the formula DD + 2H, where D is the diameter of the panel of the pool shell; D is the diameter of the base (bottom) of the pool; H is the height of the frame racks of the pool.

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Espacenet

Bibliographic data: RU28886 (U1) — 2003-04-20

Бассейн

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Applicant(s): Общество с ограниченной ответственностью "Судоэкотехника - сервис"

Classification: **- international:** ***E04H4/00***
- cooperative:

Application number: RU20010128978U 20011026

Priority number(s): RU20010128978U 20011026

Abstract of RU28886 (U1)

1. Бассейн, содержащий несущий опорный каркас и установленную внутри эластичную оболочку, отличающийся тем, что несущий каркас выполнен из жестких рамных стоек П-образной формы, вертикальные образующие которых попарно скреплены между собой, а эластичная оболочка выполнена в виде полотнища, образующего единую конструкцию днища и бортов, и снабжена по периметру петлями под рамные стойки.2. Бассейн по п.1, отличающийся тем, что полотнище имеет размеры в плане, определяемые по формулеДД+2Н,где Д-диаметр полотнища оболочки бассейна;Д- диаметр основания (днища) бассейна;Н - высота рамных стоек бассейна.

Publication Number: RU 178000 U1
Publication Date: Mar 19, 2018

Abstract

The utility model refers to demonstration devices and can be used to create advertising stands, stands, etc. The essence of the utility model: an element of a spatial advertising structure consists of eight rods and eight connecting corner elements, each of which is made in the form of conjugation of three mutually perpendicular planes, and to each of which three rods are attached in different planes, while the rods are made in the form of tubular elements, and each connection of the corner and tubular elements is obtained by crimping the tubular element around the protrusion on the corner element, and a through hole is made in each of the mating planes of each corner element. The corner pieces are preferably made of a composite material, in particular glass-fiber reinforced polyamide. Tubular elements are made of aluminum. 3 C.p. f-ly, 3 dwg

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РОССИЙСКАЯ ФЕДЕРАЦИЯ

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(54) Элемент пространственной рекламной конструкции

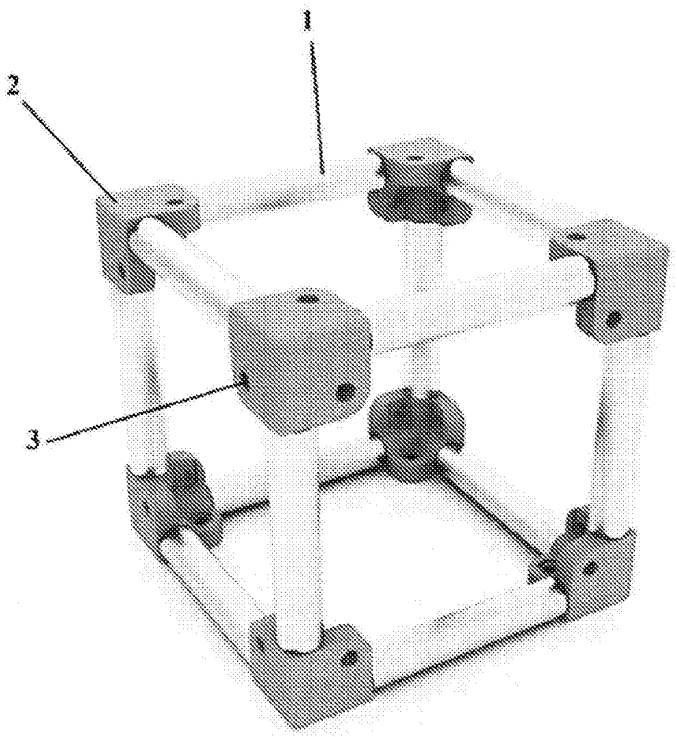
(57) Реферат:

Полезная модель относится к демонстрационным устройствам и может быть использована для создания рекламных стоек, стендов и т.п. Сущность полезной модели: элемент пространственной рекламной конструкции состоит из восьми стержней и восьми соединительных угловых элементов, каждый из которых выполнен в виде сопряжения трех взаимноперпендикулярных плоскостей, и к каждому из которых крепятся в различных плоскостях три стержня, при этом стержни выполнены в виде трубчатых элементов, а каждое соединение углового и трубчатого элементов получено посредством обжатия трубчатого элемента вокруг выступа на угловом элементе, а в каждой из сопряженных плоскостей каждого углового элемента выполнено сквозное отверстие. Угловые элементы предпочтительно выполняются из композитного материала, в частности из стеклонаполненного полиамида. Трубчатые элементы выполняются из алюминия. 3 з.п. ф-лы, 3 ил.

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Фиг. 1

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Полезная модель относится к демонстрационным устройствам и может быть использована для создания рекламных стоек, стендов и т.п.

Известна модульная система "CROWN TRUSS" [См., например: http.// www.crowntruss.ru/YOI_EAAEI/yoi_eaaei.html], предназначенная для оформления выставок и других рекламных мероприятий, которая включает складные модули, раскладывающиеся в пространственные конструкции в виде прямоугольных параллелепипедов. Минимальная конструкция - угловой кубический модуль со стороной 15 см. Из складных модулей могут собираться пространственные рекламные конструкции различных конфигураций. Отдельные модули соединяются между собой винтовыми соединениями через специальную жесткую четырехугольную проставку. Материал модулей алюминий и композитные пластики.

Известное техническое решение характеризуется высокими материалоемкостью, пониженной надежностью, дополнительной номенклатурой.

Известна модульная система "X-Module" [См., например: http://xmodule.ru/], состоящая из предварительно собранных модулей в виде ферменных конструкций прямоугольных параллелепипедов, включая угловые соединительные блоки в форме куба, соединяющихся винтовыми соединениями. Для обеспечения удовлетворительной прочности конструкция выполняется с развитой системой упрочняющих элементов, что неизменно влечет за собой повышенную материалоемкость и требования к точности и качеству изготовления комплектующих деталей.

В качестве прототипа выбрана модульная система "Эспас" [См., например: http:// www.bazilite.ru/es_osob.html], каждый элемент (в форме прямоугольного параллелепипеда) которой состоит из восьми стержней и восьми соединительных угловых элементов, каждый из которых выполнен в виде сопряжения трех взаимно перпендикулярных плоскостей, и к каждому из которых крепятся в различных плоскостях три стержня. Стержни выполняются из стеклопластика, а угловые элементы - из алюминиевого сплава, изготовлены фрезерованием. При этом стержни закрепляются в отверстия в угловых элементах методом приклеивания на эпоксидном связующем с последующей покраской. Такое соединение ненадежно из-за неоптимального соотношения размеров углового элемента и диаметра стержня (прочность конструкции достигается либо за счет увеличения угловых элементов (высокая материалоемкость), либо за счет уменьшения диаметра (размера поперечного сечения) стержней). Соответственно, при изготовлении элементов большого размера возникает необходимость установки дополнительных упрочняющих стержней.

Технической проблемой, на устранение которой направлена полезная модель, является недостаточная надежность известной системы, составленной из известных элементов рекламной конструкции. Технический результат, на достижение которого направлена полезная модель - увеличение прочности элемента пространственной рекламной конструкции.

Указанная техническая проблема решается элементом пространственной рекламной конструкции, состоящим из восьми стержней и восьми соединительных угловых элементов, каждый из которых выполнен в виде сопряжения трех взаимно перпендикулярных плоскостей, и к каждому из которых крепятся в различных плоскостях три стержня, в котором, согласно предложению, стержни выполнены в виде трубчатых элементов, а каждое соединение углового и трубчатого элементов получено посредством обжатия трубчатого элемента вокруг выступа на угловом элементе, при этом в каждой из сопряженных плоскостей каждого углового элемента выполнено сквозное отверстие.

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Предпочтительно угловые элементы выполнять из композитного материала, в частности из стеклонаполненного полиамида (ПА10).

Предпочтительно трубчатые элементы выполнять из алюминия.

Полезная модель поясняется чертежами.

На фиг. 1 представлен общий вид элемента пространственной рекламной конструкции кубической формы; на фиг. 2 - представлен общий вид изогнутого элемента пространственной рекламной конструкции, на фиг. 3 представлен пример соединения элементов в пространственную рекламную конструкцию.

Элемент пространственной рекламной конструкции состоит из восьми трубчатых элементов 1 и восьми соединительных угловых элементов 2, каждый из которых выполнен в виде сопряжения трех взаимно перпендикулярных плоскостей. К каждому элементу 2 крепятся три трубчатых элемента 1. Каждое соединение углового 2 и трубчатого 1 элементов получено посредством обжатия с помощью специального инструмента трубчатого элемента вокруг выступа (штыря) на угловом элементе. В каждой из сопряженных плоскостей каждого углового элемента 2 выполнено сквозное отверстие 3.

Предварительно собранные элементы компонуют собственно в рекламную конструкцию (фиг. 3). Отдельные элементы стыкуют в соответствии с предварительно составленным планом и соединяют болтами через отверстия 3 в угловых элементах 2. При этом за счет примененной системы соединения могут использоваться трубчатые элементы большего диаметра. Кроме того, угловые элементы 1 не выступают за плоскости, образованные трубчатыми элементами 1, что создает удобную плоскость для размещения рекламных плакатов, транспарантов и т.п., а также высокую несущую способность.

Следует также отметить, что при использовании изогнутых трубчатых элементов 1 (фиг. 2) можно получать элементы и соответственно создавать пространственные рекламные конструкции самых разнообразных конфигураций.

(57) Формула полезной модели

1. Элемент пространственной рекламной конструкции, состоящий из восьми стержней и восьми соединительных угловых элементов, каждый из которых выполнен в виде сопряжения трех взаимноперпендикулярных плоскостей, и к каждому из которых крепятся в различных плоскостях три стержня, отличающийся тем, что стержни выполнены в виде трубчатых элементов, а каждое соединение углового и трубчатого элементов получено посредством обжатия трубчатого элемента вокруг выступа на угловом элементе, при этом в каждой из сопряженных плоскостей каждого углового элемента выполнено сквозное отверстие.

2. Элемент по п. 1, отличающийся тем, что угловые элементы выполнены из композитного материала.

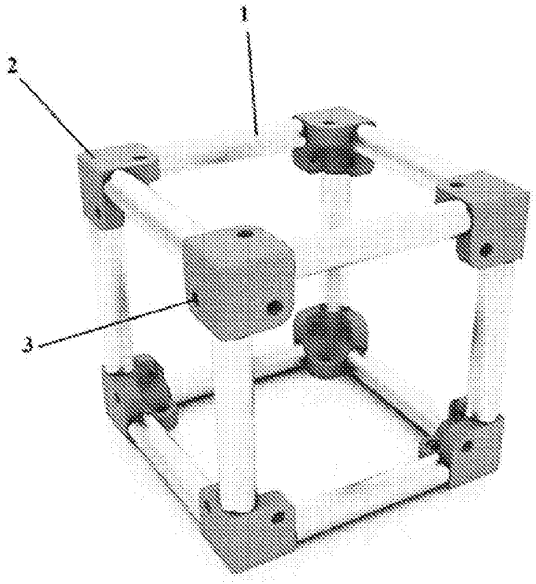
3. Элемент по п. 2, отличающийся тем, что угловые элементы выполнены из стеклонаполненного полиамида.

4. Элемент по п. 1 или 2, или 3, отличающийся тем, что трубчатые элементы выполнены из алюминия.

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1

Элемент пространственной рекламной конструкции

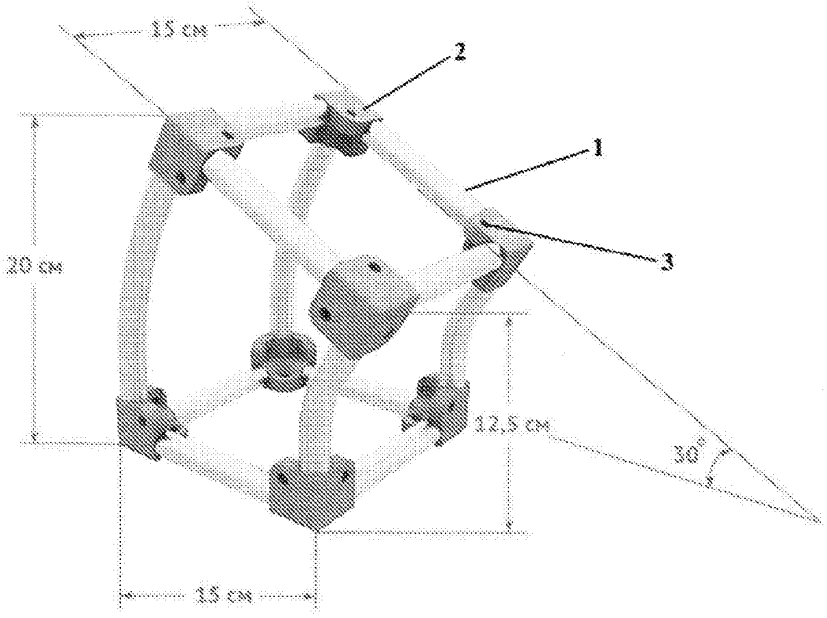


Фиг. 1

2

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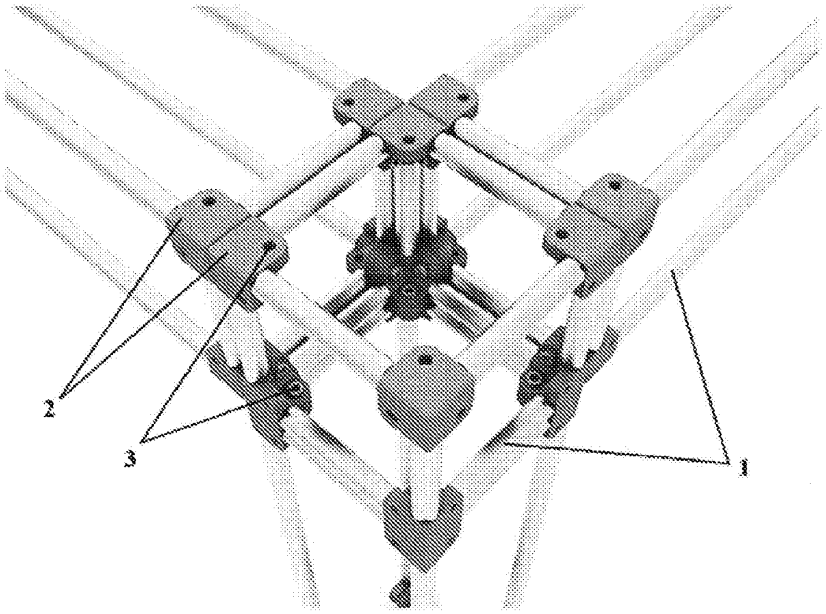
Элемент пространственной рекламной конструкции



Фиг. 2

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Элемент пространственной рекламной конструкции



Фиг. 3

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Publication Number: WO 2017/218904 A1
Publication Date: Dec 21, 2017

Abstract

A frame pool is disclosed including a frame assembly and a pool liner, the frame assembly including horizontal frame members and a vertical frame member coupled together via a T-shaped joint. The T-shaped joint may be constructed of plastic to facilitate attachment and detachment to the adjacent frame members and to resist galling and corrosion. The T-shaped joint may also be relatively small to improve the appearance and water containment of the frame pool.

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(84) Designated States *(unless otherwise indicated, for every kind of regional protection available)*: ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, ST, SZ, TZ,

(54) Title: JOINT FOR ABOVE GROUND POOL FRAME

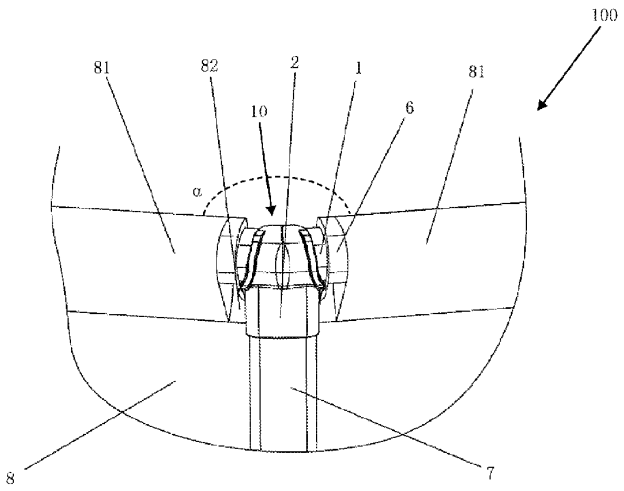


FIG. 1

(57) Abstract: A frame pool is disclosed including a frame assembly and a pool liner, the frame assembly including horizontal frame members and a vertical frame member coupled together via a T-shaped joint. The T-shaped joint may be constructed of plastic to facilitate attachment and detachment to the adjacent frame members and to resist galling and corrosion. The T-shaped joint may also be relatively small to improve the appearance and water containment of the frame pool.

[Continued on next page]

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UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG).

Declarations under Rule 4.17:

— *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))*

— *as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))*

Published:

— *with international search report (Art. 21(3))*

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JOINT FOR ABOVE GROUND POOL FRAME

CROSS REFERENCE TO RELATED APPLICATIONS

[0001[The present application claims priority to the following Chinese patent applications, the disclosures of which are hereby expressly incorporated by reference herein in their entirety:

Application Number	Filing Date
CN 201620598406.9	June 17, 2016
CN 201630270359.0	June 22, 2016
CN 201621039473.3	September 6, 2016

FIELD OF THE DISCLOSURE

[0002[The present disclosure relates to an above ground pool. More particularly, the present disclosure relates to a joint for an above ground pool, and to a method for using the same.

BACKGROUND OF THE DISCLOSURE

[0003[A frame pool may include a frame assembly and a pool liner supported by the frame assembly to form a water cavity of the pool. The frame assembly may include one or more horizontal frame members (e.g., horizontal pipes) that form an upper rim of the pool and one or more vertical frame members (e.g., vertical pipes) that extend downward from the horizontal frame members to the ground. To allow the frame assembly to be disassembled for storage and assembled for use, the horizontal frame members and the vertical frame members may be removably coupled together via a plurality of T-shaped joints. Existing T-shaped joints are formed of metal, which may be susceptible to galling and corrosion, especially as any protective coating on the metal becomes worn or damaged. Also, existing T-shaped joints are relatively wide, so existing pool liners may require wide holes or gaps to accommodate such T-shaped joints, which may impact the pool's appearance and ability to contain water.

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SUMMARY

[0004] The present disclosure provides a frame pool including a frame assembly and a pool liner, the frame assembly including horizontal frame members and a vertical frame member coupled together via a T-shaped joint. The T-shaped joint may be constructed of plastic to facilitate attachment and detachment to the adjacent frame members and to resist galling and corrosion. The T-shaped joint may also be relatively small to improve the appearance and water containment of the frame pool.

[0005] According to an embodiment of the present disclosure, a frame joint is disclosed for an above ground pool frame having a first horizontal frame member, a second horizontal frame member, and a vertical frame member. The frame joint includes: a first horizontal joint portion including a first coupling assembly configured to couple with the first horizontal frame member; a second horizontal joint portion including a second coupling assembly configured to couple with the second horizontal frame member; and a vertical joint portion fixedly coupled to the first and second horizontal joint portions and configured to couple with the vertical frame member; wherein a width of the vertical joint portion accounts for at least 50% of a width between the first and second coupling assemblies of the first and second horizontal joint portions.

[0006] According to another embodiment of the present disclosure, a frame joint is disclosed for an above ground pool frame having a first horizontal frame member, a second horizontal frame member, and a vertical frame member. The frame joint includes: a first horizontal joint portion configured to couple with the first horizontal frame member, the first horizontal joint portion being constructed of plastic; a second horizontal joint portion configured to couple with the second horizontal frame member, the second horizontal joint portion being constructed of plastic; and a vertical joint portion fixedly coupled to the first and second horizontal joint portions and configured to couple with the vertical frame member, the vertical joint portion being constructed of plastic.

[0007] According to yet another embodiment of the present disclosure, a method is disclosed for assembling an above ground pool. The method includes: coupling a first horizontal joint portion of a frame joint to a first horizontal frame member with a first coupling assembly;

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coupling a second horizontal joint portion of the frame joint to a second horizontal frame member with a second coupling assembly; and coupling a vertical joint portion of the frame joint to a vertical frame member, wherein a width of the vertical joint portion accounts for a majority of a width between the first and second coupling assemblies of the first and second horizontal joint portions.

BRIEF DESCRIPTION OF THE DRAWINGS

[0008[The above-mentioned and other features and advantages of this disclosure, and the manner of attaining them, will become more apparent and will be better understood by reference to the following description of embodiments of the invention taken in conjunction with the accompanying drawings, wherein:

[0009[FIG. 1 is a partial perspective view of a frame pool including a frame assembly and a pool liner, the frame assembly including horizontal frame members and a vertical frame member coupled together via an exemplary T-shaped joint of the present disclosure;

[0010[FIG. 2 is an exploded perspective view of the frame assembly of FIG. 1;

[0011[FIG. 3 is an exploded perspective view of the T-shaped joint of FIG. 1; and

[0012[FIG. 4 is an assembled cross-sectional view of the T-shaped joint of FIG. 3.

[0013[Corresponding reference characters indicate corresponding parts throughout the several views. The exemplifications set out herein illustrate exemplary embodiments of the invention and such exemplifications are not to be construed as limiting the scope of the invention in any manner.

DETAILED DESCRIPTION

[0014[A portion of an exemplary frame pool 100 is shown in FIGS. 1 and 2. The illustrative portion of the frame pool 100 includes two adjacent horizontal frame members 6 (e.g., horizontal pipes) that cooperate to form an upper rim of the frame pool 100 and a vertical frame member 7 (e.g., vertical pipe) that extends downward from the horizontal frame members 6 to support the frame pool 100 on the ground. Although not shown in FIGS. 1 and 2, similar frame members 6 and 7 may be provided around the remaining perimeter of the frame pool 100.

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The frame pool 100 may vary in size and shape. For example, the frame pool 100 may be rectangular, circular, elliptical, or other suitable shapes.

[0015[Referring still to FIGS. 1 and 2, a T-shaped joint 10 may be used to removably couple the two adjacent horizontal frame members 6 to the adjacent vertical frame member 7. Although a single T-shaped joint 10 is shown in FIGS. 1 and 2, similar T-shaped joints 10 may be provided around the remaining perimeter of the frame pool 100. Each T-shaped joint 10 illustratively includes two horizontal joint portions 1 configured to couple to the horizontal frame members 6 and a vertical joint portion 2 configured to couple to the vertical frame member 7. To form the T-shape, the vertical joint portion 2 is centered between and perpendicular to the two horizontal joint portions 1. The orientation of the horizontal joint portions 1 determines the orientation of the adjacent horizontal frame members 6. In the illustrated embodiment of FIG. 1, for example, the horizontal joint portions 1 define an obtuse angle α therebetween, so the horizontal frame members 6 define the same angle α therebetween. In another embodiment, the horizontal joint portions 1 may be collinear with each other, so the horizontal frame members 6 would also be collinear with each other. In another embodiment, the horizontal joint portions 1 may be perpendicular to each other, so the horizontal frame members 6 would also be perpendicular to each other, such as along a corner of a rectangular frame pool 100.

[0016[Some or all components of the frame assembly, including the horizontal frame members 6, the vertical frame members 7, and/or the T-shaped joints 10, may be constructed of a polymer, specifically plastic, such as by injection molding. Compared to metallic components, the plastic components may be smooth and elastic to facilitate assembly and disassembly of the frame assembly. Also, the plastic components may be more resistant to galling and corrosion to promote extended use. With respect to the T-shaped joint 10, in particular, the horizontal joint portions 1 and the vertical joint portion 2 may be integrally formed as a single piece of plastic. Alternatively, the horizontal joint portions 1 and the vertical joint portion 2 may be formed as multiple pieces of plastic and then fixedly coupled (e.g., adhered, welded) together. The upper end of the T-shaped joint 10 may include a raised rim 22 (FIG. 3) to give the appearance that the vertical joint portion 2 wraps around the horizontal joint portions 1.

[0017[The illustrative frame pool 100 of FIG. 1 also includes a pool liner 8 supported by the frame members 6 and 7 to form an interior water cavity for swimming and/or bathing. The

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pool liner 8 may be wrapped and secured around the horizontal frame member 6 to form a loop or fold 81. The fold 81 of the pool liner 8 may also define a gap or hole 82 to expose the T-shaped joint 10, as described further below.

[0018[The illustrative T-shaped joint 10 is described in more detail with reference to FIGS. 3 and 4.

[0019[The horizontal joint portions 1 of the illustrative T-shaped joint 10 are configured to couple with the adjacent horizontal frame members 6 (FIG. 2). The horizontal joint portions 1 may be configured to fit within the adjacent horizontal frame members 6 in a sleeved manner. Thus, the external cross-section of the horizontal joint portions 1 may match the internal cross-section of the horizontal frame members 6. In the illustrated embodiment of FIG. 3, the external cross-section of the horizontal joint portions 1 is generally triangular with rounded edges to resist rotation between the horizontal joint portions 1 and the horizontal frame members 6. It is also within the scope of the present disclosure for the external cross-section to be circular, rectangular, elliptical, or another suitable shape to match the internal cross-section of the horizontal frame members 6.

[0020[Each horizontal joint portion 1 of the T-shaped joint 10 includes a coupling assembly 3 for removable attachment to the adjacent horizontal frame member 6 (FIG. 2). As shown in FIGS. 3 and 4, each coupling assembly 3 includes a base 31 received in the horizontal joint portion 1, a helical spring 32 held in place by the base 31, and a pin 33 extending radially outward (e.g., downward) through a hole 35 in the horizontal joint portion 1. Each horizontal joint portion 1 may include an internal horizontal reinforcing rib 11 and/or an internal horizontal support member 5 to help support base 31 within the T-shaped joint 10. In an assembled or locked state, spring 32 may bias pin 33 radially outward through hole 35 to engage a corresponding recess or hole (not shown) of the horizontal frame member 6 (FIG. 2). In a disassembled or unlocked state, a user may press pin 33 radially inward to compress spring 32 and disengage the horizontal frame member 6 (FIG. 2).

[0021[The vertical joint portion 2 of the illustrative T-shaped joint 10 is configured to couple with the adjacent vertical frame member 7 (FIG. 2). The vertical joint portion 2 may be configured to fit within the adjacent vertical frame member 7 in a sleeved manner. Thus, the external cross-section of the vertical joint portion 2 may match the internal cross-section of the

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vertical frame member 7. In the illustrated embodiment of FIG. 3, the external cross-section of the vertical joint portion 2 is generally triangular with rounded edges to resist rotation between the vertical joint portion 2 and the vertical frame member 7. It is also within the scope of the present disclosure for the external cross-section to be circular, rectangular, elliptical, or another suitable shape to match the internal cross-section of the vertical frame member 7.

[0022[The vertical joint portion 2 of the T-shaped joint 10 includes a coupling assembly 4 for removable attachment to the adjacent vertical frame member 7 (FIG. 2). As shown in FIGS. 3 and 4, each coupling assembly 4 includes a base 41 received in the vertical joint portion 2, a helical spring 42 held in place by the base 41, and a pin 43 extending radially outward (e.g., rearward) through a hole 45 in the vertical joint portion 2. The vertical joint portion 2 may include one or more internal vertical reinforcing ribs 21 to help support base 41 within the T-shaped joint 10, such as by compressing fingers 46 of base 41 together within the T-shaped joint 10. In an assembled or locked state, spring 42 may bias pin 43 radially outward through hole 45 to engage a corresponding recess or hole 71 of the vertical frame member 7 (FIG. 2). In a disassembled or unlocked state, a user may press pin 43 radially inward to compress spring 42 and disengage the hole 71 of the vertical frame member 7 (FIG. 2).

[0023[According to an exemplary embodiment of the present disclosure, and as shown in FIG. 4, the size of the T-shaped joint 10 may be minimized such that the size of the corresponding hole 82 in the pool liner 8 (shown in phantom) may also be minimized. The small hole 82 in the pool liner 8 may improve the appearance and water containment of the frame pool 100 (FIG. 1) while still leaving the coupling assemblies 3 and 4, specifically the pins 33 and 43 of the coupling assemblies 3 and 4, accessible for subsequent disassembly.

[0024[The width of the T-shaped joint 10 may be minimized such that the width of the corresponding hole 82 in the pool liner 8 may also be minimized. For example, the total width W_{J1} of the T-shaped joint 10 may be about 5 inches to about 7 inches, specifically about 5 3/4 inches, the width W_{J2} between the pins 33 of the coupling assemblies 3 may be about 3 inches to about 5 inches, specifically about 3 13/16 inches, and the width W_{J3} of the vertical joint portion 2 may be about 1 inches to about 3 inches, specifically about 2 3/8 inches. In the illustrated embodiment of FIG. 4, the width W_L of the hole 82 in the pool liner 8 is greater than both the width W_{J3} of the vertical joint portion 2 and the width W_{J2} between the pins 33 to expose the pins

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33 of the coupling assemblies 3 for subsequent disassembly while being less than the total width W_{J1} of the T-shaped joint 10. For example, the width W_L of the hole 82 in the pool liner 8 is about 3 inches to about 7 inches, specifically about 4 1/2 inches.

[0025[To help minimize the size of the T-shaped joint 10, the pins 33 of the coupling assemblies 3 may be positioned close to the vertical joint portion 2. Due to this close positioning, the width W_{J3} of the vertical joint portion 2 may account for a majority of the width W_{J2} between the pins 33 of the coupling assemblies 3. For example, the width W_{J3} of the vertical joint portion 2 may account for 50%, 60%, 70%, 80%, or more of the width W_{J2} between the pins 33 of the coupling assemblies 3. In the illustrated embodiment of FIG. 4, in particular, the width W_{J3} of the vertical joint portion 2 accounts for about 70% of the width W_{J2} between the pins 33 of the coupling assemblies 3. The width W_{J3} of the vertical joint portion 2 may also account for a significant portion of the total width W_{J1} of the T-shaped joint 10. For example, the width W_{J3} of the vertical joint portion 2 may account for 40%, 50%, 60%, 70%, or more of the total width W_{J1} of the T-shaped joint 10. In the illustrated embodiment of FIG. 4, in particular, the width W_{J3} of the vertical joint portion 2 accounts for about 50% of the of the total width W_{J1} of the T-shaped joint 10.

[0026[Additionally, the height of the T-shaped joint 10 may be minimized such that the height of the corresponding hole 82 in the pool liner 8 may be minimized. For example, the total height H_J of the T-shaped joint 10 may be about 3 inches to about 5 inches, specifically about 3 7/8 inches. Because the pin 43 of the coupling assembly 4 may be accessible in front of the pool liner 8 and behind the T-shaped joint 10, the hole 82 in the pool liner 8 need not extend downward beneath the pin 43. Thus, in the illustrated embodiment of FIG. 4, the height H_L of the hole 82 in the pool liner 8 is less than the total height H_J of the T-shaped joint 10 while still allowing access to the pin 33 of the coupling assembly 3 and the pin 43 of the coupling assembly 4 for subsequent disassembly.

[0027[While this invention has been described as having exemplary designs, the present invention can be further modified within the spirit and scope of this disclosure. This application is therefore intended to cover any variations, uses, or adaptations of the invention using its general principles. Further, this application is intended to cover such departures from the present

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disclosure as come within known or customary practice in the art to which this invention pertains and which fall within the limits of the appended claims.

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WHAT IS CLAIMED IS:

1. A frame joint for an above ground pool frame having a first horizontal frame member, a second horizontal frame member, and a vertical frame member, the frame joint comprising:

a first horizontal joint portion including a first coupling assembly configured to couple with the first horizontal frame member;

a second horizontal joint portion including a second coupling assembly configured to couple with the second horizontal frame member; and

a vertical joint portion fixedly coupled to the first and second horizontal joint portions and configured to couple with the vertical frame member;

wherein a width of the vertical joint portion accounts for at least 50% of a width between the first and second coupling assemblies of the first and second horizontal joint portions.

2. The frame joint of claim 1, wherein the width of the vertical joint portion accounts for at least 40% of a total width of the frame joint.

3. The frame joint of claim 2, wherein the width of the vertical joint portion accounts for about 50% of the total width of the frame joint.

4. The frame joint of claim 1, wherein each of the first and second coupling assemblies comprises a base, a helical spring supported by the base, and a pin biased outward through a hole in the respective horizontal joint portion by the helical spring to engage a corresponding recess of the respective horizontal frame member.

5. The frame joint of claim 4, wherein the width of the vertical joint portion accounts for about 70% of a width between the pins of the first and second coupling assemblies.

6. The frame joint of claim 1, further comprising a liner wrapped around the first and second horizontal frame members, the liner defining a hole that is sized to expose the first and second coupling assemblies.

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7. The frame joint of claim 6, wherein a width of the frame joint exceeds a width of the hole in the liner.

8. The frame joint of claim 6, wherein a height of the frame joint exceeds a height of the hole in the liner.

9. A frame joint for an above ground pool frame having a first horizontal frame member, a second horizontal frame member, and a vertical frame member, the frame joint comprising:

a first horizontal joint portion configured to couple with the first horizontal frame member, the first horizontal joint portion being constructed of plastic;

a second horizontal joint portion configured to couple with the second horizontal frame member, the second horizontal joint portion being constructed of plastic; and

a vertical joint portion fixedly coupled to the first and second horizontal joint portions and configured to couple with the vertical frame member, the vertical joint portion being constructed of plastic.

10. The frame joint of claim 9, wherein the vertical joint portion is centered between the first and second horizontal joint portions to form a T-shaped frame joint.

11. The frame joint of claim 9, wherein the first and second horizontal joint portions cooperate to form an obtuse angle that defines a water cavity.

12. The frame joint of claim 9, wherein the vertical joint portion is integrally formed with the first and second horizontal joint portions as a single piece.

13. The frame joint of claim 9, further comprising:

a first coupling assembly associated with the first horizontal joint portion; and

a second coupling assembly associated with the second horizontal joint portion;

wherein a width of the vertical joint portion accounts for a majority of a width between the first and second coupling assemblies.

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14. A method of assembling an above ground pool, the method comprising:

coupling a first horizontal joint portion of a frame joint to a first horizontal frame member with a first coupling assembly;

coupling a second horizontal joint portion of the frame joint to a second horizontal frame member with a second coupling assembly; and

coupling a vertical joint portion of the frame joint to a vertical frame member;

wherein a width of the vertical joint portion accounts for a majority of a width between the first and second coupling assemblies of the first and second horizontal joint portions.

15. The method of claim 14, wherein:

an external cross-section of the first horizontal joint portion matches an internal cross-section of the first horizontal frame member;

an external cross-section of the second horizontal joint portion matches an internal cross-section of the second horizontal frame member; and

an external cross-section of the vertical joint portion matches an internal cross-section of the vertical frame member.

16. The method of claim 14, wherein the first horizontal joint portion, the second horizontal joint portion, and the vertical joint portion are constructed of plastic.

17. The method of claim 14, wherein:

coupling the first horizontal joint portion to the first horizontal frame member comprises depressing a first pin into the first horizontal joint portion and releasing the first pin into engagement with the first horizontal frame member; and

coupling the second horizontal joint portion to the second horizontal frame member comprises depressing a second pin into the second horizontal joint portion and releasing the second pin into engagement with the second horizontal frame member.

18. The method of claim 14, further comprising wrapping a liner around the first and second horizontal frame members with a hole exposing the first and second coupling assemblies.

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19. The method of claim 18, wherein a width of the hole in the liner exceeds a width between the first and second coupling assemblies.

20. The method of claim 18, wherein the vertical joint portion of the frame joint is coupled to the vertical frame member with a third coupling assembly, and wherein a height of the hole in the liner is less than a distance between the first and third coupling assemblies.

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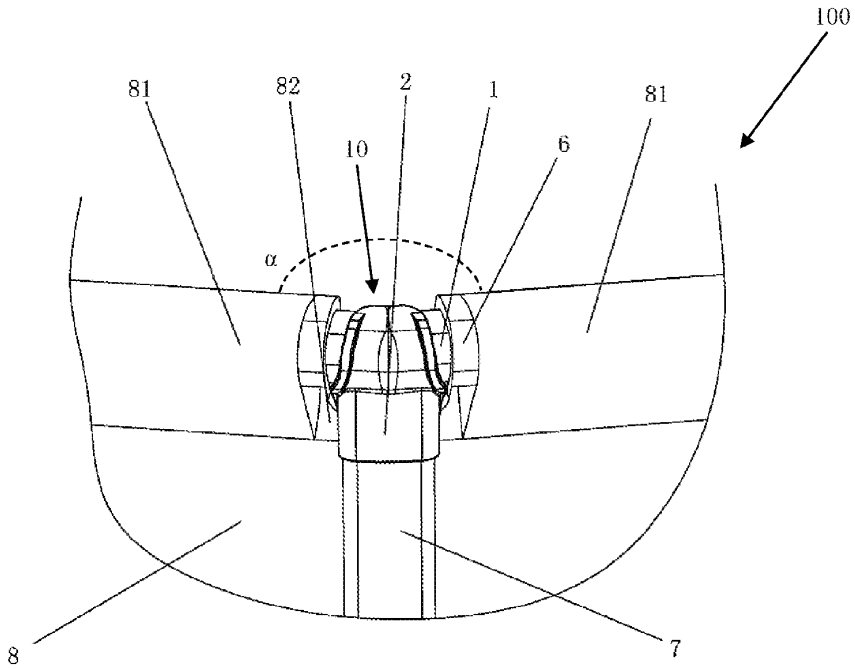


FIG. 1

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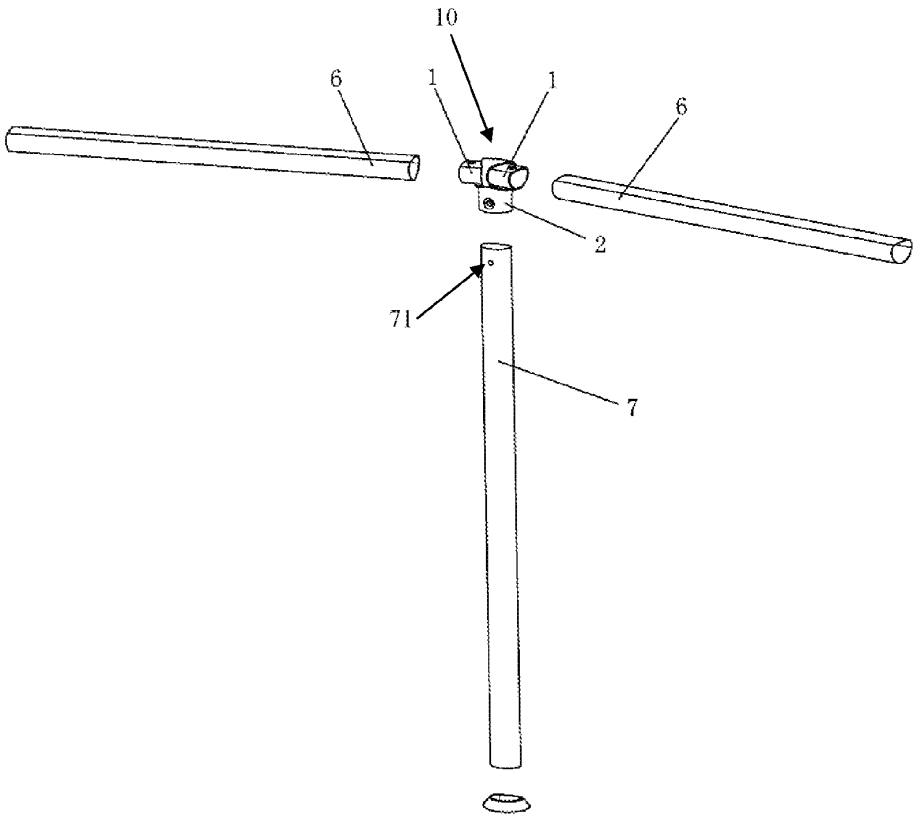


FIG. 2

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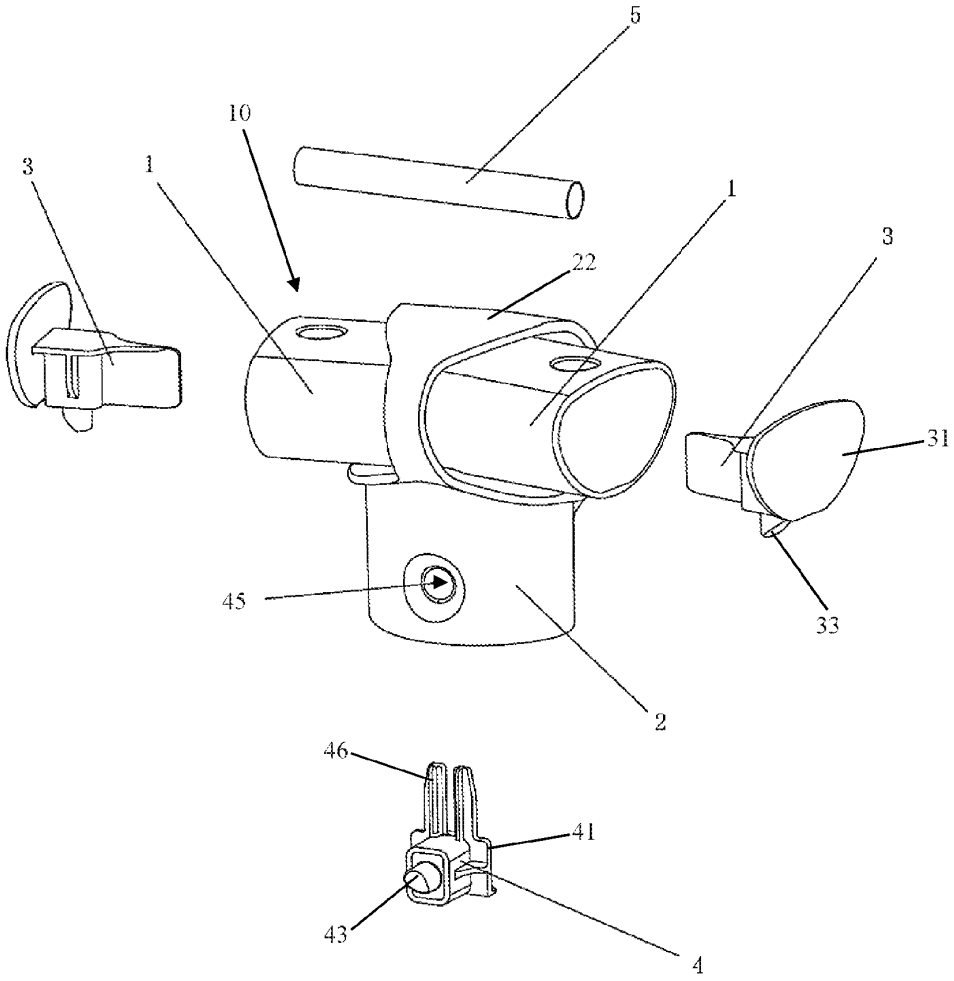


FIG. 3

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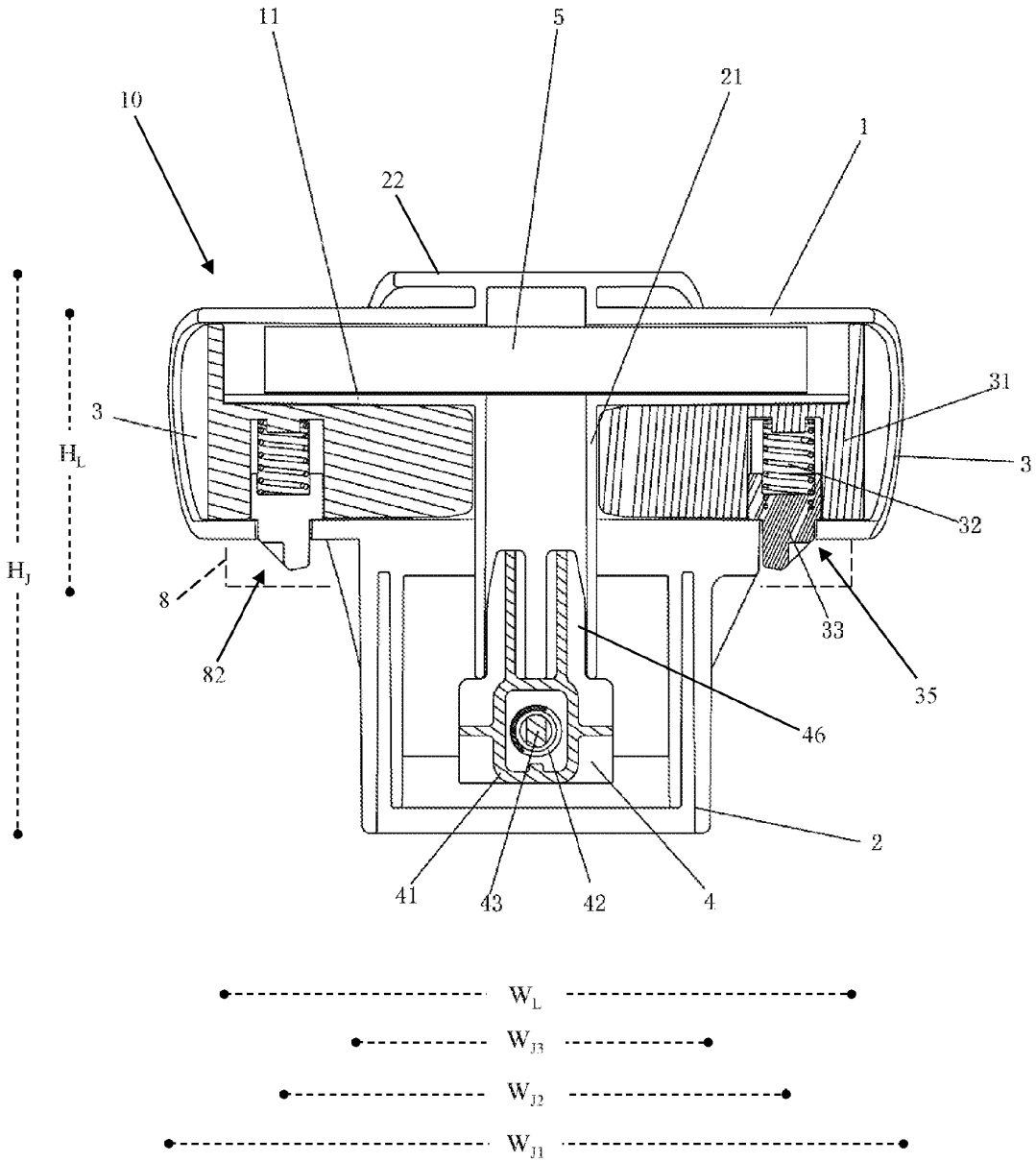


FIG. 4

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2017/037892

A. CLASSIFICATION OF SUBJECT MATTER

IPC(8) - E04H 4/00; A47B 9/14; E04H 4/02; E04H 4/04; E04H 4/14; F16B 7/10; F16B 7/14 (2017.01)
CPC - E04H 4/0056; E04B 2/766; E04H 2004/146 (2017.08)

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)
See Search History document

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

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

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2014/0325751 A1 (HAKE) 06 November 2014 (06.11.2014) entire document	9, 10, 12
X	US 2002/0042948 A1 (LEE) 18 April 2002 (18.04.2002) entire document	1-3, 14, 15, 17
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Y		4-9, 11, 13, 16, 18-20
Y	US 6,079,894 A (OBITTS) 27 June 2000 (27.06.2000) entire document	4, 5
Y	CN 204475914 U (SHANGHAI BESTWAY INFLATABLES & MATERIAL CORP) 15 July 2015 (15.07.2015) see machine translation	6-8, 18-20
Y	US 5,143,476 A (PRUIS) 01 September 1992 (01.09.1992) entire document	9, 11, 13, 16
A	US 4,323,319 A (ADAMS) 06 April 1982 (06.04.1982) entire document	1-20
A	US 2004/0118844 A1 (BENNETT et al) 24 June 2004 (24.06.2004) entire document	1-20
A	CN 200968073 Y (INTEX INDUSTRIES (XIAMEN) CO., LTD) 31 October 2007 (31.10.2007) see machine translation	1-20

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

* Special categories of cited documents:
"A" document defining the general state of the art which is not considered to be of particular relevance
"E" earlier application or patent but published on or after the international filing date
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
"O" document referring to an oral disclosure, use, exhibition or other means
"P" document published prior to the international filing date but later than the priority date claimed
"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
"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
04 August 2017	24 AUG 2017
Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US, Commissioner for Patents P.O. Box 1450, Alexandria, VA 22313-1450 Facsimile No. 571-273-8300	Authorized officer Blaine R. Copenheaver PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774

Form PCT/ISA/210 (second sheet) (January 2015)

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Publication Number: CN 2195595 Y
Publication Date: Apr 26, 1995

Abstract

The utility model relates to a combined swimming pool supporting frame, which is especially suitable for the detachable combined swimming pool of beaches and pool shores. The combined swimming pool supporting frame comprises a Y-shaped sleeve, a supporting column tube and a round tube and is characterized in that the a middle sleeve and a supporting seat tube which are orderly sheathed on the profile surface of a supporting column and be supported on the bottom end are arranged below the Y-shaped sleeve, the middle sleeve has a slot through hole in the center and has side tubes on the two sides, a slot hole which is muff coupled with one end of the round tube is arranged in the side tubes, the other end of the round tube is muff coupled in the side tube slot hole of the adjacent middle sleeve, and the frame body is formed by one connections, thereby, when children play in a swimming pool, the dangerous of supporting frame deformation, breaking off and overturn can not be occurred.

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[19]中华人民共和国专利局

[11] 授权公告号 CN 2195595Y

[12] 实用新型专利说明书

[21] ZL 专利号 94208889.1

[51]Int.Cl[5]
E04H 4/04

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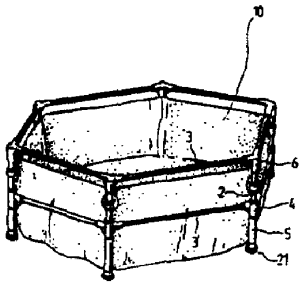
[21]申请号 94208889.1
[74]专利代理机构 三友专利事务所
代理人 曹广生

说明书页数: 附图页数:

[54]实用新型名称 组合泳池加强支撑架

[57]摘要

本实用新型涉及一种组合泳池支撑架，尤其指适于沙滩、池边的可拆卸组合泳池。它包括Y形套管、支撑柱管、圆管，其特征是：在Y形套管下方设有依次穿套在支撑柱管外形面、且支持在底端的中间套管和支撑座管，该中间套管具有中央通槽孔及两侧具有侧管，该侧管内具有与圆管一端套接的槽孔，该圆管的另一端套接在相邻的中间套管的侧管槽孔中，逐一连接形成一框架体。从而，孩童在泳池内玩耍不会出现支撑架变形、折断及翻倒危险。



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权 利 要 求 书

1、一种组合泳池加强支撑架包括Y形套管、支撑柱管、圆管，其特征是：在Y形套管下方设有依次穿套在支撑柱管外形面、且支持在底端的中间套管和支撑座管，该中间套管具有中央通槽孔及两侧具有侧管，该侧管内具有与圆管一端套接的槽孔，该圆管的另一端套接在相邻的中间套管的侧管槽孔中，逐一连接形成一框架体。

2、按权利要求1所述的组合泳池加强支撑架，其特征是：上述支撑座管底端为一底座。

3、按权利要求1所述的组合泳池加强支撑架，其特征是：上述形成的框架体为多边框架体。

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说　　明　　书

组合泳池加强支撑架

本实用新型涉及一种组合泳池支撑架，尤其指适于沙滩、池边的可拆卸组合泳池。

目前，常见的组合泳池支撑架结构是以架体单元 8 做为支撑的重心，如图 1、2 所示，该架体单元 8 系设有一 Y 形套管 8 1，该套管 8 1 下端设有槽孔 8 2，藉该槽孔 8 2 可与一支撑柱管 8 3 相连接，该支撑柱管83底端则套设一胶套 8 4；如此，以相同的多个架体单元 8 加以组合，并在相邻的架体单元 8 间藉圆管 8 5 插置在各架体单元 8 的套管 8 1 两侧槽孔 8 6 中，即可将各架体单元 8 逐一地连接起来，形成一框架体，此时，泳池本体 8 7 再藉其上所设的连接元件 8 8 连接在框架体的支撑柱管 8 3 上，即形成整个泳池。此种装置在使用时，因为支撑架结构的主要支撑力量系落在套管 8 1 与支撑柱管 8 3 交接处，其圆管 8 5 系用连接各架体单元 8，以辅助支撑在泳池本体 8 7 的功用，于是，小孩嬉戏追撞产生的冲击极易使该支撑架体失去重心，不但会破坏架体的结构稳定性、且易因架体的分解或池水的翻复而波及孩童的安危，另外，当池内的水量超出其支撑的重量或小孩在池内玩耍剧烈，该圆管 8 5 及支撑柱管 8 3 是否能发生变形，甚至折断都令人怀疑。

鉴此，本实用新型的目的是提供一种组合泳池加强支撑架，在架体单元设置多个 Y 形套管及其相连的横筋构成稳固的支撑架。

本实用新型的目的是这样实现的：一种组合泳池加强支撑架包括 Y 形套管、支撑柱管、圆管，其特征是：在 Y 形套管下方设有依次穿套在支撑柱管外形面、且支持在底端的中间套管和支撑座管，该中间套管具有中央通槽孔及两侧具有侧管，该侧管内具有与圆管一端套接的槽孔，该圆管的另一端套接在相邻的中间套管的侧管槽孔中，逐一连接形成一框架体。上述支撑座管底端为一底座。上述形成的框架体为多边框架体。

由于采用上述方案：可让孩童在泳池内任意玩耍而不会出现支撑架变形、折断及翻倒等意外事故，故安全可靠。

下面结合附图和实施例对本实用新型进一步说明。

图 1 为现有技术的立体示意图。

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图 2 为现有技术的组合立体示意图。

图 3 为本实用新型典型实施例分解图。

图 4 为本实用新型典型实施例组合立体示意图。

如图 3、4 所示，本实施例由多组相同的架体 1 及圆管 3 连接构成。其中架体 1 包括 Y 形套管 6、支撑柱管 2、中间套管 4 及支撑座管 5。

Y 形套管 6 下端设有槽孔 6 4，藉该槽孔 6 4 与一支撑柱管 2 顶端相连接，而该 Y 形套管 6 的两侧分别设有侧管 6 1，其上也设有槽孔 6 3，各侧管 6 1 彼此相交一定的角度（按合理的受力结构要求）、且侧管 6 1 的槽孔 6 3 与圆管 3 的一端相套接，而该圆管 3 的另一端与相邻架体 1 的 Y 形套管 6 相应侧管的槽孔套接；

支撑柱管 2 顶端系与 Y 形套管 6 下端槽孔 6 4 相连接，该支撑柱管 2 另一端外表面则依序贯穿中间套管 4 与支撑座管 5，且支持在其底端，该底端装设一台阶式底座 2 1；

中间套管 4 中央设有通槽孔 4 1，藉该通槽孔 4 1 可藉支撑柱管 2 贯穿其中，该套管 4 的两侧分别设有侧管 4 2，该侧管 4 2 上并设有槽孔 46，各侧管 4 2 相交一定的角度（按合理的受力结构要求），以上述槽孔 4 6 套接圆管 3’ 的一端，而圆管 3’ 的另一端与相邻的架体的相应中间套管相接。

如图 4 所示，以相同的多组架体 1 藉圆管 3、3’ 插置在各架体单元的 Y 形套管 6、中间套管 4 两侧的槽孔 6 3、4 6 中，逐一地连接成一多边框架体，也可连接成圆形、三边形框架体，再与泳池本体 1 0 相连接而形成可拆卸的整体泳池；泳池本体 1 0 藉扣件或其它连接件与框架连接，整体泳池的重心将不仅系由各该架体单元 1 的 Y 形套管 6 和支撑柱管 2 支持、且该支撑柱管 2 上所设的支撑座管 5、中间套管 4 及圆管 3 组成的结构，将处于泳池本体 1 0 侧缘的中间部位形成另一支撑架体结构，使泳池本体的支撑架更为稳固，又围绕在泳池本体周缘的圆管 3 也因承受泳池侧向压力的受力点增多，增加支撑架的稳定性，故安全可靠。

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说 明 书 附 图

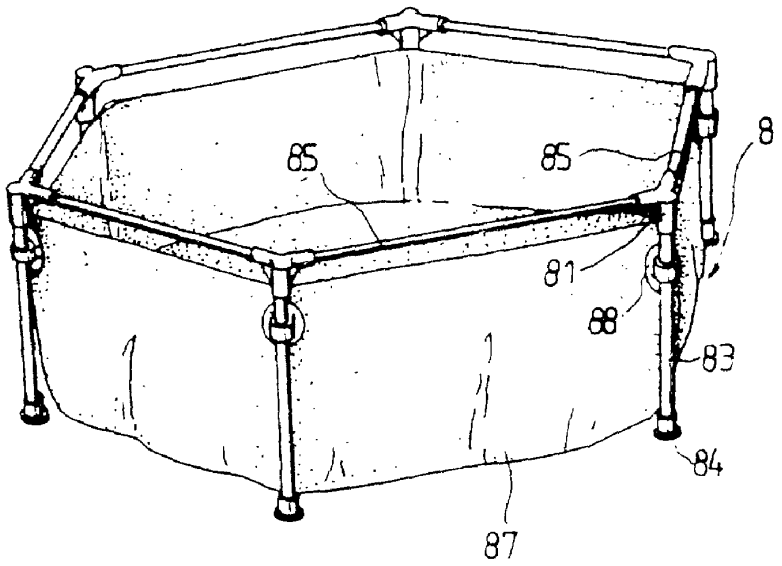


图 1

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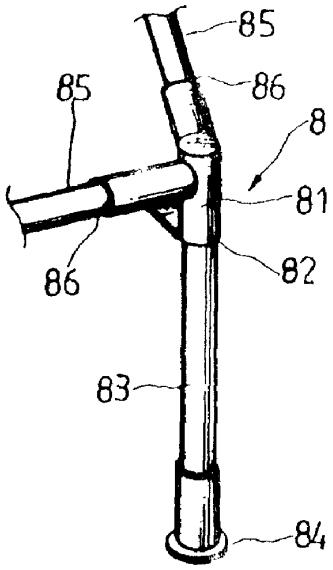


图 2

BESTWAY EX. 1003; Pg 379
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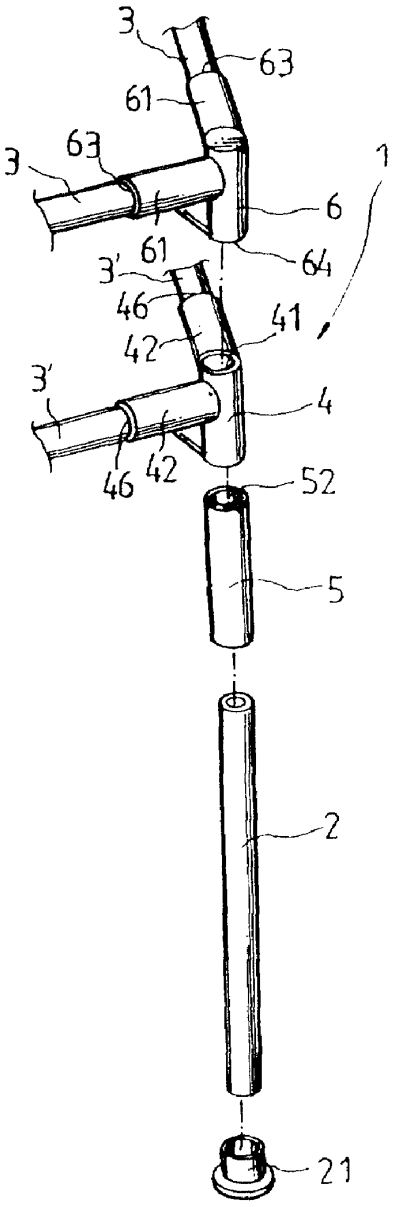


图 3

BESTWAY EX. 1003; Pg 380
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说 明 书 附 图

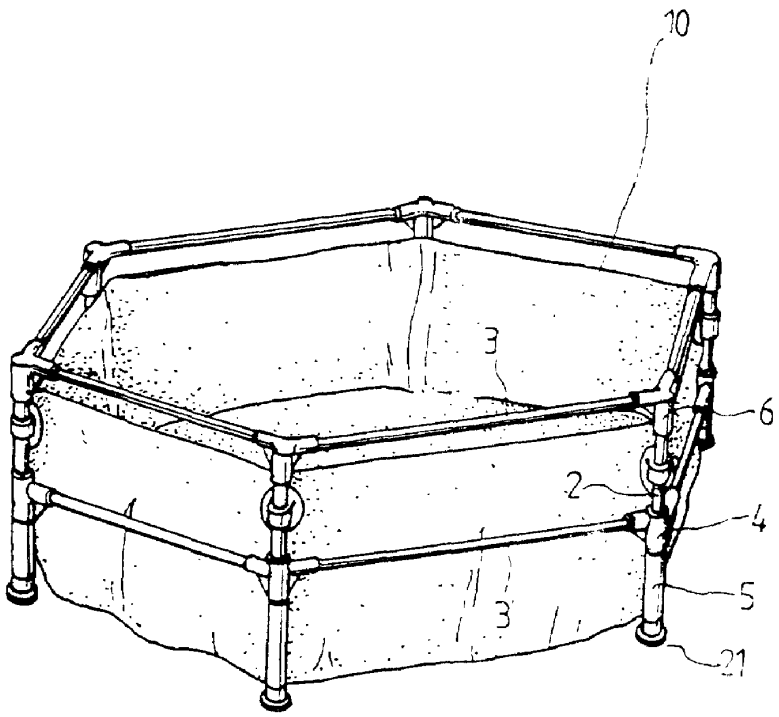


图4

BESTWAY EX. 1003; Pg 381
Bestway v. Intex PGR2024-00036

Publication Number: CN 2480479 Y
Publication Date: Mar 06, 2002

Abstract

The utility model discloses a dismounting pool composed a water cloth and a support bracket, the support bracket comprises a connecting pipe, a pipe connector, and a straight pipe, the connecting pipe and the connecting pipe, the connecting pipe and the straight pipe are connected by pipe connector, the edge of the water cloth is connected with the connecting pipe by bell socket, the straight pipes are connected together by a reinforcing band, while using, firstly connect the connecting pipe to the water cloth by bell socket, connect the connecting pipes together by pipe connector, connect the straight pipes to the pipe connector then strengthen the fixation, thereby a whole pool is conveniently formed, the pool has the advantages of application in any place and convenient dismounting and use.

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Bestway v. Intex PGR2024-00036

[19]中华人民共和国国家知识产权局

[51]Int. Cl[7]
E04H 4/04

[12]实用新型专利说明书

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[45]授权公告日 2002 年 3 月 6 日

[11]授权公告号 CN 2480479Y

[22]申请日 2001.7.10 [24]颁证日 2002.3.6

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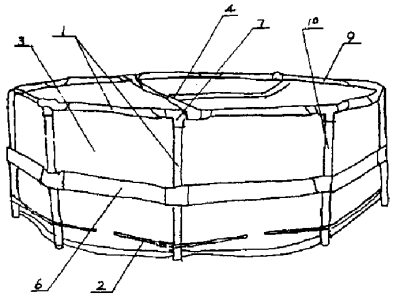
[21]申请号 01242575.3

权利要求书 1 页 说明书 2 页 附图页数 1 页

[54]实用新型名称 可拆装游泳池

[57]摘要

本实用新型公开了一种由围水布、支架组成的可拆装游泳池，支架 由连接管、管件连接件、直管组成，连接管之间、连接管与直管之间通 过管件连接件连接，围水布上面的周边套接在接管上，直管之间通过加 强带连接在一起，使用时，先把连接管套在围水布上，通过管件连接件 把连接管连接在一起，直管接装在连接件后通过加强的固定，方便地形 成一个完整的游泳池，这游泳池具有适有于任何地方、拆装、使用方便 的特点。



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01.07.16

权　利　要　求　书

1、一种可拆装游泳池，它由围水布（3）、支架（1）组成，其特征在于：支架（1）又由连接管（9）、管件连接件（7）、直管（10）组成，连接管（9）之间、连接管（9）与直管（10）之间通过管件连接件（7）连接，围水布（3）上面的周边套接在连接管（9）上，直管（10）之间通过加强带（6）连接在一起。

2、根据权利要求 1 所述的可拆装游泳池，其特征在于：在连接管（9）之间还设有固身带（4）。

3、根据权利要求 1 所述的可拆装游泳池，其特征在于：在直管（10）之间还通过绳子（2）固定。

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01·07·16

说　明　书

可拆装游泳池

本实用新型涉及游泳池，是一种可拆装的活动式游泳池。

生活中，当人们需要去游泳健身时，都要去江河、水库或经营性游泳池才能达到游泳健身的目的。但江河、水库往往缺乏安全搭施，而经营性游泳池则又因时间紧，去泳池的路途耗时且容易造成疾病的交叉感染。如果采用一种小巧、方便、易拆装、平时又不占用过大的空间，且能在安全、省时的前提下同样达到游泳健身的目的可拆式游泳池，目前市面上还没有上市。

本实用新型目的，在于提供一种小巧、方便、易拆装、便用时能达到游泳健身、娱乐、省时的可拆装游泳池。

本实用新型的目的是这样实现的：可拆装游泳池由围水布、支架组成，支架又由连接管、管件连接件、直管组成，连接管之间，连接管与直管之间，通过管件连接件连接，围水布上面的周边套接在连接管上，直管之间通过加强带连接在一起。

本实用新型进一步的改进方案：在连接管之间还设有固身带。

本实用新型另一改进方案：在直管之间还通过绳子固定。

本实用新型相比现有技术具有如下优点：设计合理，不论在任何地方都可安装游泳池，体积小，具有使用拆装方便，获得游泳健身的效果。

附图的图面说明如下：

图 1 为本实用新型具体的一种实施案的结构示意图。

下面将结合附图和实施例对本实用新型游泳池作进一步详述：

该游泳池由围水布 3，支架 1 组成，支架 12 由连接管 9，管件连接件 7，直管 10 组成，连接管 9 之间、连接管 9 直管 10 之间通过管件

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连接件 7 连接，围水布 3 上面的周边套接在连接管 9 上，直管 10 之间通过加强带 6 连接在一起，连接管 9 之间还设有固身带 4，在直管 10 之间还通过绳子 2 固定。安装时，先把连接参管 9 套在围水布 3 上，通过管件连接件 7 把连接管 9 连接在一起，直管 10 接装在连接 7 后通过加强带 6 固定，从而快而方便地安装成一个完整的游泳池，这游泳池具有适用于任何地方和拆装使用方便的特点。

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说　明　书　附　图

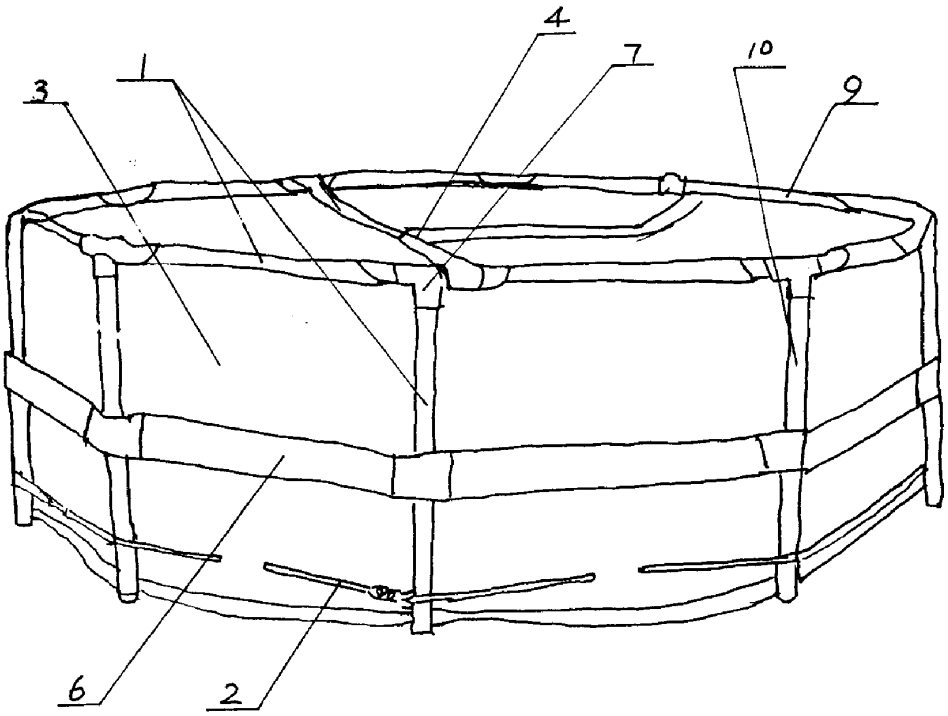


图　1

BESTWAY EX. 1003; Pg 387
Bestway v. Intex PGR2024-00036

Publication Number: CN 2766083 Y
Publication Date: Mar 22, 2006

Abstract

The utility model relates to a connecting pin for a steel pipe supporting frame of a water pond. The utility model mainly comprises a pin and a water-proof shim. The utility model is characterized in that the lower end of the pin is in a circular head shape, and the lower part of the pin can be divided into two branches, wherein the outside of the two branches is respectively provided with a convex point. The water-proof shim is in a bowl shape, and the pin can thread through the water-proof shim and a connecting circular hole of a steel pipe. Then, two convex points of the pin are mutually butted with the edge at the lower end of the connecting circular hole of the steel pipe. The utility model has the advantages that the structure is provided with the water-proof shim, and the pin can easily be inserted and extracted of the water-proof shim; because the thickness of the branches is enlarged, the pin can not be easily broken and bended; the lower end of the pin is in a circular-head shape, which can prevent from hurting a user.

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Bestway v. Intex PGR2024-00036

[19] 中华人民共和国国家知识产权局

[51] Int. Cl.
F16B 7/00 (2006.01)

[12] 实用新型专利说明书

专利号 ZL 200520039036.7

[45] 授权公告日 2006 年 3 月 22 日

[11] 授权公告号 CN 2766083Y

[22] 申请日 2005.1.17
[21] 申请号 200520039036.7
[73] 专利权人 上海荣威塑胶工业有限公司
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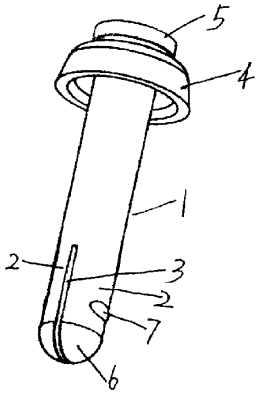
权利要求书 1 页 说明书 4 页 附图 3 页

[54] 实用新型名称

水池钢管支架的连接插销

[57] 摘要

一种水池钢管支架的连接插销，构成主要包括：插销和防水垫片，其特征在于插销的下端为圆头形状，并在下部分割成两个分叉，两个分叉的外侧各设有一凸点。 防水垫片为碗形形状，插销穿过防水垫片、穿过钢管的连接圆孔，插销的两个凸点与钢管的连接圆孔的下端边缘相抵。 本实用新型的优点是本结构设有防水垫片，插销插入和拔出容易，分叉的厚度增大使插销不易折断及折弯，插销的下端为圆头形状避免对使用者造成伤害。



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1、 一种水池钢管支架的连接插销，主要包括一类似铆钉的圆柱体插销，圆柱体的直径与钢管的连接圆孔直径相配合，插销的顶端为圆形顶盖，其直径大于圆柱体的直径，和一防水垫片，其特征在于：所述插销的下端为圆头形状，并从中间将圆柱体的下部割成两个分叉，两个分叉的外侧各设有一凸点，由橡胶或塑料制成的防水垫片为碗形形状，外径大于钢管的连接圆孔直径，中间设有与插销匹配的圆孔，插销穿过防水垫片和钢管的连接圆孔，插销的两个凸点与钢管的连接圆孔的下端边缘相抵。

2、 根据权利要求 1 所述的一种水池钢管支架的连接插销，其特征在于所述插销的两个分叉上的凸点形状可以为圆形或椭圆形，该两个凸点的高度之和小于两个分叉之间的间距，两个分叉之间的间距为插销圆柱体本体直径的 1/10～3/10。

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水池钢管支架的连接插销

技术领域

本实用新型涉及一种水池钢管支架的连接插销，特别是一种 PVC 材料制作的水池钢管支架的连接插销。

背景技术

现在市场上的矩形或多边形钢管支架 PVC 水池，钢管支架通常是由边管、T 形接头、垂直支撑管组成的，钢管表面一般都经过喷漆或喷塑处理。其中边管的两端加工成有一定长度的缩口，边管在与 T 形接头连接时边管的收缩部位插入 T 形接头，然后插入插销，使两者固定。插销通常采用有一定弹性的塑料制成，它的外形类似于铆钉，插销的下端设有两个分叉，两个分叉间的距离较宽，两个分叉上设有一圈圆台状或钩状的限位倒扣，参见图 7。当插销插入钢管连接圆孔，插销的两边分叉向内弯曲使插销能够通过钢管连接圆孔，插销穿过钢管连接圆孔之后两边分叉回弹复位，圆台状或钩状的限位倒扣卡在钢管连接圆孔下端边缘起到限位的作用。但这种插销存在着以下缺陷：1 这种插销两个分叉间的距离较大，使得两个分叉比较单薄，水池装满水之后 T 形接头和边管对插销有很大的剪切力，容易造成分叉折弯或折断； 2 整圈的圆台倒扣较宽， 造成插销插入和拔出都比较困难；3 插销头部较尖锐，容易对使用者造成伤害；4 没有防水装置，水容易流入钢管内部造成钢管的锈蚀。

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发明内容

为了克服上述已有技术中的缺陷，本实用新型设计出一种水池钢管支架的连接插销。本实用新型的主要包括一类似铆钉的圆柱体插销，圆柱体的直径与钢管的连接圆孔直径相配合，插销的顶端为圆形顶盖，其直径大于圆柱体的直径，和一防水垫片，其特征在于：所述插销的下端为圆头形状，并从中间将圆柱体的下部分割成两个分叉，两个分叉的外侧各设有一凸点，凸点形状可以为圆形或者椭圆形，该两个凸点的高度之和小于两个分叉之间的间距，两个分叉之间的分割间距以允许两个分叉上的凸点受力向内挤压造成两个分叉弯曲变形而使插销能顺畅地通过钢管的连接圆孔为宜，两个分叉之间的间距为插销圆柱体本体直径的 1/10～3/10。由橡胶或塑料制成的防水垫片为碗形形状，外径大于钢管的连接圆孔直径，中间设有与插销匹配的圆孔，插销穿过防水垫片、穿过钢管的连接圆孔，插销的两个凸点与钢管的连接圆孔的下端边缘相抵。

本实用新型的优点是本结构设有防水垫片，插销卡口改为凸点插入和拔出容易，分叉的厚度增大使插销不易折断及折弯， 插销的下端为圆头形状避免对使用者造成伤害。

附图说明

图 1 本实用新型的插销、防水垫片结构示意图

图 2 本实用新型的插销结构示意图

图 3 本实用新型的防水垫片结构示意图

图 4 本实用新型的连接示意图

图 5 本实用新型的连接剖视图

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图 6 本实用新型的连接剖视图

图 7 现有技术的插销连接剖视图

1 插销、 2 分叉、 3 分割口、 4 防水垫片、 5 圆形顶盖、 6 圆头、 7 凸点、 8 钢管、 9 T 形接头

具体实施方式

下面结合附图进一步说明本实用新型的实施例:

参见图 1、图 2，插销 1 为一类似铆钉的圆柱体，圆柱体的直径与钢管的连接圆孔直径相配合，插销 1 的顶端为圆形顶盖 5，其直径大于圆柱体的直径，插销 1 用有一定弹性的塑料或其它材料制作，插销 1 下端为圆头 6，插销 1 的下部从中间将圆柱体的三分之一分割成两个分叉 2，两个分叉 2 的外侧各设有一凸点 7，凸点 7 形状可以为圆形、椭圆形或者其它形状。该两个凸点的高度之和小于两个分叉之间的间距，两个分叉 2 之间的分割口 3 的宽度为以允许两个分叉上的凸点受力向内挤压造成两个分叉 2 弯曲变形而使插销 1 能顺畅地通过钢管的连接圆孔为宜，一般为两个分叉之间的间距为插销圆柱体本体直径的 1/10～3/10。

参见图 3、图 4、图 5、图 6，防水垫片 4 为软 PVC 或其它柔性的橡胶或塑料等适宜的材料制成，防水垫片 4 的形状为碗形，外径大于钢管的圆孔直径，中间有与插销 1 匹配的圆孔。碗形的防水垫片 4 在垂直方向受压变形使碗形防水垫片的内表面紧紧贴合在钢管表面，由于插销 1 上的两个凸点 7 的限位作用阻止了碗形防水垫片 4 的反弹。这样可以使防水垫片 4 对钢管 8 有良好的防水作用，防止水从钢管 8 的连接圆孔中流入钢管内部。

当钢管 8 在与 T 形接头 9 连接时，钢管 8 的收缩部位插入 T 形接头 9，

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然后插入插销 1，插销 1 受到垂直方向向下的力，并迫使插销分叉 2 外表面上的凸点 7 受力向内挤压造成两个分叉 2 弯曲变形而使插销 1 能顺畅地通过钢管的连接圆孔。两个分叉 2 有足够的厚度保证在长期受到钢管的剪切力和多次插拔的情况下而不被折断。插销 1 贯穿插入钢管 8 以后，两个凸点 7 回弹复位起到限位固定的作用，防止插销 1 松动脱落。

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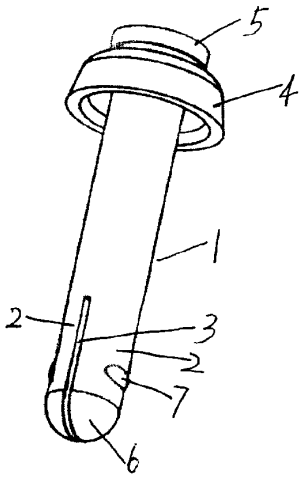


图 1

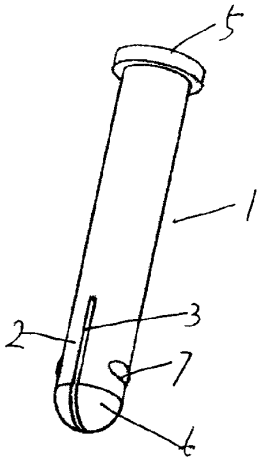


图 2

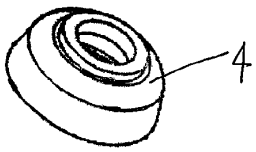


图 3

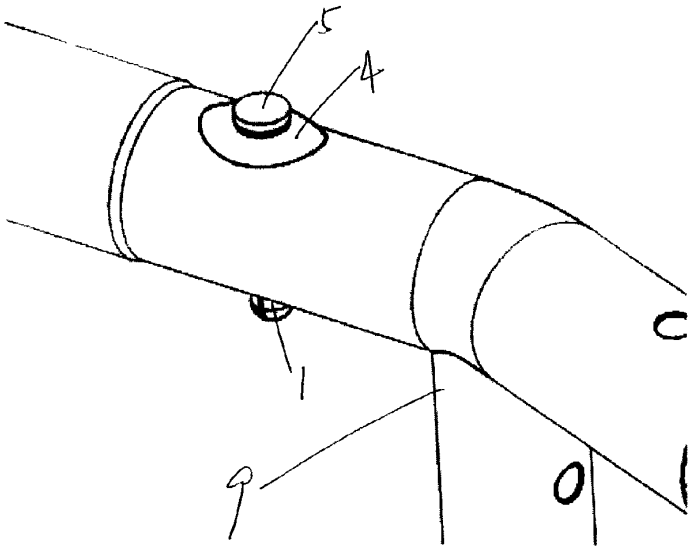


图 4

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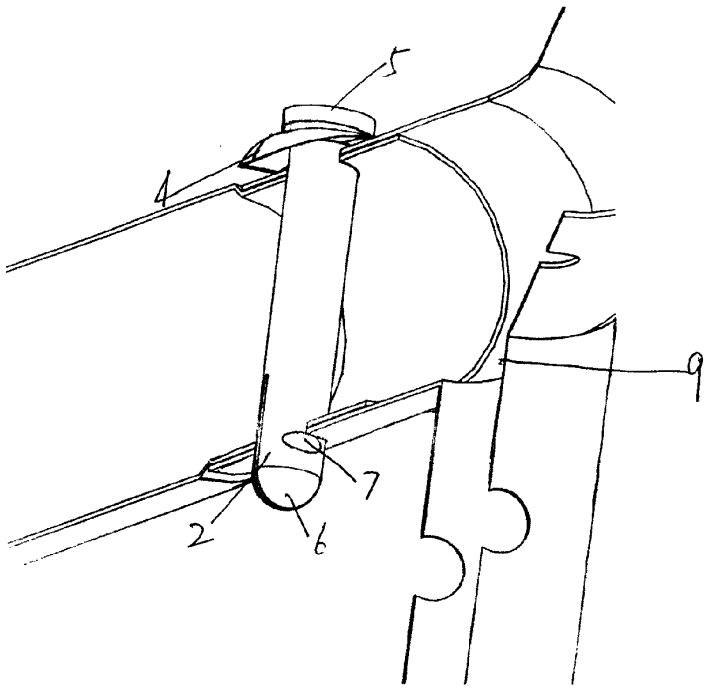


图 5

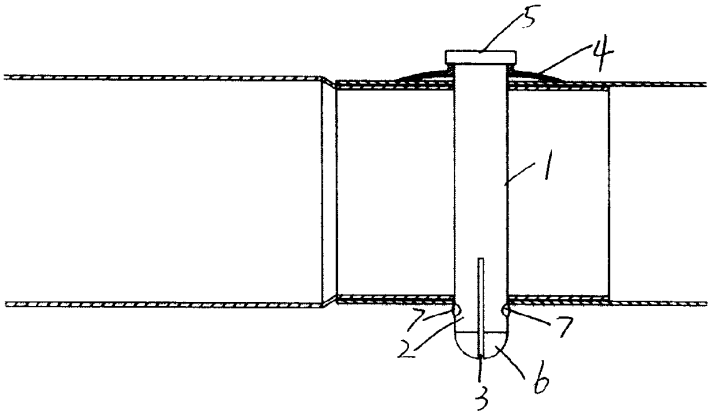


图 6

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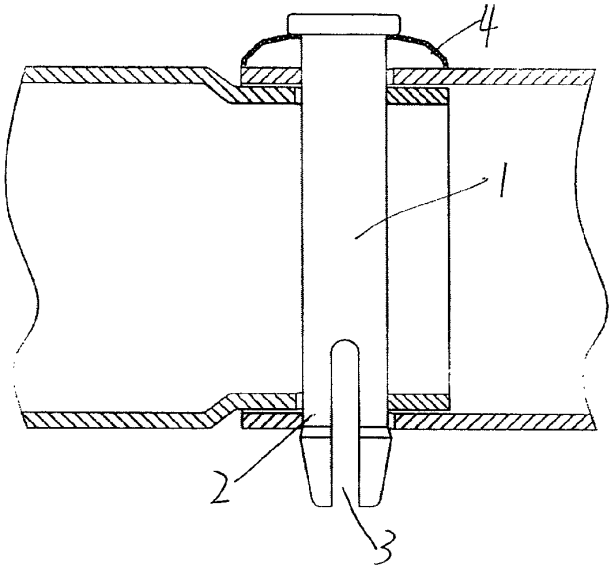


图 7

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Abstract

The utility model discloses an improvement of boundary tube of a pipe frame swimming pool. The pipe frame includes a circular pipe frame as well as a swimming pool arranged in the circular pipe frame. The circular pipe frame includes a plurality of steel boundary tubes, the steel boundary tubes are interconnected in series or interconnected through a coupling head into an endless belt, and the top surface of the boundary tube is flat. The beneficial effects of the technic proposal are that the top surface of the boundary tube is flat, not only increasing the steel supporting strength of the tube frame, but also with easy usage and attractive appearance.

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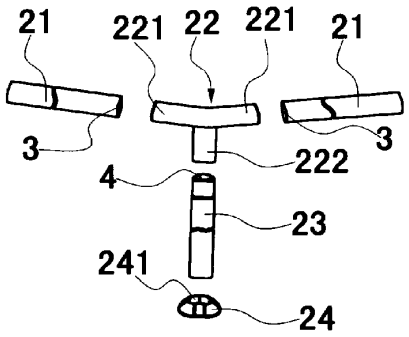
权利要求书 1 页 说明书 5 页 附图 3 页

[54] 实用新型名称

一种管架游泳池边管结构的改进

[57] 摘要

本实用新型公开了一种管架游泳池边管结构的改进，管架游泳池包括一环形管架及一设于环形管架内的游泳池，该环形管架包括若干根钢性边管，若干边管之间串接成或通过联接头串接成环行带，所述的边管顶面为平面。 本技术方案的有益效果是：边管顶面为平面，则不但增加管架钢性支撑强度，而且使用方便、美观。



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1．一种管架游泳池边管结构的改进，管架游泳池包括一环形管架及一设于环形管架内的游泳池，该环形管架包括若干根钢性边管，若干边管之间串接成或通过联接头串接成环行带，其特征是：所述的边管顶面为平面。

2．根据权利要求 1 所述的一种管架游泳池边管结构的改进，其特征是：所述的边管横截面为侧 D 字型，而且 D 字型的平面朝上。

3．根据权利要求 2 所述的一种管架游泳池边管结构的改进，其特征是：所述的环形管架还包括若干个脚架，脚架顶端可装拆地支撑环行带。

4．根据权利要求 3 所述的一种管架游泳池边管结构的改进，其特征是：所述的游泳池外侧周面设有若干个袖套；边管套接于对应的袖套内。

5．根据权利要求 3 所述的一种管架游泳池边管结构的改进，其特征是：所述的边管第一端设成后插接部、第二端设成前被插接部，边管的第一端的后插接部可装拆地插接于相邻边管的第二端的前被插接部，另匹配有一可锁接后插接部和前被插接部的或松开该锁接的第三锁接装置。

6．根据权利要求 3 或 5 所述的一种管架游泳池边管结构的改进，其特征是：所述的联接头具有两个水平被插接部；边管端部可装拆地插接于联接头的水平被插接部，另匹配有一设在边管端部和水平被插接部之间的可锁接边管端部和水平被插接部或松开该锁接的第一锁接装置；其中，联接头顶面为齐平于边管顶面的平面。

7．根据权利要求 6 所述的一种管架游泳池边管结构的改进，其特征是：所述的水平被插接部横截面为匹配于边管横截面侧 D 字型。

8．根据权利要求 6 所述的一种管架游泳池边管结构的改进，其特征是：所述的联接头具有下被插接部；脚管底端可支撑定位于地面，脚管顶端可装拆地插接于下被插接部；另匹配有设在脚管顶端和下被插接部之间的可锁接脚管顶端和下被插接部或松开该锁接的第二锁接装置。

9．根据权利要求 5 所述的一种管架游泳池边管结构的改进，其特征是：所述的边管底面设有下被插接槽；脚管底端可支撑定位于地面，脚管顶端可装拆地插接于下被插接槽；另匹配有设在边管和下被插接槽之间的可锁接脚管顶端和下被插接槽或松开该锁接的第四锁接装置。

10．根据权利要求 9 所述的一种管架游泳池边管结构的改进，其特征是：所述的每一脚管还匹配有一拉带，拉带一端固接于脚管底端，另一端固接于游泳池，脚架倾斜支撑游泳池。

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一种管架游泳池边管结构的改进

所属技术领域

本实用新型涉及一种游泳池，特别是涉及一种管架游泳池边管结构的改进。

背景技术

现有管架游泳池包括一环形管架及一设于环形管架内的游泳池：该环形管架包括若干根钢性边管、若干个脚架，若干边管之间串接成或通过联接头串接成环行带，脚架顶端可装拆地支撑环行带；该游泳池包括一块联接于环形管架的环行带内的不透水布；环形管架和不透水布配合形成游泳池基体。现有的边管横截面都采用圆形，则必然就存在有如下的缺点：顶面为圆弧面，用户使用不方便、不美观。

实用新型内容

为了克服现有管架游泳池所存在的使用不方便、不美观的不足，本实用新型提供一种管架游泳池边管结构的改进，其不但增加管架钢性支撑强度，而且使用方便、美观。

本实用新型解决其技术问题所采用的技术方案是：一种管架游泳池边管结构的改进，管架游泳池包括一环形管架及一设于环形管架内的游泳池，该环形管架包括若干根钢性边管，若干边管之间串接成或通过联接头串接成环行带，所述的边管顶面为平面。本技术方案的有益效果是：边管顶面为平面，则不但增加管架钢性支撑强度，而且使用方便、美观。

所述的边管横截面为侧 D 字型，而且 D 字型的平面朝上。本技术特征的有益效果是：边管横截面为侧 D 字型，则不但边管顶面光滑美观，而且增强管架联接承受力。

所述的环形管架还包括若干个脚架，脚架顶端可装拆地支撑环行带。本技术特征的有益效果是：环行带由若干个脚架支撑，支撑牢固；环行带和地面之间的距离等于脚架。

所述的管架游泳池外侧周面设有若干个袖套；边管套接于对应的袖套内。本技术特征的有益效果是：不但可以定位好边管，而且便于装拆。

所述的边管两端均伸露出袖套。本技术特征的有益效果是：便于装拆。

所述的边管第一端设成后插接部、第二端设成前被插接部，边管的第一端的后插接部可装拆地插接于相邻边管的第二端的前被插接部，另匹配有一可锁接后插接部和前被插接部的或松开该锁接的第三锁接装置。

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所述的联接头具有两个水平被插接部；边管端部可装拆地插接于联接头的水平被插接部，另匹配有一设在边管端部和水平被插接部之间的可锁接边管端部和水平被插接部或松开该锁接的第一锁接装置；其中，联接头顶面为齐平于边管顶面的平面。本技术特征的有益效果是：其一，联接头和边管之间的联接为可装拆插接，联接牢固，便于装拆；其二，设有第一锁接装置，锁接方便快速、便于装拆；联接头顶面为齐平于边管顶面的平面，美观。

所述的水平被插接部横截面为匹配于边管横截面侧 D 字型。本技术特征的有益效果是：管架顶面光滑美观。

所述的联接头具有下被插接部；脚管底端可支撑定位于地面，脚管顶端可装拆地插接于下被插接部；另匹配有设在脚管顶端和下被插接部之间的可锁接脚管顶端和下被插接部或松开该锁接的第二锁接装置。本技术特征的有益效果是：脚管和联接头之间可装拆，拆卸后占用空间小；装拆方便。

所述的边管底面设有下被插接槽；脚管底端可支撑定位于地面，脚管顶端可装拆地插接于下被插接槽；另匹配有设在边管和下被插接槽之间的可锁接脚管顶端和下被插接槽或松开该锁接的第四锁接装置。

所述的每一脚管还匹配有一拉带，拉带一端固接于脚管底端，另一端固接于游泳池，脚架倾斜支撑游泳池。本技术特征的有益效果是：可牢固定位脚管，牢固支撑游泳池。

所述的第一锁接装置包括一固接于边管端部内的第一固接座、一开设于水平被插接部的第一通孔、一开设于边管端部的第一让位孔，第一固接座内设有一在弹力作用下可伸露出第一固接座外，穿过第一让位孔并插接于第一通孔的第一弹销。本技术特征的有益效果是：按下第一弹销即可松开锁接，使用方便，装拆方便快速。

所述的第二锁接装置包括一固接于脚管顶端内的第二固接座、一开设于下被插接部的第二通孔、一开设于脚管顶端的第二让位孔，第二固接座内设有一在弹力作用下可伸露出第二固接座外，穿过第二让位孔并插接于第二通孔的第二弹销。本技术特征的有益效果是：按下第二弹销即可松开锁接，使用方便，装拆方便快速。

所述的第三锁接装置包括一固接于后插接部内的弹簧销、一开设于前被插接部的第三通孔、一开设于后插接部的第三让位孔，弹簧销上设有在弹力作用下可穿过第三让位孔并插接于第三通孔的第三弹销。

本技术方案的有益效果是：边管顶面为平面，则不但增加管架钢性支撑强度，而且使用方便、美观。

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附图说明

下面结合附图和实施例对本实用新型进一步说明。

图 1 是本实用新型的实施例一的管架游泳池的立体示意图。

图 2 是本实用新型的实施例一的管架游泳池的边管和联接头之间的立体分解示意图。

图 3 是本实用新型的实施例一的管架游泳池的联接头、第一锁接装置的立体分解示意图。

图 4 是本实用新型的实施例一的管架游泳池的边管套接于袖套的立体示意图。

图 5 是本实用新型的实施例二的管架游泳池的立体示意图。

具体实施方式

实施例一

一种管架游泳池边管结构的改进，如图 1 所示，管架游泳池包括一环形管架 2 及一设于环形管架 2 内的游泳池 1，该环形管架 2 包括若干钢性边管 21、可串次装接若干边管 21 的联接头 22 及若干个脚管 23。本实施例中，游泳池 1 为类圆柱形；游泳池 1 设有进水嘴和放水嘴；另匹配有过滤器 5，过滤器具有进水管及放水管，其分别可装拆地密封联接进水嘴和放水嘴以对游泳池 1 的水过滤，该技术为现有技术在此不做进一步描述。

如图 4 所示，游泳池 1 外侧周面上外周缘设有若干个袖套 11，袖套 11 的个数和边管 21 的个数相同。边管 21 套接于对应的袖套 11 内，而且边管 21 两端均伸露出袖套 11。

如图 2、3 所示，边管 21 为钢性弧形杆，边管 21 横截面为侧 D 字型，而且 D 字型的平面朝上，弧面朝下。边管 21 两端部内均固设有第一锁接装置 3，边管 21 两端部均开设有第一让位孔。第一锁接装置 3 包括一固接于边管 21 端部内的第一固接座 31、一开设于第一固接座 31 内的腹大口小的第一容置槽、一设于第一容置槽内的成上大下小阶梯状的第一弹销 32、一设于第一容置槽内的第一弹簧 33，第一弹簧 33 套接第一弹销 32 的细杆并抵介第一弹销 32 阶梯面和第一容置槽内侧面之间，第一弹销 32 细杆在第一弹簧 33 弹力作用下伸出第一容置槽的开口、边管 21 的第一让位孔。根据需要第一弹销 32 端部设置成锥形。

如图 2、3 所示，联接头 22 具有两个对称设置的水平被插接部 221、一个下被插接部 222，联接头 22 顶面为齐平于边管顶面的平面，水平被插接部 221 横截面为匹配于边管横截面的侧 D 字形。。水平被插接部 221 上开设有第一通孔 2211，边

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管 21 端部插接于水平被插接部 221，而且在第一弹簧 33 弹力作用下第一弹销 32 细杆插接于第一通孔 2211，以锁接边管 21 端部和联接头 22。由于第一弹销 32 端部设置成锥形，则将边管 21 端部直接插接于水平被插接部 221 内即可自动锁接，便于装配。若干个边管 21 和若干个联接头 22 配合形成刚性的环形带。

若干个脚管 23 可装拆地支撑环形带。脚管 23 顶端可装拆地插接于下被插接部 222。

脚管 23 顶端内固设有第二锁接装置 4，脚管 23 顶端开设有第二让位孔。第二锁接装置 4 包括一固接于脚管 23 顶端的第二固接座 41、一开设于第二固接座 41 内的腹大口小的第二容置槽、一设于第二容置槽内的成上大下小阶梯状的第二弹销 42、一设于第二容置槽内的第二弹簧 43，第二弹簧 43 套接第二弹销 42 细杆并抵介第二弹销 42 阶梯面和第二容置槽内侧面之间，第二弹销 42 细杆在第二弹簧 43 弹力作用下伸出第二容置槽的开口、脚管 23 的第二让位孔。根据需要第二弹销 42 端部设置成锥形。

下被插接部 222 上开设有第二通孔 2221，脚管 23 顶端插接于下被插接部 222，而且在第二弹簧 43 弹力作用下第二弹销 42 细杆插接于第二通孔 2221，以锁接脚管 23 和联接头 22。由于第二弹销 42 端部设置成锥形，则将脚管 23 顶端直接插接于下被插接部 222 内即可自动锁接，便于装配。

每个脚管 23 底端都固设有一脚座 24。脚座 24 上设有一匹配于脚管 23 底端的上被插接部 241，脚管 23 底端可装拆地插接于脚座 24 的上被插接部 241 内，脚座 24 抵靠于地面。

本实施例中管架游泳池的装配过程包括：1、打开管架游泳池；2、将边管 21 套接于袖套 11 内，并使边管 21 两端均伸露出袖套 11；3、装配并锁接边管 21 和联接头 22 的水平被插接部 221；4、装配脚座 224 和脚管 223；5、装配并锁接脚管 223 和联接头 22 的下被插接部 222；6、注水。

实施例二

一种管架游泳池边管结构的改进，如图 5 所示，管架游泳池包括一环形管架 2 及一设于环形管架 2 内的游泳池 1，该环形管架 2 包括若干钢性边管 21、可串次装接若干边管 21 的联接头 22 及若干个脚管 23。本实施例中，游泳池 1 为类长方体形；游泳池 1 设有进水嘴和放水嘴；另匹配有过滤器 5，过滤器具有进水管及放水管，其分别可装拆地密封联接进水嘴和放水嘴以对游泳池 1 的水过滤，该技术为现有技术在此不做进一步描述。

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游泳池 1 外侧周面上外周缘设有若干个袖套，袖套的个数和边管的个数相同。边管套接于对应的袖套内，而且边管两端均伸露出袖套。

边管均为钢性直管，边管横截面为侧 D 字型，而且 D 字型的平面朝上，弧面朝下。边管分成前长边管、中长边管、后长边管、左短边管、中短边管及右短边管。

前长边管前端固设有一套环，前长边管后端设成后插接部；后长边管后端固设有一套环，后长边管前端设成前被插接部。左短边管左端也固设有一套环，左短边管右端设成右被插接部；右短边管右端也固设有一套环，右短边管左端设成左插接部。

中长边管的前端设成前被插接部，后端设成后插接部，另匹配有一可锁接后插接部和前被插接部的或松开该锁接的第三锁接装置，其包括一固接于后插接部内的弹簧销、一开设于前被插接部的第三通孔、一开设于后插接部的第三让位孔，弹簧销上设有在弹力作用下可穿过第三让位孔并插接于第三通孔的第三弹销，通过第三锁接装置锁接前被插接部和后插接部，进而固定前长边管、中长边管和后长边管。

中短边管的左端设成左插接部，右端设成右被插接部，另匹配有一可锁接左插接部和右被插接部的或松开该锁接的第五锁接装置，其结构和第三锁接装置结构相同，通过第五锁接装置锁接右被插接部和左插接部，进而固定前左短边管、中短边管及右短边管。

四个联接头 22，每个联接头 22 都包括一成直角的角接头、两固设于角接头端部的导滑塞。后长边管、左短边管、中短边管及右短边管：成直角布置的两边管之间联接有联接头 22。角接头的导滑塞可装拆地插接固接于套环。使得前长边管、中长边管、后长边管、左短边管、中短边管、右短边管及联接头构成矩形环形带。

边管底下开设有两个被插接槽，每个边管底下都匹配有一个 U 形脚架 6。U 形脚架 6 两顶端可装拆插接固接于边管底下的两个被插接槽。U 形脚架 6 顶端和被插接槽之间设置有可锁接 U 形脚架 6 顶端和被插接槽的或松开该锁接的第四锁接装置。每个 U 形脚架 6 上均包括有一拉带 7，拉带一端固接于 U 形脚架 6 底杆，另一端固接于游泳池 1，从而固定 U 形脚架 6 并使 U 形脚架 6 倾斜支撑游泳池 1。

以上所述，仅为本实用新型较佳实施例而已，故不能以此限定本实用新型实施的范围，即依本实用新型申请专利范围及说明书内容所作的等效变化与修饰，皆应仍属本实用新型专利涵盖的范围内。

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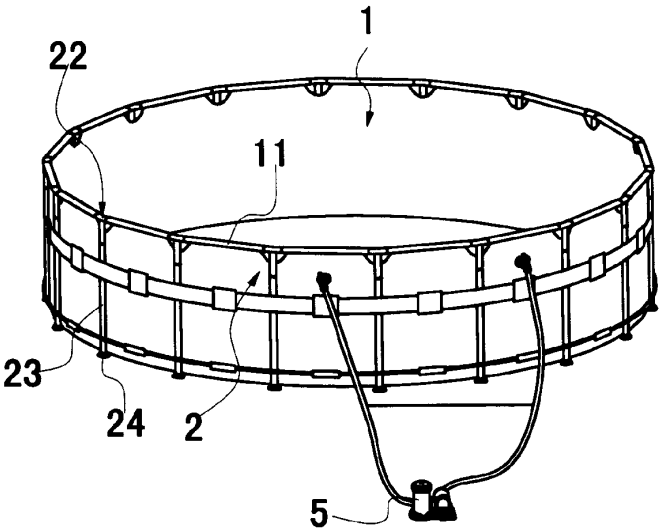


图1

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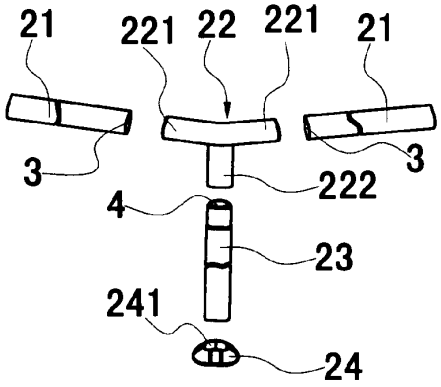


图2

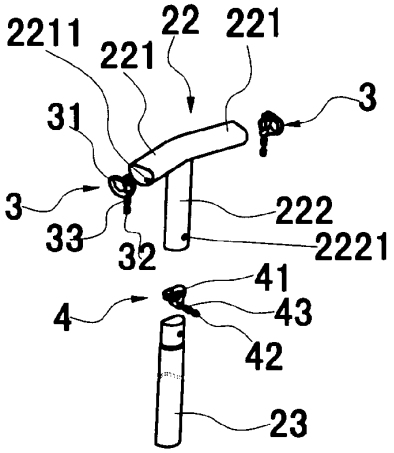


图3

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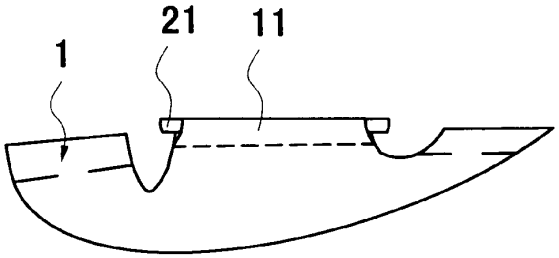


图4

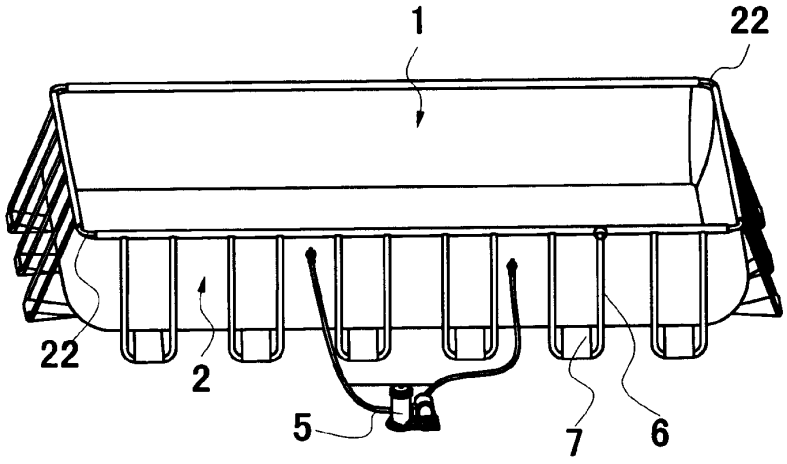


图5

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Abstract

The utility model discloses a corner connecting structure for side pipes of a square pool, which comprises a corner joint and two adjacent and mutually vertical side pipes, wherein the corner joint is an L-shaped pipe body and has two mutually vertical combination ends; the side pipes are hollow pipe bodies, and the inside diameter of the side pipes is slightly greater than the diameter of the corner joint pipe body; and the two combination ends are respectively movably inserted into the two side pipes correspondingly. The corner joint and the side pipes adopt a movable sleeving mode, so the two combination ends of the corner joint can relatively stretch and displace in the side pipes to correspond to the change of a clearance between the two side pipes, and the side walls can always keep in a straight line and are not bent and deformed due to stress when moving.

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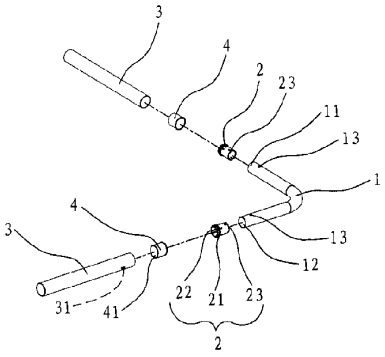
权利要求书 1 页 说明书 2 页 附图 3 页

(54)实用新型名称

方形水池边管转角连接结构

(57)摘要

本实用新型为一种方形水池边管转角连接结构，包括有：角接头，为L型管体具两相互垂直的结合端；两相邻且互为垂直的边管，该边管为一中空管体，并该边管的内径略大于角接头管体的直径，该角接头的两结合端分别对应活动穿伸于两边管内，由于该角接头与边管采用活动的套接方式，使角接头的两结合端可于边管内作相对的伸缩位移，以对应两相邻边管之间的间隙变化，也就使得边管在移动时，能始终保持直线，不致受力产生弯曲变型。



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1. 一种方形水池边管转角连接结构，其特征在于：包括有，

一角接头，为 L 型管体，具两相互垂直的结合端；

两相邻且互为垂直的边管，该边管为一中空管体，并该边管的内径略大于角接头管体的直径，该角接头的两结合端分别对应活动穿伸于边管内。

2. 如权利要求 1 所述的方形水池的边管转角的连接结构，其特征在于：该角接头可为中空管体，其两结合端内分别套设有导滑塞。

3. 如权利要求 2 所述的方形水池的边管转角的连接结构，其特征在于：该角接头两结合端的外缘贯设有穿孔，该导滑塞的一端形成有具数开槽的环凸缘，另一端外缘则凸设有对应角接头穿孔的凸粒。

4. 如权利要求 1 所述的方形水池的边管转角的连接结构，其特征在于：该边管内设有角接头套环，该角接头套环的端缘上成型有凸起，而边管上则对应该凸起设有穿孔。

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方形水池边管转角连接结构

技术领域

[0001] 本实用新型关于一种管件的连接结构，特别是指一种方形水池的边管转角的连接结构。

背景技术

[0002] 一种较大型的方形水池或游泳池，为加强其池壁的强度，于池壁的外周围另增设有钢质的支撑结构，并上端则围设有相邻两边相互垂直的水池边管，该两相邻水池边管之间是通过角接头作连接固定，而传统的角接头与水池边管的连接是将角接头的两端分别套伸于两相邻水池边管内，并在角接头与边管的连接处各贯设通孔，藉由锁紧件穿设该通孔，使角接头与水池边管固定连接，如图 5 所示，采用此连接方式于使用中却存在下列不足：

[0003] 1、在安装锁固角接头与边管时，该角接头与边管上的通孔较难对准，使得安装过程费力且操作难度大；

[0004] 2、在水池水位及水压发生变化的影响下，会使得该水池边管向水池中间或向外作移动，此时受角接头与水池边管固定连接的制约，造成水池边管受力而产生弯曲变形，影响水池边管的使用寿命。

实用新型内容

[0005] 因此，本实用新型的目的在于提供一种方形水池边管转角连接结构，通过将角接头与边管设为可伸缩的活动连接，使水池边管不会因水压作用而弯曲变形。

[0006] 为达上述目的，本实用新型采如下技术方案：一种方形水池边管转角连接结构，其包括有：一角接头，为 L 型管体，具两相互垂直的结合端；两相邻且互为垂直的边管，该边管为一中空管体，并该边管的内径略大于角接头管体的直径，该角接头的两结合端分别对应活动穿伸于边管内。

[0007] 该角接头可为中空管体，其两结合端内分别套设有导滑塞。

[0008] 该角接头两结合端的外缘贯设有穿孔，该导滑塞的一端形成有具数开槽的环凸缘，另一端外缘则凸设有对应角接头穿孔的凸粒。

[0009] 该边管内设有角接头套环，该角接头套环的端缘上成型有凸起，而边管上则对应该凸起设有穿孔。

[0010] 采用上述方案，本实用新型由于角接头与边管采用活动套接方式，使角接头的两结合端可于边管内作相对的伸缩位移，以对应两相邻边管之间的间隙变化；也就是当边管在水压的作用下向水池中间或向外移动时，而角接头配合导滑塞则于边管内作相对的伸入或移出，使得边管在移动时，仍能保持直线，不致产生弯曲变型。

[0011] 以下结合附图与具体实施例对本实用新型作详细说明。

附图说明

[0012] 图 1 为本实用新型分解示意图；

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[0013] 图 2 为本实用新型部分组合示意图；

[0014] 图 3 为本实用新型角接头相对边管伸缩动作的示意图；

[0015] 图 4 为本实用新型应用于一种方形水池的示意图

[0016] 图 5 为习用转角与边管的连接结构。

具体实施方式

[0017] 如图 1、2、4 所示，为本实用新型的一种方形水池边管转角连接结构，是指两相邻边管之间通过一角接头实现连接，其主要包括有：

[0018] 一角接头 1，为 L 型中空管体，具两相互垂直的结合端 11、12，该两结合端 11、12 的外缘贯设有穿孔 13；

[0019] 两导滑塞 2，其一端形成有具数开槽 22 的环凸缘 21，另一端外缘则凸设有上下对称对应角接头 1 穿孔 13 的凸粒 23，该两导滑塞 2 分别对应穿置于角接头 1 的两结合端 11、12 内，并挡止限位于导滑塞 2 的环凸缘 21，而导滑塞 2 上下对称的凸粒 23 则对应卡挚于角接头两结合端 11、12 外缘的穿孔 13，并凸粒 23 突出该穿孔 13；

[0020] 两相邻几互为垂直的边管 3，分别对应连接角接头 1 的两结合端 11、12，该边管 3 为一中空管体，该边管 3 的内径并略大于角接头 1 的直径；

[0021] 两角接头套环 4 分别穿置于边管 3 内且靠近边管 3 端口处，并该角接头套环 4 的端缘上形成一凸起 41，边管 3 上则设有对应卡挚该角接头套环 4 凸起 41 的穿孔 31，以使角接头套环 4 稳固设置于边管 3 内。

[0022] 安装组接时，配合图 2、3 所示，该两角接头套环 4 分别卡挚于边管 3 内，再将组设有导滑塞 2 的角接头 1 的两结合端 11、12 分别对应穿过角接头套环 4 后伸入边管 3 内，与边管 3 实现连接，由于角接头 1 的直径略小于边管 3 的内径，因此角接头 1 的外径与边管 3 的内径之间存有间隙，使角接头 1 的两结合端 11、12 可于边管 3 内作相对的伸缩位移，以对应两相邻边管 3 之间的间隙变化；即当边管 3 在水压的作用下向水池中间或向外偏移，而角接头 1 配合导滑塞 2 则于边管 3 内作相对的伸入或移出以对应边管的偏移，使边管能保持平直，并且角接头 1 在边管 3 内相对位移时，该导滑塞 2 具数开槽 22 的环凸缘 21 除在装配时可使角接头 1 顺利插伸入边管 3 内，还可在伸缩位移过程中避免角接头 1 与边管 3 的内壁直接接触造成角接头 1 划伤，令角接头 1 在边管 3 内移动更顺畅。

[0023] 由上述可见，本实用新型的角接头 1 与边管 3 采用了活动套接的方式，使得边管在偏移时，仍能保持平直线，不致受力而产生弯曲变型，相比习用技术确为一技术上的创新。

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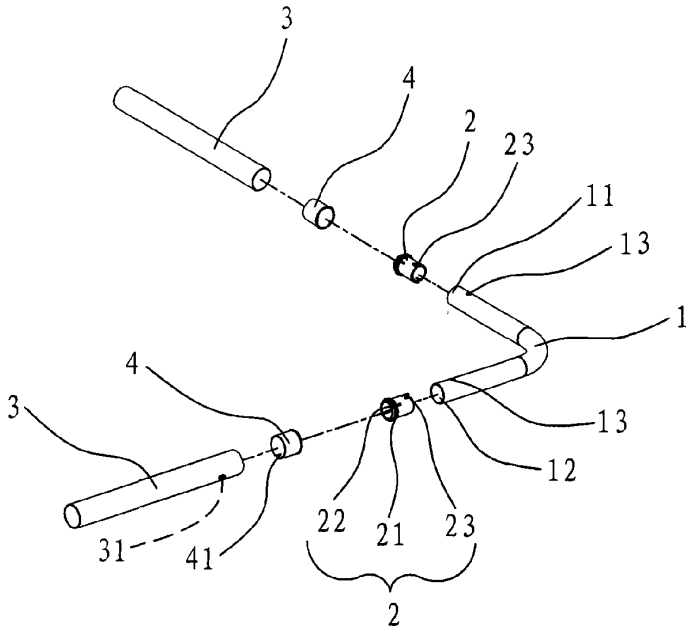


图 1

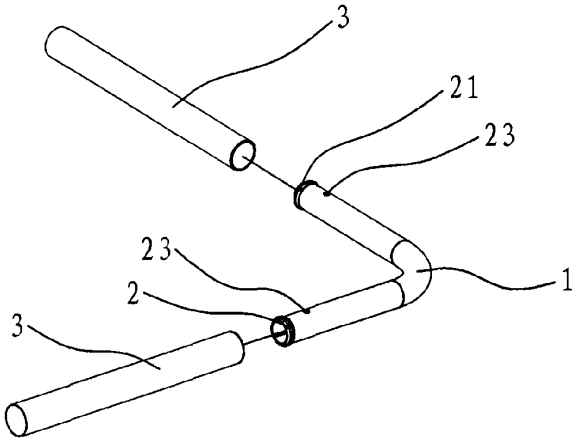


图 2

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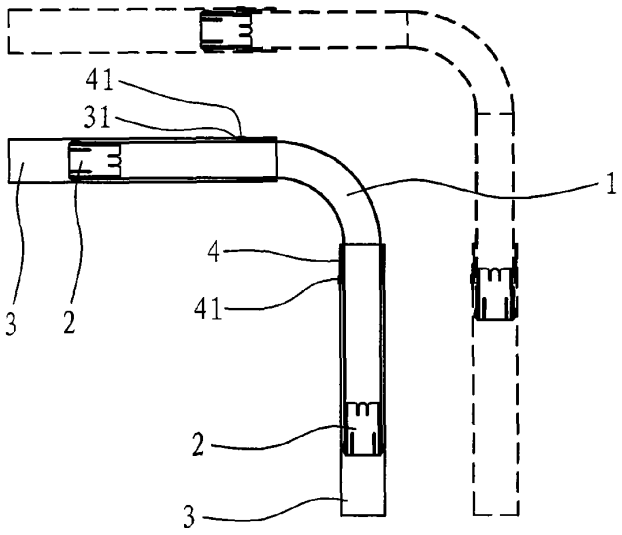


图 3

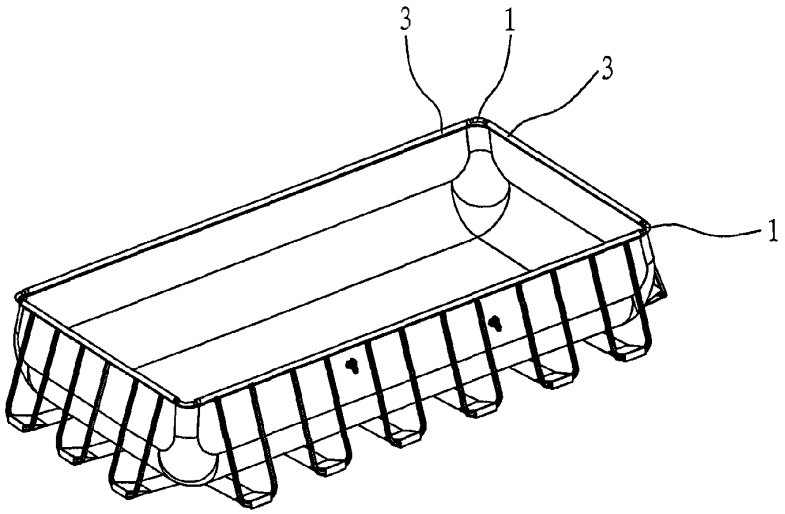


图 4

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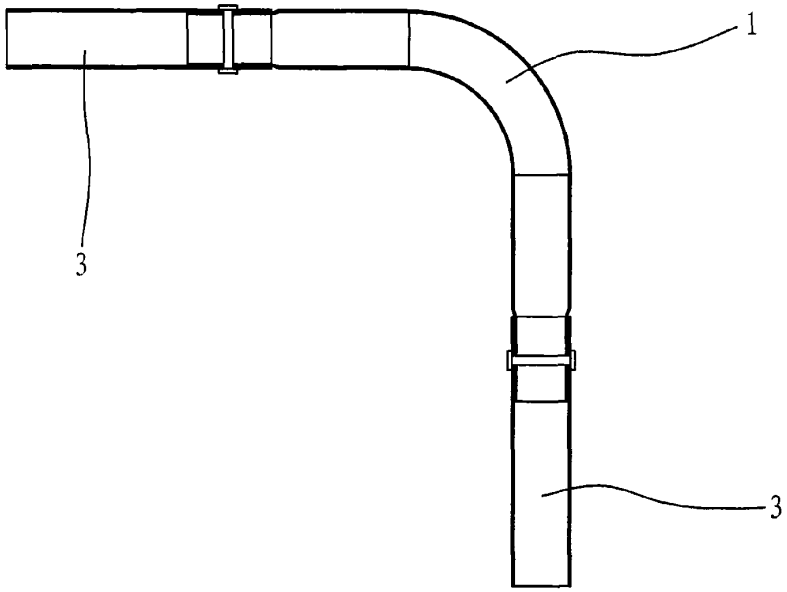


图 5

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Abstract

Disclosed herein is a fixture support. The structure, in accordance with the present invention, is a support for mounting various fixtures on an above ground pool. The support is adapted to be secured to the rails or posts of such a pool without causing damage to the pool liner or the pool frame. The fixture support includes a support member, which in an exemplary embodiment is parallel to the pool posts. The support member includes a clamp for connecting the fixture with either one of the rails or the posts of the pool frame. The clamp is fixed to one end of the support member. On the other end of the support member is a receptacle adapted for connection to various fixture modules. The fixture support in accordance with the instant invention allows each of the modules to be mounted on the water side of the pool and provide electrical connection thereto.

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权利要求书 1 页 说明书 4 页 附图 3 页

(54)发明名称

用于地上泳池的附件的支座

(57)摘要

本发明披露了一种用于在地上泳池中支撑附件的支座，其适用于固定在泳池的立柱或栏杆，而不引起对泳池衬里或泳池框架的损坏。该支座包括一支撑部件，与附件模件适配的附件插座，与所述支撑部件连接；以及一夹持部件，用于将所述支撑部件与所述框架连接并固定。本发明的支座允许各个附件安装在泳池的水侧面上，并为其提供电连接。

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1. 用于在地上泳池中支撑附件的支座，其中所述地上泳池包括一在地上支撑该泳池的框架，所述框架包括多个互相垂直的立柱和栏杆，和一由所述框架支撑的用于保持池水的衬里，所述支座包括：

一支撑部件；

与附件模件适配的附件插座，与所述支撑部件连接；以及

一夹持部件，用于将所述支撑部件与所述框架连接并同定。

2. 权利要求 1 所述的支座，其中所述支撑部件设置有用于容纳电源线的电线通道，所述夹持部件设置供电源线穿过的开口或通道。

3. 权利要求 1 所述的支座，其中所述夹持部件设置通孔，所述支撑部件设置有与夹持部件配合的衔接部件，通过夹持部件与衔接部件连接并夹紧框架。

4. 权利要求 2 或 3 所述的支座，其中所述夹持部件为一 U 形卡箍，用于将所述支撑部件与框架立柱的顶部夹紧固定。

5. 权利要求 2 或 3 所述的支座，其中所述夹持部件为一 C 形卡箍，用于将所述支撑部件与框架立柱的侧部夹紧固定。

6. 权利要求 1 所述的支座，其中所述夹持部件可变形地夹紧所述立柱或栏杆。

7. 权利要求 2 所述的支座，其中所述附件插座设置至少一个与所述电源线连接的电输出端口。

8. 权利要求 7 所述的支座，其中所述附件插座设置多个电输出端口和 / 或附件模件接口。

9. 权利要求 3 所述的支座，其中通过螺栓穿过所述通孔将所述夹持部件与所述支撑部件连接。

10. 权利要求 1 所述支座，其中所述附件模件包括一个或多个附件。

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用于地上泳池的附件的支座

技术领域

[0001] 本发明一般来说涉及泳池产品领域。更具体地，本发明涉及一种用于地上泳池的附件的支座装置，其与地上泳池配合并提供附件与泳池的刚性连接。

背景技术

[0002] 如图 1 所示，地上泳池包括一框架，其具有互为适当角度的一系列立柱 100 和栏杆 102。该泳池典型地为类似圆形或类似矩形的形状。该框架，即立柱和栏杆，典型地是由金属制成。然而，该构造虽然足够结实，刚性却远远不够。

[0003] 然后，将用于保持泳池的水的衬里 104 固定在该泳池框架上。可以理解的是，衬里 104 形成泳池的侧壁和底部。与地下泳池不同，地上泳池有柔韧的侧壁。因此，实际上不可能将泳池设备连接到侧壁上而永远不损坏泳池和面临渗漏的危险。

[0004] 在地上泳池的一些安装中，回水管是通过在泳池衬里 104 上穿洞来连接到泳池。当然，这导致了潜在渗漏和对泳池的永久损坏。安装固定装置，例如灯，进一步导致潜在的损坏和渗漏，因为目前还没有办法将固定装置连接到柔性衬里而不损坏它。

[0005] 人们需要一种支撑物，其允许将各种附件（例如照明装置）连接到地上泳池，而不引起对泳池的损坏或促进渗漏的可能性。

发明内容

[0006] 根据本发明的支座是用于在地上泳池上安装各种附件的支撑结构。该支座适于固定在那些泳池的立柱或栏杆上，而不引起对泳池衬里或泳池框架的损坏。该支座包括一支撑部件，在一种实施方式中，支撑部件平行于泳池立柱，支座还包括用于将支撑部件与泳池框架的其中一个立柱或栏杆相连接的夹持部件 (clamp)。该夹持部件被固定在支撑部件的一端。支撑部件的另一端是适用于连接各种附件模件的附件插座。根据本发明的支座允许各个模件安装在泳池的水侧，并且向那里提供电连接。

[0007] 因此，本发明的目的是提供一种附件支座，其可牢固地连接到地上泳池，尤其是框架，同时使泳池及其衬里和框架不受损坏。

[0008] 本发明的另一个目的是提供这样一种支座，该结构上可安装其允许各种附件模件连接到地面泳池，例如电模件或需要供电的模件。

[0009] 根据以上提出的以及本文即将描述和实现的目的，本发明的用于在地上泳池中支撑附件的支座，其中所述地上泳池包括一在地上支撑该泳池的框架，所述框架包括多个互相垂直的立柱和栏杆，和一由所述框架支撑的用于保持池水的衬里，所述支座包括：

[0010] 一支撑部件；

[0011] 与附件模件适配的附件插座，与所述支撑部件连接；以及

[0012] 一夹持部件，用于将所述支撑部件与所述框架连接并固定。

[0013] 本发明所述的支座，其中所述支撑部件设置有用于容纳电源线的电线通道，所述夹持部件设置供电源线穿过的开口或通道。

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[0014] 所述的支座，其中所述夹持部件设置通孔，所述支撑部件设置有与夹持部件配合的衔接部件，通过夹持部件与衔接部件连接并夹紧框架。

[0015] 所述的支座，其中所述夹持部件为一 U 形卡箍，用于将所述支撑部件与框架立柱的顶部夹紧固定。

[0016] 所述的支座，其中所述夹持部件为一 C 形卡箍，用于将所述支撑部件与框架立柱的侧部夹紧固定。

[0017] 所述的支座，其中所述夹持部件可变形地夹紧所述立柱或栏杆。

[0018] 所述的支座，其中所述附件插座设置至少一个与所述电源线连接的电输出端口。

[0019] 所述的支座，其中所述附件插座设置多个电输出端口和 / 或附件模件接口。

[0020] 所述的支座，其中通过螺栓穿过所述通孔将所述夹持部件与所述支撑部件夹紧。

[0021] 所述的支座，其中所述附件模件包括一个或多个附件。

[0022] 在一种示范性实施方式中，本发明的支座可安装在泳池框架的顶部。在该实施方式中，所述夹持部件为一 U 形卡箍，该 U 形卡箍位于支撑部件的顶部，框架的立柱和栏杆在此处构成 T- 型交叉。通过将多个螺栓插入 U 形卡箍的相对的两部分的叶片，该 U 形卡箍被固定在立柱的顶部。在一种示范性实施方式中，该 U 形卡箍是可以变形的，以适应泳池框架的形状。

[0023] 在一种示范性实施方式中，卡箍包括弯曲的肋，其与框架一起限定出一电源线通道，以便电源线能够穿过该限定的通道。

[0024] 在另一种示范性实施方式中，本发明的支座可安装在泳池框架的侧面的栏杆上。在该实施方式中，所述夹持部件为一 C 形卡箍，该 C 形卡箍位于支撑部件的侧面。通过将螺栓穿过该 C 形卡箍的相对的两部分的叶片，可将该 C 形卡箍固定在泳池侧面的栏杆上。该实施方式中的 C 形卡箍，具有与 U 形卡箍相同的作用。

[0025] 同样地，在一种实施方式中，该 C 形卡箍是可变形的，以适应泳池框架或泳池栏杆的形状。

[0026] 在一种实施方式中，本发明的支座包括一连接到该支撑部件的附件插座。在一种示范性实施方式中，将支座连接到泳池时，夹持部件位于支撑部件的顶部。此时，所述附件插座位于支撑部件另一端部，即位于支撑部件的底部。在一种实施方式中，所述附件模件为一类泳池产品，可以是电装置或需要供给电力的装置，例如照明装置，水池清洁机等。所述支撑部件包括用于容纳电源线的电线管道，电源线穿过该支撑部件进入附件插座，以便为附件模件供电。

[0027] 在一种实施方式中，所述附件插座包括至少一个电输出口，用于连接附件模件。电源线穿过电线管道，进入附件插座，连接到电输出口，为附件模件供电。例如，可将泳池清洁机连接到该输出口，而不必经过地面电线。视需要，所述附件插座包括多个输出口，可插入连接一个以上的附件模件。例如，可将照明装置和撇渣器同时连接到该支座上。

[0028] 根据本发明的支座的一个优点是，其允许连接各种需要供电的泳池设备，且不会造成对泳池，尤其是泳池的衬里的损坏。

[0029] 本发明的另一个优点是提供这样一种支座，其设置有水下电力输出口，使得不再需要泳池底板或类似表面上的地上电线。

[0030] 附图简要说明

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[0031] 为了进一步了解本发明的目的和优点，应结合附图参考以下详细说明，其中相同的部件用相同的参考数字表示，其中：

[0032] 图 1 是典型的地上泳池，举例为通常圆形的实施方式。

[0033] 图 2 是安装于泳池框架的 T 形面的支座的部分部件分解图。

[0034] 图 3 是安装于泳池框架的 T 形面的支座的部分部件分解图，显示连接到支座的电线。

[0035] 图 4 是本发明的支座的一种示范性实施方式的透视俯视图。

[0036] 图 5 是本发明的支座的另一种示范性实施方式的透视俯视图。

具体实施方式

[0037] 本发明的支座的一种示范性实施方式将在图 2-5 中描述，通常用数字 20 表示。

[0038] 具体参考图 2-4，其中显示了带有 U 形卡箍 50 的支座 20 的第一种示范性实施方式。该支座 20 包括一支撑部件 22。支撑部件 22 是一伸长的部件，其第一末端 24 上安装 U- 形卡箍 50（夹持部件）。

[0039] 支撑部件 22 具有第二末端 26。支撑部件 22 的第二末端 26 连接附件插座 28。附件插座 28 适用于为附件本身提供连接位置，通过以下说明将更充分地加以理解。

[0040] 在这些图所示的示范性实施方式中，显示的附件包括电附件或需要供给电能的附件。具体地，显示的附件是照明装置 40。

[0041] 电线 42 为电附件或照明装置 40 供电。为了使电线 42 从外部电源到达附件 40，特别适用于在整个支座 20 设置电线管道。

[0042] 该管道的第一部分包括夹持部件 50 内的肋状通道 52。通过设置内部通孔 54 穿过支撑部件 22 的主体，支撑部件 22 进一步限定出该管道的另一部分，如图 3 清楚所示。

[0043] 电线 42 延伸至插座 28。一旦电线进入插座，视需要可将其分开和分段，以便为各种附件或输出口 44 提供电力。可以理解的是，可将一个或多个电输出口 44 或附件 40 连接到附件插座 28。

[0044] 在图 2-4 显示的示范性实施方式中，通过 U 形卡箍 50 可以将支座连接到水池的框架。该 U 形卡箍 50 具有一组通孔 54。此外，还设置一组螺栓 56，以便穿过通孔 54 将卡箍与支撑部件 22 连接并夹紧框架。

[0045] U 形卡箍 50 是可以变形的。如图 4 中清楚所示，U 形卡箍 50 变形以适应泳池框架的形状。在显示的该实施方式中，U 形卡箍 50 连接在泳池框架的 T 形交叉处。

[0046] 通过设置具有开口 32 的衔接部件 30，支撑部件 22 可以与夹持部件或 U 形卡箍 50 连接并固定在框架上。当螺栓 56 穿过 U 形卡箍 50 和衔接部件 30 时，U 形卡箍 50 变形，以适应泳池框架的形状，尤其是泳池框架的 T 形交叉处。

[0047] 在图 5 所示的另一种实施方式中，支座是通过侧面支撑连接到泳池框架上，而不是图 2-4 的顶部支撑。在该实施方式中，夹持部件包括 C- 卡箍 60。侧面的 C- 卡箍 60 有一对“耳朵”62。耳朵 62 带有开孔 64。连接螺栓 56 穿过开孔 64 并进入衔接部件 30 和开口 32。可以理解的是，不管使用 C 形卡箍 60 还是 U 形卡箍 50，衔接部件 30 保持不变。这为固定装置支撑结构提供了进一步的实用性和灵活性。它还为客户提供了安装的选择性。此外，客户有了进一步的灵活性，因为无论使用何种地上泳池，都能容易地配合使用该 C 形

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或 U 形的卡箍。

[0048] 与 U 形卡箍 50 一样，C 形卡箍 60 是可变形的，以适应泳池的框架。当螺栓拧紧进入衔接部件时，卡箍变形，适应泳池框架形状。

[0049] 在显示的示范性实施方式中，各种模件均可连接到插座 28。例如，除了之前描述的照明装置外，其他模件也可容易地连接到支撑部件 22。例如，可将撇渣器或加氯器连接到附件插座 28。

[0050] 可以理解的是，将本发明的支座连接到泳池框架时，不需要在衬里中打洞或穿孔。支座 20 易于连接到泳池框架本身，并且对衬里或框架都没有任何损坏。此外，可以理解的是，插座 28 上可以连接一个或一个以上的附件模件。例如，照明装置和撇渣器很可能同时连接到支座 20 上。

[0051] 虽然前面的具体描述已经说明了本发明的支座的几种实施方式，然而可以理解的是，以上描述仅是说明性的，并不是限制本发明的公开内容。具体地，各种不同的模件可同时配合单个支座。还应理解的是，在本发明的精神和范围内有关于支座的各种变形，并且尤其关注的是支座连接到泳池框架而不损坏框架或衬里的能力。因此，本发明仅通过以下提出的权利要求来限制。

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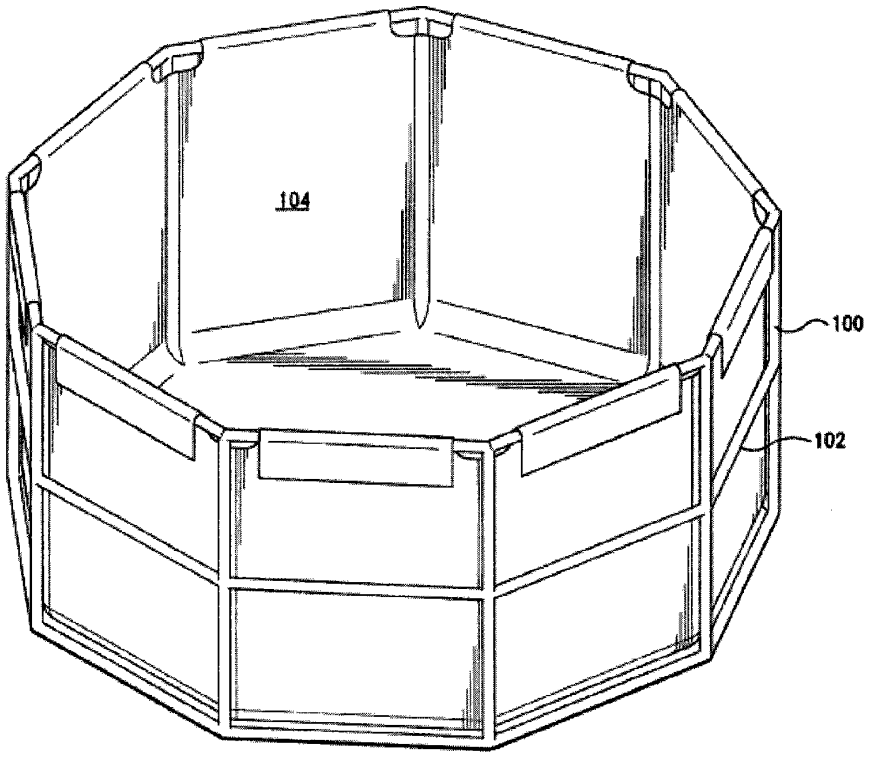


图 1

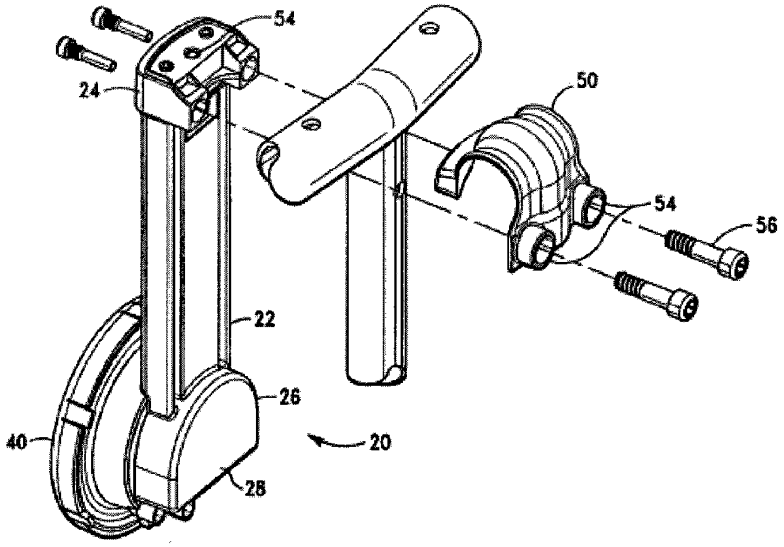


图 2

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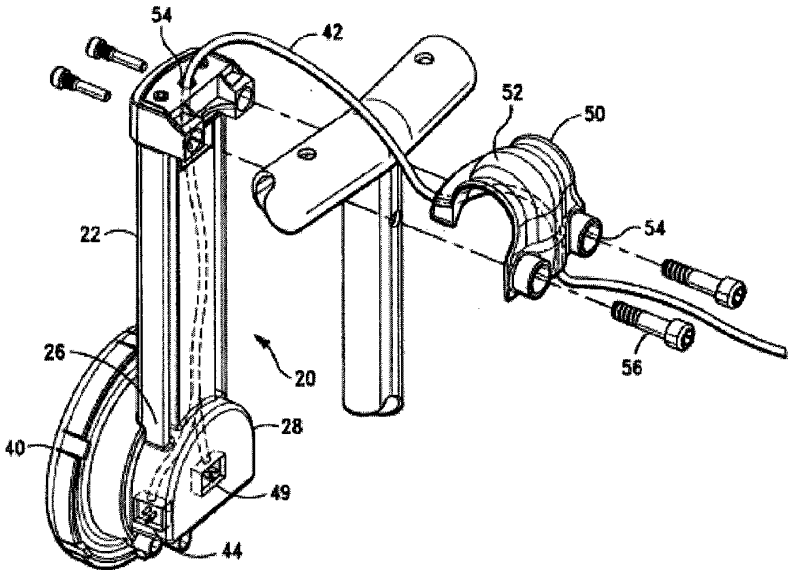


图 3

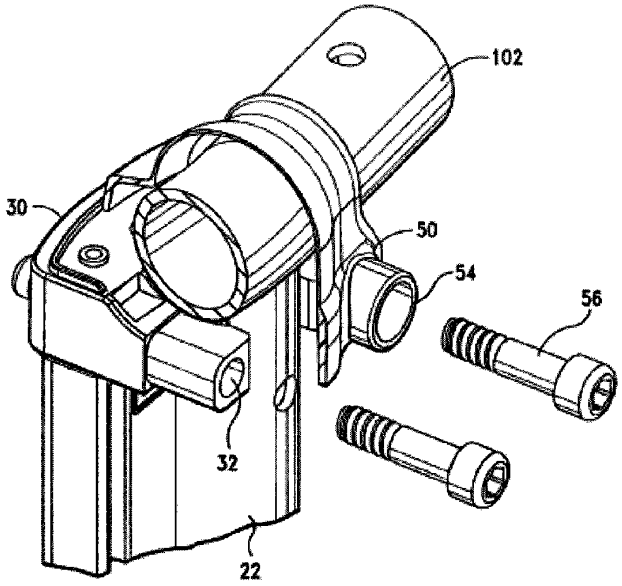


图 4

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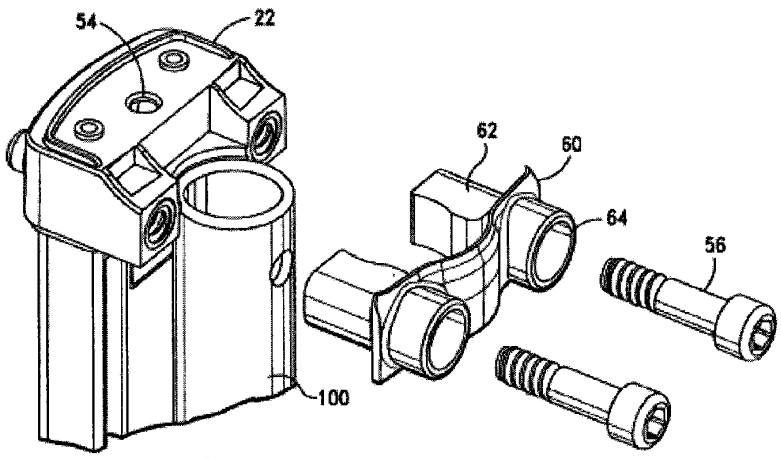


图 5

BESTWAY EX. 1003; Pg 426
Bestway v. Intex PGR2024-00036

Publication Number: CN 202745430 U
Publication Date: Feb 20, 2013

Abstract

The utility model discloses a water pond having an anti-skidding structure. The water pond comprises net clamping side boards and a pond bottom, wherein the net clamping side boards are connected end to end to from an apron, the pond bottom is installed at the bottoms of the net clamping side boards, the pond bottom is provided with a plurality of anti-skidding granules, and the pond bottom and the granules are integrated. The water pond further comprises an inflating pipe which is installed on the tops of the net clamping side boards. The water pond further comprises a plurality of supporting frames, and the supporting frames are vertically installed on the peripheries of the net clamping side boards and enable the net clamping side boards to form a many-sided shape in supported mode. The pond bottom of the water pond is provided with the anti-skidding granules, roughness of the pond bottom is greatly improved, and obvious anti-skidding effect is achieved.

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(19)中华人民共和国国家知识产权局

(12)实用新型专利

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E04H 4/14(2006.01)

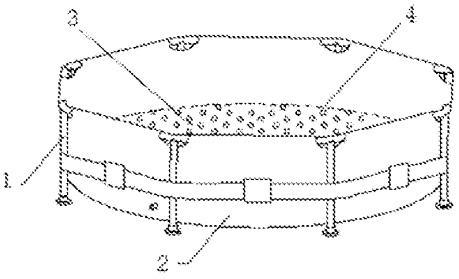
权利要求书 1 页 说明书 2 页 附图 1 页

(54)实用新型名称

一种具有防滑结构的水池

(57)摘要

本实用新型公开了一种具有防滑结构的水池，包含夹网旁板，夹网旁板首尾相连形成围裙；池底，池底设置在夹网旁板的底部，该池底设有与池底融为一体的若干防滑颗粒。该水池还包含充气管，充气管设置在夹网旁板的顶部。该水池还包含若干支架，若干支架垂直设置在夹网旁板外周，将夹网旁板支撑为多边形状。该水池池底设有防滑颗粒，大大增加了池底的粗糙度，起到明显的防滑效果。



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1. 一种具有防滑结构的水池，其特征在于，包含夹网旁板（2），所述的夹网旁板（2）首尾相连形成围裙；

池底（3），所述的池底（3）设置在夹网旁板（2）的底部，该池底（3）设有与池底（3）融为一体的若干防滑颗粒（4）。

2. 如权利要求 1 所述的具有防滑结构的水池，其特征在于，还包含充气管（5），所述的充气管（5）设置在夹网旁板（2）的顶部。

3. 如权利要求 1 所述的具有防滑结构的水池，其特征在于，还包含若干支架（1），若干所述的支架（1）垂直设置在夹网旁板（2）外周，将夹网旁板（2）支撑为多边形状。

4. 如权利要求 1 所述的具有防滑结构的水池，其特征在于，所述的池底（3）与防滑颗粒（4）均采用聚氯乙烯材料制成。

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一种具有防滑结构的水池

技术领域

[0001] 本实用新型涉及一种夹网水池，具体涉及一种具有防滑结构的水池。

背景技术

[0002] 目前，现有的夹网水池在添加防滑功能的时候，需要在池底放置一块表面粗糙的防滑点，或者通过高周波将防滑底熔接在池底上，该方式复杂，采购及生产及成本高，使用起来麻烦且用后不易保存。

实用新型内容

[0003] 本实用新型提供了一种具有防滑结构的水池，该水池池底设有防滑颗粒，大大增加了池底的粗糙度，起到明显的防滑效果。

[0004] 为了达到上述目的，本实用新型通过以下技术方案实现：

[0005] 一种具有防滑结构的水池，其特点是，包含夹网旁板，所述的夹网旁板首尾相连形成围裙；

[0006] 池底，所述的池底设置在夹网旁板的底部，该池底设有与池底融为一体的若干防滑颗粒。

[0007] 该水池还包含充气管，所述的充气管设置在夹网旁板的顶部。

[0008] 该水池还包含若干支架，若干所述的支架垂直设置在夹网旁板外周，将夹网旁板支撑为多边形状。

[0009] 所述的池底与防滑颗粒均采用聚氯乙烯材料制成。

[0010] 本实用新型一种具有防滑结构的水池与现有技术相比具有以下优点：

[0011] 1、本实用新型专利采用滴塑工艺，即在水池生产之前，将液态的塑胶成分一滴一滴地滴在池底材料上，在池底上形成颗粒状的凸起，大大增加池底的粗糙度，起到防滑的效果，不需要额外增加防滑垫。

[0012] 2、本实用新型解决了生产工艺复杂的难题，滴塑过的池底在生产时工艺和未滴塑的池底一样，不增加后续工艺难度。

[0013] 3、本实用新型的成品无纺织类部件，使用后易晾晒，保存时易折叠，体积小易存放。

[0014] 4、防滑颗粒可以通过改变颗粒凸起的大小、密度，以达到控制池底的粗糙度，起到不同的防滑效果。

附图说明

[0015] 图 1 为本实用新型一种具有防滑结构的水池实施例 1 结构示意图；

[0016] 图 2 为本实用新型池底的结构示意图；

[0017] 图 3 为本实用新型一种具有防滑结构的水池实施例 2 结构示意图。

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具体实施方式

[0018] 以下结合附图，通过详细说明一个较佳的具体实施例，对本实用新型做进一步阐述。

[0019] 实施例 1，如图 1、图 2 所示，一种具有防滑结构的水池，包含夹网旁板 2，所述的夹网旁板 2 首尾相连形成围裙；池底 3，所述的池底 3 设置在夹网旁板 2 的底部，该池底 3 设有与池底 3 融为一体的若干防滑颗粒 4；若干支架 1，若干所述的支架 1 垂直设置在夹网旁板 2 外周，将夹网旁板 2 支撑为多边形状。所述的池底 3 与防滑颗粒 4 均采用 PVC（聚氯乙烯）材料制成。

[0020] 实施例 2，如图 2、图 3 所示，一种具有防滑结构的水池，包含夹网旁板 2，所述的夹网旁板 2 首尾相连形成围裙；池底 3，所述的池底 3 设置在夹网旁板 2 的底部，该池底 3 设有与池底 3 融为一体的若干防滑颗粒 4；充气管 5，所述的充气管 5 设置在夹网旁板 2 的顶部，当充气管 5 充气后，能将夹网旁板 2 撑开。所述的池底 3 与防滑颗粒 4 均采用 PVC（聚氯乙烯）材料制成。

[0021] 防滑颗粒 4 形成之前是一种 PVC 液态塑胶，将这种液态塑胶流进带有网孔的表面（网孔大小可以调节），液态塑胶便以液滴形式往下方滴去。在网孔表面下方，将池底 3 以传送带方式缓慢通过，液态塑胶便滴在池底 3 表面。由于用于制作防滑颗粒的液体成分和池底成分一样，都是 PVC 材料，待液态塑胶冷却后，液态塑胶便和池底融为一体，并在池底表面形成颗粒状凸起（如图 2 所示），即形成了防滑颗粒 4。防滑颗粒凸起的大小和密度可以通过调节网孔的大小、密度和池底 3 运动的速度来调节。

[0022] 防滑底皮料完成之后便可和原先皮料（无防滑颗粒）一样作为池底原料投入生产。生产工艺、生产设备及工人操作方法完全不变，相比无防滑功能水池，只是在池底表面增加了防滑颗粒。这种防滑功能的结构将带有防滑功能的水池成本降至最低。

[0023] 综上所述，本实用新型一种具有防滑结构的水池，该水池池底设有防滑颗粒，大大增加了池底的粗糙度，起到明显的防滑效果。

[0024] 尽管本实用新型的内容已经通过上述优选实施例作了详细介绍，但应当认识到上述的描述不应被认为是对本实用新型的限制。在本领域技术人员阅读了上述内容后，对于本实用新型的多种修改和替代都将是显而易见的。因此，本实用新型的保护范围应由所附的权利要求来限定。

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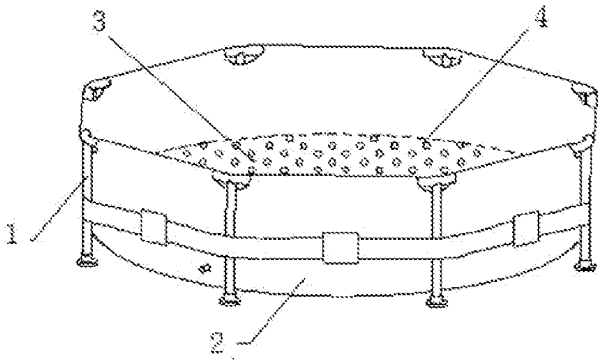


图 1

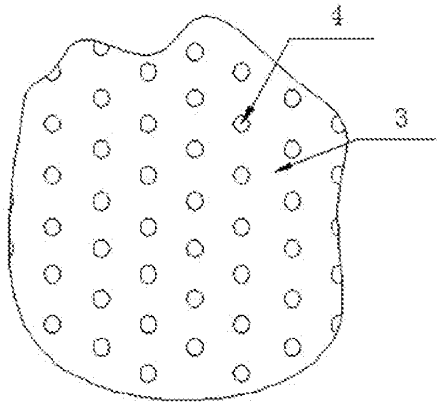


图 2

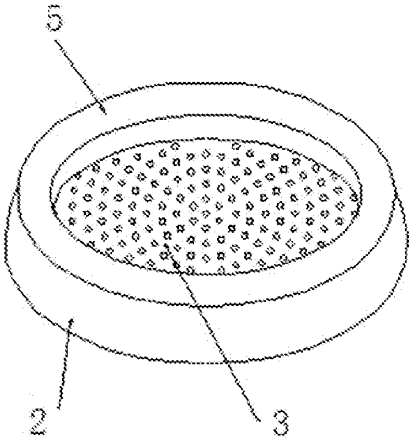


图 3

BESTWAY EX. 1003; Pg 432
Bestway v. Intex PGR2024-00036

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Publication Date: Jul 15, 2015

Abstract

The utility model provides a support pool which comprises multiple vertical supporting pipes, multiple horizontal supporting pipes, a pool body, a strengthening band, a fixing band and at least one fixing device, wherein the horizontal supporting pipes are connected with the vertical supporting pipes and used as a supporting structure for the support pool. The pool body comprises a pool bottom and pool walls arranged on the inner side of the vertical supporting pipes, connected with the edge of the pool bottom and vertically extend upward. The strengthening band is continuous annular, arranged on the inner side of the vertical supporting pipes and the outer side of the pool walls, covers the whole or part of the circumference of the pool body and fits for the pool walls. The fixing band is continuous annular and arranged on the outer side of the strengthening band and the vertical supporting pipes. The fixing device is fixedly connected with the strengthening band, and a fixing band penetrates through the fixing device. The vertical supporting pipes of the support pool are not prone to moving and good in overall stability so that possible collapse accidents caused by movement of the vertical supporting pipes can be avoided.

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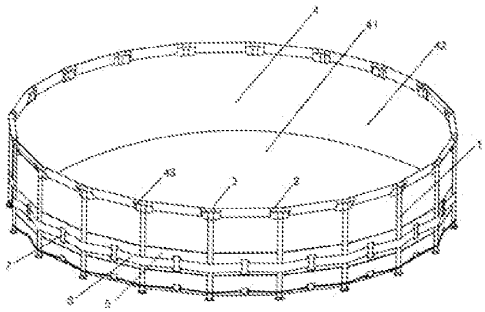
权利要求书1页 说明书4页 附图4页

(54)实用新型名称

支架水池

(57)摘要

本实用新型提供一种支架水池，包括：多个垂直支撑管；多个水平支撑管，与多个垂直支撑管相连接，共同作为支架水池的支撑结构；水池体，其包括：池底；池壁，设于垂直支撑管的内侧，与池底的边缘相连接且垂直向上延伸；补强带，呈一连续的环形形状并设于垂直支撑管的内侧、池壁的外侧，补强带覆盖整个或部分水池体的周长且与池壁之间相贴合；固定带，呈一连续的环形形状并设于补强带和垂直支撑管的外侧；以及至少一个固定装置，其与补强带固定连接，固定带从固定装置中穿过。本支架水池的垂直支撑管不易移动，整体稳定性好，避免垂直支撑管移动可能导致的坍塌事故。



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1. 一种支架水池，其特征在于，包括：

多个垂直支撑管 (1)；

多个水平支撑管 (2)，与多个所述垂直支撑管 (1) 相连接；所述水平支撑管 (2) 与所述垂直支撑管 (1) 共同作为所述支架水池的支撑结构；

水池体 (4)，其包括：

池底 (41)；

池壁 (42)，与所述池底 (41) 的边缘相连接且垂直向上延伸，所述池壁 (42) 设于所述垂直支撑管 (1) 的内侧；

补强带 (5)，呈一连续的环形形状并设于所述垂直支撑管 (1) 的内侧、所述池壁 (42) 的外侧，所述补强带 (5) 覆盖整个或者部分所述水池体 (4) 的周长且与所述池壁 (42) 之间相贴合；

固定带 (6)，呈一连续的环形形状并设于所述补强带 (5) 和所述垂直支撑管 (1) 的外侧；以及

至少一个固定装置 (7)，其与所述补强带 (5) 固定连接，所述固定带 (6) 从所述固定装置 (7) 中穿过。

2. 根据权利要求 1 所述的支架水池，其特征在于，多个所述垂直支撑管 (1) 系按照一环形形状彼此分开排列，于是多个所述水平支撑管 (2) 与多个所述垂直支撑管 (1) 之间通过多个 T 型接头 (3) 相连接，使所述水平支撑管 (2) 连接成环形。

3. 根据权利要求 2 所述的支架水池，其特征在于，所述水池体 (4) 还包括支撑管套管 (43)，设于所述池壁 (42) 的上边缘，所述水平支撑管 (2) 穿设在所述支撑管套管 (43) 中，并露出所述 T 型接头 (3)。

4. 根据权利要求 3 所述的支架水池，其特征在于，所述水池体 (4) 系由柔性胶布制成。

5. 根据权利要求 4 所述的支架水池，其特征在于，所述固定装置 (7) 为固定贴片 (71)、固定贴环 (72) 或者固定贴件 (73)。

6. 根据权利要求 5 所述的支架水池，其特征在于，所述水池体 (4)、所述补强带 (5)、所述固定带 (6)、所述固定贴片 (71) 和 / 或所述固定贴环 (72) 为两层 PVC 胶布夹设一层网布的增强型 PVC 胶布。

7. 根据权利要求 6 所述的支架水池，其特征在于，所述网布为尼龙网布或者涤纶网布。

8. 根据权利要求 7 所述的支架水池，其特征在于，所述固定贴件 (73) 为塑料注塑件或者橡胶注塑件。

9. 根据权利要求 8 所述的支架水池，其特征在于，所述垂直支撑管 (1)、所述水平支撑管 (2) 和 / 或所述 T 型接头 (3) 是采用硬质金属管或者硬质注塑管制成的，其截面形状为 D 形、椭圆形或者圆形。

10. 根据权利要求 9 所述的支架水池，其特征在于，所述补强带 (5) 与所述池壁 (42) 之间、所述固定装置 (7) 与所述补强带 (5) 之间是通过高频焊接的方式进行固定连接的。

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支架水池

技术领域

[0001] 本实用新型涉及一种水池，具体来说，本实用新型涉及一种包含支撑管和柔性水池体的支架水池。

背景技术

[0002] 地上水池目前已经非常流行，特别是在欧美国家，地上水池被安装在家里的院子里或其它空地上，供成人和儿童娱乐。

[0003] 地上水池的结构和形式多样，圆形支架水池是其中一种比较典型的地上水池，其主要由水平的支撑管、垂直支撑管和柔性增强 PVC 胶布材质的水池体构成。水池体包括垂直池底和池壁，池壁安装在水平支撑管上，池壁上设有固定垂直支撑管的固定带，垂直支撑管设于固定带和池壁之间。

[0004] 这种结构的支架水池充满水之后水体对池壁的压力很大，且池壁位置低的部分承受的压力较位置高的部分承受的压力更大。这种压力分布使得池壁的下部容易发生向外膨胀变形。由于垂直支撑管靠近池壁的外侧，池壁膨胀变形到一定的程度后就会对垂直支撑管横向挤压，使得垂直支撑管发生位移，而固定带很难对垂直支撑管起到固定的作用。这样会直接影响到整个支架水池的稳定性，安全性较差，容易导致水池的倾覆倒塌，造成人身安全事故。

实用新型内容

[0005] 本实用新型所要解决的技术问题是提供一种改进的支架水池，其垂直支撑管不易移动，整体稳定性好，避免水池的垂直支撑管移动可能导致的坍塌事故。

[0006] 为解决上述技术问题，本实用新型提供一种支架水池，包括：

[0007] 多个垂直支撑管；

[0008] 多个水平支撑管，与多个所述垂直支撑管相连接；所述水平支撑管与所述垂直支撑管共同作为所述支架水池的支撑结构；

[0009] 水池体，其包括：

[0010] 池底；

[0011] 池壁，与所述池底的边缘相连接且垂直向上延伸，所述池壁设于所述垂

[0012] 直支撑管的内侧；

[0013] 补强带，呈一连续的环形形状并设于所述垂直支撑管的内侧、所述池壁的外侧，所述补强带覆盖整个或者部分所述水池体的周长且与所述池壁之间相贴合；

[0014] 固定带，呈一连续的环形形状并设于所述补强带和所述垂直支撑管的外侧；以及

[0015] 至少一个固定装置，其与所述补强带固定连接，所述固定带从所述固定装置中穿过。

[0016] 可选地，多个所述垂直支撑管系按照一环形形状彼此分开排列，于是多个所述水平支撑管与多个所述垂直支撑管之间通过多个 T 型接头相连接，使所述水平支撑管连接成

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环形。

[0017] 可选地，所述水池体还包括支撑管套管，设于所述池壁的上边缘，所述水平支撑管穿设在所述支撑管套管中，并露出所述 T 型接头。

[0018] 可选地，所述水池体系由柔性胶布制成。

[0019] 可选地，所述固定装置为固定贴片、固定贴环或者固定贴件。

[0020] 可选地，所述水池体、所述补强带、所述固定带、所述固定贴片和 / 或所述固定贴环为两层 PVC 胶布夹设一层网布的增强型 PVC 胶布。

[0021] 可选地，所述网布为尼龙网布或者涤纶网布。

[0022] 可选地，所述固定贴件为塑料注塑件或者橡胶注塑件。

[0023] 可选地，所述垂直支撑管、所述水平支撑管和 / 或所述 T 型接头是采用硬质金属管或者硬质注塑管制成的，其截面形状为 D 形、椭圆形或者圆形。

[0024] 可选地，所述补强带与所述池壁之间、所述固定装置与所述补强带之间是通过高频焊接的方式进行固定连接的。

[0025] 与现有技术相比，本实用新型具有以下优点：

[0026] 本实用新型的支架水池在充水后最容易膨胀变形的池壁外侧（例如其下半部）、垂直支撑管的内侧设置了补强带，以有效减少池壁的膨胀变形；同时将固定带设置在膨胀变形最小的位置，即补强带和垂直支撑管的外侧，这样大大减小了池壁对垂直支撑管的向外推力。固定带和固定装置配合则可以有效限制垂直支撑管的位置，使其不易移动，防止其发生向外位移。

[0027] 本实用新型的支架水池大大改善了支撑结构的整体稳定性，避免了因水池的垂直支撑管移动可能导致的垮塌的风险，具有很好的安全性，且结构简单，易于推广。

附图说明

[0028] 本实用新型的上述的以及其他的特征、性质和优势将通过下面结合附图和实施例的描述而变得更加明显，其中：

[0029] 图 1 为本实用新型一个实施例的支架水池的整体立体结构示意图；

[0030] 图 2 为本实用新型一个实施例的支架水池的垂直支撑管、水平支撑管、T 型接头和水池体组装的局部结构示意图；

[0031] 图 3 为本实用新型一个实施例的支架水池的池壁、补强带、固定带和固定装置的剖面结构示意图；

[0032] 图 4 为本实用新型另一个实施例的支架水池的垂直支撑管、池壁、补强带、固定带和固定装置的局部结构示意图；

[0033] 图 5 为图 4 所示实施例的支架水池的池壁、补强带、固定带和固定装置的剖面结构示意图；

[0034] 图 6 为本实用新型再一个实施例的支架水池的垂直支撑管、池壁、补强带、固定带和固定装置的局部结构示意图；

[0035] 图 7 为图 6 所示实施例的支架水池的池壁、补强带、固定带和固定装置的剖面结构示意图。

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具体实施方式

[0036] 下面结合具体实施例和附图对本实用新型作进一步说明，在以下的描述中阐述了更多的细节以便于充分理解本实用新型，但是本实用新型显然能够以多种不同于此描述的其它方式来实施，本领域技术人员可以在不违背本实用新型内涵的情况下根据实际应用情况作类似推广、演绎，因此不应以此具体实施例的内容限制本实用新型的保护范围。

[0037] 图 1 为本实用新型一个实施例的支架水池的整体立体结构示意图。需要注意的是，这个以及后续其他的附图均仅作为示例，其并非是按照等比例的条件绘制的，并且不应该以此作为对本实用新型实际要求的保护范围构成限制。如图 1 所示，该支架水池主要包括：多个垂直支撑管 1、多个水平支撑管 2、水池体 4、补强带 5、固定带 6 和至少一个固定装置 7。其中，多个垂直支撑管 1 可以按照一环形形状彼此分开排列；多个水平支撑管 2 与多个垂直支撑管 1 之间通过多个 T 型接头 3 相连接。水平支撑管 2 被 T 型接头 3 连接成环形，与垂直支撑管 1 共同作为支架水池的支撑结构。为了保证有足够的支撑强度，垂直支撑管 1、水平支撑管 2 和 T 型接头 3 最好都采用高强度的硬质金属管（例如钢管）或者硬质注塑管制成，它 / 它们的截面形状可以为 D 形、椭圆形或者圆形。

[0038] 作为充水容器的水池体 4 可以由柔性胶布制成，优选为由两层 PVC 胶布夹设一层网布的柔性的增强型 PVC 胶布，该网布可以为尼龙网布或者涤纶网布。该水池体 4 主要包括池底 41（优选为圆形）和池壁 42。其中，池壁 42 与池底 41 的边缘相连接且垂直向上延伸，形成一个可以容纳水体的容器，池壁 42 设于垂直支撑管 1 的内侧。图 2 为本实用新型一个实施例的支架水池的垂直支撑管、水平支撑管、T 型接头和水池体组装的局部结构示意图。请结合图 1 和图 2 所示，该水池体 4 还可以包括支撑管套管 43，其设于池壁 42 的上边缘，水平支撑管 2 穿设在支撑管套管 43 中，并露出 T 型接头 3。

[0039] 由于水池体 4 充满水之后，池壁 42 位置低的部分承受水体的压力较位置高的部分承受的压力更大，更容易膨胀变形。图 3 为本实用新型一个实施例的支架水池的池壁、补强带、固定带和固定装置的剖面结构示意图。请结合图 1 和图 3 所示，为了解决池壁 42 的下半部向外膨胀变形情况，在池壁 42 的外侧下半部、垂直支撑管 1 的内侧可设置一个呈连续的环形形状的补强带 5，其覆盖整个或者部分水池体 4 的周长，且通过高频焊接（高频热合）的方式使补强带 5 与池壁 42 之间贴合固定连接。补强带 5 的作用在于增加池壁 42 的强度，大幅度减小池壁 42 向外膨胀变形的幅度，减小或避免其对外侧的垂直支撑管 1 施力。

[0040] 固定带 6 呈一连续的环形形状并设于补强带 5 和垂直支撑管 1 的外侧，而固定装置 7（在图 3 中具体化为固定贴片 71）也通过高频焊接（高频热合）的方式与补强带 5 固定连接，固定带 6 从固定装置 7 中穿过，使环形形状的固定带 6 固定在补强带 5 上，而垂直支撑管 1 是穿设在固定带 6 的内侧。由此可以限定垂直支撑管 1 的位置，防止垂直支撑管 1 向外发生位移。

[0041] 当然，在本实用新型中，上述固定装置 7 的形式可以是多样的，并不仅限于图 3 中所示的上下两端分别与补强带 5 固定连接的固定贴片 71，下面再示例性地给出两种固定装置 7 的其他形式。

[0042] 图 4 为本实用新型另一个实施例的支架水池的垂直支撑管、池壁、补强带、固定带和固定装置的局部结构示意图；图 5 为图 4 所示实施例的支架水池的池壁、补强带、固定带和固定装置的剖面结构示意图。图 6 为本实用新型再一个实施例的支架水池的垂直支撑

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管、池壁、补强带、固定带和固定装置的局部结构示意图；图 7 为图 6 所示实施例的支架水池的池壁、补强带、固定带和固定装置的剖面结构示意图。如图 4、5 以及如图 6、7 所示，该固定装置 7 的具体形式还可以采用固定贴环 72 或者固定贴件 73，同样都能够起到与固定贴片 71 相同的固定作用。

[0043] 在本实用新型中，上述补强带 5、固定带 6、固定贴片 71 和固定贴环 72 的材质可以是与水池体 4 相同的增强型 PVC 胶布，即两层 PVC 胶布夹设一层网布的 PVC 胶布，该网布可以为尼龙网布或者涤纶网布。而上述固定贴件 73 的材质可以为塑料注塑件或者橡胶注塑件。

[0044] 综上所述，本实用新型的支架水池在充水后最容易膨胀变形的池壁 42 外侧（例如下半部）、垂直支撑管 1 的内侧设置了补强带 5，以有效减少池壁 42 的膨胀变形；同时将固定带 6 设置在膨胀变形最小的位置，即补强带 5 和垂直支撑管 1 的外侧，这样大大减小了池壁 42 对垂直支撑管 1 的向外推力。固定带 6 和形式各异的固定装置 7 配合，则可以有效限制垂直支撑管 1 的位置，使其不易移动，防止其发生向外位移。

[0045] 本实用新型的支架水池大大改善了支撑结构的整体稳定性，避免了因水池的垂直支撑管移动可能导致的垮塌的风险，具有很好的安全性，且结构简单，易于推广。

[0046] 本实用新型虽然以较佳实施例公开如上，但其并不是用来限定本实用新型，任何本领域技术人员在不脱离本实用新型的精神和范围内，都可以做出可能的变动和修改。因此，凡是未脱离本实用新型技术方案的内容，依据本实用新型的技术实质对以上实施例所作的任何修改、等同变化及修饰，均落入本实用新型权利要求所界定的保护范围之内。

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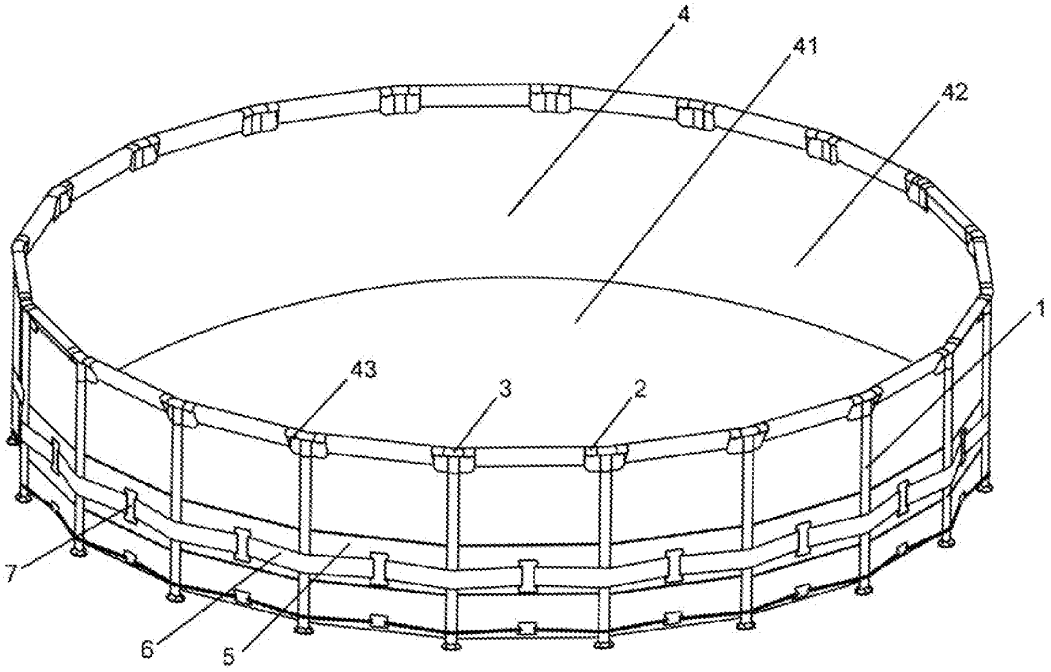


图 1

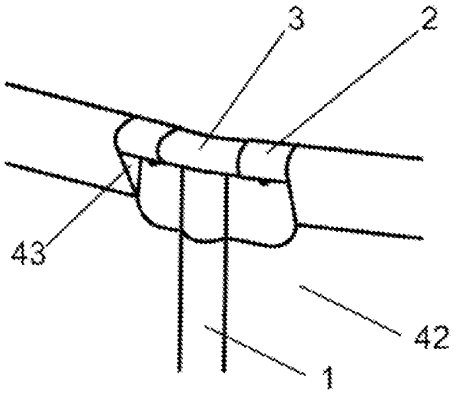


图 2

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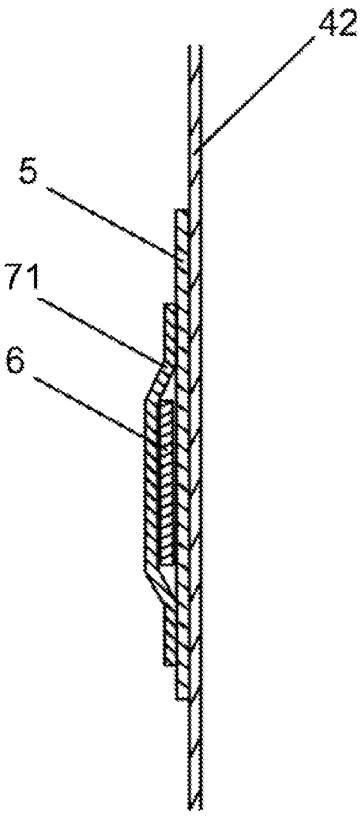


图 3

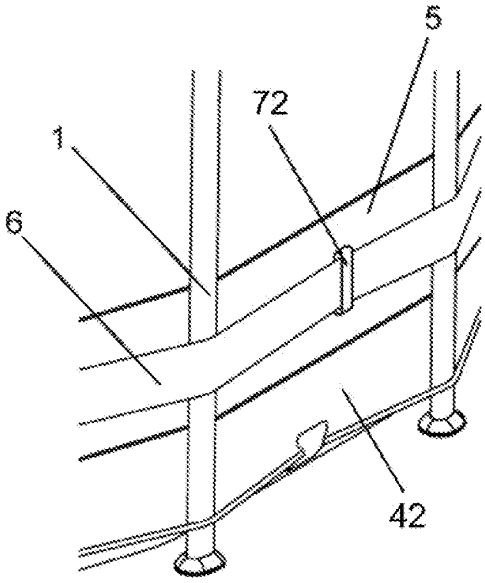


图 4

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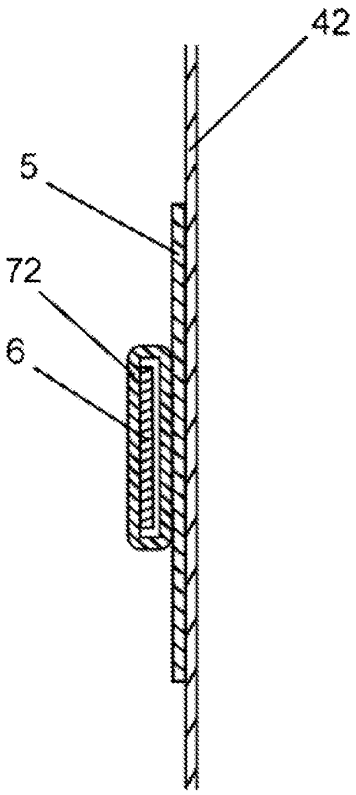


图 5

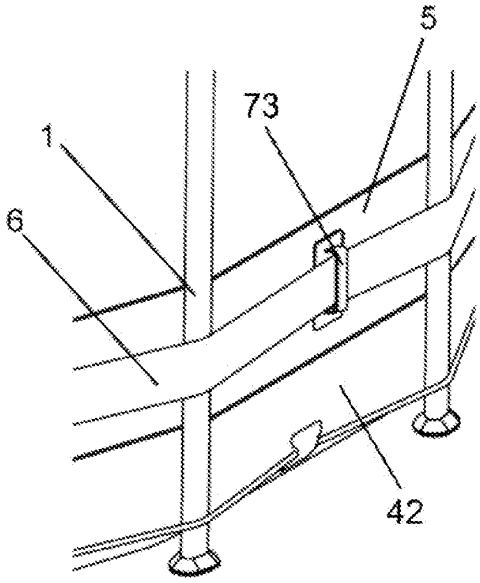


图 6

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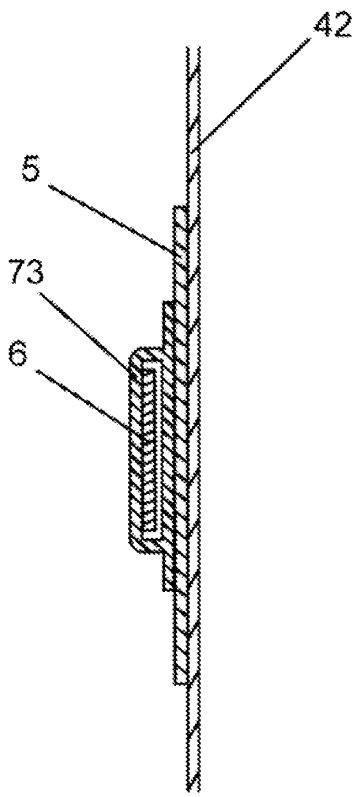


图 7

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s):	Hua Hsiang Lin, et al.
Filing Date:	May 16, 2023
Serial No.:	18/197,788
Title:	JOINT FOR ABOVE GROUND POOL FRAME
Group/Art Unit:	*To be Assigned*
Examiner:	*To be Assigned*
Docket No.:	IRC-0042-04-US
Customer No.:	27268
Conf. No.:	1052

PRELIMINARY AMENDMENT AND RESPONSE TO MISSING PARTS OF NONPROVISIONAL APPLICATION

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313

Dear Examiner:

Prior to the examination of the present application and in response to the Notice to File Missing Parts of Nonprovisional Application (the "Notice") dated June 2, 2023, please amend the application as follows:

Amendments to the Claims begin on Page 2 of this Paper and includes a Listing of the Claims; and

Remarks begin on Page 6 of this Paper.

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AMENDMENTS TO THE CLAIMS

This listing of the claims will replace the original claims of the present specification.

Listing of the Claims:

1.-20. (Cancelled)

21. (New) An above ground pool, comprising

a first frame member including a first opening;

a second frame member including a second opening;

a vertical frame member;

a frame joint comprising:

a first joint portion including a first pin configured to engage the first opening thereby coupling the first joint portion to the first frame member;

a second joint portion including a second pin configured to engage the second opening thereby coupling the second joint portion to the second frame member; and

a vertical joint portion connected to the first and second joint portions and configured to couple to the vertical frame member; and

a liner positioned around the first and second frame members;

wherein a width of the vertical joint portion accounts for at least 50% of a width between the first and second pins.

22. (New) The above ground pool of claim 21, wherein the width of the vertical joint portion accounts for at least 40% of a total width of the frame joint.

23. (New) The above ground pool of claim 22, wherein the width of the vertical joint portion accounts for about 50% of the total width of the frame joint.

24. (New) The above ground pool of claim 21, wherein the first joint portion includes a first coupling assembly including the first pin, a first base, and a first helical spring supported by the first base, the first pin being biased outward through a first hole in the first joint portion by the first helical spring to engage the first opening of the first frame member.

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25. (New) The above ground pool of claim 24, wherein the second joint portion includes a second coupling assembly including the second pin, a second base, and a second helical spring supported by the second base, the second pin being biased outward through a second hole in the second joint portion by the second helical spring to engage the second opening of the second frame member.

26. (New) The above ground pool of claim 25, wherein the width of the vertical joint portion accounts for about 70% of a width between the first and second pins.

27. (New) The above ground pool of claim 25, wherein a width of the frame joint exceeds a width of a hole defined by the liner to expose the first and second coupling assemblies.

28. (New) The above ground pool of claim 27, wherein a height of the frame joint exceeds a height of the hole in the liner.

29. (New) The above ground pool of claim 21, wherein the vertical joint portion is centered between the first and second joint portions to form a T-shaped frame joint.

30. (New) The above ground pool of claim 21, wherein the first and second joint portions form an obtuse angle.

31. (New) The above ground pool of claim 21, wherein the vertical joint portion is integrally formed with the first and second joint portions as a single piece.

32. (New) The above ground pool of claim 21, wherein the vertical joint portion includes at least one internal vertical reinforcing rib.

33. (New) The above ground pool of claim 21, wherein at least one of the first joint portion and the second joint portion includes an internal reinforcing rib.

34. (New) The above ground pool of claim 21, wherein at last one of the first joint portion and the second joint portion includes an internal support member.

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35. (New) A method of assembling an above ground pool, the method comprising:

coupling a first joint portion of a frame joint to a first frame member with a first pin configured to engage a first opening of the first frame member;

coupling a second joint portion of the frame joint to a second frame member with a second pin configured to engage a second opening of the second frame member;

coupling a vertical joint portion of the frame joint to a vertical frame member; and

positioning a liner around the first and second frame members;

wherein a width of the vertical joint portion accounts for a majority of a width between the first and second pins.

36. (New) The method of claim 35, wherein:

an external cross-section of the first joint portion matches an internal cross-section of the first frame member;

an external cross-section of the second joint portion matches an internal cross-section of the second frame member; and

an external cross-section of the vertical joint portion matches an internal cross-section of the vertical frame member.

37. (New) The method of claim 35, wherein the first joint portion, the second joint portion, and the vertical joint portion are constructed of plastic.

38. (New) The method of claim 35, wherein:

coupling the first joint portion to the first frame member comprises depressing the first pin into the first joint portion and releasing the first pin into engagement with the first frame member; and

coupling the second joint portion to the second frame member comprises depressing the second pin into the second joint portion and releasing the second pin into engagement with the second frame member.

39. (New) The method of claim 35, wherein the vertical joint portion of the frame joint is coupled to the vertical frame member with a coupling assembly and wherein a height of the hole in the liner is less than a distance between the first pin and the coupling assembly.

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40. (New) A frame joint for an above ground pool frame having a first frame member, a second frame member, and a vertical frame member, the frame joint comprising:

a first joint portion including a first coupling assembly to couple with the first frame member;

a second joint portion including a second coupling assembly to couple with the second frame member; and

a vertical joint portion connected to the first and second joint portions and configured to couple with the vertical frame member;

wherein a width of the vertical joint portion accounts for at least 50% of a width between the first and second coupling assemblies; and

wherein the first joint portion comprises a first external cross-section which is generally triangular.

41. (New) The frame joint of claim 40, wherein the first external cross-section comprises rounded edges.

42. (New) The frame joint of claim 40, wherein the first and second coupling assemblies are actuatable from an exterior of the frame joint along a vertical direction.

43. (New) The frame joint of claim 40, wherein the first and second joint portions cooperate to form an obtuse angle that defines a water cavity.

44. (New) The frame joint of claim 40, wherein the vertical joint portion is integrally formed with the first and second joint portions as a single piece.

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REMARKS

With this amendment, claims 1-20 are cancelled, and claims 21-44 have been added. Applicant respectfully requests that the above Preliminary Amendment be entered, and that the fees due herewith are calculated using the amended claims, not the claims of the original application.

In response to the Notice, Applicant submits herewith payment by credit card of $1,980 for the application filing fees and surcharge for the present application filed on May 16, 2023.

Final Remarks

In the event Applicant has overlooked the need for an extension of time or payment of an additional fee, Applicant hereby petitions therefore and authorizes that any charges be made to Deposit Account No. 02-0390, Faegre Drinker Biddle & Reath LLP.

Respectfully submitted,

/Robert D. Null/
Robert D. Null, Reg. No. 40,746
Attorney for Applicant

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Submitted: August 9, 2023

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PTO/AIA/22 (12-22)
Approved for use through 05/31/2024. OMB 0651-0031
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PETITION FOR EXTENSION OF TIME UNDER 37 CFR 1.136(a)

Docket Number (Optional): IRC-0042-04-US

Application Number: 18197788

Filed: May 16, 2023

For: JOINT FOR ABOVE GROUND POOL FRAME

Art Unit: TBA

Examiner: TBA

This is a request under the provisions of 37 CFR 1.136(a) to extend the period for filing a reply in the above-identified application.

The requested extension and fee are as follows (check time period desired and enter the appropriate fee below):

		Fee	Small Entity Fee	Micro Entity Fee	
☑	One month (37 CFR 1.17(a)(1))	$220	$88	$44	$ 220
☐	Two months (37 CFR 1.17(a)(2))	$640	$256	$128	$
☐	Three months (37 CFR 1.17(a)(3))	$1,480	$592	$296	$
☐	Four months (37 CFR 1.17(a)(4))	$2,320	$928	$464	$
☐	Five months (37 CFR 1.17(a)(5))	$3,160	$1,264	$632	$

☐ Applicant asserts small entity status. See 37 CFR 1.27.

☐ Applicant certifies micro entity status. See 37 CFR 1.29.
Form PTO/SB/15A or B or equivalent must either be enclosed or have been submitted previously.

☐ A check in the amount of the fee is enclosed.

☐ Payment by credit card. Form PTO-2038 is attached.

☐ The Director has already been authorized to charge fees in this application to a Deposit Account.

☑ The Director is hereby authorized to charge any fees which may be required, or credit any overpayment, to Deposit Account Number 020390.

☑ Payment made via USPTO's patent electronic filing system (Patent Center or EFS-Web).

WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.

I am the

☐ applicant.

☑ attorney or agent of record. Registration number 40746.

☐ attorney or agent acting under 37 CFR 1.34. Registration number _____.

/Robert D. Null/ — Signature

2023-08-09 — Date

Robert D. Null — Typed or printed name

317-237-0300 — Telephone Number

NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications. Submit multiple forms if more than one signature is required, see below*.

☑ * Total of 1 forms are submitted.

A Federal agency may not conduct or sponsor, and a person is not required to respond to, nor shall a person be subject to a penalty for failure to comply with an information collection subject to the requirements of the Paperwork Reduction Act of 1995, unless the information collection has a currently valid OMB Control Number. The OMB Control Number for this information collection is 0651-0031. Public burden for this form is estimated to average 6 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the information collection. Send comments regarding this burden estimate or any other aspect of this information collection, including suggestions for reducing this burden to the Chief Administrative Officer, United States Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450 or email InformationCollection@uspto.gov. **DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS**. If filing this completed form by mail, send to: **Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450**.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. The United States Patent and Trademark Office (USPTO) collects the information in this record under authority of 35 U.S.C. 2. The USPTO's system of records is used to manage all applicant and owner information including name, citizenship, residence, post office address, and other information with respect to inventors and their legal representatives pertaining to the applicant's/owner's activities in connection with the invention for which a patent is sought or has been granted. The applicable Privacy Act System of Records Notice for the information collected in this form is COMMERCE/PAT-TM-7 Patent Application Files, available in the Federal Register at 78 FR 19243 (March 29, 2013). https://www.govinfo.gov/content/pkg/FR-2013-03-29/pdf/2013-07341.pdf

Routine uses of the information in this record may include disclosure to: 1) law enforcement, in the event that the system of records indicates a violation or potential violation of law; 2) a Federal, state, local, or international agency, in response to its request; 3) a contractor of the USPTO having need for the information in order to perform a contract; 4) the Department of Justice for determination of whether the Freedom of Information Act (FOIA) requires disclosure of the record; 5) a Member of Congress submitting a request involving an individual to whom the record pertains, when the individual has requested the Member's assistance with respect to the subject matter of the record; 6) a court, magistrate, or administrative tribunal, in the course of presenting evidence, including disclosures to opposing counsel in the course of settlement negotiations; 7) the Administrator, General Services Administration (GSA), or their designee, during an inspection of records conducted by GSA under authority of 44 U.S.C. 2904 and 2906, in accordance with the GSA regulations and any other relevant (i.e., GSA or Commerce) directive, where such disclosure shall not be used to make determinations about individuals; 8) another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)); 9) the Office of Personnel Management (OPM) for personnel research purposes; and 9) the Office of Management and Budget (OMB) for legislative coordination and clearance.

If you do not furnish the information requested on this form, the USPTO may not be able to process and/or examine your submission, which may result in termination of proceedings, abandonment of the application, and/or expiration of the patent.

Additional Uses

Additional USPTO uses of the information in this record may include disclosure to: 1) the International Bureau of the World Intellectual Property Organization, if the record is related to an international application filed under the Patent Cooperation Treaty; 2) the public i) after publication of the application pursuant to 35 U.S.C. 122(b), ii) after issuance of a patent pursuant to 35 U.S.C. 151, iii) if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections, or an issued patent, or iv) without publication of the application or patent under the specific circumstances provided for by 37 CFR 1.14(a)(1)(v)-(vii); and/or 3) the National Archives and Records Administration, for inspection of records.

Electronic Patent Application Fee Transmittal

Application Number:	18197788
Filing Date:	16-May-2023
Title of Invention:	JOINT FOR ABOVE GROUND POOL FRAME
First Named Inventor/Applicant Name:	Hua Hsiang Lin
Filer:	Robert D. Null./Melissa Russell
Attorney Docket Number:	IRC-0042-04-US

Filed as Large Entity

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
UTILITY APPLICATION FILING	1011	1	320	320
UTILITY SEARCH FEE	1111	1	700	700
UTILITY EXAMINATION FEE	1311	1	800	800
Pages:				
Claims:				
CLAIMS IN EXCESS OF 20	1202	4	100	400
Miscellaneous-Filing:				
LATE FILING FEE FOR OATH OR DECLARATION	1051	1	160	160

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Extension - 1 month with $0 paid	1251	1	220	220
Miscellaneous:				
		Total in USD ($)		**2600**

Electronic Acknowledgement Receipt	
EFS ID:	48419186
Application Number:	18197788
International Application Number:	
Confirmation Number:	1052
Title of Invention:	JOINT FOR ABOVE GROUND POOL FRAME
First Named Inventor/Applicant Name:	Hua Hsiang Lin
Customer Number:	27268
Filer:	Robert D. Null./Melissa Russell
Filer Authorized By:	Robert D. Null.
Attorney Docket Number:	IRC-0042-04-US
Receipt Date:	09-AUG-2023
Filing Date:	16-MAY-2023
Time Stamp:	17:02:38
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$2600
RAM confirmation Number	E202389H03469702
Deposit Account	
Authorized User	
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		IRC_0042_04_US_Response.pdf	150706 610770d8da915d34e529611b2ca1fbe7d7da333b	yes	6
	Multipart Description/PDF files in .zip description				
	Document Description		**Start**	**End**	
	Applicant Response to Pre-Exam Formalities Notice		1	1	
	Claims		2	5	
	Applicant Arguments/Remarks Made in an Amendment		6	6	
Warnings:					
Information:					
2	Extension of Time	IRC_0042_04_US_EOT.pdf	254587 9b66fad121d85f68d1fc6374692e5388e5493100	no	2
Warnings:					
Information:					
3	Fee Worksheet (SB06)	fee-info.pdf	51174 2d00b0efec74d0ec6ed2602ec35c50582ec07371	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	456467		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
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P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	TOT CLAIMS	IND CLAIMS
18/197,788	05/16/2023		2380	IRC-0042-04-US	24	3

CONFIRMATION NO. 1052

UPDATED FILING RECEIPT

27268
FAEGRE DRINKER BIDDLE & REATH LLP
300 NORTH MERIDIAN STREET
SUITE 2500
INDIANAPOLIS, IN 46204

Date Mailed: 08/14/2023

Receipt is acknowledged of this non-provisional utility patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF FIRST INVENTOR, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection.

Please verify the accuracy of the data presented on this receipt. If an error is noted on this Filing Receipt, please submit a written request for a corrected Filing Receipt, including a properly marked-up ADS showing the changes with strike-through for deletions and underlining for additions. If you received a "Notice to File Missing Parts" or other Notice requiring a response for this application, please submit any request for correction to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections provided that the request is grantable.

Inventor(s)

Hua Hsiang Lin, Fujian, CHINA, Deceased;
Yaw Yuan Hsu, Fujian, CHINA;

Applicant(s)

Intex Marketing Ltd., Tortola, VIRGIN ISLANDS, BRITISH;

Assignment For Published Patent Application

Intex Marketing Ltd., Tortola, VIRGIN ISLANDS, BRITISH

Power of Attorney: The patent practitioners associated with Customer Number 27268

Domestic Priority data as claimed by applicant

This application is a CON of 17/962,979 10/10/2022 PAT 11,692,573
which is a CON of 16/220,484 12/14/2018 PAT 11,692,572
which is a 371 of PCT/US2017/037892 06/16/2017

Foreign Applications (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see http://www.uspto.gov for more information.)
CHINA 201620598406.9 06/17/2016 No Access Code Provided
CHINA 201630270359.0 06/22/2016 No Access Code Provided
CHINA 201621039473.3 09/06/2016 No Access Code Provided

Permission to Access Application via Priority Document Exchange: Yes

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Permission to Access Search Results: Yes

Applicant may provide or rescind an authorization for access using Form PTO/SB/39 or Form PTO/SB/69 as appropriate.

If Required, Foreign Filing License Granted: 05/31/2023

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 18/197,788**

Projected Publication Date: 11/23/2023

Non-Publication Request: No

Early Publication Request: No

Title

JOINT FOR ABOVE GROUND POOL FRAME

Preliminary Class

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications: No

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

Almost every country has its own patent law, and a person desiring a patent in a particular country must make an application for patent in that country in accordance with its particular laws. Since the laws of many countries differ in various respects from the patent law of the United States, applicants are advised to seek guidance from specific foreign countries to ensure that patent rights are not lost prematurely.

Applicants also are advised that in the case of inventions made in the United States, the Director of the USPTO must issue a license before applicants can apply for a patent in a foreign country. The filing of a U.S. patent application serves as a request for a foreign filing license. The application's filing receipt contains further information and guidance as to the status of applicant's license for foreign filing.

Applicants may wish to consult the USPTO booklet, "General Information Concerning Patents" (specifically, the section entitled "Treaties and Foreign Patents") for more information on timeframes and deadlines for filing foreign patent applications. The guide is available either by contacting the USPTO Contact Center at 800-786-9199, or it can be viewed on the USPTO website at http://www.uspto.gov/web/offices/pac/doc/general/index.html.

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, http://www.stopfakes.gov. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific

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countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4258).

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Title 35, United States Code, Section 184

Title 37, Code of Federal Regulations, 5.11 & 5.15

GRANTED

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NOT GRANTED

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PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

Application or Docket Number: 18/197,788

APPLICATION AS FILED - PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	SMALL ENTITY RATE($)	SMALL ENTITY FEE($)	OR	OTHER THAN SMALL ENTITY RATE($)	OTHER THAN SMALL ENTITY FEE($)
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A			N/A	320
SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A			N/A	700
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A	800
TOTAL CLAIMS (37 CFR 1.16(i))	24 minus 20 =	* 4			OR	x 100 =	400
INDEPENDENT CLAIMS (37 CFR 1.16(h))	3 minus 3 =	*				x =	0
APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).						0
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))							0
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL			TOTAL	1820

APPLICATION AS AMENDED - PART II

AMENDMENT A

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE($)	SMALL ENTITY ADDITIONAL FEE($)	OR	OTHER THAN SMALL ENTITY RATE($)	OTHER THAN SMALL ENTITY ADDITIONAL FEE($)
Total (37 CFR 1.16(i))	*	Minus	**	=	x =		OR	x =	
Independent (37 CFR 1.16(h))	*	Minus	***	=	x =		OR	x =	
Application Size Fee (37 CFR 1.16(s))									
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
					TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

AMENDMENT B

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE($)	SMALL ENTITY ADDITIONAL FEE($)	OR	OTHER THAN SMALL ENTITY RATE($)	OTHER THAN SMALL ENTITY ADDITIONAL FEE($)
Total (37 CFR 1.16(i))	*	Minus	**	=	x =		OR	x =	
Independent (37 CFR 1.16(h))	*	Minus	***	=	x =		OR	x =	
Application Size Fee (37 CFR 1.16(s))									
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
					TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".
The "Highest Number Previously Paid For" (Total or Independent) is the highest found in the appropriate box in column 1.

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Doc code: IDS
Doc description: Information Disclosure Statement (IDS) Filed

PTO/SB/08a (01-22)
Approved for use through 05/31/2024. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT
(Not for submission under 37 CFR 1.99)

Application Number	18197788
Filing Date	2023-05-16
First Named Inventor	Hua Hsiang Lin
Art Unit	3754
Examiner Name	CENTRAL, DOCKET
Attorney Docket Number	IRC-0042-04-US

U.S.PATENTS Remove

Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	11692572	B2	2023-07-04	LIN et al.	
	2	11692573	B2	2023-07-04	LIN et al.	

If you wish to add additional U.S. Patent citation information please click the Add button. Add

U.S.PATENT APPLICATION PUBLICATIONS Remove

Examiner Initial*	Cite No	Publication Number	Kind Code[1]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	20230228114	A1	2023-07-20	Huang et al.	

If you wish to add additional U.S. Published Application citation information please click the Add button. Add

FOREIGN PATENT DOCUMENTS Remove

Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2] i	Kind Code[4]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	T[5]
	1							

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NON-PATENT LITERATURE DOCUMENTS Remove

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	18197788
	Filing Date	2023-05-16
	First Named Inventor	Hua Hsiang Lin
	Art Unit	3754
	Examiner Name	CENTRAL, DOCKET
	Attorney Docket Number	IRC-0042-04-US

Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T[5]
	1		

If you wish to add additional non-patent literature document citation information please click the Add button Add

EXAMINER SIGNATURE

Examiner Signature		Date Considered	

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

[1] See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. [2] Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [5] Applicant is to place a check mark here if English language translation is attached.

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Bestway v. Intex PGR2024-00036

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	18197788
	Filing Date	2023-05-16
	First Named Inventor	Hua Hsiang Lin
	Art Unit	3754
	Examiner Name	CENTRAL, DOCKET
	Attorney Docket Number	IRC-0042-04-US

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

See attached certification statement.

The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☒ A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Robert D. Null/	Date (YYYY-MM-DD)	2023-08-21
Name/Print	Robert D. Null	Registration Number	40,746

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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Bestway v. Intex PGR2024-00036

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Electronic Acknowledgement Receipt	
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International Application Number:	
Confirmation Number:	1052
Title of Invention:	JOINT FOR ABOVE GROUND POOL FRAME
First Named Inventor/Applicant Name:	Hua Hsiang Lin
Customer Number:	27268
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Attorney Docket Number:	IRC-0042-04-US
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1	Information Disclosure Statement (IDS) Form (SB08)	IRC_0042_04_US_IDS.pdf	1282261 fdc5899a30e2a1f2269f23ad9f853b7e96429317	no	4

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Doc code: IDS
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	Application Number	18197788
	Filing Date	2023-05-16
	First Named Inventor	Hua Hsiang Lin
	Art Unit	3754
	Examiner Name	To be Assigned
	Attorney Docket Number	IRC-0042-04-US

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	1	2014/100855	WO		2014-07-03	Hunter Products PTY Ltd		

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	First Named Inventor	Hua Hsiang Lin
	Art Unit	3754
	Examiner Name	To be Assigned
	Attorney Docket Number	IRC-0042-04-US

	1	Small Rectangular Metal Frame Pool 177-1/4" x 86-5/8" x 33" (450 cm x 220 cm x 84 cm) Owner's Manual, Intex Marketing Ltd., copyright 2012; 14 pages.

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	First Named Inventor	Hua Hsiang Lin
	Art Unit	3754
	Examiner Name	To be Assigned
	Attorney Docket Number	IRC-0042-04-US

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Signature	/Parker Brooks Hudson/	Date (YYYY-MM-DD)	2023-08-31
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(54) Title: MODULAR FENCE COMPRISING SELF-CLOSING GATE

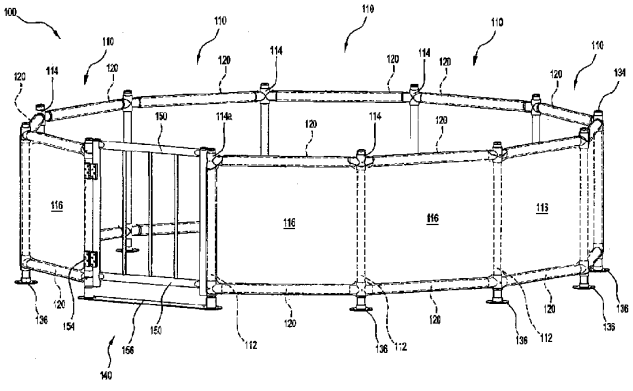


FIG. 9

(57) Abstract: A fence comprising a plurality of modular sections, each modular section comprising one or more support struts, one or more section linkages and a screen covering the modular section, a self-closing gate section comprising a self-closing manual release mechanism, a gate which swings open and shut to provide access to an interior of an area enclosed by the fence and each of two terminal modular sections on either side of the self-closing gate section comprising one or more anchor points for secure attachment to the ground and one or more terminal linkages is disclosed. The fence may further comprise a brace for ensuring the gate can swing open and shut. The brace may comprise an arch or a support plate extending between the two terminal modular sections on either side of the self-closing gate section. The fence may find application to pools including above-ground pools and may be constructed to comply with Safety Standards.

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TITLE

MODULAR FENCE COMPRISING SELF-CLOSING GATE

FIELD

[001] THIS INVENTION described herein relates generally to a modular fence comprising a self closing gate. In particular, the invention is directed to a modular fence comprising a self closing gate and a screen which complies with relevant Safety Standards, although the scope of the invention is not necessarily limited thereto.

BACKGROUND

[002] Above-ground pools can be cost effectively manufactured and installed in a larger number of locations compared to in-ground pools. Additionally, above-ground pools offer other advantages such as, they can be easier to maintain and to clean. Above-ground pools can also be emptied out and stored away to open up space for other activities or play-equipment.

[003] While they offer many advantages, above-ground pools present, like in-ground pools, a drowning hazard. One measure often taken, and legally required in some areas, is to fence the pool.

[004] The proper installation of a fence negates many of the advantages of an above-ground pool. This is also true of other measures required to meet other requirements such as, a minimum distance from climbing points to the fence and from the fence to the above-ground pool.

SUMMARY

[005] The present invention is broadly directed to a modular fence comprising a self closing gate. The present inventors have recognised that the installation of a conventional fence negates many of the advantages of having a pool, in particular an above-ground pool. From their diligent study and their recognition of this problem, the present inventors have provided a modular fence comprising a self-closing gate.

[006] Although the invention finds particular application to a fence for a pool it is not restricted to that application and may also find application to fencing of other areas such as, play areas for a child or pet, garden, grassed areas or any site where fencing is required such as, a building site or crowd control area.

[007] A preferred advantage of the invention is that it provides a safe and cost-effective fence for a pool. Another preferred advantage of the invention is that the fence complies

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with standards and laws for a pool fence.

[008] In one aspect, there is provided a fence comprising:

a plurality of modular sections, each modular section comprising one or more support struts, one or more section linkages and a screen covering the modular section;

a self-closing gate section comprising a self-closing manual release mechanism and a gate which swings open and shut to provide access to an interior of an area enclosed by the fence; and

each of two terminal modular sections on either side of the self-closing gate section comprising one or more anchor points for secure attachment to the ground and one or more terminal linkages.

[009] In a second aspect the invention provides a kit comprising the modular fence of the first aspect and may optionally further comprise one or more of a pool cover, one or more anchor for securing to the attachment point and the ground, an anchoring band and/or an above ground pool.

[010] In a third aspect the invention provides a method of fencing an area comprising installing the fence of the first aspect around the area to be fenced.

[011] In a fourth aspect the invention provides a method of assembling a fence comprising:

joining a plurality of modular sections, each modular section comprising one or more support struts, one or more section linkages and a screen covering the modular section, each of two terminal modular sections comprising one or more anchor points for secure attachment to the ground and one or more terminal linkages; and

joining to the two terminal modular sections a self-closing gate section comprising a self-closing manual release mechanism and a gate which swings open and shut to provide access to an interior of an area enclosed by the fence, to thereby assemble the fence.

[012] In a fifth aspect the invention provides a method of fencing an area comprising:

joining a plurality of modular sections, each modular section comprising one or more support struts, one or more section linkages and a screen covering the modular section, each of two terminal modular sections comprising one or more anchor points for secure attachment to the ground and one or more terminal linkages; and

joining to the plurality of modular sections a self-closing gate section comprising a self-closing manual release mechanism and a gate which swings open and shut to provide

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access to an interior of an area enclosed by the fence, to thereby fence the area.

[013] According to any one of the above aspects the fence may comprise a brace for ensuring the gate can swing open and shut. The brace may comprise an arch or a support plate extending between the two terminal modular sections on either side of the self-closing gate section.

[014] The arch may comprise two arch uprights and an arch brace.

[015] In embodiments comprising an arch, each of the terminal modular sections may comprise a gate arch linkage.

[016] The support plate may comprise an elongate body and a reinforced connection at either end for secure attachment to the terminal modular sections.

[017] The support plate may be weighted.

[018] According to any one of the above aspects the one or more anchor points on the terminal modular sections may be comprised on a footing of the one or more support strut.

[019] According to any one of the above aspects the one or more anchor points on the terminal modular sections may be comprised on the support plate.

[020] In one embodiment the reinforced connections comprise an elongated connection for joining to one or both of the terminal modular sections.

[021] The elongated connection may comprise an elongated male female connection.

[022] The elongated female connection may comprise a length greater than 50 mm; greater than or equal to 55mm; greater than or equal to 60 mm; greater than or equal to 65 mm; or greater than or equal to 70mm.

[023] According to any one of the above aspects each modular section comprises one or more reinforced connection between a support strut and a footing.

[024] According to any one of the above aspects one or more of the linkages comprises a reinforced connection.

[025] In a particular embodiment of any above aspect, a manual release mechanism is comprised on self-closing gate section or a part thereof in a position which complies with a relevant safety standard.

[026] According to this particular embodiment, the fence may be packaged unassembled with the manual release mechanism installed in the safety standard compliant position or there may be one or more marking or connection comprised on self-closing gate section for installation of manual release mechanism in the safety standard compliant position.

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[027] According to any one of the above aspects, each modular section may comprise an individual modular screen.

[028] According to any one of the above aspects the screen covering the modular sections may comprise a one-piece screen for covering each modular section of the plurality of modular sections.

[029] According to any of the above aspects the screen may be any suitable material such as, a lattice, film or a mesh.

[030] According to any one of the above aspects the film may comprise a plastic film and fibreglass mesh.

[031] According to any one of the above aspects the screen may be secured to the modular sections by one or more peg or pin.

[032] Each of the one or more peg or pin may be secured by an interference fit or by a screw-in thread.

[033] In one embodiment of any above aspect the self-closing gate-section also comprises a barrier. In a preferred embodiment the self-closing gate-section barrier comprises a solid panel.

[034] According to any of the above aspects one or more, or each, non-terminal modular section may also comprise one or more anchor points.

[035] According to any one of the above aspects, each modular section may also comprise one or more side strut which connects to a section linkage.

[036] According to any of the above aspects the fence may be for a pool such as, an above-ground pool or an in-ground pool.

[037] According to any of the above aspects the fence may be for a child or pet play area.

[038] According to any of the above aspects the fence may be for grass, a plant, tree or garden.

[039] According to any of the above aspects two or more opposing modular sections may also comprise one or more attachment point for an anchoring band.

[040] According to any of the above aspects the anchoring band may traverse the assembled modular fence diameter to attach to opposing modular sections and be positioned under a pool surrounded by the assembled modular fence.

[041] According to any of the above aspects when assembled the modular fence may comprise any shape including, circular, oval, quadrilateral, pentagonal, hexagonal,

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dodecagonal or other polygonal shape of three or more sides.

[042] According to any of the above aspects the one or more support strut, section linkages, screen and side struts may be comprised of a plastic material.

[043] According to any of the above aspects the one or more support struts, section linkages and side struts may be comprised of a metal or metal alloy such as, steel.

[044] According to any of the above aspects the one or more section linkages may comprise two or more intersection linkages or a plurality of section linkages.

[045] According to any of the above aspects the self-closing gate section may also comprise one or more of: one or more hinge; one or more gate section support strut; and one or more gate section side struts.

[046] As used herein, except where the context requires otherwise, the term "comprise" and variations of the term, such as "comprising", "comprises" and "comprised", are not intended to exclude further additives, components, integers or steps.

BRIEF DESCRIPTION OF THE DRAWINGS

[047] In order that the present invention may be readily understood and put into practical effect, reference will now be made to the accompanying illustrations, wherein like reference numerals refer to like features and wherein:

[048] FIG. 1 shows a first embodiment of a fence according to the invention.

[049] FIG. 2 shows from inside the fence, a perspective view of part of a fence according to the first embodiment.

[050] FIG. 3 shows from outside the fence, adjoining modular sections according to the first embodiment of the invention.

[051] FIG. 4 shows a top linkage of two modular sections according to first embodiment of the invention.

[052] FIG. 5 shows a bottom linkage of two modular sections according to the first embodiment of the invention.

[053] FIGS. 6-7 show outside and inside views, respectively, of a self-closing gate section according to the first embodiment of the invention.

[054] FIG. 8 shows one embodiment of a hinge for use with the fence according to one embodiment of the invention.

[055] FIG. 9 shows a fence according to a second embodiment of the invention.

[056] FIG. 10 shows, from inside the fence, a perspective view of adjoining sections of a

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fence according to the second embodiment of the invention.

[057] FIG. 11 shows, from outside the fence, adjoining sections according to the second embodiment of the invention.

[058] FIG. 12 shows, from outside the fence, a perspective view of a gate section according to the second embodiment of the invention.

[059] FIG. 13 shows, from inside the fence, a perspective view of a gate section showing a manual release mechanism according to the second embodiment of the invention.

[060] FIG. 14 shows a hinge according to the second embodiment of the invention.

[061] FIG. 15 shows a peg according to the second embodiment of the invention.

DETAILED DESCRIPTION

[062] Recognising the problem that exists in providing cost-effective fences, the inventors have produced a modular fence that is cost-effective and easily installed and removed. Further, as exemplified herein, the modular fence comprises a self-closing gate to advantageously provide access and also secure the fenced area.

[063] Although the invention will be described with reference to a pool fence, the fence of the invention finds broad application to all areas that may be fenced. Other examples include play areas for children or pets, garden or grassed areas or any site where fencing is required such as, a building site or crowd control area. A crowd control area is one in which a crowd gathers or is expected to gather, such as, a concert, festival or other entertainment or sporting event.

[064] As used herein "ground' refers to the surface on which the fence is installed and encompasses surfaces such as grassed, concreted, paved, timber decked and gravel surfaces.

[065] FIGS. 1-8 show a first embodiment of a fence 100 comprising a plurality of modular sections 110 and a self-closing gate section 140.

[066] As shown in FIGS. 1-3 and 5 each modular section 110 comprises a support strut 112, a plurality of linkages 114 and a screen 116 covering the modular section 110.

[067] In the embodiment shown in FIGS. 1-8, strut 112 is linear and is installed perpendicular to the ground. From the teaching herein a skilled person is readily able to select a suitable length and shape for support strut 112.

[068] In the embodiment shown in FIGS. 1-8, each modular section 110 also comprises several anchor points 118 which are used to secure support struts 112 to the ground. A peg, bolt or other fastener (not shown) may secure to anchor points 118 on footing 136 which is

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comprised on support struts 111. FIGS. 1-8 show each support strut 110 to comprise four anchor points. In other embodiments each support strut 110 comprising anchor points 118 may comprise one, two, three, five, six or more anchor points.

[069] In the embodiment shown in FIGS. 1-8, each linkage 114 comprises a three-way connector which may be referred to as a T-connector or a Y-connector. Each linkage 114 joins one support strut 112 to two side struts 120, one either side of strut 112.

[070] FIG.2 shows a view from inside fence 100 and shows that in this embodiment, lattice 116 is mounted on the outside surface of support struts 112.

[071] Screen 116 is shown to be comprised of a one-piece lattice which covers all modular sections 110. In another embodiment each modular section 110 comprises an individual piece of lattice 116.

[072] The two adjoining modular sections 110 shown in full in FIG. 2 share a common support strut 112. Terminal modular sections 110, adjacent gate section 140, share one support strut 112 with neighbouring non-terminal modular sections 110 and comprise a terminal support strut 112 immediately adjacent to gate section 140.

[073] In the embodiment shown in FIGS. 1-8, screen 116 is a lattice. In other embodiments screen 116 may be comprised of a mesh or film. Importantly, to comply with pool safety standards screen 116 is robust enough to prevent penetration by a child.

[074] From FIG. 2 it can also be seen that each linkage 114 may comprise a linkage cap 134 for safety and aesthetic purposes.

[075] FIG. 3 is a partial cut-away view showing sections 110 of fence 100 with and without screen 116.

[076] The embodiment shown in FIGS. 1-3 show support struts 112 to connect at the top and bottom to linkages 114 and to side struts 120.

[077] While the embodiment of FIGS. 1-8 shows each modular section 110 to comprise two linkages 114, one top and one bottom, other embodiments may comprise a different number of linkages 114. From the teaching herein, a skilled person is readily able to select an appropriate number of struts 110, 120 and linkages 114 to construct the desired fence shape.

[078] FIG. 4 shows a portion of the material used for the screen 116 and support strut 112 in isolation as well as the connection of support strut 112, linkage 114 and top side struts 120.

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[079] FIG. 5 shows connection of support strut 112, linkage 114 and bottom side struts 120.

[080] In other embodiments support strut 112 may only connect to one of a top or bottom support strut 112.

[081] Fence 100 may also comprise band attachment points 122 (not shown) on opposing modular sections for attachment of an anchoring band (not shown). The anchoring band may traverse the assembled modular fence diameter to attach to the opposing modular sections and be positioned under the pool to further secure fence 100.

[082] FIGS. 6-8 show self-closing gate section 140 comprising a self-closing manual release mechanism 142 and gate 144 joined to two terminal modular sections 110. The modular sections 110 that join to self-closing gate section 140 effectively end the chain of modular sections 110 and are therefore called terminal modular sections 110.

[083] While mechanism 142 is described as being comprised on gate section 140, the skilled person will understand that one of the terminal modular sections 110 must comprise a component for mechanism 142 to engage with.

[084] In order to provide a secure fence 100 and to ensure gate 144 can swing open and shut, terminal struts 112, comprised on terminal modular section 110 and immediately adjacent gate section 140, comprise one or more anchor points 146 for secure attachment to the ground. In this manner, one or more anchor points 146 on terminal modular sections 110 are compulsory. This distinguishes anchor points 146 from anchor points 118 which may not be present on each and every non-terminal modular section 110.

[085] In this first illustrated embodiment, arch 126 also serves to space apart terminal modular sections 110 so that gate 144 can swing open and shut. Arch 126 is joined to the terminal modular sections by arch connections 124 which also join terminal support strut 112 to a top side strut 120.

[086] Arch 126 comprises arch uprights 128 and arch brace 130 to ensure terminal modular sections 110 remain sufficiently spaced apart to allow gate 144 to swing open and shut and to allow a person to walk through the gateway.

[087] Self-closing gate section 140 also comprises hinges 154 to attach to one of the terminal modular sections 110. Hinges 154 are secured on one of the terminal support struts immediately adjacent to self-closing gate section 140 on one of the terminal modular sections 110 and to one of the gate section support struts 148.

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[088] Hinges 154 are tension hinges which self-close gate 144 so self closing manual release mechanism 142 is engaged to prevent gate 144 opening without manual operation of mechanism 142. In other embodiments, the self-closing action may be due to another bias, such as a spring secured to the gate 144 and to a terminal modular section 110.

[089] On the other gate section support strut 148 the handle of self-closing manual release mechanism 142 is disposed to engage with the adjacent terminal modular section 110 when in a closed state. In the embodiment of FIGS. 1-8, manual release mechanism 148 is a conventional top-pull latch, which may be opened by pulling part of mechanism 148 upwards.

[090] To make gate section 140 impenetrable so as to comply with, for example Pool Fencing Safety Standards, gate 144 comprises a gate section screen 152. In the embodiment shown screen 152 comprises a plurality of ribs 153.

[091] Supporting screen 152, gate 144 further comprises gate section support struts 148 and gate section side struts 150.

[092] In the embodiment shown both terminal modular sections 110 comprise four anchor points 146. In other embodiments each terminal support strut 110 comprising anchor points 146 may comprise one, two, three, five, six or more anchor points.

[093] FIGS. 6-8 also show terminal modular sections 110 to comprise a terminal linkage 114a which joins terminal support strut 112 to a single side strut 120.

[094] FIG. 8 shows screen 116 attached to an intersection linkage by a peg or pin 132 inserted through an attachment point on screen 116 and into a side strut 120 and secured by an interference fit. In other embodiments screen 116 may be an integral moulded part of modular section 110 or may be attached by an alternate fastener such as, one or more bolt, screw or tie.

[095] In this first illustrated embodiment shown in FIGS. 1-8, support struts 112, linkages 114, 114a, 124, side struts 120, screen 116, arch 126, peg or pin 132, footing 136 and gate 144 are comprised of polyvinyl chloride. Based on the teachings herein a skilled person is readily able to select other suitable materials such as other polymeric materials such as polypropylene and polyethylene.

[096] FIGS. 9-15 show a second embodiment of a fence 100 according to the invention.

[097] From FIGS. 9-11 it can be seen that screen 116 in the second embodiment comprises a one-piece screen 116 that is secured onto each modular section using pegs or

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pins 132.

[098] The one-piece screen 116 shown in this second embodiment comprises a film. The film is a polymeric film comprising a fibreglass mesh. The particular film used in this second embodiment comprises a heavy duty polyvinyl chloride (PVC) coated mesh. Although not transparent in this embodiment, in other embodiments one-piece screen may be transparent or partially transparent.

[099] FIGS. 10 and 11 show partial cut away views of fence 100 of the second embodiment with part of screen 116 omitted to show the connection to modular sections 110. The top and bottom side struts 120 of each modular section 110 are received in top and bottom channels of screen 116. Screen 116 can be shaped and sized to any shape or size fence 100 to be constructed.

[0100] Rather than, or in addition to, these channels, in other embodiments one-piece screen 116 may further comprise another type of fastener such as, a hook and loop fastener to allow one-piece screen 116 to be wrapped around the top 120 and, optionally, bottom side struts 120.

[0101] In this second embodiment one-piece screen 116 is shown attached to each modular section 110. If an appropriately secure attachment is possible, one-piece screen does not have to be attached to each modular section 110.

[0102] Returning to FIG. 9, rather than a brace comprising an arch 126, fence 100 of the second embodiment comprises a brace comprising a support plate 156.

[0103] Support plate 156 extends along the ground between the two terminal support struts 112 to securely space terminal support struts 112 apart so gate 144 can swing open and shut.

[0104] The attachment of support plate 156 to terminal modular sections 110 can be best seen in FIG. 12, which shows the elongate body of support plate 156 comprising a reinforced connection 158 at each end. Reinforced connection 158 comprises an elongated female connection 160. Elongated female connection 160 comprises a length of 70 mm. In other embodiments, the length of the elongate female connection 158 comprises greater than 50 mm; greater than or equal to 55 mm; greater than or equal to 60 mm; greater than or equal to 65 mm or greater than or equal to 70 mm. Connection 158 is reinforced to provide a more secure fit and to ensure self-closing gate section 140 will not topple over during use.

[0105] In another embodiment, the reinforced female connection 160 may be comprised on

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terminal support struts 112 which mate with support plate 156. In which case support plate 156 will comprise a reinforced or elongated male connection.

[0106] In still other embodiments, other types of reinforced connection 158 are present, instead of, or in addition to the reinforced male-female connection such as, a series of fasteners on different points along the length of the mating support strut 112.

[0107] In yet another embodiment, one or more of the following connectors also comprises such a dimensioned reinforced connection: linkages 114, 114a, 124 and the connection between support struts 112 and footing 136. In a preferred embodiment, all connections comprised in fence 100 comprise such a dimensioned reinforced connection.

[0108] Although not shown, in other embodiments support plate 156 may be weighted. The weighting may comprise constructing support plate of a heavy material or increasing the thickness to thereby increase the weight. Alternatively, support plate 156 may be hollow to allow filling, and thereby weighting, with a weighting material such as, sand and/or water.

[0109] The inventors also envisage an embodiment in which support plate 156 is integral with terminal support struts 112. However, the integral arrangement is not suited to compact packing and shipping. The integral support plate 156 – terminal support strut 112 arrangement may be formed by joining these two components together or by forming them integrally. The joining may be by welding, gluing or other suitable .

[0110] FIGS. 9 and 12 show gate section screen 152 to comprise the additional feature of a gate section barrier 162 which in this embodiment comprises a solid panel comprised of poly (methylmethacrylate) (PMMA). In other embodiments other materials may be used, however it is to be understood that transparent or partially transparent polymeric panels are advantageous in terms of visibility.

[0111] Barrier 162 is attached to gate 144 by gate section barrier connector 164 which comprises gate section barrier receiving plate 166 disposed on support struts 148 in which receiving plate orifice 168 (not shown) is positioned for receiving gate section barrier fastener 170. Fastener 170 comprises a bolt. In other embodiments, other types of fasteners may be utilised such as, one or more screw, tie, clamp or latch.

[0112] While manual release mechanism 142 can only be partially seen from the outside view of self-closing gate section 140 shown in FIG. 12, the inside view of FIG. 13 shows manual release mechanism 142 clearly. In this embodiment, manual release mechanism 142 comprises a side pull latch located on the inside of gate section 140.

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[0113] FIG. 14 shows hinges 154 which in the second embodiment also comprise tension hinges which act to self-close gate 100 as described with reference to the first embodiment.

[0114] FIG. 15 shows peg or pin 132 ready for insertion into connector 114. Although not described with reference to the first embodiment, peg or pin 132 shown in FIG. 15 also comprises a peg shaft 132a, peg tip 132b and peg head 132c. Unlike, the first embodiment, in this second embodiment peg or pin 132 comprises a screw-in thread (not shown) and tool engaging surface 132d so that a screw driver may be used to secure peg or pin 132 in fence 100. Peg or pin 132 of the second embodiment also comprises a skirt 132a for safety and aesthetic reasons.

[0115] Peg or pin 132 is shown to be received in linkage 114. In other embodiments, peg or pin 132 may be received in side struts 120 or support struts 112.

[0116] In the second embodiment, support struts 112, linkages 114, 114a, 124, side struts 120, screen 116, support plate 156, footing 136 and gate 144 are comprised of steel. The inventor has found that manufacture of fence 100 from steel is more cost-effective than using polymeric materials.

[0117] In the second embodiment pegs or pins 132 are comprised of polymeric material. In other embodiments pegs or pins 132 are comprised of a metal or metal alloy, however it is desirable skirt 132 is comprised of polymeric or similarly pliant material.

[0118] Fence 100 has a circular shape in the first embodiment and a dodecagonal shape in the second embodiment. In other embodiments when assembled the modular fence 100 may comprise any shape including, circular, oval, quadrilateral or other polygonal shape of three or more sides. From the teachings herein a skilled person is readily able to shape struts 112, 120, linkages 114, 114a, 124, screen 116, arch 126, support plate 156 and if required the components of self-closing gate section 140 to achieve a desired shape.

[0119] Fence 100 is shown to have one side entirely made up by gate section 140. In other embodiments, gate section 140 comprises only part of a side of gate 100 with the remainder of that side comprising one or two terminal modular sections 110.

[0120] The inventors have also provided a kit which comprises modular fence 100 and which may optionally further comprise one or more of a pool cover, one or more anchor for securing to the attachment point and the ground, the anchoring band and/or an above ground pool.

[0121] The invention also provides a method of fencing an area comprising installing fence

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100 around an area to be fenced. Fence 100 may be for a pool such as, an above-ground pool or an in-ground pool. Fence 100 when used to fence such a pool has particular advantages as it complies with the strict safety standards that are required by law in countries such, as Australia.

[0122] Fence 100 is preferably constructed to comply with relevant Safety Standards. For example, fence 100 may be constructed to comply with Australian Safety Standards, under which modular sections 110 and self-closing gate section 140 comprise a minimum height of 1.2 metres. Additionally, self-closing gate section 140 is outward opening, self-closing from any position and won't reopen unless the manual release mechanism 142 is operated. Manual release mechanism 142 may be positioned 1.5 metres above the ground or be positioned inside fence 100, can only be reached over or through fence 100, is 150 mm below the top of fence 100 (no hand holes), or at least 150 mm away from the edge of any hand hole opening. Fence 100 may also comprise no hand hole lower than 1.2 metres above the ground.

[0123] In this preferable embodiment of the invention, fence 100 may be packaged and sold with self closing manual release mechanism 142 installed in that position or there may be one or more marking or connection comprised on self-closing gate section 140 and/or one or both terminal modular sections 110 for installation of self closing manual release mechanism 142 during assembly. The one or more marking or connection may comprise one or more receiving hole for attachment of self closing manual release mechanism 142.

[0124] From the teaching herein a skilled person is readily able to select a suitable self closing manual release mechanism 142 including suitable top pull latches and side-pull latches. Although not shown, manual release mechanism 142 may comprise a lock. The teaching herein is also sufficient for a skilled person to safely position manual release mechanism 142 to comply with relevant Safety Standards.

[0125] From a disassembled state, fence 100 may be assembled by joining a plurality modular sections 110 and self-closing gate section 140 to thereby fence the area to be fenced. The various modular sections 110 and gate section 140 may themselves be assembled from components described herein.

[0126] Fence 100 is not limited to this application however, and may be applied to fence a child or pet play area or a grassed area, a plant, tree or garden.

[0127] Throughout the specification the aim has been to describe the preferred

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embodiments of the invention without limiting the invention to any one embodiment or specific collection of features. It will therefore be appreciated by those of skill in the art that, in light of the instant disclosure, various modifications and changes can be made in the particular embodiments exemplified without departing from the scope of the present invention.

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CLAIMS

1. A fence comprising:

a plurality of modular sections, each modular section comprising one or more support struts, one or more section linkages and a screen covering the modular section;

a self-closing gate section comprising a self-closing manual release mechanism and a gate which swings open and shut to provide access to an interior of an area enclosed by the fence; and

each of two terminal modular sections on either side of the self-closing gate section comprising one or more anchor points for secure attachment to the ground and one or more terminal linkages.

2. The fence of claim 1 further comprising a brace for ensuring the gate can swing open and shut.

3. The fence of claim 2 wherein the brace comprises an arch or a support plate extending between the two terminal modular sections on either side of the self-closing gate section.

4. The fence of claim 3 wherein the brace comprises a support plate comprising an elongate body and a reinforced connection at either end for secure attachment to the terminal modular sections.

5. The fence of any one of the preceding claims further comprising a manual release mechanism comprised on self-closing gate section or a part thereof in a position which complies with a relevant safety standard.

6. The fence of claim 5 wherein the fence may be packaged unassembled with the manual release mechanism installed in the safety standard compliant position or there may be one or more marking or connection comprised on self-closing gate section for installation of manual release mechanism in the safety standard compliant position.

7. A method of assembling a fence comprising:

joining a plurality of modular sections, each modular section comprising one or more support struts, one or more section linkages and a screen covering the modular section, each of two terminal modular sections comprising one or more anchor points for secure attachment to the ground and one or more terminal linkages; and

joining to the two terminal modular sections a self-closing gate section comprising a self-closing manual release mechanism and a gate which swings open and shut to provide

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access to an interior of an area enclosed by the fence, to thereby assemble the fence.

8. The method of claim 7 further comprising joining a brace for ensuring the gate can swing open and shut to the two terminal modular sections.

9. The method of claim 8 wherein the brace comprises an arch or a support plate extending between the two terminal modular sections on either side of the self-closing gate section.

10. The method of claim 9 wherein the brace comprises a support plate comprising an elongate body and a reinforced connection at either end for secure attachment to the terminal modular sections.

11. The method of any one of claims 7 to 10 further comprising a manual release mechanism comprised on self-closing gate section or a part thereof in a position which complies with a relevant safety standard.

12. The method of claim 11 further comprising attaching the manual release mechanism in the safety standard compliant position using one or more marking or connection comprised on self-closing gate section.

13. A method of fencing an area comprising:

joining a plurality of modular sections, each modular section comprising one or more support struts, one or more section linkages and a screen covering the modular section, each of two terminal modular sections comprising one or more anchor points for secure attachment to the ground and one or more terminal linkages; and

joining to the plurality of modular sections a self-closing gate section comprising a self-closing manual release mechanism and a gate which swings open and shut to provide access to an interior of an area enclosed by the fence, to thereby fence the area.

14. The method of claim 13 further comprising joining a brace for ensuring the gate can swing open and shut to the two terminal modular sections.

15. The method of claim 14 wherein the brace comprises an arch or a support plate extending between the two terminal modular sections on either side of the self-closing gate section.

16. The method of claim 15 wherein the brace comprises a support plate comprising an elongate body and a reinforced connection at either end for secure attachment to the terminal modular sections.

17. The method of any one of claims 13 to 16 further comprising a manual release

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mechanism comprised on self-closing gate section or a part thereof in a position which complies with a relevant safety standard.

18. The method of claim 17 further comprising attaching the manual release mechanism in the safety standard compliant position using one or more marking or connection comprised on self-closing gate section.

19. A kit comprising the modular fence of any one of claims 1 to 6 and optionally further comprising one or more of: a pool cover; one or more anchor for securing to the attachment point and the ground; an anchoring band; and/or an above ground pool.

20. A method of fencing an area comprising installing the fence of the claim 1 around the area to be fenced.

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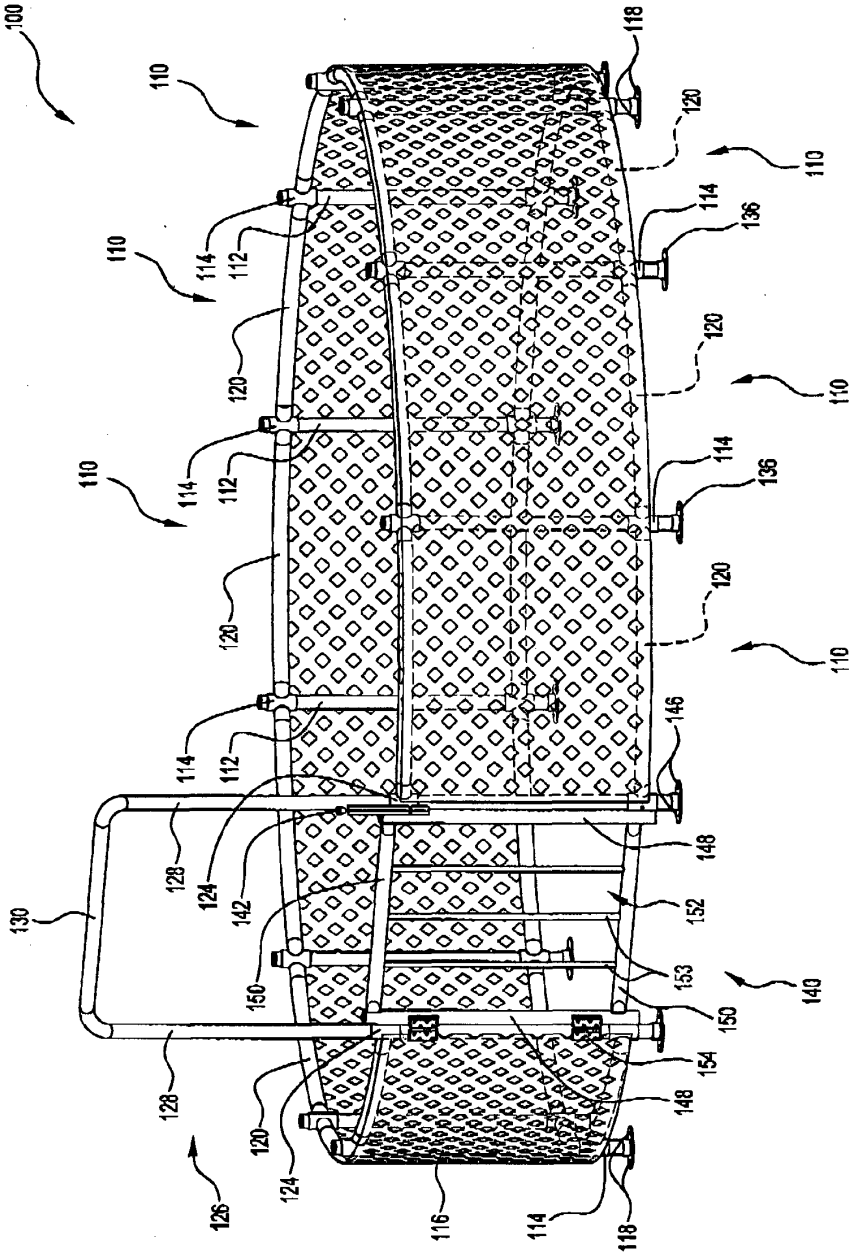


FIG. 1

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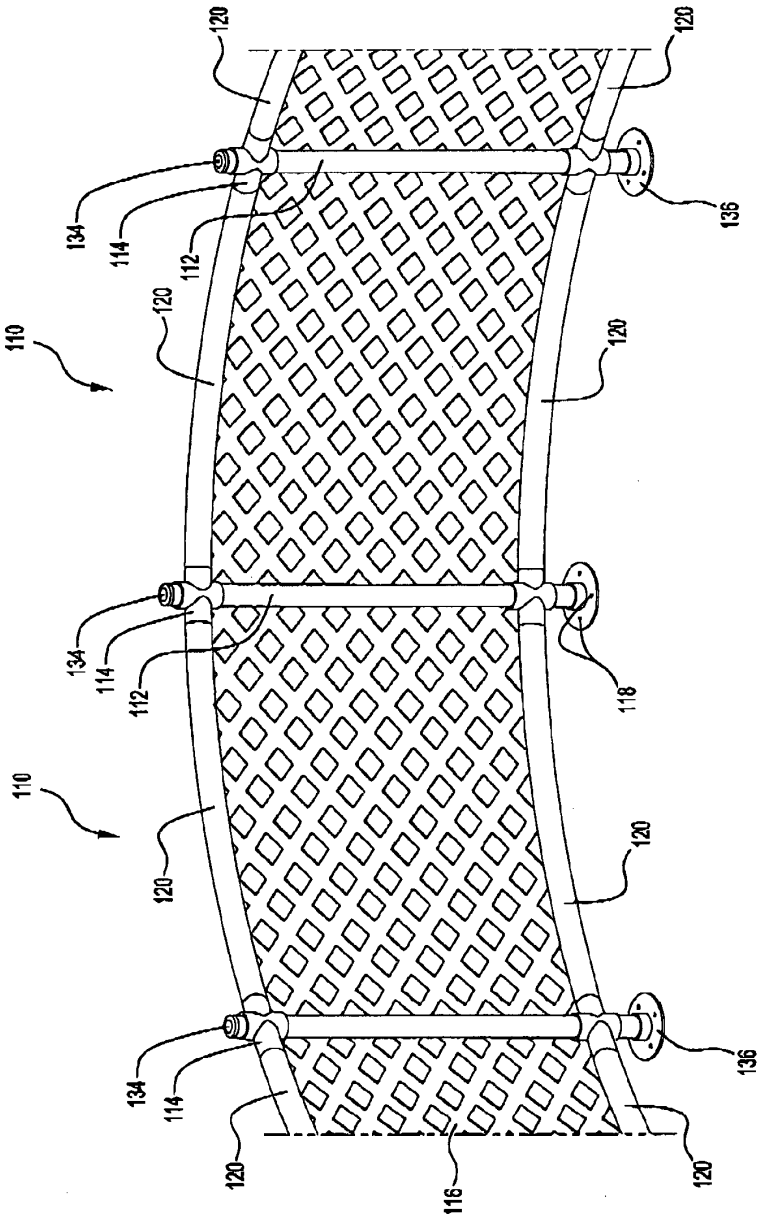


FIG. 2

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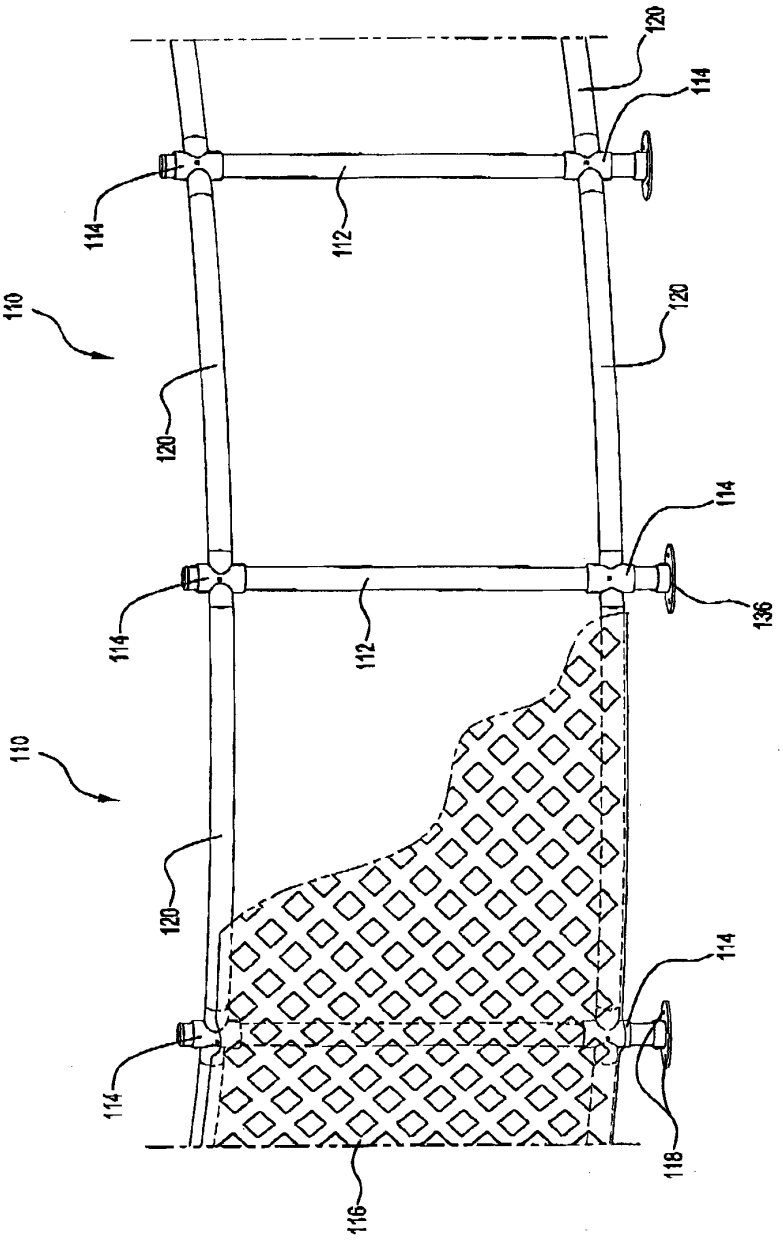


FIG. 3

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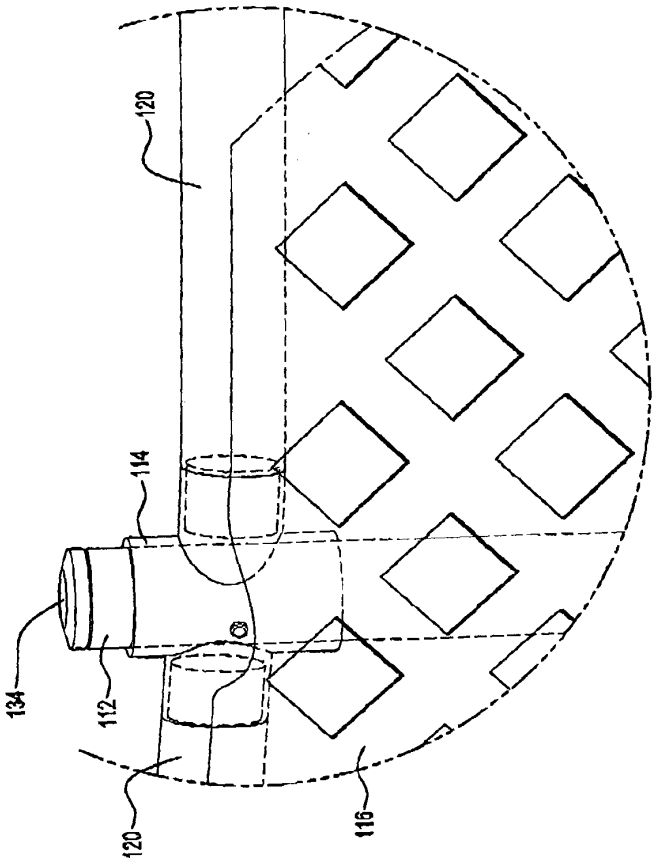


FIG. 4

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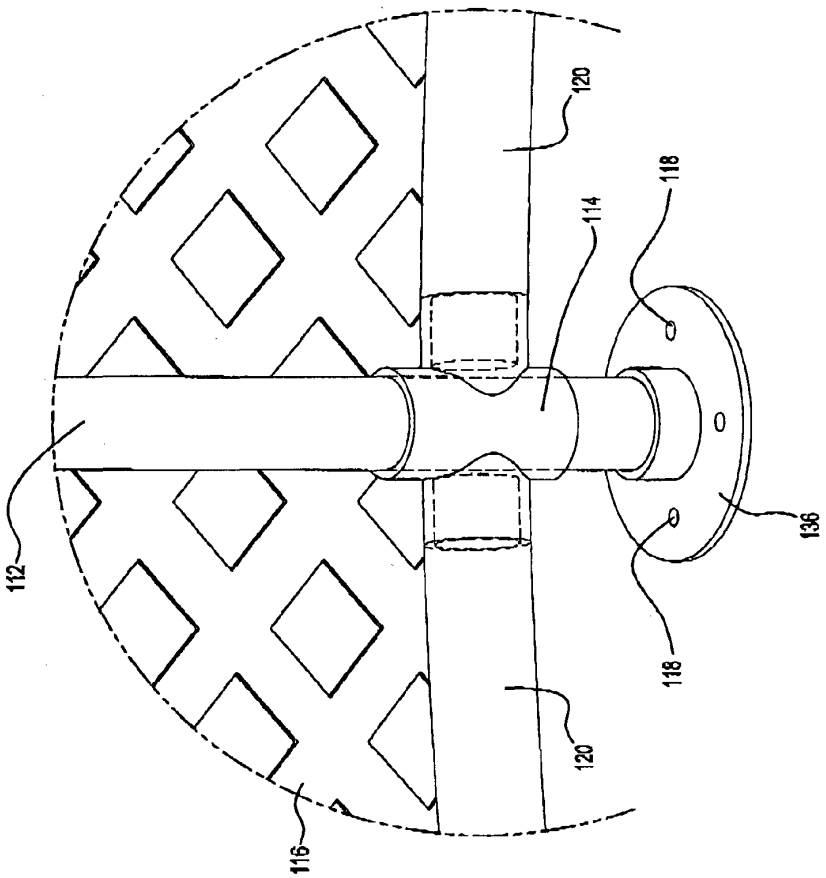
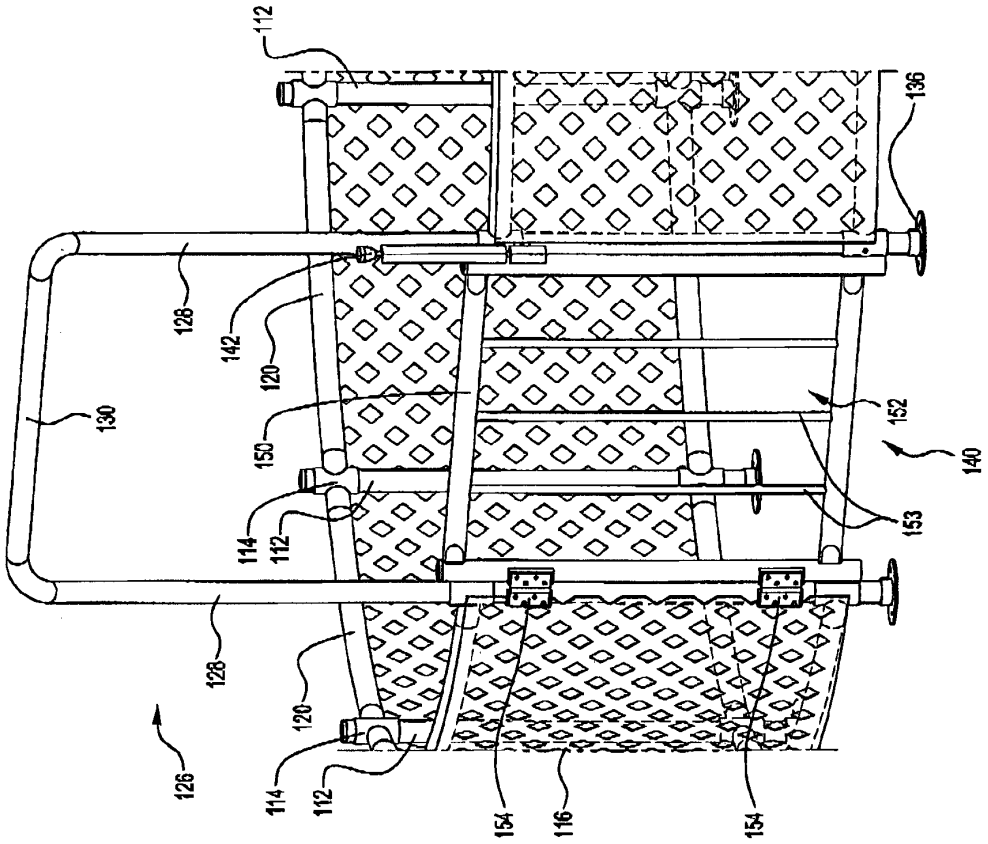


FIG. 5

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FIG. 6



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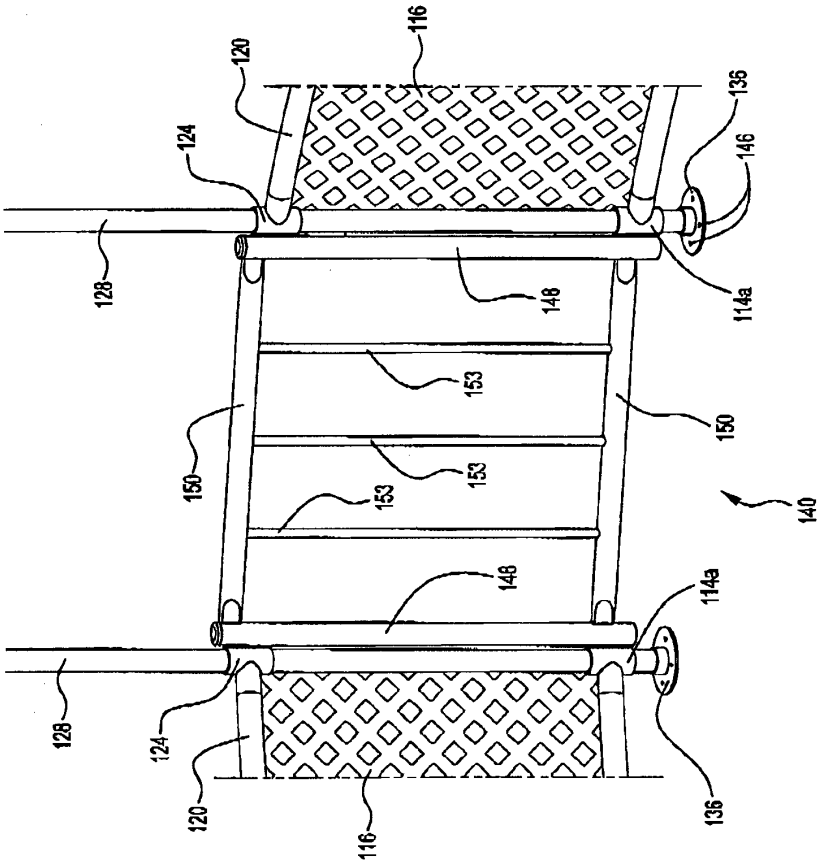


FIG. 7

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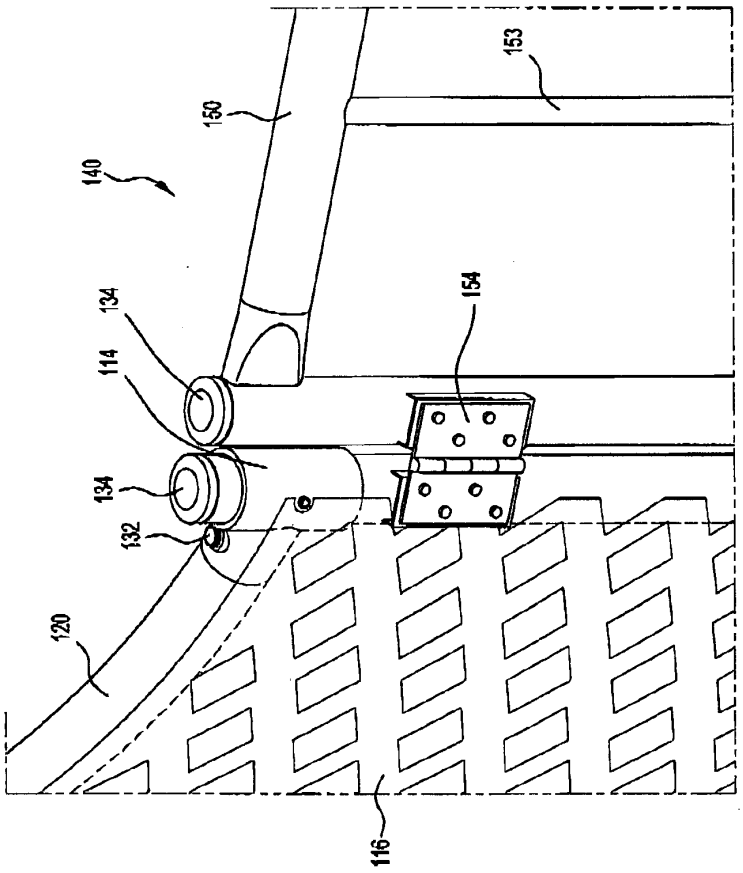


FIG. 8

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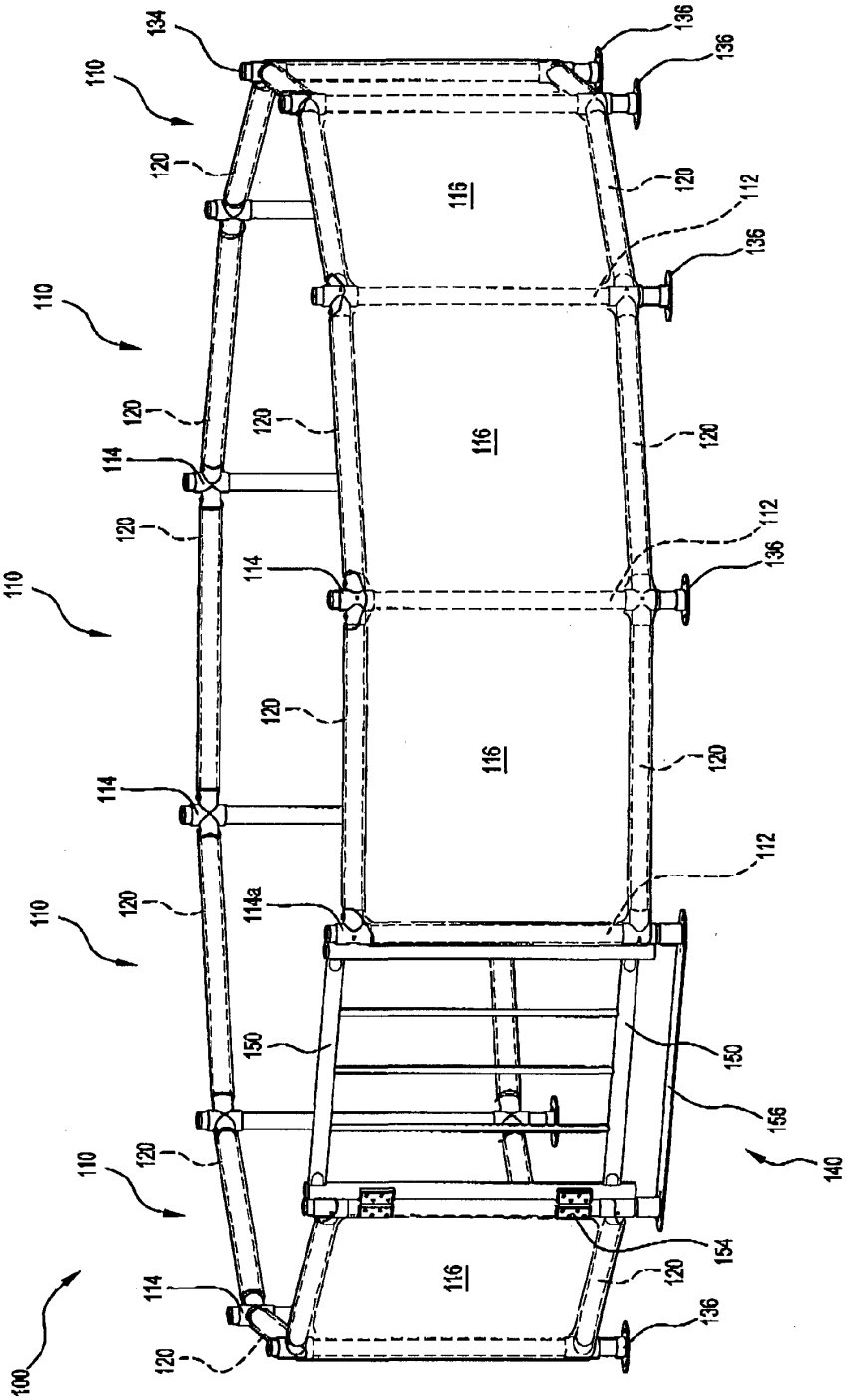


FIG. 9

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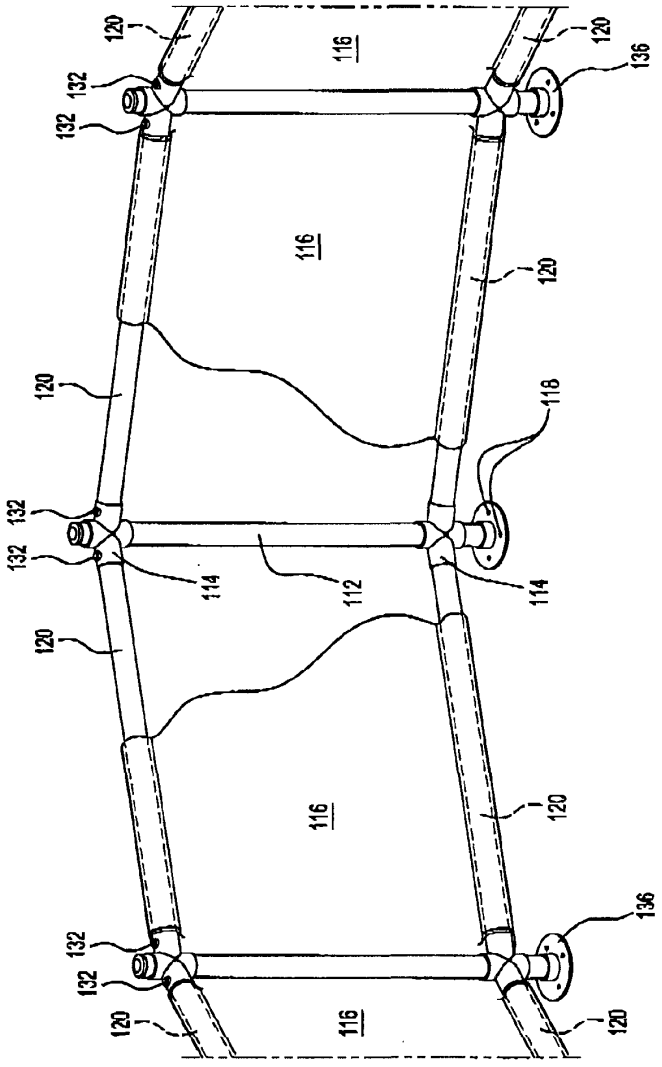


FIG. 10

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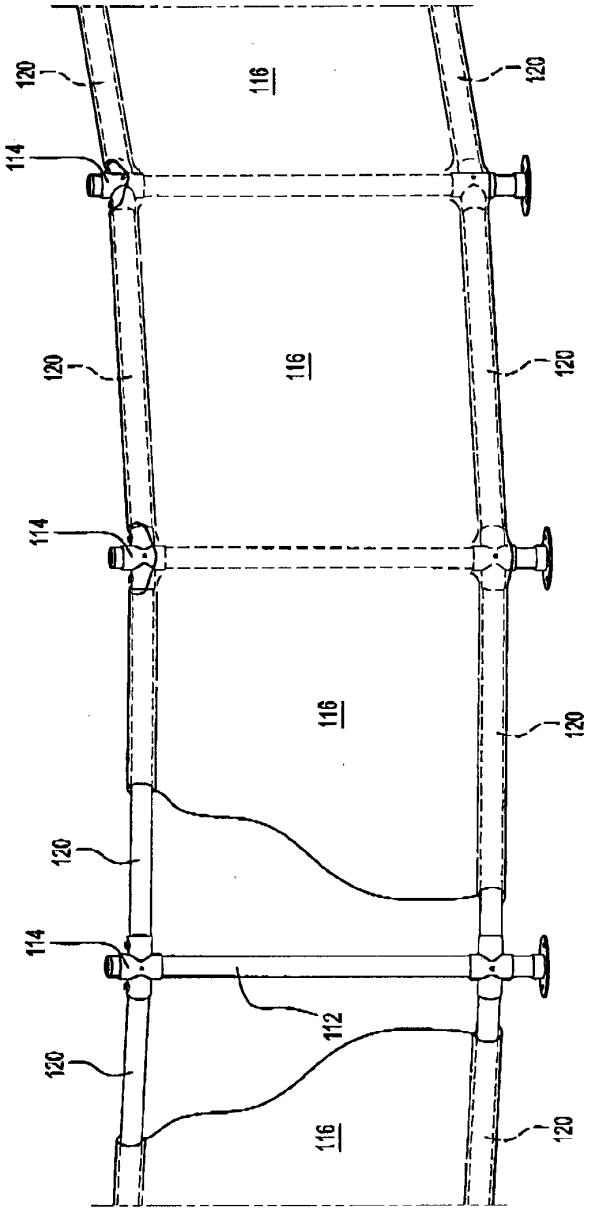


FIG. 11

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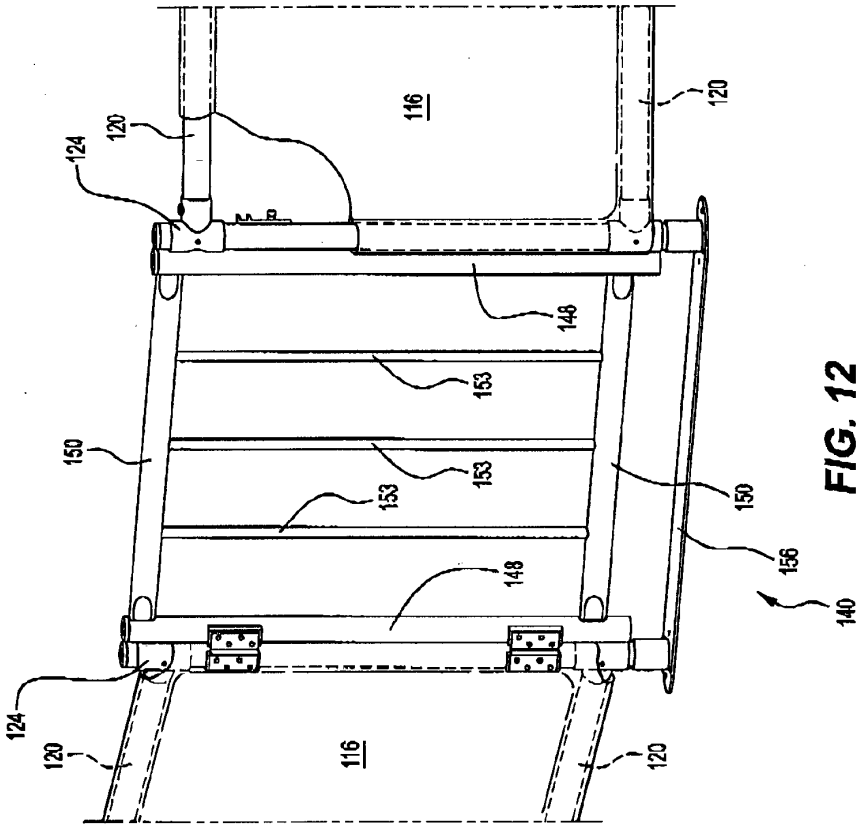


FIG. 12

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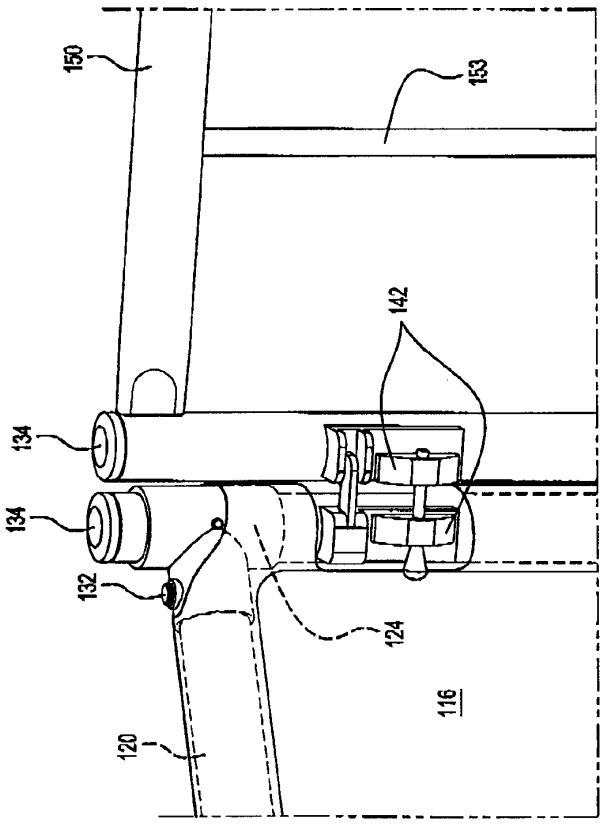


FIG. 13

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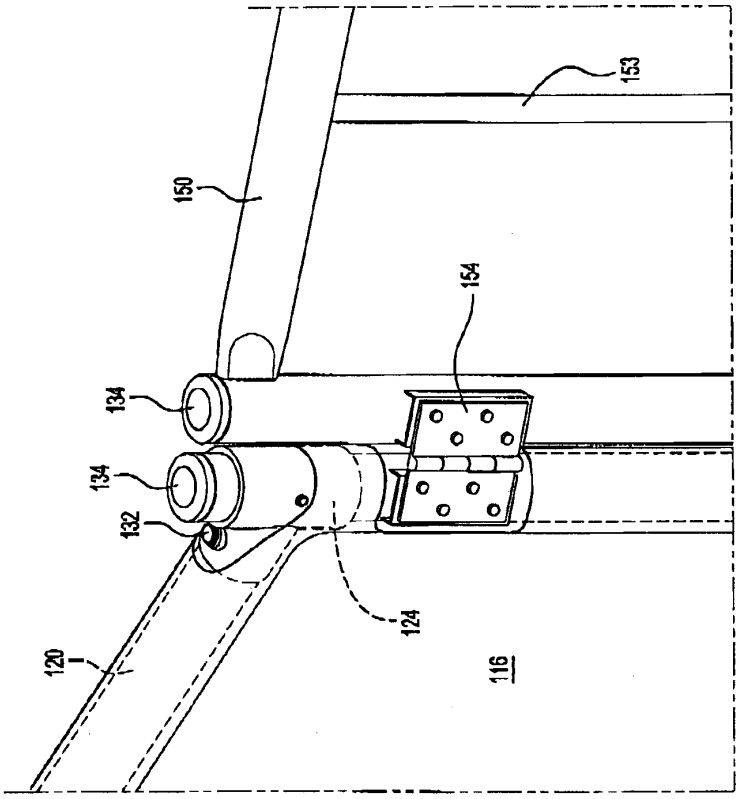


FIG. 14

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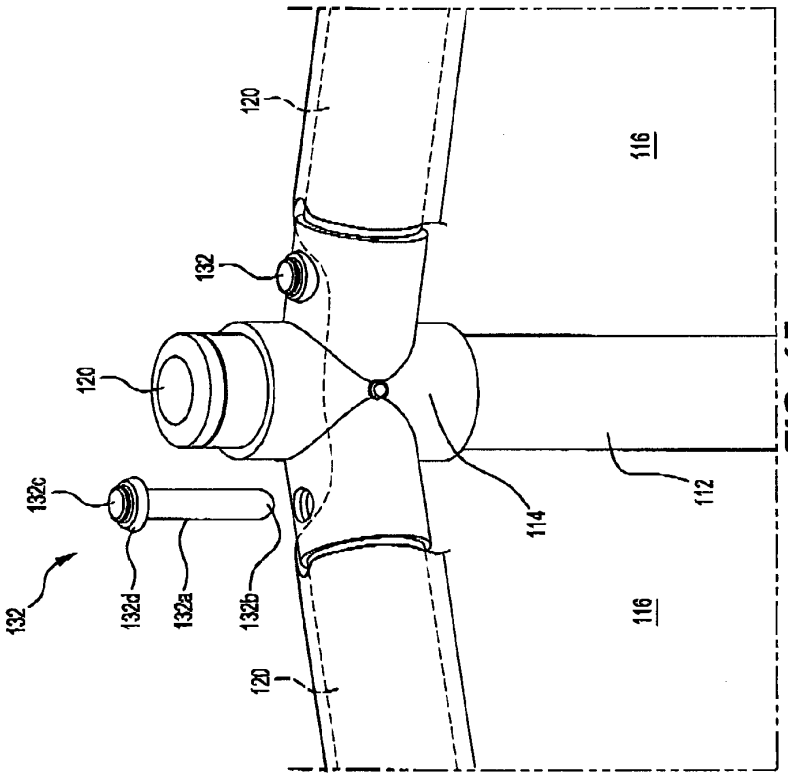


FIG. 15

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/AU2013/001517

A. CLASSIFICATION OF SUBJECT MATTER

E04H 17/16 (2006.01) E06B 11/02 (2006.01) E04H 4/06 (2006.01)

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)

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)

EPODOC, WPI: /IC/EC/CC/CN/LOW E04H17/00 OR E06B11/00 OR A47D13/06 OR A01K3/00 OR E04H4/06 & Keywords (Fence, Module, Mesh, Strut, Linkage, Gate, Self-Closing, Latch, Anchor) and similar terms/combinations. Espacenet: E04H17/low AND E06B11/low. Google Patents: Keywords (Fence, Kit, Tubular, Pool, Modular, self-Closing, Gate, Screen, Tensioning) and similar terms/combinations.

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
	Documents are listed in the continuation of Box C	

[X] Further documents are listed in the continuation of Box C [X] See patent family annex

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"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

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
16 April 2014	16 April 2014
Name and mailing address of the ISA/AU	**Authorised officer**
AUSTRALIAN PATENT OFFICE PO BOX 200, WODEN ACT 2606, AUSTRALIA Email address: pct@ipaustralia.gov.au Facsimile No.: +61 2 6283 7999	Mark Armstrong AUSTRALIAN PATENT OFFICE (ISO 9001 Quality Certified Service) Telephone No. 0399359660

Form PCT/ISA/210 (fifth sheet) (July 2009)

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INTERNATIONAL SEARCH REPORT C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		International application No. **PCT/AU2013/001517**
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5102103 A (PUTNAM) 07 April 1992 See Figs. 1, 2 & 4; Cols. 2 & 3	1-20
X A	US 5664769 A (SADINSKY et al) 09 September 1997 See Figs. 2 & 3; Cols. 3 & 4	1-2, 5-8, 11-14, 17-20
X A	US 6789786 B1 (SHATZBERG) 14 September 2004 Figs. 1 & 2; Cols. 3 & 4	1-2, 5-8, 11-14, 17-20
A	US 6893007 B2 (ASENBAUER) 17 May 2005 Col. 7, Ln. 29-31	1, 7, 13
A	US 6666435 B2 (BLOSFELDS) 23 December 2003 Col. 3, Ln. 54-59	1, 7, 13
A	Katchakid pool fencing gate [retrieved on 11 March 2014] Retrieved from internet < URL: https://web.archive.org/web/20110205015839/http://katchakid.com/if-fittings-components2.htm > published on 05 February 2011 as per Wayback Machine See SELF CLOSING GATES etc.	1, 7, 13
A	Magnetic gate latch installation [retrieved on 11 March 2014] Retrieved from internet < URL: https://web.archive.org/web/20111107083310/http://www.hooverfence.com/woodfence/magnalatch/magna-install.htm > published on 07 November 2011 as per Wayback Machine See INSTALLATION REQUIREMENTS:	
A	EP 1630320 A2 (TRIDENT INDUSTRIAL LIMITED) 01 March 2006 Col. 1, Ln. 2; Figs. 1-2, 3, 5, 7 & 10	
A	US 4645183 A (RATTRAY et al) 24 February 1987 See Fig. 1	
A	US 3921960 A (BRIGHT) 25 November 1975 See Fig. 1	

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BESTWAY EX. 1003; Pg 506
Bestway v. Intex PGR2024-00036

INTERNATIONAL SEARCH REPORT Information on patent family members	International application No. **PCT/AU2013/001517**

This Annex lists known patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

Patent Document/s Cited in Search Report		**Patent Family Member/s**	
Publication Number	**Publication Date**	**Publication Number**	**Publication Date**
US 5102103 A	07 Apr 1992	None	
US 5664769 A	09 Sep 1997	None	
US 6789786 B1	14 Sep 2004	None	
US 6893007 B2	17 May 2005	US 6893007 B2	17 May 2005
US 6666435 B2	23 Dec 2003	US 6666435 B2	23 Dec 2003
EP 1630320 A2	01 Mar 2006	EP 1630320 B1	14 Mar 2012
		GB 2417502 A	01 Mar 2006
US 4645183 A	24 Feb 1987	AU 2125383 A	04 May 1984
		CA 1221259 A1	05 May 1987
		CA 1230250 A2	15 Dec 1987
		EP 0123687 A1	07 Nov 1984
		WO 8401497 A1	26 Apr 1984
US 3921960 A	25 Nov 1975	None	

End of Annex

Due to data integration issues this family listing may not include 10 digit Australian applications filed since May 2001.

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Electronic Acknowledgement Receipt	
EFS ID:	48520719
Application Number:	18197788
International Application Number:	
Confirmation Number:	1052
Title of Invention:	JOINT FOR ABOVE GROUND POOL FRAME
First Named Inventor/Applicant Name:	Hua Hsiang Lin
Customer Number:	27268
Filer:	Parker Brooks Hudson/Melissa Russell
Filer Authorized By:	Parker Brooks Hudson
Attorney Docket Number:	IRC-0042-04-US
Receipt Date:	31-AUG-2023
Filing Date:	16-MAY-2023
Time Stamp:	14:00:38
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Information Disclosure Statement (IDS) Form (SB08)	IRC_0042_04_US_IDS.pdf	612090 70b351ad7e855a4a4b1435335490bc6b38df4151	no	4

Warnings:

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Bestway v. Intex PGR2024-00036

Information:					
A U.S. Patent Number Citation or a U.S. Publication Number Citation is required in the Information Disclosure Statement (IDS) form for autoloading of data into USPTO systems. You may remove the form to add the required data in order to correct the Informational Message if you are citing U.S. References. If you chose not to include U.S. References, the image of the form will be processed and be made available within the Image File Wrapper (IFW) system. However, no data will be extracted from this form. Any additional data such as Foreign Patent Documents or Non Patent Literature will be manually reviewed and keyed into USPTO systems.					
2	Non Patent Literature	NPL_1.pdf	1104737 c2ca64d48fabd3f5aaf2af954ef50b54213698f9	no	14
Warnings:					
Information:					
3	Foreign Reference	WO2014100855.pdf	1230521 cff3e8247f66a9c1169f9ee4d09502d0315efb2d	no	36
Warnings:					
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			Total Files Size (in bytes):	2947348	

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National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

Doc code: IDS
Doc description: Information Disclosure Statement (IDS) Filed

PTO/SB/08a (01-10)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (**Not for submission under 37 CFR 1.99)**		
	Application Number	18197788
	Filing Date	2023-05-16
	First Named Inventor	Hua Hsiang Lin
	Art Unit	3754
	Examiner Name	To be Assigned
	Attorney Docket Number	IRC-0042-04-US

U.S.PATENTS Remove

Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
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	1	3103939	EP		2016-12-14	Bestway Inflatables & Mat Corp.		☐

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Bestway v. Intex PGR2024-00036

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (**Not for submission under 37 CFR 1.99)**		
	Application Number	18197788
	Filing Date	2023-05-16
	First Named Inventor	Hua Hsiang Lin
	Art Unit	3754
	Examiner Name	To be Assigned
	Attorney Docket Number	IRC-0042-04-US

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*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

[1] See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. [2] Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [5] Applicant is to place a check mark here if English language translation is attached.

BESTWAY EX. 1003; Pg 511
Bestway v. Intex PGR2024-00036

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (**Not for submission under 37 CFR 1.99)**		
	Application Number	18197788
	Filing Date	2023-05-16
	First Named Inventor	Hua Hsiang Lin
	Art Unit	3754
	Examiner Name	To be Assigned
	Attorney Docket Number	IRC-0042-04-US

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

☐ That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

☐ See attached certification statement.

☐ The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☒ A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Robert D. Null/	Date (YYYY-MM-DD)	2023-11-01
Name/Print	Robert D. Null	Registration Number	40746

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

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3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

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Bestway v. Intex PGR2024-00036

UNITED STATES PATENT AND TRADEMARK OFFICE
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ELECTRONIC ACKNOWLEDGEMENT RECEIPT

APPLICATION #	RECEIPT DATE / TIME	ATTORNEY DOCKET #
18/197,788	**11/01/2023 12:20:58 PM ET**	**IRC-0042-04-US**

Title of Invention

JOINT FOR ABOVE GROUND POOL FRAME

Application Information

APPLICATION TYPE	Utility - Nonprovisional Application under 35 USC 111(a)	PATENT #	-
CONFIRMATION #	1052	FILED BY	Melissa Russell
PATENT CENTER #	63132706	FILING DATE	05/16/2023
CUSTOMER #	27268	FIRST NAMED INVENTOR	Hua Hsiang Lin
CORRESPONDENCE ADDRESS	-	AUTHORIZED BY	Robert Null

Documents

TOTAL DOCUMENTS: 2

DOCUMENT	PAGES	DESCRIPTION	SIZE (KB)
IRC_0042_04_US_IDS.pdf	4	Information Disclosure Statement (IDS) Form (SB08)	598 KB
EP3103939.pdf	27	Foreign Reference	615 KB

Digest

DOCUMENT	MESSAGE DIGEST(SHA-512)
IRC_0042_04_US_IDS.pdf	21AD52308C9CDC87B38B43EBD644B7DFDD422AD34F1BE5E5997CAF07F6A804B0108419F76538346F6479D49F0F09531BAA8F3457F641DDAEFB8CD9EA3EFF12E1

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EP3103939.pdf

42774A82584FCD7FDEAE5016A326520C5113ADD4292EA7809
02EEE5AD6D5EEF3F55C12F33B1CCB07C33D5997D660E4319
53B22FB1D2BA5C4C1D11E7713170B9F

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New Applications Under 35 U.S.C. 111

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National Stage of an International Application under 35 U.S.C. 371

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New International Application Filed with the USPTO as a Receiving Office

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

(11) EP 3 103 939 B1

(12) **EUROPEAN PATENT SPECIFICATION**

(45) Date of publication and mention of the grant of the patent:
01.08.2018 Bulletin 2018/31

(21) Application number: **16152764.3**

(22) Date of filing: **26.01.2016**

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

(54) **POOL WITH AN ELLIPTICAL FRAME**

SCHWIMMBECKEN MIT ELLIPSENFÖRMIGEM RAHMEN

PISCINE AVEC UN CADRE ELLIPTIQUE

(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

(30) Priority: **27.01.2015 CN 201520057049 U**
27.08.2015 CN 201520655645 U

(43) Date of publication of application:
14.12.2016 Bulletin 2016/50

(73) Proprietor: **Bestway Inflatables & Material Corp.**
Shanghai 201812 (CN)

(72) Inventor: **LIU, Feng**
Shanghai 201812 (CN)

(74) Representative: **Inchingalo, Simona**
Bugnion S.p.A.
Viale Lancetti, 17
20158 Milano (IT)

(56) References cited:
CN-U- 203 879 057
FR-A1- 2 570 422
US-A- 1 786 613
US-A- 3 874 132
US-A1- 2002 042 949
US-A1- 2009 205 121

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EP 3 103 939 B1

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Description

CROSS REFERENCE

[0001] The present application claims priority to Chinese Application No. 201520057049.0, entitled "POOL WITH AN ELLIPTICAL FRAME,", filed on January 27, 2015; Chinese Application No. 201520655645.9, entitled "WALL-MOUNTED FILTRATION APPARATUS FOR A POOL", filed on August 27, 2015.

FIELD OF THE INVENTION

[0002] The present disclosure relates to portable household above ground pools which can be used in courtyard and garden etc., and more particularly to a pool with an elliptical frame having a support frame and a flexible pool liner.

BACKGROUND

[0003] Portable household above ground pools may be installed at courtyards, gardens, lawns, or other surfaces for entertaining adults and children, which are advantageously convenient for installation and storage and so on. Above ground pools have many different structures, and can be mainly categorized into frame pools with a metallic (or plastic) frame and frameless pools without a metallic (or plastic) frame. There are a variety of structures and forms for frame pools. Examples of such frame pools are disclosed in documents US 1786613 and CN 203879057. However, prior art frame pools have the following major defects.

[0004] Firstly, rectangular-framed pools, compared to pools with circular and elliptical frames, require more steel tubes and material cost, and thus making the whole pool heavy and inconvenient to carry. Also, since four sides of the rectangular-framed pools utilize oblique frames, the pools may take up too much space, and thus the installation and usage of the pools will be limited in some relatively narrow locations. Moreover, the steel tubes at the four borders of the upper frame of the rectangular-framed pool are arranged at right angles and are connected without any fixing mechanism. Therefore, a user is susceptible to be injured by the steel tubes of the upper frame at adjacent sides of the pool. Thus, there exists a certain safety risk.

[0005] Moreover, circular frame pools have a relatively limited pool length due to the circular shape, which may affect user experience.

[0006] Thirdly, conventional pools with an elliptical frame are only provided with support steel tubes on two sides of the pool, and the remaining portions are not provided with any support frame or steel tube. Therefore, the structure of the entire pool is not stable. When a user is in the pool, the pool would somewhat swing with the water. In addition, for the portions that are not supported by any frame, when the pool wall is subjected to a great downward pressure, the water would overflow from the position where the pool wall is pressed downward.

[0007] In addition, most pools in markets, for example, SPA pools, above-ground pools and recreation pools are generally used in the outdoor areas. Thus, using the filtration apparatus for eliminating the impurities into the water of pool might be a necessary action for users.

[0008] There are different types of filter devices on the market. Most of the large capacity pools have adopted a sand filter setting quartz as filter medium, or a filter pump with filtration core as filer medium. The sand filter having a higher price in the market in comparison with the filter pump has a satisfying filter effect. Additionally, The filter pump with filtration portions inside the pump might not be easy convenience to clean or replace it for pump. Another type of filtration apparatus including the fabric filter portions arranged on the inlet of the pool will not be with a cause using for covering the filter to achieve a purpose of preventing the impurities back into the pool water if the operation of pump is shut off.

SUMMARY

[0009] In view of the defects of the prior art, the technical problem to be solved by the present disclosure is to provide a portable pool with an elliptical frame, which has a simple, safe, firm and stable structure as well as an appealing appearance. Also, it is convenient to install and provides high utilization of space.

[0010] In order to solve the above-mentioned technical problem, there is provided a pool with an elliptical frame according to appended claim 1. The pool includes a support frame and a flexible pool liner which is supported by the support frame and used for containing water. Moreover, the present disclosure provides a wall-mounted filtration apparatus arranged on the frame pool for filtering the water in the pool.

[0011] The pool with an elliptical frame may include a support frame and a flexible pool liner which is supported by the support frame for containing water. The support frame may include a substantially elliptical upper frame which is arranged horizontally; moreover, a plurality of vertical support members and oblique support members may be used for supporting the upper frame; furthermore, the upper frame may include a plurality of arcuate frames which are positioned

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at two opposite ends of the elliptical upper frame along a major axis direction. A plurality of straight frames are coupled between the arcuate frames in parallel; therefore, the upper frame is configured by combining the arcuate frames and the straight frames.

[0012] Each arcuate frame includes at least two first horizontal support tubes, and each straight frame includes at least one second horizontal support tube.

[0013] In one embodiment, each straight frame may include at least two second horizontal support tubes. Also, the second horizontal support tubes can be inserted into each other and fixedly coupled via an elastic pin structure.

[0014] In one embodiment, a T-shaped connector can be coupled, by the elastic pin structure, between two of the first horizontal support tubes and one of the vertical support members, and between one of the first horizontal support tubes, one of the second horizontal support tubes, and one of the vertical support members.

[0015] A lower surface of the second horizontal support tube includes at least one pair of oblique support holes, or at least one oblique support hole (1211). In addition, a diameter of each oblique support hole is larger than an external diameter of the oblique support members.

[0016] In one embodiment, each of the oblique support members can be a U-shaped tube including two ends which are respectively inserted into the pair of the oblique support holes to support the straight frame.

[0017] In one embodiment, each of the oblique support members can be an inverted T-shaped tube including an upper end which is inserted into one of the oblique support holes to support the straight frame.

[0018] In one embodiment, the flexible pool liner can be made from a flexible reinforced PVC rubberized fabric or PU rubberized fabric with sandwiched mesh fabric.

[0019] In one embodiment, the flexible pool liner may include a pool wall and an elliptical pool bottom. An upper edge of the pool wall can be provided with a plurality of first sleeves allowing the first horizontal support tubes and the second horizontal support tubes of the upper frame to be sheathed therein, so as to fix the flexible pool liner to the upper frame.

[0020] In one embodiment, an oblique support tube drawstring can be provided between the pool bottom of the flexible pool liner and a bottom end of the oblique support members; additionally, the oblique support tube drawstring can be fixedly coupled to the pool bottom at one end and be provided with a second sleeve at the other end; moreover, the bottom end of the oblique support members can be sheathed into the second sleeve and the position thereof can be limited by the oblique support tube drawstring.

[0021] In one embodiment, each of the vertical support members comprises at least a branched-support member extending from a side of the vertical support member, a support base coupled with an end of the vertical support member and the branched-support member for arranging the vertical support member on the ground.

[0022] In one embodiment, an angle between the vertical support member and the branched-support member can be lesser than 90°, and the angle can be in a range of 15° to 45°.

[0023] In one embodiment, the branched-support member may include a curved surface extending from a connection portion between the vertical support member and the branched-support member to the end of the branched-support member.

[0024] In one embodiment, each of the oblique support members may include at least a branched-tubular portion extending from a side of the oblique support member. Also, a base portion can be coupled with an end of the oblique support member and the branched-tubular portion to support the pool on the ground.

[0025] In one embodiment, an angle between the oblique support member and the branched-tubular portion can be lesser than 90°, and the angle can be in a range of 15° to 45°.

[0026] In one embodiment, the branched-tubular portion may include a surface line curved from a top side of the branched-tubular portion on the oblique support member to a bottom side of the branched-tubular portion.

[0027] A wall-mounted filtration apparatus for a pool may include a main body having a through hole and a plurality of water inlets; furthermore, a filtering cover may include a water outlet, and a filtering fixed shaft can be positioned on the filtering cover surrounding the water outlet; additionally, a opening can be positioned on a side of the filtering fixed shaft and be parallel with the water outlet; moreover, a filtering portion can be positioned on a outer surface of the filtering fixed shaft, and the main body with the filtering cover can be configured to be a filter casing for covering the filtering portion; in addition, a fastener may pass through the through hole for engaging with filtering fixed shaft by the opening to fasten the main body on the filtering cover.

[0028] The wall-mounted filtration apparatus may include the fastener which is a bolt engaged with a plurality of threads positioned on an inner surface of the opening.

[0029] The wall-mounted filtration apparatus may include the filtering fixed shaft having a hollow cylinder portion which is interconnected with the water outlet.

[0030] The wall-mounted filtration apparatus may include a plurality of side openings which are positioned on a lateral surrounding portion of the filtering fixed shaft for interconnecting with the hollow cylinder portion. Also, a plurality of protruding portions are interval of positioning on the lateral surrounding portion adjacent to the side openings.

[0031] The wall-mounted filtration apparatus may include the main body (110) which is a cylinder-shaped structure or a cone-shaped structure.

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[0032] In one embodiment, the wall-mounted filtration apparatus may include the water inlets which are positioned on a outer surface of the main body, and at least a water retaining sheet is positioned on a inner surface of the main body by at least a clamp ring to cover the water inlets.

[0033] The wall-mounted filtration apparatus may include a first fastening portion which is positioned on the inner surface of the main body and a second fastening portion is positioned on a inner surface of the filtering cover. Moreover, the filtering portion may include a filter positioned between a first fastening plate and a second fastening plate. The first fastening plate and the second fastening plate may include a first groove and a second groove; also, the first fastening portion and second fastening portion are coupled with the first fastening plate and the second fastening plate for engaging the filtering portion in the filter casing.

[0034] The wall-mounted filtration apparatus may include a plurality of connecting threads which are positioned on the water outlet for coupling with the pool.

[0035] Compared with the prior art, the present disclosure may have a serial of advantages. For example, it may be a simple, safe, firm and stable structure as well as an appealing appearance. Also, it is convenient to install, and provides high utilization of space (occupies small area). Moreover, in the present disclosure, the installation of wall-mounted filtration apparatus in the embodiments may be simple and easy. The filtering portion is positioned inside the filtering cover so that it is not easy to be damaged artificially. Additionally, the filtering cover can be easily disassembled, to achieve the requirements of checking or changing the filtering portion. The water retaining sheets arranged on the inner surface of the main body are used for preventing impurities flow back to the pool.

BRIEF DESCRIPTION OF THE DRAWINGS

[0036] The above-mentioned and other features, properties and advantages of the present disclosure will become more apparent from the following description of arrangements with reference to the accompany drawings, in which:

Figure 1 is a perspective view of a pool with an elliptical frame according to a first embodiment of the present disclosure;
Figure 2 is a perspective view of a support frame of the pool with an elliptical frame shown in Figure 1;
Figure 3 is a top view of the support frame of the pool with an elliptical frame shown in Figure 2;
Figure 4 is a front view of the support frame of the pool with an elliptical frame shown in Figure 2;
Figure 5 is a side view of the support frame of the pool with an elliptical frame shown in Figure 2;
Figure 6 is an exploded view of two first horizontal support tubes of an arcuate frame, one vertical support member and a T-shaped connector of the pool with an elliptical frame according to the first embodiment of the present disclosure, before assembling;
Figure 7 is a partial perspective view illustrating the two first horizontal support tubes, the vertical support member and the T-shaped connector of the arcuate frame of the pool with an elliptical frame according to the first embodiment shown in Figure 6, after assembled with a flexible pool liner;
Figure 8 is an exploded view illustrating one first horizontal support tube of the arcuate frame, one second horizontal support tube of a straight frame, one vertical support member and a T-shaped connector of the pool with an elliptical frame of the first embodiment of the present disclosure, before assembling;
Figure 9 is a partial schematic view illustrating the first horizontal support tube of the arcuate frame, the second horizontal support tube of the straight frame, the vertical support member and the T-shaped connector of the pool with an elliptical frame according to the first embodiment shown in Figure 8, after assembled with a flexible pool liner;
Figure 10 is a schematic assembled view illustrating the second horizontal support tube of the straight frame and an oblique support member of the pool with an elliptical frame according to the first embodiment of the present disclosure;
Figure 11 is a perspective structural view illustrating the second horizontal support tube of the straight frame, and the oblique support member of the pool with an elliptical frame according to the first embodiment of the present disclosure, after assembled with a flexible pool liner;
Figure 12 is a side view illustrating the second horizontal support tube of the straight frame, and the oblique support member of the pool with an elliptical frame according to the first embodiment shown in Figure 11, after assembled with a flexible pool liner;
Figure 13 is a top view of a pool with an elliptical frame according to a second embodiment of the present disclosure, wherein the first horizontal support tubes of two arcuate frames are arcuate;
Figure 14 is an exploded perspective view of a wall-mounted filtration apparatus for a pool according to the present disclosure;
Figure 15 (a) is an exploded perspective view of a wall-mounted filtration apparatus for a pool shown in Figure 14;
Figure 15 (b) is a perspective view of the main body to a wall-mounted filtration apparatus for a pool shown in Figure 14;
Figure 16 is a front view of a wall-mounted filtration apparatus for a pool shown in Figure 14;

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Figure 17 is a rear view of a wall-mounted filtration apparatus for a pool shown in Figure 14;
Figure 18 is a sectional view of a wall-mounted filtration apparatus for a pool depending on Figure 17 in the direction of the arrows upon line 4-4; and
Figure 19 is a partial perspective view illustrating an installing wall-mounted filtration apparatus.

DESCRIPTION OF REFERENCE SIGNS

[0037]

A: Support Frame	B: Flexible Pool Liner	1: Upper Frame
11: Arcuate Frame	111: First Horizontal Support Tube	12: Straight Frame
121: Second Horizontal Support Tube	1211: Oblique Support Hole	2: Vertical Support Member
3: Oblique Support Leg Tube	4: T-shaped connector	5: First Elastic Pin
6: Second Elastic Pin	7: Third Elastic Pin	8: Jacket
9: Leg Pad	b1: Pool Wall	b11: First sleeve
b2: Pool Bottom	b31: Oblique Support Opening	b4: Oblique Support Tube Drawstring
b41: Second Sleeve	b6: Reinforcing Band	b7: Sticker
100: Filter Casing	110: Main Body	127: Water Inlet
112: Through Hole	113: Fastening Portion	120:Filtering Cover
128:Water Outlet	122:Filter Fixed Shaft	123:Side Opening
124:Thread	125:Fastening Portion	126: Connecting Thread
200:Filtering Portion	210:Fastening Plate	220:Groove
300:Fastener	400:Water Retaining Sheet	500:Clamp Ring
600:Seal Structure	700:Connector	710:Connecting Thread
720:Connecting Thread	800:Base	810:Connecting Thread
900:Inner Surface		

DETAILED DESCRIPTION

[0038] The present disclosure will be further described below in conjunction with particular example implementations and the accompanying drawings. Further details are provided in the following description in order for the present disclosure to be fully understood. However, the present disclosure can be implemented in various ways other than those described herein. A person skilled in the art can make similar analogies and modifications according to practical applications without departing from the scope of the present disclosure as defined by the appended claims, and therefore the contents of the particular examples herein should not be construed as limiting to the scope of the present disclosure.

[0039] Figure 1 is a perspective view of a pool with an elliptical frame according to a first embodiment of the present disclosure. Figure 2 is a perspective view of a support frame of the pool with an elliptical frame shown in Figure 1. Figure 3 is a top view of the support frame of the pool with an elliptical frame shown in Figure 2. Figure 4 is a front view of the support frame of the pool with an elliptical frame shown in Figure 2. Figure 5 is a side view of the support frame of the pool with an elliptical frame shown in Figure 2. It should be noted that these and other subsequent drawings are merely used as examples, and are not necessarily drawn to scale, and should not be taken as a limitation to the claimed scope of the present disclosure.

[0040] Referring to Figures 1-5, the pool with an elliptical frame according to the first embodiment of the present disclosure mainly includes a support frame A and a flexible pool liner B which is supported by the support frame A and used for containing water. The support frame A is formed by a plurality of steel tubes which are coupled via steel tube connectors. The flexible pool liner B is made from flexible reinforced polyvinyl chloride (PVC) rubberized fabric or PU rubberized fabric with sandwiched mesh fabric. The support frame A and the flexible pool liner B will be detailed below.

[0041] The support frame A includes a horizontal, substantially elliptical upper frame 1, and a plurality of vertical support members 2 and oblique support members 3 for supporting the upper frame 1. Two ends of the upper frame 1 along the major axis direction of the ellipse shape are two opposite arcuate frames 11. Two opposite parallel straight frames 12 having the same length are respectively connected between the two arcuate frames 11. The arcuate frames 11 and the straight frames 12 form the closed upper frame 1. Each arcuate frame 11 may include at least two first horizontal support tubes 111 which are coupled to each other, and each first horizontal support tube 111 may be a straight tube. Each segment of straight frame 12 may include at least one second horizontal support tube 121.

[0042] Figure 6 is an exploded view of two first horizontal support tubes of the arcuate frame, one vertical support

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member and a T-shaped connector of the pool with an elliptical frame, before assembling, according to the first embodiment of the present disclosure. Figure 7 is a partial view of the two first horizontal support tubes of the arcuate frame, the vertical support member and the T-shaped connector of the pool with an elliptical frame according to the first embodiment shown in Figure 6, after assembled with a flexible pool liner. Figure 8 is an exploded view of one first horizontal support tube of the arcuate frame, one second horizontal support tube of a straight frame, one vertical support member and a T-shaped connector of the pool with an elliptical frame according to the first embodiment of the present disclosure before assembling. Figure 9 is a partial view of the first horizontal support tube of the arcuate frame, the second horizontal support tube of the straight frame, the vertical support member and the T-shaped connector of the pool with an elliptical frame according to the first embodiment shown in Figure 8, after assembled with a flexible pool liner.

[0043] Referring to Figures 1-9, a T-shaped connector 4 is fixedly coupled, with the aid of an elastic pin structure, between two adjacent first horizontal support tubes 111 of the arcuate frame 11 and one of vertical support members 2, and between one first horizontal support tube 111 of the arcuate frame 11, one second horizontal support tube 121 of the straight frame 12, and one of vertical support members 2.

[0044] Referring to Figures 6 and 7, the connection among the two adjacent first horizontal support tubes 111 of the arcuate frame 11, the vertical support member 2 and the T-shaped connector 4 are described as follows. The ends of the first horizontal support tubes 111 and the T-shaped connector 4 are inserted into each other to be fixedly coupled using the first elastic pins 5, which pass through the circular holes in the ends of the first horizontal support tubes 111 and in the ends of the T-shaped connector 4. The upper end of the vertical support member 2 and the lower end of the T-shaped connector 4 are inserted into each other and are fixedly coupled via a second elastic pin 6 in the vertical support member 2, which passes through circular holes in the upper end of the vertical support member 2 and the lower end of the T-shaped connector 4.

[0045] Referring to Figures 8 and 9, the connection among the first horizontal support tube 111 of the arcuate frame 11, the second horizontal support tube 121 of the straight frame 12, and the vertical support member 2, and the T-shaped connector 4 are described as follows. The ends of the first horizontal support tube 111 of the arcuate frame 11 and the second horizontal support tube 121 of the straight frame 12 and the left and right ends of the T-shaped connector 4 are inserted into each other to be fixedly coupled by the first elastic pins 5 passing through the circular holes in the end of the first horizontal support tube 111, the second horizontal support tube 121, and the T-shaped connector 4. The upper end of the vertical support member 2 and the lower end of the T-shaped connector 4 are inserted into each other to be fixedly coupled using the second elastic pin 6 in the vertical support member 2 passing through the circular holes in the upper end of the vertical support member 2 and the lower end of the T-shaped connector 4. The lower end of the vertical support member 2 is provided with a leg pad 9.

[0046] Referring to Figures 2-5, lower parts of the second horizontal support tubes 121 on two sides of the straight frame 12 are both provided with an oblique support member3 having a flat bottom and being substantially U-shaped. The oblique support member 3 is used for upwardly and inwardly supporting the second horizontal support tubes 121, so as to prevent the straight frame 12 from bending towards the outside of the pool, after the pool is filled with water. Preferably, the overall shape of the oblique support member 3 is not limited to U shape. It may also be, for example, an inverted T shape (not shown), and its installation to the second horizontal support tube 121 is similar to that of the U-shaped oblique support member 3.

[0047] Figure 10 is an assembled view of the second horizontal support tube of the straight frame and an oblique support member of the pool with an elliptical frame according to the first embodiment of the present disclosure. As shown in Figure 10, firstly, each straight frame 12 may also include at least two second horizontal support tubes 121. The two second horizontal support tubes 121 are inserted into each other and are fixedly coupled via the first elastic pin 5. Secondly, the method for fixedly connecting the second horizontal support tube 121 of the straight frame 12 with the oblique support member 3 may be as follows. A lower surface of each second horizontal support tube 121 is provided with at least one pair of oblique support holes or at least one oblique support hole 1211 with a diameter slightly greater than an external diameter of the oblique support member 3 (Figure 10 shows a solution in the case of a pair of oblique support holes). Both ends of the U-shaped oblique support member 3 are provided with a plastic jacket 8 and a third elastic pin 7, and the two ends of the oblique support member 3 are respectively inserted into the pair of oblique support holes 1211 in the lower part of the second horizontal support tube 121 of the straight frame 12, and are fixedly connected to the second horizontal support tube 121 of the straight frame 12 by means of snap-fitting the third elastic pin 7 of the oblique support member 3 with an inner wall of the second horizontal support tube 121, so as to the support the straight frame 12. Preferably, if the oblique support member is an inverted T-shaped tube instead of the U-shaped tube, the upper end of the oblique support member can also be provided with a plastic jacket and a third elastic pin, and then the upper end thereof is inserted into one oblique support hole 1211 in the lower part of the second horizontal support tube 121 for supporting the straight frame 12.

[0048] Figure 11 is a perspective view illustrating the second horizontal support tube of the straight frame, and the oblique support member of the pool with an elliptical frame according to the first embodiment of the present disclosure, after assembled with a flexible pool liner. Referring to Figures 1, 7, 9 and 11, the flexible pool liner B is situated inside

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the support frame A, which includes a pool wall b1 and an elliptical pool bottom b2. A lower edge of the pool wall b1 and an edge of the pool bottom b2 are coupled to each other, so as to form an open container capable of containing water. The upper edge of the pool wall b1 is provided with a plurality of first sleeves b11 allowing the first horizontal support tubes 111 and the second horizontal support tubes 121 of the upper frame 1 to be sheathed therein, so as to fix the flexible pool liner B to the upper frame 1. Each first sleeves b11 at the position of the second horizontal support tube 121 is provided with a pair of oblique support openings or an oblique support opening b31 corresponding to the oblique support hole(s) 1211 in the lower surface of the second horizontal support tube 121, which is used to allow the two ends or upper end of the oblique support member 3 to penetrate therethrough so as to connect to the oblique support hole(s) 1211 therein.

[0049] In addition, at a position from one-quarter to one-half of the height (for example, one-third of the height) from bottom to top, the pool wall b1 is provided with a surrounding reinforcing band b6. The reinforcing band b6 may be attached to the pool wall b1 via a plurality of stickers b7 on the pool wall b1. The vertical support member 2 is situated between the pool wall b1 and the reinforcing band b6, and this structural design can well define the shape of the flexible pool liner B and the position of the vertical support member 2, so as to prevent the outward bulging of the pool wall b1 and the displacement of the vertical support member 2 after the flexible pool liner B is filled with water.

[0050] Figure 12 is a side view of the second horizontal support tube of the straight frame and the oblique support member of the pool with an elliptical frame shown in Figure 11, after assembled with the flexible pool liner. Referring to Figures 11 and 12, a plurality of oblique support tube drawstrings b4 are provided between the pool bottom b2 of the flexible pool liner B and the oblique support member 3. The oblique support tube drawstring b4 is fixedly coupled to the pool bottom b2 at one end thereof, and is provided with a second sleeve b41 at the other end thereof. The bottom end of the oblique support member 3 is sheathed into the second sleeve b41 of the oblique support tube drawstring b4, such that the position of the oblique support member 3 is limited by the oblique support tube drawstring b4. When the pool liner B is filled with water, the outward sliding of the oblique support member 3 is prevented.

[0051] Figure 13 is a top view of a pool with an elliptical frame according to a second embodiment of the present disclosure, with first horizontal support tubes of two segments of arcuate frames being arcuate. This second embodiment continues to use the same reference signs in the first embodiment, wherein like reference signs denote the same or similar parts. However, the description of the same technical content is selectively omitted for brevity. With regard to the description of the omitted part, references can be made to the preceding embodiment, and no redundant description will be provided in the present embodiment.

[0052] In the present second embodiment, both the first horizontal support tubes 111 of the two arcuate frames 11 may be arcuate tubes, so that the support frame A of the frame pool has a more smooth oval shape, while the remaining structure is the same as in the first embodiment.

[0053] In the present disclosure, the illustration of the pool including the elliptical frame structure is described above. Also, the pool can be arranged the wall-mounted filtration apparatus to achieve the requirements of filtering the pool water. The embodiments of the wall-mounted filtration apparatus is illustrated as follows.

[0054] Referring to Figures 14-19, a wall-mounted filtration apparatus embodying the structure of the present disclosure which has not been claimed will be described.

[0055] The present disclosure is wall-mounted filtration apparatus including a main body (110), a filtering cover 120, a filtering portion 200 and a fastener 300.

[0056] The filtering cover 120 and the main body 110 are configured to be a filter casing (100). The main body 110 can be a cylinder-shaped structure or a cone-shaped structure. The main body 110 having a plurality of water inlets 127 arranged on the outer surface of the main body 110. In the embodiment, the water inlets 127 are positioned on the main body 110 surrounding the lateral wall of the outer surface. Furthermore, a through hole 112 for being passed through a fastener 300 is located on the center of the bottom of main body 110. Also, a plurality of fastening portions 113 are positioned on a inner surface of main body 110 around the through hole 112. The filtering cover 120 includes a water outlet 128 with which a filter fixed shaft 122 is arranged to be coupled. Specifically, the filter fixed shaft 122 is a tubular structure with a hollow cylinder portion for interconnecting with the water outlet 128; additionally, a plurality of threads 126 are positioned on the water outlet 128 in one side opposite the filter fixed shaft 122 for coupling with the connector 700. The filter fixed shaft 122 may have a tubular structure, and a plurality of side openings 123 may be positioned on a side wall of the filter fixed shaft 122. Also, a fastening portion 125 is arranged on the inner surface of the filtering cover 120 surrounding the filter fixed shaft 122.

[0057] The filtering portion 200, which having a axis with the filter fixed shaft 122, is located in a space between the filtering cover 120 and the main body 110, and is inserted to joint on the filter fixed shaft 122.The filtering portion 200 includes a first fastening plate and a second fastening plate 210 and a filter positioned between the two fastening plate 210. The filter can be one or more of folded non-woven, polyester fibers or sponges. Those of two fastening plates 210 are respectively positioned on both two side of the filtering portion 200) for fastening the filtering portion 200 between the filtering cover 120 and the main body 110. Specifically, each of fastening plate 210 includes a groove 220. In the embodiment, the first fastening plate 210 being towards to the main body 110 is used to couple with the first fastening

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portion 113 on the inner surface of the main body 110 by the first groove 220,whereas the second fastening plate 210 being towards to the filtering cover 120 is used to couple with the second fastening portion 125 on the inner surface of the filtering cover 120 by second groove 220, to fasten the filtering portion 200 between the filtering cover 120 and the main body 110.

[0058] In one embodiment, the fastening portion 113, 125 is a closed ring. Another can be a discontinuous fastening rings which having a plurality of intervals in a circumferential direction. The fastener 300 can be a bolt passing through the main body 110 by the through, and be engaged with a plurality of threads 124 on filter fixed shaft 122 for coupled both to be a combination. A same axis for the main body 110 and the filter fixed shaft 122 is through the engagement between the threads 124 and the fastener 300. In the embodiment, seal structures 600 can be located between the fastener 300 and the main body 110 for achieving a sealing function.

[0059] When the wall-mounted filtration apparatus is filtering, the water enters through the inlet 111 into the main body 110, and then passes through the filter of the filtering portion 200. Subsequently, the water flows into the hollow cylinder portion of the filter fixed shaft 122 by passing through the side openings 123 on the filter fixed shaft 122. Finally, the filtered water flows out the filter casing 100 from the water outlet 128 of the filtering cover 120.

[0060] In the embodiment, there are a plurality of water retaining sheets 400 being arranged on the inner surface of the main body 110 used for covering the water inlets 127.The water retaining sheets 400 are fixed on the inner surface using a clamp ring 500.The material of the water retaining sheet 400 can be rubber, PVC or other flexible flaky materials. The function of the water retaining sheet 400 is similar with slice of check valve.

[0061] The water retaining sheet 400 will open inward when water enter into the filter casing 100 through inlets 111 in filtering state, whereas the water retaining sheet 400 will cover the inlets 111 for preventing impurities back-flow.

[0062] The installation of the wall-mounted filtration apparatus is illustrated in Figure 19.

[0063] Base 800 is installed on the inner surface 900 of pool. The connecting threads 710 positioned on the connector 700 are coupled with the plurality of connecting threads 810 positioned on the base 800. Moreover, the plurality of connecting threads 720 on the connector 700 is coupled with the plurality of connecting threads 126 on the water outlet 128 of the filtering cover 120. The present disclosure of the wall-mounted filtration apparatus using those connecting structures can be arranged on the inner surface 900 of pool.

[0064] The present disclosure has been described above in connection with example implementations which, however, are not intended to be limiting to the scope of the present disclosure, and any person skilled in the art should understand that these are merely illustrative and could make possible changes and modifications without departing from the scope of the present disclosure. Hence, any alteration, equivalent change and modification which are made to the above-mentioned examples in accordance with the technical substance of the present disclosure and without departing from the scope of the present disclosure, would fall within the scope defined by the claims of the present disclosure.

Claims

1. A pool with an elliptical frame comprising:

   a support frame (A) and a flexible pool liner (B) being supported by the support frame (A) for containing water;
   the support frame (A) comprising a substantially elliptical upper frame (1) being arranged horizontally, a plurality of vertical support members (2) and oblique support members (3) supporting the upper frame (1); and
   the upper frame (1) comprising a plurality of arcuate frames (11) positioned at two opposite ends of the elliptical upper frame along a major axis direction, a plurality of straight frames (12) being coupled between the arcuate frames (11) in parallel, the upper frame (1) being configured by combining the arcuate frames (11) and the straight frames (12);
   each arcuate frame (11) comprising at least two first horizontal support tubes (111), and each straight frame (12) comprises at least one second horizontal support tube (121);
   characterized in that a lower surface of the second horizontal support tube (121) comprises at least one pair of oblique support holes (1211) or at least one oblique support hole (1211), and a diameter of each oblique support hole (1211) is larger than an external diameter of the oblique support members (3).

2. The pool of claim 1, **characterized in that** each straight frame (12) comprises at least two second horizontal support tubes (121), and the second horizontal support tubes (121) are inserted into each other and are fixedly coupled via an elastic pin structure.

3. The pool of claim 2, **characterized in that** a T-shaped connector (4) is coupled, by the elastic pin structure, between two of the first horizontal support tubes (111) and one of the vertical support members (2), and between one of the first horizontal support tubes (111), one of the second horizontal support tubes (121), and one of the vertical support

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members (2).

4. The pool of claim 1, **characterized in that** each of the oblique support members (3) is a U-shaped tube, comprising two ends being respectively inserted into the pair of the oblique support holes (1211), to support the straight frame (12).

5. The pool of claim 1, **characterized in that** each of the oblique support members (3) is an inverted T-shaped tube, comprising an upper end being inserted into one of the oblique support holes (1211) to support the straight frame (12).

6. The pool of claim 1, **characterized in that** the flexible pool liner (B) is made from a flexible reinforced PVC rubberized fabric or PU rubberized fabric with sandwiched mesh fabric.

7. The pool of claim 6, **characterized in that** the flexible pool liner (B) comprises a pool wall (b1) and an elliptical pool bottom (b2), wherein an upper edge of the pool wall (b1) is provided with a plurality of first sleeves (b11) allowing the first horizontal support tubes (111) and the second horizontal support tubes (121) of the upper frame (1) to be sheathed therein, so as to fix the flexible pool liner (B) to the upper frame (1).

8. The pool of claim 7, **characterized in that** an oblique support tube drawstring (b4) is provided between the pool bottom (b2) of the flexible pool liner (B) and a bottom end of the oblique support members (3),
wherein the oblique support tube drawstring (b4) is fixedly coupled to the pool bottom (b2) at one end and is provided with a second sleeve (b41) at the other end, and
wherein the bottom end of the oblique support members (3) is sheathed into the second sleeve (b41) and the position thereof is limited by the oblique support tube drawstring (b4).

9. The pool of claim 1, **characterized in that** each of the vertical support members (2) comprises at least a branched-support member extending from a side of the vertical support member (2), a support base coupled with an end of the vertical support member (2) and the branched-support member for arranging the vertical support member on the ground.

10. The pool of claim 9, **characterized in that** an angle between the vertical support member (2) and the branched-support member is lesser than 90°,and the angle is in a range of 15° to 45°, and the branched-support member comprises a curved surface extending from a connection portion between the vertical support member (2) and the branched-support member to the end of the branched-support member.

11. The pool of claim 1, **characterized in that** each of the oblique support members (3) comprises at least a branched-tubular portion extending from a side of the oblique support member (3), a base portion coupled with an end of the oblique support member (3) and the branched-tubular portion for supporting the pool on the ground, and an angle between the oblique support member (3) and the branched-tubular portion is lesser than 90°, and the angle is in a range of 15° to 45°, and the branched-tubular portion comprises a surface line curved from a top side of the branched-tubular portion on the oblique support member (3) to a bottom side of the branched-tubular portion.

Patentansprüche

1. Schwimmbecken mit ellipsenförmigem Rahmen, umfassend:

einen Trägerrahmen (A) und eine flexible Schwimmbeckenauskleidung (B), die vom Trägerrahmen (A) zur Aufnahme von Wasser getragen wird;
wobei der Trägerrahmen (A) einen im Wesentlichen ellipsenförmigen oberen Rahmen (1), der horizontal angeordnet ist, eine Vielzahl von vertikalen Trägerelementen (2) und schrägen Trägerelementen (3) umfasst, die den oberen Rahmen (1) tragen; und
wobei der obere Rahmen (1) eine Vielzahl von bogenförmigen Rahmen (11) umfasst, die an zwei gegenüberliegenden Enden des ellipsenförmigen oberen Rahmens entlang einer Hauptachsenrichtung platziert sind, wobei eine Vielzahl von geraden Rahmen (12) zwischen den bogenförmigen Rahmen (11) parallel gekoppelt sind, wobei der obere Rahmen (1) durch Kombinieren der bogenförmigen Rahmen (11) und der geraden Rahmen (12) konfiguriert wird;
wobei jeder bogenförmige Rahmen (11) mindestens zwei erste horizontale Trägerrohre (111) umfasst und jeder gerade Rahmen (12) mindestens ein zweites horizontales Trägerrohr (121) umfasst;
dadurch gekennzeichnet, dass eine Unterseite des zweiten horizontalen Trägerrohres (121) mindestens ein

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Paar schräge Trägerlöcher (1211) oder mindestens ein schräges Trägerloch (1211) umfasst und ein Durchmesser jedes schrägen Trägerloches (1211) ist größer als ein Außendurchmesser der schrägen Trägerelemente (3).

2. Schwimmbecken nach Anspruch 1, **dadurch gekennzeichnet, dass** jeder gerade Rahmen (12) mindestens zwei zweite horizontale Trägerrohre (121) umfasst und die zweiten horizontalen Trägerrohre (121) ineinander gesteckt und über eine elastische Stiftstruktur fest gekoppelt werden.

3. Schwimmbecken nach Anspruch 2, **dadurch gekennzeichnet, dass** ein T-förmiger Verbinder (4) durch die elastische Stiftstruktur zwischen zwei der ersten horizontalen Trägerrohre (111) und einem der vertikalen Trägerelemente (2) und zwischen einem der ersten horizontalen Trägerrohre (111), einem der zweiten horizontalen Trägerrohre (121) und einem der vertikalen Trägerelemente (2) gekoppelt wird.

4. Schwimmbecken nach Anspruch 1, **dadurch gekennzeichnet, dass** jedes der schrägen Trägerelemente (3) ein U-förmiges Rohr ist, das zwei Enden umfasst, die jeweils in das Paar der schrägen Trägerlöcher (1211) eingesetzt sind, um den geraden Rahmen (12) zu tragen.

5. Schwimmbecken nach Anspruch 1, **dadurch gekennzeichnet, dass** jedes der schrägen Trägerelemente (3) ein umgekehrtes T-förmiges Rohr ist, das ein oberes Ende umfasst, das in eines der schrägen Trägerlöcher (1211) eingesetzt ist, um den geraden Rahmen (12) zu tragen.

6. Schwimmbecken nach Anspruch 1, **dadurch gekennzeichnet, dass** die flexible Schwimmbeckenauskleidung (B) aus einem flexiblen, verstärkten PVC-gummierten Gewebe oder PU-gummierten Gewebe mit Sandwich-Netzgewebe hergestellt wird.

7. Schwimmbecken nach Anspruch 6, **dadurch gekennzeichnet, dass** die flexible Schwimmbeckenauskleidung (B) eine Schwimmbeckenwand (b1) und einen ellipsenförmigen Schwimmbeckenboden (b2) umfasst, wobei eine obere Kante der Schwimmbeckenwand (b1) mit einer Vielzahl von ersten Hülsen (b11) versehen ist, die es ermöglichen, die ersten horizontalen Trägerrohre (111) und die zweiten horizontalen Trägerrohre (121) des oberen Rahmens (1) darin ummantelt zu werden, um die flexible Schwimmbeckenauskleidung (B) am oberen Rahmen (1) zu befestigen.

8. Schwimmbecken nach Anspruch 7, **dadurch gekennzeichnet, dass** ein schräger Trägerrohrkordelzug (b4) zwischen dem Schwimmbeckenboden (b2) der flexiblen Schwimmbeckenauskleidung (B) und einem unteren Ende der schrägen Trägerelemente (3) vorgesehen ist,
wobei der schräge Trägerrohrkordelzug (b4) an einem Ende fest mit dem Schwimmbeckenboden (b2) gekoppelt ist und am anderen Ende mit einer zweiten Hülse (b41) versehen ist, und
wobei das untere Ende der schrägen Trägerelemente (3) in die zweite Hülse (b41) ummantelt ist und deren Position durch den schrägen Trägerrohrkordelzug (b4) begrenzt wird.

9. Schwimmbecken nach Anspruch 1, **dadurch gekennzeichnet, dass** jedes der vertikalen Trägerelemente (2) mindestens ein verzweigtes Trägerelement, das sich von einer Seite des vertikalen Trägerelementes (2) erstreckt, eine Trägerbasis, die mit einem Ende der vertikalen Trägerelemente (2) gekoppelt ist, und das verzweigte Trägerelement zur Anordnung des vertikalen Trägerelements am Boden umfasst.

10. Schwimmbecken nach Anspruch 9, **dadurch gekennzeichnet, dass** ein Winkel zwischen dem vertikalen Trägerelement (2) und dem verzweigten Trägerelement kleiner als 90° ist und der Winkel in einem Bereich von 15° bis 45° liegt und das verzweigte Trägerelement eine gekrümmte Oberfläche umfasst, die sich von einer Verbindungsposition zwischen dem vertikalen Trägerelement (2) und dem verzweigten Trägerelement bis zum Ende des verzweigten Trägerelementes erstreckt.

11. Schwimmbecken nach Anspruch 1, **dadurch gekennzeichnet, dass** jedes der schrägen Trägerelemente (3) mindestens einen sich von einer Seite des schrägen Trägerelementes (3) erstreckenden, verzweigten rohrförmigen Abschnitt, einen Basisabschnitt, der mit einem Ende des schrägen Trägerelementes (3) gekoppelt ist, und den verzweigten rohrförmigen Abschnitt zum Tragen des Schwimmbeckens am Boden umfasst, und ein Winkel zwischen dem schrägen Trägerelement (3) und dem verzweigten rohrförmigen Abschnitt kleiner als 90° ist und der Winkel in einem Bereich von 15° bis 45° liegt, und der verzweigte rohrförmige Abschnitt eine Oberflächenlinie umfasst, die von einer Oberseite des verzweigten rohrförmigen Abschnitts auf dem schrägen Trägerelement (3) zu einer Unterseite des verzweigten rohrförmigen Abschnitts gekrümmt ist.

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Revendications

1. Piscine avec un cadre elliptique comprenant :

   un cadre de support (A) et un liner de piscine souple (B) étant supporté par le cadre de support (A) pour contenir l'eau ;
   le cadre de support (A) comprenant un cadre supérieur substantiellement elliptique (1) étant disposé horizontalement, une pluralité d'organes de support verticaux (2) et des organes de support obliques (3) supportant le cadre supérieur (1) ; et
   le cadre supérieur (1) comprenant une pluralité de cadres arqués (11) positionnés aux deux extrémités opposées du cadre supérieur elliptique le long d'une direction de l'axe principal, une pluralité de cadres rectilignes (12) étant couplés entre les cadres arqués (11) parallèlement, le cadre supérieur (1) étant configuré en combinant les cadres arqués (11) et les cadres rectilignes (12) ;
   chaque cadre arqué (11) comprenant au moins deux premiers tubes de support horizontaux (111) et chaque cadre rectiligne (12) comprend au moins un second tube de support horizontal (121) ;
   caractérisée en ce qu'une surface inférieure du second tube de support horizontal (121) comprend au moins une paire d'orifices de support oblique (1211) ou au moins un orifice de support oblique (1211) et un diamètre de chaque orifice de support oblique (1211) est plus grand qu'un diamètre externe des organes de support obliques (3) .

2. Piscine selon la revendication 1, **caractérisée en ce que** chaque cadre rectiligne (12) comprend au moins deux seconds tubes de support horizontaux (121), et les seconds tubes de support horizontaux (121) sont introduits les uns dans les autres et sont accouplés fixement via une structure à goujon élastique.

3. Piscine selon la revendication 2, **caractérisée en ce qu'**un raccord en forme de « T » (4) est couplé, par la structure à goujon élastique, entre deux des premiers tubes de support horizontaux (111) et l'un des organes de support verticaux (2), et entre l'un des premiers tubes de support horizontaux (111), l'un des seconds tubes de support horizontaux (121) et l'un des organes de support verticaux (2).

4. Piscine selon la revendication 1, **caractérisée en ce que** chaque organe de support oblique (3) est un tube en « U » comprenant deux extrémités étant respectivement introduites dans la paire d'orifices de support oblique (1211), pour supporter le cadre rectiligne (12).

5. Piscine selon la revendication 1, **caractérisée en ce que** chaque organe de support oblique (3) est un tube en « T » inversé comprenant une extrémité supérieure étant introduite dans l'un des orifices de support oblique (1211), pour supporter le cadre rectiligne (12).

6. Piscine selon la revendication 1, **caractérisée en ce que** le liner de piscine souple (B) est constitué d'un tissu caoutchouté en PVC renforcé ou d'un tissu caoutchouté en polyuréthane avec un tissu maillé superposé.

7. Piscine selon la revendication 6, **caractérisée en ce que** le liner de piscine souple (B) comprend une paroi de piscine (b1) et un fond de piscine elliptique (b2), dans laquelle un bord supérieur de la paroi de piscine (b1) est pourvu d'une pluralité de premiers manchons (b11) permettant aux premiers tubes de support horizontaux (111) et aux seconds tubes de support horizontaux (121) du cadre supérieur (1) d'y être enveloppés, de manière à fixer le liner de piscine souple (B) au cadre supérieur (1).

8. Piscine selon la revendication 7, **caractérisée en ce qu'**un cordon de tube de support oblique (b4) est prévu entre le fond de la piscine (b2) du liner de piscine souple (B) et une extrémité de fond des organes de support obliques (3), dans laquelle le cordon de tube de support oblique (b4) est fixement couplé au fond de la piscine (b2) à une extrémité et est pourvu d'un second manchon (b41) à l'autre extrémité, et
   dans laquelle l'extrémité de fond des organes de support obliques (3) est enveloppée dans le second manchon (b41) et la position de celui-ci est limitée par le cordon de tube de support oblique (b4).

9. Piscine selon la revendication 1, **caractérisée en ce que** chacun des organes de support verticaux (2) comprend au moins un élément de support ramifié se prolongeant à partir d'un côté de l'organe de support vertical (2), d'une base de support couplée à une extrémité de l'organe de support vertical (2) et de l'élément de support ramifié pour disposer l'organe de support vertical sur le sol.

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10. Piscine selon la revendication 9, **caractérisée en ce qu'**un angle entre l'organe de support vertical (2) et l'élément de support ramifié est inférieur à 90°, et l'angle est compris entre 15 et 45°, et l'élément de support ramifié comprend une surface incurvée se prolongeant à partir d'une partie de raccordement entre l'organe de support vertical (2) et l'élément de support ramifié à l'extrémité de l'élément de support ramifié.

11. Piscine selon la revendication 1, **caractérisée en ce que** chacun des organes de support obliques (3) comprend au moins une partie tubulaire ramifiée se prolongeant à partir d'un côté de l'organe de support oblique (3), d'une partie de base couplée à une extrémité de l'organe de support oblique (3) et de la partie tubulaire ramifiée pour supporter la piscine sur le sol, et un angle entre l'organe de support oblique (3) et la partie tubulaire ramifiée est inférieure à 90°, et l'angle est compris entre 15 et 45°, et la partie tubulaire ramifiée comprend une ligne de surface incurvée à partir d'un côté supérieur de la partie tubulaire ramifiée sur l'organe de support oblique (3) par rapport à un côté de fond de la partie tubulaire ramifiée.

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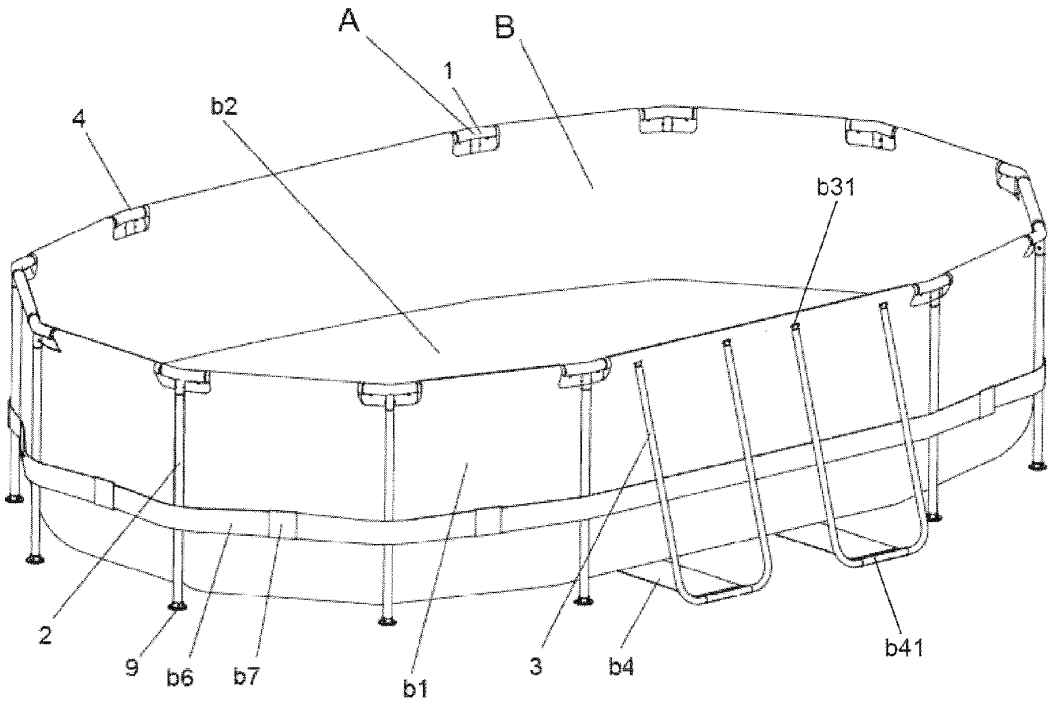


Fig. 1

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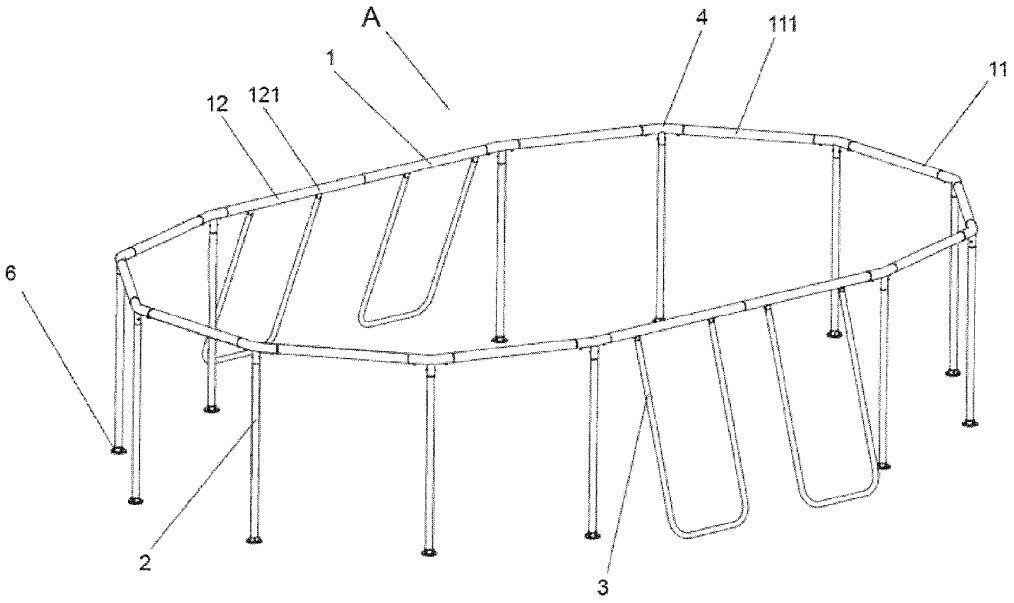


Fig. 2

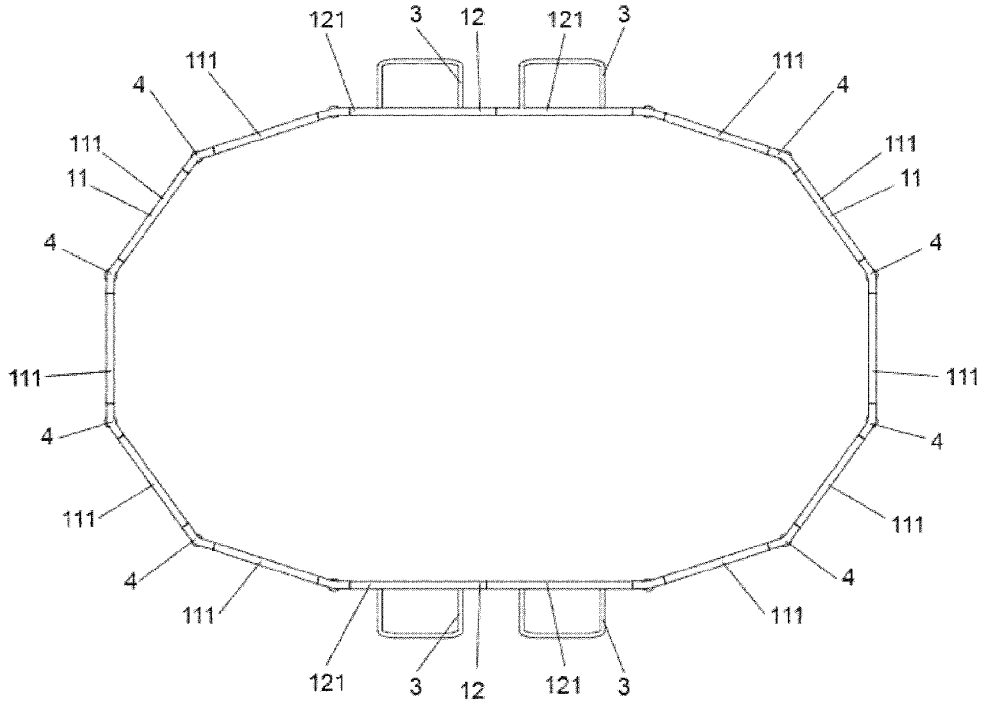


Fig. 3

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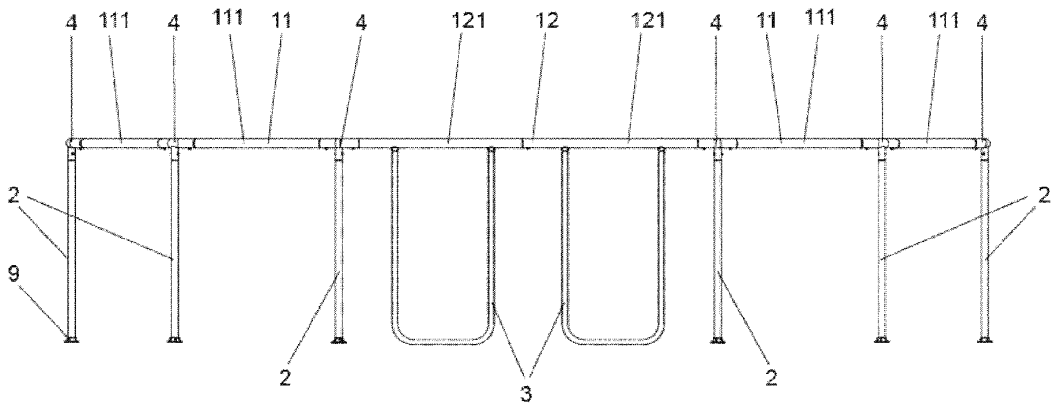


Fig. 4

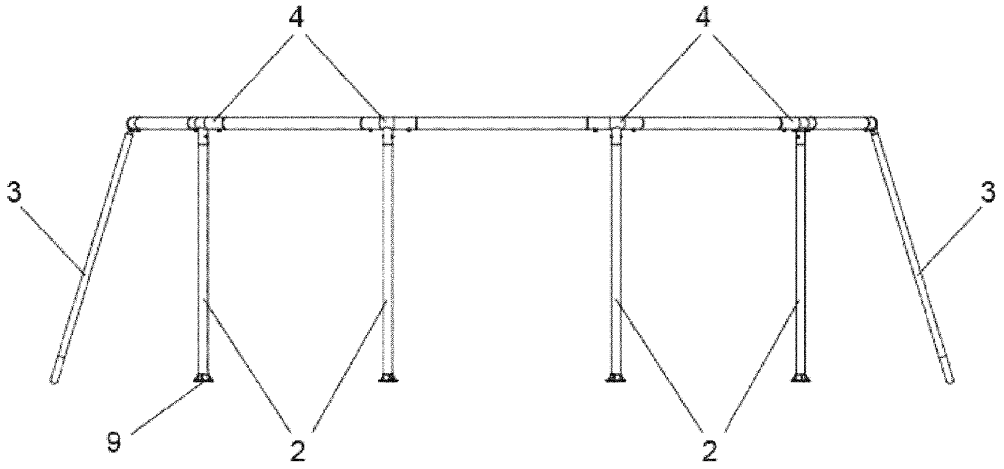


Fig. 5

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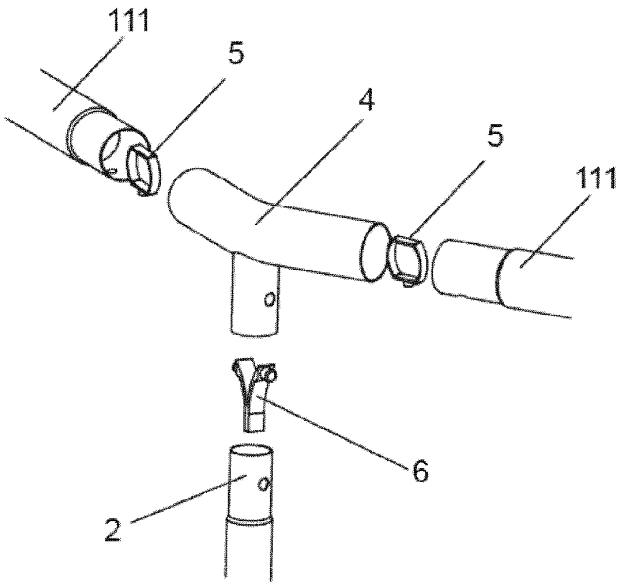


Fig. 6

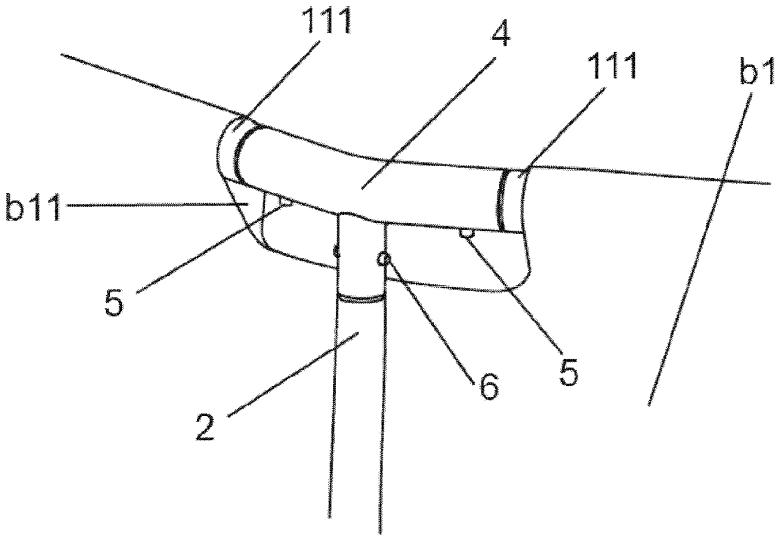


Fig. 7

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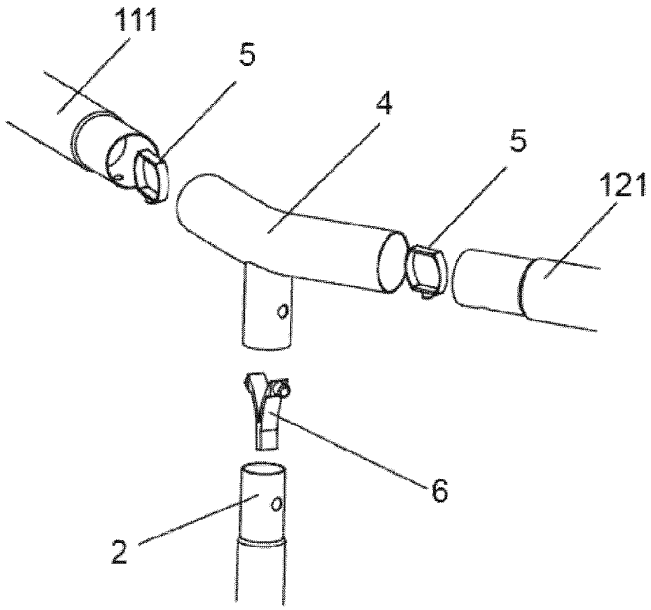


Fig. 8

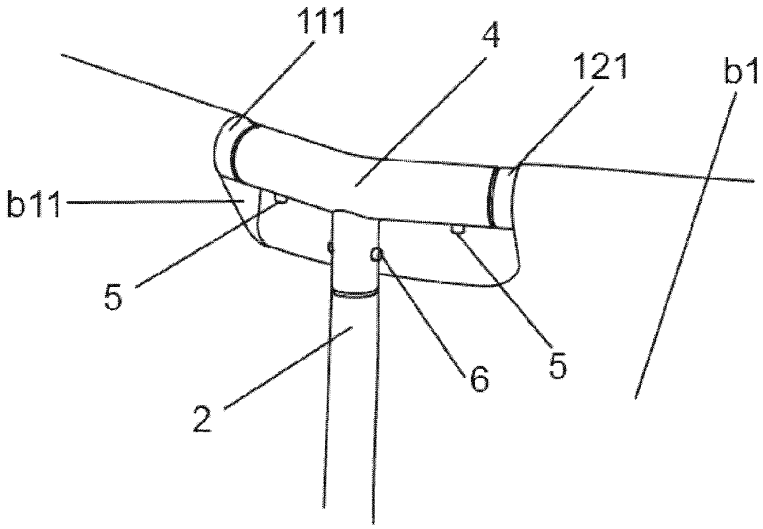


Fig. 9

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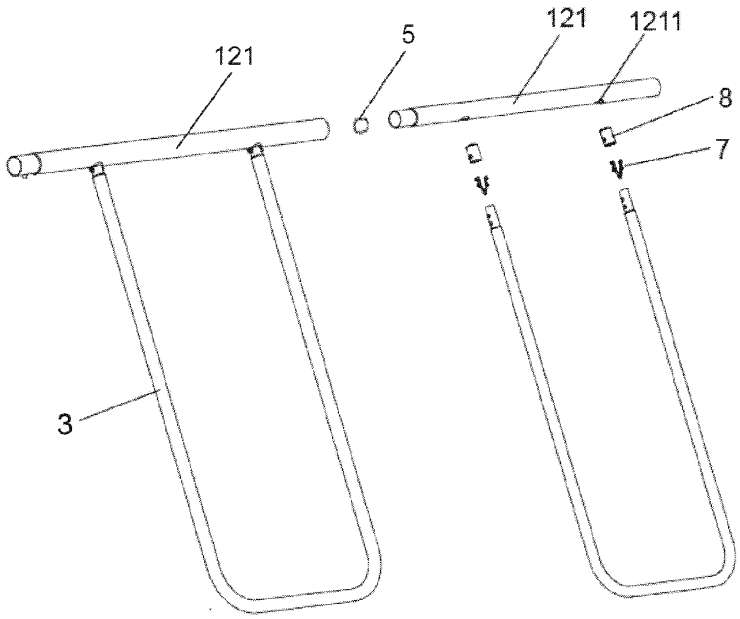


Fig. 10

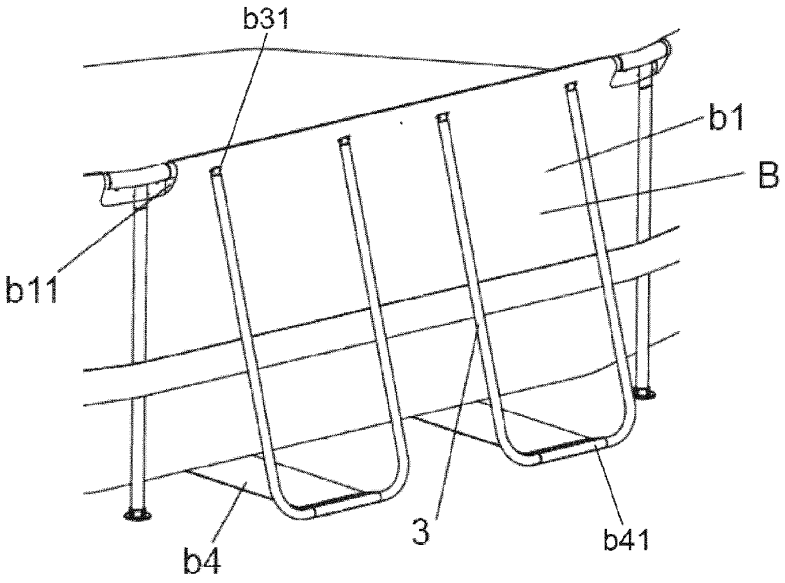


Fig. 11

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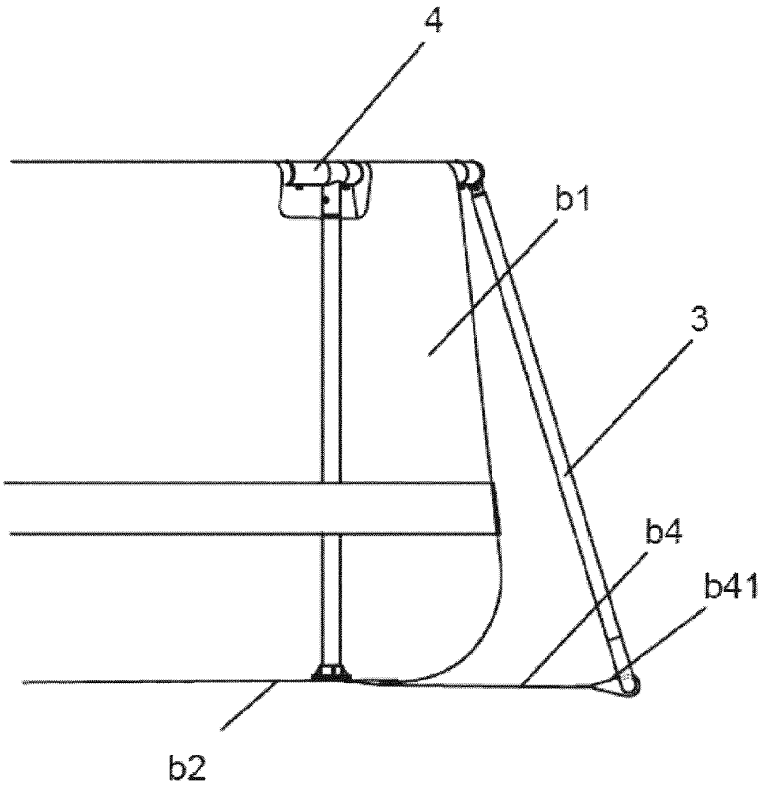


Fig. 12

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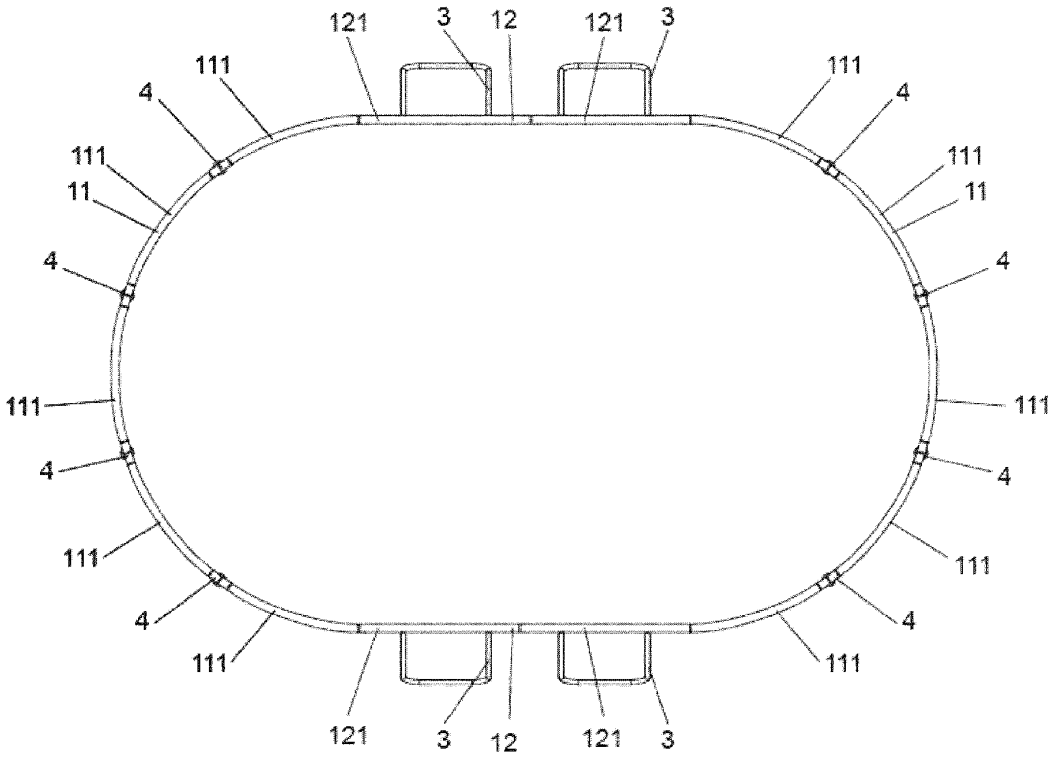


Fig. 13

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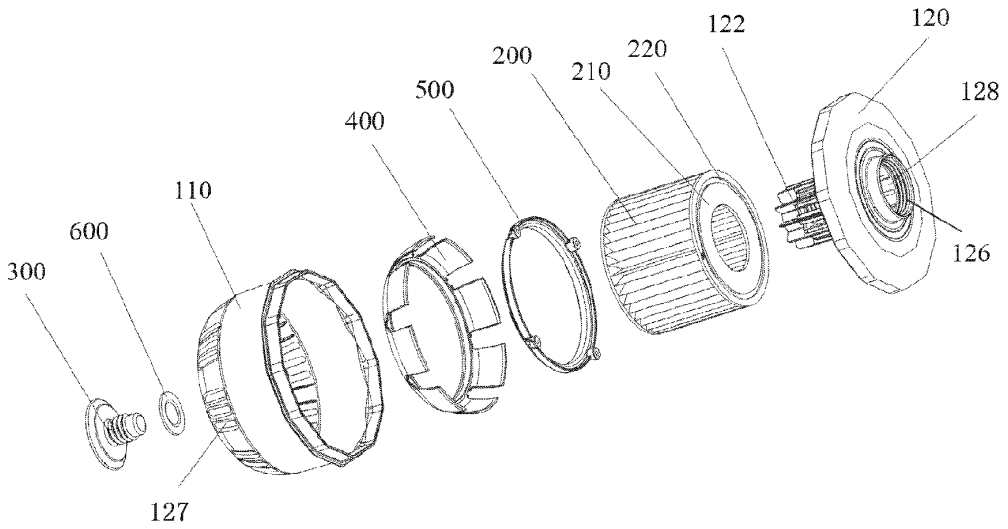


Fig. 14

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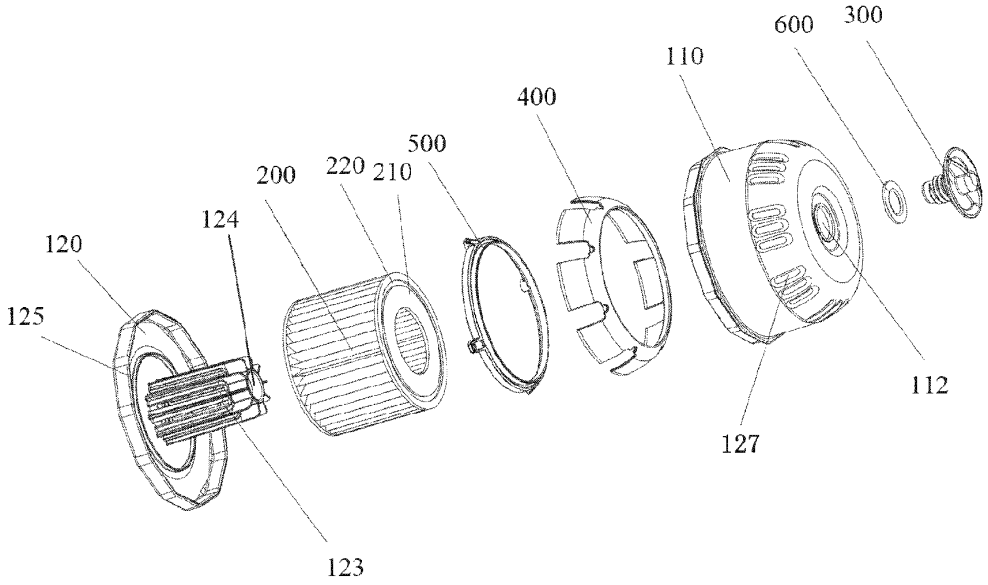


Fig. 15(a)

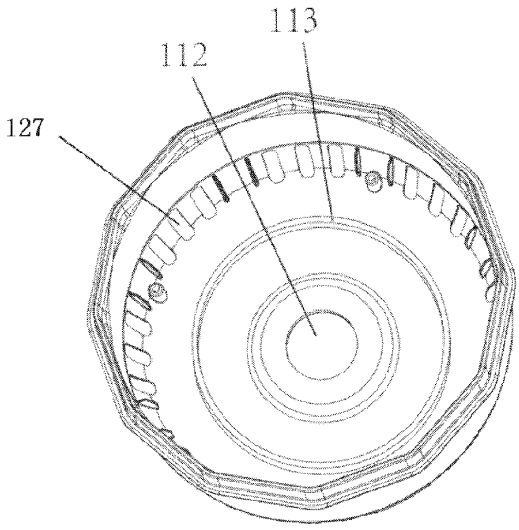


Fig. 15(b)

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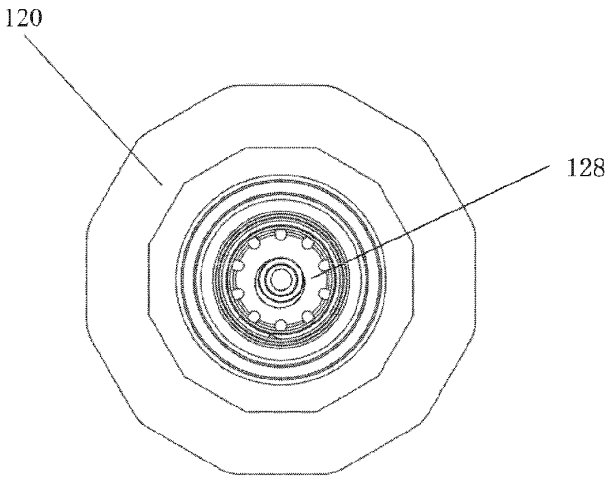


Fig. 16

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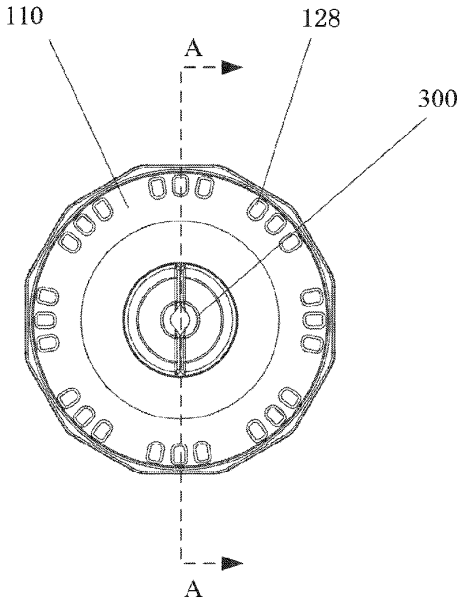


Fig. 17

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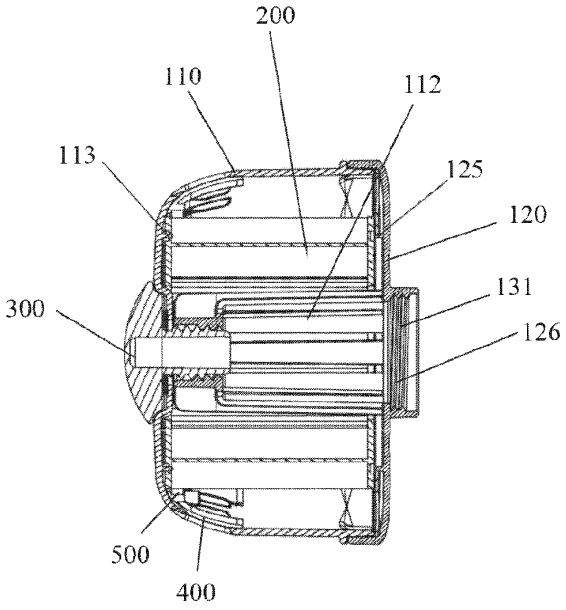


Fig. 18

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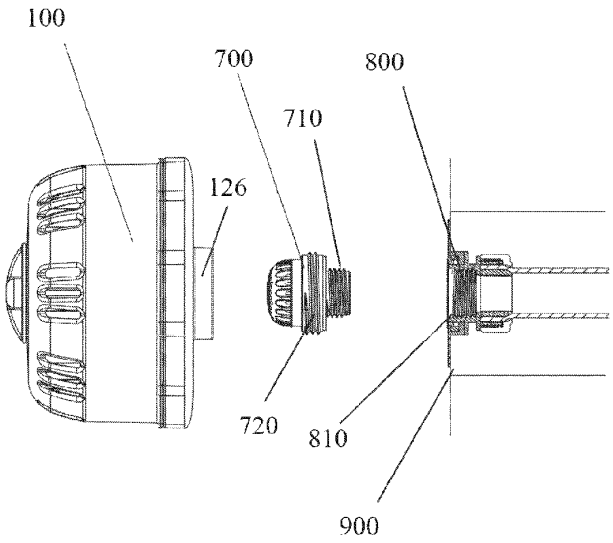


Fig. 19

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REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- CN 201520057049 **[0001]**
- CN 201520655645 **[0001]**
- US 1786613 A **[0003]**
- CN 203879057 **[0003]**

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
18/197,788	05/16/2023	Hua Hsiang Lin	IRC-0042-04-US	1052

27268 7590 12/01/2023

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EXAMINER	
CRANE, LAUREN ASHLEY	

ART UNIT	PAPER NUMBER
3754	

NOTIFICATION DATE	DELIVERY MODE
12/01/2023	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	**Application No.** 18/197,788	**Applicant(s)** Lin et al.	
	Examiner LAUREN A CRANE	**Art Unit** 3754	**AIA (FITF) Status** Yes

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTHS FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2a)☐ This action is **FINAL.** 2b) ☑ This action is non-final.

3)☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims*

5) ☑ Claim(s) 21-44 is/are pending in the application.

5a) Of the above claim(s) _____ is/are withdrawn from consideration.

6) ☐ Claim(s) _____ is/are allowed.

7) ☑ Claim(s) 21-44 is/are rejected.

8) ☐ Claim(s) _____ is/are objected to.

9) ☐ Claim(s) _____ are subject to restriction and/or election requirement

* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to **PPHfeedback@uspto.gov.**

Application Papers

10)☐ The specification is objected to by the Examiner.

11)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

a)☐ All b)☐ Some** c)☐ None of the:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

** See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☑ Notice of References Cited (PTO-892)

2) ☑ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b) Paper No(s)/Mail Date _____.

3) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date _____.

4) ☐ Other: _____.

BESTWAY EX. 1003; Pg 544
Bestway v. Intex PGR2024-00036

Notice of Pre-AIA or AIA Status

1. The present application, filed on or after March 16, 2013, is being examined under the first inventor to file provisions of the AIA.

Double Patenting

1. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on nonstatutory double patenting provided the reference application or patent either is shown to be commonly owned with the examined application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement. See MPEP § 717.02 for applications subject to examination under the first inventor to file provisions of the AIA as explained in MPEP § 2159. See MPEP § 2146 *et seq.* for

applications not subject to examination under the first inventor to file provisions of the AIA. A terminal disclaimer must be signed in compliance with 37 CFR 1.321(b).

The filing of a terminal disclaimer by itself is not a complete reply to a nonstatutory double patenting (NSDP) rejection. A complete reply requires that the terminal disclaimer be accompanied by a reply requesting reconsideration of the prior Office action. Even where the NSDP rejection is provisional the reply must be complete. See MPEP § 804, subsection I.B.1. For a reply to a non-final Office action, see 37 CFR 1.111(a). For a reply to final Office action, see 37 CFR 1.113(c). A request for reconsideration while not provided for in 37 CFR 1.113(c) may be filed after final for consideration. See MPEP §§ 706.07(e) and 714.13.

The USPTO Internet website contains terminal disclaimer forms which may be used. Please visit www.uspto.gov/patent/patents-forms. The actual filing date of the application in which the form is filed determines what form (e.g., PTO/SB/25, PTO/SB/26, PTO/AIA/25, or PTO/AIA/26) should be used. A web-based eTerminal Disclaimer may be filled out completely online using web-screens. An eTerminal Disclaimer that meets all requirements is auto-processed and approved immediately upon submission. For more information about eTerminal Disclaimers, refer to www.uspto.gov/patents/apply/applying-online/eterminal-disclaimer.

2. Claims 21-44 rejected on the ground of nonstatutory double patenting as being unpatentable over claims 1-29 of U.S. Patent No. 11,692,572. Although the claims are not identical, each feature recited in claims 21-44 of the instant application are met by the combination of claims in the granted patent.

3. Claims 21-34 and 40-44 are rejected on the ground of nonstatutory double patenting as being unpatentable over claims 1-29 of U.S. Patent No. 11,692,573. Although the claims are not identical, each feature recited in claims 21-44 of the instant application are met by the combination of claims in the granted patent.

Conclusion

2. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Li (US Patent Publication 20160222686) is directed to the state of the art as a teaching of a pool support having a joint body (13) and horizontal portions (132).

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to LAUREN ASHLEY CRANE whose telephone number is (571)270-5198. The examiner can normally be reached Mondays & Tuesdays 8 am - 4pm.

Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at http://www.uspto.gov/interviewpractice.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Angwin can be reached on 571-270-3735. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of published or unpublished applications may be obtained from Patent Center. Unpublished application information in Patent Center is available to registered users. To file and manage patent submissions in Patent Center,

visit: https://patentcenter.uspto.gov. Visit https://www.uspto.gov/patents/apply/patent-center for more information about Patent Center and https://www.uspto.gov/patents/docx for information about filing in DOCX format. For additional questions, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/LAUREN A CRANE/
Primary Examiner, Art Unit 3754

Notice of References Cited	Application/Control No. 18/197,788	Applicant(s)/Patent Under Reexamination Lin et al.	
	Examiner LAUREN A CRANE	Art Unit 3754	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
*	A	US-20160222686-A1	08-2016	Liu; Feng	E04H4/0056	1/1
	B					
	C					
	D					
	E					
	F					
	G					
	H					
	I					
	J					
	K					
	L					
	M					

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	CPC Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

BESTWAY EX. 1003; Pg 549
Bestway v. Intex PGR2024-00036

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	18/197,788	Lin et al.
	Examiner	Art Unit
	LAUREN A CRANE	3754

CPC - Searched*		
Symbol	**Date**	**Examiner**
E04H4/0056	11/28/2023	LC
F16B7/14	11/28/2023	LC

CPC Combination Sets - Searched*		
Symbol	**Date**	**Examiner**

US Classification - Searched*			
Class	**Subclass**	**Date**	**Examiner**
4	506, 246.3	11/28/2023	LC

* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.

Search Notes		
Search Notes	**Date**	**Examiner**
Keyword Search	11/28/2023	LC

Interference Search			
US Class/CPC Symbol	**US Subclass/CPC Group**	**Date**	**Examiner**

BESTWAY EX. 1003; Pg 550
Bestway v. Intex PGR2024-00036

Doc code: IDS
Doc description: Information Disclosure Statement (IDS) Filed

PTO/SB/08a (01-22)
Approved for use through 05/31/2024. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT
(Not for submission under 37 CFR 1.99)

Application Number	18197788
Filing Date	2023-05-16
First Named Inventor	Hua Hsiang Lin
Art Unit	3754
Examiner Name	CENTRAL, DOCKET
Attorney Docket Number	IRC-0042-04-US

U.S.PATENTS Remove

Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	11692572	B2	2023-07-04	LIN et al.	
	2	11692573	B2	2023-07-04	LIN et al.	

If you wish to add additional U.S. Patent citation information please click the Add button. Add

U.S.PATENT APPLICATION PUBLICATIONS Remove

Examiner Initial*	Cite No	Publication Number	Kind Code[1]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	20230228114	A1	2023-07-20	Huang et al.	

If you wish to add additional U.S. Published Application citation information please click the Add button. Add

FOREIGN PATENT DOCUMENTS Remove

Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2] i	Kind Code[4]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	T[5]
	1							

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BESTWAY EX. 1003; Pg 551
Bestway v. Intex PGR2024-00036

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	18197788
	Filing Date	2023-05-16
	First Named Inventor	Hua Hsiang Lin
	Art Unit	3754
	Examiner Name	CENTRAL, DOCKET
	Attorney Docket Number	IRC-0042-04-US

Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T[5]
	1		

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EXAMINER SIGNATURE

Examiner Signature	/LAUREN A CRANE/	Date Considered	11/28/2023

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

[1] See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. [2] Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [5] Applicant is to place a check mark here if English language translation is attached.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /L.A.C/

BESTWAY EX. 1003; Pg 552
Bestway v. Intex PGR2024-00036

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	18197788
	Filing Date	2023-05-16
	First Named Inventor	Hua Hsiang Lin
	Art Unit	3754
	Examiner Name	CENTRAL, DOCKET
	Attorney Docket Number	IRC-0042-04-US

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

See attached certification statement.

The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☒ A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Robert D. Null/	Date (YYYY-MM-DD)	2023-08-21
Name/Print	Robert D. Null	Registration Number	40,746

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /L.A.C/

BESTWAY EX. 1003; Pg 553
Bestway v. Intex PGR2024-00036

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these record s.

2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.

6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /L.A.C/

BESTWAY EX. 1003; Pg 554
Bestway v. Intex PGR2024-00036

Doc code: IDS
Doc description: Information Disclosure Statement (IDS) Filed

PTO/SB/08a (01-10)
Approved for use through 07/31/2012. OMB 0651-0031
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	18197788
Filing Date	2023-05-16
First Named Inventor	Hua Hsiang Lin
Art Unit	3754
Examiner Name	To be Assigned
Attorney Docket Number	IRC-0042-04-US

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Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
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	1	3103939	EP		2016-12-14	Bestway Inflatables & Mat Corp.		☐

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BESTWAY EX. 1003; Pg 555
Bestway v. Intex PGR2024-00036

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	18197788
	Filing Date	2023-05-16
	First Named Inventor	Hua Hsiang Lin
	Art Unit	3754
	Examiner Name	To be Assigned
	Attorney Docket Number	IRC-0042-04-US

	1		☐

If you wish to add additional non-patent literature document citation information please click the Add button Add

EXAMINER SIGNATURE

Examiner Signature	/LAUREN A CRANE/	Date Considered	11/28/2023

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

[1] See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. [2] Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [5] Applicant is to place a check mark here if English language translation is attached.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /L.A.C/

BESTWAY EX. 1003; Pg 556
Bestway v. Intex PGR2024-00036

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (**Not for submission under 37 CFR 1.99)**		
	Application Number	18197788
	Filing Date	2023-05-16
	First Named Inventor	Hua Hsiang Lin
	Art Unit	3754
	Examiner Name	To be Assigned
	Attorney Docket Number	IRC-0042-04-US

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OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

☐ See attached certification statement.

☐ The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☒ A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Robert D. Null/	Date (YYYY-MM-DD)	2023-11-01
Name/Print	Robert D. Null	Registration Number	40746

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /L.A.C/

BESTWAY EX. 1003; Pg 557
Bestway v. Intex PGR2024-00036

Privacy Act Statement

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4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.

6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT
(Not for submission under 37 CFR 1.99)

Application Number	18197788
Filing Date	2023-05-16
First Named Inventor	Hua Hsiang Lin
Art Unit	TBA
Examiner Name	TBA
Attorney Docket Number	IRC-0042-04-US

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Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
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	Filing Date	2023-05-16
	First Named Inventor	Hua Hsiang Lin
	Art Unit	TBA
	Examiner Name	TBA
	Attorney Docket Number	IRC-0042-04-US

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	First Named Inventor	Hua Hsiang Lin
	Art Unit	TBA
	Examiner Name	TBA
	Attorney Docket Number	IRC-0042-04-US

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	First Named Inventor	Hua Hsiang Lin
	Art Unit	TBA
	Examiner Name	TBA
	Attorney Docket Number	IRC-0042-04-US

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	First Named Inventor	Hua Hsiang Lin
	Art Unit	TBA
	Examiner Name	TBA
	Attorney Docket Number	IRC-0042-04-US

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	First Named Inventor	Hua Hsiang Lin
	Art Unit	TBA
	Examiner Name	TBA
	Attorney Docket Number	IRC-0042-04-US

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	First Named Inventor	Hua Hsiang Lin
	Art Unit	TBA
	Examiner Name	TBA
	Attorney Docket Number	IRC-0042-04-US

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	First Named Inventor	Hua Hsiang Lin
	Art Unit	TBA
	Examiner Name	TBA
	Attorney Docket Number	IRC-0042-04-US

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	First Named Inventor	Hua Hsiang Lin
	Art Unit	TBA
	Examiner Name	TBA
	Attorney Docket Number	IRC-0042-04-US

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	First Named Inventor	Hua Hsiang Lin
	Art Unit	TBA
	Examiner Name	TBA
	Attorney Docket Number	IRC-0042-04-US

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	Filing Date	2023-05-16
	First Named Inventor	Hua Hsiang Lin
	Art Unit	TBA
	Examiner Name	TBA
	Attorney Docket Number	IRC-0042-04-US

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	First Named Inventor	Hua Hsiang Lin
	Art Unit	TBA
	Examiner Name	TBA
	Attorney Docket Number	IRC-0042-04-US

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	Art Unit	TBA
	Examiner Name	TBA
	Attorney Docket Number	IRC-0042-04-US

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	Art Unit	TBA
	Examiner Name	TBA
	Attorney Docket Number	IRC-0042-04-US

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	Art Unit	TBA
	Examiner Name	TBA
	Attorney Docket Number	IRC-0042-04-US

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	Art Unit	TBA
	Examiner Name	TBA
	Attorney Docket Number	IRC-0042-04-US

	27	Response to Non-Final Office Action, filed with the U.S. Patent and Trademark Office, dated March 20, 2023, for U.S. Patent Application No. 17/962,979; 11 pages.	
	28	Response to Non-Final Office Action, filed with the U.S. Patent and Trademark Office, dated September 9, 2021, for U.S. Patent Application No. 16/220,484; 11 pages.	
	29	Response to Non-Final Office Action, issued by the U.S. Patent and Trademark Office, dated November 3, 2022, for U.S. Patent Application No. 17/276,885; 8 pages.	
	30	Summer https://www.amazon.com/Summer-Waves-Premium-Swimming-Accessory/dp/B07BXC85HG/ (Year: 2018)	

If you wish to add additional non-patent literature document citation information please click the Add button Add

EXAMINER SIGNATURE

Examiner Signature	/LAUREN A CRANE/	Date Considered	11/28/2023

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

[1] See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. [2] Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [5] Applicant is to place a check mark here if English language translation is attached.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /L.A.C/

BESTWAY EX. 1003; Pg 574
Bestway v. Intex PGR2024-00036

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	18197788
	Filing Date	2023-05-16
	First Named Inventor	Hua Hsiang Lin
	Art Unit	TBA
	Examiner Name	TBA
	Attorney Docket Number	IRC-0042-04-US

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

See attached certification statement.

The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☒ A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Robert D. Null/	Date (YYYY-MM-DD)	2023-07-24
Name/Print	Robert D. Null	Registration Number	40,746

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /L.A.C/

BESTWAY EX. 1003; Pg 575
Bestway v. Intex PGR2024-00036

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these record s.

2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.

6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

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BESTWAY EX. 1003; Pg 576
Bestway v. Intex PGR2024-00036

Receipt date: 08/31/2023

Doc code: IDS
Doc description: Information Disclosure Statement (IDS) Filed

PTO/SB/08a (01-10)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	18197788
Filing Date	2023-05-16
First Named Inventor	Hua Hsiang Lin
Art Unit	3754
Examiner Name	To be Assigned
Attorney Docket Number	IRC-0042-04-US

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Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
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FOREIGN PATENT DOCUMENTS Remove

Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2] i	Kind Code[4]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	T[5]
	1	2014/100855	WO		2014-07-03	Hunter Products PTY Ltd		

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NON-PATENT LITERATURE DOCUMENTS Remove

Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T[5]

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EFS Web 2.1.17

BESTWAY EX. 1003; Pg 577
Bestway v. Intex PGR2024-00036

Receipt date: 08/31/2023

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	18197788
	Filing Date	2023-05-16
	First Named Inventor	Hua Hsiang Lin
	Art Unit	3754
	Examiner Name	To be Assigned
	Attorney Docket Number	IRC-0042-04-US

	1	Small Rectangular Metal Frame Pool 177-1/4" x 86-5/8" x 33" (450 cm x 220 cm x 84 cm) Owner's Manual, Intex Marketing Ltd., copyright 2012; 14 pages.	

If you wish to add additional non-patent literature document citation information please click the Add button Add

EXAMINER SIGNATURE

Examiner Signature	/LAUREN A CRANE/	Date Considered	11/28/2023

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

[1] See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. [2] Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [5] Applicant is to place a check mark here if English language translation is attached.

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BESTWAY EX. 1003; Pg 578
Bestway v. Intex PGR2024-00036

Receipt date: 08/31/2023

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	18197788
	Filing Date	2023-05-16
	First Named Inventor	Hua Hsiang Lin
	Art Unit	3754
	Examiner Name	To be Assigned
	Attorney Docket Number	IRC-0042-04-US

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

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See attached certification statement.

The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☒ A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Parker Brooks Hudson/	Date (YYYY-MM-DD)	2023-08-31
Name/Print	Parker Brooks Hudson	Registration Number	80698

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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BESTWAY EX. 1003; Pg 579
Bestway v. Intex PGR2024-00036

Receipt date: 08/31/2023

Privacy Act Statement

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5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.

6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

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9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /L.A.C/

BESTWAY EX. 1003; Pg 580
Bestway v. Intex PGR2024-00036

PE2E SEARCH - Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	British Equivalents	Time Stamp
L1	515	(4/246.1).CCLS.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO)	OR	OFF	OFF	2020/01/22 03:52 PM
L2	136	(4/246.3).CCLS.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO)	OR	OFF	OFF	2020/01/22 03:53 PM
L3	1	("6995344").PN.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO)	OR	OFF	OFF	2020/01/23 10:39 AM
L4	0	("gb-1037127-$.did.").PN.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO)	OR	OFF	OFF	2020/01/23 10:48 AM
L5	2	("6477721").PN.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO)	OR	OFF	OFF	2020/01/23 10:49 AM
L6	38	"1037127"	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO)	OR	ON	ON	2020/01/23 10:50 AM
L7	5	(("6513195") or ("5761849")).PN.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO)	OR	OFF	OFF	2020/01/23 03:40 PM
L8	110	Klicpera.IN.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO)	OR	ON	ON	2020/01/23 04:22 PM
L9	8	("2011/0186154").URPN.	(USPAT)	OR	ON	ON	2020/01/23 04:26 PM
L10	3	(("20160378322") or ("9061307") or ("20110186154")).PN.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO)	OR	OFF	OFF	2020/01/23 04:29 PM
L11	10	("20060064815" | "20060137090" | "20080001104" | "20080060707" | "20080148476" | "20080294019" | "6556142" | "6997064" | "7124452").PN. OR ("9061307").URPN.	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2020/01/23 04:33 PM
L12	30	("20020042948"|"20040118844"|"20090205121"|"20100083437"|"20140325751"|"20160201348"|"20160222686"|"3225362"|"3654640"|"4323319"|"5054135"|"5143476"|"6079894"|"6272696"|"6604250"|"6803007"|"D174950"|"D361847"|"D417918"|"D420145"|	(US-PGPUB; USPAT)	OR	ON	ON	2020/04/13 08:50 AM

BESTWAY EX. 1003; Pg 581
Bestway v. Intex PGR2024-00036

		D420146"|"D472648"|"D495434"|"D504523"|"D567394"|"D626405"|"D654353"|"D707366"|"D759889"|"D760425").PN.					
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L15	1	("20190178275").PN.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO)	OR	ON	ON	2020/04/13 02:42 PM
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L17	2	("20020042948").PN.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO)	OR	OFF	OFF	2020/11/02 01:32 PM
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L21	1	("20160215513").PN.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO)	OR	OFF	OFF	2020/11/02 04:35 PM
L22	1	("20170356206").PN.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO)	OR	OFF	OFF	2020/11/02 04:44 PM
L23	16	("2752218" | "2932047" | "3090329" | "3603628" | "3712652" | "4711595").PN. OR ("5143476").URPN.	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2020/11/02 04:59 PM
L24	50	("1664887" | "2378159" | "3191190" | "3225362"	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2020/11/02 05:01 PM

BESTWAY EX. 1003; Pg 582
Bestway v. Intex PGR2024-00036

		| "3443263" | "3660853" | "4356933" | "4597113" | "4890343" | "4989751" | "5083327").PN. OR ("5592702").URPN.					
L25	1247	(F16B7/14).cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO)	OR	ON	ON	2020/11/03 07:32 AM
L26	723870	pool	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO)	OR	ON	ON	2020/11/03 07:32 AM
L27	13	L25 and L26	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO)	OR	ON	ON	2020/11/03 07:32 AM
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L30	39	("1664887" | "2378159" | "3225362" | "3443263" | "4356933" | "4890343" | "4989751").PN. OR ("5083327").URPN.	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2020/11/03 07:55 AM
L31	1	("2002042948").PN.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO)	OR	OFF	OFF	2020/11/03 01:18 PM
L32	2	("20020042948").PN.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO)	OR	OFF	OFF	2020/11/03 01:18 PM
L33	2	("20020042948").PN.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO)	OR	OFF	OFF	2021/04/05 02:24 PM
L34	3	(("20020042948") or ("20140325751")).PN.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO)	OR	ON	ON	2021/04/05 02:40 PM
L35	8	(("20020042948") or ("20140325751") or ("6079894") or ("20040118844")).PN.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO)	OR	OFF	OFF	2021/04/05 02:41 PM
L36	10	(("20020042948") or ("20140325751") or ("6079894") or ("20040118844") or ("5,143,476")).PN.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO)	OR	OFF	OFF	2021/04/05 02:43 PM
L37	136	(4/246.3).CCLS.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO)	OR	OFF	OFF	2021/04/06 09:55 AM
L38	706	(4/506).CCLS.	(US-PGPUB; USPAT; USOCR; FPRS; EPO;	OR	OFF	OFF	2021/10/05 02:36 PM

BESTWAY EX. 1003; Pg 583
Bestway v. Intex PGR2024-00036

			JPO)				
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L40	48	L38 and L39	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO)	OR	ON	ON	2021/10/05 02:36 PM
L41	30366	triangular near4 frame	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO)	OR	ON	ON	2021/10/05 02:42 PM
L42	57	triangular near4 frame and swimming and pool	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO)	OR	ON	ON	2021/10/05 02:42 PM
L43	56982	triangular near4 cross-section	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO)	OR	ON	ON	2021/10/05 02:44 PM
L44	63529	swimming and pool	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO)	OR	ON	ON	2021/10/05 02:44 PM
L45	13354	triangular near4 cross-section and frame	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO)	OR	ON	ON	2021/10/05 02:44 PM
L46	107	L45 and L44	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO)	OR	ON	ON	2021/10/05 02:44 PM
L47	373	(E04H4/0056).cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO)	OR	ON	ON	2021/10/05 02:48 PM
L48	0	L47 and L43	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO)	OR	ON	ON	2021/10/05 02:48 PM
L50	44	("20070068584"|"20080314466"|"20150115186"|"20190032796"|"3877491"|"D304486"|"D343889"|"D348723"|"D454940"|"D580530"|"D755940"|"D770599"|"D815300"|"D900286"|"20020042948"|"20040118844"|"20090205121"|"20100083437"|"20140325751"|"20160201348"|"20160222686"|"3225362"|"3654640"|"4323319"|"5054135"|"5143476"|"6079894"|"6272696"|"6604250"|"6803007"|"D174950"|"D361847"|"D417918"|"D420145"|"D420146"|"D472648"|"D495434"|"D504523"|"D567394"|"D626405"|"D654353"|"D707366"|"D759889"|	(US-PGPUB; USPAT)	OR	ON	ON	2021/10/05 03:32 PM

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		D760425").PN.					
L51	46	("20020042948" | "20040118844" | "20090205121" | "20100083437" | "20140325751" | "20160201348" | "20160222686" | "3225362" | "3654640" | "4323319" | "5054135" | "5143476" | "6079894" | "6272696" | "6604250" | "6803007" | "D174950" | "D361847" | "D417918" | "D420145" | "D420146" | "D472648" | "D495434" | "D504523" | "D567394" | "D626405" | "D654353" | "D707366" | "D759889" | "D760425").PN. OR ("D815300").URPN.	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2021/10/05 03:34 PM
L52	21	(("9694370") or ("1033822")).PN.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO)	OR	OFF	OFF	2021/10/12 04:48 PM
L53	4	(("9694370") or ("10335822")).PN.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO)	OR	OFF	OFF	2021/10/12 04:55 PM
L54	4	(("9694370") or ("10335822")).PN.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO)	OR	OFF	OFF	2021/10/18 02:57 PM
L55	72	("3579670"|"3967326"|"4090267"|"5432957"|"5695222"|"5862533"|"6745408"|"7240378"|"7694474"|"8875320"|"0961685"|"10151095"|"1555134"|"20010023505"|"20020023294"|"20030204902"|"20040012197"|"20060213003"|"20090119826"|"20100037376"|"20140310861"|"2976543"|"3012252"|"3501172"|"3730228"|"3821820"|"3860978"|"3873137"|"3896510"|"3967324"|"3967836"|"3970334"|"4151864"|"4318519"|"4482161"|"4508370"|"4515398"|"4780915"|"4799713"|"5018224"|"5063616"|"5143122"|"5185890"|"5291619"|"5297817"|"5819326"|"5937450"|"5	(US-PGPUB; USPAT)	OR	ON	ON	2021/10/18 03:30 PM

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		996134"|"6052839"|"61 52186"|"6327717"|"633 2632"|"6435563"|"6443 495"|"6519784"|"65812 14"|"6719294"|"678927 5"|"7069603"|"7188376" |"7814580"|"8365318"|" 8789215"|"9187887"|"0 944627"|"0988555"|"20 100088811"|"20110131 715"|"20110185488"|"2 0130227772"|"2015013 5421"|"2447712").PN.					
L56	46	("20020042948" | "20040118844" | "20090205121" | "20100083437" | "20140325751" | "20160201348" | "20160222686" | "3225362" | "3654640" | "4323319" | "5054135" | "5143476" | "6079894" | "6272696" | "6604250" | "6803007" | "D174950" | "D361847" | "D417918" | "D420145" | "D420146" | "D472648" | "D495434" | "D504523" | "D567394" | "D626405" | "D654353" | "D707366" | "D759889" | "D760425").PN. OR ("D815300").URPN.	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2021/11/02 10:38 AM
L57	5	("2016/0222686").URPN.	(USPAT)	OR	ON	ON	2021/11/02 10:48 AM
L58	46	("20020042948" | "20040118844" | "20090205121" | "20100083437" | "20140325751" | "20160201348" | "20160222686" | "3225362" | "3654640" | "4323319" | "5054135" | "5143476" | "6079894" | "6272696" | "6604250" | "6803007" | "D174950" | "D361847" | "D417918" | "D420145" | "D420146" | "D472648" | "D495434" | "D504523" | "D567394" | "D626405" | "D654353" | "D707366" | "D759889" |	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2021/11/02 10:48 AM

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		"D760425").PN. OR ("D815300").URPN.					
L59	28	(US-20080104745-$ or US-20040103472-$ or US-20070266490-$ or US-20050241057-$ or US-20150300017-$ or US-20090272056-$ or US-20130086860-$ or US-20070266655-$).did. or (US-8266845-$ or US-6058521-$ or US-5896715-$ or US-5652972-$ or US-5155872-$ or US-4443982-$ or US-3959830-$ or US-3445866-$ or US-6178702-$ or US-4638606-$ or US-D421133-$ or US-3296760-$ or US-3866381-$ or US-8381468-$ or US-7628570-$ or US-6244002-$).did. or (US-3184013-$).did.	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2021/11/02 10:49 AM
L60	26052	triangular near3 support	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO)	OR	ON	ON	2021/11/02 10:52 AM
L61	106	triangular near3 support and swimming	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO)	OR	ON	ON	2021/11/02 10:58 AM
L62	57267	cross-section near4 triangular	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO)	OR	ON	ON	2021/11/02 11:01 AM
L63	27	(cross-section near4 triangular) near pole	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO)	OR	ON	ON	2021/11/02 11:01 AM
L64	3	(("20020042948") or ("20140325751")).PN.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO)	OR	OFF	OFF	2021/11/02 12:18 PM
L65	16	"2017045899"	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO)	OR	ON	ON	2021/11/02 01:15 PM
L66	2	"201745899"	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO)	OR	ON	ON	2021/11/02 01:16 PM
L67	16	"2017045899"	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO)	OR	ON	ON	2021/11/02 01:16 PM
L68	12	"2017048599"	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO)	OR	ON	ON	2021/11/02 01:16 PM

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L69	1	("20170356206").PN.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO)	OR	OFF	OFF	2021/11/02 04:06 PM
L70	2	("20020042948").PN.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO)	OR	OFF	OFF	2021/11/02 04:08 PM
L71	9983	reinforcing ADJ rib AND pool	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/07/25 03:38 PM
L72	15	71 AND 38	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO)	OR	OFF	OFF	2022/07/25 03:39 PM
L73	34	(Artificial Intelligence) More like doc: US-5927363-A Text: (US-4453558-A OR US-6267130-B1 OR US-4945624-A OR US-1618184-A OR US-1844410-A OR US-977565-A OR US-4558713-A OR KR-200430426-Y1 OR US-6857246-B2 OR US-20030005953-A1 OR US-7389785-B2 OR US-20060231128-A1 OR CN-110115425-A OR US-20080078433-A1 OR US-7571737-B2 OR BR-PI0519397-A2 OR CA-2441567-C OR WO-02075080-A2 OR WO-02075080-A3 OR CA-2441567-A1).did.	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2022/07/25 03:49 PM
L74	0	"20170356206"6	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS,	OR	OFF	OFF	2022/07/25 04:32 PM

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			IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)				
L75	3	"20170356206"	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2022/07/25 04:32 PM
L76	26	("2581883" | "3373451" | "3557392" | "3800336" | "4675923" | "4713850").pn. OR ("4890343").urpn. AND (PGPB | USPT | USOC).dbnm.	(US-PGPUB; USPAT; USOCR)	OR	OFF	OFF	2022/07/25 04:41 PM
L77	31	("2457190" | "3080568" | "3681788" | "4413363" | "4675923" | "4833010" | "4890343" | "4928581" | "5077842" | "5085212" | "5169697").pn. OR ("5375275").urpn. AND (PGPB | USPT | USOC).dbnm.	(US-PGPUB; USPAT; USOCR)	OR	OFF	OFF	2022/07/25 04:42 PM
L78	35	("2519430" | "2546588" | "3169543" | "3513862" | "3629875" | "3766844" | "4084597" | "4304224" | "4570384" | "4639035" | "4675923" | "4706551" | "4800597").pn. OR ("4928581").urpn. AND (PGPB | USPT | USOC).dbnm.	(US-PGPUB; USPAT; USOCR)	OR	OFF	OFF	2022/07/25 04:43 PM
L79	0	("2020/0332544").urpn. AND (PGPB | USPT | USOC).dbnm.	(US-PGPUB; USPAT; USOCR)	OR	OFF	OFF	2022/07/25 07:45 PM
L80	1	(16/587045).APP.	(USPAT; USOCR)	OR	OFF	OFF	2022/07/25 07:45 PM

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L81	10	("4356933" | "4890343" | "5083327" | "D355589" | "6477721" | "6604250" | "10161149" | "10246891" | "20090205121" | "20110056519").pn. OR ("11225805").urpn. AND (PGPB | USPT | USOC).dbnm.	(US-PGPUB; USPAT; USOCR)	OR	OFF	OFF	2022/07/25 07:45 PM
L82	148	E04H4/0056	(US-PGPUB; USPAT; USOCR)	OR	OFF	OFF	2022/07/25 07:48 PM
L83	30	(Artificial Intelligence) More like doc: US-20170089085-A1 Text: (US-20170009475-A1 OR US-20160222686-A1 OR US-10683674-B2 OR US-20160215513-A1 OR US-20200291669-A1 OR US-20160201348-A1 OR US-10161149-B2 OR CN-204531509-U OR US-20190093376-A1 OR KR-970004249-B1 OR US-6604250-B1 OR FR-2942256-A1 OR US-6742198-B2 OR US-20030182722-A1 OR US-5083327-A OR US-D307939-S OR US-6643858-B2 OR US-6477721-B2 OR US-20020042948-A1 OR US-20020042949-A1).did.	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/12/13 01:19 PM
L84	2	"20160222686"	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/12/14 08:48 PM
L85	5	"16220484"	(US-PGPUB; USPAT;	OR	ON	ON	2022/12/14

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			USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)				09:22 PM
L86	0	(16/220484).APP.	(USPAT; USOCR)	OR	ON	ON	2022/12/14 09:22 PM
L87	32	("8,434,966," "9,103,133," "10,145,135," "10,280,640," "10,612,256").pn.	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/12/15 08:13 PM
L88	5	("8,434,966," "9,103,133," "10,145,135," "10,280,640," "10,612,256").pn.	(US-PGPUB; USPAT)	OR	ON	ON	2022/12/15 08:13 PM
L89	7	"16795492"	(US-PGPUB; USPAT)	OR	ON	ON	2022/12/15 08:35 PM
L90	1	(17/592330).APP.	(USPAT; USOCR)	OR	ON	ON	2022/12/15 08:36 PM
L91	1985	4/506	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO;	OR	ON	ON	2023/03/28 01:08 PM

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			JPO; DERWENT; IBM_TDB)				
L92	1538	4/506	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2023/03/28 01:08 PM
L93	0	E04H4/0056.ccls.	(US-PGPUB; USPAT; USOCR)	OR	OFF	OFF	2023/03/28 01:10 PM
L94	13	("6047657," "6928670").pn.	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2023/04/24 10:58 AM
L95	2	("6047657," "6928670").pn.	(US-PGPUB; USPAT)	OR	ON	ON	2023/04/24 10:58 AM

PE2E SEARCH - Search History (Interference)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	British Equivalents	Time Stamp
N49	0	(emergency wash basin fluid dispenser fluid inlet riser aperture push plate substantially vertical height).clms.	(US-PGPUB; USPAT)	AND	ON	ON	2021/10/05 03:12 PM
N50	6987810	(frame joint horizontal frame member pins 50% recess vertical joint portion).clms.	(US-PGPUB; USPAT)	OR	ON	ON	2023/01/10 11:31 AM
N51	1	(frame joint horizontal frame member pins 50% recess vertical joint portion).clms.	(US-PGPUB; USPAT)	AND	ON	ON	2023/01/10 11:31 AM
N52	1	(emergency wash arm spout move away base response movement).clms.	(US-PGPUB; USPAT)	AND	ON	ON	2023/05/02 04:03 PM
N53	179	(joint frame horizontal frame member first base second base first pin second pin).clms.	(US-PGPUB; USPAT)	AND	ON	ON	2023/05/02 04:14 PM
N54	6	(joint frame horizontal frame member first base second base first pin second pin joint	(US-PGPUB; USPAT)	AND	ON	ON	2023/05/02 04:14 PM

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		body selectively received within).clms.					
N55	6	(frame assembly joint frame horizontal frame member first base second base first pin second pin joint body selectively received within).clms.	(US-PGPUB; USPAT)	AND	ON	ON	2023/05/02 04:15 PM
N56	4	(frame assembly joint frame first horizontal portion second horizontal portion frame member first base second base first pin second pin joint body selectively received within).clms.	(US-PGPUB; USPAT)	AND	ON	ON	2023/05/02 04:16 PM
N57	2	(frame assembly joint frame first horizontal portion second horizontal portion frame member first base second base first pin second pin joint body selectively received within couple).clms.	(US-PGPUB; USPAT)	AND	ON	ON	2023/05/02 04:16 PM
N58	1	(frame assembly joint frame first horizontal portion second horizontal portion frame member first base second base first pin second pin joint body selectively received within couple through hole).clms.	(US-PGPUB; USPAT)	AND	ON	ON	2023/05/02 04:17 PM

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PTO/SB/06 (09-11)
Approved for use through 1/31/2014. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 18/197,788	Filing Date 05/16/2023	☐ To be Mailed

ENTITY: ☑ LARGE ☐ SMALL ☐ MICRO

APPLICATION AS FILED - PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA		RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A		N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A		N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A		N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*		x $100 =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*		x $480 =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).				
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))					
* If the difference in column 1 is less than zero, enter "0" in column 2.				TOTAL	

APPLICATION AS AMENDED - PART II

AMENDMENT	12/05/2023	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 24	Minus	** 24	= 0		x $100 =	0
	Independent (37 CFR 1.16(h))	* 3	Minus	*** 3	= 0		x $480 =	0
	☐ Application Size Fee (37 CFR 1.16(s))							
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							
							TOTAL ADD'L FEE	0

AMENDMENT		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	*	Minus	**	=		x $0 =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=		x $0 =	
	☐ Application Size Fee (37 CFR 1.16(s))							
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							
							TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.	LIE
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".	/JAMES ELLIOTT/
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PTO/AIA/26 (04-14)
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TERMINAL DISCLAIMER TO OBVIATE A DOUBLE PATENTING REJECTION OVER A "PRIOR" PATENT	Docket Number (Optional) IRC-0042-04-US

In re Application of: Hua Hsiang Lin

Application No.: 18197788

Filed: May 16, 2023

For: JOINT FOR ABOVE GROUND POOL FRAME

The applicant, Intex Marketing Ltd., owner of 100 percent interest in the instant application hereby disclaims, except as provided below, the terminal part of the statutory term of any patent granted on the instant application which would extend beyond the expiration date of the full statutory term of **prior patent** No. 11692572 as the term of said **prior patent** is presently shortened by any terminal disclaimer. The applicant hereby agrees that any patent so granted on the instant application shall be enforceable only for and during such period that it and the **prior patent** are commonly owned. This agreement runs with any patent granted on the instant application and is binding upon the grantee, its successors or assigns.

In making the above disclaimer, the applicant does not disclaim the terminal part of the term of any patent granted on the instant application that would extend to the expiration date of the full statutory term of the **prior patent**, "as the term of said **prior patent** is presently shortened by any terminal disclaimer," in the event that said **prior patent** later:

expires for failure to pay a maintenance fee;
is held unenforceable;
is found invalid by a court of competent jurisdiction;
is statutorily disclaimed in whole or terminally disclaimed under 37 CFR 1.321;
has all claims canceled by a reexamination certificate;
is reissued; or
is in any manner terminated prior to the expiration of its full statutory term as presently shortened by any terminal disclaimer.

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1. ☐ The undersigned is the applicant. If the applicant is an assignee, the undersigned is authorized to act on behalf of the assignee.

I hereby acknowledge that any willful false statements made are punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.

2. ☑ The undersigned is an attorney or agent of record. Reg. No. 40746

/Robert D. Null/ — Signature
2023-12-05 — Date

Robert D. Null — Typed or printed name

Attorney of Record — Title
317-237-0300 — Telephone Number

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ELECTRONIC PAYMENT RECEIPT

APPLICATION #	RECEIPT DATE / TIME	ATTORNEY DOCKET #
18/197,788	12/05/2023 10:55:34 AM Z ET	IRC-0042-04-US

Title of Invention

JOINT FOR ABOVE GROUND POOL FRAME

Application Information

APPLICATION TYPE	Utility - Nonprovisional Application under 35 USC 111(a)	PATENT #	-
CONFIRMATION #	1052	FILED BY	Melissa Russell
PATENT CENTER #	63487344	AUTHORIZED BY	Robert Null
CUSTOMER #	27268	FILING DATE	05/16/2023
CORRESPONDENCE ADDRESS	-	FIRST NAMED INVENTOR	Hua Hsiang Lin

Payment Information

PAYMENT METHOD	PAYMENT TRANSACTION ID	PAYMENT AUTHORIZED BY
CARD / 9914	E2023B5A55598416	Melissa Russell

FEE CODE	DESCRIPTION	ITEM PRICE($)	QUANTITY	ITEM TOTAL($)
1814	STATUTORY DISCLAIMER, INCLUDING TERMINAL DISCLAIMER	170.00	2	340.00
			TOTAL AMOUNT:	$340.00

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National Stage of an International Application under 35 U.S.C. 371

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CUSTOMER #	27268	FIRST NAMED INVENTOR	Hua Hsiang Lin
CORRESPONDENCE ADDRESS	-	AUTHORIZED BY	Robert Null

Documents

TOTAL DOCUMENTS: 5

DOCUMENT		PAGES	DESCRIPTION	SIZE (KB)
IRC_0042_04_US_Terminal_Disclaimer_2.pdf		2	Terminal Disclaimer Filed	220 KB
IRC_0042_04_US_Response.pdf		6	-	145 KB
IRC_0042_04_US_Response-A....pdf	(1-1)	1	Amendment/Request for Reconsideration-After Non-Final Rejection	125 KB
IRC_0042_04_US_Response-CLM.pdf	(2-5)	4	Claims	102 KB
IRC_0042_04_US_Respons	(6-6)	1	Applicant Arguments/Remarks	97 KB

e-REM.pdf		Made in an Amendment	
IRC_0042_04_US_Terminal_Disclaimer_1.pdf	2	Terminal Disclaimer Filed	230 KB

Digest

DOCUMENT	MESSAGE DIGEST(SHA-512)
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IRC_0042_04_US_Response.pdf	76D523975C1317635FED6C188A30EE648EEB34D94BA360F3740700E45468C4429BD028A08B2BA21C804BAD1CF9BCA6ADFDA5AD2B53D9A3B6CB89BBA45EFBD968
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IRC_0042_04_US_Response-REM.pdf	BCCA3F4FDB708F25C631E11A52B034CF587ABA171208FF31A47EF29FD3C998CB95D9E7ECC3398C356C38690343C4C9B3972F7D1A2EC300B5B4C6BBBD6A148CF2
IRC_0042_04_US_Terminal_Disclaimer_1.pdf	0F678821E685CB8676983870O8EC523A5BD7ABD3FEF8EEA6D5904A8792B6F522B28DDF3DFA861922F9F8C6D6A14C142D626BB910D5FC4AA83853C55E67E5976E

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BESTWAY EX. 1003; Pg 600
Bestway v. Intex PGR2024-00036

and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

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TERMINAL DISCLAIMER TO OBVIATE A DOUBLE PATENTING REJECTION OVER A "PRIOR" PATENT	Docket Number (Optional) IRC-0042-04-US

In re Application of: Hua Hsiang Lin

Application No.: 18197788

Filed: May 16, 2023

For: JOINT FOR ABOVE GROUND POOL FRAME

The applicant, Intex Marketing Ltd., owner of 100 percent interest in the instant application hereby disclaims, except as provided below, the terminal part of the statutory term of any patent granted on the instant application which would extend beyond the expiration date of the full statutory term of **prior patent** No. 11692573 as the term of said **prior patent** is presently shortened by any terminal disclaimer. The applicant hereby agrees that any patent so granted on the instant application shall be enforceable only for and during such period that it and the **prior patent** are commonly owned. This agreement runs with any patent granted on the instant application and is binding upon the grantee, its successors or assigns.

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is held unenforceable;
is found invalid by a court of competent jurisdiction;
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Check either box 1 or 2 below, if appropriate.

1. ☐ The undersigned is the applicant. If the applicant is an assignee, the undersigned is authorized to act on behalf of the assignee.

I hereby acknowledge that any willful false statements made are punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.

2. ☑ The undersigned is an attorney or agent of record. Reg. No. 40746

/Robert D. Null/ — Signature
2023-12-05 — Date

Robert D. Null — Typed or printed name

Attorney of Record — Title
317-237-0300 — Telephone Number

☑ Terminal disclaimer fee under 37 CFR 1.20(d) included.

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s):	Hua Hsiang Lin, et al.
Filing Date:	May 16, 2023
Serial No.:	18/197,788
Title:	JOINT FOR ABOVE GROUND POOL FRAME
Group/Art Unit:	3754
Examiner:	Lauren Ashley Crane
Docket No.:	IRC-0042-04-US
Customer No.:	27268
Conf. No.:	1052

RESPONSE

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313

Dear Examiner:

Responsive to the Non-Final Office Action mailed on December 1, 2023 ("Office Action"), please consider the following:

Amendments to the Claims beginning on page 2; and

Remarks beginning on page 6.

BESTWAY EX. 1003; Pg 604
Bestway v. Intex PGR2024-00036

AMENDMENTS TO THE CLAIMS

This listing of the claims will replace the original claims of the present specification.

Listing of the Claims:

1-20. (Cancelled)

21. (Previously Presented) An above ground pool, comprising

a first frame member including a first opening;

a second frame member including a second opening;

a vertical frame member;

a frame joint comprising:

a first joint portion including a first pin configured to engage the first opening thereby coupling the first joint portion to the first frame member;

a second joint portion including a second pin configured to engage the second opening thereby coupling the second joint portion to the second frame member; and

a vertical joint portion connected to the first and second joint portions and configured to couple to the vertical frame member; and

a liner positioned around the first and second frame members;

wherein a width of the vertical joint portion accounts for at least 50% of a width between the first and second pins.

22. (Previously Presented) The above ground pool of claim 21, wherein the width of the vertical joint portion accounts for at least 40% of a total width of the frame joint.

23. (Previously Presented) The above ground pool of claim 22, wherein the width of the vertical joint portion accounts for about 50% of the total width of the frame joint.

24. (Previously Presented) The above ground pool of claim 21, wherein the first joint portion includes a first coupling assembly including the first pin, a first base, and a first helical spring supported by the first base, the first pin being biased outward through a first hole in the first joint portion by the first helical spring to engage the first opening of the first frame member.

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25. (Previously Presented) The above ground pool of claim 24, wherein the second joint portion includes a second coupling assembly including the second pin, a second base, and a second helical spring supported by the second base, the second pin being biased outward through a second hole in the second joint portion by the second helical spring to engage the second opening of the second frame member.

26. (Previously Presented) The above ground pool of claim 25, wherein the width of the vertical joint portion accounts for about 70% of a width between the first and second pins.

27. (Previously Presented) The above ground pool of claim 25, wherein a width of the frame joint exceeds a width of a hole defined by the liner to expose the first and second coupling assemblies.

28. (Previously Presented) The above ground pool of claim 27, wherein a height of the frame joint exceeds a height of the hole in the liner.

29. (Previously Presented) The above ground pool of claim 21, wherein the vertical joint portion is centered between the first and second joint portions to form a T-shaped frame joint.

30. (Previously Presented) The above ground pool of claim 21, wherein the first and second joint portions form an obtuse angle.

31. (Previously Presented) The above ground pool of claim 21, wherein the vertical joint portion is integrally formed with the first and second joint portions as a single piece.

32. (Previously Presented) The above ground pool of claim 21, wherein the vertical joint portion includes at least one internal vertical reinforcing rib.

33. (Previously Presented) The above ground pool of claim 21, wherein at least one of the first joint portion and the second joint portion includes an internal reinforcing rib.

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Bestway v. Intex PGR2024-00036

34. **(Currently Amended)** The above ground pool of claim 21, wherein at ~~**last**~~ **least** one of the first joint portion and the second joint portion includes an internal support member.

35. (Previously Presented) A method of assembling an above ground pool, the method comprising:

coupling a first joint portion of a frame joint to a first frame member with a first pin configured to engage a first opening of the first frame member;

coupling a second joint portion of the frame joint to a second frame member with a second pin configured to engage a second opening of the second frame member;

coupling a vertical joint portion of the frame joint to a vertical frame member; and

positioning a liner around the first and second frame members;

wherein a width of the vertical joint portion accounts for a majority of a width between the first and second pins.

36. (Previously Presented) The method of claim 35, wherein:

an external cross-section of the first joint portion matches an internal cross-section of the first frame member;

an external cross-section of the second joint portion matches an internal cross-section of the second frame member; and

an external cross-section of the vertical joint portion matches an internal cross-section of the vertical frame member.

37. (Previously Presented) The method of claim 35, wherein the first joint portion, the second joint portion, and the vertical joint portion are constructed of plastic.

38. (Previously Presented) The method of claim 35, wherein:

coupling the first joint portion to the first frame member comprises depressing the first pin into the first joint portion and releasing the first pin into engagement with the first frame member; and

coupling the second joint portion to the second frame member comprises depressing the second pin into the second joint portion and releasing the second pin into engagement with the second frame member.

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39. (Previously Presented) The method of claim 35, wherein the vertical joint portion of the frame joint is coupled to the vertical frame member with a coupling assembly and wherein a height of the hole in the liner is less than a distance between the first pin and the coupling assembly.

40. (Previously Presented) A frame joint for an above ground pool frame having a first frame member, a second frame member, and a vertical frame member, the frame joint comprising:

a first joint portion including a first coupling assembly to couple with the first frame member;

a second joint portion including a second coupling assembly to couple with the second frame member; and

a vertical joint portion connected to the first and second joint portions and configured to couple with the vertical frame member;

wherein a width of the vertical joint portion accounts for at least 50% of a width between the first and second coupling assemblies; and

wherein the first joint portion comprises a first external cross-section which is generally triangular.

41. (Previously Presented) The frame joint of claim 40, wherein the first external cross-section comprises rounded edges.

42. (Previously Presented) The frame joint of claim 40, wherein the first and second coupling assemblies are actuatable from an exterior of the frame joint along a vertical direction.

43. **(Currently Amended)** The frame joint of claim 40, wherein the first and second joint portions cooperate to form an obtuse angle that **supports a liner that** defines a water cavity.

44. (Previously Presented) The frame joint of claim 40, wherein the vertical joint portion is integrally formed with the first and second joint portions as a single piece.

BESTWAY EX. 1003; Pg 608
Bestway v. Intex PGR2024-00036

REMARKS

Claims 21-44 are the subject of the Office Action, with claims 1, 35 and 40 being presented in independent form. With this Response, Applicant has amended claim 34 to correct a typographical error and claim 43 to further recite that a liner defines the water cavity. No new matter has been added.

Double Patenting Rejections

Claims 21-44 stand rejected on the ground of non-statutory double patenting as being unpatentable over claims 1-29 of U.S. Patent No. 11,692,572. Additionally, claims 21-34 and 40-44 stand rejected on the ground of non-statutory double patenting as being unpatentable over claims 11,692,573. Applicant submits herewith a terminal disclaimer to overcome the rejections.

Final Remarks

In the event Applicant has overlooked the need for an extension of time or payment of an additional fee, Applicant hereby petitions therefore and authorizes that any charges be made to Deposit Account No. 02-0390, Faegre Drinker Biddle & Reath LLP.

Respectfully submitted,

/Robert D. Null/
Robert D. Null, Reg. No. 40,746
Attorney for Applicant

FAEGRE DRINKER BIDDLE & REATH LLP
300 North Meridian Street
Suite 2500
Indianapolis, Indiana 46204
Telephone: 317-237-0300

Submitted: December 5, 2023

BESTWAY EX. 1003; Pg 609
Bestway v. Intex PGR2024-00036

Application Number	Application/Control No.	Applicant(s)/Patent under Reexamination	
* 18/197,788 *	18/197,788	Lin et al.	
	Examiner	**Art Unit**	
	CRANE, LAUREN ASHLEY	3754	

Document Code - DISQ	**Internal Document - DO NOT MAIL**

TERMINAL DISCLAIMER	☑ APPROVED	☐ DISAPPROVED
Date Filed: **05 December 2023**	**This patent is subject to a Terminal Disclaimer**	

Approved/Disapproved by:

2/Tds both approved.
/LAWANA R HIXON/

Technology Center: OPLC

Telephone: (571)272-6074

_____

BESTWAY EX. 1003; Pg 610
Bestway v. Intex PGR2024-00036

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

NOTICE OF ALLOWANCE AND FEE(S) DUE

27268 7590 12/18/2023

FAEGRE DRINKER BIDDLE & REATH LLP
300 NORTH MERIDIAN STREET
SUITE 2500
INDIANAPOLIS, IN 46204

EXAMINER	
CRANE, LAUREN ASHLEY	
ART UNIT	**PAPER NUMBER**
3754	

DATE MAILED: 12/18/2023

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
18/197,788	05/16/2023	Hua Hsiang Lin	IRC-0042-04-US	1052

TITLE OF INVENTION: JOINT FOR ABOVE GROUND POOL FRAME

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	$1200	$0.00	$0.00	$1200	03/18/2024

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the ENTITY STATUS shown above. If the ENTITY STATUS is shown as SMALL or MICRO, verify whether entitlement to that entity status still applies.

If the ENTITY STATUS is the same as shown above, pay the TOTAL FEE(S) DUE shown above.

If the ENTITY STATUS is changed from that shown above, on PART B - FEE(S) TRANSMITTAL, complete section number 5 titled "Change in Entity Status (from status indicated above)".

For purposes of this notice, small entity fees are 40% the amount of undiscounted fees, and micro entity fees are 20% the amount of undiscounted fees.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Maintenance fees are due in utility patents issuing on applications filed on or after Dec. 12, 1980. It is patentee's responsibility to ensure timely payment of maintenance fees when due. More information is available at www.uspto.gov/PatentMaintenanceFees.

BESTWAY EX. 1003; Pg 611
Bestway v. Intex PGR2024-00036

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), by mail or fax, or via the USPTO patent electronic filing system.

By mail, send to: Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

By fax, send to: (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications. **Because electronic patent issuance may occur shortly after issue fee payment, any desired continuing application should preferably be filed prior to payment of this issue fee in order not to jeopardize copendency.**

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

27268 7590 12/18/2023

FAEGRE DRINKER BIDDLE & REATH LLP
300 NORTH MERIDIAN STREET
SUITE 2500
INDIANAPOLIS, IN 46204

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being transmitted to the USPTO via the USPTO patent electronic filing system or by facsimile to (571) 273-2885, on the date below.

(Typed or printed name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
18/197,788	05/16/2023	Hua Hsiang Lin	IRC-0042-04-US	1052

TITLE OF INVENTION: JOINT FOR ABOVE GROUND POOL FRAME

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	$1200	$0.00	$0.00	$1200	03/18/2024

EXAMINER	ART UNIT	CLASS-SUBCLASS
CRANE, LAUREN ASHLEY	3754	004-506000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

❑ Change of correspondence address (or Change of Correspondence Address form PTO/AIA/122 or PTO/SB/122) attached.

❑ "Fee Address" indication (or "Fee Address" Indication form PTO/AIA/47 or PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list
(1) The names of up to 3 registered patent attorneys or agents OR, alternatively,
(2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1 _____
2 _____
3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document must have been previously recorded, or filed for recordation, as set forth in 37 CFR 3.11 and 37 CFR 3.81(a). Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE (B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) : ❑ Individual ❑ Corporation or other private group entity ❑ Government

4a. Fees submitted: ❑ Issue Fee ❑ Publication Fee (if required)

4b. Method of Payment: *(Please first reapply any previously paid fee shown above)*

❑ Electronic Payment via the USPTO patent electronic filing system ❑ Enclosed check ❑ Non-electronic payment by credit card (Attach form PTO-2038)

❑ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment to Deposit Account No. _____

5. **Change in Entity Status** (from status indicated above)

❑ Applicant certifying micro entity status. See 37 CFR 1.29

NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.

❑ Applicant asserting small entity status. See 37 CFR 1.27

NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.

❑ Applicant changing to regular undiscounted fee status.

NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature _____ Date _____

Typed or printed name _____ Registration No. _____

BESTWAY EX. 1003; Pg 612
Bestway v. Intex PGR2024-00036

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
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www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
18/197,788	05/16/2023	Hua Hsiang Lin	IRC-0042-04-US	1052

27268 7590 12/18/2023

FAEGRE DRINKER BIDDLE & REATH LLP
300 NORTH MERIDIAN STREET
SUITE 2500
INDIANAPOLIS, IN 46204

EXAMINER	
CRANE, LAUREN ASHLEY	
ART UNIT	**PAPER NUMBER**
3754	

DATE MAILED: 12/18/2023

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(Applications filed on or after May 29, 2000)

The Office has discontinued providing a Patent Term Adjustment (PTA) calculation with the Notice of Allowance.

Section 1(h)(2) of the AIA Technical Corrections Act amended 35 U.S.C. 154(b)(3)(B)(i) to eliminate the requirement that the Office provide a patent term adjustment determination with the notice of allowance. See Revisions to Patent Term Adjustment, 78 Fed. Reg. 19416, 19417 (Apr. 1, 2013). Therefore, the Office is no longer providing an initial patent term adjustment determination with the notice of allowance. The Office will continue to provide a patent term adjustment determination with the Issue Notification Letter that is mailed to applicant approximately three weeks prior to the issue date of the patent, and will include the patent term adjustment on the patent. Any request for reconsideration of the patent term adjustment determination (or reinstatement of patent term adjustment) should follow the process outlined in 37 CFR 1.705.

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

BESTWAY EX. 1003; Pg 613
Bestway v. Intex PGR2024-00036

OMB Clearance and PRA Burden Statement for PTOL-85 Part B

The Paperwork Reduction Act (PRA) of 1995 requires Federal agencies to obtain Office of Management and Budget approval before requesting most types of information from the public. When OMB approves an agency request to collect information from the public, OMB (i) provides a valid OMB Control Number and expiration date for the agency to display on the instrument that will be used to collect the information and (ii) requires the agency to inform the public about the OMB Control Number's legal significance in accordance with 5 CFR 1320.5(b).

The information collected by PTOL-85 Part B is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 30 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450. Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. The United States Patent and Trademark Office (USPTO) collects the information in this record under authority of 35 U.S.C. 2. The USPTO's system of records is used to manage all applicant and owner information including name, citizenship, residence, post office address, and other information with respect to inventors and their legal representatives pertaining to the applicant's/ owner's activities in connection with the invention for which a patent is sought or has been granted. The applicable Privacy Act System of Records Notice for the information collected in this form is COMMERCE/PAT-TM-7 Patent Application Files, available in the Federal Register at 78 FR 19243 (March 29, 2013).
https://www.govinfo.gov/content/pkg/FR-2013-03-29/pdf/2013-07341.pdf

Routine uses of the information in this record may include disclosure to:

1) law enforcement, in the event that the system of records indicates a violation or potential violation of law;
2) a federal, state, local, or international agency, in response to its request;
3) a contractor of the USPTO having need for the information in order to perform a contract;
4) the Department of Justice for determination of whether the Freedom of Information Act (FOIA) requires disclosure of the record;
5) a Member of Congress submitting a request involving an individual to whom the record pertains, when the individual has requested the Member's assistance with respect to the subject matter of the record;
6) a court, magistrate, or administrative tribunal, in the course of presenting evidence, including disclosures to opposing counsel in the course of settlement negotiations;
7) the Administrator, General Services Administration (GSA), or their designee, during an inspection of records conducted by GSA under authority of 44 U.S.C. 2904 and 2906, in accordance with the GSA regulations and any other relevant (i.e., GSA or Commerce) directive, where such disclosure shall not be used to make determinations about individuals;
8) another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c));
9) the Office of Personnel Management (OPM) for personnel research purposes; and
10) the Office of Management and Budget (OMB) for legislative coordination and clearance.

If you do not furnish the information requested on this form, the USPTO may not be able to process and/or examine your submission, which may result in termination of proceedings, abandonment of the application, and/or expiration of the patent.

Notice of Allowability	Application No. 18/197,788	Applicant(s) Lin et al.	
	Examiner LAUREN A CRANE	Art Unit 3754	AIA (FITF) Status Yes

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☑ This communication is responsive to the amendment filed on 12/6/2023.
   ☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2. ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

3. ☑ The allowed claim(s) is/are 21-44 . As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see **http://www.uspto.gov/patents/init_events/pph/index.jsp** or send an inquiry to **PPHfeedback@uspto.gov.**

4. ☑ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   Certified copies:

   a) ☑ All b) ☐ Some* c) ☐ None of the:

   1. ☑ Certified copies of the priority documents have been received.
   2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
   3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____ .

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____ .

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☑ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____.
3. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material _____.
4. ☐ Interview Summary (PTO-413), Paper No./Mail Date. _____.
5. ☐ Examiner's Amendment/Comment
6. ☑ Examiner's Statement of Reasons for Allowance
7. ☐ Other _____.

/LAUREN A CRANE/
Primary Examiner, Art Unit 3754

BESTWAY EX. 1003; Pg 615
Bestway v. Intex PGR2024-00036

Notice of Pre-AIA or AIA Status

1. The present application, filed on or after March 16, 2013, is being examined under the first inventor to file provisions of the AIA.

Terminal Disclaimer

2. The terminal disclaimer filed on 12/5/2023 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of **US Patent** 11692572 has been reviewed and is accepted. The terminal disclaimer has been recorded.

Allowable Subject Matter

3. Claims 21-44 are allowed.

4. The following is an examiner's statement of reasons for allowance:

5. Regarding claim 21, the combination including limitation wherein a width of the vertical joint portion accounts for at least 50% of a width between the first and second pins in the invention as claimed is neither disclosed nor rendered obvious by the prior art.

6. Regarding claim 35, the combination including limitation wherein a width of the vertical joint portion accounts for a majority of a width between the first and second pins in the invention as claimed is neither disclosed nor rendered obvious by the prior art.

7. Regarding claim 40, the combination including limitation wherein a width of the vertical joint portion accounts for at least 50% of a width between the first and second coupling assemblies in the invention as claimed is neither disclosed nor rendered obvious by the prior art.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to LAUREN ASHLEY CRANE whose telephone number is (571)270-5198. The examiner can normally be reached Mondays & Tuesdays 8 am - 4pm.

Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at http://www.uspto.gov/interviewpractice.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Angwin can be reached on 571-270-3735. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of published or unpublished applications may be obtained from Patent Center. Unpublished application information in Patent Center is available to registered users. To file and manage patent submissions in Patent Center, visit: https://patentcenter.uspto.gov. Visit https://www.uspto.gov/patents/apply/patent-center for more information about Patent Center and https://www.uspto.gov/patents/docx for information about filing in DOCX format. For additional questions, contact the Electronic Business Center (EBC) at 866-217-9197

(toll-free). If you would like assistance from a USPTO Customer Service

Representative, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/LAUREN A CRANE/
Primary Examiner, Art Unit 3754

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	18/197,788	Lin et al.
	Examiner	Art Unit
	LAUREN A CRANE	3754

CPC - Searched*		
Symbol	Date	Examiner
E04H4/0056	11/28/2023	LC
F16B7/14	11/28/2023	LC

CPC Combination Sets - Searched*		
Symbol	Date	Examiner

US Classification - Searched*			
Class	Subclass	Date	Examiner
4	506, 246.3	11/28/2023	LC

* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.

Search Notes		
Search Notes	Date	Examiner
Keyword Search	11/28/2023	LC

Interference Search			
US Class/CPC Symbol	US Subclass/CPC Group	Date	Examiner
	Keyword Search	12/12/2023	LC

BESTWAY EX. 1003; Pg 619
Bestway v. Intex PGR2024-00036

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	18/197,788	Lin et al.
	Examiner	**Art Unit**
	LAUREN A CRANE	3754

CPC							
Symbol						**Type**	**Version**
F16B	/	7	/	14		F	2013-01-01
E04H	/	4	/	0056		I	2013-01-01
F16B	/	7	/	042		I	2013-01-01
F16B	/	7	/	0446		I	2013-01-01
A63C	/	19	/	02		I	2013-01-01
E04H	/	4	/	14		I	2013-01-01

CPC Combination Sets							
Symbol					**Type**	**Set**	**Ranking**	**Version**
	/		/					

NONE		Total Claims Allowed:	
(Assistant Examiner)	(Date)	24	
/LAUREN A CRANE/ Primary Examiner, Art Unit 3754	12 December 2023	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	1

U.S. Patent and Trademark Office — Part of Paper No.: 20231211

BESTWAY EX. 1003; Pg 620
Bestway v. Intex PGR2024-00036

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	18/197,788	Lin et al.
	Examiner	**Art Unit**
	LAUREN A CRANE	3754

INTERNATIONAL CLASSIFICATION				
CLAIMED				
F16B	/	7	/	14

NON-CLAIMED				
	/		/	

US ORIGINAL CLASSIFICATION	
CLASS	**SUBCLASS**
4	506

CROSS REFERENCES(S)						
CLASS	**SUBCLASS (ONE SUBCLASS PER BLOCK)**					

NONE (Assistant Examiner)	(Date)	**Total Claims Allowed:** 24	
/LAUREN A CRANE/ Primary Examiner, Art Unit 3754 (Primary Examiner)	12 December 2023 (Date)	O.G. Print Claim(s) 1	O.G. Print Figure 1

BESTWAY EX. 1003; Pg 621
Bestway v. Intex PGR2024-00036

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	18/197,788	Lin et al.
	Examiner	**Art Unit**
	LAUREN A CRANE	3754

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIMS

Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
1	21	10	30	19	39										
2	22	11	31	20	40										
3	23	12	32	21	41										
4	24	13	33	22	42										
5	25	14	34	23	43										
6	26	15	35	24	44										
7	27	16	36												
8	28	17	37												
9	29	18	38												

NONE		**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	24	
/LAUREN A CRANE/ Primary Examiner, Art Unit 3754	12 December 2023	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	1

U.S. Patent and Trademark Office Part of Paper No.: 20231211

BESTWAY EX. 1003; Pg 622
Bestway v. Intex PGR2024-00036

Bibliographic Data

Application No: 18/197,788

Foreign Priority claimed: (•) Yes ( ) No

35 USC 119 (a-d) conditions met: [✓] Yes [ ] No [✓] Met After Allowance

Verified and Acknowledged: /LAUREN A CRANE/ (Examiner's Signature) L.A.C (Initials)

Title: JOINT FOR ABOVE GROUND POOL FRAME

FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
05/16/2023	004	3754	IRC-0042-04-US
RULE			

APPLICANTS

Intex Marketing Ltd.,

INVENTORS

Hua Hsiang Lin, Fujian, CHINA

Yaw Yuan Hsu, Fujian, CHINA

CONTINUING DATA

This application is a CON of 17962979 10/10/2022 PAT 11692573

17962979 is a CON of 16220484 12/14/2018 PAT 11692572

16220484 is a 371 of PCT/US2017/037892 06/16/2017

FOREIGN APPLICATIONS

CHINA CN201620598406.9 06/17/2016

CHINA CN201630270359.0 06/22/2016

CHINA CN201621039473.3 09/06/2016

IF REQUIRED, FOREIGN LICENSE GRANTED**

05/31/2023

STATE OR COUNTRY

CHINA

ADDRESS

FAEGRE DRINKER BIDDLE & REATH LLP
300 NORTH MERIDIAN STREET
SUITE 2500
INDIANAPOLIS, IN 46204
UNITED STATES

FILING FEE RECEIVED

$2,600

Receipt date: 11/01/2023

Doc code: IDS
Doc description: Information Disclosure Statement (IDS) Filed

PTO/SB/08a (01-10)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (**Not for submission under 37 CFR 1.99)**		
	Application Number	18197788
	Filing Date	2023-05-16
	First Named Inventor	Hua Hsiang Lin
	Art Unit	3754
	Examiner Name	To be Assigned
	Attorney Docket Number	IRC-0042-04-US

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Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
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Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2] i	Kind Code[4]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	T[5]
	1	3103939	EP		2016-12-14	Bestway Inflatables & Mat Corp.		☐

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BESTWAY EX. 1003; Pg 625
Bestway v. Intex PGR2024-00036

Receipt date: 11/01/2023

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	18197788
	Filing Date	2023-05-16
	First Named Inventor	Hua Hsiang Lin
	Art Unit	3754
	Examiner Name	To be Assigned
	Attorney Docket Number	IRC-0042-04-US

	1		☐

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Examiner Signature	/LAUREN A CRANE/	Date Considered	11/28/2023

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[1] See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. [2] Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [5] Applicant is to place a check mark here if English language translation is attached.

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BESTWAY EX. 1003; Pg 626
Bestway v. Intex PGR2024-00036

Receipt date: 11/01/2023

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	18197788
	Filing Date	2023-05-16
	First Named Inventor	Hua Hsiang Lin
	Art Unit	3754
	Examiner Name	To be Assigned
	Attorney Docket Number	IRC-0042-04-US

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

☐ That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

☐ See attached certification statement.

☐ The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☒ A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Robert D. Null/	Date (YYYY-MM-DD)	2023-11-01
Name/Print	Robert D. Null	Registration Number	40746

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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BESTWAY EX. 1003; Pg 627
Bestway v. Intex PGR2024-00036

Receipt date: 11/01/2023

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BESTWAY EX. 1003; Pg 628
Bestway v. Intex PGR2024-00036

Doc code: IDS
Doc description: Information Disclosure Statement (IDS) Filed

PTO/SB/08a (01-10)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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	Filing Date	2023-05-16
	First Named Inventor	Hua Hsiang Lin
	Art Unit	3754
	Examiner Name	To be Assigned
	Attorney Docket Number	IRC-0042-04-US

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	1	2014/100855	WO		2014-07-03	Hunter Products PTY Ltd		

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BESTWAY EX. 1003; Pg 629
Bestway v. Intex PGR2024-00036

Receipt date: 08/31/2023

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	18197788
	Filing Date	2023-05-16
	First Named Inventor	Hua Hsiang Lin
	Art Unit	3754
	Examiner Name	To be Assigned
	Attorney Docket Number	IRC-0042-04-US

	1	Small Rectangular Metal Frame Pool 177-1/4" x 86-5/8" x 33" (450 cm x 220 cm x 84 cm) Owner's Manual, Intex Marketing Ltd., copyright 2012; 14 pages.	

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EXAMINER SIGNATURE

Examiner Signature	/LAUREN A CRANE/	Date Considered	11/28/2023

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

[1] See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. [2] Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [5] Applicant is to place a check mark here if English language translation is attached.

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BESTWAY EX. 1003; Pg 630
Bestway v. Intex PGR2024-00036

Receipt date: 08/31/2023

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	18197788
	Filing Date	2023-05-16
	First Named Inventor	Hua Hsiang Lin
	Art Unit	3754
	Examiner Name	To be Assigned
	Attorney Docket Number	IRC-0042-04-US

CERTIFICATION STATEMENT

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See attached certification statement.

The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☒ A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Parker Brooks Hudson/	Date (YYYY-MM-DD)	2023-08-31
Name/Print	Parker Brooks Hudson	Registration Number	80698

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BESTWAY EX. 1003; Pg 631
Bestway v. Intex PGR2024-00036

Receipt date: 08/31/2023

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BESTWAY EX. 1003; Pg 632
Bestway v. Intex PGR2024-00036

Receipt date: 08/21/2023

Doc code: IDS
Doc description: Information Disclosure Statement (IDS) Filed

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT
(Not for submission under 37 CFR 1.99)

Application Number	18197788
Filing Date	2023-05-16
First Named Inventor	Hua Hsiang Lin
Art Unit	3754
Examiner Name	CENTRAL, DOCKET
Attorney Docket Number	IRC-0042-04-US

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Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	11692572	B2	2023-07-04	LIN et al.	
	2	11692573	B2	2023-07-04	LIN et al.	

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Examiner Initial*	Cite No	Publication Number	Kind Code[1]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	20230228114	A1	2023-07-20	Huang et al.	

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BESTWAY EX. 1003; Pg 633
Bestway v. Intex PGR2024-00036

Receipt date: 08/21/2023

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	18197788
	Filing Date	2023-05-16
	First Named Inventor	Hua Hsiang Lin
	Art Unit	3754
	Examiner Name	CENTRAL, DOCKET
	Attorney Docket Number	IRC-0042-04-US

Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T[5]
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Examiner Signature	/LAUREN A CRANE/	Date Considered	11/28/2023

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BESTWAY EX. 1003; Pg 634
Bestway v. Intex PGR2024-00036

Receipt date: 08/21/2023

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	18197788
	Filing Date	2023-05-16
	First Named Inventor	Hua Hsiang Lin
	Art Unit	3754
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Signature	/Robert D. Null/	Date (YYYY-MM-DD)	2023-08-21
Name/Print	Robert D. Null	Registration Number	40,746

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BESTWAY EX. 1003; Pg 635
Bestway v. Intex PGR2024-00036

Receipt date: 08/21/2023

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6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

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Receipt date: 07/24/2023

Doc code: IDS
Doc description: Information Disclosure Statement (IDS) Filed

PTO/SB/08a (01-22)
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT
(Not for submission under 37 CFR 1.99)

Application Number	18197788
Filing Date	2023-05-16
First Named Inventor	Hua Hsiang Lin
Art Unit	TBA
Examiner Name	TBA
Attorney Docket Number	IRC-0042-04-US

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Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
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Receipt date: 07/24/2023

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	18197788
	Filing Date	2023-05-16
	First Named Inventor	Hua Hsiang Lin
	Art Unit	TBA
	Examiner Name	TBA
	Attorney Docket Number	IRC-0042-04-US

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	First Named Inventor	Hua Hsiang Lin
	Art Unit	TBA
	Examiner Name	TBA
	Attorney Docket Number	IRC-0042-04-US

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	First Named Inventor	Hua Hsiang Lin
	Art Unit	TBA
	Examiner Name	TBA
	Attorney Docket Number	IRC-0042-04-US

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	Art Unit	TBA
	Examiner Name	TBA
	Attorney Docket Number	IRC-0042-04-US

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	Art Unit	TBA
	Examiner Name	TBA
	Attorney Docket Number	IRC-0042-04-US

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	First Named Inventor	Hua Hsiang Lin
	Art Unit	TBA
	Examiner Name	TBA
	Attorney Docket Number	IRC-0042-04-US

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	Art Unit	TBA
	Examiner Name	TBA
	Attorney Docket Number	IRC-0042-04-US

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	Filing Date	2023-05-16
	First Named Inventor	Hua Hsiang Lin
	Art Unit	TBA
	Examiner Name	TBA
	Attorney Docket Number	IRC-0042-04-US

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	18197788
	Filing Date	2023-05-16
	First Named Inventor	Hua Hsiang Lin
	Art Unit	TBA
	Examiner Name	TBA
	Attorney Docket Number	IRC-0042-04-US

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Receipt date: 07/24/2023

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	18197788
	Filing Date	2023-05-16
	First Named Inventor	Hua Hsiang Lin
	Art Unit	TBA
	Examiner Name	TBA
	Attorney Docket Number	IRC-0042-04-US

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
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	Filing Date	2023-05-16
	First Named Inventor	Hua Hsiang Lin
	Art Unit	TBA
	Examiner Name	TBA
	Attorney Docket Number	IRC-0042-04-US

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	18197788
	Filing Date	2023-05-16
	First Named Inventor	Hua Hsiang Lin
	Art Unit	TBA
	Examiner Name	TBA
	Attorney Docket Number	IRC-0042-04-US

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	Art Unit	TBA
	Examiner Name	TBA
	Attorney Docket Number	IRC-0042-04-US

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	First Named Inventor	Hua Hsiang Lin
	Art Unit	TBA
	Examiner Name	TBA
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	24	Response to Final Office Action, filed with the U.S. Patent and Trademark Office, dated August 10, 2022, for U.S. Patent Application No. 16/220,484; 11 pages.	
	25	Response to Final Office Action, filed with the U.S. Patent and Trademark Office, dated March 8, 2021, for U.S. Patent Application No. 16/220,484; 11 pages.	
	26	Response to Non-Final Office Action, filed with the U.S. Patent and Trademark Office, dated August 17, 2020, for U.S. Patent Application No. 16/220,484; 9 pages.	

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /L.A.C/

BESTWAY EX. 1003; Pg 651
Bestway v. Intex PGR2024-00036

Receipt date: 07/24/2023

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	18197788
	Filing Date	2023-05-16
	First Named Inventor	Hua Hsiang Lin
	Art Unit	TBA
	Examiner Name	TBA
	Attorney Docket Number	IRC-0042-04-US

	27	Response to Non-Final Office Action, filed with the U.S. Patent and Trademark Office, dated March 20, 2023, for U.S. Patent Application No. 17/962,979; 11 pages.	
	28	Response to Non-Final Office Action, filed with the U.S. Patent and Trademark Office, dated September 9, 2021, for U.S. Patent Application No. 16/220,484; 11 pages.	
	29	Response to Non-Final Office Action, issued by the U.S. Patent and Trademark Office, dated November 3, 2022, for U.S. Patent Application No. 17/276,885; 8 pages.	
	30	Summer https://www.amazon.com/Summer-Waves-Premium-Swimming-Accessory/dp/B07BXC85HG/ (Year: 2018)	

If you wish to add additional non-patent literature document citation information please click the Add button Add

EXAMINER SIGNATURE

Examiner Signature	/LAUREN A CRANE/	Date Considered	11/28/2023

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

[1] See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. [2] Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [5] Applicant is to place a check mark here if English language translation is attached.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /L.A.C/

BESTWAY EX. 1003; Pg 652
Bestway v. Intex PGR2024-00036

Receipt date: 07/24/2023

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	18197788
	Filing Date	2023-05-16
	First Named Inventor	Hua Hsiang Lin
	Art Unit	TBA
	Examiner Name	TBA
	Attorney Docket Number	IRC-0042-04-US

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

See attached certification statement.

The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☒ A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Robert D. Null/	Date (YYYY-MM-DD)	2023-07-24
Name/Print	Robert D. Null	Registration Number	40,746

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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BESTWAY EX. 1003; Pg 653
Bestway v. Intex PGR2024-00036

Receipt date: 07/24/2023

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these record s.

2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.

6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /L.A.C/

BESTWAY EX. 1003; Pg 654
Bestway v. Intex PGR2024-00036

PE2E SEARCH - Search History (Prior Art)

There are no Prior Art searches to show.

PE2E SEARCH - Search History (Interference)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	British Equivalents	Time Stamp
N51	2	(ground pool frame first joint portion second joint portion liner 50% width between first second pins).clms.	(US-PGPUB; USPAT)	AND	ON	ON	2023/12/12 03:18 PM

BESTWAY EX. 1003; Pg 655
Bestway v. Intex PGR2024-00036

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United States Patent and Trademark Office
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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
18/197,788	05/16/2023	Hua Hsiang Lin	IRC-0042-04-US

CONFIRMATION NO. 1052

27268
FAEGRE DRINKER BIDDLE & REATH LLP
300 NORTH MERIDIAN STREET
SUITE 2500
INDIANAPOLIS, IN 46204

PUBLICATION NOTICE

OC000000066578275

Date Mailed: 01/04/2024

Title:JOINT FOR ABOVE GROUND POOL FRAME

Publication No.US-2024-0003368-A1
Publication Date:01/04/2024

NOTICE OF PUBLICATION OF APPLICATION

The above-identified application will be electronically published as a patent application publication pursuant to 37 CFR 1.211, et seq. The patent application publication number and publication date are set forth above.

The publication may be accessed through the USPTO's publically available Searchable Databases via the Internet at www.uspto.gov. The direct link to access the publication is currently http://www.uspto.gov/patft/.

The publication process established by the Office does not provide for mailing a copy of the publication to applicant. A copy of the publication may be obtained from the Office upon payment of the appropriate fee set forth in 37 CFR 1.19(a)(1). Orders for copies of patent application publications are handled by the USPTO's Public Records Division. The Public Records Division can be reached by telephone at (571) 272-3150 or (800) 972-6382, by facsimile at (571) 273-3250, by mail addressed to the United States Patent and Trademark Office, Public Records Division, Alexandria, VA 22313-1450 or via the Internet.

In addition, information on the status of the application, including the mailing date of Office actions and the dates of receipt of correspondence filed in the Office, may also be accessed via the Internet through the Patent Electronic Business Center at www.uspto.gov using the public side of the Patent Application Information and Retrieval (PAIR) system. The direct link to access this status information is currently https://portal.uspto.gov/pair/PublicPair. Prior to publication, such status information is confidential and may only be obtained by applicant using the private side of PAIR.

Further assistance in electronically accessing the publication, or about PAIR, is available by calling the Patent Electronic Business Center at 1-866-217-9197.

Office of Data Managment, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101

BESTWAY EX. 1003; Pg 656
Bestway v. Intex PGR2024-00036

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ELECTRONIC PAYMENT RECEIPT

APPLICATION #	RECEIPT DATE / TIME	ATTORNEY DOCKET #
18/197,788	**03/15/2024 12:59:05 PM Z ET**	**IRC-0042-04-US**

Title of Invention

JOINT FOR ABOVE GROUND POOL FRAME

Application Information

APPLICATION TYPE	Utility - Nonprovisional Application under 35 USC 111(a)	PATENT #	-
CONFIRMATION #	1052	FILED BY	Melissa Russell
PATENT CENTER #	64701262	AUTHORIZED BY	Robert Null
CUSTOMER #	27268	FILING DATE	05/16/2023
CORRESPONDENCE ADDRESS	-	FIRST NAMED INVENTOR	Hua Hsiang Lin

Payment Information

PAYMENT METHOD	PAYMENT TRANSACTION ID	PAYMENT AUTHORIZED BY
CARD / 9914	**E20243EC59207320**	**Melissa Russell**

FEE CODE	DESCRIPTION	ITEM PRICE($)	QUANTITY	ITEM TOTAL($)
1501	UTILITY ISSUE FEE	1200.00	1	1200.00
			TOTAL AMOUNT:	**$1,200.00**

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

BESTWAY EX. 1003; Pg 657
Bestway v. Intex PGR2024-00036

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), by mail or fax, or via the USPTO patent electronic filing system.

By mail, send to: Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

By fax, send to: (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications. **Because electronic patent issuance may occur shortly after issue fee payment, any desired continuing application should preferably be filed prior to payment of this issue fee in order not to jeopardize copendency.**

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

27268 7590 12/18/2023
FAEGRE DRINKER BIDDLE & REATH LLP
300 NORTH MERIDIAN STREET
SUITE 2500
INDIANAPOLIS, IN 46204

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being transmitted to the USPTO via the USPTO patent electronic filing system or by facsimile to (571) 273-2885, on the date below.

(Typed or printed name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
18/197,788	05/16/2023	Hua Hsiang Lin	IRC-0042-04-US	1052

TITLE OF INVENTION: JOINT FOR ABOVE GROUND POOL FRAME

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	$1200	$0.00	$0.00	$1200	03/18/2024

EXAMINER	ART UNIT	CLASS-SUBCLASS
CRANE, LAUREN ASHLEY	3754	004-506000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

☐ Change of correspondence address (or Change of Correspondence Address form PTO/AIA/122 or PTO/SB/122) attached.

☐ "Fee Address" indication (or "Fee Address" Indication form PTO/AIA/47 or PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list
(1) The names of up to 3 registered patent attorneys or agents OR, alternatively,
(2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1 Faegre Drinker Biddle & Reath LLP
2
3

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document must have been previously recorded, or filed for recordation, as set forth in 37 CFR 3.11 and 37 CFR 3.81(a). Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE: Intex Marketing Ltd.
(B) RESIDENCE: (CITY and STATE OR COUNTRY): Tortola, British Virgin Islands

Please check the appropriate assignee category or categories (will not be printed on the patent) : ☐ Individual ☒ Corporation or other private group entity ☐ Government

4a. Fees submitted: ☒ Issue Fee ☐ Publication Fee (if required)

4b. Method of Payment: *(Please first reapply any previously paid fee shown above)*

☒ Electronic Payment via the USPTO patent electronic filing system ☐ Enclosed check ☐ Non-electronic payment by credit card (Attach form PTO-2038)

☒ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment to Deposit Account No. 02-0390

5. **Change in Entity Status** (from status indicated above)

☐ Applicant certifying micro entity status. See 37 CFR 1.29

NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.

☐ Applicant asserting small entity status. See 37 CFR 1.27

NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.

☐ Applicant changing to regular undiscounted fee status.

NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature /Robert D. Null/ Date March 15, 2024

Typed or printed name Robert D. Null Registration No. 40,746

BESTWAY EX. 1003; Pg 659
Bestway v. Intex PGR2024-00036

UNITED STATES
PATENT AND TRADEMARK OFFICE

P.O. Box 1450
Alexandria, VA 22313 - 1450
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ELECTRONIC ACKNOWLEDGEMENT RECEIPT

APPLICATION #	RECEIPT DATE / TIME	ATTORNEY DOCKET #
18/197,788	**03/15/2024 12:59:05 PM Z ET**	**IRC-0042-04-US**

Title of Invention

JOINT FOR ABOVE GROUND POOL FRAME

Application Information

APPLICATION TYPE	Utility - Nonprovisional Application under 35 USC 111(a)	PATENT #	-
CONFIRMATION #	1052	FILED BY	Melissa Russell
PATENT CENTER #	64701262	FILING DATE	05/16/2023
CUSTOMER #	27268	FIRST NAMED INVENTOR	Hua Hsiang Lin
CORRESPONDENCE ADDRESS	-	AUTHORIZED BY	Robert Null

Documents

TOTAL DOCUMENTS: 1

DOCUMENT	PAGES	DESCRIPTION	SIZE (KB)
IRC_0042_04_US_Issue_Fee_transmittal.pdf	1	Issue Fee Payment (PTO-85B)	109 KB

Digest

DOCUMENT	MESSAGE DIGEST(SHA-512)
IRC_0042_04_US_Issue_Fee_transmittal.pdf	0FB5548E22BD2284A2945DE37D42976ED8677FFBF1ECD1C9832F1F984FE875B6051E0C125925F63C0F6FD18401A826C1ADC99AE176CE087FECC96E8E5835FBDB

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

BESTWAY EX. 1003; Pg 660
Bestway v. Intex PGR2024-00036

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

Receipt date: 07/24/2023

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	18197788
	Filing Date	2023-05-16
	First Named Inventor	Hua Hsiang Lin
	Art Unit	TBA
	Examiner Name	TBA
	Attorney Docket Number	IRC-0042-04-US

	19	20190032796	A1	2019-01-31	DI MONTE MICHAEL ANTHONY	
	20	20190178275	A1	2019-06-13	LIN et al.	
	21	20200141143	A1	2020-05-07	HUANG et al.	
	22	20200332544	A1	2020-10-22	HUANG et al.	
	23	20210324648	A1	2021-10-21	HUANG et al.	
	24	20210348409	A1	2021-11-11	CHEN et al.	
	25	20220034113	A1	2022-02-03	HUANG et al.	
Change(s) applied to document, /J.G./ 12/26/2023	26	20220275661	A1	2022-09-01	Huang et al. ~~INTEX MARKETING LTD~~	
	27	20230052458	A1	2023-02-16	LIN et al.	

If you wish to add additional U.S. Published Application citation information please click the Add button. Add

FOREIGN PATENT DOCUMENTS Remove

Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2] i	Kind Code[4]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	T[5]

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /L.A.C/

EFS Web 2.1.18

BESTWAY EX. 1003; Pg 662
Bestway v. Intex PGR2024-00036

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APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
18/197,788	04/16/2024	11959512	IRC-0042-04-US	1052

27268 7590 03/27/2024

FAEGRE DRINKER BIDDLE & REATH LLP
300 NORTH MERIDIAN STREET
SUITE 2500
INDIANAPOLIS, IN 46204

ISSUE NOTIFICATION

The projected patent number and issue date are specified above. The patent will issue electronically. The electronically issued patent is the official patent grant pursuant to 35 U.S.C. § 153. The patent may be accessed on or after the issue date through Patent Center at https://patentcenter.uspto.gov/. The patent will be available in both the public and the private sides of Patent Center. Further assistance in electronically accessing the patent, or about Patent Center, is available by calling the Patent Electronic Business Center at 1-888-217-9197.

The USPTO is implementing electronic patent issuance with a transition period, during which period the USPTO will mail a ceremonial paper copy of the electronic patent grant to the correspondence address of record. Additional copies of the patent (i.e., certified and presentation copies) may be ordered for a fee from the USPTO's Certified Copy Center at https://certifiedcopycenter.uspto.gov/index.html. The Certified Copy Center may be reached at (800)972-6382.

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(application filed on or after May 29, 2000)

The Patent Term Adjustment is 0 day(s). Any patent to issue from the above-identified application will include an indication of the adjustment on the front page.

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Center (https://patentcenter.uspto.gov).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Application Assistance Unit (AAU) of the Office of Patents Stakeholder Experience (OPSE), Stakeholder Support Division (SSD) at (571)-272-4200.

BESTWAY EX. 1003; Pg 663
Bestway v. Intex PGR2024-00036

INVENTOR(s) (Please see PATENT CENTER site https://patentcenter.uspto.gov for additional inventors):

Hua Hsiang Lin, Fujian, CHINA, Deceased;
Yaw Yuan Hsu, Fujian, CHINA;

APPLICANT(s) (Please see PATENT CENTER site https://patentcenter.uspto.gov for additional applicants):

Intex Marketing Ltd., Tortola, VIRGIN ISLANDS, BRITISH;

The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The USA offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to encourage and facilitate business investment. To learn more about why the USA is the best country in the world to develop technology, manufacture products, and grow your business, visit SelectUSA.gov.

BESTWAY EX. 1003; Pg 664
Bestway v. Intex PGR2024-00036

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
18/197,788	05/16/2023	Hua Hsiang Lin	IRC-0042-04-US	1052

27268 7590 04/16/2024

FAEGRE DRINKER BIDDLE & REATH LLP
300 NORTH MERIDIAN STREET
SUITE 2500
INDIANAPOLIS, IN 46204

EXAMINER	
CRANE, LAUREN ASHLEY	

ART UNIT	PAPER NUMBER
3754	

NOTIFICATION DATE	DELIVERY MODE
04/16/2024	ELECTRONIC

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The time period for reply, if any, is set in the attached communication.

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