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(54) **Ladder**

Leiter

Échelle

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Description

FIELD OF THE INVENTION

[0001] Although this ladder may be in any general format and may be applied to different functions, it has mainly been designed to be used in swimming pools.

BACKGROUND OF THE INVENTION

[0002] Generally speaking these types of ladders have steps fixed to the uprights using screws and nuts, and in some instances bushings are used which are inserted onto the uprights and attached to tubular openings in the steps.

SUMMARY OF THE INVENTION

[0003] The purpose of the invention is to obtain an easily assembled and dismantled ladder to be sold as DIY as it may be attached by the user himself or any other non expert. The component parts may be replaced with others when required. The dismantled ladder takes up little space and so may be easily stored and transported. In addition this ladder has a step with a format which may be changed at the user's discretion.

[0004] This ladder is characterised by the fact that the uprights have diametrically opposed holes in an area on each step which attaches to a bushing on the upright formed by two halves with a lower peripheral step which is supported onto the step by an opening near to its ends. This coupling is fixed by a nut which is screwed onto the upper peripheral thread of the two halves forming a bushing which is supported on the step.

[0005] In order to obtain the different designs of the step there is a base which is coupled to a cover with a design allowing the choice from several covers.

[0006] These and other characteristics will be best made apparent by the following detailed description whose understanding will be made easier by the accompanying three sheets of drawings showing a practical embodiment being cited only by way of an example not limiting the scope of the present invention.

DESCRIPTION OF THE DRAWINGS

[0007] In the drawings:

Figure 1 illustrates in perspective the lower side of a ladder with a step mounted and other being mounted,

Figure 2 is a cross section detail of the step on the upright,

Figure 3 shows in perspective the two basic parts of the step,

Figure 4 shows in perspective one half of the bushing,

Figure 5 illustrates in perspective the nut which en-

sures the coupling of the step to the upright,

Figures 6 and 7 shows in perspective different versions of the cover formed by two superimposed parts and

Figures 8 and 9 show a cross-section of the step with the covers in accordance with figures 6 and 7 respectively.

DETAILED DESCRIPTION

[0008] According to the drawings the ladder includes two metal tubular uprights (1 and 2) and several plastic steps (3).

[0009] The uprights (1 and 2) have an area (4) with diametrically opposed openings (5 and 5') for each step which couple to a bushing on the uprights formed by two halves (6 and 7) which have a peripheral step (8) below onto which the step (3) is supported by an opening (9) near to its ends. This coupling is held by a nut (10) which threads onto the upper threaded periphery (11) of the two halves of the bushings, and which is supported on the step (3). The openings (5 and 5') house their respective lugs (12) on the internal periphery of the two halves of the bushing.

[0010] The steps (3) are formed by a base (13) and a cover (14) and the design of the step may be changed by changing the cover.

[0011] The halves (6 and 7) of the bushings have a conical shape (15) on their external periphery facilitating the entry of the step into the opening (9) through its lower hole.

[0012] In the aforementioned hole and the upper hole in the opening in the step have interior steps (16 and 17) which fit into the lower step (8) of the bushing halves and the nut (10) respectively.

[0013] The nut (10) has an L shaped cross section with an internal upper step (18) which has holes (19) for the entry of a tool to facilitate the threading and unthreading of the nut on the threads on the two halves of the bushing.

[0014] As is logical, the cover (14) has openings (9') matching (9) on the base (13) for the insertion of the step into the uprights (1 and 2).

[0015] Figures 6 and 7 show the cover formed by two superimposed parts, the upper part (14a) is metal and the lower part (14b) is plastic. These parts according to figure 7 have upper openings (20) with a slightly raised semi-elastic edge (21) on the lower part forming an upper anti-slip surface.

[0016] The lower parts (14b) have a U shaped, elastic contour (23) around it to house the peripheral edge of the metal parts (14a).

[0017] The base (13) of the upper step has a horizontal extension (22) (figure 1) on its rear edge which will occupy the gap between the step and the wall of the swimming pool.

[0018] For sectioned ladders, where the side rails are independent to the uprights (1 and 2) on the ladder, the upper step is held by blind nuts.

Claims

1. Ladder, comprising two fixed uprights (1, 2) and steps (3) fixed between each other mainly applicable to swimming pools, **characterised in that** the uprights (1, 2) have diametrically opposed holes (5, 5') in an area on each step which attaches to a bushing on the upright formed by two halves (6, 7) with a lower peripheral step (8) which is supported onto the step (3) by an opening (9) near to its ends. This coupling is fixed by a nut (10) which is screwed onto the upper peripheral thread (11) of the two halves (6, 7) forming a bushing which is supported on the step.
2. Ladder, according to claim 1, **characterised in that** the holes (5, 5') in the uprights (1, 2) consist of openings housing the respective lugs (12) in the internal periphery of the bushing halves (6, 7).
3. Ladder, according to claim 1, **characterised in that** the step (3) comprises a base (13) to which a cover (14) is attached, both of which are made from plastic.
4. Ladder, according to claim 1, **characterised in that** the halves (6, 7) of the bushings have a conical shape (15) on the external periphery and the step (3) have interior, upper and lower steps (16, 17) in the opening, which fit into the nut (10) and the lower step (8) of the bushing halves (6, 7) respectively.
5. Ladder, according to claim 3, **characterised in that** the cover (14) is formed by two superimposed parts, the upper part (14a) is metal and the lower part (14b) is plastic.
6. Ladder, according to claim 5, **characterised in that** the metallic upper part (14a) have openings (20) with a slightly raised semi-elastic edge (21) on the plastic lower part (14b).

Patentansprüche

1. Leiter, bestehend aus zwei festen Pfosten (1, 2) und mit diesen verbundenen Trittstufen (3), hauptsächlich geeignet für Swimmingpools, **dadurch gekennzeichnet, dass** die Pfosten (1, 2) in einem bestimmten Bereich jeder Trittstufe diametral entgegengesetzte Bohrungen (5, 5') aufweisen, die mit einer Buchse am Pfosten verbunden sind, wobei die Buchse aus zwei Hälften (6, 7) gebildet wird und mit einem unteren umlaufenden Absatz (8) versehen ist, der sich durch eine Öffnung (9) an der Trittstufe (3) nahe an deren Enden abstützt. Diese Verbindung wird mit einer Mutter (10) fixiert, die auf das obere umlaufende Gewinde (11) der beiden Hälften (6, 7), aus denen die sich auf die Trittstufe stützende Buchse besteht, aufgeschraubt wird.

2. Leiter gemäß Anspruch 1, **dadurch gekennzeichnet, dass** die Bohrungen (5, 5') an den Pfosten (1, 2) aus Öffnungen bestehen, in denen die entsprechenden Anschlussstücke (12) im inneren Umfang der Buchsenhälften (6, 7) aufgenommen werden.
3. Leiter gemäß Anspruch 1, **dadurch gekennzeichnet, dass** die Trittstufe (3) eine Grundplatte (13) umfasst, an der eine Abdeckung (14) befestigt ist, wobei beide Teile aus Kunststoff gefertigt sind.
4. Leiter gemäß Anspruch 1, **dadurch gekennzeichnet, dass** die Buchsenhälften (6, 7) am äußeren Umfang eine konische Form (15) aufweisen und die Trittstufe (3) innere obere und untere Absätze (16, 17) in der Öffnung aufweist, die in die Mutter (10) bzw. in den unteren Absatz (8) der Buchsenhälften (6, 7) hineinpassen.
5. Leiter gemäß Anspruch 3, **dadurch gekennzeichnet, dass** die Abdeckung (14) aus zwei übereinander gesetzten Teilen gebildet ist, von denen das Oberteil (14a) aus Metall und das Unterteil (14b) aus Kunststoff gefertigt ist.
6. Ladder, according to claim 5, **characterised in that** the metallic upper part (14a) have openings (20) with a slightly raised semi-elastic edge (21) on the plastic lower part (14b).

Revendications

1. Échelle, comprenant deux montants fixes (1, 2) et des marches (3) fixées entre chaque montant principalement destinée à des piscines, **caractérisée en ce que** les montants (1, 2) ont des perforations diamétralement opposées (5, 5') dans une zone où chaque marche est fixée à un manchon sur le montant formé de deux moitiés (6, 7) avec un palier périphérique inférieur (8) qui est supporté sur la marche (3) par une ouverture (9) située près de ses extrémités. Cet accouplement est fixé par un écrou (10) qui est vissé sur le filetage périphérique supérieur (11) des deux moitiés (6, 7) formant un manchon qui est supporté sur la marche.
2. Échelle, conformément à la revendication 1, **caractérisée en ce que** les perforations (5, 5') sur les montants (1, 2) consistent dans des ouvertures recevant les respectives pattes (12) dans la périphérie interne des moitiés de manchon (6, 7).
3. Échelle, conformément à la revendication 1, **caractérisée en ce que** la marche (3) comprend une base (13) à laquelle est fixée une protection (14), les deux réalisées en plastique.

4. Échelle, conformément à la revendication 1, **caractérisée en ce que** les moitiés (6, 7) des manchons ont une forme conique (15) sur la périphérie externe et la marche (3) a des paliers intérieurs, supérieur et inférieur (16, 17) dans l'ouverture, qui se logent dans l'écrou (10) et dans le palier inférieur (8) des moitiés du manchon (6, 7) respectivement. 5
5. Échelle, conformément à la revendication 3, **caractérisée en ce que** la protection (14) est composée de deux parties superposées, la partie supérieure (14a) étant en métal et l'inférieure (14b) en plastique. 10
6. Échelle, conformément à la revendication 5, **caractérisée en ce que** la partie supérieure métallique (14a) présente des ouvertures (20) avec un bord légèrement élevé semi-élastique (21) sur la partie inférieure en plastique (14b). 15

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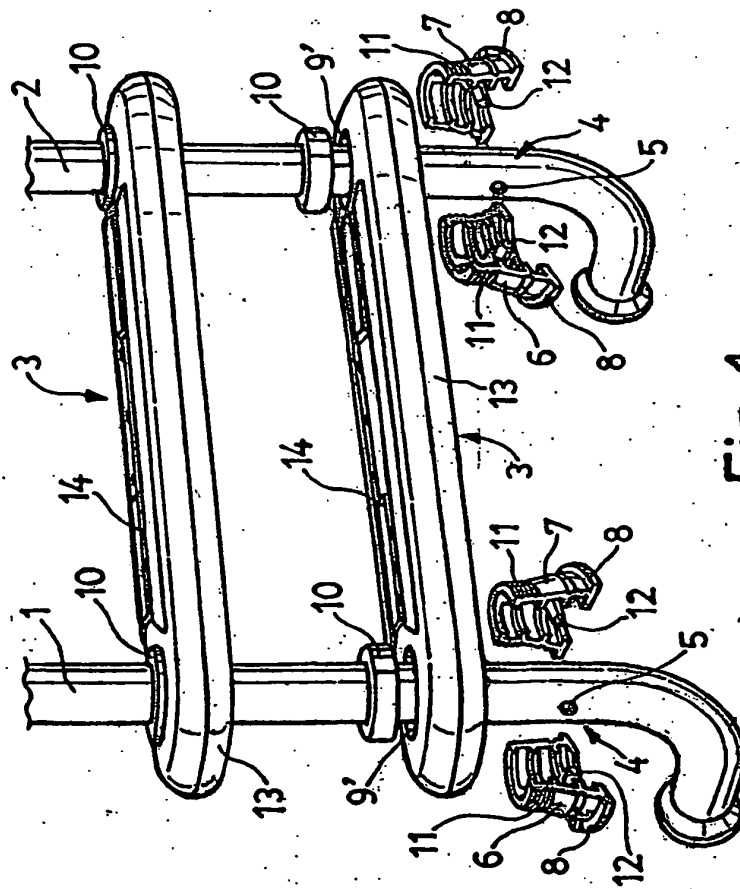


Fig. 1

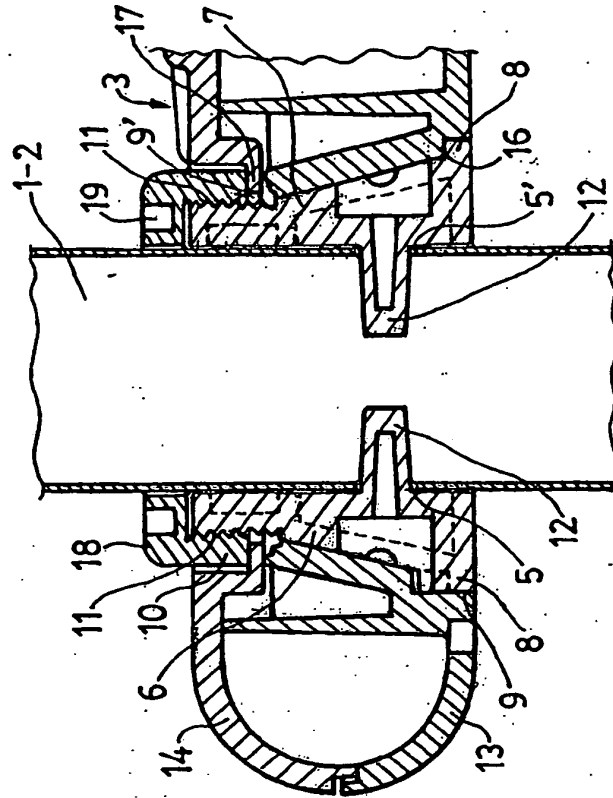


Fig. 2

