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(54) **Ladder**

(57) The ladder includes two fixed uprights and steps fixed between each other mainly applicable to swimming pools. is **characterised in 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. The holes in the uprights consist of openings housing the respective lugs in the internal periphery of the bushing halves. The step comprises a base to which a base is attached, both of which are made from plastic.

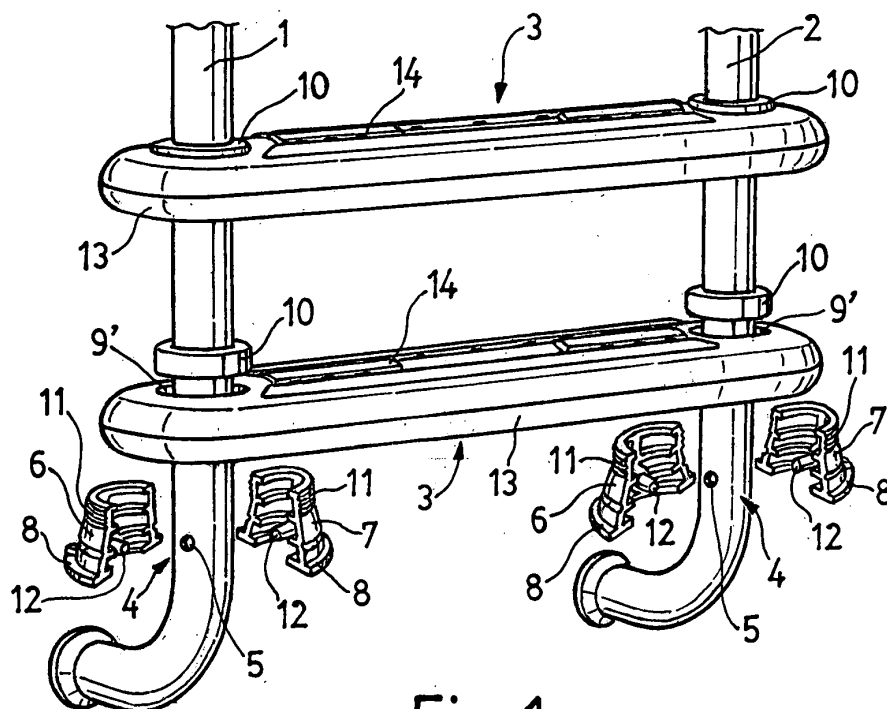


Fig. 1

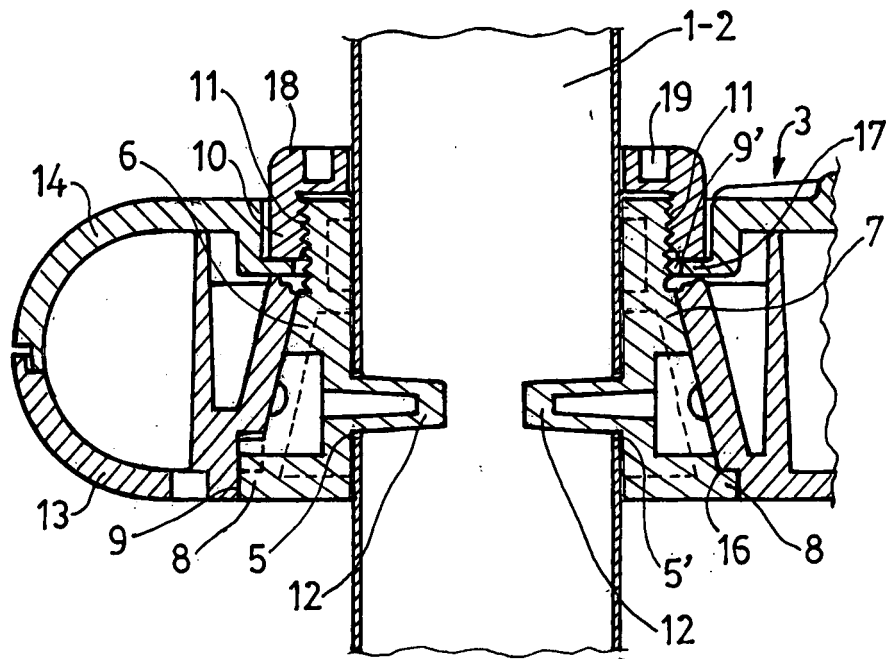


Fig. 2

Description**OBJECT OF THE INVENTION**

[0001] Ladder.

FIELD OF THE INVENTION

[0002] 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

[0003] 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

[0004] 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.

[0005] 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.

[0006] 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.

[0007] 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

[0008] 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 ensures 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

[0009] According to the drawings the ladder includes two metal tubular uprights (1 and 2) and several plastic steps (3).

[0010] 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.

[0011] 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.

[0012] 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.

[0013] 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.

[0014] 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.

[0015] 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).

[0016] 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.

[0017] The lower parts (14b) have a U shaped, elastic contour (23) around it to house the peripheral edge of the metal parts (14a).

[0018] 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.

[0019] 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.

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Claims

1. Ladder, comprising two fixed uprights and steps fixed between each other mainly applicable to swimming pools, **characterised in 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. 10
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2. Ladder, according to claim 1, **characterised in that** the holes in the uprights consist of openings housing the respective lugs in the internal periphery of the bushing halves. 20
3. Ladder, according to claim 1, **characterised in that** the step comprises a base to which a base is attached, both of which are made from plastic. 25
4. Ladder, according to claim 1, **characterised in that** the halves of the bushings have a conical shape on the external periphery and the step have interior, upper and lower steps in the opening, which fit into the nut and the lower step of the bushing halves respectively. 30
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5. Ladder, according to claim 3, **characterised in that** the cover is formed by two superimposed parts, the upper part is metal and the lower part is plastic. 40
6. Ladder, according to claim 5, **characterised in that** the metallic upper part have openings with a slightly raised semi-elastic edge on the plastic lower part. 45
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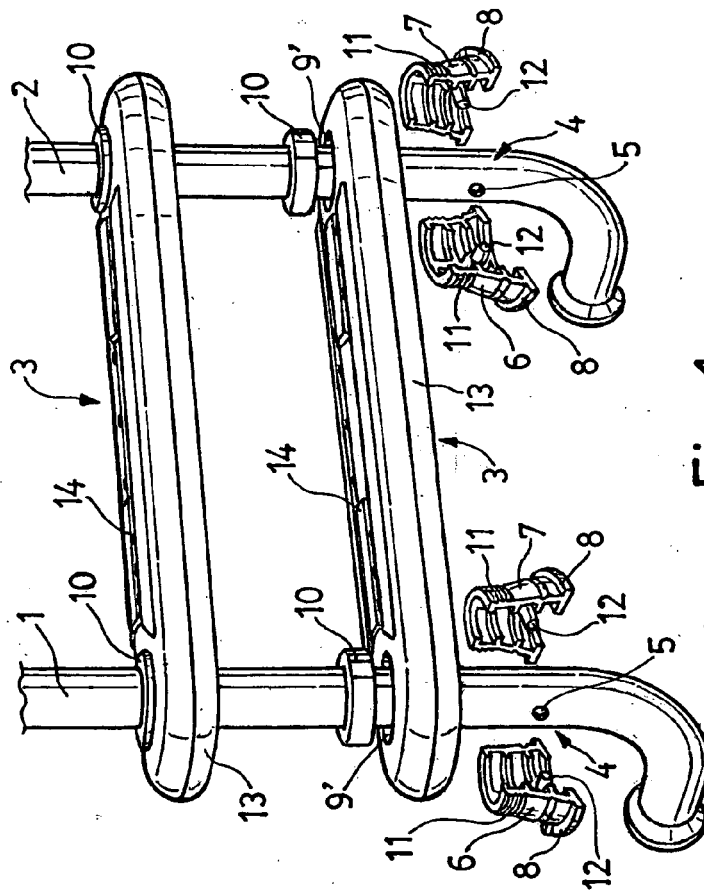


Fig. 1

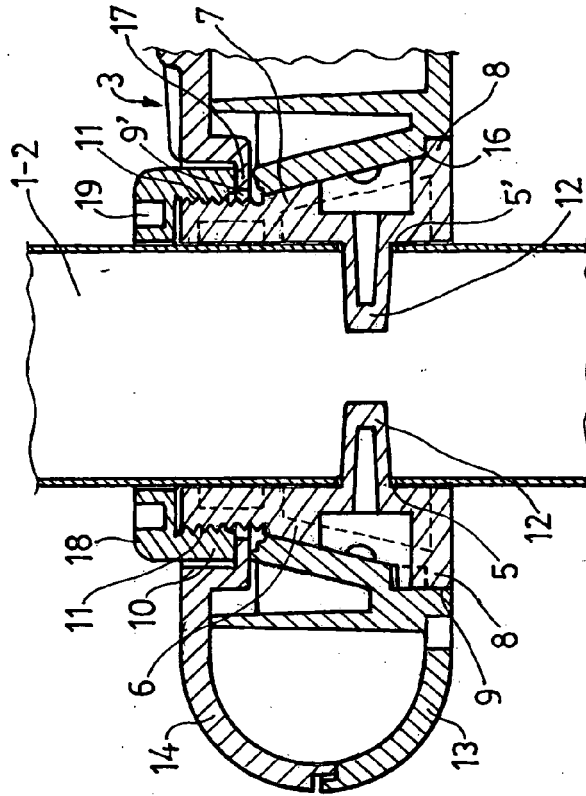
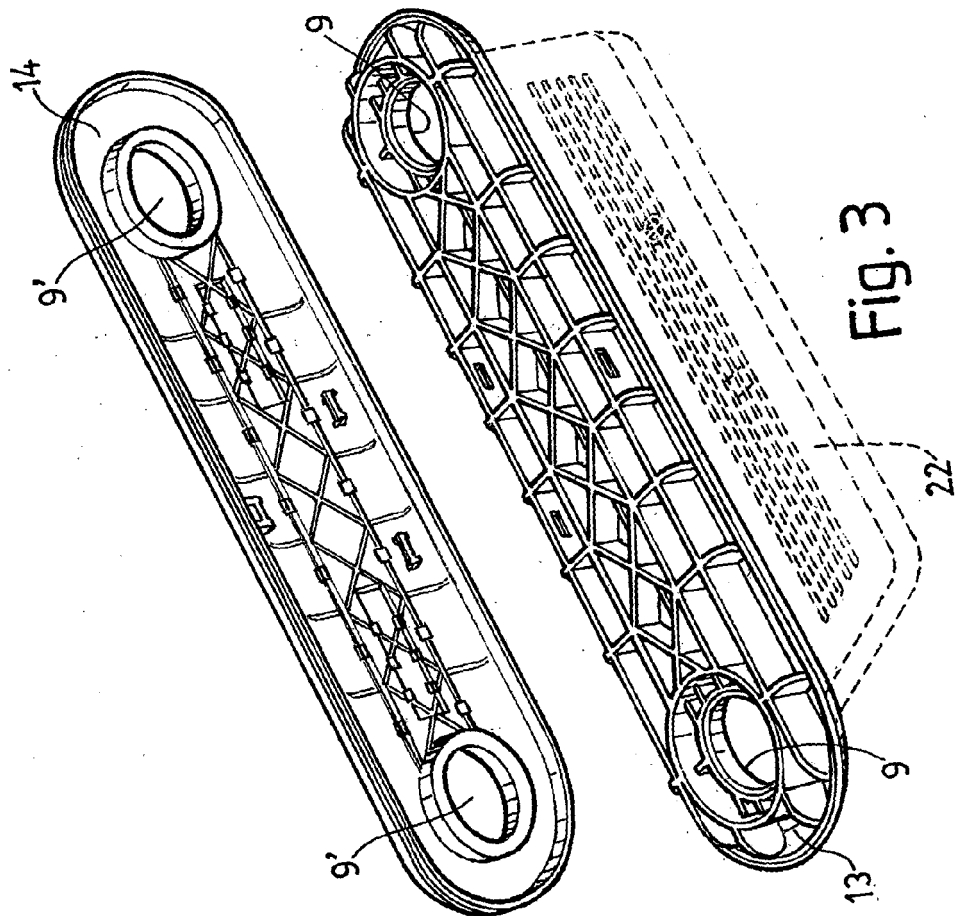
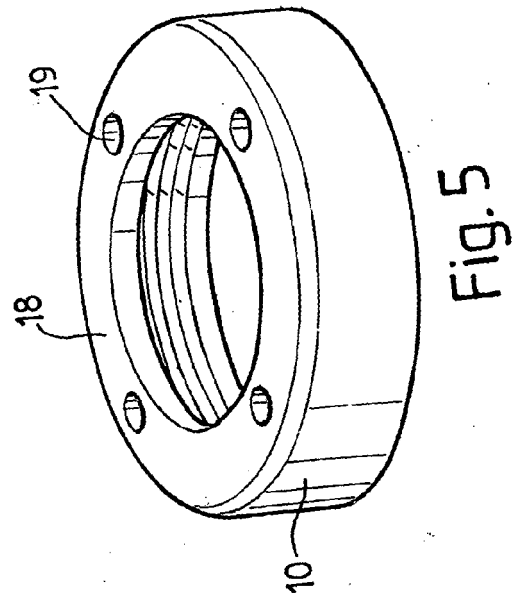
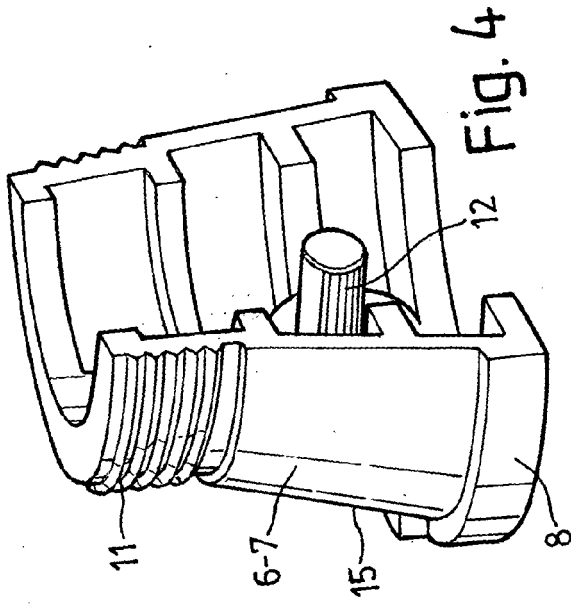
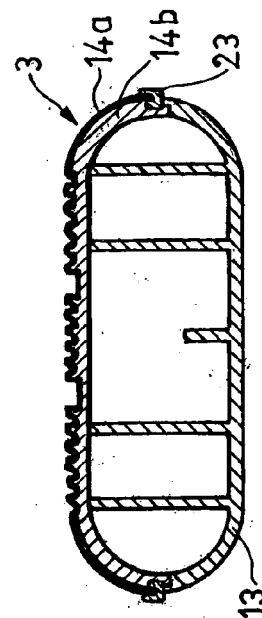
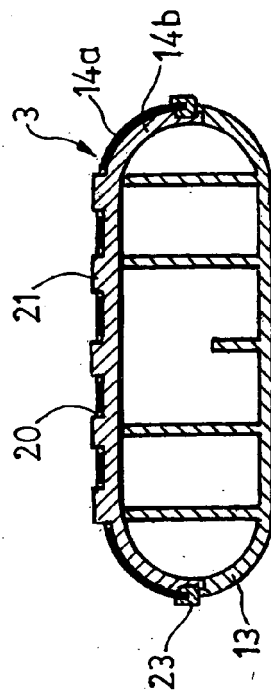
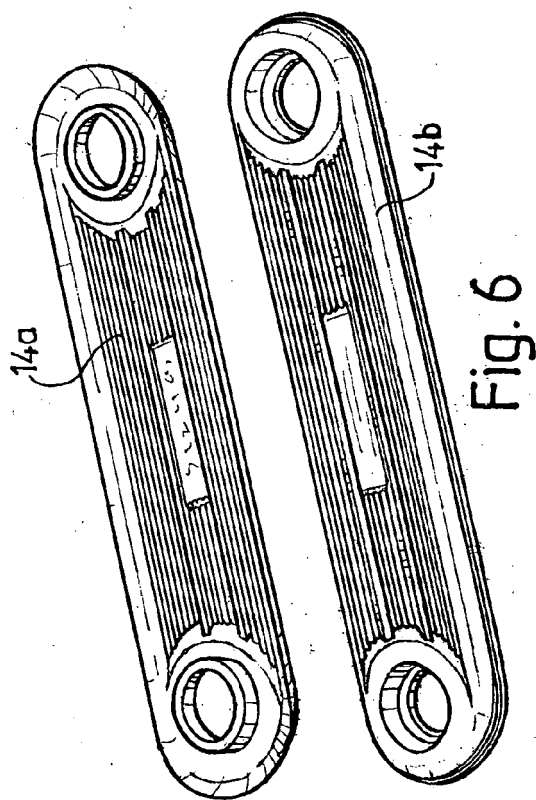
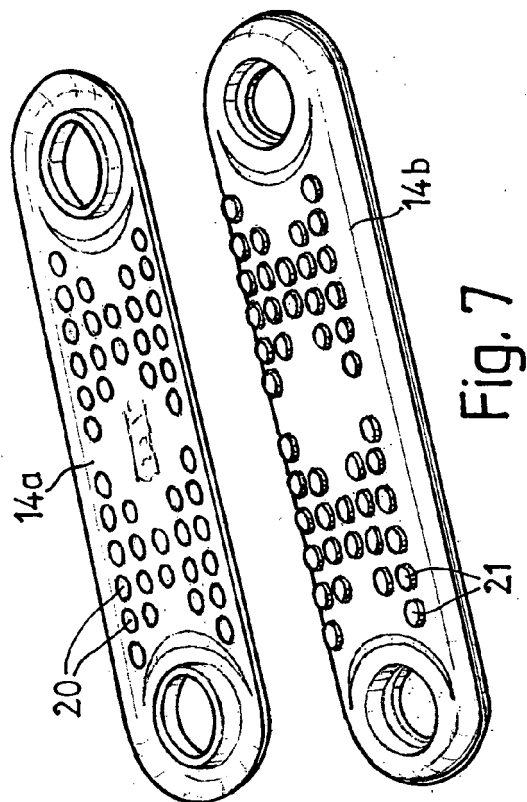


Fig. 2







EUROPEAN SEARCH REPORT

Application Number
EP 09 38 0087

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			TECHNICAL FIELDS SEARCHED (IPC)
			E06C B63B E04H F16B
The present search report has been drawn up for all claims			
Place of search		Date of completion of the search	Examiner
The Hague		21 July 2009	Bauer, Josef
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

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EPO FORM 1503.03.82 (P04C01)

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

EP 09 38 0087

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
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