

May 21, 1963

G. L. SMITH

3,090,465

SWIMMING POOL LADDER

Filed Nov. 12, 1959

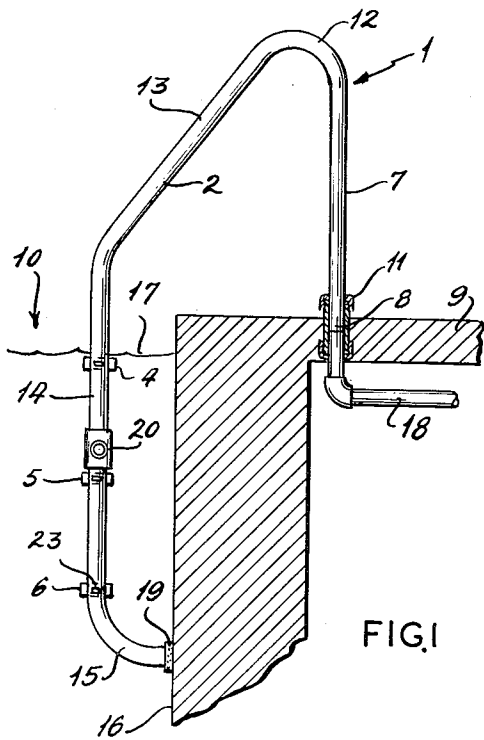


FIG. 1

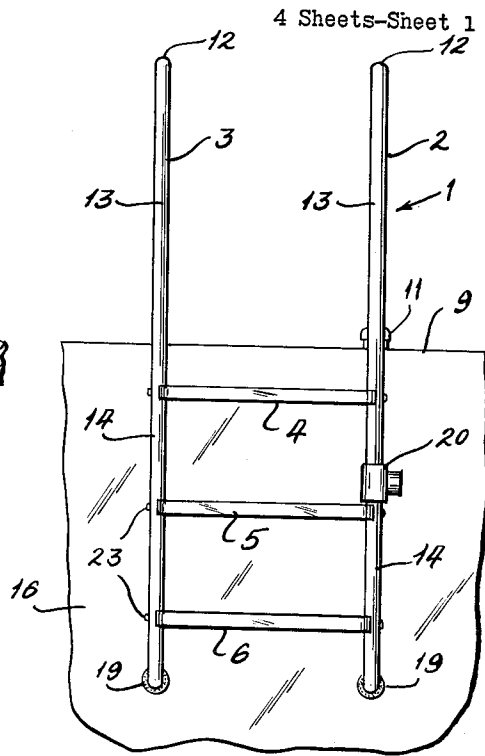


FIG. 2

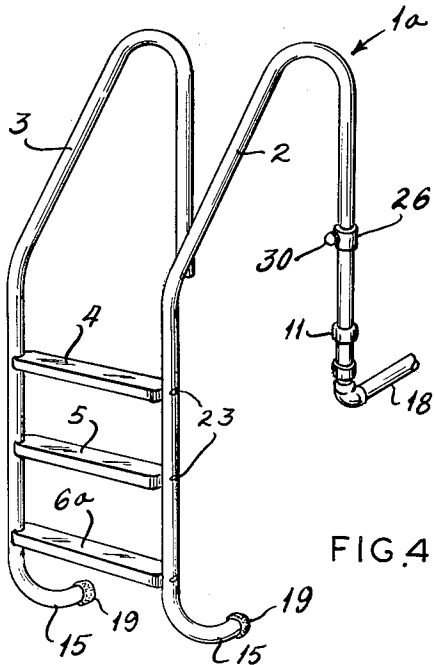


FIG. 4

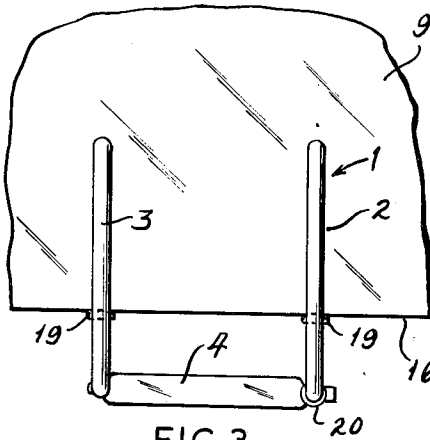


FIG. 3

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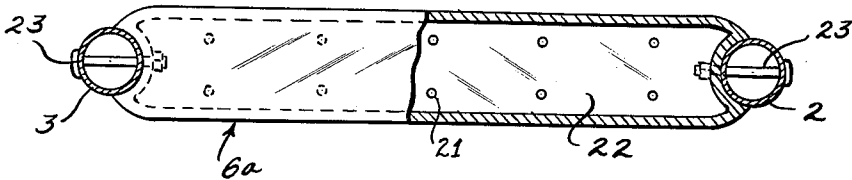


FIG. 5

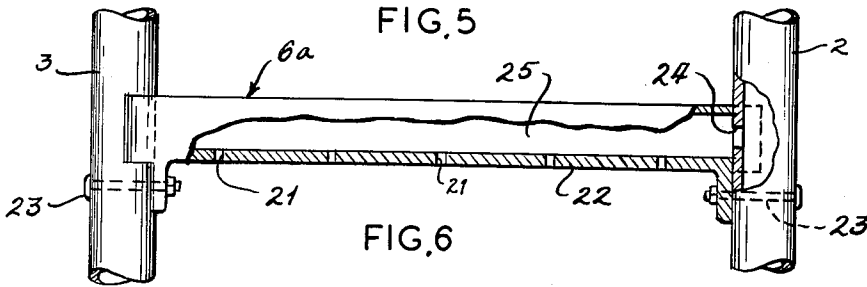


FIG. 6

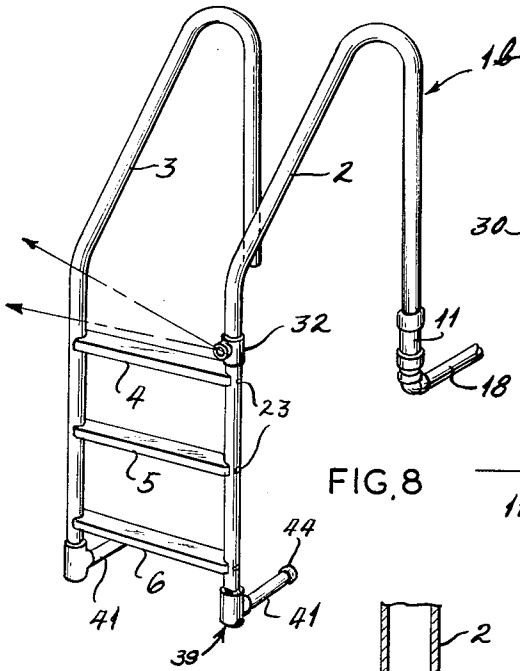


FIG. 8

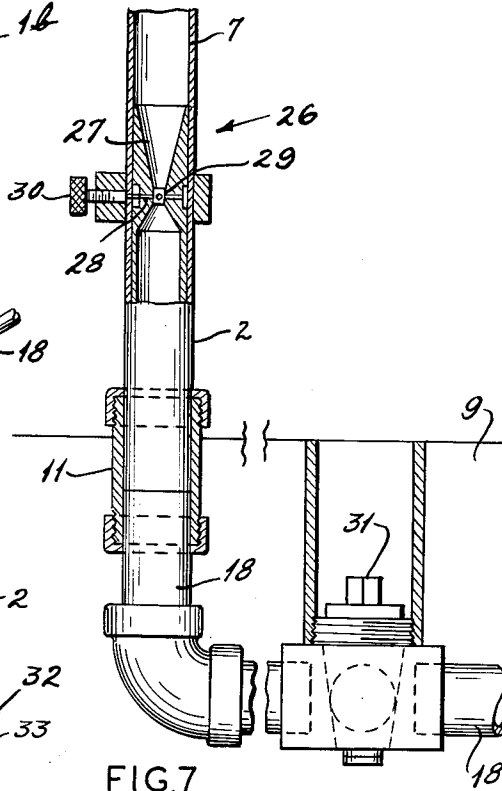


FIG. 7

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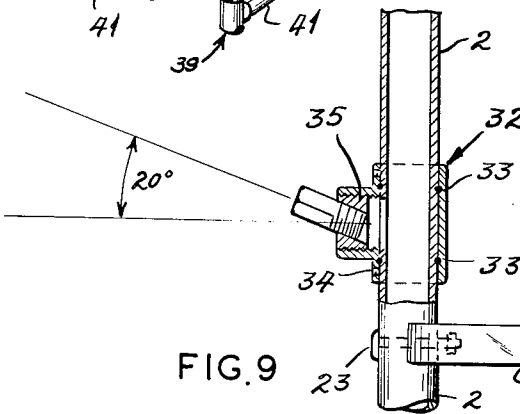


FIG. 9

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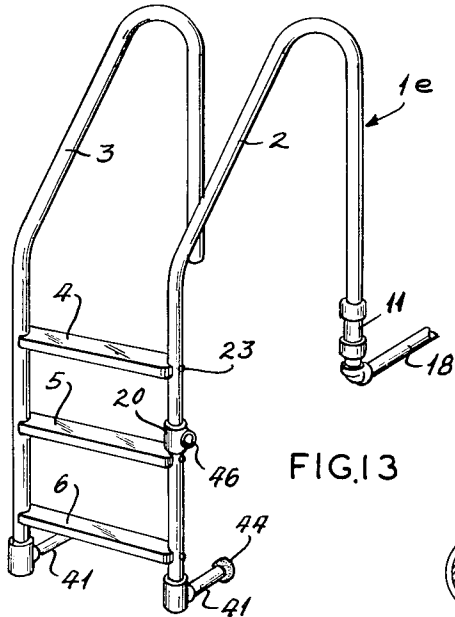


FIG. 13

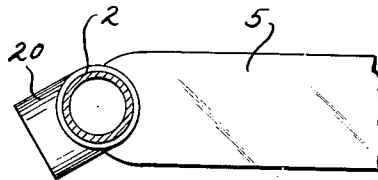


FIG. 14

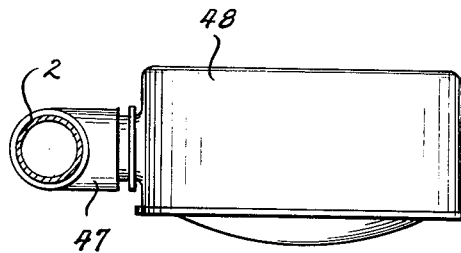


FIG. 16

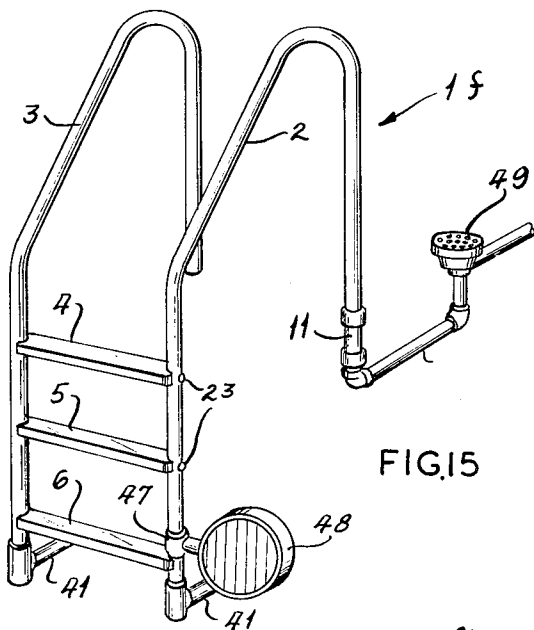


FIG. 15

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SWIMMING POOL LADDER

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5 Claims. (Cl. 182—52)

This invention relates to an improved swimming pool ladder or accessory which performs various functions in addition to its normal function as a ladder for entering and leaving a swimming pool.

The principal object of the present invention is to provide a swimming pool ladder which also serves any one or more of the following functions which are desirable and sometimes necessary in a swimming pool: returning filtered water to the pool and circulating same, spraying water from the pool for reducing the temperature of the water therein, aerating by means of bubbling air and aspirating, providing a vacuum fitting for cleaning the pool or skimming the surface to free it of foreign materials, dispensing chemicals into the pool, providing a support for an underwater light, and providing a filling spout. Another object is to provide in a swimming pool ladder one or more of the foregoing functions which have heretofore required separate equipment, fittings, and additional expense.

Another object is to provide a novel swimming pool ladder which has certain fittings thereon for receiving accessory items which can be installed and replaced from time to time when different functions are to be performed. Another object is to provide a versatile swimming pool accessory which can be varied with ease at the site of installation and which eliminates the necessity of some expensive and permanent fittings heretofore required. Another object is to provide an adjustable lower spacer support to insure contact between the bottom of the ladder and the vertical wall of the pool.

These and other objects and advantages will become apparent hereinafter.

The invention is embodied in a ladder for a swimming pool having hollow vertical side rails and one or more hollow steps, so that the ladder may also perform various accessory functions over and above its normal ladder function. These accessory functions include spraying recirculated water through the ladder and over the pool to aerate and cool the water, aerating through bubbling and aspirating, recirculating the water, filling the pool with additional fresh water, dispensing chemicals, providing a method of drawing water from the pool and providing light supporting means for an underwater light.

The invention also consists in the parts and in the arrangements and combinations of parts hereinafter described and claimed. In the accompanying drawings which form part of this specification and wherein like numerals refer to like parts wherever they occur:

FIG. 1 is a side elevational view showing a swimming pool ladder embodying one form of my invention with a vacuum fitting thereon,

FIG. 2 is a front view thereof,

FIG. 3 is a top plan view thereof,

FIG. 4 is a perspective view of an aerator ladder,

FIG. 5 is an enlarged broken plan view of the aerator step,

FIG. 6 is an enlarged broken front view of the aerator step,

FIG. 7 is an enlarged fragmentary cross-sectional view of the aspirator positioned near the connected portion of one of the side rails,

FIG. 8 is a perspective view of a spray ladder,

FIG. 9 is an enlarged fragmentary cross-sectional view of the spray adaptor shown in FIG. 8,

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FIG. 10 is a perspective view of a fill spout ladder showing a filler fitting on one side rail and filler openings in the other,

FIG. 11 is a perspective view of a ladder with a lower pool inlet and a lower adjustable support,

FIG. 12 is an enlarged fragmentary cross-sectional view of the rotatable inlet and lower leg supporting means,

FIG. 13 is a perspective view of a ladder with a vacuum fitting,

FIG. 14 is an enlarged top plan view of the vacuum fitting showing the fitting at a different angle or position,

FIG. 15 is a perspective view of a ladder with an underwater light thereon, and

FIG. 16 is an enlarged top plan view of the underwater light.

Referring now to the drawings in detail, it will be seen that the embodiment of the invention has been illustrated in a swimming pool ladder 1 having about the same dimensions which are standard in the industry. The ladder 1 comprises two hollow side rails 2 and 3 with a plurality of steps 4, 5 and 6 therebetween. In practice, the ladder is made so that the steps are removable from the side rails to allow the ladder to be shipped in knocked-down form. The material used should be tough, corrosion resistant, and maintain an attractive appearance. Stainless steel is preferable although other materials may be suitable.

Each side rail has an upright support 7 whose lower end 8 is suitably secured into the horizontal deck 9 surrounding the pool 10. The lower end 8 preferably has a special fitting or dresser coupling 11 so that the ladder 1 can be removed if desired, such as during the winter. The support 7 terminates in an upper curved portion 12 which leads into the slanted grab rail 13 which curves into the vertical portion 14 which supports the steps 4, 5 and 6 and has a lower end 15 suitably contacting the vertical face 16 of the pool 10 beneath the surface of the water 17. In practice, the vertical sections 7 and 14 of the side rails 2 and 3 are usually 24 inches apart with the vertical portion 14 extending 7 inches inwardly from the face 16 of the pool 10. The curved portion 12 is about 32 inches above the lower end 8. The two side rails 2 and 3 are about 20 inches apart.

The coupling 11 is also connected to a pipe 18 which is suitably connected to a source of fluid, such as fresh water or returned filtered water or a vacuum, or which houses electric wires as will be explained hereinafter.

The two side rails 2 and 3 are maintained in spaced relation in part by the steps 4, 5 and 6 which may vary as to number, although three is the most practical number. When three steps are used, the upper step 4 is about 2 inches below the normal water level 17 and each lower step is about 11 inches below the step thereabove. These steps are made of suitable material, usually chrome plated brass or stainless steel.

In the past, swimming pool ladders have served no function other than their obvious purpose for getting into and out of the swimming pool. The present invention utilizes the ladder, which is a necessary pool accessory, to perform other necessary functions or provide supports or fittings for various things which are required for proper maintenance of a swimming pool.

The ladder 1 shown in FIGS. 1-3 is provided with a curved lower end 15 having a pad 19 thereon which contacts the pool wall 16 and is also provided with a vacuum fitting 20 which will be explained later. FIG. 4 shows a form of an aerating ladder 1a wherein the lower step 6a is hollow and is provided with aerator holes 21 in the bottom wall 22 thereof. This arrangement is shown in greater detail in FIGS. 5 and 6, which also show

the bolts 23 which secure the step 6a to the side rails 2 and 3. One hollow side rail 2 is provided with an opening 24 which communicates with the chamber 25 in the step 6a.

An aerating device 26 is mounted within the upstanding support 7 of the side rail 2 and comprises a Venturi 27 with an opening 28 at the throat 29 thereof for sucking in air from the atmosphere to the water passing through the pipe 18 and side rail 2 as it goes into the pool 10. The amount of air can be adjusted by turning the thumb screw 30 which adjusts the size of the air opening 28. A suitable control valve 31 is positioned slightly below the horizontal deck 9 in a pipe 18 which supplies water to the side rail 2, which is suitably secured to the deck 9 by means of the coupling 11.

A spray ladder 1b, shown in FIGS. 8 and 9, has a spray fitting 32 mounted on the right side rail 2 which is adapted to spray water upwardly at about a 20° angle from the horizontal into the pool 10 to aerate the water during the night and to reduce the temperature of the water in the pool by as much as 5° F., although this will vary with conditions. In the past, separate aerating means and circuits have been used for recirculating and spraying the water from the pool back into the pool. The spray fitting 32 is mounted several inches above the normal water level of the pool and is provided with O rings 33 and fastening screws 34 and a removable nozzle 35 which can be replaced with a plug (not shown) if desired. The O rings 33 prevent leakage of water around the fitting 32. The bottom of the side rail 2 is plugged at 39.

Referring now to FIG. 10, the ladder 1c is provided with a fill spout 36 mounted slightly above the water level of the pool for supplying fresh water to the pool. The fill spout 36 may be mounted on either side rail if desired. If the fitting 32 is not desired, one of the side rails may be provided with filling holes 37 which are simply drilled into the hollow side rail. The side rail which contains the filling means must be plugged just beneath the filling opening, as at 38, or at the lower end of the side rail, as at 39, since under no circumstances should the pool water come in contact with the water being used to fill the pool.

Referring now to FIG. 11, the bottom of the right side rail 2 of the ladder 1d is provided with an adjustable pool inlet 40 for supplying filtered water to the pool which returns from the filter. A lower ladder support 41 shown in FIG. 12 maintains the lower side rail portion 15a in fixed relation from the face 16 of the pool and is easy to install. The lower ladder support 41 comprises a fitting 42 which fits on the lower portion 15 of the side rail 2 and supports the inlet 40 and a spacer or tube 43 which holds a rubber pad 44 which fits against the vertical face 16 of the pool 10. The tube 43, which can be cut to the proper lengths in the field, fits into the casting 42 which is secured by the screws 45. The distance between the side rail 2 and the face 16 of the pool can be adjusted by varying the length of the tubing 43. The curved inlet 40 can be positioned to direct water parallel to the pool face 16, or away from it either at an angle or perpendicular thereto.

In the past, ladders have had fixed curved bottoms as shown in FIGS. 1-4, which were sometimes permanently secured to the pool wall 16 with considerable difficulty. On other occasions when the bottoms were to simply contact the wall, the top fastening resulted in the bottom portion being out of contact with the wall. The present arrangement assures contact since the length of the tube 43 can be varied at the site of the pool after the ladder has been installed in the coupling 11. Regardless of the type of accessories on the present ladder, all forms thereof shown in FIGS. 1-16 may be provided with the easy to install lower end support 41 shown best in FIG. 12. The spacer 43 is preferably made from the same material and is of the same diameter as the side rail 2.

Referring now to FIG. 13, the right side rail 2 of the ladder 1e is provided with a vacuum fitting 20 having a removable plug 46 therein. The vacuum fitting 20 is preferably installed about 10 inches below the water level. When a vacuum is required to clean the pool and remove foreign substances therefrom, the plug 46 is removed and a hose is connected to the fitting 20 on the ladder and a valve in the line is opened to connect this side rail 2 with the suction side of the pool pump (not shown).

A floating type skimming device may also be installed in this fitting to keep the pool surface free from floating foreign matter. The vacuum fitting 20 is shown in greater detail in FIG. 14.

As best shown in FIGS. 15 and 16, the right side rail 2 of the ladder 1f is provided with a light fitting 47 adapted to receive an underwater light 48. With this accessory, the right side rail 2 acts as a protective housing for insulated wire (not shown) which supplies electricity to the light 48. Although the wire is insulated, it is preferable not to conduct water or chemicals through the same side rail as the electric wire. Whenever the side rail 2 is used for electric wire, any hollow steps should be suitably plugged so as to prevent water or moisture from entering the side rail and contacting the wire.

Night swimming is popular in many places, and in the past, pools had to be fabricated with special openings and housings in the vertical face 16 of the pool. This is expensive and leads to difficult electrical installation and maintenance. The present ladder or swimming pool accessory avoids this since it is provided with a fitting 47 for receiving an underwater light 48, which is secured to said fitting and supplied with electricity from wires with waterproof insulation which extend upwardly through the right side rail 2 and into the deck junction box 49 which is supplied with a source of electricity. The light 48 is provided with enough extra wire coiled up in the light housing to permit unhooking the light from the ladder attachment 47 and placing it on the deck 9 to replace a bulb or broken lense. This light 48 may be mounted so that its rays may be directed in a variety of angles, and if desired, each side rail may have a light.

A pool owner may combine the various accessory fittings as he sees fit or may request a ladder having a plurality of the fittings thereon. Obviously, however, all of the fittings cannot be used at the same time that the pool is being aerated or sprayed. Although chemicals can be dispensed into the pool by a fitting such as 40 on a side rail, the chemical should not be poured through any rail which also contains the electric wires.

The vacuum fitting 20, aerator step 6a, and filler inlet 40 are positioned below the level of the water so that it will not be too important if some leakage occurs between the fitting and the supporting side rail. With the present arrangement, there can be no leakage in the side rail fitting which is above the water level and deck level.

This invention is intended to cover all changes and modifications of the examples of the invention herein chosen for purposes of the disclosure, which do not constitute departures from the spirit and scope of the invention.

What I claim is:

1. A swimming pool accessory comprising in combination, a swimming pool ladder and an accessory item connected thereto, said ladder having a hollow rail and a hollow grab rail continuous therewith, the said hollow rail and said hollow grab rail being of a cross sectional dimension for grasping by a human hand, means for securing the ladder to a swimming pool with the hollow rail extending downwardly into the pool, said hollow rail having a fitting connected thereto, and in communication with the interior thereof, said fitting providing means for connection with said accessory item, the said hollow grab rail having an end position remotely from said fitting and having means by which the hollow grab rail may be connected to the suction side of a pump, said hollow rail and

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grab rail being leakproof from the suction receiving end of the grab rail to said fitting, and step means attached to said hollow rail.

2. The combination set forth in claim 1, wherein said accessory item is a floating surface skimming device.

3. The invention according to claim 1, with means connected with the lower end of said hollow rail and extending at an angle therefrom for engaging an adjacent wall of a swimming pool in which the ladder may be set up to brace the ladder in operative position.

4. The invention according to claim 1, with an aspirator in the ladder between the suction side of the pump and said accessory item for drawing air into fluid passing through the ladder.

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5. The invention according to claim 1, wherein said accessory item is a spray fitting.

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