ABSTRACT OF THE DISCLOSURE

A coping for a liner type swimming pool including a metal member having a channel embracing the wall upper edge, a tread and depending portions at its inner and outer edge. A plastic covering overlies the metal member and has inner and outer edges which have snap-in engagement in grooves in said depending portions. Other grooves in the liner may possibly anchor the periphery of the liner and the periphery of a pool cover.

This invention relates to swimming pool construction and, more particularly, to a novel and improved coping for the upper edge of an upright wall of a swimming pool including an interior liner, and constructed and arranged to anchor the liner and further to anchor a swimming pool cover.

With the greatly increased popularity of private, residential, or so-called "backyard" swimming pools, new swimming pool construction techniques have been developed which differ substantially from the construction techniques utilized in building commercial pools, such as for clubs, motels and the like. These new techniques have been developed largely from the standpoint of decreasing the cost of pool construction and simplifying and expediting the construction of the pools. A major new feature has been the use of a waterproof plastic liner lining the interior of the pool.

Private swimming pools are generally of two types known, respectively, as the above-ground and the underground or "dug" types. The above-ground type includes a framing, generally of a long-lasting wood, providing the side walls of the pool and a walkway therearound. The wooden structure then has the aforementioned waterproof plastic liner placed inside and suitably anchored at its upper edges, at least, to the supporting structure. In the underground or dug-type of pool, an excavation is made as an initial step, this excavation generally including a deeper portion, sometimes known as the "hopper," adjacent the prospective position of a diving board. Suitable rigidly rigid wall formations are provided to hold the soil in place, and sometimes the bottom of the pool is lined with concrete although, more usually, at least a major portion thereof is formed of a tamped bed of sand. Again, after the excavation has been made and the walls mounted, a waterproof plastic liner is placed within the excavation and suitably anchored at its upper edge.

In both the above-ground and the underground types of pool, a coping is generally provided around the periphery of the pool and is both functional and decorative. In one known type of construction this coping may comprise shaped pieces of tile which are laid over the upper edge of the liner which in turn has been extended outwardly over the ground or top of the wall bounding the pool. In the case of an aboveground pool, this coping is suitably anchored to the supporting framework of the pool. However, and very frequently, in the case of dug pools, the coping is merely laid in place although the individual pieces may be joined together by cement or the like to form a continuous structure.

With both private and public pools, constant care, inspection and maintenance are necessary for proper preservation of the pool, and this includes, particularly, care of the pool during periods of non-use, such as during the cold weather where the temperature may drop below freezing. In the case of dug pools, it is generally considered advisable to leave the water in the pool during cold weather, even with the possibility of the water freezing. However, for protection against wind-borne debris and the like, it is advisable to cover over the pool, as with a large plastic cover, which is placed over the pool and anchored around the pool rim.

The placing and anchoring of such a cover has presented considerable difficulties, particularly when it has to be placed in position and anchored by the owner of a residential pool. In addition, the flexibility of the usual pool liner requires constant inspection of the anchoring thereof, and also to ascertain that wrinkles do not develop in the lining due, for example, to sand walls or a sand bottom engaging the outer surface of the liner.

A high quality type of pool construction, involving prefabricated elements utilizes wall panels which have cores of plastic material to which are bonded facing and enclosing sheets of aluminum. These prefabricated wall panels, which are substantially rectangular in plan and in cross section, are seated in channels defining the periphery of the bottom surface of the pool. After the wall panels have been erected, the upper edges have coping pieces mounted thereon. These coping pieces generally have a downwardly facing channel formation on their undersurface arranged to fit over and embrace the upper surfaces of the wall panels, and suitable means are provided to anchor the coping to the wall panels and to other elements of the pool structure. The copings are generally metal extrusions, such as aluminum extrusions.


An object of the present invention is to provide a coping which has advantageously improved features with respect to copings hitherto used.

Another object of the invention is to provide a coping in the form of an extruded one-piece metal member formed to have an integral snap-in covering anchored thereto and overlying at least the upper surface and a portion of the side surfaces of the coping.

A further object of the invention is to provide such a coping which comprises an extruded aluminum member and a plastic snap-in cover.

Yet another object of the invention is to provide such an improved coping which includes formations by means of which the pool liner may be readily and easily anchored thereto.

A further object of the invention is to provide such an improved coping including formations arranged to receive a bead extending around the periphery of the pool cover, whereby the pool cover may be readily and easily anchored to the coping and disengaged from the coping when desired.

For an understanding of the principles of the invention, reference is made to the following description of a typical embodiment thereof as illustrated in the accompanying drawings.

In the drawings:
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FIG. 1 is a partial perspective view, partly in section, illustrating a swimming pool construction including the improved coping of the present invention;

FIG. 2 is a sectional view taken on the line 2—2 of FIG. 1; and

FIG. 3 is a view similar to FIG. 2 but illustrating the anchoring of a pool cover to the improved coping of the invention.

While the coping of the present invention is particularly designed for use in pool constructions of the type shown and described in the above-mentioned U.S. patent and U.S. patent application, it may be used with other forms of pools having upright sidewalls with substantially rectangular cross sections. It is, however, particularly designed for pools of the type having an interior liner of waterproof plastic composition material.

Generally speaking, the coping is designed for the upper edge of an upright wall of a swimming pool including an interior liner, and each coping section comprises a relatively elongated integral metal member such as, for example and preferably, an extrusion of aluminum. This integral metal member has a relatively flat tread portion arranged to lie along the upper edge of the wall, and includes a first dependent portion extending along the inner edge of the tread portion and arranged to overlie the upper portion of the inner surface of the wall. This dependent portion, together with at least a part of the tread portion, is comprised or includes in a downwardly opening channel formation arranged to slip over or embrace the upper edge of the wall. At its outer edge, the coping section has a second dependent portion extending along the tread portion. A relatively elongated integral snap-in covering is arranged to overlie the tread portion and at least the upper portion of the dependent portions of the metal member, and these dependent portions and at least the longitudinal edges of the covering have interengageable male and female formations providing for snap interlocking of the covering and the member.

The covering is preferably a plastic material, such as an extrusion of vinyl plastic composition material, and may be plain or may be colored. The upper surface of the covering is preferably longitudinally ribbed or otherwise configured to provide an anti-slip tread surface along the edge of the pool. In accordance with a further feature of the invention, the second dependent portion at the coping section is also provided with a recess arranged to have a bead on a pool cover snapped thereinto so as to releasably retain the pool cover in a relatively stretched condition over the surface of the pool, while permitting for ready disengagement of the pool cover from the coping when it is desired to remove the pool cover.

Reverting to FIG. 1, the coping embodying the invention is illustrated as applied to the upper edge of a wall of a swimming pool construction of the type shown and described in the aforementioned U.S. patent and copending U.S. patent application. This swimming pool construction comprises rectangular wall sections 10 having rectangular cross section cores 11 of plastic composition material of relatively light weight, the cores 11 having sheets 12 of aluminum bonded to their outer surfaces. Wall panels 10 are arranged to be seated in upwardly facing base channels which have not been shown. The pool construction further includes a waterproof plastic interior lining 15 having a thickened bead 16 extending around its upper edge. The invention coping is mounted on the upper edges of wall panels 10, in embracing relation with these upper edges. The coping comprises relatively elongated sections which are bolted to each other to provide a complete coping. Each section includes a relatively elongated integral metal member 20, which is preferably an aluminum extrusion, and a relatively elongated integral snap-in covering 40, which is preferably an extrusion of a vinyl plastic composition, arranged to overlie the tread portion and at least the upper portions of the side edges of the metal member 20.

Each metal extrusion 20 includes a substantially flat and relatively wide tread portion 21 having a depending formation or portion 30 along its outer edge. Depending formation 25 has an inner surface which is substantially perpendicular to tread portion 21 and, in spaced relation to the inner surface of depending portion 25, there is a dependent flange 28 which is perpendicular to tread portion 21. The inner surface of depending portion 25, the flange 28, and the portion of tread portion 21 included therebetween define a downwardly opening channel having a width of the order of that of the wall panels 10 so as to have a close conforming fit over the upper edges of these wall panels.

Outwardly of flange or leg 28, each metal section 20 is provided with a pair of metal clips 30, one at each end of the section, and these clips 30 are formed with apertures 14. These apertures 14 are arranged to receive bolt and nut assemblies by means of which longitudinally adjacent metal sections may be drawn into tight aligned engagement with each other. Furthermore, each of the metal sections 20 is arranged to have secured thereto a brace rod 17 for anchoring the coping to the framing of the pool, all as described in the aforementioned copending U.S. patent application Ser. No. 297,324.

Depending formation 25 is formed with an upwardly opening longitudinally extending recess or groove 22 and with a downwardly opening longitudinally extending lower recess or groove 23. A wall of recess 23 is continued as a smoothly curved wall portion 24 which extends inwardly and upwardly relative to the pool, and defines a second upwardly opening recess or groove 26 for a purpose to be described. This particular wall defining the recess 23 is also formed with a bulbous edge 28 facing toward curved wall 24. The other wall defining recess 23 has a projecting lip 27 extending therealong and into the recess 23. As illustrated, recess 23 is arranged to have the thickened bead 16 of pool liner 15 snapped thereinto for interlocking engagement with the coping.

The outer dependent portion 30 comprises a downwardly and outwardly sloping flange or leg 31, from which there projects an upper flange 37, which slopes outwardly and upwardly at a relatively small angle, and a lower flange 35, which also slopes outwardly and downwardly substantially parallel to flange 37. Dependent portion 21 of each member 20 is tapered in thickness and has a rounded outer edge 33, the inner surface of this tapered portion extending substantially parallel to the flange 32 to define therewith an outwardly opening upper recess or groove 34. Similarly, flanges 32 and 35 define a lower outwardly opening recess or groove 38. Flange 35 has, on its outer edge, a downwardly sloping lip 36, and flange 32 has a downwardly projecting rib 37 extending therealong. The function of recesses or grooves 22, 26, 34 and 38 will be made apparent as the description proceeds.

The plastic extrusion 40 overlies and partly encloses the aluminum extrusion 20. Extrusion 40 includes a substantially flat and horizontal tread portion 41 overlying tread portion 21 of aluminum extrusion 20 and formed, for example, with ribs 42 extending longitudinally of its upper surface to provide an anti-skid surface. Other anti-skid configurations may be used, however. Covering 40 includes a dependent rear leg 43 from which a flange 44 projects inwardly. Tread portion 41, leg 43 and flange 44 define a recess which can be readily hooked over the tapered end 33 of aluminum extrusion 20. Rear leg 43 includes a portion 48 extending downwardly from flange 42 to bear or wedge against the upper surface of flange 32 of formation 30 of aluminum extrusion 20.

The inner edge of covering 40 comprises a smooth curved wall 45 which extends inwardly and downwardly as a substantial continuation of the curved surface of
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curved lip 24 of aluminum extrusion 20. The curved extension 45 is provided with an offset lip 46 at its extreme end, this lip 46 being offset relative to the remainder of the curved wall 45 by substantially the thickness of curved lip 24 of aluminum section 20. Lip 46 is arranged to be snapped into recess or groove 26 in formation 25, with the outer surfaces of curved lip 24 and curved wall 45 forming a substantially smooth continuation of each other. Additionally, covering 40 is provided with a lip 47 which snaps into the upwardly opening recess 22 of member 20 and preferably has a roughened or ribbed surface engaged with the wall of this recess, as illustrated. The upper end of this just mentioned wall is formed as a bulbous edge 29 to provide a smooth transition surface for the curved wall 45 of covering 40.

After coping metal members 20 have been assembled to the upper edges of walls panels 10, and connected to each other by bolts extending through the apertures 14 of clips 13, the covering 40 is applied to the assembled metal coping by snapping the rear edge of covering 40 over the tapered rear edge of the thread portions 21 of metal sections 20, and with lips 44 extending into recesses 34 and lips 48 engaging the upper surfaces of flanges 32. The forward end of covering 40 is then snap-interlocked with the metal extrusions 20 by snapping rib 47 into recess 22 and rib 46 into recess 26. Thus, the plastic extrusion forming covering 40 may be readily and easily assembled with the metal extrusions 20 to complete the coping structure. As stated, the plastic extrusion 40 may be plain or may be colored and may have other anti-skid patterns on its upper surface, rather than the illustrated ribs 42. Thus, an attractive long-wearing coping for a swimming pool is provided including a metal base member and an extruded plastic covering having a snap interlock with the member.

As previously mentioned, the coping of the present invention also provides for ready and easily locking of the pool cover in position and releasing of the pool cover. Referring to FIG. 3, a pool cover 50 is illustrated and, as known to those skilled in the art, this cover 50 is drawn over the entire pool when, for example, it is desired to protect the pool from entry of debris thereinto or when it is desired to retain the sun's heat in the pool water overnight. Cover 50 has a thickened bead 51 extending around its periphery, and to assemble the cover and anchor it in position, this bead 51 is snapped into the lower recess or groove 38 of dependent portion 30 of the metal coping portions 20. Such snapping-in and releasing is facilitated by the flaps 36, with the anchoring being assured by the down-turned rib 37.

From the foregoing description, it will be apparent that the present invention comprises an attractive appearing, easily installed coping for swimming pool, and which is a multiple-function coping in that the swimming pool liner may be anchored therein and a swimming pool cover may be also anchored therein and be easily released therefrom. Furthermore, the vinyl covering over the metal base provides a sure tread surface which is not subject to deterioration due to the elements, and this is also true of the aluminum extrusion forming the metal coping sections 20. The coping is attractive in appearance, is easily and quickly installed, and is multifunctional.

While a specific embodiment of the invention has been shown and described in detail to illustrate the principles of the invention, it will be understood that the invention may be embodied otherwise without departing from such principles.

What is claimed is:

1. A coping for the upper edge of an upright wall of a swimming pool including an interior liner, said coping comprising, in combination, a relatively elongated integral metal member; said integral metal member being formed with a relatively flat tread portion arranged to lie along the upper edge of the wall, a first dependent portion extending along the inner edge of said tread portion and arranged to overlie the upper portion of the inner surface of the wall and comprised, together with at least a part of said tread portion, in a downwardly opening channel formation, arranged to slip over and embrace the upper edge of the wall, and a second dependent portion extending along the outer edge of said tread portion; and a relatively elongated integral snap-in covering arranged to overlie the tread portion and at least the upper portion of said dependent portions; said dependent portions having at least the longitudinal edges of said covering having interengageable male and female formations providing for snap interlocking of said covering and said member.

2. A coping, as claimed in claim 1, in which said covering comprises non-metallic material.

3. A coping, as claimed in claim 1, in which said integral metal member is an extrusion of metal selected from the class consisting of aluminum and aluminum alloys.

4. A coping, as claimed in claim 1, in which said integral member is a metal member extruded from metal selected from the class consisting of aluminum and its alloys, and said covering is an extrusion of a plastic composition material.

5. A coping, as claimed in claim 2, in which said interengageable male and female formations comprise upwardly opening grooves formed in said dependent portions and inwardly projecting lips on said covering.

6. A coping, as claimed in claim 2, for use with an interior liner having a thickened bead around its upper edge, said first dependent portion being formed with a first upwardly opening groove, a downwardly opening groove, and a second upwardly opening groove, said upwardly opening grooves receiving, in a snap manner, lips on said covering; said downwardly opening groove receiving the bead on the upper edge of the liner; said grooves and said lips forming said interengageable male and female formations.

7. A coping, as claimed in claim 6, in which said second upwardly opening groove is formed with an upwardly curving outer wall; the inner edge of said covering including a downwardly curved wall portion abutting said upwardly curved wall and forming a smoothly curved continuation of the latter; said downwardly curved wall portion having an offset lip on the lower edge thereof extending into said second upwardly opening groove, said lip being offset from the remainder of said downwardly curved wall portion by substantially the thickness of said upwardly curved wall.

8. A coping, as claimed in claim 7, in which said covering has a lip extending along its undersurface inwardly of said downwardly curved wall and having a snap fit into said first upwardly opening groove.

9. A coping, as claimed in claim 8, in which said second dependent portion comprises a flange extending downwardly from said tread portion, said tread portion including a terminal edge extending outwardly of said flange, and said flange having a lip extending outwardly therefrom to define, with said terminal portion, a first outwardly opening groove extending along the outer edge of said metal member; said covering having a downwardly extending outer edge formed with a lip extending inwardly substantially parallel to its tread engaging portion and defining an inwardly opening groove having a snap-action fit over said terminal portion of said metal member with said inwardly extending lip engaged in said first groove of said second dependent portion; said just-mentioned cooperating parts of said covering and said second dependent portion being comprised in said interengageable male and female formations; said covering being assembled to said metal member by hooking the rear portion of said covering over the terminal portion of the tread portion of said metal member and snapping the lips adjacent the forward edge of said covering into said upwardly extending grooves in said first dependent portion.
10. A coping, as claimed in claim 9, including a second lip extending outwardly from said flange of said second dependent portion in spaced parallel relation to said first flange and defining therewith a second outwardly opening groove of said second dependent portion; said second outwardly opening groove receiving a thickened bead on the periphery of a swimming pool cover for anchoring the swimming pool cover to said coping.

11. A coping, as claimed in claim 9, in which said first flange of said second dependent portion has a downturned outer edge, and said second flange of said second dependent portion has a downwardly sloping outer edge, said projecting portion and said sloping edge facilitating interengagement, interlocking and disengagement of the swimming pool cover bead relative to the second outwardly opening groove of said second dependent portion.

12. A coping, as claimed in claim 2, in which the upper surface of the tread-engaging portion of said covering is formed as an anti-skid surface.