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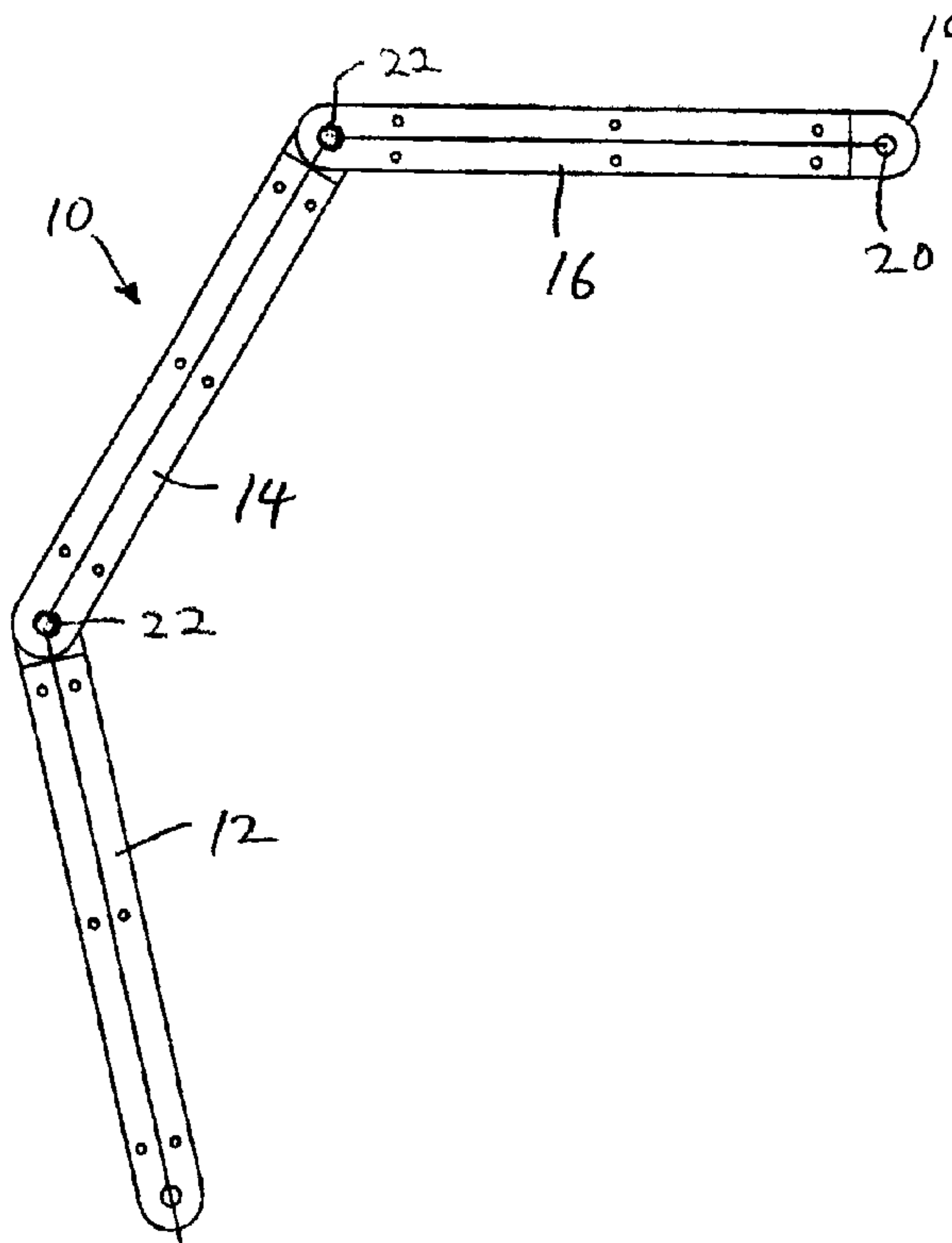
(71) Demandeur/Applicant:
QUAKER PLASTIC CORPORATION, US

(72) Inventeurs/Inventors:
SHERTZER, KENNETH S., US;
DAHOWSKI, DONALD E., US;
WILSON, JAMES G., US

(74) Agent: MOFFAT & CO.

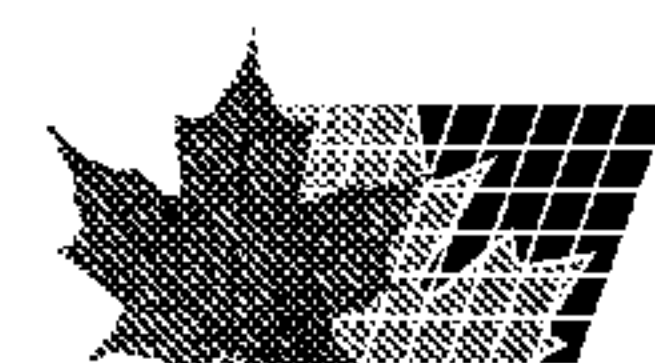
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(54) Title: FENCE POST ANCHORING SYSTEM AND METHOD



(57) **Abrégé/Abstract:**

A fence post anchoring system embedded in a deck for providing anchoring holes in the deck includes a plurality of anchor links, and a plurality of post anchors that interconnects ends of the anchor links together, each post anchor having an opening sized to receive a fence post therein. In another embodiment, the fence post anchoring system includes an anchor base with side walls that define a channel, and a post anchor received in the channel, and the post anchor being retained in the channel of the anchor base in an upright position. Methods for providing anchoring holes for fence posts are also provided including pouring concrete to embed components of the fence post anchoring system while forming the deck.



ABSTRACT OF THE DISCLOSURE

A fence post anchoring system embedded in a deck for providing anchoring holes in the deck includes a plurality of anchor links, and a plurality of post anchors that interconnects ends of the anchor links together, each post anchor having an opening sized to receive a fence post therein. In another embodiment, the fence post anchoring system includes an anchor base with side walls that define a channel, and a post anchor received in the channel, and the post anchor being retained in the channel of the anchor base in an upright position. Methods for providing anchoring holes for fence posts are also provided including pouring concrete to embed components of the fence post anchoring system while forming the deck.

FENCE POST ANCHORING SYSTEM AND METHOD

[0001] This application claims priority to U.S. Provisional Application No. 60/706,452, filed August 9, 2005, the contents of which are incorporated herein by reference.

BACKGROUND OF THE INVENTION

Field of the Invention

[0002] The present invention is directed to fence post anchoring system and method that provides holes for supporting fence posts.

Description of Related Art

[0003] Mesh fences have been commonly utilized as removable safety barriers. In this regard, whereas such mesh fences have been utilized in various different applications, such mesh fences are frequently used as safety barriers for swimming pools and the like where fencing is desirable to keep small children from accidentally drowning, or otherwise being injured. Mesh fences are made from a long piece of flexible mesh made of woven nylon or other appropriate material(s) to which a plurality of posts are attached. Generally, the mesh has reinforced edge hems to increase strength and prevent tearing. The posts attached to the mesh define multiple panels. The posts are slid into mounting receptacles which are essentially sleeved receiving holes that are positioned along the periphery of the swimming pool thereby forming a fence around the swimming pool. Such mesh fences are well known in the art as described in U.S. Patent No. 5,553,833 to Bohen, U.S. Patent No. 5,664,769 to Sadinsky et al., and U.S. Patent No. 5,794,990 to Coppedge.

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[0004] In order to install the mesh fences described above, holes are typically drilled into the existing concrete deck, the drilled holes being sized to securely hold the fence posts upright. However, accurately positioning the holes to be drilled in the deck can be difficult. If the distance between the holes are smaller than it should be, there will be slack in the mesh fence, thereby reducing the efficacy of the mesh fence in providing a safety barrier. On the other hand, if the distance between the adjacent holes are too large, the posts of the mesh fence cannot be inserted into the holes drilled into the concrete deck. In such an instance, another hole must be drilled, or alternatively, the position of the fence post on the mesh must be adjusted. Either of these options are difficult and laborious, and can increase the cost and time required for proper installation of the mesh fence.

[0005] Therefore, in view of the above, there exists an unfulfilled need for an anchoring device for facilitating the provision of holes used in installation of such fences and fence posts.

SUMMARY OF THE INVENTION

[0006] In view of the foregoing, an advantage of the present invention is in providing a fence post anchoring system and method for facilitating the provision of anchoring holes in the deck which are used in installation of such fences and fence posts.

[0007] Another advantage of one embodiment of the present invention is in providing such fence post anchoring system and method that allows provision of such anchoring holes for fence posts without drilling holes.

[0008] In accordance with one embodiment of the present invention, fence post anchoring system and method are provided that can be used to provide anchoring holes for anchoring the fence posts before the concrete is poured to form the concrete deck. This eliminates the need for drilling holes in the concrete deck after the concrete has cured. Thus, the fence post anchoring

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system can be used to facilitate providing anchoring holes that receive fence posts. The components of the fence post anchoring system are positioned, for instance, around a swimming pool, before the concrete is poured, such that anchoring holes can be provided for the fence posts without the drilling operation of the cured concrete deck.

[0009] Correspondingly, in accordance with one embodiment of the present invention, the fence post anchoring system that is embedded in a deck for providing anchoring holes in the deck includes a plurality of anchor links, and a plurality of post anchors that interconnects ends of the anchor links together, each post anchor having an opening sized to receive a fence post therein. In one implementation, the plurality of anchor links have at least one hole at ends thereof, the plurality of post anchors being received in the holes of overlapping ends of the anchor links to interconnect ends of the anchor links together.

[0010] In accordance with another embodiment, the at least one hole of at least one end of the plurality of anchor links may be implemented as a plurality of holes. In such an embodiment, the plurality of holes may be implemented to overlap each other. The plurality of anchor links may be implemented to have flanges at ends thereof, the holes of the anchor links being provided on the flanges. The plurality of post anchors may be received in the holes of overlapping flanges, and implemented with integrated bases that are sized larger than the holes.

[0011] In accordance with another embodiment of the present invention, the post anchor is tubular, having a height dimension larger than a width dimension, and the fence post anchoring system further includes a plurality of caps insertable in the openings of the post anchors to prevent concrete and debris from entering the post anchors, for example, during pouring of concrete which hardens and embeds the fence post anchoring system therein to form the deck. The plurality of anchor links and the plurality of post anchors are preferably made of plastic.

[0012] In another embodiment, the fence post anchoring system includes drain conduits that are installed in the concrete deck, for example, installed around a swimming pool. The drain conduits include provisions for installing post anchors subsequently, if desired. This allows the fence posts to be supported in the drain conduits via the post anchors. Thus, holes need not be drilled into the cured concrete deck, but may be provided in conjunction with the drain conduits.

[0013] Correspondingly, in accordance with another embodiment of the present invention, the fence post anchoring system for providing anchoring holes in a deck includes an anchor base with side walls spaced apart from each other to define a channel, a post anchor received in the channel between the side walls of the anchor base, the post anchor having an opening sized to receive a fence post therein, and a retaining means for retaining the post anchor in the channel of the anchor base in an upright position. In one implementation, the retaining means includes slots provided on the side walls, and at least one flange extending from a side of the post anchor that engages at least one of the slots in side walls of the anchor base. In another embodiment, the side walls of the anchor base further include vertically offset slots, and the post anchor includes offset flanges positioned to engage the vertically offset slots of the anchor base.

[0014] In accordance with another embodiment, the side walls of the anchor base are spaced apart from each other at a distance less than a width of the post anchor with the at least one flange extending therefrom. In addition, the slots are sized longer than a width of the flange. In still another embodiment, the anchor base includes lateral flanges that extend outwardly from the side walls. In yet another embodiment, the fence post anchoring system includes a base plate, the anchor base being secured to the base plate. In this regard, the base plate may be implemented with upwardly extending arms with locking tabs that engage the lateral flanges of the anchor base, the lateral flanges and the locking tabs including chamfers thereon to facilitate engagement. The base plate may further

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be provided with a hole extending therethrough to allow the base plate to be secured to a ground surface.

[0015] In still another embodiment of the present invention, the fence post anchoring system is provided with a drain conduit, the anchor base being secured to the drain conduit. In this regard, the drain conduit may be implemented with upwardly extending arms with locking tabs that engage the lateral flanges of the anchor base, the lateral flanges and the locking tabs further including chamfers thereon to facilitate engagement. In such an embodiment, the fence post anchoring system may further include a drain cover with at least one post hole sized to allow the post anchor to extend partially therethrough. The anchor base and the post anchor may be made of plastic, and a plurality of caps insertable in the openings of the post anchors may also be provided to prevent concrete and debris from entering the post anchors.

[0016] Furthermore, in accordance with another aspect of the present invention, a method for providing anchoring holes for fence posts is provided including providing a plurality of anchor links, providing a plurality of post anchors, each post anchor having an opening sized to receive a fence post therein, interconnecting ends of the anchor links together using the plurality of post anchors, and pouring concrete to form the deck with the anchor links and at least a portion of the plurality of post anchors embedded in the concrete. The plurality of anchor links may be implemented with holes at ends thereof, the method further including overlapping ends of the anchor links to align the holes, and inserting the post anchors through the aligned holes to interconnect ends of the anchor links together.

[0017] In accordance with another embodiment of the present invention, a method of anchoring fence posts in a deck is provided including providing an anchor base having side walls spaced apart from each other to define a channel, providing a post anchor having an opening sized to receive a fence post therein, inserting the post anchor in the channel between the side walls of the anchor

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base to retain the post anchor in an upright position, and pouring concrete to form the deck with the anchor links and at least a portion of the plurality of post anchors embedded in the concrete.

[0018] In accordance with another embodiment, the post anchor is retained in the anchor base by engaging at least one flange extending from a side of the post anchor with at least one slot in the side wall of the anchor base. In this regard, the method may further include aligning the flange with the channel to insert the post anchor in the channel, and rotating the post anchor to engage the slot with the flange.

[0019] In accordance with still another embodiment, the anchor base includes lateral flanges that extend outwardly from the side walls, the method further including securing the anchor base to a base plate. In this regard, the base plate may be implemented with upwardly extending arms with locking tabs that engage the lateral flanges of the anchor base.

[0020] In yet another embodiment of the method, the anchor base includes lateral flanges that extend outwardly from the side walls, the method further including securing the anchor base to a drain conduit. In this regard, the drain conduit may be implemented with upwardly extending arms with locking tabs that engage the lateral flanges of the drain conduit. Furthermore, the method may also include installing a drain cover with at least one post hole sized to allow the post anchor to extend partially therethrough.

[0021] The methods described above may further include inserting a plurality of caps in the openings of the post anchors to prevent concrete and debris from entering the post anchors, and inserting fence posts in the openings of the post anchors.

[0022] These and other advantages and features of the present invention will become more apparent from the following detailed description of the preferred embodiments of the present invention when viewed in conjunction with the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0023] Figure 1 shows a topographical view of a fence post anchoring system in accordance with one embodiment of the present invention that function as an anchor template.

[0024] Figure 2 shows a side profile view of one anchor link shown in Figure 1.

[0025] Figure 3 shows a partial cross-sectional view of the fence post anchoring system in accordance with one preferred embodiment of the present invention that has been installed in a deck.

[0026] Figure 4A shows a topographical view of an anchor link in accordance with another embodiment of the present invention.

[0027] Figure 4B shows a topographical view of an anchor link in accordance with still another embodiment of the present invention.

[0028] Figure 5 shows a partial perspective view of a fence post anchoring system in accordance with another embodiment of the present invention.

[0029] Figure 6A shows a side profile view of a post anchor utilized in the fence post anchoring system of Figure 5.

[0030] Figure 6B shows a topographical view of the post anchor of Figure 6A.

[0031] Figure 7 shows an end view of the anchor base utilized in the fence post anchoring system of Figure 5.

[0032] Figure 8A shows an end view of an optional anchor base plate which may be used in conjunction with the anchor base shown in Figure 7.

[0033] Figure 8B shows a topographical view of the anchor base plate of Figure 8A.

[0034] Figure 9 shows a perspective partially-assembled view of the fence post anchoring system shown in Figure 5 with an optional drain conduit and drain cover.

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[0035] Figure 10 shows a partial perspective view of a fence post anchoring system in accordance with still another embodiment of the present invention.

[0036] Figure 11A shows a side profile view of a post anchor utilized in the fence post anchoring system of Figure 10.

[0037] Figure 11B shows a topographical view of the post anchor shown in Figure 11A.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

[0038] As described in detail below, the fence post anchoring system and method in accordance with the preferred embodiments of the present invention provides anchoring holes for fence posts in a concrete deck before the concrete is poured. This eliminates the need for drilling holes in the hardened concrete deck after the concrete has been poured and hardened, such a task being labor intensive and expensive. In addition, the present invention further provides for proper spacing and layout of the anchoring holes for the fence posts, thereby reducing the need for tedious measurements, facilitating installation, and decreasing costs of such fence systems. In addition, as described in further detail below, the fence post anchoring system may be provided with optional drain conduits such that if fencing is desired after the drain conduits are installed in the concrete deck, the drain conduits can be modified to support the post anchors for the fence posts.

[0039] Figure 1 shows a topographical view of a fence post anchoring system 10 in accordance with one example implementation of the present invention, Figure 2 showing a side profile view of one anchor link that is used in the illustrated embodiment of the fence post anchoring system 10. In this regard, Figure 3 shows a partial cross-sectional view of the fence post anchoring system 10 that has been installed in a concrete deck.

[0040] Referring to Figures 1 to 3 briefly described above, the fence post anchoring system 10 includes a plurality of anchor links 12, 14, and 16 which

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are swiveled together, end to end, by post anchors 22. In particular, anchor link 12 is pivotably interconnected to anchor link 14 by one post anchor 22, while anchor link 14 is further pivotably interconnected to anchor link 16 by another post anchor 22. Of course, whereas only three interconnected anchor lines are illustrated, many such interconnected links are used in the preferred implementation.

[0041] The anchor links of the illustrated embodiment have fixed dimensions, and as most clearly shown in Figure 2, are provided with overlapping flanges 18 and 19 having holes 20 therethrough. The plurality of anchor links are interconnected together by orienting the overlapping flanges of adjacent links together so as to align the holes at the ends thereof, and inserting the post anchor 22 through the aligned holes 20 of the overlapping flanges 18 and 19 as shown in the partial cross-sectional view of Figure 3. In this manner, adjacent anchor links are pivotably interconnected together in the illustrated embodiment with the post anchor 22 serving as the pivot point.

[0042] As can be clearly seen in Figure 3, the post anchor 22 of the illustrated embodiment is substantially tubular in shape having an opening 23, thus providing anchoring holes sized to receive a base 8 of fence post 7 on the formed deck. In this regard, as shown most clearly in Figure 3, the height dimension of the post anchor 22 is larger than the width dimension of the post anchor 22 (in this embodiment, diameter). The post anchor 22 is also provided with an integrated base 24 that is larger than the holes 20 of the anchor links. Correspondingly, the integrated base 24 abuts against an overlapping flange 19 of the anchor link 14 when installed to interconnect anchor links so that the post anchor 22 does not pass through the aligned holes of the anchor links. Once two adjacent anchor links 14 and 16 are overlapped and interconnected by the post anchor 22, it forms an anchor template assembly which is positioned on the ground or earth fill 4 as shown in Figure 3, prior to pouring of concrete. A cap 26 is provided for insertion into the post anchor 22 so as to prevent concrete or

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other debris from entering the post anchor when the concrete 6 is poured during formation of the deck, Figure 3 showing the cap 26 removed from the post anchor 22.

[0043] The anchor links and the post anchors of the fence post anchor system 10 described above may be made of extruded or molded plastic, and are preferably substantially rigid. The cap 26 may be made of a more compliant material so that it can be fitted into the opening of the post anchor 22. In addition, in the illustrated implementation of Figures 1 to 3, the post anchors have a circular tubular shape for receiving fence posts 7 therein. In other implementations, the post anchors may have a non-circular shape for receiving non-circular fence posts. However, providing circular tubular shape for the post anchors and the fence posts received therein is preferred since it facilitates manufacturing and reduces cost, while also allowing the anchor links to be pivoted to a desired angle, as shown in Figure 1, so that the fence post anchor system 10 can articulate around curves and corners, etc.

[0044] Of course, as noted, whereas Figure 1 merely illustrates three anchor links being interconnected together, in practice, more anchor links would be interconnected together using post anchors as described above, and positioned at the desired location on the earth fill 4 prior to pouring of concrete thereon. For instance, the interconnected anchor links may be positioned to circumscribe a swimming pool or the like, thereby providing a plurality of anchoring holes for receiving fence posts once the poured concrete hardens.

[0045] In particular, as can be appreciated and as noted above, the anchor links have a fixed length, and are preferably dimensioned so that the interconnecting post anchors 22 are spaced corresponding to the desired span of the anchoring holes for receiving the fence post in a mesh fence. In other words, the fence post anchoring system 10 that has been assembled into an anchor template as shown in Figure 1 maintains center to center spacing for the fence posts. The post anchors 22 that serve as the pivot point for the interconnected

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anchor links 12, 14, and 16, thereby allowing accommodation of radius configurations of the fence where the fence turns. The concrete 6 is then poured thereby embedding the fence post anchoring system 10 within the concrete deck 9.

[0046] Correspondingly, the fence post anchoring system 10 provides an easy method of locating, and providing, properly spaced anchoring holes for receiving fence posts, prior to the pouring of the concrete for the concrete deck. Once the concrete 6 is poured and cured, the cap 26 can be removed and the fence post 7 of the fencing system can be inserted into the post anchor 22. As clearly shown in Figure 3, when the concrete is poured and hardened, the fence post anchoring system 10 of the present invention is embedded within the concrete deck 9, the opening 23 of the post anchor 22 providing the fence post hole in the concrete deck for receiving a fence post 7 therein.

[0047] Again, because the dimensions of the anchor links are known and fixed, the positioning of the post anchors are also fixed. This fixed positioning of the post anchors is especially advantageous in that it allows the mesh fence or other fencing systems to be manufactured with the fence post installed at the desired intervals corresponding to the dimension of the anchor links. In this manner, laborious measurement and drilling of anchoring holes in a concrete deck, or repositioning of fence posts, as required in the prior art fences and methods of installing such fences, can be avoided.

[0048] Figures 4A and 4B each show a topographical view of an anchor link in accordance with other embodiments of the present invention. In this regard, Figure 4A shows an anchor link 25 that is substantially similar to that shown in Figure 2, the anchor link 25 having flanges 26 and 27. However, the anchor link 25 is implemented with a plurality of holes 28 provided on the flange 27. In the manner previously described, plurality of anchor links are interconnected together by overlapping the flanges of adjacent links together so as to align the holes at the desired position, and inserting the post anchor 22 shown in Figure 3

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through the aligned holes, to pivotably interconnected adjacent anchor links together. Provision of the plurality of holes 28 in the illustrated embodiment of Figure 4A allows further flexibility in utilization of the fence post anchoring system of the present invention in that the position of the post anchor (such as that shown in Figure 3 and discussed in further detail below) can be adjusted as needed. For instance, this feature is especially useful for locating fence posts for gates or at the end of a span of fencing.

[0049] The embodiment of the anchor link 25' shown in Figure 4B is substantially the same as that shown in Figure 4A. However, the plurality of holes 29 overlap so that the holes are interconnected to each other. This allows higher number of holes to be provided on the overlapping flange 27', thereby allowing finer adjustments to the positioning of the post anchor along the anchor link 25' than otherwise possible if separate and discrete plurality of holes are provided as shown in the anchor link 25 of Figure 4A.

[0050] Figure 5 shows a fence post anchoring system 30 in accordance with another embodiment of the present invention. The fence post anchoring system 30 includes a post anchor 32 having a substantially tubular shape with an opening 34 sized to receive a fence post therein. In addition, the post anchor 32 of the illustrated embodiment also includes flanges 36 extending from the exterior of the post anchor 32 as most clearly shown in the side and topographical views of Figures 6A and 6B, respectively.

[0051] In addition, the fence post anchoring system 30 also includes an anchor base 38 to which the post anchor 32 is installed positioned upright. In this regard, the anchor base 38 includes a pair of side walls 39 which are spaced apart to define a channel 41 therebetween for receiving the post anchor 32. A plurality of slots 40 are provided on the side walls 39 of the post anchor 32, the slots 40 being sized to engage flanges 36 that are provided on the exterior of the post anchor 32. The slots 40 that are provided on the anchor base 38 repeat along the side wall 39 so that the post anchor 32 can be positioned accordingly

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along the length of the anchor base 38 at the desired locations of the anchoring holes for receiving the fence posts.

[0052] As shown in Figure 5, the flanges 36 of the post anchor 32 engage the slots 40 on the side walls 39 of the anchor base 38 so as to provide a means for retaining the post anchor 32 within the channel 41 of the anchor base 38 in the upright position shown. In this regard, the side walls 39 of the anchor base 38 are spaced apart from each other at a distance less than a width of the post anchor 32 with the flanges 36 extending therefrom. However, the slots 40 are sized longer than the width of the flanges 36. Thus, the post anchor 32 is installed into the anchor base 38 by initially inserting the post anchor 32 in the anchor base 38 between the side walls 39 thereof with the flanges 36 aligned along the channel 41. Then, the post anchor 32 is rotated therein so that the flanges 36 of the post anchor 32 engage the slots 40 on the side walls 39 of the anchor base 38, and are oriented substantially perpendicular to the channel 41 as shown in Figure 5. Of course, whereas in the illustrated embodiment, two pairs of flanges 36 are provided on the post anchor 32, and each side walls 39 of the anchor base 38 are provided with corresponding number of slots 40, it should be noted that a different number of flanges and slots may be provided in other implementations of the present invention. For example, only one flange may be provided on sides of the post anchor and one slot may be provided for each side wall.

[0053] The fence post anchoring system 30 is utilized by positioning a plurality of anchor bases at the locations of where the anchoring hole is to be provided, installing the post anchor 32 to engage the desired slots, and pouring concrete to thereby form the deck. A protective cap such as that shown in Figure 3 can be fitted to the opening 23 of the post anchor 22 to prevent the concrete, or other debris, from entering the opening 23, when the concrete is poured. The anchor base 38 provides added rigidity during the concrete pouring process. In this regard, like the previously described embodiment of Figures 1 to 3, the

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fence post anchoring system 30 is embedded in concrete when in use, except for the opening 34 of the post anchor 32.

[0054] Furthermore, the anchor base 38 of the illustrated embodiment is provided with lateral flanges 44 that extend outwardly from the side walls 39 which serve to further stabilize, and securely embed, the fence post anchoring system 30 in the poured concrete deck 9. Figure 7 shows an end profile view of the anchor base 38 with the lateral flanges 44 provided on the side walls 39 thereof. The lateral flanges 44 are also sized so that they may be used in conjunction with an optional base plate, or be installed in a drain conduit, both of which are discussed in detail below.

[0055] In the above regard, the anchor base 38 may be used in conjunction with a base plate 50 that is shown in Figures 8A and 8B. Figure 8A shows an end profile view of the base plate 50 while Figure 8B shows a topographical view of the base plate 50. The base plate 50 serves as a holding device for the anchor base 38. The base plate 50 includes upwardly extending arms 51 with locking tabs 52 which are dimensioned in size, and positioned to engage the lateral flanges 44 of the anchor base 38 so as to secure the anchor base 38 to the base plate 50. This engagement is attained by downwardly pressing the anchor base 38 (as shown in Figure 7) in the direction of arrow "A" into the channel 54 that is defined between the locking tabs 52. In this regard, the tips of the lateral flanges and the locking tabs 52 may be chamfered to facilitate insertion of the anchor base 38 as most clearly shown in Figures 7 and 8A. Of course, in other implementations, the lateral flanges of the anchor base and the locking tabs of the base plate may be dimensioned and made of sufficiently rigid material so that the anchor base must be slid into the base plate from an end thereof, instead of being installed by downward pressing.

[0056] When the anchor base 38 as shown in Figure 7 is inserted into the base plate 50 and secured thereto, a larger base is provided for stabilizing and securing the post anchor 32. The base plate 50 can be placed where needed in

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the proposed concrete deck according to a layout designed for the fence system. The base plate 50 may be held in position on the ground or earth fill using wires, rods, or stakes that may be inserted into the holes 56 provided on the periphery of the base plate 50.

[0057] Figure 9 shows how the fence post anchoring system 30 of the present invention may be utilized in conjunction with an optional drain system 60 in accordance with another aspect of the present invention. In this regard, the drain system 60 includes a main drain conduit 62 that is typically installed around the periphery of a swimming pool within a concrete decking. The drain conduit 62, however, is provided with a means for retaining the post anchor 32 described. In this regard, in the illustrated embodiment, the drain conduit 62 is provided with locking tabs 64 that protrude upwardly from the bottom of the drain channel 66 of the drain conduit 62. The locking tabs 64 are spaced and sized to receive the fence post anchoring system 30 discussed above relative to Figure 5.

[0058] Correspondingly, the anchor base 38 is pressed downwardly so that the lateral flanges 44 of the anchor base 38 engages the locking tabs 64, thereby securing the anchor base 38 within the drain channel 66 of the drain conduit 62 as shown in Figure 9. In this regard, locking tabs 64 of the illustrated embodiment are provided with chamfers to facilitate engagement of the lateral flanges 44 of the anchor base 38. The anchor base 38 is provided with a plurality of slots 40 along its length so that a post anchor 32 can be installed in the manner previously described above relative to Figure 5, the anchor base 38 being positioned so as to provide a fence post hole at a desired location so that the fence can be received therein.

[0059] A drain cover 68 is provided so as to allow water to enter into the drain channel 66 of the drain conduit 62, thereby allowing the drain conduit 62 to perform its drainage function. However, the drain cover 68 in accordance with the illustrated implementation is further provided with a post hole 70

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thereon so as to allow the post anchor 32 to extend partially therethrough. A fence post can then be inserted into the post anchor 32 as previously described.

[0060] It is noted that the drain system 60 is especially advantageous in that the drain conduit 62 can be used with, or without, the fence post anchoring system 30 installed therein. For example, a pool may be initially installed with the drain conduit 62 provided along the periphery of the pool. A conventional drain cover may be used in such an instance. However, if a pool owner desires to have a fence installed around the periphery of the pool, for example, has children, the fence post anchoring system 30 may be installed into the already installed drain conduit 62 in the manner shown in Figure 9. The drain covers can be then replaced with drain covers 68 having the post hole 70 provided thereon, or modified to provide such holes. Then, a mesh fence can be easily installed with the fence posts being received in the post anchor 32, thereby providing a mesh fence around the periphery of the pool along the drain conduit 62 that was previously installed. Thus, as can be appreciated by one of ordinary skill in the art, the drain system 60 can significantly minimize the cost and labor associated with installing a mesh fencing around the periphery of the pool.

[0061] Figure 10 shows a partial perspective view of a fence post anchoring system 80 in accordance with still another embodiment of the present invention. This embodiment is substantially the same as the embodiment shown in Figure 5, and in this regard, includes an anchor base 88 to which a post anchor 102 is installed positioned upright. The anchor base 88 includes a pair of side walls 89 which are spaced apart to define a channel 91 there between for receiving the post anchor 102. A plurality of slots 94 are provided on the side walls 89 for engaging flanges of the post anchor 102. However, the anchor base 88 of the illustrated embodiment further includes vertically offset slots 95 that can alternatively engage offset flanges of the post anchor 102 as describe in further detail below.

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[0062] In particular, Figure 11A and 11B show side profile and topographical views of a post anchor 102 that can be utilized in the fence post anchoring system 80 of Figure 10. As can be seen from these figures, in addition to the flanges 106 that engage slots 94 of the anchor base 88, the post anchor 102 further includes offset flanges 108. These offset flanges 108 are positioned along the post anchor 102 to engage the vertically offset slots 95 of the anchor base 88. As shown, the offset flanges 108 are both vertically offset and angularly offset (approximately 90°), relative to the flanges 106.

[0063] The post anchor 102 is installed into the anchor base 88 by initially inserting the post anchor 102 between the side walls 89 with the flanges diagonally oriented relative to the channel 91. Then, the post anchor 102 is rotated therein so that the flanges 106 engages plurality of slots 94, or alternatively, the offset flanges 108 engage the vertically offset slots 95, so that the post anchor 102 can be positioned accordingly along the length of the anchor base 88 at the desired locations of the anchoring holes for receiving the fence posts. Provision of the offset flanges 108 and the vertically offset slots 95 allow finer adjustments to the positioning of the post anchor 102 in the anchor base 88.

[0064] In view of the above, it should be apparent that another aspect of the present invention are methods for providing anchoring holes for fence posts in a deck. As can be appreciated from the discussion above relative to the fence post anchoring system 10 shown in Figures 1 to 3, one embodiment of the present method includes providing a plurality of anchor links, providing a plurality of post anchors, each post anchor having an opening sized to receive a fence post therein, interconnecting ends of the anchor links together using the plurality of post anchors, and pouring concrete to form the deck with the anchor links and at least a portion of the plurality of post anchors embedded in the concrete.

[0065] As described relative to the fence post anchoring system 10, the plurality of anchor links may be implemented with holes at ends thereof, the method further including overlapping ends of the anchor links to align the holes,

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and inserting the plurality of post anchors through the aligned holes to interconnect ends of the anchor links together.

[0066] In addition, in view of the fence post anchoring system 30 also described above relative to Figures 5 to 7, another embodiment of the method includes providing an anchor base having side walls spaced apart from each other to define a channel, providing a post anchor having an opening sized to receive a fence post therein, inserting the post anchor in the channel between the side walls of the anchor base to retain the post anchor in an upright position, and pouring concrete to form the deck with the anchor links and at least a portion of the plurality of post anchors embedded in the concrete.

[0067] In the above regard, the post anchor may be retained in the anchor base by engaging at least one flange extending from a side of the post anchor with at least one slot in the side wall of the anchor base as previously described relative to the fence post anchoring system 30. In this regard, the method may further include aligning the flange with the channel to insert the post anchor in the channel, and rotating the post anchor to engage the slot with the flange.

[0068] In accordance with still another embodiment, the anchor base may further include lateral flanges that extend outwardly from the side walls, and the method further include securing the anchor base to a base plate or a drain conduit as described above relative to Figures 7A to 8. In this regard, the base plate or a drain conduit may be implemented with upwardly extending arms with locking tabs that engage the lateral flanges of the anchor base. In the embodiment where a drain conduit is utilized, the method may also include installing a drain cover with at least one post hole sized to allow the post anchor to extend partially therethrough. In addition, the methods described above may further include inserting a plurality of caps in the openings of the post anchors to prevent concrete and debris from entering the post anchors, and inserting fence posts in the openings of the post anchors.

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[0069] Therefore, in view of the above, it should be evident how the present invention also provides systems and methods for anchoring fence posts before the concrete is poured, thus eliminating the need for drilling holes in the hardened concrete. In addition, it should also be evident how the fence post anchoring system of the present invention can be integrated with a drain conduit, which can be provided around the periphery of the swimming pool, for example.

[0070] While various embodiments in accordance with the present invention have been shown and described, it is understood that the invention is not limited thereto. The present invention may be changed, modified and further applied by those skilled in the art. Therefore, this invention is not limited to the detail shown and described previously, but also includes all such changes and modifications.

Claims:

1. A fence post anchoring system embedded in a deck for providing anchoring holes in the deck comprising:
a plurality of anchor links; and
a plurality of post anchors that interconnects ends of said anchor links together, each post anchor having an opening sized to receive a fence post therein.
2. The fence post anchoring system of claim 1, wherein said plurality of anchor links have at least one hole at ends thereof, said plurality of post anchors being received in holes of overlapping ends of anchor links to interconnect ends of said anchor links together.
3. The fence post anchoring system of claim 2, wherein said plurality of anchor links have flanges at ends thereof, said holes of said anchor links being provided on said flanges, and said plurality of post anchors being received in holes of overlapping flanges.
4. The fence post anchoring system of claim 3, wherein said post anchors have integrated bases that are sized larger than said holes.
5. The fence post anchoring system of claim 2, wherein said at least one hole of at least one end of said plurality of anchor links is a plurality of holes.
6. The fence post anchoring system of claim 5, wherein said plurality of holes overlap each other.

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7. The fence post anchoring system of claim 2, wherein said at least one post anchor is tubular having a height dimension larger than a width dimension.
8. The fence post anchoring system of claim 1, further including a plurality of caps insertable in said openings of said post anchors to prevent concrete and debris from entering said post anchors.
9. The fence post anchoring system of claim 1, wherein said plurality of anchor links and said plurality of post anchors are made of plastic.
10. A fence post anchoring system for providing anchoring holes in a deck comprising:
 - an anchor base with side walls spaced apart from each other to define a channel;
 - a post anchor received in said channel between said side walls of said anchor base, said post anchor having an opening sized to receive a fence post therein; and
 - a retaining means for retaining said post anchor in said channel of said anchor base in an upright position.
11. The fence post anchoring system of claim 10, wherein said retaining means includes slots provided on said side walls, and at least one flange extending from a side of said post anchor that engages at least one of said slots in side walls of said anchor base.
12. The fence post anchoring system of claim 11, wherein said side walls of said anchor base are spaced apart from each other at a distance less than a width of said post anchor with said at least one flange extending therefrom.

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13. The fence post anchoring system of claim 11, wherein said side walls of said anchor base further include vertically offset slots and said post anchor includes offset flanges positioned to engage said vertically offset slots of said anchor base.

14. The fence post anchoring system of claim 11, wherein said slots are sized longer than a width of said at least one flange.

15. The fence post anchoring system of claim 10, wherein said anchor base includes lateral flanges that extend outwardly from said side walls.

16. The fence post anchoring system of claim 15, further including a base plate, said anchor base being secured to said base plate.

17. The fence post anchoring system of claim 16, wherein said base plate includes a hole extending therethrough to allow said base plate to be secured to a ground surface.

18. The fence post anchoring system of claim 16, wherein said base plate has upwardly extending arms with locking tabs that engage said lateral flanges of said anchor base.

19. The fence post anchoring system of claim 18, wherein said lateral flanges and said locking tabs include chamfers thereon to facilitate engagement.

20. The fence post anchoring system of claim 15, further including a drain conduit, said anchor base being secured to said drain conduit.

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21. The fence post anchoring system of claim 20, wherein said drain conduit has upwardly extending arms with locking tabs that engage said lateral flanges of said anchor base.
22. The fence post anchoring system of claim 21, wherein said lateral flanges and said locking tabs include chamfers thereon to facilitate engagement.
23. The fence post anchoring system of claim 20, further including a drain cover with at least one post hole sized to allow said post anchor to extend partially therethrough.
24. The fence post anchoring system of claim 10, further including a plurality of caps insertable in said openings of said post anchors to prevent concrete and debris from entering said post anchors.
25. The fence post anchoring system of claim 10, wherein said anchor base and said post anchor are made of plastic.
26. A method of anchoring fence posts in a deck comprising:
providing a plurality of anchor links;
providing a plurality of post anchors, each post anchor having an opening sized to receive a fence post therein;
interconnecting ends of said anchor links together using said plurality of post anchors; and
pouring concrete to form the deck with said anchor links and at least a portion of said plurality of post anchors embedded in said concrete.
27. The method of claim 26, wherein said plurality of anchor links have holes at ends thereof, said method further including overlapping ends of said anchor

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links to align said holes, and inserting said plurality of post anchors through said aligned holes to interconnect ends of said anchor links together.

28. The method of claim 26, further including inserting a plurality of caps in said openings of said post anchors to prevent concrete and debris from entering said post anchors.

29. The method of claim 26, further including inserting fence posts in said openings of said post anchors.

30. A method of anchoring fence posts in a deck comprising:
providing an anchor base having side walls spaced apart from each other to define a channel;
providing a post anchor having an opening sized to receive a fence post therein;
inserting said post anchor in said channel between said side walls of said anchor base to retain said post anchor in an upright position; and
pouring concrete to form the deck with said anchor links and at least a portion of said plurality of post anchors embedded in said concrete.

31. The method of claim 30, wherein said post anchor is retained in said anchor base by engaging at least one flange extending from a side of said post anchor with at least one slot in said side wall of said anchor base.

32. The method of claim 31, further including aligning said at least one flange with said channel to insert said post anchor in said channel, and rotating said post anchor to engage said at least one slot with said at least one flange.

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33. The method of claim 30, wherein said anchor base includes lateral flanges that extend outwardly from said side walls, said method further including securing said anchor base to a base plate.

34. The method of claim 33, wherein said base plate has upwardly extending arms with locking tabs that engage said lateral flanges of said anchor base.

35. The method of claim 30, wherein said anchor base includes lateral flanges that extend outwardly from said side walls, said method further including securing said anchor base to a drain conduit.

36. The method of claim 35, wherein said drain conduit has upwardly extending arms with locking tabs that engage said lateral flanges of said drain conduit.

37. The method of claim 30, further including installing a drain cover with at least one post hole sized to allow said post anchor to extend partially therethrough.

38. The method of claim 30, further including inserting a cap in said opening of said post anchor to prevent concrete and debris from entering said post anchors.

