A fabric fence system and method of manufacturing the fabric fence system is disclosed. The fence system has posts that are laterally spaced from one another with a fence fabric positioned between the posts. The fence fabric has end protrusions that are inserted into the sides of the fence posts and held in place by an offset retainer rod inserted into the hollow inner portion of the post such that the offset retainer rod engages the protrusions of the fence fabric. The fence system also includes top and bottom cross members into which the top and bottom portion of the fence fabric are inserted and attached to provide a panelized fence system.
FABRIC FENCE SYSTEM

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BACKGROUND OF INVENTION

[0003] This invention relates generally to fence systems. More specifically, the present invention relates to a fence system that combines polymer structural components with a fabric fence to form panel fences.

[0004] Wire mesh fences, also commonly called chain link fences, are widely utilized throughout the country today. The fences are strong and consist of metal fence posts to which wire mesh is attached.

[0005] To install a chain link fence, the fence post is first installed, customarily by excavating it in concrete below ground level. The chain link fabric is stretched taut between posts and the fabric is attached to the post by the bands. Additionally, tension bands and stretcher bars may be included. Intermediate support, if needed, is provided by additional posts, commonly referred to as line posts. In addition, brace assemblies are required in some fence applications and these assemblies occur at the terminal posts.

[0006] There are, however, many disadvantages to conventional chain link fencing systems. Chief among these is the problem of attaching fence fabric to the fence post. These conventional methods employ a multitude of small parts including tension bands, brace bands, stretcher bars and assorted nuts and bolts. The tension bands are inserted into the end of the mesh and attached to the exterior of the post using the bands, nuts and bolts. Additionally, the mesh fabric is stretched onto the cross members using several ties (typically metal) to prevent the mesh from sagging. The ties are bent partially around the cross bar and each end is twisted around a strand of the fence material to secure the mesh to the cross bar and to intermediate posts. The ends of the wire ties are sharp and occasionally pose a safety hazard to those that come in contact with these exposed ends.

[0007] Thus, the installation of these fences is performed almost universally by professionals, and is relatively expensive because of the labor involved and the multitude of parts that the installer must inventory.

[0008] In an effort to simplify installation by reducing the parts needed, some proposals have been made to interweave wire meshing with the post itself. U.S. Pat. No. 3,410,527 to Uroshevich is an example of this application. Another is Ashworth et al., U.S. Pat. No. 3,370,836. These references, however, have not truly solved the problem. It has been found that the interweaving of the chain link fencing mesh is difficult because of the inherent strength of the material, and that the finished job has frequently stretched the metal into an unsightly appearance.

[0009] There are several other patents which disclose other fence systems which purport to including means for easy assembly.

[0010] Engstrom, U.S. Pat. No. 751,622 discloses a fence post having a recessed area for receiving a clamping rod. The clamping rod is held in place by a plurality of eye-bolts through the eyes of which the clamping rod extends. Tightening of the nut of the eye-bolt draws the clamping rod into the recess, bending and clamping the wire runners therein.

[0011] Jones, U.S. Pat. No. 1,150,373 discloses a tubular fence post having retaining leaves stuck outwardly to provide spaces between the respective retainers and the body of the tubular post. After the wires are in position, a key or holder is inserted through the spaces to hold the wire in place. The post shown is an intermediate post, not an end, corner or gate post, for a rectangular grid wire fence. The post is not designed for use as an end, corner or gate post and does not provide a recessed and protected connection.

[0012] Gerken, U.S. Pat. No. 1,160,709 discloses a fence post having extending hooks and tongues for receiving a tie or retaining rod. The posts are intermediate posts, not end, corner, or gate posts, and do not provide a recess to receive and protect the rod.

[0013] James, U.S. Pat. No. 1,330,809 discloses a metallic fence post (intermediate post, not an end, corner, or gate post) which has depressed or concave grooved sections between straps or bands. The straps are used to secure single strand fencing, e.g., barbed wire fencing, by hog-ring clips and are not used for chain link fencing.

[0014] Ashworth et al. U.S. Pat. No. 3,370,836 discloses a chain link fence having an end, corner, or gate post or corner post with expanded strips providing apertures with the same spacing as the fence links. The end links of the fence are secured to the apertures provided by the expanded strips by a serpentine wire interconnecting the end links thereto.

[0015] Bishop, U.S. Pat. No. 3,502,303 discloses an intermediate (not an end, corner, or gate post) fence post having horizontal slots for receiving individual wires of single strand wire fencing. A locking rod or wire is vertically extended between the wires and the interior of the post to hold them in place.

[0016] Muckelrath, U.S. Pat. No. 4,058,882 discloses a metal post of angle iron or hollow square construction having holes punched along the corners thereof. The posts are intermediate posts for wire fencing comprising a plurality of separate single strands. A retaining tie wire is placed through the hole after engagement with each individual fence wire and twisted to hold the wire in place.

[0017] In response to the limitations described above, Naegle et al. (assigned to the assignee of the present invention and incorporated by reference) disclosed in U.S. Pat. No. 6,176,471 a fabric fence system having posts laterally spaced from one another with a fence fabric positioned between the posts. The fence system also includes top and bottom cross members into which the top and bottom portion of the fence fabric is inserted and attached to provide a panelized fence system. End protrusions of the fence fabric are inserted into the sides of the fence posts and held in place by a rod having a hook at the top inserted into
the hollow inner portion of the post such that the rod engages the protrusions of the fabric and the hook engages a slot in the top cross member.

[0018] Referring to Figures PA-1, it has been found that the rod PA114 as disclosed in the Naegle et al. patent cannot be easily displaced sufficiently to engage the hook PA804 into the top cross member slot PA802 if the rod PA114 is also engaged in the uppermost fabric end protrusion PA808. A rod PA114 that has an elastic modulus sufficient to effectively retain the top cross member PA106 after engagement in the slot PA802 is too stiff to allow effective engagement displacement when the rod PA814 is also retained by the uppermost fabric end protrusion PA808.

[0019] Accordingly, there remains a continuing need for improved methods to fabricate fabric fencing systems. The present invention fulfills this need, and further provides related advantages.

SUMMARY OF INVENTION

[0020] In view of the shortcomings of the prior art, it is an object of the present invention to provide a fence system that offers ease of installation; is easily packaged for resale stacking and portability; is an attractive improvement over standard chain link fence; requires less parts than conventional chain link fence systems; requires less maintenance than conventional chain link fence systems; and provides more security than typical rigid PVC fence or conventional chain link fence systems.

[0021] The fence system comprises a first post and a second post laterally spaced from one another by a predetermined distance, each post having a hollow portion along a length of the post; a first lower slot and a first upper slot in a first side portion of the post, the first lower slot and the first upper slot substantially parallel to the length of the post; a plurality of slots disposed between the first lower slot and the first upper slot in the first side portion of the post; a first cross member coupled between the first lower slot of the first post and the first lower slot of the second post; a second cross member coupled between the first upper slot of the first post and the first upper slot of the second post; a fabric extending between the first post and the second post, the fabric having a plurality of projections at a respective one of the plurality of slots disposed in the first post and the second post; inserting an offset retainer rod through at least one of the plurality of slots disposed in the first post and the second post; inserting an offset retainer rod through at least one of the plurality of projections to couple the fabric to an inside portion of at least the first post; and coupling a second cross member between the upper slot of the first post and the upper slot of the second post.

[0022] The present invention also discloses a method for fabricating a fence panel. The method comprises the steps of providing a first post and a second post, each post having a hollow portion; forming a lower slot and an upper slot in a side portion of the post, the lower slot and the upper slot substantially parallel to the length of the post; forming a plurality of slots disposed between the lower slot and the upper slot in the side portion of the post; coupling a first cross member between the lower slot of the first post and the lower slot of the second post; extending a fabric between the first post and the second post, the fabric having a plurality of projections at a first end of the fabric and a second end of the fabric; inserting each of the plurality of projections of the fabric through a respective one of the plurality of slots disposed in the first post and the second post; inserting an offset retainer rod through at least one of the plurality of projections to couple the fabric to an inside portion of at least the first post; and coupling a second cross member between the upper slot of the first post and the upper slot of the second post.

[0023] According to another aspect of the invention, the fence fabric is attached to an inside portion of the upper and lower cross members.

[0024] According to still another aspect of the invention, adjacent cross members are attached to one another through a coupling plate.

[0025] According to yet another aspect of the present invention, the offset retainer rod passes through a top portion of the lower cross member and captures the lower cross member within the post.

[0026] According to a further aspect of the present invention, the offset retainer rod is a metallic or polymer offset circular rod.

[0027] According to still another aspect of the invention, the cross members include a slot into which the fabric is inserted.

[0028] In yet another aspect of the invention, the retainer rod is straight and the plurality of slots is offset from the post centerline.

[0029] Other aspects of the present invention will be apparent from the following more detailed description of the preferred embodiments, taken in conjunction with the accompanying drawings which illustrate, by way of example, the principles of the invention.

BRIEF DESCRIPTION OF DRAWINGS

[0030] The invention is best understood from the following detailed description when read in connection with the accompanying drawing. It is emphasized that, according to common practice, the various features of the drawing are not to scale. On the contrary, the dimensions of the various features are arbitrarily expanded or reduced for clarity. Included in the drawing are the following Figures:

[0031] FIG. PA-1 is a view of a portion of the fence structure of the Naegle et al. fence system.

[0032] FIGS. 1A-1C are various views of a portion of a fence system according to a first exemplary embodiment of the present invention.

[0033] FIG. 2A is a cross sectional view of a cross member of a first exemplary embodiment of FIGS. 1A-1C.

[0034] FIG. 2B is a cross sectional view of a cross member of a second, preferred, exemplary embodiment of FIGS. 1A-1C.

[0035] FIGS. 3A-3F are illustrations of end, corner and intermediate posts of the first exemplary embodiment of the present invention.

[0036] FIG. 4 is a side view of the fence according to the first exemplary embodiment adapted for a sloping grade.

[0037] FIG. 5 is a cross-sectional end view of an intermediate post of the present invention detailing coupling between adjacent fence sections.
FIG. 6 is a cross-sectional end view of an intermediate post of the present invention according to another exemplary embodiment of the present invention;

FIG. 7 is a cross-sectional end view of an intermediate post of the present invention according to yet another exemplary embodiment of the present invention;

FIG. 8A is a side view of the offset retaining rod engaging the top cross member;

FIG. 8B is an end view of the offset retaining rod engaging the top cross member; and

FIGS. 9A and 9B are various views of a portion of a fence system according to an exemplary embodiment of the present invention using a straight rod.

DETAILED DESCRIPTION

FIG. 1A illustrates a section of the fence system according to a first exemplary embodiment of the present invention. In FIG. 1A, fence system 100 is formed from posts 102, spaced apart from one another by a predetermined distance. This distance may be determined according to a variety of factors, such as the terrain at the installation site, customer requirements, industry standards and packaging considerations. Posts 102 may be made from a rigid polymer material such as PVC and may have a rectangular or square or substantially circular cross section. Post 102 has a hollow portion 102C to accommodate cross members 104, 106 and fence fabric 108, discussed more fully below.

Lower cross member 104 is inserted into slots 116 (shown in FIG. 1C) formed at a bottom portion of each post 102. Fence fabric 108, which may be, for example, a polymer coated chain link fence material, is positioned between posts 102 and within slot 104A of lower cross member 104. In addition, the polymer may be, for example, a vinyl coating.

As more clearly shown in FIG. 1B, posts 102 have a plurality of slots 110 cut into at least one side of post 102. End portions or “elbows”112 of fence fabric 108 are inserted into slots 110 to protrude into the hollow portion 102C of post 102. Slots 110 may be sized in accordance with the gauge of the fence fabric 108 and are spaced to match the spacing between each of the elbows 112 of fence fabric 108.

An offset retainer rod 114, described in further detail below, is inserted through the top opening of post 102 and slides below, is inserted through the inside of protruded elbows 112 to retain fence fabric 108 to post 102. Offset retainer rod 114 may also be used to retain lower cross member 104 to post 102 by insertion of offset retainer 114 through the top portion of lower cross member 104.

To complete the frame assembly of fence 100, upper cross member 106 is inserted through top slots 118 formed at the upper portion of posts 102. Cross member 106 may be inserted into slots 118 by sliding one end of upper cross member 106 into first post 102 until end 106B of cross member 106 is clear to be inserted into second slot 118.

Optionally, upper portion of fence fabric 108 may be inserted into a transverse slot 106A formed in upper cross member 106, or lower portion of fence fabric 108 may be inserted into a transverse slot 104A formed in lower cross member 106, or both upper and lower portions of fence fabric 108 may be inserted into their respective transverse slots 106A, 104A. Alternatively, upper and lower portions 108A of fence fabric 108 may be fixed to the upper and lower cross members 104, 106 with fasteners 120, which may be, for example, self-tapping screws or rivets. Fasteners 120 pass through upper or lower portion 108A of fence fabric 108 and into support member 104C, 106C (shown in FIG. 2) of cross members 104, 106, respectively. Any effective combination of transverse slots 104A, 106A and fasteners may also be utilized.

FIGS. 2A and 2B are exemplary embodiments of the present invention and show a cross-section of upper or lower cross members 104, 106. Cross members include support members 104B, 104C, 106B, 106C integrally formed within cross member 104, 106, respectively. These support members 104B, 104C, 106B, 106C provide rigidity both torsionally and laterally to cross members 104, 106 and forms slot 104A, 106A mentioned above.

Referring to FIG. 2A, as a first alternative to fastening fence fabric 108 with fasteners 120 to cross member 104, 106, fence fabric 108 may be formed with a modified “knuckle”108B at one or both of the upper and lower portions of the fence fabric 108. Knuckle 108B may be inserted into transverse slot 104A, 106A by sliding fence fabric 108 along transverse slot 104A, 106A. The opening 104D, 106D in cross member 104, 106 is dimensioned according to the thickness of the fence fabric 108 such that fence fabric 108 fits snugly within opening 104D, 106D.

Knuckles 108B of fabric fence 108 may be bent past the point where they would be aligned to form a curled end. The spring of fence fabric 108 permits the curl to straighten as knuckles 108B are pushed into transverse slot 104A, 106A. After knuckles 108B are inserted into transverse slot 104A, 106A any force exerted to pull fence fabric 108 out of transverse slot 104A, 106A will be countered by the curled end of knuckle 108B acting on the inner surface of cross member 104, 106. Fence fabric 108 is thus locked into slot 104A, 106A without the need for auxiliary fasteners 120. The assembly of fence 100 may then proceed as discussed above in the first exemplary embodiment.

Referring to FIG. 2B, a second, preferred, alternative to fastening fence fabric 108 with fasteners 120 to cross member 104, 106, is to effectively dimension the width of transverse slot 104A, 106A such that opening 104D, 106D retains fence fabric 108 at point X after sliding the fence fabric 108 along transverse slot 104A, 106A. Point X is defined as the point of intersection of two strands of fence fabric 108.

Top and bottom cross members 104, 106 are dimensionally sized to fit snugly within post slots 118, 116, thereby preventing lateral expansion of slots 104A, 106A. After insertion of cross members 104, 106 into post slots 118, 116, the spring like clamping action of the transverse slot becomes locked in place to maintain effective retention of fence fabric 108 at point X. The assembly of the fence 100 may then proceed as discussed above in the first exemplary embodiment. In this manner, the additional manufacturing expense of fabricating knuckle 108B and auxiliary fasteners 120 are avoided.

Referring back to FIG. 1, the structural integrity of fence 100 may be enhanced by attaching coupling plate 122.
to upper or lower cross members 104, 106 using fastener 120. The details of coupling plate 122 are shown with reference to FIG. 5.

[0055] As shown in FIG. 5, coupling plate 122 fits within the hollow portion 102C of post 102 and preferably snugly between opposite walls 102A and 102B of post 102. Once attached with fasteners 120, coupling plate 120 prevents cross members 104, 106 from moving within slots 116, 118.

[0056] Referring again to FIG. 1, to complete the assembly, a cap 124 may be placed on the end of post 102 to prevent moisture and debris from entering post 102 and to provide a finished appearance.

[0057] Although not illustrated in FIG. 1, it is understood that additional sections of fence 100 may be constructed in a linear or orthogonal manner to form an enclosure (not shown).

[0058] Referring to FIG. 6, it is also contemplated that adjacent fence sections may be set at a variety of angles by enlarging slots 116, 118 in post 102 such that upper cross member 106 and lower cross member 104 may be disposed in post 102 at an angle. Coupling plate 120 may also be used to secure the additional fence sections as is understood by one of ordinary skill in the art.

[0059] FIGS. 3A-3C are exemplary embodiments of posts 102 of the present invention. Although the posts depicted in FIG. 3A-3C have essentially square or rectangular cross-sections, it is understood that posts 102 may also have a circular cross section to accommodate irregular shaped (i.e. non-orthogonal) site conditions (see FIG. 7). It may also be desirable to present different esthetics.

[0060] FIG. 3A illustrates a corner post 302, which has slots 304, 306 formed within immediately adjacent side walls 308, 310, respectively. While slots 304, 306 may be substantially parallel to the length of post 302, in the preferred embodiment the angle of slots 304, 306 are determined based on the angle of elbows 112 of fence fabric 108 (shown in FIG. 1). Preferably the angle of slots 304, 306 is between about 30° and 60° and preferably between about 40° and 50°, and most preferably about 45°. In addition, slots 304, 306 may have a downward slope to the right or to the left depending on fence fabric 108.

[0061] FIG. 3B illustrates a line post 320 in which slots 322, 324 are formed in opposite walls 326, 328, respectively.

[0062] FIG. 3C illustrates an end post 330 in which slots 322 are formed in only one wall 334. End post 330 may also be used as a transition between the fence system and a gate system (not shown). Although not illustrated in FIGS. 3A-3C, it is understood that in addition to the slots to accommodate fence fabric 108, slots 116, 118 are also formed in the respective posts below and above each set of slots, respectively.

[0063] In addition, although not shown in FIGS. 3A-3C, a post may have slots 110, 116, 118, formed in 3 sides of the post or in all sides of the post, as desired, to accommodate a variety of customer needs. Furthermore as shown in FIG. 7, if a post having a circular cross section is used, such as shown in FIGS. 3D-3F, a fence configuration where a non-orthogonal fence layout is required, such as in irregular plots, may be accommodated. As shown in FIG. 7, in the case of a circular cross section post, coupling plate 122 may be formed with curved ends if desired to fit within circular post 102.

[0064] Terrain that is sloped requires knowledge of the amount of grade (slope) to be accommodated so proper selection of vertical posts can be made from a range of about 1% to 25% (standard) grade, although other grades of slope may be accommodated as necessary. FIG. 4, illustrates a fence 400 that accommodates a sloped terrain.

[0065] In FIG. 4, fence 400 is installed over sloping grade 404. Post 402 has upper slots 406, 408 and lower slots 410, 412 offset from one another by a distance 414 consistent with the slope of grade 404. This arrangement of slots in post 402 preferably minimizes the space between grade 404 and the bottom of bottom rail 414. The result is a fence that has a stepped or tiered arrangement. In all other aspects fence 400 is identical to fence 100 shown in FIG. 1.

[0066] Referring to FIGS. 8A and 8B, offset retainer rod 114 comprises a first substantially straight section 200 and a second substantially straight section 202 separated by an offset 204. First section 200 and second section 202 are substantially parallel. Angles θA and θB forming offset 204 may be between about 15° and 90° and preferably between about 30° and 60°, more preferably between about 40° and 50°, and most preferably about 45°. While in the preferred embodiment, angles θA and θB are substantially equal, it is to be understood that they do not have to be equal, preferably, so long as first section 200 and second section 202 are substantially parallel. While it is preferable for first section 200 and second section 202 to be substantially parallel, it is not required, so long as first section 200 is able to effectively retentively engage slot 802, further described below.

[0067] Offset 204 is of a predetermined length to allow offset retainer rod 114 to be flexed sufficiently to clear upper cross member 106 so as to reversibly retentively engage slot 802, described below, while still engaging uppermost protruding elbow 112 (FIG. 1A).

[0068] Offset retainer rod 114 may be, for example, a polymer rod, a vinyl coated metallic rod, or a non-coated metallic rod. While in the preferred embodiment offset retainer rod 114 is round in cross section, it is understood that it may be a cross section of any shape that will permit effective flexing to clear the cross member and to seat within slot 802, as described below. The cross sectional shape may be, for example, substantially circular, oval, rectangular, hexagonal or triangular.

[0069] Upper cross member 106 has slot 802 formed in both end portions of upper cross member 106. Slot 802 is formed at a predetermined distance from the end of cross member 106 and at a predetermined location on cross member 106 so that offset retainer rod 114 may be displaced to engage and seat within slot 802 after engaging elbows 112. Slot 802 may, for example, be cut at a diagonal through cross member lower edge 804, or into cross member side wall 806.

[0070] First straight section 200 of offset retainer rod 114 is inserted through the top opening of post 102 and slides through the inside of protruded elbows 112 to retain fence fabric 108 to post 102. After upper cross member 106 is inserted into upper slot 118 of post 102, second straight
section 202 of offset retainer rod 114 is laterally displaced to engage and seat in slot 802, thereby capturing upper cross member 106 within post 102.

[0071] This approach provides the benefit of greater structural integrity of fence 100. As mentioned above, offset retainer rod 114 may also be used to retain lower cross member 104 to post 102 by insertion of offset retainer rod 114 through the top portion of lower cross member 104.

[0072] As is typical with most fence systems, entry points for an area enclosed with a fence are desirable. It is contemplated that a gate system may be added to fence 100 by forming a gate in a similar manner as disclosed above with respect to the fence 100. The gate may have similar structural elements to those of fence 100 and scaled as required for the particular application. The gate may be attached to post 102 using, for example, conventional hinges or another means to allow the gate to open and close.

[0073] FIGS. 9A and 9B illustrates a second exemplary embodiment of the present invention, wherein the plurality of slots 910, top cross member opening 906D and bottom cross member opening (not shown) are offset from cross members 904, 906, and retainer rod 914 is identical to the embodiments described above.

[0074] Although the present invention has been described with reference to exemplary embodiments, it is not limited thereto. Rather, the appended claims should be construed to include other variants and embodiments of the invention which may be made by those skilled in the art without departing from the true spirit and scope of the present invention.

1. A fence system comprising:
   a first post and a second post laterally spaced from one another by a predetermined distance, each post having a hollow portion along a length of the post,
   a first lower slot and a first upper slot in a first side portion of the post, the first lower slot and the first upper slot substantially parallel to the length of the post, and
   a plurality of third slots disposed between the first lower slot and the first upper slot in the first side portion of the post;
   a first cross member coupled between the first lower slot of the first post and the first lower slot of the second post;
   a second cross member coupled between the first upper slot of the first post and the first upper slot of the second post, the second cross member having a further slot formed at a predetermined distance from the end of the second cross member and at a predetermined location on the cross member so that an offset retainer rod may be displaced to engage and seat within the further slot;
   a continuous fabric extending between the first post and the second post, the fabric having a plurality of projections at a first end of the fabric and a second end of the fabric, each of the plurality of projections extending through a respective one of the plurality of third slots disposed in the first post and the second post;
   a first section of an offset retainer rod inserted through at least one of the plurality of projections at at least a first end of the fabric to couple the fabric to an inside portion of at least the first post; and
   a second section of the offset retainer rod engaging the second cross member further slot,
   wherein the first section and the second section are separated by an offset and the offset is of a predetermined length to allow the offset retainer rod to reversibly retentively engage the second cross member further slot.

2. The fence system according to claim 1 wherein a first angle θx and a second angle θ forming the offsets are between about 15Å and 90Å and the offset retainer rod first section and second section are substantially parallel.

3. The fence system according to claim 1 wherein a first angle θx and a second angle θ forming the offsets are between about 30Å and 60Å and the offset retainer rod first section and second section are substantially parallel.

4. The fence system according to claim 1 wherein a first angle θx and a second angle θ forming the offsets are about 45Å and the offset retainer rod first section and second section are substantially parallel.

5. The fence system according to claim 1 wherein the plurality of third slots are set at an angle with respect to the length of the post.

6. The fence system according to claim 5 wherein the angle of the plurality of third slots is between about 30Å and 60Å.

7. The fence system according to claim 5 wherein the angle of the plurality of third slots is about 45Å.

8. The fence system according to claim 5 wherein the angle of the plurality of third slots is about 45Å.

9. The fence system according to claim 1 wherein the plurality of third slots are substantially parallel to the length of the post.

10. The fence system according to claim 1, further comprising a fastener for attaching the fabric to at least one selected from the group consisting of an inside portion of the first cross member and an inside portion of the second cross member.

11. The fence system according to claim 1 wherein at least one selected from the group consisting of an upper portion and a lower portion of the fabric is retentively engaged in a transverse slot integrally fabricated into the first cross member and the second cross member.

12. The fence system according to claim 11 wherein the fabric is retentively engaged in a transverse slot at a point X on the fabric.

13. The fence system according to claim 1 wherein the first cross member and the second cross member are attached to the first post by a fastener and a plate, the plate positioned over the cross member and between opposite interior walls of the post, and coupled to the cross member by the fastener.

14. The fence system according to claim 13 wherein the fastener is at least one selected from the group consisting of a screw and a rivet.
15. The fence system according to claim 1 wherein the offset retainer rod engages a top portion of the first cross member.

16. The fence system according to claim 1 wherein the offset retainer rod engages the top portion of the first cross member by passing through a top portion of the first cross member and capturing the first cross member within the post.

17. The fence system according to claim 1 wherein the offset retainer rod has a cross section of a predetermined geometric shape to allow the offset retainer rod to effectively flex to clear the second cross member to engage the second cross member further slot.

18. The fence system according to claim 17 wherein the offset retainer rod has a cross section selected from the group consisting of a substantially circular, oval, rectangular, hexagonal and triangular cross section.

19. The fence system according to claim 1 wherein the second cross member further slot is fabricated at a location on the second cross member selected from one of the group consisting of a cut at a diagonal through a second cross member lower edge and a cut into a second cross member side wall.

20. The fence system according to claim 1 wherein the offset retainer rod is selected from the group consisting of a metallic rod, a vinyl coated metallic rod and a polymer rod.

21. The fence system according to claim 1 further comprising a cap positioned over a top end portion of the post.

22. The fence system according to claim 1 wherein at least one selected from the group consisting of the first cross member and the second cross member includes a support member disposed along a length of the respective cross member.

23. The fence system according to claim 1 wherein the first post further includes

(a) providing a first post and a second post, each post having a hollow portion,

(b) forming a lower slot and an upper slot in a side portion of the post, the lower slot and the upper slot substantially parallel to the length of the post,

(c) forming a first plurality of slots disposed between the lower slot and the upper slot in the side portion of the post,

(d) coupling a first cross member between the lower slot of the first post and the lower slot of the second post,

(e) extending a fence fabric between the first post and the second post, the fabric having a plurality of projections at a first end of the fence fabric and a second end of the fence fabric,

(f) inserting each of the plurality of projections of the fence fabric through a respective one of the plurality of slots disposed in the first post and the second post;

(g) inserting a first section of an offset retainer rod through at least one of the plurality of projections at least at the first end of the fence fabric to couple the fence fabric to an inside portion of at least the first post;

(h) forming a slot in a side portion of a second cross member proximate to an end of the second cross member, and

(i) engaging a second section of the offset retainer rod with the slot to couple the second cross member between the upper slot of the first post,

wherein the first section and the second section are separated by an offset, the offset of a predetermined length to allow the offset retainer rod to reversibly retelessly engage the second cross member slot.

24. The fence system according to claim 23 wherein the second lower slot and the second upper slot are laterally offset from the first lower slot and the first upper slot, respectively, by a predetermined distance.

25. The fence system according to claim 23 wherein the second lower slot and the second upper slot are laterally offset from the first lower slot and the first upper slot, respectively, based on a grade of an installation site.

26. The fence system according to claim 1 wherein the fabric is a polymer coated chain link fence material.

27. The fence system according to claim 1 wherein, any one or more of the posts, first cross member, and second cross member have a cross section selected from the group consisting of at least one of a substantially circular, rectangular and square cross section.

28. The fence system according to claim 1 wherein the first post, second post, first cross member and second cross member are a polymer material.

29. The fence system according to claim 1 wherein the polymer material is a rigid PVC material.

30. A method for fabricating a fence panel, the method comprising the steps of:
a plurality of third slots disposed between the first lower slot and the first upper slot in the first side portion of the post, wherein the plurality of slots are offset from the vertical centerline of the post;

a first cross member coupled between the first lower slot of the first post and the first lower slot of the second post;

a second cross member coupled between the first upper slot of the first post and the first upper slot of the second post, the second cross member having a further slot formed at a predetermined distance from the end of the second cross member and at a predetermined location on the cross member so that a retainer rod may be displaced to engage and seat within the further slot;

a continuous fabric extending between the first post and the second post, the fabric having a plurality of projections at a first end of the fabric and a second end of the fabric, each of the plurality of projections extending through a respective one of the plurality of third slots disposed in the first post and the second post;

the retainer rod inserted through at least one of the plurality of projections at least at a first end of the fabric to couple the fabric to an inside portion of at least the first post, the retainer rod further engaging the second cross member further slot.

38. The fence system according to claim 37 wherein the plurality of third slots are substantially parallel to the length of the post.

39. The fence system according to claim 37 wherein the plurality of third slots are set at an angle with respect to the length of the post.

40. The fence system according to claim 39 wherein the angle of the third slots is between about 30° and 60°.

41. The fence system according to claim 39 wherein the angle of the third slots is between about 40° and 50°.

42. The fence system according to claim 39 wherein the angle of the third slots is about 45°.

43. The fence system according to claim 37, further comprising a fastener for attaching the fabric to at least one selected from the group consisting of an inside portion of the first cross member and an inside portion of the second cross member.

44. The fence system according to claim 37 wherein at least one selected from the group consisting of an upper portion and a lower portion of the fabric is retentively engaged in a transverse slot integrally fabricated into the first cross member and the second cross member.

45. The fence system according to claim 44 wherein the fabric is retentively engaged at a point X on the fabric.

46. The fence system according to claim 37 wherein the first cross member and the second cross member are attached to the first post by a fastener and a plate, the plate positioned over the cross member and between opposite interior walls of the post, and coupled to the cross member by the fastener.

47. The fence system according to claim 46 wherein the fastener is at least one selected from the group consisting of a screw and a rivet.

48. The fence system according to claim 37 wherein the retainer rod engages a top portion of the first cross member.

49. The fence system according to claim 37 wherein the retainer rod engages a top portion of the first cross member by passing through a top portion of the first cross member and capturing the first cross member within the post.

50. The fence system according to claim 37 wherein the retainer rod has a cross section of a predetermined geometric shape to allow the offset retainer rod to effectively flex to clear the second cross member to engage the second cross member further slot.

51. The fence system according to claim 50 wherein the retainer rod has a cross section selected from the group consisting of a substantially circular, oval, rectangular, hexagonal and triangular cross section.

52. The fence system according to claim 37 wherein the second cross member further slot is fabricated at a location on the second cross member selected from one of the group consisting of a cut at a diagonal through a second cross member lower edge and a cut into a second cross member side wall.

53. The fence system according to claim 37 wherein the retainer rod is selected from the group consisting of a metallic rod, a vinyl coated metallic rod and a polymer rod.

54. The fence system according to claim 37 further comprising a cap positioned over a top end portion of the post.

55. The fence system according to claim 37 wherein at least one selected from the group consisting of the first cross member and the second cross member includes a support member disposed along a length of the respective cross member.

56. The fence system according to claim 37 wherein the first post further includes

a second lower slot and a second upper slot formed in a further side portion of the first post, the further side portion being either adjacent or opposite the first side portion of the first post, and

a second plurality of third slots disposed between the second lower slot and the second upper slot.

57. The fence system according to claim 56 wherein the second lower slot and the second upper slot are laterally offset from the first lower slot and the first upper slot, respectively, by a predetermined distance.

58. The fence system according to claim 56 wherein the second lower slot and the second upper slot are laterally offset from the first lower slot and the first upper slot, respectively, based on a grade of an installation site.

59. The fence system according to claim 37 wherein the fabric is a polymer coated chain link fence material.

60. The fence system according to claim 37 wherein, any one or more of the posts, first cross member, and second cross member have a cross section selected from the group consisting of at least one of a substantially circular, rectangular and square cross section.

61. The fence system according to claim 37 wherein the first post, second post, first cross member and second cross member are a polymer material.

62. The fence system according to claim 37 wherein the polymer material is a rigid PVC material.

63. A method for fabricating a fence panel, the method comprising the steps of:

a) providing a first post and a second post, each post having a hollow portion,
(b) forming a lower slot and an upper slot in a side portion of the post, the lower slot and the upper slot substantially parallel to the length of the post,

d) forming a plurality of slots disposed between the lower slot and the upper slot in the side portion of the post, wherein the plurality of slots are offset from the vertical centerline of post,

e) coupling a first cross member between the lower slot of the first post and the lower slot of the second post,

(f) extending a fence fabric between the first post and the second post, the fabric having a plurality of projections at a first end of the fence fabric and a second end of the fence fabric,

(g) inserting each of the plurality of projections of the fence fabric through a respective one of the plurality of slots disposed in the first post and the second post;

(h) inserting a retainer rod through at least one of the plurality of projections at at least the first end of the fence fabric to couple the fence fabric to an inside portion of at least the first post;

(j) forming a slot in a side portion of a second cross member proximate to an end of the second cross member, and

(k) engaging the retainer rod with the slot to couple the second cross member between the upper slot of the first post to reversibly retentively engage the second cross member slot.

64. The method according to claim 63 wherein the plurality of third slots are set at an angle with respect to the length of the post.

65. The method according to claim 63 wherein the plurality of third slots are substantially parallel to the length of the post.

66. The method according to claim 63 further comprising the step of attaching the fence fabric to at least one selected from the group consisting of an inside portion of the first cross member and an inside portion of the second cross member.

67. The method according to claim 63, further comprising the step of coupling with the retainer rod the second cross member to at least one selected from the group consisting of the first post and the second post.

68. The fence system produced by the method of claim 63.

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