FENCE POST ANCHOR SHOE

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ABSTRACT

An extruded anchor shoe fence support is disclosed which comprises a plate having a pair of substantially parallel edges, at least one elongated ridge extending substantially parallel to and intermediate those edges along one surface of the plate, and an elongated dovetail mortise having its axis of elongation substantially parallel to the ridge, disposed on the other side of the plate. The plates are adapted to be mounted in pairs on opposite sides of H-beam fence posts. In the preferred embodiment, the length of the elongated ridge of each plate is made so that it is substantially wider than the internal width of the H-beam posts but less than twice the internal width of the posts in order that the axis of elongation of each dovetail mortise can only be positioned at a predetermined angle to the axis of elongation of the post when a pair of such plates are properly mounted on a post.

14 Claims, 6 Drawing Figures
FENCE POST ANCHOR SHOE

The present invention relates generally to fence supports and more particularly to improved anchor means for supporting fence posts.

Fence posts should be securely anchored in the ground so that fencing material may be firmly secured thereto. Several support structures have been devised for anchoring these posts. For example, a post can be placed in a concrete footing. The use of concrete footings however, requires digging the hole for the concrete, making and pouring the concrete footings, placing the posts in the concrete and supporting the posts until the concrete hardens. Such a relatively large amount of labor and materials increases the costs of the fence. Further, if it should become desirable subsequently to move the fence, it is difficult to remove the posts once the concrete has hardened. One type of device which has been devised to overcome the disadvantages of concrete anchors, is generally referred to in the art as "anchor shoes." Anchor shoes are generally used in pairs to hold a pair of stakes which serve to provide a wide base to a fence post. One type of shoe which is well known in the art, comprises a substantially flat plate which is adapted to be used with posts of the H-beam type. One side of the plate is provided with a stake-receiving groove while the other side is provided with four restraining guide projections or fingers. The latter are provided to lock within the flanges of a post beam to thereby restrain the movement of the shoes with respect to the post beam. When the post is secured between a pair of shoes, the stake-receiving grooves are disposed to hole opposite stakes at an approximate 90° angle with respect to one another. The shoes and the end of the post to which they are clamped can simply be driven into the ground without the necessity of digging a hole or pouring cement. Stakes can then be driven through the groove of each shoe in order to secure the post to the ground. These commercially available shoes are of complex shape, are generally formed of either cast iron or pressed steel, and thus are relatively expensive and currently take a long time to manufacture.

It is therefore the primary object of the present invention to provide a new, relatively economical and inexpensive fence support which can be manufactured on a mass production basis.

Other objects of the present invention are: to provide an improved fence anchor shoe which is relatively lightweight, rugged and durable; to provide an improved fence anchor shoe which can be easily and quickly clamped to an H-beam type fence post; to provide an improved anchor which has good structural qualities and structural integrity; and to provide an anchor shoe which is made of a material which is noncorrosive and compatible with the post to which it is to be clamped, thereby providing longer life and longevity.

These and other objects of the present invention are achieved by an improved fence anchor shoe which is extruded to form a plate having a pair of substantially parallel edges, at least one elongated ridge extending parallel to and intermediate said edges along one surface of the plate and an open elongated dovetail mortise having its axis of elongation substantially parallel to the ridge disposed on the other surface of the plate. The ridge or ridges act to restrain the movement and define the angle of each shoe with respect to a fence post when properly mounted thereon.

Other objects of the invention will in part be obvious and will in part appear hereinafter. The invention accordingly comprises the product possessing the features, properties and relation of components which are exemplified in the following detailed description and the scope of the application of which will be indicated in the claims.

For a fuller understanding of the nature and objects of the present invention, reference should be had to the following detailed description taken in connection with the accompanying drawings wherein:

FIG. 1 illustrates a side elevational view of an anchor shoe assembly of the prior art assembled for use;

FIG. 2 illustrates a top perspective view of the prior art anchor shoe assembly illustrated in FIG. 1;

FIG. 3 illustrates a bottom perspective view of the same prior art anchor shoe assembly;

FIG. 4 illustrates a preferred embodiment of the present invention assembled for use;

FIG. 5 illustrates a top perspective view of the preferred embodiment shown in FIG. 4; and

FIG. 6 illustrates a bottom perspective view of the same preferred embodiment.

In the drawings, like numerals refer to like parts.

The embodiment of a prior art anchor shoe assembly which is illustrated in FIGS. 1–3 and generally referred to at 10, is shown attached to a post 12, the latter being of a well known construction. The post 12 generally comprises an elongated beam having an I or H-shaped cross-section. Generally, the H-beam type of fence post comprises an intermediate portion or web section 16 which extends between and is normal to two, substantially parallel side flanges 14.

The shoe assembly 10 comprises two identical anchor shoes 18 (one of which is shown in FIGS. 1–3) which are secured together as well as to the post 12 by bolts 20. The surface 22 of each shoe, which may be referred to as the "inner" surface since it contacts the post 12 when the former is secured to the latter, is provided with four restraining guide projections or fingers 24. A pair of the projections are spaced from one another along the top edge of the shoe, while the other two are spaced from one another along the bottom edge. The distance between the extreme edges of each pair of projections 24 is made equal in dimension to the internal width or distance between the side flanges 14 of the post 12. Thus, when each shoe 18 is properly mounted on the post 12, whereby the four projections 24 are positioned between the flanges 14, the shoe will be restrained from moving with respect to the post.

The other surface 26 of the anchor shoe which may be referred to as the "outer" surface, is provided with elongated groove 28 which extends along the entire anchor shoe at an angle, usually 45°, to the general direction of the post when the shoe is secured thereto. The inner side surfaces of groove 28 are provided with longitudinal guide tracks 30 along the direction of elongation of the groove. Tracks 30 and the curvature of surface 32 will allow a stake (not shown) to slide unilaterally in the groove in the direction of elongation. Since a pair of identical shoes are secured to opposite sides of a post in order to secure the post in the ground, the general direction
of elongation of the groove 28 of the shoes will be disposed approximately 90° to the general direction of elongation of the groove 28 of the other of the plates. Since the groove 28 of each plate is adapted to unilaterally receive a stake (not shown); by driving two stakes in the corresponding grooves, a wide base will be provided for each post beam 12.

The prior art shoes are of a complex design and are usually made of cast iron or pressed steel. Presently, however, casting or pressing the shoes is relatively expensive and a backlog of orders has resulted in unnecessarily long manufacturing times. These problems are overcome by the anchor shoes of the present invention which can be inexpensively manufactured in accordance with well-known extrusion processes.

The illustrated embodiment shown in FIGS. 4-6 is the type of shoe which can be extruded in accordance with well-known processes. The embodiment generally comprises an anchor shoe assembly 40 secured to the post 12. The assembly 40 comprises two identical substantially flat, rectangular plates 42, which are secured together, as well as to the beam 12 by any suitable fastening means, such as bolts 44. The plates are preferably made of aluminum, although other materials may be used which are noncorrosive, compatible with the post 12 and can be heated and extruded to form the plates. The inner surface 46 of each plate 42 which contacts the post 12 when the former is secured to the latter, is preferably provided with an elongate longitudinally extending ridge 48 for restraining movement of the plate 42 with respect to the post 12. The ridge 48 extends out slightly from the surface, parallel to and intermediate the parallel edges 50a and 50b of each plate 42. The ridge is made longer than the internal width of spacing provided between the two side flanges 14 of the post 12. Thus, when the plate is securely positioned on the fence post so that the ridge is oriented to fit between the side flanges 14, with each end of the ridge approximately in contact with a corresponding side flange, the ridge will be oriented at a predetermined angle depending on the length of the ridge relative to the internal width between the side flanges. Generally, ridge 48 is substantially longer than the internal width of the beam and may be as long as twice the width. For most applications the orientation of the ridge with respect to the general elongate direction of the post is between 30° and 60°. Preferably, the ridge is made approximately 1.41 times longer than the spacing between the side flanges of the post 12 so that when it is properly oriented on the post, the ridge will be oriented at an approximate 45° angle to the general elongate direction of the post. Since the plate is extruded, the ridge will extend the length of the plate when extruded. Portions of the ridge can be removed by any of several various known techniques, such as using a lathe to cut or a heavy press to compress those portions to be removed. Different portions of the ridge are removed depending on the particular design desired or how the anchor shoe is to be attached to the post. In the preferred embodiment, the length of the ridge is reduced to the desired length by removing the end portions of the ridge, indicated in FIG. 6 as A, and leaving intact the portion B. Alternatively, however, only slots need be formed in the ridge as indicated at C, in order to accommodate the side edges of the flanges 14 of the post 12. Where it is desirable to install the shoes parallel to the line of the fence so that each shoe is clamped directly onto a flange 14, the end portions A are left intact and only the middle portion B is removed.

The outer surface 52 of each plate 42 is provided with two rails 54 and 56 which are disposed in parallel relation to one another as well as to the ridge 48. The rails are angled toward one another to provide an open dovetail mortise 58. The dovetail mortise 58 defines a stake-receiving groove. Since the remaining portions of ridge 48 of each plate is oriented at an angle to the elongate direction of the post 12 when mounted thereon, the axis of elongation of the dovetail mortise will also be oriented at an approximate angle to the elongate direction of the post. In the preferred embodiment the two plates are mounted to the post so that the two corresponding stake-receiving dovetail mortises are oriented at an approximate 45° angle to the post 12 and at an approximate 90° angle with respect to one another.

When installing the anchor shoes, the post 12 is driven into the ground. The dirt at the base of the driven post is then excavated and the anchor shoes are clamped to the post below the finished grade. Angles (not shown), which are of the same approximate width as defined by the space between the rails 54 and 56 and have a cross-section similar to the dovetail mortise 58, can be driven through the dovetail mortises to secure the post to the ground. The shoes are then covered to the finished grade.

Since certain changes may be made in the above product without departing from the scope of the invention herein involved, it is intended that all matter contained in the above description or shown in the accompanying drawing shall be interpreted in an illustrative and not in a limiting sense.

What is claimed is:

1. An anchor shoe for mounting on an H-beam fence post having side flanges, said shoe comprising: an extruded plate having a pair of substantially parallel edges, and a straight, elongated, open, dovetail mortise disposed on one surface of said plate, said mortise having its axis of elongation substantially parallel to said edges; and means disposed on the other surface of said plate for cooperatively coupling with said flanges so that when said plate is securely positioned on said post said mortise will be oriented at an angle not greater than approximately 60° with respect to the general elongate direction of said H-beam post.

2. An anchor shoe in accordance with claim 1, wherein said means for cooperatively coupling with said flanges includes at least one elongated ridge portion extending substantially parallel to and intermediate said edges along said other surface of said plate.

3. An anchor shoe in accordance with claim 2, wherein said elongated ridge portion has a length substantially greater than the internal width between the side flanges of said H-beam fence post but not more than twice said internal width between said side flanges.

4. An anchor shoe in accordance with claim 3, wherein the length of said ridge portion is approximately 1.41 times said internal width of said H-beam post.

5. An anchor shoe in accordance with claim 2, wherein said plate is rectangular and said ridge portion...
extends intermediate the other pair of substantially parallel edges.

6. An anchor shoe in accordance with claim 2 wherein said plate has at least two elongated ridge portions which are substantially aligned with one another in their elongate direction and wherein the space provided between said two ridge portions is greater than the width of the side flanges of said H-beam fence post but not more than twice said width of said side flanges.

7. An anchor shoe in accordance with claim 6 wherein said space between said elongated ridge portions is approximately 1.41 times said width of said side flanges of said post.

8. An anchor shoe in accordance with claim 2 wherein said plate has at least three elongated ridge portions which are substantially aligned with one another, and have a slot between adjacent ridge portions wherein the space provided between said slots is greater than the width between the side flanges of said H-beam fence post but not more than twice said width.

9. An anchor shoe in accordance with claim 8 wherein said space is approximately 1.41 times said width between each of said side flanges.

10. An anchor shoe in accordance with claim 2 wherein said plate is aluminum.

11. An anchor shoe support assembly for mounting on an H-beam fence post comprising:

a pair of extruded plates, each having a pair of substantially parallel edges, at least one elongated ridge portion extending substantially parallel to said plate, and intermediate said edges along one surface of said plate, said elongated ridge portion being dimensioned so that when said plate is securely positioned on said post, said ridge portion will be oriented at an angle not more than 60° with respect to the general elongate direction of said H-beam fence post, and an elongated open dovetail mortise disposed on the other surface of said plate and having its axis of elongation substantially parallel to said ridge portion; and

means for attaching said plates to opposite sides of said fence post.

12. An anchor shoe support assembly in accordance with claim 11 wherein the length of each of said ridges is approximately 1.41 times the internal width between the side flanges of said H-beam post so that when said plates are attached to said post, said axes of elongation of said elongated dovetail mortises are disposed at a 90° angle with respect to one another.

13. An anchor shoe for mounting on an H-beam fence post having side flanges, said shoe comprising:

a plate having a pair of substantially parallel edges, and

a straight, elongated, open, dovetail mortise disposed on one surface of said plate, said mortise having its axis of elongation substantially parallel to said edges; and

at least one groove on the other surface of said plate for cooperatively coupling with said flanges so that when said plate is securely positioned on said post said mortise will be oriented at a selected angle with respect to the general elongate direction of said H-beam post.

14. An anchor shoe for mounting on an H-beam fence post comprising:

a plate having a pair of substantially parallel edges, at least one elongated ridge portion extending substantially parallel to and intermediate said edges along one surface of said plate, said elongated ridge portion being dimensioned so that when said plate is securely positioned on said post, said ridge portion will be oriented at an angle not greater than approximately 60° with respect to the general elongate direction of said H-beam post, and an elongated open dovetail mortise disposed on the other side of said plate.

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