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S. R. GALLOWAY ET AL

3,011,597

SUPPORTING POST

Original Filed April 21, 1958

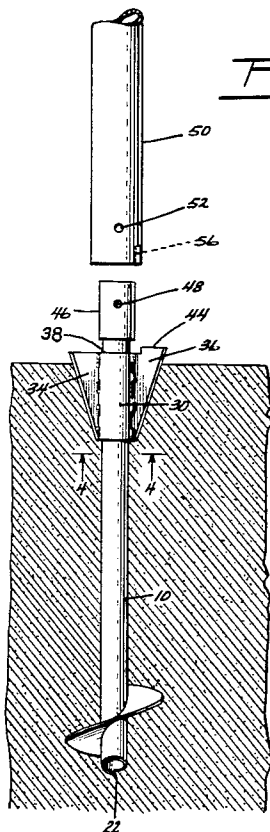


FIG-1

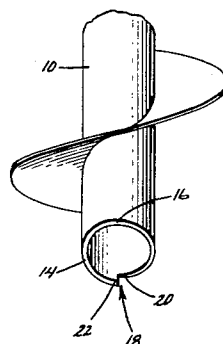


FIG-2

FIG-4

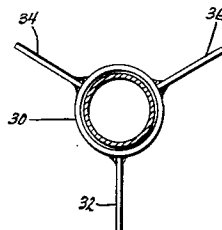


FIG 3

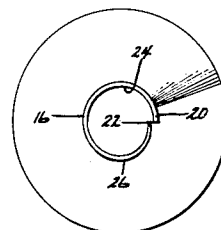


FIG-5

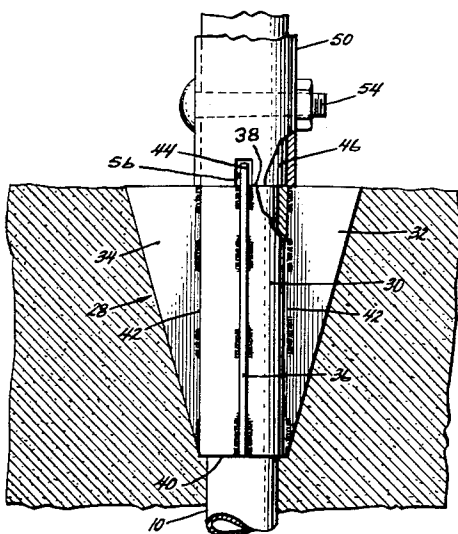
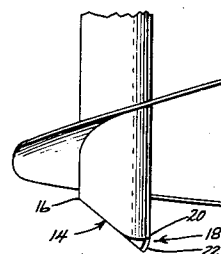


FIG-6



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3,011,597

SUPPORTING POST

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Original application Apr. 21, 1958, Ser. No. 729,767.
Divided and this application Feb. 13, 1961, Ser. No. 88,759

3 Claims. (Cl. 189—30)

This is a divisional application of application Serial No. 729,767, entitled "Supporting Post," filed April 21, 1958.

The present invention relates to a supporting post, and more particularly to a supporting post assembly which may be quickly installed in the ground without the necessity of first digging a hole or secondly driving the post with a sledge hammer or the like.

In installing posts for the purpose of supporting superstructures or objects such as mail boxes and the like, it is customary to first bore or dig a hole in the ground to a suitable depth, this hole being made slightly larger than the post to be inserted therein, insert the post in the hole in a truly upright position, and lastly, while supporting the post in such position, pouring concrete around the post to set it firmly in position. As is obvious, this installation requires digging equipment of some kind, as well as time and effort, considerable manpower and equipment being required if it is desired to achieve any semblance of speed in installing a large number of posts.

It is an object of this invention to provide a supporting post structure which requires no concrete reinforcement or any special equipment for installation.

It is another object of this invention to provide a supporting post structure which may be quickly installed with a minimum of effort and which, after installed, is completely stabilized against lateral and rotational displacement.

It is still another object of this invention to provide a supporting post structure which may be quickly erected without first digging or boring any holes in the ground, and secondly without requiring any extra equipment for holding the post in vertical alignment during installation.

Other objects will become apparent as the description proceeds.

To the accomplishment of the above and related objects, our invention may be embodied in the forms illustrated in the accompanying drawings, attention being called to the fact, however, that the drawings are illustrative only, and that specific change may be made in the specific constructions illustrated and described so long as the scope of the appended claims is not violated.

In the drawings:

FIG. 1 is a vertical elevation of an embodiment of this invention shown partially installed in the ground;

FIG. 2 is a fragmentary illustration of the lower end of the anchor post;

FIG. 3 is an end view of the anchor post;

FIG. 4 is a sectional illustration taken substantially along section line 4—4 of FIG. 1;

FIG. 5 is a fragmentary illustration of the post structure finally installed in the ground; and

FIG. 6 is a view similar to FIG. 2 but rotated ninety (90) degrees.

Referring to the drawings, and more particularly to FIG. 1, the illustrated embodiment of the invention comprises a tubular anchor post 10 fabricated of steel tubing or the like, which carries an auger 12 on its lower end. This auger 12 preferably is fabricated of steel which is welded at its inner perimeter to the outer surface of the post 10 and is formed with a screw pitch which will

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force the post 10 downwardly into the ground when turned in a clockwise direction.

The lower extremity of the post 10 is angled at 14 (see FIG. 2) such as to define a plane which intersects the post axis at an acute angle. This provides upper and lower end portions 16 and 18, respectively (FIG. 6), which serves the general purpose of providing a point on the post 10. The lower end portion 18 is axially undercut at 20 to provide a downwardly projecting deflector or tooth 22. This tooth 22 is bent radially inwardly to a point which positions the outer surface of the tooth 22 either in line with or slightly inwardly from the inner wall 24 of the post. While this particular position of the tooth 22 is preferred, it has been found through experiments that the tooth need not be positioned as far inwardly as just explained, but only sufficiently far to facilitate turning the post 10 in the soil as will be explained more fully in the following. The outer surface of the tooth 22 merges with the outer periphery 26 of the post along a spiral path, the importance of this feature being apparent from the following description.

Loosely telescopically received over the anchor post 10 is a vane structure generally indicated by the numeral 28. This structure comprises an elongated steel sleeve 30 to which are welded triangularly shaped vanes 32, 34 and 36, respectively. Each vane preferably extends from the upper edge 38 of the sleeve 30 to the lower edge 40 with the shape thereof being that of a right triangle. The edge of each vane which corresponds to the altitude of the triangle is welded to the periphery of the sleeve along the respective axially extending line 42 thereby securing the vane and the sleeve 30 rigidly together.

The vane 36 differs slightly from the other two vanes 32 and 34 in the respect that it is longer and extends outwardly beyond the upper edge 38 of the sleeve 30. This vane extension is indicated by the reference numeral 44 and serves as a locking projection which will be explained more fully in the following.

On the upper end of the anchor post 10 is secured a tubular mounting sleeve 46 having a transverse bolt opening 48. This sleeve 46 is approximately the same size as the bearing sleeve 30 and is secured to the upper end of the post 10 by some suitable means such as welding.

The structure thus far described, when installed, is positioned beneath the surface of the ground with the exception of the mounting sleeve 46 as shown more clearly in FIG. 5. With the sleeve 46 so projecting above the surface of the ground, an upper tubular post 50 is telescoped thereover. This post is provided at its lower end with a bolt opening 52 positioned to register with the bolt opening 48 in the mounting sleeve when the lower end of the post 50 coincides with the lower end of the sleeve 46. Thus aligned, the holes 48 and 52 receive a bolt 54 for securing the two posts 10 and 50 together.

An axially extending notch 56 is cut back from the lower end of the post 50 in registry with the locking projection 44 of the vane 36. With the locking projection 44 thus entering this notch 56, relative rotation between the upper post 50 and the vane structure 28 is prevented.

The structure thus far described is installed as follows. The anchor post 10 without the upper post 50 secured thereto is first set upright with the tooth 22 resting on the surface of the ground. A suitable bar is inserted through the bolt opening 58 and is used as a handle for turning the post 10 clockwise with a sufficient downward force to cause the auger 12 to bite into the soil. During this rotation, the tooth 22 cuts an annular opening in the soil ahead of the entry therinto of the remaining wall portions of the post 10, this tooth 22 by reason of its being bent inwardly providing a deflecting surface on its outer

periphery for deflecting some of the soil disposed within the interior boundaries of the post 10 toward the outside. A clearance between the inner post surface 24 and the soil is thereby provided as the post 10 is turned downwardly. This clearance is extremely important, because it substantially eliminates any frictional contact between the inner post surface 24 and the soil, which frictional contact can be so forceful as to prevent the post 10 from being turned downwardly. As a matter of fact, without the tooth 22 and its deflecting surface, it is almost impossible to cause the post 10 to auger downwardly into the ground without breaking some part thereof.

When the post 10 is turned downwardly a short distance, the vane structure 28 is tapped with a hammer or the like along its upper edges to drive it into the ground first to the position of FIG. 1 and finally to the position of FIG. 5. While the vane structure 28 is in the position of FIG. 1, it serves as a fixed bearing within which the post 10 is turned. The upper end of the post 10 is held against lateral displacement by reason of the vanes 32, 34, 36 during the installation.

When the lower end of the mounting collar 46 abuts the upper edge 38 of the vane-supporting sleeve 30, further rotation of the post 10 drives the vane structure 28 to the position illustrated in FIG. 5.

The anchor post 10 thus mounted, the only remaining step in assembling the structure is to telescope the upper post 50 over the mounting collar 46, the notch 56 being passed over the locking projection 44 and the holes 48 and 52 being aligned to receive the locking bolt 54.

With the structure so installed and assembled, the post cannot be rotated, because the upper post 50 is locked to the vane 36 which cannot be rotated in the soil. Still further, the supporting post cannot be laterally displaced, because the vanes 32, 34, 36 present surfaces which resist such displacement. As seen in FIG. 4, these vanes are angularly spaced around the supporting sleeve 30 by approximately one hundred twenty (120) degrees.

While the vane structure 28 serves the purpose of preventing rotational and lateral displacement of the post as installed, it also serves the purpose of providing an upper bearing for the post 10 during installation. This is extremely important, because it assures that the post 10 is being held in erect position during the entire period of installation.

What is claimed is:

1. A supporting post comprising an elongated tubular post having a predetermined length, said length being hollow through its extent and corresponding to the depth to which the post is driven into the earth, said post having upper and lower ends, said lower end having an end edge, said lower end having a deflector projecting radially inwardly of said post, said deflector comprising a circumferential portion having a generally axially extending

elongated edge disposed radially inwardly of but adjacent to the post periphery, said portion further having an outer surface extending generally axially of said post and gradually angularly inwardly from the outer periphery of said post to said elongated edge, and an auger on the lower portion of said post having a pitch which drives said post into the earth when the latter is rotated in a direction to force said elongated edge into the soil ahead of the remainder of the deflector, such rotation serving to deflect soil from a location inside the periphery of said post toward the outside thereof.

2. A supporting post comprising an elongated tubular post having a predetermined length, said length being hollow throughout its extent and corresponding to the depth to which the post is driven into the earth, said post having upper and lower ends, said lower end having an end edge, said lower end having a deflector projecting radially inwardly of said post, said deflector comprising a circumferential portion of the post wall and having a generally axially extending elongated edge disposed radially inwardly of but adjacent to the post periphery, the length of said elongated edge being shorter than the circumferential extent of said portion, said portion further having an outer surface extending generally axially of said post and gradually angularly inwardly from the outer periphery of said post to said elongated edge, and an auger on the lower portion of said post having a pitch which drives said post into the earth when the latter is rotated in a direction to force said elongated edge into the soil ahead of the remainder of the deflector, such rotation serving to deflect soil from a location inside the periphery of said post toward the outside thereof.

3. A supporting post comprising an elongated tubular post having a predetermined length, said length being hollow throughout its extent and corresponding to the depth to which the post is driven into the earth, said post having upper and lower ends, said lower end being terminated in a plane transverse to the axis of the post for providing an end edge, said lower end having a deflector projecting radially inwardly of said post, said deflector comprising a circumferential portion having a generally axially extending elongated edge disposed radially inwardly of but adjacent to the post periphery, said portion further having an outer surface extending generally axially of said post and gradually angularly inwardly from the outer periphery of said post to said elongated edge, and an auger on the lower portion of said post having a pitch which drives said post into the earth when the latter is rotated in a direction to force said elongated edge into the soil ahead of the remainder of the deflector, such rotation serving to deflect soil from a location inside the periphery of said post toward the outside thereof.

No references cited.