

June 24, 1969

C. L. ROBERTS

3,451,657

CAST CONCRETE POST

Filed Aug. 26, 1968

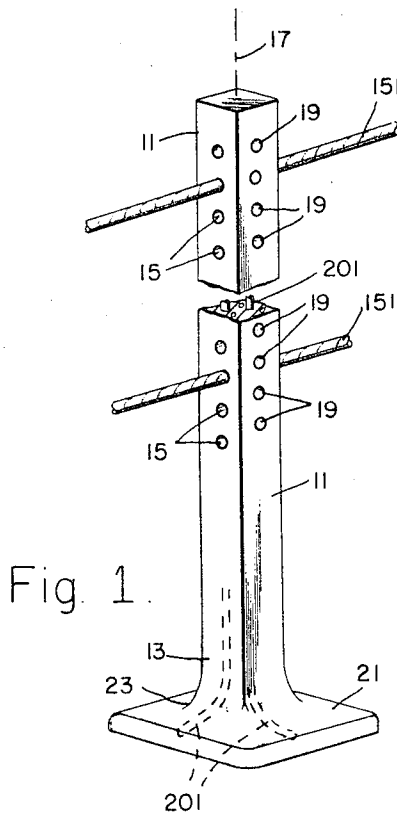


Fig. 1.

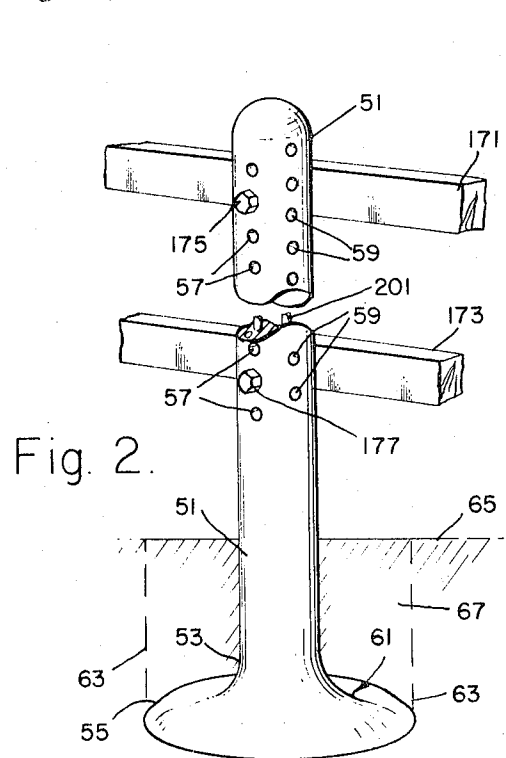


Fig. 2.

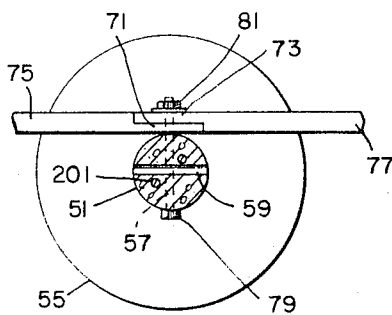


Fig. 3.

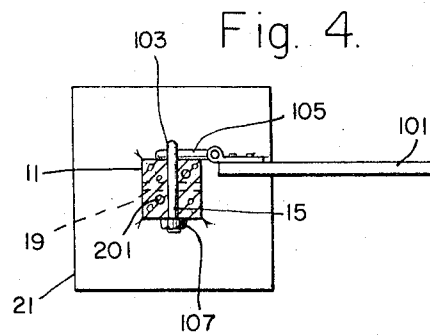


Fig. 4.

Clifford L. Roberts,
INVENTOR.

BY.

John H. Richter, Jr.

ATTORNEY.

1

3,451,657

CAST CONCRETE POST

Clifford L. Roberts, 5123 Laurette St.,

Torrance, Calif. 90503

Filed Aug. 26, 1968, Ser. No. 755,070

Int. Cl. E04c 3/34

U.S. Cl. 256—19

8 Claims

ABSTRACT OF THE DISCLOSURE

The invention is a novel cast concrete post, the lower portion of which is adapted to be buried in the earth. That portion of the post extending above the earth is provided with a plurality of holes extending therethrough transversely of the longitudinal axis of the post. A number of these holes lie in a plane through this longitudinal axis and further of these holes lie in a plane also through the axis but orthogonal to the first plane. However, the holes in the different planes do not intersect. An integral lower base portion extends outwardly from the lower portion of the post to a plane orthogonal to the longitudinal axis of the post to provide resistance against lateral forces acting on the post above the earth.

The partially burying of posts in the earth for purposes of mounting or supporting fencing, gates, signs, fixtures and the like has long been known. The utility of this practice has proven itself over hundreds of years in all areas of endeavor. However, through this long period of time there has been one basic drawback. That is, these posts were constructed from wood.

Wood, as is well known, is adversely affected by moisture, weather, dry rot and wood damaging insects such as powder post beetles and termites. In order to overcome these problems, it was the general technique for many years to use only selected species of trees from which to fabricate posts that were to be in contact with the earth or to be used in exterior applications. Redwood was such a selected species. This technique proved to be an improvement over the practice of no selection but still left a lot to be desired since even redwood and similar type lumber was affected by the weather, moisture and rot.

Another technique was to paint or dip that portion of the posts to be buried in the earth with or in such chemicals as creosote to help resist the elements and insects. Also, the posts were oiled and then painted to seal out the effects of moisture. These methods gave even more protection than before but still had disadvantages in that the process had to be often repeated to preserve the wood and the buried portion of the post could not easily be removed for the re-application of the preservative or paint.

More recently, pressure soaking techniques have been developed that force the preservative throughout the timber and thus lengthen the amount of time between the necessary treatments.

In modern times, the trend has been to look to a substitute for timber that will better withstand the effects of nature. Such a substitute are such materials as metal and concrete. Metals have a problem that is somewhat similar to that of wood; namely, deterioration through oxidation such as rust if not painted regularly. Another retardation of oxidation technique is to preoxidize certain metals that have the characteristic of resisting further oxidation. However, this is a rather costly method of protection and not applicable to most metals.

Concrete on the other hand has a very good resistance to nature characteristic and will function well while exposed to the elements for many numbers of years. These

2

concrete columns are easily cast and have been used to support telephone, electric power and street lights, to name but a few examples. Also, it is well known that concrete is not affected by beetles, termites or other insects. Even with these obvious advantages over timber, concrete has not been extensively used for smaller-sized applications such as fence and gate posts and light-weight carrying standards or supports.

The problem that has been heretofore present in the use of concrete fence posts and the like is that it was difficult to attach fencing materials such as wire, rails, hinges and other hardware for gates, etc. to these posts. Also, it was found that due to the fact that concrete posts were considerably heavier than wooden posts of the same size, there was a tendency for such concrete posts to fall over when the earth in which their lower extremities became damp through the action of rain or irrigation.

In order to overcome this shortcoming, cast concrete posts have been manufactured that are much longer than comparable wooden post to be used in the same application, so that more of the post could be buried below the earth. This, of course, helped the situation but led to higher costs, much greater weight, and required deeper holes. However, these posts still did not provide an easy method of mounting fencing and the like.

Thus, it should be quite evident that a concrete post that had all the advantages of the use of concrete over wood and also had the advantage of providing ease of supporting fencing materials and hardware and the ability to stand erect in spite of damp or wet footing and under heavy loads would be a significant advancement of the art.

Accordingly, it is an object of the present invention to provide an improved cast concrete post.

It is another object of the present invention to provide a cast concrete post that is easily formed, is inexpensive and is reliable over extended periods of time.

It is still another object of the invention to provide a cast concrete post that will withstand heavy vertical and lateral loads in damp and wet terrain while not requiring an extended length that must be buried.

It is yet another object of the present invention to provide a cast concrete post that facilitates the attachment of fencing, gates, signs, fixtures, etc.

The foregoing advantages are provided according to one embodiment of the invention by an elongated post section having in that portion thereof that extends above the earth a plurality of holes extending therethrough transversely to the longitudinal axis of the post section. A number of these holes are in a first plane lying along the longitudinal axis and a further number of these holes are in a second plane lying along this axis but orthogonal to the first plane. The holes in the different planes, however, do not intersect. The cast concrete post also has an integral lower base portion extending outwardly from the lower portion thereof, adapted to be buried in the earth, to a plane orthogonal to the aforementioned longitudinal axis.

According to the invention, the cast concrete post may have a square or round cross section and may include reinforcing members embedded therein such as steel rods. Also, these rods may be pre-stressed for additional strength and ability to bend without fracturing.

The invention and specific embodiments thereof will be described hereinafter by way of example and with reference to the accompanying drawing wherein like reference numerals refer to like elements or parts, and in which:

FIG. 1 is a perspective view of a cast concrete post

constructed according to one embodiment of the invention supporting a wire fence;

FIG. 2 is a perspective view of a post constructed according to another embodiment of the invention;

FIG. 3 is a cross sectional view of the post of FIG. 2 supporting the joined ends of two fence rail sections; and

FIG. 4 is a cross sectional view of the post of FIG. 1 supporting gate hardware and an associated gate.

With reference now to the drawing and more particularly to FIG. 1, there is shown a square cast concrete post 11, a lower portion 13 of which is to be buried in the earth and having a number of holes 15 in one plane lying along the longitudinal axis 17 of the post 11 and another number of holes 19 in another plane lying along the axis 17 but orthogonal to the first plane. The holes 15 and 19 are positioned above the lower portion 13 and are arranged so as not to intersect each other in order not to block any holes in the opposite plane and further to allow the most advantageous use of the holes available. The lower portion 13 is provided with an integral base portion 21 of square cross section and extending outwardly from the lower post portion 13 to a plane orthogonal to the axis 17.

The holes 15 and the holes 17 need not be positioned along the post 11 with equidistant spacing for the length of the post, but may be grouped in numbers of four or five with greater spacing between such groups, for example. Also, the integral base portion 21 need not have the same upper inclination 23 shown in the figures.

The cross section of the concrete post may be of any desired cross sectional configuration. For example, instead of the square cross section as shown in FIG. 1, the cast concrete post, according to another embodiment of the invention, may have a circular cross section as shown in FIG. 2. Here, a cast concrete post 51 of circular cross section is shown having a lower section 53 adapted to be buried in the earth, at the lower portion of which is an integral base portion 55 also of circular cross section.

This embodiment also includes two orthogonally disposed sets of holes 57 and 59 and again the top of integral base portion is shown having an inclined surface 61.

The lower portion of the posts shown in the first two figures are adapted to be buried in the earth and to withstand the forces of nature as well as heavy loads not always exerted directly along the longitudinal axis of the posts. These off-axis or lateral loads would tend, in prior art devices, to force the post to lean or fall over. This was especially true where the earth was not dry for any reason. However, due to the integral base portion of the posts of the invention, this tends not to happen.

The posts constructed according to the present invention are buried by first boring or otherwise making a hole 63 in the earth 65 of sufficient dimensions to accept the integral base portion 55 of the post 51. Then, the hole 63 is filled on top of the base 55 and preferably packed 67. The inclined top of the base has the advantage over the prior art by adding to the strength of the post and further adding to the ability of the post to withstand lateral loads.

FIG. 3 illustrates the manner in which the overlapping ends 71 and 73 of two fence rails 75 and 77 may be supported by the passing of a bolt 79 through a hole 57 in the post 51 and secured by a nut 81.

A fence gate 101 is shown in FIG. 4 being supported by the post 11 by means of a U-bolt 103 positioned through a hole 15 and a hinge 105 and that is secured by nuts 107 (only one shown).

Other types of fencing material may be advantageously supported by the cast concrete posts above described. For example, wires 151 as seen in FIG. 1 may be strung through the holes cast in the post or U-bolts, not shown, may be used to hold the wire. The latter is especially ad-

vantageous where barbed wire is to be used. In the event that the fence wire is to be electrified, it may be advantageous to place tubular insulative inserts (not shown) in the holes to prevent the possibility of leakage in damp weather.

Of course, fence railings may be supported at other positions than at their ends as was the case shown in FIG. 3. Thus, such rails 171 and 173 are shown in FIG. 2 as being so supported by a bolt 175 and 177, respectively.

In order to strengthen these cast concrete posts, reinforcing rods 201 may be embedded in the posts, which rods extend along the length of the posts and then flare outwardly into the integral base portion (see FIG. 1). Only the lower portion of these rods is shown for the sake of clarity. Additionally, these rods (preferably of steel) may be pre-stressed to provide a degree of resilience to the posts.

In practicing the invention, any desirable composition of concrete and cross sectional configuration may be used. Also, other types of fencing materials and gates may be supported by these posts. The typical dimension of such a post constructed according to the invention has the following dimensions: post cross sectional dimension, 4" x 4"; base, 10" x 10"; length, 4' above the earth and 2' below; and 1/2" diameter holes.

From the foregoing, it will be evident that the invention provides an improved and very useful cast concrete post that has considerable strength and the ability to withstand all climatical conditions and severe lateral forces without leaning or falling over, even in damp or wet terrain.

Although specific embodiments of the invention have been described in detail, other organizations of the embodiments shown may be made within the spirit and scope of the invention.

Accordingly, it is intended that the foregoing disclosure and drawing shall be considered only as illustrations of the principles of this invention and are not to be construed in a limiting sense.

What is claimed is:

1. A cast concrete post, a lower portion of which is to be buried in the earth, comprising:

an elongated post section having in that portion to extend above the earth a plurality of holes extending therethrough transversely to the longitudinal axis of said post section, a number of said holes being in a first plane lying along said longitudinal axis and a further number of said holes being in a second plane lying along said longitudinal axis orthogonal to said first plane; said holes in different planes not communicating with each other; and

an integral lower base portion extending outwardly from said lower portion to a plane orthogonal to said longitudinal axis.

2. A cast concrete post according to claim 1, wherein said elongated post section has a square cross section.

3. A cast concrete post according to claim 1, wherein said elongated post section has a circular cross section.

4. A cast concrete post according to claim 1, wherein the holes in each of said planes are spaced equidistant in groups of four with a larger spacing between said groups.

5. A cast concrete post according to claim 1, wherein the uppermost surface of said integral base portion is inclined as it approaches said lower portion from the outer extremities of said base portion.

6. A cast concrete post according to claim 5, wherein a plurality of reinforcing members are embedded in said post, each extending along said elongated post section and into said integral base portion to said extremities.

7. A cast concrete post according to claim 6, wherein said reinforcing members are steel rods.

8. A cast concrete post according to claim 7, wherein said steel rods are stressed.

5

References Cited

UNITED STATES PATENTS

421,582	2/1890	Kimball et al. -----	52—704 X
590,100	9/1897	Grant -----	256—19
722,126	3/1903	Mitchell -----	256—19 5
788,024	4/1905	Covey -----	256—19
2,635,857	4/1953	Banister -----	256—19
3,173,662	3/1965	Millerbernd -----	256—22

6

FOREIGN PATENTS

687,129 5/1964 Canada.

DENNIS L. TAYLOR, *Primary Examiner.*

U.S. Cl. X.R.

256—47