

Mar. 20, 1923.

1,449,236.

A. W. MALONE.
METHOD OF PROVIDING ANCHORAGES.
FILED SEPT. 21, 1922.

Fig. 1.

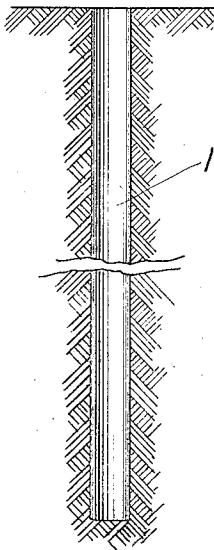


Fig. 2.

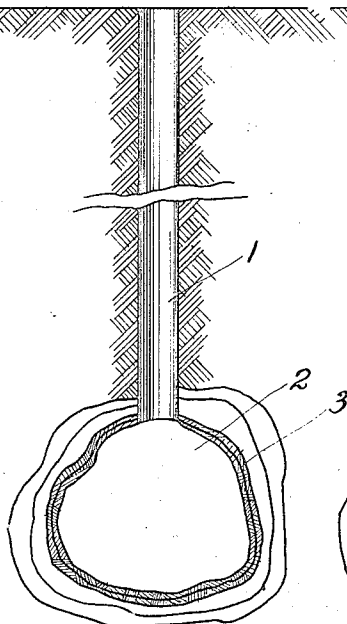


Fig. 3.

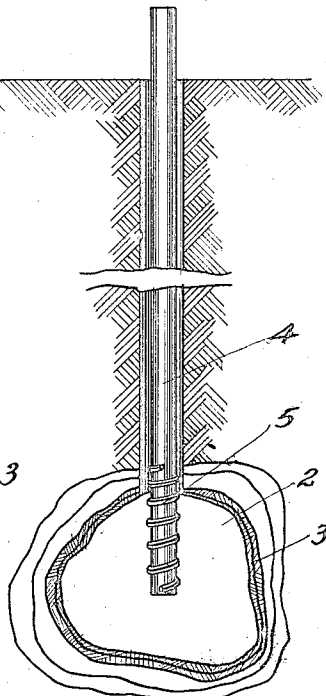


Fig. 4.

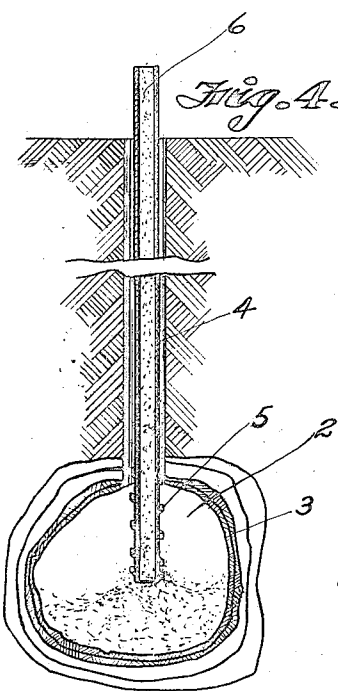


Fig. 5.

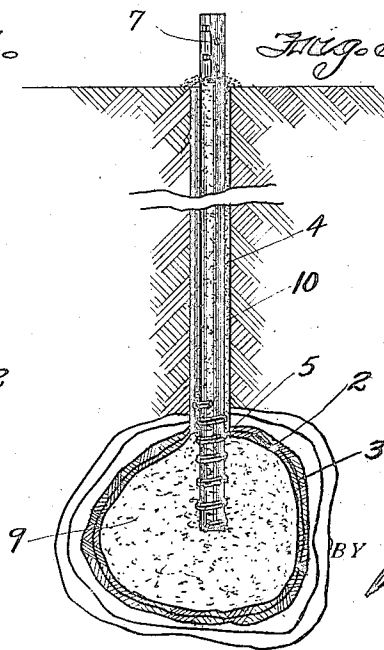
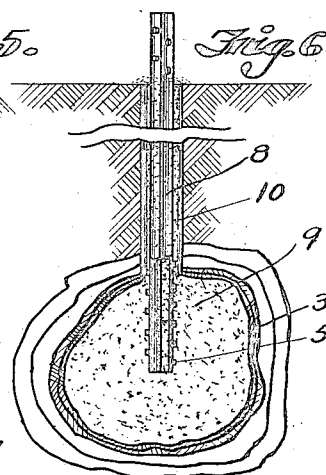


Fig. 6.



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UNITED STATES PATENT OFFICE.

ADOLPH W. MALONE, OF FREDONIA, KANSAS.

METHOD OF PROVIDING ANCHORAGES.

Application filed September 21, 1922. Serial No. 589,493.

To all whom it may concern:

Be it known that I, ADOLPH W. MALONE, a citizen of the United States, residing at Fredonia, in the county of Wilson and State of Kansas, have invented certain new and useful Improvements in Methods of Providing Anchorages; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

This invention relates to an anchor for towers, derricks, buildings, bridges, wood pole lines, etc., and the method of providing the same.

The primary object of the invention is to provide an efficient, inexpensive and durable anchor which may be embedded in the ground and securely held there to resist the strains and stresses of the tower pole or upright secured to it, and the peculiarly novel arrangement will be clearly understood by reference to the following description in connection with the accompanying drawings, in which:

Fig. 1, is a sectional view through the ground showing the hole into which the anchor is to be placed.

Fig. 2, shows the ground enlarged at the bottom of the hole to receive the plastic material or cement into which the anchor column is to be secured.

Fig. 3, is a similar view showing the anchor tube inserted in the hole and projecting into the enlargement or cavity.

Fig. 4, is a like view to illustrate the method of filling in the cavity.

Fig. 5, is a view showing the anchorage completed, and

Fig. 6 is a sectional view through the ground showing a modified form of anchor column, partly in section and partly in elevation.

In carrying out the invention, I prefer to first drill or otherwise provide an elongated hole 1 in the ground, the hole being of appropriate depth. At the bottom of the hole 1, I then provide a cavity 2 by introducing a charge of explosive and exploding the same so that the ground adjacent to the bottom of the hole will be bulged out to form a cavity with the wall 3 of the cavity compact.

Then the anchor column 4 is introduced. The lower end of the anchor column projects into the cavity and secured to it is preferably provided a strip 5 wound about the end of the tube in the form of a spiral as shown in Fig. 3. The top end of the column may project above the ground to form a base for securing the post or upright of the tower, building or bridge which is to be anchored. When the column is in place as shown in Fig. 3, I introduce through it cement 6 (see Fig. 4) which can be flowed in the form of grout until it fills the cavity 2 as shown in Fig. 5. The cement or plastic material will conform to the shape of the cavity and constitute an enlargement or bulb on the end of the column 4.

In practice, I prefer to make the hole slightly larger than the column and flow grout into the hole around the column so that the column is further reinforced. The tube may be round throughout or it may have a polygonal upper end 7 as shown in Fig. 5, or it may consist of a column 8 substantially rectangular in cross section throughout its length. Likewise, the cross section of the column may be varied without departing from the spirit of the invention. I, therefore, do not wish to be limited entirely to any particular form of column. When the column is in place and secured by the cement at the bottom and along the outer wall, it is apparent that the column will be firmly anchored in the ground and it will be adapted to stand maximum strains and stresses without coming loose. The column cannot be pulled from the ground because any upward strain will be resisted by the bulb or anchor base 9 of cement. Any side strains will be resisted by the circular wall 10 surrounding the tube. Therefore, an efficient anchorage will be provided for the poles, uprights or tower members with minimum liability of the anchorage being pulled out of the ground.

What I claim and desire to secure by Letters Patent is:

1. The method of providing ground anchors, which consists in providing a hole in the ground, setting off an explosive charge in the bottom of the hole to form an enlarged cavity and to compact the wall thereof, applying a spiral to the end of a hollow column, introducing the end of the said column having the spiral thereon into the said

cavity, introducing a cementitious material through the said column to fill the cavity and the said column, and thereafter filling the space between the wall of the column and the side walls of the hole.

5 2. The method of providing ground anchors, which consists in providing a hole in the ground, setting off an explosive charge in the bottom of the hole to form an enlarged
10 cavity and to compact the walls thereof so as to increase the resistance value of the

earth surrounding the cavity, introducing the end of a hollow column into the said cavity, introducing a cementitious material through said hollow column to fill the cavity and the said column, and filling the space between the wall of the column and the side walls of the hole. 15

In testimony whereof I affix my signature.

ADOLPH W. MALONE.