Office de la Propriété Intellectuelle du Canada
Un organisme d'Industrie Canada

Canadian Intellectual Property Office
An agency of Industry Canada

CA 2428549 A1 2004/11/14

(21) 2 428 549

(12) DEMANDE DE BREVET CANADIEN
CANADIAN PATENT APPLICATION

(13) A1

(22) Date de dépôt/Filing Date: 2003/05/14

(41) Mise à la disp. pub./Open to Public Insp.: 2004/11/14

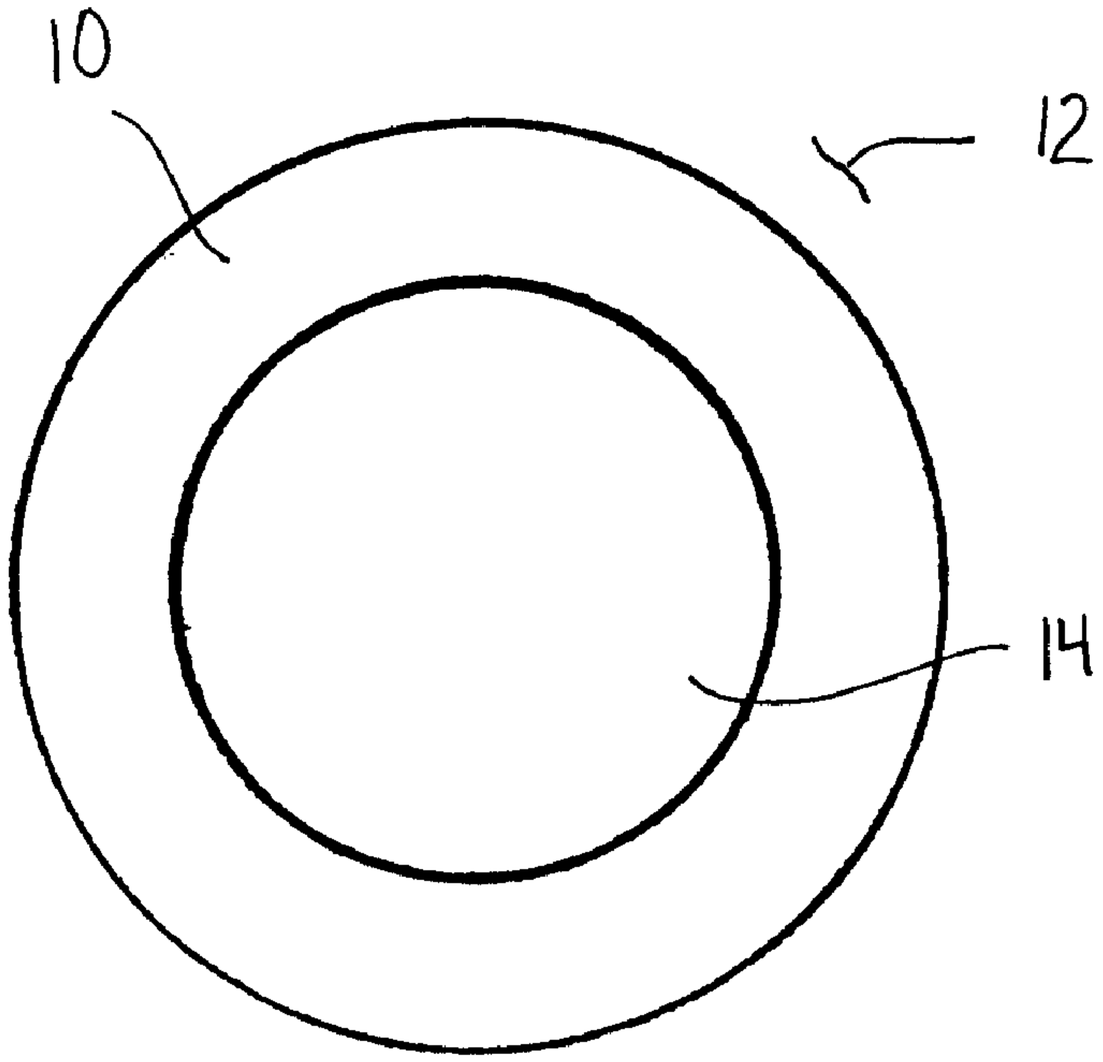
(51) Cl.Int.^{7}/Int.Cl.^{7} E04H 12/00, E04H 12/22, E02D 7/00, E21B 7/00

(71) Demandeur/Applicant:
RESIN SYSTEMS INC., CA

(72) Inventeur/Inventor:
ELLIOTT, BRUCE LAWRENCE, CA

(74) Agent: THOMPSON, DOUGLAS B.

(54) Titre : METHODE D'INSTALLATION DE POTEAUX DANS UN SOL ROCHEUX
(54) Title: METHOD OF INSTALLING POLES IN A ROCK SURFACE



(57) Abrégé/Abstract:
A method for installing poles in rock surface which includes the step of firstly drilling an annular hole in a rock. The annular hole being drilled such that a centrally positioned core of rock remains extending upwardly through the annular hole. Next, a pole is provided that has a first end and a second end; with a socket positioned at the first end. Finally, the first end of the pole is positioned within the annular hole such the central core of rock is received in the socket at the first end of the pole to provide additional stability to the pole.

ABSTRACT OF THE DISCLOSURE

A method for installing poles in rock surface which includes the step of firstly drilling an annular hole in a rock. The annular hole being drilled such that a centrally positioned core of rock remains extending upwardly through the annular hole. Next, a pole is provided that has a first end and a second end; with a socket positioned at the first end. Finally, the first end of the pole is positioned within the annular hole such the central core of rock is received in the socket at the first end of the pole to provide additional stability to the pole.

TITLE OF THE INVENTION:

Method of Installing Poles in a Rock Surface

FIELD OF THE INVENTION

The present invention relates to a method of installing poles in a rock surface

BACKGROUND OF THE INVENTION

There are known methods of installing poles in rock surface. One method involves the use of anchors bolts which are drilled into the rock surface. The anchor bolts are then used support a utility pole in an upright position on top of the rock surface. This method is expensive as anchor bolts are required for each utility pole erected. Furthermore, this method is also time consuming as several holes are required to be drilled into a rock surface in a specific relation to each other in order to accommodate the anchor bolts. Finally, if one of the anchor bolts becomes loose in the rock bed, or becomes damaged, then the utility pole may become unstable and topple over.

Another method of installing utility poles into a rock surface or bed involves drilling a hole to a desired depth and positioning the upright utility pole in the hole. After the utility pole has been positioned, cement is then placed in the hole to add to the pole's stability.

SUMMARY OF THE INVENTION

What is required is an easier, less costly method of installing poles in a rock surface.

According to the present invention, there is provided a method for installing poles in rock surface which includes drilling an annular hole in the rock surface. The annular hole is drilled so that a centrally positioned core of rock remains extending upwardly in the annular hole. A pole is provided having a first end and a second end. A socket is positioned at the first end. The first end of the pole is then positioned within the annular hole such the central core of rock is received in the socket at the first end of the pole.

Although beneficial results may be obtained through the use of the method, as

described above, even more beneficial results may be obtained when the first end of the pole is a drilling bit used to drill the annular hole in the rock surface.

According to another aspect of the present invention there is provided a pole which includes an elongate body having a first end and a second end. The first end has an annular edge defining a socket. The annular edge has teeth, such that the first end is adapted to serve as a drill bit for the purpose of drilling an annular hole to accommodate the body.

It will be appreciated that the pole described above, may be made with a tubular body.

BRIEF DESCRIPTION OF THE DRAWINGS

These and other features of the invention will become more apparent from the following description in which reference is made to the appended drawings, the drawings are for the purpose of illustration only and are not intended to in any way limit the scope of the invention to the particular embodiment or embodiments shown, wherein:

FIGURE 1 is a top plan view of an annular hole drilled in accordance with the preferred a method of installing poles in a rock surface.

FIGURE 2 is a side elevation view, in section, of the annular hole, illustrated in **FIGURE 1,** being drilled with a core drilling bit.

FIGURE 3 is a side elevation view, in section, of a utility pole positioned in the annular hole.

FIGURE 4 is a side elevation view, in section, of a utility pole having a drilling end for drilling the annular hole.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

The preferred method of installing poles in a rock surface will now be described with reference to **FIGURES 1** through **4**.

Referring to **FIGURE 1**, the preferred method for installing utility poles in a rock surface involves first drilling an annular hole 10 in a rock surface 12. Annular hole 10 is drilled so that a centrally positioned core 14 of rock remains extending upwardly through annular hole 10. Referring to **FIGURE 3**, a utility pole 16 is provided that has a first end 18 and a second end 20. First end 18 of utility pole 16 has a socket 22.

In order to install utility pole 16 in rock surface 12, first end 18 of utility pole 16 is then positioned within annular hole 10 such central core 14 of rock is received in socket 22 at first end 18 of utility pole 16. The central core 14 of rock positioned within socket 22 provides additional stability to utility pole 16. Not only does the above described method provide greater stability, it actually takes less time and is, therefore, less costly to drill an annular hole.

Referring to **FIGURE 2**, a core drilling bit 24 can be used to drill annular hole 10 to a desired depth. The size of the diameter of core drilling bit 24 is selected so that annular hole 10 that is drilled has an outer diameter slightly larger than an outer diameter of utility pole 16, and centrally positioned core 14 has a outer diameter slightly smaller than inner diameter of socket 22 of utility pole 16 as illustrated in **FIGURE 3**. This ensures that there is a good fit between utility pole 16 and annular hole 10.

It will be appreciated that although the preferred method has been described for use with utility poles, the method described above can also be used to install other types of posts or poles so long has they have a hollow body or socket at one end that is adapted to receive centrally positioned core 14 in annular hole 10.

Referring to **FIGURE 4**, as an alternative to the use of core drilling bit 24 illustrated in **FIGURE 2,** socket 22 of utility pole 16 can be provide with a drilling edge 26 with teeth suitable for drilling through rock surface 12. Utility pole 16 itself can then be rotated to drill annular hole 10 of a suitable dimension. Centrally positioned core 14 is still

received in socket 22 of utility pole 16. This innovation allows the installation of the pole to be a “one step” procedure, instead to first drilling the annular hole and then installing the pole.

In this patent document, the word "comprising" is used in its non-limiting sense to mean that items following the word are included, but items not specifically mentioned are not excluded. A reference to an element by the indefinite article "a" does not exclude the possibility that more than one of the element is present, unless the context clearly requires that there be one and only one of the elements.

It will be apparent to one skilled in the art that modifications may be made to the illustrated embodiment without departing from the spirit and scope of the invention as hereinafter defined in the Claims.

THE EMBODIMENTS OF THE INVENTION IN WHICH AN EXCLUSIVE PROPERTY OR PRIVILEGE IS CLAIMED ARE DEFINED AS FOLLOWS:

1. A method for installing poles in rock surface, comprising the steps of:

drilling an annular hole in a rock surface, the annular hole being drilled such that a centrally positioned core of rock remains extending upwardly through the annular hole; and

providing a pole having a first end and a second end, a socket being provided at the first end;

positioning the first end of the pole within the annular hole such the central core of rock is received in the socket at the first end of the pole.

2. The method as defined in claim 1, wherein the first end of the pole is a drilling bit used to drill the annular hole in the rock surface.

3. The method as defined in claim 1, wherein a coring drill bit is used to drill the annular hole in the rock surface.

4. The method as defined in claim 1, wherein the annular hole has an outer diameter slightly larger than an outer diameter of the pole, and the centrally positioned core has a outer diameter slightly smaller than an inner diameter of the socket of the pole.

5. The method as defined in claim 1, wherein the pole is a utility pole.

6. A pole, comprising:

an elongate body having a first end and a second end;

the first end having an annular edge defining a socket;

the annular edge at the first end having teeth, such that the first end is adapted to serve as a drill bit for the purpose of drilling an annular hole to accommodate the body.

7. The pole as defined in Claim 6, wherein the body is tubular.

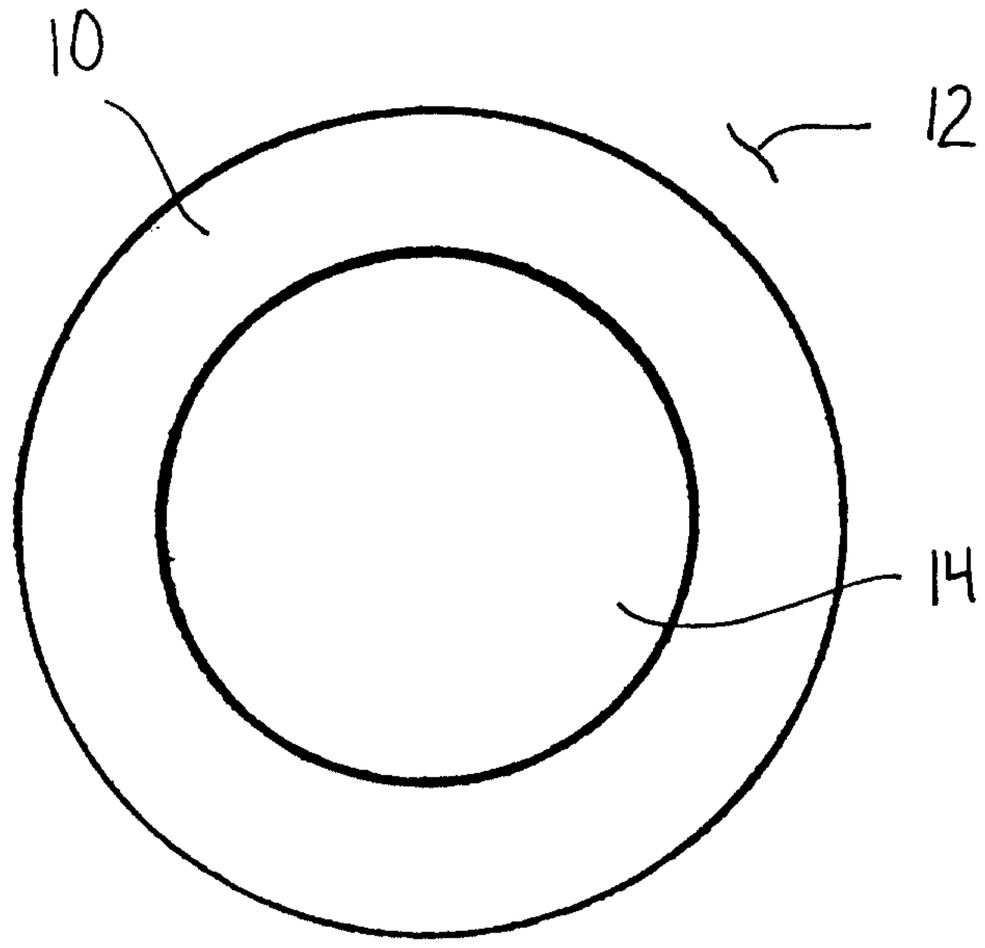


FIG. 1

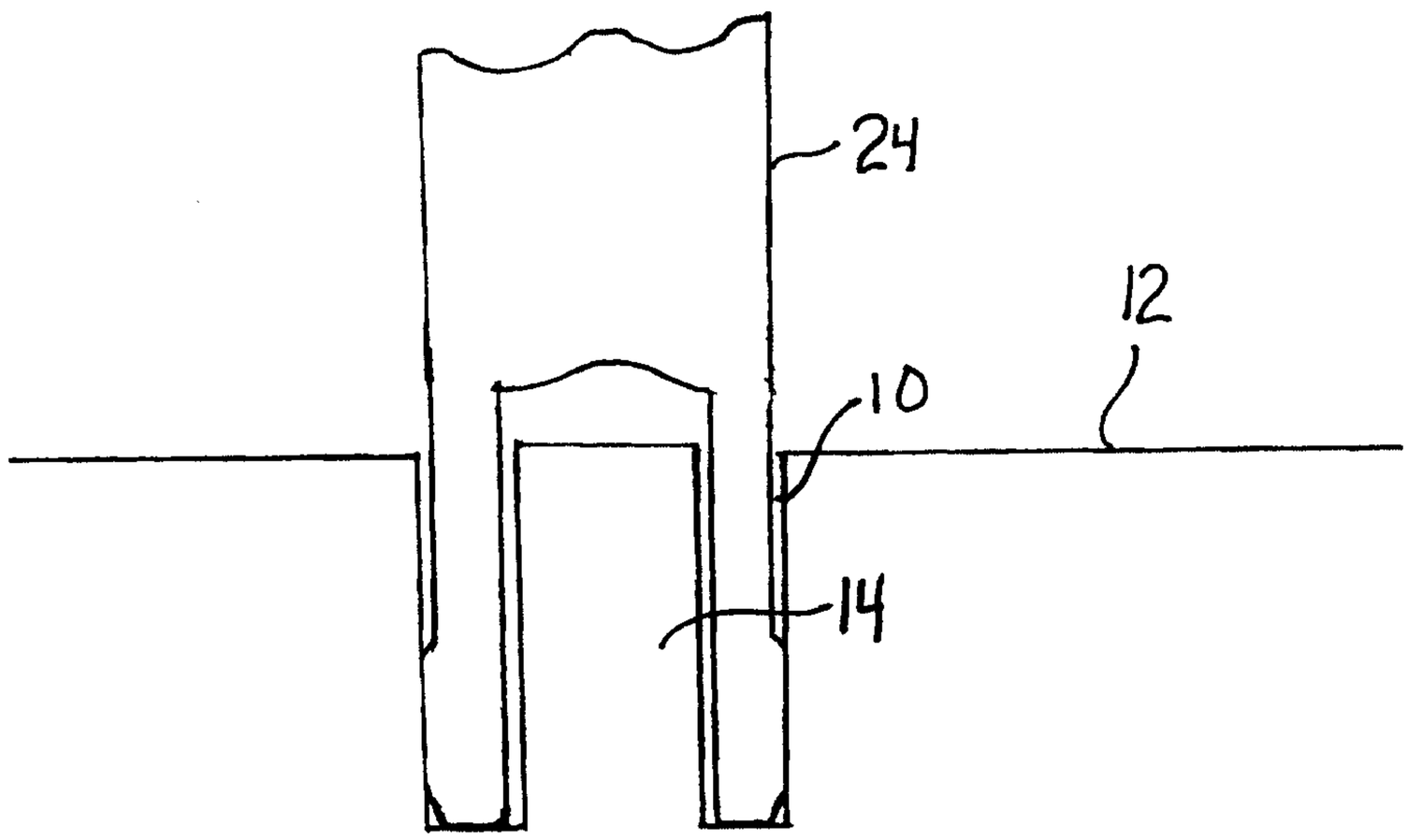


FIG. 2

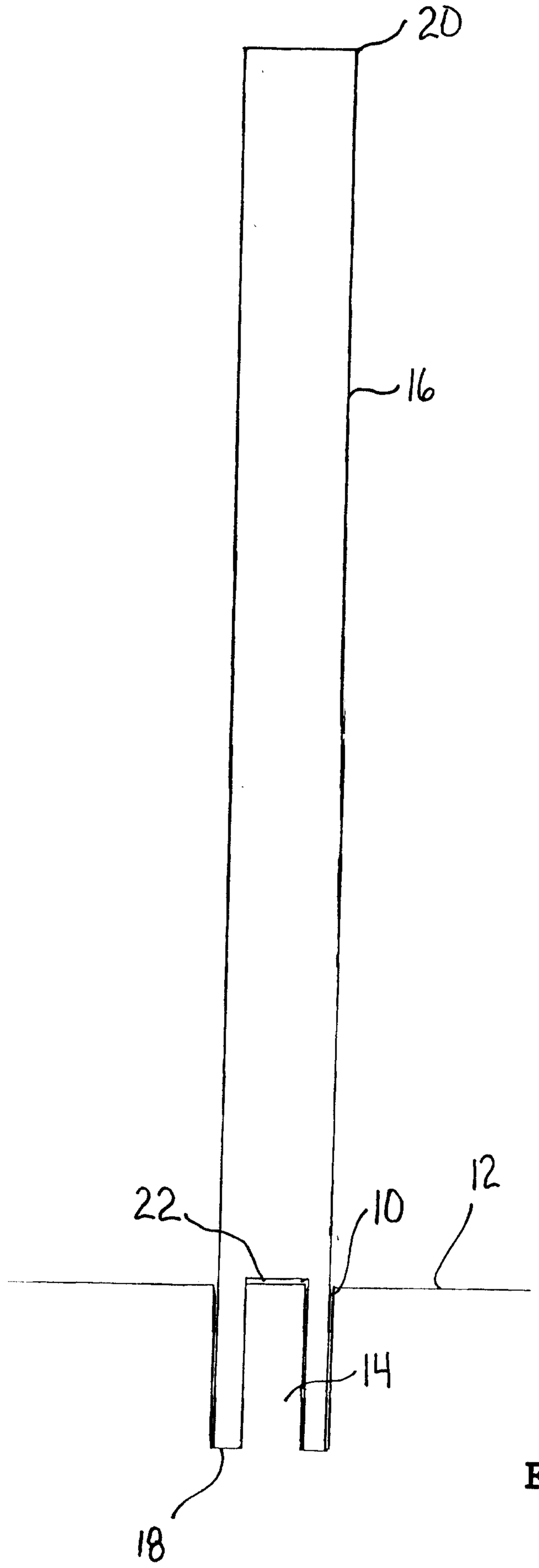


FIG. 3

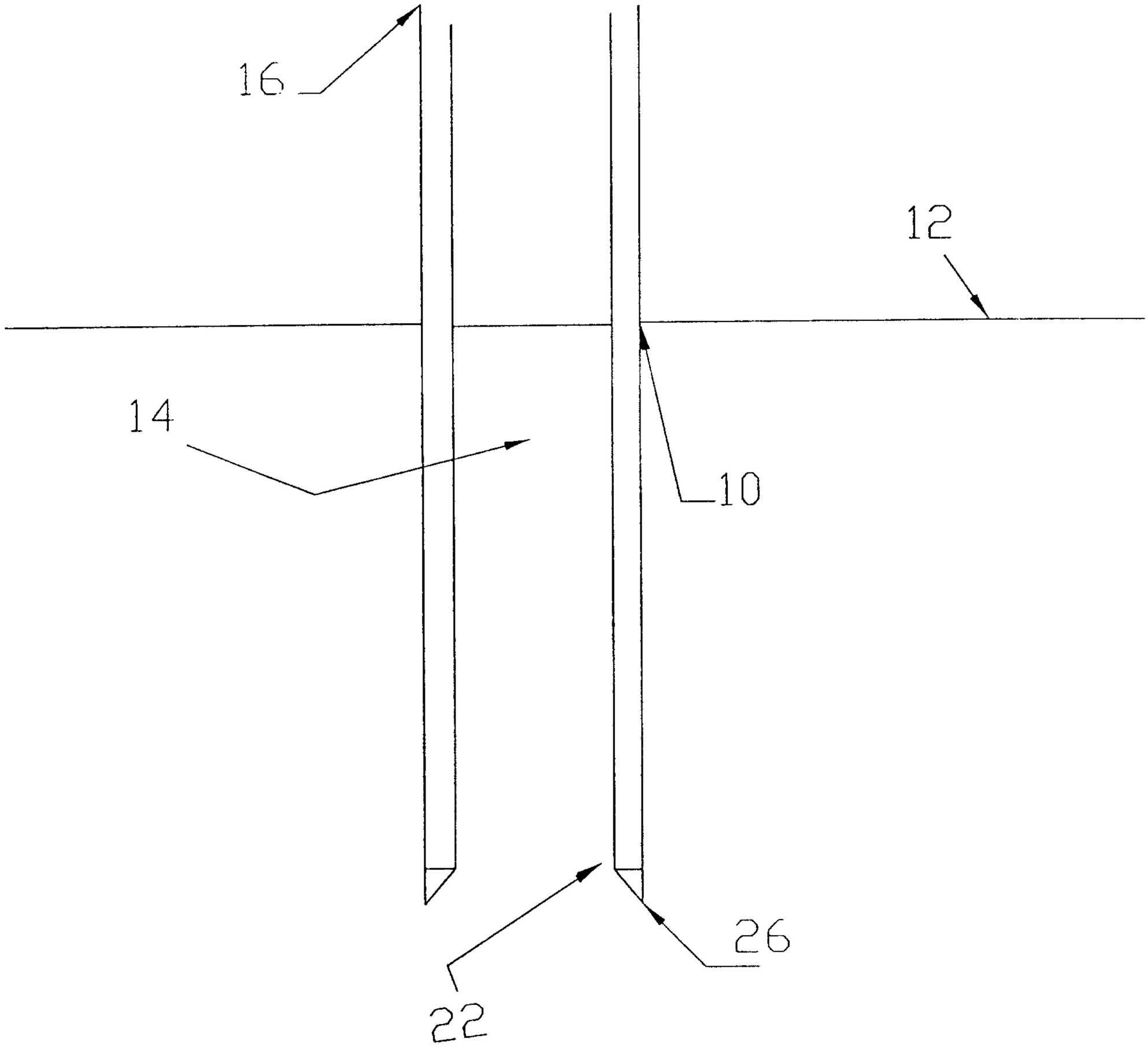
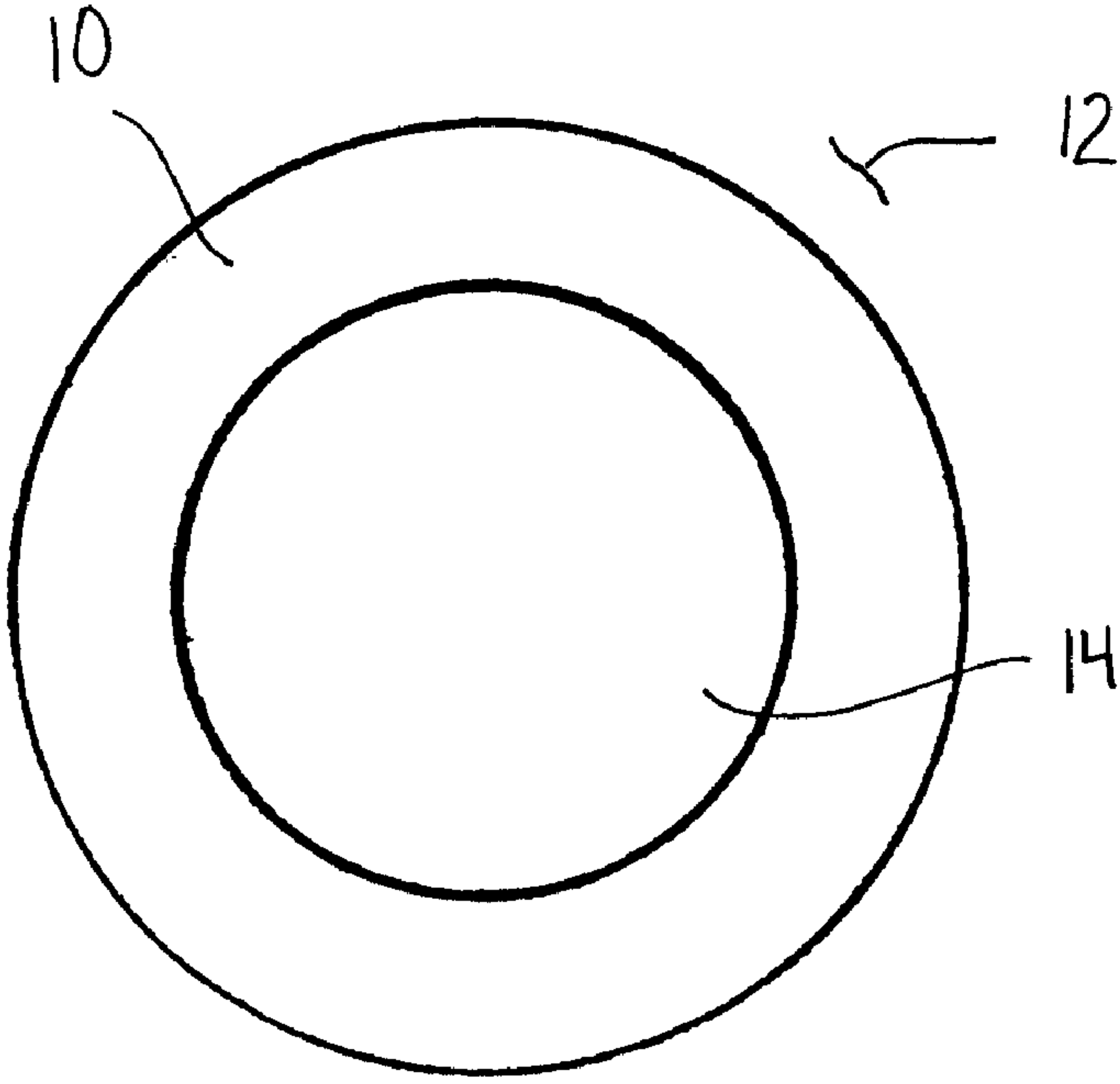


FIG. 4


10
12
14