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POINT AND DRIVING ASSEMBLY FOR MAKING EARTH HOLES

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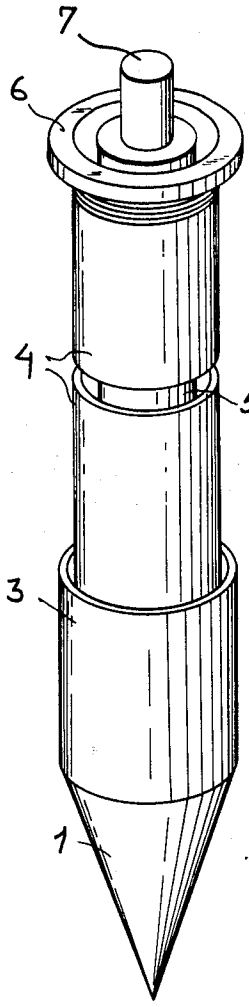


Fig.1

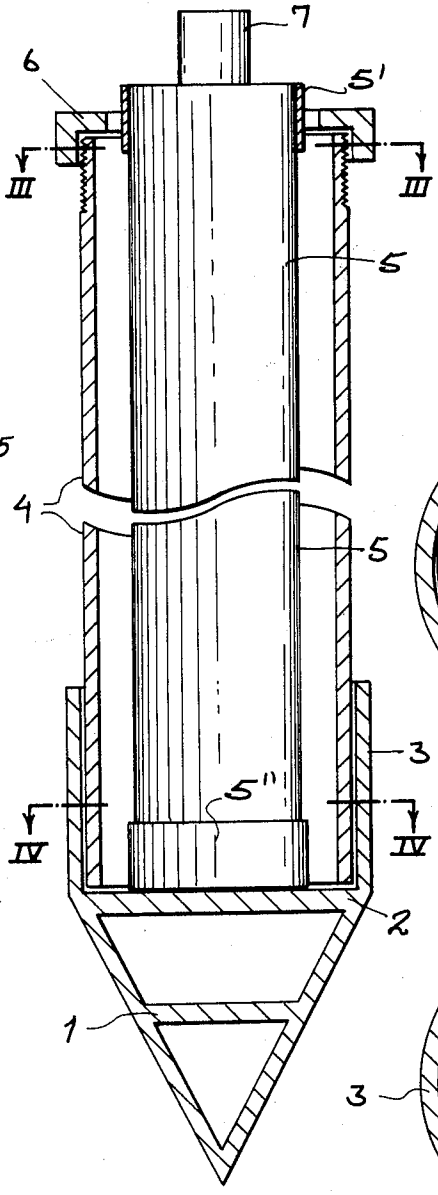


Fig.2

Fig.3

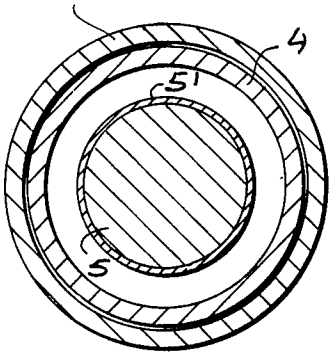
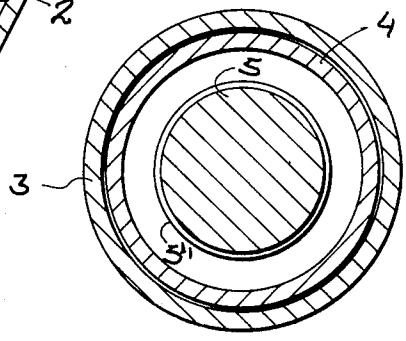


Fig.4



Adalbert Löb
INVENTOR.

BY Karl F. Ross
Attorney

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POINT AND DRIVING ASSEMBLY FOR MAKING EARTH HOLES

Adalbert Löb, Zafon Talpiot, Maon Akademaim, Zriff 26/a, Jerusalem, Israel

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This invention relates to a novel and useful tool for and to a method of making earth holes for construction purposes, wells or for keeping water from structural work (i.e. lowering subsoil water): more, particularly, the present insertion is drawn to an improved well-point apparatus and method.

All the heretofore known and used methods and apparatus have been either too complex and expensive, for instance requiring the abandonment of pipes and other material, or too primitive and, consequently, useable in singular cases only. These methods include the known "rotary" and the "Craelius" methods, or boring and earth removed by hand.

The device according to my present invention comprises in combination a pointed cone-shaped metal shoe or well joint, the base of which is provided an upright annular flange made integral with said metal shoe; this flange receives, in the manner that a spigot is insertable into a socket, the main pipe, and into the latter is situated a ram lying with its lower end on the base of said metal shoe.

The invention will now be more particularly described with reference to the accompanying drawing, which shows an embodiment of the device in which:

FIG. 1 is a fragmentary perspective view of the tool;

FIG. 2 is a vertical section through the device according to the invention;

FIG. 3 is a horizontal section taken along the line A—A of FIG. 2, and

FIG. 4 is a horizontal section taken along the line B—B of FIG. 2.

The pointed metal shoe **1** is provided integrally on its base **2** or by usual means of welding, riveting or the like not shown with an upright annular flange **3**, forming the socket for a main pipe **4**. Preferably the upper end of said main pipe **4** is equipped with a detachable collar **6** to protect the pipe against possible blows of the battering implement of a driving apparatus. A ram bar **5** is inserted into the main pipe **4** and rests against the base **2** of the metal shoe **1**. The bar **5** may be encircled by an iron band at either extremity, or otherwise fitted to prevent rapid deterioration. The bands are shown at **5'**, **5"** while the bar **5** also is seen in FIG. 1 to have a shank **7**.

By employing a pile-driver or some similar implement known per se, the ram **5**, with the metal shoe **1** in front, are driven into the ground; the main pipe **4** follows the shoe **1**, forming thereby a stable wall of the hole or well and preventing it from slipping or caving in.

When the desired depth is reached, the ram **5** is removed and replaced by a filter pipe, e.g. an iron or steel pipe with holes or slits. Thereafter a gravel filter is introduced into the space between the main pipe and the filter pipe, and then the main pipe carefully withdrawn. The filter pipe may, as a matter of course, be of any suitable cross-section, even square or polygonal.

It is preferred to make the main pipe capable of extension, and for this purpose to provide the standard main pipe at its upper end with a thread, to which lengthening pipes can be screwed on, if and when the original length should not suffice.

It is apparent that numerous modifications and variations may be made without departing from the underlying principle of the invention. It is therefore desired in

the following claims to include within the scope of the invention all such variations by which substantially the results of my invention may be obtained through the use of substantially the same or equivalent means.

I claim:

1. A percussively drivable well-point assembly comprising a conically pointed penetrating member having a generally vertical axis and formed with an abutment surface transversely to said axis and axially spaced from the tip of said member, said member being provided with an axially upwardly extending annular flange surrounding said abutment surface and forming a socket; an axially extending elongated main tubular member resting against said surface and removably receivable in said socket and having an outer diameter less than the outer diameter of said flange while being axially withdrawable therefrom below ground level; and an elongated driving ram removably extending through the interior of said tubular member and abutting said surface while protruding upwardly beyond said tubular member for engagement by a driver to percussively force said pointed member into the ground.

2. A percussively drivable well-point assembly comprising a conically pointed penetrating member having a generally vertical axis and formed with an abutment surface transversely to said axis and axially spaced from the tip of said member, said member being provided with an axially upwardly extending annular flange surrounding said abutment surface and forming a socket; an axially extending elongated main tubular member resting against said surface and removably receivable in said socket and having an outer diameter less than the outer diameter of said flange while being axially withdrawable therefrom below ground level; an elongated driving ram removably extending through the interior of said tubular member and abutting said surface while protruding upwardly beyond said tubular member for engagement by a driver to percussively force said pointed member into the ground; and a collar surrounding said ram at the upper end of said tubular member for guiding said ram.

3. A percussively derivable well-point assembly comprising a conically pointed penetrating member having a generally vertical axis and formed with an abutment surface transversely to said axis and axially spaced from the tip of said member, said member being provided with an axially upwardly extending annular flange surrounding said abutment surface and forming a socket; an axially extending elongated main tubular member resting against said surface and removably receivable in said socket and having an outer diameter less than the outer diameter of said flange while being axially withdrawable therefrom below ground level and an elongated driving ram removably extending through the interior of said tubular member and abutting said surface while protruding upwardly beyond said tubular member for engagement by a driver to percussively force said pointed member into the ground; and means on the upper end of said tubular member for joining additional lengths thereto as said pointed member is driven into the ground with said tubular member following after.

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ERNEST R. PURSER, *Primary Examiner.*

BENJAMIN BENDETT, CHARLES E. O'CONNELL, *Examiners.*

W. J. MALONEY, *Assistant Examiner.*