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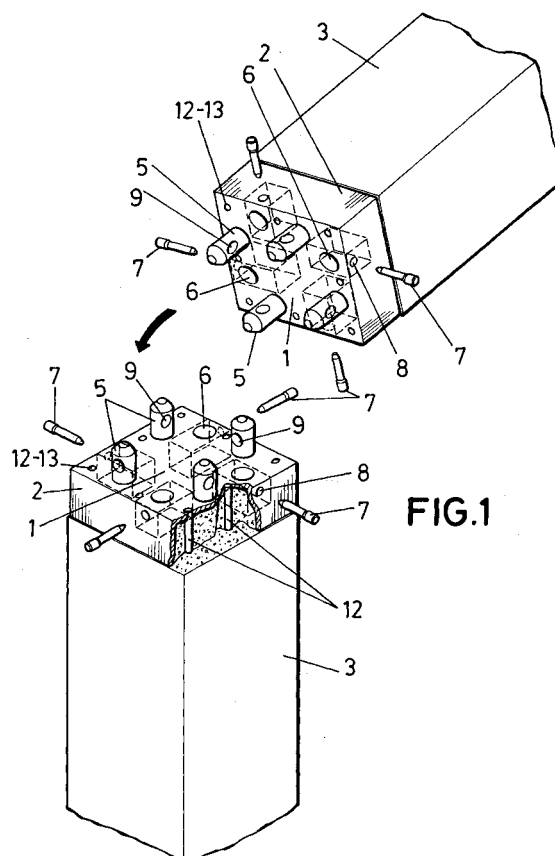
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(54) Coupling head for premanufactured prestressed piles

(57) In principle, it comprises a front plate and side plates that form a recess that surrounds end sections of the piles. Furthermore, it includes solid bodies and front projecting heads fastened to the plates, at the same time that these heads are completed with holes made in the front plates and solid bodies. It also includes some fastening shanks that are introduced in some holes located perpendicularly to the side plates and other holes (9) of the projecting holes that are previously introduced in the front holes in the connection of two piles with prestressed piles. The heads and solid bodies are connected to some rods embedded in the material of the piles. It is characterized in that the ends of the prestressed cables (12) are connected integrally to the front plates (1) of the heads before stress is eliminated from the cables for the purpose of consolidating and reinforcing the connection between the piles.



EP 1 582 633 A2

Description

OBJECT OF THE INVENTION

[0001] The present invention consists of a coupling head for premanufactured prestressed piles whose purpose is to reinforce to a large degree the fastening of the head to each one of the ends of the prestressed piles so that when two consecutive piles are connected by the coupling heads of the invention, wear is avoided in the end areas of the piles when the piles are handled moments before being driven or sunk into the ground. Wear is also avoided when driving the piles into the ground, because in all cases, bending and shearing stresses are produced which above all affect the connecting area, as well as the future usefulness thereof since the connecting element is more resistant than the pile itself.

BACKGROUND OF THE INVENTION

[0002] Currently there are premanufactured piles to be driven into the ground to be used to support afterwards a building structure, be it for bridges, buildings and in general any other construction.

[0003] There is a limitation in the manufacturing of piles as far as their individual length is concerned, and therefore, sometimes it is necessary to connect several sections of piles at their ends (normally two) in order to attain the required depth driven down in order to normally find firm ground. In this way in these cases such piles include in their ends some coupling heads in order to make connecting easier and also to reinforce these areas for the purpose of guaranteeing the sureness of the coupling above all during the handling of the piles when they are handled before and when they are driven into the ground. This is because bending stresses that have a negative effect on the piles are produced above all on the end sections of the piles where the coupling is done.

[0004] Nonetheless, the structure that these coupling heads have, as well as their fastening systems, at times do not have enough strength to endure the above-mentioned bending stresses and therefore, wear can be produced in the adjacent connecting areas of the piles, which may render them useless.

DESCRIPTION OF THE INVENTION

[0005] For the purpose of achieving the purposes and avoid the above-mentioned inconveniences, the invention proposes a coupling head for premanufactured prestressed piles that is essentially characterized in that the ends of the prestressed cables that the piles include therein are integrally connected to the head itself either by welding, screwing or any other system.

[0006] The head comprises a front plate and two side plates welded together, which form a recess that sur-

rounds the final ends of the pile.

[0007] This head includes inside it in turn solid bodies, as well as short cylindrical extensions that emerge frontally outward with respect to the front plate. There are also holes made in this plate which are also made in the solid bodies, in such a way that when two piles are coupled, in a first step the cylindrical extensions of a pile are inserted into the front holes of the other continuous piles. Then the respective front plates of the two piles come into contact. In a second step to ensure the fastening between both piles, some shanks are inserted through some holes that originate in the side plates and that are also made in the solid bodies. The cylindrical extensions also have holes and these extensions aside from being fastened to the front plates, are connected to some rods embedded in the concrete material of the pile. The solid bodies are also connected to similar rods also embedded in the concrete material of the pile itself.

[0008] The front plates of the heads have some holes where some ends of the prestressed cables are inserted so that these cables are later made integral to the plates.

[0009] The solid bodies as well as the cylindrical extensions are connected by the rods by means of a fixed connection which may be done by welding, screwing or another system.

[0010] Hereinafter to provide a better understanding of this specification and forming an integral part thereof, some figures wherein the object of the invention has been represented in an illustrative and non-restrictive manner, are attached hereto.

BRIEF DESCRIPTION OF THE FIGURES

[0011]

Figures 1 and 2 show perspective views of two piles that are connected by the coupling head for premanufactured prestressed piles, object of the invention.

Figures 3 and 4 show plan views of the head of the invention.

Figure 5 shows a sectional view of the coupling head that each one of the end sections of the respective premanufactured prestressed pile includes.

DESCRIPTION OF AN EMBODIMENT OF THE INVENTION

[0012] Considering the numbering used in the figures, the coupling head for premanufactured prestressed piles is defined by a front plate (1) and side plates (2) all of which are connected, at the same time that they form a recess that surrounds each end section of the respective pile (3).

[0013] The heads include inside them some solid bodies (4) connected integrally to the plates, as well as some cylindrical heads (5) that project beyond the front

plates (1). There are also front holes (6) in the plate (1) that are also made in the solid bodies (4). The cylindrical heads (5) are also fastened to the front plates (1) of the respective heads.

[0014] With the described arrangement, in principle when two consecutive piles are coupled, the cylindrical heads (5) of one of the piles (3) will be made to coincide with the front holes (6) of the other adjacent pile (3). Hence, the respective front plates (1) of the two piles to be connected (3) make contact with each other.

[0015] After this first operation to connect the two piles (3), afterwards, in order to ensure the fastening between the two, some fastening shanks are (7) are inserted through some holes (8) that originate in the side plates (2) of the heads. These holes (8) are also made in the solid bodies (4), at the same time that they face the diametric holes (9) of the cylindrical heads (5).

[0016] The diametric holes (9) of the cylindrical heads (5) and the holes (8) of the side plates (2) and solid bodies (4) are a little off-center; all so that when the shanks (7) are inserted there is a firmer and more secure connection.

[0017] On the other hand, the solid bodies (4) as well as the cylindrical heads (5) are connected by fastening (10) to some rods (11) embedded in the concrete material of the piles (3).

[0018] On the other hand, the prestressed cables (12) of the piles (3) are connected integrally to the front plates (1). For this purpose, the front plates (1) have small holes (13) where the ends of said prestressed cables (12) have been inserted in order to afterwards ensure their connection, even when stress has not been eliminated from the cables (12), but after the concrete material has set and dried.

[0019] The connection of the front plate (1) to the prestressed tie-rods or cables (12) that constitute a very important technical advantage because in this way the connecting area of the piles (3) support great bending and shearing stresses, which are mainly produced during the handling of the piles (3) and when they are driven or sunk into the ground.

[0020] Hence, the wear and breakage in the connection area will be avoided. These are problems which conventionally make piles useless for the purpose for which they have been manufactured, in the step when same are sunk in the ground as well as when they are put to use.

tening shanks that are inserted through holes located perpendicularly to the side plates and holes (9) of the projecting heads that are previously inserted in the front holes in the connection of two piles with prestressed cables, the heads and the solid bodies being connected to rods embedded in the material of the piles; **characterized in that** the ends of the prestressed cables (12) are connected integrally to the front plates (1) of the heads before the stress is eliminated from the cables, in order to consolidate and reinforce the connection between piles.

2. Coupling head for premanufactured prestressed piles, according to claim 1, **characterized in that** the connection of the prestressed cables (12) to the front plates (1) is done by means of some small holes (13) located in the front plates (1) where the ends of the prestressed cables (12) are inserted, in order to ensure the connection afterwards.

Claims

1. Coupling head for premanufactured prestressed piles, comprising a front plate and side plates that form a recess that surrounds end sections of the piles, also comprising solid bodies and front projecting heads fastened to the plates, said heads being complemented with first holes that are made in the front plates and solid bodies, also comprising fas-

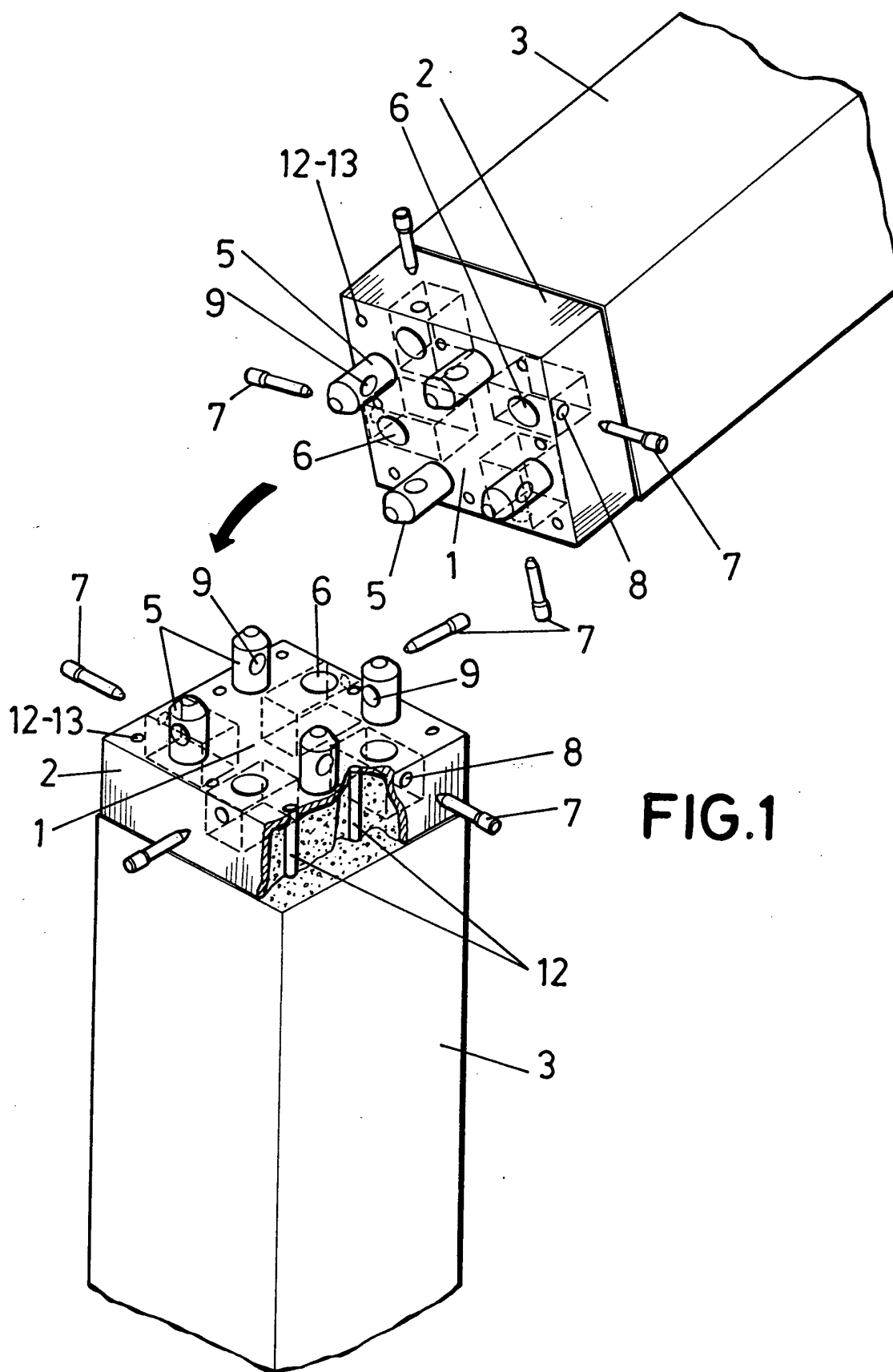
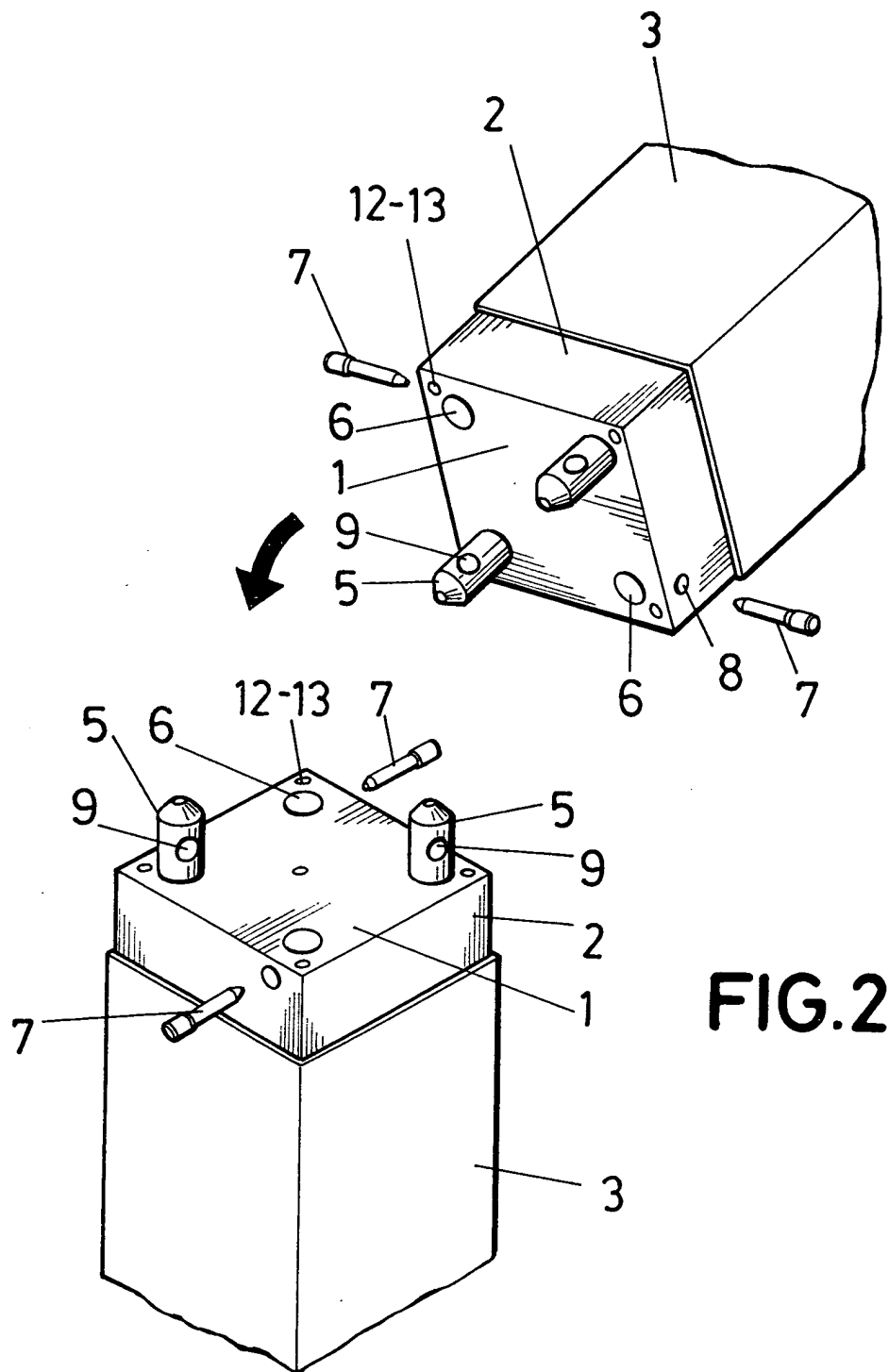


FIG.1



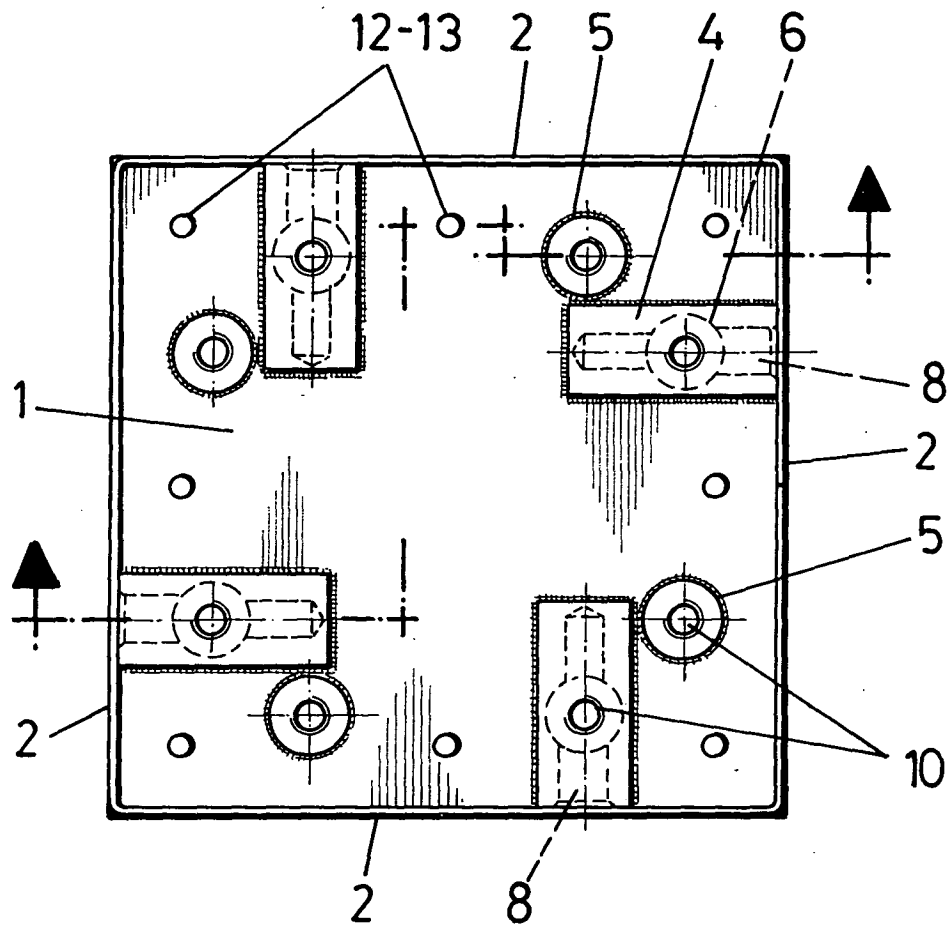


FIG.3

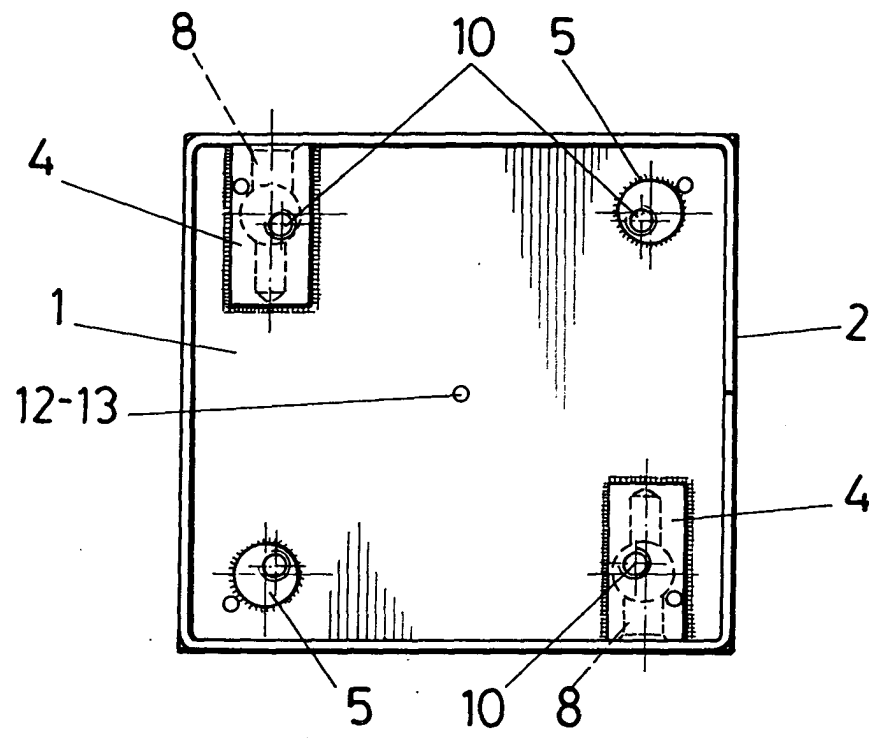


FIG.4

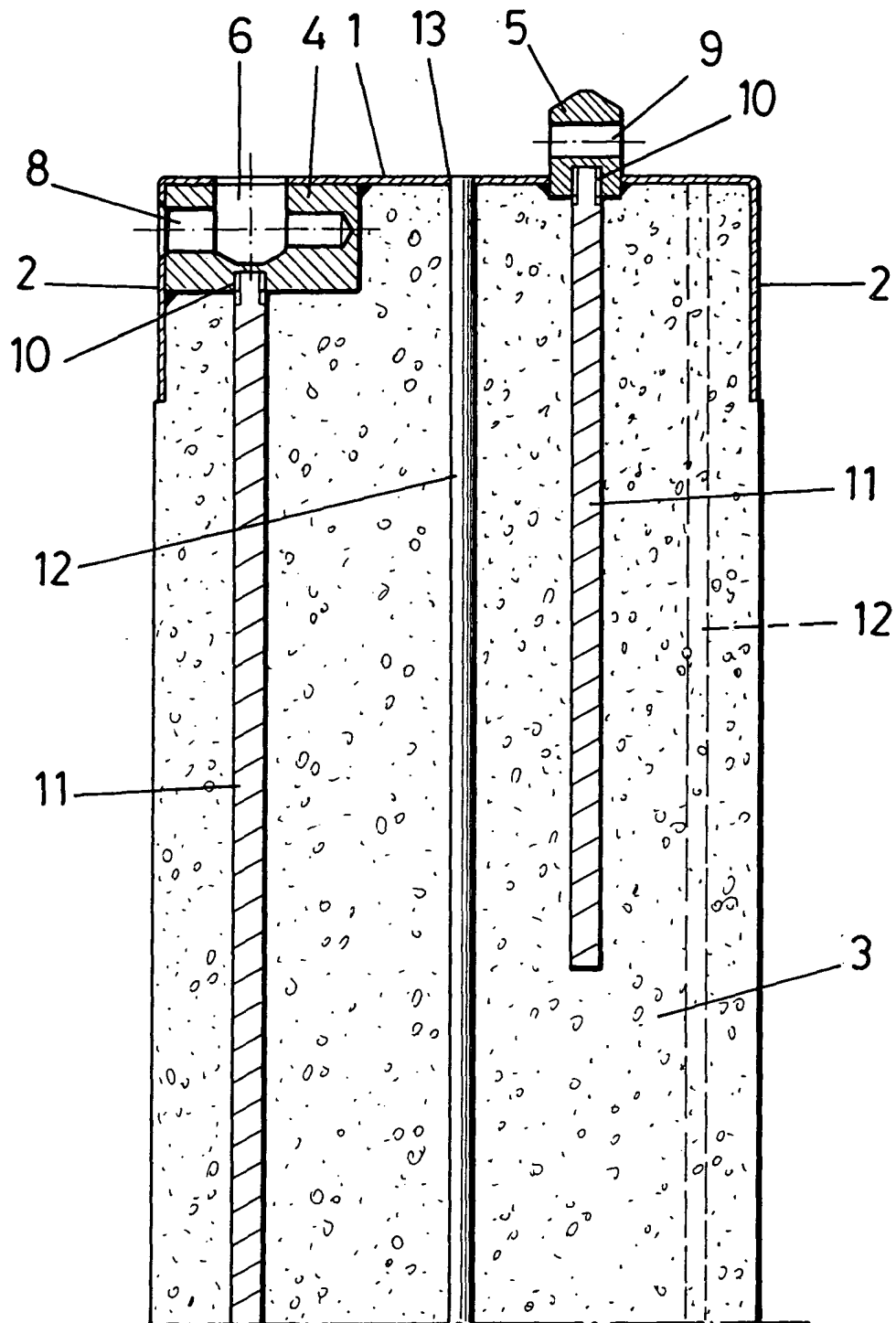


FIG.5