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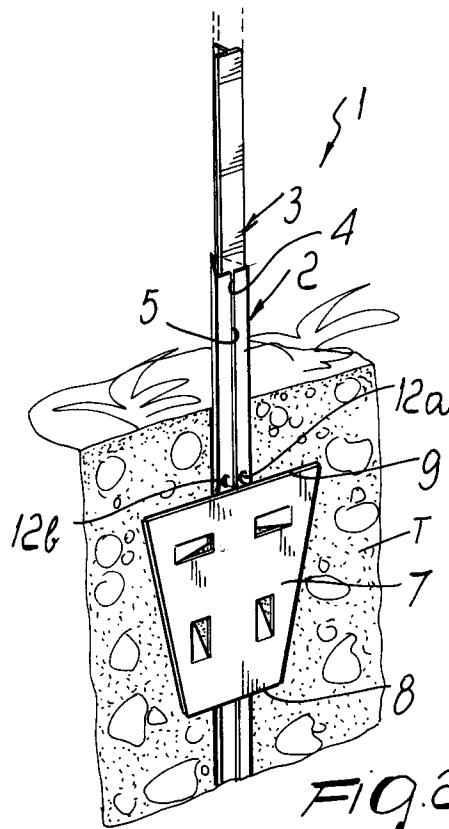
(11) Publication number:

0 671 527 A1

(12)

EUROPEAN PATENT APPLICATION(21) Application number: **95102970.1**(51) Int. Cl.⁶: **E04H 12/22**(22) Date of filing: **02.03.95**(30) Priority: **10.03.94 IT MI940446**(43) Date of publication of application:
13.09.95 Bulletin 95/37(84) Designated Contracting States:
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I-20123 Milano (IT)**(54) **Easily-installed stake for supporting enclosures such as nets and/or the like.**

(57) Easily-installed stake for supporting enclosures such as nets and/or the like, comprising a lower stake element (2) made of metal which is meant to be driven into the ground (T) and an upper stake element (3) made of metal which can slidingly engage the lower stake element (2). The particularity of the invention resides in the fact that the lower stake element (2) has a substantially trapezoidal wider portion (7) that is rigidly coupled thereto and facilitates the driving of the lower stake element (2) into the ground (T) and its stabilization in driven position. There are also means (12a, 12b, 13a, 13b) for stopping and/or locking the sliding of the upper stake element (3) with respect to the lower stake element (2) when it is slidingly engaged in operating position with the lower stake element (2).

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The present invention relates to an easily-installed stake for supporting enclosures such as nets and/or the like.

As is known, multiple supporting stakes, generally made of metal, are usually used for supporting enclosures such as nets and/or the like along their extension; the net is fixed to said stakes by means of supporting hooks, supporting wires, and so forth.

In order to achieve stable support on the ground, these stakes are usually associated with cement blocks that act as elements for supporting and stabilizing the individual supporting stakes. The installation of said stakes is therefore expensive and entails considerable time, since it requires the use of said supporting cement blocks.

The aim of the present invention is to eliminate the drawbacks described above by providing an easily-installed stake for supporting enclosures such as nets and/or the like, which can be easily installed without using the above mentioned supporting blocks, which are generally constituted by concrete and/or the like.

Within the scope of this aim, an object of the present invention is to provide a stake that can be easily and rapidly driven into the ground with conventional striking means and that is absolutely stable and irremovable once driven.

Another object of the present invention is to provide a stake of the above type that has an extremely low cost and can be easily manufactured with existing machines and equipment starting from commonly commercially available elements and materials.

According to an aspect of the present invention, this aim, these objects, and others which will become apparent hereinafter are achieved by an easily-installed stake for supporting enclosures such as nets and/or the like having the characteristics defined in the main claim.

Other characteristics of the stake according to the invention are defined in the dependent claims.

Further characteristics and advantages of the easily-installed stake for supporting enclosures such as nets and/or the like according to the present invention will become apparent from the following detailed description of some currently preferred embodiments thereof, illustrated only by way of non-limitative example in the accompanying schematic drawings, wherein:

figure 1 is a view of a possible embodiment of the stake according to the invention, driven into the ground and with the upper stake element in disassembled position;

figure 2 is a view of the stake of figure 1, with the lower stake element driven into the ground and with the upper stake element rigidly assembled thereto;

figures 3 and 4 are schematic views of the procedure for coupling the upper stake element to the lower stake element;

figure 5 is a partially cutout perspective view of another embodiment of the stake according to the present invention; and

figure 6 is a view of a portion of an enclosure net which is supported by supporting stakes according to the first embodiment of the invention;

figure 7 is an enlarged-scale sectional view of figure 4, taken along the plane VII-VII.

With specific reference to the above drawings, and particularly to figures 1 and 2, said figures illustrate a first embodiment of a stake for supporting enclosures according to the present invention which has been generally designated by the reference numeral 1.

As clearly shown, the stake according to the invention comprises a lower stake element, generally designated by the reference numeral 2, and an upper stake element, generally designated by the reference numeral 3.

Advantageously, the lower stake element 2 and the upper stake element 3 are profiled metal elements which are preferably plastic-coated and/or galvanized.

In particular, the lower stake element 2 has a body which is constituted by a profiled element that can be simply obtained by folding a metal plate and has a cross-section that is substantially shaped like a hollow triangle, with the two end flaps 4 and 5 of the plate conveniently arranged along one side of the triangle, preferably at the midpoint, so as to obtain an element that has high flexural strength in all directions. In order to further increase the rigidity of the lower stake element 2 it is also possible to perform spot-welds that mutually join the end flaps 4 and 5.

According to the invention, an element that provides stabilization and facilitates driving, generally designated by the reference numeral 7, is associated with said lower stake element 2 at a substantially intermediate portion thereof. As shown, said element is substantially trapezoidal, is also preferably made of metal, and can be permanently associated with the lower stake element 2 by any known means, for example electric-arc welding. Advantageously, the shorter parallel side 8 of the trapezoidal element 7 is arranged downward and the longer parallel side 9 of said element is arranged upwards with respect to the direction in which the stake element 2 is driven, as will become apparent hereinafter.

In this manner, the trapezoidal element 7 forms a sort of wedge-shaped spade that facilitates the driving of the stake into the ground by means of conventional striking elements; at the same time

the large surface extension of the element 7 facilitates, after driving, the stabilization of the stake element 2 in the ground against longitudinal and transverse forces.

In particular, as already mentioned, the stake element 2 is driven by blows into the ground with any known conventional means, and once it has been driven the longer parallel side 9 of the trapezoidal element 7 is preferably arranged slightly below the top level of the ground and is fully buried, thus giving the lower stake element 2 great characteristics of stability against removal.

Preferably, the trapezoidal element 7 is fixed to the side of the lower stake element with the flaps 4 and 5, so that it, too, cooperates in increasing the strength of the lower stake element 2.

As shown, the upper stake element 3 is constituted by a substantially T-shaped profiled element whose dimensions allow to insert it in the lower stake element 2. In order to stop or lock the sliding of the upper stake element 3 inside the lower stake element 2 there are stop and/or locking means which can be simply constituted by the friction produced by the coupling of the lower stake element 2 to the upper stake element 3. It should in fact be noted that the upper stake element, with its T-shaped cross-section, couples with one of its wings to one of the flat sides of the lower stake element 2, whereas the other wing of the upper stake element 3 couples to the opposite edge. By giving appropriate dimensions to the profiled element that constitutes the upper stake element 3 with respect to the profiled element that constitutes the lower stake element 2 it is thus possible to lock, by friction, the upper stake element inside the lower stake element. This locking might also be obtained by means of two dents 12a and 12b formed just above the trapezoidal element 7 on the side of the lower stake element 2 that couples to one of the wings of the upper stake element so as to obtain, inside the lower stake element, two studs which by engaging against the wing of the upper stake element 3 provided with corresponding dents 13a and 13b lock its sliding.

Thus, after driving the lower stake element 2 into the ground T in the illustrated fully buried position, the upper stake element 3 is partially inserted in the lower stake element 2 until it locks in said lower stake element 2, which is in turn already immobilized and stabilized in the ground by virtue of the trapezoidal element 7, which has a large surface.

In this manner, installation of the stake is extremely facilitated and is very fast, without requiring additional cement blocks as in currently available supporting stakes for enclosure nets. Figures 3 and 4 show in greater detail the procedure for inserting the upper stake 3 in the already installed lower

stake 2, and figure 4 specifically illustrates the supporting stake in fully installed condition.

Of course, and as shown by figures 1 and 2, the stake has the conventional holes 20 for fixing the net R (figure 6) with any known securing means, such as wires F, hooks and/or the like (not specifically shown).

Figure 5 illustrates another advantageous embodiment of the supporting stake according to the invention, wherein in particular the stabilizing element 7' has two substantially parallel lateral wings 8', 8'' obtained by appropriately folding the metal of the stabilizing element 7' to further improve its stabilization properties with respect to any oscillation forces, especially in a longitudinal direction but also in a transverse direction. In this case, the stabilizing element 7' furthermore advantageously has additional grip tabs 9' and 9'' which protrude from the element 7 and are obtained by appropriate punching of the material of the element 7' to further improve the securing of the stabilizing element 7' in the ground.

To further increase the resistance of the stabilization element to extraction and to movement in the ground, it is also possible to provide grip tabs 12' and 12'' which are arranged above the tabs 9' and 9'' and are rotated substantially through 90° with respect to them.

From the above it is evident that the invention fully achieves the intended aim and objects.

In particular, a supporting stake for enclosure nets has been provided which does not require, for its installation, cement blocks or auxiliary operations for erecting stabilizing blocks of a material such as cement or the like.

The stake can be installed very quickly and therefore the overall enclosure erection time is considerably reduced with respect to conventional techniques.

The stake is furthermore a modular structure with elements that can be easily assembled and easily locked together in the above described manner.

Although the stake according to the invention has been illustrated with specific reference to currently preferred embodiments thereof, it is evident that these embodiments are susceptible of numerous modifications and variations, all of which are within the scope of the same inventive concept.

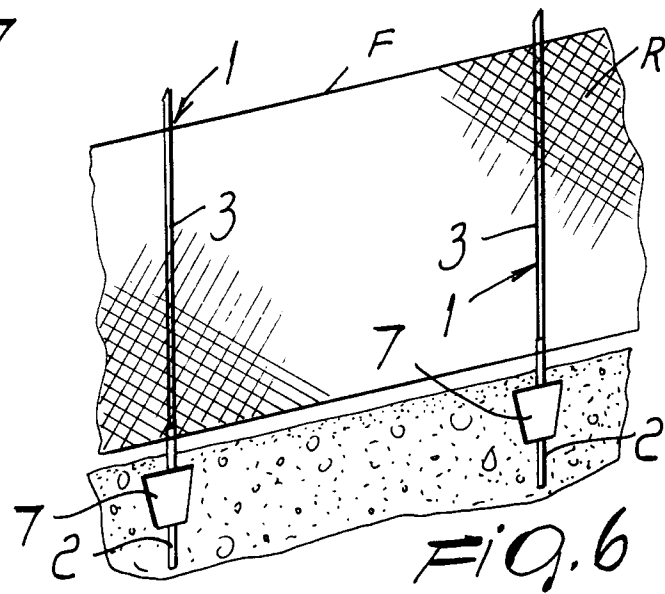
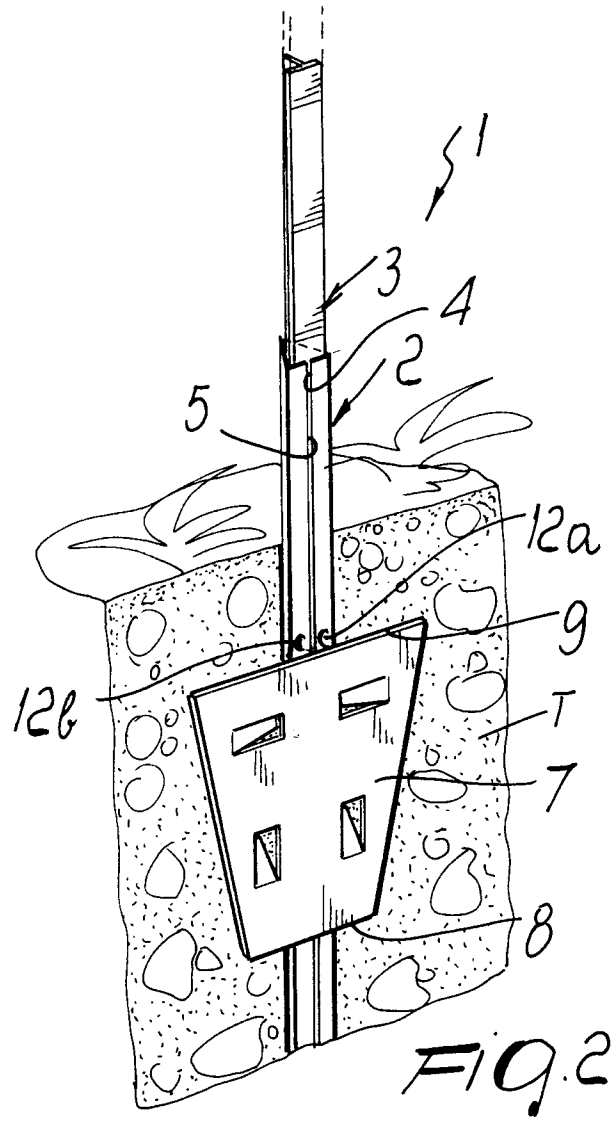
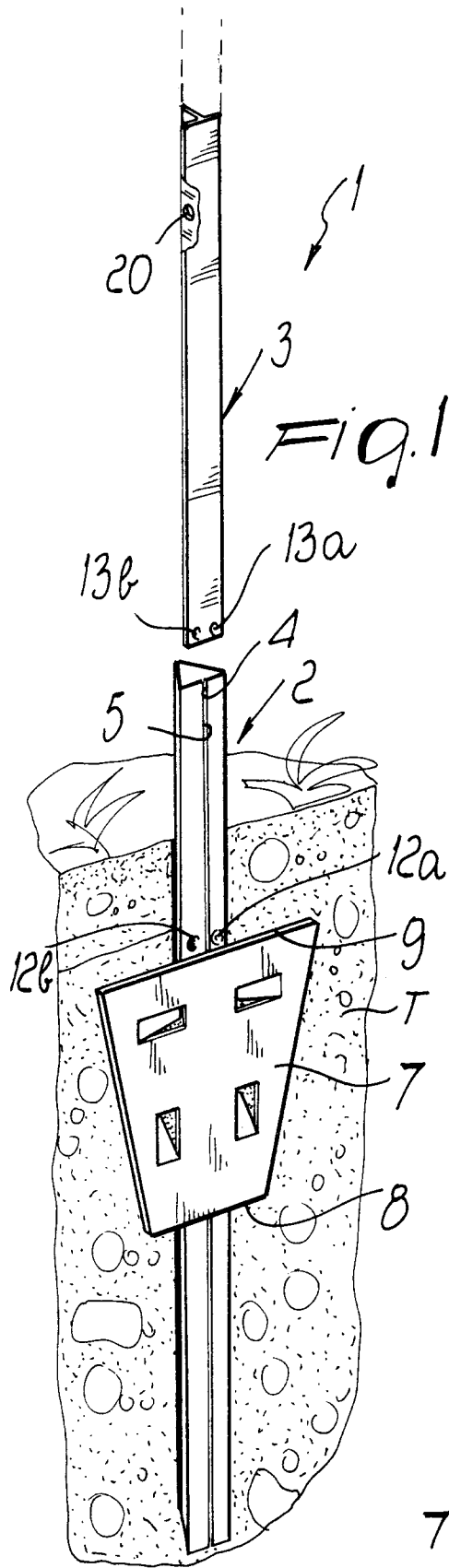
In the practical execution of the stake according to the invention, the materials used, as well as the specific shapes and dimensions, may be any according to the requirements.

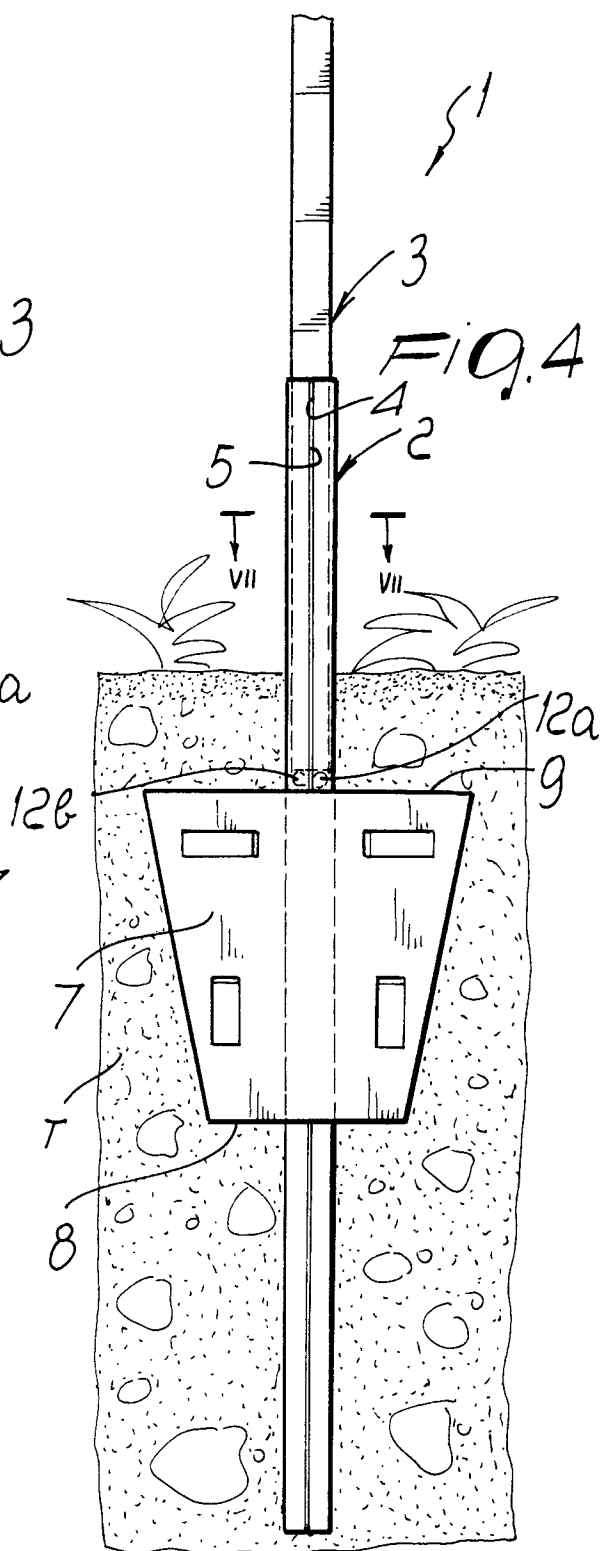
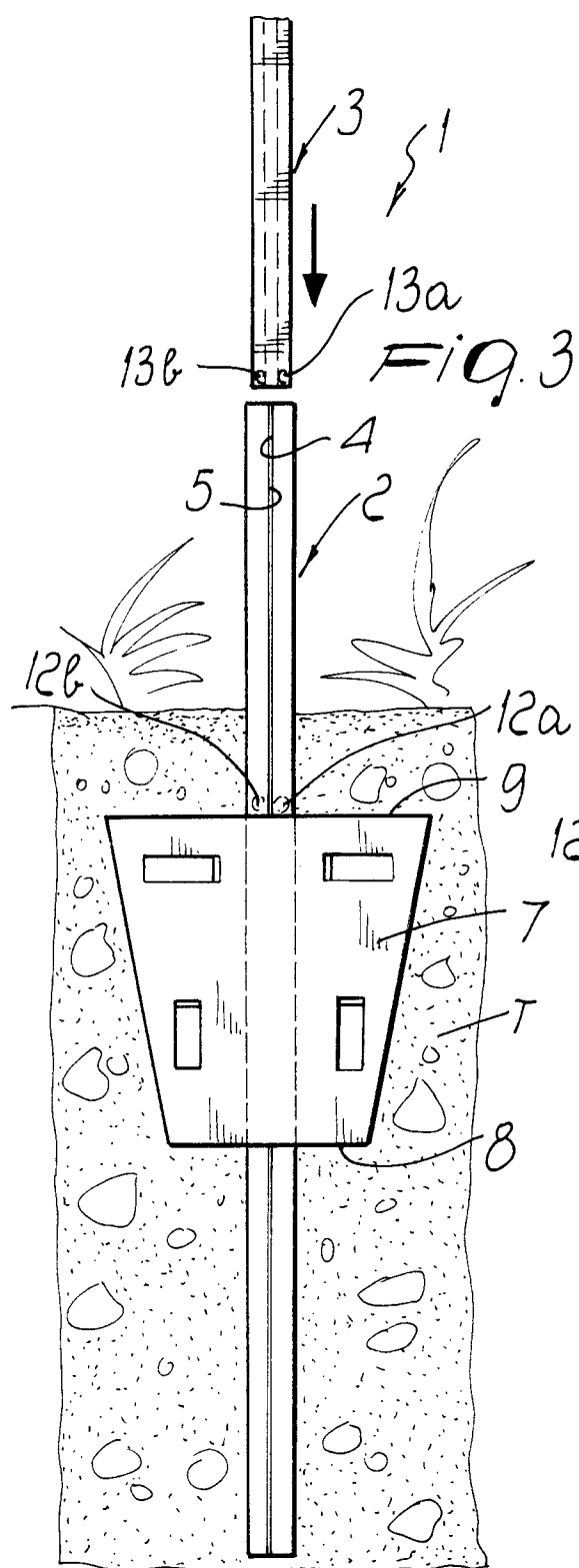
Where technical features mentioned in any claim are followed by reference signs, those reference signs have been included for the sole purpose of increasing the intelligibility of the claims and accordingly such reference signs do not have

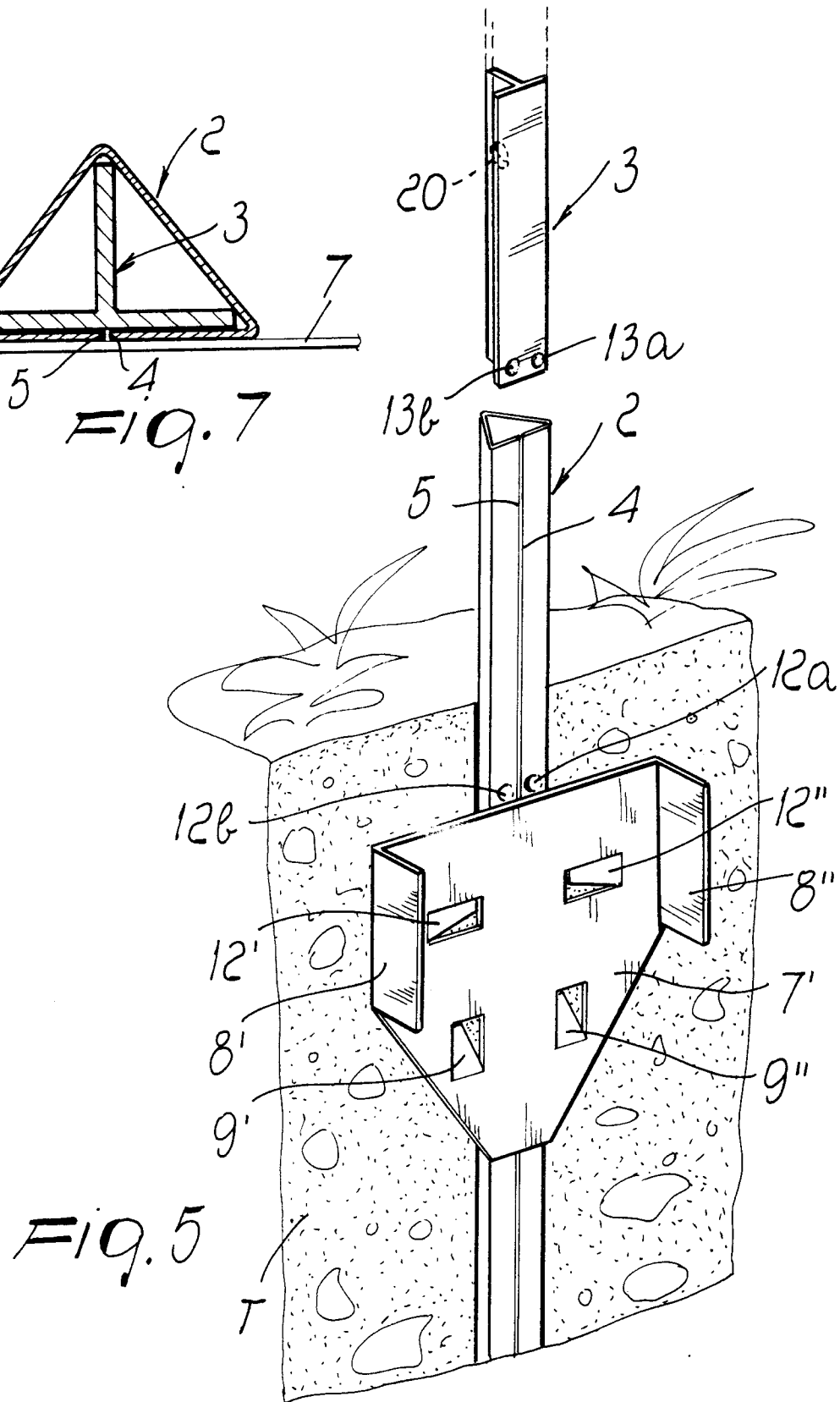
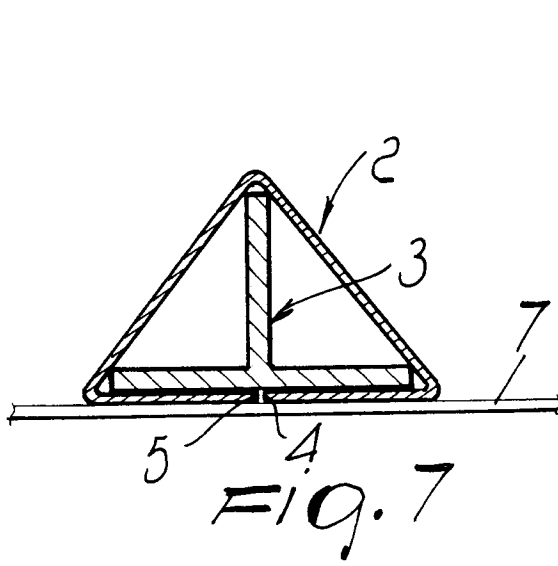
any limiting effect on the scope of each element identified by way of example by such reference signs.

Claims

1. Easily-installed stake for supporting enclosures such as nets and/or the like, which comprises a lower stake element (2) made of metal which is meant to be driven into the ground and an upper stake element (3) made of metal which can slidingly engage said lower stake element (2), characterized in that said lower stake element (2) has a substantially trapezoidal wider portion (7) that is rigidly coupled thereto and facilitates the driving of said lower stake element (2) into the ground by striking and its securing in driven position, means (12a, 12b, 13a, 13b) being furthermore provided for stopping and/or locking the sliding of said upper stake element (3) when it is slidingly engaged in said lower stake element (2), so as to provide a substantially rigid stake that is irremovably secured in the ground.
2. Stake according to claim 1, characterized in that said lower stake element (2) is constituted by a profiled element whose transverse cross-section is substantially a hollow triangle.
3. Stake according to the preceding claims, characterized in that said upper stake element (3) is constituted by a profiled element which has, in transverse cross-section, a substantially T-shaped configuration that can be inserted in said lower stake element (2), so that one of its wings can couple to one of the sides of said profiled element that constitutes said lower stake element (2) and so that the other wing couples to the opposite edge of said lower stake element (2).
4. Stake according to any one of the preceding claims, characterized in that said locking and/or stopping means are constituted by the friction produced by the coupling of said upper stake element (3) inside said lower stake element (2).
5. Stake according to any one of the preceding claims, characterized in that said locking and/or stopping means are constituted by dents (12a, 12b) of said lower stake element (2) which form, on its inner side, studs that engage corresponding dents (13a, 13b) formed on the portion of said upper stake element (3) which is inserted in said lower stake element (2).
6. Stake according to any one of the preceding claims, characterized in that said substantially trapezoidal element (7) rigidly coupled to said lower stake element (2) has the shorter parallel side (8) arranged downward and the longer parallel side (9) arranged upward with respect to the direction along which said lower stake element (2) is driven into the ground (T).
7. Stake according to any one of the preceding claims, characterized in that said substantially trapezoidal element (7') has at least two substantially mutually parallel lateral stabilizing wings (8').
8. Stake according to any one of the preceding claims, characterized in that said substantially trapezoidal element (7,7') has grip tabs (9'') which protrude from the body of said substantially trapezoidal element (7,7').
9. Stake according to any one of the preceding claims, characterized in that said substantially trapezoidal element has two pairs of grip tabs (9'', 12'') that protrude from the body of said substantially trapezoidal element (7'), the tabs of one pair (9'') being rotated substantially through 90° with respect to the orientation of the tabs of the other pair (12'').
10. Easily-installed stake for supporting enclosures such as nets and/or the like, according to any one of the preceding claims, substantially according to what has been described and illustrated for the specified aim and objects.









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EUROPEAN SEARCH REPORT

Application Number
EP 95 10 2970

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
X	US-A-5 104 265 (HALLORAN JR CHARLES F) 14 April 1992 * column 3, line 4 - column 4, line 31; figure 1 *	1,6,10	E04H12/22
Y	---	2-4,8	
Y	FR-A-2 655 672 (DEHOUSSE USINES) 14 June 1991 * page 6, line 3 - line 5 * * page 7, line 6 - line 25; figures 1,6 *	2-4	
A	---	1,5	
A	WO-A-80 02173 (TRAUFLER D) 16 October 1980 * page 5, line 13 - line 21; figures 1A-D *	7	
Y	---	8	
A	DE-A-35 07 269 (LICHTENBERG PAUL ; STRAEB GMBH & CO STANZ UND PRA (DE)) 22 May 1986 * page 7, paragraph 6; figures 1,5,8,9 *	9	
A	---		TECHNICAL FIELDS SEARCHED (Int.Cl.6)
A	US-A-3 132 726 (G. JOHNSON) 12 May 1964 ---		E04H
A	US-A-3 286 416 (J. ASHWORTH) 22 November 1966 -----		
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 21 June 1995	Examiner Kriekoukis, S
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons ----- & : member of the same patent family, corresponding document			