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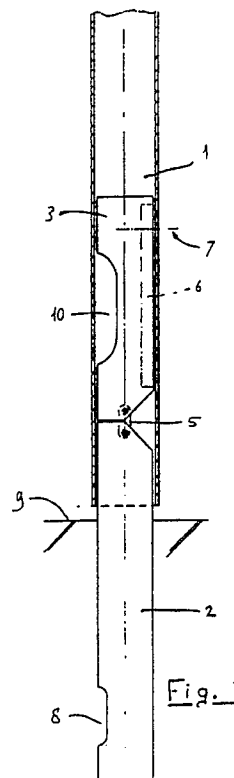
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(54) Hollow mast which can be lowered.

(57) Hollow mast which can be lowered with a mast section (1) being tiltable in respect of a base member (2), said tiltable mast section (1) being mountable around at least a part of the base member (2) extending above the ground level (9), a separate auxiliary member (3) being present which fits inside the mast section and is telescopically slidable in respect of this, a connecting member (5) being present for hingingly connecting the auxiliary member (3) to the base member (2).



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Hollow mast which can be lowered.

The invention relates to a hollow mast which can be lowered having a mast section which is tiltable in respect of a base member.

In case of known masts of such a construction the tiltable mast section is directly pivotably connected to a base member or mast base which is fixedly anchored. The pivot connection of these two mast sections requires a special shape of the mast sections at the location of the pivot connection. A mast construction being executed in such a way makes special demands concerning the bending and torsion strength of the section mostly weakened by the pivot connection, said pivot connection itself being unprotected against influences from the outside. This means that the known pivot connections having not only to be resistant against climatic attack but also against the continuously increasing vandalism.

The invention is meeting this because the tiltable mast section is fittingly mountable around at least a portion of the part of the base member extending above the ground level and is removable from this, a separate auxiliary member being present succeeding the base member, which auxiliary member fits inside the mast section over its whole length and is telescopically slidable in respect of this, whereby a connection member is hingingly connecting the auxiliary member to the base member.

By this it is obtained, that concerning the constructive embodiment of the tiltable connection one has only to consider the circumstances during the tilting of the mast while the required strength of the connection between the tiltable mast section and the fixed base member under normal conditions can be obtained independently from this. Further the pivotable connection is protectingly covered when the mast is not tilted and the entire mast construction can be executed cheaper.

According to the invention the connecting member can be executed e.g. as a connecting member which is flexible from its own, but can also be formed by a well known rotatable hinge.

According to another preferred embodiment of the invention it is also possible, that when the mast is provided with electricity conduits running from the base member to the auxiliary member, the tiltable connection is formed by one or more of these cables.

According to the invention further as well the base member as the auxiliary member can be rounded off or bevelled at opposite locations at a same side of the pivotable connection for obtaining a guiding of the movement during lowering or erecting respectively of the tiltable mast section. It

is also possible to form the base member and the auxiliary member as one single hollow tube section which then over a section is cut in except a small portion of its circumference and in which the material of the tube section consists of a synthetic material having the properties for forming a so-called synthetic material hinge. By this a very cheap embodiment can be obtained.

According to the invention also an electricity mounting-assembly may possibly be provided in the auxiliary member and besides this the auxiliary member can be of hollow shape if necessary. According to another preferred embodiment in such a hollow shaped auxiliary member, a wall opening can be provided which, when the mast is lowered, preferably will be present at the upper side. By this feature assemblies which might be provided within this auxiliary member can be easily reached. Although this is not absolutely necessary in case of a mast according to the invention it can be advantageous to provide a locking device, known per se, for the tiltable mast section in respect of the base member. In case of the invention such a locking mainly will have the character of a seal or lock against unqualified use or abuse and is not necessarily a mechanical loaded connection as this is the case with the known constructions.

Beside this it can be advantageous when the fixed base member is electrically insulated in respect of the tiltable mast body. By this electrochemical corrosion can be prevented which, in particular, can occur in case of masts with electric connections, such as lamp posts which are grounded to the network by which the potential thereof can differ from the local earth potential. Similar corrosion can also occur in case of e.g. flag masts to which loudspeakers are connected and in which stray currents can play a role.

The insulation of the base member can be obtained by executing this at least partially from synthetic material. It is, however, also possible to execute as well the base member as the auxiliary member from electric insulating material whether or not with one or more metallic reinforcing tubes.

The invention will be further explained referring to the drawings of an embodiment, in which:

Fig. 1 shows a portion of a lamp post or flag mast in the erected position;

Fig. 2 shows the same portion of the mast as shown in Fig. 1 with the upper, tiltable mast section in a partly slid out position removed from the fixed base member; and

Fig. 3 shows a mast according to Figs. 1 and 2 executed as a lamp post in the lowered position.

In Fig. 1 the lower portion of a mast is shown, the upwardly extending mast section 1 being shown in section. In case of this shown embodiment the tiltably executed upwardly extending mast section 1 can serve as the carrier of e.g. a lighting armature or a flag. A fixed base member 2 can be inserted in the bottom below the ground level 9 or can be anchored in another suitable way.

In the position shown in Fig. 1 the upper mast section 1 is slid over the portion of the fixed base member 2 extending above the ground level 9 and is not tiltable in this position. To fix this position additionally suitable abutments provided to the fixed base member 2 at the one side and/or to the tiltable mast section or mast body 1 on the other side may cooperate with each other. Because such features are within the reach of the expert a further description is thought to be superfluous. In the extension of the base member 2 and within the mast body 1, a separate pivotable or tiltable auxiliary member 3 is present. This auxiliary member 3 is tiltably connected to the base member 2 by means of a pivot member 5.

By the fitting engagement of the base member 2 and the auxiliary member 3 in the mast body 1 as shown in Fig. 1, the pivotable connection is locked. This locked position can be blocked or sealed by detachably fixing the mast body 1 to the auxiliary member 3, e.g. at the location indicated by 7.

For this any suitable connecting means can be used such as a lock or a bolt connection which types of connections are already used for the doors of conventional lamp posts. Obviously the fixation can also be provided between the base member and the mast body or can be omitted totally. If desired an electricity mounting assembly can be present in the auxiliary member 3 as schematically indicated by 6.

Fig. 2 shows an intermediate position in which the upper end 1 of the mast, if necessary after releasing a locking device provided at 7, is moved upwardly just far enough for the auxiliary member 3 together with the upper end 1 of the mast to be tilted in respect of the base member 2. To this a hinge construction 5 is provided while the bevelled edges 12, 13 at one side of the hinge 5 serve to guide the movement during the tilting.

After tilting of the upper end of the mast the situation is obtained as indicated in Fig. 3 for a lamp post.

The upper end 1 of the mast is shifted away so far that the wall opening 10, serving as an inspection or servicing opening for the electricity mounting assembly 6 comprised in the inner, is totally cleared. In the partial section of Fig. 3 it can also be seen that the base member 2 is further provided with a cable inlet opening 8. Through this

opening 8 electricity conduits 11 can be guided in and/or out, which via the mounting assembly 6 can take care of supplying current to the lamp house which is provided in the usual manner in the top of the mast or to another electric facility.

Further in Fig. 3 by 7A and 7B the locations are indicated at which a locking, if any, can be provided at the auxiliary member 3 and the upper end 1 of the mast respectively, which locations only coincide in case of the position shown in Fig. 1 and being indicated by 7 in this.

If desired the base member 2 can be made from synthetic material and being provided with a reinforcing tube 4. By this an electric insulation of the upper end of the mast can be obtained in respect of the base member serving as bottom anchoring. This latter can be desired to prevent electrochemical corrosion.

Claims

1. Hollow mast which can be lowered, having a mast section (1) which is tiltable in respect of a base member (2), characterized in that the tiltable mast section (1) is fittingly mountable around at least a portion of the part of the base member (2) extending above the ground level or ground surface (9) and is removable from this, a separate auxiliary member (3) being present succeeding the base member, which auxiliary member fits inside the mast section (1) over its whole length and is telescopically slidable in respect of this, whereby a connecting member (5) is hingingly connecting the auxiliary member (3) to the base member (2).

2. Mast according to claim 1, characterized in that the connecting member (5) is flexible from its own.

3. Mast according to claim 2, provided with electricity conduits (11) running from the base member (2) to the auxiliary member (3), characterized in that the connecting member (5) is formed by one or more electricity cables (11).

4. Mast according to claims 1, 2 or 3, characterized in that the base member (2) and the auxiliary member (3) are rounded off or bevelled at the same side on opposite locations (12,13) for guiding the sliding movement of the auxiliary member (3) in respect of the base member (2) during respectively lowering or erecting of the tiltable mast section (1).

5. Mast according to claim 2, characterized in that the base member (2) and the auxiliary member

(3) are formed by one single hollow tube section which over a section is cut in except a small portion of its circumference, the material of the tube section consisting of a synthetic material having the properties for forming a so-called synthetic material hinge.

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6. Mast according to one of the preceding claims, provided with electricity conduits (11) e.g. for lighting purposes, characterized in that an electricity mounting assembly (6) is provided to or in the auxiliary member (3).

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7. Mast according to claim 6, characterized in

that the auxiliary member (3) consists of a hollow part and is provided with a wall opening (10) being closable or non-closable for the accessibility of an electricity mounting assembly (6), if any, provided within said auxiliary member (3), the wall opening (10) preferably being positioned such that when the mast is lowered the opening (10) will be present at the upper side.

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8. Mast according to one of the preceding claims, characterized in that a locking construction (7) is present to lock the tiltable mast section (1) in respect of the base member (2).

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9. Mast according to one of the preceding claims, characterized in that the base member (2) is electrically insulated in respect of the tiltable mast section (1) and to this end preferably, at least partially, consists of synthetic material.

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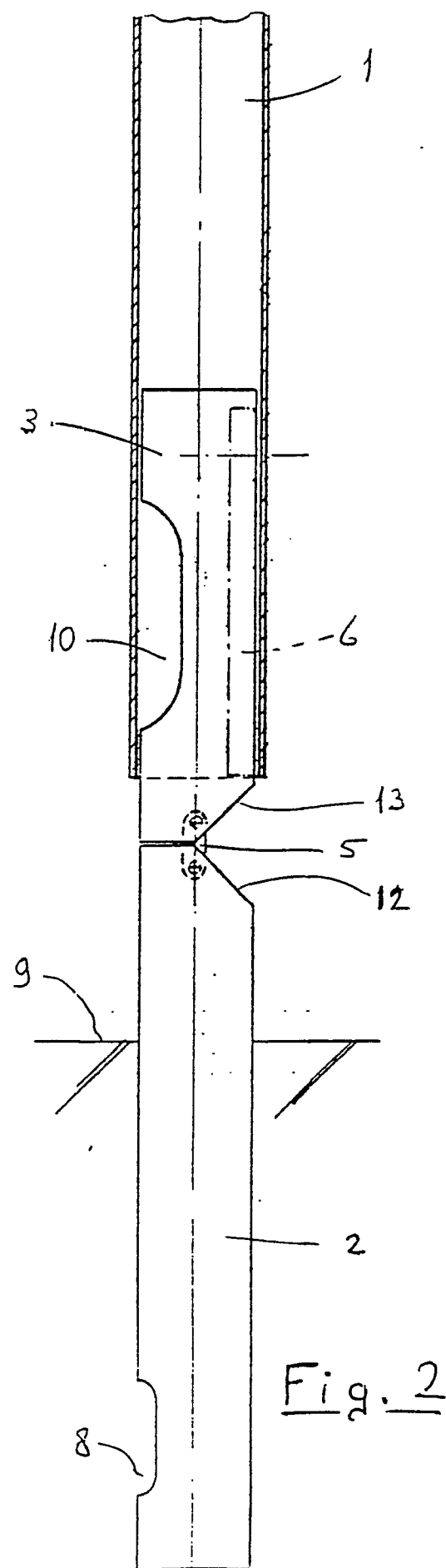
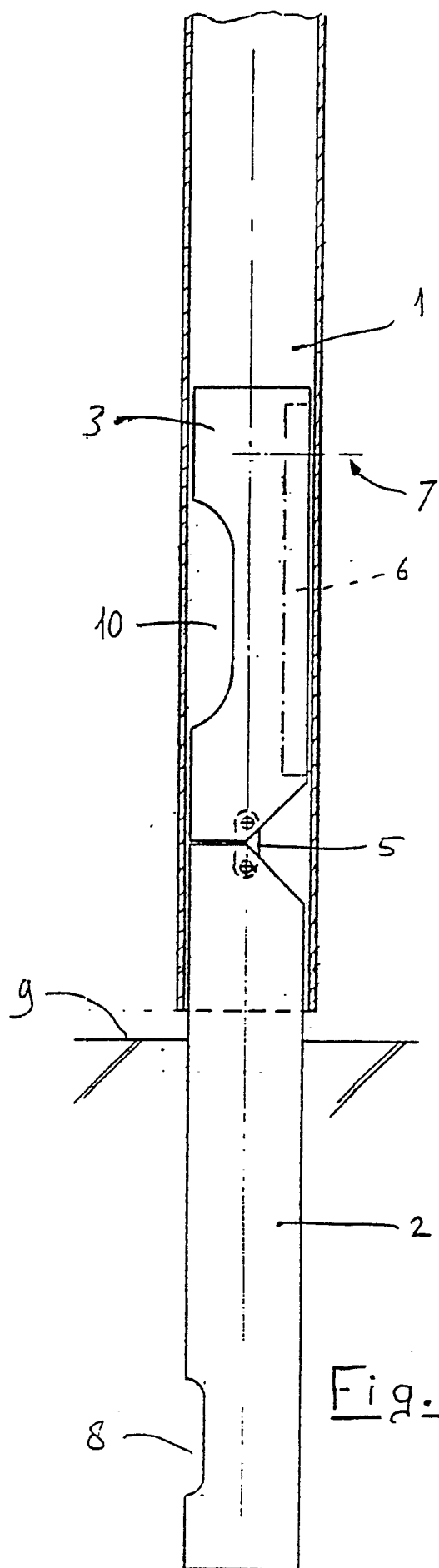
10. Mast as described in the description and/or shown in the drawing.

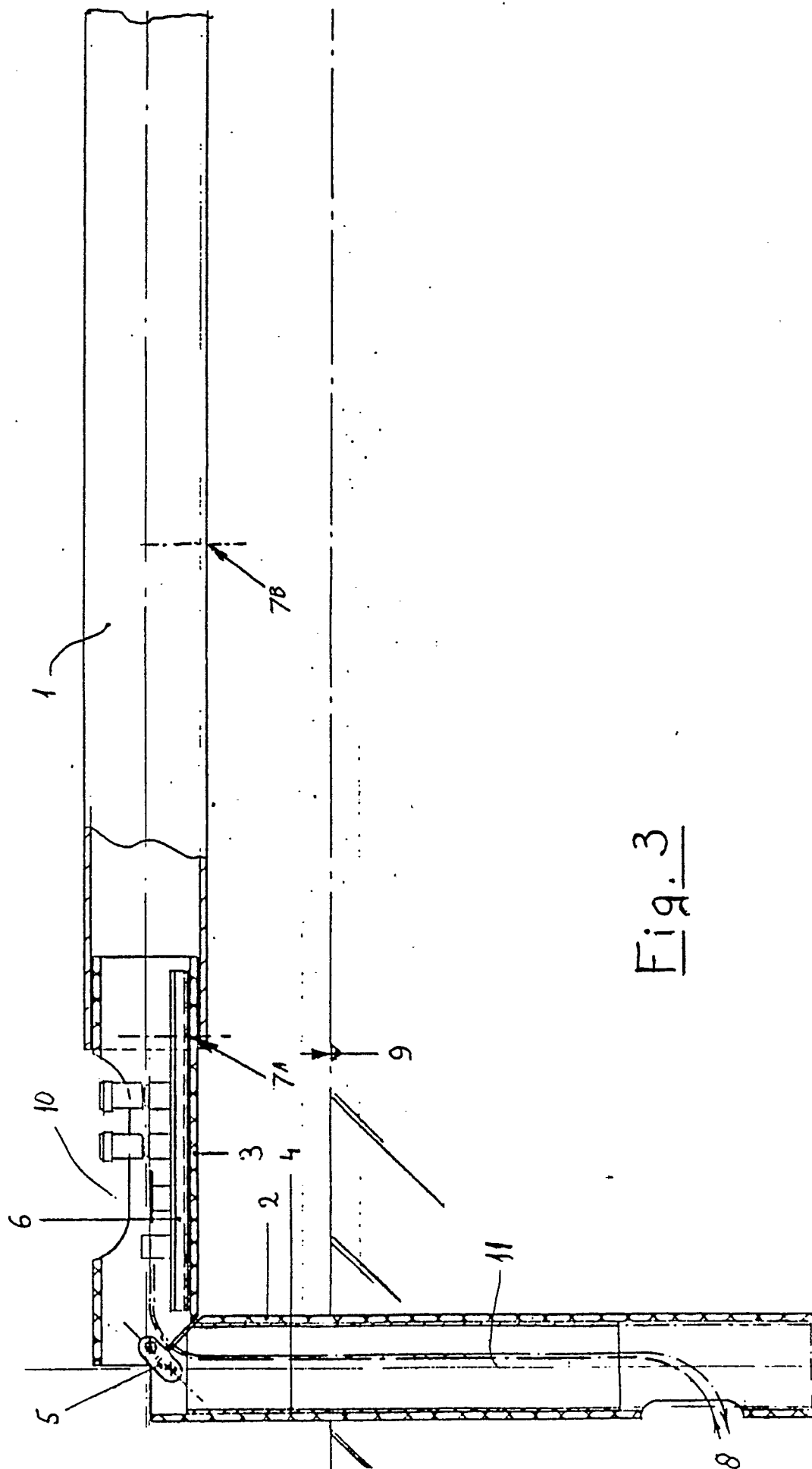
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DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl. 4)
A	AU-B- 494 746 (ABACUS ENG. LTD) * Claim 1; figure 1 * ---	1-10	E 04 H 12/34 F 21 V 21/36
A	GB-A-1 204 783 (K.F. GUGGEMOS) * Figure 2 * ---	1-10	
A	GB-A-1 080 061 (V. BLACKWELL) * Figures 2-4 * -----	1-10	
			TECHNICAL FIELDS SEARCHED (Int. Cl.4)
			E 04 H 12/00 F 21 V 21/00 A 45 B 17/00
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 04-04-1989	Examiner BARBAS A.
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			