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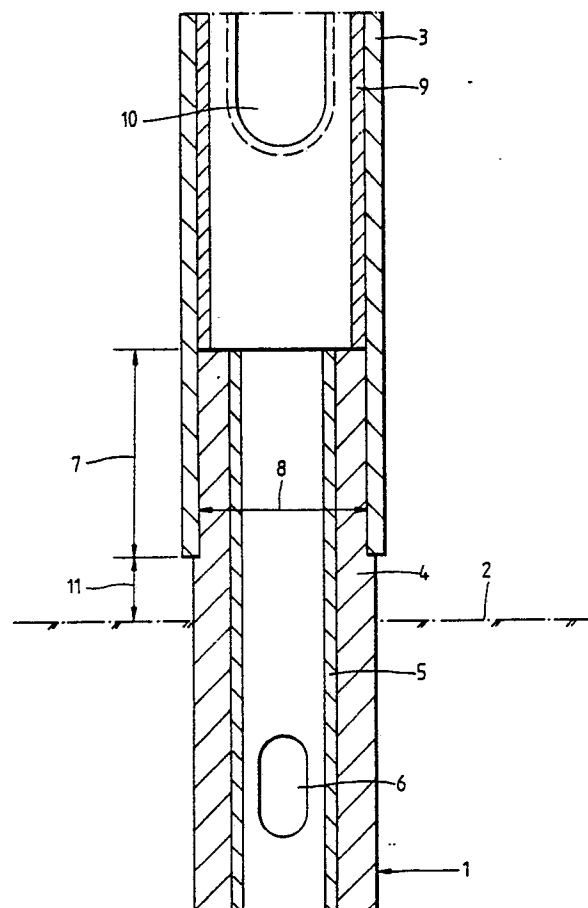
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54 **Base for a metal post.**

57 A post 3 is mounted on a base 1 located in the ground 2, the base 1 including a metal tubular member 5 and a concentric electrically insulating tubular element 4 which prevents electrochemical corrosion of the base and post.



EP 0 312 205 A1

BASE FOR A METAL POST

The invention relates to a base for a metal post, such as a lamppost, a flag standard or columns and posts for signals, road signs or energy supply etc., hereinafter commonly called posts. Such posts are generally placed in the ground or mounted on plinths. When such posts are anchored by their bottom end in the ground, these bottom ends are exposed to various forms of corrosion, for example chemical corrosion and electrolytic or galvanic corrosion.

In particular, the latter-mentioned electrolytic or galvanic or electrochemical corrosion, has been found to contribute to a considerable extent to deterioration through corrosive attack, especially of aluminium lampposts. It is common to place posts in the ground along a length of about 80 to 120 cm. It is customary to earth a group of posts in common or to make use of an earth wire or the common neutral wire of the electricity system in question. This means that it can happen that the electrical potential of such posts differs from the electrical potential of the ground material surrounding the bottom end of the post and electrochemical corrosion can occur as a result.

Ground currents, induction currents and possibly even static electricity can also give rise in some cases to electrochemical corrosion.

The corrosion-inhibiting coatings commonly used hitherto for the bottom end of the post going into the ground appear to give inadequate protection against the above-described form of corrosion. In particular, this is due to the fact that such coatings are quite easily damaged in practice during transportation and positioning of the posts. Even the slightest damage is already enough to allow the electrochemical corrosion process to begin. It goes without saying that the local nature of the soil and the extent to which it is polluted has a major influence on the speed of the corrosion process. Moreover, good coatings are expensive, due to the special compositions.

It is also known to provide posts with a special base or ground anchoring. For example, British Patent Specification No. 324,293 discloses a base which is intended for partial sinking in the ground, and in which a top end of the base is designed in cross sectional shape to hold the bottom end of a post concentrically and support it along part of its length.

The base here is of cast iron, which is possibly more resistant to normal chemical corrosion than the steel from which the post is made, but which can offer no protection at all against electrochemical or galvanic corrosion.

It is also known from NL-A-8002769 to use a base made from a fibre-reinforced synthetic resin which is placed partially around or in the bottom end of the post.

The strength and the resistance to greatly fluctuating stresses on these bases do, however, leave something to be desired, and for certainty on this point a considerable thickness of the composite material has to be used, which gives rise to high costs, inter alia due to the duration of production.

The object of the invention is then to produce a strong, yet reasonably priced base which permits a firm connection with the post, without adversely affecting the strength and rigidity of the post, has a long service life and as regards corrosion is not susceptible to damage.

According to the invention there is provided a base for a metal post, the top end of which is designed to hold the bottom end of a post of a given shape and dimensions to be supported, characterized in that said base comprises a metal tubular member and an at least partially hollow tubular element made of electrically insulating material in a concentric arrangement, the tubular element being shaped and dimensioned to engage the bottom end of the post.

With such a construction no compensation of potential difference now occurs between the ground material and the metal post. The danger of electrochemical corrosion is thus adequately removed, while the hitherto common treatment of the bottom end of the post can now be dispensed with in many cases.

In one embodiment, the base is designed as an essentially hollow tube with an internal metal tubular member and an external sheath of electrically insulating material. In such an embodiment the bottom end of the post can be placed over the top end of the base, thereby preventing water from penetrating into the boundary face, while no protective measures need be taken to protect the metal tubular member of the base either. It has been found in practice that corrosion of metal tubes occurs to a much lesser extent on the inside.

In another embodiment, the metal tubular member forms the outside of the base and extends from the bottom along only part of the length of the insulating tubular element. The two tubular elements may be joined by pressing. Use is made here of prefabricated parts which are fastened to each other by a cheap method, but form a particularly strong connection.

According to another aspect of the invention, there is provided a combination of a metal post and a base according to the invention. Preferably the

metal tubular element has a resistance moment to bending which is at least equal to that of the bottom end of the post. This ensures that when the strength is being calculated special account need not be taken of the base.

The insulating tubular element according to the invention is preferably made of a non-reinforced thermoplastic material such as polyethylene. This means that the costs of the base, including the fitting thereof, need hardly be much greater than those for the usual treatment of the bottom end of the post, while much better protection against corrosion is ensured.

The post may be provided with a door opening at a location spaced from its lower end and the base can be of such length and design that it can also serve as a door opening reinforcement element. Such a design can produce a considerable saving in the total cost of, for example, lampposts. For, the additional measures which are now necessary in such cases to produce and fit said door opening reinforcement elements can then be for the most part omitted. Such a base can already be provided in advance with the necessary opening, or such an opening can be made after it is fitted.

As an alternative, the posts can have an internal door opening reinforcement element and the base is inserted up to the door opening reinforcement element. As a result, the gap between the door reinforcement element and base metal tubular element is as small as possible.

Another advantage arising with the invention is the possibility of requiring only one post length for both ground and plinth mounting (for example for bridges), where different lengths and different designs of bottom ends are currently necessary for this application. This simplifies production and permits a reduction in stocks.

An additional advantage is that the base according to the invention can also be used for repair of posts of which the bottom end in the ground has already been damaged by corrosion. When shortened, these damaged posts can be re-used, after being provided with the base according to the invention, since following this action the strength requirements for that post are fully met.

The connection between the tubular member and tubular element and between base and bottom end of post can also be produced in a manner other than by pressing, for example by means of adhesive etc. Press-fitting is, however, preferable. For specific purposes it is also possible to place the bottom end of the post in the base. Here the metal tubular member is on the outside. In those cases the length of the metal tubular member can be limited in such a way that the whole unit finally lies below ground level, and only the plastic part projects above it, to prevent any electrical potential

differences.

The base of the post is then generally pressed in until it reaches or passes ground level, in order to maintain the strength. In that case a protective layer can be provided additionally on the metal tubular member said layer does not, however, have to meet the otherwise very strict conditions.

The invention will be explained in greater detail below with reference to the drawing, in which the sole figure shows the bottom part of a lamppost in cross section, provided with a base according to the invention. The bottom part of the base 1 is in the ground below ground level 2, while the top end is designed to take the lamppost 3. The base 1 is provided with an electrically insulating tubular element 3 made of plastic, and preferably of polyethylene, and a metal inner tubular member 5, preferably of aluminium, both provided with a passage 6 for an underground cable to take the electricity to the lamppost. Such a passage is, of course, not necessary in other types of post. In the embodiment shown the length of base 1 pressed into the lamppost 3 is only slightly greater than the internal diameter 8 of the lamppost 3. However, the general rule which can be applied is that the press-in depth 7 must be substantially greater than the internal diameter of the post, and should preferably be twice the amount. Provision can be made in the lamppost 3 for an inner tube 9 which serves to reinforce the post at the site of the door opening 10.

In the preferred embodiment shown, the press-in depth 7 is selected in such a way that the bottom end of the door opening reinforcement tube 9 can be used as a stop. In this way, the inner tube element 5 connects directly to the door opening reinforcement tube, and there is no significant weakening.

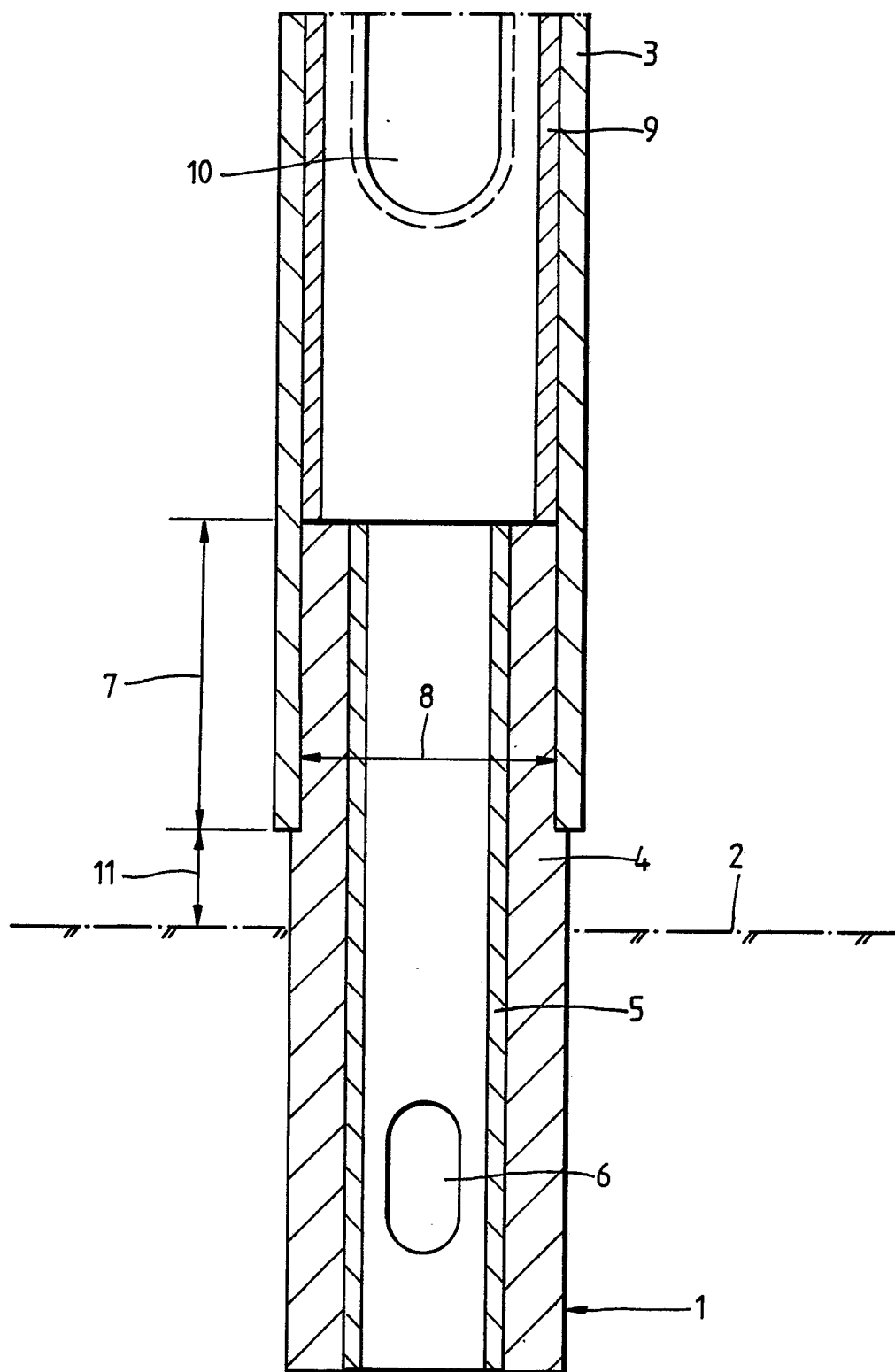
The inner tube 5 also has strength and rigidity corresponding at least to those of the bottom end of the post. If, as indicated in the drawing, the lamppost 3 is positioned at a distance indicated by 11 above ground level 2, contact with any water layer (rainfall) above ground level is prevented. This distance 11 is usually between 50 and 200 mm. This also substantially reduces damage due to equipment such as motor mowers, while the extra wall thickness in the bottom area indicated by 7 of the post 3 can give much more resistance to dents in the post, as does the choice of insulating material.

It has been found that since there is now no longer an electrically conducting connection between the post 3 and the metal inner tube 5 in the ground, the latter is no longer subject to electrochemical corrosion and thereby contributes substantially to a longer service life of the entire post, without this adversely affecting the other required

features of the post.

Claims

1. A base for a metal post, the top end of which is designed to hold the bottom end of a post of a given shape and dimensions to be supported, characterized in that said base comprises a metal tubular member and an at least partially hollow tubular element made of electrically insulating material in a concentric arrangement, the tubular element being shaped and dimension to engage the bottom end of the post. 5 10
2. A base according to Claim 1, characterised in that the two tubular elements are joined by pressing. 15
3. A base according to Claim 1 or 2, characterized in that the electrically insulating tubular element is made of a non-reinforced thermoplastic material, and preferably of polyethylene. 20
4. A base according to Claim 1, 2 or 3, characterized in that it is designed as an essentially hollow tube with an internal metal tubular member and an external tubular element of electrically insulating material. 25
5. A base according to Claim 1, 2 or 3 characterized in that the metal tubular member forms the outside of the base and extends from the bottom along only part of the length of the insulating tubular element. 30
6. A combination of a metal post and a supporting base characterized in that said base comprises a base according to any one of Claims 1 to 5. 35
7. A combination according to Claim 6, wherein the post is provided at a location spaced from its lower end with a door opening, characterized in that the base is of such a length and design that, when mounted, it can also serve as a door opening reinforcement element. 40
8. A combination according to Claim 6, wherein the post has an internal door opening reinforcement element characterized in that the base is inserted up to the door opening reinforcing element. 45
9. A combination according to Claim 6, 7 or 8, characterized in that the metal tubular member has a moment of resistance against bending which is at least equal to that of the bottom end of the post. 50
10. A combination according to any one of Claims 6 to 9, characterized in that the base is pressed in clamping fashion into or around the post. 55





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	GB-A-1 575 295 (STAINES) * Page 2, lines 16-81; figures 1-4 * ---	1	E 04 H 12/22 E 04 H 12/08
A	US-A-2 679 911 (BHEND) * Column 2, lines 8-55; column 3, lines 1-19; figures 1-3 * ---	1	
A	EP-A-0 046 822 (ROTHER) * Page 3, lines 28-37; page 4, lines 1-38; figures 1-4 * ---	1	
A	DE-A-2 910 995 (LANGMATZ) * Page 9, lines 20-24; page 10, lines 1-26; page 11, lines 1-21; figures 1-6 * ---	1	
A	FR-A-2 098 967 (SOCIETE D'AMENAGEMENT) ---		
D,A	GB-A- 724 293 (VEREINIGZE MAHLWERKE) ---		
D,A	NL-A-8 002 769 (WAVIN) -----		
			TECHNICAL FIELDS SEARCHED (Int. Cl.4)
			E 04 H
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 16-12-1988	Examiner SCHOLS W.L.H.
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			