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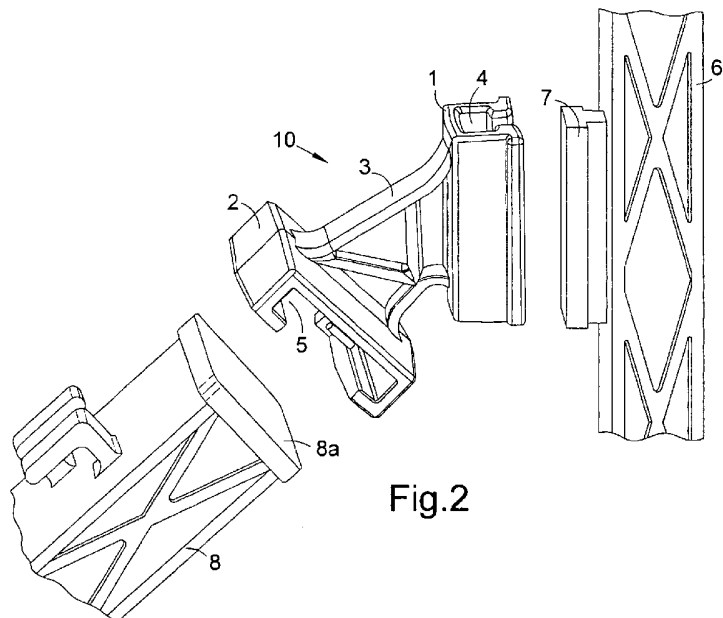
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(56) Documents Cited:  
**GB 2360531 A** **GB 2226062 A**  
**JP 2001159244 A** **NL 001020116 C**  
**US 20080111119 A1** **US 20040026680 A1**

(58) Field of Search:  
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Other: **Online: WPI, EPODOC**

(54) Abstract Title: **Adaptor to connect a vertical fence post to an angled supporting strut**

(57) An adaptor 10 to attach a vertical fence post 6 to a supporting strut 8 at an angle, where the adaptor has two engagement areas 1, 2 with a linking portion 3 attaching them at an acute angle. Each area is complementary to the engagement area 7, 8a of the post or strut it engages with. The posts engagement area 7 may be T-shaped corresponding to a slot 4 on the adaptor. Another slot 5 on the adaptor may slide along the struts top 8a to snap engage with it. Preferably the post, strut and adaptor are plastic and the post supports wires. The adaptor and strut can be on a post at the corner of a fence or on one within a straight section.



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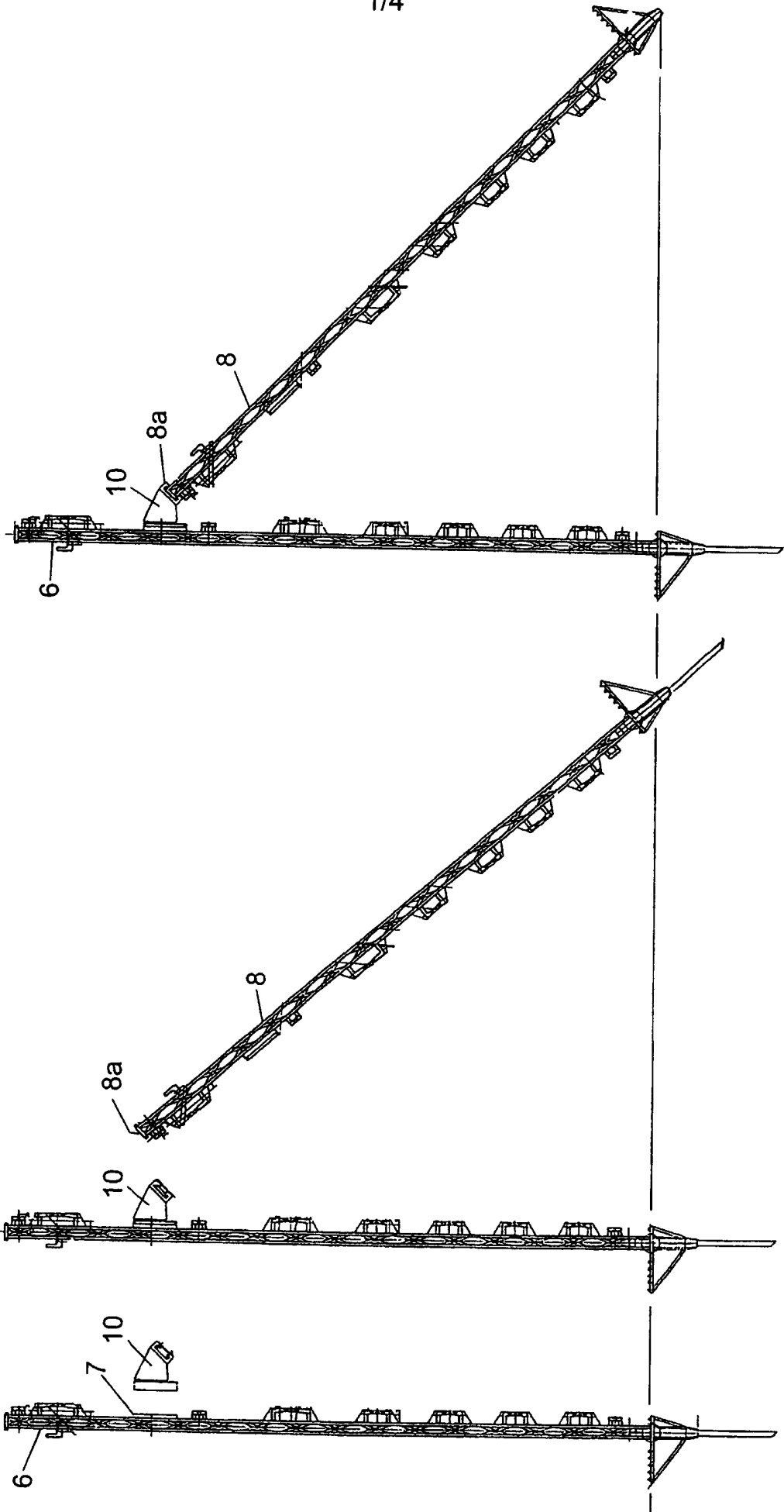


Fig.1

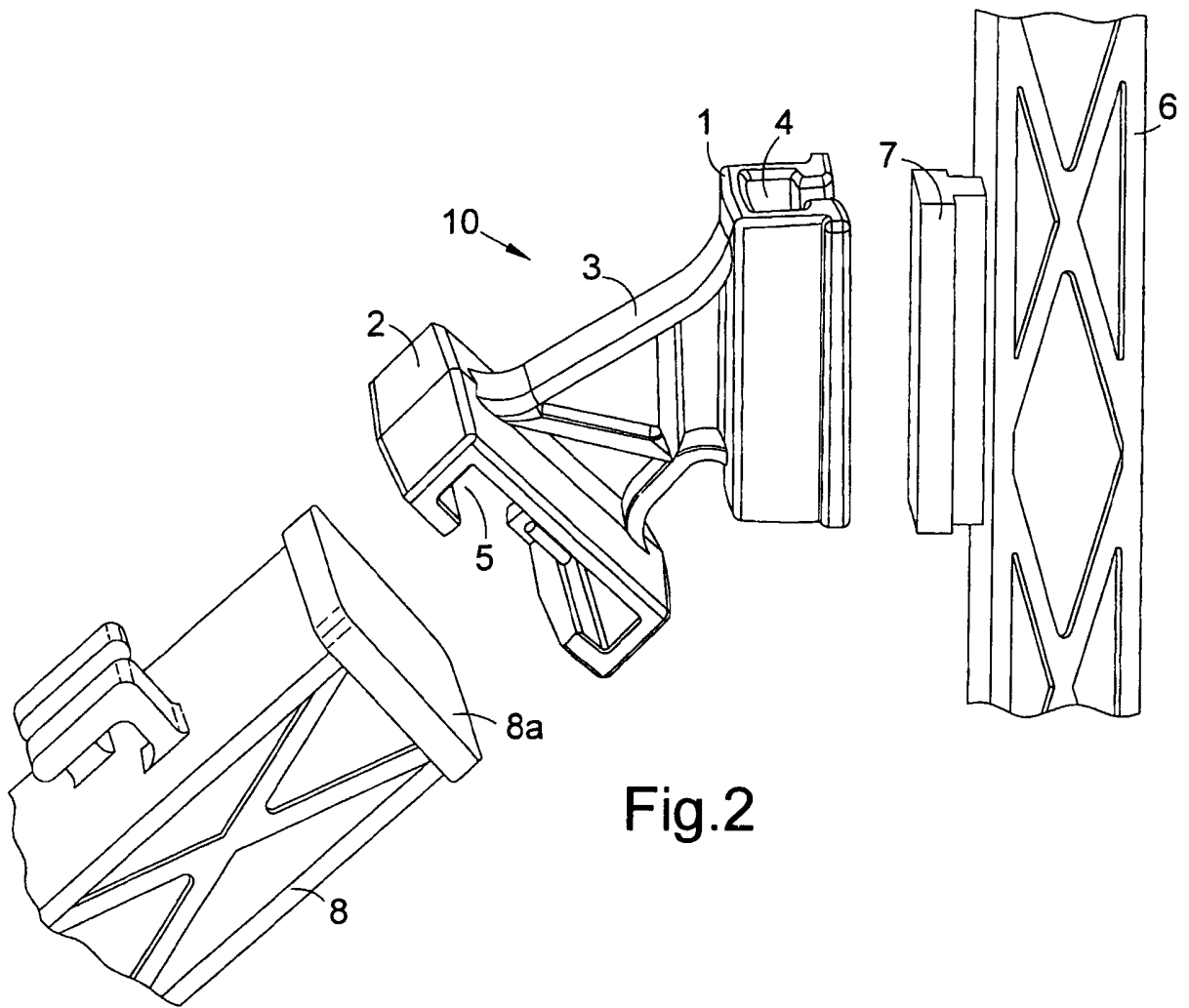


Fig.2

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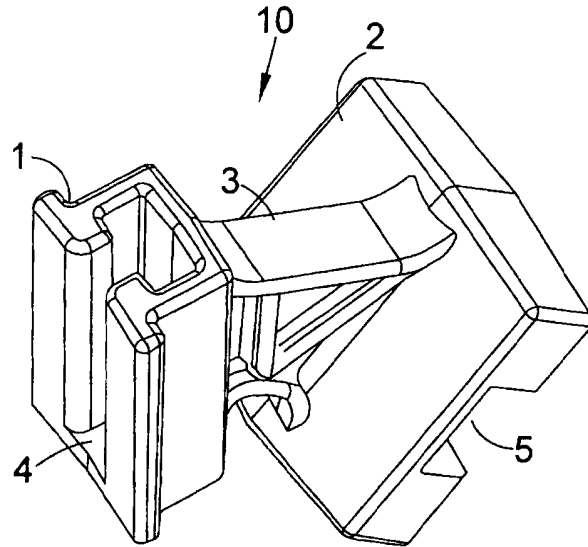


Fig.3A

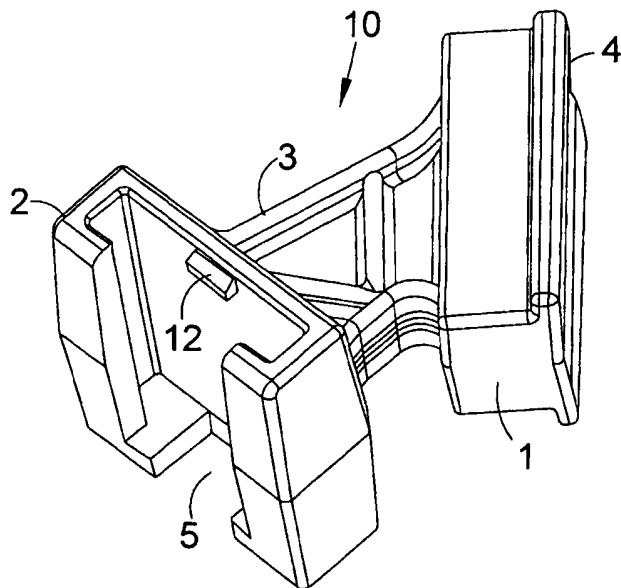


Fig.3B

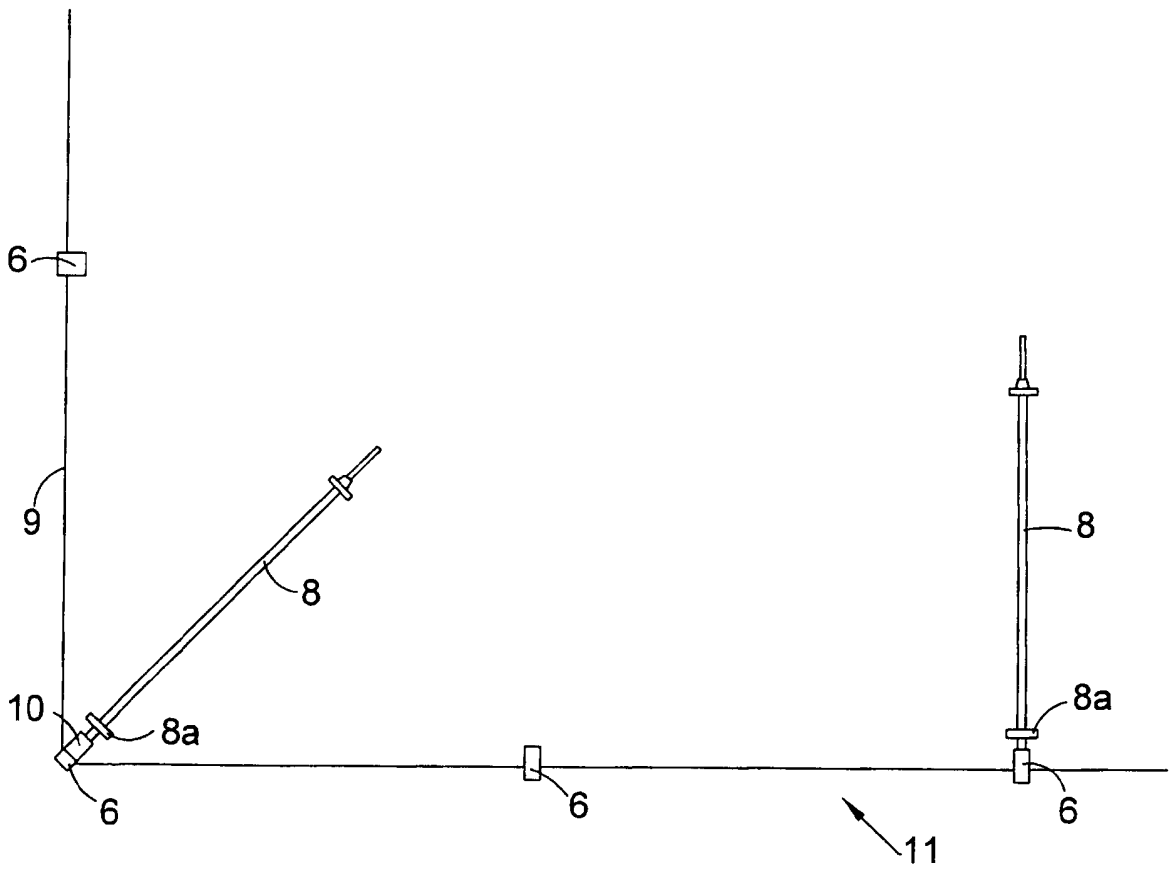


Fig.4

## SUPPORT ADAPTOR, FENCING INSTALLATION AND METHOD OF ASSEMBLING FENCING INSTALLATION

The present invention relates to a support adaptor, a fencing installation in which the support adaptor is used for connecting a fence post with a supportive fence post abutting thereon, and a method of assembling the fencing installation.

In a linear electric fencing installation for grazing and the like made up of vertical plastic posts and wires set around the posts, the installation is often subject to stresses from animals leaning on it (posts and wire). Further, the installation is constantly subjected to the pull of the wire, especially around corners. In practice, when plastic fence posts are arranged to make up a polygonal outline such as a square, due to the tension applied on the fence posts by the wires around them, the posts which normally lack any lateral support begin to collapse, resulting in a breakage of the fencing installation.

In order to counteract the aforementioned problem, it is an object of the present invention to provide a corner support adaptor which enables a supportive post to be easily connected to a fence post to form part of a solid supportive structure of a fencing installation. Further, it is another object of the present invention to provide a fencing installation having such a supportive structure as described above including the support adaptor, to prevent breakage thereof from occurring. Yet further, it is yet another object of the present invention to provide a method of assembling the fencing installation.

In a first aspect, the present invention provides a support adaptor for connecting one fence post with a supportive fence post abutting the one fence post, the one fence post having a side connection portion extending in the longitudinal direction of the one fence post, the support adaptor comprising: a first connection portion having a connecting means extending in a first direction, the configuration of which is complementary to the side connection portion of the fence post such that the connecting means is engageable with the side connection portion; a linking portion connected at one end thereof with the first connection portion; and a second connection portion connected with the other end of the linking portion and extending at an acute angle to said first direction, the second connection portion having a connecting means the configuration of which is complementary to the top of the supportive fence post such that the connecting means is engageable with the top of the supportive fence post.

By means of the invention, an additional supportive post can be easily connected to a fence post by firm but detachable engagement, providing a solid supportive structure of a fencing installation.

Since the connection of the fence post to the supportive post is achieved by way of the support adaptor having connection means at both ends thereof, the configurations of which means are complementary to the corresponding connection portions of the fence post and the supportive post respectively, a simple, quick, detachable but firm engagement of the fence post to the supportive post can be provided.

More specifically, in a preferred embodiment of the present invention, a section of the connecting means of the first connection portion

viewed in the longitudinal direction thereof is complementary to a section of the side connection portion viewed in the longitudinal direction of the fence post.

In this way, the complementary and firm engagement of the support adaptor with the fence post can be obtained throughout the longitudinal lengths of the connection means of the first connection portion of the support adaptor and the side connection portion of the fence post.

More specifically, the connecting means of the first connection portion has a T-shaped section, whereby there is obtained an advantageous effect that the support adaptor is reliably secured to the fence post and prevented from coming off the fence post.

Preferably, the connecting means of the first connection portion is a slot and the side connection portion is a projection, whereby it is easy to make the configuration of the connecting means of the first connection portion of the support adaptor complementary to the side connection portion of the fence post.

The slot as the connecting means may be slid along the projection as the side connection portion, to attain engagement therebetween.

By this means, simply sliding a slot as the connecting means of the first connection portion of the support adaptor along a projection as the side connecting portion of the fence post can readily bring the slot and the projection to a firmly engaged state.



Also, the connecting means of the second connection portion is preferably a slot, whereby a similar advantage can be obtained for the connecting means of the second connection portion of the support adaptor.

The slot as the connecting means may be slid along the top of the support fence post, to be snap-engaged therewith, so that a similar advantage can be obtained for the connecting means of the second connection portion of the support adaptor, as well.

The support adaptor will usually be made of a plastic material.

According to the invention, a support adaptor, flexibility of which is advantageous in terms of effecting the complementary and optionally snap engagement between the support adaptor and the fence post and the supportive fence post, can be manufactured at low production cost.

The invention in another aspect provides a fencing installation, comprising: fence posts extending vertically from the ground; wires set around the fence posts; and a supportive fence post abutted against at least one of the fence posts to support the fence post, the supportive fence post being connected with the fence post by way of a support adaptor as described above.

By means of this aspect of the invention, a supportive fence post is firmly connected with at least one of the fence posts and thus occurrence of collapse or breakage of the fencing installation can be reliably prevented.

The fence posts and the supportive fence post will usually be made of a plastic material. As a result, the fence posts and supportive fence post, flexibility of which is advantageous in terms of effecting the complementary engagement between the support adaptor and the fence post and the supportive fence post, can be manufactured at low production cost.

The fence post to which the supportive fence post is connected may be a corner fence post of a fencing installation which can thus be reliably prevented from collapsing; or the fence post to which the supportive fence post is connected may be a fence post standing in a linear section between two corner fence posts, which can similarly be reliably prevented from collapsing.

The invention in a further aspect provides a method of assembling a fencing installation, comprising the steps of: vertically standing fence posts on the ground and setting wires across the fence posts; and reinforcing at least one of the fence posts by abutting a supportive fence post against the fence post and connecting the fence post with the supportive fence post by way of a support adaptor as described above.

This invention will be further described with reference to the accompanying drawings, wherein Fig. 1 is an explanatory side view showing an operation of connecting a fence post with a supportive fence post by way of a support adaptor of the invention. Fig. 2 is an enlarged view of the support adaptor, the projection as the side connection portion of the fence post, and the top of the supportive fence post.

Fig. 3A and Fig. 3B are isometric projections of the support adaptor viewed from different directions.

Fig. 4 is a plan view schematically showing a part of a fencing installation of the present invention.

An embodiment of the present invention will be described in detail with reference to the drawings.

As shown in Fig. 1, the present embodiment provides a support adaptor 10 for connecting a fence post 6 with a supportive fence post 8 to form part of a supportive structure of a fencing installation 11 (see Fig. 4).

The support adaptor 10 is used for firmly connecting the supportive fence post 8 with the vertically standing fence post 6 so that the supportive fence post 8 abuts and supports the fence post 6, preventing the fence post 6 from collapsing due to the stresses from animals leaning on it or the tension constantly applied on the fence posts 6 by wires 9.

Specifically, as shown in Fig. 2, the support adaptor 10 is constituted of a first connection portion 1 for connection with a projection 7 of the fence post 6, a second connection portion 2 for connection with the top 8a of the supportive fence post 8, and a linking portion 3 which links the first connection portion 1 and the second connection portion 2 such that the second connection portion 2 extends at an acute angle with respect to the direction in which the first connection portion 1 extends.

The first connection portion 1 has a slot 4 as a connecting means, the configuration of which is complementary to the projection 7 comprising the side connection portion of the fence post 6 so that the first connection

portion 1 is brought to tight engagement with the projection 7 simply by aligning the slot 4 with the projection 7 and sliding the slot along the projection. As shown in particular in Fig. 3a, the top of the slot 4 is closed by a T bar so as to rest on the projection 7 when the projection is inserted into the slot.

Similarly, the second connection portion 2 has a slot 5 as a connecting means, the configuration of which is complementary to the top 8a of the supportive fence post 8 so that the second connection portion 2 is brought to tight engagement with the top 8a of the support fence post 8 by aligning the slot 5 with the top 8a and sliding the slot along the top.

Isometric projections of the support adaptor 10 viewed from different directions are shown in Fig. 3A and Fig. 3B.

As shown in Fig. 2, a section of the slot 4 of the first connection portion 1 viewed in the longitudinal direction thereof is complementary to a section of the projection 7 viewed in the longitudinal direction of the fence post 6, so that the projection 7 as the side connection portion fits into the slot 4 when the slot 4 is slid along the projection.

Similarly, a section of the slot 5 of the second connection portion 2 viewed in the sliding direction thereof is complementary to a section of the top 8a of the supportive fence 8 viewed in the sliding direction thereof, so that the top 8a of the supportive fence post 8 fits into the slot 5 when the slot 5 is slid along the top 8a. A latch 12 may be provided in the slot 5 for snap-engagement of the top 8a of the support fence post 8 with the second connection portion 2 (see Fig. 3B).

In the present embodiment, the slots 4, 5 each have a T-shaped section and the projection 7 of the fence post 6 and the top 8a of the support fence 8 each have sections complementary thereto.

The support adaptor 10, the fence post 6 and the supportive fence post 8 may be formed by a plastic material, although the type of the material of these members is not particularly limited thereto.

It should be noted that, although the connection means 4 of the first connection portion 1 is a slot and the side connection portion 7 of the fence post 6 is a projection in the present embodiment, the structures of the connection members 4, 7 are not limited thereto. That is, an alternative structure may be possible where the connecting means 4 of the first connection portion 1 is a projection and the side connection portion 7 of the fence post 6 is a slot.

Similarly, an alternative structure may be possible where the connecting means 5 of the second connection portion 2 is a projection and a slot corresponding thereto is formed at the top 8a of the support fence 8.

Further, it should be noted that the angle formed between the first connection portion 1 and the second connection portion 2 is not limited to that shown in the drawings. The second connection portion 2 may be inclined with respect to the first connection portion 1 as desired, as long as the angle is mechanically acceptable for the supporting purpose of the supportive fence post 8.

The present invention also provides, as shown in Fig. 4, a fencing installation 11 including the fence posts 6 extending vertically from the ground, wires 9 set around the fence posts 6, and a supportive fence post 8 abutted against at least one of the fence posts 6 to support the fence post, in which the supportive fence post 8 is connected with the fence post 6 by way of a support adaptor 10 of the present invention.

In the present invention, any fence post in the fencing installation can be reinforced by connecting a supportive fence post therewith by way of the support adaptor. That is, the support adaptor of the present invention may be used not only for a corner fence post but also a fence post standing in a linear section between two corner fence posts.

According to the present invention, quick and firm connection of a fence post of a fencing installation with a supportive fence post can be readily achieved by use of the support adaptor described above, reliably preventing the fencing installation from collapsing due to external stresses applied thereon.

CLAIMS:

1. A support adaptor (10) for connecting one fence post (6) with a supportive fence post (8) abutting the one fence post, the one fence post (6) having a side connection portion (7) extending in the longitudinal direction of the one fence post, the support adaptor comprising:
  - a first connection portion (1) having a connecting means (4) extending in a first direction, the configuration of which is complementary to the side connection portion (7) such that the connecting means (4) is engageable with the side connection portion (7);
  - a linking portion (3) connected at one end thereof with the first connection portion (1); and
  - a second connection portion (2) connected with the other end of the linking portion (3) and extending at an acute angle to said first direction, the second connection portion having a connecting means (5) the configuration of which is complementary to the top (8a) of the supportive fence post (8) such that the connecting means (5) is engageable with the top of the supportive fence post.
2. A support adaptor as claimed in claim 1, wherein a section of the connecting means (4) of the first connection portion (1) viewed in the longitudinal direction thereof is complementary to a section of the side connection portion (7) viewed in the longitudinal direction of the fence post.
3. A support adaptor as claimed in claim 2, wherein the connecting means (4) of the first connection portion (1) has a T-shaped section.

4. A support adaptor as claimed in any of claims 1 to 3, wherein the connecting means (4) of the first connection portion (1) is a slot and the side connection portion (7) is a projection.
5. A support adaptor as claimed in any of claims 1 to 4, wherein the connecting means (5) of the second connection portion (2) is a slot.
6. A support adaptor as claimed in claim 4, wherein the slot (4) as the connecting means is slid along the projection (7) as the side connection portion, to attain engagement therebetween.
7. A support adaptor claim 5, wherein the slot (5) as the connecting means is slid along the top (8a) of the supportive fence post (8), to be snap-engaged therewith.
8. A support adaptor as claimed in any of claims 1 to 7, made of a plastic material.
9. A fencing installation, comprising:
  - fence posts (6) extending vertically from the ground;
  - wires (9) set around the fence posts (6); and
  - a supportive fence post (8) abutted against at least one of the fence posts (6) to support the fence post, the supportive fence post (8) being connected with the fence post (6) by way of a support adaptor (10) of any of claims 1 to 8.
10. A fencing installation as claimed in claim 9, wherein the fence posts (6) and the supportive fence post (8) are made of a plastic material.



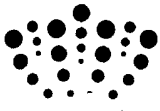
11. A fencing installation as claimed in claim 9 or 10, wherein the fence post (6) to which the supportive fence post (8) is connected is a corner fence post.

12. A fencing installation as claimed in claim 9 or 10, wherein the fence post (6) to which the supportive fence post (8) is connected is a fence post standing in a linear section.

13. A method of assembling a fencing installation, comprising the steps of:

vertically standing fence posts (6) on the ground and setting wires across the fence posts; and

reinforcing at least one of the fence posts (6) by abutting a supportive fence post (8) against the fence post (6) and connecting the fence post (6) with the supportive fence post (8) by way of a support adaptor (10) of any of claims 1 to 8.



**Application No:** GB0716138.3

**Examiner:** Mr Joe Cornfield

**Claims searched:** 1-13

**Date of search:** 9 December 2008

**Patents Act 1977: Search Report under Section 17**

**Documents considered to be relevant:**

Category	Relevant to claims	Identity of document and passage or figure of particular relevance
X	1-4, 6, 9-13	JP2001159244 A (DAITO DISPLAY KK) figures, 6 especially; abstract; [0009]
X	1-6, 8	US2008/111119 A1 (PLATT) figures, 4 and 18 especially; abstract; [0051], [0063]
X	1, 2, 5, 7	GB2226062 A (YOSHIDA KOGYO KK) figures; abstract; page 7, line 8 to page 8, line 10
X	1, 2, 5, 8	US2004/026680 A1 (WILLIAMS) figures, 15 especially; abstract; [0037]
A	-	NL1020116 C (BECX) figures; abstract
A	-	GB2360531 A (S & B BUILDING EQUIPMENT LTD) figures; abstract

**Categories:**

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category	P	Document published on or after the declared priority date but before the filing date of this invention
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**Field of Search:**

Search of GB, EP, WO & US patent documents classified in the following areas of the UKC<sup>X</sup>:

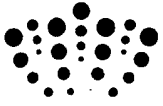
Worldwide search of patent documents classified in the following areas of the IPC

E04H

The following online and other databases have been used in the preparation of this search report

Online: WPI, EPODOC

**International Classification:**



<b>Subclass</b>	<b>Subgroup</b>	<b>Valid From</b>
E04H	0017/08	01/01/2006