

**EUROPEAN PATENT SPECIFICATION**

- ④ Date of publication of patent specification: **04.10.89**      ⑤ Int. Cl.<sup>4</sup>: **F 21 V 21/10**  
① Application number: **86300649.0**  
② Date of filing: **30.01.86**

⑤ **Lighting fixture hanging unit.**

③ Priority: **30.01.85 JP 13210/85 u**

④ Date of publication of application:  
**06.08.86 Bulletin 86/32**

④ Publication of the grant of the patent:  
**04.10.89 Bulletin 89/40**

④ Designated Contracting States:  
**DE FR GB IT**

⑤ References cited:  
**FR-A- 365 362**  
**GB-A- 609 461**

⑦ Proprietor: **KUROI GARASU KOUGYO CO. LTD.**  
**27, Yawatacho Nishishichijyo Shimogyo-ku**  
**Kyoto-shi Kyoto 600 (JP)**

⑦ Inventor: **Kitamura, Masaharu**  
**8-21 Tsurunosato**  
**Ohtsu-shi Shiga (JP)**

⑦ Representative: **Beresford, Keith Denis Lewis**  
**et al**  
**BERESFORD & Co. 2-5 Warwick Court High**  
**Holborn**  
**London WC1R 5DJ (GB)**

Note: Within nine months from the publication of the mention of the grant of the European patent, any person may give notice to the European Patent Office of opposition to the European patent granted. Notice of opposition shall be filed in a written reasoned statement. It shall not be deemed to have been filed until the opposition fee has been paid. (Art. 99(1) European patent convention).

## Description

This contrivance relates to a unit for hanging lighting fixture (called the unit in the following text) to support lighting fixtures and also as the electrical wiring.

As shown in Fig. 4, unit A of this kind is made of a pair of conducting wires (1, 2) fixed to upper and lower insulating supports (3, 4) with spacing between the wires and of the hooks (1a, 1b, 2a, 2b) formed at both ends of the wires (1, 2).

To compose a decorative lighting fixture by using this kind of unit, the upper hooks (1a, 2a) of the wires (1, 2) are hung from the fittings (5, 6) projected from the ceiling as shown in Fig. 5 for example, and the upper hooks (1a, 2a) of the wires (1, 2) of another unit A are hung from the lower hooks (1b, 2b) of the first unit, then the required number of units A are suspended in the same manner in order.

The wires (7, 8) of the lighting fixture B such as a lamp are hooked from the specified points of the pair of wires (1, 2) of each unit A.

With lighting fixtures of this kind, the hooks (5, 6), the wires (1, 2) of the unit A, and the wires (7, 8) of the lighting fixture are electrically connected, and there is no need to perform connection of the lighting fixture B or support and the electrical wiring separately at the time of installation. As an advantage, the work for connection or support can complete the electrical wiring work at the same time.

In many cases, however, the length of the pair of wires (1, 2) of unit A is different, the length (L2) of one wire (2) may be somewhat shorter than the length (L1) of the other wire (1) as shown in Fig. 4.

In such a case, malcontact between the wires (1, 2) of each unit A, A tends to happen when two or more units are suspended as shown in Fig. 5.

With unit A of conventional type, however, the wires (1, 2) are fixed to the supports (3, 4), and the difference in the length of the wires is not absorbed, which causes said malcontact frequently.

It is therefore an object of this invention to provide a unit having a function to absorb difference in the length of a pair of wires, thereby overcoming the above-discussed disadvantage of the prior art.

The foregoing object is accomplished by a unit according to claim 1. The unit by this invention is provided with an elastic and expandable bend in the middle of the wires and the wires are held by the supports so as to slide freely.

By this composition, difference in the length of the wires due to dispersion of the pair of wires, can be absorbed effectively because the wires are expanded at the bend by the weight of another unit suspended from the unit making the shorter wire to the equal length as the longer wire.

Accordingly, possibility of said malcontact is eliminated.

Other objects and advantages of this invention

will become apparent in the course of following description together with the accompanying drawings.

In these drawings, in which like parts are designated by the same reference numerals:

Fig. 1 is a perspective view of a unit by an embodiment of the invention;

Fig. 2 is an assembly and exploded view showing the essential parts of the wires and the support;

Fig. 3 is a front view of a unit by another embodiment;

Fig. 4 is a front view of a conventional unit, and

Fig. 5 is a front view showing an example of lighting fixture.

Referring now to the accompanying drawings an embodiment of this invention is described in detail hereinafter.

By the unit A shown in Fig. 1 for example, a pair of conductive wires (1, 2) are held at two places by the insulating supports (3, 4) with spacing between the wires.

These supports (3, 4) are made of a pair of split members (synthetic resin molds for example) (31, 41) combined together as shown in the drawing.

The lower support (4) has an L-groove (42) to accept the wires as shown in Fig. 2.

The groove width at the horizontal part (42a) of this L-groove (42) is set larger than the outside diameter of the wire housed in the L-groove (42), the wire (2) for example, so that the wire (2) housed in the L-groove (42) can slide up and down within a certain range.

The other wire (1) is also held by the support (4) so as to slide freely.

The pair of wires (1, 2) are also held by the upper support (3) so as to slide freely.

The upper support (3) is provided with a stopper (not illustrated) to prevent dropping of the wires (1, 2).

The pair of wires (1, 2) are bent in the middle as is evident from Fig. 1, and the bent parts are positioned symmetrically. The wires (1, 2) are also provided with a dent (12, 22) onto which a lighting fixture is hooked. (See Fig. 5.)

By said unit A, the bent parts (11, 21) can expand freely against elasticity of the wires (1, 2), and expansion of the wires (1, 2) is allowed by slide displacement of the wires (1, 2) in the L-groove (42) provided on the support (4).

Even if the pair of wires (1, 2) differ in length, the shorter wire is expanded to the same length as the longer wire by the weight of another unit suspended from the hooks (1b, 2b) of the wires (1, 2).

Accordingly, the linked units in suspended condition are free from any malcontact between the wires.

Fig. 3 shows another embodiment. In this embodiment, the bends (11, 21) of the wires (1, 2) are formed in arc shape. The lower support (4) forms the fitting parts (43a, 43b) to the projected bends (13, 23) made on the wires (1, 2). With

such a unit A and even if the wire (2) is shorter than the wire (1), the bend (21) of the wire (2) is expanded to the same length as the wire (1), as shown by an imaginary line in the drawing, when another unit is suspended from the hooks (1b, 2b) of the wires (1, 2) and the hook (2b) is set at the same height as the hook (1b). No malcontact, therefore, is caused.

The bends of the wires can be J-shape as illustrated, or in arc shape or any other shape. When shaped to arc-form, however, expansion of the bends against elasticity of the wires is better.

It is further understood by those skilled in the art that the foregoing description is a preferred embodiment of the disclosed device and that various changes and modifications may be made without departing from the scope of the claims.

### Claims

1. A unit for hanging lighting fixtures (B) with a pair of conducting wires (1, 2) having hooks (1b, 2b) at their ends, said wires (1, 2) being held apart by an insulating support (4), characterised in that at least one of said wires has a resiliently expansible portion (11, 21) and is held by the support (4) so as to slide freely, the expansible portion and the hooks being on either side of the support, which permits relative movement of the wires so that, in use, the hooks (1b, 2b) may be arranged at the same level.

2. A unit according to claim 1 characterised in that each wire (1, 2) has a said resiliently expansible portion (11, 21).

3. A unit according to claim 1, wherein said support (4) is provided with an L-shaped slot (42a) permitting said movement of said at least one wire (2).

4. A unit according to any preceding claim, wherein said resiliently expansible portion (11, 21) is arcuate.

### Patentansprüche

1. Einheit zum Aufhängen von Leuchten (B) mit einem Paar von leitenden Drähten (1, 2), die Haken (1b, 2b) an ihren Enden haben, wobei die

Drähte (1, 2) durch einen isolierenden Halter (4) auseinander gehalten werden, dadurch gekennzeichnet, daß zumindest einer der Drähte einen elastisch dehnbaren Abschnitt (11, 21) hat und durch den Halter (4) frei gleitend gehalten wird, wobei sich der dehnbare Abschnitt und die Haken auf beiden Seiten des Halters befinden, was eine Relativbewegung der Drähte zuläßt, so daß die Haken (1b, 2b) bei Verwendung auf gleicher Höhe angeordnet werden können.

2. Einheit nach Anspruch 1, dadurch gekennzeichnet, daß jeder Draht (1, 2) einen elastisch dehnbaren Abschnitt (11, 21) hat.

3. Einheit nach Anspruch 1, wobei der Halter (4) mit einem L-förmigen Schlitz (42a) versehen ist, der die Bewegung von dem zumindest einen Draht (2) zuläßt.

4. Einheit nach einem der vorhergehenden Ansprüche, wobei der elastisch dehnbare Abschnitt (11, 21) bogenförmig ist.

### Revendications

1. Dispositif pour suspendre des armatures lumineuses (B) par une paire de fils conducteurs (1, 2) munis de crochets (1b, 2b) à leurs extrémités, ces fils (1, 2) étant maintenus séparés par un support isolant (4), dispositif caractérisé en ce que l'un au moins de ces fils comporte une partie élastiquement dilatable (11, 12) et se trouve maintenu par le support (4) de manière à glisser librement, la partie dilatable et les crochets étant situé de chaque côté du support, ce qui permet un mouvement relatif des fils de façon que, en cours d'utilisation, les crochets (1b, 2b) puissent être disposés au même niveau.

2. Dispositif selon la revendication 1, caractérisé en ce que chaque fil (1, 2) comporte une telle partie élastiquement dilatable (11, 21).

3. Dispositif selon la revendication 1, caractérisé en ce que le support (4) est muni d'une fente en forme de L (42a) permettant un tel mouvement de fil au moins unique (2).

4. Dispositif selon l'une quelconque des revendications précédentes, caractérisé en ce que la partie élastiquement dilatable (11, 21) est courbe.

5

10

15

20

25

30

35

40

45

50

55

60

65

3

FIG. 1

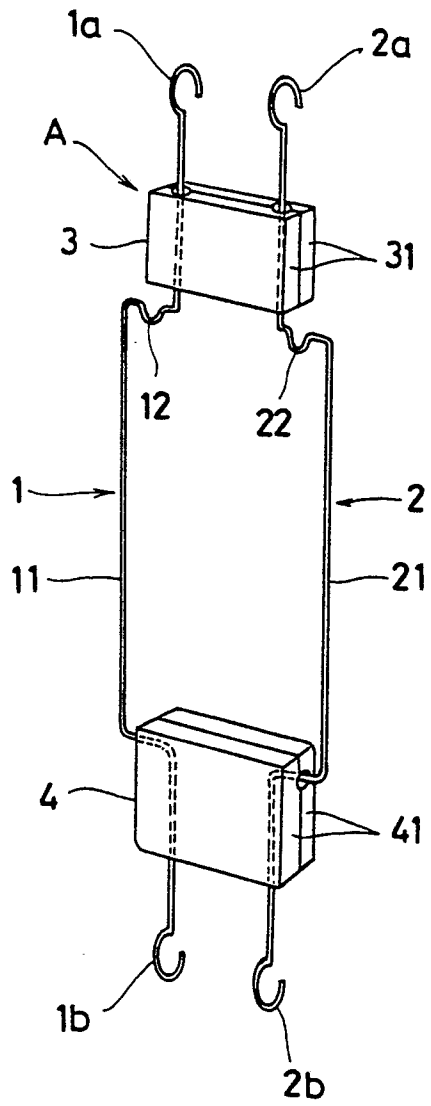


FIG. 2

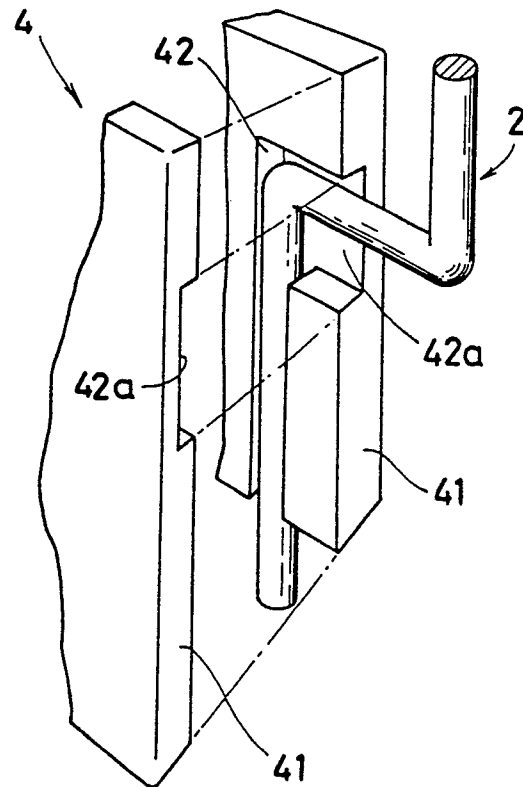


FIG. 3

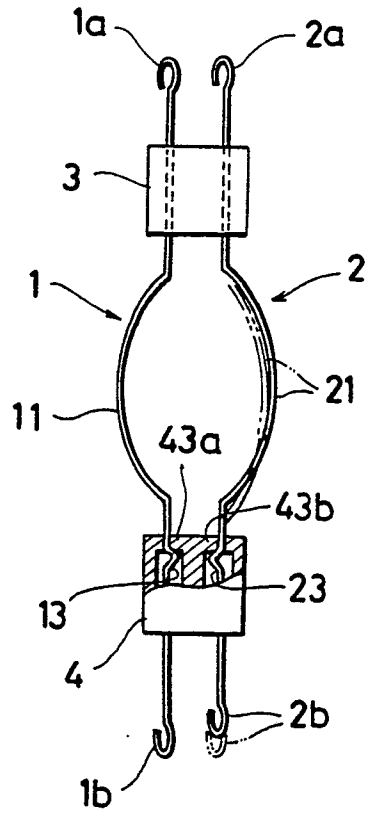


FIG. 4

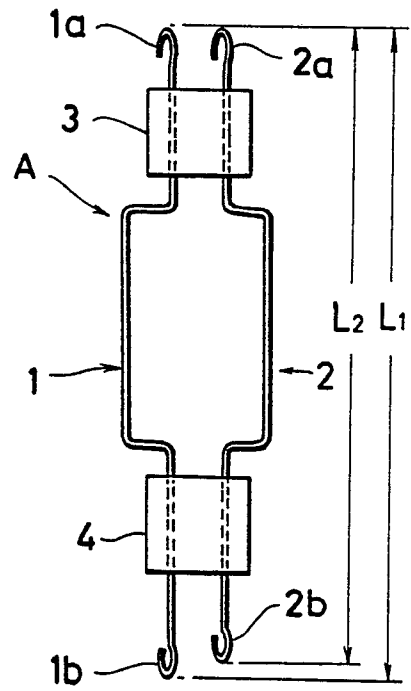


FIG. 5

