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## (54) Improvements in power tracks

(57) Two adjacent sections (10, 12; 10, 12A) of an electrical power track have track conductors (14-22) which are situated at adjoining ends of the sections, and are arranged in cooperating overlapping relationship. The sections are held together by a connector having a lid (30) pivotally attached to a base (28). The lid is latchable to the base to sandwich the adjoining ends of the sections therebetween so as to assist in maintaining the cooperating relationship between the track conductors.

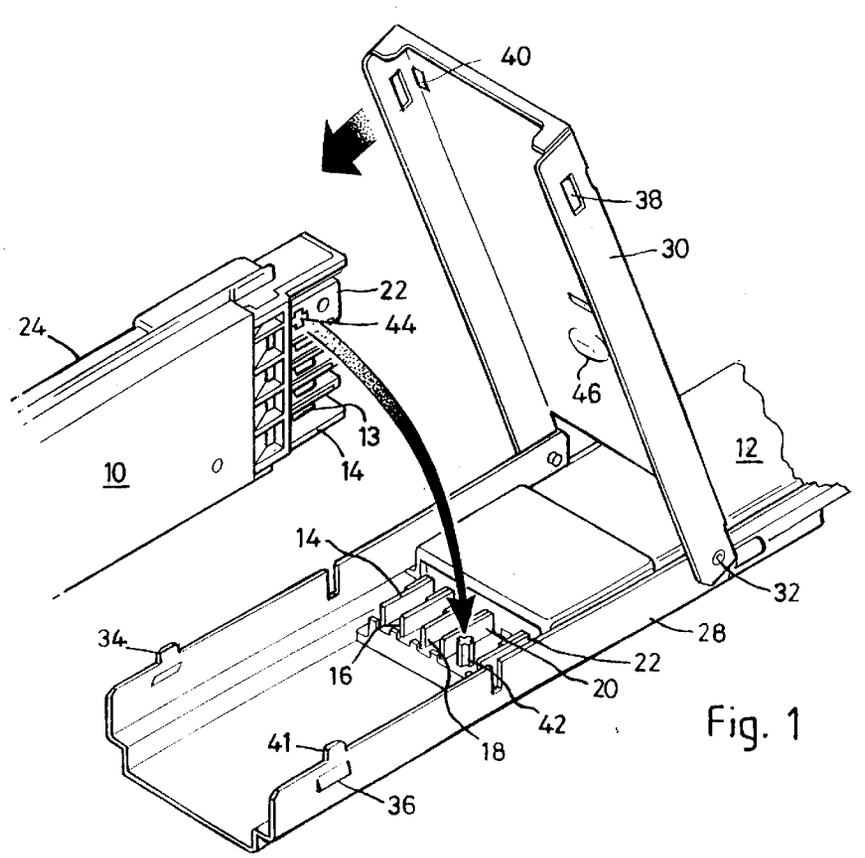


Fig. 1

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## Description

### Field of the Invention

**[0001]** This invention relates generally to power tracks and more especially to a connector for two set ions of power track and to a power track system utilising said connector.

### Background to the Invention

**[0002]** Power tracks, sometimes known as busways, are commonly used in buildings for the underfloor distribution of power, often both normal power and clean power. It is convenient to manufacture the power track in predetermined lengths, hereinafter called sections, which have to be interconnected end to end, in conjunction with junction sections, tap-offs, etc., in order to provide power distribution throughout the building.

### The Invention

**[0003]** According to one aspect of the invention, there is provided a connector for two sections of power track, comprising an elongate base member for receiving into opposite ends thereof the end regions of two sections of power track, with the track conductors at the end of one section overlapping in cooperating relationship with the track conductors at the end of the other section, and a lid member which is latchable to the base member to assist in maintaining the cooperating relationship between the overlapping track conductors and to ensure line continuity.

**[0004]** The term "section" (of power track) as used herein includes, for example, a short section of track which extends from a junction box or terminal box, for example, wherein the track connects to a power supply cable.

**[0005]** The base member and the lid member are preferably both channel shaped, and preferably the lid member, with channel inverted, fits relatively closely over the base member channel.

**[0006]** In a preferred arrangement, one end of the lid member is riveted or crimped to one end of the base member, so as to be pivotable into and out of its latched condition. In this case, it is preferable to locate the latch at or adjacent the other end of the base of the lid member.

**[0007]** A preferred latch comprises a resilient formation on one member snapping into a slot or depression in the other member.

**[0008]** Assuming the use of base and lid member channels pivotally interconnected at one end, latches are preferably provided adjacent the opposite ends of the members, on the side flanges of the channels. The resilient formations are preferably provided on the base member, so as to be releasable by insertion of a suitable tool through adjacent apertures in the base wall of the closed down lid member.

**[0009]** Conveniently, the lid member, at an intermediate point in its length which in use aligns with the casing of the track section extending past the latches, is provided with an indentation or dimple which in use serves to clamp the two track sections together. Assuming at least the lid member to be made of metal, the dimple also ensures continuity of an earth line provided by the track casings. When the track sections provide for both normal and clean power supplies, an internal conductor will be provided for the clean earth line, but the track casings will provide the earth line for the normal power supply. In this case, the base and lid members must provide the connection between the casings of the two track sections to be interconnected, and the aforesaid indentation or dimple is important for this purpose.

**[0010]** The underside of the base member channel may conveniently be provided with tabs which lock the base member to the end region of at least one of the track sections.

**[0011]** According to a second aspect of the invention, there is provided a power track system comprising a power track formed in sectional lengths, adjacent sections being interconnectable by a connector which comprises an elongate base member into opposite ends of which the end regions of two track set ions are received with the track conductors at the ends of the two sections in overlapping cooperating relationship, the connector also including a lid member which latches to the base member to assist in maintaining the cooperating relationship between the track conductors and to ensure line continuity.

**[0012]** Further features of the connector have already been described.

**[0013]** Preferably, the overlapping regions of the track conductors, generally in the form of conductive strips, have cooperating formations, whereby to assist in maintaining continuity of the respective live, neutral and earth conductors.

**[0014]** A preferred track has five internal conductors providing for normal and clean power supplies, including an earth line for the clean power supply, and a casing providing an earth line for the normal supply. Continuity of the earth conductor for the normal power supply is preferably aided by the aforesaid indentation or dimple in the lid member which in use serves to clamp the overlapping end regions of the two track sections together. Track sections are preferably coded, as by means of matching cross-sectionally shaped pegs and holes, whereby to ensure that only track sections of the same current ratings can be interconnected.

### Description of Embodiment

**[0015]** The invention is further described with reference to the accompanying drawings, in which:-

Figure 1 is a perspective view showing the end re-

gions of two sections of power track in course of interconnection by means of a connector in accordance with the invention;

Figure 2 shows the two track section end regions and the connector in side elevational view, with the lid member open;

Figure 3 is a corresponding plan view;

Figure 4 is a longitudinal cross-sectional view;

Figure 5 is another side elevational view, but with the lid member closed;

Figure 6 is an underside view; and

Figure 7 shows the connector in use adjacent a junction box.

**[0016]** Referring to the drawings, the end regions of two track sections 10, 12 to be interconnected have conductors 14 to 22, in the form of conductive strips, projecting at their ends. Typically conductors 14, 16 are live and neutral conductors for a normal or standard power supply, conductors 18, 20 are conductors for a clean power supply, and conductor 22 provides the earth line for the clean power supply. The casings 24 of the two track sections provide an earth line for the normal power supply.

**[0017]** The two track sections are interconnected by a connector 26 which comprises a channel-shaped, elongate bar member 28 and a channel-shaped, elongate lid member 30 which, channel inverted, fits relatively closely over the base member channel.

**[0018]** The two track sections 10, 12 are positioned on the base member with their respective conductive strips 14 to 22 in overlapping, cooperating relationship. Good electrical connections are achieved by the provision of resilient lips 13 on the overlapping conductors or strips. The base member 28 is fixed to the power track, as referred to later.

**[0019]** The lid member side flanges are rivetted to the side flanges of the base member at one end, as shown at 32. The lid member thus pivotally closes to the base member, about the pivot axis established by the rivets, to latch tightly thereto at latches 34, which each comprise formations in the form of resilient louvre-type tabs 36 on the side flanges of the base member and slots 38 in the side flanges of the lid member. Apertures 40 in the base wall of the lid member channel enable insertion of a suitable tool to depress the resilient formations 36 and thereby release the lid member for opening. Tabs 41 on the base member project upwardly into the apertures 40 and require to be levered aside before the resilient formations can be depressed.

**[0020]** Pegs 42 and holes 44 provided on the ends of the track sections, coded by means of their cross-sectional shapes, ensure that only track sections of the same current ratings can be interconnected. The pegs and holes are located laterally between the live and neutral conductors 14 to 20 and the clean earth conductor 22 and also assist in locking the two track sections together.

**[0021]** The lid member 30 has in its channel base wall a dimple 46 which, when the lid member is latched down in its closed condition, engages the casing 24 of the track section 10 to clamp the two track sections together and ensure continuity of the earth line for the normal power supply.

**[0022]** Additionally, the underside of the base member 28 channel is provided with tabs 48 (see Figure 6) which fold up to lock the base member to the end regions of the power track. The base member 28 is also crimped to the power track section 12 at 50.

**[0023]** Figure 7, wherein similar reference numerals are used for similar parts, shows the connector in use adjacent a junction or terminal box 52, wherein a short section of track 12A connects with a power supply cable 54.

**[0024]** The invention is not limited to a connector for a dual supply power track. Moreover, possible modifications of the above-described arrangement include that of a lid member which latches to the base member at both ends, in which case clamping dimples may be provided on the lid member for engaging the casings of both track sections. However, the invention is also not limited to a system in which the track casings provide an earth line.

## Claims

1. A connector for two sections of power track, the connector comprising an elongate base member for receiving into opposite ends thereof the end regions of two sections of power track, with the track conductors at the end of one section overlapping in cooperating relationship with the track conductors at the end of the other section, and a lid member which is latchable to the base member to assist in maintaining the cooperating relationship between the overlapping track conductors and to ensure line continuity.

2. A connector according to claim 1, in which the base member and the lid member are both channel shaped.

3. A connector according to claim 2, in which the lid member, with channel inverted, fits relatively closely over the base member channel.

4. A connector according to any of the preceding claims, in which one end of the lid member is riveted or crimped to one end of the base member, so as

to be pivotable into and out of its latched condition.

**5.** A connector according to claim 4, in which the lid is latchable to the base member by means of a latch located at or adjacent the other end of the base or the lid member.

**6.** A connector according to claim 5, in which the latch comprises a resilient formation on one member snapping into a slot or depression in the other member.

**7.** A connector according to claim 2, in which the lid member is latchable to the base member by means of latches provided adjacent the opposite ends of the members, on the side flanges of the channels.

**8.** A connector according to any of claims 5 to 7, in which the or each latch includes a resilient formation provided on the base member, so as to be releasable by insertion of a suitable tool through an adjacent aperture in the base wall of the closed down lid member.

**9.** A connector according to any of the preceding claims, in which the lid member, at an intermediate point in its length which in use aligns with the casing of a track section extending between the lid and base members, is provided with an indentation or dimple which in use serves to clamp the two track sections together.

**10.** A connector according to any of the preceding claims, in which the lid member is made of metal.

**11.** A connector according to claim 2, in which the underside of the base member channel is provided with tabs which lock the base member to the end region of at least one of the track sections.

**12.** A power track system comprising a power track formed in sectional lengths, the ends of adjacent sections of the power track having track conductors arranged in overlapping, cooperating relationship, the sections being connected together by a connector in accordance with any of the preceding claims.

**13.** A power track system comprising a power track formed in sectional lengths, adjacent sections being interconnectable by a connector which comprises an elongate base member into opposite ends of which the end regions of two track sections are received with the track conductors at the ends of the two sections in overlapping cooperating relationship, the connector also including a lid member which latches to the base member to assist in maintaining the cooperating relationship between the track conductors and to ensure line continuity.

**14.** A system according to claim 13, in which the overlapping regions of the track conductors, generally in the form of conductive strips, have cooperating formations, whereby to assist in maintaining continuity of the respective live, neutral and earth conductors.

**15.** A system according to claim 13 or claim 14, in which the power track has five internal conductors providing for normal and clean power supplies, including an earth line for the clean power supply, and a casing providing an earth line for the normal supply.

**16.** A system according to claim 15, in which continuity of the earth conductor for the normal power supply is aided by an indentation or dimple in the lid member which in use serves to clamp the overlapping end regions of the two track sections together.

**17.** A system according to any of claims 13 to 16, in which the track sections are coded, as by means of matching cross-sectionally shaped pegs and holes, whereby to ensure that only track sections of the same current ratings can be interconnected.

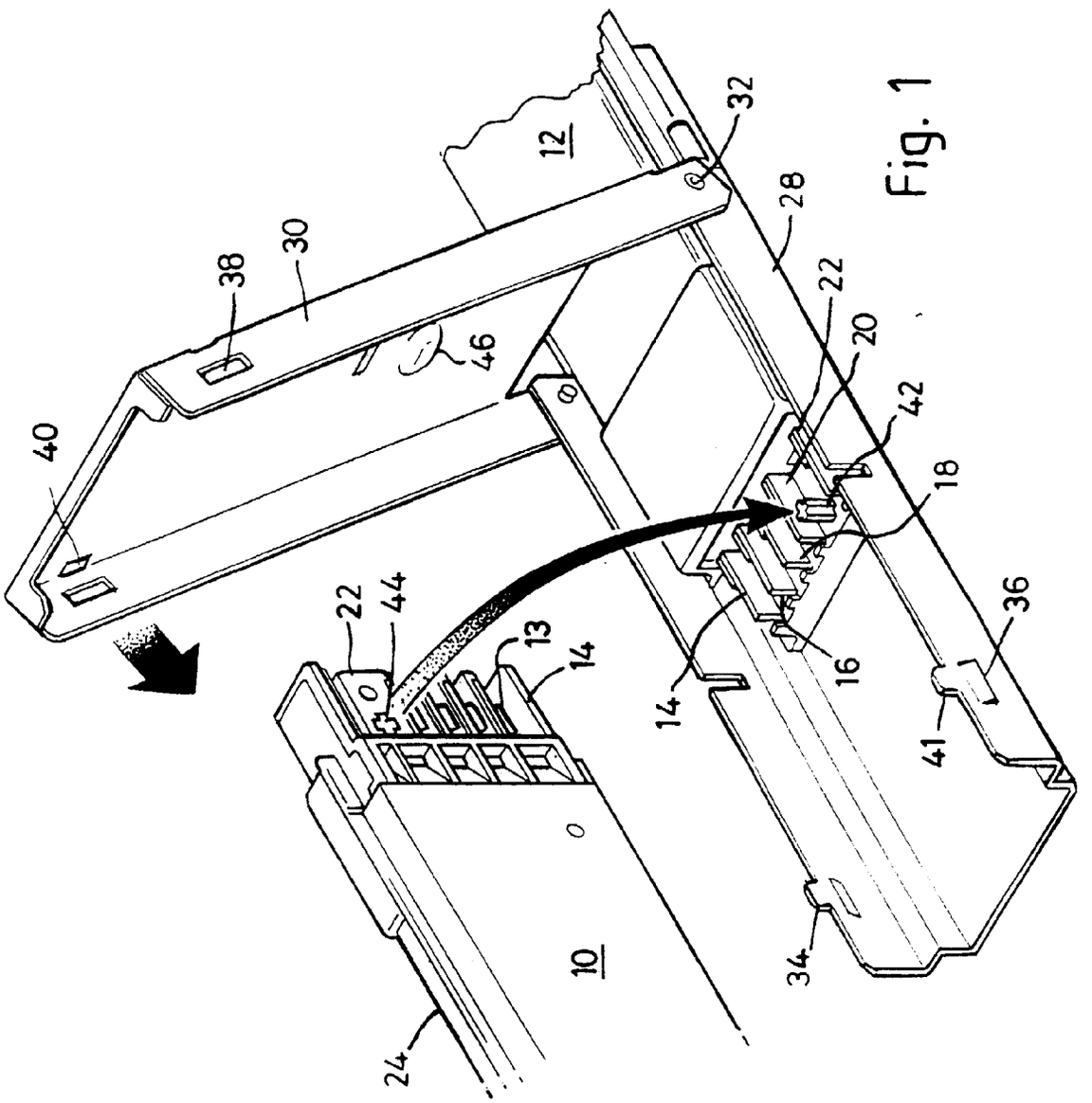


Fig. 1

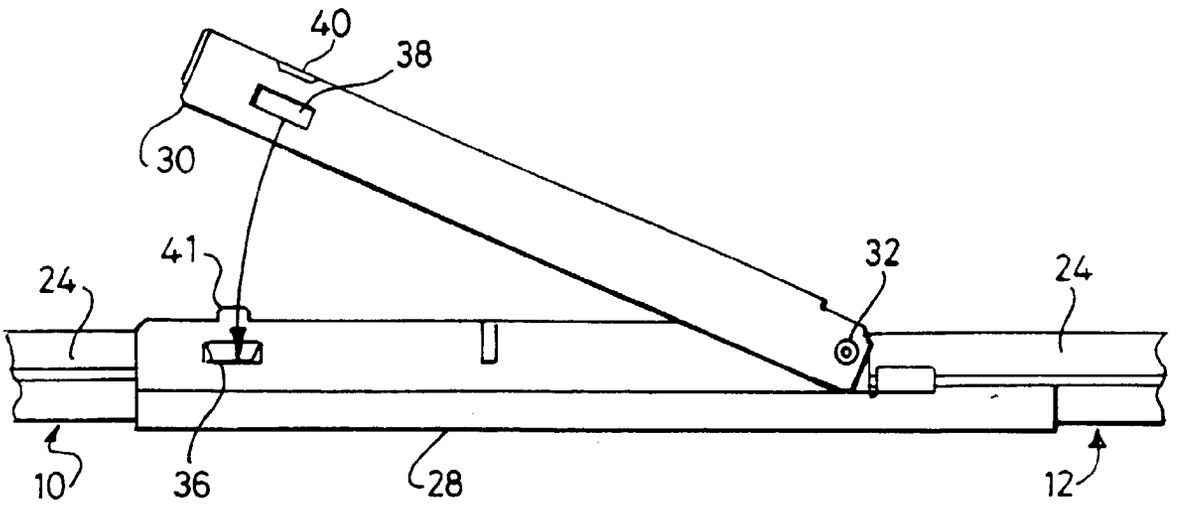


Fig. 2

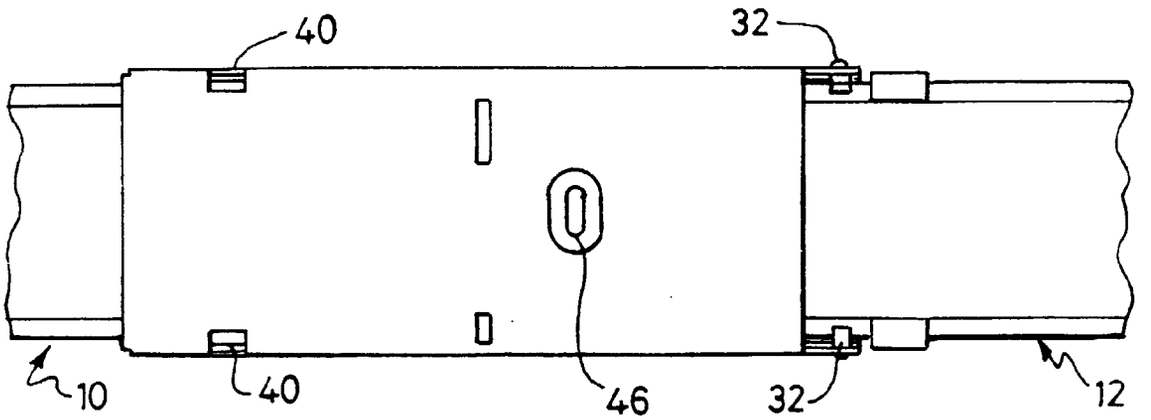


Fig. 3

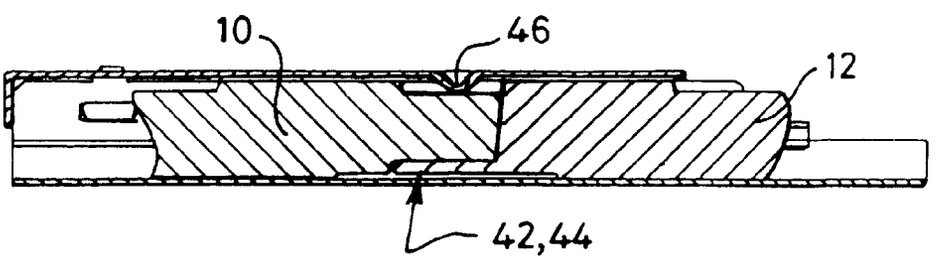


Fig. 4

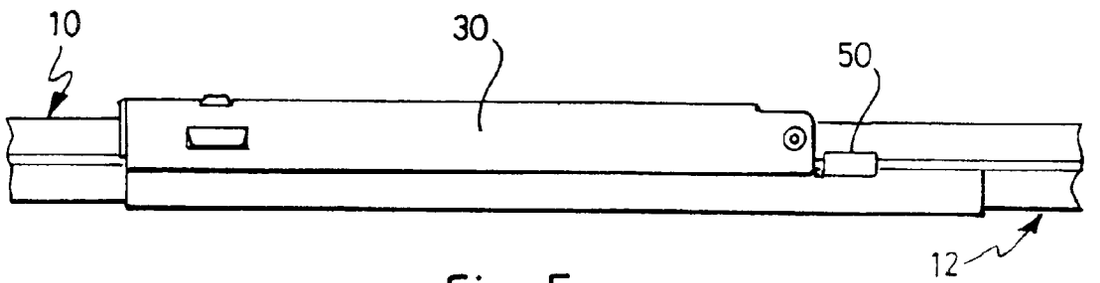


Fig. 5

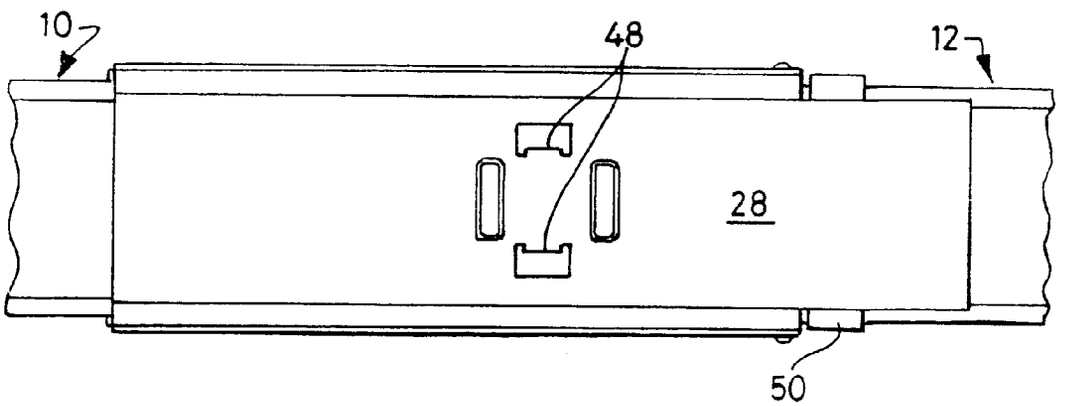


Fig. 6

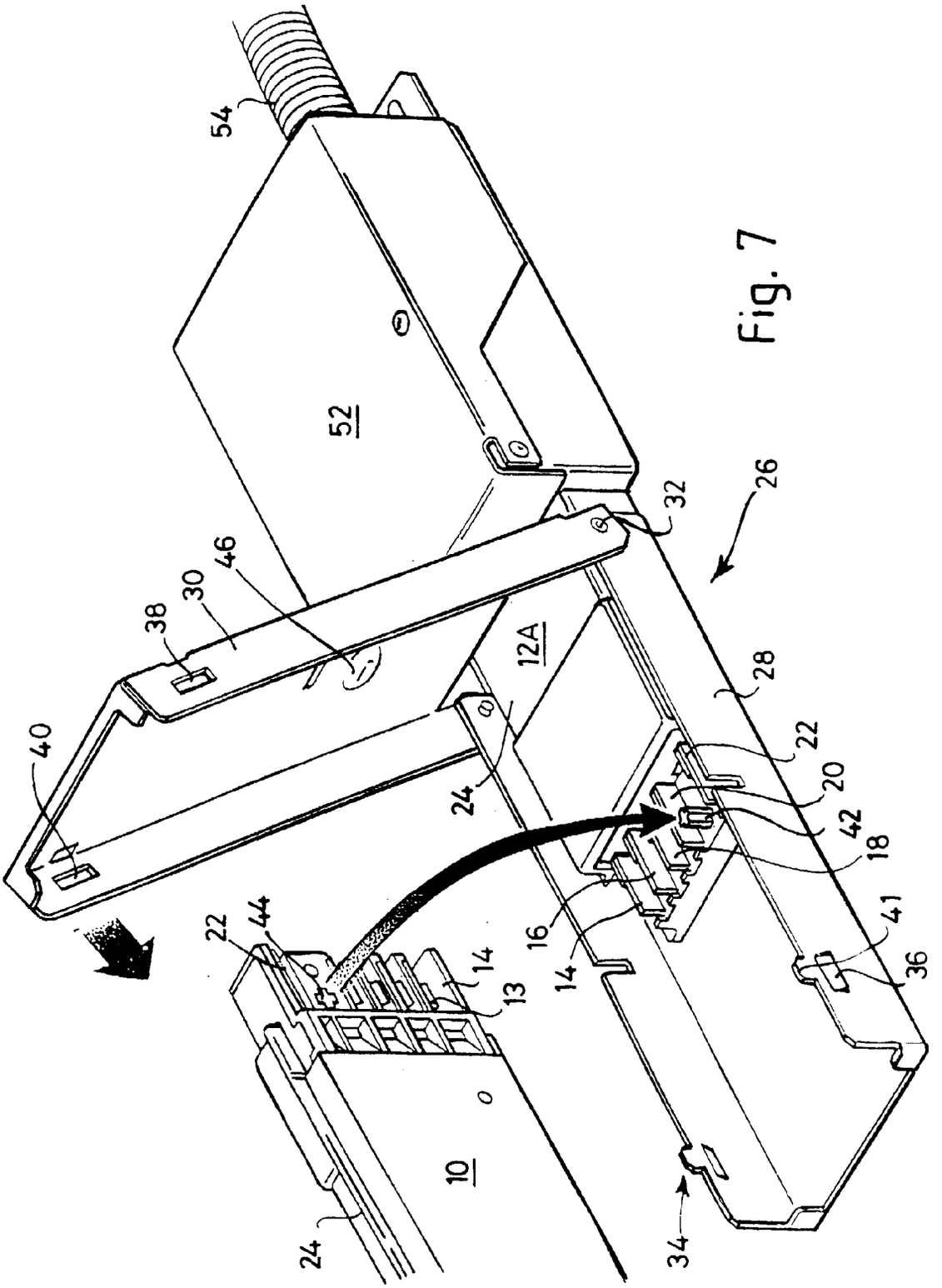
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Fig. 7

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# EUROPEAN SEARCH REPORT

Application Number
EP 98 30 8137

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TECHNICAL FIELDS SEARCHED (Int.Cl.6)

H01R

The present search report has been drawn up for all claims

| Place of search | Date of completion of the search | Examiner |
|---|---|---|
| THE HAGUE | 15 January 1999 | Serrano Funcia, J |

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## ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 98 30 8137

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