

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 332030	FOR FURTHER ACTION		See Form PCT/IPEA/416
International application No. PCT/ES2024/070731	International filing date (<i>day/month/year</i>) 21.11.2024	Priority date (<i>day/month/year</i>) 23.11.2023	
International Patent Classification (IPC) or national classification and IPC INV. H02G3/06			
Applicant Unex Aparellaje Electrico S.L.			
1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36. 2. This REPORT consists of a total of <u>6</u> sheets, including this cover sheet. 3. This report is also accompanied by ANNEXES, comprising: a. ☒ a total of <u>25</u> sheets, as follows: ☒ sheets of the description, claims and/or drawings which have been amended and/or sheets containing rectifications authorized by this Authority, unless those sheets were superseded or cancelled, and any accompanying letters (see Rules 46.5, 66.8, 70.16, 91.2, and Section 607 of the Administrative Instructions). ☐ sheets containing rectifications, where the decision was made by this Authority not to take them into account because they were not authorized by or notified to this Authority at the time when this Authority began to draw up this report, and any accompanying letters (Rules 66.4bis, 70.2(e), 70.16 and 91.2). ☐ superseded sheets and any accompanying letters, where this Authority either considers that the superseding sheets contain an amendment that goes beyond the disclosure in the international application as filed, or the superseding sheets were not accompanied by a letter indicating the basis for the amendments in the application as filed, as indicated in item 4 of Box No. I and the Supplemental Box (see Rule 70.16(b)). b. ☐ a separate electronic file containing a sequence listing (<i>sent to the International Bureau only</i>)			
4. This report contains indications relating to the following items: ☒ Box No. I Basis of the report ☐ Box No. II Priority ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability ☐ Box No. IV Lack of unity of invention ☒ Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement ☐ Box No. VI Certain documents cited ☐ Box No. VII Certain defects in the international application ☐ Box No. VIII Certain observations on the international application			
Date of submission of the demand 21.09.2025		Date of completion of this report 24.10.2025	
Name and mailing address of the international preliminary examining authority:  European Patent Office P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk - Pays Bas Tel. +31 70 340 - 2040		Authorized officer Marinov, Kolyo Telephone No. +31 70 340-2880	



INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.
PCT/ES2024/070731

Box No. I Basis of the report

1. With regard to the **language**, this report is based on
- ☒ the international application in the language in which it was filed
 - ☐ a translation of the international application into , which is the language of a translation furnished for the purposes of:
 - ☐ international search (under Rules 12.3(a) and 23.1(b))
 - ☐ publication of the international application (under Rule 12.4(a))
 - ☐ international preliminary examination (under Rules 55.2(a) and/or 55.3(a) and (b))
2. With regard to the **elements*** of the international application, this report is based on (*replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report*):

Description, Pages

1-12	filed with the letter of	21-09-2025
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Claims, Numbers

1-14	filed with the letter of	21-09-2025
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Drawings, Sheets

1-15	as originally filed
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- ☐ a sequence listing - see Supplemental Box Relating to Sequence Listing.
3. ☐ The amendments have resulted in the cancellation of:
- ☐ the description, pages
 - ☐ the claims, Nos.
 - ☐ the drawings, sheets/figs
 - ☐ the sequence listing (*specify*):
4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since either they are considered to go beyond the disclosure as filed, or they were not accompanied by a letter indicating the basis for the amendments in the application as filed, as indicated in the Supplemental Box (Rules 70.2(c) and (c-bis)):
- ☐ the description, pages
 - ☐ the claims, Nos.
 - ☐ the drawings, sheets/figs
 - ☐ the sequence listing (*specify*):
5. ☐ This report has been established:
- ☐ taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rules 66.1(d-bis) and 70.2(e)).
 - ☐ without taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91(Rules 66.4bis and 70.2(e)).

**INTERNATIONAL PRELIMINARY REPORT
ON PATENTABILITY**

International application No.
PCT/ES2024/070731

6. ☒ With regard to top-up searches (Rules 66.1 *ter* and 70.2(f)):
- ☒ A top-up search was carried out by this Authority on 09.10.2025 (all discovered documents are listed in the Supplemental Box Relating to Top-up Search).
 - ☐ Additional relevant documents have been discovered during the top-up search.
 - ☐ No top-up search was carried out by this Authority because it would serve no useful purpose.
7. ☐ Supplementary international search report(s) from Authority(ies) has/have been received and taken into account in establishing this report (Rule 45bis.8(b) and (c)).

* If item 4 applies, some or all of those sheets may be marked "superseded".

Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	<u>1-14</u>
	No: Claims	
Inventive step (IS)	Yes: Claims	<u>1-14</u>
	No: Claims	
Industrial applicability (IA)	Yes: Claims	<u>1-14</u>
	No: Claims	

2. Citations and explanations (Rule 70.7):

see separate sheet

1 **Re Item V**

Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1.1 Reference is made to the following documents:

- | | |
|----|---|
| D1 | US 2003/177628 A1 (VIKLUND MARK [US]) 25 September 2003 (2003-09-25) |
| D2 | US 4 954 015 A (MCGOWAN VINCE J [CA]) 4 September 1990 (1990-09-04) |
| D3 | US 2004/218970 A1 (CAVENEY JACK E [US] ET AL) 4 November 2004 (2004-11-04) |
| D4 | EP 4 123 856 A1 (ALBERTINI DIAFERIA FLAVIO [BR]) 25 January 2023 (2023-01-25) |
| D5 | US 2003/183732 A1 (NAULT GARY F [US] ET AL) 2 October 2003 (2003-10-02) |
| D6 | US D 954 655 S (PLATT EVAN [US] ET AL) 14 June 2022 (2022-06-14) |

1.2 **Basis for Amendments (Article 34(2)(b) PCT)**

- 1.2.1 The claims have not been amended. Independent claim 15 has been deleted. The amendments of the claims therefore fulfil the requirements of Article 34(2) (b) PCT.
- 1.2.2 The amendments to the documents have the following base in the originally filed application:
- claim 1: original claim 1
 - claims 2-14: original claims 2-14.

1.3 **Novelty (Article 33(2) PCT)**

- 1.3.1 D1 is regarded as being the prior art closest to the subject-matter of claim 1, and shows (the references in parentheses applying to this document, missing features are in strike-through font, additions are underlined):
- 1.3.2 An assembly for coupling two cable channels, comprising:
- a first cable channel and a second cable channel made of a polymer material, each of them comprising a segment having a U-shaped section, with a bottom

wall, two opposing side walls, an open upper face, and at least one open end (§15-§19, fig. 6-10); and

- a coupling device for coupling said first and second cable channels to one another (§15, fig. 1-4, 9, 10), said coupling device being in the form of a straight channel in a longitudinal direction, with a U-shaped section, with a bottom wall, two opposing side walls, an open upper face, and two opposing open ends (joiner 10, fig. 14, 9, 10); said coupling device comprising, along the perimeter of each of said open ends, a housing in which said open end of the first and second cable channels is introduced in said longitudinal direction, for coupling them to said coupling device, such that said first and second cable channels and said coupling device form a continuous channel in said longitudinal direction (§15, slots 24, fig. 1-4, 9, 10); said coupling device further comprising, in each of its two side walls, a movable pressing body and an actuator that can be manually operated to move said pressing body to a blocking position, in which said pressing body is supported with pressure on one of the side walls of each of the first and second cable channels, at the open end introduced into said housing, thereby blocking the coupling of said first and second cable channels with said coupling device (§24-§28, fig. 9, 10, actuators 230, 330); ~~characterized in that said pressing body is a rigid plate made of a polymer material having, at one end, a first support surface extending in a plane in at least said longitudinal direction and, at an opposing end, a second support surface extending in a plane in at least said longitudinal direction, such that, in said blocking position, each of said first support surface and second support surface is flatly supported with pressure on the side wall of each of the first and second cable channels, at the open end introduced into each of said housings, thereby creating a friction force on said side wall which blocks the movement of said open end in said housing.~~

The subject-matter of claim 1 therefore differs from this known assembly in that:

F1: said pressing body is a rigid plate made of a polymer material

F2: having, at one end, a first support surface extending in a plane in at least said longitudinal direction and, at an opposing end, a second support surface extending in a plane in at least said longitudinal direction

F3: such that, in said blocking position, each of said first support surface and second support surface is flatly supported with pressure on the side wall of each of the first and second cable channels, at the open end introduced into each of said housings, thereby creating a friction force on said side wall which blocks the movement of said open end in said housing.

The subject-matter of claim 1 is therefore novel (Article 33(2) PCT).

1.4 Inventive step (Article 33(3) PCT):

1.4.1 Closest prior art

D1 is considered the closest prior art because it discloses an assembly for coupling cable channels that serves a similar purpose and shares most features with the subject-matter of claim 1. D1 is also from the same technical domain of cable management systems.

1.4.2 Technical effect and problem to be solved

The distinguishing features of claim 1, particularly the rigid plate with two flat support surfaces, result in the technical effect of providing a simpler and more efficient coupling device that avoids damaging the surface of the cable channels while maintaining robust blocking effectiveness.

The problem to be solved by the present invention is how to provide an assembly for coupling cable channels that avoids damaging the surface of the cable channels, without reducing blocking effectiveness, and with a simple and efficient coupling device.

1.4.3 Solution

The distinguishing features solve this technical problem because the rigid plate transmits force directly to the side walls of the cable channels without deformation. This provides better blocking effectiveness and avoids damage to the cable channels, as the flat support surfaces distribute the pressure evenly.

1.4.4 Why is it inventive

The subject-matter of independent claim 1 is inventive for the following reasons:

When attempting to solve the objective problem starting from D1 as the closest prior art, a skilled person would consider the teachings of D3.

D3 addresses a similar technical problem but teaches a solution involving a tongue with barbed ends that bite into the cable channels (see D3, fig. 1-4), which is fundamentally different from the rigid plate with flat support surfaces claimed in the present application. Combining the teachings of D1 and D3 would not lead to the claimed solution, as D3 teaches away from using a rigid plate with flat support surfaces.

1.5 Claims 2-14 are dependent on claim 1 and as such also meets the requirement of the PCT with respect to novelty and inventive step.

Online filing

EUROPEAN PATENT OFFICE
80298 MUNICH
GERMANY

Our Ref.: 332030

Barcelona, September 21, 2025

Re: PCT International Application No. PCT/ES2024/070731

Applicant: UNEX APARELLAJE ELECTRICO S.L.

International Preliminary Examination demand (PCT Chapter II).

Accompanying letter (including identification of amendments and arguments as a formal response to the written opinion).

Dear Sir, dear Madam,

This letter is submitted as an accompanying letter for the International Preliminary Examination demand (Art. 31 PCT) filed for the above-captioned PCT International Application.

The demand is filed before the European Patent Office (EPO) in its capacity of competent International Preliminary Examining Authority (IPEA).

The written opinion (WO) previously established by the EPO as the International Searching Authority (ISA) is considered to be a written opinion of the IPEA (Rule 6.1bis PCT).

Amended description and claims are filed under Art. 34 PCT.

This letter contains an identification of the amendments with an indication of its basis (Rules 66.8 and 46.5 PCT), as well as arguments as a formal response to the written opinion (Rules 6.1bis and 66.3 PCT).

1 - REFERENCED DOCUMENTS

Reference is made to the relevant documents cited in the International Search Report and the written opinion of the ISA:

D1: US2003177628A1

D2: US4954015A

D3: US2004218970A1

D4: EP4123856A1

D5: US2003183732A1

2 - AMENDMENTS

Amended description and claims are submitted.

In order to clearly identify the amendments, the amended description and claims are also attached in an annotated format, in which deleted text is barred and added text is underlined. Please note that the annotations are made with respect to the English translation of the application as originally filed.

The identification of the amendments indicated below (page and line) refer to said annotated format.

Claims

- Claim 15 has been suppressed.

Description

- Page 2 lines 17-20: document D1 have been cited as prior art.

Any suppression in the description and claims is made without prejudice to the later filing of amendments or divisional applications supported on any aspect contained in the suppressed parts.

3.- NOVELTY AND INVENTIVE STEP

Novelty

None of the documents cited as relevant prior art in the International Search Report and in the written opinion discloses an assembly comprising all the technical features of claim 1.

In particular, none of these documents disclose the distinctive features defined in the characterising part of claim 1:

- the pressing body (12) is a rigid plate made of a polymer material having, at one end, a first support surface (14) extending in a plane in at least the longitudinal direction (L) and, at an opposing end, a second support surface (15) extending in a plane in at least said longitudinal direction (L), such that, in the blocking position, each of said first support surface (14) and second support surface (15) is flatly supported with pressure on the side wall (3) of each of the first and second cable channels (1A, 2A), at the open end (5) introduced into each of the housings (11), thereby creating a friction force on said side wall (3) which blocks the movement of said open end (5) in said housing (11).

Concerning **D1**, the analysis contained in the WO (point 1.1) is based on the embodiments shown in Figs. 9 and 10 of D1. This analysis identifies the raised member 20 as being the rigid plate which constitutes the pressing body (12) of claim 1, and the pads 260 (Fig. 9) and

340 (Fig. 10) as being the two support surfaces (14, 15) of said pressing body (12).

We respectfully disagree with this analysis, for the reasons explained here below.

According to claim 1, the pressing body (12) is a rigid plate which has two support surfaces (14, 15). Each of said support surfaces (14, 15) extends in a plane in at least the longitudinal direction (L) and is flatly supported with pressure on the side wall (3) of each of the first and second cable channels (1A, 2A). It is important to note that the two support surfaces (14, 15) belong to the same plate, which is rigid and constitutes the pressing body (12).

By contrast, in D1:

- The raised member 20 cannot be at the same time the pressing body (12) and a rigid plate having the two support surfaces (14, 15) as defined in claim 1.
- The raising member 20 is not the rigid plate which constitutes the pressing body (12) of claim 1. The rising member 20 of D1 is equivalent to the body which forms the housing (11) of the coupling device (6), in which the open end (5) of the first and second cable channels (1A, 1B) is introduced in the longitudinal direction (L). More precisely, the rising member 20 forms a slot 24, which is the housing (11) recited in claim 1.
- The raising member 20 is not moved by the actuator. Only the two pads 260 (Fig. 9), or the two pads 340 (Fig. 10), are moved by the actuator. The set of two pads 260, or two pads 340, has the function of the pressing body (12) of D1 in the sense that the pads exert a pressure on the end of the cable channel to block its movement in the slot 24. However, the set of pads 260 or 340 is not a single rigid plate as defined in claim 1. Each pad 260 or 340 must have a relative movement with respect to the rising member 20 to exert pressure on the end of the cable channel inserted into the slot 24.
- In fact, the pads 260, 340 are made of rubber or metal, and each pad 260, 340 extends through the raised member 20 and protrudes into the slot 24 (see

paragraphs [0022]- [0027] of D1). In the embodiments shown in Figs. 9 and 10, the pads 260, 340 are formed on a tongue that is cut into the wall of the raised member 20 and that experiences a flexing when pressed by the actuator. As discussed above, the raised member 20 does not move, only the pads 260, 340 are moved by the actuator.

- The pads 260, 340 are not an integral portion of the raised member 20. Indeed, the ducting joiner 10, which comprises the raised member 20, is made of molded plastic (see paragraph [0015] of D1), whereas the pads 260, 340 are made of rubber or metal (see paragraphs [0023] and [0027] of D1). Even if the pads 260, 340 were considered to be part of the raised member 20, then the raised member 20 would not be rigid plate since, as discussed above, Each pad 260 or 340 must have a relative movement with respect to the rising member 20 to exert pressure on the end of the cable channel inserted into the slot 24.

D2 and **D4** do not disclose any coupling device comprising a pressing body and an actuator as defined in claim 1.

In **D3** the pressing body of the coupling device is not a rigid plate, but a tongue with barbed ends. This is the same technical solution already discussed as prior art in the description in relation to EP1606866B1.

In **D5** the coupling device is based on a system of springs and fingers that causes a snap-fit connection with the end of the cable channel.

Therefore, claim 1 is novel over each of D1-D5.

Inventive step

D1 can be considered the closest prior art to the subject-matter of claim 1 since it discloses an assembly of the type defined in the preamble of claim 1.

The subject-matter of claim 1 differs from the composite dowel disclosed in D1 at least in

the distinctive technical features defined in the characterizing part of the claim:

- the pressing body (12) is a rigid plate made of a polymer material having, at one end, a first support surface (14) extending in a plane in at least the longitudinal direction (L) and, at an opposing end, a second support surface (15) extending in a plane in at least said longitudinal direction (L), such that, in the blocking position, each of said first support surface (14) and second support surface (15) is flatly supported with pressure on the side wall (3) of each of the first and second cable channels (1A, 2A), at the open end (5) introduced into each of the housings (11), thereby creating a friction force on said side wall (3) which blocks the movement of said open end (5) in said housing (11).

These distinctive technical features have the following technical effect (see page 3 lines 3-6) of the description: The flat support, through the support surfaces, allows the actuator to exert, on the pressing body formed by the rigid plate, a significant force which is transmitted directly by the rigid plate to press on the side wall of the cable channel without causing damage to its surface. Since the pressing body is a single rigid plate which comprises the two support surfaces, the actuator only moves this rigid plate as a block.

By contrast, in D1 the actuator must move each of the pads 260, 340 relatively to the raised member 20 and therefore it must have a more complex structure. Moreover, the pads 260, 340 must be deformed to exert pressure on the first and second cable channels. Therefore, the force of the actuator is not directly transmitted, a portion of this force being absorbed by the pads 260, 340. In addition, if the pads 260, 340 are made of metal or rubber, whereas the raised member 20 is made of molded plastic as indicated in D1, the pads 260, 340 must be attached to the raised member 20, which complicates manufacturing of the coupling device. On the other hand, if the pads 260, 340 are made of metal, the device has the same problem discussed in the application for EP1606866B1: the metal can cause a permanent damage on the surface of the cable channels. This problem is solved if metal is substituted by rubber, which is an option indicated in D1, but the drawbacks indicated above subsist.

The objective technical problem solved by the invention according to claim 1 consists in how to provide an assembly of the type defined in the preamble of claim 1, without reducing

blocking effectiveness and with a simple and efficient coupling device.

None of the documents cited in the International Search Report and the written opinion contain any indication or suggestion which would (not could, but would) induce the skilled person to modify the assembly described in D1 by incorporating the distinctive technical features of claim 1 with the aim to obtain the technical effect described above.

It must be noted that in D1 the pads 360, 340 cannot be made rigid and integral with the raised member 20 because, as discussed above, in D1 the raised member 20 is not moved by the actuator; only the pads 360, 340 are moved with respect to the raised member 20. To arrive at the configuration defined in claim 1, the coupling device of D1 should be completely redesigned.

Therefore, starting from D1 and faced to the objective technical problem, even if a skilled person were to consider any of the documents belonging to the prior art, he/she would not arrive at the claimed invention without performing an inventive step.

Claim 1 is thus inventive over D1-D5.

Claims 2 to 14 are depended on claim 1. Therefore, they share its novelty and inventive step.

4.- CONCLUSION AND REQUEST

The amended application is believed to meet all the requirements of Art. 33 (2) (3) (4) PCT.

Therefore, the applicant looks forward for a favourable opinion from the International Preliminary Examination Authority (IPEA).

Should the IPEA has further objections, the applicant respectfully requests an additional opportunity to submit amendments and arguments pursuant to Rule 66.4(b) PCT.

Yours faithfully,

A handwritten signature in black ink, appearing to be 'R. Galard', written over a horizontal line.

Roberto Roser Galard
European Patent Attorney
CURELL SUÑOL S.L.P.

Encl.:

- amended description and claims, clean version;
- amended description and claims, annotated version.

ASSEMBLY FOR COUPLING TWO CABLE CHANNELS AND CORRESPONDING
COUPLING DEVICE

DESCRIPTION

5

Field of the Invention

The invention is comprised in the field of cable channels that are typically used for guiding cables in a space. The invention is applicable particularly, although not exclusively, for guiding
10 bundles of fiber optic cables and other cables in data centers.

More specifically, the invention relates to an assembly for coupling two cable channels, comprising:

- a first cable channel and a second cable channel made of a polymer material, each of them
15 comprising a segment having a U-shaped section, with a bottom wall, two opposing side walls, an open upper face, and at least one open end; and
- a coupling device for coupling said first and second cable channels to one another, said coupling device being in the form of a straight channel in a longitudinal direction, with a U-shaped section, with a bottom wall, two opposing side walls, an open upper face, and two
20 opposing open ends; said coupling device comprising, along the perimeter of each of said open ends, a housing in which said open end of the first and second cable channels is introduced in said longitudinal direction, for coupling them to said coupling device, such that said first and second cable channels and said coupling device form a continuous channel in said longitudinal direction; said coupling device further comprising, in each of its two side walls,
25 a movable pressing body and an actuator that can be manually operated to move said pressing body to a blocking position, in which said pressing body is supported with pressure on one of the side walls of each of the first and second cable channels, at the open end introduced into said housing, thereby blocking the coupling of said first and second cable channels with said coupling device.

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The invention also relates to the coupling device which is part of this assembly.

State of the Art

EP1606866B1 discloses an assembly for coupling two cable channels of the type indicated above. The pressing body of the coupling device is a tongue with barbed ends. The pressing body is supported with pressure on the side wall of the cable channels through the edge of the barbed ends of the tongue. Each of these barbed ends of the tongue forms an acute angle with the side wall of the cable channel, and is oriented such that it does not resist the relative movement of the side wall of the cable channel for coupling same to the coupling device, but blocks its relative movement in the opposite direction, which is necessary to uncouple the cable channel. This blocking is due to the fact that the relative movement of the side wall of the cable channel, in the uncoupling direction, causes the edge of the barbed end of the tongue to latch onto said side wall. This blocking system is effective, but has the drawback that the force exerted by the edge of the barbed end of the tongue can damage the surface of the side wall of the cable channel and leave permanent visible marks on said surface. In practice, cable channels are usually made of a polymer material, the tongue is metal, and the edge of the barbed ends of said tongue has a dentation to better latch onto the surface of the cable channel, whereby the drawback indicated above becomes more prominent.

US2003177628A1 discloses an assembly of the type indicated above, in which the pressing body is composed of pads which can be made of rubber or metal. The pads are formed on a wall of the housing in which the open end of the first and second cable channels is introduced and protrude into a slot of said wall.

Description of the Invention

The purpose of the invention is to provide an assembly for coupling two cable channels of the type indicated above, in which the cable channels are blocked in the coupled position without damaging the surface of the cable channels, and at the same time without reducing blocking effectiveness and complicating the coupling device or increasing its manufacturing cost.

This purpose is achieved by means of an assembly for coupling two cable channels of the type indicated above, characterized in that the pressing body is a rigid plate made of a polymer material having, at one end, a first support surface extending in a plane in at least the longitudinal direction of the coupling device and, at an opposing end, a second support surface extending in a plane in at least said longitudinal direction, such that, in the blocking position, each of the first support surface and second support surface is flatly supported with pressure

on the side wall of each of the first and second cable channels, at the open end introduced into each of the housings, thereby creating a friction force on said side wall which blocks the movement of said open end in said housing. This flat support, through the support surfaces, allows the actuator to exert, on the pressing body formed by the rigid plate, a significant force which is transmitted directly by the rigid plate to press on the side wall of the cable channel without causing damage to its surface. The extension of the support surfaces, particularly in the longitudinal direction, provides a large friction force which opposes the uncoupling movement, thereby providing robust blocking. Advantageously, to obtain this robust blocking, it is sufficient to provide a unit consisting of a pressing body and an actuator in each of the side walls of the coupling device, without the need for providing any blocking system in the bottom wall.

Preferably, in the side walls of the coupling device, the housing is a space delimited laterally by the side wall of the coupling device and by the rigid plate constituting the pressing body, said rigid plate being arranged facing said side wall of the coupling device. This configuration simplifies the construction of the coupling device. Furthermore, it allows the rigid plate constituting the pressing body to have larger dimensions, and the first support surface and the second support surface can also have larger dimensions, whereby a more stable support of said rigid plate on the side wall of the cable channel is obtained.

Preferably, the first support surface and the second support surface are discontinuous and are made up of the ridges of protuberances formed on one face of the pressing body. Higher pressure in the areas where these protuberances contact the side wall of the cable channel, and therefore a more secure blocking, are thereby obtained, but without damaging the surface of said side wall since the protuberances are all supported on the same plane. Preferably, the protuberances are oblong ribs. This solution prevents the creation of point-shaped support areas which may damage the surface. More preferably, the oblong ribs extend in a direction orthogonal to the longitudinal direction, thereby providing a maximum friction force against a relative movement in said longitudinal direction. In the preferred embodiments, there are between two and ten oblong ribs on each of the first and second support surfaces.

Preferably, the actuator is a rotary knob which is supported on the pressing body and is rotatably assembled about a shaft extending from the side wall of the coupling device and going through an opening of said pressing body, such that, when said actuator rotates with

respect to said shaft, said actuator is moved towards the side wall of said coupling device pushing said pressing body. This configuration requires few parts and is particularly robust.

Preferably, the actuator comprises a cylindrical inner wall coaxial with the shaft and a helical track formed by a flange protruding from said cylindrical inner wall; and said shaft comprises at its end at least one trunnion which is supported on said cylindrical inner wall and on said helical track, such that, when said actuator rotates with respect to said shaft, said trunnion slides along said helical track being supported thereon. In this solution, the mechanism formed by the helical track and the trunnion is located entirely inside the actuator, which allows forming a comfortable grip on the outer surface of the actuator so that the user can rotate the actuator. Preferably, the trunnion travels at most one half of a circumference on the helical track, more preferably at most one quarter of a circumference, with respect to the shaft. The user can thereby rotate the actuator easily with one hand and with a single movement to bring the pressing body to the blocking position.

Preferably, a tab which interferes with the trunnion, when said trunnion slides in said helical track, is formed in the helical track, such that said trunnion overcomes said tab by force when said pressing body reaches the blocking position, and such that said tab keeps said pressing body in said blocking position once said trunnion has overcome it by force. This is a simple, sufficiently robust solution to keep the actuator and the pressing body in the blocking position.

Preferably, the coupling device comprises snap-fitting means, different from the housing, which snap-fit with corresponding snap-fitting means of the first and second cable channels, when the open end of each of the first and second cable channels is introduced into said housing for coupling said first and second cable channels to said coupling device. This configuration makes it easier to perform coupling and blocking: the user can first perform the coupling, snap-fitting, as a result, the two cable channels coupled with the coupling device in a stable relative position, and then perform the blocking by manually operating the actuator. It is important to facilitate the assembly operations that must be performed by the user since the cable channels can have large dimensions, which complicates their handling, and can be located in a space that is hard to access for the user.

Preferably, the snap-fitting means of the coupling device are arranged at an upper end of its side walls, opposite its bottom wall, and the snap-fitting means in the first and second cable

channels are arranged at an upper end of its side walls, opposite its bottom wall; and, at least in the bottom wall of the coupling device, the housing is formed by a space delimited between an outer partition and said bottom wall of the coupling device, said outer partition being arranged such that it does not reach the end of said bottom wall of the coupling device in the longitudinal direction. This configuration allows coupling to be performed by first introducing the bottom wall of the cable channel into the housing, with said cable channel slightly inclined, and then rotating the cable channel to introduce the upper end of the side walls into the housing to achieve snap-fitting. This way of performing coupling is easier for the user.

Preferably, the snap-fitting means in the coupling device are two opposing lugs, formed in each of the side walls of the coupling device, extending in the longitudinal direction and having a section that tapers off towards the end thereof; and the corresponding snap-fitting means in the first and second cable channels are a tubular flange at an upper end of each of the side walls of the first and second cable channels, such that each of said lugs is introduced and snap-fitted onto said tubular flange of each of said first and second cable channels. This solution has the advantage of using, to perform snap-fitting, flanges that are typically arranged at the upper end of the side walls of the first and second cable channels and used for other functions, particularly for fixing covers or other elements to the cable channel.

Preferably, the coupling device comprises, at an upper end of each of its side walls, a pin extending in the longitudinal direction and forming at each of the ends thereof one of the lugs. This configuration is particularly robust and allows the user to more easily understand the mode of operation at a glance.

Preferably, the pin comprises a central part separating the lugs, said central part being exposed when the first and second cable channels are coupled to the coupling device, with said lugs being introduced and snap-fitted onto the tubular flange of each of said first and second cable channels. Furthermore, preferably, the assembly comprises a bridge having at its ends claws with a shape complementary to the shape of the central part of the pin, such that said claws removably snap-fit with the central part of the pins and said bridge closes a central segment of the open upper face of the coupling device. This solution allows optionally placing the bridge to confine the cables laid in the cable channels, without altering the geometry of said cable channels.

Preferably, the bridge is formed such that, when snap-fitted through its claws to the central part of the pins, closing a central segment of the open upper face of the coupling device, said bridge does not protrude through said open upper face of the coupling device. This solution has the advantage of the bridge not altering the height of the coupled cable channels.

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The invention also comprises the coupling device, which is part of the assembly described above, considered individually. Therefore, the invention comprises a coupling device for coupling a first cable channel and a second cable channel to one another, said first and second cable channels being made of a polymer material and each of them comprising a segment
10 having a U-shaped section, with a bottom wall, two opposing side walls, an open upper face, and at least one open end; said coupling device being in the form of a straight channel in a longitudinal direction, with a U-shaped section, with a bottom wall, two opposing side walls, an open upper face, and two opposing open ends, each of said open ends forming, along its perimeter, a housing for introducing, in said longitudinal direction, said open end of the first
15 and second cable channels, for coupling them to said coupling device, such that said first and second cable channels and said coupling device form a continuous channel in said longitudinal direction; said coupling device comprising, in each of its two side walls, a movable pressing body and an actuator that can be manually operated to move said pressing body to a blocking position, in which said pressing body is supported with pressure on one of the side walls of
20 each of the first and second cable channels, at its open end when it is introduced into said housing, thereby blocking the coupling of said first and second cable channels with said coupling device; characterized in that said pressing body is a rigid plate made of a polymer material having, at one end, a first support surface extending in a plane in at least said longitudinal direction and, at an opposing end, a second support surface extending in a plane
25 in at least said longitudinal direction, so that, in said blocking position, each of said first support surface and second support surface is flatly supported with pressure on the side wall of each of the first and second cable channels, at the open end when it is introduced into each of said housings, thereby creating a friction force on said side wall which blocks the movement of said open end in said housing.

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The coupling device according to the invention optionally comprises each of the preferred features described above in reference to the coupling device of the assembly.

The invention also comprises other detailed features shown in the following detailed description of an embodiment of the invention and in the attached figures.

Brief Description of the Drawings

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The advantages and features of the invention are apparent from the following description in which preferred embodiments of the invention are described in a non-limiting manner with respect to the scope of the main claim in reference to the figures.

10 Figure 1 is a perspective view of two cable channels and a coupling device, in an uncoupled position.

Figures 2 and 3 are, respectively, a front view and a perspective view of the cable channel.

15 Figures 4, 5, and 6 are perspective views showing the successive steps for coupling the two cable channels with the coupling device.

Figures 7, 8, 9, and 10 are, respectively, a top perspective view, a bottom perspective view, a front view, and a side view of the coupling device.

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Figures 11 and 12 are exploded perspective views of the coupling device from two different angles.

25 Figures 13 and 14 are, respectively, a front view and a partial perspective view of the main body of the coupling device, without the pressing body and the actuator.

Figures 15, 16, and 17 are, respectively, a front perspective view, a rear perspective view, and a top view of the pressing body.

30 Figures 18, 19, and 20 are, respectively, a front perspective view, a rear perspective view, and a sectioned perspective view of the actuator.

Figure 21 is a partial perspective view showing the coupling body and the two cable channels coupled thereto, with the actuator and the pressing body in a non-blocking position.

Figure 22 is a view similar to Figure 21, with the actuator and the pressing body in the blocking position.

- 5 Figure 23 is a partial perspective view showing the coupling body and the two cable channels coupled thereto, with the bridge before being placed and snap-fitted.

Figure 24 is a view similar to Figure 23, with the bridge snap-fitted.

10 Detailed Description of Embodiments of the Invention

The assembly for coupling two cable channels which is described below by way of example is applied mainly to guide bundles of fiber optic cables in data centers. It is formed by two cable channels 1A, 1B and a coupling device 6. The cable channels 1A, 1B are made of a polymer material such as, for example, PVC (polyvinyl chloride) or ABS (acrylonitrile butadiene styrene). In the example depicted in the figures, the two cable channels 1A, 1B have an identical section and can have different lengths. As can be seen in Figures 1 to 3, each cable channel 1A, 1B is a straight profile segment with a U-shaped section, with a bottom wall 2, two opposing side walls 3, an open upper face 4, and two open ends 5. The free upper end of each side wall 3 forms an outwardly protruding tubular flange 26. Other embodiments of the invention in which the cable channels 1A, 1B are not a straight, U-shaped profile segment are also possible. For example, at least one of the cable channels can be an elbow or a T-shaped branch, with a final segment with a U-shaped section described above.

25 The coupling device 6 is intercalated between the two cable trays 1A, 1B for coupling them through their open ends 5. It is in the form of a straight channel in a longitudinal direction L, with a U-shaped section which corresponds to the section of the cable channels 1A, 1B, with a bottom wall 7, two opposing side walls 8, an open upper face 9, and two opposing open ends 10. The coupling device 6 is formed by five parts: a main body 31 with the U-shaped section described above, two pressing bodies 12, and two actuators 13 which can be manually operated to move each pressing body 12 to a blocking position, as will be seen below. There are two identical assemblies of pressing body 12 and actuator 13, each assembled on one of the side walls 8, to block the coupling on each of these side walls 8. Each of these parts 31, 12, and 13 is made of a polymer material such as, for example, PVC or ABS. Figures 7 to 12

show the coupling device 6 as a whole; Figures 13 and 14 show the main body 31; Figures 15 to 17 show the pressing body 12; and Figures 18 to 20 show the actuator 13.

A housing 11 for receiving, in the longitudinal direction L, the open ends 5 of the cable channels 1A, 1B, to thereby couple them to the coupling device 6, is formed along the perimeter of the two open ends 10 of the coupling device 6. Figures 4 to 6 show successive stages for performing coupling, in which a cable channel 1B is first coupled to an open end 10 of the coupling device 6 (Figure 5) and the other cable channel 1A is then coupled to the other open end 10 of the coupling device 6 (Figure 6). In the position shown in Figure 6, the two cable channels 1A, 1B and the coupling device 6 to which they are coupled form a continuous channel in the longitudinal direction L. In the bottom wall 7, the housing 11 is formed by a space delimited between an outer partition 24 and said bottom wall 7 of the coupling device 6. The outer partition 24 is arranged such that it does not reach the end of the bottom wall 7 in the longitudinal direction L. Preferably, the outer partition 24 and the housing 11 delimited by it also extend to the corners between the bottom wall 7 and the side walls 8, as can be seen in Figures 8 and 9. In the side walls 8, the housing 11 is formed by a space delimited laterally by the side wall 8 and by a rigid plate which, as will be described below, constitutes the pressing body 12 and is facing said side wall 8.

The two side walls 8 of the coupling device 6 are identical, and each one has elements formed on their outer face to assemble the pressing body 12 and the actuator 13. As can be seen in Figure 14, each side wall 8 has on its outer face a shaft 18 extending perpendicular to said side wall 8. Two opposing trunnions 22 which cooperate with the actuator 13, as will be seen below, are formed at the free end of the shaft 18. Furthermore, each side wall 8 has on its outer face an upper guide 33 and a lower guide 34 parallel to one another which delimit a space in which the pressing body 12 slidably fits, such that the pressing body 12 can slide in said space, with respect to said upper guide 33 and lower guide 34, in order to move away from and closer to the side wall 8. Preferably, as can be seen in Figure 10, the side edges of the pressing device 12 are aligned with the side edges of the upper guide 33 and the lower guide 34 and with the side edges of the outer partition 24, such that none of them reaches the end of the bottom wall 7 in the longitudinal direction L.

As shown in Figures 15 to 17, the pressing body 12 is a rigid plate with a generally rectangular shape having, at one end, a first support surface 14 extending in a plane in the longitudinal

direction L and in a direction orthogonal thereto and, at an opposing end, a second support surface 15 extending in a plane in said longitudinal direction L and in a direction orthogonal thereto. The support surfaces 14 and 15 are discontinuous and made up of the ridges 16 of protuberances 17 formed on a flat face of the rigid plate constituting the pressing body 12. The reference numbers for all the protuberances 17 are not indicated in Figures 16 and 17 so as not to affect the clarity of the figure. The protuberances 17 are parallel oblong ribs extending in a direction orthogonal to the longitudinal direction L. For example, as shown in the figures, there are four oblong ribs on each of the support surfaces 14, 15, and the oblong rib closest to the center of the rigid plate is interrupted in its central part. The rigid plate forming the pressing body furthermore has an opening 19 for the passage of the shaft 18 with its trunnions 22. The outer face, opposite the face on which the support surfaces 14 and 15 are formed, comprises a circular frame 35 to receive the actuator 13.

The actuator 13 is a rotary knob which is rotatably assembled on the end of the shaft 18 protruding through the opening 19, and is supported on the pressing body 12 in order to push same towards the side wall 8. As can be seen in Figures 18 to 20, the actuator 13 comprises a circular base 36 on which a grip 32 is formed. The circular base 36 fits into the circular frame 35, thereby forming a rotational fitting of the actuator 13 with respect to the pressing body 12. The actuator 13 comprises a cylindrical inner wall 20 coaxial with the shaft 18 and two helical tracks 21 formed by a flange protruding from said cylindrical inner wall 20. The shaft 18 is introduced into the cavity delimited by the cylindrical inner wall 20, such that each of the trunnions 22 is supported on said cylindrical inner wall 20 and on a corresponding helical track 21. When the user rotates the actuator 13 with respect to the shaft 18, the trunnions 22 slide along the helical tracks 21 being supported thereon, whereby the actuator 13 is moved towards the side wall 8 of the coupling device 6, pushing the pressing body 12 which is thus also moved towards the side wall 8. The trunnions 22 travel one quarter of a circumference along the helical tracks 21 with respect to the shaft 18. Two tabs 23 which interfere with each of the trunnions 22 when they slide along the helical tracks 21 are formed in the cylindrical inner wall 20, such that each trunnion 22 overcomes each tab 23 by force when the pressing body 12 reaches the blocking position. The tabs 23 keep the pressing body 12 in the blocking position once the trunnions 22 have overcome them by force.

The coupling device 6 comprises, at an upper end of each of its side walls 8, opposite the bottom wall 7, a pin 27 extending in the longitudinal direction L and forming a lug 25 at each

of the ends thereof. Each lug 25 extends in the longitudinal direction L and has a section that tapers off towards the end thereof. The two lugs 25 are separated by a central part 28 of the pin 27. When the open end 5 of each of the first and second cable channels 1A, 1B is introduced into the housing 11 for coupling said first and second cable channels 1A, 1B to the coupling device 6, each of the two lugs 25 is introduced and snap-fitted onto the tubular flange 26 of each of the first and second cable channels 1A, 1B, with the central part 28 of the pin 27 being exposed, as can be seen in Figure 21. Optionally, as shown in Figures 23 and 24, a bridge 29 can be placed to close a central segment of the open upper face 9 of the coupling device 6. The bridge 29 has at its ends claws 30 with a shape complementary to the shape of the central part 28 of the pin 27 that is exposed, such that said claws 30 removably snap-fit with said central part 28 of the pins 27. When the bridge 29 is snap-fitted through its claws 30 to the central part 28 of the pins 27, as shown in Figure 24, it does not protrude through the open upper face 9 of the coupling device 6.

The method for coupling the cable channels 1A, 1B to the coupling device 6 and for subsequently blocking this coupling is the one described below. First, a cable channel 1B is coupled to the coupling device 6 (Figure 5), by moving it in the longitudinal direction L to insert the open end 5 into the housing 11 and at the same time snap-fit the lug 25 onto the tubular flange 26. Then, the same operation is performed with the other cable channel 1A (Figure 6), thereby completing the coupling of the two cable channels 1A, 1B to the coupling device 6. Advantageously, the embodiment of the invention described above allows using an alternative method (not shown in the figures) for coupling each of the cable channels 1A, 1B to the coupling device 6. This alternative method consists of first introducing the bottom wall 2 of the cable channel 1A, 1B into the housing 11, keeping said cable channel 1A, 1B slightly inclined with respect to the coupling device 6, and then rotating the cable channel 1A, 1B to thereby introduce the upper end of the side walls 3 into the housing 11 and, at the same time, introduce and snap-fit the lug 25 onto the tubular flange 26.

The coupling of the cable channels 1A, 1B to the coupling device 6 is performed with the two actuators 13 (one actuator 13 on each side wall 8) in the non-blocking position shown in Figure 21, in which each pressing body 12 is in a withdrawn position not applying any effective pressure on the side wall 3 of the open end 5 of the cable channel 1A, 1B which is introduced into the housing 11. To block the coupling, the user manually holds each actuator 13 using the grip 32 and rotates the actuator a quarter of a turn until the blocking position shown in Figure

22, where the user must provide at the end of this quarter of a turn sufficient torque to overcome the resistance of the tabs 23 to the passage of the trunnions 22. In this blocking position, the pressing body 12 has been moved towards the side wall 8, pushed by the actuator 13, and is supported with pressure on the side wall 3 of the open end 5 of the cable channel 1A, 1B
5 introduced into the housing 11. The support surfaces 14, 15 are flatly supported with pressure on the side wall 3 of each of the cable channels 1A, 1B, at the open end 5 introduced into each of the housings 11, thereby creating a friction force on said side wall 3 which blocks the movement of said open end 5 in said housing 11. To come out of the blocking position and to thereby allow the uncoupling of the cable channels 1A, 1B and the coupling device 6, the user
10 rotates the actuator 13 a quarter of a turn in the opposite direction, where the user must provide at the start of this quarter of a turn a sufficient torque to overcome the resistance of the tabs 23 to the passage of the trunnions 22.

CLAIMS

1. An assembly for coupling two cable channels, comprising:

- a first cable channel (1A) and a second cable channel (1B) made of a polymer material, each of them comprising a segment having a U-shaped section, with a bottom wall (2), two opposing side walls (3), an open upper face (4), and at least one open end (5); and

- a coupling device (6) for coupling said first and second cable channels (1A, 1B) to one another, said coupling device (6) being in the form of a straight channel in a longitudinal direction (L), with a U-shaped section, with a bottom wall (7), two opposing side walls (8), an open upper face (9), and two opposing open ends (10); said coupling device (6) comprising,

along the perimeter of each of said open ends (10), a housing (11) in which said open end (5) of the first and second cable channels (1A, 1B) is introduced in said longitudinal direction (L), for coupling them to said coupling device (6), such that said first and second cable channels (1A, 1B) and said coupling device (6) form a continuous channel in said longitudinal direction

(L); said coupling device (6) further comprising, in each of its two side walls (8), a movable pressing body (12) and an actuator (13) that can be manually operated to move said pressing body (12) to a blocking position, in which said pressing body (12) is supported with pressure on one of the side walls (3) of each of the first and second cable channels (1A, 1B), at the open end (5) introduced into said housing (11), thereby blocking the coupling of said first and second cable channels (1A, 1B) with said coupling device (6);

characterized in that said pressing body (12) is a rigid plate made of a polymer material having, at one end, a first support surface (14) extending in a plane in at least said longitudinal direction (L) and, at an opposing end, a second support surface (15) extending in a plane in at least said longitudinal direction (L), such that, in said blocking position, each of said first support surface (14) and second support surface (15) is flatly supported with pressure on the side wall (3) of each of the first and second cable channels (1A, 2A), at the open end (5) introduced into each of said housings (11), thereby creating a friction force on said side wall (3) which blocks the movement of said open end (5) in said housing (11).

2. The assembly for cable channels according to claim 1, characterized in that, in the side walls (8) of said coupling device (6), said housing (11) is a space delimited laterally by the side wall (8) of the coupling device (6) and by the rigid plate constituting the pressing body (12), said rigid plate being arranged facing said side wall (8) of the coupling device (6).

3. The assembly for cable channels according to any one of claims 1 or 2, characterized in that said first support surface (14) and second support surface (15) are discontinuous and are made up of the ridges (16) of protuberances (17) formed on one face of said pressing body (12).

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4. The assembly for cable channels according to claim 3, characterized in that said protuberances (17) are oblong ribs.

5. The assembly for cable channels according to claim 4, characterized in that said oblong ribs extend in a direction orthogonal to said longitudinal direction (L).

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6. The assembly for cable channels according to any one of claims 1 to 5, characterized in that said actuator (13) is a rotary knob which is supported on said pressing body (12) and is rotatably assembled about a shaft (18) extending from the side wall (8) of said coupling device (6) and going through an opening (19) of said pressing body (12), such that when said actuator (13) rotates with respect to said shaft (18), said actuator (13) is moved towards the side wall (8) of said coupling device (6) pushing said pressing body (12).

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7. The assembly for cable channels according to claim 6, characterized in that said actuator (13) comprises a cylindrical inner wall (20) coaxial with said shaft (18) and a helical track (21) formed by a flange protruding from said cylindrical inner wall (20); and said shaft (18) comprises at its end at least one trunnion (22) which is supported on said cylindrical inner wall (20) and on said helical track (21), such that when said actuator (13) rotates with respect to said shaft (18), said trunnion (22) slides along said helical track (21) being supported thereon.

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8. The assembly for cable channels according to claim 7, characterized in that there is formed in said cylindrical inner wall (20) a tab (23) which interferes with said trunnion (22) when said trunnion (22) slides along said helical track (21), such that said trunnion (22) overcomes said tab (23) by force when said pressing body (12) reaches said blocking position, and such that said tab (23) keeps said pressing body (12) in said blocking position once said trunnion (22) has overcome it by force.

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9. The assembly for cable channels according to any one of claims 1 to 8, characterized in that said coupling device (6) comprises snap-fitting means, different from said housing (11), which

snap-fit with corresponding snap-fitting means of the first and second cable channels (1A, 1B), when said open end (5) of each of the first and second cable channels (1A, 1B) is introduced into said housing (11) for coupling said first and second cable channels (1A, 1B) to said coupling device (6).

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10. The assembly for cable channels according to claim 9, characterized in that said snap-fitting means in said coupling device (6) are arranged at an upper end of its side walls (8), opposite its bottom wall (7), and said snap-fitting means in said first and second cable channels (1A, 1B) are arranged at an upper end of their side walls (4), opposite their bottom wall (2);
 10 and in that, at least in the bottom wall (7) of said coupling device (6), said housing (11) is formed by a space delimited between an outer partition (24) and said bottom wall (7) of the coupling device (6), said outer partition (24) being arranged such that it does not reach the end of said bottom wall (7) of the coupling device (6) in the longitudinal direction (L).

15 11. The assembly for cable channels according to any one of claims 9 or 10, characterized in that said snap-fitting means in the coupling device (6) are two opposing lugs (25), formed in each of the side walls (8) of the coupling device (6), extending in the longitudinal direction (L) and having a section that tapers off towards the end thereof; and said corresponding snap-fitting means in the first and second cable channels (1A, 1B) are a tubular flange (26) at an
 20 upper end of each of the side walls (3) of said first and second cable channels (1A, 1B), such that each of said lugs (25) is introduced and snap-fitted onto said tubular flange (26) of each of said first and second cable channels (1A, 1B).

12. The assembly for cable channels according to claim 11, characterized in that said coupling
 25 device (6) comprises, at an upper end of each of its side walls (8), a pin (27) extending in the longitudinal direction (L) and forming at each of the ends thereof one of said lugs (25).

13. The assembly for cable channels according to claim 12, characterized in that said pin (27) comprises a central part (28) separating said lugs (25), said central part (28) being exposed
 30 when said first and second cable channels (1A, 1B) are coupled to said coupling device (6), with said lugs (25) being introduced and snap-fitted onto said tubular flange (26) of each of said first and second cable channels (1A, 1B); and said assembly comprises a bridge (29) having at its ends claws (30) with a shape complementary to the shape of said central part (28) of the pin (27), such that said claws (30) removably snap-fit with said central part (28) of

the pins (27), and said bridge (29) closes a central segment of the open upper face (9) of said coupling device (6).

14. The assembly for cable channels according to claim 13, characterized in that said bridge
5 (29) is formed such that, when it is snap-fitted through said claws (30) to said central part (28) of the pins (27), closing a central segment of the open upper face (9) of the coupling device (6), said bridge (29) does not protrude through said open upper face (9) of the coupling device (6).

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