

A device for combing electrical conductors

There is disclosed in GB-A-1,078,548, a device for combing electrical conductors, the device comprising a block in which is formed a conductor receiving channel defined by side walls, the channel extending from a forward face of the block towards a rearward face thereof and having a conductor receiving mouth.

In this know device, which is for combing the leads of a semi-conductor, the channel is of V-shaped cross-section and is intended to receive a single lead, similar channels being provided in the block each also for receiving a single lead.

The present invention is directed to the problem of combing a pair of juxtaposed, contiguous conductors so that they lie in superposed relationship in a common channel of a combing device, for example for insertion into a common slot of a slotted plate electrical terminal, according for example to US-A-3,950,062.

The problem is encountered, in particular, in relation to the combing of the conductors of flat multiconductor transmission cables which are usually provided with pairs of juxtaposed, contiguous ground conductors, these pairs alternating with single signal conductors. In inserting the wires of such a contiguous pair into a common channel of a combing device, to lie in superposed relationship in the channel, it must be ensured that the conductors of the pair do not bind in the channel so as to impair their correct insertion thereinto.

There is disclosed in EP-A-1685, an electrical terminal having a slot for receiving two parallel electrical conductors which are initially positioned in juxtaposed relationship, the mouth of the slot being unsymmetrically formed and being so dimensioned in relation to the gauges of the conductors, that conductors enter the slot sequentially. The terminal is part of an electrical connector and is not designed for wire combing purposes. Also, the solution afforded by the present invention, to the problem of inserting two wires sequentially into a common slot, is different.

According to the present invention therefore, a combing device as defined in the first paragraph of this specification is characterised in that for combing a pair of closely juxtaposed conductors into superposed relationship in the channel, one of the side walls, which are otherwise parallel to one another, has a flared surface providing the conductor receiving mouth of the channel, into which surface opens a notch which also opens into the forward face of the block, the notch extending from the forward face of the block towards its rearward face, the notch being defined by a side surface, and a bottom ramp surface the depth of which decreases from the forward face of the block towards its rearward face so that the notch tapers inwardly from the forward face along the flared surface.

The bottom ramp surface of the notch serves momentarily to inhibit one of the conductors from

entering the channel after the insertion of the conductors into the mouth of the channel, in a direction transverse to the longitudinal axes of the wires (as described in detail below), until the other conductor has entered the channel. The conductors of the pair will not therefore bind in channel, which will normally be of a width, below its mouth, which is less than the sum of the diameters of the conductors of the pair so that the side walls of the channel support the conductors in their superposed relationship therein.

Preferably, as described in detail below provision is made, where the combing device is provided with further wire receiving channels, for the channels all to be evenly spaced from one another, in accordance with the spacing between the conductors of the flat multi-conductor cable.

For a better understanding of the invention, reference will now be made by way of example to the accompanying drawings in which :

Figures 1 to 3 are perspective views of a device, in the form of a template, for combing cable conductors, in association with a flat multi-conductor electrical cable, illustrating successive stages in combing the conductors of the cable ;

Figures 4 and 5 are enlarged fragmentary, perspective views of the template and cable, illustrating successive stages in the combing operation ;

Figures 6 to 8 are enlarged, fragmentary, diagrammatic, front views of the template and cable, illustrating successive stages in the combing operation.

The template, which is generally referenced 2, comprises a base block 4 formed with a row of parallel intermediate teeth 30 and 32 and end teeth 33, defining first channels 6 each for receiving two wires, alternating with second channels 8 each for receiving one wire. The template 2 has a forward face 10 and a rear face 12.

Each channel 6 has a pair of parallel side walls 14 and 16 connected by a floor 17, the wall 14 being provided by one flank of a tooth 32 or 33 as the case may be and the wall 16 being provided by one flank of a tooth 30.

Each wall 16 has a conductor guiding, flared surface 18 providing a mouth for the channel 6, in which surface 18 is formed a notch 20 tapering as seen in cross-section, inwardly of the tooth 30. The notch 20 is defined by a planar ramp bottom surface 22 extending from the face 10 of the template 2 and diverging from the floor 17 in the direction of the end 12 of the template 2, as well as decreasing in width in that direction ; and a planar side surface 25 extending normally of the surface 22 and also tapering in width in the same direction thereas. The surfaces 22 and 25 converge rearwardly of the template up to a point 24 on the surface 18. The wall 14 of the channel 6 extends parallel to that part of wall 16 which lies between the surface 18 and floor 17 and is rectilinear throughout its height and length.

Each channel 8 has a pair of parallel side

15

walls 26 defined by the opposite flanks of a rib 30 and a rib 32, or 33 as the case may be, and by a floor 27, these ribs having conductor guiding, oppositely flared surfaces 19 providing a mouth for the channel 8. The channels 6 and 8 are of the same width below their mouths.

The teeth 30 thicken progressively, up to their notches 20, in order to accommodate these notches. The teeth 32 thicken towards their bases, for improved strength, but are of overall smaller thickness than the teeth 30.

The walls 26 extend normally of the block 4, the parallel portions of the walls 14 and 16 being angled, by a few degrees with respect to the walls 26, whereby the channels 6 are skewed towards the teeth 30, so that the floors 17 and 27 are constantly spaced from one another, despite the different cross-sectional shapes of the teeth 30 and 32. Consequentially, each floor 17 lies substantially in alignment with the corresponding notch 20.

The template 2 is intended for use with a flat, multi-conductor transmission cable 34 having an insulating sheath 36 which has been stripped back from the cable end to bare signal conductors 38 and ground conductors 40 all of which are initially coplanar as shown in Figure 1, the conductors 40 being arranged in pairs of juxtaposed, contiguous conductors, as best seen in Figure 6, such pairs alternating with the conductors 38.

As shown in Figure 1, the cable 34 is initially addressed to the template 2 from above, being lowered at an angle α (Figure 2) with respect thereto, so that the bared portions of the conductors 38 and 40 enter the mouths of the channels 8 and 6, respectively, guided by the surfaces 18 and 19. As shown in Figures 2, 4 and 6, a first conductor 40 of each pair first impinges against the bottom surface 22 of a respective notch 20 at the forward end thereof, being thereby momentarily inhibited from entering the corresponding channel 6. The pressure towards the template 2 is maintained on the cable 34 so that the first conductor 40 of each pair tends to be splayed away from the floor 17 of the channel 6, the second conductor 40 of the pair freely entering the channel 6.

The cable 34 is now drawn rearwardly, in the direction of the face 12 of the template 2, and is simultaneously lowered towards the template 2 so that the angle between the cable 34 and the template 2 is continuously reduced (see Figure 5), whereby each first conductor 40 is progressively and continuously lowered onto the full length of the bottom surface 22. When the cable 34 has been withdrawn sufficiently, the first conductor 40 of each pair approaches the point 24 on the surface 18 and rolls into the channel 6 (as shown in Figure 7) in superposition with the second conductor 40 of the pair, which is already in the channel 6. As the cable 34 is further withdrawn, both conductors 40 of each pair are lowered to the floor 17 of the corresponding channel 6 as shown in Figure 8. During the combing operation described above, each conductor

38 enters a channel 8 and is finally lowered to the floor 27 thereof, as shown in Figures 6 to 8. The fully inserted conductors 38 and 40 are evenly spaced from one another in the transverse direction of the channels 6 and 8.

In the course of the combing operation, the conductors 40 of each pair are relatively reoriented by 90°.

As will be apparent from Figure 6, the shape of the notch 20 is such that no horizontal component of motion is imparted to the first conductor 40 of the pair until it is rolled into the channel 6 as described above, after the second conductor 40 of the pair has penetrated into the channel 6 as shown in Figure 7; whereby the first and second conductors 40 of the pair cannot bind in the channel 6.

The flaring of the surfaces 18 and 19 ensures that the conductors are guided into the appropriate channels and allows for substantial tolerances in conductor gauge.

As will best be apparent from Figure 3, the conductors 38 and 40, when finally positioned in the channels 6 and 8, can be advanced, by advancing the cable 34, so that their ends project from the forward face 10 of template 4 for termination e. g. to electrical terminals.

The template 2 may be fitted to an electrical harness making apparatus (not shown), lugs 50 being provided on the template 2 for this purpose.

Claims

1. A device for combing electrical conductors (38 and 40), the device comprising a block (4) in which is formed a conductor receiving channel (6) defined by side walls (14 and 16), the channel (6) extending from a forward face (10) of the block (4) towards a rearward face (12) thereof and having a conductor receiving mouth; characterised in that for combing a pair of closely juxtaposed conductors (40) into superposed relationship in the channel (6), one (16) of the side walls (14 and 16), which are otherwise parallel to one another, has a flared surface (18) providing the conductor receiving mouth of the channel (6), into which surface (18) opens a notch (20) which also opens into the forward face (10) of the block (4), the notch (20) extending from the forward face (10) of the block (4) towards its rearward face (12), the notch (20) being defined by a side surface (25), and a bottom ramp surface (22) the depth of which decreases from the forward face (10) of the block (4) towards its rearward face (12) so that the notch (20) tapers inwardly from the forward face (10) along the flared surface (18).

2. A device according to Claim 1, characterised in that bottom surface (22) of the notch (20) terminates, intermediate the forward and rear faces (10 and 12) of the block (4), at a point (24), on the flared surface (18).

3. A device according to Claim 1 or 2, charac-

walls 26 defined by the opposite flanks of a rib 30 and a rib 32, or 33 as the case may be, and by a floor 27, these ribs having conductor guiding, oppositely flared surfaces 19 providing a mouth for the channel 8. The channels 6 and 8 are of the same width below their mouths.

The teeth 30 thicken progressively, up to their notches 20, in order to accommodate these notches. The teeth 32 thicken towards their bases, for improved strength, but are of overall smaller thickness than the teeth 30.

The walls 26 extend normally of the block 4, the parallel portions of the walls 14 and 16 being angled, by a few degrees with respect to the walls 26, whereby the channels 6 are skewed towards the teeth 30, so that the floors 17 and 27 are constantly spaced from one another, despite the different cross-sectional shapes of the teeth 30 and 32. Consequentially, each floor 17 lies substantially in alignment with the corresponding notch 20.

The template 2 is intended for use with a flat, multi-conductor transmission cable 34 having an insulating sheath 36 which has been stripped back from the cable end to bare signal conductors 38 and ground conductors 40 all of which are initially coplanar as shown in Figure 1, the conductors 40 being arranged in pairs of juxtaposed, contiguous conductors, as best seen in Figure 6, such pairs alternating with the conductors 38.

As shown in Figure 1, the cable 34 is initially addressed to the template 2 from above, being lowered at an angle α (Figure 2) with respect thereto, so that the bared portions of the conductors 38 and 40 enter the mouths of the channels 8 and 6, respectively, guided by the surfaces 18 and 19. As shown in Figures 2, 4 and 6, a first conductor 40 of each pair first impinges against the bottom surface 22 of a respective notch 20 at the forward end thereof, being thereby momentarily inhibited from entering the corresponding channel 6. The pressure towards the template 2 is maintained on the cable 34 so that the first conductor 40 of each pair tends to be splayed away from the floor 17 of the channel 6, the second conductor 40 of the pair freely entering the channel 6.

The cable 34 is now drawn rearwardly, in the direction of the face 12 of the template 2, and is simultaneously lowered towards the template 2 so that the angle between the cable 34 and the template 2 is continuously reduced (see Figure 5); whereby each first conductor 40 is progressively and continuously lowered onto the full length of the bottom surface 22. When the cable 34 has been withdrawn sufficiently, the first conductor 40 of each pair approaches the point 24 on the surface 18 and rolls into the channel 6 (as shown in Figure 7) in superposition with the second conductor 40 of the pair, which is already in the channel 6. As the cable 34 is further withdrawn, both conductors 40 of each pair are lowered to the floor 17 of the corresponding channel 6 as shown in Figure 8. During the combing operation described above, each conductor

38 enters a channel 8 and is finally lowered to the floor 27 thereof, as shown in Figures 6 to 8. The fully inserted conductors 38 and 40 are evenly spaced from one another in the transverse direction of the channels 6 and 8.

In the course of the combing operation, the conductors 40 of each pair are relatively reoriented by 90°.

As will be apparent from Figure 6, the shape of the notch 20 is such that no horizontal component of motion is imparted to the first conductor 40 of the pair until it is rolled into the channel 6 as described above, after the second conductor 40 of the pair has penetrated into the channel 6 as shown in Figure 7; whereby the first and second conductors 40 of the pair cannot bind in the channel 6.

The flaring of the surfaces 18 and 19 ensures that the conductors are guided into the appropriate channels and allows for substantial tolerances in conductor gauge.

As will best be apparent from Figure 3, the conductors 38 and 40, when finally positioned in the channels 6 and 8, can be advanced, by advancing the cable 34, so that their ends project from the forward face 10 of template 4 for termination e. g. to electrical terminals.

The template 2 may be fitted to an electrical harness making apparatus (not shown), lugs 50 being provided on the template 2 for this purpose.

Claims

1. A device for combing electrical conductors (38 and 40), the device comprising a block (4) in which is formed a conductor receiving channel (6) defined by side walls (14 and 16), the channel (6) extending from a forward face (10) of the block (4) towards a rearward face (12) thereof and having a conductor receiving mouth; characterised in that for combing a pair of closely juxtaposed conductors (40) into superposed relationship in the channel (6), one (16) of the side walls (14 and 16), which are otherwise parallel to one another, has a flared surface (18) providing the conductor receiving mouth of the channel (6), into which surface (18) opens a notch (20) which also opens into the forward face (10) of the block (4), the notch (20) extending from the forward face (10) of the block (4) towards its rearward face (12), the notch (20) being defined by a side surface (25), and a bottom ramp surface (22) the depth of which decreases from the forward face (10) of the block (4) towards its rearward face (12) so that the notch (20) tapers inwardly from the forward face (10) along the flared surface (18).

2. A device according to Claim 1, characterised in that bottom surface (22) of the notch (20) terminates, intermediate the forward and rear faces (10 and 12) of the block (4), at a point (24), on the flared surface (18).

3. A device according to Claim 1 or 2, charac-



terised in that the side (25) and bottom (22) surfaces of the notch (20) are planar and extend normally of one another, the bottom surface (22) extending normally of the parallel portions of the side walls (14 and 16).

4. A device according to Claim 1, 2 or 3, characterised in that the side walls (14 and 16) of the channel (6) are skewed in such a way that a floor (17) of the channel (6), connecting the side walls (14 and 16), is in substantial alignment with the notch (20).

5. A device according to any one of the preceding claims, characterised in that the channel has a base (17) connecting the side walls (14 and 16), the notch bottom surface (22) being parallel to the base (17).

6. A device according to any one of Claims 1 to 4, characterised in that the block (4) is formed on either side of the conductor receiving channel (6), with a further channel (8) extending alongside the conductor receiving channel (6), for receiving a single conductor (38), the conductor receiving channel (6) being separated from one of the further channels (8) by a first tooth (30) a flank of which provides the one side wall (16), the tooth (36) progressively increasing in thickness from its base up to the notch (20), the conductor receiving channel (6) being separated from the other further channel (8) by a second tooth (32) a flank of which provides the other side wall (14) of the conductor receiving channel (6), the second tooth (32) increasing in thickness towards its base, the side walls (14 and 16) of the conductor receiving channel (6) being skewed into the direction of the first tooth (30) so that floors (17 and 27) of all the channels (6 and 8) are evenly spaced from one another in the transverse direction of the channels (6 and 8).

7. A device according to Claim 6, characterised in that the overall thickness of the first tooth (30) is greater than that of the second tooth (32), the channels (6 and 8) being of equal width.

8. A device according to any one of the preceding claims, in combination with a pair of juxtaposed, contiguous electrical conductors (40); characterised in that the width of the or each channel (6 or 8), below its mouth, does not exceed the sum of the diameters of the conductors (40) of the pair so that when inserted into the channel (6 or 8), the conductors (40) of the pair are supported in superposed relationship by the side walls (14 and 16; or 26) of the channel (6 or 8).

Ansprüche

1. Vorrichtung zum Aussondern elektrischer Leiter (38 und 40), die einen Block (4) aufweist, in dem ein Leiteraufnahmekanal (6) gebildet ist, der durch Seitenwände (14 und 16) begrenzt ist, wobei sich der Kanal (6) von einer Vorderseite (10) des Blocks (4) zu einer rückwärtigen Seite (12) desselben erstreckt und eine Leiteraufnahmemündung hat, dadurch gekennzeichnet,

net, daß zum Aussondern eines Paares von eng nebeneinanderliegenden Leitern (40) in eine Lage übereinander in dem Kanal (6) eine (16) von dessen Seitenwänden (14 und 16), die im übrigen parallel zueinander sind, eine schräge, sich nach außen erweiternde Oberfläche (18) hat, die die Leiteraufnahmeöffnung des Kanals (6) bildet, in welche Oberfläche (18) sich eine Kerbe (20) öffnet, die sich auch in die vordere Fläche (10) des Blocks (4) öffnet, wobei sich die Kerbe (20) von der vorderen Fläche (10) des Blocks (4) gegen dessen rückwärtige Fläche (12) erstreckt und wobei die Kerbe (20) durch eine seitliche Oberfläche (25) sowie durch eine rampenartige Bodenfläche (22) begrenzt ist, deren Tiefe von der vorderen Fläche (10) des Blocks (4) gegen dessen rückwärtige Fläche (12) abnimmt, so daß die Kerbe (20) von der vorderen Fläche (10) längs der sich nach außen erweiternden Oberfläche (18) nach innen spitz zuläuft.

2. Vorrichtung nach Anspruch 1, dadurch gekennzeichnet, daß die Bodenfläche (22) der Kerbe (20) zwischen den vorderen und rückwärtigen Flächen (10 und 12) des Blocks (4) an einem Punkt (24) auf der sich nach außen erweiternden Oberfläche (18) endet.

3. Vorrichtung nach Anspruch 1 oder 2, dadurch gekennzeichnet, daß die seitliche Oberfläche (25) und die Bodenfläche (22) der Kerbe (20) eben sind und sich senkrecht zueinander erstrecken, wobei sich die Bodenfläche (22) senkrecht zu den parallelen Abschnitten der Seitenwände (14 und 16) erstreckt.

4. Vorrichtung nach Anspruch 1, 2 oder 3, dadurch gekennzeichnet, daß die Seitenwände (14 und 16) des Kanals (6) derart geneigt sind, daß ein Boden (17) des Kanals (6), der die Seitenwände (14 und 16) verbindet, im wesentlichen mit der Kerbe (20) ausgerichtet ist.

5. Vorrichtung nach einem der vorhergehenden Ansprüche, dadurch gekennzeichnet, daß der Kanal eine Unterseite (17) hat, die die Seitenwände (14 und 16) verbindet, wobei die Bodenfläche (22) der Kerbe parallel zu der Unterseite (17) ist.

6. Vorrichtung nach einem der Ansprüche 1 bis 4, dadurch gekennzeichnet, daß der Block (4) auf jeder Seite des Leiteraufnahmekanals (6) mit einem weiteren Kanal (8) ausgebildet ist, der sich längs des Leiteraufnahmekanals (6) erstreckt, um einen einzelnen Leiter (38) aufzunehmen, wobei der Leiteraufnahmekanal (6) von einem der weiteren Kanäle (8) durch einen ersten Zahn (30) getrennt ist, von dem eine Flanke die eine Seitenwand (16) bildet, wobei der Zahn (30) in seiner Dicke progressiv von seiner Unterseite nach oben bis zu der Kerbe (20) zunimmt, wobei der Leiteraufnahmekanal (6) von dem anderen weiteren Kanal (8) durch einen zweiten Zahn (32) getrennt ist, von dem eine Flanke die andere Seitenwand (14) des Leiteraufnahmekanals (6) bildet, wobei der zweite Zahn (32) in seiner Dicke zu seiner Unterseite hin zunimmt, wobei die Seitenwände (14 und 16) des Leiteraufnahmekanals (6) in die Richtung des ersten Zahnes (30)

(7)



schräg zulaufen, so daß die Böden (17 und 27) aller Kanäle (6 und 8) in der Querrichtung der Kanäle (6 und 8) gleichmäßige Abstände voneinander haben.

7. Vorrichtung nach Anspruch 6, dadurch gekennzeichnet, daß die Gesamtdicke des ersten Zahnes (30) größer ist als diejenige des zweiten Zahnes (32), und daß die Kanäle (6 und 8) gleiche Breite haben.

8. Vorrichtung nach einem der vorhergehenden Ansprüche in Verbindung mit einem Paar von eng benachbarten nebeneinanderliegenden elektrischen Leitern (40), dadurch gekennzeichnet, daß die Breite des oder jedes Kanals (6 oder 8) unterhalb seiner Mündung nicht die Summe der Durchmesser der Leiter (40) des Paares übersteigt, so daß nach dem Einsetzen in den Kanal (6 oder 8) die Leiter (40) des Paares übereinander durch die Seitenwände (14 und 16 oder 26) des Kanals (6 oder 8) abgestützt sind.

Revendications

1. Dispositif de peignage de conducteurs électriques (38 et 40), le dispositif comprenant un bloc (4) dans lequel est formée une rainure (6) de réception de conducteurs définie par des parois latérales (14 et 16), la rainure (6) s'étendant d'une face avant (10) du bloc (4) vers une face arrière (12) de celui-ci et ayant une embouchure de réception de conducteurs; caractérisé en ce que, pour peigner deux conducteurs étroitement juxtaposés (40) en superposition dans la rainure (6), une première (16) des parois latérales (14 et 16), qui sont par ailleurs parallèles entre elles, présente une surface évasée (18) formant l'embouchure de réception de conducteurs de la rainure (6), surface (18) dans laquelle débouche une entaille (20) qui débouche également dans la face avant (10) du bloc (4), l'entaille (20) s'étendant de la face avant (10) du bloc (4) vers sa face arrière (12), l'entaille (20) étant définie par une surface latérale (25), et par une surface inférieure en rampe (22) dont la profondeur diminue de la face avant (10) du bloc (4) vers sa face arrière (12), afin que l'entaille (20) se rétrécisse vers l'intérieur à partir de la face avant (10) le long de la surface évasée (18).

2. Dispositif selon la revendication 1, caractérisé en ce que la surface inférieure (22) de l'entaille (20) aboutit, entre les faces avant et arrière (10 et 12) du bloc (4), à un point (24) situé sur la surface évasée (18).

3. Dispositif selon la revendication 1 ou 2, caractérisé en ce que les surfaces latérale (25) et

inférieure (22) de l'entaille (20) sont planes et s'étendent perpendiculairement l'une à l'autre, la surface inférieure (22) s'étendant perpendiculairement aux parties parallèles des parois latérales (14 et 16).

4. Dispositif selon la revendication 1, 2 ou 3, caractérisé en ce que les parois latérales (14 et 16) de la rainure (6) sont penchées de façon qu'un fond (17) de la rainure (6), reliant les parois latérales (14 et 16), soit sensiblement en alignement avec l'entaille (20).

5. Dispositif selon l'une quelconque des revendications précédentes, caractérisé en ce que la rainure comporte une base (17) reliant les parois latérales (14 et 16), la surface inférieure (22) de l'entaille étant parallèle à la base (17).

6. Dispositif selon l'une quelconque des revendications 1 à 4, caractérisé en ce que le bloc (4) est formé, sur chaque côté de la rainure (6) de réception de conducteurs, avec une autre rainure (8) s'étendant le long de la rainure (6) de réception de conducteurs, afin de recevoir un conducteur unique (38), la rainure (6) de réception de conducteurs étant séparée de l'une des autres rainures (8) par une première dent (30) dont un flanc forme la première paroi latérale (16), la dent (30) augmentant progressivement d'épaisseur de sa base jusqu'à l'entaille (20), la rainure (6) de réception de conducteurs étant séparée de l'autre rainure (8) par une seconde dent (32) dont un flanc forme l'autre paroi latérale (14) de la rainure (6) de réception de conducteurs, la seconde dent (32) augmentant d'épaisseur vers sa base, les parois latérales (14 et 16) de la rainure (6) de réception de conducteurs étant penchées dans la direction de la première dent (30) afin que les fonds (17 et 27) de toutes les rainures (6 et 8) soient régulièrement espacés les uns des autres dans la direction transversale des rainures (6 et 8).

7. Dispositif selon la revendication 6, caractérisé en ce que l'épaisseur globale de la première dent (30) est supérieure à celle de la seconde dent (32), les rainures (6 et 8) étant de largeur égale.

8. Dispositif selon l'une quelconque des revendications précédentes, en combinaison avec deux conducteurs électriques contigus juxtaposés (40), caractérisé en ce que la largeur de la ou de chaque rainure (6 ou 8), au-dessous de son embouchure, ne dépasse pas la somme des diamètres des conducteurs (40) de la paire afin que, lorsqu'ils sont insérés dans la rainure (6 ou 8), les conducteurs (40) de la paire soient soutenus en superposition par les parois latérales (14 et 16; ou 26) de la rainure (6 ou 8).

