



Europäisches Patentamt  
European Patent Office  
Office européen des brevets



(11) **EP 1 014 822 B1**

(12) **EUROPEAN PATENT SPECIFICATION**

(45) Date of publication and mention  
of the grant of the patent:

**27.06.2001 Bulletin 2001/26**

(21) Application number: **98947511.6**

(22) Date of filing: **03.09.1998**

(51) Int Cl.7: **A43C 3/00**

(86) International application number:  
**PCT/EP98/05593**

(87) International publication number:  
**WO 99/15043 (01.04.1999 Gazette 1999/13)**

(54) **A LACING HOOK FOR LACED FASTENINGS**

SCHNÜRHAKE FÜR SCHNÜRVERSCHLÜSSE

CROCHET DE LACAGE POUR ELEMENTS DE FIXATION LACES

(84) Designated Contracting States:  
**AT CH DE FI FR GB IT LI SE**

(30) Priority: **19.09.1997 IT PD970211**

(43) Date of publication of application:  
**05.07.2000 Bulletin 2000/27**

(73) Proprietors:  
• **Gallo, Tiziano**  
**30037 Scorzè (IT)**  
• **Bissacco, Rino**  
**32020 Codevigo (IT)**

(72) Inventors:  
• **Gallo, Tiziano**  
**30037 Scorzè (IT)**

• **Bissacco, Rino**  
**32020 Codevigo (IT)**

(74) Representative: **Cantaluppi, Stefano et al**  
**c/o JACOBACCI & PERANI S.p.A.**  
**Via Berchet, 9**  
**35131 Padova (IT)**

(56) References cited:  
**WO-A-95/18552**                    **DE-U- 1 794 644**  
**DE-U- 1 800 135**                **DE-U- 1 887 619**  
**DE-U- 1 951 910**                **DE-U- 1 966 597**  
**FR-A- 1 097 495**                **FR-A- 1 170 071**  
**FR-A- 1 441 599**

**EP 1 014 822 B1**

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

**Description**Technical Field

**[0001]** The present invention relates to a lacing hook for laced fastenings according to the preamble to the main claim.

Background Art

**[0002]** In the technical field of footwear with laced fastenings, lacing hooks are used widely for guiding the laces suitably on the upper of the footwear.

**[0003]** A lacing hook having the features outlined above and disclosing the features of the preamble of claim 1 is known from DE 1951910 and DE 1800135.

**[0004]** One of the problems encountered with known lacing hooks lies in the resistance due to friction which these hooks offer to the sliding of the lace, which may make it difficult to fasten the footwear with the desired tension.

**[0005]** In order partially to prevent this problem, it is known to provide suitably-shaped inserts in the base of the channel of the hook to improve the sliding of the lace. In these solutions, however, the tensions produced in the laces, as well as the frictional forces present, tend to stress the aforementioned inserts until they are pulled off the corresponding hooks, compromising the fastening of the footwear. Moreover, these solutions require pre-assembly of the hook with the corresponding insert.

Disclosure of the invention

**[0006]** The problem upon which the present invention is based is that of providing a lacing hook which is designed structurally and functionally to prevent all of the problems complained of with reference to the prior art mentioned.

**[0007]** This problem is solved by the invention by a lacing hook formed in accordance with the following claims.

An advantage achieved by the hook of the present invention is that it permits effective and rapid sliding of the lace with low sliding friction during both fastening and unfastening, at the same time forming a particularly strong hook which is free of sharp surfaces, and which can hold the lace in position once it is housed in the channel of the hook.

**[0008]** Another advantage is that of providing a lacing hook with a monolithic structure such that it requires no pre-assembly operations.

Brief descriptions of the drawings

**[0009]** Further advantages and characteristics of the invention will become clearer from the following detailed description of some preferred embodiments thereof described by way of non-limiting example with reference

to the appended drawings, in which:

Figures 1 and 2 are a plan view and a side elevational view, respectively, of a first embodiment of the lacing hook according to the invention,

Figure 3 is a view corresponding to Figure 2 of a second embodiment of the lacing hook according to the invention,

Figures 4 and 5 are views corresponding to Figures 1 and 2, respectively, of a third embodiment of the lacing hook according to the invention,

Figure 6 is a view corresponding to Figure 5 of a fourth embodiment of the lacing hook according to the invention,

Figures 7 and 8 are a plan view and a side elevational view, respectively, of a fifth embodiment of a lacing hook according to the present invention,

Figure 9 and 10 are views corresponding to Figures 7 and 8, respectively, of a sixth embodiment of the lacing hook according to the invention.

Best mode of carrying out the invention

**[0010]** With reference to Figures 1 and 2, a first embodiment of a lacing hook formed in accordance with the present invention is generally indicated 1. The hook 1 comprises an attachment plate 2 having through-holes 3 for the fixing of the hook 1 to a respective portion 4 of a footwear upper, shown only partially (Figure 2), by means of rivets 5 or similar fixing means. The plate 2 is extended to form a first cheek 6 and a second cheek 7 together defining a channel 8 which has a closed base 9 and is open on the opposite side with a mouth 10.

**[0011]** The surface of the base 9 defines a lacing surface over which a lace 11 can be guided for sliding and which has a substantially toroidal shape. The toroidal surface of the base 9 is defined by the rotation of a first arc of a circle, indicated 12 in Figure 2, about an axis on which a second arc of a circle, indicated 13 in Figure 1, is centred. It should be noted that both arcs 12 and 13 extend through respective angles of between approximately 15° and 180° and preferably in the region of the higher value indicated above. The lace 11 is thus guided on the curved base of the channel 9 without breaks in continuity, particularly in the regions in which the lace enters and leaves the hook (Figure 1), thus offering the best possible sliding and preventing damage to the lace due to repeated changes in its curvature. It is envisaged that the curvature of the arc 14 may be variable along its length.

**[0012]** It should also be noted that the base 9 with the toroidal surface, is formed integrally with the hook 1 during the formation thereof, for example, by the stamping technique. The hook 1 thus produced therefore has a monolithic structure which can make it particularly strong.

**[0013]** A narrow portion formed at the mouth 10 of the channel 8 is defined by a lip 14 at the end of the cheek

7, facing the opposite cheek 6 and projecting towards the latter in order to restrict the mouth.

**[0014]** The narrow portion of the mouth 10 constitutes restraining means for holding the lace 11 close to the lacing surface of the base 9 once the lace is engaged in the channel 8.

**[0015]** In the regions in which the lace enters and leaves the channel 8 of the hook, the peripheral edge 15 of the hook is turned over towards the outside of the channel and is bent onto the corresponding cheek so as to allow for ample sliding of the lace engaged in the hook, at the same time eliminating any regions in which there is friction and consequently wear of the lace against the lacing surfaces of the hook.

**[0016]** With reference to Figure 3, a second embodiment of the lacing hook formed in accordance with the present invention is indicated 20. Details similar to those of the previous embodiment are indicated by the same reference numerals. The hook 20 differs from the hook 1 in that a narrow portion at the mouth 10 is produced by the bending of an end lip 21 of the cheek 7 towards the inside of the channel to form an eye.

**[0017]** Figures 4 and 5 show a third embodiment of the lacing hook according to the invention, generally indicated 30. Unlike the hooks of the previous embodiments, the hook 30 has a rivet-shaped appendage 31 formed integrally with the hook and projecting from the cheek 6 in order to engage a corresponding hole formed in the footwear upper in order to fix the hook to the footwear.

**[0018]** In Figure 6, a variant of the hook of Figures 4 and 5 is indicated 40 and differs in that, as in the hook 20, it has a narrow portion at the mouth 10 formed by bending of the end lip of the cheek 7 towards the inside of the channel 8 to form an eye.

**[0019]** With reference to Figures 7 and 8, a fifth embodiment of the lacing hook according to the present invention is indicated 50. The hook 50 comprises a first portion and a second portion articulated to one another. The first portion comprises an attachment plate 52 having a single hole 53 for the fixing of the hook to the footwear upper by means of a rivet or the like. The second portion comprises a pair of opposed cheeks 56, 57 together defining a duct 58 having, on one side, a base 59 the toroidal-shaped surface of which constitutes a lacing surface for the sliding of a lace, not shown in the drawings. The duct 58 is closed on the opposite side by an extension of the cheek 57 which extends as far as the opposite cheek 56. Once the lace has been disposed in the duct 58 for lacing, it thus remains in position engaged in the hook until it is deliberately unthreaded from the duct. It should be noted that, since the second portion of the hook 50 is pivotable in a plane substantially perpendicular to the footwear upper (Figure 7), self-alignment of the second portion which is subject to the lacing tensions is facilitated and the sliding of the lace in the lacing hook during tensioning and/or release of the lace during fastening and unfastening of the foot-

wear is thus improved.

**[0020]** Figures 9 and 10 show a sixth embodiment of the lacing hook according to the invention, generally indicated 60. The hook 60 differs from the hook of the previous embodiment substantially in that it has a monolithic structure in which the two hook portions are formed as a single piece. A plurality of projections, indicated 61, serve to improve the anchorage of the hook to the portion of the upper on which it is fitted.

**[0021]** The invention thus solves the problem set, achieving the advantages indicated above in comparison with known solutions.

## 15 Claims

1. A lacing hook for laced fastenings, comprising a first cheek (6, 56) and a second cheek (7, 57), disposed opposite one another and defining between them a channel (8, 58) with a base surface (9, 59) of the channel defining a lacing surface for the hook, the base of the channel (8, 58) being formed integrally with the lacing hook and the base surface (9, 59) of the channel (8, 58) having a substantially toroidal shape, characterized in that the toroidal surface is defined by the rotation of a first arc (12) of a circle about an axis on which a second arc (13) of a circle is centred, the first and second arcs (12, 13) extending through respective angles of between 15° and 180° and preferably close to the higher value indicated, and in that said hook comprises peripheral edges (15), said edges being turned towards the outside of the channel (8, 58) at least in a region in which the lace enters and leaves the channel (8, 58) of the hook.
2. A lacing hook according to Claim 1, in which the channel (8) is open at the side opposite the base surface (9).
3. A lacing hook according to any one of the preceding claims, comprising restraining means for holding the lace in the channel.
4. A lacing hook according to Claim 3, in which the restraining means comprise a narrow portion (14, 21) of the channel (8) in the region of its mouth (10).
5. A lacing hook according to Claim 4, in which the narrow portion is defined by a lip (14, 21) formed as an extension of the second cheek (7).
6. A lacing hook according to Claim 5, in which the lip (21) is bent towards the inside of the channel (8) to form an eye.
7. A lacing hook according to one or more of the preceding claims, in which the channel (8) is closed on

the side opposite the lacing surface.

8. A lacing hook according to one or more of the preceding claims, comprising a first portion and a second portion, the first portion having means (52, 53) for attaching the hook to the footwear, the lacing surface being formed on the second portion, and the second portion being mounted for pivoting on the first portion.
9. A hook according to one or more of the preceding claims, comprising a rivet-like appendage (31) formed integrally with the hook and extending from the first cheek (6), away from the channel (8),

#### Patentansprüche

1. Schnürhaken für Schnürverschlüsse, mit einer ersten Wange (6, 56) und einer zweiten Wange (7, 57), die einander gegenüberliegend angeordnet sind und zwischen sich einen Kanal (8, 58) bilden mit einer Grundfläche (9, 59) des Kanales, die für den Haken eine Schnürfläche bildet, wobei der Grund des Kanales (8, 58) in dem Schnürhaken integriert ist, und die Grundfläche (9, 59) des Kanales (8, 58) eine im wesentlichen torische Form aufweist, **dadurch gekennzeichnet, dass** die torische Fläche durch Rotation eines ersten Kreisbogens (12) um eine Achse gebildet ist, relativ zu der ein zweiter Kreisbogen (13) zentriert ist, wobei die ersten und zweiten Bögen (12, 13) sich über Winkel zwischen 15° und 180° und vorzugsweise nahe an dem höheren, definierten Wert erstrecken, und dass der Haken umfangskanten (15) aufweist, wobei die Kanten wenigstens in einem Bereich, in dem der Schnürsenkel in den Kanal des Hakens eintritt und wieder austritt, zur Außenseite des Kanales (8, 58) hin gekrümmt sind.
2. Schnürhaken nach Anspruch 1, wobei der Kanal (8) gegenüberliegend zu der Grundfläche (9) offen ist.
3. Schnürhaken nach einem der vorhergehenden Ansprüche, mit Sicherungsmitteln, um den Schnürsenkel in dem Kanal zu halten.
4. Schnürhaken nach Anspruch 3, wobei die Sicherungsmittel einen verengten Abschnitt (14, 21) des Kanales im Bereich seines Mundes (10) aufweisen.
5. Schnürhaken nach Anspruch 4, wobei der verengte Abschnitt durch einen Schnabel (14, 21) gebildet ist, der als Fortsatz der zweiten Wange (7) gestaltet ist.
6. Schnürhaken nach Anspruch 5, wobei der Schnabel (21) zum Inneren des Kanales (8) unter Bildung

eines Auges gebogen ist.

7. Schnürhaken nach einem oder mehreren der vorhergehenden Ansprüche, wobei der Kanal (8) auf der der Schnürfläche gegenüberliegenden Seite geschlossen ist.
8. Schnürhaken nach einem oder mehreren der vorhergehenden Ansprüche, mit einem ersten Abschnitt und einem zweiten Abschnitt, wobei der erste Abschnitt Mittel (52, 53) zum Befestigen des Hakens an der Schuhware aufweist, und wobei die Schnürfläche an dem zweiten Abschnitt gebildet ist und der zweite Abschnitt am ersten Abschnitt schwenkbeweglich montiert ist.
9. Schnürhaken nach einem oder mehreren der vorhergehenden Ansprüche, mit einem nietförmigen Ansatz (31), der an dem Haken einstückig angeformt ist und von der ersten Wange - weg vom Kanal (8) - abragt.

#### Revendications

1. Crochet de laçage pour fixations par laçage, comprenant une première joue (6, 56) et une seconde joue (7, 57), disposées l'une en face de l'autre et délimitant entre elles un canal (8, 58) avec une surface de base (9, 59) du canal qui délimite une surface de laçage pour le crochet, la base du canal (8, 58) étant formée afin qu'elle soit solidaire du crochet de laçage et la surface de base (9, 59) du canal (8, 58) ayant une forme pratiquement toroïdale, caractérisé en ce que la surface toroïdale est délimitée par la rotation d'un premier arc (12) de cercle autour d'un axe sur lequel est centré un second arc (13) de cercle, le premier et le second arc (12, 13) s'étendant sur des angles respectifs compris entre 15 et 180° et de préférence proches de la valeur supérieure indiquée, et en ce que le crochet a des bords périphériques (15), ces bords étant tournés vers l'extérieur du canal (8, 58) au moins dans une région dans laquelle le lacet pénètre dans le canal (8, 58) du crochet et le quitte.
2. Crochet de laçage selon la revendication 1, dans lequel le canal (8) est ouvert du côté opposé à la surface de base (9).
3. Crochet de laçage selon l'une quelconque des revendications précédentes, comprenant un dispositif de retenue destiné à maintenir le lacet dans le canal.
4. Crochet de laçage selon la revendication 3, dans lequel le dispositif de retenue comporte une partie étroite (14, 21) du canal (8) dans la région de son

embouchure (10).

5. Crochet de laçage selon la revendication 4, dans lequel la partie étroite est délimitée par une lèvre (14, 21) formée par un prolongement de la seconde joue (7). 5
6. Crochet de laçage selon la revendication 5, dans lequel la lèvre (21) est courbée vers l'intérieur du canal (8) pour la formation d'un oeillet. 10
7. Crochet de laçage selon une ou plusieurs des revendications précédentes, dans lequel le canal (8) est fermé du côté opposé à la surface de laçage. 15
8. Crochet de laçage selon une ou plusieurs des revendications précédentes, comprenant une première partie et une seconde partie, la première partie ayant un dispositif (52, 53) de fixation du crochet à une chaussure, la surface de laçage étant formée sur la seconde partie, et la seconde partie étant montée afin qu'elle puisse pivoter sur la première partie. 20
9. Crochet selon une ou plusieurs des revendications précédentes, comprenant un accessoire (37) analogue à un rivet, formé solidairement avec le crochet et s'étendant depuis la première joue (6) du côté opposé au canal (8). 25

30

35

40

45

50

55

FIG. 2

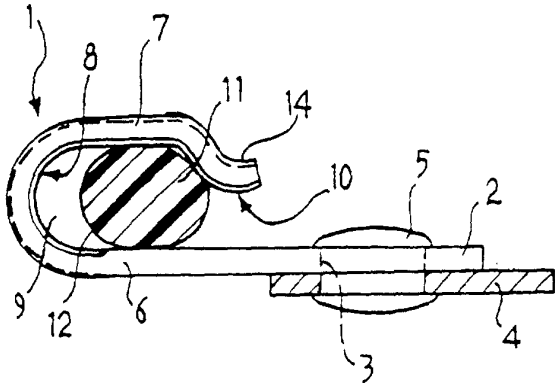


FIG. 1

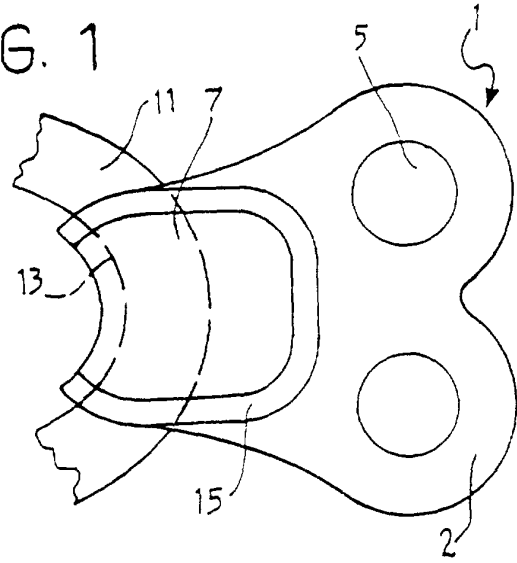


FIG. 3

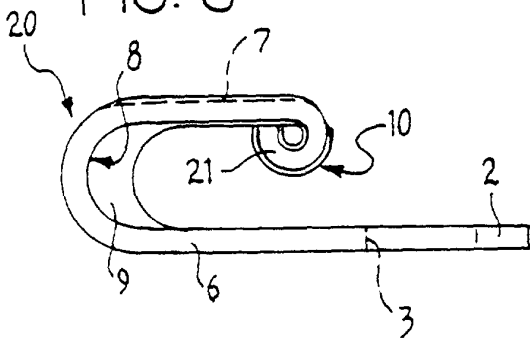


FIG. 4

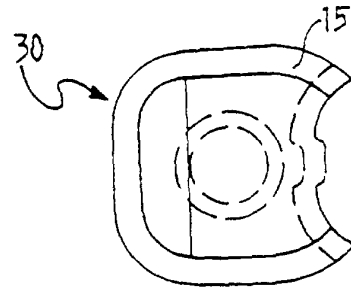


FIG. 5

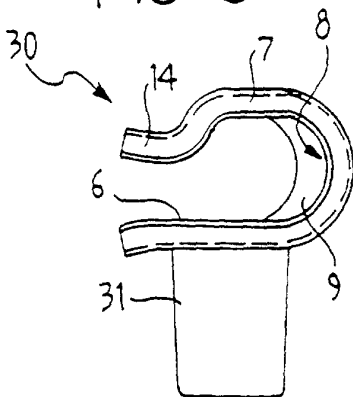


FIG. 6

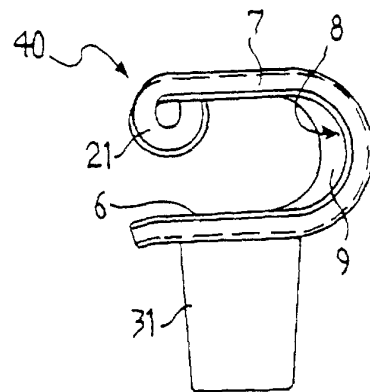


FIG. 7

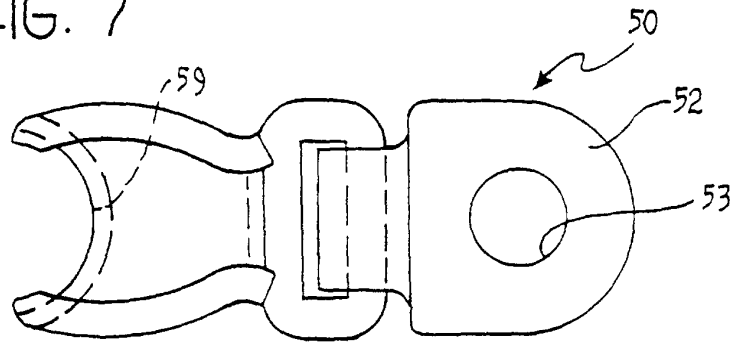


FIG. 8

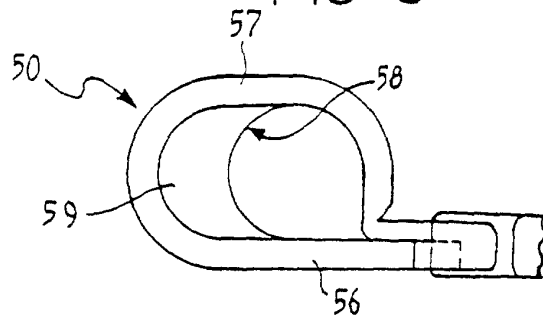


FIG. 9

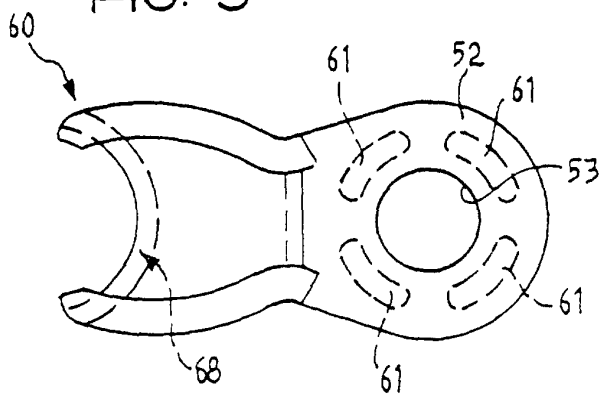


FIG. 10

