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(54) Lace-guiding hook

(57) Hook for laces of footwear, characterized in that it is made up of a first and second elements (1, 2) having coaxial portions (13, 20) and engaged to each other, the first element (1) intended to be fixed to the vamp of a shoe, while the second (2) is pivotable about the common axis (b) of the coaxial portions: the coaxial portions (13, 20) of said elements (1, 2) delimiting, in cooperation with each other, a bore (4) for the passage of a lace which results either fully closed or open on one side, depending on the mutual angular position of the two elements (1, 2). (Fig. 2).

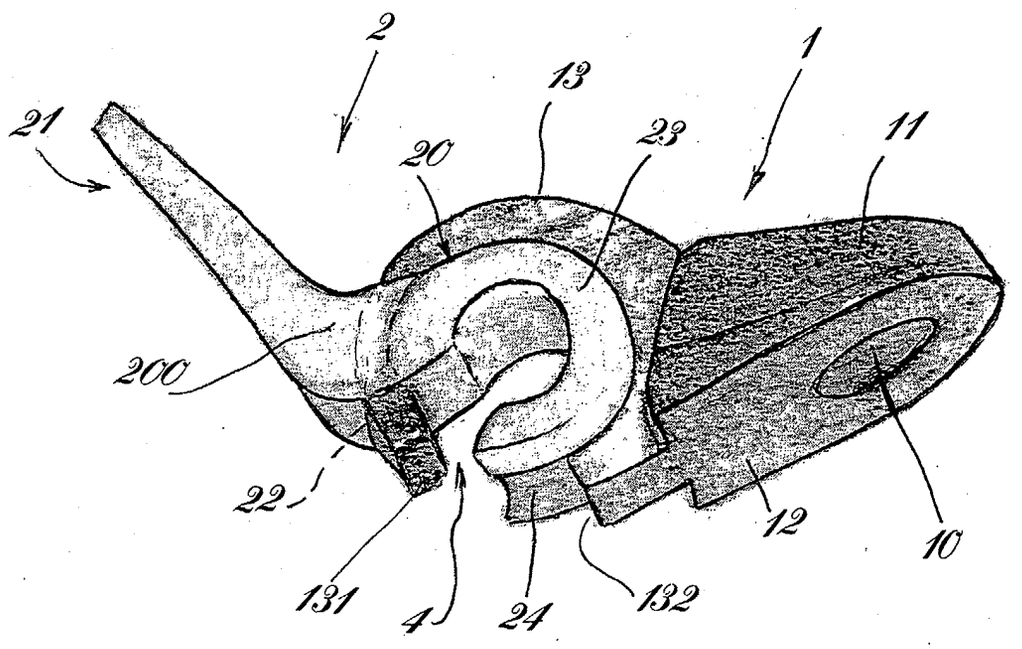

Fig. 2

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Description

[0001] The present invention relates to a hook for laces, especially a lace-guiding hook for footwear to be used in the accident-prevention field.

[0002] It is known that the shoes used by those who operate in work environments with risk of accidents must have special characteristics, among which the possibility of being taken off as quickly as possible both after an accident and upon an impending danger such as, for example, when a foot of the operator gets caught in a point of the work environment exposed to the transit of vehicles, carriages or loads moved by other machines, or exposed to the risk of toxic or high-temperature fluids leakage.

[0003] The main object of the present invention is to propose a hook for laces which is practical, safe, cost-effective and allowing readily loosening the laces and, consequently, taking off the shoe very quickly.

[0004] This result has been achieved, according to the invention, by adopting the idea of making an apparatus having the characteristics disclosed in the claim 1. Further characteristics of the present invention being set forth in the dependent claims.

[0005] The advantages deriving from the present invention lie in the fact that, in an emergency situation, it is possible loosening the laces with maximum ease, rapidity and safety and, at the same time, ensuring a proper ritention of the laces under normal conditions.

[0006] Besides, a hook for laces according to the invention is easy to make, cost-effective and reliable also after a prolonged service life.

[0007] These and other advantages and characteristics of the invention will be best understood by anyone skilled in the art from a reading of the following description in conjunction with the attached drawings given as a practical exemplification of the invention, but not to be considered in a limitative sense, wherein:

- Fig. 1 is a schematic, antero-lateral perspective view of a hook for footwear, according to the invention, in closed condition;
- Fig. 2 is a schematic, perspective bottom view of the hook of Fig. 1;
- Fig. 3 is a schematic side view of the hook of Fig. 1; and
- Fig. 4 is a schematic cross-section view of the front portion of the second element.

[0008] Reduced to its basic structure, and reference being made to the figures of the attached drawings, a hook for footwear according to the invention is made up of a first and second elements (1, 2). The first element (1) is intended to be attached to a preset point of the vamp (3) of a shoe. For example, the said first element (1) can be attached to the vamp (3) by means of a rivet or the like disposed through a hole (10) formed in the same first element (1) in correspondence of its rear portion, that is, in correspondence of a portion exhibiting a surface (12) intended to make contact with the vamp (3). The said first element (1) is also provided with a front portion (13) having a profile substantially hook-shaped, that is, a profile in the form of a circle arc with angular extension larger than 180°, with the concavity facing said surface (12). For example, the said first element (1) may be made in a single piece by die-casting technique.

[0009] The second element (2) of the present hook also has a front portion (20) and a rear portion (21). It may be made in one moulded piece of plastic material, such as nylon 66, for example. The front portion (20) of said second element (2) has a crook-like profile, that is, a profile of circle arc of angular extension larger than 180°. The concavity of the front portion (20) of the second element (2) faces the axis of longitudinal development of the rear portion (21). Provided in correspondence of the region (200) joining the front and rear portions (20, 21) of the second element (2) is a slit (22) whose width (a) corresponds substantially to that of the front portion (13) of the first element (1).

[0010] In practice, when viewed in profile, each of said two elements (1, 2) has a shape like the body of a question mark.

[0011] The outer diameter of the front portion (20) of the second element (2) is the same as the inner diameter of the front portion (13) of the first element (1) so that, as best described later on, these two portions are able to slide on each other.

[0012] When the rear portion (21) of the second element (2) lies on the corresponding portion (11) of the first element (1), as shown in Figs. 1 and 3, the two front portions (13, 20) of the two elements delimit, with the respective concavities facing one another, a transverse bore (4) the axis of which is marked with (b) in Fig.3 and inside which the lace (not shown) is made to pass to tighten the vamp on the foot.

[0013] When the rear portion (21) of the second element (2) is lifted as indicated by the arrow (U) in Fig. 3, so that it results disposed like in Fig. 2, the corresponding consequent rotation of the front portion (20) about the axis (b) causes the bore (4) to open up on one side, which side is precisely that of the hook facing the vamp (3), so that the lace can come out of it and become loose.

[0014] Advantageously, in correspondence of both its sides, the front portion (20) of the second element (2) exhibits a projecting edge (23) which forms a groove (24) between the sides of the same portion (20) which, during the rotation of the second element (2) about the said axis (b), is able to slide with a slight friction onto the inner surface (130) of the first element (1), thereby contributing to stabilizing the rotation.

[0015] Also advantageously, provision is made, as schematically shown in Fig. 4, that each of the two sides of the front portion (20) of the second element (2) will converge towards the groove (24) delimited by said edges (23).

[0016] Moreover, advantageously, the rear portion

(21) of the second element (2) is longer than the corresponding portion (11) of the first element (1), thereby projecting rearwardly of the latter and allowing the said rotation to be performed easily by only a finger of a hand. Alternatively, the rear portion (21) of the second element (2) is shorter than the corresponding portion (11) of the first element (2) to allow holding it by both sides with two fingers of one hand, instead of by a rear hold.

[0017] The assembly of the two elements (1, 2) is made as follows.

The second element (2) is made to rest on the first (1) so that one side of the respective front portion (20) will result on one side of the front portion (13) of the first element (1), and that the region (200), joining the front and rear portions of the second element (2), will result between the two ends (131, 132) of the front arc-shape portion (13) of the first element. Then, a slight pressure is exerted on the second element (2), pushing it towards the first, thereby facilitating the flexing of said side, that is, the flexing of the relevant edge (23), firstly in the direction of the groove (24) and then in the opposite direction, so that the inner surface of the portion (13) of the first element (1) will result in contact with the groove (24) of the second element (2).

[0018] Finally, the second element (2) is pivoted about the said axis (b), by passing the end (131) of the front portion (13) of the first element (1) through the slit (22) of the second element (2).

[0019] In conclusion, a hook for laces according to the present invention is made up of two elements (1, 2) having coaxial portions (13, 20) and engaged to each other, the first element (1) intended to be fixed to the vamp of a shoe, while the second (2) is pivotable about the common axis (b) of the coaxial portions: the coaxial portions (13, 20) of said elements (1, 2) delimiting, in cooperation with each other, a bore (4) for the passage of a lace which results either fully closed or open on one side, depending on the mutual angular position of the two elements (1, 2).

[0020] The above description outlines the safe operation and simple construction of the proposed hook, which hook is formed by only two pieces and does not exhibit or require any auxiliary member, such as pins or the like for the interconnection thereof.

Claims

1. Hook for laces of footwear, **characterized in that** it is made up of a first and second elements (1, 2) having coaxial portions (13, 20) and engaged to each other, the first element (1) intended to be fixed to the vamp of a shoe, while the second (2) is pivotable about the common axis (b) of the coaxial portions: the coaxial portions (13, 20) of said elements (1, 2) delimiting, in cooperation with each other, a bore (4) for the passage of a lace which results either fully closed or open on one side, depending on the mutual angular position of the two elements (1, 2).

2. Hook for laces according to claim 1, **characterized in that** each of said elements (1, 2) has a front portion (13, 20) and a rear portion (11, 21), the front portions (13, 20) of the two elements being coaxial with each other, the second element (2) having a slit (22) in correspondence of the region joining the respective front and rear portions, the front portion (13) of the first element (1) going through the said slit.

3. Hook for laces according to claims 1 and 2, **characterized in that** the front portions (13, 20) of the said two elements (1, 2) have a profile like a circle arc of angular extension larger than 180°, and **in that** the outer diameter of the front portion (20) of the second element (2) is equal to the inner diameter of the front portion (13) of the first element (1).

4. Hook for laces according to claims 1, 2 and 3, **characterized in that** the front portion (20) of the second element (2) has a groove (24) for sliding onto the inner surface (130) of the first element (1).

5. Hook for laces according to claim 1, **characterized in that** the said groove (24) is delimited laterally by two sides with projecting edges (23) of the rear portion (20) of the second element (2): the said sides being convergent towards the said groove (24).

6. Hook for laces according to one or more preceding claims, **characterized in that** the rear portion (21) of the second element (2) is longer than the corresponding portion (11) of the first element (1).

7. Hook for laces according to one or more of claims 1 to 5, **characterized in that** the rear portion (21) of the second element (2) is wider than the corresponding portion (11) of the first element (1).

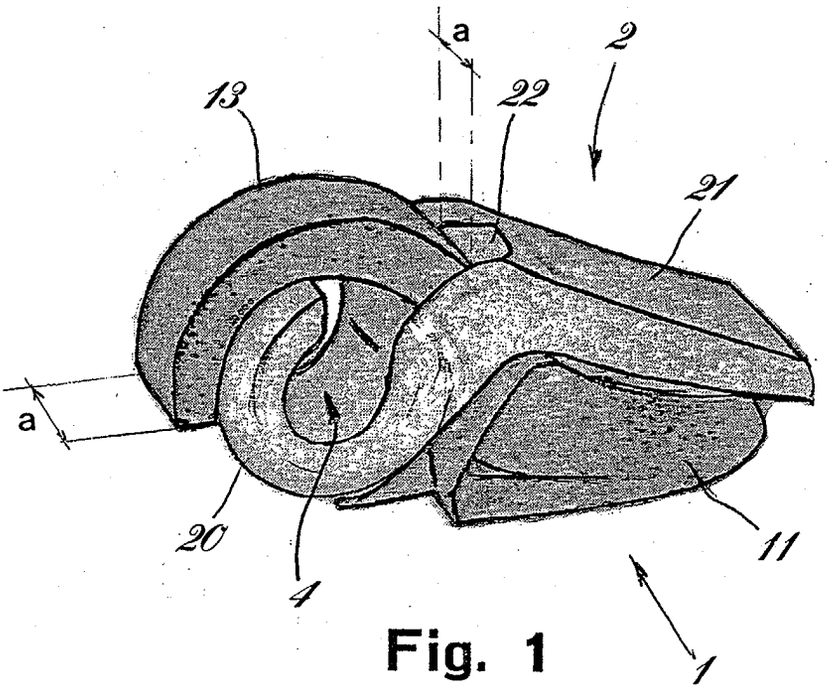

Fig. 1

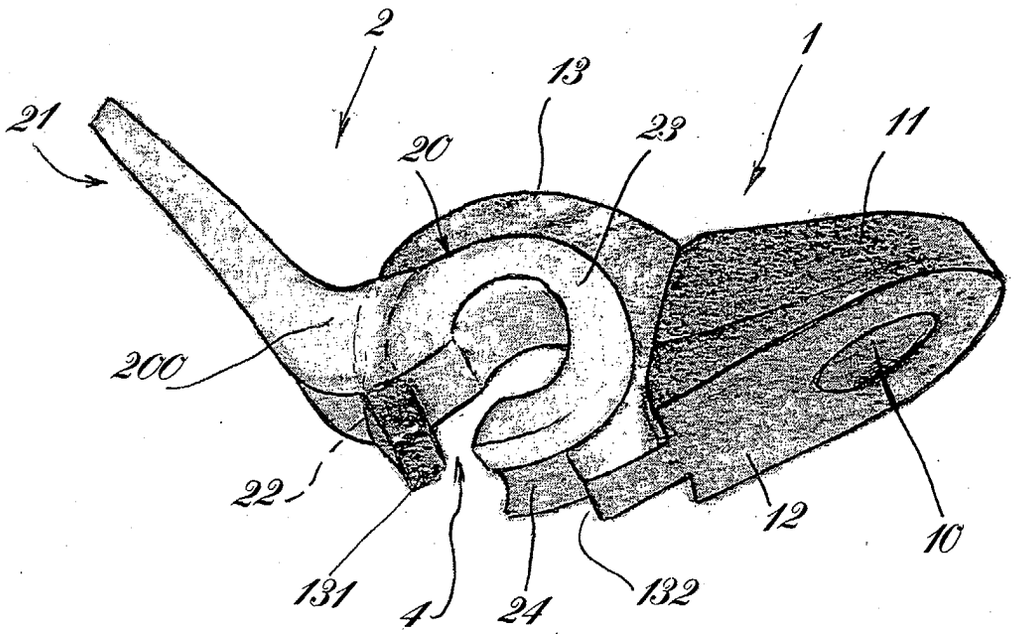

Fig. 2

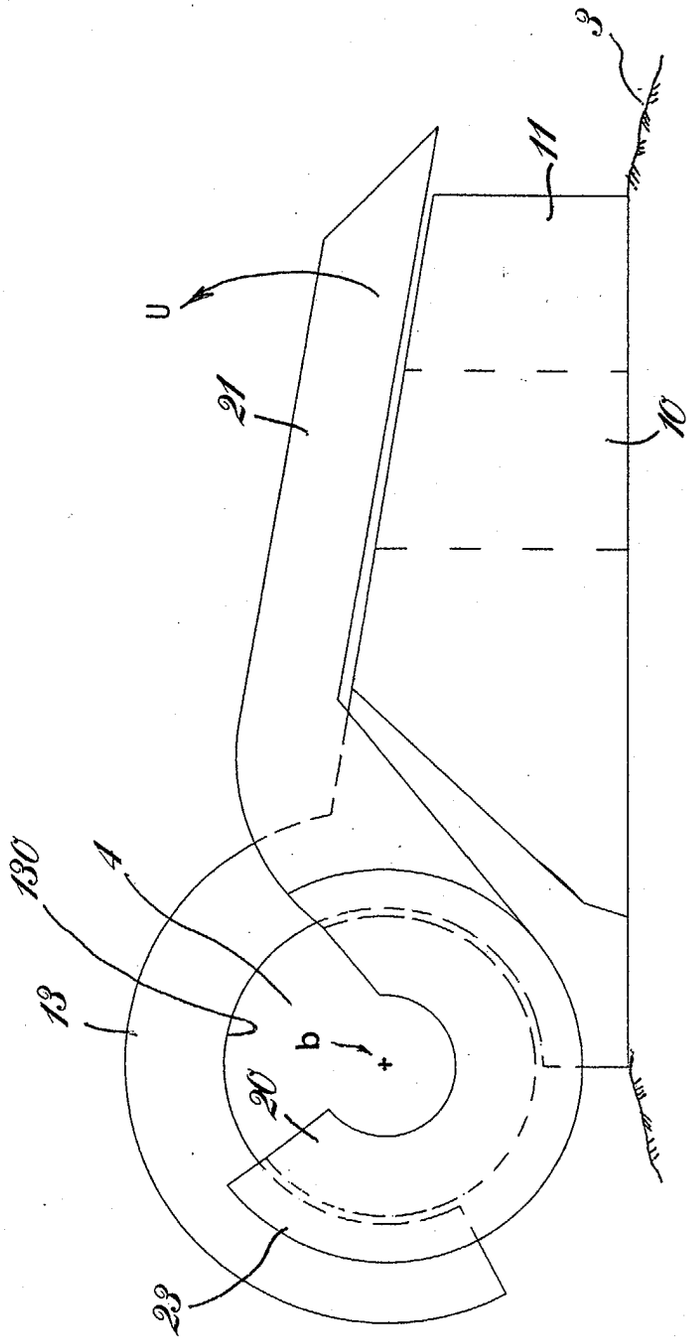

Fig. 3

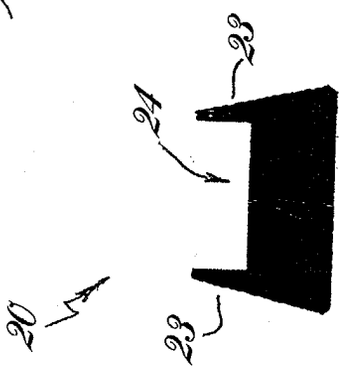

Fig. 4

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EUROPEAN SEARCH REPORT

Application Number
EP 04 42 5332

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
X	EP 1 050 224 A (SAMMI EXPORT S.R.L) 8 November 2000 (2000-11-08) * the whole document *	1,2,6	A43C3/00
X	US 1 510 933 A (GEORGE ROSS F) 7 October 1924 (1924-10-07) * column 1, line 83 - column 2, line 62; figures 1-6 *	1	
A	EP 1 325 689 A (FASTEN ITALIA S.R.L) 9 July 2003 (2003-07-09) * the whole document *	1	

TECHNICAL FIELDS SEARCHED (Int.Cl.7)

A43C

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	23 May 2005	Cianci, S

CATEGORY OF CITED DOCUMENTS

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ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 04 42 5332

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23-05-2005

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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82