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(54) Fastener particularly for sports shoes

(57) A fastener, particularly for sports shoes, comprising a baseplate which can be rigidly coupled to a flap of the shoe; a rack is slidingly associated with the baseplate and has a means which can be activated by the user for temporary engagement in seats formed longitudinally with respect to the baseplate.

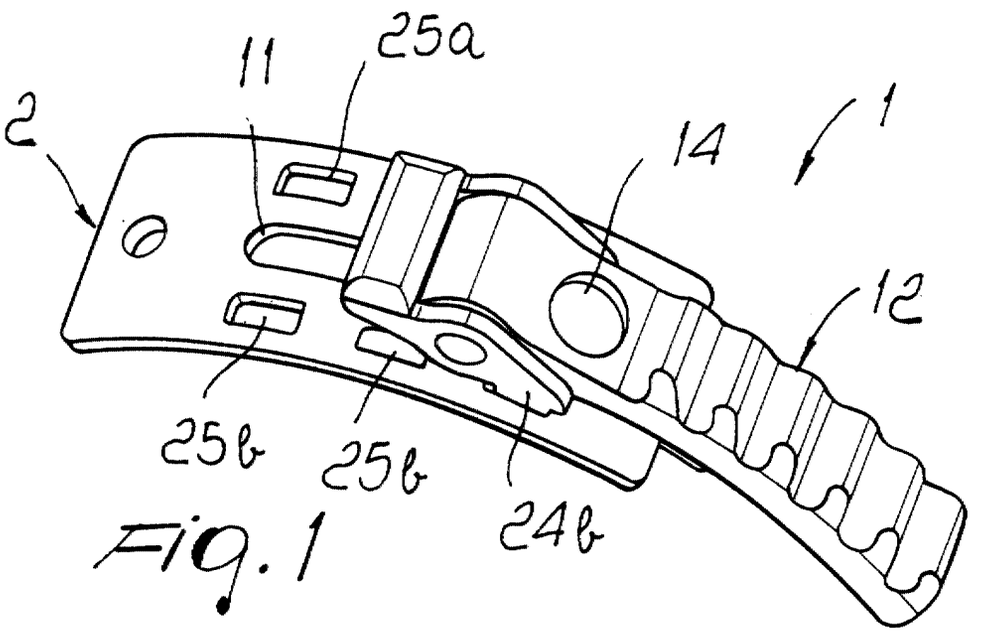

Fig. 1

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Description

[0001] The present invention relates to a fastener particularly for sports shoes.

[0002] Currently it is known to manufacture sports shoes, such as for example ski boots or roller skates or ice skates, by using a shell made of plastics to which a quarter is articulated.

[0003] The shell and the quarter have flaps which must be mutually fastened so as to allow optimum positioning and locking of the foot inside the shoe.

[0004] Accordingly, it is known to use closure levers to achieve this fastening, and levers are therefore known which are constituted by a lever arm, articulated to two shoulders which protrude from a baseplate which can be rigidly coupled to a flap to be joined, which allows for example to pull an annular member whose end engages the teeth of a rack which is associated with the other flap to be joined.

[0005] However, the above conventional type of lever has drawbacks. The adjustment of the degree of mutual fastening of the flaps has discrete variations due to the need to place the traction member between two adjacent teeth. Moreover, in addition to this limitation, there is the need to use levers which have a considerable length, since it is necessary to take into account the different shape of the foot or leg of the user.

[0006] French patent No. 2,561,503 partially solves the above problem and discloses a fastener for ski boots which includes a lever which is associated with a ring which detachably engages at one of a plurality of teeth of a rack whose position with respect to a baseplate is variable by means of two transverse slots which selectively engage a tooth which protrudes transversely to the baseplate.

[0007] The longitudinal sliding of the rack is guided by a rivet which can slide at a seat formed longitudinally in the baseplate and is adapted to mate the baseplate with the rack.

[0008] However, also the above described device has drawbacks, since, owing to the stresses applied to the boot during sports practice, the rack and the baseplate may mutually disengage, altering the degree of fastening selected by the user.

[0009] Also, only a very limited degree of adjustment can be achieved and is often insufficient.

[0010] Also, the user does not perceive the degree of movement applied to the rack with respect to the baseplate.

[0011] Other conventional devices allow to modify the position of the rack with respect to the baseplate by unscrewing a screw and screwing it into one of various threaded holes arranged on an axis which is longitudinal to the baseplate.

[0012] Also, the above described system has drawbacks, worsened by the need to have a tool in order to perform the adjustment, which is also time-consuming and subject to the possible loss of the screw during its handling, especially if one considers that these operations are usually performed while wearing gloves.

[0013] Also, if the sports shoe is tried on in a shop, this complicated operation discourages the user from choosing that particular shoe, accordingly choosing models of a different manufacturer.

[0014] The aim of the present invention is therefore to solve the above noted drawbacks and thus solve the described technical problems, by providing a fastener, particularly for sports shoes, which includes a rack and allows to achieve optimum fastening of the flaps to be joined of the shoe even if the shape of the foot or leg of the various users changes, therefore adapting without entailing a great length for the rack.

[0015] Another object is to provide a fastener which allows the user to perceive the degree of intervention already performed or to be performed on the rack in order to optimize the degree of fastening.

[0016] Another object is to provide a fastener, particularly for sports shoes, in which optimization of the degree of fastening can be achieved without the aid of particular tools and very rapidly and easily.

[0017] Another object is to provide a fastener, particularly for sports shoes, which is structurally simple and has low manufacturing costs.

[0018] This aim, these objects and others which will become better apparent from the description that follows are achieved by a fastener as claimed in the appended claims.

[0019] Other objects will become better apparent during the description that follows, which must be considered together with the accompanying drawings, which illustrate by way of non-limitative example a particular embodiment and in which:

Figure 1 is a perspective view of the rack associated with the baseplate;
Figure 2 is an exploded perspective view of the rack associated with the baseplate;
Figure 3 is a bottom perspective view of the rack and the baseplate;
Figure 4 is a view, similar to Figure 1, of the rack, shown locked with respect to the baseplate;
Figure 5 is a front section view of the rack in the locked position;
Figure 6 is a view similar to Figure 4, showing the rack disengaged from the baseplate;
Figure 7 is a view similar to Figure 5, showing the rack disengaged;
Figure 8 is a front section view of a boot provided with the fastener according to the invention;
Figure 9 is a front section view of the rack;
Figure 10 is a top view of the rack associated with the baseplate;
Figure 11 is a top view of the baseplate.

[0020] With reference to the above cited figures, and bearing in mind that they exemplify a particular embod-

iment and are in variable scale and that in the figures individual reference numerals designate identical or equivalent parts, the fastener has been generally designated by the reference numeral 1 and comprises a baseplate 2 which can be rigidly associated for example by a first rivet 3, with a first flap 4 of the sports shoe which is part of the shell or of a quarter 5 of the shoe.

[0021] The baseplate 2 has a means for temporary coupling to the first flap. The means is constituted by a wing 6 which is substantially S-shaped and arranged in a mirror-symmetrical position, its free end being insertable at a first opening 7 formed in the first flap 4 proximate to its end that is adjacent to a second flap 8 to be fastened.

[0022] The free end of the wing 6 abuts at a protrusion 9 which protrudes axially with respect to the first flap 4 at the first opening 7 and is obtained by providing a longitudinal recess in the first flap 4, up to approximately the vicinity of the position of the first rivet 3.

[0023] A longitudinal slot 11 is provided at a recess 10, on the overlying region of the baseplate 2.

[0024] A rack 12 is slidingly associated with the baseplate 2 and has a through hole 13 proximate to the end that is directed away from the second flap 8. The through hole 13 accommodates a second rivet 14 having a stem 15 that can be arranged at the slot 11.

[0025] The second rivet 14 keeps the rack and the baseplate mutually associated by having a washer 16, at its free end. The washer 16 abuts against the lower surface of the baseplate 2.

[0026] Proximate to the hole 13, a means which can be activated by the user for temporarily engaging the baseplate is associated with the rack 12. The means is constituted by a pawl 17 which is substantially U-shaped and accordingly has two wings 18a, 18b between which it is possible to place the end of the rack 12 that is adjacent to the hole 13. The pair of wings 18a and 18b are pivoted to the rack by means of a pivot 19 which passes at two suitable second holes 20a, 20b formed in the pair of wings and at a third hole 21, formed transversely to the end of the rack.

[0027] At the opposite end, the pawl has a base 22 for connecting the wings 18a and 18b. The base 22 acts as a button which can be activated by the user.

[0028] A spring 23 is arranged coaxially to the pivot 19. The spring 23 is adapted to keep the base 22 raised as much as possible with respect to the underlying baseplate 2.

[0029] A pair of teeth 24a, 24b is arranged at the tips of the wings 18a and 18b, at the surfaces that face the underlying baseplate. The teeth 24a, 24b are adapted to temporarily engage respective pairs of seats 25a, 25b which are arranged parallel to each other and are formed at two axes which are longitudinal with respect to the baseplate, in a region which is adjacent to the slot 11.

[0030] Naturally, the shape of the teeth 24a and 24b and the number and arrangement of the seats 25a and 25b can be the most pertinent according to specific requirements and therefore according to the intended selectivity of the position of the rack 12 with respect to the underlying baseplate 2.

[0031] The use of the fastening according to the invention is in fact as follows: once the baseplate 2 has been associated with the first flap 4 to be joined, and assuming that at the second flap 8 there is an associated lever arm 26, of a per se known type, which has a connecting member 27 which ends with a pivot 28 which can be selectively associated at a chosen tooth of the rack 12, it is sufficient for the user to achieve a very fine adjustment of the degree of fastening of the flaps.

[0032] Once the position of the pivot 28 on the rack has been preselected, it is in fact sufficient for the user to optimize the fastening by pressing on the base 22 of the pawl 17 so as to disengage its teeth 24a and 24b from one of the pairs of seats 25a and 25b, thus forcing the transfer of the teeth 24a and 24b into one of the adjacent pairs of seats 25a and 25b in order to increase or decrease slightly the degree of fastening that can be obtained by fastening the lever arm 26.

[0033] The shape of the pair of teeth 24a and 24b and of the respective seats 25a and 25b and the spring 23 have such dimensions as to easily allow optimum positioning of the teeth in the corresponding seats.

[0034] The adjustment of the rack is performed while the lever is open, with no closure load applied.

[0035] It has thus been observed that the invention has achieved the intended aim and objects, since a fastener has been obtained which has a rack which can be selectively arranged rapidly and easily by the user in a chosen point of the underlying baseplate which is rigidly coupled to the first flap of the shoe, allowing to optimize the degree of fastening of the shoe flaps to be joined even in the presence of very different foot and leg shapes.

[0036] The particular structure of the rack and of the temporary engagement means are such that the degree of intervention already performed on the rack to optimize the degree of fastening is immediately visible to the user.

[0037] Also, the degree of fastening can be achieved without the aid of any particular tool and is immune to accidental disengagements during sports practice.

[0038] The ease with which it is possible to modify the position of the rack with respect to the baseplate and the broad selectivity of their mutual position facilitates the presentation of these characteristics by sales personnel in shops.

[0039] The materials and the shape or dimensions of the individual components of the shoes may of course be the most pertinent and disparate according to specific requirements.

Claims

1. A fastener, particularly for sports shoes, comprising

a baseplate which can be rigidly coupled to a member of said shoe, **characterized in that** a rack is slidingly associated with said baseplate and has a means which can be activated by the user for temporary engagement in seats formed longitudinally with respect to said baseplate.

2. The fastener according to claim 1, **characterized in that** said baseplate is rigidly associated, by means of a first rivet, with a first flap of said sports shoe, **characterized in that** said baseplate has a means for temporary coupling to said first flap, said means being constituted by a wing which is substantially S-shaped and is arranged in a mirror-symmetrical position, its free end being inserted in a first opening formed in said first flap proximate to its end that is adjacent to a second flap to be fastened, the free end of said wing abutting at a protrusion which protrudes axially with respect to said first flap at the first opening, said protrusion being obtained by providing a longitudinal recess in said first flap approximately up to the vicinity of the position of said first rivet.

3. The fastener according to claim 2, **characterized in that** a longitudinal slot is formed at said recess on the overlying region of said baseplate.

4. The fastener according to claim 3, **characterized in that** a rack which has, proximate to the end that is directed away from said second flap, a through hole which acts as a seat for a second rivet whose stem can be arranged at said slot, is slidingly associable with said baseplate.

5. The fastener according to claim 4, **characterized in that** said second rivet keeps said rack and said baseplate associated by having, at its free end, a washer which abuts against the lower surface of said baseplate, a means which can be activated by the user for temporary engagement with said baseplate being associated with said rack proximate to said hole.

6. The fastener according to claim 5, **characterized in that** said means is constituted by a pawl which is substantially U-shaped and has a pair of wings between which it is possible to arrange the end of said rack that is adjacent to said hole, said pair of wings being pivoted to said rack by means of a pivot which passes at a pair of second holes formed in said pair of wings and at a third hole formed transversely to said ends of said rack.

7. The fastener according to claim 6, **characterized in that**, on the opposite side with respect to said rack, said pawl has a base for mutually connecting said wings, said base acting as a button which can be activated by the user.

8. The fastener according to claim 7, **characterized in that** a spring is arranged coaxially to said pivot and is adapted to keep said base raised as much as possible with respect to said underlying baseplate.

9. The fastener according to claim 8, **characterized in that** at the ends of said wings there are, at the surfaces that face said underlying baseplate, two teeth which engage temporarily at pairs of seats which are arranged parallel to each other and are formed at two axes which are longitudinal to said baseplate in a region which is adjacent to said slot.

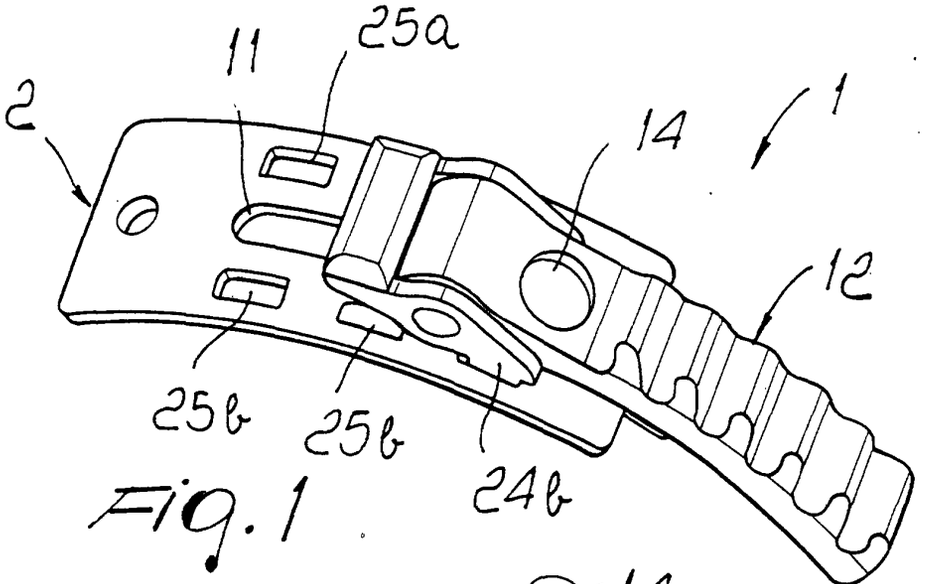

Fig. 1

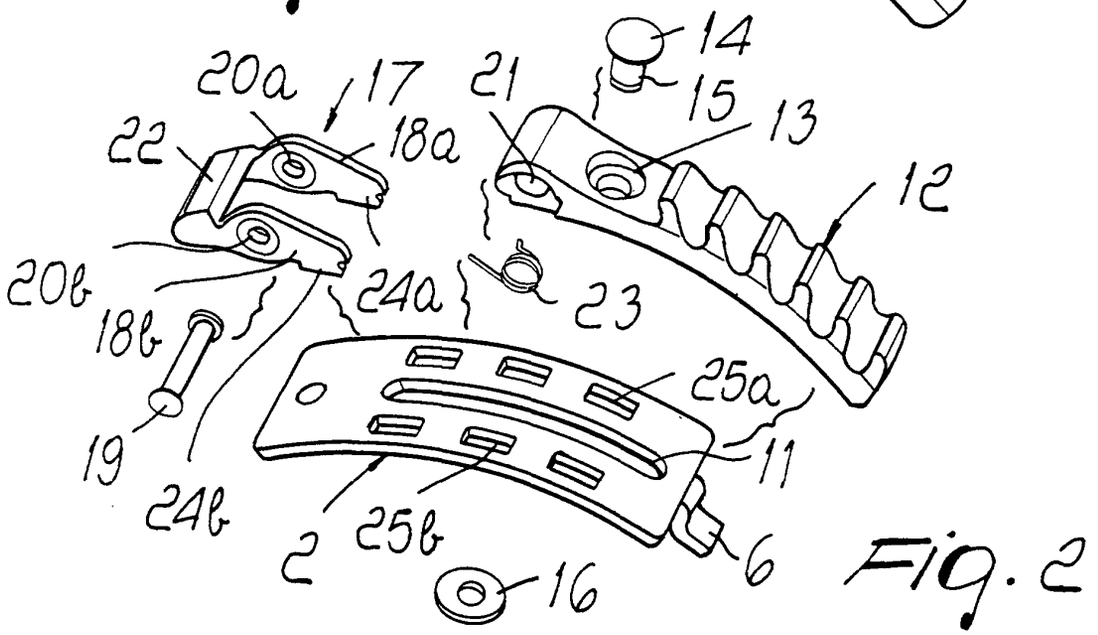

Fig. 2

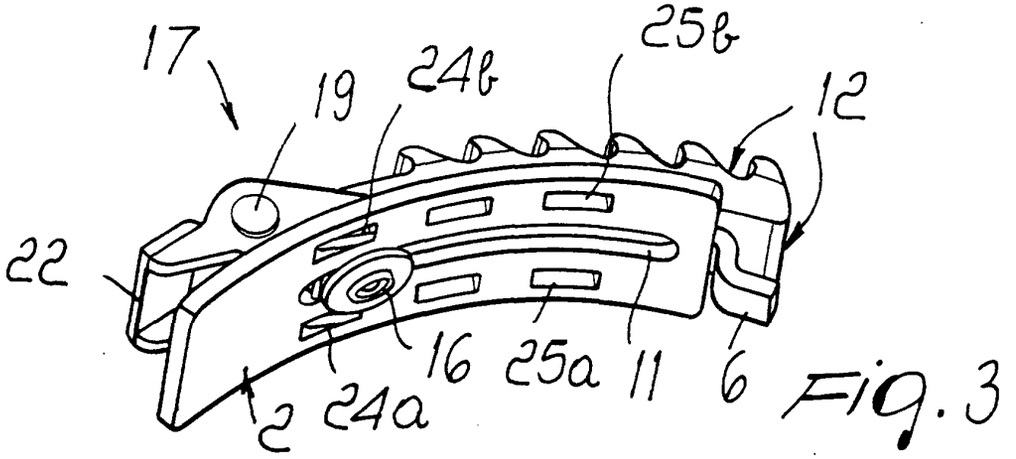

Fig. 3

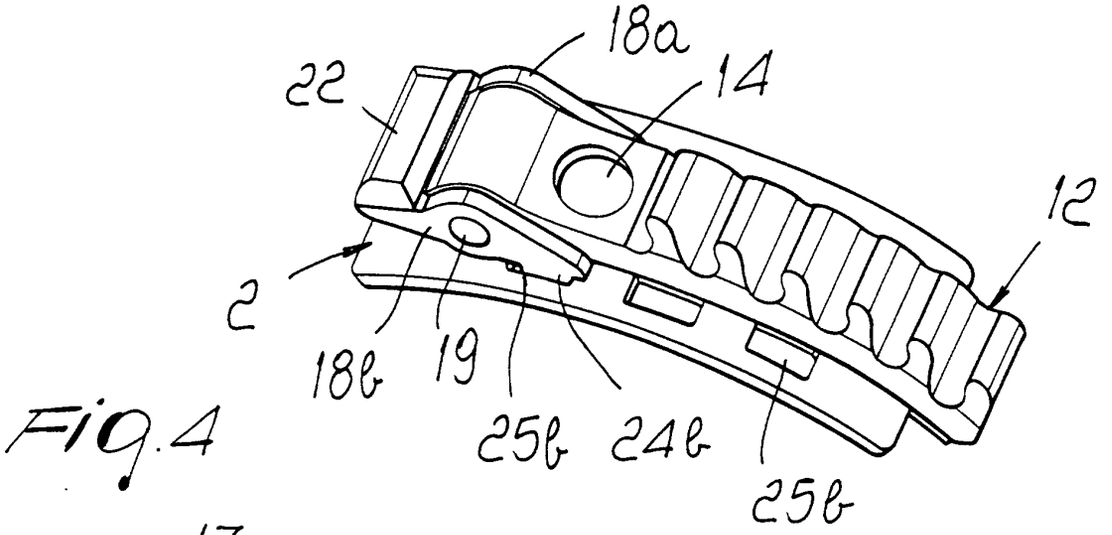

Fig. 4

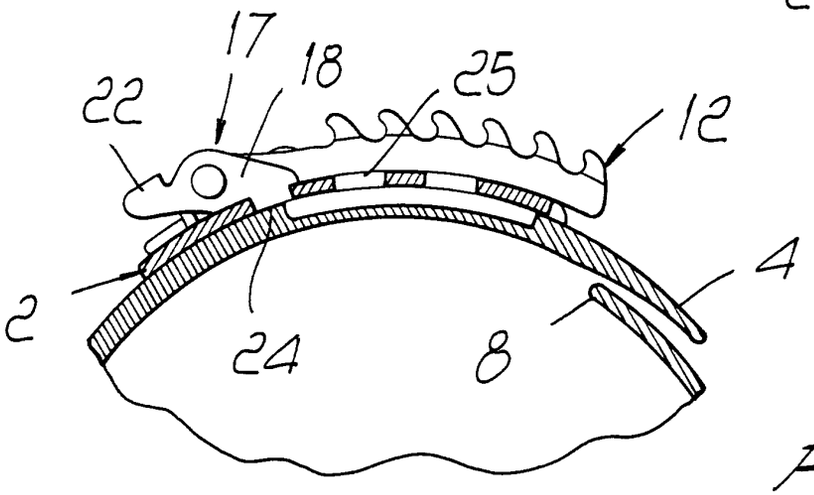

Fig. 5

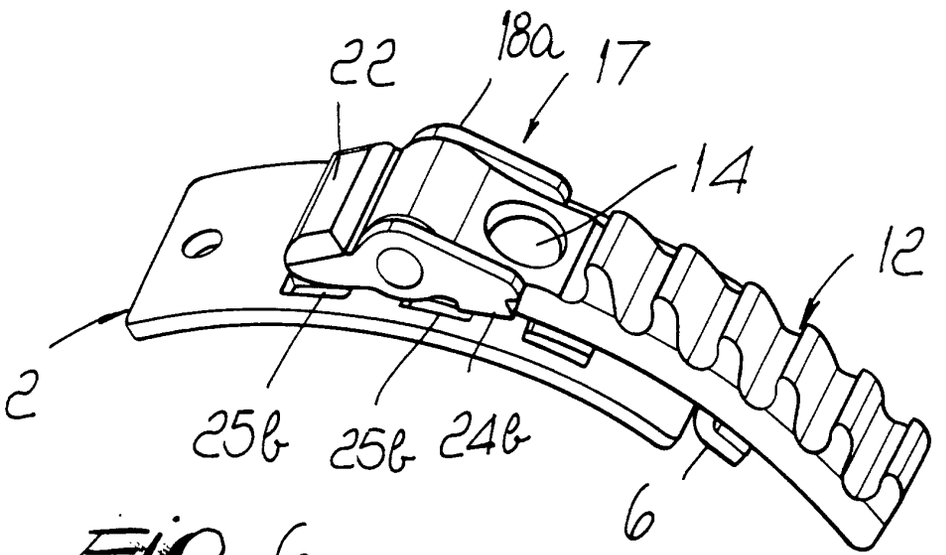

Fig. 6

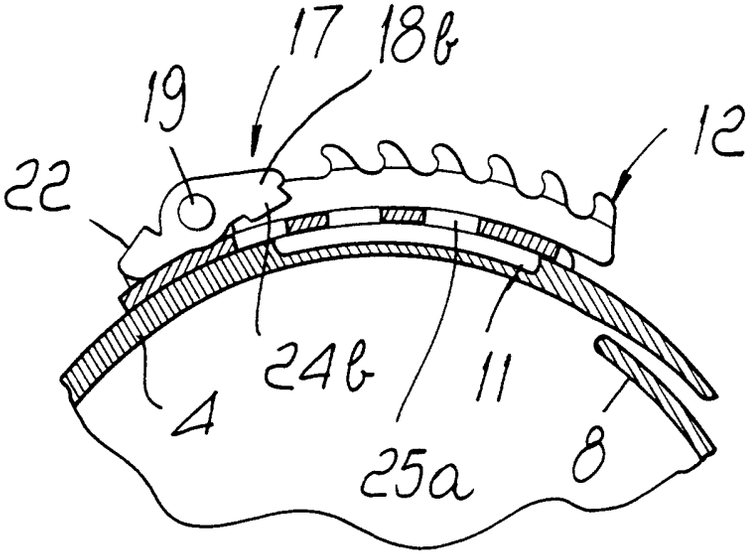

Fig. 7

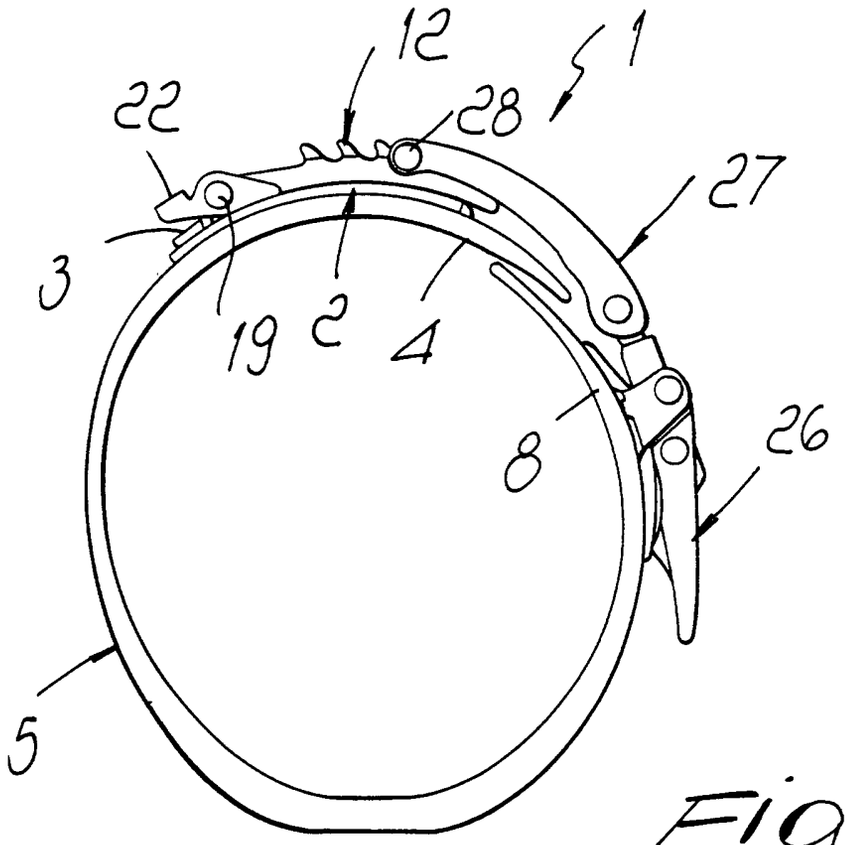

Fig. 8

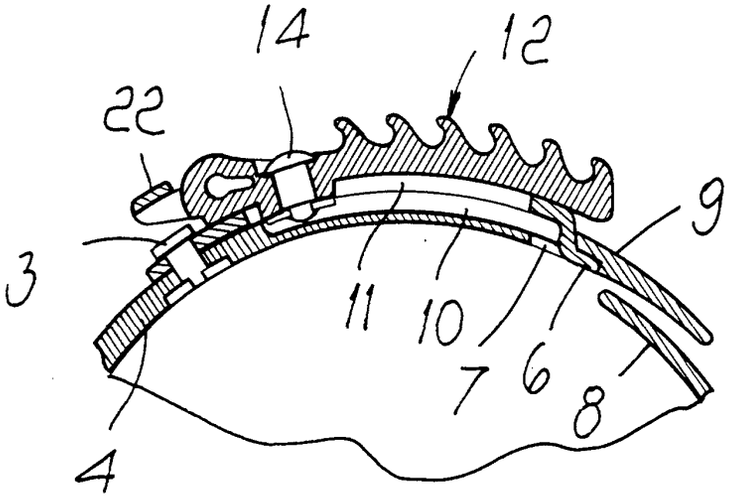

Fig. 9

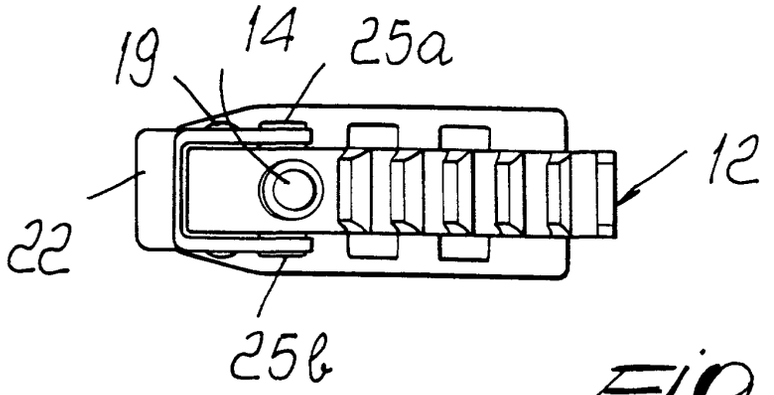

Fig. 10

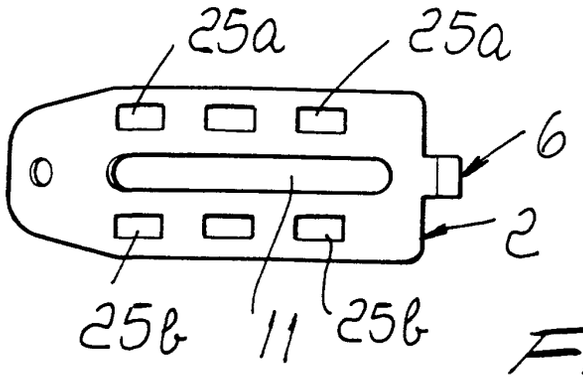

Fig. 11