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Spinelli(10) **Pub. No.: US 2010/0088927 A1**(43) **Pub. Date: Apr. 15, 2010**(54) **SHOE WITH SEPARABLE SOLE AND UPPER****Publication Classification**(76) Inventor: **David Paolo Spinelli**, Torrita di
Siena (IT)(51) **Int. Cl.**
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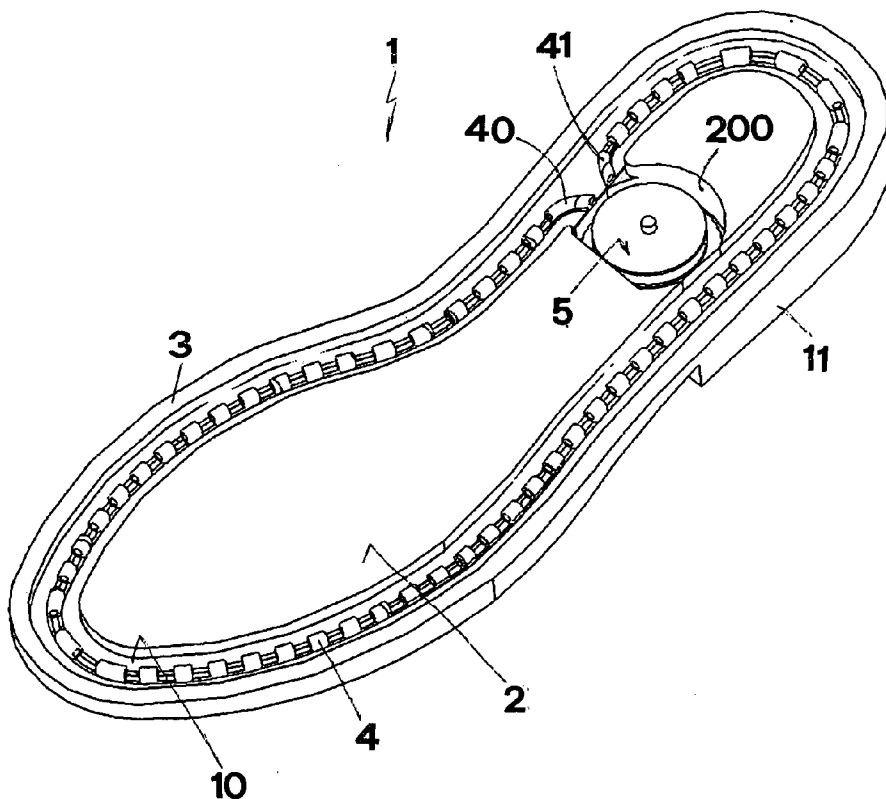
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MCGLEW & TUTTLE, PC**P.O. BOX 9227, SCARBOROUGH STATION**
SCARBOROUGH, NY 10510-9227 (US)(57) **ABSTRACT**

Shoe with a separable sole and upper, wherein the sole (1) features an upper surface (2) on which a plurality of tubular elements (4) are applied so as to be distanced from one another with a predetermined value, wherein the upper (7) features a lower surface (6) on which a plurality of tubular elements (8) are applied so as to be distanced from one another with a predetermined value, wherein the upper (7) is associable to the sole (1) by positioning the lower surface (6) of upper (7) on the upper surface (2) of sole (1) and by inserting the tubular elements (8) of upper (7) among the tubular elements (4) of sole (1), wherein the upper (7) is reversibly anchored to the sole (1) by passing a thread (9) into the tubular elements of the sole and of the upper after positioning said upper on the sole, characterized in that said tubular elements applied on sole (1) are positioned in an open annular disposition with two tubular elements (40,41) each positioned in correspondence of a respective end of said open annular disposition and communicating with a housing (200) in which handling means for moving the thread (9) are disposed and act.

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(2), (4) Date: **Apr. 14, 2009**(30) **Foreign Application Priority Data**

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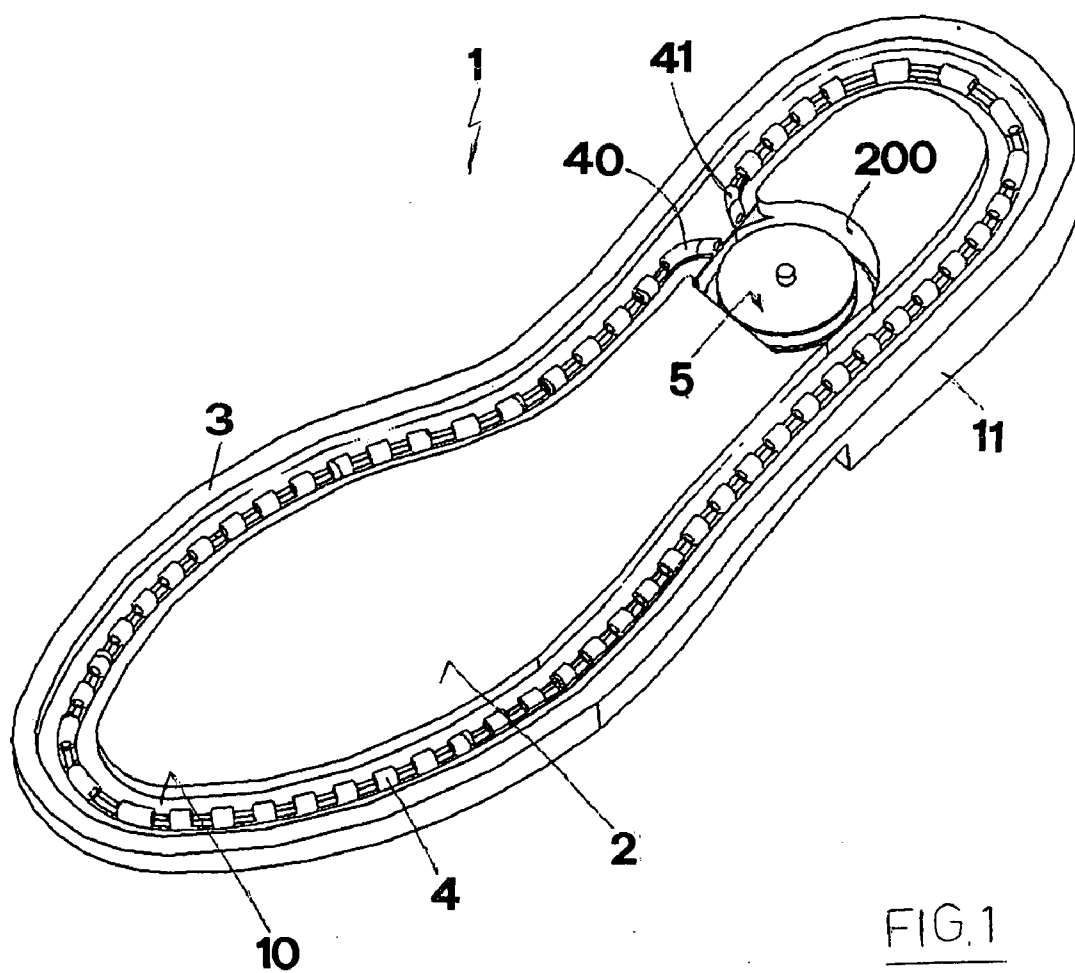
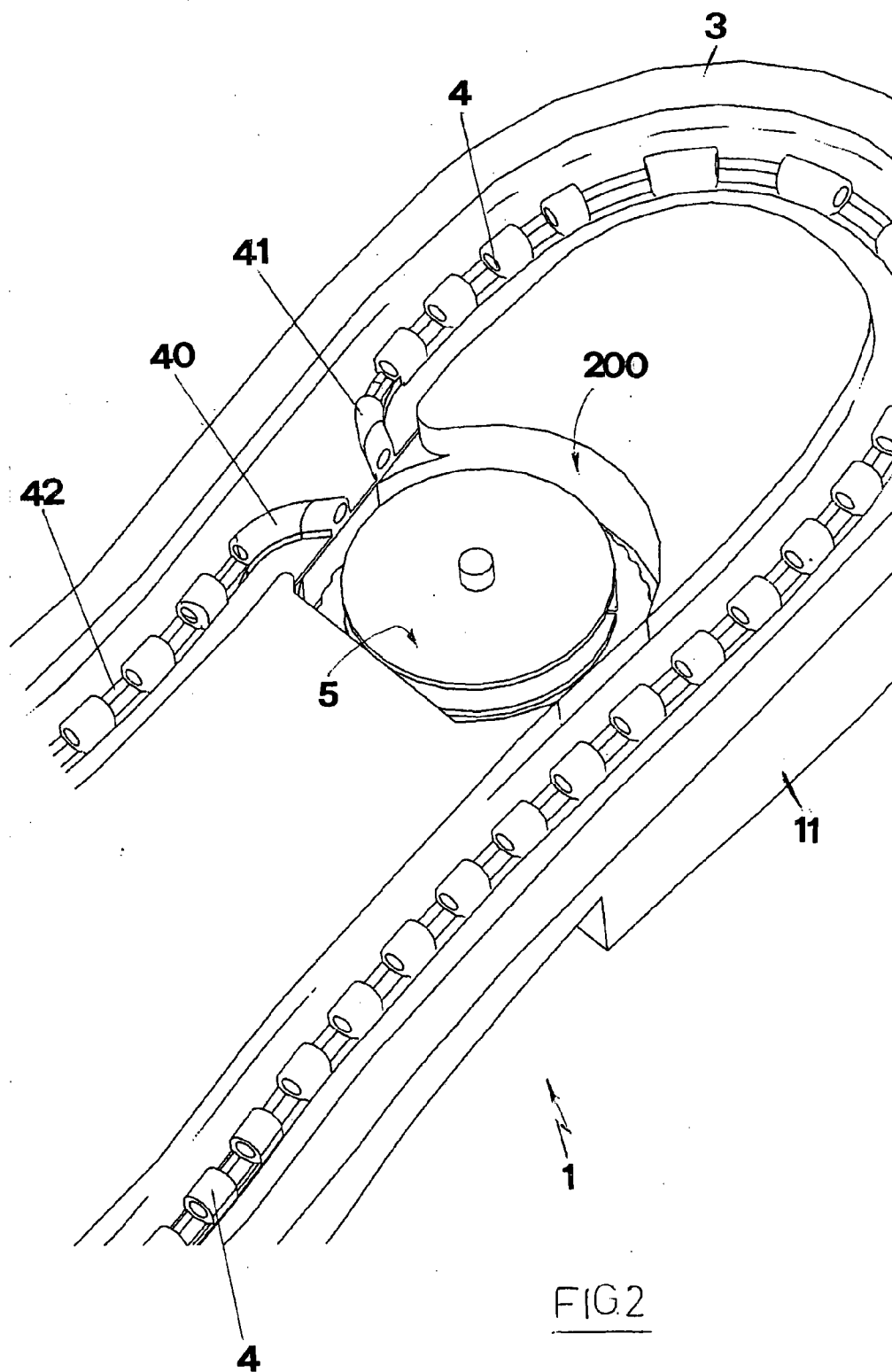


FIG. 1



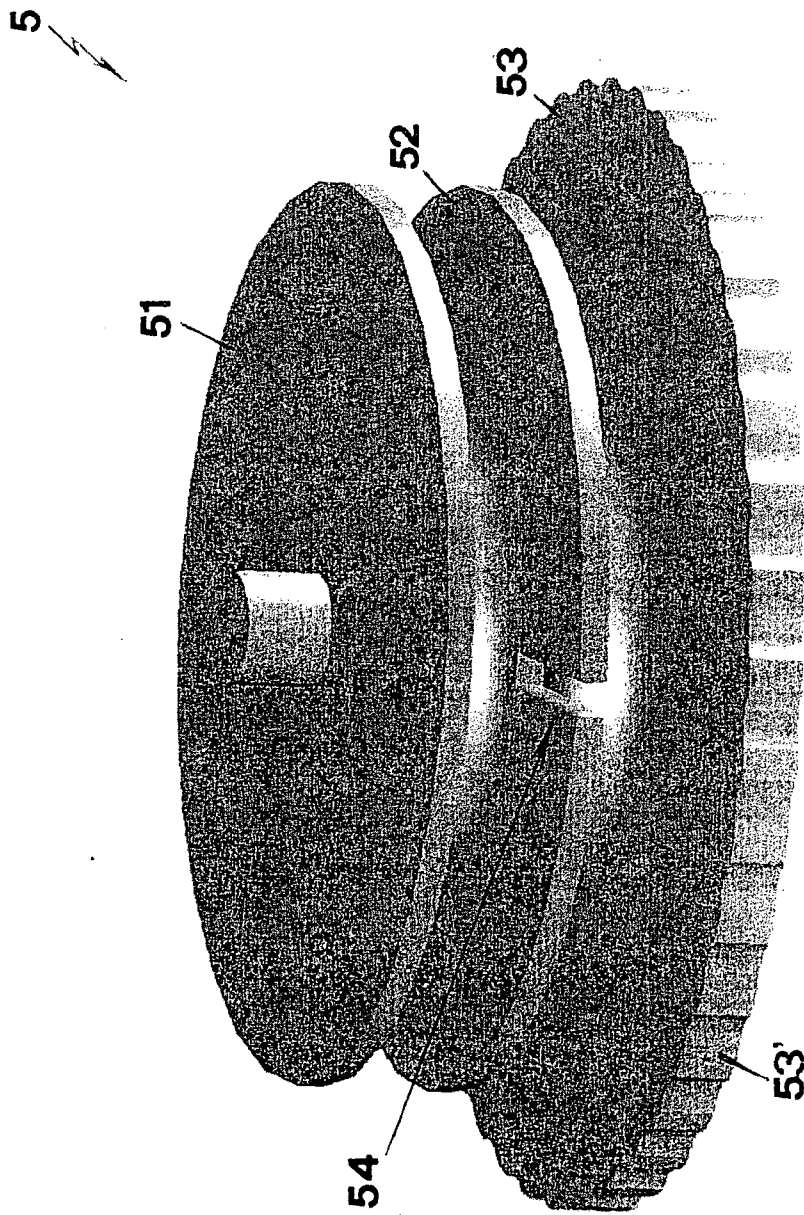


FIG. 3

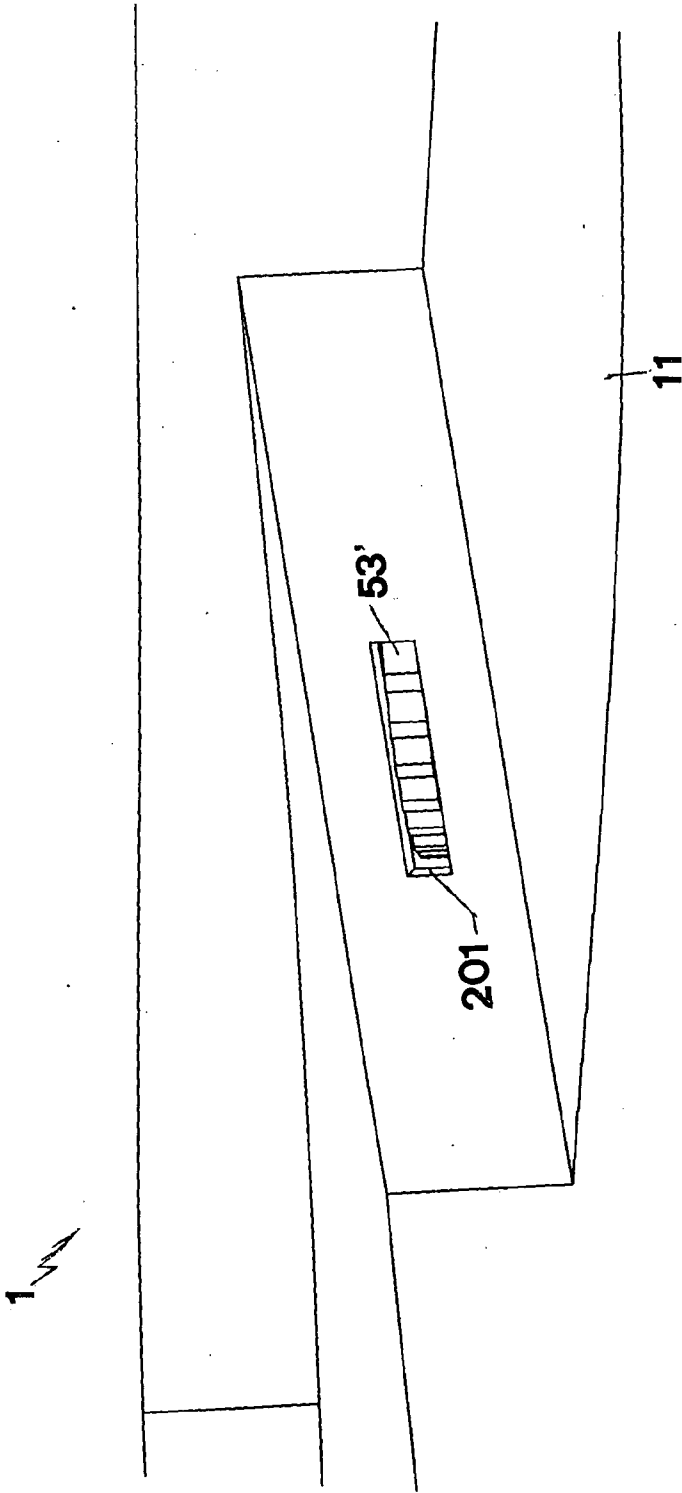


FIG. 4

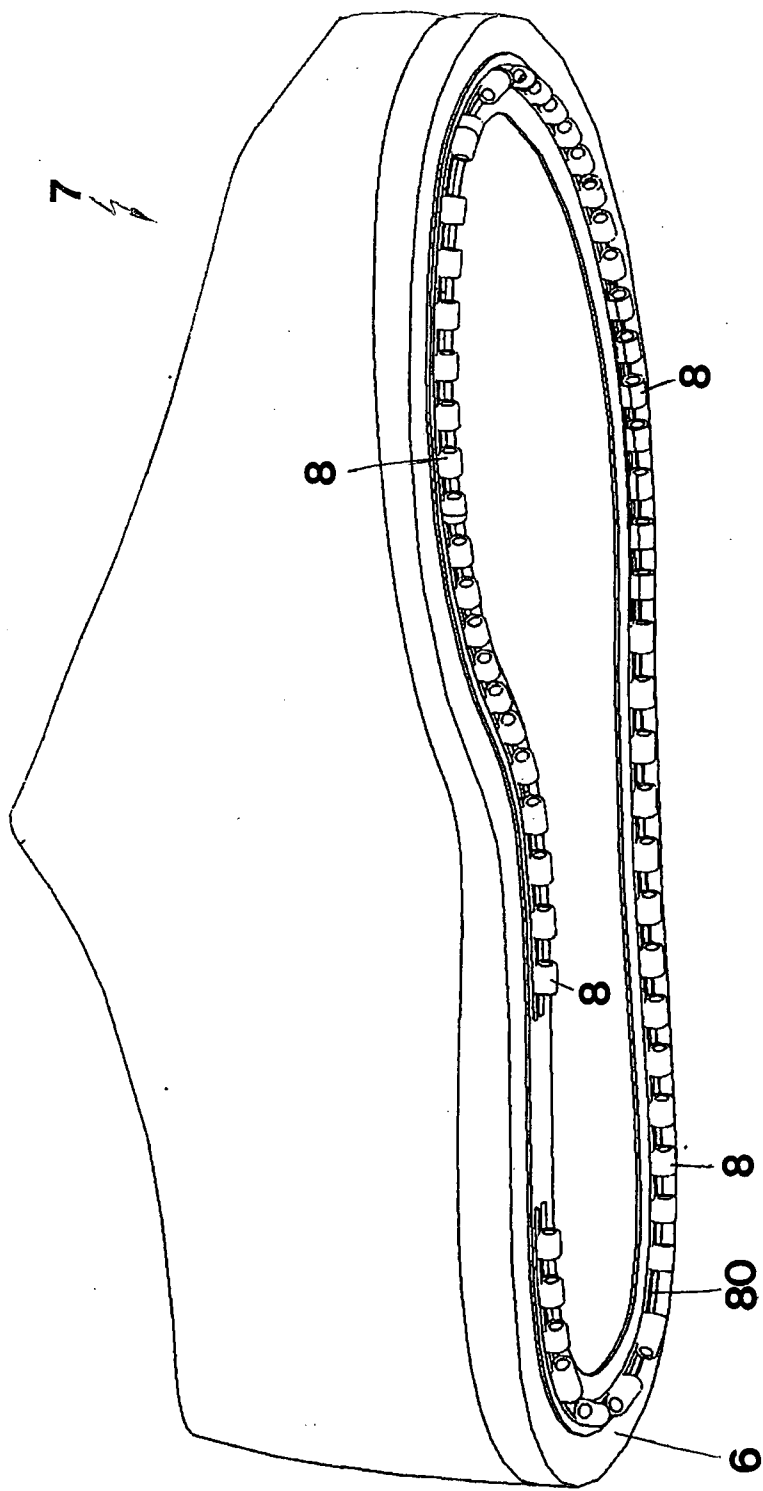
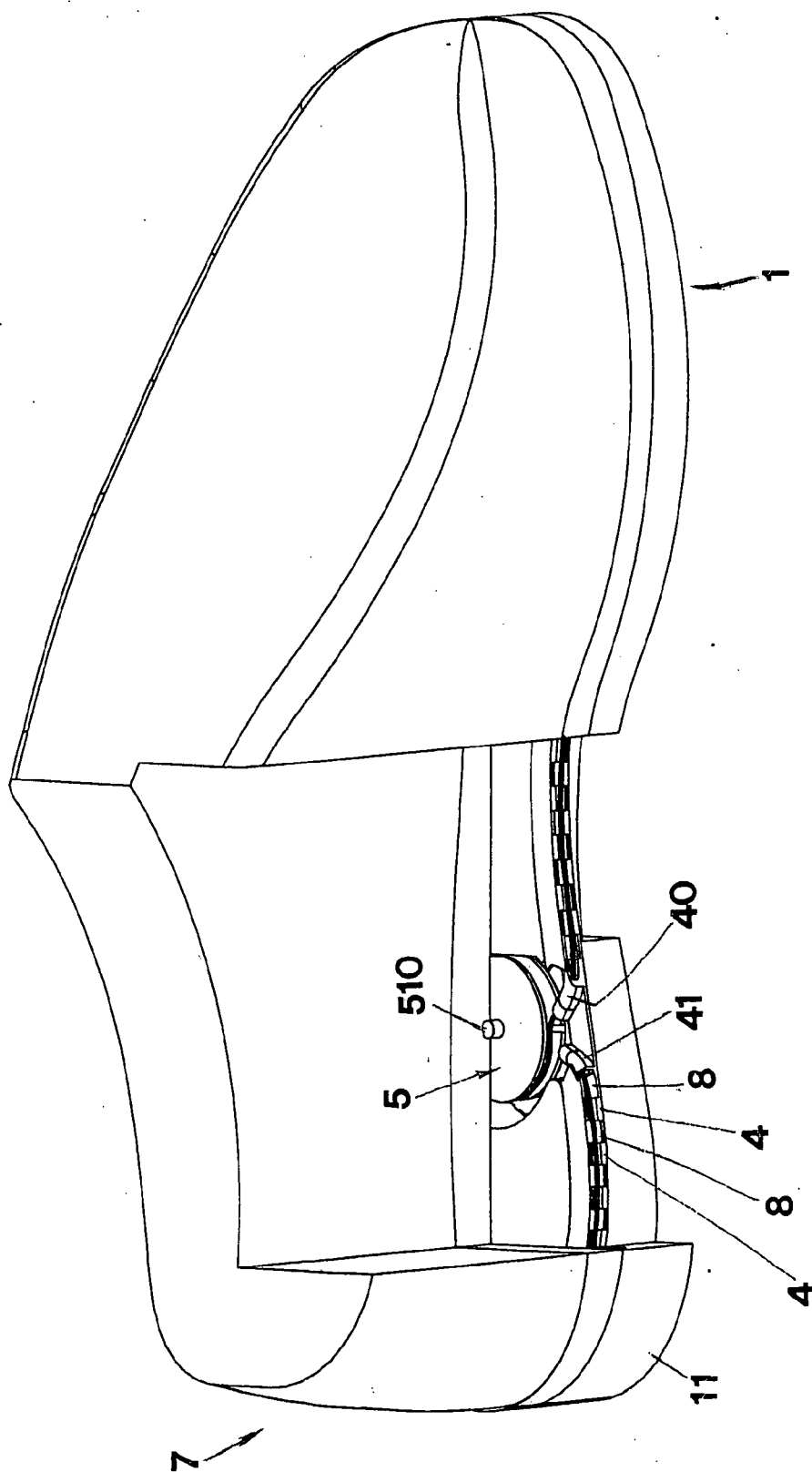


FIG. 5

Fig.



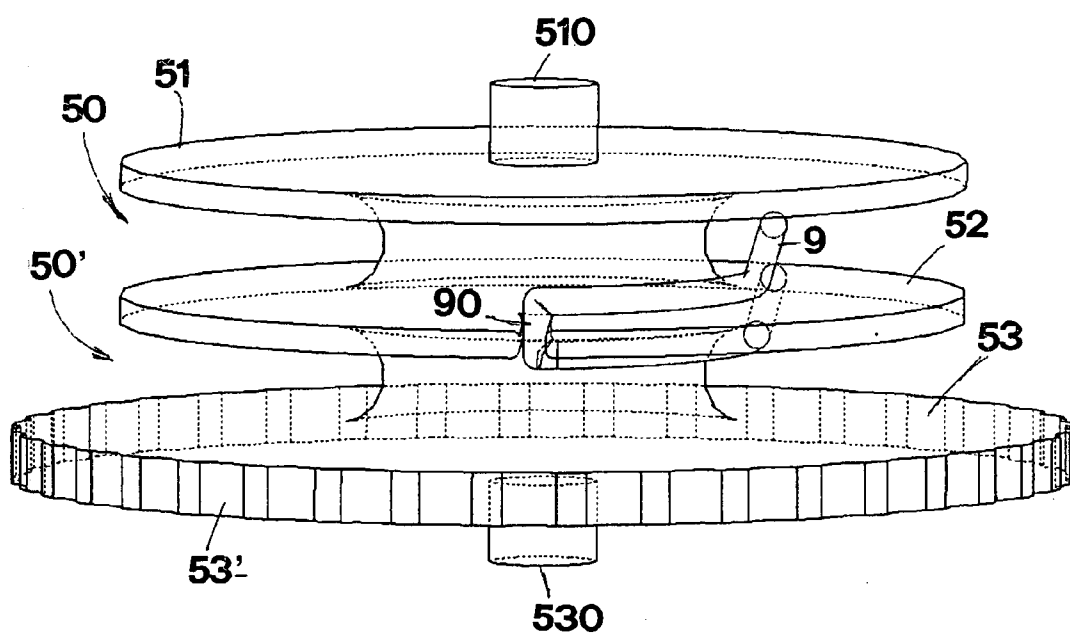


FIG. 7

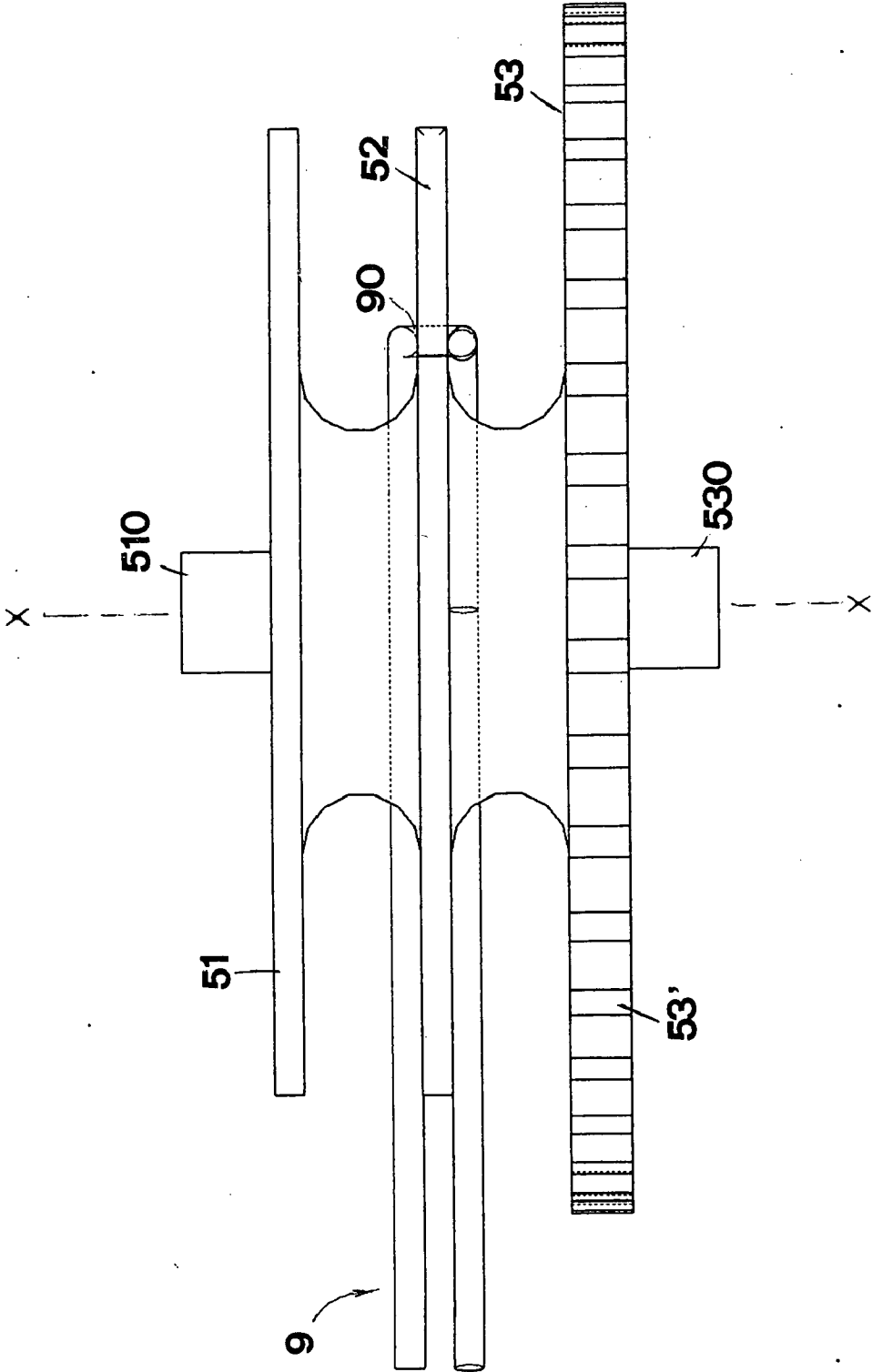


FIG. 8

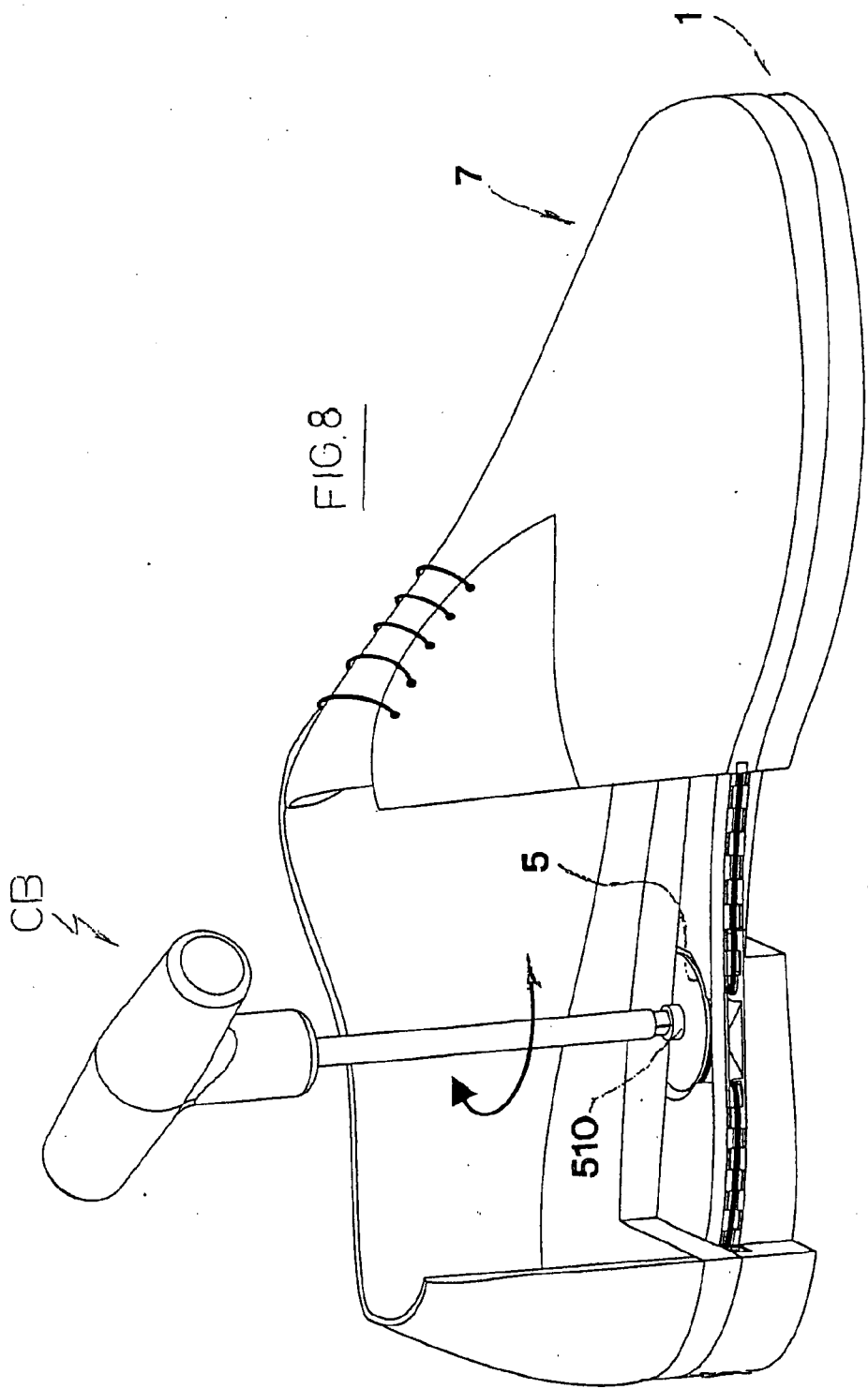


FIG.9

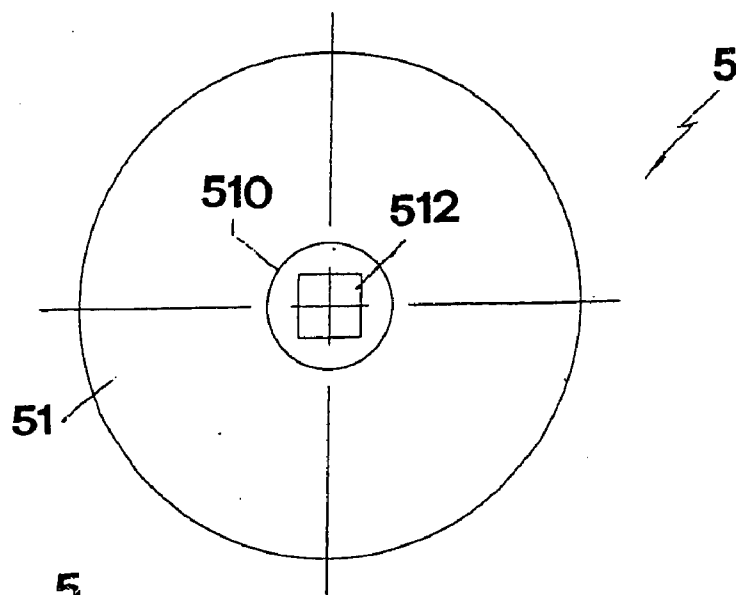


FIG.10

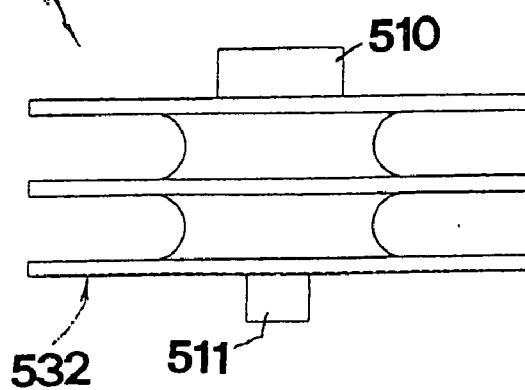
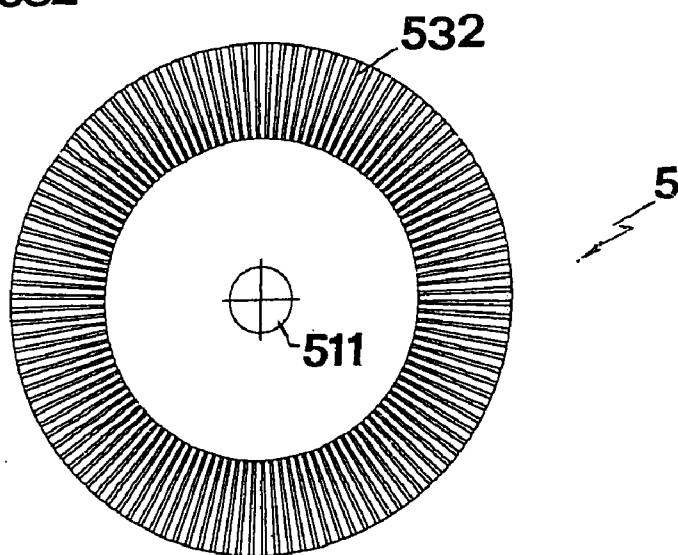
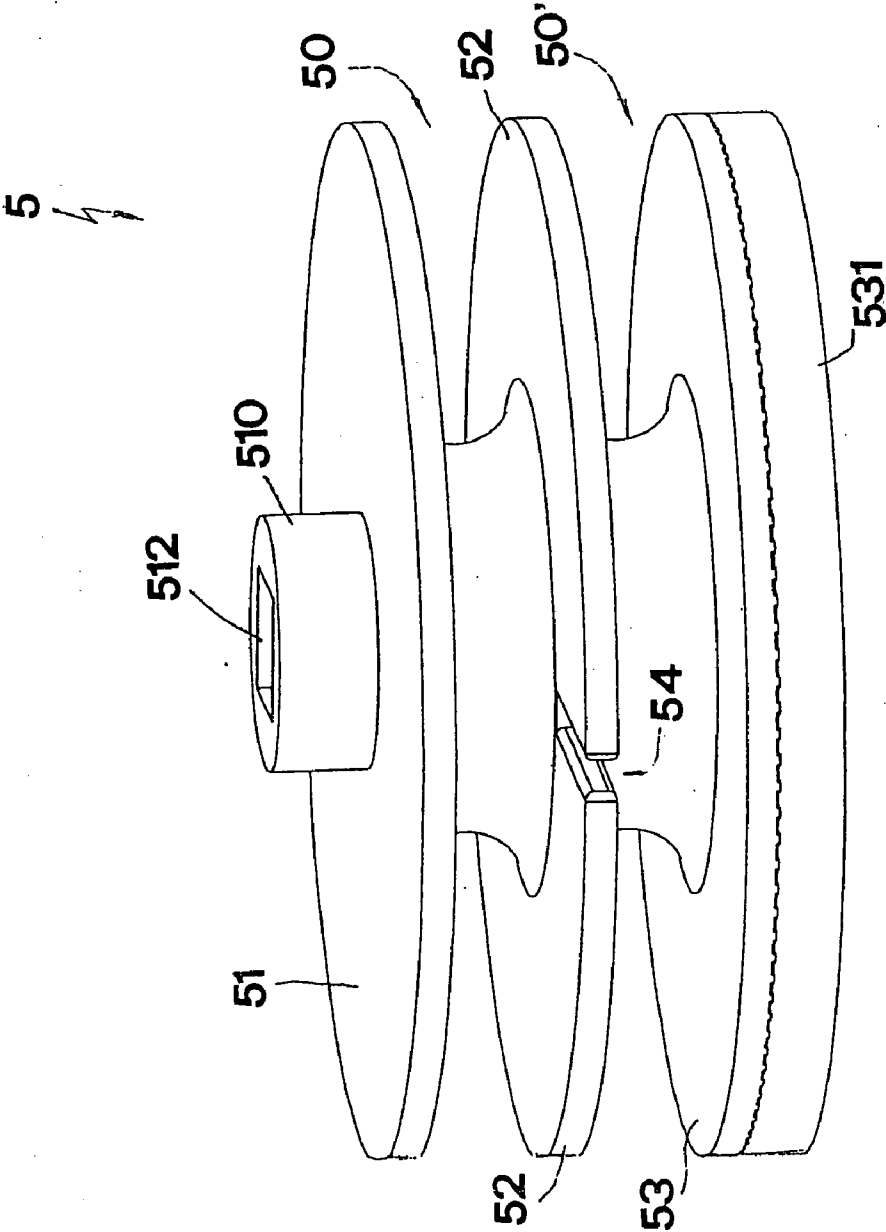


FIG.11





SHOE WITH SEPARABLE SOLE AND UPPER

[0001] The present invention relates to shoe with separable sole and upper.

[0002] In particular, a shoe according to the present invention is of the type in which the sole and the upper are reversibly attached to each other by means of a coupling device which allows their stable association during the assembly phase and during their use, and, when required or desired, also their separation.

[0003] The main aim of the present invention is to propose a shoe with a separable sole and upper particularly easy to realize and to use without compromising the stability of the coupling between the sole and the upper.

[0004] This result has been achieved, according to the invention, by adopting the idea of making a shoe having the characteristics disclosed in claim 1. Further features of the present invention are the subject of the dependent claims.

[0005] Thanks to the present invention, it is possible to manufacture a shoe of the type mentioned above, in which the assembling and disassembling operations of the shoe, that is to say the joining and the separation of the sole with respect to the upper are remarkably simplified so as to enhance the advantages of this type of shoe, as regards both production and the end user-utilization. Moreover, it is possible to ensure a perfect holding of the sole to the upper in any employment condition. Furthermore, the manufacture of the shoe is simplified and this contributes to the reduction of its whole cost.

[0006] These and other advantages and characteristics of the present invention will be best understood by anyone skilled in this technical field from a reading of the following description in conjunction with the attached drawings given as a practical example of the invention, but not to be considered in a limited sense, wherein:

[0007] FIG. 1 is a perspective top view of a sole for a shoe according to the present invention;

[0008] FIG. 2 is an enlarged detail of FIG. 1;

[0009] FIG. 3 is a perspective view of a handling reel for the thread which joins the sole to the upper;

[0010] FIG. 4 shows a sole detail, with a knurled portion of the reel of FIG. 3 jutting out of the front side of the heel;

[0011] FIG. 5 shows a perspective view of an upper for a shoe according to the present invention;

[0012] FIG. 6 shows a schematic partially sectioned perspective view of a shoe according to the present invention, in which the sole and the upper are attached to each other;

[0013] FIG. 7 is another view of the reel shown in FIG. 3 in which it is possible to see the thread destined to join the sole to the upper;

[0014] FIGS. 8-12 show a further embodiment of a shoe according to the present invention.

[0015] The attached drawings show a sole (1) which features an upper surface (2) whose profile is delimited by a raised edge (3). Said surface (2) exhibits a depression (10) inside which a plurality of tubular elements (4,40,41) are disposed along a circuit or path which basically reproduces the sole profile inside the area delimited by the edge (3). Said tubular elements are distanced from one another with a predetermined value so that an empty space is provided between each couple of adjacent tubular elements.

[0016] In other terms, said tubular elements are positioned in a basically annular open disposition inside and in proximity to edge (3) of sole (1), in correspondence of a depression

(10) presented by the upper surface (2) of the sole, so as to form a sort of annular toothing, with two ends (40,41) of the so formed ring which are communicating with a depression (200), the latter being provided on the upper face (2) of the sole and positioned inside said ring (in the example, nearly in correspondence of the heel area). In practice, according to example shown in the drawings, two tubular elements (40,41) positioned at the two ends of the open annular succession of tubular elements have a side which is internal to the aforementioned annular depression (10) and a side turned towards depression (200) provided on the upper face (2) of sole (1), so that depression (10) and depression (200) are made communicating with each other through said end tubular elements (40) and (41). In this way, it is obtained an open annular succession consisting of tubular elements positioned inside the sole and communicating with a depression which, in turn, is provided inside the area delimited by the open annular succession of tubular elements.

[0017] With reference to the example shown in FIGS. 1-3 and 7, said depression (200) communicates with the exterior of the sole by means of a corresponding window (201). According to the example shown in FIG. 4, said window is provided on the front side of the heel (11).

[0018] A reel (5) having a vertical axis (x-x) is housed in said depression (200). Said reel (5) features two throats (50, 50') delimited by three disc surfaces (51,52,53) which are parallel to one another and orthogonal to the reel axis (x-x). The said reel exhibits a knurled edge (53') in correspondence of the third disc (53), that is to say in a position underneath the lower throat (50'). The intermediate surface (52) features a radial interruption (54). A thread (9), whose function is described in the following, is wound on throats (50,50') of the reel (5). The aforementioned interruption (54) is apt to hold the thread (9) on the reel and to move it as described more in detail in the following. In practice, the thread (9) is wound in part in the first throat (50) and in part in the second throat (50') and features a portion (90) which passes through the said radial interruption (54).

[0019] Moreover, each of said throats (50,50') is positioned at the height of a corresponding end tube (40,41) of the open tubular circuit (4,40,41) presented by the sole (1).

[0020] The upper disc (51) and the lower disc (53) feature respective axial extensions (510,530) which act as pins which can be housed in corresponding seats presented by the lower surface (6) of upper (7) and by sole (1) in correspondence to the aforementioned depression (200).

[0021] For example, reel (5) can be braked by means of a ring made of friction material (shown in FIG. 12) which acts on the lower face (532) of the disc (53), positioned in depression (200) below the disc (53). In FIG. 12 said friction ring is marked by reference "531". According to the example shown in the attached drawings, the reel (5) is housed in the seat defined by depression (200) so that a part of the knurled edge (53') is outside and beyond said window (200) in order to allow the manual rotation of reel (5) about axis (x-x) from the exterior of the sole.

[0022] In correspondence of its external edge, the lower surface (6) of the upper (7) features a corresponding succession of tubular elements (8) which are also annularly disposed and distanced from one another by a predetermined value so as to form a sort of annular toothing with tubular teeth.

[0023] The annular profile defined by the tubular elements of the upper (7) is identical to the annular profile defined by the tubular elements (4) of the sole (1) and it presents an

interruption (zone without tubular elements **8**) in correspondence to the end points (**40,41**) of the profile defined by the tubular elements of the sole (**1**).

[0024] The thread (**9**) is used to associate the sole (**1**) to the upper (**7**). The said thread, for example, can be made of plastic material, such as PVC or similar materials and it is passed through tubular elements (**4,40,41,8**) of sole (**1**) and respectively of upper (**7**). As further disclosed in the following, the movement of the thread (**9**) through said tubular elements (**4,40,41,8**) is determined by the rotation of the reel (**5**) about the axis (x-x).

[0025] With reference to the example shown in FIGS. **8-12**, the reel (**5**) can be operated from the interior of the shoe instead of being operated from the exterior as in the example described above. For this purpose, the upper axial extension (**510**) features an axial cavity (**512**) which can be engaged by a tool such as an allen key (CB). By using the reel (**5**) shown in the FIGS. **8-12**, the upper features a corresponding opening which allows the intervention of tool (CB).

[0026] To assemble the shoe, the upper (**7**) is positioned on the sole (**1**) so that each tubular element (**8**) is disposed into depression (**10**) on the upper part of sole (**1**) between two tubular elements (**4**) of the sole, so as to obtain a basically continuous tubular structure which has the profile of an open annular figure (as elements **40** and **41** are in communication with the depression **200**). Moreover, the aforementioned annular figure is wholly internal to said depression (**10**) and hidden if viewed from the raised edge (**3**) of sole (**1**). As thread (**9**) is wound on reel (**5**) as previously mentioned, by rotating it (with reference to the first example, by simply intervening on the knurled part **53'** jutting out from window **201** which is provided in the heel; with reference to the second example, by intervening on extension **510** by means of an allen key CB and by acting from the interior of the shoe) the two portions of thread (**9**) wound on throats (**50,50'**) are pushed forward as indicated by arrows "F" in FIG. **7** and, by passing through elements (**40**) and **41**, they run through the whole circuit defined by the succession of tubular elements (**4,8**).

[0027] In this way, sole (**1**) and upper (**7**) are perfectly anchored to each other. To separate the sole from the upper, the reel (**5**) is rotated in the reverse direction with respect to the previous one, so that the thread (**9**) is pulled backward, as indicated by arrows "G" in FIG. **7** and after having passed through the tubular elements (**4,8**), it rewinds onto the reel and assumes the initial configuration.

[0028] Obviously its length allows thread (**9**) to run through the whole circuit (**4,8, 40,41**) when one wishes to attach the sole to the upper, without hindering the unthreading when one wishes to disassemble the shoe. More particularly, the length of thread (**9**) is such that, when the thread is completely wound and the separation of the sole from the upper is allowed, the free ends of said two portions are inside tubes (**40**) and (**41**) which, therefore, function as guide and housing elements for the thread ends.

[0029] In the example shown in the attached drawings, said end tubes (**40,41**) feature a curvilinear axis and their convexity is turned towards edge (**3**) of sole (**1**).

[0030] The tubular elements (**4,10,41**) of sole (**1**) are connected to one another by means of a base track (**42**) which is stuck on the bottom of said depression (**10**) during the manufacturing phase of shoe (**1**).

[0031] Similarly, the tubular elements (**8**) of upper (**7**) are connected to one another by means of a base track (**80**) which is sewn on the perimeter of said surface (**6**) during the manufacturing phase of the upper.

[0032] Both the tubular elements (**4,40,41**) of sole (**1**) and the tubular elements of upper (**7**) as well as their respective anchorage tracks (**42,80**) can be made of plastic material by means of conventional pressing processes.

[0033] However, said tubular elements (**4, 40,41,8**) are obviously applicable to the sole and to the upper in any other suitable way.

[0034] A shoe according to the present invention is of the type with a separable sole and upper, wherein the sole (**1**) features an upper surface (**2**) on which a plurality of tubular elements (**4**) are applied so as to be distanced from one another with a predetermined value, wherein the upper (**7**) features a lower surface (**6**) on which a plurality of tubular elements (**8**) are applied so as to be distanced from one another with a predetermined value, wherein the upper (**7**) is associable to the sole (**1**) by positioning the lower surface (**6**) of upper (**7**) on the upper surface (**2**) of sole (**1**) and by inserting the tubular elements (**8**) of upper (**7**) among the tubular elements (**4**) of sole (**1**), wherein the upper (**7**) is reversibly anchored to the sole (**1**) by passing a thread (**9**) into the tubular elements of the sole and of the upper after positioning said upper on the sole, and wherein said tubular elements applied on sole (**1**) are positioned in an open annular disposition with two tubular elements (**40,41**) each positioned in correspondence of a respective end of said open annular disposition and communicating with a housing (**200**) in which handling means for thread (**9**) are disposed and act.

[0035] Practically speaking, in any case, execution details can vary equally, regardless of the shape, dimensions, disposition of elements and materials used, without, moreover, exceeding the parameters of the idea for the adopted solution and thus remaining within the limits of the tutelage accorded by the present patent.

1. A shoe, comprising:

a separable sole and upper, wherein the sole features an upper surface on which a plurality of tubular elements are applied so as to be distanced from one another with a predetermined value, wherein the upper comprises a lower surface on which a plurality of tubular elements are applied so as to be distanced from one another with a predetermined value, wherein the upper is associable to the sole by positioning the lower surface of upper on the upper surface of sole and by inserting the tubular elements of upper among the tubular elements of sole, wherein the upper is reversibly anchored to the sole by passing a thread into the tubular elements of the sole and of the upper after positioning said upper on the sole, wherein said tubular elements applied on sole are positioned in an open annular disposition with two tubular elements each positioned in correspondence of a respective end of said open annual disposition and communicating with a housing in which handling means for moving the thread are disposed and act.

2. A shoe according to claim 1, wherein said handling means for the thread are operable from the exterior of the shoe.

3. A shoe according to claim 1, wherein said housing is a depression of sole adjacent to said upper surface.

4. A shoe according to claim 1, wherein said housing is internal to said open annular disposition.

5. A shoe according to claim 1, wherein said handling means of thread are normally braked or frictioned.

6. A shoe according to claim 1, wherein said thread handling means comprise a reel on which said thread is wound.

7. A shoe according to claim 6, wherein said reel comprises two throats delimited by three disc surfaces which are parallel to one another and orthogonal to the reel axis, the intermediate disc surface exhibiting a radial interruption.

8. A shoe according to claim 6, wherein said reel comprises a knurled edge in correspondence to the third disc, that is to say in a position underneath the lower throat.

9. A shoe according to claim 1, wherein each of said throats is positioned at the height of a corresponding end tube of the open circuit presented by the sole.

10. A shoe according to claim 6, wherein the upper disc and the lower disc comprise respective axial surfaces acting as pins which can be housed in corresponding seats presented by the lower surface of upper and of sole in correspondence to said depression.

11. A shoe according to claim 1, wherein the clockwise and anticlockwise rotation of reel determines the forward motion of said thread into the series of tubes and vice-versa its backward motion.

12. A shoe according to claim 1, wherein said handling means for thread can be operated from the interior of the shoe.

13. A shoe according to claim 12, wherein said handling means of thread comprise a reel on which thread can be wound, featuring said reel a portion which can be engaged by a tool so that it can be operated from the interior of the shoe.

14. A shoe according to claim 7, wherein each of said throats is positioned at the height of a corresponding end tube of the open circuit presented by the sole.

15. A shoe according to claim 6, wherein the clockwise and anticlockwise rotation of reel determines the forward motion of said thread into the series of tubes and vice-versa its backward motion.

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