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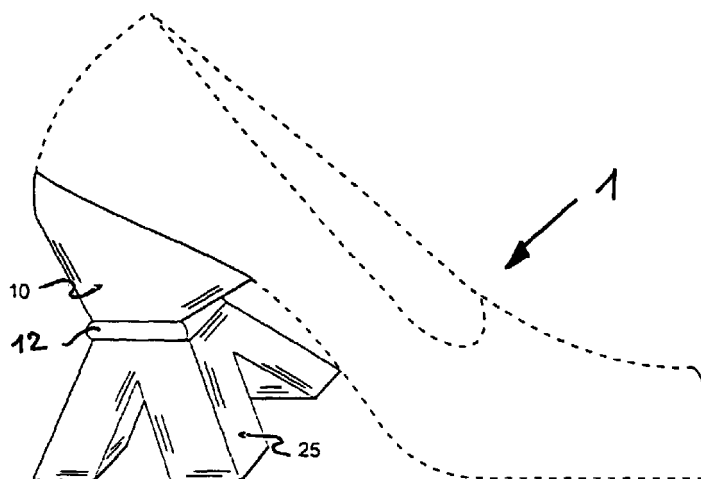
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(54) **Improved high heel footwear structure**

(57) The present invention refers to high heel footwear structure with multiple projections or studs (25). The heel provides more stability when walking and it

allows to maintain an appropriate posture. It allows the user to increase the heel height with more stability.

FIG. 2a



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Description

[0001] The present invention relates to a footwear heel structure and more particularly to high heel assemblies.

[0002] The concept of heel profiles is known in the art referring to footwear soles with protuberances or projections lower than approximately 15 mm. Such protuberances are to provide the respective soles with a good grip and are a common feature of sports shoes and of many leisure shoes nowadays. Football and golf shoes are provided with lugs or spikes, respectively, which serve to anchor the sole in the ground and thereby to prevent any sliding of the shoe.

[0003] The present invention does not relate to such sole profile structures, but relates to heel structures as such, for which reason the term "high heel" also is used. For the purposes of the present invention, high heels are considered to be those heels having a height referred to the level of the floor being bigger than approximately 15 mm, in particular 15,85 mm (5/8 Inch). Examples of footwear in which the present heels are used are: shoes, boots and sandals, for ladies or for gentlemen.

[0004] According to the state of the art footwear heels comprise only one heel support, i.e. one floor contact area, disregarding in this context the above mentioned sole profiles resp. sole protuberances or projections.

[0005] Several related patents have been granted for shoes with different heel constructions. However, most are focused on other aspects such as:

[0006] U.S. patent No. 5,058,290 of Timothy Koehl and Joseph Mackenroth, with title "SHOE CONSTRUCTION WITH SELF SEATING REMOVABLE HEEL", filed August 28, 1989, refers to a high heel shoe with a removable heel.

[0007] U.S. patent No. 5,679,439 of Karl M. Schmidt, Stuart E. Jenkins, and George S. Cole, with title "HEEL/METATARSAL STRUCTURE HAVING TAPERED STABILIZING BULGES", filed January 2, 1996, generally refers to T-shaped protuberances having cavities with flow communication allowing a pumping action with cushioning and lifting effect and providing drive to the area of the metatarsus and the area of the heel, all with the purpose of allowing easy walk and run.

[0008] Other approaches have been to cushion and reinforce the shoes for walking, but mainly the approaches have been focused to diverse structures of insoles, to modify the structure of the sole, etc.

[0009] Up to the present shoe heels have been considered as an unitary solid structure and particularly for lady's-footwear, as slender element. This aspect of slenderness has reduced the stability when walking with such shoes and in frequent occasions, it has been the cause of slight ankle twists to serious accidents for the users. Also, since the contact area of the tip element of a high heel with the floor is smaller than the part sus-

taining the heel portion of the foot and since the main portion of the weight of a person is distributed in the regions of the heel portion of the foot, the applied weight is larger and when walking under normal conditions, it is difficult to determine if the specific place of support will be able to hold firmly this load. It should also be considered that frequently the walking surface, i.e. the ground, is not truly horizontal or uniform and it is difficult to avoid obstacles, even small ones. An additional aspect to be considered is the psychological impact in the users that fear to be exceeded in weight and that they feel less control when walking.

[0010] The object underlying the invention is to provide a heel structure for shoes resulting in better walking properties and improved safety in use.

[0011] This object is solved by a high heel structure as indicated in claim 1 and by a footwear having this high heel structure as indicated in claim 8. Advantageous further developments are subjects of the dependent claims.

[0012] According to the invention a heel structure for footwear is provided comprising a heel base and at least two heel supports each projecting from the heel base toward the contact surface with the floor, thereby providing an increased contact area.

[0013] The heel structure according to the invention allows distributing the weight to the plural projecting heel supports. By this weight distribution and plural contact surfaces the stability of the heel is improved. Nevertheless, because of the plural supports (projections or studs) the heel structure according to the invention still has an attractive elegant appearance and does not give the optic impression of a bulk heel in spite of the increased contact surface. Generally the heel height with respect to the level of the ground is greater than 15 mm, in particular 15,85 mm (5/8 Inch), i.e. the structure according to the invention does not relate to sole of heel profiles, but to the heel and its support structure as such.

[0014] The projecting supports are preferably provided in unitary form. These heel branches project either directly from the heel portion of the shoe or they project from a heel basis.

[0015] The high heel structure according to the invention may have two, three, four or more projecting supports.

[0016] It is made from natural materials and/or from synthetic materials. The materials may include polyvinyl chloride, rubber, leather, cork, steel pins. This enumeration by no means is complete and is only given for illustration purposes.

[0017] When two or an even number of projecting supports are provided, their shape and arrangement are preferably provided in an appropriate configuration so as to compensate the tendency to wear away more one side of the sole of the footwear than the other one.

[0018] The footwear according to the invention comprises a body with a sole and a high heel portion, from

which at least two heel supports each project toward the contact surface with the floor, thereby providing an increased contact area. The high heel portion preferably comprises a heel base from which the heel supports project. The footwear includes shoes, boots and sandals, but is not limited to these.

[0019] As stated above, the present invention provides shoe heels with multiple projections or studs, the heel providing more walking stability and allowing an appropriate posture. Furthermore, minor tendencies to wear away the footwear are avoided and corrected. The present invention also provides a structure of footwear with a completely new aspect. The high heels shoes according to the present invention allow the user a higher stability when walking and by increasing the contact area with the floor.

[0020] These and other advantages of the present invention will become more apparent from the following detailed description, when taken together with the accompanying exemplary drawings. In the drawings:

Fig. 1a is a lateral elevation view of a heel according to a first embodiment of the present invention, wherein part of the shoe is drawn in broken lines;

Fig. 1b is a view of the footprint of the heel of Fig. 1a;

Fig. 1c is a perspective view of the heel of Fig. 1a, wherein the shoe is drawn in broken lines;

Fig. 2a is a perspective view of a heel according to a second embodiment of the present invention, wherein part of the shoe is drawn in broken lines;

Fig. 2b is a view of the footprint of the heel of Fig. 2a;

Fig. 2c is a lateral elevation view of the heel of Fig. 2a, wherein part of the shoe is drawn in broken lines;

Fig. 3a is a perspective view of a heel according to a third embodiment of the present invention, wherein part of the shoe is drawn in broken lines;

Fig. 3b is a view of the footprint of the heel of Fig. 3a;

Fig. 3c is a lateral elevation view of the heel of Fig. 3a, wherein part of the shoe is drawn in broken lines;

Fig. 4a is a perspective view of a heel according to a fourth embodiment of the present inven-

tion, wherein part of the shoe is drawn in broken lines;

Fig. 4b is a view of the footprint of the heel of Fig. 4a;

Fig. 5a is a perspective view of a heel according to a fifth embodiment of the present invention, wherein part of the shoe is drawn in broken lines;

Fig. 5b is a view of the footprint of the heel of Fig. 5a;

Fig. 5c is a rearward view of the heel of Fig. 5a, wherein part of the shoe is drawn in broken lines;

Fig. 6a is a perspective view of heel according to a sixth embodiment of the present invention, wherein part of the shoe is drawn in broken lines;

Fig. 6b is a view of the footprint of the heel of Fig. 6a;

Fig. 6c is a lateral elevation view of the heel of Fig. 6a, wherein part of the shoe is drawn in broken lines;

Fig. 7a is a perspective view of a heel according to a seventh embodiment of the present invention, wherein part of the shoe is drawn in broken lines;

Fig. 7b is a view of the footprint of the heel of Fig. 7a;

Fig. 7c is a lateral elevation view of the heel of Fig. 7a; wherein part of the shoe is drawn in broken lines;

Fig. 8a is a perspective view of a heel according to an eighth embodiment of the present invention, wherein part of the shoe is drawn in broken lines;

Fig. 8b is a view of the footprint of the heel of Fig. 8a;

Fig. 8c is a lateral elevation view of the heel of Fig. 8a, wherein part of the shoe is drawn in broken lines;

Fig. 9a is a perspective view of a heel according to a ninth embodiment of the present invention, wherein part of the shoe is drawn in broken lines;

Fig. 9b is a view of the footprint of the heel of Fig. 9a;

Fig. 9c is a lateral elevation view of the heel of Fig. 9a, wherein part of the shoe is drawn in broken lines;

Fig. 10a is a perspective view of a heel according to a tenth embodiment of the present invention, wherein part of the shoe is drawn in broken lines;

Fig. 10b is a view of the footprint of the heel of Fig. 10a; and

Fig. 10c is a lateral elevation view of the heel of Fig. 10a, wherein part of the shoe is drawn in broken lines.

[0021] For the purpose of better understanding, in the drawings similar parts are indicated with identical numbers.

[0022] In the following a first embodiment of the invention is described with respect to Fig. 1a to c. A high heel shoe 1 partially illustrated with broken lines is provided with a heel base 10 in the heel portion. Plural rather thin studs or projections (in the following: supports) 20 project from the heel base 10 toward the contact surface with the ground resp. floor. The heel of the first embodiment comprises two supports 20. The tips of the supports 20 are provided with flat sole disks 30. The supports 20 are positioned at the same length position of the shoe sole in parallel to each other. By providing two supports respectively heel portions instead of only one the stability of the foot of the wearer of the shoe is effectively increased. The footprint of the supports 20 resp. the sole disks 30 is illustrated in Fig. 1b. The shown (cross-wise) pattern of the footprint is of no significance for the invention.

[0023] In Fig. 1a a height indication "a" is given illustrating the length of 15,85 mm (5/8 Inch) as an example for demonstrating that the heel structure according to the invention does not relate to sole profiles or the like, but to the support structure as such. For this purpose the heel projections also are indicated using the term "support".

[0024] Fig. 2a to c show a second embodiment of the heel structure according to the invention. The parts similar to those of the first embodiment are indicated with the same reference numbers and are not described again. The heel base 10 ends in a base plate 12 from which four projections resp. supports 25 having essentially equal sections along their lengths extend outwardly in a branched-off manner. Fig. 2b shows the footprint of the four supports illustrating their lateral and length-wise positioning. In spite of the height of the heel structure the shoe provided therewith has a high stability and has an attractive appearance.

[0025] Fig. 3a to c illustrate a third embodiment of the heel structure according to the present invention. The heel is provided with integrally branched-off, tapering supports 15 which are arranged in the lengthwise direction of the sole in a parallel manner (cf. Fig. 3b).

[0026] Fig. 4a and b illustrate a fourth embodiment of the heel structure according to the present invention. The two supports 17a and 17b of this embodiment are similar to those of the third embodiment. However, they are not arranged in parallel with respect to the lengthwise direction of the sole, but in a staggered manner as can be seen from the footprint pattern of Fig. 4b. By providing two such supports the lateral stability of the shoe is increased and by providing three contact areas, namely the forward sole portion and the two heel support areas, a stable foot position is provided also on uneven ground.

[0027] Fig. 5a to c illustrate a fifth embodiment of the heel structure according to the present invention. The heel is provided with integrally branched-off, tapering supports 15 which are arranged in the lengthwise direction of the sole in a parallel manner (cf. Fig. 5b). The branching-off of the supports occurs gradually from medium height of the heel to a height which is lower than the distance a from the heel tip, with the height of the slot 2 between the supports decreasing from the rear portion to the forward portion of the heel as can be seen from Fig. 5c. The slot is only a through slot in its lower part.

[0028] Fig. 6a to c illustrate a sixth embodiment of the present invention wherein the heel 15 branches into a forward and a rearward support having the same section along the length thereof. The position of the supports can be seen from Fig. 6b.

[0029] Fig. 7a to c show a seventh embodiment of the present invention wherein the heel 15 is similar to that of the sixth embodiment. However, it is provided with a reduced section at portion 3 well above the branch portion which gives the heel an elegant appearance.

[0030] Fig. 8a to c show an eighth embodiment of the present invention having four heel supports. The heel 15 is provided with four supports which extend downward in a parallel manner. Their arrangement can be seen from the footprint view of Fig. 8b. A relatively high lateral slot 4 is provided between the forward and the rearward support pairs. As can be seen the slot 5 between the forward supports is much lower. The rearward portion is provided with an outward bulging and the rearward portion of the heel is provided with a slight taper to the bottom tip.

[0031] Fig. 9a to c illustrate a ninth embodiment of the heel structure according to the present invention. Similarly to the structure of the third embodiment the heel is provided with integrally branched-off supports 15 which are arranged in the lengthwise direction of the sole in a parallel manner (cf. Fig. 3b). The supports have a thicker section increasing at the tip part, thereby increasing the stability of the shoe.

[0032] Fig. 10a to 10c show a tenth embodiment of the heel structure according to the present invention which is similar to the eight embodiment. The heel height is higher and the rearward portion tapers slightly instead of bulging.

[0033] As can be seen from the diverse views of the drawings, the heel structure of the present invention is provided with a base 10 in the area of the heel from which are projected multiple studs or projections (supports) 15, 17a, 17b, 20, 25, 30, toward the contact surface with the floor, the base 10 with its multiple studs or projections 15, 17a, 17b, 20, 25, 30 making a unitary piece, with the height regarding the level of the floor "a" being bigger than 15,85 mm (5/8 Inch). Although it will be evident that more projections can be used, for clarity purposes combinations of two and four projections are illustrated. Just as it is shown in Figures 2a, 2c, 8a, 8c, 10a, 10c, the projections 25 are four in number. In the embodiments illustrated in Figures 1a, 1c, 3a, 3c, 4a, 5a, 5c, 6a, 6c, 7a, 7c, 9a, 9c, the number of projections is two. Although in some embodiments the transition from the base 10 of the heel to the projections 20, 25 is clearly outlined, in other cases this transition does not exist and therefore they are identified with numbers 15, 17a, 17b. As can be seen from the above description, the shape, position, arrangement, material of the heel projections resp. supports, can be provided in various manners.

[0034] The invention can be summarized as follows: The present invention refers to a high heel footwear structure with multiple projections or studs. The heel provides more stability when walking and it allows to maintain an appropriate posture. It allows the user to increase the heel height with more stability.

[0035] Now those skilled in the art can appreciate from the above description that the teaching of the present invention can be implemented in a variety of ways. Therefore, while this invention has been described in connection with particular examples thereof, the real scope of the invention will not be limited thereby, since other modifications will be apparent to the skillful practitioner more in detail upon a study of the drawings, specification and the claims which define the scope of the invention.

Claims

1. A high heel structure for footwear, comprising

a heel base (10) and
at least two heel supports (15, 17, 20, 25, 30)
each projecting from the heel base (10) toward
the contact surface with the floor,
thereby providing an increased contact area.

2. The high heel structure according to claim 1, characterised in that the height of the projecting supports (15, 17, 20, 25, 30) is greater than 15,85 mm

(5/8 Inch).

3. The high heel structure according to claim 1 or 2, characterised in that the projecting supports are provided in unitary form.

4. The high heel structure according to any of claims 1 to 3, characterised in that the base has three projecting supports.

5. The high heel structure according to any of claims 1 to 3, characterised in that the base has four projecting supports (15).

6. The high heel structure according to any of claims 1 to 5, characterised in that it is made from natural materials or from synthetic materials.

7. The high heel structure according to any of claims 1 to 3, 5, or 6, characterised in that when two or an even number of projecting supports are provided, their shape and arrangement are provided so as to compensate the tendency to wear away more one side of the sole of the footwear than the other one.

8. Footwear (1), comprising a body with a sole and a high heel portion,
characterised in that at least two heel supports (15, 17, 20, 25, 30) each project from the high heel portion toward the contact surface with the floor,
thereby providing an increased contact area.

9. Footwear according to claim 8, characterised in that the high heel portion comprises a heel base (10) from which the heel supports (15, 17, 20, 25, 30) project, the high heel structure being in accordance with any of claims 1 to 7.

10. Footwear according to claim 8 or 9, characterised in that it comprises shoes, boots and sandals.

FIG. 1a

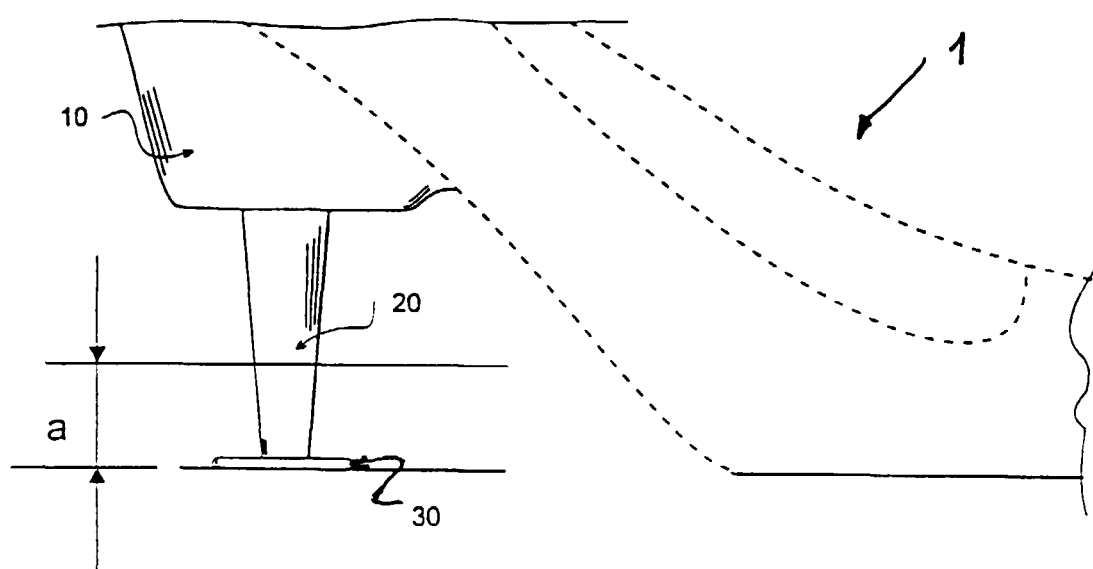


FIG. 1b

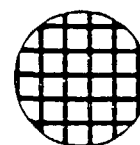


FIG. 1c

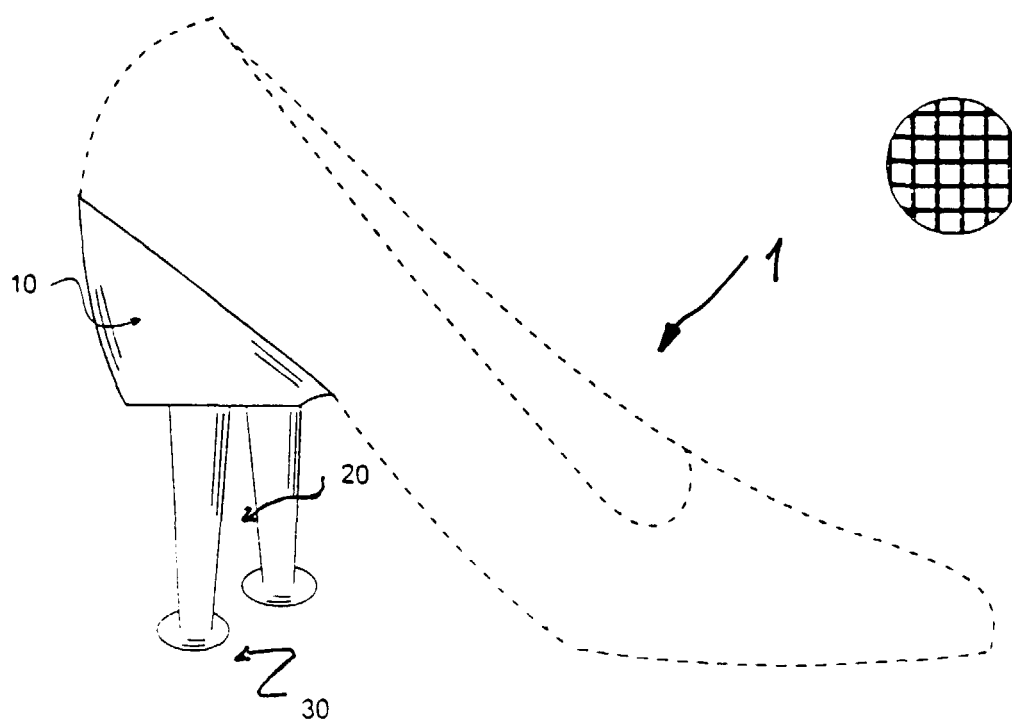


FIG. 2a

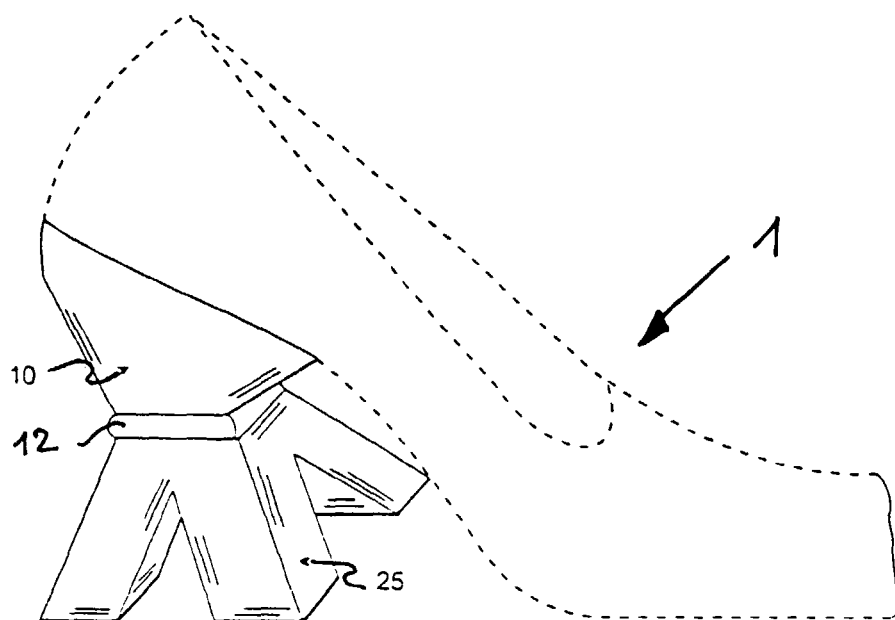


FIG. 2b

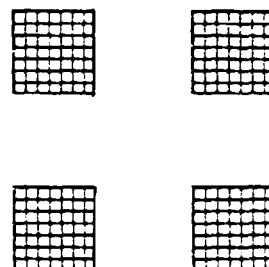


FIG. 2c

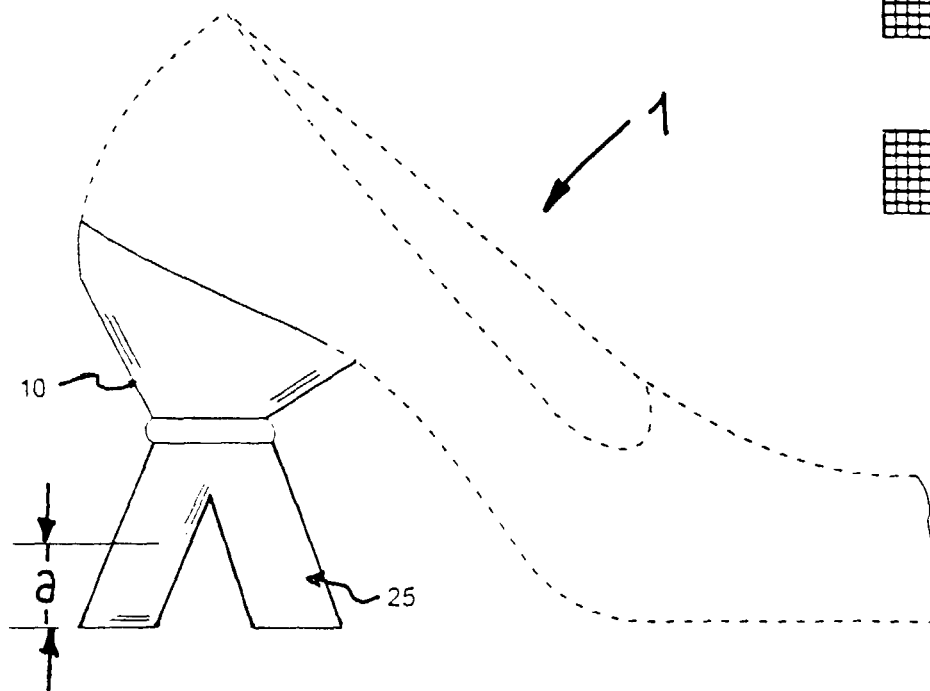


FIG. 3a

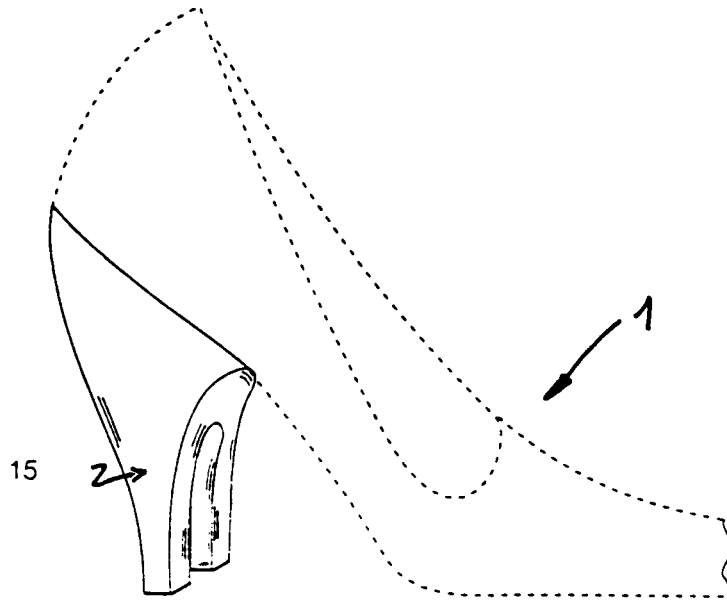


FIG. 3b



FIG. 3c

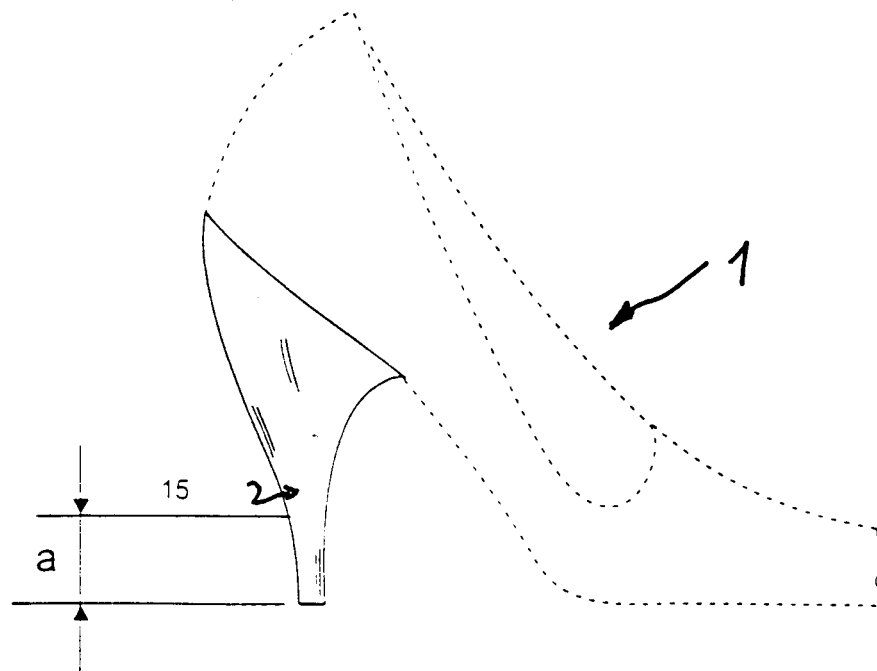


FIG. 4a

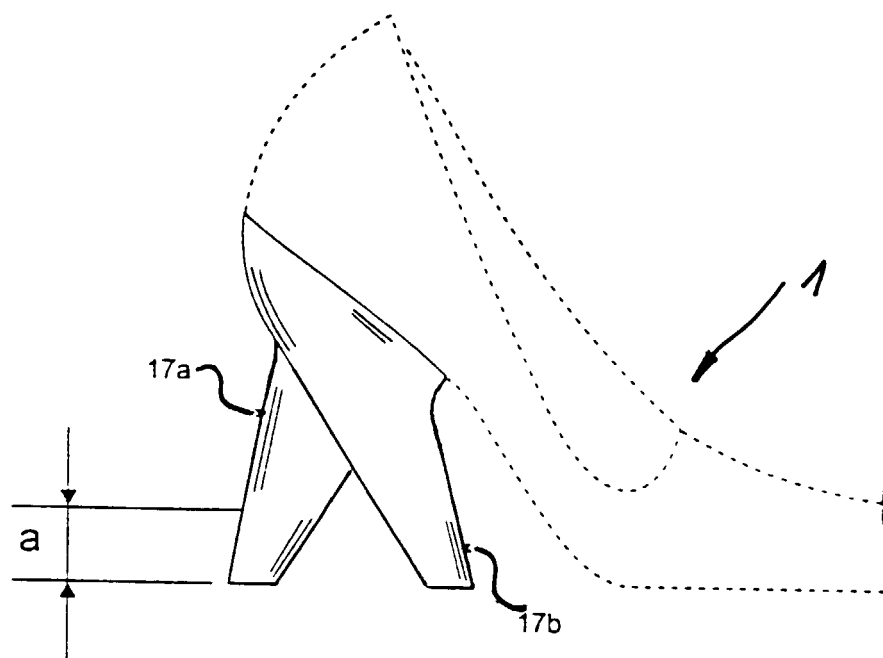


FIG. 4b



FIG. 5a

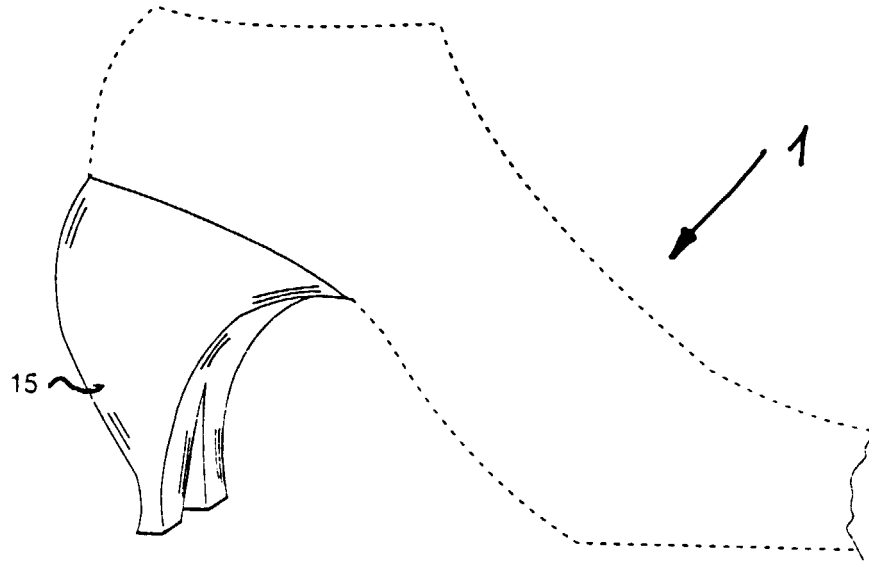


FIG. 5b

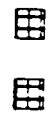


FIG. 5c

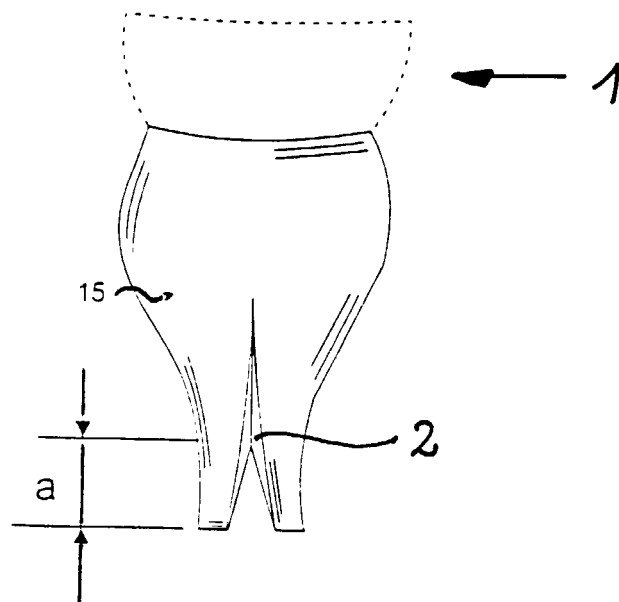


FIG. 6a

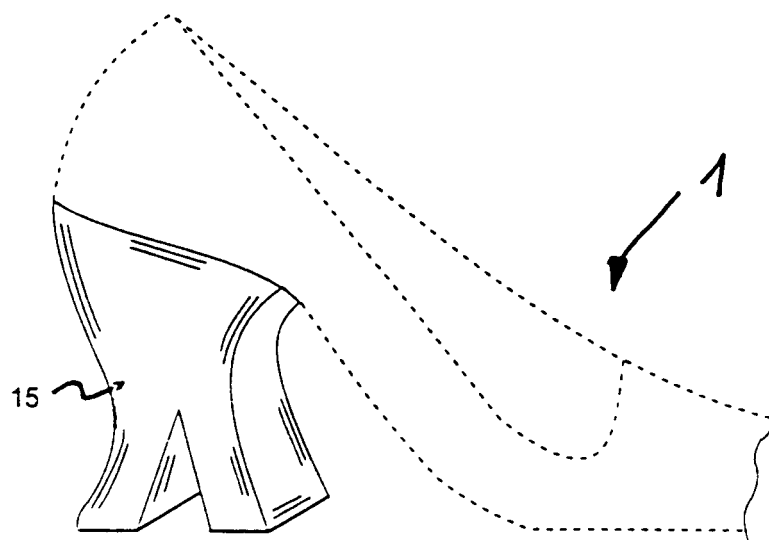


FIG. 6b



FIG. 6c

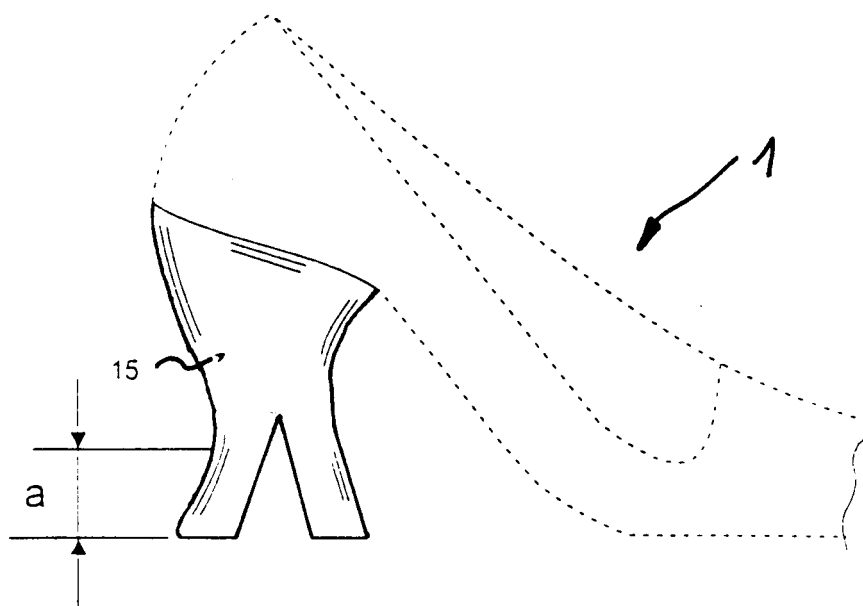


FIG. 7a

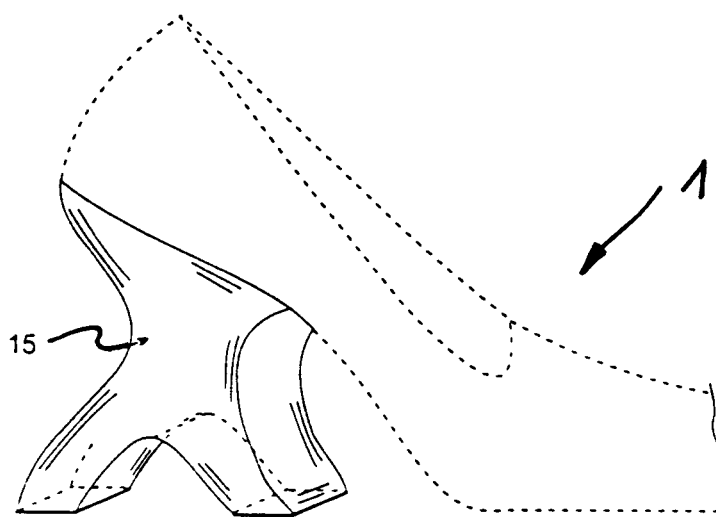


FIG. 7b

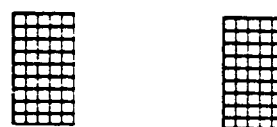


FIG. 7c

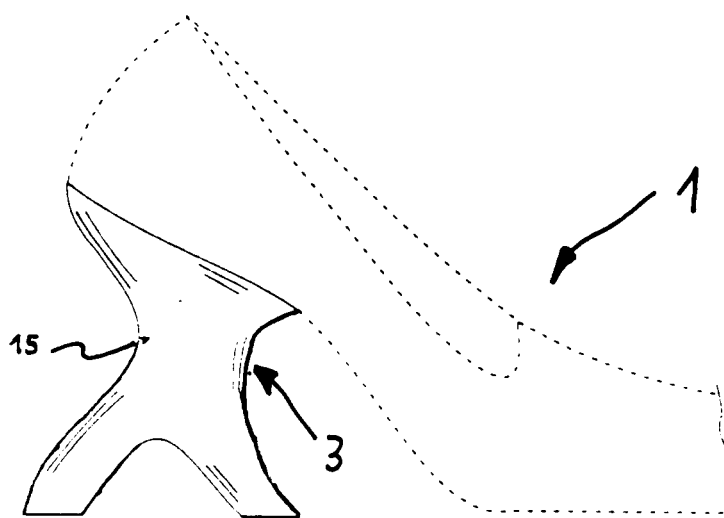


FIG. 8a

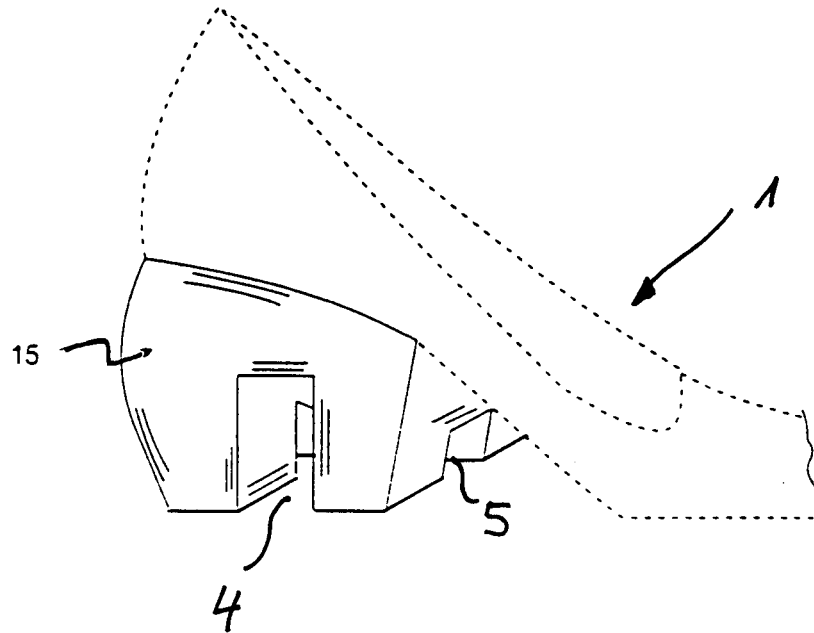


FIG. 8b

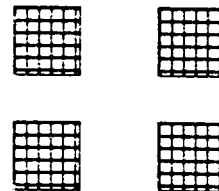


FIG. 8c

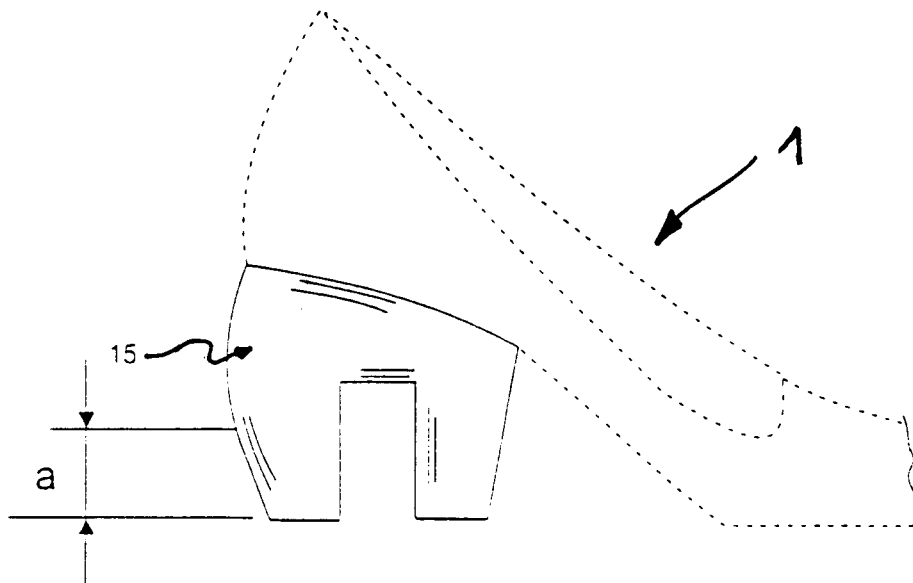


FIG. 9a

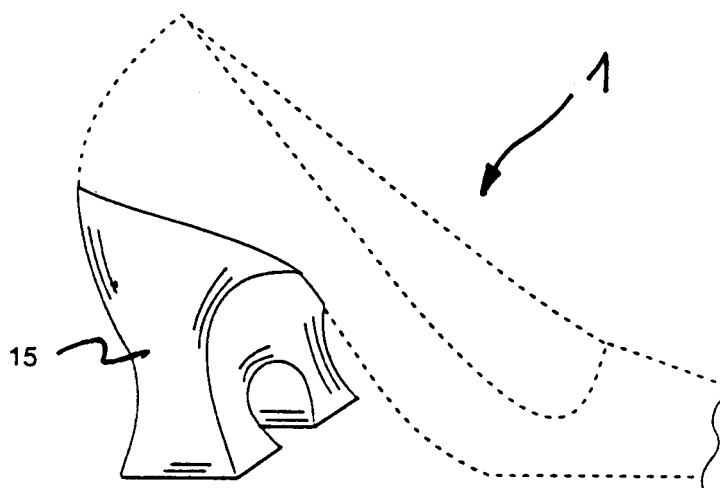


FIG. 9b

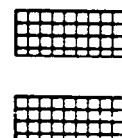


FIG. 9c

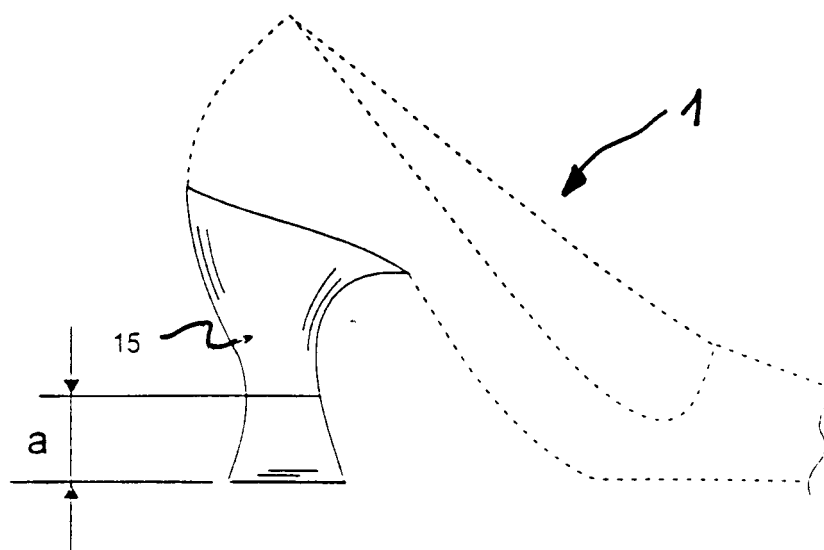


FIG. 10a

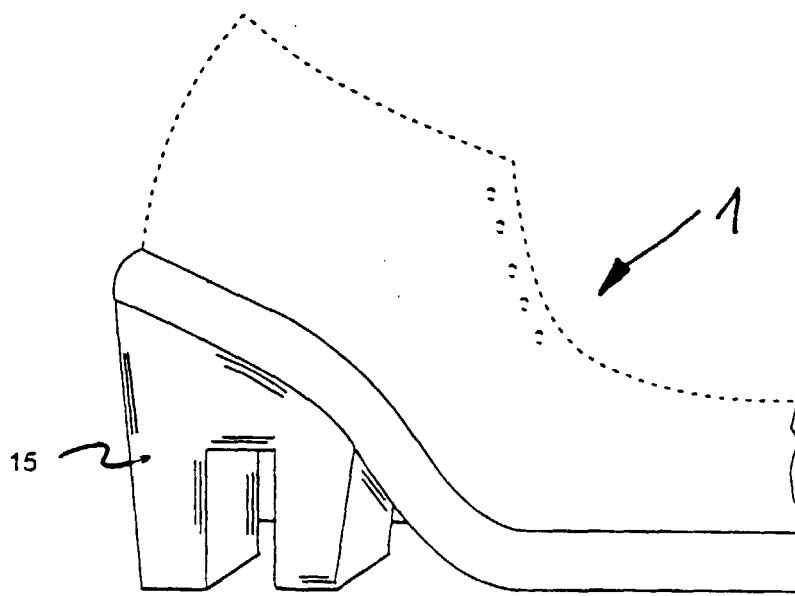


FIG. 10b

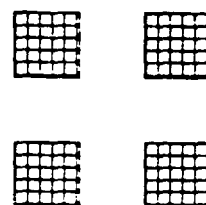


FIG. 10c

