The presented invention refers to a shoe heel which is height-adjustable, but is also composed by a damping mechanism, that can be used by any shoe brand or model, as it’s founding principals take into consideration a higher heel as opposed to a flat heel (with no height) and whose purpose is based on practical use, at the moment of conceptual production of the shoe heel, from a tube (1) inside of the heel (8) in which another tube (2) moves, allowing in this manner that the height of the heel to not be rigid, but can in fact be altered to various heights (5, 6 and 7) in relation to its base height. In this second tube is made a drilling to introduce inside a rigid rubber damping (9).
HEIGHT ADJUSTABLE SHOE HEEL WITH DAMPING MECHANISM

FIELD OF THE INVENTION

[0001] Nowadays the height of the heel of a pair of shoes is defined by its creator/manufacturer at the point of production/conception of the product. In the shoe industry (female’s shoes), the existing models of shoe heels are constituted of various and slightly differing elements. The brands; the raw materials; the patterns; the colours, the markets define, among other things, the distinctive characteristics that aid or influence the consumers' choice. Currently, this free choice is conditioned by a divide in the high-heeled shoe market—from the lowest, right up to the highest of heels. This division follows certain powers or social beliefs of whose origins are irrelevant to, consider, but that essentially consider the lowest heels for a normal/casual use that gives priority to comfort to the detriment of the highest heels which are seen as superior.

BACKGROUND OF THE INVENTION

[0002] In the shoe industry, devices to regulate the height available are many. There are devices that are composed from a tube inside of the heel, and are bolted to the structure of the shoe, in which another tube moves with the aid of a spring, through the slots in the first tube. The mechanism for setting the shoe height is made in most existing models, by a bolt that in some models is removable, which rotation coupling through the second tube in the groove of the first tube—fixing the second tube that slides over the first. A pin coupling the tabs arranged in order in the horizontal main pipe to keep the pin fixed in the slot.

[0003] The mechanisms in which the bolt is removable aren’t safe because the pin can accidentally leave their position.

[0004] The existing models of shoes with damping mechanism are made of air-filled chamber mechanisms, where an empty space between two rubbers dampens the pressure of the foot on the floor. Other systems consist of several layers of rubber or other flexible materials that are overlapping each other and to cushion the pressure on the foot.

SUMMARY OF THE INVENTION

[0005] The presented invention refers to a shoe heel which is height-adjustable, but is also composed by a damping mechanism, that can be used by any shoe brand or model, as it’s founding principals take into consideration a higher heel as opposed to a flat heel (with no height) and whose purpose is based on practical use, at the moment of conceptual production of the shoe heel, from a tube inside of the heel in which another tube moves, allowing in this manner that the height of the heel to not be rigid, but can in fact be altered to various heights in relation to its base height. In this second tube is made a drilling to introduce inside a rigid rubber damping.

[0006] The shoe heel proposed is independent of the structure of the shoe.

[0007] The pin of the tube of this invention is incorporated in the cylinder.

[0008] The shoe heel of the present invention allows various measurements of height, through the grooves that are arranged in the first tube, in vertical position, and that have the form of a cane to ensure that the bolt does not accidentally leaves their position, thereby ensuring the safety of its user.

[0009] The heel of the subject invention involves a form of footwear with, at least 15 degrees of elevation at the front, to keep the foot in a comfortable position when the heel is height adjustable.

[0010] The purpose of this request is composed of a damping mechanism, composed of a rubber damping, placed in the back of the tube that moves, which has a course of maximum damping of 3 mm, due to the use of a bolt which limits the course of damping.

[0011] The purpose of the request applies to the Shoe Components Manufacturing Industry.

BRIEF DESCRIPTION OF THE DRAWINGS

[0012] The presented invention is duly described in detail, represented in the attached drawings, in which:

[0013] FIG. 1 presents a partial cut perspective of the height adjustable shoe heel.

[0014] FIG. 2 presents two perspectives of a partial cut of the stainless steel tube through line A-A and B-B.

[0015] FIG. 3 presents a partial cut perspective of the piston;

[0016] FIG. 4 presents two perspectives of the moveable bolts that guide the piston;

[0017] FIG. 5 presents a perspective of the support spring; and

[0018] FIG. 6 presents a perspective of the rubber and the pin to limit the course of damping.

DETAILED DESCRIPTION

[0019] The present invention, refers to a heel that is independent of the structure of the shoe, which is previously soldered, that is height adjustable, but is also composed of a damping mechanism, and whose purpose is based on practical use, at the moment of conceptual production of the shoe heel, from a tube inside of the heel in which another tube moves, allowing in this manner that the height of the heel to not be rigid, but can in fact be altered in 3 heights measures: Low, Medium, High in relation to its neutral/base height, through the grooves in the piston that—for security reasons—are in the form of a cane to ensure it is fixed at selected height. In this second tube is made a drilling in order to introduce them a rigid damping rubber, with a course of maximum damping of 3 mm. It is possible for one side, adjusting the shoe height depending on the will of its user and, on the other hand, ensures greater comfort of use by including a damping mechanism. This invention aims to minimise the difficulties in choice and use of a pair of shoes due to the size of its heels and the inconveniences of its systematic use, with widely know reasons such as tiredness, discomfort, and back pains, amongst others.

[0020] The shoe heel proposed by the presented invention can be used by any shoe brand or model, as it’s founding principals take into consideration a higher heel as opposed to a flat heel with no height, and that the form used in the manufacture of the model of shoe has, in his toe, an angle of inclination of at least 15 degrees.

[0021] Taking into consideration the economy of resources as one of the preoccupations of the future, it is worth mentioning the fact that the proposed heel and the focus of this invention allows the substitution of various types of heel, thus making its almost complete application in the conventional shoe heel world possible.
The presented invention is characterised by being a dynamic piece made to allow the most comfort and attractiveness to its users possible.

Referring to the drawings in FIG. 1 the height adjustable heel is shown as an overview. As it is possible to see in fig’s 2 and 3, said shoe heel is made up of a stainless steel tube (1) that is soldered to the heel’s structure, and whose interior is composed of a piston (2) that moves, allowing for the adjustment of the height of the heel through slots 5.6 e 7—and that which the back takes a drilling to receive a rigid damping rubber 9, and the same piston 2 takes two slots vertically opposite, in which slides a pin 4 to be supported by a part 12—that a top side has a cavity for accommodation of the rubber 9 and the bottom will be a hole where a pin 10 will be inserted later that will limit, the holes of the part 12, course of damping on that side gets the cover 11 of the shoe heel. FIG. 6 shows the rigid damping rubber and bolt which limits the course of damping.

In reference to the attached figures, the preferred concretisation of the invention will now be described. The heel is made up of a combination of elements, represented in the following quoted figures which are duly described:

This mechanism is composed of a stainless steel tube (1) with no joints that exists in the national market which is adequate in the accuracy of the proposed object. For this the only interventions to which the tube is, subject are: the facing of the respective extremities which are to be collocated in the desired length. This operation is executed in a mechanical, horizontal lathe using a facing iron. Next follows the opening of the guide slots in a walking stick style (5.6 and 7). These marks that will be machined by a universal or vertical drill using a two blade drill head, with this tube being held in place by a dividing head shaft that has previously been installed in the aforementioned drill. After the centering of the piece by the machine, which guarantees that the slots will have been machined on vertically opposite, the machine execution to carry out the vertical movement in two situations and radial in one situation, maintaining the exactly equal angular value of the paring of two walking stick style slots. A hole is also made in the top extremity of the tube (1) to house a bolt (that exists in the national market) that will support a spring (3); one that with serve to maintain the tension in the piston (2) which will move in the interior of the same tube (1).

That said, it is now described the second component that works inside the tube. On piston 2 this operation is executed in a mechanical, horizontal lathe and that will take two holes later, in both sides. At the top, it takes a drilling to accommodate an elastic pin 4 to support the spring 3 which is connected to the upper top of the tube 1. In the rear, the housing serves to receive a rigid damping rubber 9 and that same piston 2 takes two slots vertically opposite, where a pin slides that will be supported by a part 12, composed of, the upper part has a cavity for accommodation the respective rubber (9) and the bottom will be a hole where a pin will be inserted later (10) that will limit in marks part 2, the course of the damping on that side gets the cover (11) of the shoe heel.

The shoe heel is drilled with a cylindrical drill, which uses built-in pressure from the above described mechanism. HSS Cylindrical drills will be used for the perforations with a two blade drill.

It is important to remember that the proposed shoe heel in this invention can have various modifications in terms of measurements, namely those in relation to height and length of the shoe heel that is aimed to be used, but also for materials.

1. Shoe heel that can be altered in height and with a damping mechanism, composed of a tube (1) inside of the heel (8) in which a piston (2) moves characterized by the adjustment of the height of the heel, that is soldered to the heel’s structure, be held through slots (5.6 e 7)—and that which the back takes a drilling to receive a rigid damping rubber (9).

2. Shoe heel according to claim 1, characterized by the piston (2) be endowed by two slots vertically opposite, where a pin slides that will be supported by a part (12), composed of, the upper part has a cavity for accommodation the respective rubber (9) and the bottom will be a hole where a pin will be inserted later (10) that will limit in marks part 2, the course of the damping on that side gets the cover (11) of the shoe heel.

3. Shoe heel according to claim 1, characterized by the piston (2) that moves allow make the adjustment of the height of the shoe heel, in 3 heights measures: Low, Medium, High in relation to its neutral/base height, regulation that is held through slots (5.6 e 7).

4. Shoe heel according to claim 3, characterized by slots in the piston (2) that, for security reasons, are in the form of a cane to ensure it is fixed at selected height.

5. Shoe heel according to claim 1, characterized by a heel that is independent of the structure of the shoe, which is previously soldered.

6. Shoe heel according to claim 1, characterized by a drilling made in the piston 2 in order to introduce them a rigid damping rubber, with a course of maximum damping of 3 mm.