A system for measuring the correct size of the shoes is formed by a sensor (1) located at the frontal tip of the shoe, at the level of the big toe or the longer toe of the foot, so that when the toe touches the sensor, it turns on a preferably bright signal consisting of a led (2). In this way, it will be possible in any moment to verify if the size of the shoe is correct, which is particularly important for children who hardly say when the shoe does no more fit the size of the foot.
SYSTEM FOR MEASURING THE CORRECT SIZE OF SHOES

TECHNICAL FIELD

[0001] The present invention relates to the technical sector of the production of footwear, in particular of accessories, connected or attached to it, which allow to exactly measure the correct length of the shoe for the foot.

[0002] Everyone knows the drawbacks resulting form wearing a shoe that doesn’t fit the size of one’s foot. A short shoe, inside which the big toe or the longer toe of the foot touches the upper at the tip, may cause malformations or diseases, as the hallux valgus or the ingrowing toenails. The big toe, or the longer toe, generally needs at least 1 cm space for a correct perambulation.

BACKGROUND ART

[0003] At present the most common system for verifying if the size or the shoe is correct for one’s foot is to press the upper at the tip trying to feel to the touch the big toe or however the longer toe. Obviously, this is an empirical method, which is not very functional, especially for children.

[0004] Currently, there isn’t any shoe that allows to verify the correct size when purchasing, so often the shoes one bought, after a while, result uncomfortable and therefore cannot be used because too short. In particular children suffer from this problem for two reasons:

[0005] 1) they are not capable to say to their parents if the size of the shoe is correct when purchasing;

[0006] 2) they rapidly grow, therefore their shoes rapidly become small and they don’t even realize that.

[0007] What is known is patent No. DE 19727201 describing a system for measuring the size of the shoe. This patent concerns a shoe inside which a sensor is placed in the frontal part of the upper, while the parts of the electric circuit are comprised in the sole. Said patent has two serious drawbacks: 1) it’s impossible to be manufactured, since during the manufacturing phase, the upper is stretched and the sensor at the tip is inevitably broken, while it’s not possible to insert the sensor once the shoe has been finished; 2) the shoe object of the invention cannot be washed as the electric circuit is integrated to it.

[0008] Another patent is known, U.S. Pat. No. 4,745,930, concerning an insole to permit an analysis of the walking or running gait of the wearer, which comprises an electric circuit, but does not have the function of measuring the size of the shoe.

[0009] On the contrary, the system object of the present invention permits to establish the correct size of a shoe in a simple and certain way, without considerable adding costs on the price of the original product and in such a way as to result imperceptible to the wearer.

[0010] The object of the present invention avoids these drawbacks as it will be better illustrated in the following description.

DISCLOSURE OF INVENTION

[0011] Reduced to its essential structure and with reference to the figures or the enclosed drawings, a system for measuring the correct size of a shoe for the foot wearing it, according to the present invention, comprises:

[0012] means to find the position of the big toe or the longer toe, by a sensor (1) located at the frontal tip of the sole;

[0013] means to signal the contact between the big toe or the longer toe and the sensor, by a led (2), or other sound or visual signal, which turns on when said toe activates the sensor;

[0014] means to connect the sensor with the led, or other sound or visual signalling system, by an electric circuit (4) powered by a battery (3).

[0015] Conveniently, this system for measuring the right size of the shoe is placed inside the shoe and is formed by a led, a battery and a sensor connected to each other, in order to signal when the big toe or the longer toe is too close to the upper at the tip of the shoe; in this case, the toe activates the sensor turning on the led, which means that the shoe is too short.

[0016] Conveniently, the sensor is placed at the tip of the shoe’s sole in the point where the touch of the big toe or the longer toe is wrong and proves that the shoe is too short. In this way, if said toe touches the sensor, this will signal the wrong position.

[0017] Conveniently, the sensor is placed just beyond the position that allows the big toe or the longer toe, during perambulation, to move forward or about 1 cm, therefore in a position very close to the shoe’s upper. When touching the sensor, the big toe, or the longer toe, is in the “dangerous zone”, less than 1 cm far from the upper, so that the sensor is activated and immediately signals the shoe is too short by means of the led.

[0018] Conveniently, the sensor is placed at the level of the big toe or the longer toe, about 1 cm far form the upper, i.e. the minimum space for a correct perambulation.

[0019] Conveniently, the signalling system is placed at the heel or elsewhere, so as not to damage the beauty of the shoe, and signals when the big toe or the longer toe is about 1 cm far from the tip of the shoe, brightening.

[0020] Conveniently, the signal emitted after the activation of the sensor by the toe may be sound or visual, and consists of a led with a light that can be seen from the outside of the shoe, in order to externally signal when it’s too short, said system has the advantage to alert the wearer when the shoe that initially was of the right size, has become too short, which is particularly important for children.

[0021] Conveniently, with reference to FIG. 3, the whole system, comprising the sensor, the battery and the led, is included inside the shoe’s sole, while the insole serves as a cover.

[0022] Conveniently, with reference to FIG. 4, the battery and the led are placed inside the sole, while the sensor and the relative connections are applied under the insole.

[0023] Conveniently, with reference to FIG. 5, the whole system, comprising battery, led, sensor and connections, is included inside an insole inserted into the shoe.

BRIEF DESCRIPTION OF DRAWINGS

[0024] FIG. 1 shows a schematic drawing of the electric circuit actuating this system, placed above the sole. It shows
the sensor (1) located at the level of the big toe, or the longer toe, that serves as a switch. Once it has been activated by the toe, the led (2) located at the heel or elsewhere turns on. This system works with a circuit (4) that includes a battery (3) and a simple led.

[0025] FIG. 2 shows the electric circuit of the system of FIG. 1.

[0026] FIG. 3 shows a shoe in which the system is completely applied inside its sole, while the insole serves as a cover.

[0027] FIG. 4 shows an exploded view of a shoe in which the sensor and the connections are applied under the insole, while the battery and the led are included inside the sole.

[0028] FIG. 5 shows and insole that includes the whole system.

[0029] FIG. 6 shows a side section of a shoe in which the system is applied inside the sole.

[0030] FIG. 7 shows the same section as FIG. 6 comprising a foot, which better demonstrates the utility of the system that prevents the foot from touching the tip of the upper with the consequent problems.

1) System for measuring the correct size of the shoe for the foot wearing it, with a sensor, a led or other sound or visual signals and an electric circuit, characterized in that it comprises:

a sensor (1) to find the position of the big toe or the longer toe, located at the frontal tip of the insole;

a led (2), or other sound or visual signal to signal the contact between the big toe or the longer toe and the sensor, which turns on when said toe activates the sensor, located inside the insole itself;

an electric circuit (4) to connect the sensor with the led, or other sound or visual signalling system, powered by a battery (3), said electric circuit and battery located inside the insole itself.

2) System according to claim 1 characterized in that the whole system, comprising battery, led, sensor and connections, is included inside an insole inserted into the shoe.

3) Insole to be inserted into a shoe, according to claim 1, characterized in that it comprises a led, a battery and a sensor connected to each other, in order to signal when the big toe of the longer toe is too close to the upper at the tip of the shoe; in this case, the toe activates the sensor turning on the led, which means that the shoe is too short.

4) System according to claim 1 characterized in that the sensor is placed at the tip of the shoe insole in the point where the touch of the big toe or the longer toe is wrong and proves that the shoe is too short. In this way, if said toe touches the sensor, this will signal the wrong position.

5) System according to claim 1 characterized in that the sensor is placed just beyond the position that allows the big toe or the longer toe, during perambulation, to move forwards of about 1 cm, therefore in a position very close to the shoe’s upper. When touching the sensor, the big toe or the longer toe, is in the “dangerous zone”, less than 1 cm far from the upper, so that the sensor is activated and immediately signals the shoe is too short by means of the led.

6) System according to claim 1 characterized in that the sensor is placed at the level of the big toe or the longer toe, about 1 cm far from the upper, i.e. the minimum space for a correct perambulation.

7) System according to claim 1 characterized in that the signalling system is placed at the heel or elsewhere, so as not to damage the beauty of the shoe, and signals when the big toe or the longer toe is about 1 cm far for the tip of the shoe, brightening.

8) System according to claim 1 characterized in that the signal emitted after the activation of the sensor by the toe may be sound or visual, and consists of a led with a light that can be seen from the outside of the shoe, in order to externally signal when it’s too short.

9) System according to claim 1 characterized in that the battery and the led are placed inside the sole, while the sensor and the relative connections are applied under the insole.