IN THE UNITED STATES DISCTRICT COURT EASTERN DISTRICT OF VIRGINIA

Erik B. Cherdak 149 Thurgood Street Gaithersburg, Maryland 20878

Plaintiff, Pro Se,

ν.

SKECHERS USA, INC. 228 Manhattan Beach Blvd. Manhattan Beach, California 90266

Defendant.

SERVE ON:

CORPORATION SERVICE COMPANY 11 South 12th Street P.O. Box 1463 Richmond, VA 23218-0000 CLEMENT SHEET COUNT ALEXANDIA THOUGH

Case No. 1:09cv1024-10/7CB

COMPLAINT FOR PATENT INFRINGEMENT JURY TRIAL DEMANDED

COMPLAINT

Plaintiff Erik B. Cherdak¹ (hereinafter "Plaintiff" or "Cherdak"), *Pro Se*, and in and for his Complaint against SKECHERS USA, INC. (hereinafter "SKECHERS"), and states as follows:

JURISDICTION AND VENUE

This is an action for Patent Infringement under the Laws of the United States
of America and, in particular, under Title 35 United States Code (Patents - 35

¹ While Plaintiff Cherdak is not licensed to practice law in Virginia, he is a registered patent attorney before the U.S. Patent and Trademark Office.

- USC § 1, et seq.). Accordingly, Jurisdiction and Venue are properly based under Sections 1338(a), 1391(b) and (c), and/or 1400(b) of Title 28 of the United States Code.
- 2. Plaintiff is an individual who resides in Gaithersburg, Maryland at the address listed in the caption of this Complaint. At all times relevant herein, Plaintiff has been and is the named inventor of U.S. Patent Nos. 5,343,445 (the '445 patent) and 5,452,269 (the '269 patent) (hereinafter collectively referred to the "Cherdak patents," which were duly and legally issued by the U.S. Patent and Trademark Office ("USPTO") on August 30, 1994 and September 19, 1995, respectively. The Cherdak patents have successfully gone through additional expert review before the USPTO during reexamination proceedings related to the same (USPTO Proceeding Control Nos. 90/008,269, and 90/008,246, respectively). Those reexamination proceedings resulted, *inter alia*, in the confirmation of claims without amendment; many of said claims form the basis of the instant lawsuit. Both of the Cherdak patents are entitled "Athletic Shoe with Timing Device."
- 3. Defendant SKECHERS is on information and belief a DELAWARE corporation having a principal place of business as specified in the caption of this Complaint. Defendant sells infringing lighted athletic shoes through its own SKECHERS retails stores and through third-party retail stores such as SEARS, KOHLS, NORDSTROM, etc. in this judicial district (e.g., in Tysons Corner, Virginia) and is therefore subject to this court's jurisdiction. Additionally, Defendant SKECHERS' retail website is accessible in this judicial district 24/7 and 365 days per year.

4.

5.

Defendant SKECHERS is presently and has in the past engaged in the design, importation, distribution, sale, and offering for sale of what are commonly referred to as "light up shoes," "light up athletic shoes," "athletic shoes," and/or "lighted shoes," "lighted athletic shoes," "lighted sneakers," etc. (hereinafter "shoes," "lighted shoes," "lighted shoe products"). At all times relevant for this Complaint, the Defendant has engaged in the infringement of and/or induced the infringement of and/or committed contributory infringement of the Cherdak patents throughout the United States, including, but not limited to, in this judicial district of VIRGINIA, USA.

FACTS

On July 6, 1993, Plaintiff filed a patent application entitled "Athletic Shoe with Timing Device" that resulted in the issuance of the '445 patent on August 30, 1994. On August 29, 1994, Plaintiff filed a Continuation type application also entitled "Athletic Shoe with Timing Device" which resulted in the issuance of the '269 patent on September 19, 1995. The Cherdak patents are directed to lighted shoes like those used, made and sold by the Defendant. The Cherdak patents have successfully gone through additional expert review before the USPTO during reexamination proceedings related to the same (USPTO Proceeding Control Nos. 90/008,269, and 90/008,246, respectively). Those reexamination proceedings resulted, *inter alia*, in the confirmation of many claims without amendment; many of said claims form the basis of the instant lawsuit. Both of the Cherdak patents are entitled "Athletic Shoe with Timing Device." The Cherdak patents and their

- corresponding Reexamination Certificates are attached hereto at EXHIBITS 1-4, respectively.
- 6. The Defendant has in the past imported, distributed, sold and offered for sale, and continues import, distribute, sell and offer for sale, infringing shoes either directly or via branded channels such as those bearing the SKECHERS®, S-LIGHTS, "S," L-TECH, and HOT-LIGHTS trademarks. **EXEMPLARY** infringing shoes are SKECHERS® branded shoes known and/or are referred to as the Boys' SKECHERS® S-LIGHTS "SPORT" (bearing model number "SN 90245L"), the Girls' SKECHERS® heart-shoe (bearing model number "SN 10058N"), and the Boys' SKECHERS® S-LIGHTS "SUPER-Z" (bearing model number "SN 90376N"), etc., and which all include lighting modules (the housed circuitry and components used to facilitate light-up functionality in said shoes) marked with "USA, PAT # 4,848,009," On information and belief, such lighting modules incorporated extensively throughout Defendant SKECHERS' lighted shoe product lines. The infringing shoes mentioned in this COMPLAINT are merely exemplary infringing shoes and Defendant does sell, offers for sale, distribute and makes other shoes now on store shelves (and which have been sold in the past) at least in this judicial district of Virginia (USA) and/or throughout the United States; a listing of Defendant's SKECHERS' current lighted shoe products are shown in the website printout attached at EXHIBIT 5 which is incorporated herein by reference. Accordingly, the particular shoe models identified in this paragraph number 6 are merely exemplary and do not constitute a full and complete identification of all infringing shoes which are

contemplated by this Complaint for Patent Infringement – due discovery in this case will reveal all infringing shoes used, made, imported, offered for sale, and/or sold by the Defendant individually and/or collectively with other parties.

7. DEFENDANT SKECHERS IS HEREBY ADVISED THAT THE PLAINTIFF, THE INSTANT LAWSUIT AND THIS COMPLAINT DO NOT SEEK REMEDIES IN CONNECTION WITH ANY ACTS OF PATENT INFRINGEMENT BY DEFENDANT RELATED TO LIGHTED SHOES WHICH ARE MANUFACTURED AND/OR SOURCED TO (SUPPLIED BY) DEFEDANT FROM ANY OF THE FOLLOWING PARTIES INCLUDING:

COLLECTIVE BRANDS, INC. (DBA PAYLESS, INC.)
BBC INTERNATIONAL, INC.
STRIDE-RITE CORPORATION
ESO ORIGINALS, INC.
VIDA SHOES INTERNATIONAL, INC.
CHAMELEON, INC.
TARGET STORES, INC. (AKA TARGET BRANDS, INC.)

8. On information and belief, the infringing lighted shoe products used, made and sold by Defendant SKECHERS include lighting modules sourced from an individual, Ms. Terena Anna Marie Shaw (a.k.a. Terena Titus), either alone or in concert with and/or acting through a company known as CABARETE HOLDINGS BV and/or CANCARIBE LIMITED. Either or both CABARETE HOLDINGS BV and CANCARIBE LIMITED are, on information and belief, the exclusive licensees and/or licensing agent(s) related to the licensure of U.S. Patent 4,848,009 to Nicholas Rogers (a.k.a. Nicholas Shaw and the former spouse of said Ms. Terena Shaw). The instant

lawsuit certainly contemplates any and all lighting modules which are marked with U.S. Patent No. 4,848,009.

COUNT I – Patent Infringement

Paragraphs 1 through 8 are hereby incorporated by reference as though completely set forth herein.

- 9. Given the validity and corresponding enforceability of the Cherdak patents (U.S. Patent Nos. 5,343,445 and 5,452,269) against past, present, and future infringing acts and other activities prohibited under the U.S. Patent Act (35 USC § 1, et seq.), Plaintiff Cherdak, inter alia, possesses the right to pursue claims against the Defendant's past, present, and future design, use, manufacture, importation, sale, offer for sale, and distribution of infringing shoes under 35 USC § 271(a), (b), and (c).
- 10. On information and belief Defendant has infringed, contributed to the infringement of, and/or induced the infringement of the Cherdak patents in violation of 35 USC § 271(a), (b), and (c) by its design, use, manufacture, importation, distribution, sale, and offer for sale of shoes including, but not limited to, the shoes identified in paragraph 6 hereof.
- 11. On information and belief, Defendant has infringed the Cherdak patents in violation of 35 USC § 271(b) by actively inducing distributors, customers, and/or other retailers to infringe the Cherdak patents.
- 12. On information and belief, Defendant SKECHERS has made and continues to make (and/or has had made on its behalf) infringing light up shoes and has and continues market the same in throughout the U.S. and, in particular, in this

judicial district of Virginia, USA for infringing purposes as seen on the www.skechers.com website and, by way of example, in a video found at http://www.skechers.com/info/as seen in tv kids hot lights0109. In that video, children are seen wearing SKECHERS® HOT LIGHTS shoes in which the shoes clearly illuminate while the shoes are off the ground and in the air such as during the time when a little boy appears to jump over a red wagon.

13. Because of the subjectively willful nature of Defendants' infringing activities in violation of 35 USC § 271, Plaintiff is entitled to enhanced damages as permitted by the U.S. Patent Act (35 USC § 1, et. seq.).

PRAYER FOR RELIEF

WHEREFORE, Plaintiff Cherdak prays for judgment and relief against the Defendant as follows:

- 14. For a judgment that the '445 and '269 patents are valid and infringed by Defendant including, but not limited to, its subsidiaries, predecessors-in-interest and business units however and wherever formed;
- 15. That permanent injunctions be issued against continued infringement of the '445 and '269 patents by Defendant and its parents, subsidiaries, officers, directors, employees, affiliates, representatives and agents, and all those acting in concert with or through Defendant, directly or indirectly, including, but not limited to, distributors, customers, and other retailers;
- 16. That an accounting be had for damages caused to Plaintiff Cherdak by Defendant's acts in violation of the U.S. Patent Act (35 USC § 1, et seq.) together with pre-judgment and post-judgment interest;

- 17. That any damages awarded in accordance with any prayer for relief be enhanced and, in particular, trebled in accordance with the U.S. Patent Act (35 USC § 1, et seq.) for Defendant's acts which are found to be willful acts of patent infringement; and
- 18. Such other and further relief as this Court shall deem just and proper.

DEMAND FOR TRIAL BY JURY

The Plaintiff in this lawsuit hereby demands a TRIAL BY JURY on all issues so trialable.

Respectfully submitted,

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September 10, 2009



US005343445A

United States Patent [19]

Cherdak

[56]

5,343,445 Patent Number: Aug. 30, 1994 Date of Patent:

[54]	ATHLETIC	SHOE WITH TIMING DEVICE
[75]	Inventor:	Erik B. Cherdak, Silver Spring, Md.
[73]	Assignees:	David Stern; James Thompson, both of Rockville, Md.
[21]	Appl. No.:	85,936
[22]	Filed:	Jul. 6, 1993
[51]	Int. Cl.5	G04B 47/00; A43B 3/00;
		G04F 8/00
[52]	U.S. Cl	368/10; 368/110;
• •		36/132; 36/137
[58]	Field of Sea	arch 368/10, 9, 107-113;
• •		36/132, 136, 137, 114

References Cited

U.S. PATENT DOCUMENTS

FOREIGN PATENT DOCUMENTS

WO8804768 6/1988 World Int. Prop. O. .

Primary Examiner-Vit W. Miska

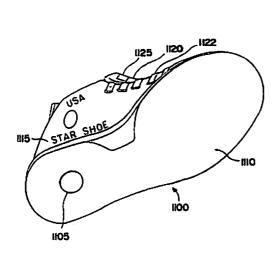
ABSTRACT

An athletic shoe which includes a timing device for measuring the amount of time the athletic shoe is off the ground and in air. The athletic shoe can also include a notification device which can be operatively coupled to the timing device for notifying a wearer of the athletic shoe of a message. The message can include information

related to the amount of time the athletic shoe is off the ground and in the air.

23 Claims, 3 Drawing Sheets

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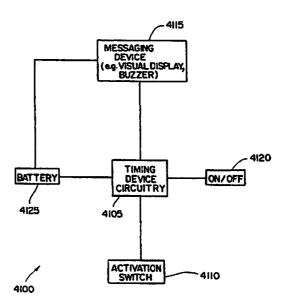
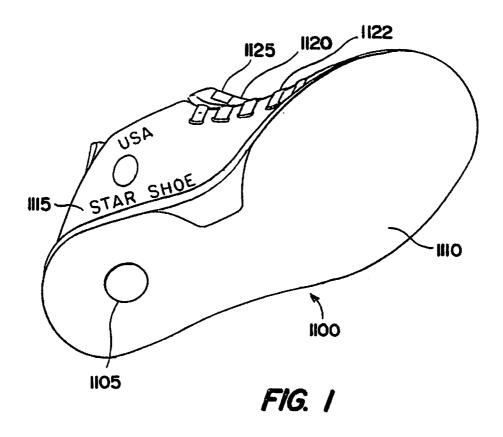
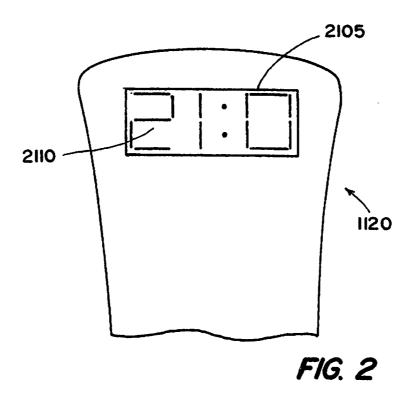


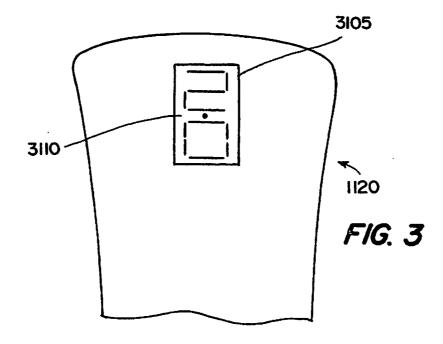
EXHIBIT 1

U.S. Patent Aug. 30, 1994 Sheet 1 of 3 5,343,445



U.S. Patent Aug. 30, 1994 Sheet 2 of 3 5,343,445





Aug. 30, 1994

Sheet 3 of 3

5,343,445

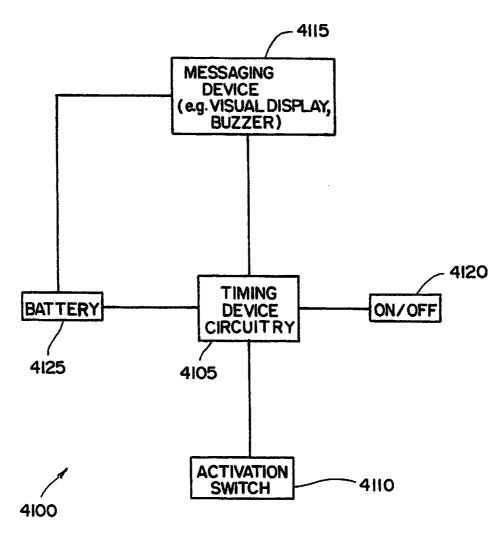


FIG. 4

5,343,445

ATHLETIC SHOE WITH TIMING DEVICE

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BACKGROUND OF THE INVENTION

1. Technical Field

The present invention relates to athletic shoes.

2. Background Information

It is well known that basketball, volleyball, and other sports activities players often try to stay in the air for relatively long periods of time while they attempt to perform a particular action. For example, basketball players often attempt to stay or "hang" in the air for as long as possible as they try to slam-dunk a basketball into a basketball net. The amount of time a basketball player hangs in the air is commonly referred to as his or her "hang time." Hang time has become so popular that basketball players often compete with each other as to who can hang in the air the longest (i.e. the player with the longest "hang time" wins). Moreover, many great 20 professional basketball players have become quite popular for their "hang times" (e.g. Michael Jordan of the Chicago BULLS).

While hang time has become a popular measure of a player's abilities, there has not heretofore been pro- 25 posed an accurate and objective way to calculate the amount of time a player remains in the air while performing a sport related activity. Moreover, there has not heretofore been proposed a way or a device which can be used to calculate a player's hang time and which 30 may be manufactured, marketed, and sold in consumerappealing ways at effective price points.

The present invention solves these problems.

SUMMARY OF THE INVENTION

It is an object of the present invention to solve the above-listed problems.

It is another object of the present invention to provide wearers of athletic shoes with the ability to keep track of the amount of time they spend in the air and off 40 the ground when participating in an athletic activity such as basketball for example.

These and other objects of the present invention are achieved in an athletic shoe which includes an athletic the amount of time the athletic shoe is off the ground and in the air.

Finally, the present invention provides for a timing device which is integrated into an athletic shoe which has a messaging device such as a visual display.

As already stated, and as stated throughout the remaining sections of this patent document, the terminology "off the ground and in the air" is used to define and describe the structure and operation of the present invention. Moreover, the word "ground" is meant to 55 include the ground, the surface of a basketball court, the floor, and any other surface on which a sports related activity takes place.

BRIEF DESCRIPTION OF THE DRAWINGS

The present invention is described by way of example and in regard to the drawing Figures in which:

FIG. 1 is a diagram of an athletic shoe which is equipped with a timing device;

FIG. 2 is a front view of a tongue of an athletic shoe 65 which has been equipped with a visual display;

FIG. 3 is a front view of a tonue of an athletic shoe with has been equipped with a visual display;

FIG. 4 is block schematic diagram of an exemplary embodiment of the present invention.

The following section will refer to the above-listed drawing Figures. Where appropriate, like structures 5 will be referenced with like numerals.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

The present invention is described by way of example and in regard to the drawing Figures which were briefly described above and which are discussed in detail below.

Referring now to FIG. 1, therein depicted is an athletic shoe 1100 which has been equipped with a timing device. Athletic shoe 1100 is a basketball type shoe similar to those manufactured by LA GEAR, REE-BOK, NIKE, BRITISH KNIGHTS, CONVERSE, and NEW BALANCE. Athletic shoe 1100 has a rubber type sole 1110 in which a contact dimple 1105 has been formed during manufacture. Contact dimple 1105 can be similar to that implemented in LA GEAR's LA TECH LIGHT GEAR shoes. Shoe upper 1115 is mounted to rubber sole 1110 in a conventional manner and will be apparent to those skilled in the art of athletic shoe construction. Tongue 1120 is also mounted to shoe upper 1115 in a conventional manner and is held against a wearer's foot (not shown) by fastening arrangement 1122 in the usual way. While tongue 1120 is shown as an actual tongue 1120 in the conventional sense, other structures such as now-popular sock-type vamp members may be used. Such sock-type vamp members will be apparent to those skilled in the art and may be seen in such shoes as those manufactured by NIKE (i.e. the 35 AIR HURACHE line of cross-training shoes). While laces are shown as providing fastening arrangement 1122, other fastening arrangements such as hook and loop, straps, and button fasteners may be used as such fasteners will be apparent to those skilled in the art.

Tongue 1120 includes a message device 1125. A message is meant to include a visual and/or audible notification which is meant to notify a wearer of athletic shoe 1100 of at least one particular piece of information such as, for example, the amount of time athletic shoe 1100 is shoe configuration and a timing device for measuring 45 off the ground and in the air and time of day, and alphanumeric textual and/or verbal expressions. In this embodiment, message device 1125 is a visual display in the form of a liquid crystal display which will be apparent to those skilled in the art. Flexible visual displays can 50 also be used as can light emitting diode (LED) arrangements. While message device 1125 is a visual display, other messaging type devices such as buzzers and noise makers, flashing bulbs and the like may also be used. Also, voice provision devices may also be used to provide messages to the wearer of athletic shoe 1100. Such structures will be apparent to those skilled in the art. Moreover, message device 1125 can include combinations of both visual and audible devices. Such audible devices can include piezo-electric buzzers, speakers, 60 bells, and the like which will be apparent to those skilled in the art. Finally, while message device is shown as part of tongue 1120, other parts of athletic shoe 1100 could also house the such a display. For example, message device 1125 could also be located on the back of athletic shoe 1100, on the sides of athletic shoe 1100, on the toe portion of athletic shoe 1100, or any other place on athletic shoe 1100 which is practically possible and is commercially advantageous.

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Referring now to FIGS. 2 and 3, therein depicted are different preferred embodiments of tongue 1120. As shown in FIG. 2, tongue 1120 includes a horizontally readable message device 1125 in the form of a visual display 2105 of the liquid crystal display (LCD) variety. 5 The numbers 2110 displayed on visual display 2105 are shown upside down so that a wearer of an athletic shoe which is equipped with tongue 1120 will be able to read the display merely by looking down at his shoes. Three numeric positions are shown on visual display 2105 to display seconds, tenths of seconds, and hundredths of seconds. Timing device 4110 will be configured to provide the aforementioned timing accuracy. While three numeric characters are shown as displayed on visual display 2105, more than three or less than three may be 15 displayed depending on the design requirements chosen and the selected timing accuracy desired. Moreover, while only numeric characters are shown on visual display 2105, other characters such as alpha and graphic characters could also be displayed on visual display 20 manner. 2105. The display of alpha, numeric, and graphic characters on visual display 2105 will be apparent to those skilled in the art.

Numbers 2110 are shown as displayed on visual display 2105 in normal video but may configured to appear 25 in "reverse video" fashion (i.e. unlit digits against a dark background-no illumination against an illuminated background). While visual display 2105 is ergonomically placed on the front of tongue 1120 (i.e. the side that faces away from a wearer's foot), it is quite possible 30 to select a visual display which may be mounted on the top part of tongue 1120 or on the back of tongue 1120 (i.e. on the side that faces the wearer's foot). It is believed that tongue 1120 presents the best place for complicated and so that the ergonomics of reading visual display 2105 are maximized.

In FIG. 3, message device 1125 is in the form of a visual display 3105 of the liquid crystal display (LCD) variety. In contrast to visual display 2105, visual display 40 3105 is oriented in a vertical fashion. Visual display 3105 is shown as displaying only two numbers which represent seconds and tenths of seconds. It should be understood that the message length may be longer than be scrolled in a conventional manner. The vertical nature of Visual display 3105 allows messages to be read in a vertical fashion.

Referring now to FIG. 4, therein depicted is a block schematic diagram of an exemplary embodiment of the 50 present invention and which is of the type used in athletic shoe 1100 as shown in FIG. 1. Timing system 4100 includes timing device circuitry 4105, an activation switch 4110, a messaging device 4115, a battery 4125, and a system ON/OFF switch 4120.

Timing device circuitry 4105 is connected to battery 4125, messaging device 4115, system ON/OFF switch 4120, and activation switch 4110. Timing device circuitry 4105 preferably includes readily available and well known clocking circuits which may be found in 60 consumer electronics goods such as digital stop watches, digital timers, digital wristwatches, digital cooking timers, and digital thermometers which include timers used to measure the amount of time needed to calculate a person's body temperature. While dedicated 65 timing devices and circuits may be used, other custom logic devices which include microprocessors and/or microcomputers may also be used. For example, a mi-

croprocessor (e.g. a 4 BIT or 8 BIT microprocessor) may be configured with the necessary support circuitry (e.g. ROM, RAM, etc.) and programmed via software to achieve timer and timing operation. Such use of a microprocessor to achieve timer and timing operation will be apparent to those skilled in the art. Additionally, the use of microprocessors and associated support circuitry to achieve timer and timing functionality can result in providing designers with the ability to provide more elaborate messages beyond those which merely a time value. That is, messages may be formed by timing device circuitry which provide motivational sayings which are dependant on the amount of time a person's shoe is off the ground and in the air (e.g. "novice," "HANGER," "ACE," "NUMBER '1,' "POOR," "OK," "GOOD," "AVERAGE," or "GREAT!") In the event that messages are desired which include strings of characters which are longer than a display width, such messages may be scrolled in a conventional

Timing device circuitry 4105 preferably must be able to calculate and measure a period of time with accuracy of at least tenths of a second. That is, timing device circuitry 4105 should be able to calculate and measure the passage of time in units as small as tenths of seconds. but preferably would be able to calculate and measure time in units as small as hundredths of a second.

Connected to timing device circuitry 4105 is messaging device 4115. The connection of timing device circuitry 4105 to messaging device 4115 is done in a conventional way (e.g. much like the connection of an LCD display to the calculation circuitry of a hand-held calculator or to the stop-watch timing circuitry of a digital wristwatch). Messaging device 4115 is preferamounting visual display 2105 since wiring will be least 35 bly a visual display of the liquid crystal display (LCD) variety (e.g. wristwatch LCDs, hand-held calculator LCDs, illuminated LCDs found on wristwatches and portable cellular telephones), but may also include light emitting diode (LED) arrangements. Such LCD and LED displays will be apparent to those skilled in the art. As mentioned above, messages may include alpha, numeric, and graphic characters and may be smaller than, equal to, and larger than the physical display size of massaging device 4115. In the case where messages the physical dimension of the display and may therefore 45 are larger than the display size of massaging device 4115, such messages may be scrolled in the conventional manner.

> Messaging device 4115 preferably is able to display a message which can include a time value (e.g. 1:50 seconds) but may also be configured to display a message formed from alpha characters, numeric characters, graphic characters, or any combination thereof. Preferably, messaging device 4115 will be able to display seconds measured, tenths of seconds measured, and hundredths of seconds measured by timing device circuitry 4105. Messaging device can be configured to display a constant running time (e.g. like a wristwatch stop-watch display) or can only display time after activation switch 4110 has been triggered.

> While a visual display such as an LCD display is preferred, other messaging devices such as buzzers, speakers, bells, speech devices, and combinations thereof may also be used to provide a message to the wearer of an athletic shoe which is equipped with such a messaging system.

> As mentioned above, connected to timing device circuitry 4105 is activation switch 4110. Activation switch 4110 is preferably similar in construction to LA

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GEAR, INC.'s LIGHT GEAR system (LA TECH) wherein a battery is maintained in a custom designed plastic switch carrier. The sole of a shoe in which LA GEAR's switch carrier resides is formed with a contact dimple which, when pressed upon contact of the shoe sole with the ground, causes the switch carrier to become compressed to thereby cause the battery to come in operative contact with the leads of a single light emitting diode (LED). While activation switch 4110 is preferably like that of the LA GEAR design other 10 switching systems including contact switches, tape switches, pressure switches, and any other well known switching system would also work in the present invention.

Timing system ON/OFF switch 4120 is a conventional on-off switch and is used to turn timing system 4100 on and off so as to conserve battery life during periods of non-use. The connection of timing system ON/OFF switch 4120 will be apparent to those of ordinary skill in the art.

Power is supplied to timing system 4100 via battery 4125. Preferably, battery 4125 is of similar specification to that of the battery used by LA GEAR, INC. in its LA TECH line of athletic shoes. The connection of battery 4125 to the other components of timing system 25 4100 will be apparent to those of ordinary skill in the art.

Timing system 4100 is preferably mounted in an athletic shoe similar to the one depicted in FIG. 1 in the following ways: Timing device circuitry 4105 is preferably mounted in the tongue of the athletic shoe as is system ON/OFF switch 4120. Messaging device 4115 is preferably mounted on the front of the tongue of the athletic shoe so that a wearer may read the display easily. Activation switch 4110 is preferably mounted 35 along with battery 4125 in a switch pack which is housed in the heel of the athletic shoe (e.g. as in LA GEAR INC.'s LIGHT GEAR—LA TECH design). While these configuration specifications are preferred, other arrangements may be maintained so as to effectuate particular design requirements.

In use, timing system 4100 is placed into operation by placing system ON/OFF switch 4120 into an "ON" state. When system ON/OFF switch 4120 is placed into an "ON" state an audible tone may be sounded if timing system 4100 is equipped with an audible sounding device. Such "beeping" during initialization will be apparent to those skilled in the art. Moreover, if timing system 4100 is equipped with a proper circuitry, a message can appear on display which indicates such things as 50 "ON" state, shoe manufacturer and various other indicia

Next, timing device circuitry 4105 should be initialized (i.e. clock circuits reset and zeroed). Preferably, timing device circuitry will begin to measure a time 55 period whenever the shoe in which the system resides is off the ground and in the air. While such operation may seem cumbersome, messaging device will only be able to display and/or sound a message after timing device circuitry 4105 has measured a threshold time period. In 60 this manner, times will not be displayed each time a person walks, but only after a person performs a jump or other action in which he or she is in the air and off the ground for an extended period of time (e.g. during a slam-dunking action while playing basketball).

The threshold time period just mentioned is the amount of time an average person takes to make one step during a walking regimen. That is, the threshold

time period was analyzed to be in the range of at least 0.2 seconds to about 0.55 seconds. Only after timing device circuitry measures a period of time equal to some threshold amount should timing device circuitry 4105 allow messaging device 4115 display a time based message. More specifically, only after timing device circuitry 4105 has measured a period of time of say at least 0.3 seconds will messaging device 4115 be given a message to display and/or sound. While the threshold time was determined to be between 0.2 and 0.55 seconds on average across a sampling of people and trials, the present invention should not be so limited. Moreover, the threshold time may change depending on what activity is chosen to provide the benchmark for determining an average threshold time (e.g. walking was the chosen benchmark activity whereas running, skipping, and skating could also have been used). The threshold time feature will allow timing system 4100 to display and/or sound time-based messages only when a person per-20 forms a "hang" type activity for period of time beyond a threshold period. It is important to note that timing system 4100 could also be configured to provide structure which will allow user selection and/or input of a given time period to effectuate more personal and accu-

The threshold time feature solves the "reset" problem (i.e. the problem of knowing when to start and stop measuring a time period). The reset problem is solved in that the timing system 4100 will always measure the amount of time an athletic shoe is off the ground and in the air, but will only cause the display or sounding a time-based message when the amount of time measured by timing device circuitry is beyond a certain threshold.

rate threshold time period benchmarks.

A period of time is measured, as suggested above, by the action of bringing the shoe off the ground and then returning the shoe to the ground (i.e. causing activation switch to trip). In this manner a time period is measured when a shoe equipped with timing system 4100 is off the ground and in the air.

Timing system may also be equipped with a "lock-in" switch which can be configured to hold a present value on the display so that no other timing messages may be displayed until the lock-in switch is disengaged. Conventional latching of massaging device 4115 can be used to achieve this functionality.

While the above structures and operation were discussed with reference to the embodiments shown in the drawings, other features can be incorporated into the present invention. Such features do not present difficult design problems and will be apparent to those skilled in the art. For example, the present invention utilizes a single shoe system. A two-shoe timing system may be configured which incorporates radio-frequency and/or infra-red technology between shoes so as to allow the measurement of time only when both shoes are off the ground and in the air. Such RF and IR technology will be apparent to those skilled in the art.

Also, a shoe can be configured which incorporates an RF transmitter which transmits to a central location so that a player's "hang-time" (i.e. his time of the ground and in the air) can be displayed on a score board at publicly viewed games. In this fashion, "hang-time" can become a carefully measured and followed statistic whereas presently it is only speculated. Such RF technology and scoreboard technology will be apparent to those skilled in the art.

Finally, while timing information was primarily the driving force behind the present invention other infor-

mation may be determined, sensed, and/or measured. Such other information, which can be displayed and/or sounded in the form of a message, can include, but is not limited to, speed, distance traveled, alpha-numeric messages, elevation, activity time or duration, stride length, 5 cadence, foot pressure, acceleration, and various other activity information. The technology necessary to provide these pieces of information will be apparent to those skilled in the art. The present invention now makes possible the provision of such information in 10 easy, marketable, and cost effective manners.

Having now fully described the present invention, it will be apparent to one of ordinary skill in the art that many changes and modifications can be made thereto without departing from the spirit and scope of the pres- 15 ent invention as defined by the appended claims.

I claim:

- 1. A method for indicating hang time off the ground and in the air during a jump by a person wearing an athletic shoe, said method comprising the steps:
 - (a) sensing, within said shoe, when said shoe leaves the ground during said jump;

(b) sensing, within said shoe, when said shoe returns to the ground at the end of said jump; and

- (c) activating a hang time indicator on said shoe dur- 25 ing the time interval between said shoe leaving and returning to the ground as sensed in steps (a) and (b), respectively, said indicator providing an indication of hang time in a manner perceptible to said person.
- 2. The method of claim 1 wherein step (c) comprises illuminating a light emitting device on said shoe throughout said time interval.
- 3. The method of claim 1 wherein step (c) comprises flashing a plurality of flashing lights on said shoe 35 throughout said time interval.
- 4. The method of claim 1 wherein step (c) comprises providing an audible sound from said shoe.
- 5. The method of claim 4 wherein the audible sound provided in step (c) is an enunciation of elapsed time of 40 said time interval.
- 6. The method of claim 1 wherein step (c) comprises providing a visibly readable message on said shoe of elapsed time in said time interval.
- 7. The method of claim 6 further comprising the step 45 of inhibiting said visibly readable message during walking and running steps by said person.
- 8. The method of claim 7 wherein said step of inhibiting comprises inhibiting said visibly readable message unless said elapsed time exceeds a predetermined mini- 50 mum time.
- 9. The method of claim 8 wherein said predetermined minimum time is at least 0.2 seconds.
- A method for measuring and indicating hang time wearing an athletic shoe, said method comprising the steps of:
- (a) measuring in the shoe elapsed time between the shoe leaving the ground and returning to the
- (b) from the elapsed time measured in step (a), determining in said shoe whether said person has jumped off the ground or taken a walking or running step; and
- (c) upon determining in step (b) that the person has 65 jumped off the ground, providing an indication at said shoe, perceptible to said person, of the elapsed time measured in step (a).

- 11. The method of claim 10 wherein step (b) comprises determining that said person has jumped off the ground when the measured elapsed time is at least 0.2 seconds.
- 12. The method of claim 10 wherein step (c) comprises providing a visibly readable indication on said shoe of the measured elapsed time.
 - 13. An athletic shoe comprising:

a sole;

a shoe upper mounted on said sole;

pressure responsive means mounted on said shoe for providing a signal in said shoe in response to said shoe leaving the ground when on the foot of a person, and for removing said signal in response to said shoe returning to the ground;

a timer in said shoe actuable in response to said signal for measuring elapsed time; and

- an elapsed time display at said shoe for providing a visible reading of the elapsed time measured by said
- 14. The athletic shoe of claim 13 further comprising: means in said shoe for inhibiting said visible reading unless the elapsed time measured by said timer exceeds a predetermined time corresponding to the time a shoe is normally off the ground during running and walking steps.
- 15. The athletic shoe of claim 14 wherein said predetermined time is at least 0.2 seconds.
- 16. The athletic shoe of claim 13 wherein said elapsed time display is a liquid crystal numerical display.
- 17. The athletic shoe of claim 13 further comprising a tongue secured to said upper, and wherein said elapsed time display is mounted on said tongue.
- 18. The athletic shoe of claim 17 wherein said means is a switch mounted in said sole and actuable in response to compressive force urging said sole against the ground.
 - 19. An athletic shoe comprising:

a sole:

a shoe upper mounted on said sole;

- pressure responsive means on said shoe for providing a signal in response to said shoe leaving the ground when on the foot of an individual, and for removing said signal in response to said shoe returning to the ground:
- circuit means in said shoe actuable in response to said signal; and
- indicator means at said shoe responsive to actuation of said circuit means for providing a perceptible indication related to the time said shoe is off the ground.
- 20. The athletic shoe of claim 19 wherein said indicator means comprises at least one device responsive to off the ground and in the air during a jump by a person 55 actuation of said circuit means for emitting light while said shoe is off the ground.

21. The athletic shoe of claim 19 wherein said indicator means comprises a device responsive to actuation of said circuit means for providing an audible signal while 60 said shoe is off the ground.

- 22. In an athletic shoe having an upper member secured to a sole member, the sole member having a heel portion with a cavity in which circuitry is housed, apparatus for indicating the time that the athletic shoe is off the ground and in the air during a jump by a person wearing the athletic shoe, said apparatus comprising:
 - a pressure responsive switch producing a signal when said athletic shoe is off the ground and in the air,

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said switch being disposed in the sole member of said athletic shoe;

a plurality of light emitting diodes (LEDs) disposed on the athletic shoe, said plurality of light emitting diodes (LEDs) emitting light during the period of 5 time when the athletic shoe is off the ground and in the air during said jump to provide a visual indication of the amount of time that the athletic shoe is off the ground and in the air;

letic shoe and connected to said switch and to said plurality of light emitting diodes (LEDs), wherein said controller is responsive to said signal to cause

10 said plurality of light emitting diodes (LEDs) to emit said light during said period of time that said

athletic shoe is off the ground and in the air; and a power source connected to said switch, to said plurality of light emitting diodes (LEDs) and to said controller, said power source disposed in the sole member of said athletic shoe.

23. The apparatus of claim 22 wherein said switch, a controller disposed in the sole member of the ath- 10 said plurality of LEDs, said controller and said power source are disposed in the heel portion of the sole member of said athletic shoe.

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United States Patent [19]

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[11]

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Cherdak

[11] Patent Number:

Date of Patent:

Sep. 19, 1995

[54]	ATHLETIC SHOE	WITH TIMING	DEVICE
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[73] Assignees: David Stern; James Thompson, both

of Rockville, Md.

[21] Appl. No.: 297,470

[22] Filed: Aug. 29, 1994

Related U.S. Application Data

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• •	5,343,445.				

[51]	Int. Cl.6	G04B 47/00; A43B 3/00; G04F 8/00
[52]	U.S. Cl	368/10; 368/110; 36/132; 36/137

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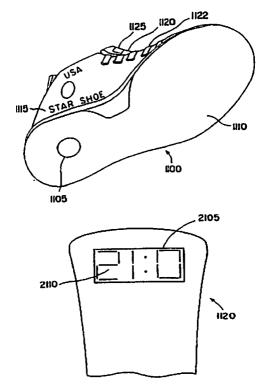
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[57] ABSTRACT

An athletic shoe which includes a timing device for measuring the amount of time the athletic shoe is off the ground and in air. The athletic shoe can also include a notification device which can be operatively coupled to the timing device for notifying a wearer of the athletic shoe of a message. The message can include information related to the amount of time the athletic shoe is off the ground and in the air.

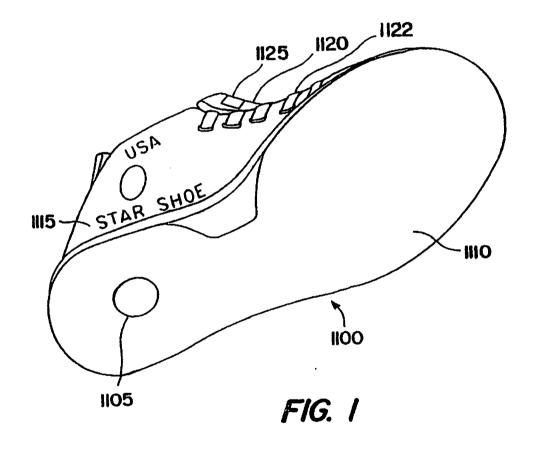
20 Claims, 3 Drawing Sheets



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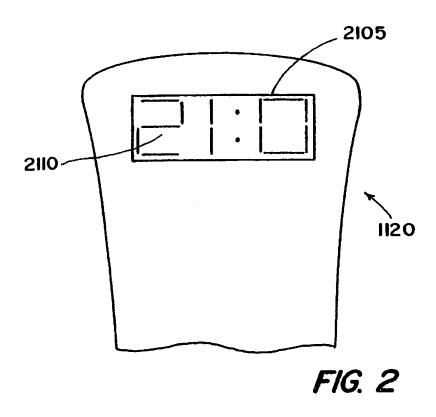
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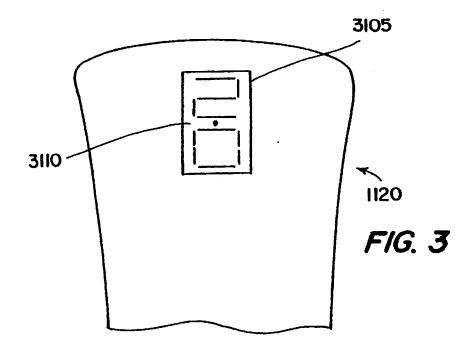


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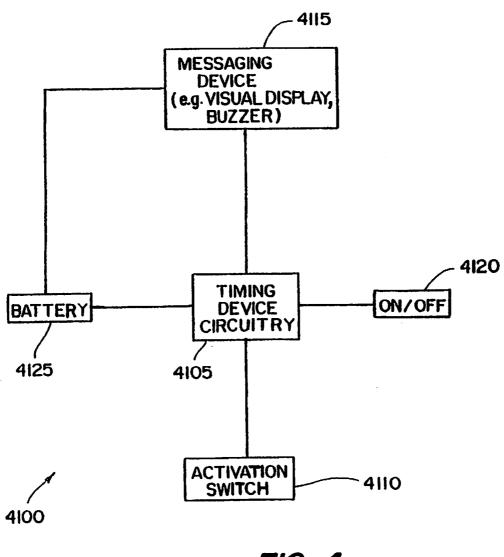


FIG. 4

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ATHLETIC SHOE WITH TIMING DEVICE

CROSS REFERENCE TO RELATED **APPLICATIONS**

This application is a continuation of U.S. patent application Ser. No. 08/085.936, filed Jul. 6, 1993 and entitled "Athletic Shoe with Timing Device", now U.S. Pat. No. 5,343,445.

BACKGROUND OF THE INVENTION

1. Technical Field

The present invention relates to athletic shoes.

2. Background Information

It is well known that basketball, volleyball, and other sports activities players often try to stay in the air for relatively long periods of time while they attempt to perform a particular action. For example, basketball players often attempt to stay or "hang" in the air for as 20 and in regard to the drawing Figures which were long as possible as they try to slam-dunk a basketball into a basketball net. The amount of time a basketball player hangs in the air is commonly referred to as his or her "hang time." Hang time has become so popular that 25 basketball players often compete with each other as to who can hang in the air the longest (i.e. the player with the longest "hang time" wins). Moreover, many great professional basketball players have become quite popular for their "hang times" (e.g. Michael Jordan of the 30 formed during manufacture. Contact dimple 1105 can Chicago BULLS).

While hang time has become a popular measure of a player's abilities, there has not heretofore been proposed an accurate and objective way to calculate the amount of time a player remains in the air while per- 35 forming a sport related activity. Moreover, there has not heretofore been proposed a way or a device which can be used to calculate a player's hang time and which may be manufactured, marketed, and sold in consumerappealing ways at effective price points.

The present invention solves these problems.

SUMMARY OF THE INVENTION

It is an object of the present invention to solve the 45 above-listed problems.

It is another object of the present invention to provide wearers of athletic shoes with the ability to keep track of the amount of time they spend in the air and off the ground when participating in an athletic activity 50 such as basketball for example.

These and other objects of the present invention are achieved in an athletic shoe which includes an athletic shoe configuration and a timing device for measuring the amount of time the athletic shoe is off the ground 55 and in the air.

Finally, the present invention provides for a timing device which is integrated into an athletic shoe which has a messaging device such as a visual display.

As already stated, and as stated throughout the remaining sections of this patent document, the terminology "off the ground and in the air" is used to define and describe the structure and operation of the present invention. Moreover, the word "ground" is meant to 65 include the ground, the surface of a basketball court, the floor, and any other surface on which a sports related activity takes place.

2 BRIEF DESCRIPTION OF THE DRAWINGS

The present invention is described by way of example and in regard to the drawing Figures in which:

FIG. 1 is a diagram of an athletic shoe which is equipped with a timing device;

FIG. 2 is a front view of a tongue of an athletic shoe which has been equipped with a visual display;

FIG. 3 is a front view of a tongue of an athletic shoe 10 with has been equipped with a visual display;

FIG. 4 is block schematic diagram of an exemplary embodiment of the present invention.

The following section will refer to the above-listed drawing FIGS. Where appropriate, like structures will 15 be referenced with like numerals.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

The present invention is described by way of example briefly described above and which are discussed in detail below.

Referring now to FIG. 1, therein depicted is an athletic shoe 1100 which has been equipped with a timing device. Athletic shoe 1100 is a basketball type shoe similar to those manufactured by LA GEAR, REE-BOK, NIKE, BRITISH KNIGHTS, CONVERSE, and NEW BALANCE. Athletic shoe 1100 has a rubber type sole 1110 in which a contact dimple 1105 has been be similar to that implemented in LA GEAR's LA TECH LIGHT GEAR shoes. Shoe upper 1115 is mounted to rubber sole 1110 in a conventional manner and will be apparent to those skilled in the art of athletic shoe construction. Tongue 1120 is also mounted to shoe upper 1115 in a conventional manner and is held against a wearer's foot (not shown) by fastening arrangement 1122 in the usual way. While tongue 1120 is shown as an actual tongue 1120 in the conventional sense, other structures such as now-popular sock-type vamp members may be used. Such sock-type vamp members will be apparent to those skilled in the art and may be seen in such shoes as those manufactured by NIKE (i.e. the AIR HURACHE line of cross-training shoes). While laces are shown as providing fastening arrangement 1122, other fastening arrangements such as hook and loop, straps, and button fasteners may be used as such fasteners will be apparent to those skilled in the art.

Tongue 1120 includes a message device 1125. A message is meant to include a visual and/or audible notification which is meant to notify a wearer of athletic shoe 1100 of at least one particular piece of information such as, for example, the amount of time athletic shoe 1100 is off the ground and in the air and time of day, and alphanumeric textual and/or verbal expressions. In this embodiment, message device 1125 is a visual display in the form of a liquid crystal display which will be apparent to those skilled in the art. Flexible visual displays can also be used as can light emitting diode (LED) arrangements. While message device 1125 is a visual display, other messaging type devices such as buzzers and noise makers, flashing bulbs and the like may also be used. Also, voice provision devices may also be used to provide messages to the wearer of athletic shoe 1100. Such structures will be apparent to those skilled in the art. Moreover, message device 1125 can include combinations of both visual and audible devices. Such audible devices can include piezo-electric buzzers, speakers,

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bells, and the like which will be apparent to those skilled in the art. Finally, while message device is shown as part of tongue 1120, other parts of athletic shoe 1100 could also house the such a display. For example, message device 1125 could also be located on 5 the back of athletic shoe 1100, on the sides of athletic shoe 1100, on the toe portion of athletic shoe 1100, or any other place on athletic shoe 1100 which is practically possible and is commercially advantageous.

different preferred embodiments of tongue 1120. As shown in FIG. 2, tongue 1120 includes a horizontally readable message device 1125 in the form of a visual display 2105 of the liquid crystal display (LCD) variety. The numbers 2110 displayed on visual display 2105 are 15 shown upside down so that a wearer of an athletic shoe which is equipped with tongue 1120 will be able to read the display merely by looking down at his shoes. Three numeric positions are shown on visual display 2105 to display seconds, tenths of seconds, and hundredths of 20 seconds. Timing device 4110 will be configured to provide the aforementioned timing accuracy. While three numeric characters are shown as displayed on visual display 2105, more than three or less than three may be displayed depending on the design requirements chosen 25 and the selected timing accuracy desired. Moreover, while only numeric characters are shown on visual display 2105, other characters such as alpha and graphic characters could also be displayed on visual display 2105. The display of alpha, numeric, and graphic char- 30 acters on visual display 2105 will be apparent to those skilled in the art.

Numbers 2110 are shown as displayed on visual display 2105 in normal! video but may configured to appear in "reverse video" fashion (i.e. unlit digits against a 35 dark background-no illumination against an illuminated background). While visual display 2105 is ergonomically placed on the front of tongue 1120 (i.e. the side that faces away from a wearer's foot), it is quite possible to select a visual display which may be 40 mounted on the top part of tongue 1120 or on the back of tongue 1120 (i.e. on the side that faces the wearer's foot). It is believed that tongue 1120 presents the best place for mounting visual display 2105 since wiring will be least complicated and so that the ergonomics of 45 reading visual display 2105 are maximized.

In FIG. 3, message device 1125 is in the form of a visual display 3105 of the liquid crystal display (LCD) variety. In contrast to visual display 2105, visual display 3105 is oriented in a vertical fashion. Visual display 50 3105 is shown as displaying only two numbers which represent seconds and tenths of seconds. It should be understood that the message length may be longer than the physical dimension of the display and may therefore ture of visual display 3105 allows messages to be read in a vertical fashion.

Referring now to FIG. 4, therein depicted is a block schematic diagram of an exemplary embodiment of the present invention and which is of the type used in ath- 60 letic shoe 1100 as shown in FIG. 1. Timing system 4100 includes timing device circuitry 4105, an activation switch 4110, a messaging device 4115, a battery 4125, and a system ON/OFF switch 4120.

Timing device circuitry 4105 is connected to battery 65 4125, messaging device 4115, system ON/OFF switch 4120, and activation switch 4110. Timing device circuitry 4105 preferably includes readily available and

well known clocking circuits which may be found in consumer electronics goods such as digital stop watches, digital timers, digital wristwatches, digital cooking timers, and digital thermometers which include timers used to measure the amount of time needed to calculate a person's body temperature. While dedicated timing devices and circuits may be used, other custom logic devices which include microprocessors and/or microcomputers may also be used. For example, a mi-Referring now to FIGS. 2 and 3, therein depicted are 10 croprocessor (e.g. a 4 BIT or 8 BIT microprocessor) may be configured with the necessary support circuitry (e.g. ROM, RAM, etc.) and programmed via software to achieve timer and timing operation. Such use of a microprocessor to achieve timer and timing operation will be apparent to those skilled in the art. Additionally, the use of microprocessors and associated support circuitry to achieve timer and timing functionality can result in providing designers with the ability to provide more elaborate messages beyond those which merely a time value. That is, messages may be formed by timing device circuitry which provide motivational sayings which are dependant on the amount of time a person's shoe is off the ground and in the air (e.g. "novice," "HANGER," "ACE," "NUMBER 1," "POOR," "OK," "GOOD," "AVERAGE," or "GREAT!") In the event that messages are desired which include strings of characters which are longer than a display width, such messages may be scrolled in a conventional manner.

> Timing device circuitry 4105 preferably must be able to calculate and measure a period of time with accuracy of at least tenths of a second. That is, timing device circuitry 4105 should be able to calculate and measure the passage of time in units as small as tenths of seconds, but preferably would be able to calculate and measure time in units as small as hundredths of a second.

Connected to timing device circuitry 4105 is messaging device 4115. The connection of timing device circuitry 4105 to messaging device 4115 is done in a conventional way (e.g. much like the connection of an LCD display to the calculation circuitry of a hand-held calculator or to the stop-watch timing circuitry of a digital wristwatch). Messaging device 4115 is preferably a visual display of the liquid crystal display (LCD) variety (e.g. wristwatch LCDs, hand-held calculator LCDs, illuminated LCDs found on wristwatches and portable cellular telephones), but may also include light emitting diode (LED) arrangements. Such LCD and LED displays will be apparent to those skilled in the art. As mentioned above, messages may include alpha, numeric, and graphic characters and may be smaller than, equal to, and larger than the physical display size of messaging device 4115. In the case where messages are larger than the display size of messaging device be scrolled in a conventional manner. The vertical na- 55 4115, such messages may be scrolled in the conventional

> Messaging device 4115 preferably is able to display a message which can include a time value (e.g. 1:50 seconds) but may also be configured to display a message formed from alpha characters, numeric characters, graphic characters, or any combination thereof. Preferably, messaging device 4115 will be able to display seconds measured, tenths of seconds measured, and hundredths of seconds measured by timing device circuitry 4105. Messaging device can be configured to display a constant running time (e.g. like a wristwatch stop-watch display) or can only display time after activation switch 4110 has been triggered.

While a visual display such as an LCD display is preferred, other messaging devices such as buzzers, speakers, bells, speech devices, and combinations thereof may also be used to provide a message to the wearer of an athletic shoe which is equipped with such 5 a messaging system.

As mentioned above, connected to timing device circuitry 4105 is activation switch 4110. Activation switch 4110 is preferably similar in construction to LA GEAR, INC.'s LIGHT GEAR system (LA TECH) 10 wherein a battery is maintained in a custom designed plastic switch carrier. The sole of a shoe in which LA GEAR's switch carrier resides is formed with a contact dimple which, when pressed upon contact of the shoe sole with the ground, causes the switch carrier to be- 15 come compressed to thereby cause the battery to come in operative contact with the leads of a single light emitting diode (LED). While activation switch 4110 is preferably like that of the LA GEAR design other switching systems including contact switches, tape 20 switches, pressure switches, and any other well known switching system would also work in the present inven-

Timing system ON/OFF switch 4120 is a conventional on-off switch and is used to turn timing system 25 4100 on and off so as to conserve battery life during periods of non-use. The connection of timing system ON/OFF switch 4120 will be apparent to those of ordinary skill in the art.

Power is supplied to timing system 4100 via battery 30 4125. Preferably, battery 4125 is of similar specification to that of the battery used by LA GEAR, INC. in its LA TECH line of athletic shoes. The connection of battery 4125 to the other components of timing system 4100 will be apparent to those of ordinary skill in the 35

Timing system 4100 is preferably mounted in an athletic shoe similar to the one depicted in FIG. 1 in the following ways: Timing device circuitry 4105 is preferably mounted in the tongue of the athletic shoe as is 40 system ON/OFF switch 4120. Messaging device 4115 is preferably mounted on the front of the tongue of the athletic shoe so that a wearer may read the display easily. Activation switch 4120 is preferably mounted housed in the heel of the athletic shoe (e.g. as in LA GEAR INC.'s LIGHT GEAR—LA TECH design). While these configuration specifications are preferred, other arrangements may be maintained so as to effectuate particular design requirements.

In use, timing system 4100 is placed into operation by placing system ON/OFF switch 4120 into an "ON" state. When system ON/OFF switch 4120 is placed into an "ON" state an audible tone may be sounded if timing system 4100 is equipped with an audible sounding de- 55 vice. Such "beeping" during initialization will be apparent to those skilled in the art. Moreover, if timing system 4100 is equipped with a proper circuitry, a message can appear on display which indicates such things as "ON" state, shoe manufacturer and various other indi- 60

Next, timing device circuitry 4105 should be initialized (i.e. clock circuits reset and zeroed). Preferably, timing device circuitry will begin to measure a time period whenever the shoe in which the system resides is 65 off the ground and in the air. While such operation may seem cumbersome, messaging device will only be able to display and/or sound a message after timing device

circuitry 4105 has measured a threshold time period. In this manner, times will not be displayed each time a person walks, but only after a person performs a jump or other action in which he or she is in the air and off the ground for an extended period of time (e.g. during a slam-dunking action while playing basketball).

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The threshold time period just mentioned is the amount of time an average person takes to make one step during a walking regimen. That is, the threshold time period was analyzed to be in the range of at least 0.2 seconds to about 0.55 seconds. Only after timing device circuitry measures a period of time equal to some threshold amount should timing device circuitry 4105 allow messaging device 4115 display a time based message. More specifically, only after timing device circuitry 4105 has measured a period of time of say at least 0.3 seconds will messaging device 4115 be given a message to display and/or sound. While the threshold time was determined to be between 0.2 and 0.55 seconds on average across a sampling of people and trials, the present invention should not be so limited. Moreover, the threshold time may change depending on what activity is chosen to provide the benchmark for determining an average threshold time (e.g. walking was the chosen benchmark activity whereas running, skipping, and skating could also have been used). The threshold time feature will allow timing system 4100 to display and/or sound time-based messages only when a person performs a "hang" type activity for period of time beyond a threshold period. It is important to note that timing system 4100 could also be configured to provide structure which will allow user selection and/or input of a given time period to effectuate more personal and accurate threshold time period benchmarks.

The threshold time feature solves the "reset" problem (i.e. the problem of knowing when to start and stop measuring a time period). The reset problem is solved in that the timing system 4100 will always measure the amount of time an athletic shoe is off the ground and in the air, but will only cause the display or sounding a time-based message when the amount of time measured by timing device circuitry is beyond a certain threshold.

A period of time is measured, as suggested above, by the action of bringing the shoe off the ground and then along with battery 4125 in a switch pack which is 45 returning the shoe to the ground (i.e. causing activation switch to trip). In this manner a time period is measured when a shoe equipped with timing system 4100 is off the ground and in the air.

Timing system may also be equipped with a "lock-in" switch which can be configured to hold a present value on the display so that no other timing messages may be displayed until the lock-in switch is disengaged. Conventional latching of messaging device 4115 can be used to achieve this functionality.

While the above structures and operation were discussed with reference to the embodiments shown in the drawings, other features can be incorporated into the present invention. Such features do not present difficult design problems and will be apparent to those skilled in the art. For example, the present invention utilizes a single shoe system. A two-shoe timing system may be configured which incorporates radio-frequency and/or infra-red technology between shoes so as to allow the measurement of time only when both shoes are off the ground and in the air. Such RF and IR technology will be apparent to those skilled in the art.

Also, a shoe can be configured which incorporates an RF transmitter which transmits to a central location so

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that a player's "hang-time" (i.e. his time of the ground and in the air) can be displayed on a score board at publicly viewed games. In this fashion, "hang-time" can become a carefully measured and followed statistic whereas presently it is only speculated. Such RF tech- 5 nology and scoreboard technology will be apparent to those skilled in the art.

Finally, while timing information was primarily the driving force behind the present invention other information may be determined, sensed, and/or measured. Such other information, which can be displayed and/or sounded in the form of a message, can include, but is not limited to, speed, distance traveled, alpha-numeric messages, elevation, activity time or duration, stride length, cadence, foot pressure, acceleration, and various other activity information. The technology necessary to provide these pieces of information will be apparent to those skilled in the art. The present invention now makes possible the provision of such information in easy, marketable, and cost effective manners.

Having now fully described the present invention, it will be apparent to one of ordinary skill in the art that many changes and modifications can be made thereto without departing from the spirit and scope of the present invention as defined by the appended claims.

I claim:

- 1. An athletic shoe comprising:
- a sole;
- a shoe upper mounted on said sole;
- a timing device disposed at least partly in said sole for measuring an amount of time the athletic shoe is off the ground and in the air; and
- a notification device operatively coupled to said timing device and disposed in said upper for notifying 35 a wearer of the athletic shoe of a message, said message including information related to said amount of time the athletic shoe is off the ground and in the air.
- 2. The athletic shoe according to claim 1 wherein said notification device notifies said wearer of the athletic shoe of said message only after said timing device has measured a period of time at least equal to an amount of time an average person's shoe is off the ground and in the air when said person takes a single step during a 45 tion of said time interval. walking regimen.
- 3. The athletic shoe according to claim 2 wherein said period of time is at least 0.2 seconds.
- 4. The athletic shoe according to claim 1 wherein said notification device includes a visual display for display- 50 steps of: ing said message. (e) tra
- The athletic shoe according to claim 4 wherein said visual display is a liquid crystal display (LCD).
- 6. The athletic shoe according to claim 4 wherein said visual display is comprised of a series of light emitting 55 components.

- 7. The athletic shoe according to claim 1 wherein said message is visual.
- 8. The athletic shoe according to claim 1 wherein said message is audible.
- The athletic shoe according to claim 1 wherein said message is comprised of visual and audible components.
- 10. The athletic shoe of claim 1 wherein said upper includes a tongue, and wherein said notification device is mounted on said tongue.
- 11. The athletic shoe of claim 1 wherein said timing device includes a switch mounted on said sole to contact the ground and detect when the athletic shoe is off the ground and in the air.
- 12. The method of measuring hang time off the 15 ground and in the air of an individual, said method comprising the steps of:
 - (a) providing in an athletic shoe a selectively actuable timing device:
 - (b) actuating said timing device to measure elapsed time in response to said athletic shoe leaving the ground and elevating into the air;
 - (c) deactuating said timing device in response to said athletic shoe returning to the ground; and
 - (d) providing an indication at said athletic shoe representing the time interval between actuation of said timing device in step (b) and deactuation of said timing device in step (c).
 - 13. The method of claim 12 wherein step (d) includes providing said indication as a visible indication.
 - 14. The method of claim 13 wherein step (d) includes providing an alpha-numeric display on said athletic shoe of said time interval.
 - 15. The method of claim 14 further comprising the step of inhibiting the step of providing said display unless said time interval exceeds a predetermined elapsed time.
 - 16. The method of claim 13 wherein step (b) includes illuminating a light emitting device disposed on said shoe during said time interval.
 - 17. The method of claim 12 wherein said step (d) includes providing said indication as an audible indication.
 - 18. The method of claim 17 wherein step (d) comprises providing said audible indication as an enunciation of said time interval.
 - 19. The method of claim 17 wherein step (d) includes providing said audible indication as a sound emanating from said shoe during said time interval.
 - 20. The method of claim 12 further comprising the steps of:
 - (e) transmitting to a location remote from both said shoe and said individual a signal representing said time interval; and
 - (f) displaying at said remote location said time interval for viewing by multiple people.

60

(12) EX PARTE REEXAMINATION CERTIFICATE (6199th)

United States Patent

Cherdak

(10) Number:

US 5,452,269 C1

(45) Certificate Issued:

*Apr. 22, 2008

(54) ATHLETIC SHOE WITH TIMING DEVICE

(75) Inventor: Erik B. Cherdak, 149 Thurgood St.,

Gaithersburg, MD (US) 20878

(73) Assignee: Erik B. Cherdak, Gaithersburg, MD

(US)

Reexamination Request:

No. 90/008,246, Oct. 2, 2006

Reexamination Certificate for:

Patent No.:

5,452,269

Issued:

Sep. 19, 1995

Appl. No.:

08/297,470

Filed:

Aug. 29, 1994

(*) Notice:

This patent is subject to a terminal dis-

claimer.

Related U.S. Application Data

Continuation of application No. 08/085,936, filed on Jul. 6, 1993, now Pat. No. 5,343,445.

(51) Int. Cl.

A43B 3/00 G04B 47/00 (2006.01)

(2006.01)

(52) U.S. Cl. 368/10; 368/110; 36/132; 36/137

(58) Field of Classification Search None See application file for complete search history.

(56)References Cited

U.S. PATENT DOCUMENTS

5.303.485 A 4/1994 Goldston et al.

OTHER PUBLICATIONS

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Correspondence from LA Gear (Christopher M. Walsh to James L. Thompson dated Nov. 16, 1993 regarding technology of U.S. Patent Nos. 5,343,445 & 5,452,269 Cherdak Inventor (2 pages).

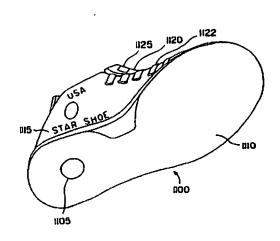
Internet Document: Apple, Inc. Website, Nike+ iPod Sport 28, 2007, http://store.apple.com/ Scp. 1-800-MY-APPLE/WebObjects/AppleStore?spart= MA365LL%2FB.

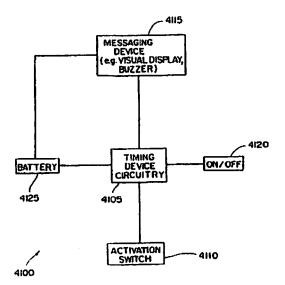
* cited by examiner

Primary Examiner-James Menefec

ABSTRACT (57)

An athletic shoe which includes a timing device for measuring the amount of time the athletic shoe is off the ground and in air. The athletic shoe can also include a notification device which can be operatively coupled to the timing device for notifying a wearer of the athletic shoe of a message. The message can include information related to the amount of time the athletic shoe is off the ground and in the





US 5,452,269 C1

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EX PARTE REEXAMINATION CERTIFICATE ISSUED UNDER 35 U.S.C. 307

THE PATENT IS HEREBY AMENDED AS INDICATED BELOW.

Matter enclosed in heavy brackets [] appeared in the patent, but has been deleted and is no longer a part of the patent; matter printed in italics indicates additions made to the patent.

AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

The patentability of claims 12-13 and 16 is confirmed.

Claim 1 is determined to be patentable as amended.

Claims 4, 6 and 7, dependent on an amended claim, are determined to be patentable.

2

Claims 2, 3, 5, 8-11, 14-15 and 17-20 were not reexamined.

- 1. An athletic shoe comprising:
- a sole;
- a shoe upper mounted on said sole;
- a timing device disposed at least partly in said sole for measuring an amount of time the athletic shoe is off the ground and in the air during a jump, said timing device including a pressure responsive switch responding to pressure imparted to said athletic shoe during said jump; and
- a notification device operatively coupled to said timing device and disposed in said upper for notifying a wearer of the athletic shoe of a message, said message including information related to said amount of time the athletic shoe is off the ground and in the air during said jump.

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Full Text

US
5,452,269
C1 (6199th)
ATHLETIC
SHOE
WITH
TIMING
DEVICE

Erik B. Cherdak, 149 Thurgood St., Gaithersburg, Md. 20878, assignor to Erik B. Cherdak, Gaithersburg, Md.

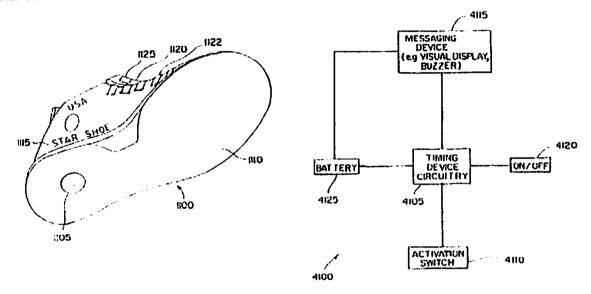
Reexamination Request No. 90/008,246, Oct. 2, 2006.

Reexamination Certificate for Patent 5,452,269, issued Sep. 19, 1995, Appl. No. 297,470, Aug. 29, 1994. Continuation of application No. 08/085,936, filed on Jul. 6, 1993, now Pat. No. 5,343,445.

This patent is subject to a terminal disclaimer.

Int. Cl. A43B 3/00; G04B 47/00 (2006.01)

U.S. Cl. 368-10



AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

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- 1. An athletic shoe comprising:
 - a sole;
 - a shoe upper mounted on said sole;
 - a timing device disposed at least partly in said sole for measuring an amount of time the athletic shoe is off the ground and in the air during a jump, said timing device including a pressure responsive switch responding to pressure imparted to said athletic shoe during said jump; and
 - a notification device operatively coupled to said timing device and disposed in said upper for notifying a wearer of the athletic shoe of a message, said message including information related to said amount of time the athletic shoe is off the ground and in the air during said jump.

EXHIBIT 4





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- + SALE
- GENDER

Boys Girls

- STYLES

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Price Range: View All

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Page Sorting: **Top Sellers**

« Previous Page 2 Next Page »



Boys' Hot Lights: Damager - Police \$50.00

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Boys' Hot Lights: Damager - Race Car \$50.00

1 more color!



Girls' Hot Lights: Angelics - Princess Racer \$50.00



Boys' Hot Lights: Damager - Police \$50.00

1 more color!

1 color available





Girls' S Lights: Bikers -Saucy \$44.00



Boys' Hot Lights: Damager - Fire Rescue 2 \$50.00



Girls' S Lights: Bikers -Razzle Dazzle \$42.00

1 color available



1 more color!

2 more colors!



Boys' S Lights: Energy 2 - Starstreak \$38.00



Girls' S Lights: Bikers -Razzle Dazzle \$42.00



Boys' Damager -Spaceship \$50.00



Boys' Hot Lights: Damager - Race Car \$50.00

1 more color!

1 more color!

1 more color!





Boys' S Lights: Nollies - Heel Flip



Boys' S Lights: Nollies - Heel Flip



Girls' Hot Lights: Angelics



Boys' Damager -Spaceship

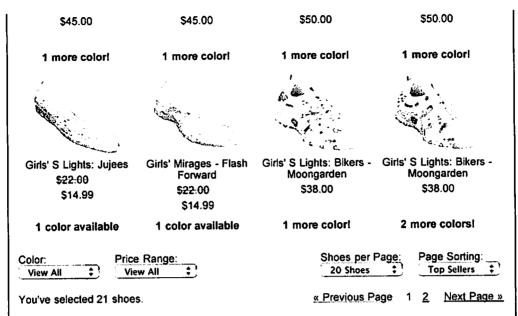
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Hot Lights: Damager -Police \$50.00





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Vegetarian Shoes

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S-lights



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Starstreak Top Sellers \$35.00



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S Lights: Energy 2 -

Hot Lights: Damager -Police \$50.00



Boys' Hot Lights: Damager - Fire Rescue 2 \$50.00

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Shoes per Page: 20 Shoes

Top Sellers « Previous Page 1 2

Next Page »

Page Sorting:

+ COLOR



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BUZZ





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Boys Girls

- STYLES

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+ COLLECTIONS Hot-lights **Change Selection**

+ SIZE

+ COLOR

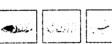
You are here: Home > Hot-Lights Sneakers

NEW ARRIVALS

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More Views:







Get FREE Shipping with SKECHERS VIP Club!

Shoe & Clothing Rating

(7 Ratings)

Read 7 Reviews Write a Shoe Review

Girls' Hot Lights: Angelics Elastika Sneakers - Must Haves - Style #10136 \$50.00 USD

an MP Club & Get FREE SHIPPING

Give her heavenly fun style with the SKECHERS Hot Lights: Angelics shoe, Leather and synthetic upper in a slip on casual sneaker with stitching, overlay and perforation accents. Light up headlights and top lights! Read more.

Selected Color: WHITE/MULTI



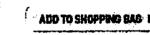
Available Sizes in blue (click one to select): Size Chart N=Infant & Toddler Sizes L=Pre/Grade School Sizes

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1 - L 1.5 - L	2 - L 2.	5-L 3-L	4 - L	5 - L
3 - N 4 - N				7 - N
7.5 - N 8 - N	8.5 - N 9	- N 9.5 - N	10 - N	

Sizes shown in gray are temporarily out of stock. Want to be notified when your size is available?

Sizing: Feels true to size Width: Feels true to width

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Helpful Links:

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Girls' Hot Lights: Angelics - Princess Racer \$50.00

1 color available

Girls' S Lights: Bikers -Moongarden \$38.00

1 more color!

Kiss \$42.00

Girls' D'lites - Angel

3 more colors!

Girls' Twinkle Toes: Shuffles - Wisdom \$39.00



Boys' Hot Lights: Damager - Police \$50.00

2 more colors! 2 more colors!

Overview

. Leather upper with fun star and rainbow print

- Leather, synthetic and metallic mesh fabric overlays
- Contrast colored star detail
- · Side S and Hot-Lights logo
- · Front headlights blink with each step
- Bungee stretch laced front panel
- Instep strap with adjustable Velcro(R) closure
- · Tri colored light bar blinks with each step
- · Padded collar and tongue
- Soft fabric shoe lining
- Cushioned insole
- Shock absorbing sporty midsole
- · Flexible traction outsole
- · For best light results, avoid pulling hard on top strap

Not sure what some of the above shoe terms mean? Check out the skechers.com Shoepedia for definitions!

Shoe & Clothing Review Summary

Customer Shoe Rating:

(based on 7 reviews)

Customers sized up this shoe as follows:

Pros: Attractive d

Attractive design (8), Stylish (8), Comfortable (6), Great cushioning (6), Lightweight (3)

Best Uses: Describe Yourself: Casual wear (8), Going out (4) Style driven (5), Comfort driven (3)

View On Shoes:

Shoes are for wearing (4), I'm really into shoes (3)

Reviewed by 8 Customers

Sort by: Highest ratings first \$

Displaying Reviews 1-5 of 7

Previous | Next »

Kids love them!!

By SMH from GA on 8/29/2009

Sizing: Feels true to size Width: Feels too wide

Pros: Attractive Design, Comfortable, Great Cushioning, Stylish

Best Uses: Casual Wear
Describe Yourself: Comfort Driven
View On Shoes: Shoes are for Wearing

Bottom Line: Yes, I would recommend this to a friend

I was unable to find these shoes in the store, but when I became a VIP member I got free shipping and 15% off. Better than a store!

Was this review helpful to you? Yes / No - You may also flag this review.

My Granddaughter loved her new skechers

By sugar baby VERIFIED from Manville, RI on 8/11/2009

Sizing: Feels half size too small Width: Feels true to width

Pros: Attractive Design, Great Cushioning, Stylish

Best Uses: Casual Wear, Going Out

Describe Yourself: Style Driven View On Shoes: I'm Into Shoes

Bottom Line: Yes, I would recommend this to a friend

unfortunately I had to return for bigger size

Was this review helpful to you? Yes / No - You may also flag this review.

Absolutely heavenly angelics!

By Mama of Three Little Ladies VERIFIED REVIEWER from Plainfield, IL on 7/22/2009

Sizing: Feels true to size Width: Feels true to width

Pros: Attractive Design, Comfortable, Great Cushioning, Lightweight, Stylish

Best Uses: Casual Wear Describe Yourself: Style Driven

View On Shoes: I'm Really Into Shoes

My four year old daughter got these shoes for her birthday, and she absolutely LOVES them! She has been asking for her "light up shoes" all summer! They are super-cute, multi-colored to go with many different outfits, and the lights are very bright! We are trying to save them for special occasions (i.e., the first day of preschool), but I can only imagine she's going to get TONS of compliments on them when she wears them!

Was this review helpful to you? Yes / No - You may also flag this review.

[1 of 1 customers found this review helpful]

Awesome

By Lynne from Wimberley, TX on 7/17/2009

Sizing: Feels true to size Width: Feels true to width

Attractive Design, Comfortable, Great Cushioning, Lightweight, Stylish Pros:

Best Uses: Casual Wear, Going Out Describe Yourself: Comfort Driven View On Shoes: I'm Really Into Shoes

Bottom Line: Yes, I would recommend this to a friend

Makes my child laugh

Was this review helpful to you? Yes / No - You may also flag this review.

[1 of 1 customers found this review helpful]

EVERONE LOVES THESE SNEAKERS!

By Di from Boston, Mass on 7/16/2009

Sizing: Feels true to size Width: Feels true to width

Attractive Design, Comfortable, Great Cushioning, Lightweight, Stylish Pros:

Casual Wear, Going Out, Special Occasions **Best Uses:**

Describe Yourself: Style Driven

View On Shoes: Shoes are for Wearing

Bottom Line: Yes, I would recommend this to a friend

I cannot say enough just how much EVERYONE that sees these cutest sneakers compliments my daughter. Beautiful colors made extremely well and very comfortable easy to put on and take off.

LOVE THEM LOVE THEM LOVE THEM. I didn't check but it would be nice to have the same exact shoe in black.

Was this review helpful to you? Yes / No - You may also flag this review.

Displaying Reviews 1-5 of 7

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