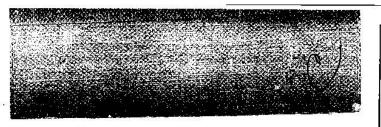
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PATENT NUMBER 6175608

U.S. UTILITY PATENT APPLICATION JAN 1 6 2001 O.I.P.E. 310

SECTOR	CLASS	SUBCLASS	ART UNIT	EXAMINER
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### PREPARED AND APPROVED FOR ISSUE

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### SEARCH NOTES (INCLUDING SEARCH STRATEGY)

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### INTERFERENCE SEARCHED

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01 FC:101 02 FC:102 38.00 CH

752.00 OP

PTO-1556 (5/87)

#### Printed 10/28/2000

SERIAL NUMBER	FILING DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO
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APPLICANT				
NATHAN PYLES, LAK WISCONSIN; CHEN-S			REECEVILLE,	
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MADISON , WI 5370	1307			
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1. X Fee Transmittal Form		6.	Microfiche Computer Program (Appendix	:)
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- Brief Summary of the Invention			ACCOMPANYING APPLICATION PARTS	
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- Claim(s)		8.	Assignment Papers (cover sheet & docum	ent(s))
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## PATENT APPLICATION IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:

Pyles, et al.

Filed: "

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For:

Pedometer

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BOX PATENT APPLICATION Assistant Commissioner for Patents Washington, D.C. 20231

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(Jefffy W. Smith, Reg. No. 33455)

Enclosed for filing please find the above-referenced new patent application. Please indicate receipt of this application by returning the attached postcard with the official Patent and Trademark Office receipt and serial number stamped thereon.

Respectfully submitted,

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#### **PEDOMETER**

Nathan Pyles Joel M. Macht Chen Shui-Jung

#### FIELD AND BACKGROUND OF THE INVENTION

The present invention relates generally to pedometers having a waist mounted stride-counting device and transmitter, and a wrist-mounted receiver and display. The invention also relates to a distance calculation device that calculates a distance walked or run based on an algorithm that converts a base stride length and a base stride rate to an actual stride length for use in calculating the distance traveled.

Pedometers are known which include devices or algorithms for determining the distance a person travels on foot. For example, U.S. Patent 4,371,945 discloses an electronic pedometer that calculates distance by electronically measuring the length of each stride taken by a user. Stride length is measured by ultrasonic waves generated by an ultrasonic module strapped to one leg and an ultrasonic detector worn on the other leg. A program compensates for a variety of measurement errors and the results are displayed on a wrist-mounted display after being transmitted by VHF waves from the leg to the wrist.

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U.S. Patent 4,771,394 discloses a computer shoe with a heel-mounted electronic device with an inertia footstrike counter, a timer, a sound generating device, a battery, and a gate array for counting time and footstrikes to calculate distance and running time as a function of stride time. Although recognizing the

- important relationship of stride length and foot speed, the shoe in this patent requires data from at least 15 test runs or walks and the data must be user-entered in pairs of footstrikes and elapsed time to cover a pre-determined distance. Further, user adjustments of time must be performed to accommodate start and stop times, and the number of counted footstrikes is increased one percent to overcome inherent errors in the inertia step counter. The shoe-mounted device is subject to damage from impact, dirt, and water, and requires a stay-at-home computer with which to interface. There is no means disclosed to transmit data to a wrist-mounted display
  - U.S. Patent 4,855,942 discloses a pedometer and calorie measuring device that includes a wrist-mounted step counter and a fixed stride length to calculate distance traveled. Wrist-mounted step counters are known to be inaccurate because they assume a step for every arm movement. Even with error correction, such a device will provide less accurate step counts than a leg or waist-mounted counter. Further, fixed stride lengths do not take into account the fact that stride length varies with rate of movement.

device or an "on-board" computing device that provides "real time" data to a runner.

- U.S. Patent 5,117,444 discloses a pedometer and calibration method with two calibration modes. First, a user travels a predetermined "half-distance" for the device to count and store the number of strides in that distance. Next, the user travels a second distance with the step counter comparing actual steps to the steps in memory and a current trip memory are incremented by a tenth of a "whole unit" distance. There is no correlation between stride length and stride rate which requires the user to re-calibrate the device when walking as opposed to running.
- U.S. Patent 5,475,725 discloses a pulse meter with pedometer function to determine pace and pulse rate of a user. The meter uses pulse wave base data compared to actual pulse wave data rates.
  - U.S. Patent 5,476,427 discloses a pace display device utilizing a base rate for

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traveling pre-set distances in successive trails. The device calculates step counts and rates, and compares actual step count rates to display data to a user for comparison of present running rates to previous rates.

Thus, there is a need for a simple, but highly accurate, pedometer that displays distance traveled, pace, speed, heart rate, and other important information on an easily read wrist-mounted device.

#### SUMMARY OF THE INVENTION

The present invention overcomes problems and shortcomings in the prior art by providing a device that includes a waist, chest, or leg-mounted stride counting device, a transmitter, and a wrist-mounted receiver/display device that provides highly accurate travel distances and other information. The device includes a computer that stores base stride length and rate data from traveling a pre-determined distance and compares that to actual stride rate data to calculate actual distance traveled, speed, and pace. The invention recognizes the interdependency of stride length and stride rate and uses that relationship to provide superior distance-calculating accuracy.

The invention also provides for improved display of relevant data on a wrist-mounted display that receives digital signals from devices worn on other body parts such as legs, waist, and chest. Transmitters that can send coded signals are desirable because they will not interfere with similar devices worn by other users in the vicinity.

The accuracy of the device is enhanced by the use of an algorithm that adjusts a base stride length based on actual stride rates. The algorithm is defined as: Actual Stride Length = Base Stride Length + Base Stride Length \*(((Actual Stride Rate - Base Stride Rate) N)/Base Stride Rate); where N is either an average value or a derived value from a plurality of samples.

The invention also includes a method for calculating an actual stride length including steps of: timing a first user run of a predetermined distance; counting the total number of strides in the user first run; dividing the first run distance by the stride count to obtain a base stride length; dividing the stride count by the first run time to obtain a base stride rate; counting strides during a user's second run to obtain an actual stride rate; calculating the actual stride length using the formula: Actual Stride

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Length = Base Stride Length + Base Stride Length

\*(((Actual Stride Rate - Base Stride Rate )N)/Base Stride Rate); wherein N is an
average value or a derived value.

The average value method can be refined by comparing Base Stride Rate to Actual Stride Rate to determine a percentage difference; and using N=1 when the Actual Stride Rate ≤ Base Stride Rate \* 1.02 and using N=3 when Actual Stride Rate > Base Stride Rate \* 1.02. A preferred embodiment uses a plurality of sample runs over known distances to derive an accurate N value for each individual.

#### BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a schematic diagram of a pedometer in accordance with the present invention.

#### DETAILED DESCRIPTION OF THE DRAWINGS

As illustrated in Fig. 1, the present invention is directed to an improved pedometer 20 including: a waist, chest, or leg mounted stride counter 24, and a wrist or waist mounted display unit 26. An optional chest-mounted heart monitor 28 can be included. All of the device components are mounted in suitable housings. The pedometer 20 includes a data processor 30 that is mounted in the same housing as either the step counter 24 or the display unit 26.

The step counter 24 is an inertia device that counts the number of steps a user takes. The number of steps is transmitted to a data archive 32 either directly or via a transmitter 34. The data archive 32 is mounted in the housing with the step counter 24 or the display 26.

The transmitter 34 is mounted in the step counter housing and is preferably an Rf telemetric signal transmitter with a 30 inches to 36 inches transmission range. Alternately, the transmitter is a wireless or wired digital transmitter with a coding function to limit or eliminate interference with other similar devices. The wireless transmission range is set between 30 inches and 36 inches to provide adequate range to transmit signals from a user's waist to wrist, but not so far as to cause interference with other Rf or digital devices in the vicinity.

The transmitter 34 transmits either raw data or calculated distances, pace, etc. to a wrist-mounted display unit receiver 40. The receiver 40 relays a raw data signal

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to the data processor 30 or a calculated data signal directly to the display panel 42, such as an LCD or LED.

Similarly, the heart rate monitor 28 includes a transmitter 44 that transmits heart rate data to the display unit 26. The heart monitor transmitter 44 can transmit at the same or a different frequency as the stride counter 24, and to the same or a different receiver in the display unit 26. The heart rate transmitter 44 is preferably Rf, but can be digital for the reasons stated above. The range of the heart rate transmitter 44 should also be between 30 inches and 36 inches to ensure effective communication with the receiver while limiting outside interference.

The data processor 30 can also include a programmable logic controller, a personal computer, a programmable read-only memory, or other suitable processor. The data processor 30 includes a data archive 32 to store historic data on stride length and pace to be used in an algorithm for calculating actual distances, speed, and rate for real-time conversion of data to useful information for a user.

The data processor 30 can also include closed loop or fuzzy logic programming to continually or periodically replace the base stride rate and length with recently calculated stride rates and lengths so that long term conditioning trends are accommodated in the base stride archive. Incorporating trend capabilities may further enhance accuracy of the distance and pace calculations.

The display unit 26 also includes an operator interface 46 such as a key pad, button, knob, etc. that enables the user to start and stop a clock 48 (or stop watch) and activate various use modes within the pedometer, such as a sampling mode and operation mode.

One option for using the pedometer 20, requires the user to operate a "sampling mode" and begin walking or running a pre-determined distance such as a mile or 1600 meters, preferably on a running track of a known size. Upon completion of the distance, a stop button on the operator interface 46 is pushed. The data processor 30 is programmed to then divide the distance by the number of strides counted to calculate an average stride length. This value is stored in the data archive 32 as the "Base Stride Length."

Also, the data processor 30 is programmed to divide the number of strides by

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the time of the run or walk as measured by the clock 48 to arrive at a "Base Stride Rate."

The data processor 30 preferably includes programming that queries the user about the distance to be run during the sampling mode. By providing options or enabling the use of any distance during the sampling mode, the pedometer 20 provides maximum flexibility for use by people of various physical conditions, or having access to courses of different known distances. Thus, a user may be queried to input a distance to be used in the sampling mode and then be given a list of options such as 400 meters, 440 yards, 1600 meters, or one mile, or be asked to simply input any distance known to the user that will be traveled during the sampling mode.

The present invention makes full use of the relationship between a faster rate of travel and longer stride lengths. In other words, the faster a user is moving, the longer will be the stride length. Over the course of the run or walk, the user's step rate and, therefore, stride length will change and the user will cover more ground when moving fast and less ground when moving slow.

Clearly, using a fixed average stride length in calculating distance traveled will result in errors using prior pedometers. This is particularly true if a user changes pace, or improves conditioning and speed to the point where the average stride length over a given run increases dramatically. The error compensators in prior devices do not adjust for changes in pace. With the old devices, a user needed to re-calibrate periodically to be close to getting an accurate reading, and could not change pace during a workout without decreasing accuracy.

To make the correction, the user activates a "Use Mode" in which the data processor 30 calculates an Actual Stride Rate based on data from the stride counter 24 and the clock 48. For example, an Actual Stride Rate can be calculated every five seconds without the user doing more than activating the "Use Mode" button, while all the calculations are performed by the data processor automatically. The percentage change between the Actual Stride Rate and the Base Stride Rate is then computed by the data processor 30 to determine an Actual Stride Length. Again, if the Actual Stride Rate is greater than the Base Stride Rate, the Actual Stride Length is longer than the Base Stride Length. If the Actual Steps Per Second is lower than

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the Base Steps Per Second, the Actual Stride Length is shorter than the Base Stride Length. The algorithm below provides a means for comparing the Actual and Base Stride rates to arrive at an accurate Actual Stride Length.

First, a comparison between the Actual Stride Rate and the Base Stride Rate is made to determine whether Actual Stride Rate is less than or equal to Base Stride Rate multiplied by 1.02. Stride Length is calculated by:

Actual Stride Length = Base Stride Length +

Base Stride Length \*(((Actual Stride Rate - Base Stride Rate)N)/Base Stride Rate)

Where: N=1 when Actual Stride Rate is less than or equal to Base Stride Rate multiplied by 1.02, and N=3 when Actual Stride Rate is greater than Base Stride Rate multiplied by 1.02, although other N values in the range of one to three can be used.

The above algorithm is accurate for heel to toe activities such as walking or jogging, but is less accurate for sprinting (toe only).

A third method of calculating actual stride length uses three separate run or walk samples at three different paces. This is the most accurate option. With this method, the N values are unique for each individual. By deriving an N value for each individual, this value more accurately reflects the actual change in stride length with a change in pace. After a proper warmup, the user completes a sample run or walk on the track at a normal pace. This first sample S1, will establish the Base Stride and the Base Steps Per Second.

#### S1 SAMPLE:

- S1 Stride = Base Stride = Distance / Number of Steps
- S1 Steps Per Second or S1 Steps Per Second = Base Steps Per Second = Number of Steps Per Second

Following completion of the first run or walk at normal pace, the user runs or walks the same course and the same distance at a faster run or walking pace, but not a sprinting pace. The user should not run on his toes, but maintain the normal heel to toe jogging style. This is the S2 sample. The purpose of the S2 sample is to calculate an N2 value for each individual which reflects the effect an increase in Steps Per Second has on this individual's stride length. Some individual's steps will lengthen

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more than others as Steps Per Second increases, and by finding the value for N2, this relative increase can be quantified for a more accurate and customized algorithm for each individual.

S2 SAMPLE:

To find the N2 value, which will be used by the algorithm when Actual Steps Per Second > Base Steps Per Second

N2 = ((S2 Stride \* S1 Steps Per Second) - (S1 Stride \* S1 Steps Per Second)) / (S1 Stride (S2 Steps Per Second - S1 Steps Per Second))

This value can be calculated since the distance is known, and both a Fast Stride Length (S2 Stride) and a Fast Steps Per Second (S2 Steps Per Second) can be calculated from the second sample.

Following completion of the fast run or walk, the user runs the same course and the same distance at a slower than normal run or walking pace. This pace cannot exceed the first sample pace. This is the S3 sample. The purpose of the S3 sample is to calculate an N3 value for each individual which reflects the effect a decrease in Steps Per Second has on this individual's stride length. Some individual's steps will shorten more than others as Steps Per Second decreases, and by finding the value for N3, this relative decrease can be quantified for a more accurate and customized algorithm for each individual.

20 S3 SAMPLE:

To find the N3 value, which will be used by the algorithm when Actual Steps Per Second < Base Steps Per Second.

N3=((S3 Stride \* S1 Steps Per Second) - (S1 Stride \* S1 Steps Per Second))
/ (S1 Stride (S2 Steps Per Second - S1 Steps Per Second))

This value can be calculated since the distance is known and both a "Slow" Stride Length (S3 Stride) and a "Slow" Steps Per Second (S3 Steps Per Second) can be calculated from the third sample.

Once these three samples are completed and the information automatically calculated and stored in the data processor 30, then the following formula can be used for the most accurate measurements of speed and distance.

If: Actual Steps Per Second is less than or equal to Base Steps Per

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Second

Then:

Stride Length = Base Stride + Base Stride\*(((Actual Steps Per Second - Base Steps Per Second)N)/Base Steps Per Second)

And N = N3 (Stored Value)

If: Actual Steps Per Second > Base Steps Per Second

Then:

Stride Length = Base Stride + Base Stride\*(((Actual Steps Per Second - Base Steps Per Second)N)/Base Steps Per Second)

And N = N2 (Stored Value)

This third option for calculating stride length, and subsequently distance, speed, and pace, is a far more accurate method than a fixed stride length pedometer. This device and method are also practical, convenient, and has a relatively low manufacturing cost. If an individual's running or walking style is progressing with training and practice (as seen by significantly improved times), then it may be beneficial for them to recalibrate their device by repeating the three samples every 3 to 6 months. If there are no significant improvements in time, then recalibration is not necessary.

It is noted that any single stride length or pace discussed above can in fact be an average of a plurality of stride lengths or rates from test runs to further refine accuracy in the calculations of actual stride data.

Other variations on this device could also incorporate an altimeter which measures changes in elevation. The stride length could then be adjusted (shortened) when elevation is increasing, and lengthened when elevation is decreasing. This adjustment could be done with an average value, as we used in setting option 2, or with a derived value by running or walking over a known distance on a hilly course. This device can use two batteries so that the calibration data is not lost when the batteries are replaced one at a time.

Once the actual stride length is calculated for a given period of time, the value can be multiplied by the number of strides in that period to obtain a total distance for that period to be stored in a data archive file for that particular walk or run and added

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to other actual stride lengths or distances for other periods in which stride length was calculated. When the run or walk is completed, the user engages the operator interface 46 to indicate that a total distance is to be displayed on the display unit.

Preferably, there is continual display of the distance traveled.

As a result of accurately calculating distance traveled, the pedometer 20 also has the capability of calculating speed in miles per hour, for example or pace in minutes per mile, including average speed and pace over the course of that particular walk or run. Further, the pedometer 20 can include a port for coupling to a separate personal computer or computing device to create larger training histories, trends, etc.

Additional features can include stop watches, day, date and time displays, as well as, heart rate displays as discussed above. Also, it will be understood that all distances and time periods used above can be varied in length and units of measure (English, metric, seconds, minutes, hours, etc.).

The foregoing detailed description is provided for clearness of understanding only and no unnecessary limitations therefrom should be read into the following claims.

#### CLAIMS

- 1. A pedometer comprising:
- a step counter mountable on a user first body portion;
- a transmitter in communication with the step counter to generate a signal corresponding to each step and transmit the signal; and
- a receiver mountable on a user second body portion to receive the signal transmitted from the transmitter and calculate a distance measured by the step counter.
- 2. The pedometer of claim 1, wherein the transmitter and the receiver communicate via wireless transmission.
- 3. The pedometer of claim 1, wherein the transmitter and the receiver communicate via a wire.
- 4. The pedometer of claim 1, wherein the transmission signal is digitally coded.

5. The pedometer of claim 1, where in the transmitter transmits the signal a wireless distance in the range of thirty to thirty-six inches.

6. The pedometer of claim 1, wherein the receiver is mountable on a

user's wrist

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7. The pedometer of claim 1, wherein the receiver processes the step count signal and displays the distance traveled on a viewing screen.

8. The pedometer of claim 1, wherein the step counter is mountable on a user's leg.

The pedometer of claim 1/and further comprising:

a heart rate monitor; and

a second transmitter in communication with the heart rate monitor to transmit a signal corresponding to a heart rate calculated by the heart rate monitor to the receiver and display the calculated heart rate.

10. The pedometer of claim 9, wherein the heart rate signal is at a different frequency than the pedometer signal.

11. The pedometer of claim 9, wherein the heart rate monitor is mountable to a user's third/body portion.

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The pedometer of claim 9, wherein the heart rate and the step counter transmitter are mounted in a single chest-mount housing. 13. rocessor programmed to calculate a distance traveled by multiplying the number of 14. timing a user first run of a predetermined distance; counting the total number of strides in the user first run; 10 length; actual stride rate 15 calculating the actual stride length using the formula:

The pedometer of claim 1 wherein the pedometer includes a data

des taken by a stride length that varies according to the rate at which strides are

The pedometer of claim 13, wherein the data processor is programmed to calculate an actual stride/length of a user by performing the steps of:

dividing the first run distance by the stride count to obtain a base stride

dividing the stride count by the first run time to obtain a base stride rate; counting strides in a period of time during a user second run to obtain an

> Actual Stride Length = Base Stride Length + Base Stride Length \*(((Actual Stride Rate - Base Stride Rate)N)/Base Stride Rate);

where N is in the range of between 1 and 3.

The pedometer of claim 13, wherein the pedometer is further programmed to perform the steps of:

> comparing the actual stride rate to the base stride rate; and calculating the actual stride length using N=1 when the actual stride rate is

less than or equal to the base stride rate multiplied by 1.02. 4

The pedometer of claim N, wherein the pedometer is further 16. programmed to perform the steps of:

comparing the actual stride rate to the base stride rate; and calculating the actual stride length using N=3 when the actual stride rate is greater than the base stride rate multiplied by 1.02.



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17. A pedometer comprising:

a step counter;

a transmitter in communication with the step counter to generate a signal corresponding to each step and transmit the signal; and

a receiver mountable on a user body portion to receive the signal transmitted from the transmitter and calculate a distance measured by the step counter, and

a data processor programmed to calculate a distance traveled by multiplying the number of strides taken by a stride length that varies according to the rate at which strides are taken.

No. The pedometer of claim No, wherein the transmitter and the receiver communicate via wireless transmission.

No. The pedometer of claim No, wherein the transmitter and the receiver communicate via a wire.

20. The pedometer of claim 17, wherein the transmission signal is digitally coded.

21. The pedometer of claim 17, where in the transmitter transmits the signal a wireless distance in the range of thirty to thirty-six inches.

10 22. The pedometer of claim  $\frac{1}{100}$ , wherein the receiver is mountable on a user's wrist.

The pedometer of claim 17, wherein the receiver processes the step count signal and displays the distance traveled on a viewing screen.

24. The pedometer of claim 17, wherein the step counter is mountable on a user's leg.

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25. The pedometer of claim 17, and further comprising:

a heart rate monitor; and

a second transmitter in communication with the heart rate monitor to transmit
a signal corresponding to a heart rate calculated by the heart rate
monitor to the receiver and display the calculated heart rate.

26. The pedometer of claim 25, wherein the heart rate signal is at a different frequency than the pedometer signal.

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21.	The pedometer of claim 25, wherein the heart rate monitor is
ountable t	o a user's third body portion.
28.	The pedometer of chim 25, wherein the heart rate and the step
unter are	mounted in a single shest-mount housing.
1725	The pedometer of claim N, wherein the data processor is

programmed to calculate an the distance traveled actual stride length of a user by performing the steps of:

timing a user first run of a predetermined distance;
counting the total number of strides in the user first run;
dividing the first run distance by the stride count to obtain a base stride
length:

dividing the stride count by the first run time to obtain a base stride rate; counting strides in a period of time during a user second run to obtain an actual stride rate;

calculating the actual stride length using the formula:

Actual Stride Length = Base Stride Length + Base Stride Length
\*(((Actual Stride Rate - Base Stride Rate)N)/Base Stride Rate);

where N is in the range of between 1 and 3.

. 30. The pedometer of claim N, wherein the pedometer is further programmed to perform the steps of:

comparing the actual stride rate to the base stride rate; and calculating the actual stride length using N=1 when the actual stride rate is

less than or equal to the base stride rate multiplied by 1.02.

34. The pedometer of claim N, wherein the pedometer is further programmed to perform the steps of:

comparing the actual stride rate to the base stride rate; and calculating the actual stride length using N=3 when the actual stride rate is greater than the base stride rate multiplied by 1.02.



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32. A pedometer programmed to calculate an actual stride length of a user by performing the steps of:

timing a user first run of a predetermined distance; counting the total number of strides in the user first run; dividing the first run distance by the stride count to obtain a base stride

dividing the stride count by the first run time to obtain a base stride rate; counting strides in a period of time during a user second run to obtain an actual stride rate;

calculating the actual stride length using the formula:

Actual Stride Length = Base Stride Length + Base Stride Length \*(((Actual Stride Rate - Base Stride Rate)N)/Base Stride Rate); where N is in the range of between 1 and 3.

33. The pedometer of claim 32, wherein the pedometer is further programmed to perform the steps of:

comparing the actual stride rate to the base stride rate; and calculating the actual stride length using N=1 when the actual stride rate is

less than or equal to the base stride rate multiplied by 1.02.

34. The pedometer of claim 32, wherein the pedometer is further programmed to perform the steps of:

comparing the actual stride rate to the base stride rate; and calculating the actual stride length using N=3 when the actual stride rate is greater than the base stride rate multiplied by 1.02.

35. The pedometer of claim 32, wherein the receiver processes the step count signal and displays the distance traveled on a viewing screen.

36. The pedometer of claim 32, and further comprising a heart rate monitor mounted in a chest-mount housing.

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37. A pedometer programmed to calculate an actual stride length of a user by performing the steps of:

timing a user first run of a predetermined distance;

counting the total number of strides in the user first run;

dividing the first run distance by the stride count to obtain a first run base stride length;

dividing the first run stride count by the first run time to obtain a first run base stride rate;

timing a user second run of a predetermined distance;

counting the total number of strides in the user second run;

dividing the second run distance by the second run tride count to obtain a second base stride length;

dividing the second run stride count by the second run time to obtain a second base stride rate;

timing a user third run of a predetermined/distance;

counting the total number of strides in the user third run;

dividing the third run distance by the third run stride count to obtain a third base stride length;

dividing the third run stride count/by the third run time to obtain a third run base stride rate;

counting strides in a period of time during a user fourth run to obtain an actual stride rate;

calculating the actual strice length using the formula:

Actual Stride Length = Base Stride Length + Base Stride Length \*(((Actual Stride Rate - Base Stride Rate)N)/Base Stride Rate); where N is calculated by the formula ((Second Run Stride Length multiplied by First Run Stride Rate) - (First Run Stride Length multiplied by First Run Stride Rate)) / (First Run Stride Length multiplied by (Second Run Stride Rate - First Run Stride Rate)) when the Actual Stride Rate is greater than the First Run Stride Rate, and where N is calculated by the formula ((Third Run Stride Length

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multiplied by First Run Stride Rate) - (First Run Stride Length multiplied by First Run Stride Rate)) / (First Run Stride Length multiplied by (Third Run Stride Rate - First Run Stride Rate)) when the Actual Stride Rate is less than or equal to the First Run Stride

Rate. The pedometer of claim 30, wherein:

the first run base stride length is an average stride length calculated from a plurality of test runs; and

the first run base stride rate is an average base stride rate calculated from the

plurality of test runs. 27

39. The pedometer of claim 37, wherein:

the second run base stride length is an average stride length calculated from a plurality of test runs; and

the second run base stride rate is an average base stride rate calculated from

the plurality of test runs. 28

The pedometer of claim 37, wherein: 40.

the third run base stride length is an average stride length calculated from a plurality of test runs; and

the third run base stride rate is an average base stride rate calculated from the

plurality of test runs. The pedometer of claim \$7, wherein the second run is at a faster pace than the first walk or run and the third run is at a slower pace than the first walk or run.

The pedometer of claim N, and further comprising: 42

a data processor mountable on a user body portion to calculate the actual stride length; and

a run data display device in communication with the data processor and

mountable on a user body portion. 31

The pedometer of claim N, and further comprising a heart rate 43. monitor mounted in a chest-mount housing.

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44. A method for calculating an actual stride length comprising the steps

timing a first user run of a predetermined distance;
counting a total number of strides in the user first run;
dividing the first run time by the stride count to obtain a Base Stride Length,
dividing the stride count by the first run time to obtain a Base Stride Rate;
counting strides in a pre-determined period during a user second run to
obtain an Actual Stride Rate;

calculating the actual stride length using the formula:

Actual Stride Length= Base Stride Length + Base Stride Length
\*(((Actual Stride Rate - Base Stride Rate)N)/Base Stride Rate);
wherein/N is between one and three.

The method of claim \*\*A and further comprising the steps of comparing Base Stride Rate to Actual Stride Rate to determine a percentage difference; and using N=1 when the difference is less than two percent and using N=3 when the difference is greater than or equal to two percent.

#### ABSTRACT OF THE DISCLOSURE

The pedometer having improved accuracy by calculating actual stride lengths of a user based on relative stride rates. The pedometer includes a waist or leg mounted stride counter, a transmitter for transmitting data to a wrist-mounted display unit, and a data processor for calculating necessary base units and actual stride rates and lengths. The pedometer can also interact with a heart monitoring device.

Docket No.: EPIXINC-4

#### DECLARATION AND POWER OF ATTORNEY

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name.

I believe I am the original, first and sole inventor of the subject matter which is claimed and for which a patent is sought on the invention entitled: PEDOMETER, the specification of which

[X]	is attached hereto.		
[]	was filed on	as Application No.	and was amended
	on (if a	oplicable).	

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

I do not know and do not believe that the same was ever known or used in the United States of America before my invention thereof, or patented or described in any printed publication in any country before my invention thereof or more than one year prior to this application, that the same was not in public use or on sale in the United States of America more than one year prior to this application, that the invention has not been patented or made the subject of an inventor's certificate issued before the date of this application in any country foreign to the United States of America on an application filed by me or my legal representatives or assigns more than twelve months prior to this application, that I acknowledge my duty to disclose information of which I am aware which is material to the examination of this application in accordance with Title 37, Code of Federal Regulations, \$1.56(a), and that no application for patent or inventor's certificate on this invention has been filed in any country foreign to the United States of America prior to this application by me or my legal representatives or assigns, except as follows: None.

I hereby claim foreign priority benefits under Title 35, United States Code, §119 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed:

Prior Foreign App	olication(s)			Clair	•
None. (Number)	(Country)	(Day/Month/Year Filed)	[]	[] Yes	No
(Number)	(Country)	(Day/Month/Year Filed)	[]	[] Yes	No

I hereby claim the benefit under Title 35, United States Code, §120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, §112, I acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations, §1.56(a) which occurred between the filing date of the prior application and the national or PCT international filing date of this application:

None		
(Application Serial Number)	(filing date)	(Statuspatented, pending, abandoned)
(Application Serial Number)	(filing date)	(Statuspatented, pending, abandoned)

And I hereby appoint the practitioners associated with the Customer Number provided below to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith, and direct that all correspondence be addressed to that Customer Number:

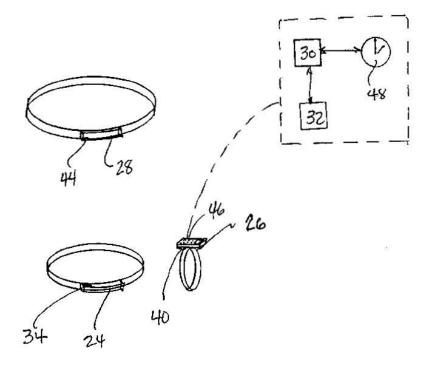
Customer Number: 020,455

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are

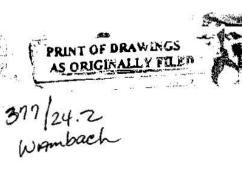
punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

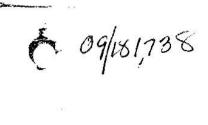
Full name of sole Inventor	Nathan Pyles
Inventor's Signature	••••••
Date	
Residence	Lake Mills, Wisconsin
Citizenship	United States of America
Post Office Address	529 College Street, Lake Mills,
	Wisconsin 53551
Full name of sole Inventor	Joel M. Macht
Inventor's Signature	
Date	
Residence	Reeceville, Wisconsin
Citizenship	United States of America
Post Office Address	106 North Avenue, Reeceville, Wisconsin
	53579

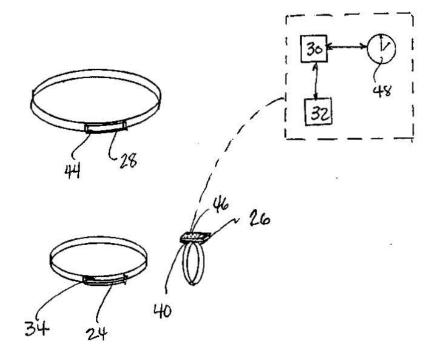
Full name of sole inventor	Chen Shul-Jung
Inventor's Signature	
Date	**************************************
Residence	Taipei, Taiwan
Citizenship	Republic of China
Post Office Address	2 F No. 349, Wu Shin Street, Taipei, Taiwan



F16. 1







F16. 1



Washington, D.C. 20231

6: 045: LIMENT ZUMRK LIE N. WOSHINGTON LESETHE FLU FOX 156: WWOTSUR RI FISSON 1507

MOI MESSIGNED

2816

DATE MAILED:

### NOTICE TO FILE MISSING PARTS OF APPLICATION Filing Date Granted

An Application Number and Filing Date have been assigned to this application. The items indicated below, however, are missing. Applicant is given TWO MONTHS FROM THE DATE OF THIS NOTICE within which to file all required items and pay fees required below to avoid abandonment. Extensions of time may be obtained by filing a petition accompanied by the extension fee under the provisions of 37 CFR 1.136(a), If any of items 1 or 3 through 5 are indicated as missing, the SURCHARGE set forth in 37 CFR 1.16(e) of \$65.00 for a small entity in compliance with 37 CFR 1.27, or \$130.00 for a non-small entity, must also be timely submitted in reply to this NOTICE to avoid abandonment.

If ali	required Items on this form are filed winall entity (statement filed) a non-smal	thin the period set above, the total amount owed by applicant as a I entity is \$					
	The statutory basic filing fee is: ☐ missing. ☐ insufficient.  Applicant must submit \$ such status (37 CFR 1.27).	to complete the basic filing fee and/or file a small entity statement claiming					
□ 2	. Additional claim fees of \$	, including any multiple dependent claim fees, are required.					
	\$for	independent claims over 3.					
	\$for	dependent claims over 20.					
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<i>*</i>	☐ is missing or unexecuted. ☐ does not cover the newly submitted ☐ does not identify the application to w ☐ does not include the city and state o	hich it applies. r foreign country of applicant's residence. th 37 CFR 1. 63, including residence information and identifying the application by					
□ 4	4. The signature(s) to the oath or declaration is/are by a person other than inventor or person qualified under 37 CFR 1.42, 1.43 or 1.47. A properly signed oath or declaration in compliance with 37 CFR 1.63, identifying the application by the above Application Number and Filing Date, is required.						
□ 5	. The signature of the following joint invent	or(s) is missing from the oath or declaration:					
		th 37 CFR 1.63 listing the names of all inventors and signed by the orditted y the above Application Number and Filing Date, is required.					
□ 7	. Your filing receipt was mailed in error bed . The application does not comply with the						
□ 9	See attached "Notice to Comply with Seq OTHER:	uerice nures 37 CFN 1.621-1.625.					
		office to WAM-street Doublington Double 77 2					
Dite	t the reply and any questions about this h	elice to Attention Dox Missing Parts.					
( ) v	A copy of this	notice MUST be returned with the reply.					

Customer Service Center

Initial Patent Examination Division (703) 308-1202

TRANSMITT		Application Number	09/181,738
	AL	Filing Date	October 28, 1998
FORM		First Named Inventor	Nathan Pyles
o be used for all correspondence	after initial filing)	Group Art Unit	2816
<b>3</b>		Examiner Name	
rotal Number of Pages in This Submiss	on	Attorney Docket Number	EPIXINC-4
Fee Transmittal Form  Fee Attached  Amendment / Response  After Final  Affidavits/declaration(s)  Extension of Time Request  Express Abandonment Request  Information Disclosure Statement	Petition Rou And Accom	cation)  clated Papers  ting Slip (PTO/SB/69)  canying Petition  a Provisional Application  orney, Revocation  orrespondence Address  cclaimer  Statement	After Allowance Communication To Group  Appeal Communication to Board O Appeals and Interferences  Appeal Communication to Group (Appeal Notice, Brief, Reply Brief)  Proprietary Information  Status Letter  Additional Enclosure(s) (Please identify below):
Certified Copy of Priority Document(s)  Response to Missing Parts/ Incomplete Application  Response to Missing Parts	Remarks		
Under 37 CFR 1.52 or 1.53			
SIG		CANT, ATTORNEY, OR AC	
or JeI ndividual name	Fry W. SMI	th, Reg. No. 3	*
Date M	4.19.09		397
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Approved for use through 09/30/00. OMB 0651-0032 Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

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PTO/SB/17 (12-97) Approve use through 09/30/00. OMB 0651-0032
Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number. Complete if Known 0 **FEE TRANSMITTAL** Application Number 09/181,738 Filing Date October 28, 1998 MAY 1 0 1999 & First Named Inventor Nathan Pyles Group Art Unit 2816 Note: Effective October 1, 1997, tent fees are subject to annual revision Examiner Name TOTATIONER NT OF PAYMENT Attorney Docket Number EPIXINC-4 \$500.00 METHOD OF PAYMENT (check one) FEE CALCULATION (Continued) The Commissioner is hereby authorized to charge indicated fees and credit any over payments to: 3. ADDITIONAL FEES M Large Entity Small Entity Deposit Account Number 15-0660 Fee (\$) Fee (\$) Fee Code Fee Code Fee Description Fee Paid \$65.00 105 130 205 65 Surcharge - late filing fee or oath Deposit Account Lathrop & Clark Surcharge - late provisional filing fee or cover sheet 127 50 227 25 Charge Any Additional Fee Required Under 37 CFR 1.16 and 1.17 Charge the Issue Fee Set in 37 CFR 1.18 at the Mailing of the Notice of Allowance 139 130 139 130 Non-English specification  $\boxtimes$ For filing a request for reexamination 147 2,520 147 2,520 112 920\* 920\* Requesting publication of SIR prior to Examiner action 112 2. X Payment Enclosed: ⊠<sup>Check</sup> Other 113 1,8404 113 1,840\* Requesting publication of SIR after Examiner action ☐ Money ☐ FEE CALCULATION 115 110 215 55 Extension for reply within first month 1. FILING FEE 116 380 216 190 Extension for reply within second Large Entity Small Entity 117 870 217 435 Extension for reply within third \$435.00 month Fee (\$) Fee Description Fee Paid 118 1,360 218 680 Extension for reply within fourth Fee (\$) Fee Code Fee Code month 128 1850 925 Extension for reply within fifth 228 month 101 760 201 380 Utility filing fee 119 300 219 150 Notice of Appeal 106 310 206 155 300 Design filing fee 120 220 150 Filling a brief in support of an 107 480 207 240 121 Request for oral hearing Plant filing fee 260 221 130 108 760 208 380 Reissue filing fee 138 1.510 138 1,510 Petition to institute a public use 114 150 214 Provisional filing fee 140 110 240 55 Petition to revive - unavoidable SUBTOTAL (1) \$0.00 1,210 241 605 141 Petition to revive - unintentional Fee from below 2. CLAIMS Fee Paid 142 605 1,210 242 Utility issue fee (or reissue) 143 \$0.00 430 243 215 Design issue fee Independent Claims 0 41 \$0.00 580 -3= 144 244 290 Plant issue fee 122 130 122 130 Petitions to the Commissioner Petitions related to provisional applications 135 \$0.00 123 50 50 Multiple Dependent Claims 123 Submission of Information Disclosure Statement 126 240 126 240 Large Entity Small Entity Recording each patent assignment per property (times number of properties) 581 Fee Description 40 581 40 Fee Code Fee Fee (\$) Code Filing a submission after final rejection (37 CFR 1.129(a)) 203 103 18 9 146 760 Claims in excess of 20 246 380 For each additional invention to be examined (37 CFR 1.129(b)) 102 78 202 39 Independent Claims in excess of 3 149 760 249 380 104 260 204 130 Multiple dependent claims 109 78 209 39 Reissue independent claims over Other fee (specify) \_ Reissue claims in excess of 20 and over original patent 110 18 210 g Other fee (specify) \$500.00 SUBTOTAL (2) \$0.00 Reduced by Basic Filing Fee Paid SUBTOTAL (3) Complete (if applicable) SUBMITTED BY Jeffry W. Smith 33455 Typed or Printed Name Reg. Number 7W. L May 4, 1999 Date Deposit Account User ID Signature



#### Patent Application IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Pyles et al.

Date:

May 4, 1999

Date Filed:

October 28, 1998

Docket No.: EPIXINC-4

Application Number: 09/181,738

Art Unit:

2816

For:

PEDOMETER

### Certificate of Mailing

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Attention: Box Missing Parts Assistant Commissioner for Patents,

Washington, D.C. 20231

1999

Date

Signature Smith, Reg. No. 33455

Name of applicant, assignee or Registered Representative

TRANSMITTAL OF MISSING PARTS OF APPLICATION UNDER 37 C.F.R. §1.53

Attention: Box Missing Parts

Assistant Commissioner for Patents

Washington, D.C. 20231

Dear Sir:

In response to the Notice of Missing Parts mailed November 17,1998, enclosed are the following items for filing in the above-referenced U.S. Patent application:

A Declaration and Power of Attorney, executed by the applicant on March 21,

Applicant: Nathan Pyles Application No.: 09/181,738

Art Unit: 2816

1999; May 3, 1999; and May 3, 1999.

Form PTO-1533 Notice to File Missing Parts.

- A check in the amount of \$500.00 to cover the filing fee (37 C.F.R. §1.16(a) et seq.), the surcharge set forth in 37 C.F.R. §1.16(e), and extension of time under 37 CFR 1.136(a).
- Verified Statement Claiming Small Entity Status--Small Business Concern, executed on March 21, 1999.
  - 5. Petition for Extension of Time Under 37 CFR 1.136(a).

The Commissioner is hereby authorized to charge payment of any additional fees associated with this communication or credit any overpayment to Deposit Account No. 15-0660. A duplicate copy of this document is enclosed.

Having now complied with all of the requirements of 37 C.F.R. §1.53, applicant respectfully requests that this application be placed upon the files for examination.

Respectfully submitted,

Jeffry W. Smith, Reg. No. 33455

Attorney for Applicant Lathrop & Clark LLP

740 Regent Street, Suite 400

P.O. Box 1507

Madison, Wisconsin 53701-1507

(608) 257-7766

files.htp

Patent Application

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:

Pyles et al.

Date:

May 4, 1999

Date Filed:

October 28, 1998

Docket No.:

**EPIXINC-4** 

Application Number: 09/181,738

0/101 700

Art Unit:

2816

For:

PEDOMETER

# Certificate of Mailing

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Attention: Box Missing Parts
Assistant Commissioner for Patents,
Washington, D.C. 20231

on May 4, 1999

Date

Signature

Jeffry W. Smith, Reg. No. 33455

Name of applicant, assignee or Registered Representative

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Dear Sir:

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Respectfully submitted,

Jeffry W. Smith, Reg. No. 33455

Attorney for Applicant Lathrop & Clark LLP

740 Regent Street, Suite 400

P.O. Box 1507

Madison, Wisconsin 53701-1507

(608) 257-7766

files.htp

Docket No.: EPIXINC-4

#### DECLARATION AND POWER OF ATTORNEY

is a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name.

I believe I am the original, first and sole inventor of the subject matter which is claimed and for which a patent is sought on the invention entitled: PEDOMETER, the specification of which

[ ] is attached hereto.

[X] was filed on October 28, 1998 as Application No. 09/181,738 and was amended on \_\_\_\_\_ (if applicable).

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

I do not know and do not believe that the same was ever known or used in the United States of America before my invention thereof, or patented or described in any printed publication in any country before my invention thereof or more than one year prior to this application, that the same was not in public use or on sale in the United States of America more than one year prior to this application, that the invention has not been patented or made the subject of an inventor's certificate issued before the date of this application in any country foreign to the United States of America on an application filed by me or my legal representatives or assigns more than twelve months prior to this application, that I acknowledge my duty to disclose information of which I am aware which is material to the examination of this application in accordance with Title 37, Code of Federal Regulations, §1.56(a), and that no application for patent or inventor's certificate on this invention has been filed in any country foreign to the United States of America prior to this application by me or my legal representatives or assigns, except as follows: None.

I hereby claim foreign priority benefits under Title 35, United States Code, §119 of any foreign application(s) for patent or inventor's certificate listed below and have also

identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed:

Prior Foreign App	Foreign Application(s)				Claimed		
None. (Number)	(Country)	(Day/Month/Year Filed)		[] Yes	No		
(Number)	(Country)	(Day/Month/Year Filed)	[]	[] Yes	No		

I hereby claim the benefit under Title 35, United States Code, §120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, §112, I acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations, §1.56(a) which occurred between the filing date of the prior application and the national or PCT international filing date of this application:

None.		
(Application Serial Number)	(filing date)	(Statuspatented, pending, abandoned)
(Application Serial Number)	(filing date)	(Statuspatented, pending, abandoned)

And I hereby appoint the practitioners associated with the Customer Number provided below to prosecute this application and to transact all business in the Ratent and Trademark Office connected therewith, and direct that all correspondence be addressed to that Customer Number:

Customer Number: 020,455

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are

punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Full name of sole Inventor Nathan Pyles Inventor's Signature Date Lake Mills, Wisconsin Residence Citizenship United States of America 529 College Street, Lake Mills, Post Office Address Wisconsin 53551 Joel M. Macht Full name of sole Inventor ford M. Mas Inventor's Signature Date Residence Reegeville, Wisconsin United States of America Citizenship Post Office Address 106 North Avenue, Reeceville, Wisconsin 53579

Full name of sole Inventor

Chen Shui-Jung

Inventor's Signature

.. Claw Cm-Jung ...3/21./.9.9..... Date

Taipei, Taiwan Residence

Republic of China Citizenship

Post Office Address 2 F No. 349, Wu Shin Street, Taipei,

Taiwan

PTO/SB/10 (12-97)
Approved for use through 9/30/00. OMB 0651-0031
Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control STATEMENT CLAIMING SMALL ENTITY STATUS (37 GFR 1.9(f) & 1.27(c))—SMALL BUSINESS CONCERN Docket Number (Optional) EPIXINC-4

1.2	7.0 / CI)
	licant, Patentee, or Identifier: Nathan Pyles lication or Patent No.: 09/181,738  MAY 1 (1 1999 ©
	for Issued: October 28, 1998
	or Issued: October 28, 1998
	reby state that I am
	the owner of the small business concern identified below:
<b>[X]</b>	an official of the small business concern empowered to act on behalf of the concern identified below:
NAM	TE OF SMALL BUSINESS CONCERN Epix, Inc.
ADD	RESS OF SMALL BUSINESS CONCERN 621 D East Lake Street, Lake Mills, Wisconsin 53551
num state cond year,	I hereby state that the above identified small business concern qualifies as a small business concern as defined in CFR Part 121 for purposes of paying reduced fees to the United States Patent and Trademark Office, in that the ber of employees of the concern, including those of its affiliates, does not exceed 500 persons. For purposes of this ement, (1) the number of employees of the business concern is the average over the previous fiscal year of the term of the persons employed on a full-time, part-time, or temporary basis during each of the pay periods of the fiscal, and (2) concerns are affiliates of each other when either, directly or indirectly, one concern controls or has the er to control the other, or a third party or parties controls or has the power to control both.
ident	I hereby state that rights under contract or law have been conveyed to and remain with the small business concern tiffied above with regard to the invention described in:
Ø	the specification filed herewith with title as listed above.
	the application identified above.
()	the patent identified above.
to the	If the rights held by the above identified small business concern are not exclusive, each individual, concern, or inization having rights in the invention must file separate statements as to their status as small entities, and no rights e invention are held by any person, other than the inventor, who would not qualify as an independent inventor under EFR 1.9(c) if that person made the invention, or by any concern which would not qualify as a small business concerned 37 CFR 1.9(d), or a nonprofit organization under 37 CFR 1.9(e).
	Each person, concern, or organization having any rights in the invention is listed below:
	no such person, concern, or organization exists.
	each such person, concern, or organization is listed below.
entitl	Separate statements are required from each named person, concern or organization having rights to the inventioning their status as small entities (37 CFR 1.27).  I acknowledge the duty to file, in this application or patent, notification of any change in status resulting in loss of lement to small entity status prior to paying, or at the time of paying, the earliest of the issue fee or any maintenance due after the date on which status as a small entity is no longer appropriate (37 CFR 1.28(b)).

NAME OF PERSON SIGNING Nathan Pyles

NAME OF PERSON SIGNING Nathan Pyles

TITLE OF PERSON IF OTHER THAN OWNER President

ADDRESS OF PERSON SIGNING 529 College Street, Lake Mills, Wisconsin 53551-1412

SIGNATURE

DATE 4/2//99

Burden Hour Statement: This form is estimated to take 0.2 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.

PTO/SB/22 (12-97) 0. OMB 0651-0031 IT OF COMMERCE

PTO/SB/22 (12-97)

Approved for use through 9/30/00. OMB 0651-0031

Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

Docket Number (Optional) . EPIXINC-4 PETITION FOR EXTENSION OF TIME UNDER 37 CFR 1.136(a) In re Application of Nathan Pyles Application Number 09/181,738 Filed October 28, 1998 PEDOMETER Group Art Unit Examiner 2816 This is a request under the provisions of 37 CFR 1.136(a) to extend the period of filing a response in the above identified application. The requested extension and appropriate non-small-entity fee are as follows (check time period desired): One month (37 CFR 1.17(a)(1)) Two months (37 CFR 1.17 (a)(2)) Three months (37 CFR 1.17(a)(3)) \$870.00 Four months (37 CFR 1.17(a)(4)) Five months (37 CFR 1.17(a)(5)) X Applicant is a small entity under 37 CFR 1.9 and 1.27, therefore the fee amount shown above is reduced by one-half, and the resulting fee is: \$435.00. A small entity statement under 37 CFR 1.27: is enclosed. has already been filed in this application. X A check in the amount of the fee is enclosed. The Commissioner has already been authorized to charge fees in this application to a Deposit Account.  $\boxtimes$ The Commissioner is hereby authorized to charge any fees which may be required, or credit any overpayment, to Deposit Account Number 15-0660. I have enclosed a duplicate copy of this sheet. I am the assignee of record of the entire interest. applicant. attorney or agent of record. attorney or agent under 37 CFR 1.34(a). Registration number if acting under 37 CFR 1.34(a)

M

49

Smith, Reg. No.
Typed or printed name

Jeffry W.

PTO/SB/22 (12-97)
Approved for use through 9/30/00. OMB 0651-0031
Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

Docket Number (Optional) EPIXINC-4 PETITION FOR EXTENSION OF TIME UNDER 37 CFR 1.136(a) in re Application of Nathan Pyles Application Number 09/181,738 Filed October 28, 1998 PEDOMETER Group Art Unit 2816 Examiner This is a request under the provisions of 37 CFR 1.136(a) to extend the period of filing a response in the above identified application. The requested extension and appropriate non-small-entity fee are as follows (check time period desired): One month (37 CFR 1.17(a)(1)) Two months (37 CFR 1.17 (a)(2)) Three months (37 CFR 1.17(a)(3)) \$870.00 Four months (37 CFR 1.17(a)(4)) Five months (37 CFR 1.17(a)(5)) Applicant is a small entity under 37 CFR 1.9 and 1.27, therefore the fee amount shown above is reduced by one-half, and the resulting fee is: \$435.00. A small entity statement under 37 CFR 1.27: 🛛 is enclosed. has already been filed in this application. A check in the amount of the fee is enclosed. The Commissioner has already been authorized to charge fees in this application to a Deposit Account.  $\boxtimes$ The Commissioner is hereby authorized to charge any fees which may be required, or credit any overpayment, to Deposit Account Number <u>15-0660</u>. I have enclosed a duplicate copy of this sheet. I am the assignee of record of the entire interest. applicant. attorney or agent of record. attorney or agent under 37 CFR 1.34(a). Registration number if acting under 37 CFR 1,34(a) Smith, Req. N Typed or printed name Jeffry W. No.

34

# UNITED STATES DEPARTMENT OF COMMERCE

Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS Washington, D.C. 20231

LICATION NUMBER

FILING/RECEIPT DATE

FIRST NAMED APPLICANT

ATTORNEY DOCKET NO./TITLE

097181,738

10/26/98

PYLES

020485

LAMHROP CLARK

122 W WASHINGTON AVENUE

P 0 BOX 1507

NATETAN WI 53701-1507

Monday that Dece

NOT ASSISNED

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DATE MAILED:

#### NOTICE TO FILE MISSING PARTS OF APPLICATION Filing Date Granted

An Application Number and Filing Date have been assigned to this application. The items indicated below, however, are missing. Applicant is given TWO MONTHS FROM THE DATE OF THIS NOTICE within which to file all required items and pay fees required below to avoid bandonment. Extensions of time may be obtained by filing a petition accompanied by the extension fee under the provisions of 37 CFR (136(a). If any of items 1 or 3 through 5 are indicated as missing, the SURCHARGE set forth in 37 CFR 1.16(e) of □ \$65.00 for a small entity in compliance with 37 CFR 1.27, or □ \$130.00 for a non-small entity, must also be timely submitted in reply to this NOTICE to avoid abandonment.

	required items on this form are filed with nall entity (statement filed) ☑ hon-small e	in the period set above, the total amount owed by applicate the set of the se	nt as a
	The statutory basic filing fee is:  missing. insufficient.		
	Applicant must submit \$such status (37 CFR 1.27).	to complete the basic filing fee and/or file a small entity s	(ii) (ii) (iii) (i
	Additional claim fees of \$	, including any multiple dependent claim fees, are require	id.
	\$for	independent claims over 3.	
	\$	dependent claims over 20.	2
<b>□</b> 3	The oath or declaration:  is missing or unexecuted.  does not cover the newly submitted ite does not identify the application to whi does not include the city and state or f An oath or declaration in compliance with the above Application Number and Filing I	ems.  cins.  ich it applies.  foreign country of applicant's residence.  37 CFR 1. 63, including residence information and identifying to Date is required.	the application by
□ <b>4</b>	1.43 br 1.47.	is/are by a person other than inventor or person qualified und compliance with 37 CFR 1.63, identifying the application by the a quired.	
□ 5	The signature of the following joint inventor	and the second s	
□ 7 □ 8	A \$50.00 processing fee is required since y		69181738 65.00 435.00
Direc	et the reply and any questions about this noti		00000053
1	117010	notice <u>MUST</u> be returned with the reply.	TRANI
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ınıtla	Patent Examination Division (703) 308-120		2002
ii.	PART 2 -	COPY TO BE RETURNED WITH RESPONSE	의 CC _ ***

PTO/SB/21 (12-97) troved for use through 9/30/00. OMB 0651-0031 trk Office: U.S. DEPARTMENT OF COMMERCE ase type a plus sign (+) inside ox → ⊞ Patent and Tra.

Under the Paperwork Reduction, Act of 1995, no persons are required to respond to a collection or Application Number 09/181,738 TRANSMITTAL Filing Date October 28, 1998 **FORM** First Named Inventor Nathan Pyles Group Art Unit 2816 FEB 1 8 1999 (To be used for all correspondence after initial filing) Examiner Name Total Number of Pages in This Submission Attorney Docket Number EPIXINC-4 Fee Transmittal Form Assignment Papers After Allowance Communication To (For an Application) Fee Attached Drawing(s) Appeal Communication to Board Of Appeals and Interferences Amendment / Response Appeal Communication to Group (Appeal Notice, Brief, Reply Brief) Petition Routing Slip (PTO/SB/69) After Final And Accompanying Petition Proprietary Information Affidavits/declaration(s) To Convert a Provisional Application Status Letter Extension of Time Request Power of Attorney, Revocation Additional Enclosure(s) Change of Correspondence Address (Please identify below); Terminal Disclaimer Express Abandonment Request Small Entity Statement PTO-SB08A with 16 references Information Disclosure Statement Request for Refund Certified Copy of Priority Document(s) The Commissioner is hereby authorized to charge any additional fees that may be required with respect to this communication, or credit any overpayment, to Deposit Account No. 15-0660. Remarks Response to Missing Parts/ Incomplete Application Response to Missing Parts Under 37 CFR 1.52 or 1.53 SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT Jeffry W. Smith, Reg. No. 33455 Individual name Signature Date 16,1999 CERTIFICATE OF MAILING I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Assistant Commissioner for Patents, Washington, D.C. 20231 on this date: Typed or printed name Jeffry W. Smith, Reg. No. 33455

Signature

Date Fulr. 16, 1999

PTO/SB/21 (12-97)
\* proved for use through 9/30/00. OMB 0651-0031
\*k Office: U.S. DEPARTMENT OF COMMERCE formation unless it displays a valid OMB control

TOANGM	744—100000 70000	Application Number	09/181,738			
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Total Number of Pages in This Su	bmission	Attorney Docket Number	EPIXINC-4			
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Fee Attached	Draw	ring(s)	Appeal Communication to Board Of Appeals and Interferences			
Amendment / Response		sing-related Papers	Appeal Communication to Group			
After Final	(A) MARCH	on Routing Slip (PTO/SB/69) Accompanying Petition	Proprietary Information			
Affidavits/declaration(s)  Extension of Time Request		onvert a Provisional Application	Status Letter			
Express Abandonment Requ	Chan	er of Attorney, Revocation ge of Correspondence Address inal Disclaimer	Additional Enclosure(s) (Please identify below):			
Information Disclosure State	ment Smal	TEntity Statement	PTO-SB08A with 16 references			
Certified Copy of Priority  Document(s)						
Response to Missing Parts/	Remarks	fees that may be re-	is hereby authorized to charge any additional quired with respect to this communication, or nent, to Deposit Account No. 15-0660.			
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or Individual name			FEE 2 2 (22)			
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I hereby certify that this correspon class mail in an envelope address this date:	dence is being depo					
Typed or printed name	Jeff	ry W. Smith, Reg	. No. 33455			
Signature	N	3.74	Date 7-16 1949			

PATENT APPLICATION

Pyles, et al. Applicant:

Date:

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

February 16, 1999

Filed:

October 28, 1998

Docket No.: EPIXINC-4

Application No.: 09/181,738

Art Unit:

2816

For:

PEDOMETER

Certificate of Mailing

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Assistant Commissioner for Patents,

Washington, D.C. 20231

Signature

Smith, Reg. No. 33455

Name of applicant, assignee or Registered Representative

INFORMATION DISCLOSURE STATEMENT

Assistant Commissioner for Patents Washington, D.C. 20231

CACHO DAIN

Dear Sir:

In accordance with 37 C.F.R. §1.56, applicant wishes to call the attention of the Examiner to the following documents:

## **United States Patents**

U.S. Patent No.	Issue Date	<u>Patentee</u>
4,053,755	10-11-1977	Sherrill
4,223,211	09-16-1980	Allsen et al.
4,334,190	06-08-1982	Sochaczevski
4,337,529	06-29-1982	Morokawa
4,371,945	02-01-1983	Karr et al.
4,510,704	04-16-1985	Johnson
4,651,446	03-24-1987	Yukawa et al.
4,741,001	04-26-1988	Ma
4,771,394	09-13-1988	Cavanagh
4,855,942	08-08-1989	Bianco
5,117,444	05-26-1992	Sutton et al.
5,475,725	12-12-1995	Nakamura
5,476,427	12-19-1995	Fujima
5,490,816	02-13-1996	Sakumoto
5,516,334	05-14-1996	Easton
5,526,290	06-11-1996	Kanzaki

Copies of these documents are submitted herewith along with Form PTO-SB/08A.

Applicant respectfully requests that these documents be expressly considered during the prosecution of this application and made of record herein and appear among the "documents cited" on any patent to issue herefrom.

Respectfully submitted,

By: Juffu W. Smith, Reg. No. 33455

Part of Committees

Attorney for Applicant

Lathrop & Clark LLP 740 Regent Street, Suite 400

P. O. Box 1507

Madison, Wisconsin 53701

(608) 257-7766

ide.ebi

PTO/SB/08A (10-96) aved for use through 10/31/99. OMB 0651-0031

Please type a plus sign (+) inside this box  $\rightarrow$  fbPatent and Trademark Office: U.S. DEPARTMENT OF COMMERCE Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control plumber Substitute for form 1449A/PTO Application Number 09/181,738 Filing Date October 28, 1998 INFORMATION DISCLOSURE First Named Inventor Nathan Pyles STATEMENT BY APPLICANT **Group Art Unit** 2816 Examiner Name Wambach (Use as many sheets as necessary) Of 1 Sheet 1 Attorney Docket Number EPIXINC-4 U.S. PATENT DOCUMENTS U.S. Patent Document Examiner Cite Name of Patentee or Date of Publication of Pages, Columns, Lines, Where Applicant of Cited Initials\* Cited Document Relevant Passages or Relevant Kind Code Number Document MM-DD-YYYY Figures Appear (If known) RW 4,053,755 Sherrill 10-11-1977 Min 4,223,211 Afisen et al. 09-16-1980 4,334,190 min 06-08-1982 Sochaczevski Ms. 4,337,529 Morokawa 06-29-1982 4,371,945 Karr et al. 02-01-1983 Mins 4,510,704 Johnson 04-16-1985 M. 4999 4,651,446 03-24-1987 Yukawa et al Ma 4,741,001 04-26-1988 4,771,394 Cavanagh 09-13-1988 4.855,942 8ianco 08-08-1989 5,117,444 Sutton et al 05-26-1992 Chach Nakamura 12-12-1995 5,475,725 mu 5,476,427 Fujima 12-19-1995 5,490,816 02-13-1996 Sakumoto m 5,516,334 05-14-1996 5,526,290 06-11-1996 Mer FOREIGN PATENT DOCUMENTS Foreign Patent Document Name of Patentee or Date of Publication of Pages, Columns, Lines, Where Relevant Passage Applicant of C Cite No.1 Cited Document MM-DD-YYYY Examiner Office<sup>3</sup> Kind Code Number<sup>4</sup> Initials' or Relevant Figures Appear (If known) Literal, in cog.... Date Wist Crayby 1/24/00 Considered EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not

Include copy of this form with next communication to applicant.

Burden Hour Statement: This form is estimated to take 0.2 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.

<sup>&</sup>lt;sup>1</sup>Unique citation designation number. <sup>2</sup>See attached Kinds of U.S. Patent Documents. <sup>3</sup>Enter Office that issued the document, by the two-letter code (WIPO Standard St.3). <sup>4</sup>For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup>Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. <sup>6</sup>Applicant is to place a check mark here if English language Translation is attached.

Please type a plus sign (+) inside this to... → B Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

4			Application Number		09/181,738		
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	FORM		First Named Inventor		Nathan Pyles		
2 2 1889	(To be used for all correspondence a	after initial filing)	Group Art Unit	2	2816		
THE .	7		Examiner Name	235 O	2		
PATENTS	Total Number of Pages in This Submiss	nois	Attorney Docket Number	_ E	EPIXINC-4		
	Fee Transmittal Form  Fee Attached  Amendment / Response	Assignment (For an Appl  Drawing(s)		To ,	After Allowance Communication  Group  Appeal Communication to Board  Appeals and Interferences		
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	Extension of Time Request	ANTONIO DE ANTONIO	orney, Revocation orrespondence Address	1521	Status Letter		
	Express Abandonment Request	Terminal Dis		7000 TAN	Additional Enclosure(s) Please identify below):		
	Information Disclosure Statement	Request for	Refund		PTO/SB08A with 1 document RECEIVED	)	
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	Response to Missing Parts/ Incomplete Application Response to Missing Parts Under 37 CFR 1.52 or 1.53	Remarks	additional fees that no communication, or confidence Account No. 15-0660	nay be r redit any ).	y authorized to charge any equired with respect to this y overpayment, to Deposit		
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3	or Individual name Signature	yfyn W.	Z.H.	~			
	Date De	cember 17	1, 1999	- T 2500			
		CERTIFIC	ATE OF MAILING				
	I hereby certify that this correspondence first class mail in an envelope addressed 20231 on this date:						
	Typed or printed name	Jeffry W	. Smith, Reg.	No.			
000	Signature Juff	y Wi So	<b>尤</b>	Date	December 17, 1989		

PTO/SB/21 (12-97)

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			Application Number		09/181,738	
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	After Final	an and	uting Slip (PTO/SB/69) npanying Petition		Appeal Communication to Group (Appeal Notice, Brief, Reply Brief)	
	Affidavits/declaration(s)	To Convert a Provisional Application			Proprietary Information	
	Extension of Time Request	Power of Attorney, Revocation Change of Correspondence Address  Terminal Disclaimer			Status Letter	
	Express Abandonment Request				Additional Enclosure(s) (Please identify below):	
	Information Disclosure Statement	Small Entity Request for	y Staternent r Refund		PTO/SB08A with 1 document RECEIVE	
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			th, Reg. No.			
	Date December 17, 1999					
	, , , , ,		CATE OF MAILING	-		
	I hereby certify that this correspondent first class mail in an envelope address 20231 on this date:	e is being deposited ed to: Assistant Com	with the United States Po- nmissioner for Patents, Wa	stal Se shingt	ervice as on, D.C.	
	Typed or printed name	Jeffryn I	W. Smith, Reg.	No	o. 33455	
	Signature	46), \$	#.	Da		



## PATENT APPLICATION

#50H 1-900

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:

Pyles, et al.

Date:

December 17, 1999

Filed:

October 28, 1998

Docket No.:

EPIXINC-4

Application No.:

09/181,738

Art Unit:

2816

For:

**PEDOMETER** 

Examiner:

## Certificate of Mailing

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Washington, D.C. 20231

Date

, W.,

Jeffry W. Smith, Reg. No. 33455

Name of applicant, assignee or Registered Representative

RECEIVED

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ECHNOLOGY CENTER 2800

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

Washington, D.C. 20231

Assistant Commissioner for Patents

Dear Sir:

In accordance with 37 C.F.R. §1.56, Applicants wish to call the attention of the Examiner to the following document:



U.S. Patent No.

Issue Date

Patentee

5,583,776

12-10-1996

Levi et al.

A copy of this document is submitted herewith along with Form PTO/SB08A.

It is believed that no fee is owed for this disclosure under 37 C.F.R. 1.97(b)(3), because Applicants have not received and are not aware of a mailed office action on the merits.

If an action was mailed prior to the filing date hereof, the information disclosed herein is submitted after the mailing of a first office action and before the mailing of a final action. Thus, Applicants note, under 37 C.F.R. §1.97(e)(2), that no item of information disclosed herein was cited by a foreign patent office in a counterpart application, and to the knowledge of the undersigned after making a reasonable inquiry, no item of information contained herein was known to any individual designated in §1.56(c) more than three months prior to the filing of this information disclosure statement. Thus, it is believed no fee is owed for this filing. Nonetheless, if a fee is owed, the Office is hereby authorized to charge Account No. 15-0660. A duplicate copy of this document is enclosed.

Applicants respectfully request that this document be expressly considered during the prosecution of this application and made of record herein and appear among the "documents cited" on any patent to issue herefrom.

Respectfully submitted,

RECEIVED

DEC 23 1999

TECHNOLOGY CENTER 2800

Jeffry W. Smith, Reg. No. 33455

Attorney for Applicant Lathrop & Clark LLP

740 Regent Street, Suite 400

P. O. Box 1507

Madison, Wisconsin 53701

(608) 257-7766

ids2 app



# PATENT APPLICATION

## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:

Pyles, et al.

Date:

December 17, 1999

Filed:

October 28, 1998

Docket No.:

**EPIXINC-4** 

Application No.:

09/181,738

Art Unit:

2816

For:

PEDOMETER

Examiner:

### Certificate of Mailing

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Assistant Commissioner for Patents,

Washington, D.C. 20231

Jeffry W Smith, Reg. No. 33455 Name of applicant, assignee or Registered Representative

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

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Assistant Commissioner for Patents Washington, D.C. 20231

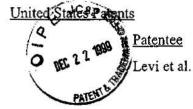
TECHNOLOGY CENTER 2800

Dear Sir:

In accordance with 37 C.F.R. §1.56, Applicants wish to call the attention of the Examiner to the following document:

U.S. Patent No. Issue Date

5,583,776 12-10-1996



A copy of this document is submitted herewith along with Form PTO/SB08A.

It is believed that no fee is owed for this disclosure under 37 C.F.R. 1.97(b)(3), because Applicants have not received and are not aware of a mailed office action on the merits.

If an action was mailed prior to the filing date hereof, the information disclosed herein is submitted after the mailing of a first office action and before the mailing of a final action. Thus, Applicants note, under 37 C.F.R. §1.97(e)(2), that no item of information disclosed herein was cited by a foreign patent office in a counterpart application, and to the knowledge of the undersigned after making a reasonable inquiry, no item of information contained herein was known to any individual designated in §1.56(c) more than three months prior to the filing of this information disclosure statement. Thus, it is believed no fee is owed for this filing. Nonetheless, if a fee is owed, the Office is hereby authorized to charge Account No. 15-0660. A duplicate copy of this document is enclosed.

Applicants respectfully request that this document be expressly considered during the prosecution of this application and made of record herein and appear among the "documents cited" on any patent to issue herefrom.

Respectfully submitted,

Jeffry W. Smith, Reg. No. 33455

Attorney for Applicant Lathrop & Clark LLP

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Madison, Wisconsin 53701

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JC85 PTO/SB/08A (10-96) use through 10/31/99. OMB 0651-0031 O DEC 2 2 1889 Please type a plus sign (+) inside this box → B Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE Under the Paperwork Reduction Act of 1995, no persons are requi espond to a collection of information unless it displays a valid OMB control number. PATE Application Number Substitute for #orm 1449A/PTO 09/181,738 Filing Date October 28, 1998 INFORMATION DISCLOSURE First Named Inventor Nathan Pyles STATEMENT BY APPLICANT Group Art Unit 2816 Margaret Wambed (Use as many sheets as necessary) Examiner Name EPIXING Of Sheet 1 Attorney Docket Number U.S. PATENT DOCUMENTS U.S. Patent Document Name of Patentee or Date of Publication Cite Pages, Columns, Lines. Examiner Applicant of Cited Document of Cited Document MM-DD-YYYY Initials\* Where Relevant Passages or Kind Code<sup>2</sup> (If known) Number Relevant Figures Appear Min 5,583,776 Levi et al. 12-10-1996 FOREIGN PATENT DOCUMENTS Foreign Patent Document Name of Patentee or Date of Publication of Pages, Columns, Lines, Cited Document MM-DD-YYYY Examine Cite Applicant of Cited Where Relevant Passages Office3 Number4 Kind Code5 Document T<sup>6</sup> Initials\* or Relevant Figures No. Appear

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

Signature

Date

Considered

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<sup>1</sup>Unique citation designation number. <sup>2</sup>See attached Kinds of U.S. Patent Documents. <sup>3</sup>Enter Office that issued the document, by the two-letter code (WIPO Standard St.3). <sup>4</sup>For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup>Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. <sup>6</sup>Applicant is to place a check mark here if English language Translation is attached.

Burden Hour Statement: This form is estimated to take 0.2 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.



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COMMISSIONER OF PATENTS AND TRADEMARKS Address:

Washington, D.C. 20231

APPLICATION NO. FILING DATE FIRST NAMED INVENTOR ATTORNEY DOCKET NO. 09/181**,**\*738 10/28/98 **PYLES** N EPIXING-4 **EXAMINER** 020455 MM42/0128 LATHROP & CLARK LLP WAMBACH, M 740 REGENT STREET SUITE 400 P.O. BOX 1507 PAPER NUMBER ART UNIT MADISON WI 50701-1507 6 2816 DATE MAILED: 01/28/00

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

PTO-90C (Rev. 2/95)

U.S. G.P.O. 1999 460-693

1- File Copy

	09/181,738	Applicant(s	Pyles	
Office Action Summary	Examiner Margaret Wa	mbach	Group Art Unit 2816	
Responsive to communication(s) filed on	Two.			<u> </u>
☐ This action is <b>FINAL</b> .				
☐ Since this application is in condition for allowance e in accordance with the practice under Ex parte Qua			ion as to the me	rits is closed
A shortened statutory period for response to this action is longer, from the mailing date of this communication, application to become abandoned. (35 U.S.C. § 133), 37 CFR 1.136(a).	Failure to respond wit	hin the perio	od for response	will cause the
Disposition of Claims				
	40.4	is/are	pending in the	application.
Of the above, claim(s)		is/are v	withdrawn from	consideration.
Claim(s)			is/are allowed.	
Claim(s)			is/are objected t	ю.
☐ Claims			TENDE OF SAME AND AND A	
☐ The oath or declaration is objected to by the Exa  Priority under 35 U.S.C. § 119  ☐ Acknowledgement is made of a claim for foreign ☐ All ☐ Some* ☐ None of the CERTIFIED ☐ received. ☐ received in Application No. {Series Code/S	priority under 35 U.S. copies of the priority de			
received in this national stage application	from the International B	Bureau (PCT	Rule 17.2(a)).	
*Certified copies not received:		0 0 0 110		
Acknowledgement is made of a claim for domes	tic priority under 35 U.	S.C. § 119(	eJ.	
Attachment(s)		•		
☑ Notice of References Cited, PTO-892	Depar Ne/s) 2			
<ul><li>☑ Information Disclosure Statement(s), PTO-1449,</li><li>☐ Interview Summary, PTO-413</li></ul>	Paper No(s)	,		
☒ Notice of Draftsperson's Patent Drawing Review	, PTO-948		75	
☐ Notice of Informal Patent Application, PTO-152				
SEE OFFICE ACT	ION ON THE FOLLOWING	G PAGES		
S. Patent and Trademark Office TO-326 (Rev. 9-95) Office	e Action Summary		Part o	f Paper No. 6

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Part of Paper No. 6

Page 2

Art Unit: 2816

#### DETAILED ACTION

### Claim Rejections - 35 USC § 112

- The following is a quotation of the second paragraph of 35 U.S.C. 112:
  - The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
- Claims 1-45 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claims are replete with terms which lack a clear antecedent basis. Numerous instances of this problem will be specifically pointed out; however, applicant is required to proofread and correct all instances.

In claims 4, 20"the transmission signal", in claim 7, 23 "the step count signal", in claims 10, 26, "the heart rate signal" and "the pedometer signal", in claims 12, 28, "the heart rate" and "the step counter", in claim 17, "the number of strides" and "the rate", claim 32, "the total number of strides", "the stride count" and "the first run time", claim 35, "the receiver", "the step count signal" and "the distance", claim 37, "the total number of strides", "the first run distance", "the stride count" "the first run stride count", "the first run time" and "the First Run Stride Rate" (all of the problems of claim 37 are repeated with regard to the second - fourth run), and claim 44, "the user first run", "the first run time" and "the stride count" lack a clear antecedent basis.

Page 3

Art Unit: 2816

Also in claim 12, applicant's intended meaning cannot be discerned from the references of "the heart rate" which is located in a housing.

### Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

- (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
- 4. Claims 1, 3, 4, 6, 7, 9, 10 and 11 are rejected under 35 U.S.C. 102(a) as being anticipated by Sham et al..

Sham teaches a pedometer including a step counter (32), a transmitter (the wiring between 32 and 34) which transmits a digitally coded step signal—and a receiver (30), referring to Figure 3. It is inherent that the receiver is "mountable" to a second body portion insofar as the term itself only means that it is possible to mount the receiver elsewhere. Secondly, the term "body portion" is so broad that the limitation is met merely by having the receiver and transmitter at different locations within the same housing (therefor affixed to different body portions.)

Moreover, Sham discloses a wrist watch arrangement on column 3, lines 43-45 as recited in claim 6. Sham discloses a processor and viewing screen (34 and 18) as recited in claim 7. As recited in claim 9, a heart rate monitor and a second transmitter (10 and 31) are also taught.

Insofar as the heart rate signal is a wireless signal and the pedometer signal, assuming applicant

Page 4

Art Unit: 2816

means the signal from the step counter, is from a wire, these signals would inherently be of different frequencies, as recited in claim 10. The heart rate monitor is mounted to the user's chest and thus, claim 11 is also met.

### Claim Rejections - 35 USC § 103

- 5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:
  - (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.
- 6. Claims 2 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sham et al...

The difference between Sham and claims 2 and 8 lies in the substitution of a wireless transmitter for a wire and a leg band for an arm or waist band. The first difference is not of patentable merit because the use of wireless transmitters is widespread in the art. Insofar as Sham does in fact employ a wireless transmitter for the heart monitor, and Sham would have the motivation of reducing the weight of box 14 by locating the step counter at a remote location, the motivation exists to employ that a wireless transmitter for the step counter. In terms of the leg band, it is merely commonsensical that anything which could be strapped to an arm or waist could also be strapped to a leg. In fact, Sham clearly wishes to leave the designer the latitude to make

Page 5

Art Unit: 2816

such decisions because of the statement on column 3, line 44 that the device could be secured "in other ways."

#### Allowable Subject Matter

- 7. Claims 5, 12-16, 18-31, 33-36, 38-43 and 45 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2<sup>nd</sup> paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.
- 8. Claims 17, 32, 37 and 44 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2<sup>nd</sup> paragraph, set forth in this Office action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Wambach whose telephone number is (703) 308-4875. The examiner can normally be reached on Monday-Thursday from 6:30 to 5p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tim Callahan, can be reached on (703) 308-4876. The fax phone number for this Group is (703) 308-7722.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0956.

Mayaethorus

Margaret R. Warnbech Primary Examiner

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5	Notice of References Cited		Examiner Group Ar Margaret Wambach 28					
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Notice of References Cited Part of Paper No. 6

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ATTACHMENT TO PAPER NO.

U.S. DEPARTMENT OF COMMERCE - Patent and Trademark Office

Application No. 9 481738

# NOTICE OF DRAFTSPERSON'S PATENT DRAWING REVIEW

Paper not flexible, strong, white, and durable, Fig(s) Fig(s) Lines, numbers & letters not uniformly thick and well defined, clean, durable, and black (poor line quality). Fig(s) Mylar, velum paper is not acceptable (too thin). Fig(s) SIZE OF PAPER. 37 CFR 1.84(f): Acceptable sizes: 21.0 cm by 29.7 cm (DIN size A4) 21.6 cm by 27.9 cm (E1/2 x 1 i inches) All drawing sheets not its same size. Sheet(s) Drawings sheets not its same size. Sheet(s) Drawings sheets not its same size. Sheet(s) Drawings sheets not an acceptable size. Fig(s) MARGINS. 37 CFR 1.84(g): Acceptable margins:  Top 2.5 cm Left 2.5 cm Right 1.5 cm Bottom 1.0 cm SIZE: A4 Size Top 2.5 cm Left 2.5 cm Right 1.5 cm Bottom 1.0 cm SIZE: Note 2.5 cm Right 1.5 cm Bottom 1.0 c	The Mild of Wells on the law pit has to a	
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# INFORMATION ON HOW TO EFFECT DRAWING CHANGES

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#### 1. Correction of Informalities--37 CFR 1.85

The second of th File new drawings with the changes incorporated therein. The application number or the title of the invention, inventor's name, docket number (if any), and the name and telephone number of a person to call if the Office is unable to match the drawings to the proper application, should be placed on the back of each sheet of drawings in accordance with 37 GFR 1.84(c). Applicant may delay filing of the new drawings until receipt of the Notice of Allowability (PTOL-37). Extensions of time may be obtained under the provisions of 37 CFR 1.136. The drawing should be filed as a separate paper with a transmittal letter addressed to the Drawing Processing Branch. eng 12 menter Lister de la description Lister de la company de la

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# 2. Timing for Corrections

Applicant is required to submit acceptable corrected drawings within the three-month shortened statutory period set in the Notice of Allowability (PTOL-37). If a correction is determined to be unacceptable by the Office, applicant must arrange to have acceptable corrections resubmitted within the original three-month period to avoid the necessity of obtaining an extension of time and paying the extension fee. Therefore, applicant should file corrected drawings as soon a possible. 12. MMB-28 II. 1964 a Kirt of the Children

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Failure to take corrective action within set (or extended) period will result in ABANDONMENT of the The Page 1 and 1 a Application. and the whole of the

### 3. Corrections other than Informalities Noted by the Drawing Review Branch on the Form PTO-948

All changes to the drawings, other than informalities noted by the Drawing Review Branch, MUST be approved by the examiner before the application will be allowed. No changes will be permitted to be made, other than correction of informalities, unless the examiner has approved the proposed changes.

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Under the Paperwork p.edu	eno., Act of 1995, no pe	rsons are required to respond to Application Number		n of hnat 181,738	on inless it displays a valid OMB control number			
TRANSMITTAL		Filing Date	1 1000	October 28, 1998				
		First Named Inventor		Nathan Pyles				
FORM		Group Art Unit		2816				
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Thereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Assistant Commissioner for Patents, Washington, D.C. 2023 I on this date:								
Typed or printed name	Jeffry W. S	mith, Reg. No. 334	455					
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