Deliverable L: Intellectual Property Search

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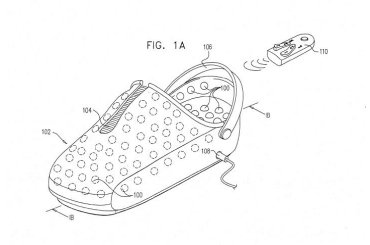
Introduction:

This deliverable focuses on investigating intellectual properties related to One Step. This deliverable also focuses on the importance of intellectual property rights as they correspond to the One Step product. One step is unique among products, as it is the first product to use a vibrating shoe insole to assist in the management of Parkinson's Disease, but it is not the first product to have vibrating devices attached to shoes or similar footwear. A comparison of these products is needed to determine the legal similarities between products, and to avoid infringing on intellectual property rights.

Product 1: Massage Shoes CAN(2822740)

Description:

A massaging shoe including a shoe body portion formed of a vibration transmitting material and having an interior surface which includes a multiplicity of integrally formed raised surface elements and a vibrator operative to generate vibrations, the vibrations being transmitted via the vibration transmitting material and the integrally formed raised surface elements to a foot of a wearer of the shoe.



Relationship to One Step:

This product uses vibrating motors controlled by a small remote to be used as a foot massager. This product, like One Step, is designed to send vibrations to the feet, but unlike one step, this is designed for the purposes of massaging the feet rather than providing specifically placed stimulations. Unlike One Step, this is an entire shoe, rather than a removable insole, and features motors on its entire surface, rather than just on the bottom of the feet.

Importance:

There could possibly be some important legal concerns regarding this product. Both the Massage Shoes and One Step feature vibrating motors placed on the feet. While they have different placements and purposes, this is one place where intellectual property rights could be contested. Unlike One Step, this product uses a remote, whereas one step uses a cellular phone app. This difference is likely not to infringe on the intellectual property rights of this product. These possible intellectual property issues could hinder the success of One Step if a

court rules in favour of the Massage Shoes because it could prevent One Step from being produced in the form it currently exists in.

Product 2: Insole to aid in gait stability US(10595749)

Description:

A pair of electronic shoe insoles aids an individual with peripheral neuropathy in walking without falling, despite the user having little or no sensation in her feet. Each ***insole*** uses a number of pressure sensors and provides various forms of biofeedback to the user such as auditory, haptic, and vibratory feedback which corresponds to the position of the user's foot on the ground. Vibration feedback is provided through vibration motors disposed against the soles of the user's feet at selected locations which correspond to locations of pressure sensors.

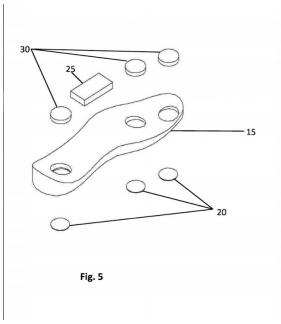


Fig. 5

Relationship to One Step:

This device, like One Step, is a shoe insole that is designed to help aid the user in walking. This product also uses a phone application and vibration motors within the insole at various locations. Although the basic design of the device is very similar to One Step the overall use of the device is much different. For example, Insole to aid in gait stability is used as a monitoring device for users who have little to no sensation in their feet to provide feedback for the user while walking. This device is not triggered by the user but instead is always activated and provides vibration to the user based on the amount of pressure placed on each sensor. The phone application for this device is used to adjust the settings of the device, unlike One Step.

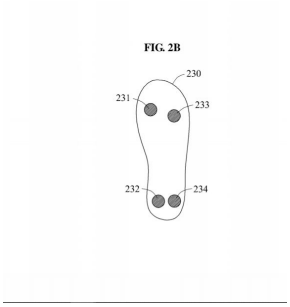
Importance:

This device could impede the success of One Step in a few ways, similar to the previous product both One Step and the Insole to aid in gait stability have vibrational motors placed within the device. Like the above, One Step has different placement locations for the motors but this will still need to be dressed when looking at intellectual property rights. Aswell, this product uses a monitoring system that interacts with the phone app. This may limit what we as a company can do with our application as if we implemented monitoring systems for One Step we may be infringing on intellectual property. Lastly, the Insole to aid in gait stability has multiple methods to alert the user including an auditory system. If we as creators of One Step were to implement an auditory system for our device, which is another method to aid freezing of gait, this may also infringe on intellectual property.

Product 3: Walking assistance method and apparatus US(10,335,341)

Description:

A walking assistance method and apparatus, in detail, a control device that may estimate a gait motion of a user based on pressure data indicating information on a pressure applied to a sole of the user, and provide a feedback corresponding to the gait motion to the user by controlling a vibrator to apply a vibration to the sole of the user, is provided.



Relationship to One Step:

This product is similar to one step as its principle is an insole that can vibrate when turned remotely. However, the product includes pressure sensors to see where the vibrations should be applied. This means that the device can receive feedback from the pressures and vibrations and adjust to increase the effect of the vibrations. The device also measures a hip-joint angle after every vibration to see how effective the vibrations were at helping the client overcome gait. This product has more features than one step and can provide more data to help the client. While our product is an insole with just vibrating motors their product also includes pressure sensors and a hip-joint angle reader.

Importance:

Although these products are similar, ours shares the same base but does not have as many features. While ours focuses on simply being a vibrating insole the competing product focuses on reading pressure points and effectiveness of each vibration using hip-joint angle measurements. Both insoles vibrate however, ours does not measure pressure or hip-joint angle and would be considered an inferior product. Because of this we should not run into legal issues between the two products as there is a clear distinction on which product is better and includes more features. While their product is a pressure sensor and hip-joint angle reader based on insole vibrations ours is just a vibrating insole.

How We Intend to Deal with Intellectual Property:

The One Step design shares similarities to the above mentioned products and patents. Most of these similarities are with the vibration motors that vibrate the users feet. The One Steps use is to encourage walking in those affected by the medical issue freezing of gait. These other devices and designs are used to help with different medical issues or to massage the users feet.

If faced with legal challenges we will bring forth the following arguments. First, our design is only used to help those affected with freezing of gait, a medical issue that we are uniquely countering. Second, our device does not incorporate many of the additions that other devices have, including but not limited to; pressure sensors, hip-joint angle readers, motion based vibration, different motor locations, and app based vibrations.

Conclusion:

One Step is a product designed to encourage walking in those affected by freezing of gait by stimulating the foot with vibrating insoles. This is a unique solution to the issues resulting from freezing of gait. A popular product to help those affected by freezing of gait is a line laser that shines from the user's cane or walker. The user then focuses on stepping over the line cast by the laser. No other products attempt to help those affected by freezing of gait with a vibrating insole. There are however products that incorporate vibrating motors in shoes and patients for insole devices solving medical related issues.

The massage shoes have small motors in each shoe that massage the user's feet to relieve stress. A small remote is used to control these massage shoes. The products are similar in that they both incorporate vibrating motors, however, the motors on the One Step are located in the insole while the massage shoes have the motors in the entirety of the shoes. These shoes have similarities to the One Step and potentially present the One Step with intellectual property issues.

The pair of neuropathy insoles help the user walk by using pressure sensors to sense movement alongside auditory, haptic and vibrations to notify the user when their feet touch the ground. The One Step is similar in that it has a vibrating motor and phone application, however, the device is different in that the vibrations are activated via the users foot steps, not the app itself. The similarities of the One Step potentially infringe on the device's intellectual property. If we decided to implement auditory cues or motion based vibrations then the One Step might infringe on this device's intellectual property.

The walking assistance method and apparatus uses a device to estimate the motion of the user and uses vibrations in the insole to give feedback. The devices are similar due to the One Step containing vibrating insoles with motors in similar locations. The device is different in that it has pressure sensors and hip-joint angle readers. The similarities potentially infringe on the device's intellectual property.

To conclude, all the devices have similar vibrating motors to the One Step. We could potentially face legal issues with our design, especially if we add audio cues or motion based vibrations. One caveat we have is that our devices use is to help those specifically affected by freezing of gait.