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(54) **WEIGHTED FOOTWEAR**

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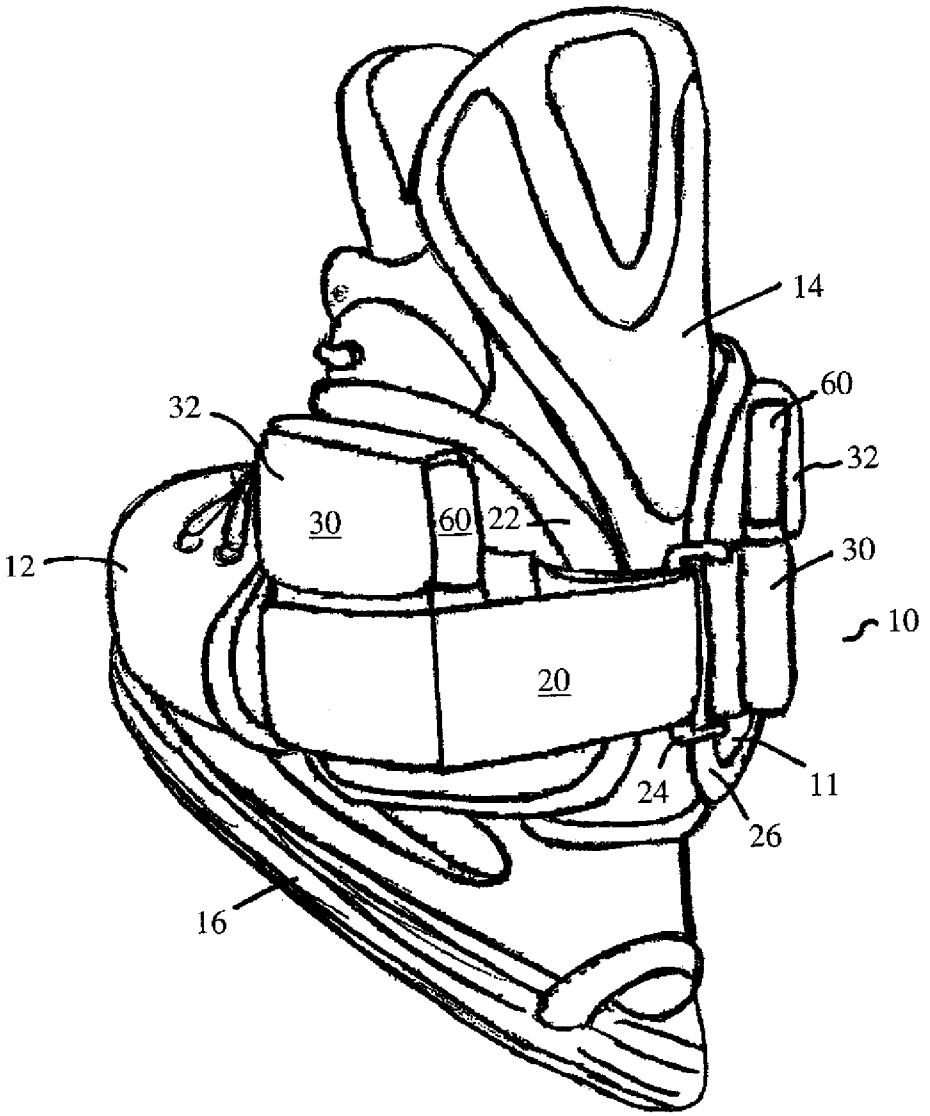
(57) **ABSTRACT**

A foot weight device is provided which can be fitted to the foot or footwear of a user. The device is particularly adapted for use with skates, and in particular a hockey skate. The device has one or more compartments located on each side of the user's ankle so as to provide an equally balanced weight on the side of the user's foot. The weight receiving compartments are positioned adjacent to both the lateral and medial malleolus portions of the ankle so that weight is preferably equally applied to both sides of the ankle. Alternatively, the weight receiving compartments can be formed as an integral part of the footwear. A more balanced foot weight is provided which minimizes undue strain on the ankle and foot structure.



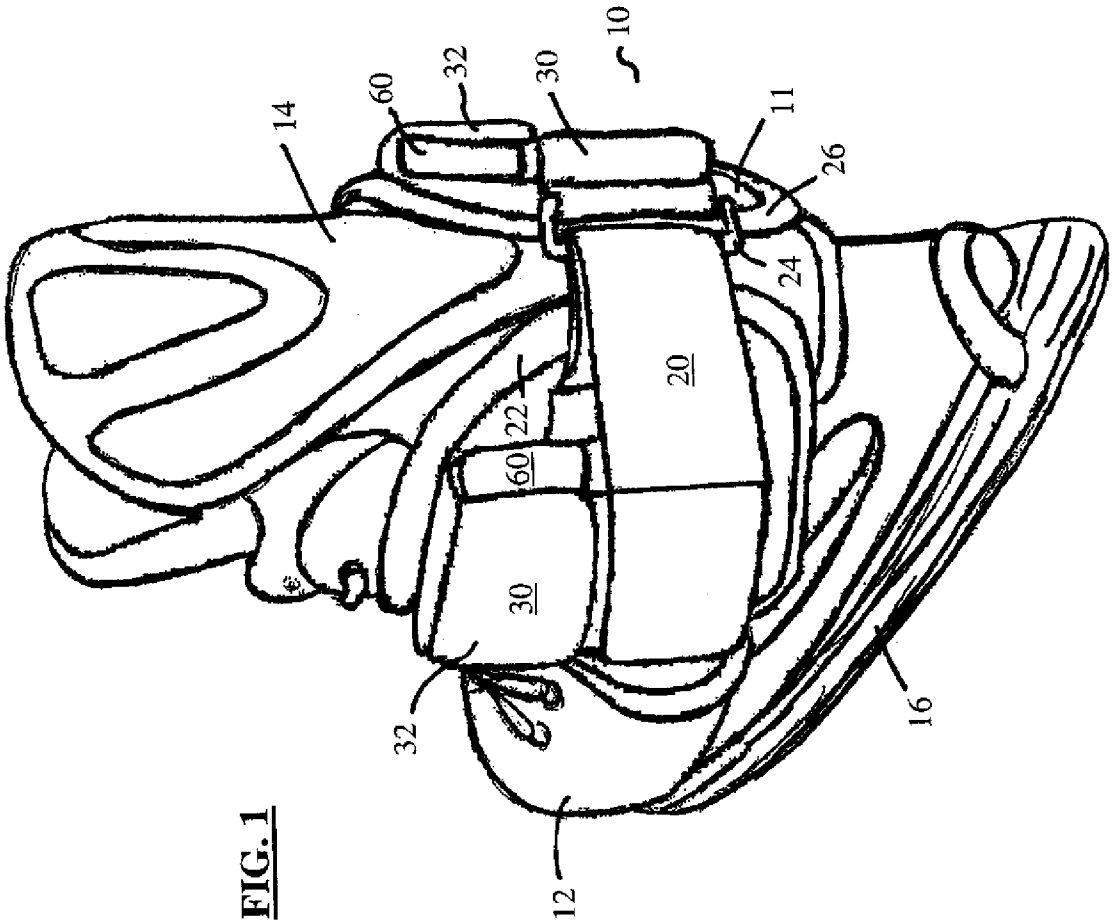



FIG. 1

FIG. 2

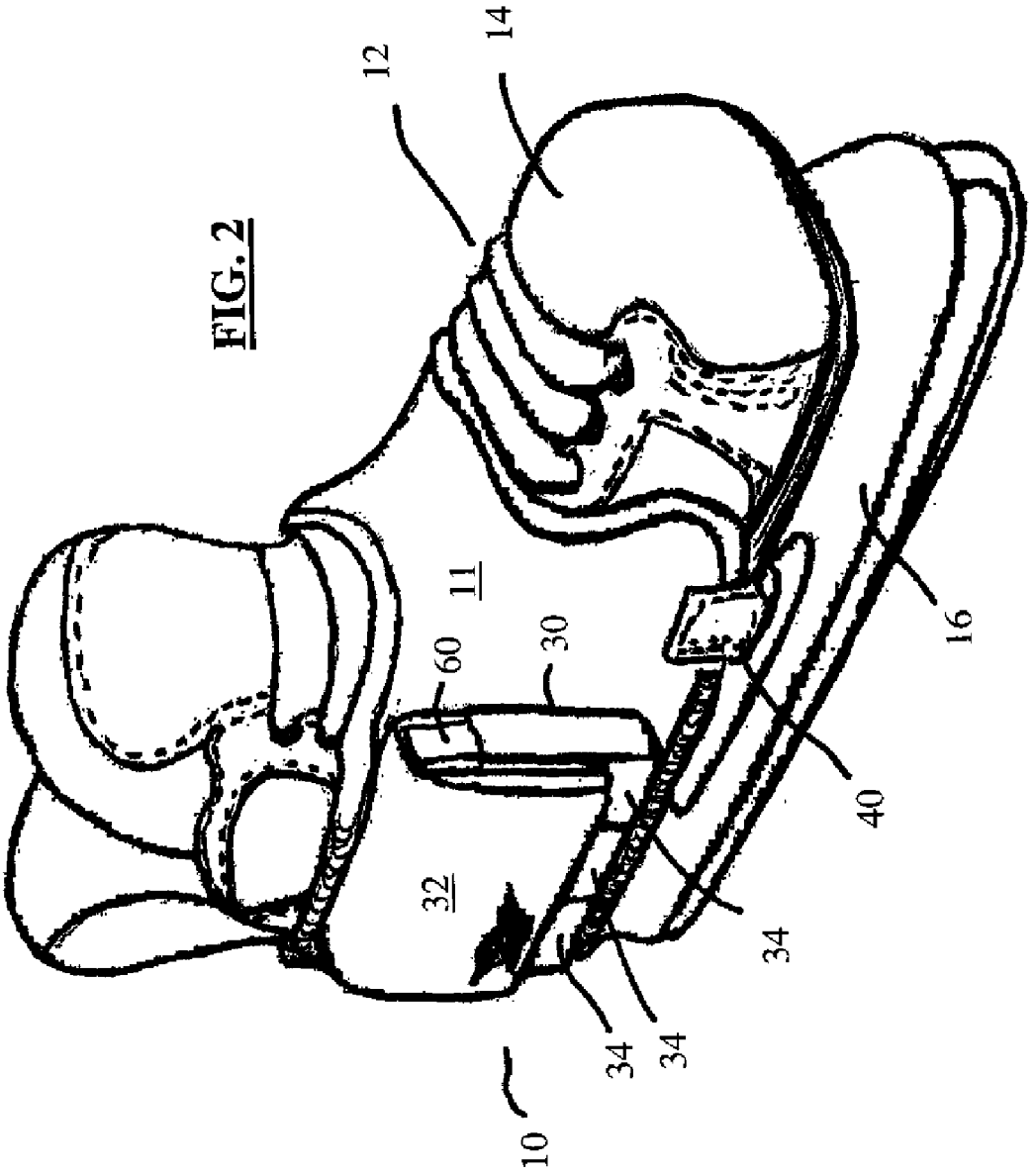


**FIG. 3**

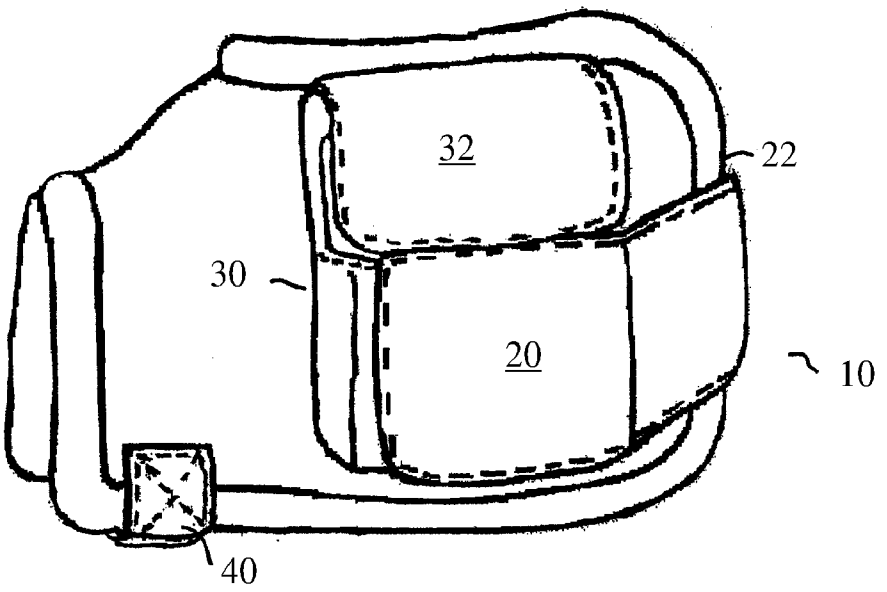
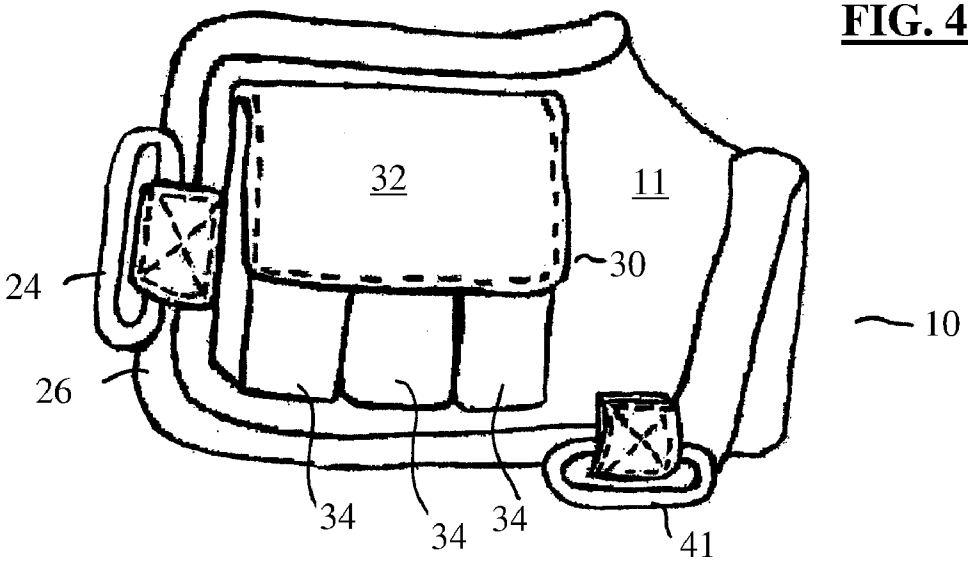



**FIG. 4**



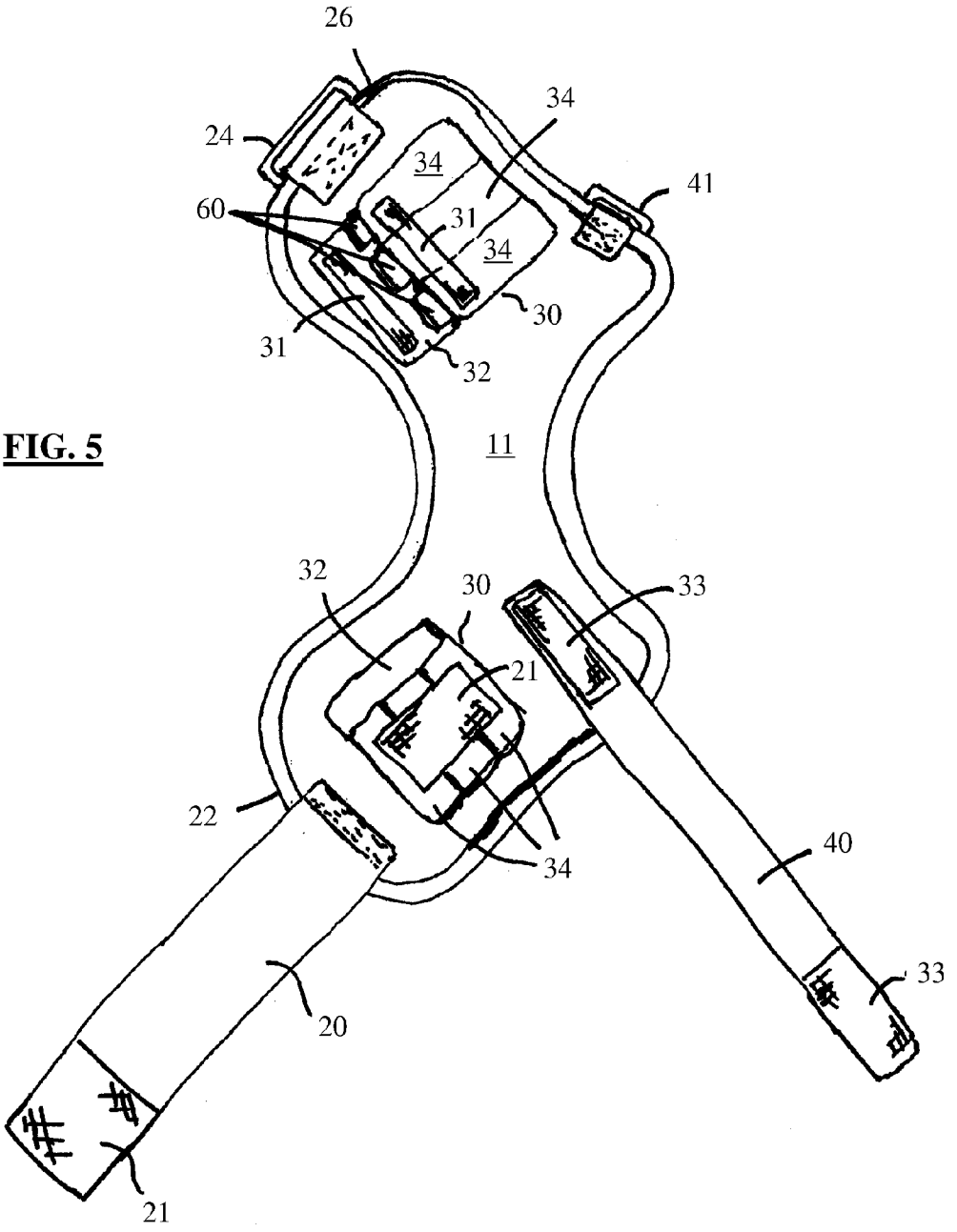



**FIG. 5**

**FIG. 6**

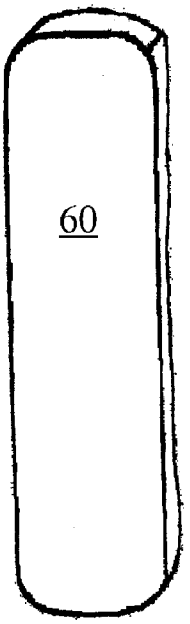
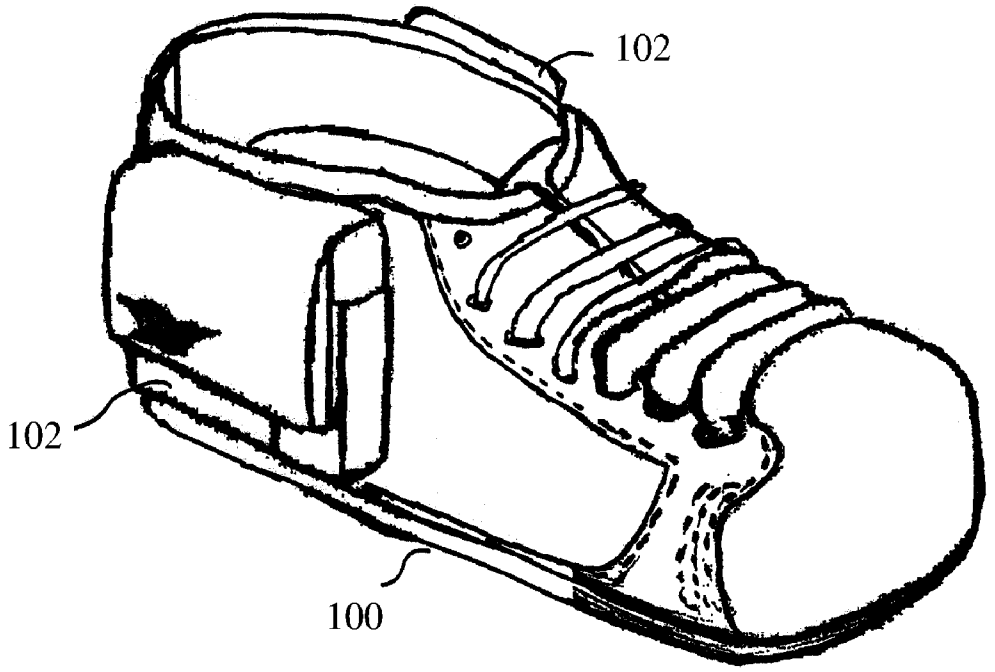



**FIG. 7**



# WEIGHTED FOOTWEAR

## FIELD OF THE INVENTION

**[0001]** The present invention relates to the field of weighted footwear, and in particular, relates to a weight system for use on a skate.

## BACKGROUND OF THE INVENTION

**[0002]** Exercising weights for various types of footwear, and in particular, various types of skates, have been previously described. For example, various weighted skate devices have been described in Canadian patent publication Nos. 2088617 and 2217759. Further, additional weighted footwear has also been described in U.S. Pat. Nos. 3,582,067, 3,901,524, and more recently, US Patent Publication No. 2004/0259666. These documents all provide systems and devices for attaching weights to the legs or footwear worn by an athlete. This use of athletic training devices which are capable of having or including additional weights, attached to either a participant or their athletic equipment during a training session, is well known. These devices are commonly used during practice sessions as the athletes simulate the movements and activities they will employ during competition. By practicing with additional weight, an athlete develops strength, speed and endurance as their body works to overcome the additional weight. In addition, practicing with these devices creates an added sense of quickness and confidence in an athlete when the weight is removed during a game situation. As such, these devices assist in developing the athlete's strength, stamina, speed, or overall conditioning.

**[0003]** With particular reference to footwear, and skates in particular, the purpose of mounting additional weights on ice skates is to improve the performance of skaters, either professional or ordinary skaters, who wish to improve their performances while skating. Prior art devices include ankle weights to be wrapped around the ankles of the athlete, weights adapted to be strapped on to, or attached to, a skate, or flexible weighted tapes or bindings that can be wrapped around various portions of the skate.

**[0004]** However, traditional ankle weights are not particularly well suited for use on a skate since they tend to be held too far up the leg since the boot of the skate interferes with a lower location of the ankle weight.

**[0005]** Further, the various weights used and described in the prior art devices, for attachment to the skate, all typically locate the weight at a location away from the ankle and/or away from the point of rotation of the foot in the normal movement of the foot. This leads to excessive weight being located in a position where it does not assist in developing leg strength, but requires overuse of the ankle and foot muscles and tendons in order to move and/or compensate for the poorly distributed weight. This excessive weighting can lead to strained muscles, tendinitis, or other injuries related to the foot or ankle. Further, the poorly positioned weighting of the skate can affect the skater's balance, skating motion, or affect the skater's normal agility or flexibility.

**[0006]** As such, to overcome these difficulties, it would be advantageous to provide a weight system for a foot or footwear, and in particular, a skate, that could be better positioned, with respect to the user's ankle position.

## SUMMARY OF THE INVENTION

**[0007]** Accordingly, it is a principal advantage of the present invention to provide a weight to a skate in order to require a greater performance from the legs of the skaters within a shorter period of time.

**[0008]** It is a further advantage of the present invention to provide a system wherein the weights are securely attached to the skates in order to ensure that they will not move during any regular exercise of the skater.

**[0009]** A still further advantage of the present invention is to provide a securing means which will make the device easily installed or removed from the ice skates so that a skater may install or remove it quickly before a hockey game, an artistic performance or a mere exercise practice.

**[0010]** It is a still further advantage of the present invention to provide a weight system wherein the weights are located in a position that will not unduly interfere with the skater's nature balance, flexibility or skating motion.

**[0011]** A yet still further advantage of the present invention is to provide a weight system wherein the weights are located in a position wherein excessive strain on the muscles and tendons of the ankle joint is eliminated or otherwise ameliorated.

**[0012]** An even further advantage of the present invention is to provide a weight system wherein weights can be easily added or removed from the system, and wherein the weight on each side of the ankle can be adjusted or balanced.

**[0013]** The advantages set out hereinabove, as well as other objects and goals inherent thereto, are at least partially or fully provided by the foot weight system of the present invention, as set out herein below.

**[0014]** Accordingly, in one aspect, the present invention provides a foot weight device for adding weight to the foot of a user, comprising a retaining system for attaching the foot weight device to the foot or footwear of a user, one or a plurality of preferably removable weights for use in the foot weight device, and one or a plurality of weight receiving pockets, attached to said retaining system, for receiving and holding said weights, wherein said weight receiving pockets are positioned on said retaining system so as to be located, in use, immediately adjacent to, or centered on, the ankle of a user.

**[0015]** In particular, the weight receiving pockets are preferably positioned so as to be immediately adjacent to either the lateral or medial malleolus portions of the ankle. Still more preferably, weights are positioned adjacent to both the lateral and medial malleolus portions so that a balanced amount of weight is applied to sides of the ankle.

**[0016]** It is to be noted that the ankle is primarily a "hinged" joint capable of moving the foot in two primary directions; away from the body (plantar flexion), and toward the body (dorsiflexion). It is formed by the meeting of three bones. The end of the shin bone of the leg (tibia) and a small bone in the leg (fibula) meet a large bone in the foot, called the talus, to form the ankle. The end of the shin bone (tibia) forms the inner portion of the ankle, while the end of the fibula forms the outer portion of the ankle. The hard bony knobs on each side of the ankle are called the malleoli, with the outside of the ankle being the lateral malleolus, and the inner portion of the ankle being the medial malleolus.

**[0017]** In essence, the foot rotates around the ankle through a line between the lateral and medial malleolus. As such, ensuring that the weights of the weight system of the present invention are held immediately adjacent to, or centered on, the lateral and/or medical malleolus, ensures that there is little or no interference with the normal rotation and movement of the foot. As such, the weights of the present invention, provide a solid workout of the user's legs, without excessive force being applied to the user's ankles.

**[0018]** In an alternative embodiment, the weight receiving pockets can be integrally formed in the footwear, and thus eliminate the need for straps or a form to hold the weight receiving pockets in place. As such, in a further aspect, the present invention also provides weighted footwear comprising footwear, one or a plurality of integral weight receiving pockets attached to said footwear for receiving and holding one or a plurality of weights, and one or a plurality of weights for insertion into said weight receiving pockets, and, wherein said weight receiving pockets are positioned on said footwear so as to be located immediately adjacent to, or centered on, the ankle of a user.

## DETAILED DESCRIPTION OF THE INVENTION

**[0019]** In the present application, the term "foot weight" or "weight system" is used to refer to a weight that is preferably positioned on footwear. This can include a variety of different types of skates, including, for example, ice skates, hockey skates, figure skates, speed skates, in-line roller skates, roller skates, or other similar devices such as roller blades, or the like. However, the skilled artisan will be aware that the footwear weight system of the present invention can be used in a wide variety of other footwear applications, including for example, running shoes, training shoes, track shoes, skiis, cross-country skiis, or the like.

**[0020]** Further, while the present application is described hereinbelow with particular reference to the skate industry, and in particular, the hockey skate industry, the skilled artisan would be well aware that the present invention is equally applicable for use in other types of footwear.

## BRIEF DESCRIPTION OF THE DRAWINGS

**[0021]** Embodiments of this invention will now be described by way of example only in association with the accompanying drawings in which:

**[0022]** FIG. **1** is a perspective outside view of a weight device of the present invention fitted to a hockey skate;

**[0023]** FIG. **2** is a perspective inside view of the weight device and skate of FIG. **1**;

**[0024]** FIG. **3** is a first side view of the weight device shown as seen in FIG. **1**, without the skate;

**[0025]** FIG. **4** is a second side view of the weight device shown in FIG. **2**, without the skate;

**[0026]** FIG. **5** is a top view of the strap system and weight receiving portions of the weight device of FIG. **1**, shown in a flattened, extended shape;

**[0027]** FIG. **6** is a perspective view of a weight to be inserted into the weight receiving portions; and

**[0028]** FIG. **7** is a perspective view of a weight system of the present invention integrally incorporated into a shoe.

## DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

**[0029]** The novel features which are believed to be characteristic of the present invention, as to its structure, organization, use and method of operation, together with further objectives and advantages thereof, will be better understood from the following drawings in which a presently preferred embodiment of the invention will now be illustrated by way of example only. In the drawings, like reference numerals depict like elements.

**[0030]** It is expressly understood, however, that the drawings are for the purpose of illustration and description only and are not intended as a definition of the limits of the invention.

**[0031]** Referring to FIGS. **1** to **4**, a foot weight device **10** is shown attached to a skate **12**, in FIGS. **1** and **2**, and shown separately without the skate in FIGS. **3** and **4**.

**[0032]** Skate **12** comprises a boot section **14** on which is mounted a skate blade **16**. Device **10** has an outer shell, generally shown as **11**, which is adapted to be fitted around the ankle section of boot **14**, and extend across the front of the user's foot.

**[0033]** Weight device **10** has a strap **20** which extends from a first end **22** of device **10**, through a D-ring **24** located on a second end **26** of device **10**, and then attached, by a Velcro™ fastener **21** to the first end **22**. As such, device **10** is held in position on the skate boot **14**.

**[0034]** On each side of device **10**, as shown in FIG. **1**, there is a weight receiving pocket **30**, which is adapted to receive one or more weights **60**. Each of pockets **30** have an optional cover **32**, which are held in place by additional Velcro fasteners **31**. As best seen in FIG. **4**, each weight receiving pocket **30** is separated into three compartments **34** so as to receive up to three weights. A suitable weight **60**, is shown in FIG. **6**, which is adapted so as to fit within any one of compartments **34**.

**[0035]** An optional additional strap **40** is attached to device **10**, and is adapted to pass under boot **14**, above skate blade **16**, through D-rink **41**, and back, in order to hold device **10** in place, using Velcro fasteners **33**.

**[0036]** Details of the construction of device **10** are shown in FIG. **5** in which device **10** from FIGS. **1** to **4** is laid flat. The various components from FIGS. **1** to **4** can be seen, including D-ring **41** through which strap **40** passes and then returns to attach to a further Velcro fastener **33**. One of pockets **30** is shown in an open position so that the three weights **60**, in the three compartments **34**, can be seen.

**[0037]** Weights **60** can be manufactured from any suitable material. However, a solid weight (as opposed to loosely packed or granular materials such as sand, iron shot or the like) is preferred. Most preferably, the weight is a steel bar which has been coated with a plastic material, such as a vinyl coating which has been applied by dipping the weight in a plastisol coating material, in order to prevent rusting or corrosion of the steel component.

**[0038]** Typically, each weight **60** will weight approximately 0.5 pounds (229 gram) to 1 pound (458 g) each. With a total of six compartments per foot, the total weight will be approximately 3 to 6 pounds (1.374 to 2.748 kg). The number of weight compartments **34** and the weight of

weight **60** can vary so as to preferably provide a total weight on each foot of between 100 g and 3 kg, and more preferably, between 300 and 2.5 kg.

**[0039]** The number of compartments **34** per foot is preferably between 1 and 5, and most preferably, between 2 and 4. Each weight can be essentially identical in size, shape and weight, and has a weight between 25 and 600 g, and more preferably, between 200 and 500 g. However, different weight sizes and shapes might also be used, and compartments **34** can vary in size and shape to hold different weight sizes.

**[0040]** Preferred suitable weights are vinyl coated steel bars having a length of 10 cm, a width of 2.5 cm, and a depth of 1.25 cm, and having a weight of 0.5 pounds (229 gram). A larger weight would have a length of 10 cm, a width of 2.5 cm, and a depth of 2.5 cm, and having a weight of 1 pounds (458 gram). Compartments **34** are preferably sized so as to receive either the 0.5 (229 g) or 1 pound (458 g) weights.

**[0041]** Weight device **10** is preferably constructed primarily of a strong outer shell suitable for use in the present application. Preferred materials include ballistic nylon, cordura nylon, neoprene, cotton, cotton mix, polyester, polyester mix, leather, or rubber coated latex materials. Most preferably, the outer shell is made of ballistic nylon.

**[0042]** The straps can be made from any suitable material, but preferably are nylon straps. The straps are preferably held in place by looping the strap through a D-ring, and using Velcro fasteners to hold the end of the strap in place. Using, this system, device **10** can be custom fitted to the user. However, other fasteners such as buckles, hooks, buttons, clasps or the like, might also be used.

**[0043]** The D-rings can be made of plastic or metal, or the like, and are sized so as to receive the straps utilized. The straps are preferably between 2.5 and 5 cm in width, and the D-rings are sized so as to receive these straps.

**[0044]** The weight device **10** is particularly suited for use on a skate, and in particular a hockey skate. However, device **10** can be fitted to other types of skates or footwear, as described hereinabove.

**[0045]** In FIG. **7**, a shoe **100** is shown which integrally incorporates the weight receiving pockets **102**, and thus eliminates the need for straps to hold the weight receiving pockets in place. Otherwise, however, the weight system when used for shoe **100** is essentially identical to the weight system described in respect of FIGS. **1** to **6**.

**[0046]** Thus, it is apparent that there has been provided, in accordance with the present invention, a foot weight device for use on footwear, which fully satisfies the goals, objects, and advantages set forth hereinbefore. Therefore, having described specific embodiments of the present invention, it will be understood that alternatives, modifications and variations thereof may be suggested to those skilled in the art, and that it is intended that the present specification embrace all such alternatives, modifications and variations as fall within the scope of the appended claims.

**[0047]** Additionally, for clarity and unless otherwise stated, the word "comprise" and variations of the word such as "comprising" and "comprises", when used in the description and claims of the present specification, is not intended to exclude other additives, components, integers or steps.

**[0048]** Moreover, the words "substantially" or "essentially", when used with an adjective or adverb is intended to enhance the scope of the particular characteristic; e.g., substantially planar is intended to mean planar, nearly planar and/or exhibiting characteristics associated with a planar element.

**[0049]** Further, use of the terms "he", "him", or "his", is not intended to be specifically directed to persons of the masculine gender, and could easily be read as "she", "her", or "hers", respectively.

**[0050]** Also, while this discussion has addressed prior art known to the inventor, it is not an admission that all art discussed is citable against the present application.

We claim:

**1**. A foot weight device for adding weight to the foot of a user, comprising a strap system for attaching the foot weight device to the foot or footwear of a user, one or a plurality of weights for use in the foot weight device, and one or a plurality of weight receiving pockets, attached to said strap system, for receiving and holding said weights, wherein said weight receiving pockets are positioned on said strap system so as to be located, in use, immediately adjacent to, or centered on, the ankle of a user.

**2**. A foot weight device as claimed in claim **1** wherein said weight receiving pockets are positioned so as to be immediately adjacent to either the lateral or medial malleolus portions of the ankle.

**3**. A foot weight device as claimed in claim **1** wherein said weights are positioned adjacent to both the lateral and medial malleolus portions of the ankle so that weight is applied to both sides of the ankle.

**4**. A foot weight device as claimed in claim **3** wherein equal amount of weight is applied to each side of the ankle so that a balanced amount of weight is applied.

**5**. A foot weight device as claimed in claim **1** wherein said weights are removable from said weight receiving pockets.

**6**. A foot weight device as claimed in claim **1** wherein said footwear comprises ice skates, hockey skates, figure skates, speed skates, in-line roller skates, roller skates, or roller blades.

**7**. A foot weight device as claimed in claim **6** wherein said footwear is a hockey skate.

**8**. A foot weight device as claimed in claim **6** wherein said footwear comprises running shoes, training shoes, track shoes, skiis, or cross-country skiis.

**9**. Weighted footwear comprising footwear, one or a plurality of integral weight receiving pockets attached to said footwear for receiving and holding one or a plurality of weights, and one or a plurality of weights for insertion into said weight receiving pockets, and, wherein said weight receiving pockets are positioned on said footwear so as to be located immediately adjacent to, or centered on, the ankle of a user.

**10**. Weighted footwear as claimed in claim **9** wherein said weight receiving pockets are positioned so as to be immediately adjacent to either the lateral or medial malleolus portions of the ankle.

**11**. Weighted footwear as claimed in claim **9** wherein said weights are positioned adjacent to both the lateral and medial malleolus portions of the ankle so that weight is applied to both sides of the ankle.

**12**. Weighted footwear as claimed in claim **9** wherein said weights are removable from said weight receiving pockets.

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