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(54) Adjustable weighting apparatus for an athletic shoe

(57) A universal fitting foot, leg and thigh muscle training aid for use with an athletic shoe has two adjustable weight-containing pouches 12 with eyelets 19 on one side of each pouch through which each is fastened in a desired position to the laces on opposite sides of a shoe with an adjustable strap 20,22 attached to the other side of each pouch which fastens around the heel of the shoe to hold the weighted pouches in place. Each pouch may have a foldable flap 15 for co-operation by means of a Velcro (R.T.M.) fastening with an area 17 on the pouch. The pouch may instead have a side flap to allow insertion of a weight thereinto (Fig. 6) and may be thicker at its open end than at its closed end for accommodation of a suitably shaped weight. The weight may be a plastic package containing lead shot.

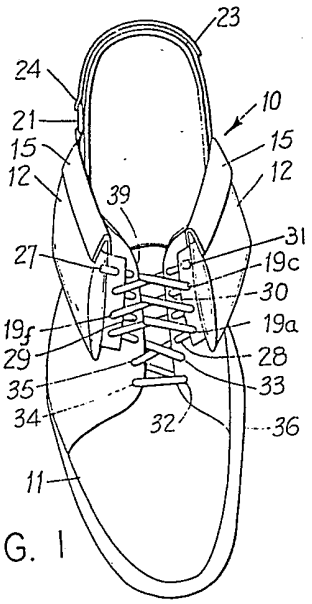


FIG. 1

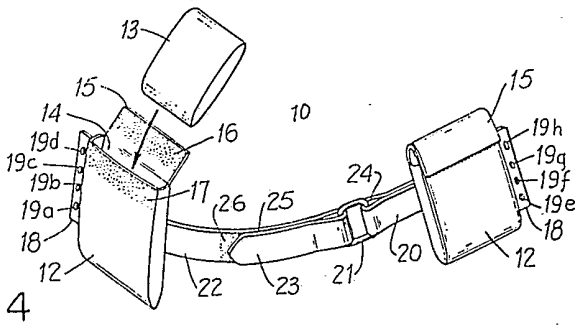


FIG. 4

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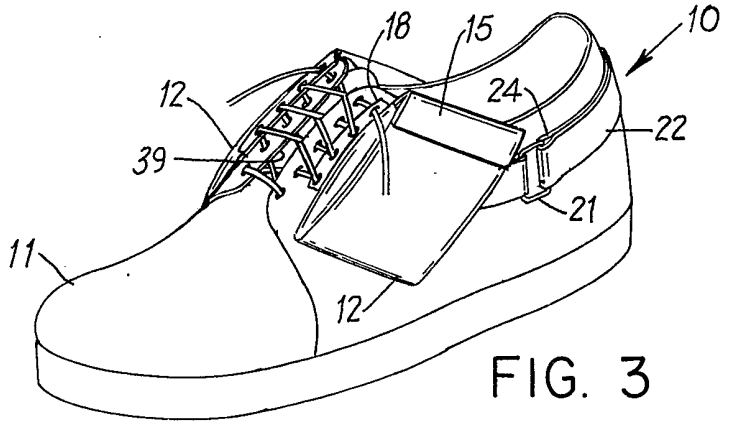


FIG. 3

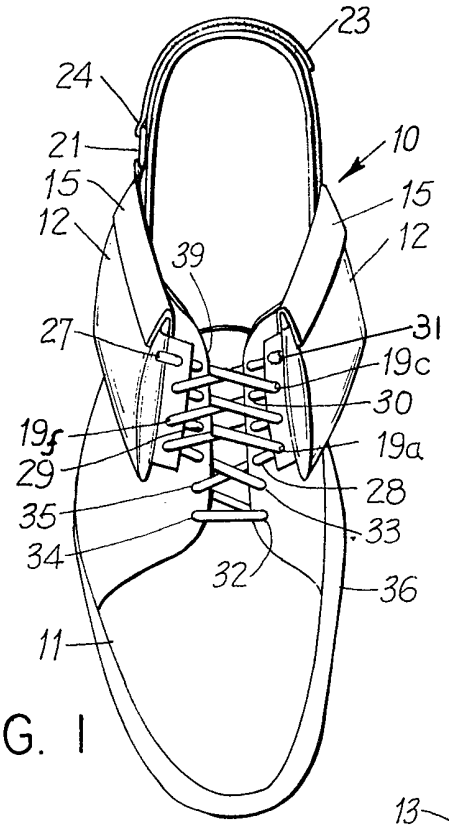


FIG. 1

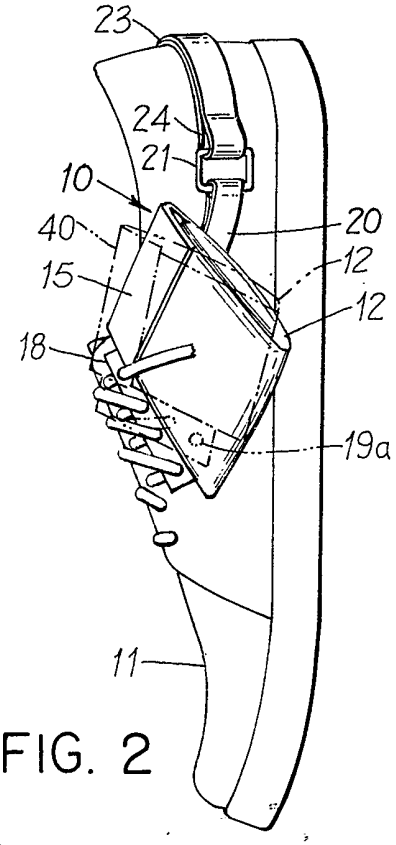


FIG. 2

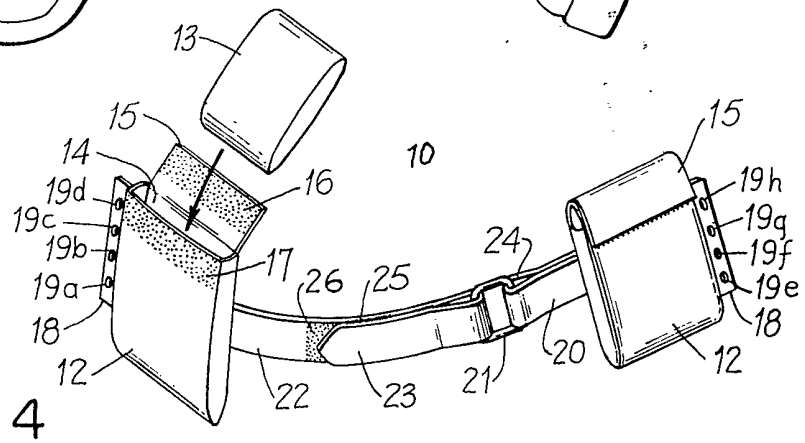


FIG. 4

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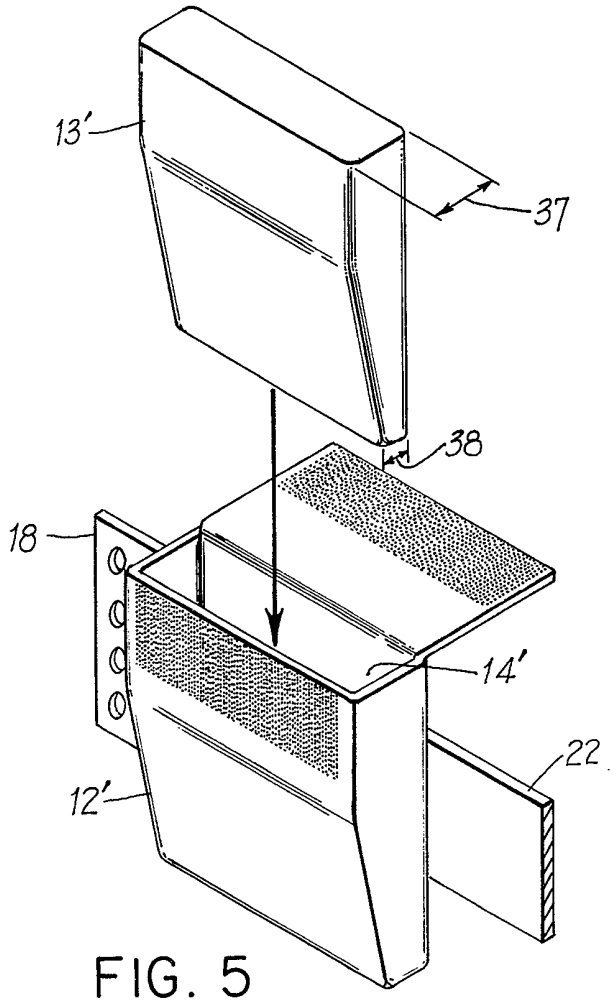
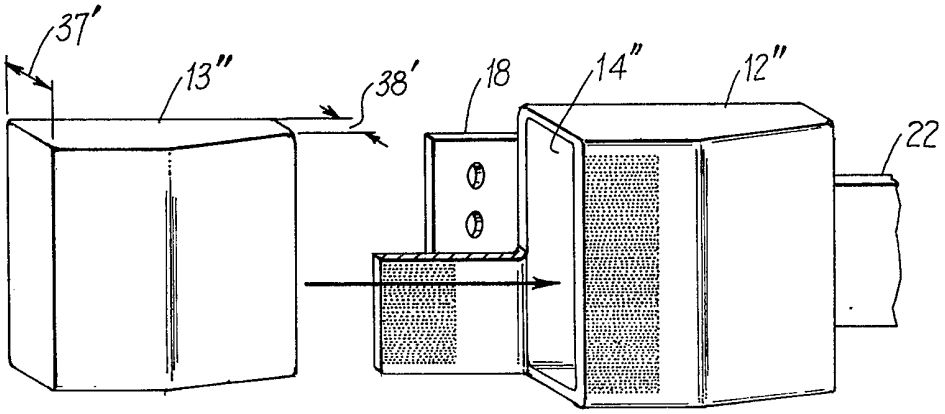


FIG. 5

FIG. 6



SPECIFICATION

Adjustable weighting apparatus for an athletic shoe

Background of the invention

This invention relates to an improvement in athletic training aids and more particularly to weighted devices which attach to the foot, ankle or leg requiring the user to exert a greater effort than normal to jog, walk, run or dance at the same rate and thus produce greater muscular conditioning for a given period of time.

Weighted devices which fasten to the ankle, (spat type devices) or leg, being above the ankle joint where the leg muscles originate, produce no significant benefit to the leg muscles and condition only the thigh muscles. In addition the ankle weighted devices tend to produce chaffing at the ankles as the weights move up and down during running, Further they require their own laces and do not take advantage of the existing laces in the shoe.

If the weight is applied to the foot beyond or distal (toward the toes) to the ankle joint, the footweight applies a workload through the ankle joint to the leg muscles as well as to the thigh muscles. There is therefore a significant advantage to conditioning devices which apply the weights to the foot rather than to the ankle or leg. Increasing the weight at the foot area, of course, increases the work load applied to the leg and thigh.

U.S. Patent No. 3,114,982 discloses a removable weight for an athletic shoe. This device however requires a special shoe and can be affixed only to the outside of each shoe in order to avoid contact of the abutting portion of the devices during running, if they were placed on the inside of each shoe. This causes a weight unbalance between feet. Furthermore the position of the weight in this patent is fixed so the work load cannot be increased without increasing tendon compression.

The further distal in the foot that the weights are placed, the greater the work load that is applied to the leg and thigh.

Brief summary of the present invention

It is a principal object of this invention to produce a weighted traning aid in which the weight is applied to the foot distal to the ankle joint and may be adjusted to vary the work load applied to the leg and thigh without undue compression of the foot surface.

It is a further object of this invention to produce a weighted training aid which can be used with any conventional laced shoe.

It is a still further object to produce an athletic shoe adjustable weighting apparatus which will be balanced on both sides of the foot.

The athletic shoe adjustable weighting apparatus embodying this invention incorporates two hollow, identical pouches in which suitable weights may be inserted and contained by folding a releasable adhesive flap over the pouch opening. One side of each pouch contains a tab with a row of holes with the interhole spacing corresponding to the interhole spacing of the shoelace holes of an athletic shoe. A strap having two complementary, releasably adhesive bands of the fiber hook and pile type on the outside surface is fastened to the other side of one pouch and a ring is fastened to the other side of the other pouch. The pouches are symetrically positioned on each side of any conventional laced athletic shoe with the pouch holes aligned with the shoelace holes. The shoe is then laced up with a tied bow or knot in the normal manner, except that each lace portion exiting from a hole on a first side of the shoe passes through the corresponding aligned hole in the pouch on that side of the shoe before entering the next highest hole on the second side of the shoe. Upon exiting from that hole, the lace passes through the corresponding hole in the pouch on that second side before it is doubled back to the next highest shoelace hole of the shoe on the first side and so forth. The strap is passed around the back of the shoe, through the ring, pulled back on itself to take up the slack and then fastened in that position by pressing the complementary bands of the hook and pile fasteners against each other to hold each shoe and its weighted pouch firmly in position.

Brief description of the drawing

Figure 1 is a plan view of an athletic shoe with the adjustable weighting apparatus of the present invention in place.

Figure 2 is an elevation view of the mating athletic shoe with the adjustable weighting apparatus in place.

Figure 3 is a perspective view of Figure 2 taken to the left and above.

Figure 4 is a perspective view of the adjustable weighting apparatus showing the insertion of weights into a pouch.

Figure 5 is a perspective view of another embodiment of the pouches and weights of the present invention.

Figure 6 is a perspective view of a third embodiment of the pouches and weights of the present invention.

Detailed description of preferred embodiment

Referring now to the drawing and Figures 1-4 which illustrate a preferred embodiment of the present invention, the reference numeral 10 designates the athletic shoe adjustable weighting apparatus of the present invention with the strap 22 in the fastened position. The apparatus includes two identical pouches 12 made of a suitable flexible material such as a woven fabric. Each pouch contains a cavity 14 and a foldable flap 15. Sewn or otherwise fastened to the underside of each flap 15 is a band of releasable adhesive material 16 of the fiber hook and pile type which is sometimes marketed under the Velcro trademark. A complimentary band of releasable adhesive material of the same type 17 is sewn or otherwise fastened to the top of each pouch 12. By "complimentary" is meant that one band contains a plurality of fiber hooks and the mating band contains a plurality of pile elements, so that when the complimentary band surfaces are pressed together, they adhere to each other, although they may be peeled apart with the application of a suitable force.

A desired weight assembly 13 is inserted into each cavity 14 and the flap 15 folded over as shown in Figure 4, so that the complimentary bands of adhesive material firmly seal the cavity and prevent the weights 13 from coming out. The flaps may be peeled open to remove the weights or substitute lighter or heavier weights. In the present embodiment the weight assembly 13 consists of a plastic package containing lead shot sealed within, although package may be eliminated and a cast piece of lead of the desired shape and mass inserted directly into the cavity.

A flexible tab 18 of a suitable fabric is sewn to one side of the left pouch 12 in Figure 4, but the tab on the right pouch 12 of Figure 4 is sewn on the opposite side to facilitate lacing of each pouch to the shoe 11 as shown in Figure 1. Each tab 18 contains a row of holes 19a-d and 19e-f with approximately the same interhole spacing as the shoelace holes in an athletic shoe as illustrated in Figures 1-3

A strap 22 with two adjoining, complimentary releasable adhesive bands 25 and 26 also of the fiber hook and pile type on the outside surface of the strap is sewn to the side of the left pouch 12 in Figure 4 opposite to the side with the tab 18. A second doubled up strap 20 is sewn to the right pouch 12 in Figure 4 on the side opposite to the tab 18 and a ring 21 is held in the loop 24 of strap 20. The end 23 of strap 22 is passed through the ring 21, doubled back on itself, and releasable adhesive band 25, which is hidden in Figure 4, is pressed against complimentary band 26 to fasten the two pouches 12 together.

Figure 1 illustrates how the adjustable weighting apparatus 10 is assembled to a conventional athletic shoe 11 for the right foot. The position of the doubled up strap 20 with ring 21 and the strap 22 can be reversed in the right and left shoes as shown in Figures 1 and 2. With strap 22 either open, or closed in a position with a suitable amount of slack between the strap and the back of shoe 11, one pouch 12 is positioned on one side of shoe 11, the other pouch being positioned directly opposite on the other side of the shoe, so that the tabs 19a-19h in the pouches are roughly aligned with the shoe lace holes on their corresponding sides of the shoe.

The adjustable weighting apparatus 10 is then laced to the shoe 11 as shown in Figure 1. Shoelace portion 27 exits from shoelace hole 28 in the inside flap of the shoe and is passed through the leftmost tab hole 19a in the pouch 12 on the inside of the right shoe. The shoelace end 27 is then passed through shoelace hole 29 in the outside flap of the shoe, then through tab hole 19f in the pouch 12 on the outside of the right shoe, then through shoelace hole 30, tab hole 19c etc. The other end of the shoelace 31 is passed alternately through the shoelace holes and pouch tab holes in the same manner.

Figures 1-3 show the pouches in position furthest away from the toes with respect to the shoelace holes. It is apparent however that each pouch could be moved distal (toward the toes) by aligning pouch tab holes 19a and 19b with shoelace holes 32 and 33 respectively and by aligning pouch tab holes 19e and 19f with shoe lace holes 34 and 35 respectively. By moving the adjustable weighting apparatus distal to align the forward tab holes of the pouch with the forward shoelace holes of the athletic shoe, the workload that is applied to the leg and thigh can be increased. Combining fore-aft movement of the weighting apparatus with changes of weights in the pouches provides a range of adjustments which may be selected by the user to suit his particular purpose.

The pouches are shown in solid outline in Figures 1-3 with tabs 18 roughly parallel to the flap edges 39 of the shoe. However the lacing arrangement permits tilting of the pouches as shown by the broken line outline in Figure 2. This provides an additional adjustment to suit preferences of the user.

Figure 5 illustrates a second embodiment of the pouches and weight assembly to decrease the likelihood of any contact between the weight assembled on the inside of each foot when running.

Unlike weight assembly 13 which is of a relatively uniform cross section except for tapering at its ends and the cavity 14 of pouch 12 which is shaped to suit, weight assembly 13' is thicker 37 at one end than its thickness 38 at the other end which first enters cavity 14'. Cavity 14' is similarly shaped to accomodate weight assembly 13'.

This construction permits the thickest portion of the weight assembly and pouch extending outwardly from the strap 22 to fold over a more central portion of the shoe within the outline of the shoe periphery 36 of Figure 1 so that only the thinner portion of the weight assembly and pouch extends beyond the outline. This reduces the possibility for contact between the pouches assembled to the inside of each foot when running.

Figure 6 illustrates a third embodiment of the pouches and weight assembly to also decrease the likelihood of any contact between the weight assemblies on the inside of each foot when running.

In this embodiment, the side of pouch 12" parallel to tab 18 is opened to permit access to weight assembly 13". Weight assembly 13" is thicker 37' toward the top of the shoe than its thickness 38" toward the bottom. Pouch 12" and cavity 14" are shaped to suit.

With this construction the thickest portion of the weight assembly and pouch also folds over a more central portion of the shoe within the outline of the shoe periphery 36 to also decrease the possibility of contact with the pouch on the inside of the mating shoe when running.

Having described preferred embodiments of the present invention, it is to be understood that although specific terms and examples are employed, they are used in a general and descriptive sense and not for purposes of limitation; the scope of the invention being set forth in the following claims:

CLAIMS

1. An exercising aid for exercising the lower extremities comprising a pouch having spaced apertures for fastening to the laces through one side of a shoe and a cavity for the insertion of weights, and adjustable means for fastening the pouch to the laces through the other side of the shoe and the back of the shoe.

2. A training aid for exercising the lower extremities comprising two pouches, each containing spaced shoelace apertures on one side and a weight-fillable cavity, and an adjustable strap fastened to each pouch which may be opened and closed to tie the pouches together in adjustable lengths.

3. A training aid for exercising the foot, leg and thigh muscles comprising: two flexible pouches each containing a cavity for the insertion of weights and a flap for covering the cavity opening, a row of spaced apertures on one side of each pouch, the aperture spacing proximating the shoelace hole spacing of a shoe, and adjustable elongated means affixed to another side of each pouch for connecting and disconnecting the two pouches at a desired distance therebetween.

4. A training aid for exercising the foot, leg and thigh muscles comprising; two flexible pouches each containing a cavity for the insertion of weights and an adhesive flap for covering the cavity opening, a row of spaced apertures on one side of each pouch, the aperture spacing proximating the shoelace hole spacing of a shoe, a ring attached to the side opposite the aperture side of one pouch, and a strap fastened to the side opposite the aperture side of the other pouch, having on one strap side an end portion which upon being folded against itself adheres to itself on contact but may be peelably separated, whereby the strap may be passed through the ring, doubled back on itself and the adhesive portion pressed against itself to tie the two pouches together at a desired distance.

5. An adjustable weighting apparatus for an athletic shoe comprising: two flexible pouches, each having an open cavity for the insertion of weights and a flap on one cavity side for folding over the cavity opening on to the other cavity side, the underside of the flaps and the outsides of the other cavity sides having complimentary bands of releasable adhesive material of the fiber hook and pile type, a tab affixed to each pouch containing a row of apertures corresponding to the shoelace holes of the athletic shoe, a strap affixed to each pouch extending from the side away from the tab side, a ring affixed to the extended end of one strap, the other strap having adjoining complimentary bands of releasable adhesive material of the fiber hook and pile type on one side for passing said other strap through the ring, doubling it back on itself and pressing one complimentary band against the other to releasably tie the two pouches together at a desired length therebetween.

6. An adjustable weighting apparatus according to Claim 5 in which weights consisting of a plastic package containing lead shot sealed within the package are inserted into the cavities.

7. A training aid according to Claim 5 in which the pouches are made thicker at one end than at the opposite end.

8. A training aid according to Claim 7 in which the thicker end of each pouch is the end in which the weight is inserted.

9. The combination of a training aid and an athletic shoe comprising: two flexible pouches, each having an open cavity for the insertion of weights and a flap on one cavity side for folding over the cavity opening on to the other cavity side, the underside of the flaps and the outsides of the other cavity sides having complimentary bands of releasable adhesive material of the fiber hook and pile type, a tab affixed to each pouch containing a row of apertures corresponding to the shoelace holes of the athletic shoe for interlacing one pouch with the laces through one side of the shoe and interlacing the other pouch with the laces through the other side of the shoe, a strap affixed to each pouch extending from the side away from the tab side, a ring affixed to the extended end of one strap, the other strap having adjoining complimentary bands of releasable adhesive material of the fiber hook and pile type on one side for passing said other strap around the back of the shoe through the ring, folding said other strap back on itself and pressing one complimentary band against the other to releasably tie the strap ends of the two pouches together snugly around the heel of the shoe.

10. A training aid substantially as described with reference to Figures 1 - 4, Figure 5 or Figure 6.

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