Jan. 3, 1967 C. J. STEVENS 3,295,517

LEG BOOSTERS TO RELIEVE BODY FATIGUE

Filed July 22, 1963 2 Sheets-Sheet 1

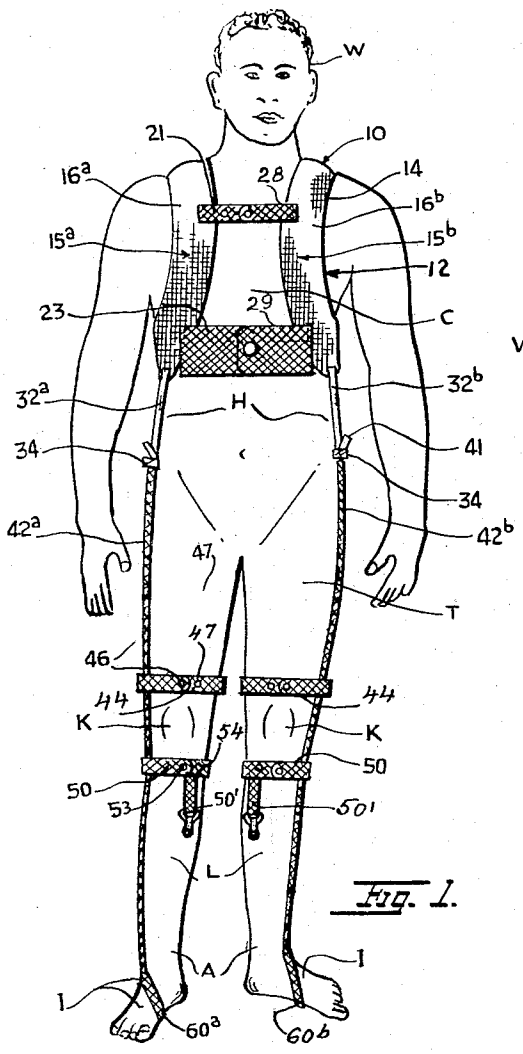

Fig. 1.

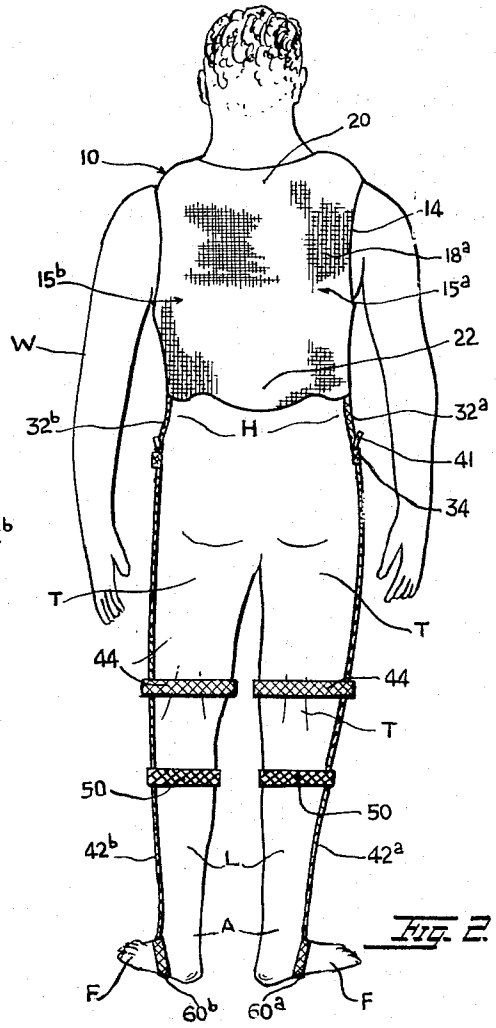

Fig. 2.

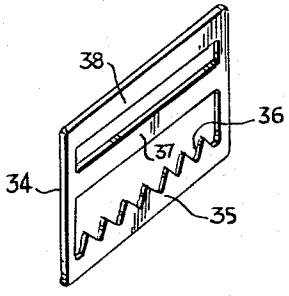

Fig. 6.

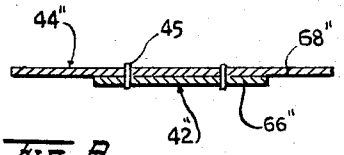

Fig. 8.

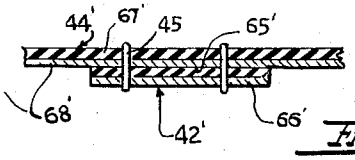

Fig. 7.

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LEG BOOSTERS TO RELIEVE BODY FATIGUE

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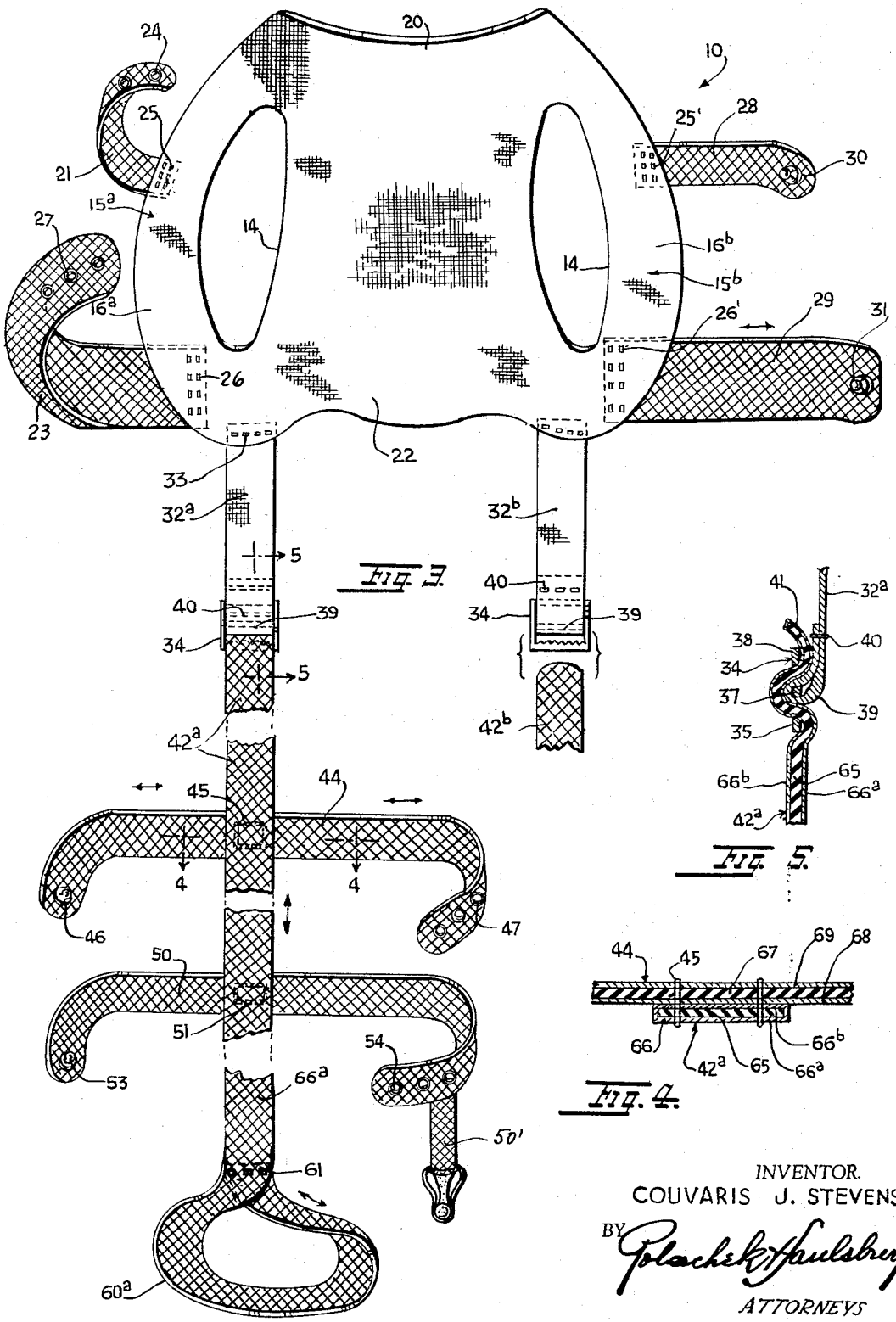

Fig. 3.

Fig. 5.

Fig. 4.

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LEG BOOSTERS TO RELIEVE BODY FATIGUE

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3 Claims. (Cl. 128—78)

This invention relates to a device for improving the human posture and more particularly, the invention concerns a harness type of device which may be worn by men or women to facilitate walking and standing.

According to the invention, the device includes a cloth vest which is worn on the chest and back. The vest has depending short straps to which are adjustably attached two long, main straps. The main straps are elastic and extend down from the hips of the wearer to outer sides of the ankles. The straps terminate in elastic loops which encircle the feet of the wearer at the insteps. Auxiliary elastic cross straps are secured to the main straps and adjustably encircle legs of the wearer above and below the knees, to stabilize the main straps. The elastic straps preferably have cloth sides which are placed against the skin of the body to absorb perspiration. The device is worn under the outer clothing of the wearer and is wholly concealed when in use. The device applies adjustable forces in tension or compression which relieve tension on the muscles of the feet, legs and back while the wearer is walking and standing. The device is of particular benefit to older persons, to persons suffering from minor disabilities of the legs and back, and to persons who do much standing and walking to relieve fatigue and facilitate body movements during walking or standing. The device when in use does not interfere with normal body functions or movements in any way. The device can be worn without discomfort while the wearer stands, sits or lies down. The device can be laundered for repeated use.

It is therefore one object of the invention to provide an adjustable harness which can be worn by a person to improve his posture while walking or standing.

A further object is to provide an adjustable harness including adjustable elastic straps adapted to apply pressure upwardly, longitudinally of the legs and radially inwardly circumferentially of the thighs and legs.

Another object is to provide an adjustable harness as described wherein long main straps are adjustably attached to an adjustable vest which is worn on the chest and back of the wearer.

For further comprehension of the invention, and of the objects and advantages thereof, reference will be had to the following description and accompanying drawings, and to the appended claims in which the various novel features of the invention are more particularly set forth.

In the accompanying drawings forming a material part of this disclosure:

FIG. 1 and FIG. 2 are front and rear views of a person wearing a device embodying the invention.

FIG. 3 is an oblique front view on an enlarged scale of a device embodying the invention, certain parts being broken away and other parts being omitted.

FIGS. 4 and 5 are sectional views on enlarged scales taken on lines 4—4 and 5—5, respectively, of FIG. 3.

FIG. 6 is a perspective view of one type of buckle which may be used in the device.

FIGS. 7 and 8 are sectional views similar to FIG. 4 showing other strap constructions.

Referring to FIGS. 1–5 of the drawings, there is shown a harness device **10** including a vest **12**. The vest is made of cloth which is thin, light in weight but strong, porous and inelastic. The vest has oval armholes **14** in

generally oval sections **15a**, **15b**. Each of the sections has an outer vertical panel **16a** or **16b** worn over the chest C of the wearer W. The section between the arm holes and indicated at **18a** is worn over the back, with the upper portion **20** extending across the shoulders S and the lower portion **22** thereof extending across the back just above the wearer's hips H worn over the back. The two sections are joined by two integral cross bands **20**, **22**. Upper cross band **20** extends across the back at the shoulders S and lower band **22** extends across the back just above wearer's hips H.

On the outer edge of panel **16a** is an upper short strap **21** and a lower longer strap **23** secured by stitching **25**, **26** to the panel. At ends of the straps are female snap fastener elements **24**, **27**. At the outer edge of panel **16b** and secured by stitching **25'**, **26'** is an upper short strap **28** and lower longer strap **29** horizontally aligned with straps **21**, **23**, respectively. Straps **28**, **29** have male snap fastener elements **30**, **31** at their outer free ends which engage selectively in the fastener elements **24**, **27** for adjustably tightening the straps **21**, **28** and **23**, **29** in alignment across the chest of wearer as best shown in FIG. 1. The straps **21**, **23** and **28**, **29** are elastic and can be stretched in tension when engaged with each other.

Two short inelastic straps **32a**, **32b** depend from lower ends of sections **15a**, **15b**, respectively. The straps can be secured by stitching **33** or can be integral with sections **15a**, **15b**. At lower free ends of these straps are buckles **34**. Each buckle, as best shown in FIG. 6, may have a rectangular frame with a lower crossbar **35** provided with teeth **36** and an intermediate or central crossbar **37** and an upper crossbar **38**. Loops **39** are formed at lower ends of the straps **32a**, **32b** engaged around crossbars **37** of the buckles and secured by stitching **40**; see FIG. 3 and FIG. 5.

Two long main straps **42a**, **42b** have their upper ends adjustably engaged in the buckles **34**. Strap **42b** is shown only partially in FIG. 3. The remainder of this strap is constructed like strap **42a**. An upper short elastic cross strap **44** is secured by stitching **45** to each of the vertical main straps. Straps **44** are located just above the knees K of the wearer at the wearer's thighs T. At one end of each strap **44** is a male snap fastener element **46** which engages selectively in one of female fastener elements **47** at the other end of the strap.

A second elastic cross strap **50** is secured by stitching **51** to each main strap. Male snap fastener element **53** at one end of the strap engages selectively in one of a plurality of female snap fastener elements **54** at the other end of the strap. Straps **50** are located below straps **44** and engage around the legs L of the wearer below the knees K. A garter **50'** is attached to each strap **50**.

The free ends of the straps **42a**, **42b** are formed into elastic loops **60a**, **60b** which engage under the soles of the wearer's feet F and over the insteps I. These loops are secured by stitching **61**.

FIGS. 3, 4 and 5 illustrate a preferred construction for the elastic main and cross straps. Each main strap **42a** or **42b** has an elastic rubber core **65** enclosed in an elastic cloth sheath **66** so that opposite sides of the core are covered with fabric layers **66a**, **66b**. The cross straps **44**, **50**, and the upper straps **21**, **23**, **28**, **29** also have elastic rubber cores **67** covered on opposite sides with elastic cloth layers **68**, **69**. The porous cloth layers absorb perspiration and are comfortable to wear when juxtaposed to the skin of the wearer at all points.

In FIG. 7 is shown an alternate construction in which only the side **66'** of each of the main straps **42'** is juxtaposed to the wearer's skin and is formed of cloth to which adheres the rubber core **65'**. Similarly, each cross strap such as strap **44'** has a cloth side or layer **68'** to which

adheres rubber core 67'. In FIG. 8 the main strap 42" and the cross strap 44" are formed of elastic woven cloth layers 66", 68". Alternatively, the elastic cloth of the cross and main straps can be made of rubber coated or rubber impregnated yarn. In any case, the main and all cross straps are elastic and adjustable in tension up to about twenty pounds at the limit of stretching.

The upper ends of the main straps can be engaged on the teeth of the crossbars 35 of buckles 34 for adjusting the main straps in tension while the elastic loops 60a, 60b are engaged around the feet of the wearer. The free upper ends 41 of the main straps are turned under and behind the upper crossbars 38 of the buckles for secure engagement on straps 32a, 32b.

The cross straps 21, 28 and 23, 29 are adjustably engaged across the wearer's chest C and hold the vest securely and snugly on the upper part of the wearer's body. Straps 44 and 50 are adjustably engaged around the legs. Thus the main straps 42a, 42b are retained at and along the sides of the wearer's body and facilitate walking and standing. The straps do not interfere with body or leg movements. They support tensioned muscles and thus relieve fatigue over long periods.

The device is a useful appliance for persons of all ages, men and women alike, who do considerable walking and standing. The device serves as a brace for the chest, back, legs and feet. The device is wholly concealed by the wearer's clothing so that its use is not apparent to others. The device is readily removed when not in use. It can be laundered easily and used repeatedly. It is fully adjustable at all points so that snug fit and effective operation is assured. The device can be manufactured at low cost in various sizes.

While I have illustrated and described the preferred embodiments of my invention, it is to be understood that I do not limit myself to the precise constructions herein disclosed and that various changes and modifications may be made within the scope of the invention as defined in the appended claims.

Having thus described my invention, what I claim as new, and desire to secure by United States Letters Patent is:

1. A device to facilitate walking and standing and to improve the posture of a human wearer of the device, comprising a vest having a pair of generally oval sections formed with openings defining armholes, spaced pairs of straps secured to outer panels of said sections, means for adjustably attaching the straps of one section to the straps of the other section so that the vest fits snugly at the chest and back of the wearer, a pair of short straps depending from opposite sides of the vest at opposite sides of the wearer, a pair of long, elastic main straps attached at one end thereof to the said short straps, opposite ends of the main straps being formed into elastic loops for engaging around the feet of the wearer, means for adjusting said main straps in tension to provide upward pressure at the soles of the wearer's feet, a first elastic cross strap on each main strap located to engage around the thighs of the wearer, a second elastic cross strap on each main strap located to engage around the legs of the wearer below the knees, whereby the main straps are retained at the wearer's sides, and means at ends of the first and second cross straps for adjustably and detachably securing the ends of each cross strap together to apply radially inward pressure on the wearer's thighs and legs respectively, each of said means including mating snap fastener elements.

2. A device to facilitate walking and standing and to improve the posture of a human wearer of the device, comprising a vest having a pair of generally oval sections formed with openings defining armholes, spaced pairs of straps secured to outer panels of said sections, means for adjustably attaching the straps of one section to the straps of the other section so that the vest fits snugly at the chest and back of the wearer, a pair of short straps depending from opposite sides of the vest at opposite sides of the wearer, a pair of long, elastic main straps attached at one end thereof to the said short straps, opposite ends of the main straps being formed into elastic loops, for engaging around the feet of the wearer, means for adjusting said main straps in tension to provide upward pressure at the soles of the wearer's feet, a first elastic cross strap on each main strap for engaging around the thighs of the wearer, a second elastic cross strap on each main strap located to engage around the legs of the wearer below the knees, whereby the main straps are retained at the wearer's sides, and means at the end of the first and second cross straps for adjustably and detachably securing the ends of each cross strap together to apply radially inward pressure on the wearer's thighs and legs respectively, each of the main and cross straps having a cloth side for juxtaposition against the skin of the wearer to absorb perspiration.

3. A device to facilitate walking and standing and to improve the posture of a human wearer of the device, comprising a vest having a pair of generally oval sections formed with openings defining armholes, spaced pairs of straps secured to outer panels of said sections, means for adjustably attaching the straps of one section to the straps of the other section so that the vest fits snugly at the chest and back of the wearer, a pair of short straps depending from opposite sides of the vest at opposite sides of the wearer, a pair of long, elastic main straps attached at one end thereof to the said short straps, opposite ends of the main straps being formed into elastic loops for engaging around the feet of the wearer, means for adjusting said main straps in tension to provide upward pressure at the soles of the wearer's feet, a first elastic cross strap on each main strap for engaging around the thighs of the wearer, a second elastic cross strap on each main strap located to engage around the legs of the wearer below the knees, whereby the main straps are retained at the wearer's sides, and means at ends of the first and second cross straps for adjustably and detachably securing the ends of each cross strap together to apply radially inward pressure on the wearer's thighs and legs respectively, each of said means including mating snap fastener elements, each of the main and cross straps having an elastic cloth layer for juxtaposition against the skin of the wearer to absorb perspiration and an elastic rubber core adhering to the cloth layer.

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