United States Patent

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[54] **FOOT-AND-LEG WALKING CAST SUPPORT**
8 Claims, 6 Drawing Figs.

[52] **U.S. Cl.** **128/83.5**
[51] **Int. Cl.** **A61f 5/01,** A61f 5/04
[50] **Field of Search** 128/83.5, 82, 83, 80

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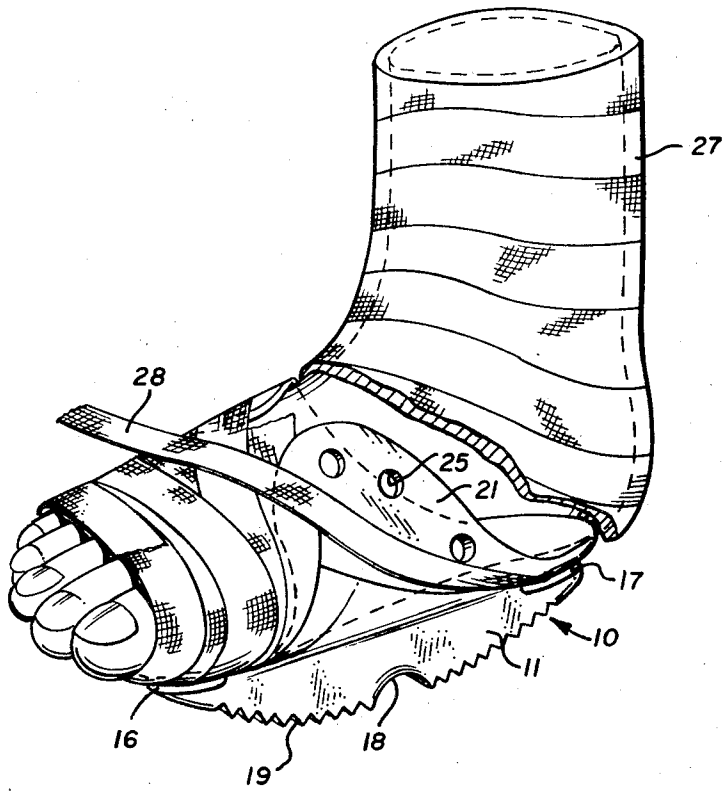
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ABSTRACT: A walking support is adapted for attachment to the bottom of a leg-and-foot walking cast and includes an elongated base spanning a substantial portion of the length and width of the bottom of the foot cast together with a convex, curved ground engaging surface. Flap extensions on each side of the base are adapted to fold over the cast and firmly secure the support to the cast to provide a forward and rearward rocking motion on the curved base by the wearer and thereby afford the wearer a more normal gait.



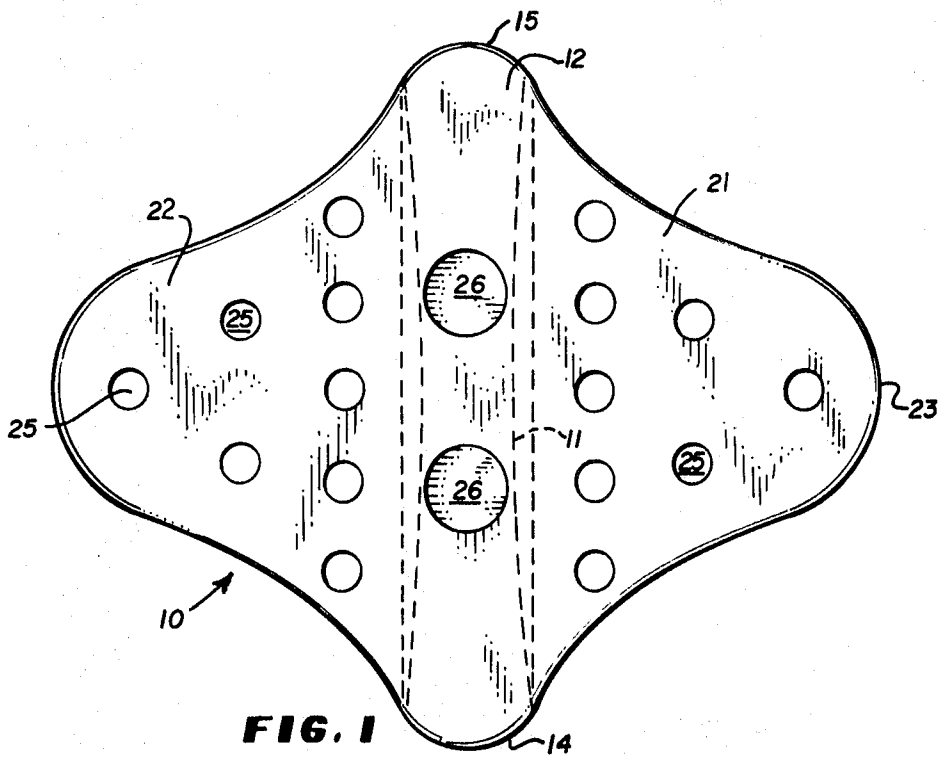


FIG. 1

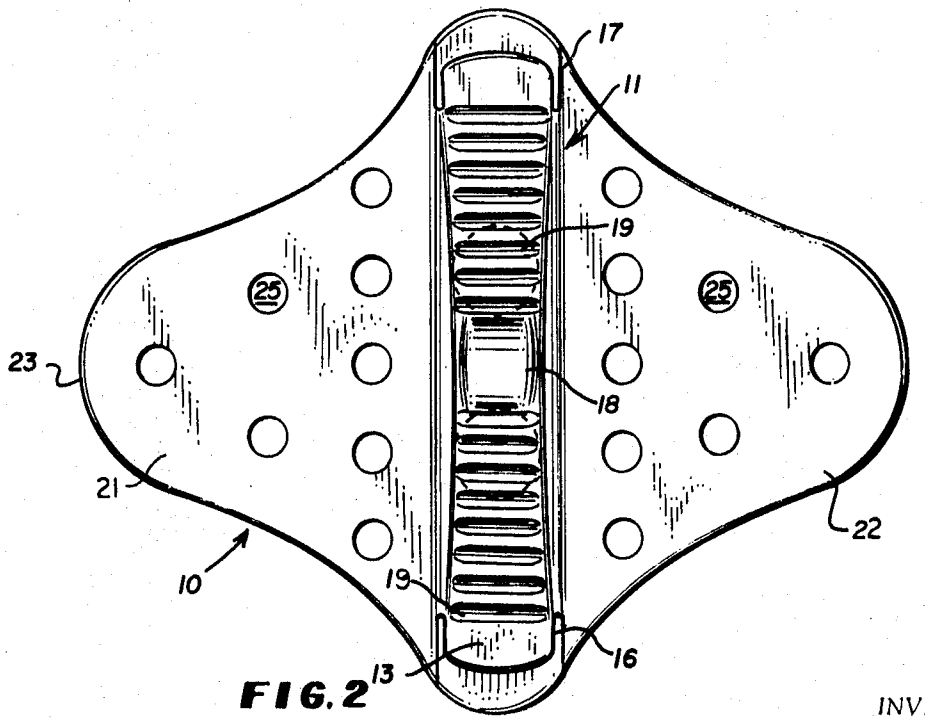


FIG. 2

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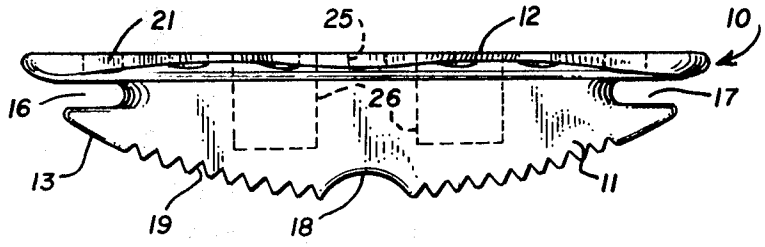


FIG. 3

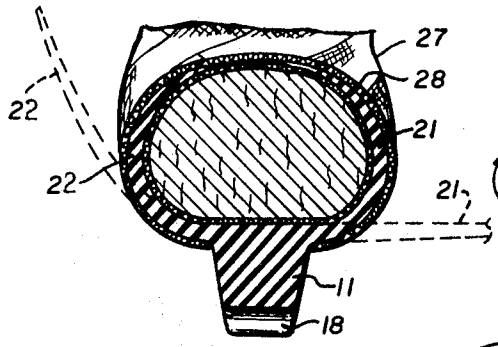


FIG. 5

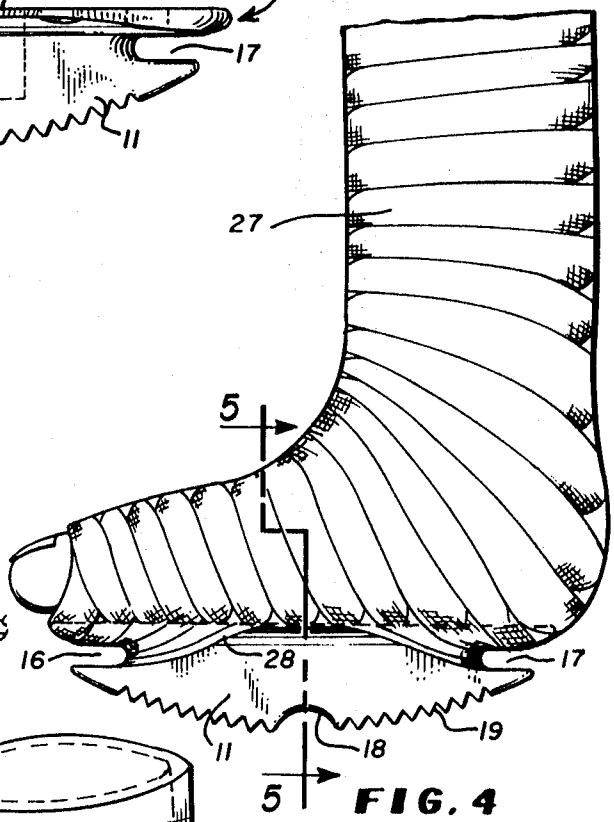


FIG. 4

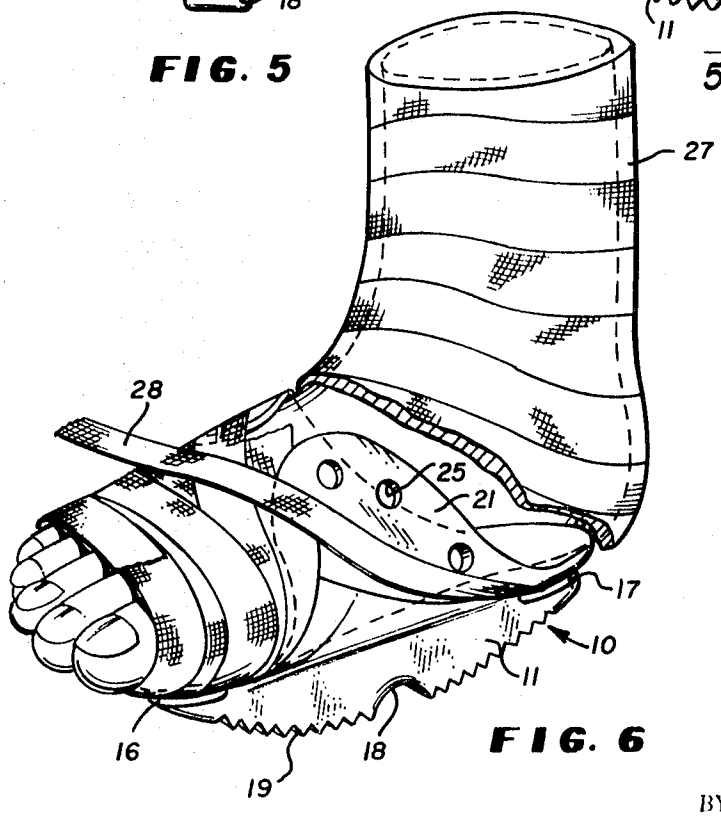


FIG. 6

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FOOT-AND-LEG WALKING CAST SUPPORT

This invention relates to a new and improved walking support for a patient having a foot and leg immobilized in a walking cast, and to a method for applying same.

Walking heels have heretofore been attached to the bottom of a walking cast to assist the wearer in walking while the leg and foot are immobilized in the cast. The walking heels presently available for the most part are located generally in the central portion of the foot and are relatively narrow and short as compared to the total area of the bottom of the cast. The gait pattern with the ankle and/or knee immobilized in the conventional form of walking heel is rather cumbersome and requires a considerable amount of rotational or twisting movement by the wearer to achieve ambulation. For the most part these prior art walking heels have been secured to the bottom of the cast by a wrapping which extends over the ends of the walking heel and the foot portion of the cast and plaster which is applied around the top edges of the walking heel.

Accordingly it is an object of this invention to provide a novel and improved walking support which permits the wearer of a walking cast to assume a more normal gait pattern.

Another object of this invention is to provide a novel method of applying a walking support to the bottom of a leg-and-foot walking cast so as to hold it more firmly and lessen the possibility of becoming detached or loosened during useage.

Yet another object of this invention is to provide a novel and improved walking support for the leg and foot immobilized in a cast which has substantially greater surface contact area with flap extensions along each side for securing it firmly to the bottom of the cast.

In accordance with the present invention, there is provided an elongated base of a length and width sufficient to span a substantial portion of the bottom of the cast and having a convexly curved ground engaging surface to provide substantial surface contact with the ground and flexible flap extensions on each side of the base which fold over the top of the foot cast to firmly secure it to the cast. This construction affords a forward and rearward rocking motion thereon during walking whereby the wearer is able to execute a more normal gait pattern. The flap extensions assist in the application of the walking support to the cast and also in firmly holding it thereto at the sides of the base.

Other objects, advantages and capabilities of the present invention will become more apparent as the description proceeds taken in conjunction with the accompanying drawings, in which:

FIG. **1** is a top plan view of the walking support embodying features of the present invention.

FIG. **2** is a bottom plan view of the walking support shown in FIG. **1**.

FIG. **3** is a side elevation view of the walking support shown in FIGS. **1** and **2**.

FIG. **4** is a side elevation view of the walking support shown in FIGS. **1**, **2** and **3** attached to the bottom of a leg-and-foot walking cast.

FIG. **5** is a sectional view taken along lines **5**—**5** of FIG. **4** with the positions of the flap extensions in dashed lines; and

FIG. **6** is a perspective view of the combined cast and walking support assembly shown in FIG. **4** with portion of the cast broken away to illustrate the manner of applying and attaching the walking support to the cast.

Referring now to the drawings the walking cast support generally designated by numeral **10** comprises a generally semilunar or rocker-shaped base **11** having a cast-engaging flat top surface **12** and a convexly curved, ground-engaging bottom surface **13**. The front and rear ends of the base **11** are generally rounded at **14** and **15** and are provided with undercut portions **16** and **17** at the forward and rearward ends into which a wrapping may extend in securing the support to the cast in a manner to be described. The curved bottom surface **13** has a central concave portion **18** through which a wrapping may also extend and recessed portions or transverse serrations **19** which form a tread surface to prevent slipping on a slick floor or the like during walking.

The base **11** has thin flaps **21** and **22** extending forwardly from each upper side edge which are of a yieldable or flexible material so that they are foldable. These flaps as shown are identical in size and shape and are generally symmetrical about the longitudinal axis of the base **11**. The inner ends of the flaps **21** and **22** are generally coextensive with the sides of the base and converge or taper inwardly toward their outer ends or edges **23** which are rounded. This shape for the flaps permits them to clear the ankle and fold over the dorsal area of the foot and be secured to the cast in a manner to be described. Each of the flap extensions has a plurality of spaced apertures **25** formed therein. In a preferred construction the base and side flaps will be composed of a pliable material such as rubber which is injection molded as an integral member. In order to reduce the overall weight and save on material additional bores **26** may be formed or drilled in base **11** opening through the top surface **12**.

FIGS. **4** and **5** show the walking support attached to the bottom or sole of a leg-and-foot walking cast **27**. The base **11** is shown to extend generally from the middle of the heel to the base of the toes of the wearer or is generally coextensive in length with the bottom of the cast and is of sufficient width so that this base can be considered to span a major portion of the bottom of the foot cast of the wearer. This construction when mounted in the cast allows the wearer to rock in a forward and rearward action without a twisting motion as with previous walking heels and in this manner the wearer is able to simulate a more normal gait pattern while the leg is immobilized in the cast.

The procedure for applying the walking support to the cast may be now understood with particular reference to FIGS. **5** and **6**. The walking support **10** is first placed on the bottom of the cast by grasping the flaps and positioning its top surface against the sole of the walking cast **27**. The flaps **21** and **22** are then folded over the upper surface of the foot portion of the cast which corresponds to the dorsal area of the foot. These flaps are then secured to the cast by covering them with a suitable plaster which fills the apertures **25**. It may be further secured by a wrapping **28** of a plaster impregnated gauze or the like which is shown to extend over the flaps and around the front and rear undercut portions **16** and **17** of the base in a generally figure eight wrap. The wrapping is finally covered with a plaster to complete the assembly which will then appear as shown in FIG. **4**.

From the foregoing it is apparent that the base **11** is firmly held on the cast by the side flaps along both sides. The increased contact surface of a larger base permits greater dissipation of forces and less likelihood of breakdown under the surface of the walking cast. This larger size of the base and increased mechanical attachment of the base to the cast greatly lessens the possibility of the walking heel becoming detached or loosened. The forward and rearward walking motion provided by the increased surface contact and the particular bottom surface shape permits the user to assume a more closely simulated normal gait pattern.

Although the present invention has been described with a certain degree of particularity, it is understood that the present disclosure has been made only by way of example and that changes in details of structure and system components may be made without departing from the spirit thereof.

What is claimed is:

1. A walking cast assembly comprising in combination: a walking cast having a foot-encasing portion including an instep section; and a walking support attached to the foot-encasing portion of the walking cast comprising a base member of a width less than and of a length substantially coextensive with that of the bottom surface of the walking cast, said base member having an upper cast-engaging portion and a lower ground-engaging portion, said ground-engaging portion being convexly curved in a direction lengthwise of the foot-encasing portion of the walking cast, and flexible side flaps having inner ends substantially coextensive with the length of said base and integrally connected to the upper cast-engaging portion, said flaps being directed laterally from each side of the base and

extending under the bottom surface, around the sides of and converging upwardly over the instep section of the walking cast, and means attaching the upper cast-engaging portion and said flaps to the foot-encasing portion of the cast.

2. The combination as set forth in claim 1 including flexible tabs directed forwardly and rearwardly of the front and back ends of the base, respectively, to define forward and rearward flexible continuations thereof.

3. The combination as set forth in claim 2 wherein said base and tabs are dimensioned to be of a sufficient length to extend from the area of the middle of the heel to the base of the toes of the wearer.

4. The combination as set forth in claim 1 wherein said side flaps have a plurality of apertures adapted to receive plaster to embed the flaps within the cast.

5. The combination as set forth in claim 2 wherein said base, side flaps and tabs are integrally formed of a rubberlike material, and said base being recessed at its front and back ends to define said flexible tabs.

6. The combination as set forth in claim 5 including a cavity opening through the top of the base to reduce the weight thereof.

7. A walking cast assembly comprising in combination: a walking cast having a foot-encasing portion including an instep section; and a walking support attached to the foot-encasing portion of the walking cast comprising a base having an upper cast-engaging portion and a convexly curved ground-engaging bottom surface, said base being dimensioned to span a substantial lengthwise portion of the bottom of the walking cast and being of a width less than the bottom of the walking cast, flexible side flaps forming lateral continuations of the upper cast-engaging portion of the base, said flaps having inner ends substantially coextensive with the length of said base and made integral therewith and extending under, around and over the instep section of the walking cast, forward and rear flexible tabs directed forwardly and rearwardly from the upper front and back ends of the base, respectively, and said flaps and tabs forming with the top of the base a relatively flat top cast-engaging surface whereby the wearer is able to execute a more normal gait pattern while the leg and foot are immobilized in the walking cast.

8. A walking cast support assembly comprising, in combination: a walking cast having a foot-encasing portion including an instep section; and a walking support secured to the foot-encasing portion of the cast including a unitary base, flexible side flaps having inner ends substantially coextensive with the length of said base and made integral therewith and forward and rearward flexible tabs, said base having a convexly curved bottom dimensioned to extend from the area of the middle of the heel to the base of the toes of a wearer, said flexible side flaps directed laterally from each side of the base and being of a width less than the length of the cast and being formed to extend under, around and converge upwardly over the instep section of said cast, said flaps having a plurality of apertures, forward and rear flexible tabs defining forward and rearward continuations of said front and back ends of the base, respectively, and engaging the front and rear ends of the undersurface of the foot-encasing portion of the cast; and a plaster-impregnated wrap member extending over the tabs, flaps and the cast to attach said walking support firmly to said cast to afford a forward and rearward rocking motion on the curved bottom surface during walking whereby the wearer is able to execute a more normal gait pattern while the leg and foot of the wearer are immobilized in said cast.