Dec. 23, 1941. J. T. BALDWIN 2,267,070

CUSHIONING DEVICE

Filed June 17, 1940

Fig. 1.

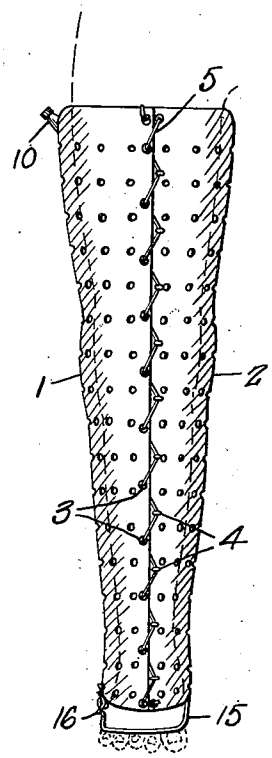


Fig. 2.

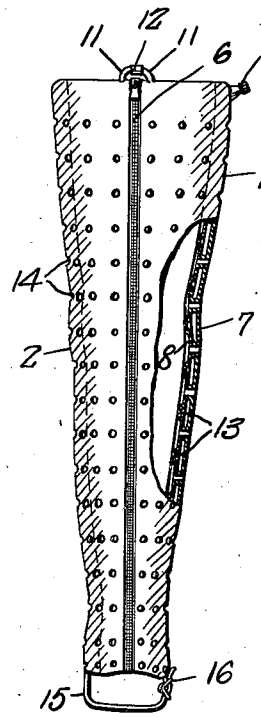


Fig. 3.

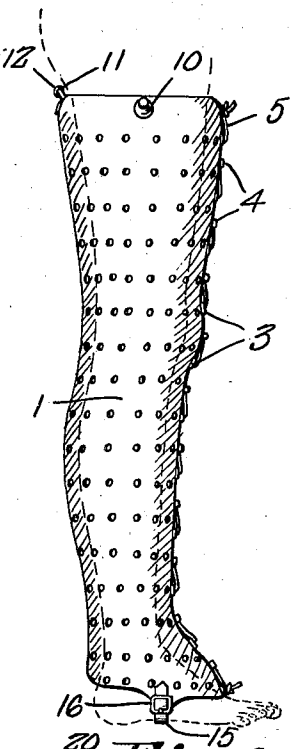


Fig. 4.

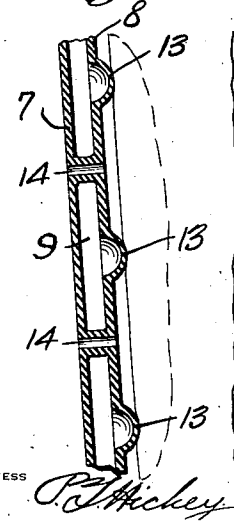


Fig. 5.

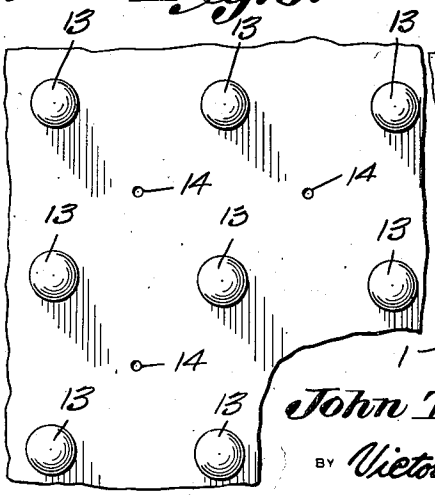
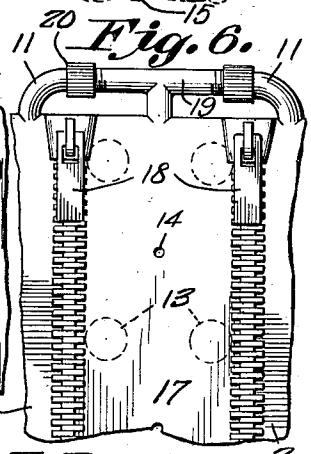


Fig. 6.



WITNESS

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UNITED STATES PATENT OFFICE

2,267,070

CUSHIONING DEVICE

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Application June 17, 1940, Serial No. 341,035

3 Claims. (Cl. 128—165)

This invention relates to cushioning devices, and its general object is to provide a pneumatic device that may be in the form of a legging to be worn with suitable open frame like bracing means on a broken portion for protection of the latter while the bone is knitting, thus eliminating the use of a plaster cast and the disadvantageous features accompanying the latter, as my device not only expands in the event of swelling and prevents undue pressure to eliminate congestion which causes swelling, but allows for free passage of air about the affected area, thus eliminating skin infection that generally occurs when a cast is used, with the result it will be seen that my device makes the patient as comfortable as possible and materially expedites recovery.

Another object is to provide a pneumatic cushioning device that may be in the form of a sleeve for use on a broken arm or the like.

A further object is to provide a cushioning device that can be inflated and includes ventilating passages and hollow air receiving teat like projections for spacing the major portion of the device from the affected area to bring about complete ventilation thereof.

A still further object is to provide a cushioning device of the character set forth, that can be easily and expeditiously applied and removed with respect to the affected area but casual removal or displacement when inflated is practically impossible.

Another object is to provide a pneumatic cushioning device that preferably includes a pair of separable sections and insert sections may be provided to increase the diametrical size of the device.

A still further object is to provide a device of the character set forth, that is simple in construction, inexpensive to manufacture, and extremely efficient in use and service.

This invention also consists in certain other features of construction and in the combination and arrangement of the several parts, to be hereinafter fully described, illustrated in the accompanying drawing and specifically pointed out in the appended claims.

In describing the invention in detail, reference will be had to the accompanying drawing wherein like characters denote like or corresponding parts throughout the several views, and in which:

Figure 1 is a front view of my cushioning device constructed in the form of a legging.

Figure 2 is a rear view thereof.

Figure 3 is an outer side view.

Figure 4 is a fragmentary longitudinal sectional view taken through one of the sections.

Figure 5 is a fragmentary view looking toward the inner face of one of the sections.

Figure 6 is a fragmentary view illustrating a device that includes insert sections to increase the diametrical size thereof.

Referring to the drawing in detail, it will be noted that my device is shown in the form of a legging for use upon a broken leg and for disposal between the latter and suitable open frame bracing means not shown, but it is to be understood that the device can be made in other forms, for use on arms and other parts of the person, as well as for other purposes.

In any event, the form shown in Figures 1 to 5 includes a pair of elongated companion outside and inside sections 1 and 2 respectively, that are substantially identical and of a length to extend from the hip to the foot of the wearer, as well as shaped for fitting the leg throughout its length, as shown in Figure 3. One of the sections has a row of reinforced openings or eyelets 3 adjacent to and along the front edge thereof, and the other section has a row of hooks 4 adjacent to and along its front edge for receiving a lace 5 threaded through the openings 3 and fixed at its ends to the end openings, for detachably connecting the sections together along the front of the legging, while the rear edges of the sections are connected together by a slide fastener 6. However, other types of fastening means may be used, but the types shown appear to be more appropriate for the purpose.

The sections are made from suitable elastic material such as rubber, and each includes an outer wall 7 and an inner wall 8, vulcanized or otherwise secured together at the upper, lower and side edges to provide an airtight chamber 9 for receiving air to inflate the sections to any desired pressure. The air is introduced into the chamber of the outside section 1 through a normally closed valve including a stem 10 extending from the upper end of the section 1 and the air is passed from the latter chamber to the chamber of the inside section 2 by a by-pass that includes an arcuate tube 11 for each section, and the tubes are joined by a coupling collar 12, thus allowing complete separation of the sections, as will be apparent.

The walls are relatively thick and the inner walls 8 have formed on their outer faces to extend outwardly therefrom, in equi-distantly

spaced relation, rows of hollow rounded teat like projections 13 opening into the chambers to receive air therefrom, the walls of the projections 13 being relatively thin for maximum cushioning action and from Figure 4, it will be noted that the projections space the walls 8 from the affected area of the wearer. The sections have ventilating passages 14 therethrough and which are provided by hollow cylindrical members formed on the walls 6 and 7 for disposal between the same. The passages 14 are arranged in rows between the rows of projections, as best shown in Figure 5, and the passages open through the walls 7 and 8, but of course are closed to the chambers, as shown in Figure 4. From that construction, it will be obvious that free circulation of air is provided between the device and the affected area of the wearer, thereby adding materially to the comfort of the wearer and tending to expedite recovery.

In order to hold the device against rotation and creeping upwardly on the limb, I provide a foot strap 15 having one end fixed to the lower end of the inside section 2, and the opposite end portion of the strap is received by a buckle 16 secured to the lower end of the outside section 1, in the form shown.

In Figure 6, it will be noted that I have made provision for increasing the diametrical size of the device and for that purpose an insert section 17 is connected between and throughout the length of the companion sections 1 and 2 by slide fasteners 18, the insert section being likewise provided with inner and outer walls secured at their ends and sides, to provide an airtight chamber within which air is introduced by a T-shaped tube 19 detachably connected to the tubes 11 by coupling collars 20 similar to the collar 12. The tubes 11 and 19, may be formed from hard rubber or the like or soft rubber, and in the latter event the collar receiving ends thereof are capped with suitable threaded means for receiving the collars.

It is thought from the foregoing description that the advantages and novel features of the invention will be readily apparent.

It is to be understood that changes may be made in the construction and in the combination and arrangement of the several parts, provided that such changes fall within the scope of the appended claims.

What I claim is:

1. A cushioning device in the form of a legging for use on a broken limb or the like, comprising a pair of companion outside and inside sections, means for detachably connecting the sections together for disposal about the limb, each section including an inner wall and an outer wall of elastic material having their edges secured together to provide an airtight chamber, means for introducing air within the chamber of one section, by-pass means for the passage of air from the latter chamber to the chamber of the other section, hollow projections extending outwardly from the inner wall of each of the sections to space the inner walls from the limb to allow circulation of air between the device and the limb, said projections opening into the chambers, the walls of each section having ventilating passages between the same, and said passages being closed to the chamber and opening through said walls.

2. A cushioning device in the form of a legging for use on a broken limb or the like, comprising a pair of elongated companion outside and inside sections, means for lacing the front edges of the sections together, a slide fastener for connecting the rear side edges of the sections together for disposal thereof in surrounding relation about the limb, each section including an inner wall and an outer wall of elastic material having their edges secured together to provide an airtight chamber, means for introducing air within the chamber of one section, a tube for each section and communicating with the chamber thereof, a coupling collar connecting the tubes together for the passage of air from the chamber of the section having the air introducing means thereon to the chamber of the other section, hollow projections extending outwardly from the inner wall of each section to space the inner walls from the limb to allow circulation of air between the device and the limb, and said projections opening into the chambers, and the walls of each section having ventilating passages between the same and opening therethrough.

3. A cushioning device in the form of a legging for use on a broken limb or the like, comprising a pair of elongated companion outside and inside sections, means for detachably connecting one side edge of each section together, an insert section detachably connected to and between the other side edges of the companion sections for increasing the diametrical size of the device, each section including an inner wall and an outer wall of elastic material having their edges secured together to provide an airtight chamber, means for introducing air within the chamber of one of said companion sections, tubes communicating with the chambers of said companion sections, a substantially T-shaped tube communicating with the chamber of the insert section, coupling collars connecting the T-shaped tube to the tubes first mentioned for the passage of air to the chambers of the insert section and the other companion section, hollow projections extending outwardly from the inner wall of each section to space the walls from the limb to allow circulation of air between the device and the limb, said projections opening into the chambers, the walls of each section having ventilating passages between the same, and said passages being closed to the chamber and opening through said walls.

JOHN T. BALDWIN.