Feb. 15, 1966 M. R. LEVITT 3,234,936

SURGICAL PAD

Filed May 31, 1962

FIG. 1

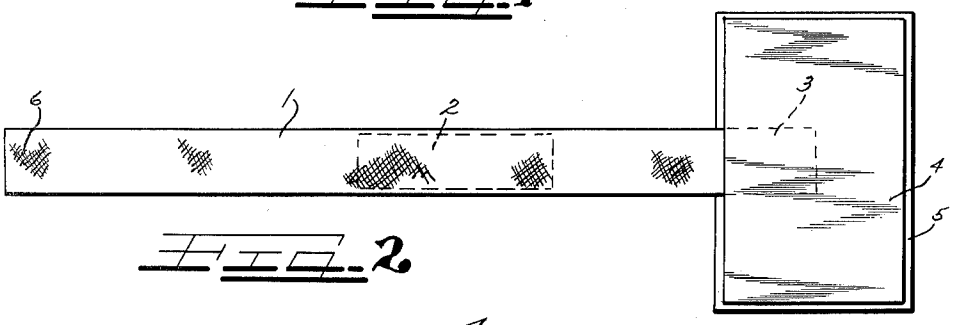


FIG. 2

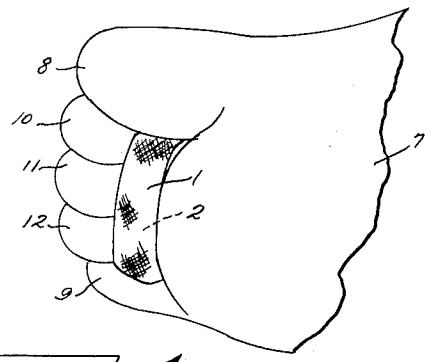


FIG. 3

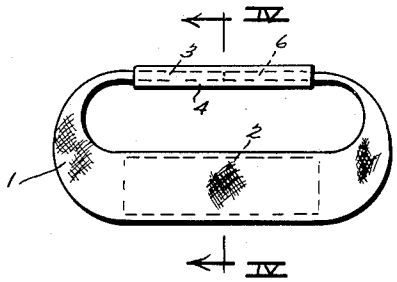


FIG. 4

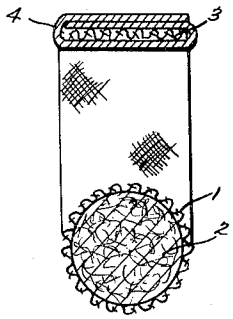


FIG. 6

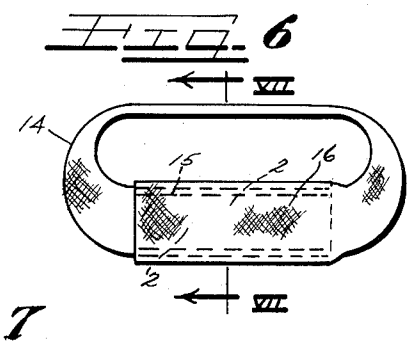


FIG. 7

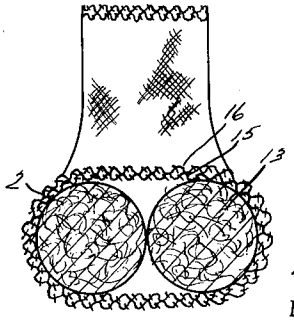
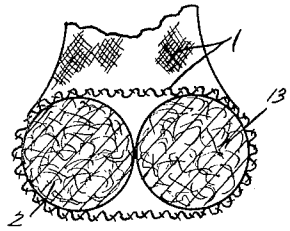


FIG. 5



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United States Patent Office 3,234,936 Patented Feb. 15, 1966

3,234,936

SURGICAL PAD

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Filed May 31, 1962, Ser. No. 199,025
9 Claims. (Cl. 128—81)

This invention relates to improvements in a surgical pad, and more particularly to a surgical pad for direct attachment to the human foot and designed to aid, alleviate, and prevent the development of adverse conditions resulting from the loss of gripping power of the toes, as well as certain adverse conditions which may already be present, although the pad may have other and various uses as will be apparent to one skilled in the art.

More specifically the instant invention relates to a surgical pad embodying resilient cushioning means for disposition beneath the crest areas of the toes in the sulciform regions of the toes, which cushioning means are held in place by a digit loop embracing one or more of the intermediate toes. Thus, the resilient cushioning and supporting means of the pad are in position to be gripped by the toes at each step of the user, whereby the toes are subject to substantially constant exercise when the user is walking or otherwise changing positions of his feet, such exercise being without discomfort to the user and aiding in the reactivation and revitalization of weak foot muscles and strained ligaments, giving beneficial results to the foot, relieving arch sag, strengthening and raising the metatarsal arch, and performing similar corrective and alleviating functions.

When a person reaches or passes middle age, there is a tendency for the adipose tissue beneath the metatarsal heads to move forwardly into the sulciform regions of the toes, and gradually the toes tend to lose their gripping power. As the toes lose their ability to grip or grasp, adverse metatarsal symptoms frequently set in, which symptoms can in many cases be avoided or prevented by utilizing some means to tend to maintain the adipose tissue in its proper location and provide the toes with exercise of a beneficial character to maintain the foot in a healthy and vitalized condition.

While attempts have been made in the past to accomplish the purpose of exercising the toes in the manner above mentioned, such attempts have in most cases involved the utilization of a flowable material which will not take a permanent set and has a low rate of flow at body temperature so that if the material is built into the construction of an article of footwear or otherwise placed therein, there will ultimately be a molded impression of the forward portion of the foot in the material. In other instances a permanently plastic, slow-flowing non-resilient substance has also been used for this purpose. However, such materials require objectionably expensive structures for their use, and if built into a shoe, the wearer does not have the desired aid available unless such structure is utilized in every article of footwear he may possess. Further, the delayed formation of a shape corresponding to the foot of the user, the fact that sudden movements, jumping, or the like may cause a malformation in the material, and the fact that the material does not have a permanent resiliency, set or supporting property, are all objectionable features.

With the foregoing in mind, it is an important object of the instant invention to provide a simple, economical pre-formed device having resilient supporting means with restorative properties when pressure is removed, and which device may be easily placed in proper position directly upon the naked foot with the aid of a digit loop.

Another object of this invention is the provision of a surgical pad for disposition in the sulciform regions of the toes, and which may readily be made in a form for professional application to the foot of a patient, or in a form which the patient himself may simply attach to his own foot.

A further desideratum of this invention is the provision of a surgical pad for disposition beneath a plurality of the toes of a user, the pad being so economical that it may be discarded and replaced by a new pad after relatively short usage.

Also a feature of this invention is the provision of a surgical pad of the character set forth herein which comprises a strip of tubular bandage material which forms a digit loop to embrace a plurality of the lesser toes of the foot, with resilient and supporting means contained within the tubular bandage to occupy a position beneath a plurality of the lesser toes of the foot.

It is still another object of this invention to provide a toe supporting surgical pad which, during manufacture, may be selectively varied as to the amount of resilient supporting material utilized without any appreciable additional cost.

A further object of the invention is the provision of a surgical pad of the character set forth herein comprising a length of tubular stretchable bandage having a cylindrical resilient and supporting member disposed within telescoped end portions of the tubular bandage, with the remainder of the bandage functioning as an elastic digit loop.

While some of the more salient features, characteristics and advantages of the instant invention have been above pointed out, others will become apparent from the following disclosures, taken in conjunction with the accompanying drawing, in which:

FIGURE 1 is a plan view of a surgical pad embodying principles of the instant invention as the same is manufactured for distribution;

FIGURE 2 is a fragmentary bottom perspective view of the human foot, with the pad of FIGURE 1 attached thereto in operative position;

FIGURE 3 is an end elevational view of the pad itself removed from the foot;

FIGURE 4 is an enlarged vertical sectional view taken substantially as indicated by the line IV—IV of FIGURE 3, looking in the direction of the arrows;

FIGURE 5 is a fragmentary view similar in character to FIGURE 4 but showing additional supporting material embodied in the pad;

FIGURE 6 is a view similar in character to FIGURE 3 but illustrating a somewhat different construction; and

FIGURE 7 is an enlarged vertical sectional view taken substantially as indicated by the line VII—VII of FIGURE 6.

As shown on the drawings:

The first illustrated embodiment of the instant invention, as seen in FIGURES 1, 2, 3 and 4, comprises an elongated tubular strip 1 which may satisfactory be tubular bandage material such as soft cotton gauze, tubularly knitted. Disposed in an intermediate location inside the tubular strip 1 is a substantially cylindrical resilient supporting element 2. This supporting element 2 may be made of any suitable material, a felted cotton roll of the type commonly used by dentists to hold a lip in position and absorb saliva is satisfactory, as well as a piece of cylindrical or tubular foam material such as polyvinyl chloride or polyurethane foam, rubber tubing, and material of equivalent resiliency, restorative powers, and sufficient supporting firmness. It is only necessary to insert the supporting member 2 inside the tubular strip 1 to the desired location, and the inherent resiliency

of the knitted tube **1** will maintain the supporting element in its desired location.

As seen best in FIGURE 1, one end portion **3** of the tube **1** is secured to the adhesive face of a piece of pressure sensitive adhesive tape **4**, the adhesive face of which is protected until time for use by a temporary facing sheet **5** having a release surface. This facing sheet is discarded, of course, when the device is put to use.

In shaping the finished surgical pad, it is simply necessary for the operator to fit the pad against the foot of the user with the supporting roll **2** positioned in he sulciform regions of the intermediate toes, and bring the free end **6** of the tube **1** into substantial abutment with the end **3**, securing both ends to the adhesive piece **4** by wrapping it around the adjacent bandaged ends as seen best in FIGURE 4. During this operation, if the tube **1** is too long, it is a simple expedient to cut off a piece of the free tube end, urge the suporting member **2** along inside the bandage to a desired location, and secure the free bandage end to the tape as above described. The tube therefrom forms a digit loop for attaching the device to the foot of the user.

As seen in FIGURE 2, when the device is properly positioned upon a user's foot **7** the great toe **8** remains free, and the lesser or fifth toe **9** also remaining substantially free, with the digit loop formed by the tube **1** encircling the three intermediate toes **10**, **11** and **12**, and with the supporting element **2** disposed in the sulciform regions of those intermediate toes. In many cases the suporting element will also extend slightly or partially under the lesser toe **9**. With the pad so positioned, the intermediate toes and possibly to a lesser extent the fifth toe will be caused to grip the supporting element **2** at substantially every step taken by the wearer, the foot thus being substantially constantly exercised to provide the benefits mentioned above. With the surgical pad attached directly to the naked foot the exercise will be positive, without any lost motion occuring as would be the case if the foot were first covered with a stocking. When the pad is in proper position and functioning, adipose tissue is moved back beneath the metatarsal heads where it is most needed, and the toes are properly supported. The foot may be exercised without discomfort constantly throughout the day and regardless of any change in foot wear, the device remains in proper position. It should also be noted that the great toe is prevented from taking over the major portion of the work of the other toes by virtue of its greater strength since it is not desirably supported by the pad.

In FIGURE 5 I have shown a form of the invention wherein the tubular strip **1** is provided with two of the supporting members, indicated at **2** and **13**, both of them being identical with each other, and disposed laterally side by side within the tube **1**. This provides supporting means of greater area, should the size of the particular foot or the character of the particular affliction indicate the need for such. It is a simple expedient to insert an additional supporting roll **13** into the tube alongside the roll **2**, the tube stretching sufficiently to accommodae them. Obviously, various diameters of supporting rolls may also be utilized if desired. Of course, various diameters of supporting rolls or a plurality of them may be utilized not only with the previously described embodiment of the invention, but that about to be described herein.

While the embodiment of this invention above described in connection with FIGURES 1, 2, 3 and 4, is designed more particularly for professional application to a patient, it could be utilized by a patient himself of sufficient capability to exercise proper care and caution in fitting and locating the pad. However, not all users would be in that category, and therefore in FIGURES 6 and 7 I have illustrated an embodiment of the invention which may readily be applied to the foot by virtually anyone. In this instance, a tubular member **14** is provided which

is made of elastic material which may be stretched and which automatically retracts when released. Within one end **15** of the tube **14** or more of the aforesaid supporting rolls are inserted, in the illustrated instance two supporting rolls **2** and **13** being shown in position. The other end **16** of the stretchable tube **14** is then telescoped over the end **15** containing the supporting elements. The elasticity of the tubular member will serve to retain the end portions **15** and **16** in their telescoped relationship over the supporting elements. This surgical pad is in complete form for usage as it is sold to the consumer, and it is a simple expedient for anyone to take the pad and stretch the digit loop formed by the tubular member over the intermediate three toes and position the supporting elements properly beneath the toes. Due to the elasticity of the tubular member **14** only a minimum of different sizes are necessary since the elasticity or stretchability of the digit loop permits the same pad to fit a number of different sizes of feet.

During manufacture of any embodiment of the instant invention it is a simple matter to alter the size of the supporting means by adding an additional roll, or using rolls of different diameters, and the rolls are so economical that there is no noticeable difference in cost for the various sizes of the surgical pads. In fact, the pads are so economical as to warrant disposition and the substitution of a new pad after relatively short usage.

From the foregoing, it is apparent that I have provided a simple and economical form of toe gripping surgical pad, capable of fitting a number of different sizes of feet, which is attached to the naked foot of the user so that the foot is continuously exercised while the user indulges in his normal activities and without any special time spent solely for foot exercising purposes.

It will be undestood that modifications and variations may be effected without departing from the scope of the novel concepts of the present invention.

I claim as my invention:

1. In a surgical pad for attachment exclusively within the sulciform regions of the toes on a human foot,

a one-piece seamless strip of stretchable tubular material having its ends joined to form a digit loop for embracing the toes of said foot, and

a cylindrical element having a size to fit within the sulciform regions of the toes of resilient material of less length than said strip disposed entirely within said strip and tightly held by said strip.

2. In a surgical pad adapted to be attached exclusively within the sulciform regions of the toes on a human foot,

a one-piece seamless strip of stretchable tubular material having its ends joined to form a digit loop sized to embrace the toes of said foot, and

a plurality of cylindrical resilient cushioning elements shorter than said strip and disposed entirely within the strip in juxtaposed relationship, said cylindrical elements and the portions of said strip embracing said cylindrical elements being of a size to fit within the sulciform regions of the toes.

3. A surgical pad for attachment exclusively within the sulciform regions of the toes on a human foot comprising

a tubular strip of flexible material,

a cushioning and supporting element cylindrically shaped and of less length than said strip disposed within said strip in an intermediate portion thereof, said cylindrical element and said intermediate portion of said strip being of a size to fit within the sulciform regions of the toes, and

a piece of adhesive tape joining the ends of said tubular strip to define a digit receiving loop with the adhesive of said tape out of contact with the body of the user.

4. A surgical pad for attachment exclusively within the sulciform regions of the toes on a human foot comprising

a tubular strip of flexible material,

a cushioning and supporting element cylindrically shaped and of less length than said strip disposed

within said strip in an intermediate portion thereof, said cylindrical element and said intermediate portion of said strip being of a size to fit within the sulciform regions of the toes,

a piece of pressure sensitive adhesive tape wrapped around the ends of said tubular strip to join said ends and form a digit loop.

5. A surgical device to be shaped into a pad for attachment exclusively within the sulciform regions of the toes on a human foot, comprising

an elongated flexible strip of tubular material,

a shorter cushioning cylindrical element in an intermediate portion of said strip, said cylindrical element in said intermediate portion of said strip being of a size to fit within the sulciform regions of the toes,

a piece of adhesive tape to which one end of said strip is attached, and

a facing sheet protecting the adhesive face of said piece of tape until time of use when the other end of the strip is connected thereto.

6. A surgical pad for attachment exclusively within the sulciform regions of the toes on a human foot comprising

an elongated tubular strip of stretchable material,

a cylindrical cushioning element inside one end portion of said strip, said cylindrical cushioning element and said one end portion of said strip being of a size to fit within the sulciform regions of the toes, and

the other end portion of said strip being telescoped over said one end portion to retain said element in position and provide a stretchable digit loop.

7. A surgical pad for attachment exclusively within the sulciform regions of the toes on a human foot comprising

an elongated tubular strip of stretchable material having its end portions telescoped, and

a shorter cushioning and supporting element of a cylindrical shape within said telescoped end portions, said cushioning and supporting element and said telescoped end portions being of a size to fit within the sulciform regions of the toes.

8. A surgical pad for attachment exclusively within the sulciform regions of the toes on a human foot comprising

an elongated strip of tubular gauze with the end portions thereof telescoped, and

a shorter resilient supporting member of a cylindrical shape inside said telescoped end portions, said supporting member and said end portions being of a size to fit within the sulciform regions of the toes,

whereby the remainder of said strip forms an elastic loop to receive a plurality of digits when the pad is attached to the body of a user.

9. A surgical pad for attachment exclusively within the sulciform regions of the toes on a human foot comprising

an elongated tubular strip of a stretchable material having uncut end portions attachable to form a loop,

a shorter cushioning and supporting element of cylindrical shape spaced inside a portion of said strip,

said cushioning and supporting element and said portion of said strip being sized for disposition in the sulciform region of the toes of said foot.

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