

July 12, 1966

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3,260,261

ANTI-CHAFING DEVICE AND METHOD

Filed March 23, 1964

FIG. 1

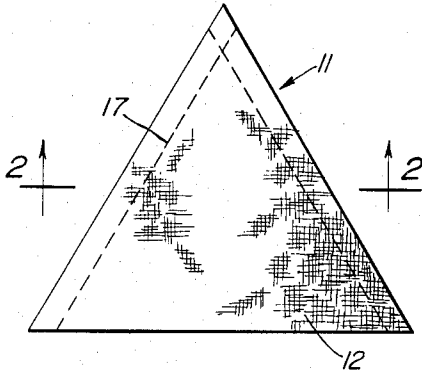


FIG. 2

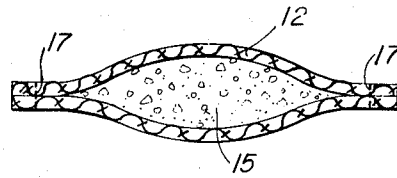


FIG. 3

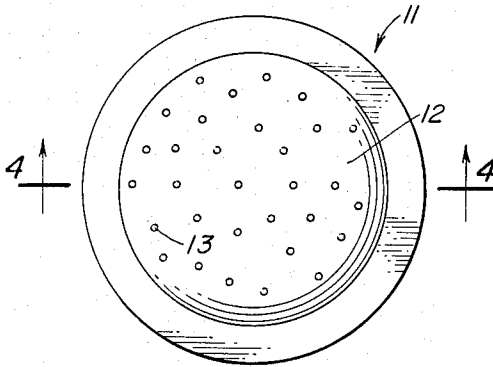


FIG. 4

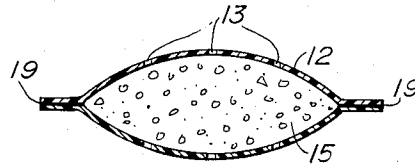


FIG. 6

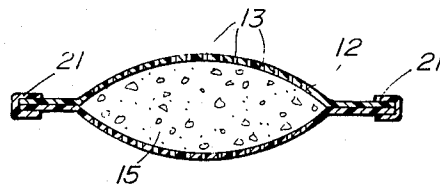


FIG. 5

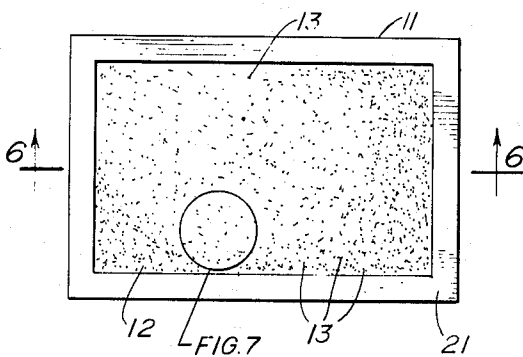
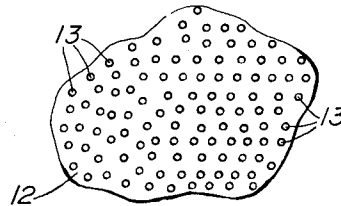


FIG. 7



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ANTI-CHAFING DEVICE AND METHOD
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 Filed Mar. 23, 1964, Ser. No. 353,820
 3 Claims. (Cl. 128—149)

This invention relates to a novel composition and method having unexpected utility in the treatment of skin malfunctions and disorders of the type caused by excessive perspiration and the concurrent rubbing of adjacent moist parts of the body together. More particularly, the invention is directed to the use of such products in the treatment of erythema or erythematous inflammation of the skin, or, what is in the form more commonly known as "chafing."

Skin irritation and discomfort caused by chafing is experienced by many men and women, particularly by persons who are overly stout. Chafing is also a common complaint of members of the armed forces who have occasion to march for extended periods of time under conditions which are conducive to causing excessive exudation of perspiration. The same problem is experienced by persons engaged in certain specific occupations, and particularly in climatic regions of relatively high humidity.

While the problem has long existed and many types of solutions have been proposed, none of the devices or methods have provided a completely satisfactory solution. In each composition or prior art technique, one or more undesirable or objectionable features may be recognized, and no products or treatments have proved completely satisfactory for the purpose intended.

In the therapy of skin afflictions of the type described, powders of one kind and another have been used to provide a coating or covering and to protect the skin, at least to some extent, from moisture and from intertriginous friction or abrasion. In some instances water proof powders have been used in effecting protection against macerations from secretions of a watery nature. This technique has been effective to a limited extent, particularly where the skin has not become excoriated. Where, on the other hand, excoriation of the skin has occurred and a "weeping" surface is present, absorbent dusting powders have been used with some success to "take up" fluid from the surface of the skin and to effect some degree of drying action.

Among absorbent powders which have found some use in the past and which have been more or less effective are starch, ground maize cob, talcum, chalk and kaolin, and various combinations of these and similar mineral products. The efficacy of each of these substances is limited and none has solved the problem of keeping the skin adequately dry or preventing irritation or chafing in intertriginous areas. Starch has a tendency to cake, decompose and lose its effectiveness. Kaolin, talcum, chalk, bentonite, and other clays and related materials such as powdered maize cob have been used in combination with antiseptic compositions such as boric acid, salicylic acid, and others. In still other compositions bactericidal and/or fungicidal additives have been incorporated. The propensity to caking and to decomposition, the minimal and ineffective absorptive powers, and the physical problems of attaining effective coverage over extended time periods have rendered all of these methods considerably less effectual than would be desired, particularly in the treatment of skin conditions where moisture is present.

The present invention now provides, for the first time, a composition and technique which is surprisingly effective in the treatment of skin irritation in intertriginous areas and obviates the principal cause of and the common objectionable discomfort referred to as chafing.

As described above, the prior art methods and techniques have for the most part been directed to coating or covering the skin areas normally affected and subjected to erythematous inflammation. The prior art approach has in substantially every case been to apply a powdery material to the intertriginous areas or to wrap these areas with gauze or cloth. While these various methods have had some degree of success for limited periods of time, as additional moisture accumulates, the starch, talc, cellulose, or other powder becomes pasty, and absorbent fabrics and related materials become damp and uncomfortable. Thus, whether powders are used or whether a wrapping or absorbent gauze or garment is used, the protection afforded is short-lived and chafing and skin irritation result.

It is the aim of this invention to provide a simple mode of treatment for a prevention of chafing and its associated physical manifestations. It is a principal object of the invention to provide an out-of-contact method of treatment whereby inflammation of the skin produced by the rubbing of two adjacent moist parts together is obviated.

Another object of the invention is to provide an effective means for removing and controlling a principal cause of skin inflammation of the intertrigo type commonly referred to as chafing.

A related object of the invention is to provide a device which may be worn concealed upon the person and which will reduce the relative humidity in regions adjacent or proximate those body portions normally afflicted with chafing.

Still another object of the invention is to provide a simple device containing a desiccant, which desiccant may be reactivated by a simple heating process to dispel moisture contained in the desiccant to ready the desiccant for continued and repeated use.

Other and further objects and advantages of the invention will become apparent from a reading of the following specification taken in conjunction with the drawing in which:

FIGURE 1 is a plan view of a dechafer packet embodying the principles of the invention;

FIGURE 2 is a cross-sectional view taken on the line 2—2 of FIGURE 1;

FIGURE 3 is a plan view of another form of the packet of the invention;

FIGURE 4 is a cross-sectional view taken on the line 4—4 of FIGURE 3;

FIGURE 5 is a plan view of still another form of the packet of the invention;

FIGURE 6 is a cross-sectional view taken on the line 6—6 of FIGURE 5; and

FIGURE 7 is an enlarged fragmentary view of a portion encircled in FIGURE 5.

Referring now to the drawing and particularly to FIGURES 1 and 2, for purposes of disclosure, the anti-chafing device of the invention is shown embodied as a bag or packet 11 fabricated of a moisture-permeable material or fabric 12 which may be cotton or any other textile or synthetic porous fabric having the requisite physical strength, woven and non-woven fabrics of natural and synthetic materials, or plastic sheet material (FIGURES 3 and 5). In most cases, the latter material will require perforations 13 in order to permit the transmission of water vapor from the exterior inwardly to the desiccant 15 contained in the bag. Still other types of material which are useful as containers for the desiccant 15 are fiberpolymer "alloys" such as the poromeric Corfam (Du Pont) or synthetic sheet materials which are inherently microporous and are breathable. Compositions typical of this unique class of materials include polyurethanes and reinforced polyesters.

The desiccant 15, which is contained in the bag or packet is preferably of a rather fine granular form and may be a hygroscopic salt such as sodium chloride or calcium sulphate. In one embodiment of the invention the desiccant composition may include a deliquescent liquid such as glycerol or propylene glycol. In a preferred embodiment of the invention the desiccant is granular silica gel which is particularly suitable not only because of its high capacity for absorbing moisture but also for its chemical inertness and its inherent light weight. In order to indicate the relative degree to which the packet has absorbed moisture, the fabric or other enveloping material used may be treated with a moisture indicator such as a cobalt salt (cobalt chloride) of the type which undergoes a characteristic color change as a function of the absence or presence of appreciable quantities of moisture.

The construction of the bag or packet itself is not critical. It may be formed or fabricated of a single piece of material originally generally rectangular in shape and then folded along a diagonal to provide a final structure which is triangular in form (FIGURE 1). Closure of the bag or container may be effectuated by stitching 17 or other mechanical means including stapling, or, if preferred, may be by means of adhesives 19 or through the use of temperature sensitive sealing means. The packet may also consist of two sheets of fabric or equivalent material superimposed and joined along their peripheral edges to define a pillow-like container. If preferred, the peripheral edges of the packet may be joined using a tape or band 21 stitched or adhesively bonded to opposed side members of the envelope.

In the prior art treatment of or the prevention of chafing and its associated irritations, absorptive materials including clays and talc and also including absorbent cloth have been applied directly to the skin area affected. In many instances, this mode of treatment has merely aggravated the condition rather than providing a cure or preventive. In contrast, applicant's method is to treat the cause of irritation at its very source. That is, applicant does not physically contact or apply any absorptive material to the skin. A clay or powder so used absorbs moisture, becomes paste and causes irritation. Absorptive fabrics soon become uncomfortably damp and abrasive. Applicant's method is to reduce the moisture content of the air proximate the skin area normally affected. To this end, the moisture-permeable container carrying the desiccant is carried on one's person, either by insertion in a pocket of a garment or by suspension from a garment, without any inconvenience or discomfort. The desiccating bag, pad, packet, or pouch so disposed prevents accumulation of moisture adjacent the skin areas normally affected by chafing. In accordance with the practice of the invention, it has been found that the reduction of moisture concentration in the ambient air adjacent the contacting body parts is remarkably effective in obviating the moisture-induced friction and abrasion which gives rise to chafing and its associated discomfort.

It is thus seen that the present invention provides a simple and effective method for the prevention of chafing and related skin abrasion and inflammation of the type induced by the rubbing together of moist body parts. In addition, the present invention provides a simple yet highly effective mechanical device by means of which moisture, the principal factor contributing to chafing-induced inflammation of the skin, is eliminated.

While disclosures of preferred embodiments of the invention and preferred methods for fabricating the novel device of the invention have been provided, it will be apparent to those skilled in the art that numerous modifications, changes, and variations can be made without departing from essential spirit of the underlying principles of the invention. It is, therefore, desired by the following claims to include within the range of the invention all such variations and modifications by which substantially the result of this invention may be obtained through the use of substantially the same or equivalent means.

What is claimed is:

1. The method of obviating erythematous inflammation of the skin produced by the rubbing of two adjacent moist body parts together, said method comprising:

packaging a desiccant within a moisture-permeable container,

carrying said container on the person in a region proximate but out-of-contact with contiguous skin areas susceptible to chafing in the presence of relatively high moisture concentration,

carrying said container on the person adjacent said region but out-of-contact with and spaced from and free from direct and indirect abutment against said skin areas, to reduce thereby moisture concentration in atmosphere contacting said skin areas and to reduce surface moisture on said skin areas to prevent thereby chafing of skin surfaces contacting and rubbing one against another without interposing any intervening article between said skin surfaces.

2. The method of treating erythematous inflammation of skin caused by the rubbing of two adjacent moist body parts together, said method comprising:

supporting a desiccant-containing moisture-permeable bag near to and out-of-contact with said body parts in a region susceptible to and affected by moisture-aggravated chafing,

carrying said bag on the person proximate said body parts but out-of-contact and spaced from and free from direct and indirect abutment against said body parts, thereby to expose ambient atmosphere contacting said body parts to desiccant contained in said bag, and, without interposing any intervening article between said body parts,

absorbing moisture from said atmosphere into said desiccant to reduce thereby moisture present in said atmosphere and on said body parts and to reduce thereby inflammation due to rubbing of moist body parts one against another.

3. The method of claim 2 wherein said desiccant contained in said bag is selected from the group consisting of relatively inert deliquescent chemical agents, hygroscopic salts, clay and silica gel.

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