Sept. 26, 1961 V. C. HAUSER 3,001,201

GARMENT SHIELD

Filed June 1, 1959

Fig. 1.

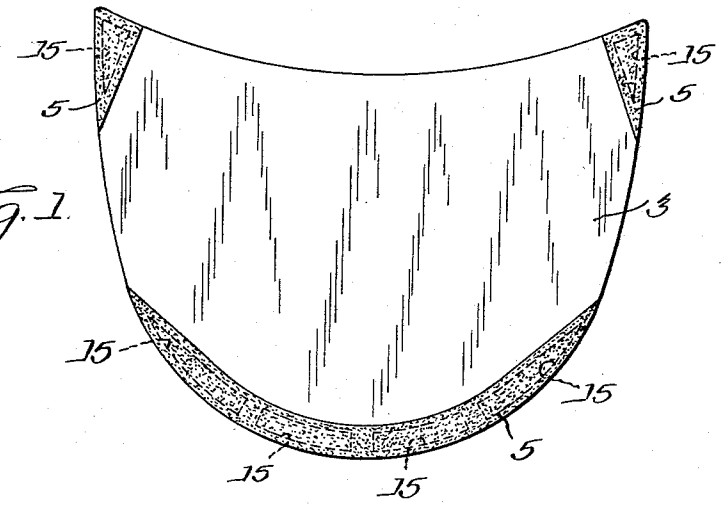


Fig. 2.

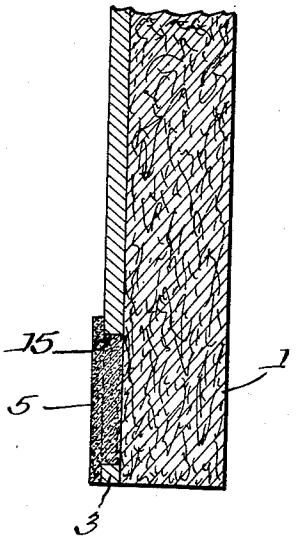
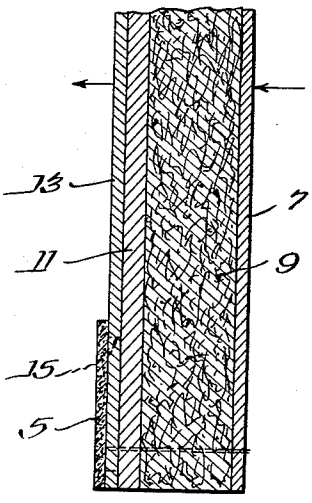


Fig. 3.



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GARMENT SHIELD

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This invention relates to garment shields adapted to protect clothing from staining and more particularly to an improved disposable garment shield which is easily secured to and removed from a garment, which is cool in use and which provides for complete, safe deodorization.

German shields are used primarily to protect the garment of the wear from stains caused by body secretions, such as perspiration. In order to achieve this protection, shields are usually designed with one surface adapted to be placed next to the perspiring area of the body for purposes of absorption, and with a second or reverse surface of fluid-proof material adapted to be placed next to the garment to prevent the perspiration from contacting the garment, the shield being attached to the garment by sewing or by pinning.

One of the difficulties which arises from the use of garment shields is that the fluid-proof surfaces prevent the body heat from escaping. This, in turn, subjects the "perspiring" area to a higher temperature, which is quite evident and discomforting to the user. Further, in absorbing and spreading perspiration over the warm surface of the shield, ideal conditions are created for the growth of odor-causing bacteria, this localized bromidosis being due to the decomposition of the sweat after excretion. Thus, while garment shields serve to protect the garment from staining, they serve also to create a serious odor problem.

Although various solutions to this odor problem have been previously posed, none of these solutions recognize the particular problems created by the use of a shield nor utilize the particular characteristics of the shield to solve the problem. One such proposed solution is the application of astringents to the skin of the wearer, beneath the shield. These astringents work on the principle of inhibiting the action of the apocrine glands. However, it has long been recognized that the efficiency of astringents in controlling perspiration is limited by two critical factors, first, the astringent has to be sufficiently diluted to prevent "burning" of the skin, and second, if the astringent were to work with complete effectiveness, it would cause anidrosis. In anidrosis, the normal lubrication of the skin is diminished, causing it to become dry, harsh, rough and susceptible to external irritants. Pruritus, dermatitis and eczema are frequently complications of anidrosis. Also, in obstructing the external secretory chambers, astringents affect the retention of normally expelled bacteria and tend to cause secondary infections.

A second solution which has been posed is the use of a deodorant applied directly to the skin beneath the garment shield. These deodorants have for the most part worked on the principal of providing a stronger, more pleasant odor, which overcomes the odor of the perspiration. The effectiveness of these deodorants is limited by the amount of deodorant which can be held by the skin. The increased perspiration caused by the use of a garment shield usually grossly exceeds that which can be efficiently accommodated by the deodorant.

A further disadvantage of both astringents and deodorants applied directly to the skin is that quite often users are allergic to the chemicals in particular types of astringents and deodorants and users must often experiment to find an acceptable type. Even when an acceptable type is found, an allergic reaction can result after many years of satisfactory use.

Because garment shields have been conceived of as

being solely for the purpose of shielding the garment from stain and not for solving the problem of odor, they have been made of cloth adapted to be washed prior to reuse. This concept results in two major disadvantages: the means for fastening the shield to the garment are limited to those which can accommodate reuse, and the washing does not always destroy the odor-causing bacteria, but oftentimes permits continued growth. Thus, these shields tend to retain odor which only serves to aggravate odor problems caused by new synthetic fabrics which tend to create unique odor problems when contacted by perspiration.

Therefore, the primary object of this invention is to provide an improved disposable garment shield which may be quickly and simply applied to and removed from a garment, which provides complete deodorization without causing localized anidrosis, or chemical allergy, and which provides for conduction and radiation of body heat away from the skin of the user.

Other objects and advantages of this invention will become evident from an examination of the particular description and the drawings in which

FIG. 1 is a side elevational view of an embodiment of the subject garment shield;

FIG. 2 is an enlarged fragmentary view in cross-section of the shield shown in FIG. 1;

FIG. 3 is an enlarged fragmentary view in cross-section of a modified form of the subject invention.

As shown in FIGURE 1, the garment shield of the subject invention is shaped to conform to the under-arm areas subject to most profuse perspiration. As seen in FIGURE 2, the shield is comprised generally of a laminate including an inner layer of absorbent material **1**, an outer layer of shielding material **3**, and an adhesive backing **5**.

The inner absorbent material **1** is adapted to be placed next to the skin of the user and is made of a highly absorbent black material such as dyed pressed cellulose fibers. Absorbent tissue paper is ideal for this purpose, particularly since it reduces the cost of the use of disposable shields. The function of this material is two-fold; namely, absorbing fluid and absorbing maximum heat from the body.

Adjacent the absorbent material **1** is a shielding layer **3** which comprises a fluid-proof heat-radiating surface. Thin aluminum foil has been found to be particularly advantageous for this purpose since it prevents perspiration from contacting the garment and radiates heat away from the absorbent material. Another method of achieving a fluid-proof heat-radiating surface is to spray aluminum paint directly onto the outerside of the absorbent material.

The adhesive material **5** is preferably of material, such as that found on adhesive tapes, which can be secured to a wide variety of cloth in a manner permitting easy removal. This adhesive material is preferably bonded in relation to the fluid-proof heat-reflecting surface to prevent its becoming detached when the shield is removed from the dress. One means of doing this is to form the heat-radiating, fluid-proof surface to be spaced from the edge of the shield. A second method of achieving this is to provide the heat-radiating, fluid-proof surface with apertures **15**. Both methods permit the adhesive to be bonded directly to the more porous absorbent material. The adhesive material **5** is preferably joined only along the lower edge of the shield, as shown, and adjacent the upper edges in order to prevent puckering of the garment material. When the garment shield is packaged for sale, a layer of thin, porous material protects the adhesive surface and permits handling. However, if the shield is made of particularly soft paper products which become damp and hence, weakened with use, removal of the shield

from the garment after the use without tearing may present a problem. Therefore, when soft, porous materials are used which become weak when damp, the adhesive material 5 should be secured to the shielding surface in a continuous strip along the edge to give support and permit removal without tearing the shield.

In FIGURE 3 an other embodiment of the garment shield is shown which permits more flexibility in the selection of the most appropriate materials to perform each of the desired functions.

The inner contact layer 7 is formed of extremely soft porous material such as soft paper, which is particularly comfortable and non-irritating to the skin of the user. The use of the contact layer 7 permits a wide selection of highly absorbent materials 9, which need not be particularly soft since they will not contact the skin of the user. A layer of aluminum foil 11 is placed adjacent the absorbent material to provide a fluid-proof, heat-conducting and radiating surface. The outside layer 13 is preferably of the same material as the inner contact layer 7, but may be color or white to match the color of the garment on which it is to be used. Both the contact layer 7 and the absorbent material 9 are preferably black to maximize heat absorption.

The laminae are preferably secured together in a manner which will not interfere with the absorbing action.

In the preferred form the absorbent materials 1 and 9 contain an anti-bacterial agent which is distributed therethrough to prevent bromidrosis due to decomposition of the sweat after secretion. Such an anti-baceterial agent as hexachlorophene has been found to be particularly effective in reducing odor. The absorbent materials 1 and 9 may be provided with deodorants which are more effective than when applied directly to the skin, due to the larger quantity which can be held by the shield and to the fact that the deodorant does not contact the skin directly to cause chemical allergies.

In use, the subject garment shield is manually pressed onto the garment in the desired position, the adhesive mamaterial 5 securing the shield for movement with the garment. As the user perspires in the area of the shield, the absorbent material 1 absorbs and spreads the perspiration. The anti-bacterial agent distributed throughout the absorbent material effectively attacks the spread-out perspiration, destroying the bacteria, preventing decomposition of the sweat after secretion.

Further, the black absorbent material absorbs body heat which is transmitted to the reflecting surface 3. From the reflecting surface the heat is radiated outward from the body preventing a build-up of heat beneath the shield and even serving to perceptably reduce the temperature of the axillary space. The reflecting surface also serves as a barrier between the perspiration and the garment to prevent stain. When the shield is to be removed, it is grapsed at the lower end and lifted away from the garment.

The main advantages of this invention reside in the improved disposable construction which not only shields garments from stain, but which also reduces the temperature of the axillary space when in use, which provides for complete deodorization without causing anidrosis or chemical allergy and which permits the shield to be quickly and simply applied to and removed from a garment.

Although but two specific embodiments of this invention have been herein shown and described, it will be understood that numerous details of the construction may be altered or omitted and the teachings herin applied to underarm garment shields or catamenial devices without departing from the spirit of the invention as defined by the following claims.

I claim:

1. A disposable garment shield adapted to absorb body secretions comprising an inner layer of black, heat, and fluid absorbent material conforming to and for facing an area of the body which emits secretions, an antibacterial agent in said absorbent material, and an outer layer of metallic fluid-proof and heat radiating material conforming to the shape of and secured with respect to said inner layer.

2. A disposable garment shield adapted to absorb body secretions comprising an inner layer of black, heat, and fluid absorbent material conforming to and for facing an area of the body which emits secretions, and an outer layer of metallic fluid-proof and heat radiating material conforming to the shape of and secured with respect to said inner layer.

3. A disposable garment shield adapted to absorb body secretions comprising an inner layer of black, heat and fluid absorbent material conforming to and for facing an area of the body which emits secretions, an antibacterial agent in said absorbent material, an outer layer of metallic fluid proof and heat radiating material conforming to the shape of and secured with respect to said inner layer, and a strip of adhesive material bonded to said absorbent material and projecting beyond said outer layer of metallic material for securing said metallic material to said absorbent material and said shield to a garment.

4. The disposable garment shield according to claim 2 which includes a layer of soft material which covers each side of the garment shield.

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