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M. R. MEYER

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DEVICE FOR TREATING FABRICS

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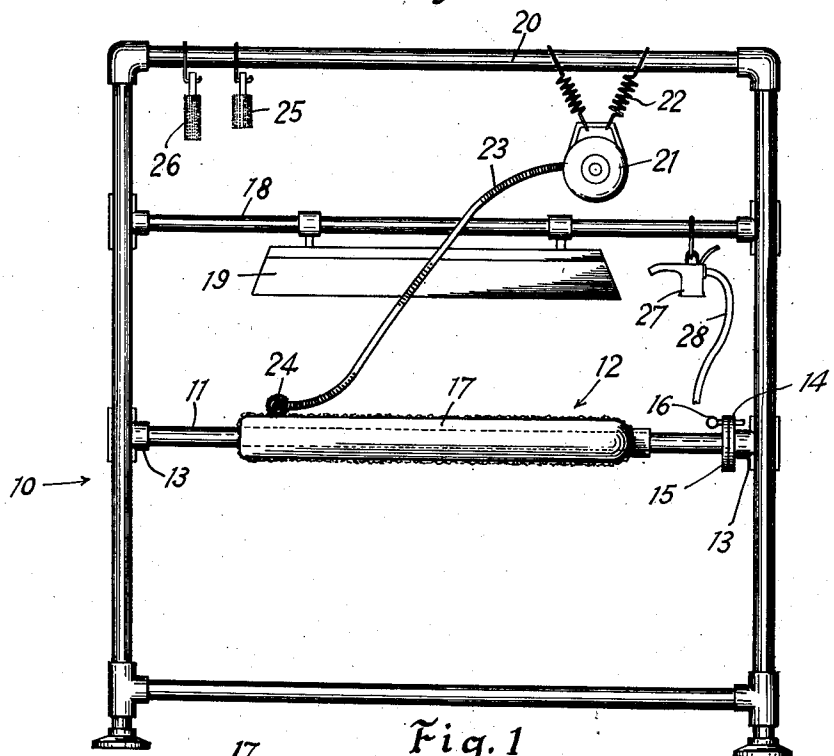
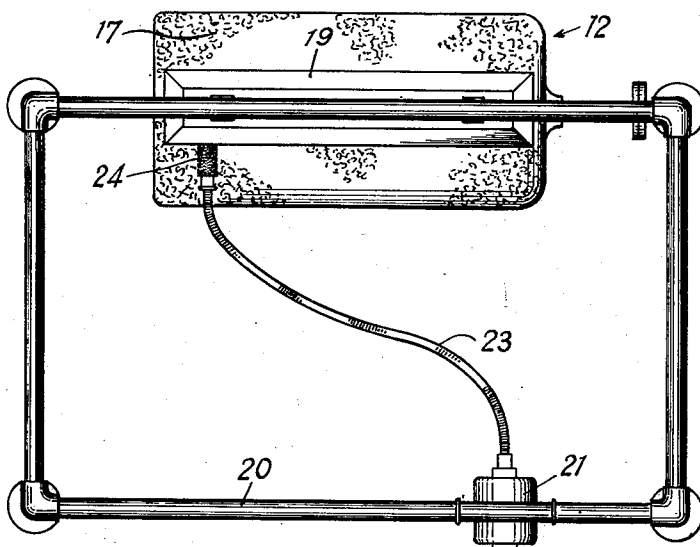
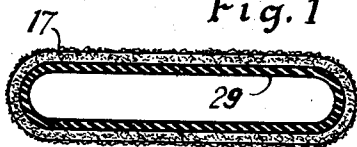


Fig. 3



INVENTOR
BY *Merle R. Meyer*
Philip G. Hilbert
ATTORNEY

UNITED STATES PATENT OFFICE

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DEVICE FOR TREATING FABRICS

Merle R. Meyer, Teaneck, N. J., assignor to
Leandro W. Tomarkin, Spring Valley, N. Y.

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This invention relates to a method of treating fabric. More particularly, the invention concerns the treatment of garments and fabrics which have been subject to surface wear, in a manner which restores the fibers thereof to substantially their original appearance.

Garments and fabrics show surface wear when the fibers thereof are compacted and/or distorted; when original fiber relationships are altered or when nap, if originally present, is partially or totally removed. Accordingly, an object of this invention is to provide an improved process and means for treating garments and fabrics in a manner which substantially restores the fibers thereof to their original condition, interrelationship and appearance.

Garments and fabrics having original nap or pile of various depths, particularly show wear when the original nap or pile is materially reduced in length or is altogether removed. Accordingly, another object of this invention is to provide an improved treatment and means for garments and fabrics which have lost their nap or had their nap reduced, for raising a nap from the surface thereof, without seriously reducing the strength of the fabric proper.

Still another object of this invention is to provide an improved process which includes the treatment of a surface of a garment or fabric with mechanical means effective to loosen or rearrange the fibers thereof, while supporting the same on a resilient base.

Yet another object of this invention is to provide a fabric treating process which includes the application of an aqueous solution containing detergents or a lubricating agent to the fabric and the mechanical disturbance or agitation of the fibers while supporting the fabric on a resilient base, whereby the agitation of the fibers may be controlled to produce a predetermined fiber appearance in the treated fabric.

Still a further object of this invention is to provide an improved garment and fabric treating process which includes subjecting a lubricated fabric supported on a resilient base, to the action of bristles moving across a surface of the fabric and so manipulated whereby to alter the physical condition and appearance of the fibers of the fabric.

Yet a further object of this invention is to provide an improved garment and fabric treating process which includes applying an aqueous solution containing detergents to fabric, supporting the fabric on a resilient backing adapted to minimize lateral shift of the fabric and subject-

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ting the fabric to a mechanical treatment cooperative with the resilient backing whereby to alter and improve the condition and appearance of the fibers of the fabric.

Still another object of this invention is to provide an improved garment treating process which includes the use of contoured forms which are complementary to the contours of the garment being treated, such forms being covered with a resilient material and adapted to support the garment while the same is treated by a brushing action, the forms being of a rigid or expandible nature.

A further object of this invention is to provide a garment and fabric treating process which involves the use of simple and economical means for carrying out the same, which may be practiced by quickly trained operators, which lends itself to low unit costs and is efficient and practical to a high degree in use.

Other objects of this invention will in part be obvious and in part hereinafter pointed out.

The invention accordingly consists in the features of construction, combinations of elements, arrangement of parts and procedural steps which will be exemplified in the construction and method hereinafter described, and of which the scope of application will be indicated in the following claims.

In the accompanying drawing, in which is shown an illustrative embodiment of the invention:

Fig. 1 is a front elevational view of an assembly of parts for treating fabric in accordance with the invention;

Fig. 2 is a top plan view thereof and

Fig. 3 is a transverse sectional view of a fabric treating support member, showing the details thereof.

In considering the useful life of a garment or fabric, primary consideration is given to its appearance. When a garment or portions thereof exhibit shine, loss of nap and dullness of color, such garment is usually deemed to be worn and to have outlived its useful life, notwithstanding the possibility that the original, overall physical strength of the fabric has not been materially impaired. It follows that any treatment of a garment or fabric which tends to restore, either wholly or in part, the original appearance of such garment or fabric, may be said to renew or extend the useful life thereof.

According to the present invention, the extension of the useful life of a garment or fabric is attained by a treatment which is effective to

alter the interengaged yarns and fibers of the fabric in a manner to substantially reproduce the original appearance and condition thereof.

A garment or fabric shows a worn appearance when the constituent yarns and fibers become compacted and distorted so as to lose their original configuration. Also, when the original interrelation of the adjacent yarns is altered, a worn appearance may result. In the case of fabrics having an original nap or pile, any loss or diminution thereof, is readily perceptible and gives a threadbare, worn appearance to the garment or fabric. Original color effects in fabrics are materially altered by a change in the physical condition of the individual yarns as well as their relative disposition in the fabric. Colors in fabrics tend to become dull when the fibers are compacted and when they lose their nap. This becomes quite apparent in mono-colored fabrics as well as in mixed shade fabrics.

This invention may be practiced on fabrics of various types including those having woolen, cotton, silk and synthetic fiber bases. While the invention is particularly applicable to fabrics having napped or piled surfaces, it also has been found to be useful in connection with unnapped fabrics.

As illustrated in Figs. 1 and 2, means is provided for treating garments or fabrics in accordance with the invention. Such means comprises a rectangular shaped, open frame 10 which is made up of horizontally and vertically disposed, elongated members interconnected by means of suitable fittings. On one of the horizontal members 11 is fixed a substantially rectangular shaped base member 12. The opposite ends of member 11 are journaled in aligned T fittings 13 which form part of frame 10. The base member 12 is thus adapted to be revolved to any desired position. A flange 14 is fixed on the horizontal portion of fitting 13 and a similar flange 15 is fixed to member 11 inwardly of the right hand journaled end thereof. The flanges 14, 15 are in contacting relation and are formed with registering openings on their peripheral portions. A removable pin 16 may be passed through a pair of registering openings in flanges 14, 15 to lock the base member 12 against rotation, thus retaining the same in a desired angular position.

The base member 12 is provided with rounded edges and corners to facilitate the treatment of garments positioned thereon. A resilient covering or facing 17 of sponge rubber or the like is applied to the outer surface of base member 12 and is secured thereto by means of adhesive or the like.

On another horizontal member 18 of frame 10, which is disposed above base member 12, is mounted a lighting fixture 19 for illuminating the work positioned on the base member. The fixture 19 may be slidably mounted on member 18. On another horizontal member 20 of frame 10, disposed at the top thereof, is mounted a motor 21. The motor 21 is resiliently mounted on member 20 by means of spring members 22 which may be attached at their upper ends to member 20 in any desired position along member 20. A flexible shaft 23 extends from motor 21, with a rotary type brush 24 detachably attached to the terminal end thereof. Brushes 25, 26 which vary as to diameter, bristle type and the like, may be suspended from member 20 for selective use in lieu of brush 24.

A spraying device 27 of a conventional type, which is operated by means of compressed air, is

provided for carrying and applying lubricating compositions to the garment or fabric being treated. Such device includes a flexible air line 28 which is adapted to be attached to an air compressor or compressed air tank, not shown. The device 27 may be hung from member 18 by means of a clip, when not in use.

While the base member 12 may comprise a core of a rigid nature, to which the resilient facing 17 is attached, alternatively, the core may be of an expansible nature. As shown in Fig. 3, the core may take the form of an inflatable member 29, to which the facing 17 is secured. The core may be inflated by suitable means. It is understood that the core member of base 12 may be made expansible by means of inserts, screws or the like. The base may be contoured to complement the contours of the garment positioned thereon.

A worn garment or fabric which is to be treated, is examined to determine the nature of the fabric and weave, to determine the specific nature and extent of the treatment required. The garment need not be dry cleaned inasmuch as the treatment has some cleaning action and the garment is usually dry cleaned at the end of the treatment. After examination, the garment may be brushed and vacuumed to remove dust or other foreign matter.

The garment is then positioned on the base member 12 with its inner surfaces in contact with the resilient facing 17. Localized areas of the garment which show the greatest degree of wear, such as pockets, collars, cuffs, lapels, hems and the like, are sprayed with an aqueous solution containing a detergent, by means of spraying device 27.

The sponge rubber facing 17 may be of the open pore type or of the closed pore type with a highly irregular or rugose surface. In either case, the irregularity of the facing tends to retain the overlying garment against lateral movement during the subsequent treatment thereof.

While the garment is supported on the base 12, the sprayed localized areas of the garment are subjected to the action of rotary brush 24 which is moved across the areas in different directions. The brush 24, which may be provided with bristles of nylon and of suitable length, fineness and flexibility, engages the fibers of the garment in a manner to rearrange and to alter the physical condition thereof. Compacted fibers are loosened and their original configuration is substantially restored. If the fabric is of the nap type, a brush is selected which will raise a nap on the fabric.

The action of the brush relative to the fabric, is controlled and made effective by the solution applied to the fabric and by the resilient facing which supports the fabric. The facing appears to render the action of the brush uniform and to minimize the tearing or abrading effect of the bristles. This may be due to the absorption of the shock produced by the mechanical engagement of the individual bristles with the fibers of the fabric. With the proper selection of the brush to be used, and proper manipulation thereof, it has been found that the worn areas of the garment are quickly and efficiently restored to substantially their original appearance and condition. The brushing operation is followed by a drying operation which removes the residual moisture in the fabric.

After treatment to restore the localized garment areas of pronounced wear, the entire gar-

ment, including areas of lesser wear, may be treated to renew the garment as a whole. Thus, the entire surface of the garment may be sprayed and then subjected to the brushing action while supported on base 12. The rounded edges and corners on the base, as well as the adjustment of position thereof, facilitates both the spraying and brushing action, particularly with respect to selected areas of the garment. The treatment may be applied to successive sections of the garment or to the entire garment, depending on the overall area thereof. Upon conclusion of the treatment, the garment is inspected and dry cleaned in a conventional manner.

The brushes used in treating garments or fabric, in accordance with the invention may have their bristles extending radially or otherwise from the brush hub. The bristles may be arranged in spiral rows or in any other suitable manner. It is understood that reciprocally operated brushes, as well as hand manipulated brushes, may be used in lieu of the rotary brush shown. When a single brush is used, the operator may manipulate the same in a manner to provide brush action in different directions relative to the surface of the fabric, thus treating the fibers of the fabric in different directions. Alternatively, a plurality of brushes rotating simultaneously in opposite directions may be used. Such an arrangement of brushes avoids drag of the fabric in one direction and accelerates the treatment. Brushes having wire bristles or bristles of fiber other than nylon may be successfully used in connection with selected types of fabric. In any case, the resilient facing underlying the garment or fabric controls and otherwise increases the brushing efficiency of the bristles.

When treating fabrics substantially devoid of nap originally, the brushing action in conjunction with the resilient facing on the base member is highly effective in loosening the yarns and fibers from their compacted condition and restoring the flattened, distorted individual yarns to substantially their original physical condition and appearance.

The use of an aqueous solution containing detergents facilitates the treatment by temporarily softening and lubricating the fabric fibers. Non-aqueous agents such as textile treating oils known in the art, which are adapted to soften and lubricate the fibers, may also be used. It has been found that the coaction of the brushing action and the resilient facing on the base member, in respect to the fabric being treated, is further modified by the presence of fiber lubricant whereby to produce desired fabric effects quickly and in an efficient manner.

With the use of detergent containing solutions, the fabric being treated is cleansed to a certain extent, particularly as regards deep seated foreign material which is not readily removed by the preliminary brushing and vacuuming operation or by conventional dry cleaning procedures.

In the treatment of some fabrics, the application of a lubricating agent to the fabric may be omitted, satisfactory effects being obtained from the conjoint action of the brush and the resilient facing on the work support.

While the process herein disclosed is particularly applicable to worn garments and fabrics, it is understood that the treatment may also be accorded to newly woven fabrics and new gar-

ments for the purpose of napping the same or loosening the original weave to a desired extent. Fabrics and garments also may be treated to selectively nap predetermined areas thereof.

The resilient facing material on base 12 may take the form of materials other than sponge rubber. Combinations of synthetic or natural rubber-like materials and fibrous reinforcing elements, as well as various natural and synthetic porous structures, having the desired degree of resiliency, may be used as a facing for the base member 12.

It will thus be seen that there is provided a method and means, in which the several objects of this invention are achieved, and which is well adapted to meet the conditions of practical use.

As various possible embodiments might be made of the above described invention, and as various changes might be made in the embodiments above set forth, it is to be understood that all matter herein set forth is to be interpreted as illustrative and not in a limiting sense.

Having thus described my invention, I claim as new and desire to protect by Letters Patent:

1. In a device for renewing garments including fabric having interengaged yarns in a compacted condition, comprising in combination, a resilient base having an irregular upper surface for supporting a garment, and means for brushing the exposed surface of the garment to loosen the fabric yarns thereof, the upper surface of said base being adapted to retain said garment against lateral movement during the brushing operation.

2. In a device for treating fabric, the combination of means for supporting the fabric including an outer sheet of porous, resilient material having an irregular outer surface, means for applying a lubricant to the fabric and brush means for treating the lubricated fabric while supported on said resilient means.

3. In a device for treating fabric, the combination of a frame, a base member adjustably mounted on said frame, a resilient porous facing having an irregular outer surface on said base member and brush means for treating fabric positioned on the resilient facing of said base member.

4. In a device for treating fabric, the combination of an expansible base member, a resilient porous facing having an irregular outer surface on said base member and brush means for treating fabric positioned on the resilient facing of said base member.

MERLE R. MEYER.

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