

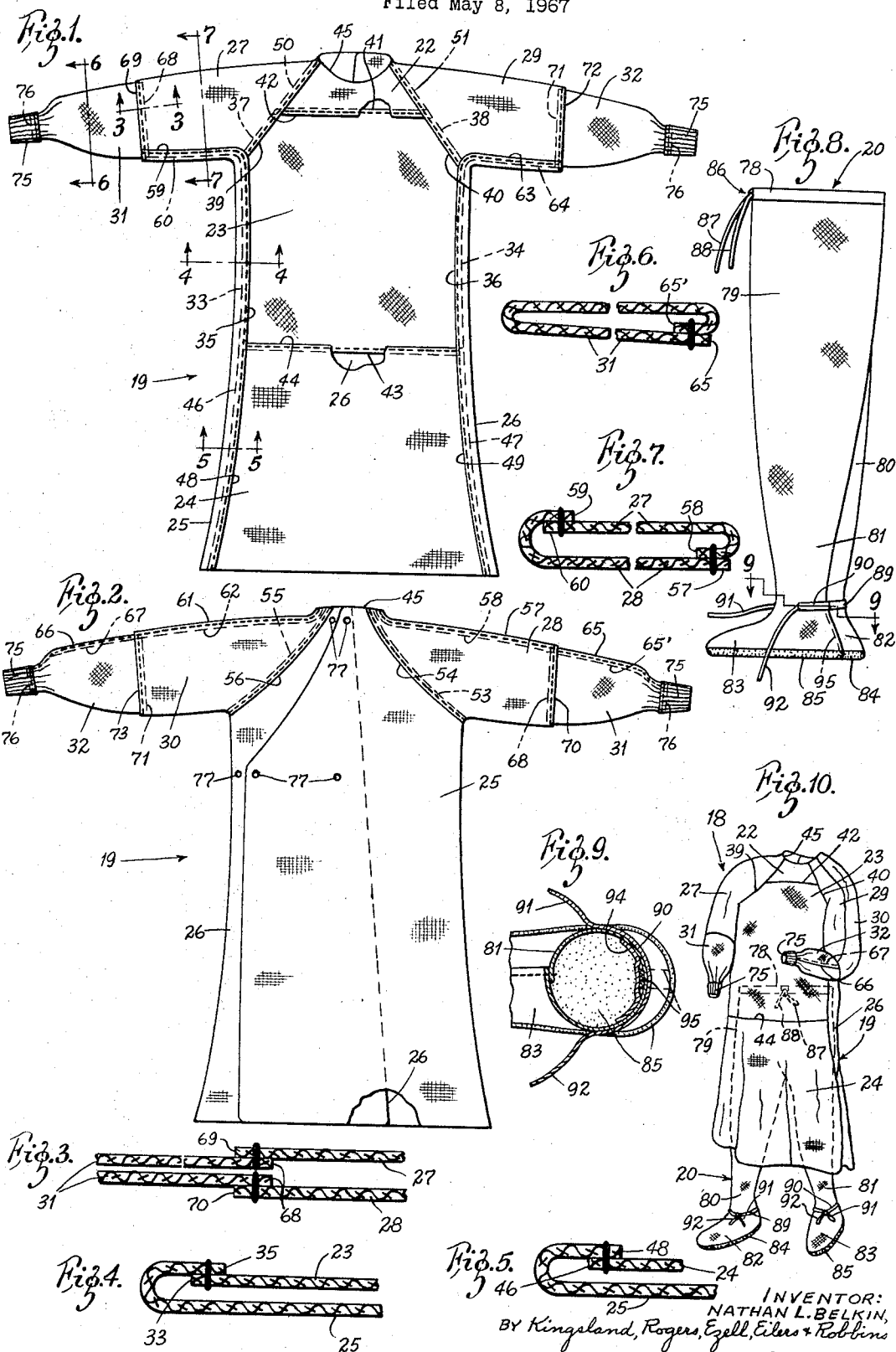
Oct. 24, 1967

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3,349,285

SURGICAL GOWN WITH STATIC ELECTRICITY DISCHARGE MEANS

Filed May 8, 1967



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1

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SURGICAL GOWN WITH STATIC ELECTRICITY DISCHARGE MEANS

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Filed May 8, 1967, Ser. No. 636,799

4 Claims. (Cl. 317—2)

ABSTRACT OF THE DISCLOSURE

A surgical suit having critical contamination areas formed of closely woven, treated fabric to retard the transmission of bacteria. Trousers, which completely cover the lower portion of a surgeon's body below the waistline including the lower torso, the legs, and the feet, are made entirely of the closely woven fabric. A gown has an upper front panel extending from the area near or above the armpits to an area below the waistline made of the closely woven fabric, and has lower sleeve sections extending from the elbow to the wrists made of the closely woven fabric. Remaining portions of the gown are made of conventional fabrics.

Brief summary of the invention

This surgical suit comprises a gown and trousers. The gown is made of a plurality of panels sewed together to form a unitary gown, and the trousers are made of a plurality of panels sewed together to form a pair of unitary trousers. The panels forming the gown include an upper front panel extending from the area somewhat above the armpits and having its lower edge positioned approximately ten inches below the waistline, with its side edges positioned halfway around the side of the garment toward the back. This upper front panel, as well as the lower sleeve panels which extend from the area of the elbows to the area of the wrists, is formed of a fabric of closely woven cotton yarn treated with a water repellant chemical agent. The trousers are entirely formed of the same closely woven fabric and also have electrically conductive soles with electrically conductive strips on their inner sides and with ties for making positive contact between the electrically conductive strips and the legs of the surgeon.

This surgical suit attacks the problem of the transmission of bacteria which constitute an infection hazard during the performance of surgical procedures. The transmission of these bacteria is enhanced when portions of the surgical suit are wetted by blood, perspiration, or other liquid, because such wetted areas provide a more ready path for the transmission of bacteria. An important advantage of this surgical suit is that, although it can be washed and sterilized repeatedly, the closely woven, treated fabric (in the immediate area of the sterile field) retains the desirable liquid repellant characteristic. The trousers, as well, although not sterilized, can be washed after each use, and will continue to restrict the dissemination of viable organisms to the ambient atmosphere.

Description of the drawing

FIGURE 1 is a front elevation view of the surgical gown shown folded in flat position;

FIGURE 2 is a rear elevation view of the surgical gown of FIGURE 1;

FIGURE 3 is an enlarged fragmentary view in section taken along the line 3—3 of FIGURE 1;

FIGURE 4 is an enlarged fragmentary view in section taken along the line 4—4 of FIGURE 1;

2

FIGURE 5 is an enlarged fragmentary view in section taken along the line 5—5 of FIGURE 1;

FIGURE 6 is an enlarged fragmentary view in section taken along the line 6—6 of FIGURE 1;

FIGURE 7 is an enlarged fragmentary view in section taken along the line 7—7 of FIGURE 1;

FIGURE 8 is a side elevation view of the trousers for the surgical suit;

FIGURE 9 is a fragmentary enlarged view in section taken along the line 9—9 of FIGURE 8; and

FIGURE 10 is a front view depicting how the surgical suit appears as worn by a surgeon.

Detailed description of the invention

Referring now to the drawing, the surgical suit 18 shown in FIGURE 9 comprises a gown 19 and trousers 20. As shown in FIGURES 1 and 2, the gown 21 comprises a plurality of fabric panels 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, and 32, sewed together. The panels 22, 23, and 24 generally make up the front of the gown, and the panels 25 and 26 the back of the gown. One sleeve is made up of the panels 27, 28, and 31, and the other sleeve is formed by the panels 29, 30, and 32.

Except for the panels 23, 31, and 32, the gown 19 may be made of different sizes, shapes and numbers of panels other than as specifically shown in FIGURES 1 and 2. Likewise, all the panels except the panels 23, 31, and 32 may be of any fabric conventionally used for garments, preferably cotton because of its weight and breathability, a typical such cotton fabric having specifications in the range of yarn count of 54 x 56 and a weight of 2.50 running yards per pound, forty inches in the greige. Such conventional fabrics are not water resistant and also readily permit the passage of bacteria.

In contrast, the panels 23, 31 and 32 are formed of a fabric of tightly woven cotton yarn having a total yarn count in excess of 262, with air permeability of maximum of 3.5 c.f.m. (Textile Test Method per Federal Specification No. CCC-T-191b, Method 5450 for permeability to air; cloth; calibrated orifice method), a spray rating of 100 before laundering (Textile Test Method per Federal Specification No. CCC-T-191b, Method 5526 for water resistance of cloth with hydrophobic finish; spray method) with a spray rating in excess of 90 after three mobile washes.

The panel 23 has side edges 33 and 34 that are joined by stitching to the edges 35 and 36 of the panels 25 and 26, respectively. The panel 23 also has upper corner edges 37 and 38, extending at approximately forty-five-degree angles, which are stitched to the edges 39 and 40 of the sleeves 27 and 29, respectively. The panel 23 is stitched to the lower edge 42 of the yoke panel 22 and the bottom edge 43 that is stitched to the upper edge 44 of the panel 24. Thus, the tightly woven panel 23 extends from side seam to side seam across the entire front of the gown 19 with the side edges 33 and 34 being located at least halfway across the side of the surgeon toward the back of the jacket. The forty-five-degree corner edges 37 and 38 extend upwardly from the area of the armpits of the jacket to the upper edge 42 which is located approximately halfway between the area of the armpits and the neck opening 45. The lower edge 43 of the panel 23 is located approximately ten inches below the area of the surgeon's waistline.

The side edges 46 and 47 of the lower front panel 24 are sewed to the edges 48 and 49 of the panels 25 and 26, respectively. Similarly, the angled side edges 50 and 51 of the yoke panel 22 are sewed to the edges 39 and 40 of the upper front sleeve panels 27 and 29, respectively.

As shown in FIGURE 2, the upper forty-five-degree edge 53 of the back panel 25 is sewed to the edge 54 of the upper rear sleeve panel 28 and the upper angled

edge 55 of the back panel 26 is sewed to the edge 56 of the upper rear sleeve panel 30. The upper edges 57 and 58 of the sleeve panels 27 and 28 are sewed together along a seam, and the lower edges 59 and 60 are sewed together along a seam (FIGURE 7). Similarly, the upper edges 61 and 62 of the upper sleeve panels 29 and 30 are sewed together along a seam, and the lower edges 63 and 64 of those panels are sewed together along a seam.

This formation of sleeves with upper and lower seams is typical of such garments. However, the forearm portions 31 and 32 of the sleeves are each formed of only a single panel of the closely woven fabric. The opposite edges 65 and 65' (FIGURE 6) of the sleeve panel 31 are sewed together along a seam, and the opposite edges 66 and 67 of the sleeve panel 32 are sewed together along a seam. Both of these seams, however, are located at the top of the jacket 21 as viewed in FIGURES 1 and 2 so that the seams formed by the edges 65 and 65' and the edges 66 and 67 lie along the outer sides of the arms, as is indicated in FIGURE 2.

The upper edge 68 of the lower sleeve panel 31 is located at the elbow. It is sewed to the lower edges 69 and 70 of the upper sleeve panels 27 and 28, respectively. Similarly, the upper edge 71 of the lower sleeve panel 32 is located at the elbow and is sewed to the lower edges 72 and 73 of the upper arm panels 29 and 30.

Conventional cotton stockinette cuffs 75 are sewed to the lower edges 76 of the lower arm panels 31 and 32. Also, suitably located conventional snaps 77 permit releasable closure of the jacket 19.

The trousers 20, as shown in FIGURES 8 and 9, have an upper waistline 78, a lower torso section 79, legs 80 and 81, and feet 82 and 83. Conductive rubber soles 84 and 85 are sewed to the bottoms of the feet 82 and 83. There is a conventional drawstring 86 at the waistline, having tie ends 87 and 88. There is also a tie cord 89 sewed across the back of the leg 80 at the ankle, and a tie cord 90 sewed across the back of the leg 81 at the ankle. The tie cords 89 and 90 each have tie ends 91 and 92. Also, as shown in FIGURE 8, there is an electrically conductive strip 94 sewed to the inner backside of the leg 81, at the ankle, which is in contact with another electrically conductive strip 95 sewed to the back heel portion of the foot 83, with its lower end in contact with the electrically conductive sole 85. The other leg 80 has the same construction of electrically conductive strips.

The trousers 20 are made of as few panels as possible, and each panel is made of the same closely woven and chemically treated fabric as constitutes the panels 23, 31, and 32.

When the trousers are worn by a surgeon, the drawstring 86 is tightened to fasten the trousers about the surgeon's waist, and the tie ends 91 and 92 are tied sufficiently tightly to make good contact between the leg of the surgeon and the electrically conductive strip 94. This establishes electrical contact between the legs of the surgeon and the electrically conductive soles 84 and 85 to ground the wearer. The gown 19 is worn with the snaps 77 fastened and is not tucked into the trousers 20. As FIGURE 10 shows, the lower edge 44 of the upper front panel 23 lies approximately ten inches below the waistline 78. Thus, the materials which restrict the transmission of bacteria shed by the wearer cover the entire lower portion of the body to the waist which has been proven to be the major source of desquamation, and the

entire front side of the surgeon's torso to the area near and above the armpits, and the entire forearms from the elbows. Overlapping of the panel 23 and the trousers 22 assures the absence of any area uncovered by the tightly woven fabric at the mid front of the critical contamination area. Of course, surgeon's gloves cover the cuffs 75. This suit, therefore, provides protection against the transmission of bacteria in the potentially critical contaminated areas in the immediate vicinity of the sterile field, while providing conventional cloth materials over the non-critical contaminated areas for substantial reduction in cost of the garment.

Various changes and modifications may be made within the purview of this invention as will be readily apparent to those skilled in the art. Such changes and modifications are within the scope and teaching of this invention as defined by the claims appended hereto.

What is claimed is:

1. A surgical suit comprising an integral gown having front panels and rear panels sewed together to form a skirt for covering the body of a wearer with means to releasably fasten the back panels together to close the skirt about the body of the wearer, and panels sewed together to form sleeves for the gown, with the upper edges of the sleeves being sewed to the upper edges of the front and back panels, the front panels including a single upper front panel extending over the upper front portion of the jacket with side edges positioned toward the back of the jacket at least as far as vertical projections through the areas of the armpits, the sleeves having lower arm panels extending from the area of the elbows to the wrists, the said upper front panel and the said lower sleeves being constituted of a microporous barrier material of closely woven yarn, whereas the remaining panels of the gown are formed of conventional fabric material substantially less closely woven.

2. The surgical suit of claim 1 wherein each sleeve lower arm panel is seamless in the area covering the underside of the lower forearm.

3. The surgical suit of claim 1 wherein the suit also comprises integral trousers having panels forming a unitary enclosure for the entire lower body of the wearer below the waist, including the feet, the lower edge of the said upper front panel of the gown extending several inches below the waistline of the wearer, the trousers being constituted of a microporous barrier material of closely woven yarn similar to that of the upper front panel and lower sleeve panels of the gown.

4. The surgical suit of claim 3 including electrically conductive soles sewed to the foot portions of the trousers, electrically conductive strap means sewed to the inner side of the legs of the trousers and in contact with the electrically conductive soles, and ties for pressing the strap means against the wearer's legs.

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