

- [54] **PROTECTIVE SURGICAL SLEEVE**
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[51] Int. Cl.A41d 27/12
[58] Field of Search2/59, 16, 60, 170, 270, DIG. 1,
2/DIG. 6, DIG. 7

[56] **References Cited**

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[57] **ABSTRACT**

A surgical protective sleeve made of a fluid impervious material and adapted to cover at least the forearm portion of a surgeon's gown to prevent soaking thereof by body fluids. The sleeve includes an elastic portion at each end thereof to hold the sleeve tightly against the wrist and arm and maintain the sleeve extended along the forearm. Ventilation holes are provided in the upper portion of the sleeve to prevent perspiration between the arm and the sleeve.

4 Claims, 2 Drawing Figures

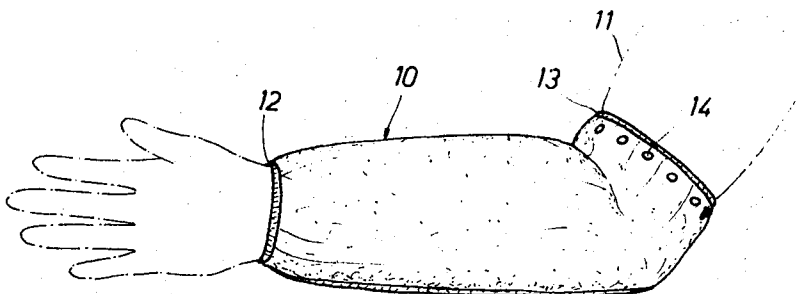


FIG. 1

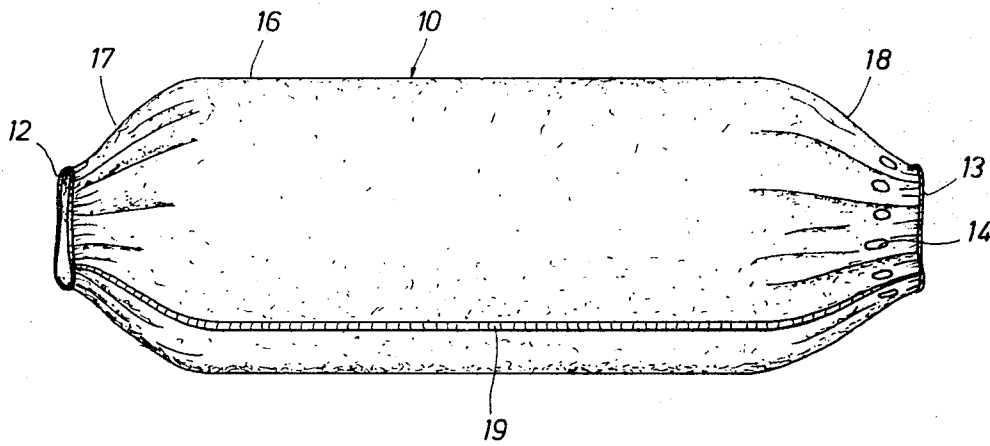
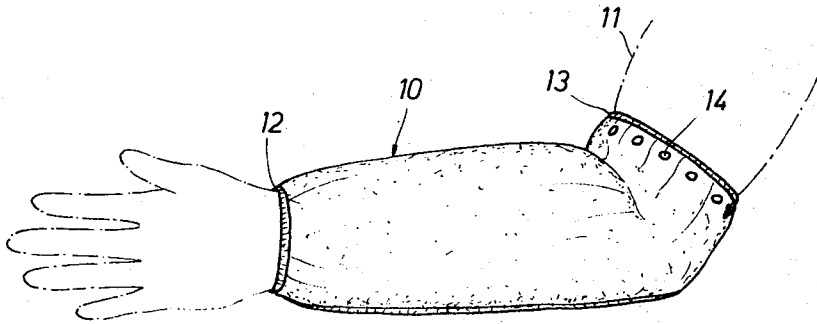


FIG. 2

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PROTECTIVE SURGICAL SLEEVE

BACKGROUND OF THE INVENTION

During many surgical procedures, the sleeves of a surgeon's gown often become wet with blood and other body fluids. Heretofore, surgeons either changed gowns to prevent contamination and possible infection of the patient, or put on a sleeve made of a cloth stockin-net material to absorb the blood and other fluids. These stockin-net sleeves, however, also being cloth, similarly absorbed fluid and presented the likelihood of contamination. Many arm protectors, of the type such as disclosed in U.S. Pat. No. 2,326,422, have been used to protect the arms of industrial workers and the like from harmful fluids or materials. Similar protecting sleeves have also been utilized for protecting ones shirt sleeves and cuffs to prevent them from getting dirty. Examples of these can be seen in U.S. Pat. Nos. 120,324 and 243,330 and 1,997,956. However, such devices have not been satisfactory for surgical use. A protective sleeve for surgical use must be made of a material that is sterilizable. Furthermore, the sleeve must be flexible and light enough to provide little or no impediment to normal arm movement so as not to restrict the surgeon in any way from moving in a normal manner. Additionally, the sleeve must be comfortable and must not cause excessive perspiration.

The subject protective surgical sleeve provides all the advantages stated above and eliminates the need for a surgeon to have to change gowns before a surgical procedure is completed, regardless of the wetness of the field in which he is working.

SUMMARY OF THE INVENTION

The subject protective surgical sleeve includes a generally tubular portion made of a fluid impervious material and adapted to cover the forearm from a position adjacent to the wrist to a position either above or below the surgeon's elbow. Each end of the protective sleeve has elastic or other means for engaging the wrists and arm to hold the sleeve in place fully extended along the forearm. A plurality of ventilation holes or passageways are provided in the upper portion of the sleeve to permit circulation of air beneath the sleeve to prevent excessive perspiration which can saturate the gown and become extremely uncomfortable to the surgeon. The sleeve is preferably made of a fluid impervious material, such as a plastic, or some other material which is at least fluid resistant or fluid repellent. Any material which can breathe, that is, is permeable to air, and still is at least fluid resistant or fluid repellent, would also be desirable, and in such instances, adequate circulation of air may result without need for the ventilation holes. The sleeves are desirably made to be disposable so that they can be sterilized during manufacture and separately packaged in a sterile package. After use, the sleeves can be thrown away. If desired, however, the protective sleeves can be made of a material which is autoclavable so that they can be resterilized and used again.

Other advantages of the present invention will be apparent from the following detailed description when considered in conjunction with the following detailed drawings, which drawings form a part of this specification. It is to be noted, however, that the drawings illustrate only a typical embodiment of the invention and are therefore not to be considered limiting of its scope, for the invention may admit to other equally effective embodiments.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a view illustrating the protective surgical sleeve embodying the principles of this invention as it is worn by a surgeon.

FIG. 2 is an enlarged view of the surgical sleeve shown in FIG. 1.

DESCRIPTION OF THE INVENTION

Referring now to FIG. 1, there is shown a protective surgical sleeve 10 made of a fluid impervious material as worn on the arm 11 of a surgeon. The term fluid impervious as used herein also contemplates fluid repellent and fluid resistant materials as well as materials that are impermeable or impervious to fluids. The sleeve 10 has a wrist engaging portion 12 at one end, typically an elastic band, which securely grips the surgeon's wrist. The other end of the sleeve 10 has an arm engaging portion 13, which is typically an elastic band also. While the illustration in FIG. 1 shows the sleeve 10 as extending past the elbow so that the elastic band 13 engages the upper arm, the sleeve may also be shorter, if desired, so that it terminates below the elbow with the elastic band 13 engaging the upper part of the forearm.

The upper end of the sleeve 10 has a plurality of openings 14 therein, preferably spaced around the periphery of the sleeve 10 to provide ventilation holes and permit circulation of air beneath the sleeve. The sleeve 10 is tubular in shape and has a diameter large enough to allow an annular space between the interior of the sleeve and surgeon's arm or gown. By providing the ventilation holes 14 air is permitted to freely circulate within this annular air space to limit excessive perspiration and to keep the surgeon's forearm relatively cooler and drier.

Referring to FIG. 2, a protective surgical sleeve 10 is shown having a tubular central portion 16 of a diameter which is selected to be larger than the normal forearm diameter. The sleeve 10 may be made in several sizes having, for example, small, medium and large diameters. Additionally, the sleeve 10 may be made in several lengths to provide a choice wherein the arm engaging portion either engages above or below the elbow. The sleeve 10 has a necked down wrist portion 17 at one end and a necked down arm portion 18 at the other end thereof. The wrist portion 17 terminates in the elastic band 12 as previously described, and the arm portion 18 terminates in the elastic band 13 which grips the forearm or upper arm of the surgeon. The surgical sleeve may be fabricated by taking a sheet of fluid impervious material and forming it into a tubular shape and securing the edges at the seam 19 by conventional sealing techniques, such as heat sealing, gluing, sewing or the like, to provide a fluid impervious seal along the seam 19. While the sleeve is shown as having the seam 19, the sleeve could also be extruded or otherwise formed so as to have no seam at all, which would be even more desirable since there would then be no potential leakage path. The openings 14 while being shown as circular or oval in shape may have any desired shape, and may be positioned randomly or in any way desired to obtain air circulation beneath the sleeve 10. For example, a plurality of rows of holes 14 could be utilized instead of one row around the periphery of the upper portion 18. The holes 14 preferably are positioned an inch to an inch and one-half from the elastic band 13. The constant motion of the arms during surgery creates a bellows effect with the tubular central portion 16 of the sleeve 10 which pushes the air in the annular space between the surgeon's arm and the interior of the sleeve 10 out through the openings 14.

By use of the subject sleeve, a surgeon can either put the sleeve on immediately after putting on his gown, if he feels a need for it in performing a particular surgical procedure, and thereby maintain the sleeves of his gown dry during the course of such procedure, or alternatively, and more likely, he may begin his surgical procedure and at such time as he find body fluids are beginning to saturate and contaminate his gown, or his gown becomes contaminated for some other reason, such as by contact with a person or an unsterile object, he could then pull the sterilized protective sleeves 10 over his gloves and gown and proceed with the operation without having to change gowns. The surgical sleeves thus put on will cover the contaminated area and prevent any contamination by body fluids which have already saturated the surgical gown and also will prevent any fluids from further wetting the surgical gown.

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Thus, the patient is protected from the possibility of infection of the operative wound. When the surgical procedure is over, the protective sleeve 10 may be taken off and disposed of, or if made of an autoclavable material, it may be set aside for cleaning and resterilization so that it can be used again. The advantages of the sleeve being disposable are evident, of course, in that it eliminates the resterilization procedure and insures that whenever a new sleeve is used, it is thoroughly sterilized. The simplicity of design of the subject sleeve and the economy with which it can be made lends itself readily to being disposable. The use of the sleeve permits the surgeon to operate without the discomfort of having his forearms saturated with blood and other body fluids. The subject sleeve can be put on and taken off with ease, worn with comfort without impeding the surgeon's movements, and can eliminate contamination of the operative field.

It is to be understood that the above described embodiment is merely illustrative of an application of the principles of this invention and that numerous other arrangements and modifications may be made within the spirit and scope of invention.

What is claimed is:

1. A surgical protective sleeve comprising:

- a fluid impervious tubular portion of extended length and adapted to cover a surgeon's arm from the wrist to a position above the elbow;
- wrist engaging means on one end of said tubular portion for gripping the surgeon's wrist;

arm engaging means on the other end of said tubular portion for gripping the surgeon's arm above the elbow and for holding said tubular portion extended along said forearm;

5 said tubular portion having at least one ventilation passageway formed therein for providing air circulation in the space enclosed between said tubular portion and the arm to prevent excessive perspiration; and

10 said ventilation passageway being positioned adjacent said arm engaging means and adapted to be disposed above the elbow of the surgeon.

2. A surgical protective sleeve as set forth in claim 1 wherein a plurality of ventilation passageways are formed around the periphery of said tubular portion and adapted to be positioned above the elbow of the surgeon.

3. A surgical protective sleeve as set forth in claim 1 wherein said tubular portion includes a central portion having a substantially constant diameter, a first necked down end portion terminating at said wrist engaging means, and a second necked down end portion terminating at said arm engaging means.

4. A surgical protective sleeve as set forth in claim 5 wherein said central portion has a diameter sufficiently larger than the surgeon's arm to provide an annular air circulating space between said arm and said central portion.

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UNITED STATES PATENT OFFICE
CERTIFICATE OF CORRECTION

Patent No. 3,657,741 Dated April 25, 1972

Inventor(s) Victor M. Blanco

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

Column 4, line 22, "claim 5" should read "claim 3".

Signed and sealed this 8th day of August 1972.

(SEAL)

Attest:

EDWARD M. FLETCHER, JR.
Attesting Officer

ROBERT GOTTSCHALK
Commissioner of Patents