

March 16, 1971

T. L. WINTERS

3,570,012

SURGICAL GOWN

Filed March 12, 1969

3 Sheets-Sheet 1

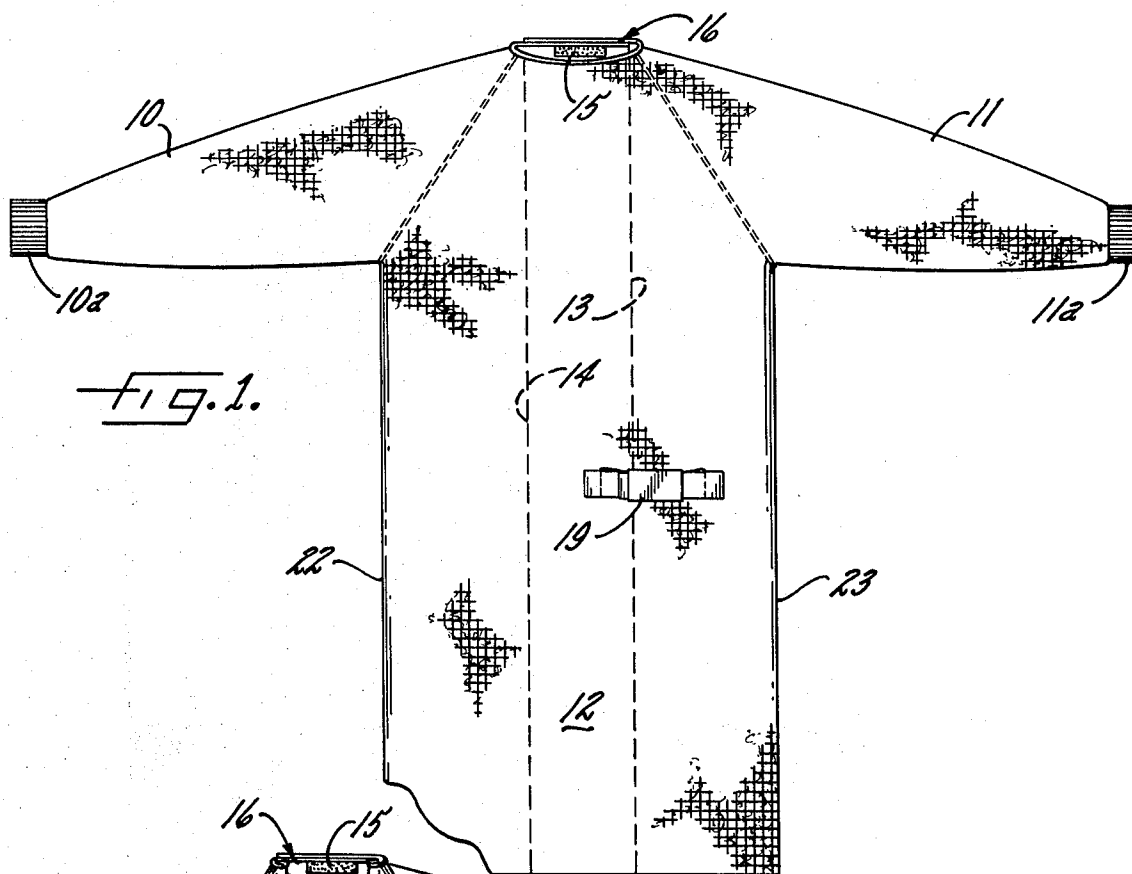


FIG. 1.

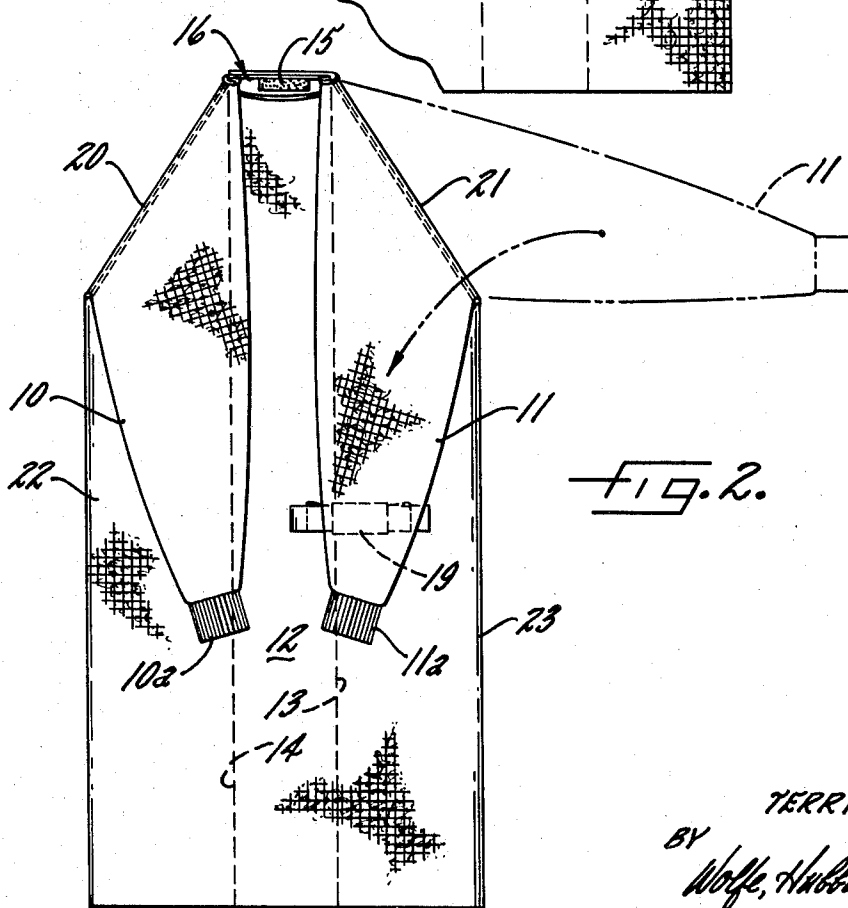


FIG. 2.

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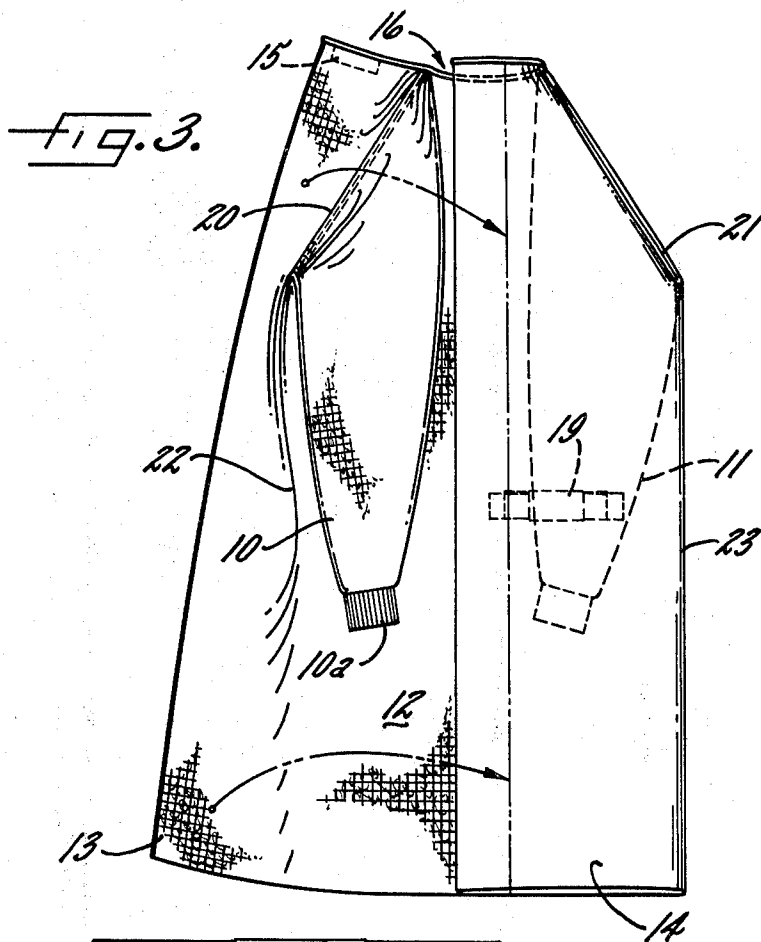
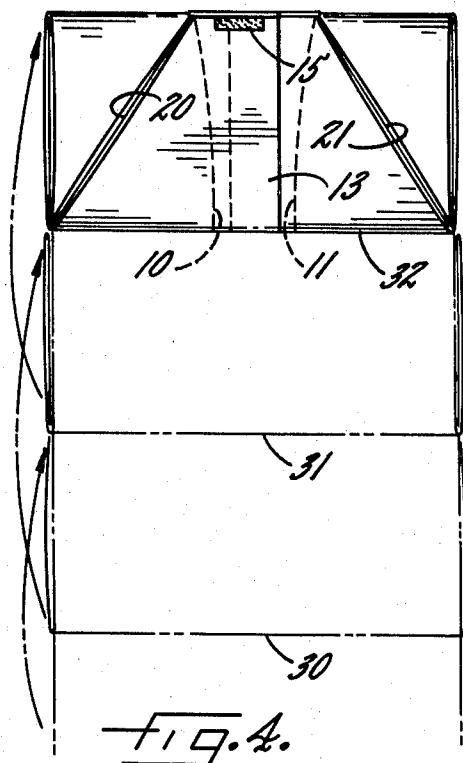
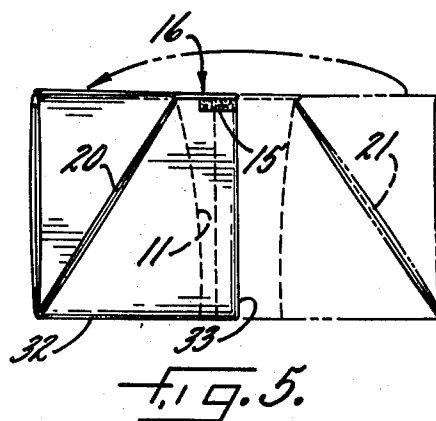
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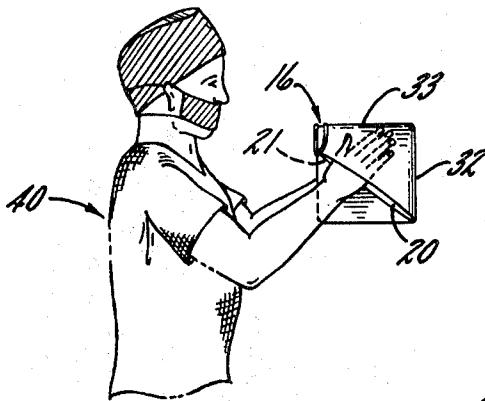


FIG. 6.

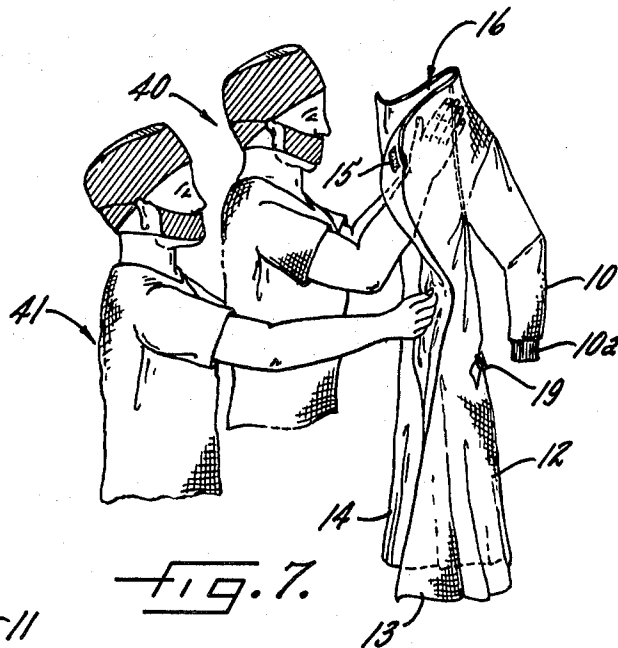


FIG. 7.

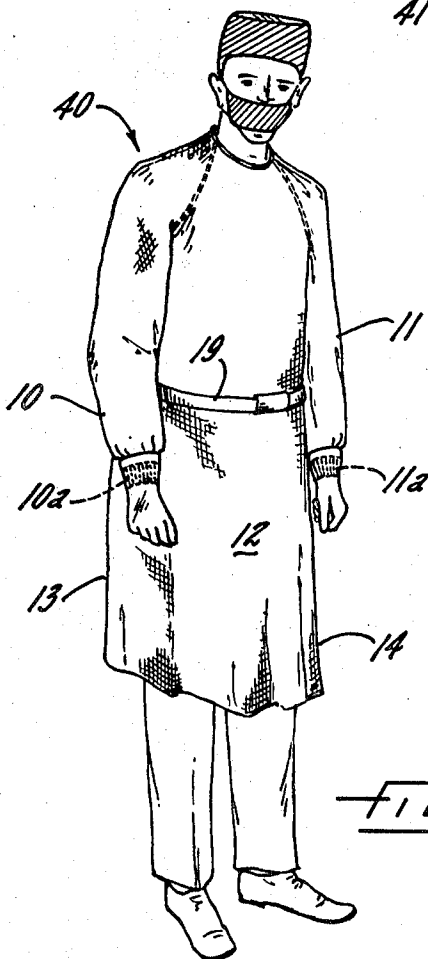


FIG. 8.

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3,570,012

SURGICAL GOWN

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Filed Mar. 12, 1969, Ser. No. 806,405

Int. Cl. A41b 9/00

U.S. Cl. 2—114

9 Claims

ABSTRACT OF THE DISCLOSURE

A method of folding a surgical gown so that in its folded form it may be picked up as a unit and put on after shaking it out, with or without the help of an assistant, without touching any of the sterile outer surfaces of the gown. The folding process involves folding the sleeves of a back closing gown down over the closed front of the gown, folding the back flaps forwardly over the sleeves, folding the lower portion of the gown upwardly one or more times so that the armholes remain exposed, and then folding the gown transversely to form a small package with the armholes still exposed to facilitate handling and donning of the gown.

DESCRIPTION OF THE INVENTION

The present invention relates generally to surgical gowns, and, more particularly, to a method of folding such gowns so as to avoid contamination of the sterile outer surfaces thereof during shipment, storage, handling and donning.

It is a primary object of the present invention to provide an improved method of folding a surgical gown of the type that is provided with sterile exterior surfaces, such as gowns made of disposable materials for example. A more particular object of the invention is to provide such an improved method which permits the gown to be folded in a compact unit or package, with all the sterile exterior surfaces of the gown enclosed to protect the same from contamination, with relatively few folding steps.

It is another object of the present invention to provide an improved folding method of the type described above which is readily adaptable to automated production and packaging.

A further object of the invention is to provide an improved folding method of the foregoing type which facilitates unfolding and donning of the gown without contaminating the sterile exterior surfaces thereof. In this connection, a related object of the invention is to provide such an improved method which permits the gown to be partially donned even before it is unfolded, thereby providing further protection against contamination of the gown.

Still another object of the invention is to provide a surgical gown which is folded in such a manner that it is naturally elevated well above the floor by the donning surgeon or other user before the gown is unfolded.

It is a still further object of the invention to provide such an improved surgical gown which can be easily unfolded by a simple shaking movement by the user.

Other objects and advantages of the invention will become apparent upon reading the following detailed description and upon reference to the drawings, in which:

FIG. 1 is a front elevation of an unfolded surgical gown ready to be folded according to the method of this invention;

FIG. 2 is a front elevation of the gown of FIG. 1 after it has been partially folded by the method of this invention;

FIG. 3 is a front elevation of the gown of FIG. 1 illus-

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trating further folding steps of the method of this invention;

FIG. 4 is a front elevation of the gown of FIG. 1 illustrating still further folding steps of the method of this invention;

FIG. 5 is a front elevation of the gown of FIG. 1 illustrating the final folding step;

FIG. 6 is a side elevation of a surgeon with his hands inserted in the armholes of the gown just prior to unfolding the same.

FIG. 7 is a side elevation of a surgeon completing the donning of the unfolded gown with the aid of an assistant; and

FIG. 8 is a side elevation of a surgeon wearing the gown.

While the invention will be described in connection with a preferred embodiment, it will be understood that I do not intend to limit the invention to that embodiment. On the contrary, I intend to cover all alternatives, modifications and equivalents as may be included within the spirit and scope of the invention.

Turning now to the drawings and referring first to FIG. 1, there is shown a surgical gown comprising two sleeves 10 and 11 and a body portion having a closed front section 12 and an open back section forming two flaps 13 and 14. Thus, the gown is of the back closing type, with the two back flaps 13 and 14 being divided from each other along the entire length of the gown. A gown of the type illustrated may be made of three sheets of material, one of which is used to form the body portions 12, 13, and 14, and the other two sheets being used to form the two sleeves 10 and 11 which are secured to the body section by adhesive bonding, sewing, or the like. For the purpose of closing the gown at the neck when it is donned, two elements of a conventional pressure sensitive closure, indicated at 15, are typically provided on the opposed surfaces at the top edges of the two back flaps 13 and 14, respectively. The present invention is particularly concerned with surgical gowns made of disposable materials, in which case the outer surfaces of the material are generally rendered sterile before the gowns are delivered to the user. If desired, a smooth edge tape may be sewed along the edge of the neck opening 16 formed in the upper end of the front body section 12 of the gown, and elastic cuffs 10a and 11a are normally fastened to the ends of the two sleeves 10 and 11, respectively.

For the purpose of securing the gown around the waist of the user when it is donned, a folded belt package 19 is secured to the outside surface of the front body section 12. This belt package is suitably of the type described in pending application Ser. No. 788,377, filed Jan. 2, 1969, by T. H. Planner, entitled "Folded Belt Package For Hospital Gowns," and assigned to the assignee of the present application. The belt package described in said application holds the belt folded within a tubular band until the gown is donned, at which time the belt 19 may be easily released from the band and tied around the waist of the user to hold the gown securely in place.

In accordance with one important aspect of the folding and packaging method provided by the present invention, the sleeves of the gown are folded down over the outer surface of the closed front section of the gown, after which the two back flaps are folded forwardly in opposite directions, over the folded sleeves and front section of the gown, so that only the inner surface of the front section is exposed on the back of the gown and only the inner surfaces of the back flaps are exposed on the front of the gown. Thus, in the illustrative embodiment shown in the drawings, FIG. 2 shows the gown with the two sleeves 10 and 11 folded downwardly over the closed front of the gown; sleeve 13 is also shown in

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its unfolded position in broken lines, and the folding path for sleeve 13 is indicated by the broken-line arrow. The fold lines 20 and 21 for the two sleeves 10 and 11, respectively, preferably extend diagonally with respect to both the longitudinal and transverse axes of the gown, so that the folded sleeves extend substantially parallel to the longitudinal axis of the gown, thereby assuring that the sleeves lie within areas on the front section of the gown corresponding to the areas of the back panels 13 and 14. Thus, when the back panels are folded forwardly over the folded sleeves and the front section of the gown, as illustrated in FIG. 3, the sleeves are enclosed between the front and rear sections of the gown.

To facilitate the folding of the sleeves down over the front of the gown, a further feature of the invention is to provide a gown having raglan sleeves. Thus, the sleeves 10 and 11 in the illustrative gown are of the raglan type, i.e., the seams between the sleeves and the body portion of the gown coincide with the fold lines 20 and 21, slanting from the underarms to the neckline on both the front and back of the gown. Consequently, the sleeves shown in FIG. 2 are actually folded directly along the seams, so that the arms can be neatly folded to lie flat against the front section 12 of the gown.

In the particular view illustrated in FIG. 3, the back flap 14 has already been folded forwardly over the sleeve 10 and the corresponding half of the front section 12 of the gown, while the second back flap 13 is in its laterally extended position in the process of being folded over the sleeve 11 and the corresponding half of the front gown section 12. As can be seen in FIG. 3, after the folding of the back flaps 13 and 14 over the sleeves 10 and 11, respectively, has been completed, the only surface that is exposed on the back of the gown is the inner surface of the front section 12, and the only surfaces that are exposed on the front of the gown are the inner surfaces of the back flaps 13 and 14. Consequently, all the sterile exterior surfaces of the gown are enclosed to protect the same from contamination. Furthermore, as can also be seen in FIG. 3, the folding of the back flaps 13 and 14 forwardly over the sleeves 10 and 11 in effect turns the body portion of the garment inside out, so that the armholes of the gown are exposed along the fold lines 20 and 21, which also form a portion of the fold lines for the back flaps 13 and 14. More specifically, the back flaps 13 and 14 are folded forwardly along longitudinal fold lines 22 and 23, respectively, extending from the bottom of the gown upwardly along the sides thereof to the lower ends of the diagonal fold lines 20 and 21, and then along the respective diagonal fold lines 20 and 21 to the neck opening 16. As will be apparent from the ensuing description, the exposure of the armholes at the fold lines 20 and 21 is a significant feature of the invention, and greatly facilitates the subsequent unfolding and donning of the gown.

In keeping with the invention, the lower portion of the gown is also preferably folded upwardly one or more times along transverse fold lines with the uppermost fold line disposed substantially below the top of the gown so as to maintain the armholes exposed on both sides of the gown, and the gown is then folded along at least one longitudinal fold line to form a compact package with the armholes still exposed in the final folded gown. Thus, referring to FIG. 4, the bottom portion of the gown is first folded upwardly about a first transverse fold line 30, and then the same section of the gown is folded upwardly again along a second transverse fold line 31, and finally along a third transverse fold line 32. The result, as shown in FIG. 4 is a relatively compact folded gown in which the armholes are still exposed along the fold lines 20 and 21. It will be apparent that certain variations of the folding technique illustrated in FIG. 4 may be utilized to fold the gown in a relatively compact unit while maintaining the armholes exposed. For example, the bottom half of the gown can be folded upwardly about the trans-

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verse fold line 31, after which the bottom half of the resulting unit is folded upwardly again about the transverse fold line 32. Other variations of this portion of the folding method will be apparent to those skilled in the art, but it is important that the folding pattern be such that the armholes 20 and 21 are always exposed on both sides of the gown in the final folded unit.

Turning next to FIG. 5, the folded unit produced by the steps illustrated in FIG. 4 may be folded again along a longitudinal fold line 33 to form a final folded gown package which is only half the size of the unit shown in FIG. 4. As can be seen in FIG. 5, the gown is folded so that the diagonal fold lines 20 and 21 remain on the outside of the final folded unit, so that the armholes are still exposed. It can thus be seen that a very compact folded gown package is formed by relatively few folding steps. More specifically, the only folding steps involved are the initial folding of the sleeves 10 and 11 along the diagonal fold lines 20 and 21, the forward folding of the back flaps 13 and 14 along the longitudinal fold lines 22 and 23, the three folds illustrated in FIG. 4 along the transverse fold lines 30, 31 and 32, and the final fold along longitudinal fold line 33 illustrated in FIG. 5. It will be appreciated that all of the folds occur in either the longitudinal or transverse direction, even those which are formed along the diagonal fold lines 20 and 21, so that the illustrative method is readily adaptable to automation.

One of the significant advantages of the folding and packaging method provided by this invention is that it facilitates unfolding and donning of the gown without contaminating the sterile exterior surfaces of the gown. More particularly, the final folded unit illustrated in FIG. 5 permits the gown to be partially donned even before it is unfolded, as shown in FIG. 6 in which a surgeon 40 is illustrated with his hands inserted in the armholes exposed along the diagonal fold lines 20 and 21. In other words, the open armholes form pockets on opposite sides of the folded gown into which the surgeon may insert his hands to begin the donning of the gown, and to permit him to manipulate the gown before it is unfolded. For example, as shown in FIG. 6, the surgeon may elevate the folded gown unit well above the floor before it is unfolded, to insure that the bottom of the gown does not contact the floor and contaminate the exterior surfaces thereof, when it is unfolded.

After the surgeon has inserted his hands into the exposed armholes, he unfolds the gown along the fold line 33 (FIG. 5) and gently shakes the gown, preferably holding it well above the floor, whereupon the gown automatically unfolds downwardly in front of the surgeon. It will be recognized at this point that the folding steps illustrated in FIG. 4 should be oriented so that when the surgeon inserts his hands in the exposed armholes and unfolds the gown, he is facing the interior surface of the front section 12 of the gown. Next, the surgeon advances his hands and arms through the armholes and the downwardly extending sleeves 10 and 11, thereby unfolding the back flaps 13 and 14 forwardly and laterally away from the closed front section of the gown. An assistant 41 (FIG. 7) may aid the surgeon in pulling the flaps 13 and 14 around the back of the surgeon, and releasing the belt 19 from its package and tying the free ends thereof together around the surgeon; if the assistant is not sterile, of course, the gown should be gripped only on the interior surfaces thereof, as illustrated in FIG. 7. If an assistant is not available, it will be appreciated that the donning operations involved are sufficiently simple that they may be carried out by the surgeon himself. In FIG. 8, the surgeon is illustrated with the gown completely donned.

As can be seen from the foregoing detailed description, the present invention provides an improved method of folding a surgical gown which permits the gown to be folded in a compact unit or package, with all the

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sterile exterior surfaces of the gown enclosed to prevent the same from contamination. The method provided by this invention involves relatively few folding steps, and all the folds take place in either the longitudinal or transverse direction, so that the method is readily adaptable to automated production and packaging. Furthermore, this method facilitates donning of the gown at the point of use, without contaminating the sterile exterior surfaces thereof. More particularly, the gown may be partially donned even before it is unfolded, and it is naturally elevated well above the floor by the donning surgeon or other user before it is unfolded, thereby providing further protection against contamination of the gown. The unfolding of the gown is accomplished by a simple shaking movement by the user after his hands have been inserted in the side pockets formed by the exposed armholes in the final folded unit.

I claim as my invention:

1. A method of folding a surgical gown comprising two sleeves and a body portion having a closed front section and an open back section, the back section forming two flaps which are divided from each other along the entire length of the gown, said method comprising the steps of folding the sleeves over the outer surface of the closed front section of said gown, folding the two flaps of said back section forwardly in opposite directions over the folded sleeves and said front section so that only the inner surface of said front section is exposed on the back of the gown and only the inner surfaces of said flaps are exposed on the front of the gown, with both of the armholes of the gown exposed on the opposite outer side edges of the folded gown at the top thereof, and folding the lower portion of the gown upwardly one or more times along transverse fold lines with the uppermost fold line disposed substantially below the top of the gown so that both of the armholes of the gown are still exposed on the opposite outer side edges of the folded gown.

2. A method of folding a surgical gown as set forth in claim 1 which includes the step of folding the gown along at least one longitudinal fold line, after folding the gown along said transverse fold lines, so that the armholes are still exposed in the final folded gown.

3. A method of folding a surgical gown as set forth in claim 1 wherein all the outer surfaces of the unfolded gown are sterile.

4. A method of folding a surgical gown as set forth in claim 1 wherein the gown has raglan sleeves, and said

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sleeves are folded along the seam lines where said sleeves are joined to the body portion of the gown.

5. A method of folding a surgical gown as set forth in claim 1 wherein said back flaps are folded forwardly along longitudinal fold lines extending from the tops of the respective armholes to the lower end of the gown so that the forward folding of said flaps exposes said armholes.

6. A folded surgical gown comprising two sleeves and a body portion having a closed front section and an open back section, the back section forming two flaps which are divided from each other along the entire length of the gown, said sleeves being folded over the outer surface of the closed front section of the gown, the two flaps of the back section being folded forwardly in opposite directions over the folded sleeves and said front section so that only the inner surface of said front section is exposed on the back of the gown and only the inner surfaces of said flaps are exposed on the front of the gown, with both of the armholes of the gown exposed on the opposite outer side edges of the folded gown at the top thereof, the lower portion of the gown being folded upwardly one or more times along transverse fold lines with the uppermost fold line disposed substantially below the upper end of the gown so that both of the armholes of the gown are still exposed on the opposite outer side edges of the folded gown.

7. A folded surgical gown as set forth in claim 6 wherein the gown is folded along at least one longitudinal fold line, after the gown is folded along said transverse fold lines, to form a compact package with the armholes still exposed.

8. A folded surgical gown as set forth in claim 6 wherein all the outer surfaces of the unfolded gown are sterile.

9. A folded surgical gown as set forth in claim 6 which has raglan sleeves and said sleeves are folded along the seam lines where said sleeves are joined to the body portion of the gown.

References Cited

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ALFRED R. GUEST, Primary Examiner