United States Patent

Taylor

[15] **3,689,939**

[45] **Sept. 12, 1972**

[54] **NECK CLOSING SMOCK OR GOWN**

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[22] Filed: **Nov. 16, 1970**

[21] Appl. No.: **89,966**

[52] **U.S. Cl.** **2/114**

[51] **Int. Cl.** **A41b 9/00**

[58] **Field of Search** .....2/114, 110, 141 R, 76, 128; 24/91, 104, 203

[56] **References Cited**

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[57] **ABSTRACT**

A back-opening smock or gown which may be worn as a protective garment generally but which is particularly useful as a hospital gown for patient examination, as a nurse's gown, a doctor's smock, or as a surgeon's operative gown. A feature is an overlapping neck closure in which two or more projecting studs engage female elements to close the gown opening. The studs, fastened to the underside of the overlap at the neck, readily mate by projecting partially through an equal number of a series of female elements in the overlying portion of the gown opening at the neck. The closure permits adjustment of the neck size and width of the opening overlap.

11 Claims, 4 Drawing Figures

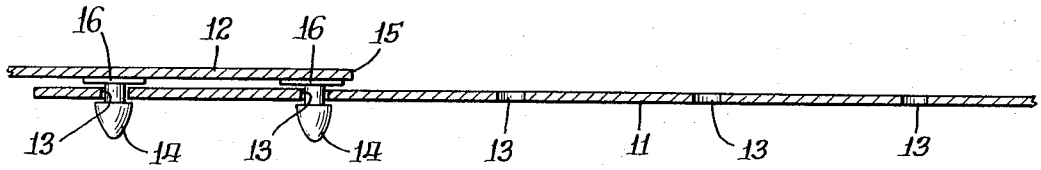


Fig. 1.

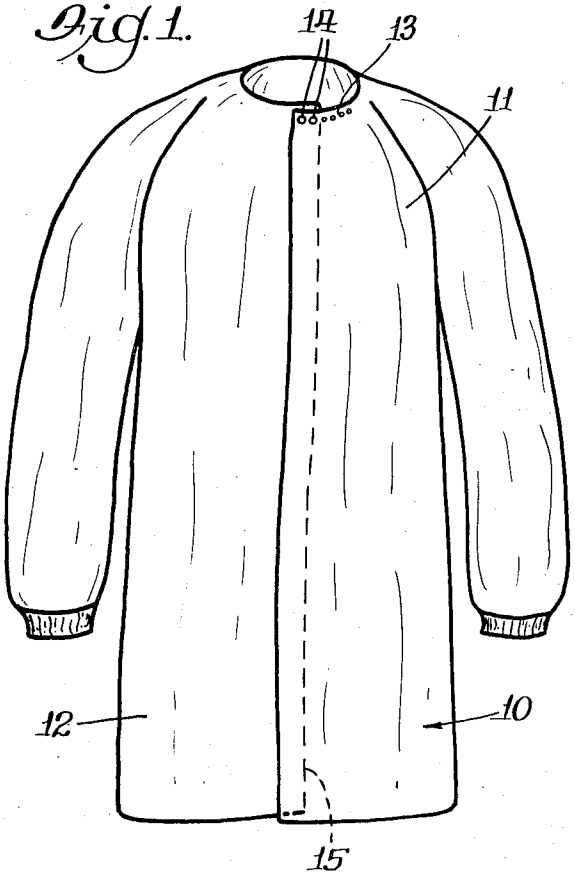


Fig. 4.

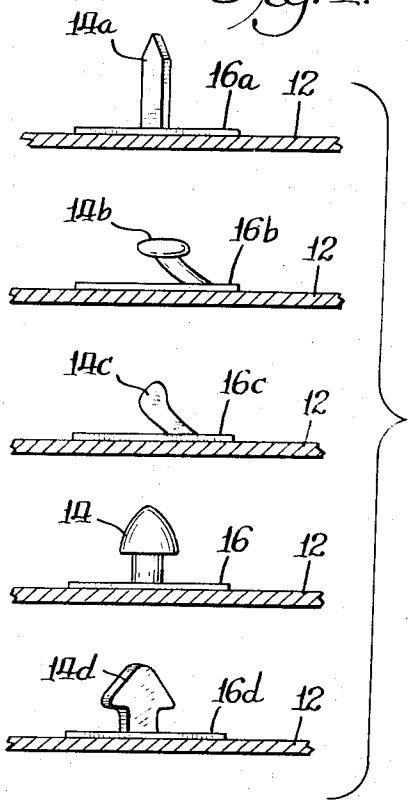


Fig. 2.

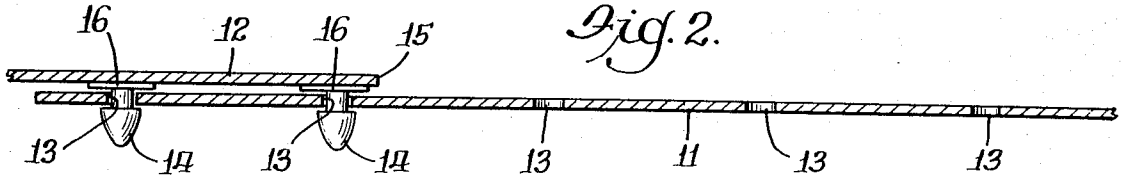
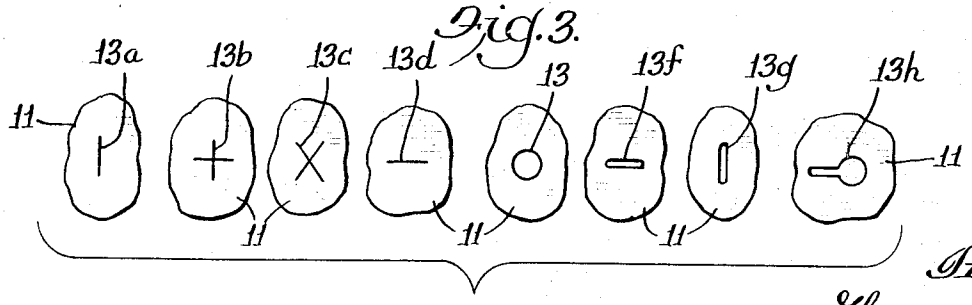


Fig. 3.



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NECK CLOSING SMOCK OR GOWN

BACKGROUND OF THE INVENTION

Gowns or smocks with back openings are well known and have definite advantages in that they have no front flap to gape open or catch on projecting items against which the wearer may brush. But back-opening gowns and smocks have disadvantages, particularly with regard to convenience and ease of closing the back opening. Any fastening below the neck is difficult for the wearer to manage. A single neck stud is not effective as a closure because the stud acts as a pivot about which the normally overlapping gown portions adjacent the opening rotate, causing the gown to gape open. This gaping of the opening is unsightly in any gown, but it is particularly undesirable in hospital examination gowns. It is also undesirable from a sterility standpoint in nurses' and surgeons' sterile gowns because clothing worn under the gown is not sterile. This problem is recognized with respect to hospital gowns.

Currently used disposable hospital gowns have mating transverse bands of stiff nylon pile hooks and loops which are attached to the underlying and overlying portions of the opening at the neck, pile to pile. Another solution is a set of two transversely aligned snap fasteners whose male and female portions are attached to the respective overlapping gown portions in facing relationship. Both of these solutions are workable but the nylon pile solution is expensive and the snap solution requires more handling than is desirable, and is not adjustable. Non-disposable gowns are generally secured at the neck with tie strings.

SUMMARY OF THE INVENTION

A major object of this invention is the provision of a back-opening gown or smock with a plurality of relatively rigid male elements which make their own female engaging elements in situ or mate with previously provided simple female elements such as one or intersecting score lines or slits or open slots and holes to restrain the overlapping gown opening closure from gaping open.

A further object of the invention is the provision of a back-opening gown or smock with simple closure means which permit adjustment of the neck opening and the closure overlap.

A still further object of this invention is the provision of a back-opening gown which resists opening gape in each of several positions when male and female elements are engaged.

The objects of this invention may be obtained in the most simple embodiment by providing two or more projecting male closure elements of any of various substantially rigid materials such as plastics, metals, bone, ivory, glass, wood and the like, fastened to the gown in a line extending generally transversely from the edge of the gown opening preferably along the neck opening. In this embodiment the ends of the male elements are preferably somewhat pointed to aid their penetration of the overlying fabric and the formation in situ of the female elements in the opposite edge of the gown opening. The gown is thus secured by the male elements, with its opening edges in overlapping relationship to provide a closure. The transverse line of the male elements tends to resist opening gape. In this embodiment when the gown is adjusted with the neck opening and

overlap desired, the closure is fastened by forcing the male element through the overlying fabric. Obviously, the range of possible overlap widths may be varied in the gown pattern.

While the embodiment of the invention just described provides the widest choice of neck sizes and overlap, gowns with preformed female elements in the form of scores, slits, cuts, slots or holes, may be preferred by many. Obviously, a set of female elements matching the male elements must be provided. Thus if two male elements are utilized, the female elements should be arranged in pairs, the individual female elements of each pair being the same distance apart as the male elements. Single source lines or perforated lines form adequate female elements, but more readily opened female elements may be provided by two or more intersecting score lines or perforated lines. Still more readily opened female elements may be provided by single slits or intersecting slits. Holes of various shapes and sizes are also very easily penetrated by the rigid male elements. In general, it is preferred to have the male element somewhat enlarge the female element as it projects through, since in that way the two overlapping edges of fabric are retained more securely in place.

The fabric of the gowns or smocks of this invention is not critical. Any sheetlike material such as paper, nonwoven cloth, woven, knitted and crosslaid cloth, perforate and imperforate films, breathable sheetlike accretions, laminates of paper and film and the like, are suitable.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 illustrates a back view of a typical gown of the invention embodying the neck closure.

FIG. 2 illustrates a cross-sectional view of the neck closure of FIG. 1 showing a series of female elements, two of which are engaged by male fastening elements.

FIG. 3 illustrates a plan view of a series of suitable female fastening elements.

FIG. 4 illustrates a side view partly in section, showing a series of suitable male fastening elements attached to gown fabric at the neck.

Referring once more to the drawings:

In FIG. 1 the gown **10** has a back opening extending the length thereof with the edge portion of panel **11** on one side of the opening, overlying the edge portion of panel **12** on the other side of the opening. Two male elements **14** shown in FIGS. 1 and 2 attached to the underlying edge of panel **12** are engaged and projecting through two female elements **13** of a series of such female elements which in the illustrated embodiment are round punched holes. The engaged male and female fastening elements tend to resist movement of the panels **11** and **12** to the extent that the underlying edge **15** tends to remain covered, thus minimizing opening gape.

While in some embodiments the female elements of the closure are formed in situ anywhere the male elements are forced through the gown fabric, FIG. 3 illustrates a series of typical preformed female elements **13**, **13*a***, **13*b***, **13*c***, **13*d***, **13*f***, **13*g***, and **13*h***. Element **13** is shown in FIGS. **1** and **2**. Other hole type female elements which are suitable when properly spaced and situated are the horizontal oval **13*f***, the vertical oval

13*g*, and the horizontal keyhole 13*h*. Less easily penetrated female elements, although suitable and in some cases preferred, are those involving a vertical or a horizontal score, perforated line or slit such as 13*a* and 13*d*, and combinations of two or more intersecting scores, perforated lines or slits such as 13*b* and 13*c*.

FIG. 4 illustrates a suitable variety of typical male closure elements 14, 14*a*, 14*b*, 14*c* and 14*d*. Element 14 is shown in FIGS. 1 and 2. Where the male element is to be used to form a mating female element in situ as it pierces through the overlying fabric of the closure, a fairly acutely pointed male element such as 14*a* is preferred although any of the typical male elements illustrated may be made more pointed. Where the female elements are preformed holes, a less pointed male element may be preferred. In FIG. 4 the male element 14*a* *is preferably formed of metal of such malleability as to be capable of being bent over after partial penetration of the female element or the overlying fabric itself. The base 16a* of this male element may be a single layer like a large tack as shown, or it may be a single layer or a double layer die stamped from a flat sheet and bent so that the member 14*a* projects vertically. The male member 14*b*, a mushroom type with an inclined stem and a base 16*b* is preferably of molded plastic. Another inclined-stem male element 14*c* with a base 16*c* is also preferably of molded plastic. Inclined-stem male elements should preferably be inclined to point toward the edge 15. The arrowhead shaped male element 14*d* with the base 16*d* is also preferably of molded plastic. The male elements of the invention are preferably fastened to the gown fabric with well known hot melt adhesives, but heat sealing or other methods of fastening them to the fabric may be utilized if desired.

DESCRIPTION OF THE PREFERRED EMBODIMENT

A preferred embodiment of the invention is a disposable surgeon's gown made of a laminate of non-woven fabric and woven scrim. The form of the gown is as shown in FIG. 1 with two male elements similar to element 14 fastened about 1 ½ inches apart, the opening edge 15 being about 2½ inches from the nearest male element. The male element head is slightly larger than the round holes forming the female elements, even numbered holes and odd numbered holes being the same respective distance apart as the male elements.

I claim:

1. A smock or gown having a back opening, marginal portions of said gown adjacent the opening edges when disposed in overlapping relationship closing said back opening, at least two separated, substantially rigid, outwardly projecting male elements, attached at the neck to the underlying portion of said marginal portions and aligned transversely of the edge thereof, said male elements being so adapted readily to be projected through the fabric of the overlying portion of said marginal portions to engage the overlying portion and fasten the marginal portions in overlapping relationship.

2. The smock or gown of claim 1 wherein the male elements project through preformed mating female elements in said overlying portion of said marginal portions.

3. The smock or gown of claim 2 wherein the male elements optionally readily project through two or more sets of female elements to provide a choice of neck size and opening overlap width.

4. The smock or gown of claim 2 wherein the female elements are shaped holes.

5. The smock or gown of claim 2 wherein the female elements each include at least one slit.

6. The smock or gown of claim 2 wherein the male elements open the female elements in projecting therethrough.

7. The smock or gown of claim 2 wherein the male element has a portion first projecting through the female element which is smaller in cross section than a male portion which subsequently projects through the female element.

8. The smock or gown of claim 2 wherein the male elements make acute angles with underlying edge portion of said gown, the acute angles pointing toward the back opening thereof.

9. The smock or gown of claim 1 wherein the male elements each comprise at least one vertically projecting member which is malleable.

10. The smock or gown of claim 1 wherein the male element is a geometric solid having a reduced cross section at the base thereof.

11. The smock or gown of claim 1 further characterized as a disposable surgical and nursing gown.

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