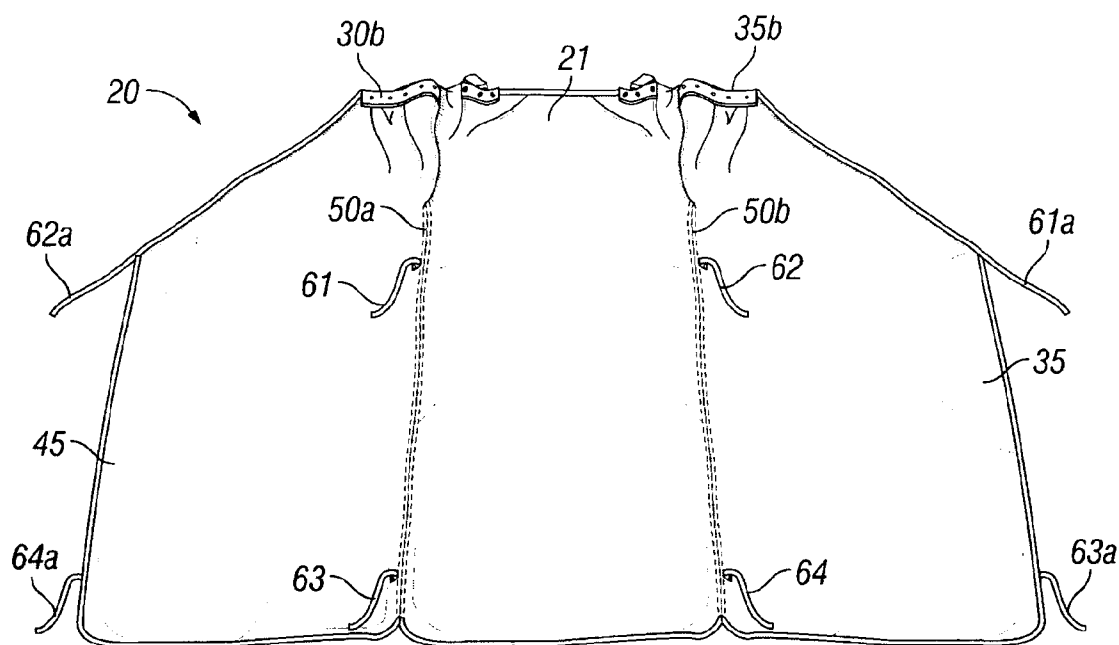




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(19) **United States**(12) **Patent Application Publication****Ochoa et al.**(10) **Pub. No.: US 2008/0000006 A1**(43) **Pub. Date: Jan. 3, 2008**(54) **HOSPITAL PATIENT GOWN**(22) Filed: **Jun. 9, 2006**(75) Inventors: **Yvette M. Ochoa**, Santa Fe, TX
(US); **Shelly D. Nalbone**, Houston,
TX (US)**Publication Classification**(51) **Int. Cl.**
A41D 10/00 (2006.01)(52) **U.S. Cl.** 2/114(57) **ABSTRACT**Correspondence Address:
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HOSPITAL, Houston, TX (US)(21) Appl. No.: **11/423,409**

Disclosed are hospital patient and medical gowns designed to facilitate not only convenient and unobstructed access to the patients body by medical personnel, but also provide an improved fit, ease of wearing, and an enhanced level of modesty and privacy when compared to conventional rear-access hospital gowns.



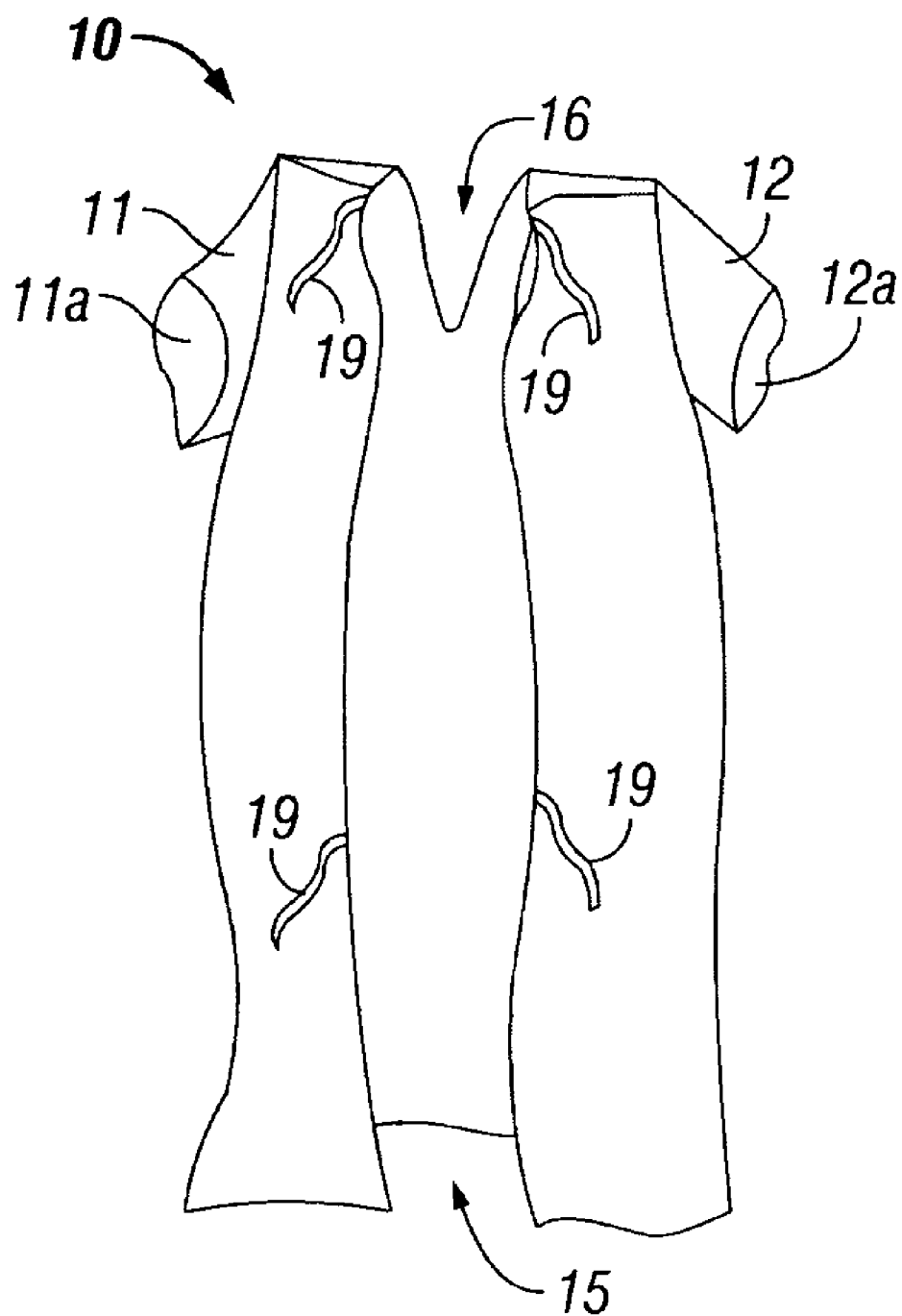


FIG. 1
(Prior Art)

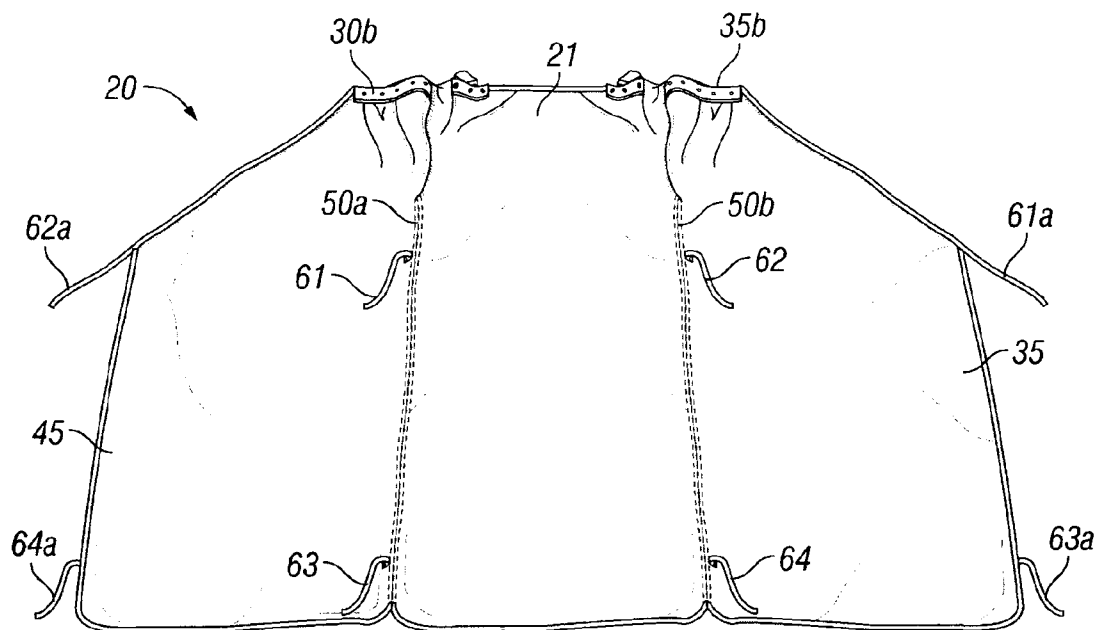


FIG. 2

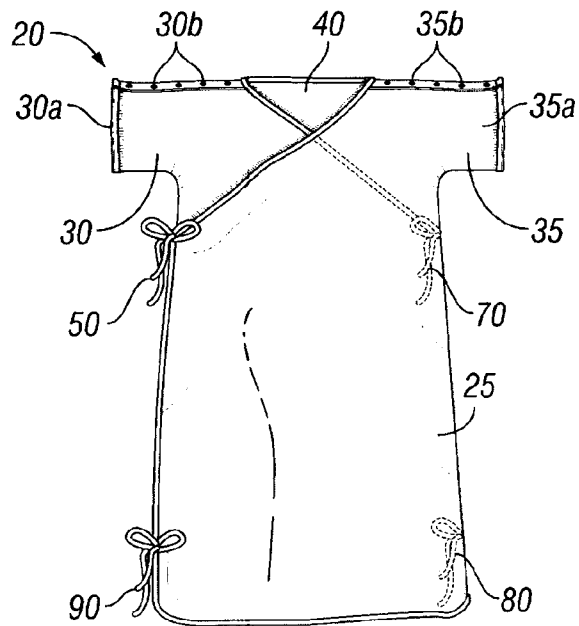


FIG. 3

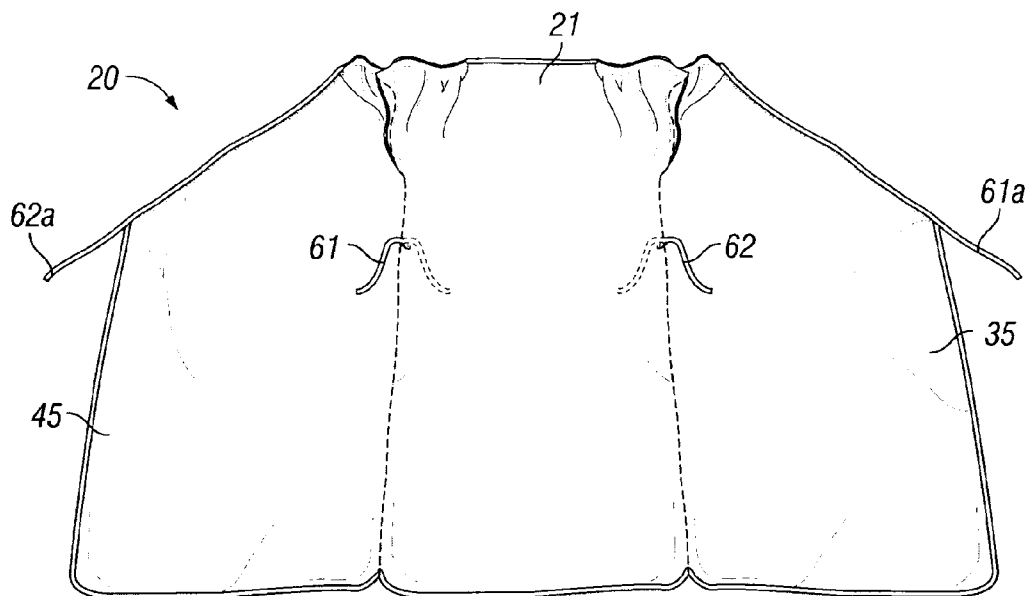


FIG. 4

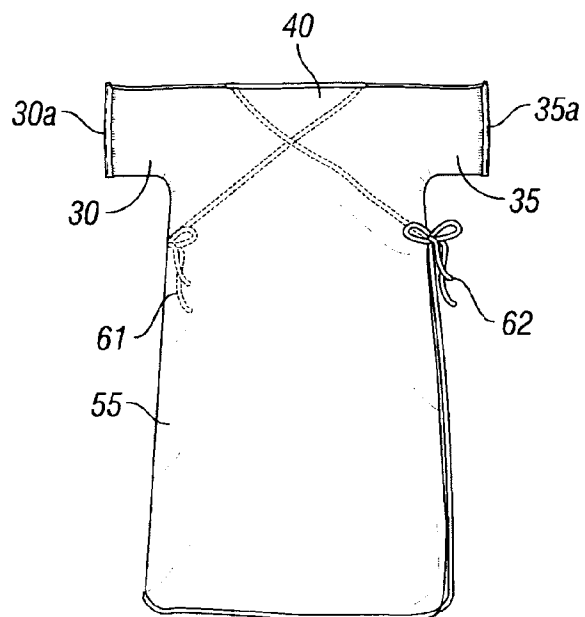


FIG. 5

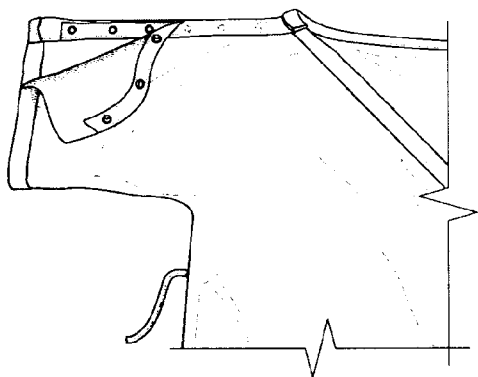


FIG. 6A

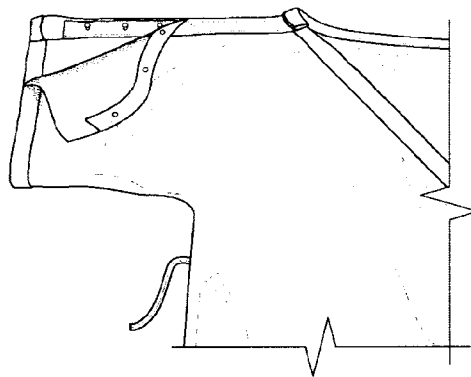


FIG. 6B

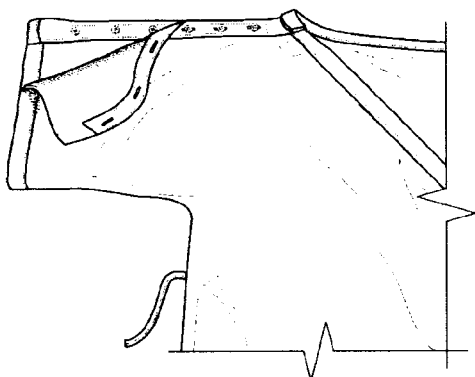


FIG. 6C

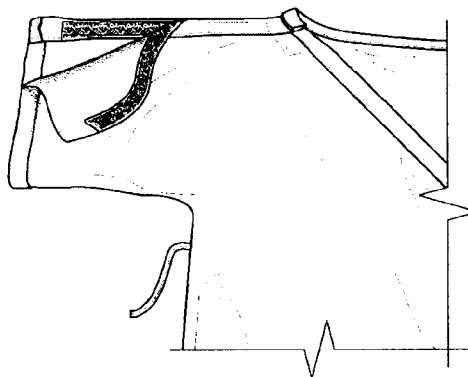


FIG. 6D

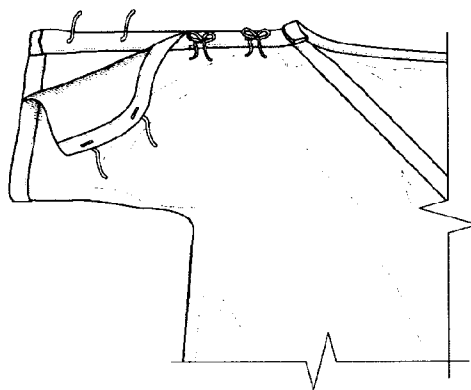


FIG. 6E

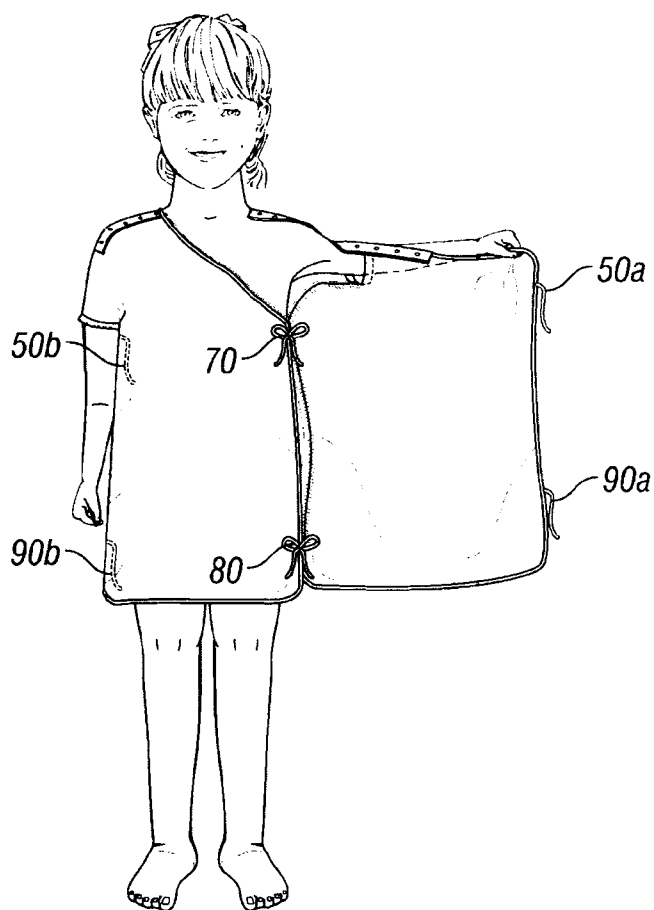


FIG. 7A

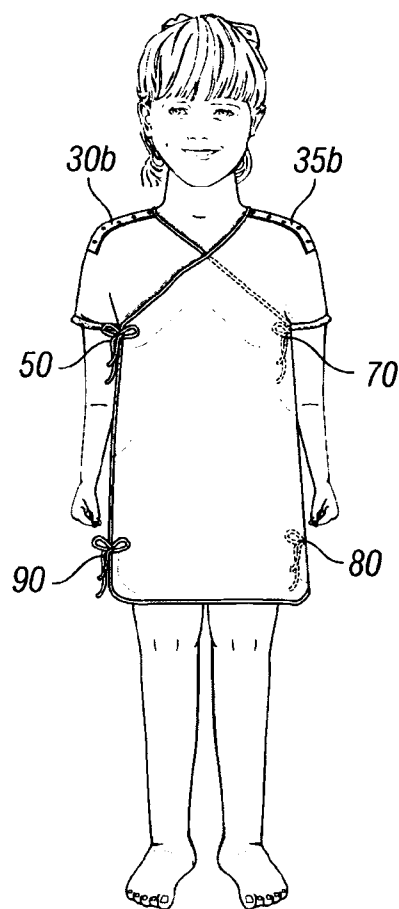


FIG. 7B

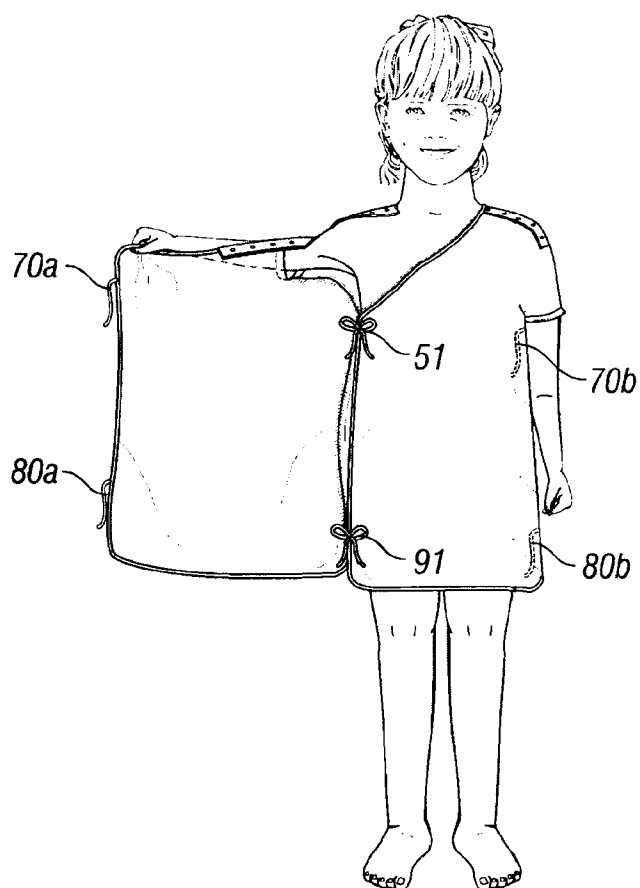


FIG. 8A

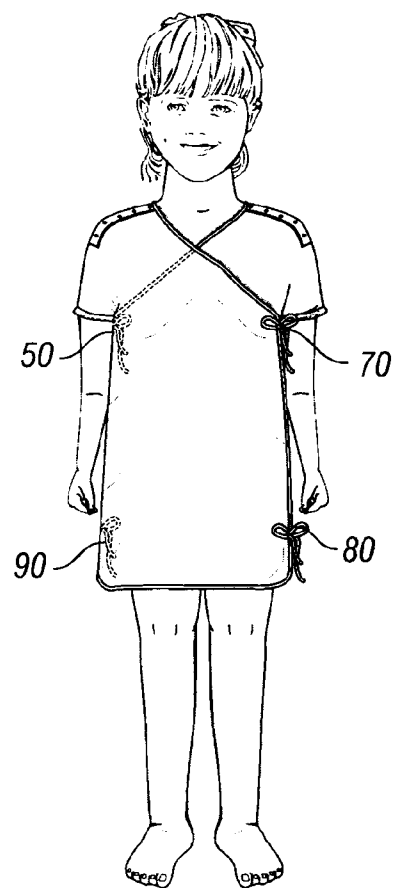


FIG. 8B

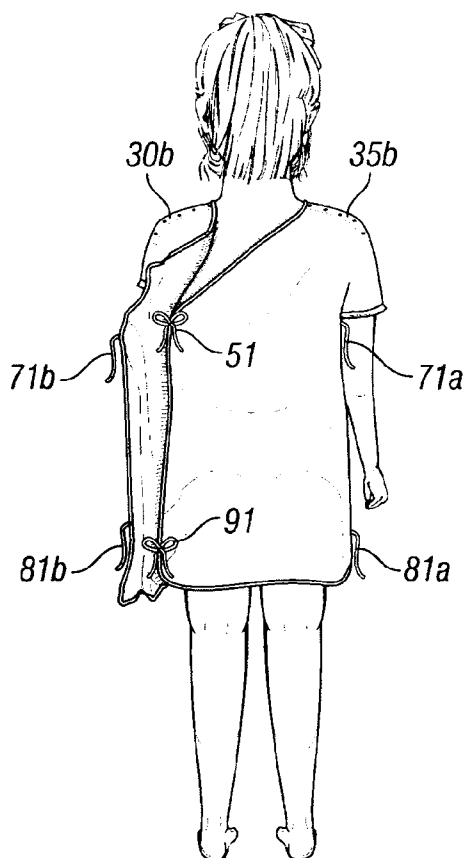


FIG. 9A

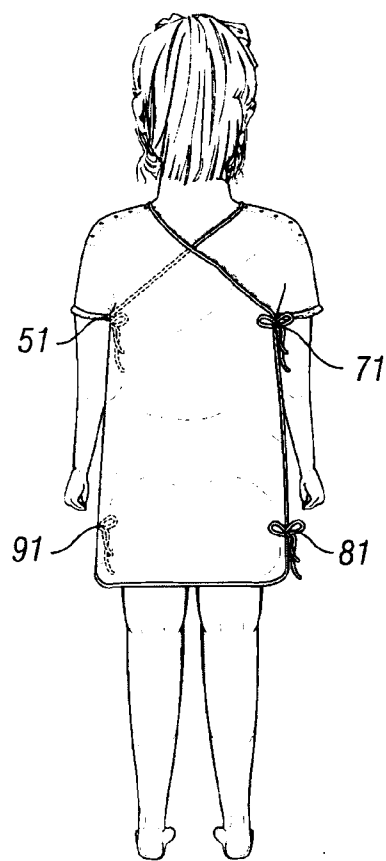


FIG. 9B

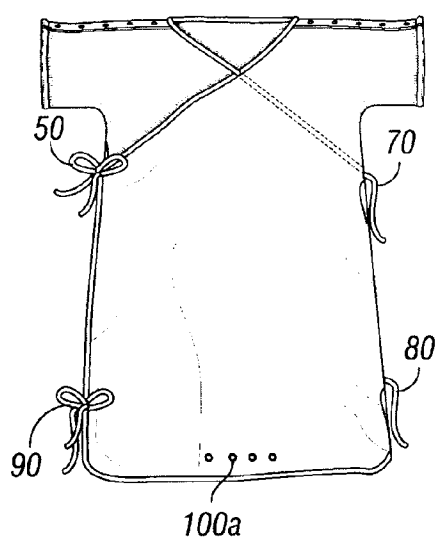


FIG. 10

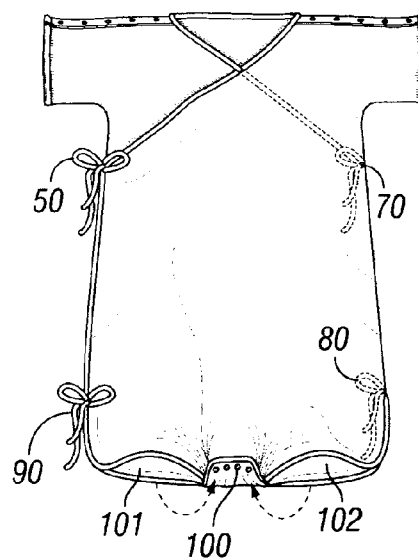


FIG. 11

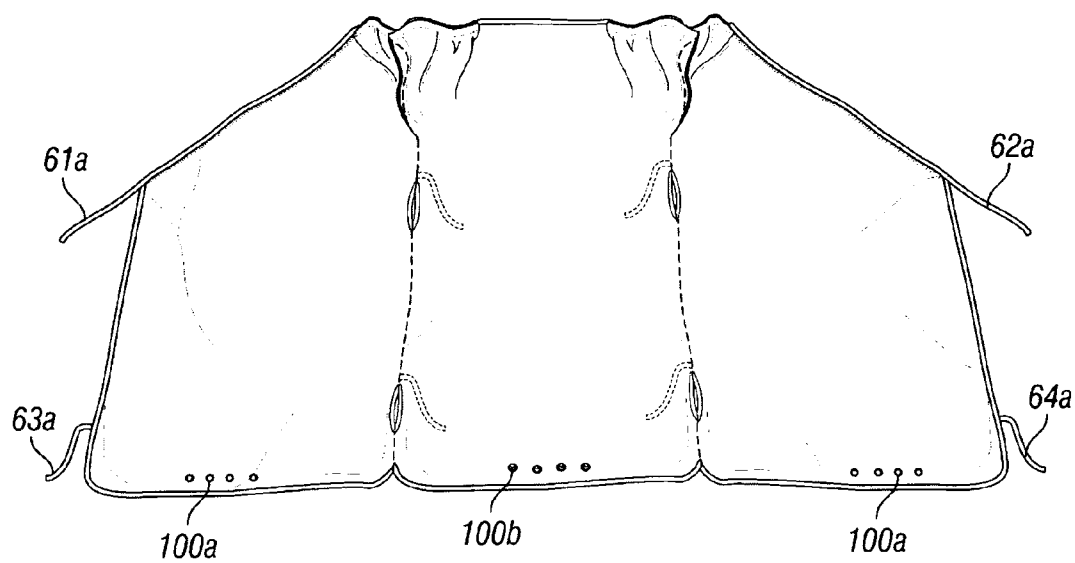


FIG. 12

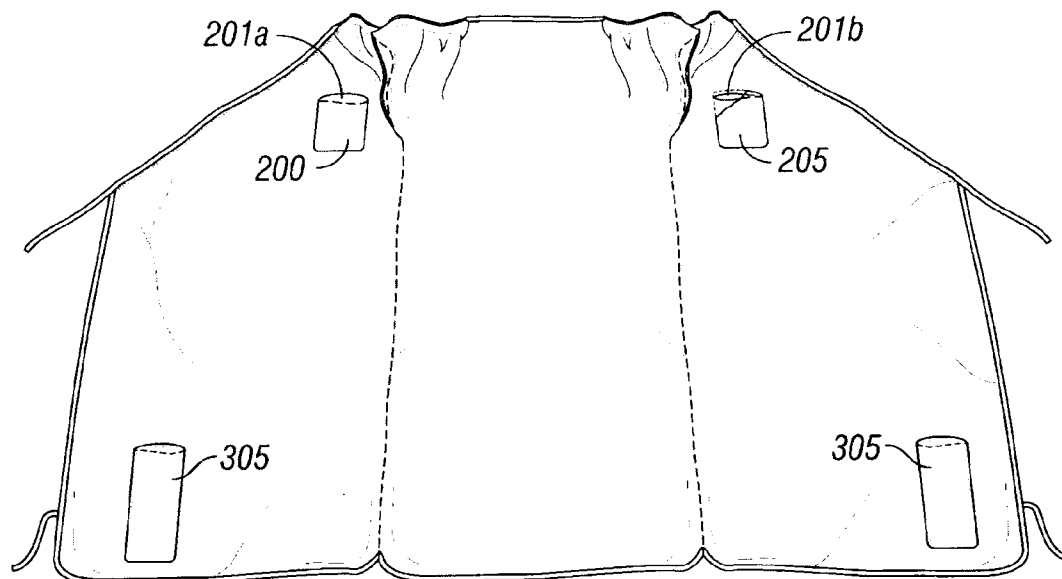


FIG. 13

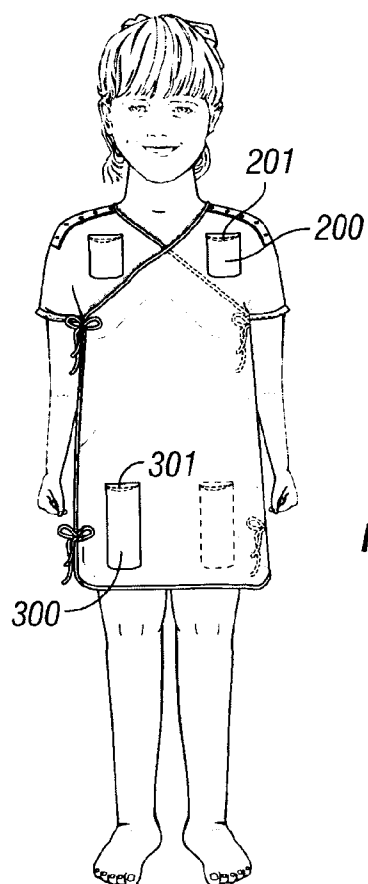


FIG. 14

HOSPITAL PATIENT GOWN

BACKGROUND OF THE INVENTION

[0001] The present invention relates to medical examination/patient gowns and like garments intended especially for use by pediatric, juvenile, and/or adolescent patients.

BRIEF DESCRIPTION OF THE DRAWINGS

[0002] The drawings form part of the present specification and are included to further demonstrate certain aspects of the present invention. The invention may be better understood by reference to one or more of these drawings in combination with the detailed description of specific embodiments presented herein.

[0003] FIG. 1 is a rear view of a conventional rear-tying commercially-available prior art standard rear-closing hospital patient gown.

[0004] FIG. 2 is a front view of one embodiment of the present invention illustrating a front-closing hospital gown, with right and left front panels opened to reveal the interior surface of the garment. Optional ties are visible along the interior left and right side seams of the garment.

[0005] FIG. 3 is a closed frontal view of the embodiment of the present invention shown in FIG. 2. In this view the right and left front panels have been wrapped around to illustrate the outer surface of the front portion of the garment in its usual wearing configuration. The view illustrates how the optional garment tie(s) may be fastened either along the inner, and or outer lateral garment side seams to facilitate securement of one or both frontal garment flaps. As shown, the garment is fastened along both an inner seam (shown by the dotted line ties), and an outer seam (shown by the solid line ties). Alternatively, the front panels of the gown may be secured by one or more ties along only one side of the garment, either on the inner or outer seams of the garment.

[0006] This view also illustrates optional shoulder opening/closing means which may be fabricated along one or both sleeves of the garment. In this particular view, optional openable and closable shoulder seams of the garment are fashioned such that they may be secured with two or more fastening means, such as metallic or non-metallic snaps. For comparison, these snaps are shown unfastened in the FIG. 2 view. Other fastening means are described herein, and some of those are also illustrated in FIG. 6A, FIG. 6B, FIG. 6C, FIG. 6D and FIG. 6E.

[0007] FIG. 4 is a front view of another embodiment of the present invention with the right and left front panels opened to reveal the interior surface of the garment. In this embodiment, optional mid-axillary ties are shown along the inner (solid lines) and outer (dotted lines) lateral side seams of the garment.

[0008] FIG. 5 is a rear anatomical (posterior) view of the embodiment of the present invention illustrating that the gown may also be worn in a typical rear-closing configuration. In this view, the gown is shown with a left sleeve 30, having a sleeve opening 30a, a right sleeve 35, having a sleeve opening 35a, a neckline 40. The gown is secured by a tie 61 located along the inner left lateral side seam of the garment, securing the first panel (not seen) to the opposing side seam, as well as by a tie 62 located along the outer right lateral side seam of the garment, for securing the second panel (here identified as 55) to the right lateral side seam.

Both ties are shown in an axillary placement to facilitate improved modesty for the wearer.

[0009] FIG. 6A-FIG. 6E are front views of various embodiments for opening and closing the top shoulder seam(s) of one or both sleeves of the garment. For clarity, only a single sleeve is shown, but the gowns of the invention may have one or both shoulder seam(s) fabricated with means for operably opening the gown along its shoulder seams. Shown in FIG. 6A is a means for operably opening and operably securing the shoulder seam of the garment using a plurality of conventional metallic garment snaps along the seam. FIG. 6B shows a second means for operably opening and securing the front and rear fabric portions that form the sleeve of the garment using a plurality of non-metallic (such as nylon or plastic) garment snaps along the upper seam of the sleeve. FIG. 6C shows yet another means for operably opening and securing one of the shoulder seams using a plurality of conventional garment buttons and corresponding button holes. In FIG. 6D, securement of the shoulder seam is illustrated using a portion of conventional "hook-and-loop" type fastening tape. The "hook" portion may be affixed to one edge of the fabric seam, while the corresponding "loop" portion of the closure means is affixed to the opposing fabric surface of the seam. When the portions are brought into close proximity to each other, the hooks and loops of the material engage thereby securing the seam. Velcro™ is an exemplary type of such hook-and-loop fasteners. FIG. 6E shows yet another shoulder opening/securement means which comprises a plurality of ties fashioned along the length of the sleeve that can be tied to secure closure of the top sleeve seam. Such ties can be fabric, string, or suitable material, and may be directly fashioned into the sleeve panels themselves.

[0010] In each of the illustrations, it is understood that a "plurality" of fastening means is intended to mean two or more such means. The quantity, spacing, size, and arrangements of such securement means may depend upon the length of the shoulder, the size of the sleeve, or the overall size of the gown onto which they are fashioned. Likewise, in some embodiments, the shoulder seams may lack securement means altogether. In such embodiments, the shoulder is closed as in a traditional shirt—i.e. no shoulder sleeve opening and securement means are present along the shoulder seam.

[0011] FIG. 7A and FIG. 7B are front anatomical (anterior) views of one embodiment of the invention. In FIG. 7A the model illustrates first securement of the right frontal flap of the garment to the left interior side seam of the garment using an axillary-region and optional hemline-region securement means, which in this illustration is a fabric tie. In FIG. 7B, the model illustrates how the remaining left frontal flap is then folded over and secured by ties to the right exterior side seam of the garment as illustrated.

[0012] FIG. 8A and FIG. 8B are front anatomical (anterior) views of another embodiment of the invention which shows the ease with which the garment may be worn to provide modesty and coverage. In FIG. 8A, the model illustrates first securement of the left frontal flap to the right interior side seam of the garment using both axillary region and hemline region ties. In FIG. 8B, the model illustrates how the remaining right frontal flap can then be folded over and secured to the left exterior side seam of the garment using, for example, one or more fabric ties as illustrated.

[0013] FIG. 9A and FIG. 9B are rear anatomical (posterior) views of a patient wearing an illustrative hospital gown of the present invention. This illustration depicts the versatility of the garment, showing that the gown, if desired, may be worn in a traditional “ear-tying” configuration. FIG. 9A shows that the gown may be secured to provide full modesty and coverage of the patient’s posterior even when the gown is secured only along a single sideseam of the garment (in this depiction, shown tied along the patient’s left side). In FIG. 9B an alternative configuration is demonstrated illustrating that the gown may be secured not only by securing one panel along an inner sideseam (shown here tied along the patient’s left side), but also by further securing the remaining fabric flap to the opposing outer garment seam (shown here as tied along the patient’s right side). By securing both panels of fabric to their respective opposing seams, full modesty and coverage of the patient’s posterior is enhanced by the two layers of fabric. A similar benefit is seen when the gown is tied in a “front-tying” mode, wherein the two panels of fabric provide additional coverage and modesty to the patient’s anterior region.

[0014] FIG. 10 is a front view of another embodiment of the invention in which the fabric tie members located along the inner lateral seams of the garment have been omitted in favor of the addition of small slits in the corresponding regions of the lateral side seams to facilitate threading of a fabric tie member into the slit and tying of the tie by matching the fabric tie member pushed through the slits with the corresponding fabric tie member from the opposing seam of the front fabric panel. (See FIG. 12 for an open perspective view of a gown in which the side slits are visible). The gown may have slits in the side seams only at the mid-axillary region, or may optionally have slits placed near the bottom hemline to facilitate securement of additional lower garment edge ties. (Also exemplified in FIG. 12). This figure illustrates the placement of optional securing means along the center portion of the bottom hem of the garment which may be fastened to facilitate securement of the garment in the patient’s crotch region.

[0015] FIG. 11 is a front view of an alternative embodiment of the invention. In this illustration, the securing means shown in FIG. 10 along the lower hemline comprise a plurality of snaps, each of which snaps is comprised of a snap engaging member and a snap receiving member. This configuration is particularly desirable for wearing by toddlers and infants, as it permits mobility of the lower limbs, without entanglement of the feet and legs in the hemline of a traditional gown. The plurality of snap receiving (“female”) members may be fashioned along one surface of the garment, and a corresponding plurality of snap engaging (“male”) members may be fashioned along the opposing surface of the garment. When the engaging and receiving portions of the snaps are then mated, a crotch region of the garment is fashioned which permits the formation of leg openings along the lower edge of the gown.

[0016] FIG. 12 is a front view of an embodiment of the invention in which the fabric tie members located along the inner lateral seams of the garment have been omitted in favor of the addition of small slits in the corresponding regions of the lateral side seams to facilitate threading of a fabric tie member into the slit and tying of the tie by matching the fabric tie member pushed through the slits with the corresponding fabric tie member from the opposing seam of the front fabric panel (See FIG. 10 for a closed

frontal view of these features). The gown may have slits in the side seams only at the mid-axillary region, or may, as exemplified here, also comprise slits and tie members placed near the bottom hemline to facilitate securement of additional lower garment edges.

[0017] Also shown in this view are the pluralities of crotch closure means illustrated in FIG. 10 and FIG. 11. By placing a plurality of snap engaging members along the rear fabric panel of the garment and placing a corresponding plurality of snap receiving members along either (or both as shown here) of the frontal panels of the garment, the lower hemline of the garment may be snapped in place to form a secured crotch region and individual leg openings. Alternatively, a plurality of snap receiving members may be placed along the rear fabric panel of the garment, and a plurality of snap engaging members may be placed along either (or both) of the left and right front panels of the garment (not shown).

[0018] FIG. 13 is a front view of another embodiment of the invention in which an optional device pocket is provided on one (or both) of the front panel fabric panels of the garment. Such device pocket(s) is/are preferably located at a position in the approximate upper-half of the garment to facilitate attachment of telemetry electrodes, sensors, leads, tubes, monitors, and such like. Optionally, the pocket(s) may be fabricated such that a corresponding slit is made in the front fabric panel of the garment approximately along the upper edge of the pocket opening(s), through which electrodes, wires, tubes, etc. may be passed from a device in the pocket directly through the slit in the garment and onto the patient’s body. When desired, fabrication of a pocket and slit on each frontal panel (as shown here), is also contemplated to represent one “dual-pocket” embodiment of the gown.

[0019] This front view also shows an embodiment of the invention in which optional data storage/patient record storage pocket(s) may be sewn into one (or both as shown here) of the front panel fabric portions of the garment. Such data/record storage pocket(s) is/are preferably located at a position in the approximate lower-half of the garment to facilitate storage of patient records, test data, identification papers, medical notes, physician instructions, and such like.

[0020] FIG. 14 is a front anatomical (anterior) view of a patient wearing an exemplary gown as shown in FIG. 13. Optional telemetry pockets are shown along the upper left and right chest regions of the gown, and optional data/record storage pockets are shown along the lower right and left sides of the garment.

DESCRIPTION OF ILLUSTRATIVE EMBODIMENTS

[0021] Patients commonly disrobe from their street clothes and don loose-fitting, smock-like gowns prior to undergoing medical examinations or procedures. Such gowns desirably facilitate greater access to areas of a patient’s body by medical personnel when compared with ordinary street clothes. While such garments are often generically referred to as “medical gowns,” “patient gowns,” “exam gowns” or “hospital gowns,” they may, in fact, be employed in any situation where it is desirable to provide both coverage of the body to maintain modesty, while offering enhanced access to one or more areas of a patient’s body for physical examination, medical procedures, patient confinement, rehabilitation and such like.

[0022] The process of having a patient remove his or her street clothing and enrobe in such a garment prior to a

physical examination, medical procedure, or hospital confinement has become a defacto protocol in the medical arts in many countries worldwide. This process not only prevents damage to, or soiling of, a patient's personal clothing during examination or hospitalization, but also provides increased facility of access to all areas of the patient's body by medical personnel during the procedure.

[0023] Moreover, the use of patient gowns during medical procedures may also reduce the spread of pathogens or infectious agents that may otherwise have been transmitted to a patient's clothing or personal effects, if the examination were conducted while the patient wore regular clothing. Maintenance of these gowns by the medical facility itself also ensures proper decontamination and adequate cleaning of the gowns following their use. Likewise, the use of hospital gowns during medical procedures also provides a level of patient modesty, preserves personal decency, and obviates the need for a patient to completely disrobe prior to a medical examination or procedure.

[0024] Conventional hospital patient gowns are typically in the form of an oversized shirt-like garment with one or more ties along the free edges of the gown. These garments typically have enlarged neck and arm openings to facilitate access by medical personnel's hands or instruments, and to accommodate a variety of patients having differing body shapes and/or sizes. Most often, the gowns have a single rear opening, and typically have a single tie along the back edges of the garment either at the patient's neck or waist to secure the two open edges of garment. Typically gowns are also designed such that the length of the garment places the bottom hemline at, or below, an adult wearer's knees. Because children are proportioned differently than adults, when an adult gown is worn by a child, this typically means the hem of the garment is mid-calf, or even lower on the child, which makes it difficult for the child to ambulate without tripping on the gown.

[0025] Although standard-issue hospital garment may be inexpensive to manufacture because they are typically secured in the back with a single tie at the neck, putting on such a garment by oneself is often awkward at best, and impossible at worst. This is particularly true for adolescent or juvenile patients who are either unfamiliar with the garment's atypical rear-tying configuration, or are unable to reach and fasten a rear neckline tie. Moreover, even when the gown is properly secured in the back, the gown provides incomplete coverage of the patient's body when large gaps are left between each side of the garment. As a result, the patient's posterior and buttocks are often partially uncovered.

[0026] An example of a conventional rear-opening, single closure, commercially-available prior art hospital gown is shown in FIG. 1. The gown 10 is typified by a rear opening 15, and generally includes sleeves 11 and 12, with arm openings 11a and 12a, respectively; a neckline 16 and one or more ties 19 generally provided at one or more locations along the rear opening 15, which are operable to hold the gown at least partially closed. The gown 10 is typically manufactured in a variety of adult sizes to accommodate patients of various body dimensions, with the overall pattern and design for all sizes substantially proportional to those as shown in FIG. 1.

[0027] While the conventional rear-opening style of medical gowns is often appropriate for directly accessing one or more posterior areas of the patient's body (either when the

patient is seated, standing, or lying in a prone (face-down) position), the prior art designs are wholly inadequate for permitting ready access to a patient's anterior region, and for properly covering the patient's backside. This problem is particularly evident when the patient is lying in a supine (face-up) position. In such cases, when it is necessary to examine portions of the patient's anterior, medical personnel must often remove rear-closing gowns either partially, or in their entirety, to adequately expose the desired anterior region(s) or surfaces of the patient's body for examination. In situations where the patient is immobilized, sedated, unconscious, or has limited mobility, this situation is awkward and provides an unnecessarily time-consuming delay for the medical personnel during their examination or treatment or the patient.

[0028] Likewise, because traditional gowns must be removed in their near entirety in such examinations, these procedures subject the patient's body to an intrusive and immodest level of bodily exposure. Such limitations can compromise not only the patient's sense of modesty and decency, but also their sense of well-being and level of comfort. In addition to the psychological consequences of such exposure, the extensive exposure of the patient's body required for an anterior examination of a patient in a rear-closing garment may also impart untoward medical effects on the patient, as well. These problems include, for example, a change in body temperature, exposure to drafts, and a general increase in the level of patient anxiety and emotional distress.

[0029] Yet another limitation of commercially-available rear-tying gowns is the ability of the knotted ties or closures along their back to cause pressure sores or physical discomfort for patients who are lying supine for extended periods of time. Such configurations may also interfere with posterior surgical sites.

[0030] Health care-associated infections (HAIs), also known as nosocomial infections, result in more than 90,000 deaths per year in the U.S. Most hospital-acquired bloodstream infections are associated with use of an intravascular device, specifically central venous catheters. The attributable mortality rate for bloodstream infections in surgical ICUs has been estimated to be 35%. Hospital acquired bloodstream infections account for an estimated \$40,000 increase in costs per survivor and an estimated \$6,000 increase in hospital costs (see e.g., Centers for Disease Control, Atlanta, Ga., 2006). Repeated entry into central venous catheters and PICC (peripherally-inserted central venous catheter) lines increases one's risk of attaining a HAI.

[0031] Once such method of entry is the removal and/or changing of a hospital gown. In the pediatric population, gowns may be changed numerous times per day, exponentially increasing a patient's risk of acquiring a blood stream infection. Repeatedly opening a closed line system to change or remove a patient's gown also increases the risk of accidental removal of the line.

[0032] The use of the improved adjustable-sleeve medical gowns of the present invention may therefore decrease the risk for contamination and infection via intravenous lines, which must be uncoupled in order to pass the arms of the patient through the closed sleeve to facilitate removal of the original gown and replacement with a new gown, then the IV line re-established. Because this process greatly increases the risk of infection, the use of the medical gowns of the

present invention is seen as a significant improvement in reducing such risks. By employing a sleeve design with an optionally operably openable and closeable top seam, IV lines may be passed down under the gown and in proximity to the patient's body, and the gown can be removed without having to disassemble and reconnect the IV line.

Improved Patient Gown Design

[0033] One of the significant limitations of using patient gowns that are commercially-available is the fact that most medical garment manufacturers do not currently offer gowns that are tailored to sizes that correspond to a child's or adolescent's stature. In fact, most hospital gowns available in the marketplace today are fabricated in typical adult garment sizes, [e.g., Extra Small (XS); Small (S); Medium (M); Large (L), Extra Large (XL); and Extra Extra Large (XXL)], which are often ill-suited to wearing by a young child.

[0034] As a result, when an adolescent or juvenile patient is examined or admitted to a hospital, the limited choices available in adult-sized gowns often mean the patient will be forced to wear a gown that is several sizes too large for him/her. The situation of oversized gowns is even worse in the case of younger children, and children of smaller stature, where the only available gown might be many sizes too large for them.

[0035] The present invention overcomes these and other limitations in the prior art by providing hospital gowns and patient garments that are not only comfortable, but are properly-sized for pediatric (i.e., \leq about 18 years of age) patients. The gowns of the present invention may also decrease the risk of HAI and accidental line dislodgement by allowing the healthcare worker easy access to change or remove the gown without interrupting the integrity of the closed line system.

[0036] Moreover, the gowns of the present invention provide a secure covering of the patient's body, are easily put on and taken off by the patient without the need of assistance to "get it on right" and still provides a convenience of opening to medical personnel conducting an exam or medical procedure on the patient's body. The versatility of the present gown design allows for a safer, modest, and more therapeutic environment by providing a closure device at the bottom; thereby, allowing full participation in physical therapy and other activities of daily living.

[0037] The hospital gown of the present invention is highly suited for use in young patients. Embodiments of the invention provide healthcare workers access to IV sites without interrupting the line through shoulder access via an operably openable and closable shoulder seam on one or both of the sleeves.

[0038] The gown also promotes modesty for the adolescent and preadolescent patient by ensuring adequate coverage of chest, buttocks, and genitals. In certain embodiments, the front of the gown is fashioned of overlapping fabric panels that provide an extra layer of fabric to more adequately conceal the breast area, which is particularly important to developing adolescent females. The gowns of the present invention are provide improved wrap-over style hospital gowns which places ties or other fastening means on at least two portions of the front side of the gown which make it easier for the user to put on and take off, and also provides greater patient comfort, coverage, and improves concealment of the body and maintains modesty.

[0039] The patient gowns of the present invention provide a significant improvement over existing gowns in many aspects including increased patient compliance, greater ease of wearing, reduction of patient embarrassment and indecency, maintaining patient body temperature, and ensuring patient modesty by adequate coverage of the patient's body, particularly the breast, buttock, and genital regions.

[0040] The new gown design also provides highly-effective means for closing and securing the gown so that the patient's body is not unnecessarily exposed. The improved gowns of the present invention are also preferably tailored in infant, toddler, juvenile, adolescent, pre-teen, and young adult sizes.

[0041] The patient gown of the present invention is suitable for wear not only during examination in a medical practitioner's office or clinic, during medical testing or while undergoing physicals or other diagnostic procedures, or for admission and confinement in a hospital, hospice, or long-term care facility, but also while undergoing therapy and/or rehabilitation in a suitable facility. Likewise, the patient gowns of the present invention may also be used pre- and post-operatively, during patient recovery, admission, confinement, and/or quarantine, and in any situation in which a patient is required to wear a medical gown, such as for example, during convalescence, whether in-home, at a nursing home, or in an assisted-living or other after-care/long-term care facility.

[0042] Because the hospital gowns of the present invention are preferably sized for use by pediatric, juvenile, or adolescent patients, the inventors contemplate their particularly desirable use in the examination, treatment, and/or medical care of infants and children, or other patients of limited body size, and/or reduced stature.

[0043] Turning now to particular embodiments of the present invention, and with reference to the drawings, and in particular to FIG. 2 through FIG. 14, novel hospital gowns embodying the principles and concepts of the present invention are disclosed and described herein.

[0044] Referring to FIG. 2, shown is a front view of a first embodiment of the present invention. The patient gown 20 is shown in an "open" position, and comprises a rear body portion 21, to which a left front panel 35 is attached via a left side seam 50b, and a right front panel 45 is attached via a right side seam 50a. A set of optional inner side-seam mid-axillary ties 61 and 62 are shown, which can be secured with either or both ties 61a and 62a, respectively, along one or more lateral side seams of the garment. Optionally a set of lower inner side-seam ties 63 and 64 may also be provided, to which optional lower outer side seam ties 63a and/or 64a, respectively, may be secured. Right and left top shoulder seams 30b and 35b are also illustrated, and in this embodiment comprise pluralities of closure means for operably opening and closing the sleeves along the upper shoulder edges.

[0045] In one embodiment, the gown may be closed by draping the right frontal panel 45 over and securing the left side inner tie 62 with the corresponding tie on the outer edge of the right panel portion 62a. Optionally, securing means 64 and 64a near the hemline of the garment may also be tied along the left inner seam 50a to further secure the right front panel 45.

[0046] The left frontal panel 35 may then be draped over and secured via outer side-seam closures 50 and 90, forming sleeve openings 30a and 35a as illustrated in FIG. 3.

[0047] FIG. 3 illustrates the garment of FIG. 2 shown in its typical “closed” or wearing position. Draping of the left and right front panels forms a neck opening 40, and closure of the right and left shoulder securement means, 30b and 35b, respectively, form right and left sleeves, 30 and 35, respectively, having armholes 30a and 35a, respectively. Securement of the right front panel to the left inner side seam via union of mid-axillary ties 62a and 62 shown in FIG. 2 result in inner sideseam tie 70. Securement of the right front panel to the left inner side seam via union of optional tie members 64a and 64 near the hemline results in inner sideseam tie 80. Union of the left front panel to the right outer side seam via union of an outer seam mid-axillary tie member and tie member 61a (shown in FIG. 2) results in outer sideseam tie 50. Union of the left front panel to the right outer side seam via an outer side seam tie member located near the hemline and the corresponding tie member 63a (shown in FIG. 2) results in outer sideseam tie 90.

[0048] FIG. 4 shows an alternative embodiment of the invention in which the lower hemline region ties are omitted. Closure and securement of the garment shown here may first be facilitated by securing one pair of mid-axillary region tie members to an inner seam of the garment (e.g., tie members 61 and 61a may be tied by folding panel 35 over first. Closure of the remaining panel 45 may also be facilitated by joining tie member 62a on the panel to an outer tie member (shown as a dotted line) located on the outer side seam at a position corresponding to that of inner seam tie member 62. The gown may also be worn by folding panel 45 over first and securing it by tie members 62 and 62a, and then by securing the second panel 35, folding it over and securing it by tie members 61 and 61a.

[0049] FIG. 5 illustrates an embodiment of the invention in which the lower ties are omitted, and in which the gown may be worn in a conventional rear-opening. This view Closure of the garment is first facilitated by securing one pair of mid-axillary region tie members to an inner seam of the garment (e.g., tie members 61 and 61a are tied by folding the left front panel 35 over first. Closure of the remaining front panel 45 is then facilitated by joining tie member 62a on the right front panel to an outer tie member (not shown) located on the outer side seam at a position corresponding to that of inner seam tie member 62.

[0050] FIG. 6A through FIG. 6E illustrate various embodiments for fabricating sleeve openings in which the upper shoulder seam is operably openable and closable, and which shoulder region may be secured by a plurality of closure means along the shoulder seam. For clarity, only one sleeve is shown, however, both sleeves may be fashioned to be operably closable and openable using suitable closures, including, for example, those closures shown and described herein. Likewise, for clarity, the remainder of the garment is omitted:

[0051] In FIG. 6A, the shoulder seam of the sleeve comprises a plurality of conventional metal fabric snaps. A plurality of male snap members is included along one panel of the shoulder seam, and a corresponding plurality of female snap members is included along the adjacent panel to form a closable shoulder seam.

[0052] In FIG. 6B, the sleeve shoulder seam comprises a plurality of nylon or plastic fabric snaps. A plurality of male snap members is included along one panel of the shoulder seam, and a corresponding plurality of female snap members is included along the adjacent panel forming a shoulder

seam that can be opened and closed without need for removal of the gown by the patient.

[0053] In FIG. 6C, the shoulder seam of the sleeve is buttoned. A plurality of buttons is included along one panel of the shoulder seam, while a corresponding plurality of button holes are fabricated along the adjacent panel to form a shoulder seam that can be opened and closed at will.

[0054] In FIG. 6D, the shoulder seam of the sleeve comprises a portion of conventional hook-and loop type fasteners (e.g., Velcro®). A length of the “hook” portion of the closure is attached along one edge of the shoulder seam, while a comparable length of the “loop” portion of the closure is attached along the corresponding opposite shoulder fabric panel to form means for opening and closing the shoulder seam.

[0055] In FIG. 6E, the shoulder seam of the sleeve may be optionally opened and secured by a plurality of conventional fabric ties. A plurality of tie members is included along one panel of the shoulder seam, and a corresponding plurality of tie members is included along the adjacent panel. The corresponding tie pairs may be tied together to close the shoulder seam, and untied to open the sleeve along its shoulder seam.

[0056] FIG. 7A and FIG. 7B illustrate a “left-over-right” front-closing embodiment of the invention in which closure of the garment is facilitated by folding one of the front panels of the garment (shown here the right panel) to the patient’s opposite side (in this case, the left side) and securing it via one or more ties located along the inner seam of the garment (exemplified here as axillary region tie 70, and hemline region tie 80). As shown, the left front panel may then be draped over to the patient’s right side with closure facilitated by joining tie member 50a on the left front panel to an outer tie member (shown secured as tie 50 in FIG. 7B) located on the right outer side seam, and further secured by joining tie member 90a on the lower left front panel to an outer tie member (shown secured as tie 90) located on the lower right outer side seam. In FIG. 7B, the left and right shoulder opening closing securement means are also shown as pluralities of snap members 35b and 30b, respectively.

[0057] FIG. 8A and FIG. 8B illustrate a “right-over-left” front-closing embodiment of the invention, in which the closure of the garment is first facilitated by folding over the left front panel of the garment to the patient’s right side and securing it via an axillary region tie on the right inner seam of the garment 51, and by a tie located on the lower right inner seam near the hemline of the garment 91. The remaining right front panel (shown in the patient’s right hand) may then be draped over to the patient’s left side with closure facilitated by joining tie member 70a on the right front panel to an outer tie member (not shown) located on the left outer side seam, and further secured by joining tie member 80a on the lower left front panel to an outer tie member (not shown) located on the lower right outer side seam. In FIG. 8B, both front panels have been secured to the opposing side seams in the form of inner ties 50 and 90, and outer ties 70 and 80.

[0058] Although the aforementioned embodiments have been described from the perspective of the patient wearing the garment as a front-opening garment (see e.g., FIG. 7A/FIG. 7B, FIG. 8A/FIG. 8B), the gown may also be worn in opposite fashion as a “rear-closing” garment. FIG. 9A and FIG. 9B illustrate this embodiment of the invention. In this embodiment, a first body portion covers substantially all of

the patient's anterior torso, and the first and second fabric panels become the left and right rear panels. In FIG. 9A, securement of the right rear panel to the left mid-axillary and hemline regions are accomplished by joining tie members to form inner axillary and hemline ties, **51** and **91**, respectively. For illustration, the remaining pair of untied mid axillary tie members, **71a** and **71b**, are shown, as are the remaining pair of untied hemline region tie members, **81a** and **81b**. In FIG. 9B, tie members **71a** and **72b** have been joined to produce tie **71**, and tie members **81a** and **81b** have been joined to produce tie **81**. The interior sideseam ties **51** and **91**, as shown in FIG. 9A are illustrated by dotted lines for convenience. The left rear panel of the garment is then draped over the right rear panel as shown in FIG. 9B, and the left rear panel is secured to the right mid-axillary and right hemline regions by the ties shown as **71** and **81**, respectively. Left and right openable sleeves are also illustrated in this view, as **30b** and **35b**, respectively.

[0059] FIG. 10 illustrates another embodiment of the invention in which the inner side seam tie members have been omitted, and replaced by small slits located at a corresponding position in the side seams. (For a view of the slits and ties, see FIG. 12). Closure of the garment is first facilitated by folding over one frontal panel (as shown, the right panel is folded over first), and passing one tie member through the slit and securing it by pairing it with a corresponding tie member located on the outer seam of the garment (shown in FIG. 11 as ties **70** and **80**). Closure of the remaining front panel may then be facilitated by joining the remaining tie members along the opposite outer side seam of the garment (shown in both FIG. 10 and FIG. 11 as ties **50** and **90**).

[0060] FIG. 10 and FIG. 11 also illustrate a further optional embodiment of the invention in which the lower hemline of the garment may be modified to comprise a plurality of fastening means **100a**, which when engaged, form the crotch portion **100** and corresponding left and right leg openings **101** and **102**, illustrated in FIG. 11. Closure of the hemline of the garment to form the crotch portion is facilitated by a plurality of snap receiving members **100a** operably positioned corresponding to a plurality of snap engaging members utilized (i.e., **100b**, see FIG. 12) for securing the crotch and forming a pair of leg openings. This embodiment is particularly useful for gowns placed on toddlers and infants, to facilitate leg movement, and to prevent the child from tripping or falling while ambulating.

[0061] FIG. 12 illustrates various embodiments of the invention including the plurality of snap engaging and receiving members **100a** and **100b** positioned along the bottom of the garment near the hemline as described in FIG. 11 for the purpose of making leg openings (i.e., **101** and **102**, see FIG. 11) and closing the open hemline into a crotch to fashion a shorts/skort/coulot type configuration. A plurality of snap engaging members **100b** is included along the central portion of the rear body panel, and corresponding pluralities of snap receiving members **100a** are included along one or both of the front panels. The engaging and receiving snap members are then snapped together to form the crotch snap flap portion **100** as identified in FIG. 11. While the illustration shows the male snap members along the rear panel and the female snap members along the front panels, the opposite configuration is also equally useful in fabrication of the gowns of the present invention. In such embodiments, a plurality of "female" (receiving) snap mem-

bers may be fashioned along the rear body panel and a corresponding plurality of "male" (engaging) snap members may be fashioned along one or both of the front body panel portions at a position when allows engagement of the snap members to form the closed snap flap as shown **100** in FIG. 11.

[0062] FIG. 12 also illustrates an optional gown configuration in which there are no inner seam tie members. Shown is the positioning of the optional slits along the side seams as described in FIG. 10. When the right panel is folded over, the tie members **62a** and **64a** may be threaded through the corresponding slits on the opposite (left) side seam, and engaged with the corresponding left outer side seam tie members of the garment. Similarly, when the left panel is folded over, the tie members **61a** and **63a** may be threaded through corresponding slits on the opposite (right) side seam, and engaged with the corresponding right outer side seam tie members of the garment, resulting in the gown configuration shown in FIG. 10.

[0063] FIG. 13 shows the placement of optional pockets on the hospital gowns described herein. Shown are optional device pockets **200** and **205** with corresponding slits **201a** and **201b**, for passage of wires, electrodes, leads, tubes, etc. from within the pocket directly through the slit to the patient's body, and optional data/patient record storage/identification pockets **300** and **305** (shown with optional slit **301** in FIG. 14). FIG. 14 also shows the preferred positioning of one or more device pockets along the upper chest region of the gown, and one or more data/medical records pockets along the lower front portion of one or both of the frontal flaps.

[0064] In one embodiment, the invention provides a hospital gown that generally comprises (a) a first body portion for substantially covering the anterior or posterior torso of the patient; (b) a first and a second side panel, each of the panels being formed substantially adjacent and substantially operably linked to the body portion on the patient substantially by first and second side seams that extend substantially vertically along the left and right lateral portions of a patient wearing the garment; (c) a first fastening means attached to at least one of the side panels for opening and closing the panel, and for operably attaching the side panel to a first fastening means located substantially along the first seam formed between the opposing panel and first body portion; (d) a second fastening means attached to the second panel for opening and closing the second frontal panel, and for operably attaching the second panel to a second fastening means located substantially along the second seam formed between the opposing panel and the first body portion; and (e) a first and a second operably openable sleeve, each of the sleeves formed of a first part attached to the first body portion, and a second part attached to respective ones of the first and second side panels, wherein the sleeves have a pair of top fabric edges that are secured with an optional operably openable and operably closable fastening or securement means.

[0065] In certain embodiments, the first body portion will comprise a first rear body portion, and the first and second side panels will substantially form a pair of frontal panels that are operably securable to fastening means located substantially in the left or right mid-axillary region of a patient when wearing the garment.

[0066] In some embodiments, one or more of the fastening means are located substantially along a surface of an interior or an exterior side seam.

[0067] Preferably, at least one of the first frontal panel closure means will comprise at least one axillary-region (underarm) tie means, and in certain embodiments, the first and frontal panel closure means will comprise a plurality of ties substantially along each of the first and second lateral side seams.

[0068] Preferably at least one sleeve of the gown will comprise at least a first shoulder opening substantially along the top seam of the sleeve that is operably openable and operably closable by one or more fastening means, including for example, garment snaps, ties, clips, buttons, clasps, hooks, or one or more portions of a hook-and-loop type fastener.

[0069] In some embodiments, the gowns will be fashioned such that the plurality of snaps is manufactured from a material that is suitable for wearing by a patient while in a medical imaging or radiographic device, such as a CT scanner, a PET scanner, an MRI device, an EBCT scanner, a fluoroscope, or an X-ray device. Preferably such snap closures comprise receiving and engaging members that are made of a non-metallic or radiographically-inert material such as plastic, nylon, polyester, or other such like materials that do not interfere with medical instrumentation.

[0070] The gown will also typically be fashioned such that the gown has a crew- or V-neck style collar. The gown will also be fashioned with sleeves which will typically extend approximately to the middle of the upper arms, the elbows, or the mid-forearms of the wearer. Likewise, the gown will be fabricated of lengths that are age-appropriate to the wearer, and in such cases, the hemline of the gown will typically extend approximately to the mid-thighs, the knee region, or the mid-calf region of the wearer.

[0071] The patient gown of the invention may be manufactured substantially from a single sheet of material, or alternatively from three separate sheets of material, in which one of the sheets of material forms substantially the entire back panel of the gown, and each of the remaining two sheets forms substantially the right and left front panels of the gown.

[0072] In such embodiments, the back panel and the right and left front panels are coupled substantially along left and right side seams, preferably by sewing or fabricating left and right side seams that extend substantially vertically from the armpit to the neckline when worn by a patient.

[0073] The patient gown is preferably manufactured substantially from a material that comprises cotton, polyester, plastic, cotton polyblend, nylon, paper or combinations thereof, and in particular, fabrics that are flame-retardant, or that have been treated with one or more substances to render them substantially flame-retardant.

[0074] The gowns of the invention may also further optionally comprise at least a first device storage pocket that may be attached to at least a first surface of the gown, typically along the region of the gown that corresponds to the chest region of the wearer. Such pocket may be fashioned such that a corresponding slit is formed in the material comprising the fabric surface onto which the pocket is fashioned such that telemetry wires, tubes, monitors, sensors, etc. can be passed directly from the pocket through the slit and directly to the patient's body without the need for opening or closing the main portion of the garment.

[0075] The patient gowns of the invention may also further optionally comprise at least a first document storage pocket that may be attached to at least a first surface of the gown, typically along the region of the gown that corresponds to the hemline region of the wearer. Such pockets may be fashioned such that identification papers, notes, patient records, and such like may be kept in proximity to the patient during transport or relocation from one area to another.

[0076] The gowns of the invention may also optionally further comprise one or more radio frequency identification (RFID) devices operably attached to at least a first portion of the gown.

[0077] Likewise, the patient gowns may further comprise at least a first identification marking on at least a first inner or outer surface of the gown.

[0078] Preferably the gowns of the present invention are size-appropriate to pediatric patients, and in particular, fashioned such that they are size-appropriate for infants, toddlers, pre-teens, teenagers, and young adults.

[0079] The fabric of the front portion of the garment may optionally be composed of two or more layers of fabric adapted to provide additional patient warmth, comfort, modesty, and decreased transparency of the fabric gown.

[0080] Articles of manufacture of the invention may be personalized with the name of a patient by whom the gown is worn, or with the name or logo of a medical facility in which the gown is sold, issued or worn. Suitable marking of the gowns may be made by monogramming, stitching, ink transfer, screen printing, embroidery, dye sublimation, inking, stenciling, contact printing, or such like.

[0081] The invention also provides a hospital gown formed substantially from three separate sheets of material, the first of these sheets forming substantially the entire main rear torso portion of the gown, the second sheet forming substantially a first frontal panel of the gown, and the third sheet forming substantially a second frontal panel of the gown; wherein the first frontal panel is operably attached to a first vertical edge of the main rear torso portion substantially by a first seam extending substantially vertically along the left lateral portion of the gown, first seam connecting the first frontal panel to the first vertical edge of the main rear torso portion, and wherein the second frontal panel is operably attached to a second vertical edge of the rear torso portion substantially by a second seam extending substantially vertically along the right lateral portion of the gown; wherein the second seam connects the second frontal panel to the second vertical edge of the rear torso portion. In such embodiments, the gown generally comprises:

[0082] (a) a first and a second sleeve, each of which is formed of a first sleeve part attached to the rear body portion, and a second sleeve part attached to respective ones of the first and second frontal panels, wherein each pair of sleeve parts is fixably closed along their lower edges, and operably closable along their upper edges, and further wherein the upper edges of the sleeve comprise at least a first closure means for closing the sleeve parts along its shoulder region;

[0083] (b) a first fastening means attached to the outer edge of the first frontal panel for securing it to a second fastening means located substantially at a position along the first seam corresponding to the mid-axillary region of a patient wearing the gown; and

[0084] (c) a third fastening means attached to the outer edge of the second frontal panel for securing it to a fourth

fastening means located substantially at a position along the second sideseam corresponding to the mid-axillary region of a patient wearing the gown.

[0085] In such embodiments, one or more of the fastening means is located substantially along an interior or exterior side seam surface of gown, and is comprised of one or more ties, snaps, hooks, eyelets, buttons, or hook-and-loop type fastening means.

[0086] The invention also provides a medical gown that generally comprises:

[0087] (a) a first body portion for covering substantially an anterior or posterior surface of the torso of a human patient;

[0088] (b) first and second panels, each of the panels being operably linked to the first body portion substantially by first and second seams extending substantially vertically along the left and right lateral edges of the first body portion;

[0089] (c) a first fastening means attached to the first panel for operably securing the first panel to a first fastening means located substantially along the first seam formed between the opposing panel and the first body portion;

[0090] (d) a second fastening means attached to the second panel for operably securing the second panel to a second fastening means located substantially along the second seam formed between the opposing panel and the first body portion; and

[0091] (e) first and second operably openable sleeves, each of the sleeves formed of a first part attached to the first body portion, and a second part attached to respective ones of the first and the second panels, wherein at least one of the sleeves is operably openable along its upper shoulder seam.

General Dimensional Information for Gown Fabrication

[0092] In the practice of the invention, it is contemplated that virtually any size gown may be fabricated for use by human patients. The fabrication of human adult-sized gowns is well known in the art, however, the fabrication of gown sized appropriately for pediatric patients is less well studied. To aid in the fabrication of size-appropriate gowns for children, teens, and young adults, the following table of exemplary gown dimensions are provided: While the dimensions shown are approximate, and need not be rigorously adhered to when fabricating individual garments as described herein, the general size categories described will provide useful guidelines for fashioning gowns in accordance with the invention:

TABLE 1

EXEMPLARY PATIENT GOWN SIZES FOR PEDIATRIC PATIENTS	
Gown Size	Approximate Dimensions
<u>Neonatal Small</u>	
Seam to seam	8½ inches
Axilla to bottom hem	8½ inches
Neck opening (diameter)	13 inches
Arm opening (sleeve diameter)	8 inches
<u>Neonatal Large</u>	
Seam to seam	12 inches
Axilla to bottom hem	12¼ inches
Neck opening (diameter)	13 inches
Arm opening (sleeve diameter)	8 inches

TABLE 1-continued

EXEMPLARY PATIENT GOWN SIZES FOR PEDIATRIC PATIENTS	
Gown Size	Approximate Dimensions
<u>X-Small (Infant)</u>	
Seam to seam	16 inches
Axilla to bottom hem	11½ inches
Neck opening (diameter)	16 inches
Arm opening (sleeve diameter)	13 inches
<u>Small (Toddler)</u>	
Seam to seam	17¼ inches
Axilla to bottom hem	15 inches
Neck opening (diameter)	17¾ inches
Arm opening (sleeve diameter)	13 inches
<u>Medium (Pre-School)</u>	
Seam to seam	18½ inches
Axilla to bottom hem	17 inches
Neck opening (diameter)	21½ inches
Arm opening (sleeve diameter)	14 inches
<u>Large (School-age)</u>	
Seam to seam	20½ inches
Axilla to bottom hem	20½ inches
Neck opening (diameter)	21½ inches
Arm opening (sleeve diameter)	15 inches
<u>Pre-teen</u>	
Seam to seam	23 inches
Axilla to bottom hem	25 inches
Neck opening (diameter)	22 inches
Arm opening (sleeve diameter)	18 inches
<u>Teen/Young Adult</u>	
Seam to seam	27½ inches
Axilla to bottom hem	33½ inches
Neck opening (diameter)	24¼ inches
Arm opening (sleeve diameter)	21¼ inches

All dimensions listed are approximate, and represent typical average gown sizes for the patient type listed.

Sleeve Designs

[0093] As described herein, each sleeve of the hospital gown has an arm opening. In one embodiment, one or both sleeves of the garment may be closed, reminiscent of a traditional short-sleeved shirt. Alternatively, in another embodiment, one or both sleeves of the gown may have at least one elongated shoulder slit therethrough fashioned between the inner and outer sides of the hospital gown. In such embodiments, the shoulder slit typically has a length extending between the top neck opening and the arm opening of the sleeves. The shoulder slit forms a pair of lateral edges along the shoulder surface of each sleeve. The two lateral edges formed by the shoulder slit may be slightly overlapped, or may be designed with a small slit between the two edges. Alternatively, the lateral edges of the shoulder slit may be securable to each other by suitable fastening means.

[0094] In practical use, the presence of this optional shoulder slit on one or both sleeves allows a user with limited mobility to more easily put on and take off the gown. Likewise, the presence of an opening or slit in one or both sleeves also facilitates the passage of ECG/EKG leads, oxygen lines, nasogastric tubes, feeding tubes, pH probes, intravenous (IV) tubing, instrumentation wires, sensors, or leads, and such like to be threaded through the outer opening

of the slit down into the garment and in proximity to the patient's body. Because patients undergoing various medical or diagnostic procedures often require electrodes, sensors, fluid supply lines, oxygen systems, and such like to be in proximity to the body, the ability to partially or fully open one or both sleeves of the garment provides a great advantage to both the gown wearer and the attendant medical personnel.

[0095] One or both sleeves of the patient gown may also optionally be provided with an opening and means for securing such an opening. As shown in FIG. 6A through 6E, in exemplary embodiments, a row of conventional metal snap closures (FIG. 6A) may be provided along a portion of the sleeve for securing the opening in the sleeve itself. Such "snap" closures typically comprise a respective projecting member and a receiving member. To secure the opening, the projecting member is inserted into the receiving member. To open the sleeve, the projecting and receiving members are simply pulled apart. Each projecting (male) member may be operably positioned substantially across from its counterpart receiving (female) member on the opposite lateral edge of the slit. In this embodiment, a plurality of receiving and projecting members may line the opening of the sleeve, and the patient may close the sleeve either partially or in its entirety by mating each projecting member with its counterpart receiving member along the sleeve opening. In an illustrative embodiment, a plurality of snap closures is provided substantially along the entire length of the sleeve. Such snap closures may be fashioned on one, or on both sleeves, and may be made of any suitable material, including for example, metal, plastic, nylon, polyester, and similar materials. For patients undergoing certain medical imaging and/or diagnostic procedures, the inventors contemplate that snap closures fashioned from nylon or plastic (FIG. 6B) is particularly desirable. Use of such materials is particularly contemplated when the patient is undergoing various medical procedures, and diagnostic imaging studies, including for example, but not limited to, MRI, EBCT, CT, PET, Radiography, and such like.

[0096] In FIG. 6C, the use of a plurality of buttons and buttonholes is illustrated. In FIG. 6D, the use of hook-and-loop closings (e.g., Velcro®) is illustrated. These "hook-and-loop" type fastener systems are known in the art, and typically comprise one or more pairs of strips of complementary portions of the hook-and-loop fasteners secured to each lateral edge of the slit, preferably such that "hook" portion(s) are provided on an inner side of one of the lateral edges of the sleeve opening, and the corresponding "loop" portion(s) of the fastener means is provided on the outer side of the opposite lateral edge of the opening in the hospital gown sleeve, such that when the hook-and-loop fastener means are pressed together, contact between the two fastener portions causes the lateral edges of the shoulder slits to be held in close contact, thereby "sealing" or closing the opening slit.

[0097] Alternative to the use of one or more of the aforementioned closure devices, one or both sleeves of the patient gown may optionally be provided with an opening and a plurality of fabric ties for securing such an opening. As shown in FIG. 6E, in an exemplary embodiment, a row of conventional fabric ties may be provided along a portion of the sleeve for securing the opening in the sleeve itself. In an illustrative embodiment, a plurality of fabric ties is provided substantially along the entire length of the sleeve. Such

fabric ties may be fashioned on one, or on both sleeves. Alternatively, and in addition to the use of conventional snap closures or fabric ties, other suitable means for securing the shoulder openings in a sleeve of the patient gown may also be used. These include, for example, and without limitation, straps, strings, zippers, brads, catches, toggles, clips, hooks, and the like.

[0098] In embodiments where closed top seams on the sleeves are desirable, it is recommended that the neck opening be made slightly larger than in a standard gown to facilitate access to the torso via entry at the neck opening. Likewise, in some embodiments, it may be desirable to have the neck opening slightly smaller than a standard gown to facilitate more coverage of the neck and chest region. Additionally, to provide an additional degree of modesty, the front panels of the gown may be fashioned out of thicker material, or even an additional layer or layers of fabric be employed in the construction of the front panels of the gown for the purpose of making the material less "see-through" and again providing improved patient modesty.

[0099] In certain embodiments, it may also be desirable to fix one or more snaps, or closure means to the fabric panels near the neck opening to provide more secure coverage of the gown, and to further limit the ability of the front panels of the gown to open, thereby exposing the patient's chest and neck area. Such closure means may be fashioned similarly as to the top seams of the sleeves of the gown, with nylon snaps being a preferable means for holding the right and left front panels of the garment together near the neck region of the gown.

[0100] For embodiments in which gowns are fabricated for wearing by very young patients, it may also be desirable to fashion one or more garment closure means along or near the lower front hemline of the garment. This is illustrated in FIG. 11 and FIG. 12. By placing one or more snaps, buttons, or hook-and-loop closure strips along the lower hemline of the gown, the gown may essentially be gathered below the patient's groin area to provide for modified leg openings, in a fashion analogous to those designs in the garment industry commonly referred to as a "romper" "skort" or "coulotte."

[0101] Optional Pocket Designs

[0102] Because in certain circumstances, a patient may wear a telemetry device, an external pacemaker, a data recorder, dosimeter, pump, or other external medical device, instrumentation, or appliance, it is also desirable in certain embodiment to provide a means for containing such devices in the patient's hospital gown. In such instances, one or more device pockets may be fashioned into the design of gown to hold such devices. As shown in the illustrative example in FIG. 13 and FIG. 14, the outside of the body portion of the gown may be equipped with one or more conventional pockets 200 and 205, such as for example, what is known in the art as a "telemetry pocket". These pockets may be sized to accommodate typical patient monitoring devices and, may also be optionally provided with a horizontal slit in the rear portion of the pocket (201a and 201b) through which one or more wires, sensors, electrical leads, or tubes may be passed underneath the garment and into proximity with the patient's body. Such pockets are preferably located in the upper torso region of the patient, similar to the breast pocket on a conventional dress shirt.

[0103] While the concept of fabricating pockets is well-known in the garment industry, in an overall and general sense, a pocket may be formed by sewing a substantially

square or substantially rectangular portion of fabric along three of its edges (for example, bottom edge X, and opposing edges Y and Y', leaving the top edge not sewn, such that the fabric is attached to the body portion of the garment, such that the top wall and the body portion form a top opening that allows for insertion of patient monitors into the pocket.

[0104] FIG. 13 and FIG. 14 also illustrate another embodiment of this invention in which a patient record or patient identification pocket 300 or 305 is fabricated into the garment to provides means for storing patient records or data. Because patients often undergo procedures in various areas or departments of a medical facility, they are often are moved from one location to another, or from one facility to another. In such situations, there is a desire in certain embodiments to provide a means for securing medical records, identification papers, test results, patient data, or other paperwork such as doctor's orders to the patient's garment.

[0105] To minimize the potential for separating a patient and such paperwork, the gowns of the present invention may also optionally comprise one or more pockets, which may be fabricated into any suitable area of the garment (but preferably on the front surface of the garment, and in the approximate lower half of the garment) such that the material placed into the data pocket is readily accessible to both patient and attendant medical personnel. The fabrication and design of the data pocket is similar to the telemetry pocket disclosed above, however, the data pocket is preferably sized larger than a convention shirt pocket in order to accommodate larger items and paperwork.

[0106] Identification Methods

[0107] The use of bar coding, and more recently, radio frequency identification (RFID) technology, has become widespread in recent years in a number of disciplines from tracking inventory to monitoring military troop movements. In the medical arts, biocompatible implantable RFID devices have long been used for the identification and monitoring of laboratory animals. Recently, commercialization of RFID technology has been extended to the use of RFID chip devices implanted into corpses to facilitate processing of large numbers of deceased following natural disasters.

[0108] Likewise, RFID devices have also been employed by the United States military for identification of medical patients in field hospitals and the like. More recently, hospitals have begun replacing the traditional patient I.D. bracelet with RFID-enabled wristband technology. Such identification devices represent an improved means for patient identification and data compared to conventional patient ID methodology. As such, the inventors contemplate that the patient gowns of the present invention may be readily configured to employ one or more RFID devices for patient identification. To that end, the patient gowns of the present invention may be adapted or fabricated to provide a means for securing one or more RFID devices to the garment. Such devices could be used to transmit pertinent information and/or data to attendant medical personnel. Because of the miniaturized configuration of contemporary RFID devices, such an identification means could be placed in one or more data pockets, coupled to the garment by suitable anchoring means (clips, hooks, adhesives, etc.), or the device could be fabricated directly into the garment either during manufacture, or secured to the gown prior to patient use.

[0109] Fabrication Materials

[0110] The hospital/patient gowns of the present invention may be fabricated from any suitable drapable cloth-like material, including without limitation, textiles or fabrics made from any one or more materials including, but not limited to, plastics, paper, natural and synthetic fibers, and the like. Gowns may preferably be fashioned from flame-retardant materials, such as 100% polyester fabrics, and may also be fashioned from a durable material which may be laundered one or more times for subsequent re-use. Such gowns may be individually or bulk-packaged and may optionally be contained in suitable packaging means that permit the gown to be sterilized subsequent to manufacture, and/or prior to patient use. The fabrics utilized for construction of the gown may also optionally comprise one or more stain-resistant chemicals, or one or more antimicrobial treatments (e.g., MicroBan™), or one or more flame-retardants, or such like.

[0111] Depending upon the thickness or "ply" of the fabric used for fabricating the garments, the gown may be manufactured of a single ply of fabric, or may optionally be formed for two or more sheets of fabrics. In all such cases, the more desirable fabric thickness will be one that provides appropriate coverage and patient modesty, as well as durability of the gown itself. Alternatively, the gown may be fashioned out of a material that may be employed for one-time use prior to disposal, incineration, or decontamination. These "one-time use" gowns may be fabricated from a lightweight or inexpensive fabric, from one or more plies of a paper or suitable paper/fabric composite. They may be individually or bulk-packaged and may optionally be contained in suitable packaging means that permit the gown to be sterilized subsequent to manufacture, and/or prior to patient use.

[0112] The gowns of the present invention may be fashioned from one or more fabrics having substantially one color and/or substantially one pattern or design, or alternatively, may be constructed from textiles having a plurality of colors and/or patterns. The hospital gowns described herein may also be designed using fabric colors, textile patterns and/or prints that are aesthetically-pleasing or that provide both physical and emotional comfort during wearing. Particularly desirable are fabrics that are pleasing and/or calming to a juvenile or adolescent patient.

[0113] In certain embodiments, the fabric may be permanently or semi-permanently identified with one or more distinguishing mark(s) or logo(s) of the laundry/linen service or hospital that owns the garments, or may be alternatively identified with one or more distinguishing mark(s) or logo(s) of the medical facility in which the gown is issued or used.

[0114] Because it is widely accepted in the medical community that one of the main sources of stress, discomfort, and emotional unrest in a juvenile patient is the mere fact that they are confined the an unfamiliar and unsettling environment of a clinical facility, the present invention provides means for improving patient morale and well-being. Studies have shown that many young patients are inherently anxious in a medical facility, and can easily be emotionally overwhelmed when they are confined to such a facility for significant periods of time. The unfamiliar surroundings, the sights and sounds of medical devices and instrumentation, and the sterile and stark environment of the hospital itself, can all contribute to making a juvenile patient

more afraid, more anxious, and more uncomfortable. It is for these and other reasons that facilities such as children's hospitals devote significant effort and resources to making the unfamiliar environment of a hospital less "clinical" and more "kid-friendly."

[0115] One method by which the present invention achieves a more "kid-friendly" experience for young patients is by designing and manufacturing the gowns disclosed herein from textiles and fabrics with patterns, colors, logos, and/or ornamentations that are particularly appealing or soothing to juveniles or adolescents. For example, the gowns may be manufactured from textiles that incorporate, illustrate, or otherwise depict recognizable commercial symbology (e.g., professional sports team logos, comic strip characters, cartoon characters, action figures, anime, or such like).

[0116] Particularly in the context of hospitals or facilities that primarily care for adolescents and/or juveniles, the inventors also contemplate the customization and/or personalization of one or more of the disclosed patient garments to provide additional patient comfort or calming, and/or to promote patient well-being or enhance patient morale, all of which are particularly desirable when a young patient is confined to a hospital for a long period of time, or for patients who require frequent hospitalization.

[0117] Thus the inventors also contemplate that in addition to facilitating improved patient modesty and increased medical personnel access to the body, customization and/or personalization of the patient gowns disclosed herein also represent a significant improvement to the bland unappealing character of typical hospital garments.

[0118] The method is analogous to a process already widely-adopted in the medical arts whereby a given medical facility produces annual holiday greeting cards, calendars, postcards, T-shirts, or the like, that feature the artwork of current or former patients of the facility. Examples include children's drawings, crayon art, handprints, and such like.

[0119] Such embodiments may also involve the commercial sale or free distribution of individual patient garments so personalized for the purpose of fund-raising or educational awareness of particular medical conditions, and such like.

[0120] Such customization of the garments can incorporate one or more methods known in the art of textile manufacture and personalization, including for example, screen printing, embroidery, stitching, monogramming, lithography, dry transfer, dye sublimation, and/or ink transfer of one or more selected designs to the fabric of a patient gown.

[0121] Personalization and/or customization of the patient gowns may also be desirable to provide advertising and/or name recognition for a particular medical facility or even, for example, a selected service within a given facility.

[0122] Exemplary Packaging

[0123] Although medical gowns are typically owned by a linen uniform company or the medical facility in which the patient is undergoing a procedure or confinement, and "loaned" to the patient for use during his or her hospital stay, the present invention also contemplates the wholesale/retail packaging and distribution of the medical garments disclosed herein to companies, stores, and even directly to individuals. Such retail sales are particularly contemplated when a patient requires long-term medical care, or a lengthy in-home confinement or rehabilitation. Examples of such situations include care of terminally-ill patients, patients

with lengthy chronic illnesses, and those undergoing significant long-term rehabilitation or therapy. The inventors even contemplate the use of such gowns in non-medical environments, including, for example, children's art classes (where the gown may be used to protect the wearer's street clothing from stains or spills), in theatrical productions, reality programs, educational settings, or even as a Halloween costume or casual wear for temporarily-ill children.

[0124] It is understood that variations may be made in the foregoing without departing from the scope of the disclosure.

[0125] Any foregoing spatial references such as, for example, "upper," "lower," "above," "below," "anterior," "posterior," "front," "back," "rear" "between," etc., are for the purpose of illustration only and do not limit the specific orientation or location of the structure described above.

[0126] In several exemplary embodiments, it is understood that one or more of features in a given embodiment may be omitted. Moreover, in some instances, some features of the present disclosure may be employed without a corresponding use of the other features. Likewise, it is also understood that one or more of the embodiments and/or variations described herein may be combined in whole or in part with any one or more of the other embodiments and/or variations described herein.

[0127] Although exemplary embodiments of this disclosure have been described in detail above, those skilled in the art will readily appreciate that many other modifications, changes and/or substitutions are possible in the exemplary embodiments without materially departing from the novel teachings and advantages of this disclosure. Accordingly, all such modifications, changes and/or substitutions are intended to be included within the scope of this disclosure as defined in the following claims. In the claims, means-plus-function clauses are intended to cover the structures described herein as performing the recited function and not only structural equivalents, but also equivalent structures.

[0128] Likewise, with respect to the embodiments disclosed and described herein, it is to be realized that the optimum dimensional relationships for the parts of the invention (including for example, variations in size, length, shape, form, function, material, and/or manner of operation, assembly and use, are deemed readily apparent and obvious to one skilled in the art having benefit of the teachings provided herein, and all equivalent relationships to those illustrated in the drawings and described in the specification are considered to fall within the scope of the present invention.

[0129] Moreover, having described the invention with regard to several illustrative embodiments, it is also to be understood that the description is not meant as a limitation since further modifications and variations of the disclosed devices may be apparent or may suggest themselves to those skilled in the art. It is intended that the present application cover all such modifications and variations as fall within the scope of the appended claims:

What is claimed is:

1. A hospital gown comprising:

- (a) a rear body portion for substantially covering the posterior torso of the patient;
- (b) a first and a second frontal panel, each of said panels being formed adjacent and operably linked to said rear body portion on the patient substantially by a first and

- second seam extending substantially vertically along the left and right lateral portions of said patient;
- (c) a first fastening means attached to said first frontal panel for opening and closing said first frontal panel, and for operably attaching said first frontal panel to a first fastening means located substantially along said first seam formed between the opposing frontal panel and said rear body portion;
- (d) a second fastening means attached to said second frontal panel for opening and closing said second frontal panel, and for operably attaching said second frontal panel to a second fastening means located substantially along said second seam formed between the opposing frontal panel and said rear body portion; and
- (e) a first and a second operably openable sleeve, each of said sleeves formed of a first part attached to said rear body portion, and a second part attached to respective ones of said first and said second frontal panels, and having top edges.
2. The patient gown of claim 1, wherein said first frontal panel is operably securable to fastening means located substantially in the left or right mid-axillary region of said patient.
3. The patient gown of claim 1, wherein one of said fastening means is located substantially along an interior surface of said first seam.
4. The patient gown of claim 1, wherein one of said fastening means is located substantially along an exterior surface of said second seam.
5. The patient gown of claim 1, wherein said first frontal panel closure means comprises at least one axillary tie.
6. The patient gown of claim 1, wherein said first and said second frontal panel closure means comprise a plurality of fabric ties substantially along said first and said second seams.
7. The patient gown of claim 1, wherein at least one sleeve of said patient gown comprises at least a first shoulder opening substantially along the top seam of said sleeve.
8. The patient gown of claim 7, wherein said at least a first shoulder opening is operably closable by at least one snap, tie, clip, button, clasp, or a hook-and-loop-type fastener.
9. The patient gown of claim 8, wherein said at least a first shoulder opening is operably closed by a plurality of snaps, ties, clips, buttons, clasps, or hook-and-loop-type fasteners.
10. The patient gown of claim 9, wherein said at least a first shoulder opening is operably closed by a plurality of snaps.
11. The patient gown of claim 9, wherein said plurality of snaps is manufactured from a material that is suitable for wearing by a patient while in a medical imaging or radiographic device.
12. The patient gown of claim 11, wherein said medical imaging or radiographic device is a CT scanner, a PET scanner, an MRI device, an EBCT scanner, a fluoroscope, or an X-ray device.
13. The patient gown of claim 9, wherein said material is plastic, nylon, or polyester.
14. The patient gown of claim 1, wherein said front portion has a crew- or V-neck style collar.
15. The patient gown of claim 1, wherein said sleeves extend approximately to the middle of the upper arms of the wearer.
16. The patient gown of claim 1, wherein said sleeves extend approximately to the mid-forearms of the wearer.
17. The patient gown of claim 1, wherein the hemline of said gown extends approximately to the mid-thighs or the knees of the wearer.
18. The patient gown of claim 1, wherein the hemline of said gown extends approximately to the mid-calf of the wearer.
19. The patient gown of claim 1, wherein said gown is manufactured substantially from a single sheet of material.
20. The patient gown of claim 1, wherein said gown is manufactured substantially from three separate sheets of material.
21. The patient gown of claim 20, wherein one of said sheets of material forms substantially the entire back panel of the gown, and each of the remaining two sheets forms substantially the right and left front panels of said gown.
22. The patient gown of claim 21, wherein said back panel and said right and said left front panels are coupled substantially along left and right side seams.
23. The patient gown of claim 1, wherein said gown is manufactured substantially from a material that comprises cotton, polyester, plastic, cotton polyblend, nylon, paper or combinations thereof.
24. The patient gown of claim 1, wherein said gown is manufactured substantially from a flame-retardant material, or a material that has been treated with a flame-retardant substance.
25. The patient gown of claim 1, further comprising at least a first device storage pocket attached to at least a first surface of said gown.
26. The patient gown of claim 1, further comprising at least a first document storage pocket attached to at least a first surface of said gown.
27. The patient gown of claim 1, further comprising at least a first radio frequency identification (RFID) device operably attached to at least a first portion of said gown.
28. The patient gown of claim 1, further comprising at least a first identification marking on at least a first inner or outer surface of said gown.
29. The patient gown of claim 1, size-appropriate to an infant.
30. The patient gown of claim 1, size-appropriate to a toddler.
31. The patient gown of claim 1, size-appropriate to an adolescent.
32. The patient gown of claim 1, size-appropriate to a teenager.
33. The patient gown of claim 1, wherein the fabric of the front portion of the garment is composed of at least two layers of fabric adapted to provide additional patient warmth, comfort, or modesty.
34. The patient gown of claim 1, personalized with the name of a patient by whom the gown is worn.
35. The patient gown of claim 1, personalized with the name or logo of a medical facility in which the gown is sold, issued or worn.
36. The patient gown of claim 34, wherein said gown is personalized by monogramming, stitching, ink transfer, screen printing, embroidery, dye sublimation, inking, stenciling, or contact printing.
37. A hospital gown formed substantially from three separate sheets of material, the first of said sheets forming substantially the entire rear portion of the gown, the second

of said sheets forming substantially a first frontal panel of said gown, and said third of said sheets forming substantially a second frontal panel of said gown; wherein said first frontal panel is operably attached to a first vertical edge of said rear portion substantially by a first seam extending substantially vertically along the left lateral portion of said gown, said first seam connecting said first frontal panel to said first vertical edge of said rear portion, and wherein said second frontal panel is operably attached to a second vertical edge of said rear portion substantially by a second seam extending substantially vertically along the right lateral portion of said gown; said second seam connecting said second frontal panel to said second vertical edge of said rear portion; said gown comprising:

- (a) a first and a second sleeve, each of said sleeves formed of a first sleeve part attached to said rear body portion, and a second sleeve part attached to respective ones of said first and said second frontal panels, wherein each pair of said sleeve parts is fixably closed along their lower edges, and operably closable along their upper edges, wherein said upper edges of said sleeve comprise at least a first closure means for closing said sleeve parts along the shoulder region of said sleeve;
- (b) a first fastening means attached to the outer edge of said first frontal panel for securing said first frontal panel to a second fastening means located substantially at a position along said first seam corresponding to the mid-axillary region of a patient wearing said gown; and
- (c) a third fastening means attached to the outer edge of said second frontal panel for securing said second frontal panel to a fourth fastening means located substantially at a position along said second seam corresponding to the mid-axillary region of a patient wearing said gown.

38. The hospital gown of claim **37**, wherein one or more of said fastening means is located substantially along an interior surface of gown.

39. The hospital gown of claim **37**, wherein one or more of said fastening means is located substantially along an exterior surface of said gown.

40. The hospital gown of claim **37**, wherein at least one of said fastening means comprises a first tie, snap, hook, eyelet, button, or hook and loop fastener.

41. The hospital gown of claim **37**, wherein said gown comprises a plurality of fastening means.

42. The hospital gown of claim **41**, wherein said plurality of fastening means comprises a plurality of fabric ties, snaps, hooks, eyelets, buttons, or hook-and-loop fasteners.

43. The hospital gown of claim **37**, wherein said at least a first closure means is operably closable by at least one snap, tie, clip, button, clasp, or a hook-and-loop-type fastener.

44. The hospital gown of claim **37**, wherein at least one of said sleeves comprise a plurality of closure means for closing said sleeve parts along the shoulder region of said sleeve.

45. The hospital gown of claim **37**, wherein both of said sleeves comprise a plurality of closure means for closing said sleeve parts along the respective shoulder regions of said sleeves.

46. The hospital gown of claim **37**, further comprising at least a first pocket attached to at least a first surface of said gown.

47. A medical gown comprising:

- (a) a first body portion for covering substantially an anterior or posterior surface of the torso of a human patient;
- (b) first and second panels, each of said panels being operably linked to said first body portion substantially by first and second seams extending substantially vertically along the left and right lateral edges of said first body portion;
- (c) a first fastening means attached to said first panel for operably securing said first panel to a first fastening means located substantially along said first seam formed between the opposing panel and said first body portion;
- (d) a second fastening means attached to said second panel for operably securing said second panel to a second fastening means located substantially along said second seam formed between the opposing panel and said first body portion; and
- (e) first and second operably openable sleeves, each of said sleeves formed of a first part attached to said first body portion, and a second part attached to respective ones of said first and said second panels, wherein at least one of said sleeves is operably openable along its upper shoulder seam.

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