Title: ILLUMINATED SAFETY APPAREL WITH TRANSPARENT OR TRANSLUCENT POCKETS

Abstract: Safety apparel, particularly a lightweight safety vest (1) to be worn over clothing, and method of use thereof. The apparel (1) bears a plurality of reversibly-sealed pockets (2), made of dual layers of a transparent or translucent material that allow insertion of non-conductive fluorescent illumination sources (3) permitting enhanced visibility of the wearer under impaired visibility conditions. In a preferred embodiment, the apparel (1) comprises a base piece of safety apparel with geometrically-shaped pieces cut out (20a), completely covered by a flat sheet of transparent or translucent material, and a plurality of reversibly-sealed pockets (2) affixed to the inner surface of the base apparel opposite the cutout regions (20a), into which the illumination source (3) is inserted, formed from a reflective material (4) oriented outwardly. Reflective strips (4), utility pockets, and alphanumeric or graphic information may be disposed on the apparel, and the apparel may further incorporate an electronic signalling device (11) to permit tracking of a wearer whose whereabouts are unknown.
Illuminated Safety Apparel with Transparent or Translucent Pockets

Technical Field of the Invention:

This invention relates to safety apparel, and more particularly to a lightweight safety vest to be worn over uniforms or other outer clothing, and method of use thereof, which bear pockets made of a transparent or translucent material separate from that material forming the vest itself that allow insertion of fluorescent illumination sources, thereby permitting enhanced visibility of the wearer under impaired visibility conditions.

Background Art:

It is well-known in the prior art that the safety of personnel involved in police, fire, safety (e.g., paramedics or E.M.T.s), and other public services such as construction or roadwork activities, as well as for civilians who use roadways for such activities as walking, running, or biking is greatly enhanced upon the individual worker's wearing of highly-visible outer garments, such as brightly-colored safety vests, work suits, coveralls, hats, or other articles. Any improvement to such garments should yield important and precious reductions in road accidents and fatalities, and as a result, these improvements are highly desirable.

Furthermore, it is also well-known in the prior art that such garments additionally incorporate combinations of luminescent and retro-reflective surfaces which combine to provide brilliant contrast at a distance against poor lighting conditions as may
occur at night or during inclement weather. Indeed, there have been a number of patents awarded to various embodiments of such apparel. For instance, in United States Patent 6,769,138 to Golle, et al., there is disclosed articles of safety clothing and devices wherein electroluminescent lamp strips powered by an independent energy source are provided on each side of the vest extending from the bottom of the vest upwards toward the shoulder portion. Next, in United States Patent 6,820,280 to Atallah, et al., there is disclosed a lightweight, high visibility vest comprising a front panel and a back panel that extend from the neck to the hips or waist; front and rear retro-reflective bands spanning these panels; and mating fastener arrangements at the shoulders and hips detachably connecting these panels, such that, when one or both of the panels are grasped and pulled, thereby separating the mating fastener arrangements, the panels may be freed from each other and from the wearer’s body. Finally, in United States Patent 6,859,941 to Koppes, there is disclosed a safety garment compliant with the visibility requirements of ANSI/ISEA 107-1999 which has high visibility safety stripes formed of a retroreflective material encircling the torso formed of a plurality of separate but closely spaced stripe segments in a generally repetitive pattern that is substantially continuous for the length of the stripe and occupy a portion of the total area of the stripe sufficient to impart a coefficient of retroreflectivity that meets or exceeds that required by the ANSI/ISEA 107-1999 standard.
A second feature of some embodiments of safety apparel that has been disclosed in the prior art is the incorporation of a device that is capable of tracking the wearer of the apparel, such as through the Global Positioning System (GPS) satellite network. Society has always been bedeviled by the tragic and unfortunate dilemmas of child abduction, kidnapping, the difficulty of finding a lost individual with mental handicaps, and so on. By providing a garment that does not restrict the wearer's movement physically but is traceable electronically or through other means should the wearer be out of range of the wearer's custodian or companion, ultimate location of the wearer is greatly facilitated. Thus, in United States Patent 6,525,662 to Ford, there is disclosed a vest which will aid in deterring a physical assault on a wearer and creating evidence of the assault, comprising a visual indicia affixed thereto indicating that the vest may be used as evidence in a criminal investigation; a permanent and luminescent dye release system which contaminates the vest, wearer, assailant, and place where of assault prior to or during an assault; an audible alarm; a canine-detectable scent; fingerprint-susceptible surfaces; and an electronic locating device, such as a sonic transmitter or GPS transmitter. Similarly, in United States Patent 6,606,556 to Curatolo, et al., there is disclosed a security and tracking apparatus comprising at least two signaling units in communicating proximity, and means for both identifying the location through GPS of the signaling units when the signaling units are separated by more than a preselected distance and notifying a monitoring station of these geographic locations,
wherein at least one signaling unit is small and hidden and securely attached to the person, such as within an article of clothing. Finally, in United States Patent 6,847,295 to Taliaferro, et al., there is disclosed an anti-abduction system and method which utilizes a radio frequency transceiver attached to a slave which is preferably incorporated into clothing to communicate with a corresponding master transceiver, this network itself utilizing communication protocols to notify the master of the proximal locality of the slave unit and any spatial deviation of the slave from the master.

Each of these embodiments, however, presents their own problems. Firstly, it can be cumbersome to the wearer to be obliged to rely upon an independent energy source to provide for illumination, especially keeping in mind that the associated wiring can lead to decreased flexibility as well as that the power source will add unneeded weight for the wearer. Additionally, the utility of an independent energy source of course ends when the fuel is depleted. Relatedly, there may be a problem with the power source shorting out or conducting an electric charge to the wearer, especially as use of such apparel is expressly contemplated in wet, inclement weather. However, there is a definite need for an increased intensity and visibility over mere reflected ambient light, particularly where the sources of the ambient light do not hit the reflective surfaces directly, such as from the headlamps of an oncoming vehicle. Relatedly, the wearer is likely to be more visible over a greater distance with a plural of illumination sources having a greater intensity than mere
reflective surfaces. Finally, each of the disclosed garments which bear a locating means for a lost wearer fail to disclose the need for a high-visibility garment.

It would therefore be desirable to provide a wearer of a safety garment requiring high visibility with a source of relatively intense illumination and ability to be electronically tracked while simultaneously not requiring that illuminative source to need an independent energy supply.

Objects of the Invention and Industrial Applicability:

Accordingly, it is a general object of the present invention to provide for safety apparel, and more particularly to a lightweight safety vest to be worn over uniforms or other outer clothing, which bears an illumination source of relatively high intensity and duration of illumination.

It is an object of the present invention to provide for safety apparel, and more particularly to a lightweight safety vest to be worn over uniforms or other outer clothing, which bears such an illumination source without a need for an independent power supply.

It is a further object of the present invention to provide for safety apparel, and more particularly to a lightweight safety vest to be worn over uniforms or other outer clothing, which bears such an illumination source that is not conductive under wet inclement conditions.

It is a still further object of the present invention to provide for safety apparel, and more particularly to a lightweight
safety vest to be worn over uniforms or other outer clothing, which incorporates an electronically-trackable device into the fabric of the garment to permit tracking of a lost wearer.

It is a still further object of the present invention to provide for safety apparel, and more particularly to a lightweight safety vest to be worn over uniforms or other outer clothing, which bears such an illumination source at relatively low cost to the manufacturer and consumer.

Summary of the Invention:

Consequently, to achieve these and other aims and objectives, the present invention provides for safety apparel, and particularly a lightweight safety vest to be worn over uniforms or other outer clothing, and method of use thereof, which bear a plurality of pockets, made of a transparent or translucent material separate from that material forming the vest itself, that allow insertion of non-conductive fluorescent illumination sources, preferably of a color in contrast to that of the external surface of the fabric of the vest, thereby permitting enhanced visibility of the wearer at a distance under impaired visibility conditions. In one embodiment, the pockets are to be formed from dual layers of clear vinyl or any other transparent or translucent material, and the bodies of the pockets may be stitched onto the external surface of the fabric of the main garment; heat-sealed; or any other appropriate means of affixing onto the apparel. These pockets shall have flaps formed from the same material as the body of the pockets and may be reversibly sealed either with
snaps, zippers, Velcro strips, or other means to prevent the illumination sources from being lost. The fluorescent illumination sources are commonly known as glo-sticks and are available from any number of commercial outlets, although any appropriately-sized illuminative source may be used. Additionally, the use of geometrically-shaped flat illumination sources is expressly contemplated herein. The pockets are to be suitably sized to permit insertion of the illumination sources into the pockets, and the dimensions of the pockets are thus suggested as being no less than six (6) inches ("") in length and one-half (1/2) "" in width, although any appropriate size may be used. The pockets may be disposed on any flat, non-jointed surface of the apparel, specifically on the left and right sides of the front and rear of the torso section of a vest, although any disposition upon any type of apparel that does not interfere with the movement of the wearer is herein contemplated.

In a preferred embodiment, the apparel comprises a base vest or similar piece of safety apparel completely covered by a flat sheet of transparent or translucent material. Geometrically-shaped pieces are cut out of the base apparel, and a plurality of pockets each bearing a reflective surface oriented outwardly towards the flat sheet is affixed to the inner surface of the base apparel opposite the cutout regions by stitching, heat-sealing, or any other appropriate means. Each of these pockets again forms a space into which the illumination source is inserted and bears a sealing means on the surface oriented towards the inner surface of the base apparel.
The apparel is operated by activating the illumination sources in their appropriate prescribed manner; inserting the illumination sources into the pockets; and reversibly sealing the pockets to prevent loss of the illumination sources, such as when the wearer is bending. This method may be repeated when one or all of the illumination sources are ultimately depleted or at the wearer's option for fresher illumination sources. Redundant reflective strips may be additionally disposed on the apparel to provide additional visibility and to safeguard the wearer should the illumination sources fail without replacements being readily available. In an alternative preferred embodiment, the apparel further comprises an electronic device, such as of the type disclosed in United States Patent 6,847,295, to permit tracking of a wearer whose whereabouts are unknown.

**Brief Description of the Drawings:**

For a fuller understanding of the nature and objects of the present invention, reference is made to the following specification, which is to be taken in connection with the accompanying drawings wherein:

FIGURES 1 and 2 show a front and rear view, respectively, of a safety vest exemplifying one embodiment of the present invention;

FIGURES 3 and 4 show a close-up view of two alternative embodiments, respectively, of a transparent pocket exemplifying two sealing means and two alternative methods of affixing the
transparent pockets to the outer surface of the safety vest exemplifying one embodiment of the present invention;

FIGURE 5 shows a close-up view of an electronically-trackable device to be incorporated into a safety vest exemplifying one embodiment of the present invention;

FIGURES 6, 7, and 8 show front, cross-sectional, and rear views, respectively, of a safety vest exemplifying a preferred embodiment of this invention;

FIGURE 9 shows a method of use of the present invention utilizing a safety vest exemplifying one embodiment of the present invention; and

FIGURES 10 and 11 show front views of a worksuit and coveralls, respectively, exemplifying alternative embodiments of the present invention.

Detailed Description of the Drawings:

There is depicted in FIGURE 1 a front view of an article 1 of safety apparel with a plurality of transparent or translucent pockets 2 sewn onto the outer front surface 1a of the apparel 1, these pockets 2 accepting non-conductive fluorescent illumination sources 3 which assist in enhancing the visibility of the wearer at a distance under impaired visibility conditions. While the embodiment of the safety apparel is described herein and illustrated as a vest 1, it is expressly contemplated that other forms of safety apparel may embody the inventive aspects of this application. Additionally, the safety apparel may be appropriately sized for child or adult wear, and the inner surface
of the apparel may be insulatively lined to provide for the wearer's comfort in colder temperatures. The vest 1 is to be fabricated from highly-visible lightweight material and is to be worn over uniforms or other outer clothing, as is already well-known in the prior art. A fastening means 5 is provided on each vest, where such vests are not so constructed as to be donned by slipping over the wearer's head (this embodiment not illustrated). In this figure, the fastening means 5 is in the form of buttons, which may be made of a material which is itself highly visible under impaired visibility conditions; other fastening means 5 may include snaps, Velcro strips, zippers, or hook-and-eye buckles. Each pocket 2 is to be made of dual layers of a transparent or translucent material, such as clear plastic or vinyl, and preferably this material shall be different from that of the material forming the vest 1 itself. Using dual layers to form the pocket 2 allows the unstitched portions of each layer to form a storage area 2b within the pocket 2. The outer layer of the material forming the pocket 2 is to be shorter in height than that of the inner layer to be affixed to the outer surface of the vest 1, this difference in height thereby forming a flap 2a which reversibly seals the individual pocket 2. Non-conductive fluorescent illumination sources 3 are to be inserted into the storage area 2b of the pocket 2, and the flap 2a of each pocket 2 may be reversibly sealed to prevent loss of the illumination source 3, such as when the wearer is bending. The main advantage to the use of such non-conductive fluorescent illumination sources 3 is that these are long-lasting; water- and weatherproof; do not
carry any dangerous electric charge; are simple to activate and do not have any mechanical parts prone to breakage or recurrent replacement; available in many different sizes and shapes; cost-efficient to manufacture, easy to carry (especially for spare sources); and are easily replaceable once their luminescence is gone. The illumination sources 3 are commonly known as glo-sticks and are available from any number of commercial outlets, although any appropriately-sized illumination source may be used. The most common size of the illumination sources 3 is 6" in length and 1/2" in width; it is thus contemplated that the available area of the storage area 2b of the pocket 2 be no less than 6" in length and 1/2" in width as well, to accommodate the illumination sources 3, assuming that the illumination source 3 is placed vertically into a pocket 2. If this is not the case, the dimensions for the pockets 2 are to be horizontally appropriate - that is, 6" in width and 1/2" in length. Preferably, the color of the illumination sources 3 shall be in contrast to that of the external surface of the fabric of the vest 1, to provide further visibility for the wearer. Redundant reflective strips 4 may be additionally disposed on the vest 1, in various locations in and along the vest 1, to provide additional visibility for the wearer and to safeguard the wearer should the illuminative sources 3 fail without replacements being readily available. It is evident from the figure that there is sufficient room left upon the vest 1 to place both alphanumeric or graphical information, such as the wearer's name, illustrations, or work logos or any other designs (unillustrated), and/or additional pockets, either more pockets 2
for use with the illuminative sources 3 or utility pockets formed from the actual material of the vest 1 itself, or of the same material but sewn on to the vest 1, to hold tools, belongings, and the like (also unillustrated), in various positions upon the vest 1.

Turning to FIGURE 2, the rear outer surface 1b of the vest 1 from FIGURE 1 is illustrated. It is readily apparent that the pockets 2 for holding the illumination sources 3, as well as redundant reflective strips 4, are disposed along the rear surface of the vest 1 just as these components are along the front surface. As previously suggested, an alternative embodiment for the pockets 2 is herein depicted, with a horizontally-disposed pocket 6, sealed by a horizontally-disposed flap 6a, holding a horizontally-inserted illumination source 3a. Again, there is sufficient room left on the rear of the vest 1 for insertion of alphanumeric or graphical information.

Next, in FIGURE 3, there is a close up view of the transparent or translucent pocket 2. The lateral and lower edges of the outer layer of the material making up the pocket 2, and the lateral and lower edges of the inner layer of the material also making up the pocket 2 plus a line complementary to the upper edge of the outer layer, may be stitched with thread onto the external surface of the fabric of the vest 1. Such stitching 7 may be performed with any gauge of thread that is heavy enough and durable enough to penetrate each layer forming the pocket 2. Leaving the longer or wider rear layer of the pocket 2 unstitched permits the formation of a flap 2a which may reversibly seal the
storage area 2b, and concomitantly prevent the illumination source 3 from being lost. In this figure, the sealing means on the flap 2a is a snap 8b with complementary stud 8a affixed to the outer layer of the storage area 2b of the pocket 2. The stud 8a and snap 8b may be constructed from metal, plastic, or any other appropriate material known in the prior art.

In an alternative embodiment of the pocket 2 illustrated in FIGURE 4, however, rather than bearing stitching 7, both layers of the pocket 2 are heat-sealed onto the outer surface of the vest 1 along the outer perimeter of the storage area 2b of the pocket 2 along a heat-sealed seam 9. As with the pocket 2 described in FIGURE 3, the seam 9 is to be heat-sealed along the lateral and lower edges of the outer layer of the material making up the pocket 2, and the lateral and lower edges of the inner layer of the material also making up the pocket 2 plus a line complementary to the upper edge of the outer layer. As further illustrated, leaving the longer or wider rear layer of the pocket 2 unsealed again permits the formation of a flap 2a which may reversibly seal the storage area 2b, and concomitantly prevent the illumination source 3 from being lost. In this figure, the sealing means on the flap 2a is a Velcro strip 9b with complementary strip 9a affixed to the outer layer of the storage area 2b of the pocket 2. Another form of sealing means on the flap 2a is a zipper, made from any material (unillustrated). It cannot be stressed enough, however, that the choice of sealing means on each pocket 2 does not depend upon which means of affixing the pocket 2 to the vest 1 is used, so that a heat-sealed pocket 2 can bear snap 8a/8b, a
stitched pocket 2 can bear Velcro strips 9a/9b, etc.; instead, the choice of which sealing means was illustrated with which affixing means was purely arbitrary.

Illustrated in FIGURE 5, a preferred embodiment of the vest 1 further comprises an electronic device 11 to permit tracking of a wearer whose whereabouts are unknown. The device 11 is preferably of the type disclosed in United States Patent 6,847,295, the disclosure of which is herein incorporated by reference. However, any appropriately sized device 11 may be used. The device 11 is to be sealed into its own pocket 12 sewn into the inner lining of the vest 1. Although the device 11 and device pocket 12 are shown in this figure as being sewn into the small of the back on the rear surface of the vest 1, which is the preferred location as this position is not expected to cause any discomfort or encumbrance to the wearer, these may be located wherever possible on the inner lining of the vest 1.

A front view of a preferred embodiment of the safety apparel is depicted in FIGURE 6. In this embodiment, an article 1c of safety apparel with a plurality of transparent or translucent pockets 2c formed under the outer front surface 1a of the apparel 1c, these interior pockets 2c accepting non-conductive fluorescent illumination sources 3 of various shapes and sizes which assist in enhancing the visibility of the wearer at a distance under impaired visibility conditions. Again, while the embodiment of the safety apparel is described herein and illustrated as a vest 1c, it is expressly contemplated that other forms of safety apparel may embody the inventive aspects of this application.
Additionally, as before, the safety apparel may be appropriately sized for child or adult wear, and the inner surface of the apparel may be insulatingly lined to provide for the wearer's comfort in colder temperatures. This vest 1c is again to be fabricated from highly-visible lightweight material and is to be worn over uniforms or other outer clothing, as is already well-known in the prior art. A fastening means 5 is provided on each vest 1c, where such is not so constructed as to be donned by slipping over the wearer's head (this embodiment not illustrated).

In this figure, the fastening means 5 is in the form of a zipper, which may be made of a material which is itself highly visible under impaired visibility conditions; other fastening means 5 may include snaps, Velcro strips, buttons, or hook-and-eye buckles. All outer surfaces of this vest 1c are to be covered by a sheet of lightweight transparent or translucent material (illustrated in FIGURE 7 as 20), thereby sealing the base vest 1c completely in this material. Geometrically-shaped pieces are cut out of the base vest 1c in a plurality of locations along the front surface of the vest 1c, generally in the form of a 6" in length and 1/2" in width rectangle, with the transparent or translucent sheet completely covering this cutout region (illustrated in FIGURE 7 as 20a) as well. Redundant reflective strips 4 for additional visibility may also be additionally disposed in various locations on this embodiment of the vest 1c, and there again should be sufficient room left upon the vest 1c to place both alphanumeric or graphical information and/or additional pockets, either more interior pockets 2c for use with the illuminative sources 3 or
utility pockets (unillustrated), in various positions upon the vest 1c.

As is evident in the cross-sectional view of the vest 1c and interior pockets 2c illustrated in FIGURE 7, the cutout region 20a of the base vest 1c is enclosed by a transparent or translucent sheet 20 which is directly affixed to the entire outer surface of the base vest 1c. Attached to the inner surface 19 of the vest 1c directly parallel with each cutout region 20a is a separate piece of reflective material 21, with its reflective surface oriented outwardly towards the sheet 20, thereby forming a storage area 2b within the interior pocket 2c. By having such a reflective material 21 face outwardly, stray ambient light is collected and reflected away from the wearer of the vest 1c and into the vision of an oncoming observer. The reflective material 21 is affixed to the inner surface 19 of the vest 1c at points 19a by stitching, heat-sealing, or any other appropriate means. The rear surface of the reflective material 21 is discontinuous at one point so as to form an opening or flap 2a which may be reversibly sealed by a sealing means (unillustrated), such as buttons, snaps, zippers, Velcro strips, etc, thereby again allowing the interior pockets 2c to be reversibly sealed and permitting the wearer access to the storage area 2b to change the illumination source as necessary or desired.

Turning to FIGURE 8, the rear outer surface 1b of the vest 1c from FIGURE 6 is illustrated. It is again readily apparent that the pockets 2c for holding the illumination sources 3, as well as redundant reflective strips 4, are disposed along the rear surface.
of the vest 1c just as these components are along the front surface, both horizontally- and/or vertically-oriented. Again, there is sufficient room left on the rear of the vest 1c for insertion of alphanumeric or graphical information.

The method of use of the inventive aspects of this application is illustrated in FIGURE 9. As noted previously, to assist in enhancing the visibility of the wearer at a distance under impaired visibility conditions, the vest 1 is operated by activating the illumination sources 3 in their appropriate prescribed manner, inserting the illumination sources 3 into the transparent pockets 2, and reversibly sealing the flaps 2a over the storage areas 2b of the pockets 2 to prevent loss of the illumination sources 3, such as when the wearer is bending. This method may be repeated when one or all of the illumination sources 3 are ultimately depleted or at the wearer's option for fresher illumination sources. Preferably, the color of the illumination sources 3 shall be in contrast to that of the external surface of the fabric of the vest 1, to provide further visibility for the wearer. In this figure, the fastening means 13 is in the form of a zipper, which may be made of metal or plastic.

Finally, moving to FIGURES 10 and 11, there are illustrated two alternative embodiments of the safety apparel which may exemplify the inventive aspects of this application. FIGURE 10 depicts a worksuit 14 with additional transparent or translucent pockets, located on the wrist of the sleeve 15 and lower on the calf of the leg 16. FIGURE 11 alternatively depicts a pair of coveralls 17 with transparent or translucent pockets located on
the central pocket on the torso 18 and also lower on the calf of the leg 16. However, the transparent or translucent pockets may be disposed on all flat, non-jointed surfaces of any piece safety apparel, with such disposition on non-jointed surfaces preventing interference with the movement of the wearer's joints.

The illuminated safety apparel described herein was described according to a particular embodiment and alternatives thereof. However, it is contemplated that the inventive aspects of this safety apparel may be of use on other objects, such as personal flotation devices, blankets, flags, or other articles of safety equipment. It is further contemplated that such inventive aspects may not be confined to human use but that similarly-illuminated animal products may be conceived, such as illuminated horse blankets, dog sweaters, or pet collars. Additionally, there may be other appropriate means of affixing the pockets 2 onto the piece of apparel; other fastening means for the vest 1; other sealing means for the pockets 2 such as buttons or zippers, etc. Thus, while the present invention has been described in connection with exemplary embodiments thereof, it will be understood that many modifications in both design and use will be apparent to those of ordinary skill in the art, and this application is intended to cover any adaptations or variations thereof. It is therefore manifestly intended that this invention be limited only by the claims and the equivalents thereof.
The invention to be claimed is:

1. Illuminated safety apparel, comprising:
   an article of brightly-colored safety apparel having front and rear surfaces each having internal and external surfaces;
   a plurality of transparent or translucent pockets affixed to said front and rear surfaces,
   said pockets being made from an inner and an outer layer of a transparent or translucent material,
   said inner pocket layers directly touching the external surfaces of the front and rear surfaces of the apparel,
   said outer pocket layer being shorter in height than said inner pocket layer,
   said inner and outer pocket layers being affixed to the front and rear surfaces by an affixing means along three sides of said outer pocket layer's outer perimeter and along three sides of said inner pocket layer's outer perimeter plus a region complementary to the top edge of the outer pocket layer, leaving an unaffixed region of said inner pocket layer,
   this affixing forming a storage area in each said pocket,
   said unaffixed region forming a pocket flap,
   said flap bearing a pocket sealing means to reversibly seal said storage area;
   and a plurality of non-conductive fluorescent illumination sources,
   said illumination sources being inserted into said storage area upon activation and reversibly sealed therein using said sealing means.
2. The apparel of claim 1, wherein the apparel is in the form of a pullover garment.

3. The apparel of claim 1, further comprising fastening means to secure the apparel around the wearer's body.

4. The apparel of claim 3, wherein the fastening means is to be selected from a group consisting of buttons, snaps, Velcro strips, zippers, or hook-and-eye buckles.

5. The apparel of claim 1, further comprising brightly-colored reflective strips, said reflective strips being disposed on the external surfaces of the front and rear surfaces of the apparel.

6. The apparel of claim 5, wherein said strips are of a different color than the apparel.

7. The apparel of claim 1, wherein said pocket sealing means is to be selected from a group consisting of snaps, Velcro strips, or zippers.

8. The apparel of claim 1, wherein said transparent or translucent material is clear vinyl.

9. The apparel of claim 1, wherein the height of said pockets is greater than the width, thereby causing said illumination sources to be situated horizontally within said storage areas.

10. The apparel of claim 1, wherein the height of said pockets is lesser than the width, thereby causing said illumination sources to be situated vertically within said storage areas.
11. The apparel of claim 1, wherein the apparel bears a combination of said horizontally- and vertically-situated illumination sources.

12. The apparel of claim 1, wherein the dimensions of said illumination sources are 6" in length and 1/2" in width.

13. The apparel of claim 12, wherein the dimensions of said pockets are 6" in length and 1/2" in width.

14. The apparel of claim 1, wherein said affixing means is stitching with thread.

15. The apparel of claim 1, wherein said affixing means is heat-sealing.

16. The apparel of claim 1, further comprising insulative lining within the inner surface of the apparel.

17. The apparel of claim 1, further comprising an electronic tracking device,

said device to be sealed into its own pocket sewn into said inner surface of the apparel.

18. The apparel of claim 17, wherein the device is sewn into the small of the back on the rear surface of the apparel.

19. The apparel of claim 17, wherein the device is of the type disclosed in United States Patent 6,847,295.

20. The apparel of claim 1, further comprising alphanumeric or graphical information to be placed upon the external surface of the front and rear surfaces of the apparel.

21. The apparel of claim 1, further comprising utility pockets located in various positions upon the apparel.
22. The apparel of claim 21, wherein said utility pockets are formed directly from the material forming the apparel.

23. The apparel of claim 21, wherein said utility pockets are affixed to the apparel.

24. The apparel of claim 1, wherein the apparel is appropriately sized for use by an adult.

25. The apparel of claim 1, wherein the apparel is appropriately sized for use by a child.

26. The apparel of claim 1, wherein the apparel is embodied as a vest.

27. The apparel of claim 1, wherein the apparel is embodied as a worksuit.

28. The apparel of claim 27, wherein said pockets are disposed on any flat, non-jointed surface of said worksuit that does not interfere with the movement of the wearer.

29. The apparel of claim 1, wherein the apparel is embodied as overalls.

30. The apparel of claim 29, wherein said pockets are disposed on any flat, non-jointed surface of said overalls that does not interfere with the movement of the wearer.

31. Illuminated safety apparel, comprising:

an article of brightly-colored safety apparel having front and rear surfaces each having internal and external surfaces said apparel having a plurality of geometrically-shaped regions removed therefrom;
a sheet of transparent or translucent material covering the entire external surface of the apparel, including said removed regions;

a plurality of pockets affixed to the internal surface of said front and rear surfaces each forming a storage area in each said pocket,
said pockets being made from a material having at least one reflective surface,
said reflective surface oriented outwardly towards said removed regions,
said reflective material being discontinuous along the surface facing the internal surface of the apparel,
this discontinuity forming a pocket flap,
said flap bearing a pocket sealing means to reversibly seal said storage area;
and a plurality of non-conductive fluorescent illumination sources,
said illumination sources being inserted into said storage area upon activation and reversibly sealed therein using said sealing means.

32. The apparel of claim 31, wherein the apparel is in the form of a pullover garment.

33. The apparel of claim 31, further comprising fastening means to secure the apparel around the wearer's body.

34. The apparel of claim 33, wherein the fastening means is to be selected from a group consisting of buttons, snaps, Velcro strips, zippers, or hook-and-eye buckles.
35. The apparel of claim 31, further comprising brightly-colored reflective strips,
    said reflective strips being disposed on the external surfaces of the front and rear surfaces of the apparel.

36. The apparel of claim 35, wherein said strips are of a different color than the apparel.

37. The apparel of claim 31, wherein said pocket sealing means is to be selected from a group consisting of snaps, Velcro strips, or zippers.

38. The apparel of claim 31, wherein said transparent or translucent material is clear vinyl.

39. The apparel of claim 31, wherein the height of said pockets is greater than the width,
    thereby causing said illumination sources to be situated horizontally within said storage areas.

40. The apparel of claim 31, wherein the height of said pockets is lesser than the width,
    thereby causing said illumination sources to be situated vertically within said storage areas.

41. The apparel of claim 31, wherein the apparel bears a combination of said horizontally- and vertically-situated illumination sources.

42. The apparel of claim 31, wherein the dimensions of said illumination sources are 6" in length and 1/2" in width.

43. The apparel of claim 42, wherein the dimensions of said pockets are 6" in length and 1/2" in width.
44. The apparel of claim 31, wherein said affixing means is stitching with thread.

45. The apparel of claim 31, wherein said affixing means is heat-sealing.

46. The apparel of claim 31, further comprising insulative lining within the inner surface of the apparel.

47. The apparel of claim 31, further comprising an electronic tracking device,
said device to be sealed into its own pocket sewn into said inner surface of the apparel.

48. The apparel of claim 47, wherein the device is sewn into the small of the back on the rear surface of the apparel.

49. The apparel of claim 47, wherein the device is of the type disclosed in United States Patent 6,847,295.

50. The apparel of claim 31, further comprising alphanumeric or graphical information to be placed upon the external surface of the front and rear surfaces of the apparel.

51. The apparel of claim 31, further comprising utility pockets located in various positions upon the apparel.

52. The apparel of claim 51, wherein said utility pockets are formed directly from the material forming the apparel.

53. The apparel of claim 31, wherein said utility pockets are affixed to the apparel.

54. The apparel of claim 31, wherein the apparel is appropriately sized for use by an adult.

55. The apparel of claim 31, wherein the apparel is appropriately sized for use by a child.
56. A method of using the illuminated safety apparel of claim 1 or claim 31, comprising:
donning said safety apparel;
activating said illumination sources;
inserting said illumination sources into said storage areas;
and
reversibly sealing said flaps of said pockets.

57. The method of claim 56, further comprising replenishing said illumination sources either when depleted or, at the wearer's election, with fresh illumination sources before depletion.
INTERNATIONAL SEARCH REPORT

A. CLASSIFICATION OF SUBJECT MATTER
 IPC(7) : A41d 13/00
 According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED
 Minimum documentation searched (classification system followed by classification symbols)

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

<table>
<thead>
<tr>
<th>Category *</th>
<th>Citation of document, with indication, where appropriate, of the relevant passages</th>
<th>Relevant to claim No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>US 5,570,945 A (CHIEN et al.) 05 November 1996 (05.11.1996), see entire document.</td>
<td>1-57</td>
</tr>
<tr>
<td>A</td>
<td>US 6,474,830 A (HANSEN) 05 November 2002 (05.11.2002), see entire document.</td>
<td>1-57</td>
</tr>
</tbody>
</table>

See patent family annex.

Further documents are listed in the continuation of Box C.

Date of the actual completion of the international search
17 October 2005 (17.10.2005)

Date of mailing of the international search report
15 Nov 2005

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