(54) Title: PROTECTIVE GARMENTS HAVING ELASTOMERIC GASKETS ALONG MARGINS TO INHIBIT INGRESS OF POTENTIALLY HARMFUL MATERIALS

(57) Abstract: In an ensemble for a firefighter or for an emergency rescue worker, protective trousers and a protective coat are provided with elastomeric gaskets, such as neoprene gaskets, one of which lines an inside surface of a distal margin of each leg of the protective trousers and is adapted to be snugly stretched around a protective boot, another of which lines an inside surface of a distal margin of each arm of the protective coat and is adapted to be snugly stretched around a protective glove, and another of which lines an inside surface of a lower margin of the protective coat and is adapted to be snugly stretched around the protective trousers. Such gaskets extend from and, preferably, are unitary with liners, such as neoprene liners, which provide moisture and/or chemical barriers. When stretched snugly, such gaskets inhibit ingress of potentially harmful materials, whether gaseous, liquid, or particulate.
Title of the Invention

PROTECTIVE GARMENTS HAVING ELASTOMERIC GASKETS ALONG MARGINS TO INHIBIT INGRESS OF POTENTIALLY HARMFUL MATERIALS

Technical Field of the Invention

This invention pertains to protective garments, such as protective coats, protective trousers, protective overalls, and protective coveralls, for firefighters and for emergency rescue workers. This invention contemplates that elastomeric gaskets extending along inside surfaces of margins of such garments inhibit ingress of potentially harmful materials.

Background of the Invention

Commonly, firefighters or emergency rescue workers wear protective ensembles, in which the distal margins of the legs of protective trousers may fit loosely around protective boots, in which the distal margins of the arms of protective coats may fit loosely around protective gloves, and in which lower margins of protective coats may fit loosely around protective trousers. Such loosely fitting margins do not effectively inhibit ingress of potentially harmful materials, whether gaseous, liquid, or particulate.

Summary of the Invention

Broadly, this invention provides, for a firefighter or for an emergency rescue worker, a protective garment having a margin, which is lined with an elastomeric gasket extending along an inside surface of the margin. The protective garment is exemplified by a protective coat, protective trousers, protective overalls, or protective coveralls. The elastomeric gasket, when stretched snugly, inhibits ingress of potentially harmful materials, whether gaseous, liquid, or particulate.
In one contemplated embodiment, the protective garment is exemplified by protective trousers, protective overalls, or protective coveralls and has two legs, each of which has a distal margin, which is lined with an elastomeric gasket extending along an inside surface of the distal margin. Preferably, the elastomeric gasket is adapted to be snugly stretched around a protective boot.

In another contemplated embodiment, the protective garment is exemplified by a protective coat and has a lower margin, which is lined with an elastomeric gasket extending along an inside surface of the lower margin. Preferably, the elastomeric gasket is adapted to be snugly stretched around protective trousers.

In another contemplated embodiment, the protective garment is exemplified by a protective coat and has two arms, each of which has a distal margin, which is lined with an elastomeric gasket extending along an inside surface of the distal margin. Preferably, the elastomeric gasket is adapted to be snugly stretched around a protective glove.

In another contemplated embodiment, the protective garment is exemplified by a protective coat and has a lower margin, which is lined with an elastomeric gasket extending along an inside surface of the lower margin, and has two arms, each of which has a distal margin, which is lined with an elastomeric gasket extending along an inside surface of the distal margin. Preferably, the elastomeric gasket extending along the inside surface of the lower margin is adapted to be snugly stretched around protective trousers and, moreover, the elastomeric gasket extending along the inside surface of the distal margin of each of the arms is adapted to be snugly stretched around a protective glove.

In another contemplated embodiment, an ensemble comprises protective trousers and a protective coat, the protective trousers having two legs, each of
which has a distal margin, which is lined with an elastomeric gasket extending along an inside surface of the distal margin of the leg and being adapted to be snugly stretched around a protective boot. Further, the protective coat has a lower margin, which is lined with an elastomeric gasket extending along an inside surface of the lower margin and being adapted to be snugly stretched around the pair of protective trousers. Further, the protective coat has two arms, each of which has a distal margin, which is lined with an elastomeric gasket extending along an inside surface of the distal margin of the arm and being adapted to be snugly stretched around a protective glove.

In another contemplated embodiment, an ensemble comprises protective trousers, protective boots, a protective coat, and protective gloves, the protective trousers having two legs, each of which has a distal margin, which is lined with an elastomeric gasket extending along an inside surface of the distal margin of the leg and being adapted to be snugly stretched around one of the protective boots.

Further, the protective coat has a lower margin, which is lined with an elastomeric gasket extending along an inside surface of the lower margin and being adapted to be snugly stretched around the protective trousers. Further, the protective coat has two arms, each of which has a distal margin, which is lined with an elastomeric gasket extending along an inside surface of the distal margin of the arm and being adapted to be snugly stretched around one of the protective gloves.

Preferably, if the or each protective trousers, protective coat, or other protective garment has an outer shell and a liner, which provides a moisture barrier or a moisture and chemical barrier and which may be an intermediate liner if the protective garment has an inner liner providing a thermal barrier, the or each elastomeric gasket extends from one such liner providing a moisture barrier or a
moisture and chemical barrier. Preferably, moreover, the or each elastomeric gasket not only extends from but also is unitary with one such liner providing a moisture barrier or a moisture and chemical barrier.

**Brief Description of the Drawings**

Figure 1 is a pictorial, front view of a firefighter wearing a protective ensemble embodying this invention. The protective ensemble comprises protective trousers, protective boots, a protective coat, and protective gloves. Figures 2, 3, and 4 are enlarged, fragmentary details, as taken in regions indicated in Figure 1, to illustrate certain possible arrangements of elastomeric gaskets contemplated by this invention. Figures 5, 6, and 7 are similar details illustrating other possible arrangements of elastomeric gaskets contemplated by this invention.

**Detailed Description of the Illustrated Embodiments**

As illustrated, a protective ensemble worn by a firefighter comprises a pair of protective trousers 10 having two legs 12, each leg 12 having a distal margin 14, a protective coat 20 having a lower margin 22 and having two arms 24, each arm 24 having a distal margin 26, a pair of protective boots 30, and a pair of protective gloves 40. The pair of protective trousers 10 has an outer shell 10a, an intermediate liner 10b, such as a neoprene liner, which provides a moisture barrier, preferably a moisture and chemical barrier, and an inner liner 10c, which provides a thermal barrier. The protective coat 20 has an outer shell 20a, an intermediate liner 20b, such as a neoprene liner, which provides a moisture barrier, preferably a moisture and chemical barrier, and an inner liner 20c, which provides a thermal barrier. Except as illustrated and described herein, the pair of protective trousers 10, the protective coat 20, the protective boots 30, and the protective gloves 40 are outside the scope of this invention and may conform to protective trousers,
protective coats, protective boots, and protective gloves used heretofore in protective ensembles for firefighters.

In one contemplated embodiment, as illustrated in Figures 1 and 2, the distal margin 14 of each leg 12 of the pair of protective trousers 10 is lined with an elastomeric gasket 50, which extends from and is unitary with the intermediate liner 10b, which is folded over a distal edge 12c of the inner liner 10c, into said leg 12, and which is tacked, via stitching, at its distal edge 52 to the inner liner 10c, within said leg 12. In an alternative embodiment, which is not illustrated, the elastomeric gasket 50 is separate from but is affixed suitably, e.g., adhesively, via stitching, or adhesively and via stitching, to the intermediate liner 10b, within said leg 12. The elastomeric gasket 50 is sized, shaped, and adapted to be snugly stretched around an upper portion 32 of one of the protective boots 30, when the protective ensemble is donned. The elastomeric gasket 50 provides a moisture barrier, preferably a moisture and chemical barrier, whereby to inhibit ingress of potentially harmful materials, whether gaseous, liquid, or particulate.

In the aforementioned embodiment, as illustrated in Figures 1 and 3, the lower margin 22 of the protective coat 20 is lined with an elastomeric gasket 60, such as a neoprene gasket, which extends from and is unitary with the intermediate liner 20b, which is folded over a distal edge 22c of the inner liner 20c, into the protective coat 20, and which is tacked, via stitching, at its distal edge 62 to the inner liner 12c. In an alternative embodiment, which is not illustrated, the elastomeric gasket 60 is separate from but is affixed suitably, e.g., adhesively, via stitching, or adhesively and via stitching, to the intermediate liner 20b, within the lower margin 22 of the protective coat 20. The elastomeric gasket 60 is sized, shaped, and adapted to be snugly stretched around an upper portion 32 of the pair
of protective trousers 10, when the protective ensemble is donned. The elastomeric gasket 60 provides a moisture barrier, preferably a moisture and chemical barrier, whereby to inhibit ingress of potentially harmful materials, whether gaseous, liquid, or particulate.

In the aforementioned embodiment, as illustrated in Figures 1 and 4, the distal margin 26 of each arm 24 of the protective coat 20 is lined with an elastomeric gasket 70, such as a neoprene gasket, which extends from and is unitary with the intermediate liner 20b, which is folded over a distal edge 24c of the inner liner 20c, into said arm 24, and which is tacked, via stitching, at its distal edge 72 to the inner liner 12c, within said arm 24. In an alternative embodiment, which is not illustrated, the elastomeric gasket 70 is separate from but is affixed suitably, e.g., adhesively, via stitching, or adhesively and via stitching, to the intermediate liner 20b, within said arm 24. The elastomeric gasket 70 is sized, shaped, and adapted to be snugly stretched around an upper portion 32 of the pair of protective trousers 10, when the protective ensemble is donned. The elastomeric gasket 70 provides a moisture barrier, preferably a moisture and chemical barrier, whereby to inhibit ingress of potentially harmful materials, whether gaseous, liquid, or particulate.

In an alternative embodiment, as illustrated in Figures 5, 6, and 7, the inner liner 10c does not extend into the distal margin 14 of each leg 12 of the pair of protective trousers 10, the elastomeric gasket 50 lining the distal margin 14 thereof is provided by a unitary, distal portion of the intermediate liner 10b, and the elastomeric gasket 50 is not folded or tacked, as described above. Moreover, the inner liner 10c does not extend into the lower margin 22 of the protective coat 20, the elastomeric gasket 60 lining the lower margin 22 thereof is provided by a
...unitary, distal portion of the intermediate liner 10b, and the elastomeric gasket 60 is not folded or tacked, as described above. Furthermore, the inner liner 10c does not extend into the distal margin 26 of each arm 24 of the protective coat 20, the elastomeric gasket 70 lining the distal margin 26 thereof is provided by a unitary, distal portion of the intermediate liner 10b, and the elastomeric gasket 70 is not folded or tacked, as described above. Another alternative embodiment, which is not illustrated, is similar to the alternative embodiment illustrated in Figures 5, 6, and 7, except that each of the elastomeric gaskets 50, 60, and 70 is separate from but is affixed suitably, e.g., adhesively, via stitching, or adhesively and via stitching, to the intermediate liner 10b.

In the alternative embodiment illustrated in Figures 5, 6, and 7, and in the alternative embodiment described in the final sentence of the preceding paragraph, each of the elastomeric gaskets 50, 60, and 70 provides a moisture barrier, preferably a moisture and chemical barrier, whereby to inhibit ingress of potentially harmful materials, whether gaseous, liquid, or particulate.
Claims

1. For a firefighter or for an emergency rescue worker, a protective garment having a margin, which is lined with an elastomeric gasket extending along an inside surface of the margin.

2. For a firefighter or for an emergency rescue worker, a protective garment having two legs, each of which has a distal margin, which is lined with an elastomeric gasket extending along an inside surface of the distal margin.

3. The protective garment of claim 2, wherein the elastomeric gasket is adapted to be snugly stretched around a protective boot.

4. For a firefighter or for an emergency rescue worker, a protective garment being a protective coat having a lower margin, which is lined with an elastomeric gasket extending along an inside surface of the lower margin.

5. The protective garment of claim 4, wherein the elastomeric gasket is adapted to be snugly stretched around protective trousers.

6. For a firefighter or for an emergency rescue worker, a protective garment having two arms, each of which has a distal margin, which is lined with an elastomeric gasket extending along an inside surface of the distal margin.

7. The protective garment of claim 6, wherein the elastomeric gasket is adapted to be snugly stretched around a protective glove.

8. For a firefighter or for an emergency rescue worker, a protective garment being a protective coat having a lower margin, which is lined with an elastomeric gasket extending along an inside surface of the lower margin, the protective coat having two arms, each of which has a distal margin, which is lined with an elastomeric gasket extending along an inside surface of the distal margin.
9. The protective garment of claim 8, wherein the elastomeric gasket extending along the inside surface of the lower margin is adapted to be snugly stretched around protective trousers and wherein the elastomeric gasket extending along the inside surface of the distal margin of each of the arms is adapted to be snugly stretched around a protective glove.

10. The protective garment of any one of claims 1 through 9, wherein the protective garment has an outer shell and a liner, which provides a moisture barrier or a moisture and chemical barrier and from which the elastomeric gasket extends.

11. The protective garment of any one of claims 1 through 9, wherein the protective garment has an outer shell and a liner, which provides a moisture barrier or a moisture and chemical barrier, from which the elastomeric gasket extends, and with which the elastomeric gasket is unitary.

12. The protective garment of any one of claims 1 through 9, wherein the protective garment has an outer shell, an intermediate liner providing a moisture barrier or a moisture and chemical barrier, and an inner liner, which provides a thermal barrier, and wherein the elastomeric gasket extends from the intermediate liner.

13. The protective garment of any one of claims 1 through 9, wherein the protective garment has an outer shell, an intermediate liner providing a moisture barrier or a moisture and chemical barrier, and an inner liner, which provides a thermal barrier, and wherein the elastomeric gasket extends from and is unitary with the intermediate liner.

14. For a firefighter or for an emergency rescue worker, an ensemble comprising protective trousers and a protective coat, the protective trousers having two legs, each of which has a distal margin, which is lined with an elastomeric
gasket extending along an inside surface of the distal margin of the leg and being adapted to be snugly stretched around a protective boot, the protective coat having a lower margin, which is lined with an elastomeric gasket extending along an inside surface of the lower margin and being adapted to be snugly stretched around the pair of protective trousers, the protective coat having two arms, each of which has a distal margin, which is lined with an elastomeric gasket extending along an inside surface of the distal margin of the arm and being adapted to be snugly stretched around a protective glove.

15. For a firefighter or for an emergency rescue worker, an ensemble comprising protective trousers, protective boots, a protective coat, and protective gloves, the protective trousers having two legs, each of which has a distal margin, which is lined with an elastomeric gasket extending along an inside surface of the distal margin of the leg and being adapted to be snugly stretched around one of the protective boots, the protective coat having a lower margin, which is lined with an elastomeric gasket extending along an inside surface of the lower margin and being adapted to be snugly stretched around the protective trousers, the protective coat having two arms, each of which has a distal margin, which is lined with an elastomeric gasket extending along an inside surface of the distal margin of the arm and being adapted to be snugly stretched around one of the protective gloves.

16. The ensemble of claim 14, wherein the protective trousers have an outer shell and a liner providing a moisture barrier or a moisture and chemical barrier, wherein the protective coat has an outer shell and a liner providing a moisture barrier or a moisture and chemical barrier, and wherein each of the elastomeric gaskets extends from one of the liners providing moisture barriers or moisture and chemical barriers.
17. The ensemble of claim 15, wherein the protective trousers have an outer shell, an intermediate liner providing a moisture barrier or a moisture and chemical barrier, and an inner liner providing a thermal barrier, wherein the protective coat has an outer shell, and intermediate liner providing a moisture barrier or a moisture and chemical barrier, and an inner liner providing a thermal barrier, and wherein each of the elastomeric gaskets extends from and is unitary with one of the intermediate liners.