# United States Patent [19]

**Shweid**

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[54] **TURNOUT COAT**


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[73] Assignee: **John Morris Company, Inc.,** San Francisco, Calif.



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[52] **U.S. Cl.** ..... **2/96,** 2/98

[51] **Int. Cl.** ..... **A44b 19/32**

[58] **Field of Search** ..... 2/93, 96, 98, 81, 82, 129



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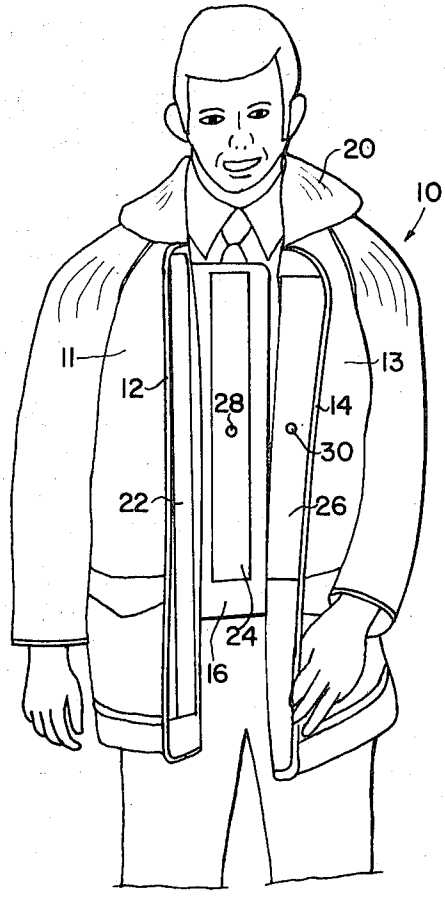
*Attorney, Agent, or Firm*—Townsend and Townsend



[57] **ABSTRACT**

An efficient and effective means for connecting and sealing the front trunk and collar portions of a turnout coat is disclosed. One side of the coat front fits between two parallel flaps which form the other side of the coat front. Strips of engageable fastening material are provided on the confronting surfaces of the overlapping portions of the coat front so that the coat can easily be closed and opened, even in emergency situations. A wide tab is provided which interconnects the frontal halves of the collar to maintain the collar in the raised position. The collar has vertically extended side portions which cover the ears of the wearer and a depressed rear portion to conform the collar to the underside of a helmet. When the turnout coat is worn with tranditional protective equipment, the combination of the front flaps, tab and raised collar fully protect the wearer from exposure. An improved sleeve design is also disclosed to allow freedom of movement for the wearer even when the turnout coat is fully closed.


**8 Claims, 6 Drawing Figures**



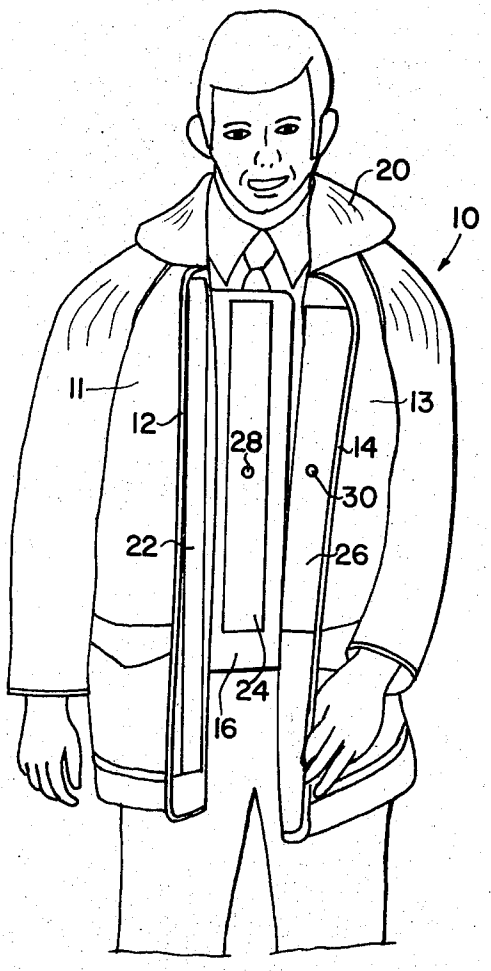



FIG.-1

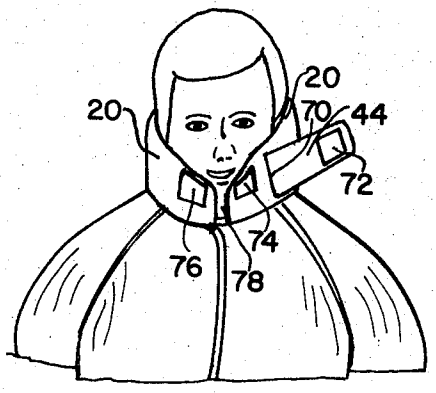



FIG.-4

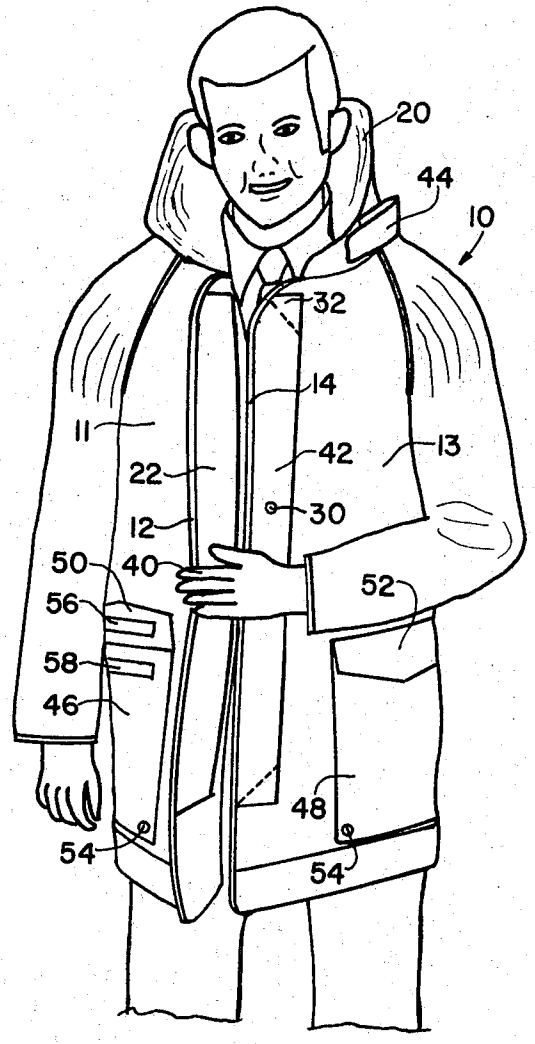



FIG.-2

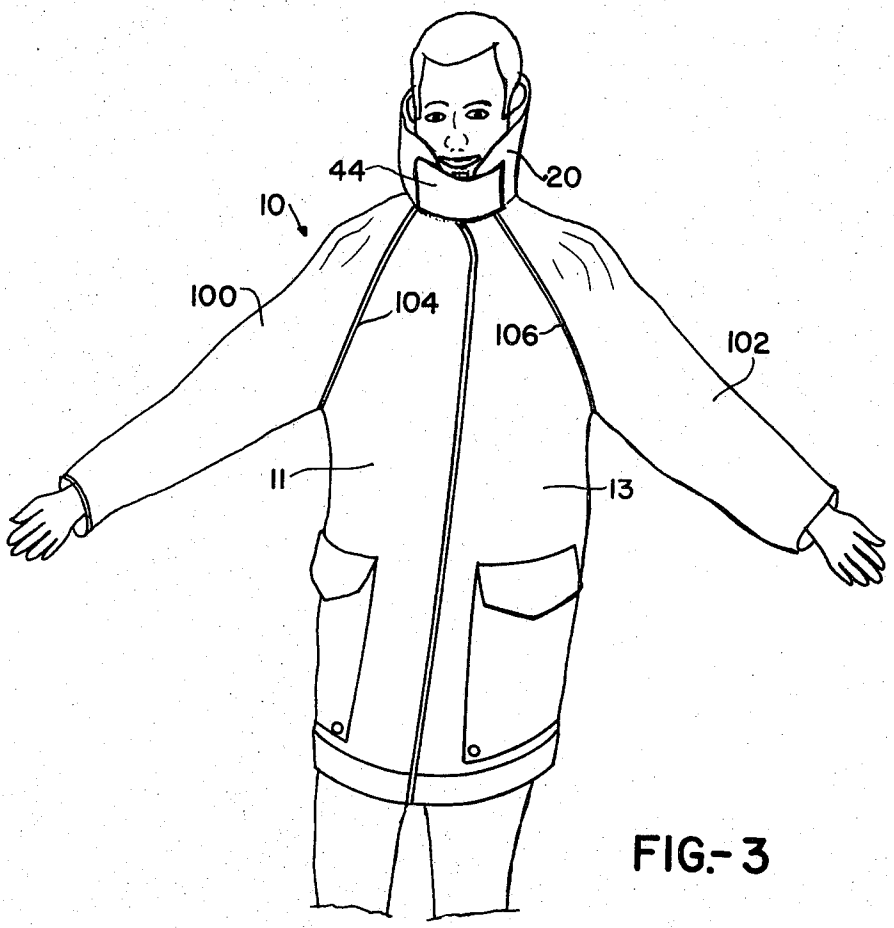



FIG.-3

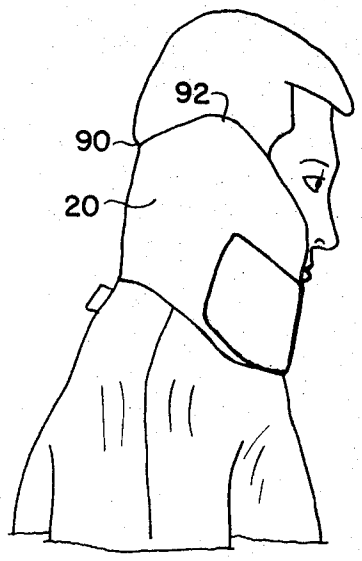



FIG.-5

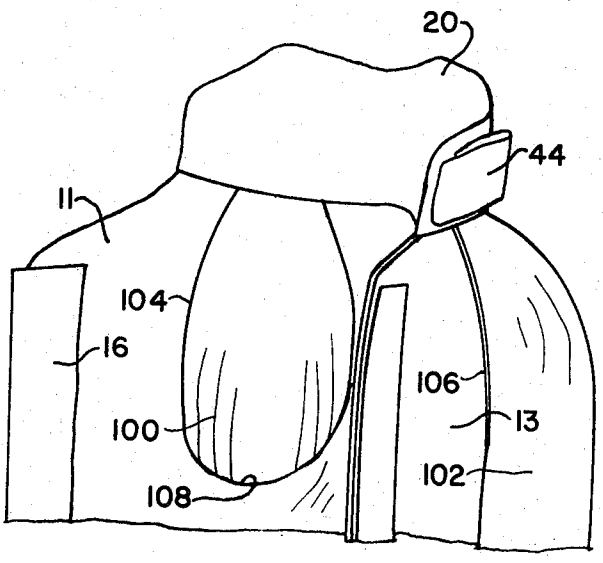



FIG.-6

# TURNOUT COAT

## BACKGROUND OF THE INVENTION

The present invention relates to turnout coats, and particularly to improved means for fastening and sealing the coat and providing maximum protection to the wearer.

Turnout coats have gradually replaced the traditional raincoat formerly used for the protection of firemen. The turnout coat has a relatively heavy outer water-repellent surface which is also flame and heat resistant, and an inner lining for warmth. The turnout coat is relatively short, extending slightly below the hips of the wearer, and is usually worn with protective trousers and a helmet. In dangerous situations, a respirator is also worn which includes a tank strapped onto the back of the wearer over the turnout coat and a face mask connected to the tank.

Turnout coats presently available have a D-hook and ring assembly on the front sides of the coat which are used to securely fasten the relatively heavy coat material. The D-hooks snap onto the rings and a spring clip prevents accidental disengagement. A large protective collar is also provided which abuts the lower edge of the helmet at the back of the collar and tapers slightly downwardly towards the front. The collar has a large gap at the front to allow for the wearing of the respirator face mask. The sleeves of the turnout coat are joined to the trunk portion of the coat in the customary manner, namely, at the outer extremity of the shoulder.

One of the problems with such turnout coats is that they are cumbersome and inefficient in an emergency situation. The D-hook and ring assembly is difficult to interconnect when the fireman is hanging onto a truck or ladder, or has his vision directed elsewhere. The fireman must often stop his activities in order to fully fasten the coat. The coat is difficult to unfasten when the fireman is fatigued and overheated since the spring clip on the D-hook must be undone to disengage each hook. While the coat is being worn the traditional sleeve construction restricts the arm movement of the fireman, and becomes bound up on the straps when the tank of the respirator is placed on the fireman's back.

Another problem with such turnout coats is that the fireman is not as fully protected from exposure to heat and water as desired. The front portion of the trunk of the coat is generally open above the uppermost D-hook and ring, and in combination with the gap in the front of the collar exposes the throat area of the fireman. Also, the downward taper of the collar exposes the ears and the side of the head of the fireman. Furthermore, the D-hook and ring do not completely interconnect the front sides of the coat to prevent water from entering, and the metal fasteners which hold the D-hook and rings to the coat allow heat transmission through the protective material.

## SUMMARY OF THE INVENTION

The present invention provides improved means for connecting and sealing the front trunk and collar portion of a turnout coat. An elongate flap is fixed to the interior of the coat front parallel to a first of the overlapping edges so that the second overlapping edge can be placed between the elongate flap and the first overlapping edge. Fastening material is mounted on the



confronting surfaces of the elongate flap and first overlapping edge. Complementary fastening material is mounted on both sides of the second overlapping edge. The complementary fastening material can be sequentially overlaid and pressed into engagement by the wearer of the coat to fasten and seal the coat front. A tab is fixedly attached to the underside of one of the frontal halves of the collar and extendable to the other frontal half. Complementary fastening material is provided on the free end of the tab and the underside of the other frontal half of the collar so that the fastening material can be engaged to fasten the tab across the adjacent frontal halves of the collar.

The complementary strips of fastening material on the sides of the coat front can easily be overlaid and pressed into engagement by the wearer with one hand to fully connect and seal the front of the coat, and the wearer can close the coat front without watching the fastening operation. A full and complete seal of the front of the coat is still achieved. Similarly, the wearer can easily disengage the fastening means by stripping open the fastening material, again with one hand, to quickly release the coat front. The releasing operation can be performed by the wearer almost as a reflex action, and does not require the visual attention and coordination which must be employed to release the D-hooks of available turnout coats. The ease with which the turnout coat of the present invention can be fastened and unfastened, but still achieve a full seal, provides a convenient closure which can be efficiently operated, even in emergency situations.

The collar of the turnout coat disclosed herein has side portions extending over the ears of the wearer and a slightly depressed rearward portion to conform the top edge of the collar to the lower edge of the wearer's helmet. The tab connecting the front of the collar is sufficiently wide so that the entire throat area of the wearer is protected from exposure. Hence, when the coat front is fastened, and the collar is raised and the tab used to hold the collar in the raised position, only the face of the wearer is exposed. The face of the wearer is protected by the face mask of the respirator. In combination with traditional protective equipment, all areas of the wearer are protected from exposure.

When the turnout coat is fully sealed as provided by the present invention, arm movement of the wearer is still not restricted. The present invention incorporates a sleeve arrangement wherein each sleeve and shoulder portion of the coat is constructed from a unitary piece of material. In this manner, the coat does not bulge at the shoulder when the fireman raises his arms, as when donning the tank portion of a respirator, and does not interfere with the activity of the wearer. This feature has the additional benefit of providing an extremely large sleeve aperture on the inside of the turnout coat, allowing for far greater ease in donning the coat. With the larger sleeve aperture of the present turnout coat, there is little problem of the fireman having difficulty straightening out his coat and properly getting his arm into the proper sleeve, even when in a hurry and his attntion is directed elsewhere.

## BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a front elevation view of a fireman wearing the turnout coat of the present invention prior to closing the front of the coat;

FIG. 2 is a front elevation view similar to that of FIG. 1 illustrating the turnout coat of the present invention partially fastened;

FIG. 3 is a front elevation view similar to that of FIGS. 1 and 2 illustrating the coat front completely sealed;

FIG. 4 is a fragmentary elevation view of the tab and collar of the turnout coat;

FIG. 5 is a fragmentary side elevation view of the turnout coat of the present invention illustrating the side conformation of the collar;

FIG. 6 is a fragmentary elevation view of the interior sleeve aperture of the turnout coat of the present invention.

## DESCRIPTION OF THE PREFERRED EMBODIMENT

The configuration of the turnout coat of the present invention prior to fastening the front surfaces is illustrated by way of reference to FIG. 1. The front of turnout coat 10 has adjacent overlapping side panels 11 and 13, which terminate in overlapping edges 12 and 14 respectively at the front of the coat. An elongate flap 16 is attached to the interior of side panel 11 with the free end of the flap generally aligned with edge 12. Elongate flap 16 need not run the full length of edges 12 and 14, but need only extend the length of the chest portion of the wearer as illustrated. Turnout coat 10 also has a collar 20 which can lie flat as illustrated when not needed for protection.

When the front of turnout coat 10 is to be closed, overlapping edge 14 is adapted to fit between elongate flap 16 and overlapping edge 12. To fasten the overlapping edges 12 and 14 together, overlapping surfaces of edges 12 and 14 and flap 16 are provided with fastening material. Flap 16 and edge 12 are provided with strips 22 and 24 of a first type of fastening material respectively. The first type of fastening material is preferably Velcro hook material as described in U.S. Pat. No. 2,717,437, but other types of fastening material could be used as well. Such hook material will not engage other hook material upon casual contact, so that the fastening material 22 and 24 on parallel surfaces 12 and 16 do not become accidentally engaged. Edge 14 is provided with fastening material of a second type complementary to the first type on its opposite surfaces. Velcro eye material is preferably used for this purpose. One strip 26 of eye material is provided on the interior surface of edge 14 and adapted to engage complementary strip 24 on flap 16. A second strip of eye material on the outer surface of edge 14 is not visible in FIG. 1. Engageable snap members 28 and 30 are provided on flap 16 and edge 14 respectively, and can be engaged to center the fastening material if time permits.

Partial closure of the turnout coat 10 of the present invention is illustrated by way of reference to FIG. 2. In this figure, complementary strips of fastening material on overlapping edge 14 and flap 16 (see FIG. 1) have been engaged by the wearer using his left hand 40. To engage the fastening material, the wearer first places edge 14 over flap 16, then presses on the outer surface of edge 14 to engage the material. If desired, and if time permits, the centering snap 30 can also be engaged by hand 40. The strip 42 of Velcro eye material on the outer surface of edge 14, not visible in FIG. 1, is apparent in FIG. 2. Relatively smooth Velcro eye material is preferred since the wearer presses this area to engage the fastening material on edge 14 and flap 16. Strip 42 is complementary to the strip of Velcro hook material 22 on overlapping edge 12. Corresponding strips of fastening material 22 and 42 extend nearly the entire length of the coat front from near the bottom of the coat to a point immediately adjacent collar 20. A small unfastened portion may be left near the bottom of the coat front to enhance mobility of the wearer's legs. A loose triangular flap section 32 can be provided at the upper end of strip 42 to inhibit accidental disengagement of the material.

Referring still to Flg. 2, collar 20 is raised for protection as illustrated. Tab 44 is located on the underside of collar 20 adjacent one frontal half of the collar. Tab 44 is folded and releasably attached on the same half of collar 20 to prevent the tab from flopping around when not in use. Tab 44 is attachable to the other half of the collar to maintain the collar in the raised position and protect the throat of the wearer, as will be hereinafter more fully illustrated.

The configuration of the pockets 46 and 48 of turnout coat 10 are also illustrated by way of reference to FIG. 2. The flap 52 of pocket 48 is folded down over the pocket to prevent water from entering that pocket. Flap 50 on pocket 46 is illustrated in the raised position so that the wearer can retrieve a wrench or other appliance carried in the pocket. Since water can enter pocket 46 when flap 50 is in the raised position illustrated, small apertures 54 are provided adjacent the bottom of the pockets so that water can run out and will not accumulate in the pockets. In order to prevent any water from entering the pockets when in the closed position, complementary strips of fastening material 56 and 58 can be provided as illustrated on pocket 46 to ensure that the flap is secured to the pocket. Since strips of mutually engageable material 56 and 58 are used, the wearer can easily open the pocket flap when desired, but an efficient closure is still provided.

Referring next to FIG. 3, the trunk portion of turnout coat 10 has been completely sealed and collar 20 is in the raised position to provide complete protection to the wearer. The wearer seals the trunk portion of the coat by placing edge 12 over edge 14, then pressing on edge 12 to engage strips of fastening material 22 and 42. This operation is again performed with left hand 40 (See FIG. 2). Tab 44 has been extended to the other frontal half of collar 20 to maintain the collar in the raised position. Tab 44 is of sufficient width so that it extends from the joined panels 11, 13 of the coat trunk to just below the mouth of the wearer in order that the entire throat area of the wearer is protected. As is evident from FIG. 3, with the coat front sealed and the collar raised and supported by tab 44, the entire coat front can be sealed from just below the mouth of the wearer to the bottom of the coat.

The means by which tab 44 is attached to the other frontal half of the collar is more fully illustrated by reference to FIG. 4. Tab 44 is fixedly attached to one half of the collar 20 at 70, and has a strip 72 of fastening material of a first type adjacent the free end of the tab. Strips of fastening material 74 and 76 of a second type complementary to the first type are provided on both frontal halves of collar 20. When flap 44 is to be stored, the tab can be folded and strip 72 engaged with strip 74 on the same side of collar 20 as illustrated in FIG. 3. However, when collar 20 is in the raised position, fas-

tening material strips 72 and 74 can be disengaged, and tab 44 extended across the throat area 78 of the wearer to engage strip 72 of fastening material with complementary strip 76. Tab 44 is of sufficient width so that the entire throat area 78 of the wearer is protected as illustrated.

When the collar 20 of the present invention is in the raised position, the ears of the wearer are protected as illustrated in FIG. 5. The side portions 92 of collar 20 extend to a position over the ears of the wearer. The upper edge of the rear portion 90 of the collar is depressed relative to the upper edges of side portions 92 so that the upper edge of collar 20 is conformed to the lower edge of the helmet usually worn with the coat. By viewing FIGS. 3 and 5 in combination, it is apparent that when the wearer is also provided with the standard helmet, trousers, gloves and face mask, all parts of his body are completely protected from exposure.

When the turnout coat of the present invention is fully sealed as illustrated in FIG. 3, arm movements of the wearer are not restricted. Sleeves 100 and 102 provided by the present invention are not attached to the trunk portion of the coat in the traditional manner. Rather, each sleeve and shoulder portion of the coat is of unitary construction preferably from a single piece of material, and is joined to the coat by means of seams 104 and 106 respectively. Seams 104 and 106 run from the collar portion of the coat through the underarm portion and back to the collar portion. With this unitary sleeve/shoulder construction, the shoulder portions of the coat will not bulge upward when the wearer raises his arms as in FIG. 3. Hence, the wearer can place a respirator tank on his back and easily perform other activities requirng extensive mobility even while the coat is fully sealed.

Another feature of the unitary sleeve/shoulder arrangement of the present invention is illustrated by way of reference to FIG. 6 wherein one front side panel 11 is folded open to expose the interior arm aperture to sleeve/shoulder 100. The seam 104 by which the sleeve/shoulder 100 is joined to the trunk portion of the coat is quite large relative to the standard sleeve aperture found on coats in the prior art. The aperture provided extends from the collar portion 20 of the coat to the underarm 108. When a fireman or other individual in a hurry hastily grabs the coat and thrusts one arm in the general direction of the sleeve, the large aperture provided in the present invention will easily capture the arm so that it is properly inserted into the sleeve.

While a preferred embodiment of the present invention has been illustrated in detail, it is apparent that modifications and adaptations of that embodiment will occur to those skilled in the art. However, it is to be expressly understood that such modifications and adaptations are within the spirit and scope of the present invention, as set forth in the following claims.

What I claim as new is:

1. A turnout coat having the trunk portion openable at the front, said trunk portion having first and second side panels adapted to meet and overlap at the front of the coat to provide first and second overlapping edges respectively, said coat comprising:

an elongate flap fixed to the interior of the first panel and having a free end generally aligned with the first overlapping edge;

complementary fastening material mounted on the outer surface of the flap and the inner surface of the second overlapping edge, said fastening material generally coextensive with the length of the flap so that the second overlapping edge can be placed over the flap and the complementary material pressed into engagement to detachably attach the side panels of the coat at the front along the length of the flap; and

complementary fastening material mounted on the outer surface of the second overlapping edge and the inner surface of the first overlapping edge, said fastening material extending downwardly from a point in close proximity to the upper end of the associated edge so that the first overlapping edge can be placed over the second overlapping edge after attachment of said flap thereto and the complementary material thereon pressed into engagement to seal the side panels of the coat along the front of the coat, said seal being releasable by separating the fastening material by a stripping action.

2. A turnout coat is recited in claim 1 wherein said coat has a protective collar, and additionally comprising improved means for fastening the adjacent frontal halves of said collar with said collar in the raised position, said means comprising a tab having one end attached to the underside of one of the frontal halves of said collar, fastening material of a first type mounted on the other end of said tab, and fastening material of a second type complementary to said first type mounted on the underside of the collar on both frontal halves of said collar so that the tab can either be folded and the fastening material on said tab pressed into engagement with the fastening material of the second type on said one half of said collar for storage of the tab, or the tab can be unfolded and placed across the throat area of the wearer and the engagement material on said tab can be pressed into engagement with the engagement material of the second type on the other half of the collar to interconnect the frontal halves of the collar and maintain said collar in the raised position.

3. A turnout coat as recited in claim 2 wherein the tab extends from the fastened side panels of the trunk portion of the coat front to a position slightly below the mouth of the wearer when said tab is placed over of throat area o the wearer to fully protect said throat area.

4. A turnout coat as recited in claim 2 wherein the side portions of the protective collar extend from the trunk portion of the coat to a position over the ears of the wearer when said collar is in the raised position, the rear portion of said raised collar is depressed relative to the side portions to conform the upper edge of said collar to the lower edge of protective headgear also worn by the wearer of said coat from the rear of the collar continuously to a position over the ears of the wearer, and the top edge of the front portions of said collar extend to a position slightly below the mouth of the wearer to allow for use of a respirator by said wearer.

5. A turnout coat having improved means for fastening the overlapping edges of the side panels of the coat front and the adjacent frontal halves of the protective collar when said collar is in the raised position, said means comprising:

an elongate flap mounted on the interior of one of the side panels and extending parallel to the interior surface of the overlapping edge associated with said one side panel so that the other overlapping

edge is placeable between said elongate flap and said one overlapping edge;

complementary fastening material mounted on the confronting surfaces of the elongate flap and the other overlapping edge so that said other overlapping edge can be placed over the flap and pressed into releasable engagement therewith, and complementary fastening material mounted on the confronting surfaces of said other overlapping edge and the one overlapping edge so that the one overlapping edge can be placed over the other overlapping edge and pressed into releasable engagement therewith to fasten and seal the side panels at the front of the coat;

a tab having one end fixedly attached to the underside of one of the frontal halves of said collar and another free end extendable to the other frontal half of said collar; and

complementary fastening material on the free end of the tab and the underside of said other frontal half of said collar so that said complementary material can be releasably engaged to fasten the tab across the adjacent frontal halves of said collar to protect the throat area of the wearer.

**6.** A turnout coat as recited in claim **5** wherein the side portions of the protective collar extend from the trunk portion of the coat to a position over the ears of the wearer when said collar is in the raised position and the rear portion of said raised collar is depressed relative to the side portions to conform the upper edge of said collar to the lower edge of protective headgear also worn by the wearer of said coat.

**7.** A turnout coat for the protection of firemen and other individuals in emergency situations wherein said individuals are provided with protective headgear, said coat comprising a trunk portion having first and second side panels adapted to meet and overlap at the front of the coat to provide first and second overlapping edges respectively; means extending along the overlapping edges of the coat front from a first position in close proximity to the top of said edges to a second position below the chest of the wearer for fastening the overlapping edges of the coat front continuously from said first position to said second position; a collar connected to the trunk portion of the coat and adapted to be raised to protect the neck and head areas of the wearer, said collar having side portions extendable from the trunk portion of the coat to a position over the ears of the wearer, a rear portion having a slightly depressed upper edge relative to the upper edges of said side portions to conform the upper edge of the side and rear portions of the raised collar to the lower edge of the protective headgear from the rear of the collar continuously to a position over the ears of the wearer, and front portions extending upwardly from the trunk portion of the coat to a position slightly below the mouth of the wearer to allow for use of a respirator by said wearer.

**8.** A turnout coat as recited in claim **7** wherein said coat has a protective collar, and additionally comprising improved means for fastening the adjacent frontal halves of said collar with said collar in the raised position, said means comprising a tab having one end attached to the underside of one of the frontal halves of said collar, fastening material of a first type mounted on the other end of said tab, and fastening material of a second type complementary to said first type mounted on the underside of the collar on both frontal halves of said collar so that the tab can either be folded and the fastening material on said tab pressed into engagement with the fastening material of the second type on said one half of said collar for storage of the tab, or the tab can be unfolded and placed across the throat area of the wearer and the engagement material on said tab can be pressed into engagement with the engagement material of the second type on the other half of the collar to interconnect the frontal halves of the collar and maintain said collar in the raised position.

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