

enclosure 12. For an apparatus 10 that includes but one support band 18, that band 18 should be placed adjacent the portion of the isolation apparatus that will enclose the head of the victim. Accordingly, such a single semi-rigid polyethylene support band will be positioned adjacent the so-called head end of the apparatus 10, i.e., adjacent end wall 26.

FIG. 6 shows a blower/filter/filter inlet adapter assembly which is to be secured to the apparatus 10. FIG. 7 is a check valve 68. Like conventional check valves, this check valve 68 permits flow of air in only one direction, and prevents the flow of air in the opposite direction.

FIG. 6 shows a blower unit 70, and its outlet port 74. Air is drawn into the blower unit 70 through a pair of conventional NATO-type chemical/biological/nuclear (CBN) filters 72. The outlet air from the blower is thus filtered and decontaminated. FIG. 6 also shows filter inlet adapters 78 and air inlet hose 76. The filter inlet adapters 78 each comprise a custom PVC injection molded cup and nipple which fits over and pressure seals to the inlet side of a CBN filter. This allows air inlet hose 76 to attach to the CBN filter 72 inlet ports without modifying the filter housing. This feature is unique and key to employing standard positive pressure CBN blower/filter assemblies for negative pressure generation within the apparatus 10.

When apparatus 10 is used to contain a non-contaminated patient, its interior must be under slight positive pressure and filtered air must be supplied to the patient. In this scenario, the blower assembly 70-76 is mounted at the head end 26 of the apparatus 10 and the blower outlet 74 is connected to one of the inlet ports 52 or 54 by means of a flexible hose and 40 mm DIN female threaded slip coupling. The inlet of check valve 68 is attached to outlet port 56 or 58 to prevent backflow of contaminated air. Unused inlet or output ports are left capped and sealed. In this manner, clean air is injected into the head end 26 of apparatus 10 and exhausted at the foot end 28, supplying the patient with clean air and providing a positive pressure within the apparatus 10.

When apparatus 10 is used to contain a contaminated patient, its interior must be under slight negative pressure and the air exhausted from within must be filtered to avoid contaminating the outside atmosphere. In this scenario, the blower assembly 70-76 is mounted at the foot end 28 of apparatus 10 and the filter inlet hose 76 is connected to one of the outlet ports 56 or 58. The outlet of check valve 68 is now connected to one of the input ports 52, 54. Unused inlet or output ports are left capped and sealed. In this manner, clean air is drawn in through the check valve across the patient and sucked out at the foot end 28 by the blower assembly 70-76, thus supplying the patient with clean outside air and providing a negative pressure within apparatus 10. Contaminated air from within apparatus 10 is thus filtered before being exhausted to the atmosphere.

Specific embodiments have been illustrated and described. Numerous modifications come to mind without significantly departing from the spirit of the invention. The scope of protection is only limited by the scope of the accompanying Claims.

What we claim is:

1. A foldable isolation apparatus for transporting patients, comprising:

- (a) a transparent or semi-transparent, generally tubular enclosure, having two opposite ends, said tubular enclosure being foldable into a collapsed form having a significantly reduced length or footprint and a diameter no larger than that of the expanded generally tubular enclosure;
- (b) a pair of end walls secured to the tubular enclosure at its opposite ends such as to form a completely self contained and sealed, air-tight apparatus;

(c) semi-rigid support bands extending around a portion of the outer periphery of the generally tubular enclosure;

(d) a base mat assembly, comprising at least a first flexible, flat sheet having a top side and a bottom side, its top side being secured to said generally tubular enclosure.

2. The isolation apparatus of claim 1, wherein said bottom side of said base mat assembly is secured to at least four lateral reinforcing straps.

3. The isolation apparatus of claim 1, wherein said bottom side of said base mat assembly is secured to at least two longitudinally oriented reinforcing straps.

4. The isolation apparatus of claim 1, wherein the ends of said lateral reinforcing straps are formed into loops, which loops serve as handholds.

5. The isolation apparatus of claim 2, wherein said base mat assembly further comprises a second flexible, flat sheet secured to the bottom side of said first flexible, flat sheet.

6. The isolation apparatus of claim 1, further comprising at least two air inlet and outlet ports secured to each of the two end walls of the transparent or semi-transparent, generally tubular enclosure, said ports allowing connection to a blower/filter assembly to positively pressurize the enclosure when blowing air into the inlet port and negatively pressurize the enclosure when exhausting air from the outlet port while maintaining head to foot air flow.

7. The isolation apparatus of claim 1, further comprising a zipper along three of four sides of said generally tubular enclosure, permitting said enclosure to pivot along said fourth side, and thereby permit easy access to the interior of said enclosure.

8. The isolation apparatus of claim 7, wherein said zipper is air- and liquid-tight.

9. The isolation apparatus of claim 7, wherein said zipper is placed along said three sides at a point below the center line of said enclosure.

10. The isolation apparatus of claim 1, wherein said transparent or semi-transparent, generally tubular enclosure is made of a first layer and optionally a second layer overlapping substantially all of said first layer.

11. The isolation apparatus of claim 1, further comprising a drain port adjacent to the bottom of said apparatus.

12. The isolation apparatus of claim 2, wherein opposite ends of said reinforcing straps include integral buckles for securing the apparatus to a stretcher.

13. The isolation apparatus of claim 1, further comprising two sets of patient tether straps and integral buckles for securing a patient within the apparatus.

14. The isolation apparatus of claim 10, wherein said second layer incorporates an infrared heat barrier.

15. The isolation apparatus of claim 1, wherein the ends of said longitudinal reinforcing straps are formed into loops, which loops serve as handholds.

16. The isolation apparatus of claim 2, further comprising two sets of patient tether straps and integral buckles for securing a patient within the apparatus.

17. The isolation apparatus of claim 1, further comprising multiple medical instrumentation access ports located below a zipper along three of the four sides of said generally tubular enclosure, said medical instrumentation access ports being on the lengthwise side of the apparatus.

18. The isolation apparatus of claim 9, further comprising multiple medical access ports located below said zipper on the lengthwise side of the apparatus.

19. The isolation apparatus of claim 1, wherein said support band acts as a stiffening rib.