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WORKING CHAMBER OR GLOVEBOX

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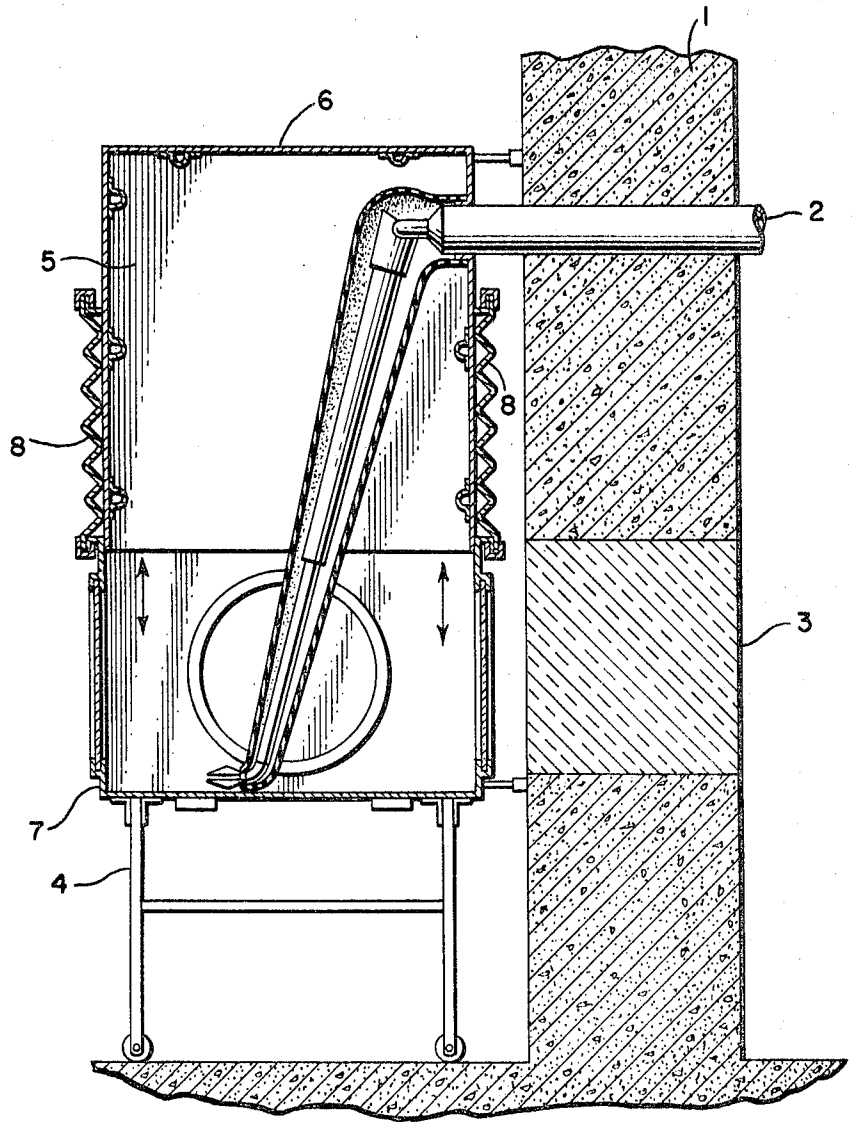

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WORKING CHAMBER OR GLOVE BOX

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ABSTRACT OF THE DISCLOSURE

A working chamber comprising a pair of housing members slidably telescopically mounted with respect to each other and having flange means mounted thereon. A flexible accordion pleated sleeve is fixed to the flange means and extends around the telescoping portions of the housing members.

The invention relates to a working chamber of the glovebox or hermetically sealed kind, more particularly but not exclusively for use inside hot cells employed in handling radioactive materials.

In the prior art there are many kinds of gloveboxes devised for widely differing technical requirements—e.g. for micromanipulations and for metallurgical work—and there are universal or standardised profile gloveboxes enabling chains or stacks of boxes to be formed. There are also decontamination boxes, neutron boxes and so on. There are rigid and demountable boxes made of all sorts of materials such as Plexiglas, P.V.C., special glasses and so on. Similarly shapes vary very considerably—parallelepipedic dome, full view, convex front surface, and so on.

The fact that shapes, sizes and designs vary is a practical disadvantage. Frequently each kind of working requires an enclosure or glovebox adapted to the particular requirements of the particular job concerned, taking into consideration a wide variety of parameters such as dimensions of remote handling gear, and dimensions of the entry of a hot cell (often, the enclosure must be dismantled to get its parts inside a hot cell in which the enclosure is reassembled).

The working enclosure or chamber according to the invention is much more adaptable than the prior art systems.

The invention provides a sealed working chamber or glovebox of which the walls are composed of two parts telescopic one within the other and hermetically connected together by a flexible accordion-pleated sealing sleeve.

In one form of the chamber the two parts are one above the other and arranged for telescopic movement to vary the height of the chamber, the sleeve extending horizontally around the chamber.

It is preferred that the flexible material forming the sleeve is polyvinyl chloride.

A specific embodiment of the enclosure according to the invention will now be described with reference to the accompanying drawing and by way of example.

Referring to the drawing there can be seen a concrete screening wall 1 of a hot cell, the wall being formed with a passage for the shaft 2 of a manipulator and with a window 3 for observation of the inside of a working chamber or enclosure 5 placed on a travelling table 4. The top part 6 of the enclosure 5 is telescopic within the bottom part 7 and is hermetically connected to the bottom part 7 by a flexible accordion-pleated sleeve 8 which extends horizontally around the enclosure 5. The top part 6 has flanged openings for the passage of remote manipulators so that bootings or sleeves can be

positioned from outside the cell without breaking sealing-tightness. The enclosure 5 is made of 3 mm. thick stainless steel plate stiffened by portions of omega section. The bottom part 7 has front and rear Plexiglas panels enabling two hermetic transfer locks on the right and left to be visible. The sleeve 8 is disposed on glove flanges or rings and secured by collars. The complete enclosure 5 is rigidly connected to the cell by readily demountable stays. The chamber or enclosure is a parallelepiped and actual dimensions of the enclosure are of the order of 2400 mm. long including the locks, 1400 mm. wide and 2400 mm. high.

This working enclosure has a wide variety of possible uses. When fitted with suitable glove rings or flanges it can be used as an ordinary glovebox; it can be introduced without demounting inside hot cells and can readily be fitted with remote handling gear. Since the height can be varied, there are no difficulties in adaptation to the height at which the remote handling gear passes through.

A number of working enclosures according to the invention can readily be connected as a chain or as a stack, more particularly for reprocessing cycles in which the various stages often require equipment of varying size, machines, ovens and so on.

The invention is not restricted to the details of the above example and various modifications or additions may be made. For instance enclosure or chamber size and height may be varied by a motor operating an endless chain running over four sprockets at the four top or bottom corners of the enclosure, the sprockets sliding on four screwthreaded bars or rods to control the descent and ascent of the top part of the enclosure. The rods may be secured to one part and engaged in nuts rotatably held on the other part and rotatable by the sprockets. Alternatively the rods may be rotatable.

We claim:

1. In combination, a hot cell having a screening wall; a working chamber disposed adjacent said screening wall, said chamber comprising a first housing member, a second housing member telescopically mounted in said first housing member and movable with respect thereto, flange means mounted on said housing members, and a flexible accordion pleated sleeve fixed to said flange means and extending around the telescoping portions of said housing members; mechanical manipulating means disposed within said chamber; operating means for said manipulating means, said operating means extending through an opening formed in one of said housing members and through said screening wall; and fastening means disposed on said housing members and adapted to readily detachably connect said chamber to said screening wall.

2. The combination of claim 1, wherein said screening wall has a window formed therein.

3. The combination of claim 1, further comprising a traveling table carrying said chamber.

4. The combination of claim 1, wherein said sleeve is of polyvinyl chloride.

5. The combination of claim 1, wherein said housings form a structure substantially parallelepiped in shape.

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