

Feb. 3, 1970

R. W. PARKER
ISOLATION APPARATUS

3,492,987

Filed March 27, 1967

3 Sheets-Sheet 1

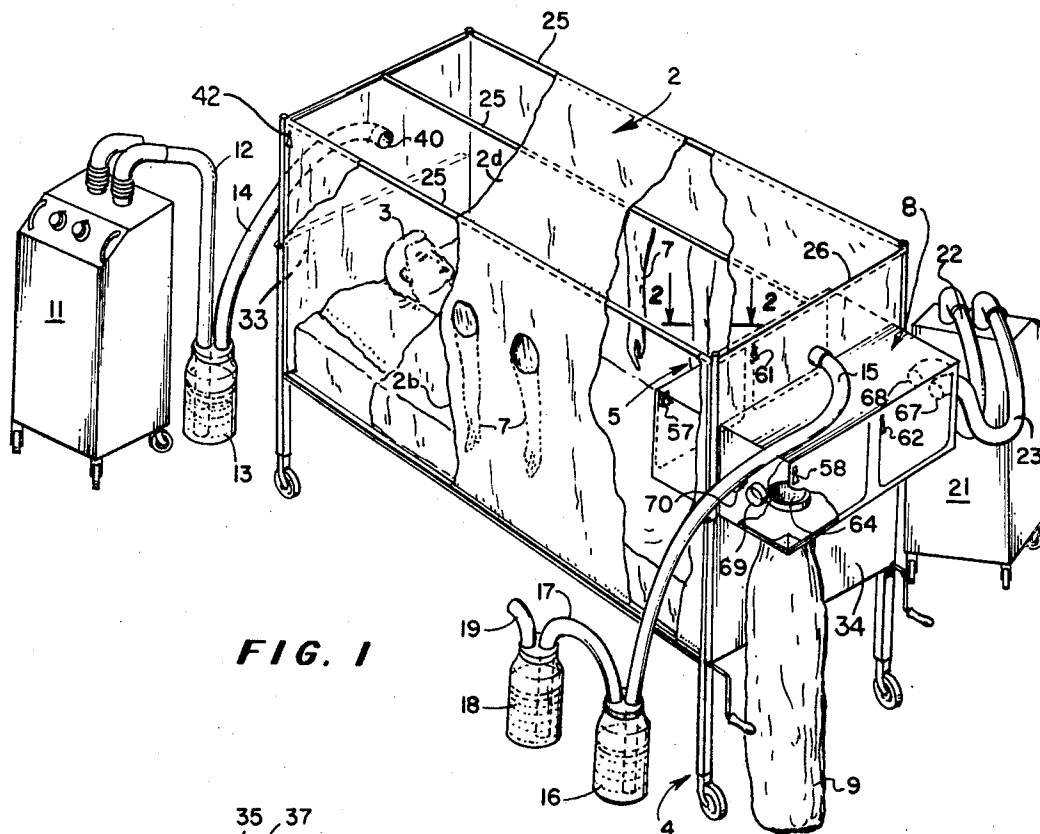


FIG. 1

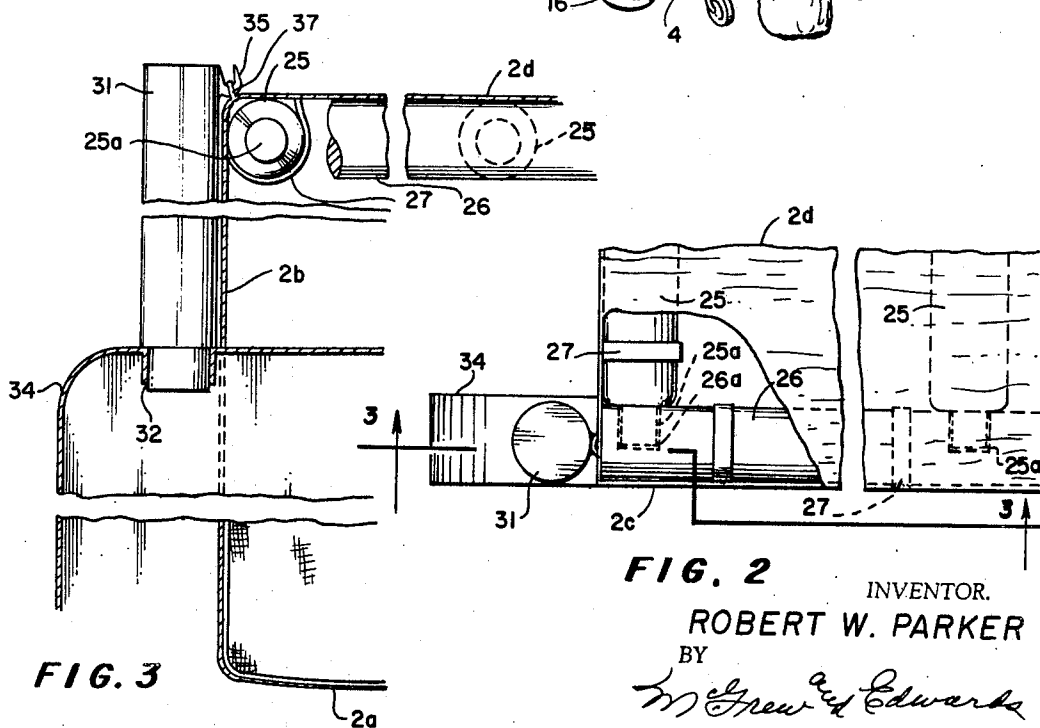


FIG. 3

FIG. 2

INVENTOR.
ROBERT W. PARKER
BY
McGraw and Edwards
ATTORNEYS

Feb. 3, 1970

R. W. PARKER
ISOLATION APPARATUS

3,492,987

Filed March 27, 1967

3 Sheets-Sheet 2

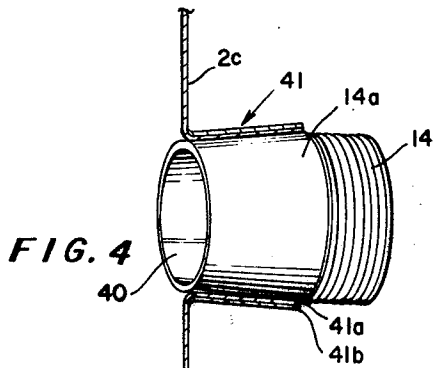


FIG. 4

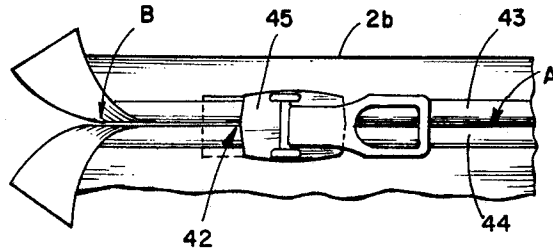


FIG. 5

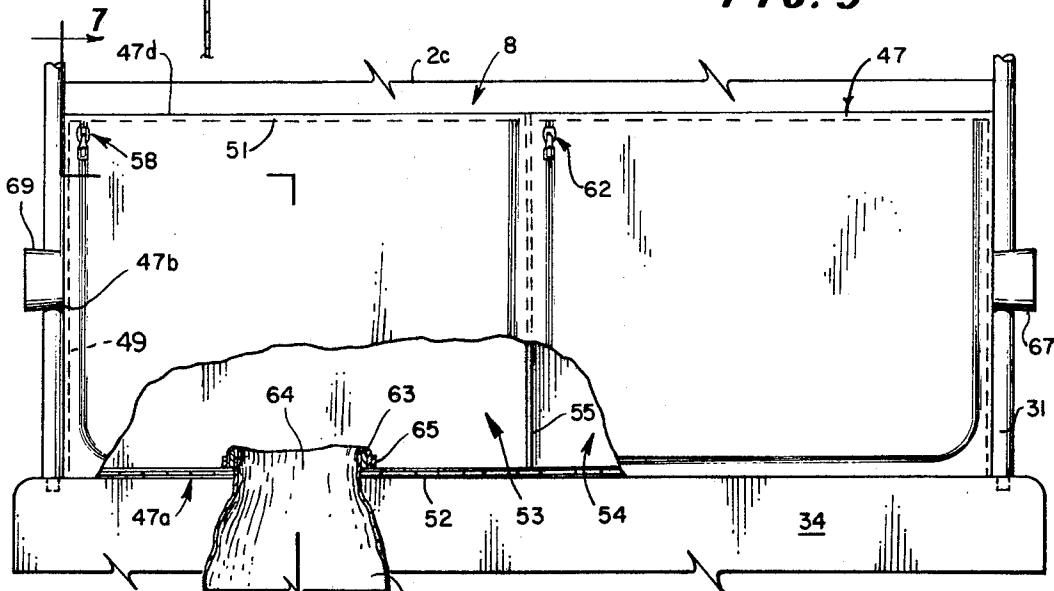


FIG. 6

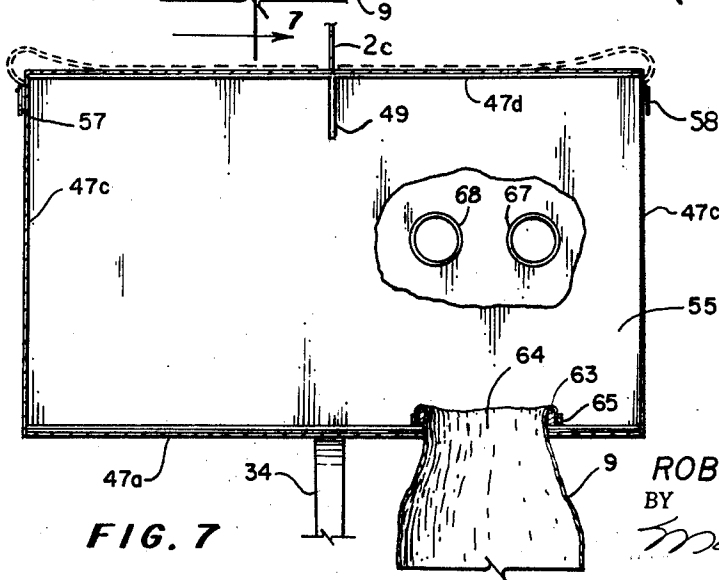


FIG. 7

INVENTOR.
ROBERT W. PARKER
BY *McGraw & Edwards*
ATTORNEYS

Feb. 3, 1970

R. W. PARKER

3,492,987

ISOLATION APPARATUS

Filed March 27, 1967

3 Sheets-Sheet 3

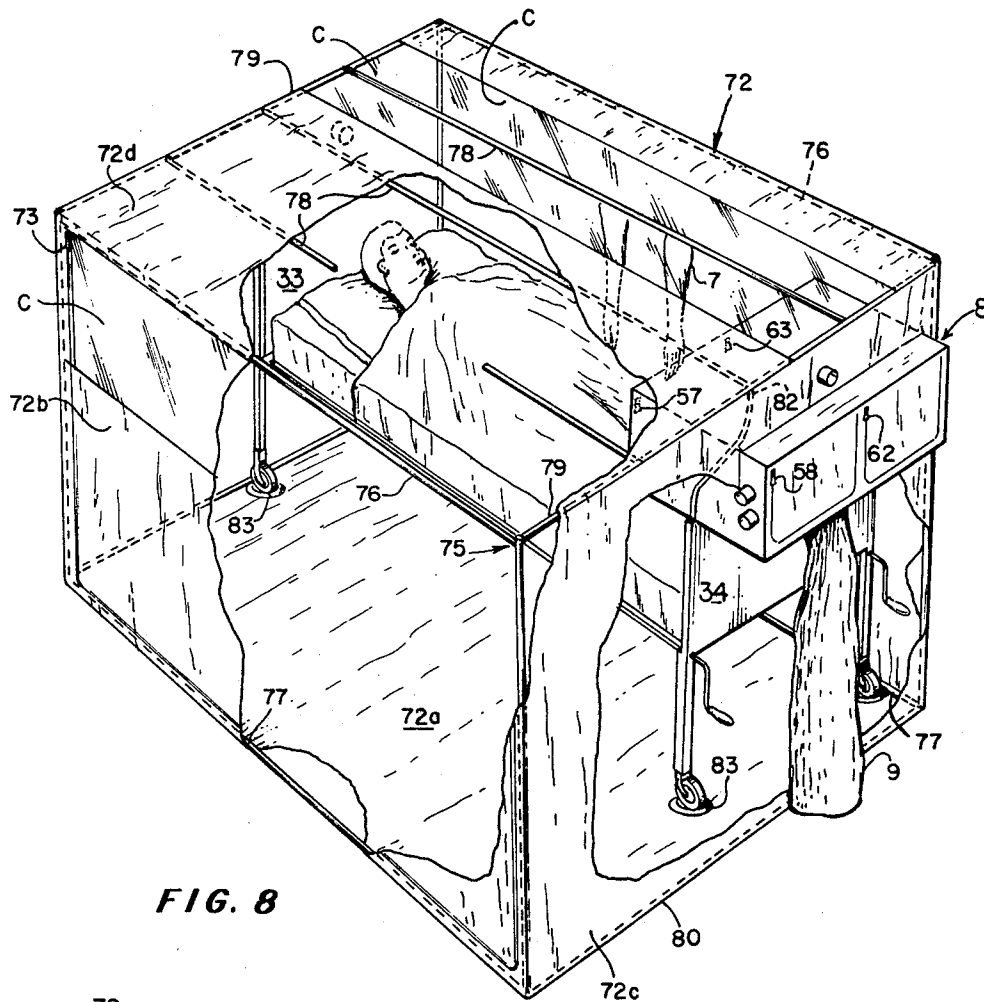


FIG. 8

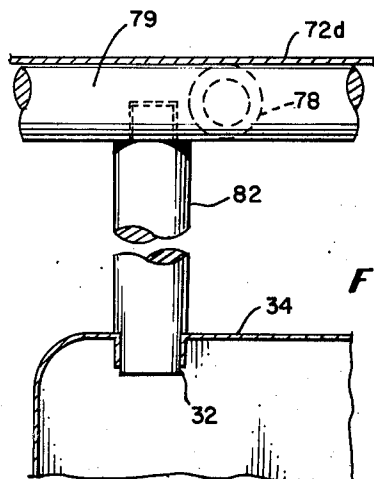


FIG. 9

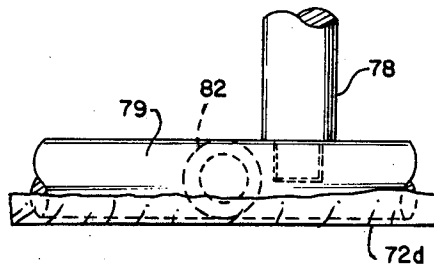


FIG. 10

INVENTOR.

ROBERT W. PARKER

BY

McGraw and Edwards

ATTORNEYS

1

3,492,987

ISOLATION APPARATUS

Robert W. Parker, Arvada, Colo.

(7215 Lowell Blvd., Westminster, Colo. 80030)

Filed Mar. 27, 1967, Ser. No. 626,276

Int. Cl. A61f 19/00; A61m 15/00

U.S. Cl. 128—1

19 Claims

ABSTRACT OF THE DISCLOSURE

An isolation unit for bed-confined patients having separable disposable components assembled where used into a hermetically sealed enclosure of the bed and some space over patient, the enclosure having access passages for arm insertion to manipulate confined objects and the isolated patient, at least one ingress and egress passage normally sealed from the interior of the patient enclosure and arranged for decontamination of its interior surface permitting introduction of material for patient consumption and waste removal from the enclosure while gaseous outflow is prevented, and means in sealed relation to the enclosure for introducing oxygen circulation into and for decontamination of gas discharge flow therefrom.

This invention relates to apparatus for the isolation of bed patients having diseases which require complete isolation from hospital personnel and other patients.

Patients having certain contagious diseases such as gaseous gangrene, meningitis, hepatitis and the like require complete isolation from other patients, hospital personnel and other persons. This isolation heretofore usually has been provided by carefully closed rooms in which only a single patient is confined and hospital personnel caring for such patients enter and leave through normally closed doors and usually special protective clothing is required for such personnel. Such isolation of patients is costly from the standpoint of the room space required for each patient and also results in the necessity of complete decontamination of personnel clothing and various types of equipment which is taken into and removed from the room and the room itself once the patient is cured. In addition, this procedure makes it difficult to transfer a patient to different locations.

Accordingly, it is an object of this invention to provide simple, durable and easy to use isolation apparatus for bed confined patients requiring complete isolation, which is capable of confining a person over extended periods of time and which may be easily disposed of after usage.

Another object of this invention is to provide isolation apparatus which is suitable for a patient confined entirely to the bed or which is suitable for providing sufficient room adjoining the bed in which an ambulatory patient may stand and walk around.

It is a further object of this invention to provide isolation apparatus for a bed patient which is suitable for usage in the same room as other isolated and/or non-isolated patients and may be conveniently moved from location to location without exposure and contaminating the surroundings.

Still a further object of the invention is to provide an isolation enclosure in which the patient and objects therein may be manipulated from externally of the enclosure and wherein food and the like may be introduced and waste material removed without contaminating the surrounding room and contents.

In summary, the present invention provides an isolation enclosure or chamber for use in conjunction with a hospital bed whereby only the bed and the immediate surrounding area is enclosed and which has provided in conjunction therewith portable means necessary for sustain-

2

ing a person within that enclosure for extended periods of time. Another innovation of the present invention is the provision of a self-sustaining isolation enclosure in which all of the contaminated portions can be easily disposed of by burning in its entirety after its use has been completed without contaminating auxiliary equipment used therewith or the air of the surrounding room. A further innovation in the present invention is the provision of an isolation enclosure for the patient having transparent portions and which has a relatively small volume as compared to the usual hospital room, thereby avoiding the high capacity equipment for supplying oxygen and decontaminating the gas outflow from the air surrounding the patient.

Other objects, advantages and capabilities of the present invention will be more apparent as the following description proceeds when considered with the accompanying drawings in which:

FIG. 1 is a perspective view of an isolation unit assembly embodying the present invention for a bed-confined patient with the patient enclosure member, waste disposal container, oxygen supply, decontaminating source and gas decontamination means illustrated therein;

FIG. 2 is an enlarged sectional view taken along lines 2—2 of FIG. 1 showing a fragment of the support assembly for the patient enclosure member;

FIG. 3 is a fragmentary sectional view taken along lines 3—3 of FIG. 2;

FIG. 4 is a fragmentary side elevation view of a port arrangement on the enclosure member for fastening the inlet and outlet flow lines in sealed relation to the enclosure member and pass receptacle illustrated in FIG. 1;

FIG. 5 is a fragmentary top plan view of a zipper arrangement for opening and closing a wall portion of the enclosure member shown in FIG. 1 and drawn to an enlarged scale;

FIG. 6 is a rear elevation view of the pass receptacle with a portion of the associated waste disposal container disposed in sealed relation to one compartment thereof;

FIG. 7 is a side elevation view of the pass receptacle as shown in FIG. 6;

FIG. 8 is a perspective view of an ambulatory type isolation enclosure member embodying this invention with the bed and patient fully enclosed and the oxygen supply and decontamination equipment shown in FIG. 1 not repeated for purposes of clarity;

FIG. 9 is a fragmentary end elevation view showing the support assembly for the isolation enclosure shown in FIG. 8; and

FIG. 10 is a fragmentary top plan view of the support assembly shown in FIG. 9.

Referring now to the drawings, the entire apparatus for isolating a bed-confined patient and sustaining the patient within a sealed enclosure will first be described in general with reference to FIG. 1 followed by a more detailed description of the various component parts which make up the complete assembly.

In general, the isolation apparatus illustrated in FIG. 1 comprises a sealed enclosure member 2 surrounding a patient 3 disposed in a prone position on the mattress and bedding of a hospital type bed 4 with the enclosure member being held in an essentially box-like configuration by a support assembly 5. One and preferably a plurality of glove members 7 are provided in the side walls of the enclosure member for arm insertion into the enclosure to manipulate objects within the enclosure member from externally thereof. A sealed pass receptacle or box 8 is disposed at one end of the enclosure member from which a waste disposed container 9 is supported in a depending manner to extend and be supported by the floor surface externally of the enclosure member. Preferably, all or at least a substantial part of enclosure 2

is transparent, permitting observation of the patient and providing visibility for the patient.

A portable oxygen source 11 is interconnected by a flow line 12 to a decontaminating container 13 which in turn is interconnected by a flow line 14 connected in sealed relation to an upright wall and preferably the head end of the enclosure member 2 and provides a continuous supply of fresh oxygen to the patient. While the oxygen source 11 has been illustrated as a portable unit suitable for movement with the bed from location to location within the hospital, this unit is of the type currently available which is supplied oxygen from an external supply and is capable of controlling both the humidity and the temperature of the oxygen passing into the container 13 and the enclosure 2 as shown. Other forms of portable oxygen sources and oxygen tanks are currently available which are lightweight and easily transported and may be used in place of source 11 when the patient requires transportation to a different location, as for example by train, plane or ambulance. During hospital use, a central oxygen source with a suitable duct and blow line system may be used for a plurality of adjoining isolation enclosures.

A flow line 15 is connected in a sealed relation to the other or foot end of the enclosure member and passes a continuous flow of contaminated air or gas from the enclosure member into a first decontaminating container 16 which then passes the gas through a flow line 17 to a second decontaminating container 18 and then to the room atmosphere through a top opening and flow line 19. A portable decontaminating source 21 herein shown schematically as a portable unit for purposes of illustration is interconnected by flow lines 22 and 23 into the wall of the pass receptacle to defog or decontaminate the inner surfaces and contents of the pass receptacle after each insertion from the enclosure member into the pass receptacle and from the room into the pass receptacle, if desired.

More specifically, the enclosure member in the arrangement of FIG. 1 is formed of an integral body of sheet or skin material inclusive of a bottom portion 2a, upright side and end wall portions 2b and 2c and top portions 2d interconnected at their ends in a hermetically sealed enclosure in a box-like configuration (FIGS. 2 and 3). The material suitable for forming the enclosure member 2 is preferably a thin, clear or transparent plastic material, which permits patient observation and patient outlook. In addition, this material is lightweight, durable, gas-impervious, and capable of being easily collapsed and disposed of as by burning. Various types of commercial clear plastic materials are suitable for forming the enclosure member 2. The glove members 7 may also be formed of a similar material and are sealed at their upper ends to the side wall portions 2b of the material having an associated aperture provided therein.

A preferred arrangement of the support assembly 5 is illustrated in more detail in FIGS. 2 and 3 and comprises a rectangular shaped support disposed within the enclosure member inclusive of three spaced elongated side rod members 25 and two spaced end rod members 26 joined at their ends in a detachable or separable arrangement to shape and support the top, side and end wall portions 2d, 2b and 2c of the enclosure member. In the form of collapsible support assembly shown in FIGS. 1-3 the end portions of the side rod members 25 terminate in a dowel portion 25a which is fitted into apertures 26a in end rod members 26. A plurality of spaced loop members 27 are secured on the inner surface at the corners joining the top and side wall portions of the enclosure material through which the side and end rod members extend.

Upright rod members 31 have lower end portions which are fitted into apertures 32 formed in each corner of the bed 4 and more specifically at the outer ends of the head and foot boards 33 and 34 of the bed. These upright

rod members 31 are disposed exteriorly of the enclosure member and each has a hook 35 adjoining its top which receives a loop member 37 formed in the exterior surface of enclosure material at each top corner from which the enclosure member depends in an elevated position above the bed. As shown in FIG. 3, the bottom portion of the enclosure member is under the mattress so the entire mattress is fully enclosed.

A preferred arrangement for providing a sealed connection between the air flow lines and the enclosure walls is illustrated in FIG. 4 with specific reference to input line 14 connected in end wall portion 2c. An input port 40 is provided in the enclosure material by forming an external flange 41 projecting outwardly from the wall portion and of the same material. This external flange fits over a rigid end portion 14a of the flow line which tapers inwardly toward its terminal end and is disposed within the enclosure member wall 2c so that the external flange is drawn in a tight fit over the end portion. The external flange is preferably of a plurality of layers 41a and 41b of material for added strength.

For initial entry and final exit of the patient into and from the enclosure, there is provided in the side wall portion 2b a slide fastener assembly 42 of the zipper type illustrated in more detail in FIG. 5 as including adjoining beaded track portions 43 and 44 which extend around the bottom and sides of the side wall portion 2b (FIG. 1) and are joined by a zipper member 45. The track portions 43 and 44 are arranged such that when the zipper member 45 is moved in one direction, the beaded track portions are held in a sealed relation as shown at A in FIG. 5 and when moved in the other direction the track portions are released as shown at B. The side wall portion 2b when opened may be flipped up and disposed on the top wall portion 2d, thereby providing a large access opening in the enclosure member 2 when required.

The pass receptacle 8 is of a generally box-like configuration and preferably may be constructed in generally the same manner and of similar disposable material as the patient enclosure member 2 but on a smaller scale. This pass receptacle comprises an integral body or enclosure 47 inclusive of a floor portion 47a, upright side and end wall portions 47b and 47c and a top portion 47d interconnected at their ends to enclose and seal from the room and patient enclosure member 2 a space of a required volume. The support assembly 48 for the receptacle enclosure includes a generally T-shaped side support member 49 at each side disposed in an upright manner from the floor portion 47a and laterally extending end support members 51 joining the upper ends of the side members interiorly of the receptacle enclosure and may be separably joined at the ends for ease in assembly and collapsing if desired.

The floor portion 47a preferably seats on the foot board 34 of the bed and extends forwardly and rearwardly thereof an approximate equal distance so that approximately one-half of the pass receptacle 8 extends through the foot end wall portion 2c of the patient enclosure member 2 and is in sealed relation therewith at abutting surfaces of the material forming the enclosures so as to enclose an air space partially within and partially outside of the patient enclosure member 2. This provides an ingress and egress passage sealed from both the interior of the patient enclosure 2 and the room atmosphere.

The floor portion 47a is constructed in a more rigid manner than the wall portions by use of spaced rigid rib members 52 extending between an inner and the outer layers of the material forming the receptacle enclosure 8. The pass receptacle 8 is divided into a waste disposal compartment 53 and a provisions compartment 54 by means of an imperforate partition wall 55 sealed along its outer edges to the walls of the receptacle. The inner and outer end wall portions of the waste disposal compartment 53 are each provided with a slide fastener assembly 57 and

5

6

58 and the inner and outer end wall portions of the provision compartment are provided with a slide fastener assembly 61 and 62 which are preferably of the type illustrated in FIG. 5. This arrangement permits access from one end of each compartment either from interiorly of the patient enclosure member or from the room while the other end is sealed. Each end wall portion is attached along its upper edge with the track extending along the side and bottom edge to permit its pivoting to a position on the top wall portion of the pass receptacle as shown in dotted lines in FIG. 7.

In the waste disposal compartment 53 there is provided an upstanding annular flange 63 encompassing an aperture 64 formed in the floor portion 47a. The upper end of the waste disposal container 9 extends through this floor aperture and is disposed over the outer surfaces of the flange 63 and held there in sealed relation by a band 65 which fits around the top portion of the disposal container holding it firmly against the flange.

Inlet and discharge ports 67 and 68 are provided in the side wall portions of the provision compartment 54 and inlet and discharge ports 69 and 70 are provided in the side wall portions of the waste disposal compartment 53 for selective connection in sealed relation to the decontaminating lines 22 and 23 (FIG. 1) in a manner similar to the arrangement shown in FIG. 4 and previously described. After either of the inner end wall portions are opened to the interior of the compartment and an object placed within the compartment, the inner surfaces of the compartment and object therein are decontaminated by the decontaminating source 21 and lines 22 and 23 before the associated outer end wall portion is opened to the room.

Referring now to the ambulatory arrangement shown in FIGS. 8-10, the patient 3 and hospital bed 4 with corner apertures 32 in the head boards and foot boards 33 and 34 are the same as that illustrated in FIG. 1.

The sealed enclosure member 72 of the ambulatory arrangement surrounds the entire bed and is disposed on the floor and extends a substantial distance from one side of the patient above the bed and beyond the foot end of the bed to permit the patient to stand up erect and walk around the enclosure and to adjust the bed as desired. The enclosure member 72 is also formed of an integral or continuous body of sheet or skin-like material inclusive of a bottom portion 72a, upright side and end wall portions 72b and 72c and a top portion 72d interconnected at their ends in a box-like configuration. While the same material as described with reference to FIG. 1 may be used for the enclosure member wall portions 72a, 72b, 72c and 72d of FIG. 8, an alternate arrangement may be provided wherein a less expensive material may be utilized. As shown in FIG. 8, only portions indicated by letter C need be of clear plastic for patient observation and outlook while the remainder of the material with the exception of the bottom portion 72a may be an opaque material which is gas impervious, such as surgical drape. A durable plastic material is preferred for the bottom 72a so as to permit rolling of the bed thereon and walking of the patient without puncture of the enclosure member. Similar glove members 7 are provided in one of the side walls 72b adjoining the patient and a slide fastener assembly 73 is provided in the opposite side wall for entry and exit of the bed and patient.

The support assembly 75 for the enclosure member of FIG. 8 is entirely within the wall portions of the enclosure member and in general include upper and lower side rod members 76 and 77 disposed at each corner of the enclosure with additional top rod members 78 disposed in spaced relation across the top to prevent sagging in the top portion 72d. Upper and lower end rod members 79 and 80 are provided at each end. These support rod members are preferably separably interconnected at the adjoining ends in a manner similar to the dowel ar-

angement shown in FIGS. 2 and 3. An additional upright support rod member 82 is disposed in at least one of the apertures in the head and foot boards and extends to an aperture in the upper end rod 79 to support the intermediate portion thereof from the bed as is shown specifically in apertures 32 at the foot of the bed in FIGS. 9 and 10. The support assembly 75 will be assembled to support the wall portions of the enclosure as shown prior to disposing the bed therein. The leg rollers or casters in the bed legs are disposed in cup members 83 to prevent the bed from moving with respect to the enclosure during use.

The pass receptacle 8 and the waste disposal container 9 are similar in construction and operation to that shown in FIG. 1 with the waste disposal container extending outside the enclosure member and secured at its top to the floor of the pass receptacle 8. Similar intake and discharge ports are provided in the ends of the enclosure member and the provision and waste disposal compartments of the pass receptacle 8 for use with an oxygen source, decontaminating container, and decontaminating source in the same manner as described in FIG. 1.

All of the material comprising the enclosures of both arrangements of the support assemblies and pass receptacle are made of a material which is easily disposed of after use by burning, thus making the isolation apparatus as described easily disposable.

The waste disposal container will be removed by first tying off the upper portion below the receptacle floor and then decontaminating the inner surfaces of the waste disposal compartment through ports 69 and 70. The decontaminating containers 13, 16 and 18 are preferably of a plastic material and may easily be disposed of after usage. In a preferred arrangement, container 13 will contain water or an antiseptic solution such as hexylresorcinol rising to a substantial level therein with the input line 12 extending downwardly into the substantial depth and the output line 14 above the fluid level so as to prevent backflow of the contaminants from the enclosure member. The container 16 will be provided with an antiseptic solution such as phenol rising to a substantial level therein with the flow line 15 extending to a substantial depth therein and the flow line 17 above the liquid level. Container 18 will be provided with a solution such as water with the flow line 17 extending to a substantial depth therein and an output line above the fluid level. In this manner, the gaseous discharge from the enclosure member may be bubbled up in containers 16 and 18 and thereby decontaminated prior to passage to the room air.

From the foregoing description, it is apparent that the patient isolation assembly may easily be transported from one area of the hospital or nursing home to another, or by train, plane or ambulance to more remote locations while the patient remains isolated and the surrounding air protected. This isolation assembly may be used to protect non-contaminated patients from atmospheric and other sources of contamination following vascular, cardiac, thoracic and neurological surgery. While particular materials have been referred to in the specification, it is understood that the isolation assembly may be constructed of various types of more durable materials as required which are suitable for decontamination and reuse.

I claim:

1. An isolation system for bed-confined patients comprising a box-like enclosure formed by an integral body of gas-impervious material having a bottom portion on which the bed mattress is disposed, upright wall portions extending from the bottom portion and forming the ends and sides of the enclosure, and a top portion interconnecting the wall portions, at least portions of said top and upright portions being transparent for patient observation and outlook, support members from which said upright wall portions depend, means defining at least one access passage in an upright wall extending into the enclosure

and sealed from its atmosphere for arm insertion to manipulate the patient and objects within the enclosure, and means defining a normally-sealed ingress passage to the interior of the enclosure through which liquids, food and medicine may be supplied to the patient and a normally-sealed egress passage to the interior of the enclosure through which waste may be removed from the patient while gaseous outflow is prevented, inclusive of means for decontamination of the passage surfaces after each insertion and removal, external means for introducing oxygen circulation within said enclosure and sealed against gaseous outflow from the enclosure, and external decontamination means through which gas discharge flow from the enclosure is conducted.

2. An isolation system as set forth in claim 1 wherein said external means for introducing oxygen circulation includes container means having a purifying fluid therein and interconnected between a source of oxygen and one upright wall portion of said enclosure by flow lines with the flow line to the enclosure disposed above the container means fluid level and the flow line to the oxygen source disposed in the container fluid to prevent gaseous outflow from the enclosure.

3. An isolation system as set forth in claim 1 wherein said external decontamination means includes at least one container means having a fluid therein and interconnected by a flow line to one upright wall portion of said enclosure, said flow line being disposed below the fluid level in said container means so as to discharge the gas passing from the enclosure into said container fluid.

4. An isolation system as set forth in claim 1, wherein said container means is cascaded for added purifying of the gas discharge and then passed into the room atmosphere.

5. An isolation system as set forth in claim 1, wherein said external means for introducing oxygen and said external decontamination means each includes an associated flow line having an end portion in detachably sealed connection to a wall portion of the enclosure.

6. An isolation system as set forth in claim 5, wherein each said sealed connection includes an external flange formed of said body material and extending from an aperture in the associated wall portion, said flange being disposed on said end portion of the associated flow line in a sealed friction fitting relation.

7. An isolation system for bed-confined patients comprising a box-like enclosure formed by an integral body of gas-impervious material having a bottom portion on which the bed mattress is disposed, upright wall portions extending from the bottom portion and forming the ends and sides of the enclosure, and a top portion interconnecting the wall portions, at least portions of said top and upright portions being transparent for patient observation and outlook, support members from which said upright wall portions depend, means defining at least one access passage in an upright wall extending into the enclosure and sealed from its atmosphere for arm insertion to manipulate the patient and objects within the enclosure, a pass receptacle divided into a waste compartment and a provision compartment defining normally sealed passages to the interior of the enclosure through which liquids, food and medicine may be supplied to the patient through the provisions compartment and waste removed from the patient through the waste compartment while gaseous outflow is prevented, inclusive of means for decontamination of the passage surfaces after each insertion and removal, external means for introducing oxygen circulation within said enclosure and sealed against gaseous outflow from the enclosure, and external decontamination means through which gas discharge flow from the enclosure is conducted.

8. An isolation system as set forth in claim 7 wherein said means for decontamination of the passage surfaces includes a decontamination source having flow lines arranged for a detachably sealed connection to and in air

flow relation to the wall portions of both of said provision and waste compartments.

9. Isolation apparatus for bed-confined patients comprising an enclosure formed of a gas-impervious material including a bottom portion over which the bed mattress is disposed, upright wall portions extending from the bottom portion and forming the ends and sides of the enclosure, and a top portion interconnecting the wall portions, at least portions of said enclosure being transparent for patient observation and outlook, a support assembly on which said enclosure is mounted and from which said upright wall portions depend, means defining at least one access passage in an upright wall extending into the enclosure and sealed from the atmosphere for arm insertion to manipulate the patient and objects within the enclosure, receptacle means defining at least one normally-sealed ingress and egress passage in the enclosure having one end adjoining the interior of the enclosure and the other end exteriorly of the enclosure through which liquids, food and medicine may be supplied to the patient and waste matter removed while gaseous outflow is prevented, said enclosure, support assembly and passage-defining means being a material which may be disposed of by burning, means for introducing oxygen circulation into said enclosure, means for discharging gas from the enclosure, and means for decontamination of the inner passage surfaces of said receptacle means and contents after each introduction and prior to withdrawal from the receptacle means.

10. Isolation apparatus as set forth in claim 9, wherein the bottom portion of said enclosure extends under the mattress of said bed and the top portion to a substantial distance above said mattress.

11. Isolation apparatus as set forth in claim 9, wherein said bed rests on the bottom portion of said enclosure and at least one upright wall portion is disposed a substantial distance from a side of the bed to permit walking by the patient within the enclosure.

12. Isolation apparatus as set forth in claim 11, wherein said bottom portion is of a more durable character than the top and upright wall portions of said enclosure.

13. Isolation apparatus as set forth in claim 9, wherein at least one of said upright wall portions includes means for opening said wall portion to permit access into the interior of the enclosure prior to and after isolation of the patient therein.

14. Isolation apparatus as set forth in claim 9, wherein said support assembly is comprised of a plurality of separable components which are detachably joined at end portions and having at least a portion supported from the bed to form a box-like support configuration for supporting the bottom and wall portions of said enclosure in a depending manner.

15. Isolation apparatus as set forth in claim 9, wherein at least a portion of said support assembly is disposed within said enclosure and another portion is exteriorly of said enclosure, said other portion inclusive of upright members separably disposed in support means on the head and foot boards of said bed.

16. Isolation apparatus as set forth in claim 9, wherein said support assembly is disposed within said enclosure.

17. Isolation apparatus as set forth in claim 9, wherein each of said ends of the receptacle means is normally closed to seal said passage and a space within the receptacle means from both the enclosure and the room atmosphere and includes means for separately opening either of said ends to permit access to its interior surface from the interior of the enclosure and the room.

18. Isolation apparatus for bed-confined patients comprising an enclosure formed of a gas-impervious material including a bottom portion over which the bed mattress is disposed, upright wall portions extending from the bottom portion and forming the ends and sides of the enclosure, and a top portion interconnecting the wall portions, at least portions of said enclosure being transparent

for patient observation and outlook, a support assembly on which said enclosure is mounted and from which said upright wall portions depend, means defining at least one access passage in an upright wall extending into the enclosure and sealed from the atmosphere for arm insertion to manipulate the patient and objects within the enclosure, a box-like receptacle means inclusive of an imperforate partition member separating said receptacle means into two compartments and defining adjoining separate normally-sealed ingress and egress passages in the compartments each having one end adjoining the interior of the enclosure and the other end exteriorly of the enclosure through which liquids, food and medicine may be supplied to the patient through one of said passages and waste matter removed from the other of said passages while gaseous outflow is prevented, said enclosure, support assembly and passage-defining means being a material which may be disposed of by burning, means for introducing oxygen circulation into said enclosure, means for discharging gas from the enclosure, and means for decontamination of the inner passage surfaces of said re-

ceptacle means and contents after each introduction and prior to withdrawal from the receptacle means.

19. Apparatus as set forth in claim 18, wherein said compartment for waste removal includes means for disposing a waste receptacle in an open receiving position and in sealed relation to a wall portion of the compartment for receiving waste material delivered thereto.

References Cited

UNITED STATES PATENTS

2,603,214	7/1952	Taylor	128—191
3,051,164	8/1962	Trexler	128—1
3,265,059	8/1966	Matthews	128—1
3,272,199	9/1966	Matthews	128—1
3,318,308	5/1967	Grosholz	128—191
3,355,230	11/1967	Trexler	128—1

CHARLES F. ROSENBAUM, Primary Examiner

U.S. Cl. X.R.

128—191; 312—7