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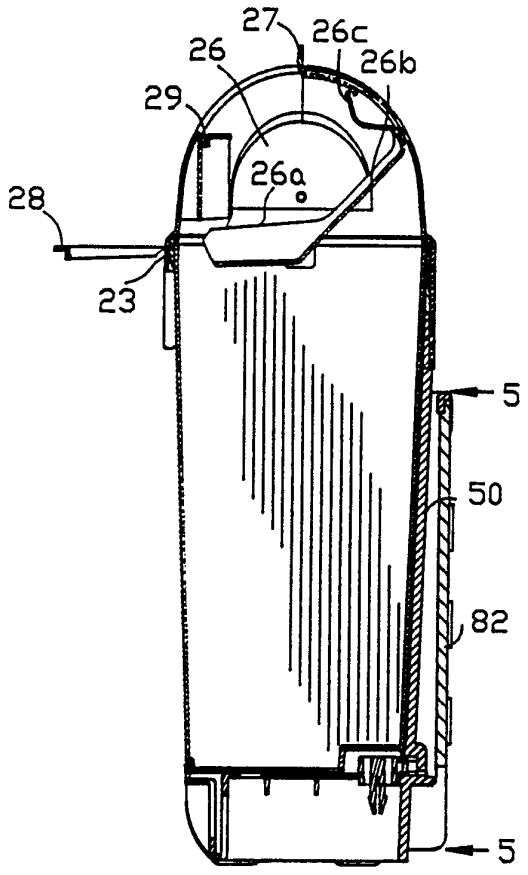
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(54) Title: DISPOSABLE SHARPS CONTAINER AND MOUNTING BRACKET

(57) Abstract

A secure disposable container (10) and mounting bracket (48) comprises a generally box-like enclosed container having a top shell (22) with a limited excess opening (24) with a closure (26) for receiving medical sharps and inhibiting human and access, the container having a back wall (14) with a downwardly extending slot (30) at an upper edge, and a latching tab (44) at a lower edge thereof, a rectangular panel (50) having a back surface and holes (78, 80) for mounting it to a vertical surface, and mounting tabs (92, 94 and 96) for mounting the panel to another mounting bracket (82) mounted on a vertical supporting surface, an upper edge for receiving the downwardly extending slot (30) on the container and lever operated finger (70) for engaging an opening (45) in the tab (44) on the lower edge of the container and engagement with a transverse ledge.



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Description

Disposable Sharps Container And Mounting Bracket

Technical Field

The present invention relates to disposable containers for hospital sharps and waste, and pertains particularly to a secure mounting assembly and secure disposable container for disposition of hospital sharps, objects and wastes.

Background Art

Hospitals and medical clinics use great quantities of sharps, such as needles, syringes, surgical blades, and the like, that are disposed of rather than cleaned and reused. It is necessary that the sharps be disposed of in a manner that prevents them being reused without sterilization. In particular, it is necessary to keep them from falling into the hands of those, such as intravenous drug users and the like, who are likely to use them without proper sterilization.

Numerous containers have been developed in recent years, which are reasonably secure and disposable for receiving and disposing of hospital sharps, wastes and the like. Many of these disposable containers, however, are outdated and do not provide adequate security against pilfering of used syringes and the like therefrom. While improved containers have been developed which cannot readily be reopened and articles cannot be easily removed therefrom, such containers must be kept in a secure place or securely mounted to non-removable structure to prevent unauthorized removal. The disposable container and

its mounting bracket must not only be secure, it must be simple and inexpensive to manufacture, and it must be simple and easy to use and to mount and remove the container.

Reasonably secure mounting brackets have been developed and widely used in the past to prevent unauthorized removal of the containers. However, recently developed improved containers also have new and improved mounting brackets which are easier to use and are more secure. These older brackets are typically mounted on walls or similar surfaces and are securely anchored by lag bolts and the like. The removal of the old bracket and the installation of a new bracket requires the services of skilled workman with special tools, with which the hospitals and clinics do not wish to bother. This frequently results in resistance by hospitals and clinics to new and improved disposable containers that may require a different bracket.

An example of a prior art container and mounting bracket is disclosed in U.S. Patent 4,736,860 of Bemis dated April 12, 1988. This patent discloses a sharps container having a door that provides limited access to the interior of the container, and having a mounting bracket adapted to be mounted to a wall with inter-engaging projections and slots on the bracket and container for securing the container to the bracket. A special tool is required to disengage the container from the bracket.

It is, therefore, desirable that an improved securable disposable container and bracket assembly be available which does not require removal of the old bracket.

Disclosure of the Invention

It is the primary object of the present invention to provide an improved securable disposable container and bracket assembly.

In accordance with a primary aspect of the present invention, a secure disposable container assembly comprises a housing for securely and detachably mounting to a support member, and having an access opening in a top front for receiving a disposable article and preventing access to the interior of the container by the human hand, and a mounting bracket for mounting to a vertical support surface or another bracket, and means for locking the housing to the support bracket to prevent removal of the container.

Brief Description of Drawings

The above and other objects and advantages of the present invention will become apparent from the following description when read in conjunction with the accompanying drawings wherein:

Fig. 1 is a perspective view of an exemplary embodiment of the invention;

Fig. 2 is a rear view of the container showing details of the mounting components of the container;

Fig. 3 is a section view taken on line 3-3 of Fig. 1;

Fig. 4 is a perspective view of the mounting bracket of the embodiment of Fig. 1;

Fig. 5 is a detailed partial view of the latching apparatus for the container shown in the unlatched condition;

Fig. 6a is a view like Fig. 5 showing the apparatus in the latched position;

Fig. 6b is a view like Fig. 6a showing an alternate embodiment of the lower latch assembly;

Fig. 7 is a partial back elevation view taken generally on line 7-7 of Fig. 3;

Fig. 8 is a front elevation view of a prior art bracket;

Fig. 9 is an enlarged detailed view of a lower part of the mounting bracket;

Fig. 10 is a top plan view of the bracket housing; and

Fig. 11 is a view taken generally on line 9-9 of Fig. 7.

Best Mode for Carrying Out the Invention

Referring to Fig. 1 of the drawing, there is illustrated an exemplary embodiment of a disposable sharps container assembly in accordance with the invention, designated generally by the numeral 10. The container comprises a generally rectangular box-like housing, formed of the usual plastic material for such containers, and detachably mounted to a wall bracket. The housing in its preferred form is formed of a lower substantially rectangular open top shell, having a front wall or panel 12 and a back wall or panel 14 (Figs. 3 and 4) defining front and back walls, and further including opposed side walls 16 and 18. These walls are formed integral with and extend upward from a generally rectangular bottom panel 20 terminating at a top rectangular peripheral edge and downturned rim or skirt 30. A generally semi-circular top shell 22 is secured to the top peripheral edge 30 of the rectangular shell 10.

The top cover 22 and bottom shell or housing may be molded together with a live hinge, or they be

molded separately and utilize snap lock tabs or hinges (not shown). A live hinge is a thin strip of the housing material connecting the two members and allowing them to pivot relative to one another. The top cover 22 and the bottom shell may be secured together in any number of ways, but preferably by lock tabs 23 that extend through slots 25 in the rim 20 (Fig. 3).

The container top cover and bottom shell are preferably injection molded of a suitable plastic, and preferably formed with a slight taper from top to bottom to enable stacking for ease of shipment. The top 22 cover has a generally semi-cylindrical configuration about a horizontal axis, about which a pivoting closure member is mounted, as more fully disclosed in the parent application. Referring to Fig. 1, the top cover 22 is provided with a top front opening 24 of a generally elongated configuration having circular or oval ends. This opening 24 is formed in the upper front one side of the top 22 extending approximately one-half the length of the top. This opening is designed to receive syringes and the like for disposal and to secure the syringes against unauthorized retrieval.

The opening 24 is closed by a pivoting closure member 26 (Fig. 3), as more fully disclosed in the parent application and the companion application. The closure member 26 pivots about a horizontal axis and has a generally horizontal receiving surface 26a or ledge portion disposed below the opening 24 for receiving syringes, and a face portion 26b extending upward at approximately a forty-five degree angle to an upper curved closure portion 26c. These faces together form a combination closure and self dumping

receiving support for disposable articles, such as a syringe or the like. When a syringe or the like is inserted into the opening and placed on the receiving surface of the closure, the closure rotates under the weight of the syringe and dumps it. The closure 26 may be locked in the closed position, with tabs 27 extending into slots 29 at the front edge of opening 24.

The container is designed for ease of handling and to this end is provided with a retractable handle 28 that is preferably molded integrally with the lower edge of a peripheral rim or skirt 30. The handle 28 is pivotal outwardly, as shown for ease of grasping, and downward to a retracted position, engaging and latching to the lower ends of detent bars 32 and 34.

Referring to Figs. 2 and 3, the back of the container is provided with means for attachment to a wall bracket to be described. The attachment means comprises a downwardly depending skirt or rim 30 between a pair of slots 36 and 38 extending downwardly from the top back of the container. These slots are formed in outer or outwardly spaced walls 40 and 42 of downwardly extending sockets formed on the back wall 14 of the container. The walls 40 and 42 with slots 36 and 38 extend and provide protective enclosures for attachment tabs for attachment of the top to the container.

A latching tab 44 at the lower end of the back of the container wall 14 extends downward and includes a rectangular opening 45 therethrough for receiving a latching finger. The tab may be latched in two different ways, as will be described with reference to Figs. 5, 6a and 6b.

A wall mounting bracket is illustrated in Fig. 4, designated generally by the numeral 48, and is constructed to mount either to a vertical support surface or to a previously mounted bracket (Fig. 8). The mounting bracket comprises a generally rectangular vertical panel comprising a generally planar central panel 50 secured to and extending upwardly from a latching housing 60 to be described. The vertical panel comprises central panel 50 and forwardly stepped side panels 52 and 54 connected by forwardly extending side walls 56 and 58. The central panel 50 has an upper edge 50a, which extends into a slot formed by and beneath the skirt 30 on the back of the container between slots 36 and 38. The forwardly extending walls 56 and 58 have upper edges 56a and 58a which support the upper edge 50a inward from the back face of the panel. This arrangement of upper wall edge 50 engages and supports the upper end of the container.

A lower housing 60 is permanently attached to or made integral with the vertical panel and houses the latching and locking mechanism. The panel 50 and the housing 60 are preferably made separately, such as by molding and latched together by snap-fit latching means, as shown in Figs. 9-11. The housing 60 is sized and shaped to form the appearance of an extension of the container and to cover the lower end thereof. The face of panel 50 facing the housing 60 is considered the front face of the panel for purposes herein.

As best shown in Figs. 5 and 6a, a lower latch assembly includes a latch recess 62 which forms a shoulder or ledge 64 on the lower front of panel 50, and includes a horizontal extending shoulder or ledge 64 against which a finger 70 of lever 66 is engaged.

The preferred form of latching structure, as illustrated in Figs. 3-6, includes a latching finger 70 on the inner end of a lever 66 which extends through the opening 45 of tab 44 and engages shoulder 64 at the bottom of panel 50. After extending through opening 45 in latch tab 44 for latching the container in place on the mounting bracket, the finger 70 extends under shoulder or ledge 64. The latch shoulder 64 is preferably formed as an upper edge of a recess 62 formed in the lower portion of the panel 50.

A latching lever or arm 66 (Fig.1) is pivotally mounted in the housing 60 by a shaft 68, and includes a latching finger 70 on the inner end which extends through the opening 45 in tab 44. The latching finger engages through opening 45 in tab 44 and extends under and into engagement with latch shoulder surface 64 for latching the container in place.

The outer end of the arm 66 includes a lock assembly, including a rotatable shaft 72, with an arm 74 that extends behind a shoulder 76 and locks the lever 66 in the inner position. When the lever 66 is pivoted outward, cam or finger 70 is pulled away from shoulder 64, and the tab 44 is released so that the container may be lifted upward and removed from the mounting bracket. The lock assembly 72 is of conventional construction, having a key slot for receiving a key to rotate a shaft 72 having a finger or arm 74, which in one position engages a shoulder 76 in housing 60 for locking the arm in the inner position.

Referring to Fig. 6b, an alternate embodiment is illustrated wherein the tab 44 is biased by a finger 70' acting as a cam or lever outwardly at about 90

degrees into latching engagement, with a shoulder 64 on and at the lower edge of the wall mount for latching the container in place to the wall mount. The tab 44 extends down at the outer edge of a cavity or recess 46 in the bottom back edge of the container.

The mounting bracket 48 may be mounted to a vertical support surface, such as a wall by screws or lag bolts extending through mounting holes 78 and 80. It may also preferably be constructed to mount onto other mounting brackets. An exemplary embodiment of a typical wedge type bracket is illustrated in Fig. 8, and includes a panel 82 having upper mounting holes 84 and lower mounting holes 86 for attachment by bolts or screws to a wall or the like. The panel includes a pair of non-parallel sides 88 and 90 forming opposed downwardly diverging mounting rails for receiving a disposable container or the like.

The panel of applicants' bracket, as illustrated in Fig. 7, includes a plurality of opposed fingers or tabs 92, 96, and 98 which extend outward from the back of the panel 50, around and engage the side rails 88 and 90 for mounting applicants' bracket onto the prior art bracket 82. These fingers are stepped out or diverge downward, as seen in Fig. 7, to cooperate with diverging rails 88 and 90. A pair of fingers 98 on the prior art bracket 82 engages a ledge 100 on the back face of applicants' panel for locking the applicants' bracket in place on the prior art bracket (Fig. 5). This essentially permanently locks the applicants' bracket to the prior art bracket. The applicants' bracket is provided with holes for access to mounting screws of the prior art bracket.

Referring Figs. 9 and 10, the snap in connection between the back panel and lower housing of the wall

bracket is best illustrated. Referring first to Fig. 9, the container side of the back panel is illustrated and has a lower portion which extends below a horizontal bar or shoulder 102. This lower portion is adapted to extend and latch into a back recess or socket portion of the lower housing 60 (Fig. 11). A latch assembly on each side of the bracket includes a pair of guide rails 104 and 106 on the lower panel, which engage L-shaped guide notches 108 and 110 on the lower housing (Fig. 10) to guide and hold the panel in position. A latch tab 112 between the rails 104 and 106 engages a shoulder 114 on the housing 60 and latches the panel and housing together. A center guide assembly includes similar rails 116 and 118 which engage guide slots 120 and 122. When the panel and the lower housing is secured together, the tabs 112 are inaccessible and the housing and panel become non-removably locked together.

In normal operation, to dispose of a syringe as viewed in Fig. 1, the syringe is inserted into the top opening, with the needle extending toward the left to extend inside and underneath the top of the housing, such that the body of the syringe is placed on the horizontal closure surface (not shown). The weight of the syringe overcomes the counterweight of the closure, and tilts the closure member to dump the syringe into the container. As soon as the container is filled, the container is removed and another container is mounted on the wall bracket.

Removal of the container is accomplished by inserting a key in the lock 72 and rotating the key until the lock is released. The key and lever 66 is then pulled outward to pivot the lever and release the tab 44 on the container from engagement by cam or

finger 70. The container is then lifted upwardly, such by handle 28 releasing the slots from engagement with the upper back of the bracket panel. The container is then removed and a new container installed by reversal of the above procedure.

The mounting bracket 48 is preferably provided with upper holes 124 and lower holes 126 aligned with mounting holes 84 and 86 on mounting bracket 82 to enable access to screws or the like therein. This enables the bracket to be removed from a wall.

While we have illustrated and described our invention by means of specific embodiments, it should be understood that numerous changes and modifications may be made therein without departing from the spirit and scope of the invention as defined in the appended claims. We further assert and sincerely believe that the above specification contains a written description of the invention and the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly concerned, to make and use the same, and further that it sets forth the best mode contemplated by us for carrying out the invention.

CLAIMS

1. A combination secure sharps disposal container and mounting bracket assembly therefor, comprising:

a generally box-like enclosed container having a top with a limited access closure for receiving medical sharps and inhibiting access by a human hand;

a mounting bracket for mounting said container to a supporting structure comprising a generally rectangular panel having a top and a bottom and first attaching means for attachment to a vertical support structure;

first latching means at said top of said mounting bracket for latching engagement with an upper edge of said container; and

second latching means at the bottom of said container and said mounting bracket comprising a tab on said container and a lever mounted on said mounting bracket for pivotal movement into latching engagement with said tab.

2. A combination according to claim 1 wherein said lever is mounted for pivoting toward and away from said panel, and said tab includes a slot through which one end of said lever extends.

3. A secure combination according to claim 2 wherein:

said first latching means comprises an upwardly extending horizontal edge at said top of said panel for engaging a downwardly opening mounting slot on said disposable container.

4. A combination according to claim 3 wherein:

said panel includes second attaching means for attachment to a second bracket.

5. A combination according to claim 4 wherein:

said mounting bracket comprise a housing at the bottom of said panel and said lever is pivotally mounted in said housing.

6. A combination according to claim 5 wherein:

said housing includes locking means for locking said lever in an inner position wherein said tab is biased to said latched position.

7. A combination according to claim 6 wherein:

said housing and said panel are constructed as separate elements and secured together by latching means at the bottom of said panel that is inaccessible when in the latched position.

8. A combination according to claim 1 wherein:

said mounting bracket comprises a housing at the bottom of said panel; and

lever is mounted for pivoting toward and away from said panel, and said tab includes a slot through which one end of said lever extends.

9. A combination according to claim 8 wherein:

said housing includes locking means for locking said lever in an inner position wherein said tab is biased to said latched position.

10. A combination according to claim 9 wherein:

said housing and said panel are constructed as separate elements and secured together by latching means at the bottom of said panel, said latching means being inaccessible when in the latched position.

11. A combination secure disposable container and mounting bracket assembly therefor, comprising:

a generally box-like enclosed container having a top with a limited access closure for receiving medical sharps and for inhibiting access by a human hand;

said container having a back wall with downwardly opening vertically extending latching slot means at an upper edge thereof, and a latching tab at a lower edge thereof;

a mounting bracket comprising a generally rectangular panel having a back mounting surface and means for mounting said panel to a vertical support surface;

an upwardly directed transverse edge for extending into said downwardly opening vertically extending latching slot means on said container;

a lower transverse ledge on said panel; and

lever operated latching finger for latching engagement with said tab on said lower edge of said container and with said lower transverse ledge.

12. A secure disposable container assembly according to claim 11 wherein said mounting panel includes second mounting means for mounting said panel on a second mounting bracket.

13. A combination according to claim 12 wherein said second mounting means comprises fingers spaced

outward from the back of said mounting panel for engaging diverging side rails of a wedge type mounting bracket.

14. A combination according to claim 13 wherein:

said mounting bracket comprises a housing at the bottom of said panel and said lever is pivotally mounted in said housing; and

said housing includes locking means for locking said lever in an inner position wherein said tab is biased to said latched position.

15. A combination according to claim 14 wherein said downwardly extending latching slot means comprises a downwardly turned lip at an upper edge of said container.

16. A secure combination according to claim 15 wherein said downwardly extending latching slot means is disposed between a pair of laterally spaced forwardly extending wall members.

17. A secure combination according to claim 16 wherein said pivotable closure includes locking tabs for engaging slots in said top adjacent said access opening for permanently locking said closure in a closed position.

18. A combination secure disposable container and mounting bracket assembly therefor, comprising:

a generally box-like enclosed container having a top with a limited access closure for receiving medical sharps and for inhibiting access by a human hand;

said container having a back wall with downwardly opening vertically extending latching slot means at an upper edge thereof, and a downwardly extending latching tab at a lower edge thereof;

a mounting bracket comprising a generally rectangular panel having a back mounting surface and first mounting means for mounting said panel to a vertical support surface, and second mounting means for mounting said panel to another mounting bracket mounted on a vertical supporting surface;

an upper vertically directed transverse edge for extending into said downwardly opening latching slot on said container;

a lower transverse ledge at a front bottom portion of said panel;

lever operated finger for latching engagement with said tab on said lower edge of said container and said lower transverse ledge;

a housing at the bottom of said panel and said lever is pivotally mounted in said housing; and

said housing includes locking means for locking said lever in an inner position wherein said finger is biased to said latched position.

19. A combination according to claim 18 wherein said second mounting means comprises fingers spaced outward from the back of said mounting panel for engaging diverging side rails of a wedge type mounting bracket.

20. A combination according to claim 19 wherein said housing and said panel are constructed as separate elements and secured together by latching

means at the bottom of said panel, said latching means being inaccessible when in the latched position.

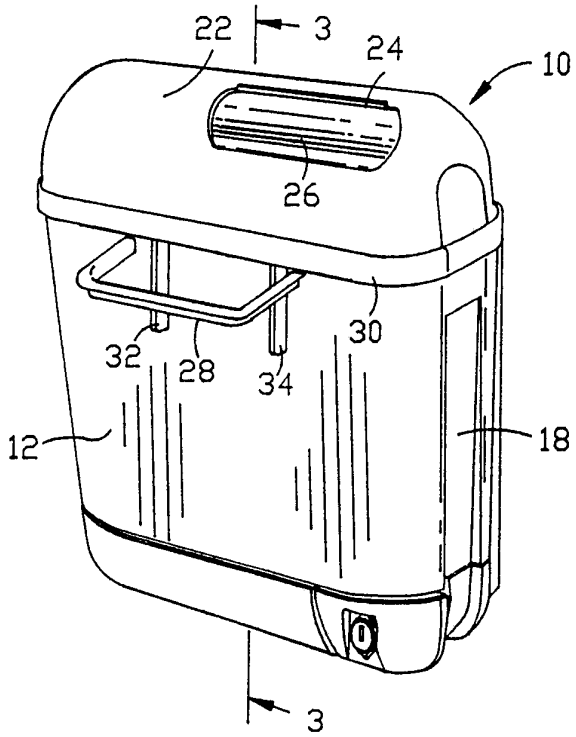


FIG. 1

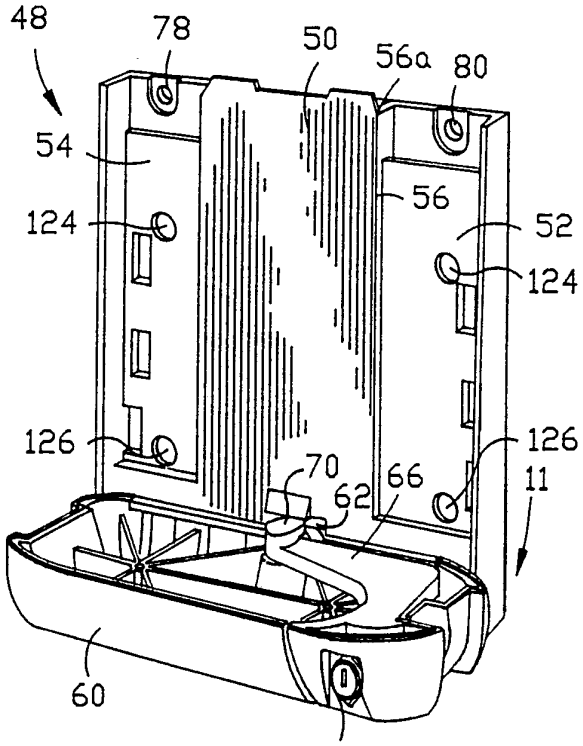


FIG. 4

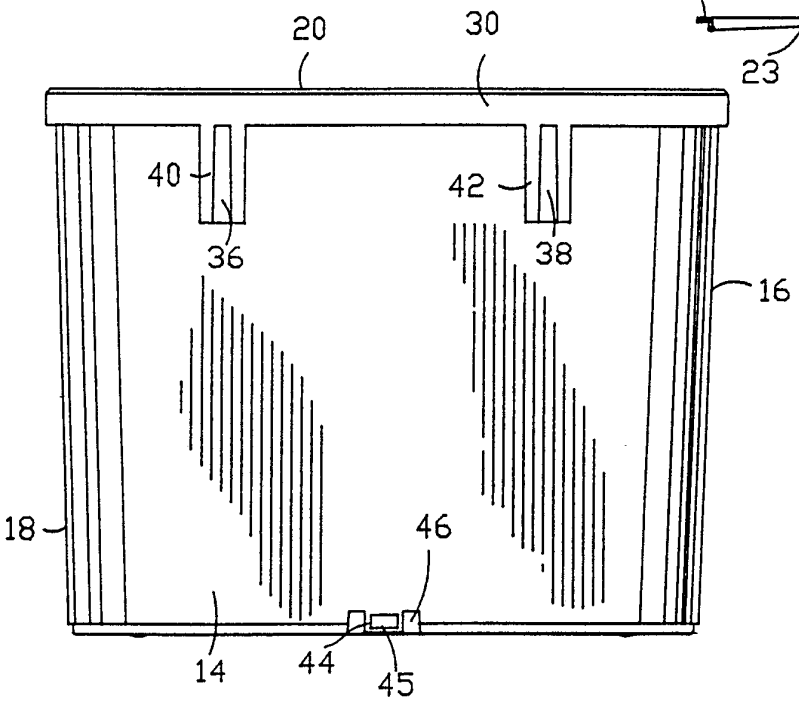


FIG. 2

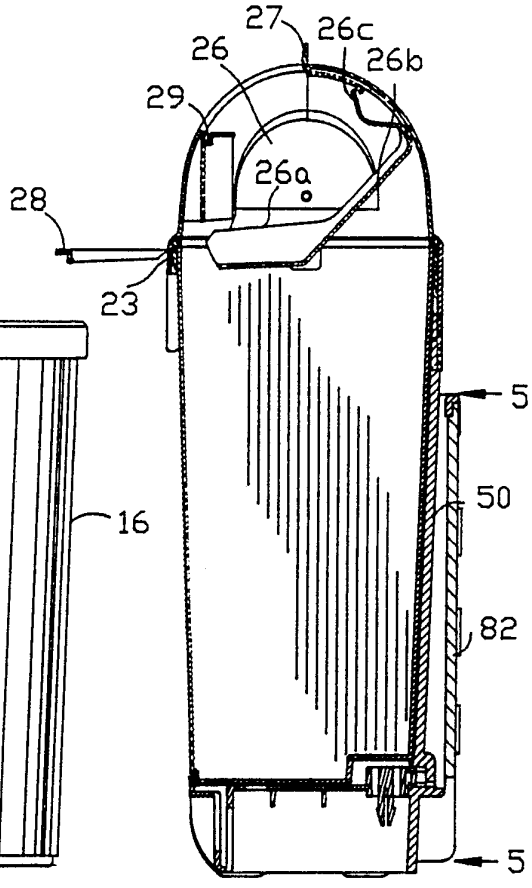


FIG. 3

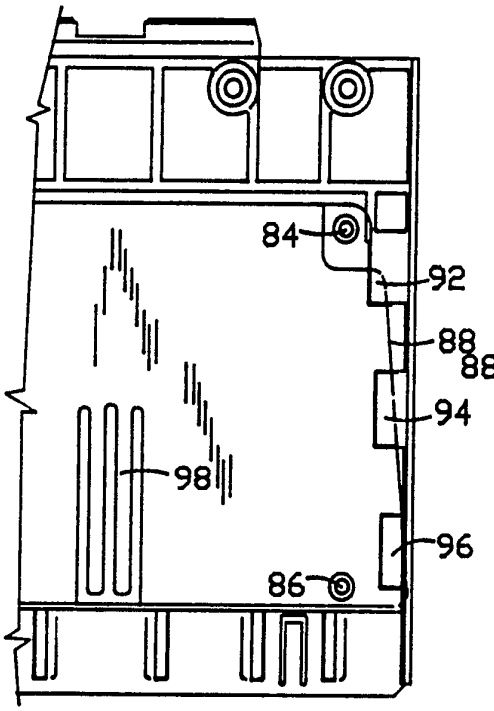


FIG. 7

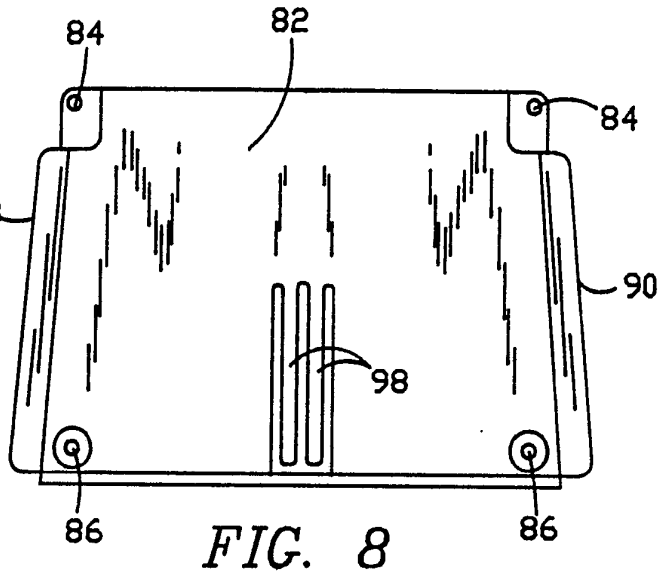


FIG. 8

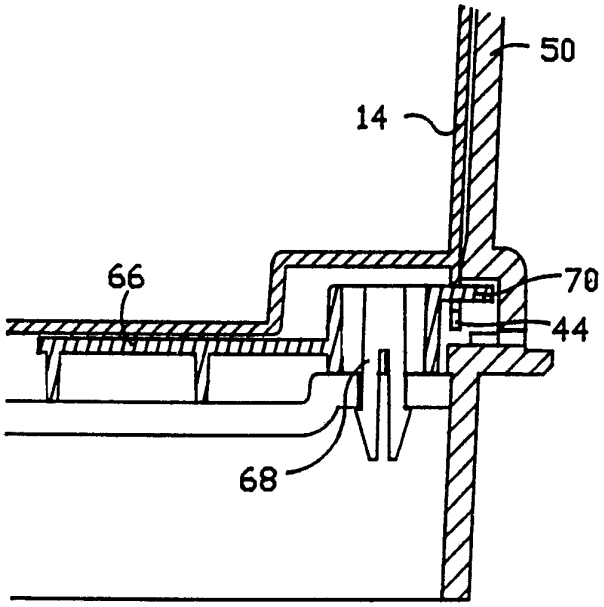


FIG. 6a

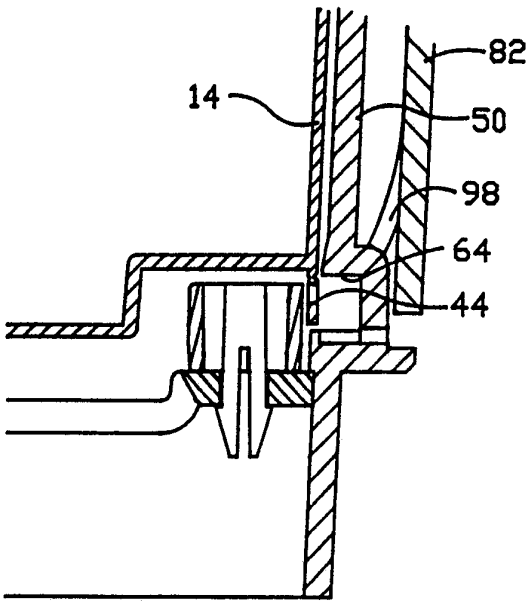


FIG. 5

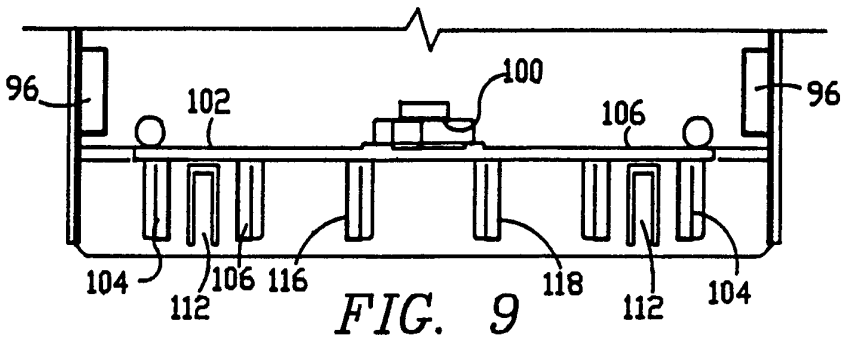


FIG. 9

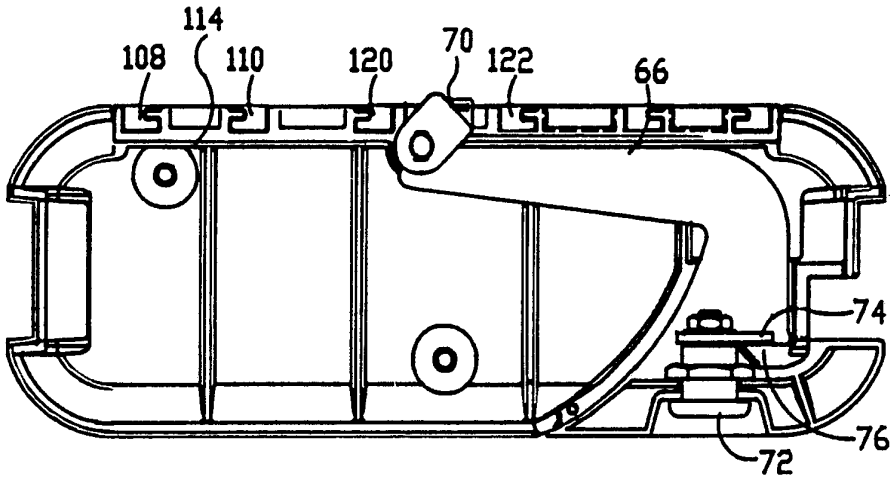


FIG. 10

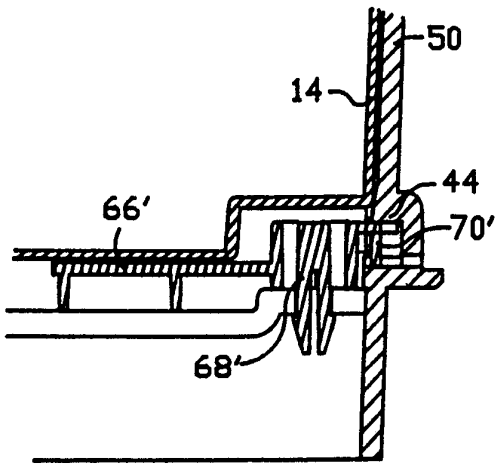


FIG. 6b

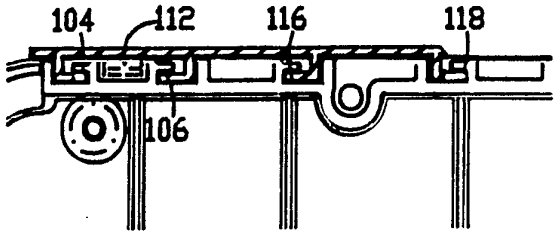


FIG. 11

INTERNATIONAL SEARCH REPORT

International Application No PCT/US 91/08704

I. CLASSIFICATION OF SUBJECT MATTER (if several classification symbols apply, indicate all)[6]

According to International Patent Classification (IPC) or to both National Classification and IPC

Int.Cl. 5 B65F1/14; A61B19/02; B65F1/16

II. FIELDS SEARCHED

Minimum Documentation Searched[7]

Classification System	Classification Symbols
Int.Cl. 5	A61B ; B65F ; A61M

Documentation Searched other than Minimum Documentation to the Extent that such Documents are Included in the Fields Searched[8]

III. DOCUMENTS CONSIDERED TO BE RELEVANT[9]

Category °	Citation of Document,[11] with indication, where appropriate, of the relevant passages[12]	Relevant to Claim No.[13]
Y	US,A,4 903 832 (STEWART) 27 February 1990	1,2,8,9, 11,18
A	see abstract; figures see column 4, line 23 - column 5, line 47 see column 7, line 54 - column 10, line 66	17
Y	DE,C,973 412 (E.S.& L.) 23 February 1956	1,2,8,9, 11,18
A	see page 2, line 48 - page 3, line 15; figures	5,6,14
Y	FR,A,2 460 123 (PLASTIC OMNIUM) 23 January 1981	1,2,8,9, 11,18
A	see page ?, line 25 - page 5, line 5; figures	6,14
A	WO,A,8 808 399 (BEMIS) 3 November 1988 see page 9, line 1 - page 12, line 3; figures cited in the application	1,11,13, 17-19

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° Special categories of cited documents :[10]

"A" document defining the general state of the art which is not considered to be of particular relevance

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IV. CERTIFICATION

Date of the Actual Completion of the International Search	Date of Mailing of this International Search Report
09 APRIL 1992	21. 04. 92
International Searching Authority	**Signature of Authorized Officer**
EUROPEAN PATENT OFFICE	KLEIN C. C. Klein

Form PCT/ISA/210 (second sheet) (January 1985)

III. DOCUMENTS CONSIDERED TO BE RELEVANT (CONTINUED FROM THE SECOND SHEET)

Category °	Citation of Document, with indication, where appropriate, of the relevant passages	Relevant to Claim No.
P,A	EP,A,0 431 879 (MED-SAFE) 12 June 1991 see abstract; claims; figures	1,11,18
P,A	US,A,5 058 764 (GABA) 22 October 1991 see abstract; claims; figures	1,11,18
A	US,A,2 550 019 (MURPHY) 24 April 1951 see column 1, line 51 - column 2, line 28; figure 1	5,8,14
A	US,A,3 662 979 (LUCCI) 16 May 1972	

ANNEX TO THE INTERNATIONAL SEARCH REPORT ON INTERNATIONAL PATENT APPLICATION NO. US 9108704 SA 55878

This annex lists the patent family members relating to the patent documents cited in the above-mentioned international search report. The members are as contained in the European Patent Office EDP file on
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Patent document cited in search report	Publication date	Patent family member(s)		Publication date
US-A-4903832	27-02-90	None		
DE-C-973412		None		
FR-A-2460123	23-01-81	None		
WO-A-8808399	03-11-88	US-A-	4736860	12-04-88
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US-A-2550019		None		
US-A-3662979	16-05-72	None		