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VIAL HOLDER

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2 Sheets-Sheet 1

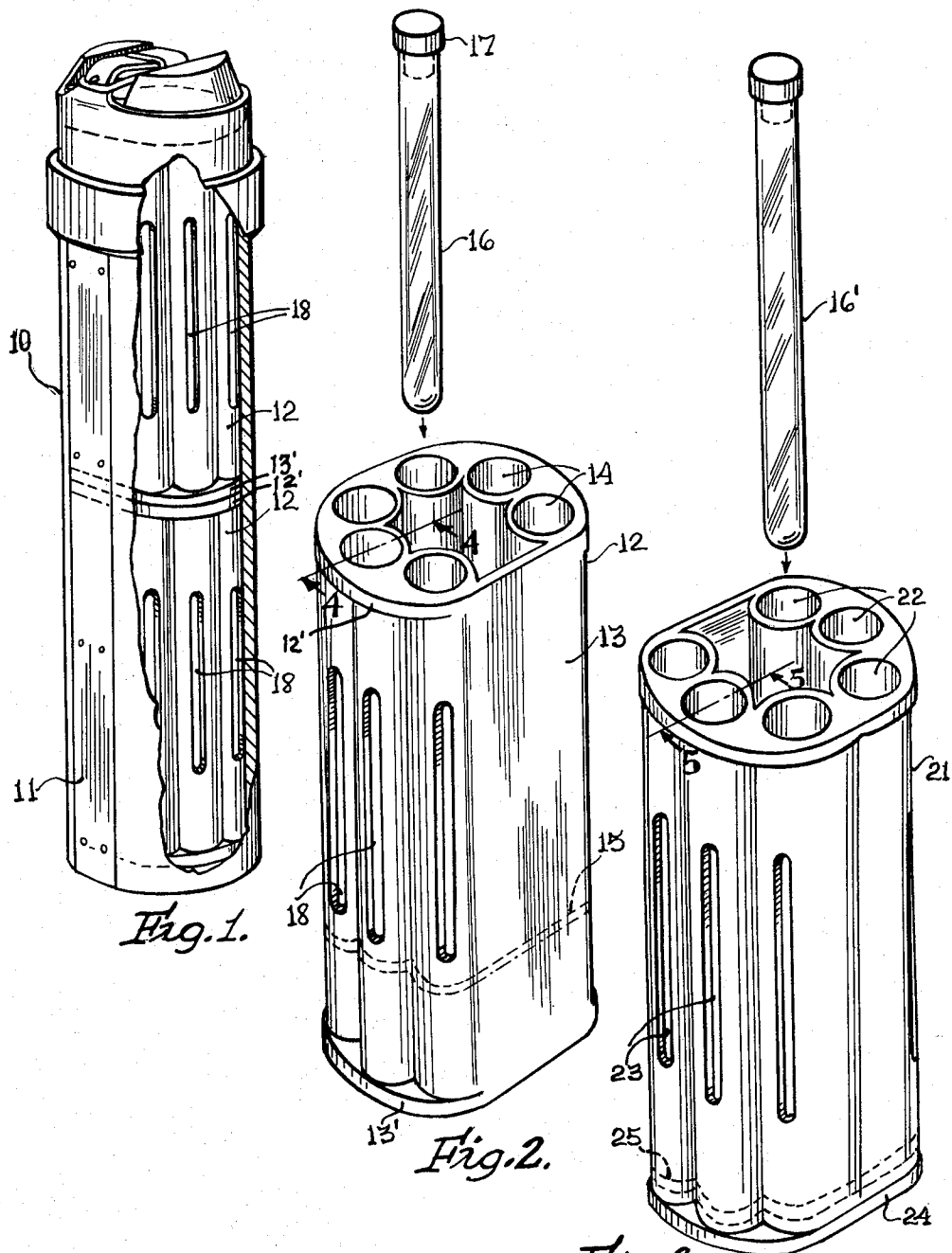


Fig. 1.

Fig. 2.

Fig. 3.

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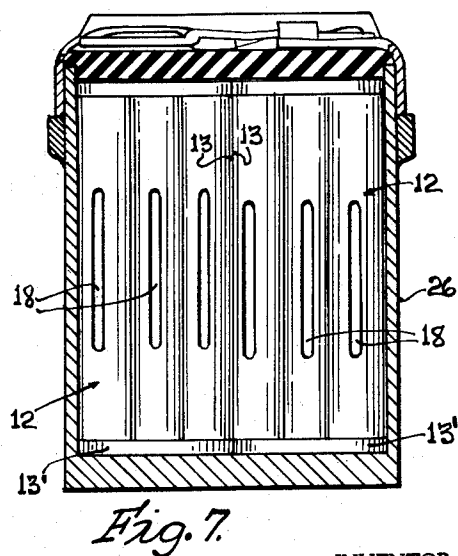
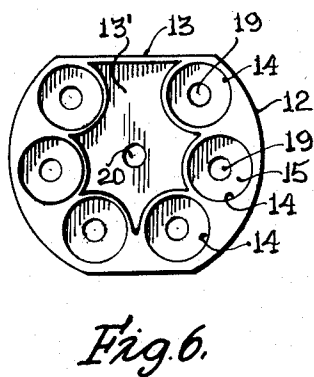
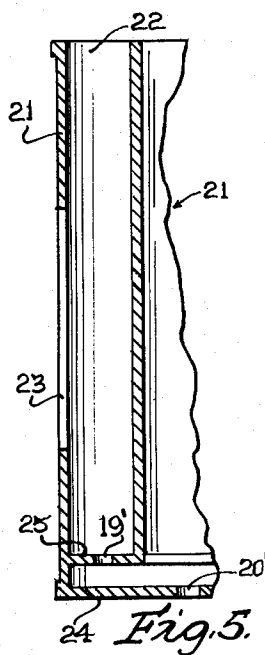
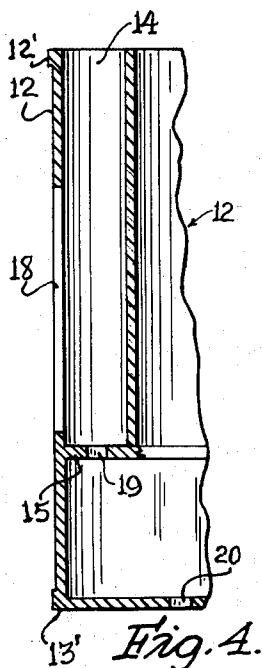
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VIAL HOLDER

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5 Claims. (Cl. 243-35)

My invention relates to a new and useful improvement in a vial holder and more particularly to a holder insertable in and carried by a carrier used in pneumatic tube systems.

A principal object of my invention is in the provision in a device of this character of a means for holding and carrying a plurality of vials or test tubes so the same may be safely and conveniently transported by a suitable carrier of a pneumatic conveyor system.

Another object of my invention is in the provision in a device of this character of an arrangement of parts which provides a holder for a plurality of test tubes or the like where the same are protected against breakage or displacement when held in either a vertical or horizontal plane within the device of my invention.

Yet another object of my invention is in the provision in a vial holder and carrier of a means whereby the contents of the vial or test tube held and carried thereby may be readily identified without the necessity of displacing the test tube from the device.

A still further object of my invention is in the provision in a device of this character of a construction and arrangement of parts which is simple and economical in manufacture and efficient in its intended use.

Other objects will appear hereinafter.

The invention consists in the novel method to be hereinafter described and claimed.

The invention will be best understood by reference to the accompanying drawing in which:

FIG. 1 is a fragmentary perspective view of a pneumatic tube carrier showing therein a plurality of my improved vial holder and carriers.

FIG. 2 is a perspective view of my vial holder and carrier together with a displaced vial or test tube.

FIG. 3 is a perspective view of my improved vial holder and carrier similar to that shown in FIG. 2 but adapted to hold a plurality of larger vials or test tubes.

FIG. 4 is a fragmentary detailed sectional view taken on line 4-4 of FIG. 2.

FIG. 5 is a fragmentary detailed sectional view taken on line 5-5 of FIG. 3.

FIG. 6 is a top plan view of my improved vial holder and carrier and

FIG. 7 is a modified form of pneumatic tube carrier in which is shown a plurality of my improved vial holders in side by side relation.

My invention pertains to a construction of a vial or test tube holder and carrier which is adapted to be operatively associated with a pneumatic conveyor system. In the normal daily functions of hospitals and medical laboratories there is required a method of quickly and safely conveying medical information between different departments of such institutions. This medical information may be in the form of blood samples or the like and it has been found that through the use of pneumatic conveyor systems the exchange of such information is accomplished with great dispatch.

I have by this invention devised a vial or test tube holder and carrier which is designed to be used in most of the pneumatic conveyor systems presently found in institutions such as hospitals and the like.

Referring to FIG. 1, I show a conventional carrier 10 that is normally used in a pneumatic conveyor system. This carrier 10 makes up no part of the present invention and is not further described herein as the construction thereof is well known in the art.

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As shown in FIG. 1, my improved vial holder may be placed within the carrier 10 in end-to-end relation. Each of the vial holders 12 of my invention is similar in construction with the exception of the length of the individual compartments formed therein.

Referring to FIG. 2 my improved vial or test tube holder 12 consists of a cylindrical shaped hollow body open at one end and made from a plastic material. The peripheral wall of the holder 12 is provided with a flat portion 13 extending throughout its longitudinal length. This flat portion 13 acts as a base for the holder 12 when the same is placed on its side in a horizontal plane. Formed in the wall of the holder 12 adjacent the peripheral edge thereof, is a plurality of compartments 14 all of which are of substantially the same size and depth and cylindrical in cross section. One end of the compartments 14 is closed by an inner wall 15 extending transversely with respect to the longitudinal length of the holder 12.

The holder 12 is provided with a collar 12' adjacent the open end thereof and a circular base 13' both of which have a diameter slightly greater than that of the body portion of the holder 12 which is disposed therebetween. The diameter of the collar 12' and base 13' is substantially equal to the inner diameter of the carrier 10 so that the outer walls of each of the compartments 14 will be positioned in a spaced relation to the inner wall of the carrier 10 when the holder 12 is placed therein thus reducing any shock that may be transmitted from the carrier 10 to the holder 12.

The diameter of each of the compartments 14 is of a size greater than the diameter of the standard test tube 16 so that the same may be readily inserted therein.

The closure cap 17 of the test tube 16 is of a diameter equal to the diameter of the compartments 14 so that the cap 17 snugly fits into the upper end or mouth of the compartment 14 when the tube 16 is inserted therein.

Each of the compartments 14 has formed in its outer wall an elongated slot 18. This slot permits a portion of the tube 16 to be visible so that the contents of the same may be easily determined.

As viewed in FIG. 4, it will be seen that the inner wall 15 is provided with an aperture 19 which provides open communication with the compartments 14 of the holder 12. The base 16 is provided with an aperture 20 opening into the area between such base 16 and the inner wall 15. The holder 12 and each of the compartments 14 formed therein may be conveniently cleaned and sterilized by having introduced into each of the compartments 14 through the slots 18, apertures 19 and 20, and the open mouth of each of the compartments, steam or any suitable sterilizing material.

In FIG. 3 I show a holder 21 which is similar to the holder 12 of FIG. 2 in that it provides a plurality of compartments 22 each having formed in the exposed wall thereof an elongated slot 23. The holder 21 is provided with a base 24 and an inner wall 25 which latter determines the length of each of the compartments 22. A vial or test tube 16' similar to tube 16 of FIG. 2 is adapted to be received in the compartments 22.

Referring to FIG. 5 there is shown one of the compartments 22 of the holder 21. It is readily apparent that the inner wall 25 thereof is positioned relative to the base 24 in such manner that the compartment 22 is of a length greater than the compartment 14 of FIGS. 2 and 4. This compartment 22 also has a drain hole 19' formed in the base 24, and the base 24 has a drain hole 20' similar to and for the same purpose as aperture 20 of FIG. 4.

The vial holder and carrier of this invention is capable of protectively holding a plurality of test tubes when the holder is in a vertical position as shown in FIGS. 2 and 3

or when it is laid in a horizontal plane with the flat side 13 thereof acting as an untiltable base for the same.

In FIG. 7 I show a pneumatic carrier 26 which is of a type wherein the vial holders of my invention are carried in a side by side relation. In the pneumatic carrier 26 the flat sides 13 of the vial holders 12 are placed in facial abutment and the holders are then conventionally held in the carrier as it is pneumatically moved through the conveyor system.

While I have illustrated and described the preferred form of construction for carrying my invention into effect, this is capable of variation and modification without departing from the spirit of the invention. I, therefore, do not wish to be limited to the precise details of construction set forth, but desire to avail myself of such variations and modifications as come within the scope of the appended claims.

Having thus described my invention, what I claim as new and desire to protect by Letters Patent is:

1. A vial holder for use in a carrier of a pneumatic conveyor system comprising
 - (a) a cylindrical shaped hollow body,
 - (b) a plurality of circular compartments formed in said body adjacent the peripheral edge thereof,
 - (c) each of said compartments of a diameter and length to receive a vial to be held therein,
 - (d) said body having formed in its peripheral wall a series of elongated slots with each slot communicating with one of said compartments so the contents thereof may be readily visible therethrough, and
 - (e) means for preventing rotational movement of said body when the same is placed in a horizontal plane upon its side.
2. A vial holder for use in a carrier of a pneumatic conveyor system comprising
 - (a) a cylindrical shaped hollow body of light weight plastic material open at one end,
 - (b) a plurality of circular compartments formed in said body adjacent the peripheral edge thereof,
 - (c) each of said compartments of a diameter and length to receive a vial to be held therein,
 - (d) said body having formed in its peripheral wall a series of elongated slots with each slot communicating with one of said compartments so the contents thereof may be readily visible therethrough, and
 - (e) means for preventing rotational movement of said body when the same is placed in a horizontal plane upon its side.
3. A vial holder for use in a carrier of a pneumatic conveyor system comprising
 - (a) a cylindrical shaped hollow body,
 - (b) a plurality of circular compartments formed in said body adjacent the peripheral edge thereof,
 - (c) each of said compartments of a diameter and length to receive a vial to be held therein,
 - (d) said body having formed in its peripheral wall a series of elongated slots with each slot communicating with one of said compartments so the contents thereof may be readily visible therethrough, and

- (e) means for preventing rotational movement of said body when the same is placed in a horizontal plane upon its side, and
- (f) means adjacent each end of said body for engaging the inner wall of the carrier of the pneumatic conveyor system when the holder is inserted therein for positioning said body thereof in spaced parallel relation with respect to the inner wall of the carrier.
4. A vial holder for use in a carrier of a pneumatic conveyor system comprising
 - (a) a cylindrical shaped hollow body of light weight plastic material open at one end,
 - (b) a plurality of circular compartments formed in said body adjacent the peripheral edge thereof,
 - (c) each of said compartments of a diameter and length to receive a vial to be held therein,
 - (d) said body having formed in its peripheral wall a series of elongated slots with each slot communicating with one of said compartments so the contents thereof may be readily visible therethrough,
 - (e) means for preventing rotational movement of said body when the same is placed in a horizontal plane upon its side, and
 - (f) means adjacent each end of said body for engaging the inner wall of the carrier of the pneumatic conveyor system when the holder is inserted therein for positioning said body thereof in spaced parallel relation with respect to the inner wall of the carrier.
5. A vial holder for use in a carrier of a pneumatic conveyor system comprising
 - (a) a cylindrical shaped hollow body of light weight plastic material open at one end,
 - (b) a plurality of circular compartments formed in said body adjacent the peripheral edge thereof,
 - (c) each of said compartments of a diameter and length to receive a vial to be held therein,
 - (d) said body having formed in its peripheral wall a series of elongated slots with each slot communicating with one of said compartments so the contents thereof may be readily visible therethrough,
 - (e) means for preventing rotational movement of said body when the same is placed in a horizontal plane upon its side, and
 - (f) an enlarged collar and base provided at opposite ends of said body for engaging the inner wall of the carrier of the pneumatic conveyor system when the holder is inserted therein for positioning said body thereof in spaced parallel relation with respect to the inner wall of the carrier.

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