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W. RECTOR

3,465,398

TROCAR BUTTON

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Fig. 1.

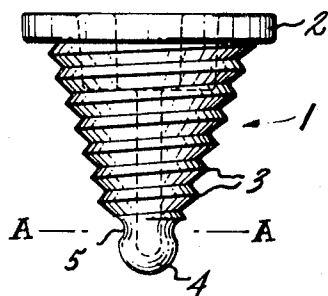


Fig. 2.

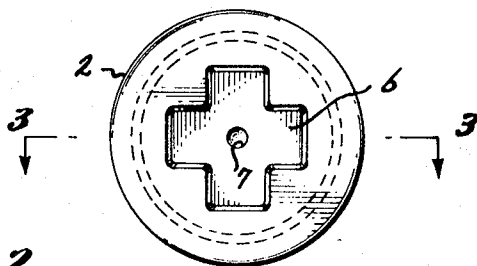
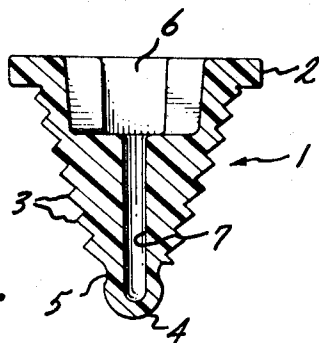


Fig. 3.



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3,465,398

TROCER BUTTON

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5 Claims

ABSTRACT OF THE DISCLOSURE

A ventable trocar button is formed as shown in FIGURES 1 and 3 with a threaded conical body having an enlarged flat head at the larger exterior end thereof. A bulbous tip is formed at the apex or interior end of the button and separated from the threads by a reduced neck portion. A deep cavity for containing condensate is formed in the upper portion of the body of the button, as shown in FIGURE 3, with an internal channel axially extending into the lower portion of the body from the cavity toward the tip but not penetrating the tip until the tip is severed at the neck. The head portion forms a socket for reception of an instrument for applying a torque to the button.

The present invention concerns a button of the type used by morticians for the purpose of closing an aperture in the skin of a corpse, such as is caused by introduction of a trocar, and generally termed a trocar button. Such a trocar button is illustrated in the United States patent to Cullen No. 2,437,381.

Apertures admitting to the body cavity or cavities of a corpse in the past have served primarily for "aspirating body fluids and/or for the introduction of embalming fluid," as Cullen points out. There were ordinarily no other apertures. More recently autopsies have come to be performed quite frequently; it is now normal practice to perform an abdominal autopsy in 20% to 26% of all deaths; thoracic autopsies are sometimes performed, and cranial autopsies are performed in some 40% of the cases that are abdominally autopsied. Any such autopsy leaves an "open" body cavity, and in non-autopsied cases there is still the open channel caused by insertion of the trocar. Such openings must be closed, and it has long been the practice to use a trocar button of the Cullen type for that purpose.

But as Cullen notes, such openings, although once sealed, must be reopened later (and usually several times) "for release of accumulated gases and/or for the introduction of more embalming fluid." To that end Cullen so formed his trocar button that it could be unscrewed and again threaded back into place.

Present-day practice, involving numerous autopsies and preparation of bodies for shipment over long distances, and often by air, has greatly increased the need for venting frequently. For one thing, the present-day embalming chemicals are more stringent, and cause rather voluminous or continuing evolution of gases, which upon reaching the atmosphere may condense and stain the garments, or are otherwise objectionable. For another, the extreme range of atmospheric pressure in air-lifted cases, and the impossibility of venting any corpse at sufficiently frequent intervals during shipment, cause evolved gases to condense and to stain the garments. Cannulae have been used for continuous venting, but the same objections prevail. If the cavity is not vented at all, uncontrolled or unvented pressure from within a cavity can easily produce extreme swelling and damage.

The present invention is addressed to the problem thus presented, of effecting adequate venting, when required,

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under all conditions likely to be encountered, yet in such manner that the resultant evolution of condensate will not stain the garments nor become otherwise objectionable.

The invention is or may be incorporated in a trocar button generally of conventional size and conformation, but provided with means whereby a continuously open vent may be present—whereby equalization of internal and external pressure is assured automatically—yet affording a depressed cavity of adequate size to receive all condensate likely to be produced, which cavity is also of a shape to be engaged by an applicator such as is commonly used to place or to remove conventional trocar buttons. The button of this invention has all the advantages of a conventional trocar button, with certain novel added advantages, and can be produced at a cost little if any exceeding the cost of the conventional button.

FIGURE 1 is a side elevational view of the trocar button of this invention, as supplied for use.

FIGURE 2 is an elevation of the exterior or base end of the trocar button.

FIGURE 3 is an axial sectional view of the button, on the line 3—3 of FIGURE 2.

More particularly, the trocar button of this invention is made in the general form of buttons used heretofore, that is to say, as a more or less conical body 1 having an enlarged flat head 2 at the larger end, and threads 3 between this head and the apex end. A rounded tip 4 is at the apex, and preferably, but not necessarily, is defined by a reduced neck 5. As a means to enable manipulation of the button by the normal applicator, to thread the button in or out, something in the nature of sockets for reception of the two prongs of the conventional applicator is provided in the head 2. However, rather than employing the usual diametrically disposed two separate holes, according to the present invention there is formed in the head a deep cavity 6, preferably in the form of a cross. This cruciform cavity should be of a depth to contain an appreciable volume of condensate. Its radial shoulders will be engaged by the prongs of the applicator.

In addition, a channel 7 is formed axially of the body 1, towards but not through the tip 4, from the bottom of the cavity 6.

The button is preferably molded of plastic or similar material, and its tip at least is of such material. This tip can be snipped off at the neck 5 by surgical scissors such as are always available, thereby opening the lower end of the channel 7 for free communication with the interior of the body cavity when the button is in place. Alternatively, if the tip is not snipped off, the button when in place constitutes a secure seal.

When the trocar button, with its tip 4 removed, is in place, the flat head 2 is uppermost, and gases are continuously vented by way of the channel 7 to the cavity 6 and so to the atmosphere. The cavity is made of sufficiently large capacity that it will retain all condensate likely to occur at any given time during a shipment, or during a time of holding. Such condensate may drain to the interior from time to time, through open channel 7. The garments touch only the flat exterior surface of the head 2, and there is no contact between the garments and the condensate, hence no staining can occur, notwithstanding that there is continuous venting. Swelling cannot occur because of the continuous venting.

The trocar button can be removed in the same manner as a conventional button, and by use of the conventional applicator, whenever this may be necessary, and can be similarly replaced, or can be replaced by a conventional button.

This button can be made in various sizes, to fit larger or smaller apertures. If venting is not required, the tip 4 can remain in place, and in that case the channel 7

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remains closed at its interior end; this button, then, can serve all the purposes of a conventional trocar button, and in addition has its own inherent advantages.

While it has been suggested that the trocar button be made of a plastic material, there is no reason that it may not be made in part at least, if not wholly, of metal or material other than plastic, provided its tip is readily removable for communication through its channel 7, whether by snipping off the tip 4 or otherwise removing it. The threads 3 and the general conformation of the button exteriorly may be any that is found suitable, and the forms thereof that are illustrated are only those that, in buttons of the Cullen type, have been found suitable.

What is claimed is:

1. A plug which has a truncated conical body having screw threading on the truncated conical surface thereof, and a bulbous tip on the smaller end of the body which is interconnected with the body by a severable neck having a diameter of less than the diameter of the tip, there being an opening in the larger end of the body, and a fluid flow channel which extends from the opening into the body, along the axis thereof, and terminates at the neck so that the channel is normally closed by the tip yet can be opened to flow by severing the tip from the body.

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2. The plug according to claim 1 wherein the larger end of the body is generally flat, and the opening is defined by an axially extending recess therein having a volumetric capacity materially greater than that of the channel.

3. The plug according to claim 2 wherein the recess has means therein which are interengageable with an applicator for rotating the plug.

4. The plug according to claim 2 wherein the recess is cruciform in cross section.

5. The plug according to claim 1 wherein the larger end portion of the body has an unthreaded flange therearound.

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25 WILLIAM E. KAMM, Primary Examiner