

1

**PHLEBOTOMY TRAINING DEVICE**FIELD OF THE INVENTION AND RELATED  
ART

This invention relates to training aids for medical procedures, more specifically training aids for medical personnel regarding proper phlebotomy and intravenous needle insertion techniques.

Phlebotomy, also known as venepuncture, is the removal of blood for a variety of medical and scientific purposes. Phlebotomy, by its very nature, entails the penetration of a human vein or artery by a hollow needle of some type in order to draw blood. This process is invasive and, when conducted improperly, may lead to infection or physical trauma at the penetration site, or it may simply fail to yield a sufficient quantity of blood. Medical and healthcare personnel, including medical students, nurses, and healthcare technicians, therefore require training in effective and proper techniques of phlebotomy.

In the past, a variety of methods have been used to instruct medical personnel in these techniques. The most simplistic of such is the use of an orange or similar fruit. An orange possesses a fairly thick skin, which is considerably more resilient than the underlying tissue and allows a student to practice controlling the depth of penetration of a needle. The orange, however, is clearly not anatomically similar to a human being.

Thus several types of training aids are disclosed by the prior art in an attempt to create a more advanced, and consequently more realistic, simulation of human anatomy. For example, U.S. Pat No. 5,839,904 (Bloom '904) discloses an intravenous training aid which purports to solve some of these difficulties; however, Bloom '904 suffers from several drawbacks. First, the physical construction is cumbersome, distinctly artificial and fails to properly mimic the appropriate human appendage. Second, the system of tubing that transports the simulated blood is not in a sealed container. The tubing used in this device degrades over time. Consequently, the device is unable to contain a leak that might develop through sustained use of the device. Finally, the device is comprised of only one grouping of tubing. Therefore, when the tubing does succumb to degradation, the user must cease use of the device and replace the tubing.

Many devices exist, including U.S. Pat. No. 3,789,518 Chase (Chase '518), which present simulated human limbs. While the device disclosed in Chase '518 and analogous devices do indeed present realistic training aids for demonstration, they are typically complex and costly. As a result, most educational entities that utilize this type of device possess only a limited number of the devices. This drawback consequently prevents multiple students from simultaneously practicing the relevant techniques. In addition, these devices have limited portability and students are generally not able to take such devices away from the educational forum in order to practice at home or any other location.

SUMMARY AND OBJECTS OF THE  
INVENTION

The invention discloses a novel and inexpensive training aid that allows a trainee to practice drawing blood from an apparatus that provides a life-like simulation of the pertinent human anatomy. This training aid consists of a glove or sleeve which secures the device to a user; rubber tubing, which simulates human veins or arteries; and a covering which simulates human skin. The device is not mechanically

2

complex and may thus be effectively produced at a lower cost than other similar training aids currently on the market.

It is a central object of the invention to provide a realistic and life-like training-aid for medical personnel to learn proper phlebotomy techniques.

Another purpose of the invention is to provide a cost-effective training device which allows educational entities to utilize multiple units thereby allowing multiple students to train concurrently.

A further purpose of the invention is to provide a training aid that may be used for an extended period without the need for replacement of components.

Another purpose of the invention is to provide a realistic training simulator that minimizes leakage of fluid during use.

A further purpose is to provide a training aid to facilitate instruction concerning the location and palpation of veins and arteries.

Another purpose of the invention is to provide a training simulator that may be easily cleaned, maintained and stored.

Another purpose of the invention is to provide a device that can serve other utilitarian therapeutic functions besides assistance in medical instruction.

## BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a top plan view of the invention.

FIG. 2 is an exploded view of the invention.

FIG. 3 is an illustration of the invention in use.

FIG. 4 is a top plan view of an alternate embodiment of the invention.

FIG. 5 is an exploded view of an alternate embodiment of the invention.

FIG. 6 is an illustration of an alternate embodiment of the invention in use.

DETAILED DESCRIPTION OF THE  
PREFERRED EMBODIMENT

A training device to assist medical personnel in learning and practicing phlebotomy techniques. Referring now to the drawings, and particularly FIG. 1, it will be observed that the depiction of the primary embodiment of the invention illustrates tubing or a network of tubing affixed to a glove 1. The glove 1 acts as a mounting member in order to allow the device to be borne by a user. The glove 1 can be of a traditional design; however, the preferred embodiment would utilize a truncated glove which encloses only the fingers or wrist of the user. A truncated glove also allows the user to reverse the glove so that it may be comfortably worn on either hand. This permits the user to take advantage of certain features described herein. The glove 1 may be composed of any type of fabric, rubber or other such material of which gloves are commonly constructed. Furthermore, as long as a sufficient portion of the glove is intact to secure the glove onto at least a small portion of the user's fingers, the glove need not have a top and bottom portion, but rather either such portion, in conjunction with at least limited finger apertures 2, will suffice to achieve the purposes of the mounting member.

Indeed, as will be obvious to those skilled in the art, the mounting member need not even be in the form of a glove but can be simply a sleeve or something of such nature and appropriate material so as to permit the temporary affixation of the training device to the hand, arm or other appendage of the wearer during its use.