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H. COMER

MOUNTING FOR HOLLOW NEEDLES AND THE LIKE

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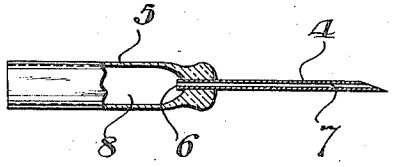


Fig. 1.

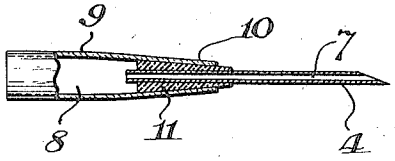


Fig. 2.

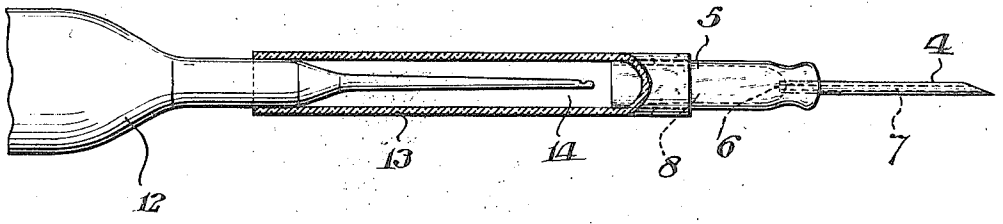


Fig. 3.

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UNITED STATES PATENT OFFICE.

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MOUNTING FOR HOLLOW NEEDLES AND THE LIKE.

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To all whom it may concern:

Be it known that I, HARRIS COMER, a citizen of the United States, residing at Cynwyd, in the county of Montgomery, State of Pennsylvania, have invented a new and useful Mounting for Hollow Needles and the like, of which the following is a specification.

The invention relates to improved method and means for providing a mounting or shank of transparent material, such as glass, to the end of a hypodermic needle or similar device and securely sealing the same therein. Among the advantages of such method and means, are to render the butt of the needle visible, so that any fluid passing therethrough may be immediately detected; to furnish a more convenient and efficient means for attaching such needle to a chambered body, and greatly to reduce the cost of production of hollow needles or similar devices with suitable mountings or shanks. The invention is especially applicable for use in connection with the Keidel bleeding-tube, or similar devices.

Referring to the drawings, which illustrate merely by way of example suitable embodiments of my invention;

Fig. 1 is an elevation, in part section, of one form of my invention.

Fig. 2 is a similar view of another form of my invention.

Fig. 3 is a similar view showing my improved device applied to a Keidel vacuum blood collector.

Similar numerals refer to similar parts throughout the several views.

As is well known, the hypodermic needle now in common use, is provided with a metal hub or shank into which the needle is usually secured by solder. This metal hub or shank is either provided with a threaded end for engagement with the nozzle end of a syringe or similar device, or else it is provided with a tapered end to form what is known as a ground joint with said nozzle. Or again this hub or shank is in the form of a nipple for receiving the end of a rubber tube. Where the needle is connected by a metal hub or shank to a syringe body, the substance passing through the needle can only be seen after it comes within the transparent area, sometimes provided in the barrel of the syringe. In no case can the substance be seen until it has passed the hub and the adjacent body connected therewith.

By the method and means in accordance with my invention, the substance passing through the needle can be seen the moment it leaves the butt or rear end thereof. This has very distinct advantages which will be pointed out herein.

The method and means for forming the mounting or shank in accordance with my invention, is much more efficient and reliable in securing and maintaining an absolute hermetic seal between needle and shank than by the method now in common use, and the expense of so providing the needle with such mounting or shank is very materially reduced.

In the drawings, 4 represents the standard hypodermic. These are made in several sizes or gages. The drawings are on a scale greater than the usual or normal sized needle, for the purpose of clearer illustration. To the butt or rear end of this needle 4 is secured the mounting or shank 5. This shank is preferably in the form of a glass tube melted or fused on to the needle near its rear end 6, but not closing the opening in said rear end, so that the interior or channel of the needle has direct and free communication with the interior or chamber portion 8 of the glass tube forming shank 5. By this means is provided a clear unobstructed passage through the needle 4 and the shank 5.

In the modification shown in Fig. 2, I provide a glass tube or shank 9 open at both ends and tapered at one end, as at 10. Upon the rear end of the needle I place a section of soft rubber tubing 11, corresponding approximately in diameter to the diameter of the chamber portion 8. The needle 4 is then inserted through the large end of tube or shank 9 and out the small tapered end 10. As the soft rubber tube 11 is crowded into a tapered formation 10, by sufficient pressure, it is made to conform to the tapered formation and thus forms an effective gasket or seal between the needle 4 and shank or tube 9 as shown in Fig. 2. This is a simpler method of bringing the needle and shank into effective cooperation, since it requires no heat to melt the glass. Obviously other sealing means may be employed for this purpose. In any case the butt or rear end of the needle is clearly visible, at all times, through the transparent walls of the shank or mounting 5.

In Fig. 3, I show my invention applied

to a Keidel vacuum blood collector, in which the ampoule 12 is connected by means of the rubber tube 13, to the mounting or shank 5 of the needle. The shank 5, which may be of any suitable length, is always of sufficient extension to provide sufficient overlap engagement between the tube 13 and shank 5 and at the same time maintain a portion of the shank 5, adjacent the rear end 6 of the needle, uncovered. By this arrangement any discharge of fluid through the needle into chamber 8 is clearly visible. This is especially important in connection with the use of the device as shown in Fig. 3.

When the needle is properly inserted in the vein, the pressure of the blood will usually force a small amount of blood through the needle into space 8, or, by pressing the walls of the rubber connecting tube 13 together, before inserting the needle, and then after said insertion, releasing the pressure on said walls, a sufficient suction will be produced to draw a small quantity of blood through the needle, and the same will be clearly visible, through the transparent walls of shank 5, as the blood issues through the rear end 6 of said needle.

As is well known the operation of inserting or thrusting the needle properly into the vein, is one requiring considerable skill. Sometimes the needle misses the vein and sometimes it passes through both walls of the vein; in either case no blood is obtained.

By the arrangement herein described, the operator may always ascertain with certainty when he has made a proper insertion into the vein and has not pushed the needle through both walls of the vein. If the blood appears on the space 8 he may with safety break the sealed tip 14 of the ampoule to permit the blood to flow into it to satisfy the vacuum. If the blood fails to appear in the manner above described, as a result of the first insertion, the operator is free to make another trial, without having broken the tip and lost the vacuum in his ampoule. In other words, he need not break the tip until the appearance of blood in space 8 assures him that he has made the proper insertion.

The above illustration, in connection with Fig. 3, is merely an example of one of the many advantages which may be secured by the use of a needle shank or mounting of transparent material, in addition to its simplicity, efficiency and extremely low cost.

What I claim is:—

The combination of a shank of transparent material having a substantial chamber, a hypodermic needle hermetically sealed into said shank with the channel of the needle in communication with said chamber, a flexible hollow member connected at one end to the shank and a vacuum ampoule connected to the other end of said member, and having a breakable tip extending into said member.

HARRIS COMER.