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DEVICE FOR TRANSFERRING CONTAMINABLE LIQUIDS

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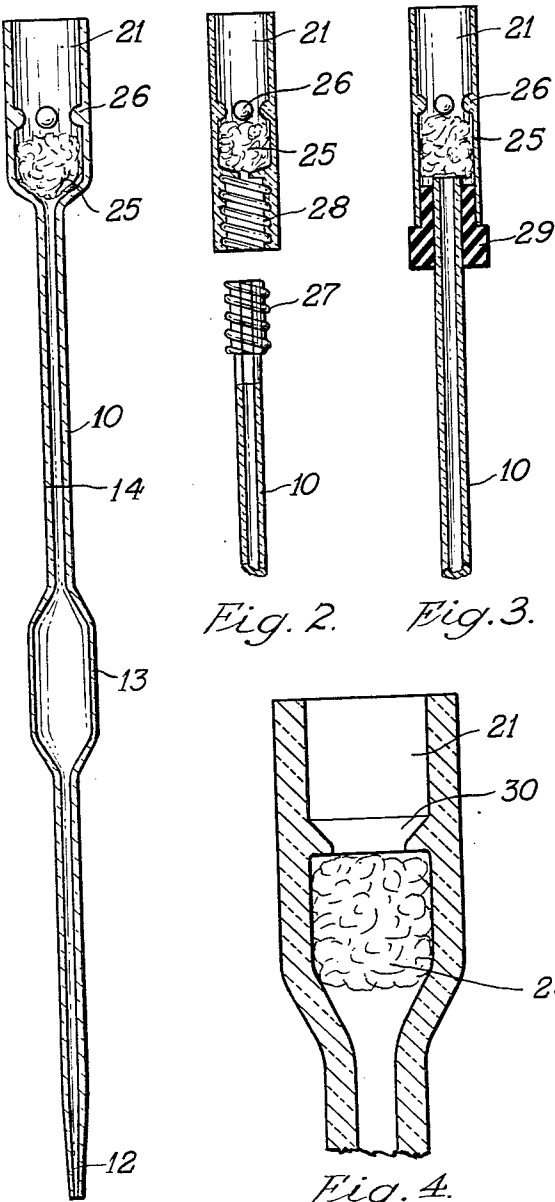


Fig. 1.

Fig. 2.

Fig. 3.

Fig. 4.

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DEVICE FOR TRANSFERRING CONTAMINABLE LIQUIDS

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6 Claims. (Cl. 222—158)

The present invention relates to a device for transferring contaminable liquids; the word "contaminable" being used in the sense that either the liquid may become contaminated or that the person handling the liquid may become contaminated.

Transferring contaminable liquids in relatively small quantities is a routine procedure in bacteriological, serological and biological work whereby, in a great number of various laboratories throughout the country, many thousands of such transfers are required in the course of one day's work. These transfers are made by means of pipettes of the required capacity, ranging from fractions of one cc. up to, say, 50 or 100 cc. in some instances.

In the drawings, Figs. 1 to 4 show different embodiments of the herein claimed device in conjunction with a transfer pipette.

Typical pipettes are made of glass, and consist of a thin hollow stem with a blown bulb of the required size between the upper suction end and the pointed discharge end; there are calibration marks in the thin stem to insure delivery of a definite volume from the pipette when used in connection with any of the initially mentioned purposes for the transfer of a contaminable liquid, such pipettes are provided with a cotton wad which, as a rule, extends from one to two centimeters into the suction end of the pipette. Since the inside diameter of the pipette is relatively small, in most instances 1 mm. or thereabouts, it is a very tedious operation to pluck the right amount of cotton from a roll, shape a tuft or wad therefrom and properly insert the wad in the pipette. In many instances, the cotton wad is twisted too tight and later prevents the application of suction. After plugging, the pipettes are placed into metal containers and are sterilized, often by the hundreds and thousands and are ready for use. After use, the cotton wads are removed in order to insert new ones, and the pipettes are again sterilized to make them ready for another transfer. In many instances, however, the attempt of removing the old cotton wad is unsuccessful and the pipette must be discarded.

According to this disclosure, pipettes for the afore-described purposes are provided with an enlarged suction head, such as the suction heads 21 shown in the drawings. These suction heads have an inside diameter preferably of about $\frac{3}{16}$ of one inch and are ground in the usual manner so as to provide the smooth rim required for retaining the liquid sucked into the pipette by quickly covering the opening with the index finger. An opening of, say $\frac{1}{16}$ of one inch permits an easy insertion and removal of appropriate cotton wads. I find it particularly advantageous to be able to use cotton wads which do not have to be shaped by hand individually but, like the cotton wad 25, are formed mechanically and supplied at low cost in any desired number. For the removal of the cotton wads I use forceps of suitable size. Inasmuch as there are no difficulties encountered in removing these cotton wads from the device of this disclosure, the number of pipettes which must be discarded for this very reason is practically nil and, over a period of time, I accomplish considerable savings by means of the device.

These suction heads are mounted on a conventional

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pipette consisting of a thin tube 10, generally constricted at the bottom to produce a pointed discharge end 12, and generally having a bulb 13 to give the pipette the desired size, and having a calibration mark 14 in the thin tube 10 to insure accurate measurement.

As shown in Figs. 1, 2 and 3, in order to retain the cotton wad within the proper position and to prevent contamination and danger to the health of the person using the device in conjunction with contaminable liquids, I provide the enlarged suction heads, about $\frac{1}{2}$ to $\frac{3}{4}$ inch from the top, with three or four beads, such as the beads 26, extending in a regular pattern from the wall into the interior of the enlarged suction head. When inserting the cotton wad, it is easily pushed past these beads and is thereby securely kept in position when suction is applied. Fig. 4 is an enlarged view of an embodiment in which the beads have been replaced by an interior collar 30 for the same purpose.

The new device can be provided, as shown in Fig. 1, as an integral part of the transfer pipette. In the alternative, the transfer pipette can be equipped with an external thread 27, as shown in Fig. 2, in order to secure thereto a suction head having an internal thread 28. Transfer pipettes of the commonly used type can be adapted for the suction head illustrated in Fig. 3 by means of a gasket 29, made from rubber or any other suitable material.

Having described my invention, I claim:

1. A pipette for transferring measured quantities of contaminable liquids comprising an elongated transparent tube for holding and measuring the liquid to be measured, the tube having adjacent its top end a portion of relatively small diameter with a calibration mark therein, and a suction head at the top of the tube, much enlarged in diameter with respect to the tube but small enough to fit under an operator's finger, the enlargement providing interior space for a cotton wad which can readily be inserted and removed, the top of the suction head being open and having a smooth rim, whereby it will fit snugly under the finger of an operator to retain, during the transferring operation, the liquid sucked into the pipette for transfer.
2. The pipette of claim 1, in which the suction head has means for retaining the cotton wad in position upon the application of suction, without interfering with the insertion and removal of the said cotton wad.
3. A device according to claim 2, wherein the said means for retaining the cotton wad consist of a plurality of regularly spaced beads, extending from the wall into the interior of the enlarged suction head.
4. A device according to claim 2, wherein the said means for retaining the cotton wad consist of a ring, extending from the wall into the interior of the enlarged suction head.
5. A device according to claim 2, wherein the suction head is provided with an internal thread and the transfer pipette with an external thread to join the said suction head to the said transfer pipette.
6. A device according to claim 2, wherein the suction head is provided with a gasket to join the said suction head to the said transfer pipette.

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