

**A VERSATILE AND INEXPENSIVE PIPETING DEVICE
FOR RADIOACTIVE AND OTHER DANGEROUS LIQUIDS**

UM APARELHO VERSÁTIL E SIMPLES PARA PIPETAGEM DE
LÍQUIDOS RADIOACTIVOS OU PERIGOSOS

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The problem of pipetting radioactive, poisonous or corrosive liquids has already been solved by a variety of commercial type of equipment. This equipment, however, is not cheap and a system which could be made at the laboratory would be helpful.

The system presented at Figure 1 can be used for this aim, in a very simple way, for small or large volumes of liquids. Pippets from one milliliter (or even less) up to hundred milliliters will work very efficiently with this apparatus.

Tube A is an ordinary glass tubing with about 0,7mm diameter and 7 cm-length. At about half-length of the tube there is a hole, B, (about 3 to 4 mm diameter). To one end of tube A it is adapted a thick wall rubber tubing (pure gum tubing), C, of about 5 cm length.

A glass bead, D, with a diameter larger than C, is inserted into the middle of tube C. To the other end of tube A it is adapted a rubber bulb, E, which may be large or small, depending on the volume to be pipetted and on the size of the pipette. For volumes of about one milliliter, or less, a glass-dropper rubber bulb, should be used. For small volume pipetors it is not necessary to make hole B on tube A.

In order to use the device, the pipette is adapted at the free end of tube C. The system is held with thumb and forefinger and rubber bulb E is squeezed ; hole B is then closed with thumb, bulb E remaining squeezed. The pipet is then introduced into the liquid and a slight pressure is applied with the thumb and forefinger, of the free hand, to the glass-bead D. The liquid will then be suctioned until rubber-bulb E is restored to its primitive shape. If the volume of the pipette is such that it will not fill with one operation, pressure at the glass-bead D is released, thumb is removed from B and the operation is repeated as before.

In the case of being necessary to stop suction before restoring rubber-bulb E to its primitive shape, it is enough to release pressure at the glass-bead D, and then remove thumb from hole B.

In order to deliver liquid, pressure is applied to the glass-bead D while hole B is maintained open.

To fill pippets of small volumes, when hole B is not made at tube A, it

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is necessary to squeeze the glass dropper-rubber bulb while pressure is applied to the glass bead D. Then the pressure at D is released and the pipettor is ready for use. To deliver liquid, in this case of small volumes, it is necessary to remove the rubber bulb and apply pressure at D.

The velocity with which liquid will be delivered (or suctioned), will depend on the pressure applied to D. After some practice it will be noticed that a extremely fine control can be made by this way.

In order to work more comfortably the pipettor can be held by a support with a clamp fixed to tube A; however, this is not necessary and, after some operations the pipettor will be handled by holding only with the hands.

- a) Pipettor used for large volumes.
- b) Pipettor used for small volumes.

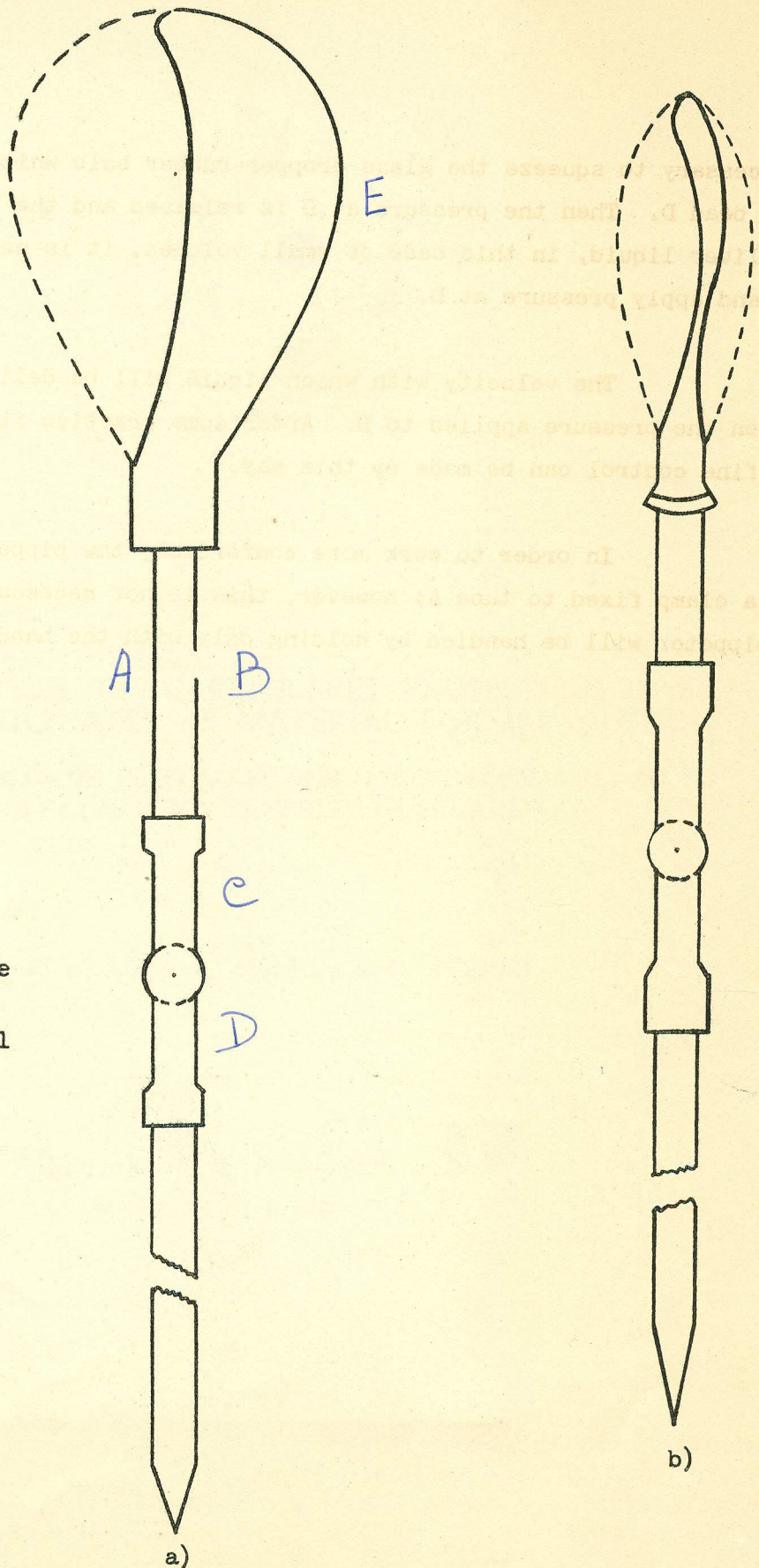


Figure 1