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DOUBLE AMPULE FOR STERILE SOLUTIONS

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Fig.1.

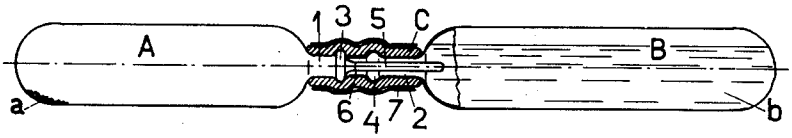
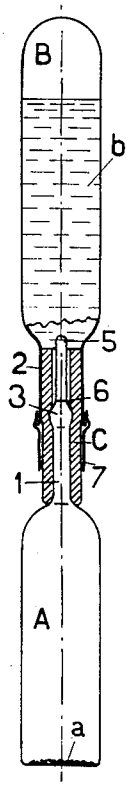


Fig.2.



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DOUBLE AMPULE FOR STERILE SOLUTIONS

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1 Claim. (Cl. 128—272)

This invention relates to containers for sterile solutions of the kind known as double ampules, in which the solvent or attenuant substance and the substance to be dissolved or diluted are kept stored in two separate vessels and mixed one with the other before removal from the said containers by means of an air tight elastic tube connecting the said two vessels. The active substance to be dissolved or diluted has to be kept stored sometimes a very long time without the addition of the solvent or attenuant liquid, and this invention has for its object to provide certain means for preventing an untimely mixing of the contents of the vessels which otherwise could easily take place during packing, transport, etc. For this purpose an evacuated container enclosing the active substances is provided with a sealed hollow stem portion weakened at one spot by a file scratch or the like while another container having a vehicle for the said active substance therein is provided with an open neck portion capable of accommodating in its interior said stem portion of the first container so as to protect the said weakened spot from any undesired stress which might otherwise easily occur during packing, transport, etc. and which would result in the breaking of the stem and the vehicle gaining access to the active substance. The said neck may thereby preferably be made so large as to permit the elastic tube connecting the said two containers to be inserted into it like a stopper, the stem of the other vessel thus lying entirely embedded in rubber within the said outlet.

It is advisable for a semi- or entirely rigid cover to be provided encasing the elastic tube, which cover has to be bent or broken by overcoming a considerable resistance when breaking off the stem. By means of the said cover the two vessels may be connected together so as to form a unit nearly as rigid as the double ampules made in one piece, the manufacturing of which is far more expensive.

In Figs. 1 and 2 of the drawing two preferred forms of the invention are shown by way of example in part section.

The evacuated vessel A containing the active substance (toxin, serum) *a* is connected by means of an elastic tube C to the vessel B containing the solvent or attenuant liquid *b*. The elastic tube C is pulled over the necks 1, 2 of the containers and prevented from slipping off by means of the enlarged portions 3, 4. The container A is sealed by the fused stem 5, which has to be broken off at the file mark 6 before making the solution in order to establish the communication between the two vessels, whereupon the partial vacuum prevailing in A hereupon sucks in the solvent liquid *b*.

In the form shown in Fig. 1 the neck 2 of the vessel B is so wide that the stem 5 can be inserted into it, whereby the fracture mark 6 becomes exceedingly well protected. At the same time an approximately tight joint between the container B and the interior of the tube C is obtained by the fact that the edge of the neck 2 of the vessel B lies closely against the enlarged portion 3 of the container A. A covering 7 of acetyl cellulose or the like extends almost over the entire length of the elastic tube C, so that the two containers form a practically rigid unit.

In the form shown in Fig. 2 the tube C is inserted in the manner of a stopper into the neck of the container B, the said neck being for this purpose comparatively large. The fracture point 6 is thus embedded in the rubber of the tube and further protected by the neck of the container B. As shown in this figure the vessel A may be provided with a flat base in order that the device can be placed upright while making the solution. This done the elastic tube is slipped off the neck 1 of the vessel A and this latter now containing the finished solution is opened so as to permit of the insertion of a syringe or the like by breaking off the neck 1 quite close to its base, the neck being for this purpose scored at the desired point by means of a file.

I claim:

An ampule comprising in combination an evacuated container having an active substance therein and provided with a sealed hollow stem portion, a second container having a vehicle for said active substance therein and provided with an open neck portion, and an elastic tube permanently connecting said stem and neck portions of the said containers, the sealed hollow stem portion of the evacuated container projecting into the open neck portion of the other container and being weakened at one spot lying within said open neck portion so that by flexing said elastic tube it may be broken at the weakened spot and the vehicle brought into contact with the active substance.

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