

M0015495: Illustrations of electrometers for measuring and detecting small electric currents in electrophysiology: Lippmann's capillary electrometer, D'Arsonval's moving coil galvanometer and Einthoven's string galvanometer

Publication/Creation

November 1956

Persistent URL

<https://wellcomecollection.org/works/hm42jdnq>

License and attribution

Conditions of use: it is possible this item is protected by copyright and/or related rights. You are free to use this item in any way that is permitted by the copyright and related rights legislation that applies to your use. For other uses you need to obtain permission from the rights-holder(s).



Wellcome Collection
183 Euston Road
London NW1 2BE UK
T +44 (0)20 7611 8722
E library@wellcomecollection.org
<https://wellcomecollection.org>

meniscus. If the point connected to acid be negative as compared with the point connected to mercury in capillary, the meniscus moves towards the point of the capillary. If the acid be positive as compared with the capillary, the meniscus moves away from the point. The extent of the excursion is proportional to the difference of potential. Since the capillary electrometer appears to have no latent period, and is free from instrumental vibrations, it is extremely useful in recording the quick changes in potential occurring in the diphasic electrical changes that accompany every contraction-wave in the body. The excursions lend themselves well to photography, so that we may obtain a graphic record of every electrical variation, and thus determine its extent and its time-relations.

It must be remembered that this instrument is an electrometer (measurer of difference of potential), and not a galvanometer (current measurer). When the electrometer is connected with two points at different potential, no current passes through it. Hence the use of non-polarisable electrodes is not so essential in experiments with this instrument as when we make use of the galvanometer.

In the *D'Arsonval galvanometer* (Fig. 83) the current is sent through a coil of fine wire hung between the poles of a permanent magnet. The same principle is made use of in the string galvanometer of Einthoven (Fig. 84). In this a very delicate thread of silvered quartz or of platinum is stretched between the poles of a strong magnet. The poles of the magnet are pierced by holes so that

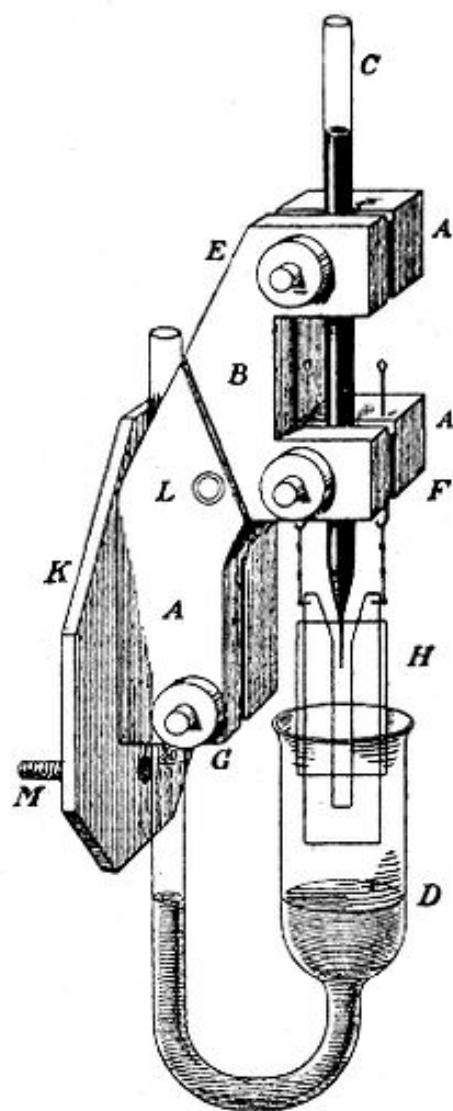


FIG. 82.

Capillary electrometer. (BURCH.)

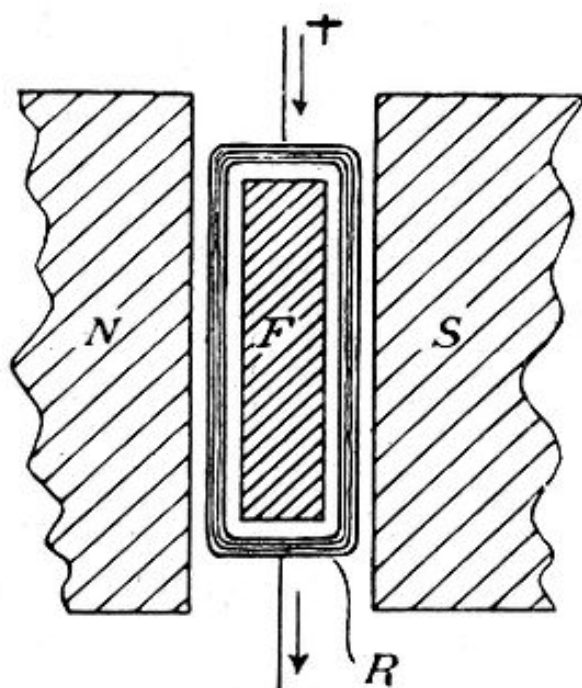


FIG. 83.

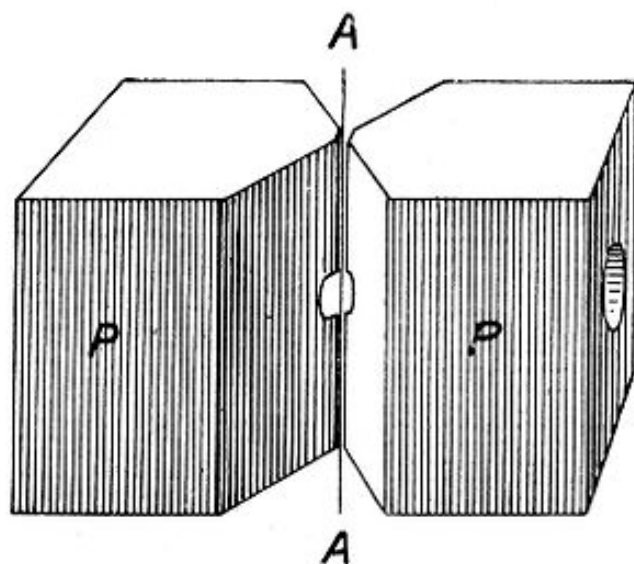


FIG. 84.