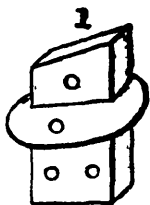


methods of ascertaining the nature and amount of ash, pyrites, &c., see under § 3 below.

§ 2. INSTRUMENTS AND APPLIANCES.

The instruments, &c., employed in these examinations are the following: a blowpipe, blowpipe-lamp, and small spirit-lamp of the ordinary construction; together with the usual accessory instruments and re-agents which always accompany the blowpipe. These require no special description. The blowpipe may be of any form, but for the purpose of heating small platinum vessels in these experiments, it is convenient (although not absolutely necessary) to add to it an extra jet with an orifice rather larger than usual. The blowpipe-lamp should also be furnished with a broad wick-holder of the pattern recommended by Plattner (fig. 1), in place of the flat wick-holders formerly in use. In heating crucibles it is advisable to turn the wick-holder so as to make the upper surface slope towards the right hand instead of towards the left, the flame being then directed upwards, against and around the bottom of the crucible. Or, to avoid the trouble of changing the position of the wick-holder, the operator may turn the lamp itself, placing it with its fore part away from him.



In addition to the above, the following appliances, of more special use, are also needed:—(1). Two platinum capsules as thin as they can be obtained. One about half an inch in diameter, provided with a small ear or handle; and the other of somewhat smaller dimensions, and without any projecting ear. The smaller capsule, reversed, fits into the larger one, the two then constituting a closed vessel. Those which I employ, weigh together less than 42 grains. (2). A small platinum crucible with a lid. I make use of two small but deep platinum spoons; one with, and the other without a handle. The latter must be the larger of the two. Its edges must be bent slightly inwards so as to allow it when reversed to be fitted closely over the smaller spoon, and thus to constitute a lid. The long handle of the spoon crucible should be bent as shewn in figure 2. The object of this is to enable the crucible to retain an upright position when placed on the pan of the balance. The figure shews the exact size and form of the crucible employed by me. Its weight is a little under 36 grs. In some spoons a slight notch must be cut in the lid to admit the passing of the handle. (3). A pair of steel tongs or forceps to hold

