It is well to provide means for opening the circuit automatically in case the cooling water is accidentally shut off to prevent the resistor from burning out. This can be done readily by connecting in series with the resistor a short piece of the same wire of which it is made and placing this piece so that it is within the stream of water issuing from the end of the resistor when the flow is normal but is out of the stream when the flow is reduced. By varying the angle which the emerging stream of water makes with the vertical and the distance of the piece of wire from the orifice any desired sensitivity can be had. With proper adjustment, this piece of wire will function as a fuse, burning out before the water has quite stopped flowing and thereby protecting the resistor.

No careful study of the durability of the resistors has been made. The following tests will, however, serve to show that their useful life is reasonably long. A fixed resistor made of No. 22 wire carried 20 amperes for 20 hours and then 25 amperes for 20 hours more. At the end of the test, it was in perfect condition and its resistance had changed by only about ½ per cent. A variable resistor carried 25 amperes for 20 hours and was operating satisfactorily at the end of the test. Other resistors have given satisfactory service in the laboratory for longer times, but no record of their performance has been kept.

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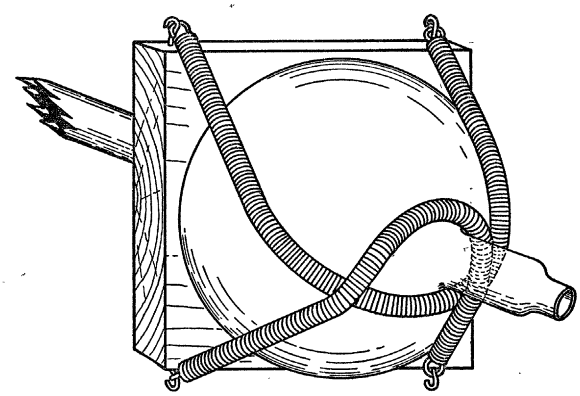
GLASS BLOWERS' HOLDER FOR LARGE FLASKS

THE holding of flasks, larger than a liter, in glass-blowing operations is usually a troublesome matter. The ordinary snap type of holder is not generally supplied in these sizes. An extremely simple device which the writer has found to be quite satisfactory is depicted in the accompanying sketch and requires only a few explanatory comments.

The flask is held against the base by two long U-shaped springs, which are looped over the neck of



the flask. The springs are those used to close screen doors and, where necessary, can be kept from contact with the glass by strips of asbestos paper. Round-bottom flasks are held more firmly if the base is provided with a slight hollow or if a thin cork ring is placed between the wooden base and the flask. A cork ring around the neck of an erlenmeyer flask will keep the springs from slipping down and permit such a flask to be held securely. For convenience in manipulating this holder it is desirable to have a detachable handle. A suitable handle and base is at hand in most laboratories in the form of old wooden funnel stands.

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SPECIAL ARTICLES

THE ORIGIN OF PIGMENT CELLS IN AMPHIBIA

IN the present study the methods of transplantation and explantation have been employed to decide between the divergent views that have been held regarding the origin of pigment cells in the amphibian embryo—whether from connective tissue, leucocytes, epidermis or ganglion crest. Embryos of *Amblystoma punctatum, A. tigrinum* and *A. mexicanum* (axolotl, both black and white) have been used in the experiments.

Explantation experiments: Pieces of the neural folds (anlagen of the ganglion crest) from the trunk region of *A. punctatum* neurulae were explanted into Holtfreter's solution. Melanophores appeared in every explant within six days (37 cases). Prospective flank ectoderm was explanted in the same way. In only one explant out of 20 did melanophores develop. It is probable that in this one case some ganglion crest cells were included at the time of operation. Flank ectoderm and mesoderm explanted at older stages up to stage 32 (non-motile embryo with elongated tail bud) gave negative results. When transplanted to the abdominal wall or explanted at stage 32 or older, melanophores invariably developed in the graft or explant. It is apparent that the flank tissues are not capable of forming melanophores until a much later stage than the ganglion crest cells. It is probable that the cells of the ganglion crest migrate into the flank at stage 32. Hence they are included in flank explants after this stage.

Defect experiments: The neural folds in the trunk