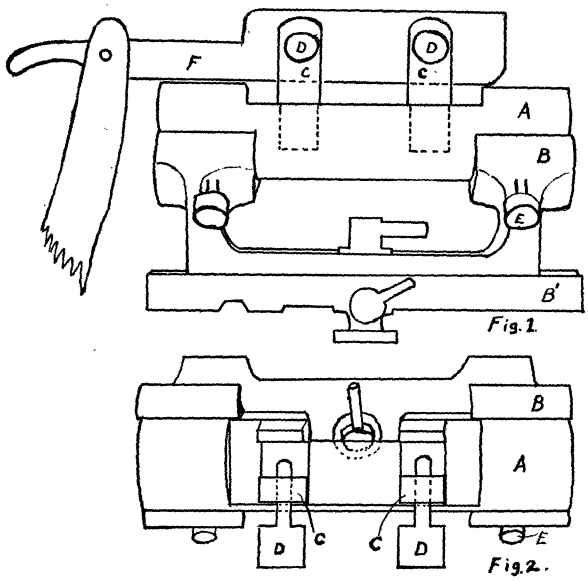
of the time required and the difficulty of honing it properly for good paraffin sections. Safety razor blades have been used in various types of holders with only partial success. The razor (Fig. 1, F) has



FIGS. 1 and 2

been used by the author for more than two years with excellent success. It can be stripped and honed on a good quality slate hone in six to eight minutes, thus causing very little delay where a large number of preparations are to be turned out.

The razor holder (A), designed by the author and made by a student in the mechanical engineering department at a very nominal cost, replaces the microtome knife clamps in the base (B). It was made from 1¼ inch bar steel turned down to fit in the base (B), with sufficient play for electroplating. One side was leveled off to lower the height of the razor edge and give a base for the razor clamps (C). The clamps were made from flat steel $\frac{7}{8}'' \times \frac{1}{2}''$, one end turned down to $\frac{3}{8}''$, threaded and screwed into (A) 1½″ apart. The opening in the clamp is $\frac{3}{8}''$ and just deep enough to keep the edge of the razor above the clamp (Fig. 1). Loosening the set screws (D) permits shifting of the razor, thus giving a maximum of cutting surface. Where a two-part base is used (B and B^1) the clamps could be spaced farther apart, making it easier to handle the ribbon and still secure the maximum cutting surface of the razor edge. A section of the bar (A) was cut out between the clamps as shown in the top view (Fig. 2) to allow the paraffin block to pass.

The type of razor and holder shown here is especially adapted for the investigator who has small material to work with and who wishes to get a large number of good sections in a limited time. Sections of fruit up to ¾ inch in diameter have been cut by the author. For larger sections the regular microtome knife would perhaps be more satisfactory.

This type of holder is also adapted for use in large classes in technique where each student is held responsible for the condition of his own razor.

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A SIMPLE PUMP FOR INFLATING BALLOONS

THE science teacher occasionally needs a buoyant balloon for demonstration purposes, but he may find no apparent means at his disposal for securing it. The pressure in the gas mains is much too low to inflate a rubber balloon, and few laboratories are equipped with pressure tanks of hydrogen. The writer suggests the use of a second balloon to serve as pump for the balloon to be inflated. The only requirements are a T-tube, one or two stopcocks or pinchcocks, a little rubber tubing and patience.

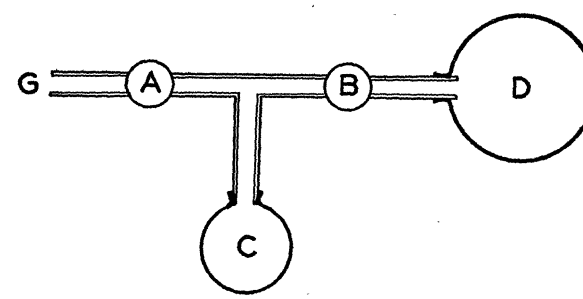

FIG. 1

Attach the T-tube through stopcock A to the gas main at G. Fasten the balloon D beyond the second stopcock B. The "pump balloon" C, similar to D, is attached to the arm of the T-tube by an elastic band. If only one stopcock is available, the gas-outlet valve itself may serve for A. Now, with B closed, open A to admit gas to balloon C. Close A, open B and squeeze the gas from C to D by applying pressure to C with the hands. Then close B, release C and open A. Repeat this cycle of operations until D is inflated to the desired size. This pumping action may be accomplished rapidly, once the rhythmic operation of valves is learned.

As is well known, two or three such floating balloons, fastened to a common mooring by threads of the same length, make a remarkably effective "electroscope" for demonstrating the presence of ionization in the air. When charged by friction, the balloons stand far apart, but ionization of the air produced by x-rays or a neighboring flame causes them to approach one another rapidly.

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