An Improved Grid-Holder for the Siemens Electron Microscope. By P. F. Elbers. (*From Centrum voor Electronenmicroscopie der Rijksuniversiteit Utrecht, Netherlands.*)*

Handling standard Siemens grid-holders involves several inconvenient operations. These manipulations may, moreover, so disturb the specimen being studied that observations made in the electron microscope are invalidated. For example, to mount the grid, the cap must be removed and re-

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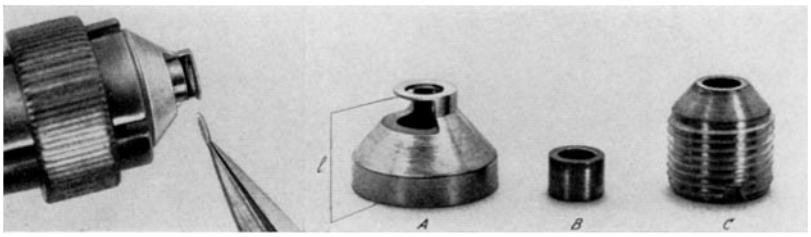

TEXT-FIG. 1. The insertion of a grid in the holder (left), and the three parts of the holder (right).

placed with the fingers. Contamination may result. Even when the tweezers are held in a steady hand, it is difficult to insert the grid in the cap without touching the cap wall. Grids are often bent or wrinkled in this manner, and supporting membranes similarly distorted or actually ruptured. Good thermal contact between grid and grid-holder cannot always be achieved—and this may lead to thermal drift in the specimen. Finally grids are not easily removed from the standard holders without damaging or destroying the specimen.

These problems can be avoided to some extent by using the variant design of grid-holder shown in the accompanying photographs. Piece (*A*) determines the specimen's position in the electron microscope. The distance (*l*) can be corrected by grinding down the bottom face of (*A*). The top ring of (*A*) is adequately rigid. Inserted into (*A*), piece (*B*) prevents distortion of the grid when (*C*) s screwed in (*A*).

To insert the grid, the holder can be taken up in a chuck, as shown in the photograph. This chuck contains a screwdriver device for loosening and tightening (*C*). Another chuck is used to insert the holder in the microscope.

This grid-holder with its auxiliary parts offers the following advantages:

(*a*) The grid can be inserted in it without touching the holder with the fingers.

(*b*) The grid can be inserted from the side, directly onto its seat.

(*c*) Small parts of the holder which touch the grid do not need to be disassembled or handled and are, therefore, not so subject to contamination.

(*d*) Screwing down of insert (*B*) ensures good thermal contact.

(*e*) Removing the grid from the holder is a simple operation.

On request, the designer will forward a scale drawing of the parts of the chucks and holder (for 3 mm. grids).