

Fig. 3

Results of heating and molding Plasta-zote on crutch grips.

and then quickly pressed around the grips and molded by the affected hands and fingers while the patient was standing and bearing weight. The application and results are shown in Figure 3. The difference in height of the crutch grips was necessary because of the contrac-



Fig. 4

The patient using the modified crutches.

ture of the left elbow.

The subject using the modified crutches, which proved to be both comfortable and functional, is shown in Figure 4.

Valve Housing for Use in Foaming and Finishing Above-Knee Suction Sockets

Harry N. Hughes, C.P.¹

Gene Helmuth¹

When foaming and finishing an above-knee suction socket much time is devoted to achieving an acceptable, finished socket. One of the

¹Navy Prosthetics Research Laboratory, U.S. Naval Hospital, Oakland, Calif.

problems has been to provide a neat cosmetic appearance in the valve area. Another problem has been to provide a properly tapered radius to the valve area so that the valve is easily accessible to the patient. A method used by the staff at the Navy

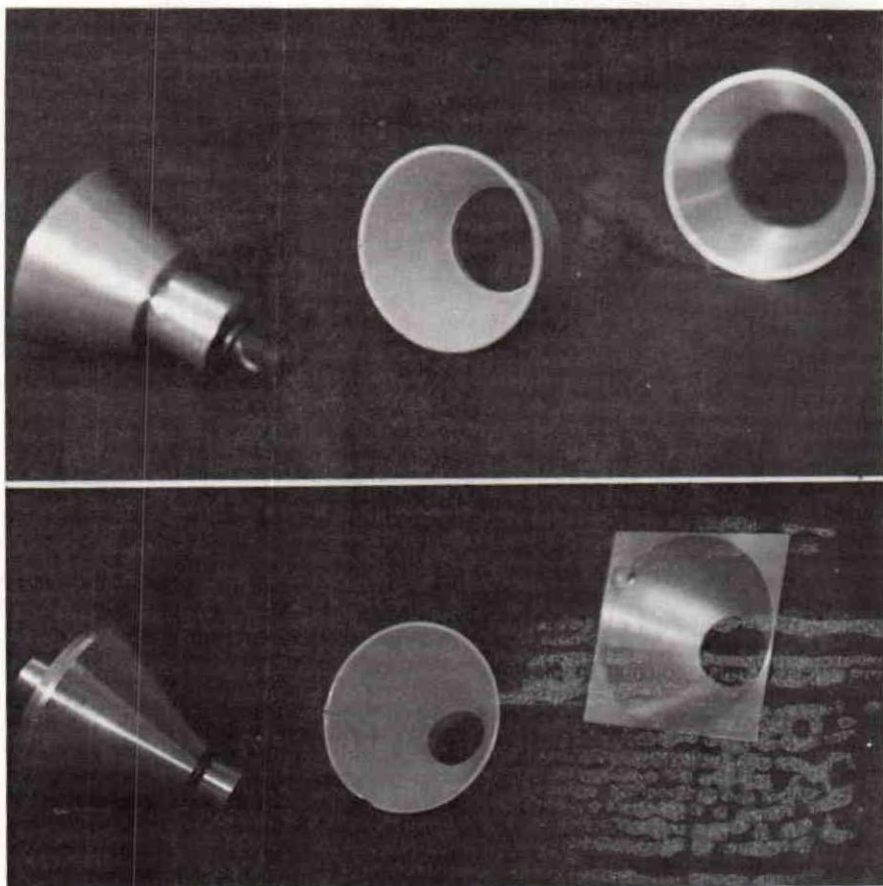


Fig. 1

Molds used in manufacture of plastic valve housings for above-knee sockets. The valve housing itself is shown in the center of both photographs. The upper photograph depicts the molds for the smaller size (3 cm. in length).

Prosthetics Research Laboratory has proven to be very satisfactory, and is described here.

A plastic valve housing has been designed and is made as a standard production item in two sizes. The larger size has a proximal diameter of 3 cm and distal diameter of 9 cm. It is 7 cm long with a 15-degree offset angle at the proximal end. The smaller housing measures 3 cm in diameter proximally, 5.5 cm dis-

tally, and is 3 cm long. The molds used in the manufacture of the plastic valve housing, along with the valve housings, are shown in Figure 1.

After the socket is laminated, approximately .5 cm of the laminate is removed around the face of the valve to allow placement of the plastic housing, which has been designed to fit snugly over the valve (Fig. 2). At this time, the prosthe-

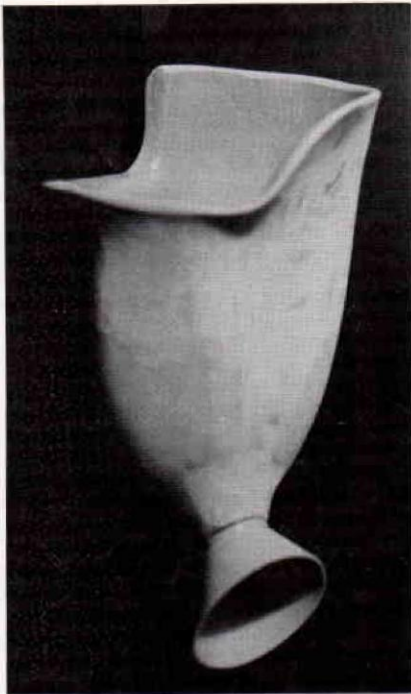


Fig. 2
Plastic valve housing in place.

tist visualizes the contour required for finishing, selects the appropriate size housing (depending upon the anticipated depth of the foam), and shapes the housing on the sander (Fig. 3). After shaping, the housing is filled with plaster-of-Paris or clay and plastic foam is introduced between the socket and the knee. After the foaming operation the thigh section is given its final shape (Fig. 4) and an outer laminate is applied. When the lamination has cured, the socket is trimmed, the filler is removed, and the thigh section is attached to the shin and foot. A view of the final result is shown in Figure 5.

This procedure eliminates the need for removing foam from around the valve and the filling in of this area with Cabosil, thus saving time while giving a much neater finish.

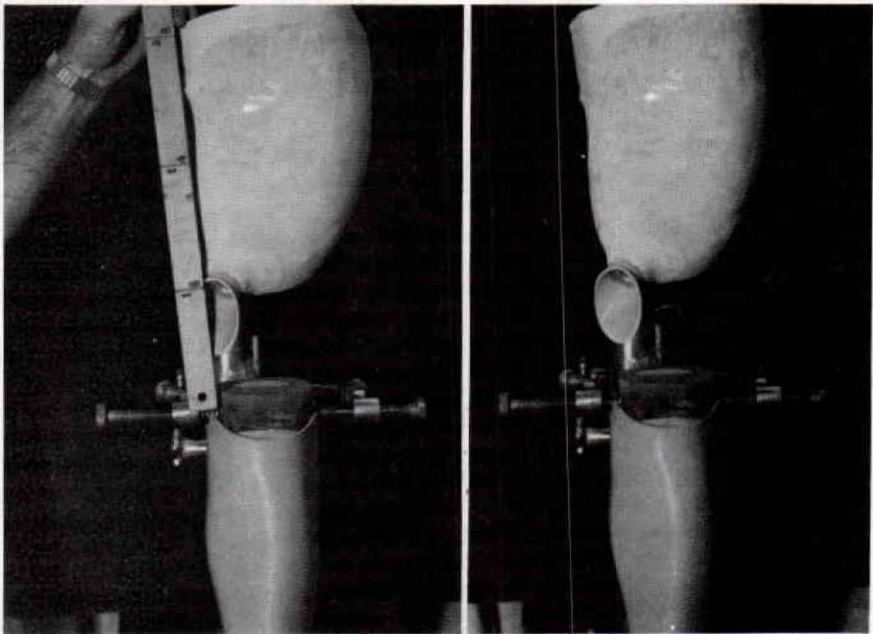


Fig. 3
Two views showing how valve housing is trimmed to come flush with exterior wall.

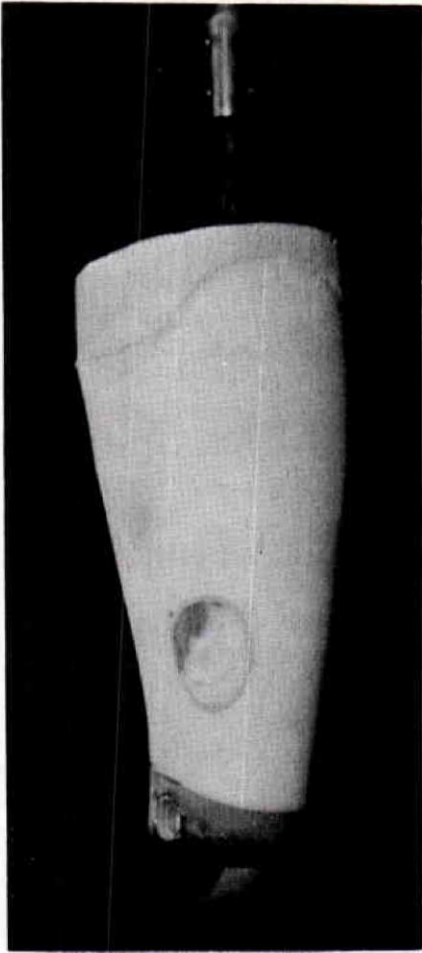


Fig. 4

A view of the process after foaming and before lamination of outer wall.



Fig. 5

The finished product.

The Navy Prosthetics Research Laboratory will be happy to provide samples of these plastic valve housings upon request.