



Reproduction of an 18th Century Paper Mould and Deckle

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I. Introduction

Inspired by a paper mould previously used to interpret papermaking in the historic area at the Colonial Williamsburg Foundation, Mercer created a European style hand paper mould and deckle to use as visual aids during "Behind-the-Scene" tours. The mould and deckle were used to demonstrate proper hand placement and dipping positions during papermaking.

II. Methods and Materials

The hand paper mould and matching deckle were created using resources at the Colonial Williamsburg Foundation. Chris Swan provided mahogany and additional brass materials, and assistance in developing the necessary woodworking skills. Peter Stinely provided the brass screen and a tradesman's knowledge of paper in Colonial America. Pamela Young advised on the papermaking process.

III. Construction

Mould

The four side members were cut from mahogany and connected using dovetail joints cut with a hand saw and chisels. A drill press was used to create a hole in the center of each shorter sidebar to later insert the waterbar, and 21 holes were drilled in each longer sidebar to insert the brass rib pins.

The thin wooden ribs were cut with a table saw. The bottom edge of each rib was rounded with a hand plane (Fig. 1a) and then cut with an angled blade on the table saw (Fig. 1b). Holes for small brass pins were hand drilled on each end of the wooden rib (Fig. 1c). A hole was cut through each rib in the center perpendicular to its length to allow the insertion of the brass waterbar (Fig. 1d). Numerous small holes were cut along the length of the ribs near the narrow top edge to later secure the screen to the ribs (Fig. 1e).

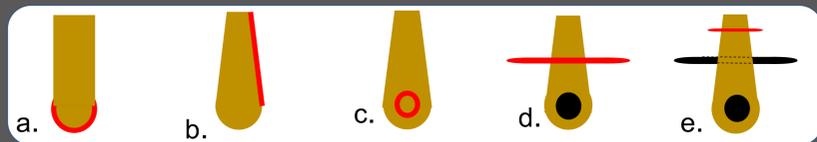


Figure 1. End profile of ribs

Brass pins were inserted in the ends of the ribs (Fig. 1c) and a brass rod (waterbar) was inserted through the center holes to support each rib (Fig. 1d). The four side members were connected to the ribs by inserting the waterbar in the two shorter side members and the rib pins in the two longer side members.

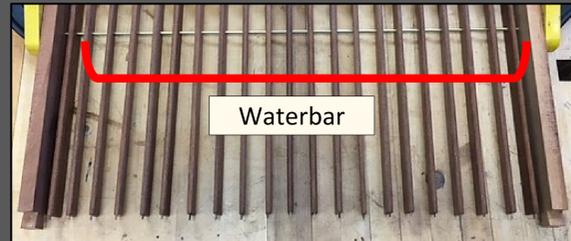


Figure 2. Assembling the ribs and four external side members of the mould

A mould cover made from horizontal brass wires and sown with a thinner brass wire creating vertical lines, was placed across the top of the ribs overlapping the four side members. The mould cover was whip stitched to the ribs with a small diameter brass wire through the small holes shown in Figure 1e. Sheet brass was cut into strips to cover the screen edges and tacked into place with brass pins.



Figure 3. Brass strips which covers the ends of the brass screen.

Deckle

Four side members were cut from mahogany to create a wooden frame to hold the paper pulp on top of the mould. In profile, all four deckle members have a 1 cm inner lip (red in Fig. 4a) that extend beyond the brass screen cover strips (yellow rectangle in Fig. 4a). The lip was created by removing negative space with a sled on a table saw and then hand planed to ensure a uniform surface. A 1/2" guard was nailed to the bottom outer perimeter of the deckle (red in Fig. 4b) to ensure it would not shift on the mould.

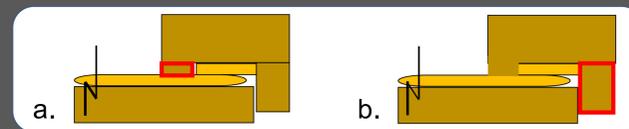


Figure 4. Side profile of deckle resting on mould.

In order to connect all four members, a double lap joint was created using the table saw with a sled and chisels. The two shorter members of the deckle each had two positive 1 1/4" prongs (outlined in red in Fig. 5). The two longer members had corresponding negative cuts. The members locked into place at 90°.

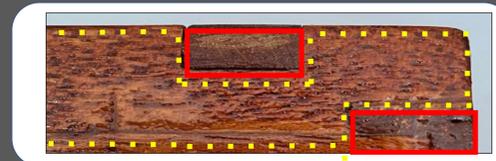


Figure 5. Side profile of deckle joint.

Two coats of varnish were applied to the wood as a protective barrier.



Figure 6. Top: Recto, Bottom: Verso

IV. Conclusion

The hand paper mould and deckle showed the public how these two items were used together in the hand papermaking process. Guests were provided a visual of the iconic vertical and horizontal brass wires that form the laid and chain lines in antique laid papers.

V. Further Research

The project prompts additional research into paper shrinkage during the drying stage following the initial formation of the sheet and how it affects historic standard paper sizes.

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