Sliding Dovetail for Attaching Wide Aprons to Table Legs
by Charles D. Hepler

I was planning a small two-drawer end table, a copy of another table. The design called for 8-1/2" wide solid mahogany aprons on the sides and back. (The wide aprons are to accommodate two drawers.) One design issue involved seasonal wood movement of the wide aprons. Based on an article by Chris Becksvoort in FWW, I calculated that the aprons might expand or contract across the grain by as much as 1/4" with changes in ambient humidity, while the dimension of the legs would not change along the direction of the grain.

I considered using plywood, which would eliminate the problem of wood movement; a long tenon, or a forked tenon, glued only in the top 2-3"; and a sliding dovetail cut slightly shorter than the width of the apron.

Plywood did not meet another design criterion (solid wood). A forked tenon would have to be pinned with a dowel near the bottom, to resist lateral forces that might separate the joint. The lower tenon would need an elongated hole to receive the pin and still allow for wood movement. The hole would have to be drilled from the inside of the leg where it would not show.

A sliding dovetail would allow transverse (seasonal) wood movement while strongly resisting lateral movement, without the need for a dowel pin. It would require careful fitting. It would be very strong. It might be fun to make. I chose the sliding dovetail for these reasons.

I cut the groove (mortise) in the leg and the tail (tenon) at the end of each apron. According to the books I consulted, sliding dovetails should be cut with a slight taper in the groove. Otherwise, they are quite difficult to slide together. In their usual application, in bookcases and the like, they are cut with a hand-held router or dovetail saw. The router guide is tapered by 1/32-1/16" over the length of the groove. In this application, I wanted to cut the groove on a router table. On a table, the groove cannot easily be tapered, so I decided to taper the tail.

I cut each groove down the center of the leg. First, I hogged out a 1/4" wide by ½" deep groove with a straight bit and then I cut the dovetail groove with a ½" 1:6 dovetail bit. I cut it 8" long. Leaving the height of the cutter unchanged, I then set the fence slightly less than 3/16" back from the front of dovetail cutter. I cut the tails across the width of each apron and then trimmed off about 1/4" at the bottom end of the dovetail to form the equivalent of a tenon shoulder. This would hide the bottom of the groove.

Because the apron stock was 5/8" thick, the fence setting caused the tails to be a bit thick, so I could plane them to fit the grooves. When I planed them with a dovetail plane, I took a bit more off of the bottom end than the top. Soon, the tails slid easily into the grooves, except for the last two inches, which required some force. This is exactly the objective given in textbooks for sliding dovetails with tapered grooves.

Figure 1. Apron on shooting board with dovetail plane, leg in background

Figure 2. Final Fit, View from Top of Leg

Figure 3. Dry- assembled Table Stands Without Clamps