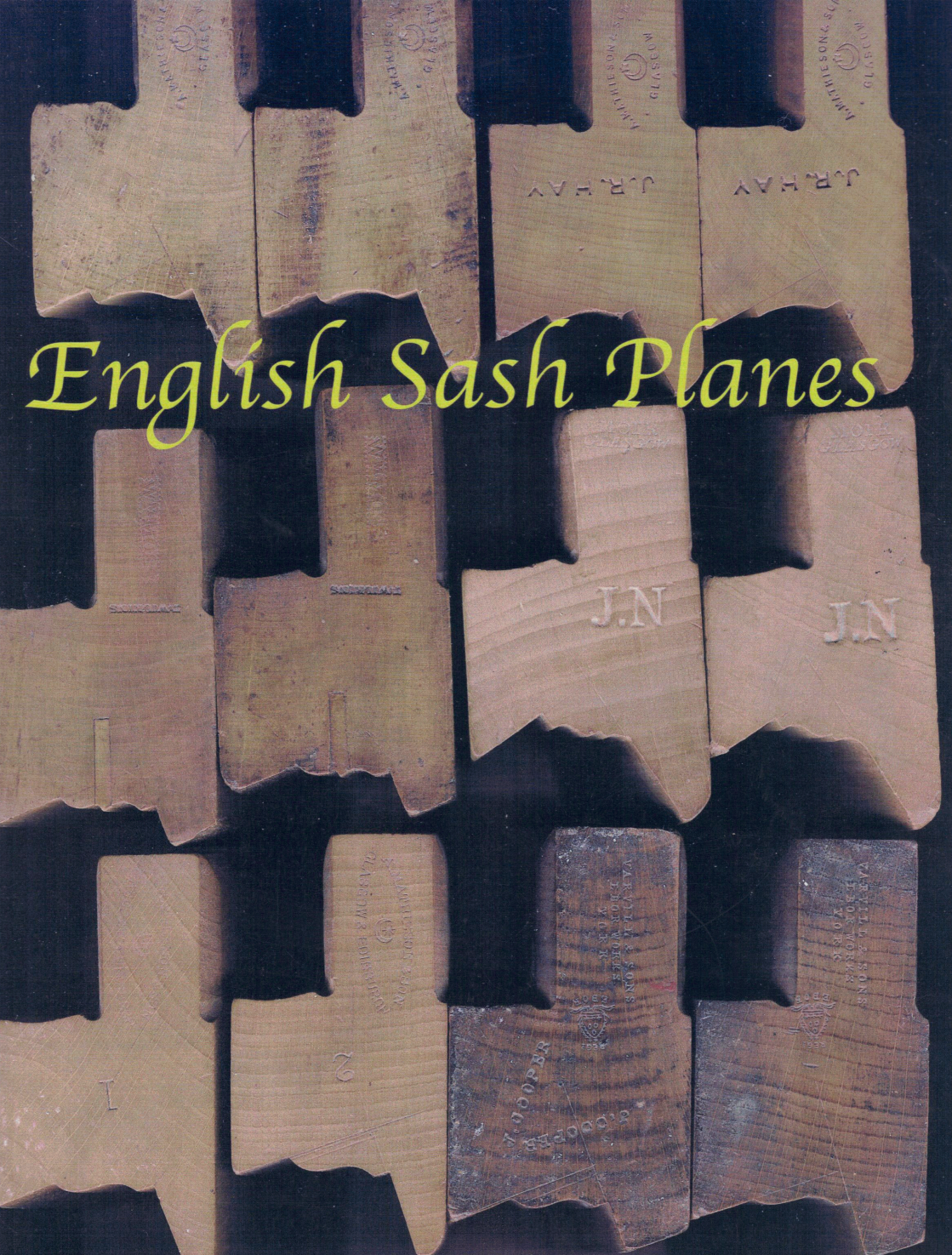

English Sash Planes

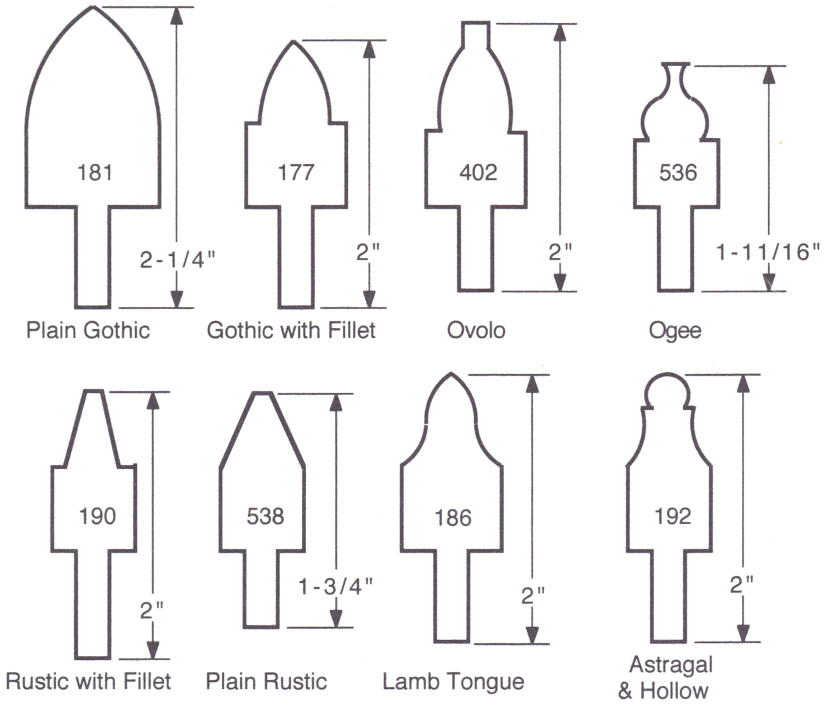
English Sash Planes

This article will describe the functions of various planes, tools and fixtures used to make window sashes in England in the 19th century.

There are several types of planes used to make window sashes. The most commonly seen are the sash molding planes. These are used to form the decorative shape on the sash bars and frames. Figure 1 shows some common profiles available at the end of the 19th century and their names.

Figure 1. Examples of Common Sash Profiles

Numbers are Mathieson catalog models



English Sash Planes

Table 1 shows the variety of sizes and profiles offered by Alexander Mathieson, of Glasgow, one of the largest tool manufactures in Great Britain. The numbers in the cells are the model numbers from the 1899 Mathieson catalog. In addition to the planes listed here another eight sizes from 1-1/8 to 2 inches were available for shop window sashes.

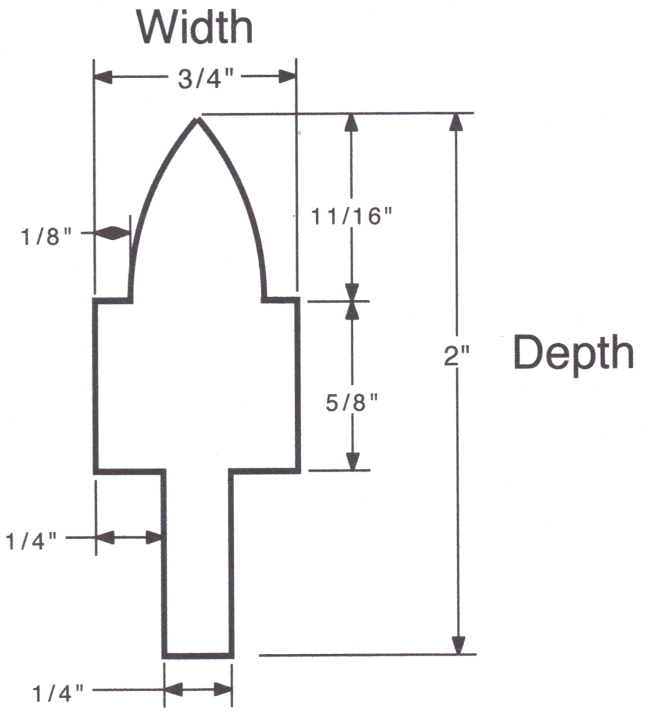
Table 1

Profile / Thickness X Depth	Ovolo	Lamb Tongue	Gothic	Rustic	Astragal & Scotia	Astragal & Hollow	Astragal & Quirk Hollow	Ogee	Other	Total
3/8 X 1-3/4			537							1
1/2 X 1-3/4	534-1/2	184	179	188						4
9/16 X 1-1/2	535									1
9/16 X 1-3/4	534	533								2
5/8 X 1-1/2	403			538	393					3
5/8 X 1-3/4	404	185 399	178	190 189			539	536	395	9
5/8 X 2	405	532	183 531	397		192			191 398	8
3/4 X 1-3/4	401			391						2
3/4 X 2	402	186 400	177 182		392 187				396	8
7/8 X 2		186a	176	390						3
7/8 X 2-1/4	402a		181						180 394	4
1 X 2		186b	176a							2
1 X 2-1/4	402b			389						2
Totals	**10**	**9**	**10**	**8**	**3**	**1**	**1**	**1**	**6**	**49**

Sash molding planes are measured differently than other molding planes. The measurements are based on the size of the finished sash bar. Sash molders were often sold in pairs. The idea being that the iron in one plane would be set to remove material quickly and the other iron set very fine to produce a smooth surface. Each plane was stamped with a number one (1) or two (2), so the craftsman could tell them apart. I have threes3 pair (out of 15) with a steeper pitch on the number two plane than the number one.

Figure 2 shows how sash bars are measured and Figure 3 shows how this information is displayed on the plane.

Figure 2. How do you measure a sash bar?



These dimensions are for a Mathieson number 177. The designation for this sash is a 3/4" x 2" Gothic with fillet. Other measurements vary by profile and model.

Figure 3. Information on the heel of the plane.

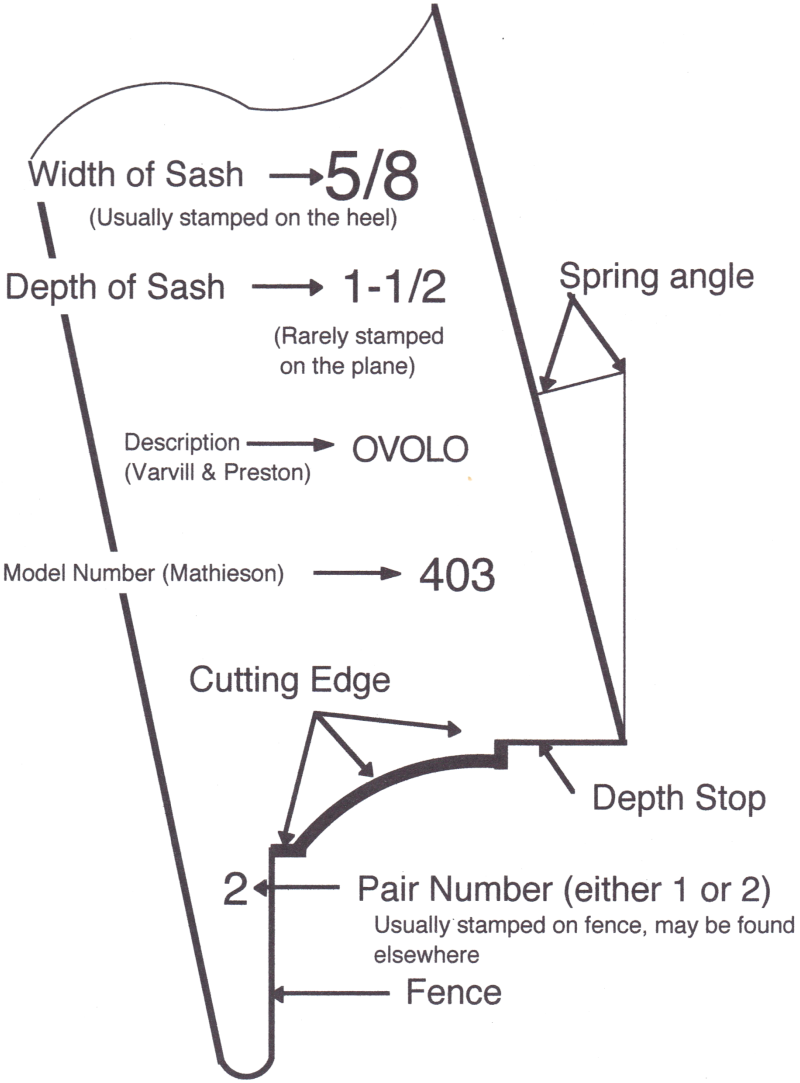
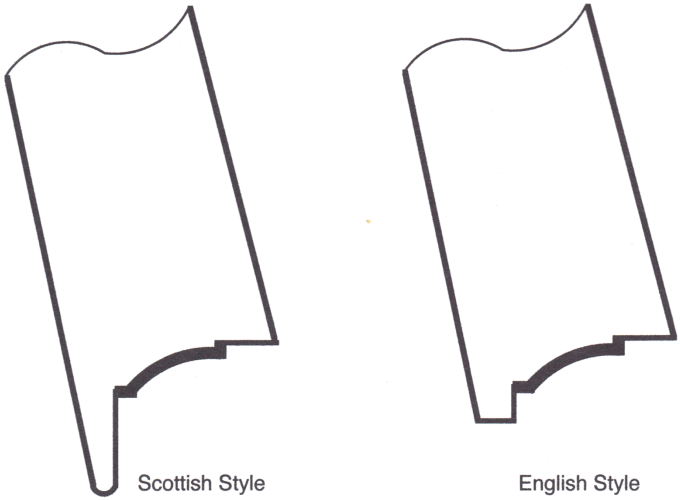


Figure 4 shows the view from the heel of two typical sash-molding planes. The planes with the longer fence were normally made in Scotland; the shorter fence is common to England. Mathieson made both styles.

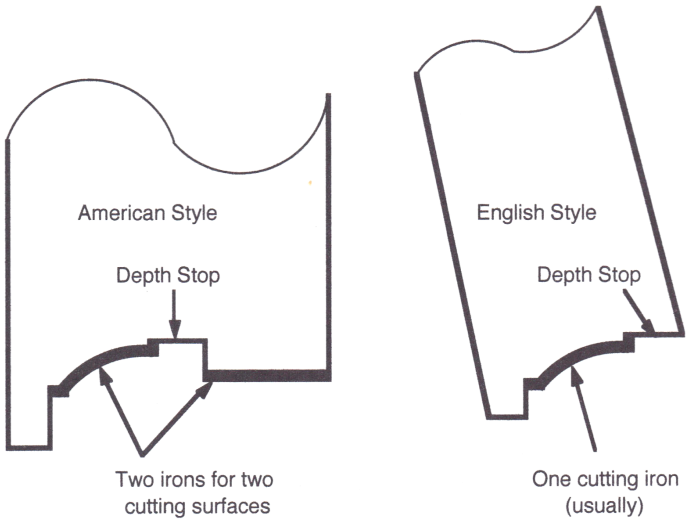
Figure 4. Comparison of English and Scottish Sash Planes (the only difference being the length of the fence)



English Sash Planes

You will probably never see an English style plane made by an American manufacturer because American planes were designed to cut the molding and putty rabbet at the same time. In England they are called stick and rebate. Figure 5 compares an American with an English sash plane. Several English companies did make American style planes.

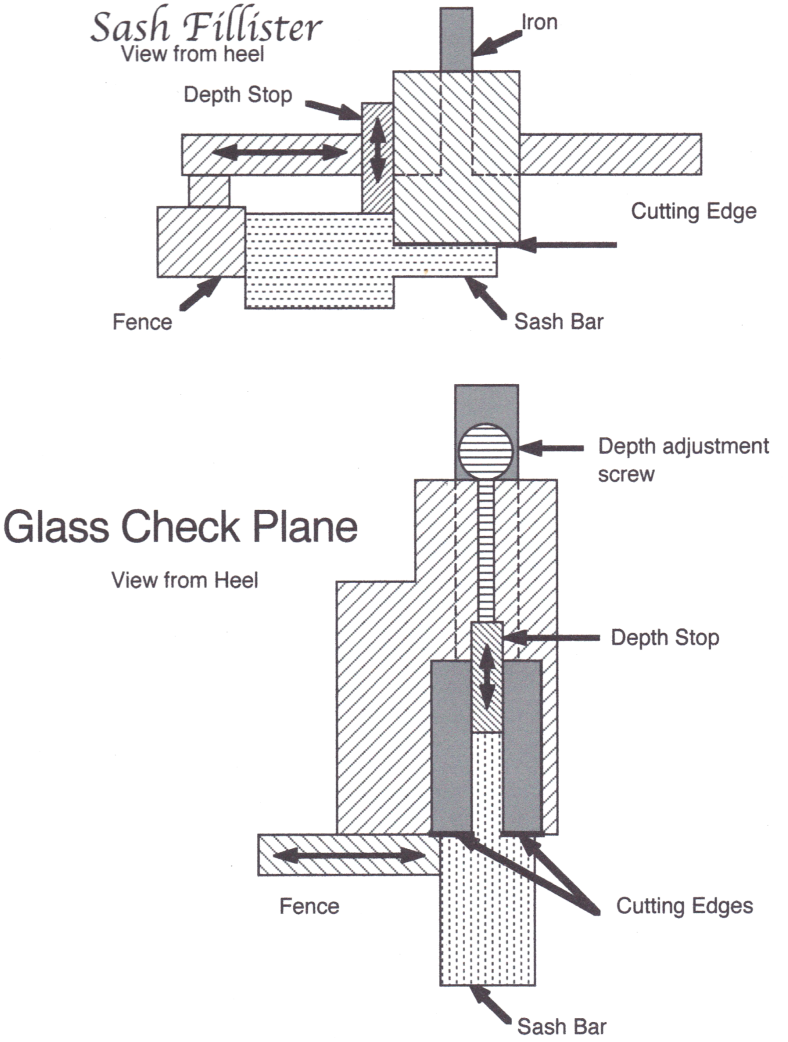
Figure 5. Comparison of English and American Sash Planes



Because two planes instead of one were used in England to form the sash bars a rabbet plane was needed to cut the putty rabbets. The most common is the Sash Fillister. This plane cuts each rabbet separately. The fence rides on the top of the sash bar thus keeping the molded section a constant depth.

The glass check plane is a Scottish invention and cuts both rabbets simultaneously. The depth of cut is controlled from the bottom of the sash and if the bars are not all the same depth can lead to some molded sections being longer than others. Mathieson made both styles of planes. These planes are compared in Figure 6.

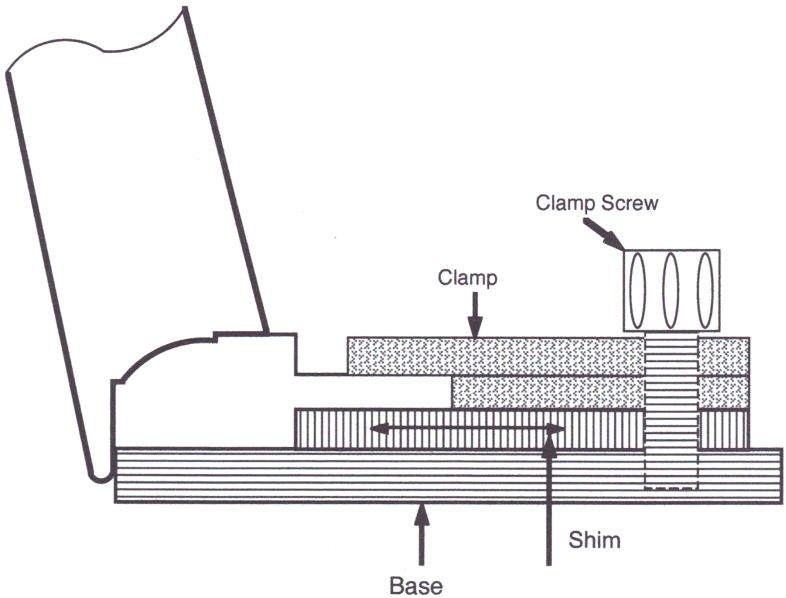
Figure 6. A comparison of a Sash Fillister and Glass Check Plane



Another tool seen occasionally is a sash shave. This tool is similar to a spoke shave except the sole profile matches the equivalent sash molding plane. Each shave has a left and right hand side. They are used to make curved elements. The two sides allow you to work with the grain as you work from each end of the curved segment.

Making sash components is fairly straightforward. First size and square the sash bars. The putty rabbet is cut next. Whether a sash fillister or glass check plane is used this can be done on a workbench with the workpiece clamped with bench dogs. The next step is to mold the sash bar. Here a fixture called a sticking board is used to secure the workpiece. One side is molded and the piece flipped end-for-end and the other side done. Figure 7 shows the relationship of the sticking board, workpiece and molding plane.

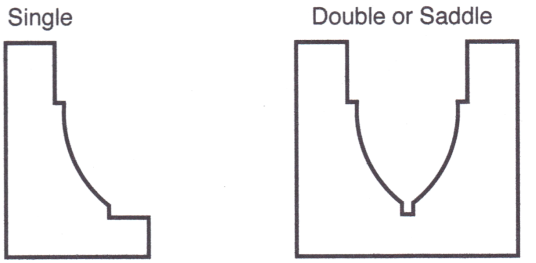
Figure 7. The relationship between the sash molding plane, the sash bar and the sticking board



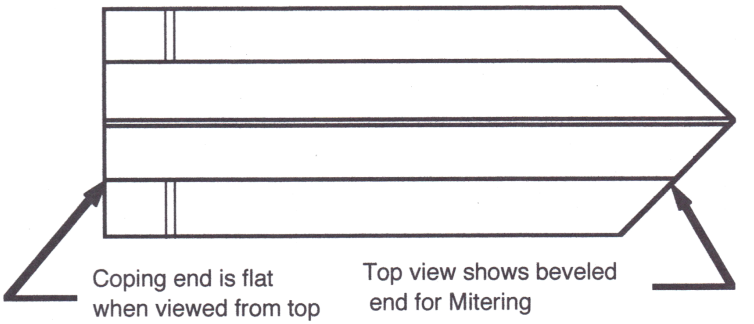
Various thicknesses of shims and clamps must be made to accomodate different sizes of bars. A stop is attached to the far end of the sticking board to keep the bar from advancing when planing the profile.

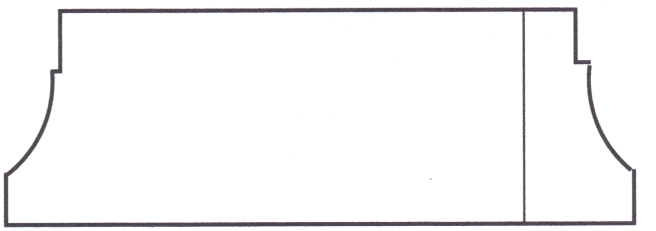
The next step, the assembly of the sash components, calls for some other tools. A sash template and, depending on the method used, a sash coping chisel. Sash templates were not commonly used in the United States. Each template in my collection of thirty was made in England. Sash templates are made to hold the sash bar while the end of the bar is coped or mitered. There are saddle templates (double) and single templates. The better templates were faced with brass on the wear portions. Figure 8 shows a sash template for a Gothic profile with both a mitered and coped end.

Figure 8. Sash Template



End view shows how sash bar fits into template



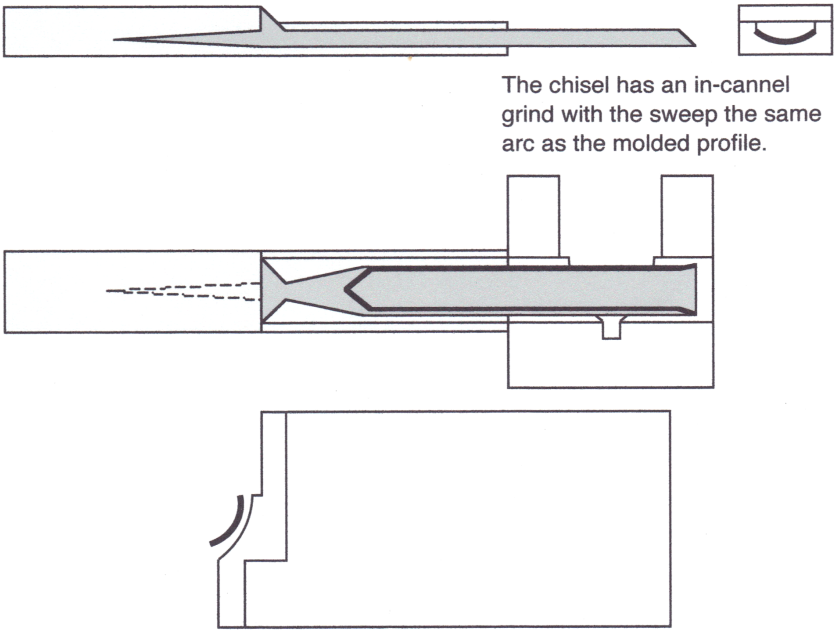


Side view shows end for coping. Although they appear similar in profile the mitered end is unsuitable for coping.

Another tool used in the assembly process is a sash mortise chisel. These chisels differed from normal mortise chisel in the more gradual slope of the taper and a thinner cross section. Sash mortise chisels were made in the U.S. and in Great Britain. Figure 9 shows a sash coping chisel and its relationship to the sash template.

Figure 9. How Sash Templates are used with a Coping Chisel

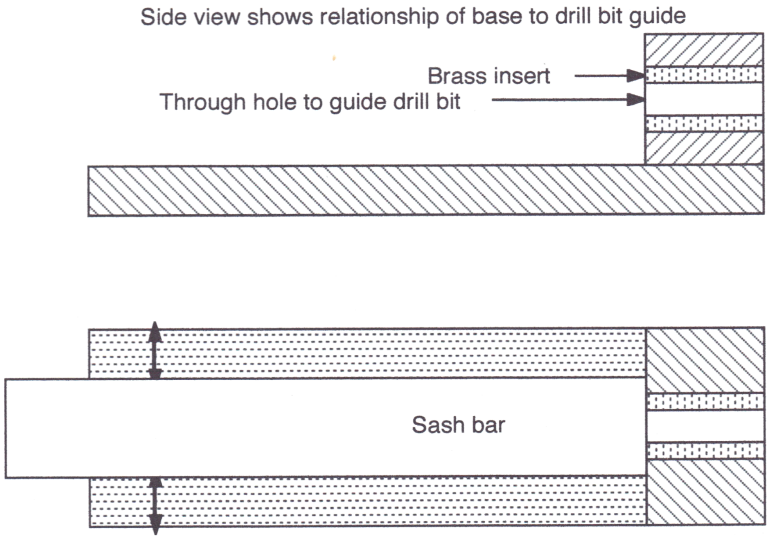
A sash coping chisel has the handle extending almost to the cutting edge. This keeps the chisel from going beyond the template when the cut is complete.



Side view shows end for coping. Expensive templates have brass inserts for exended wear as shown above on the left end. The chisel needs to have an arc equal to, or more severe than the ovolo. Coping templates are only usable for Ovolo or Gothic profiles.

Two other tools are used in the assembly process. One is a sash doweling fixture. Their owners made most of these, many of exotic woods and with extensive use of brass. These are fairly scarce and thus hard to come by. The sash doweling jig was used to hold the sash bar while a hole was drilled in the end to accommodate a dowel or bamboo peg. The other is a special drill bit for drilling in end grain. This bit is called a nose bit and resembles a spoon bit but has a hook instead of a continuous cutting surface on the business end. Figure 10 shows a simplified version of a sash doweling jig.

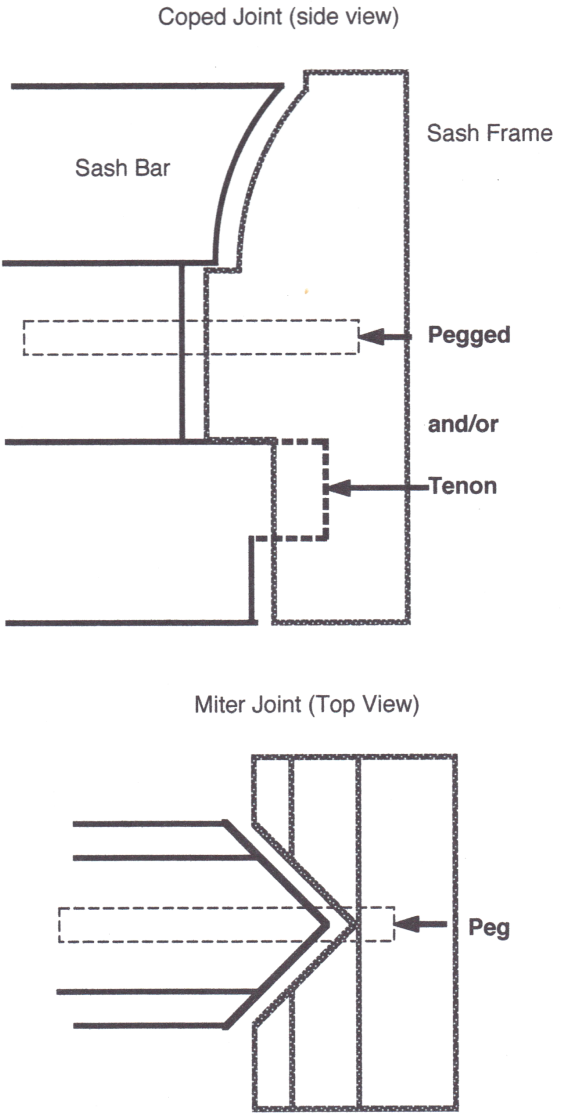
Figure 10. A simplified sash doweling jig



Sides (usually wood) move to fit snugly against the sides of the sash bar. Screws to hold sides are in the bottom. Some fixtures have a fixed side and moveable guide and one moveable side to fit various sizes of sash bar. The bar can be held in place with the sides or a clamping device was installed on top of the sides to hold the bar in place.

Once the bars are formed and the dowel holes are drilled the sashes are ready to be assembled. Figure 11 shows two common methods used, coping and mitering. The pegs were sometimes made of bamboo and were square.

Figure 11. Coped joint compared to Mitered joint



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