

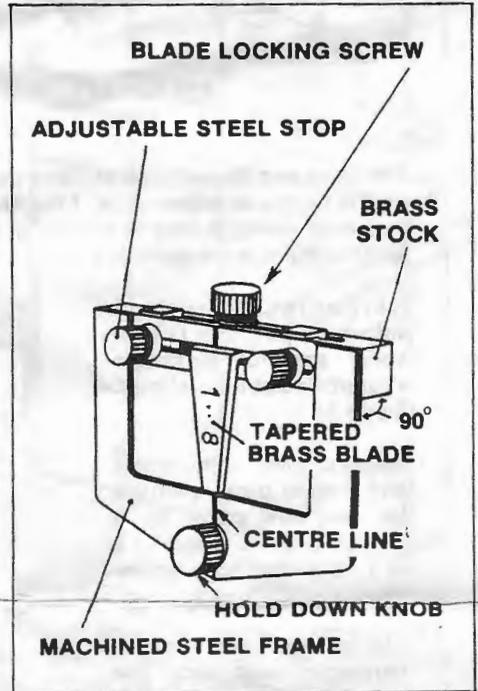
Dovetail Marking Gauge

**MANUFACTURED BY:
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The Collett Engineering Dovetail Gauge

The gauge can best be described as an adjustable template. It consists of a steel frame and brass stock carrying a tapered brass blade, which can be fixed in the marked central position (thus providing the ordinary template facility) or moved, either side up, to adjustable stops. The effect of this movement is to provide a template of infinitely variable widths from which both tails and pins can be marked out. Two tapered blades are supplied - 1 : 6 and 1 : 8. The edges of the steel frame are machined to 90 degrees for use as a small try square.

Once set to the required width of the tail or pin, one part of the joint need not be sawed down to mark out the other.

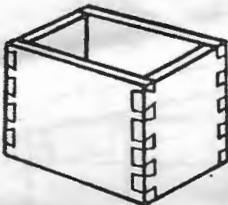


INTRODUCTION

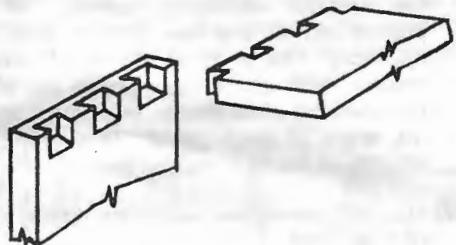
The dovetail is the strongest joint that can be produced for corner jointing the end grain of timber. It has the advantage that it can be made entirely with hand tools and a well finished joint has the stamp of craftsmanship.

It is mechanically strong, resisting any effort to pull it apart - at least in one direction - and is chiefly used in the making of boxes, cabinet carcasses and drawers.

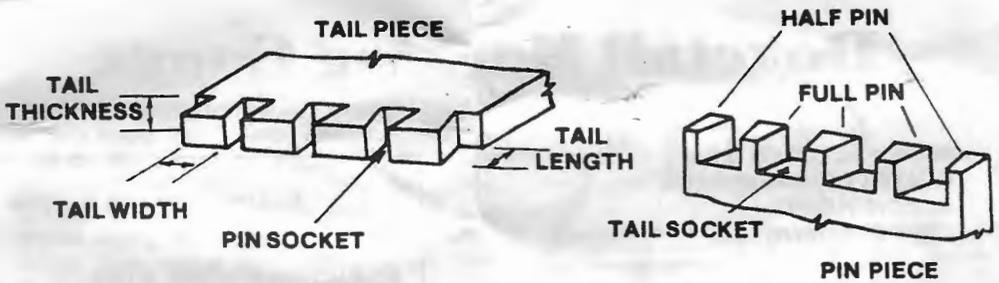
The two Basic Forms are:



The through (or common) dovetail as used in box construction



The lap dovetail which hides the joint on one face as in a drawer front.

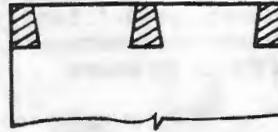


The sizes and proportions of these parts may be varied to suit the job in hand; especially having regard to appearance, if the finished joint is to be a decorative feature. Conversely, maximum strength may be needed at the expense of appearance. In good class work, the slope of the tails are generally cut to an angle of 1 : 6 for softwoods and 1 : 8 for hardwoods.

Carpenter's joint in softwood, pins and tails of equal size for maximum strength in a structural joint. Slope 1 : 6.



Joiner's joint with neater and smaller pins - perhaps for his tool chest or a kitchen fitment. Slope 1 : 6 or 1 : 8 according to timber used.



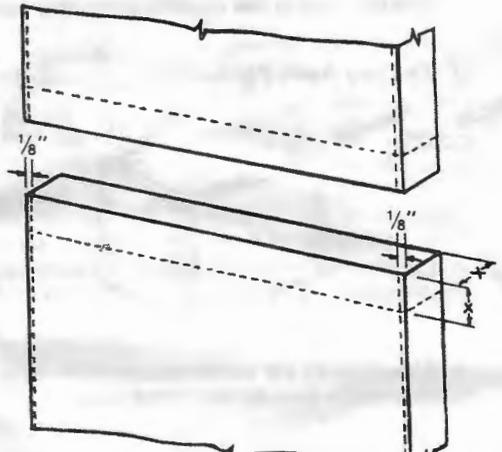
The cabinet maker's joint in hardwood with very fine pins but still strong enough to resist the pull on a drawer front. Slope 1 : 8.



Marking out

As with all woodworking, accurate marking out and preparation of timber to size is essential if a good joint is to be made with minimum time and effort. For the jointing of two box sides from timber of equal thickness, with through dovetails, the sequence of work will be ;

- 1) Prepare the timber pieces to thickness, width and length, making allowance for cleaning up the exterior including removal of any protrusions of the tails and/or pins after assembly. The ends to be joined must be square. With a marking gauge set to the thickness (x) of the timber, mark a line around the ends of each piece. This marks the lengths of the tails and pins.



- 2) Mark $\frac{1}{8}$ " pencil lines along the outside edges of one piece. This assures the outside half pins of being a bit stronger.

3) The centres of the pins and pin sockets are now marked, in pencil, on both pieces, by dividing the width of the timber (after allowing an extra $\frac{1}{8}$ " for each half pin) into the required odd or even number of equal parts. A rule laid obliquely across the timber will help you measure the equal size spaces (Figure 3).

4) First mark out the TAIL PIECE. Determine the size pin you would like (Figure 4). Mark this measurement (Y) to the right and left of line B. This will help you set your gauge accurately.

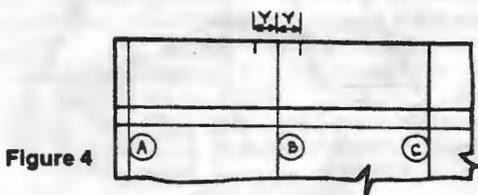


Figure 4

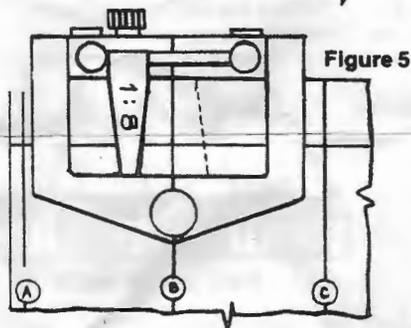


Figure 5

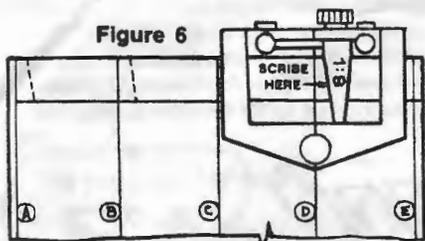


Figure 6

TAIL PIECE

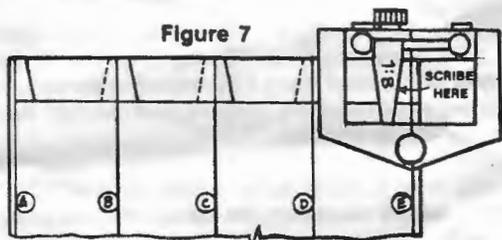


Figure 7

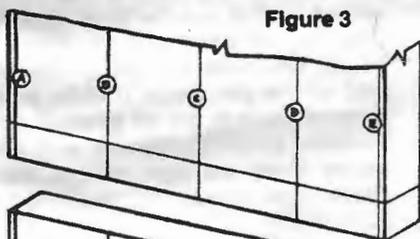
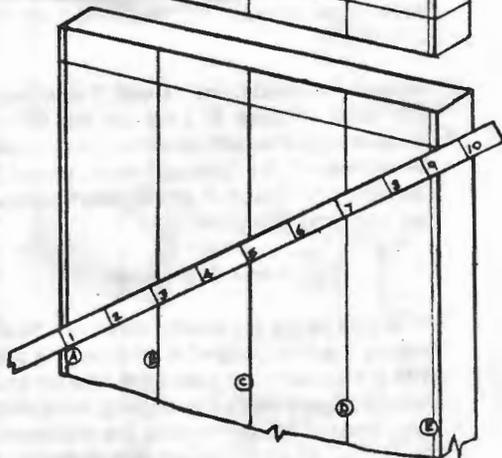


Figure 3



5) Place the Dovetail gauge centre line on line B (Figure 5). Lock the adjustable steel stops to either side of line B to allow the brass blade to move across the full pin socket width.

6) Lock the tapered blade in the right position; (Figure 6) apply the Dovetail gauge to line A and scribe along the left side of the tapered blade. Now repeat this procedure on lines B, C, and D.

7) Release the blade and relock it against the opposite (left) stop. (Figure 7) Apply the Dovetail gauge centre line to line B and scribe along the right side of the tapered blade. Now repeat this procedure on lines C, D, and E. Mark the waste to be removed (pin sockets) on the workpiece to ensure sawing on the waste side.



Mark out the waste

8) Now there is no need to saw down these sloped lines to use the tailpiece to mark the pins (as was conventionally done). Instead, simply apply the Dovetail gauge across the end of the pin piece. (Figure 8) With the tapered blade in the left position, line up the Dovetail gauge centre line with line B and scribe along the right side of the tapered blade. Now repeat this procedure on lines C.D. and E.

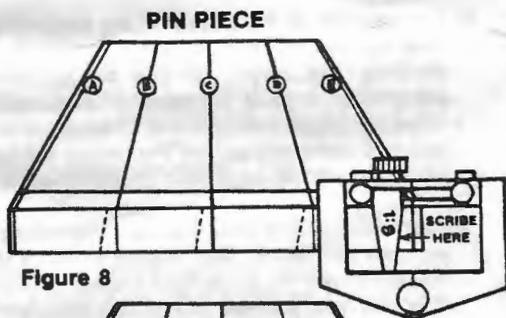


Figure 8

9) Release the blade and relock it against the right stop. (Figure 9) Line up the Dovetail gauge centre line with line A and scribe along the left side of the tapered blade. Repeat this procedure on lines B.C. and D. Mark the waste (tail sockets) to be removed.

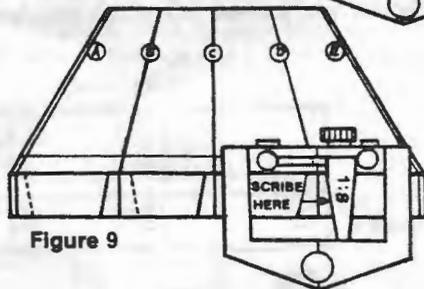
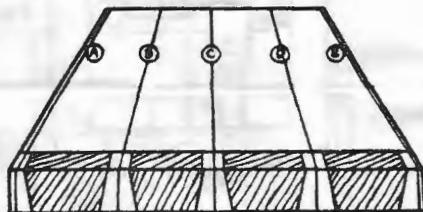


Figure 9

Removing waste

All is now ready for sawing down the sloping lines to the line gauged all around the piece. With a fine tooth Dovetail Saw, saw carefully, making sure to leave the sloping lines visible. Keep the cut square across the thickness of the timber, or else tapered and ill-fitting tails will result.

The waste to be removed (which will produce the sockets for the pins) may also be cut out with the dovetail saw and a coping saw. Finally, finish to the gauged line with a sharp bevel edge chisel. Chisel from both faces of the piece to avoid splitting out the timber.



Mark out the waste

Assembly

The joint is now ready for assembly and the interior faces of the pieces should be cleaned up. If well cut, it should be a good close fit without more attention. An over-tight joint will strain and split the pieces, especially if pins and tails are cut to an excessive angle.

To assist assembly, the inside surfaces of pins or tails may be lightly chamfered, as shown. The chamfers will be hidden within the joint and provide a pocket for dispersing excess glue.



Do not apply excessive quantities of glue to the mating parts of the joint. If it is a good fit, much of the glue will be pressed out as it comes together, making it necessary to wipe surplus glue away with a damp rag. If the interior faces are to be polished or varnished, it is worthwhile to give them at least a first coat before assembly. Surplus glue can then be more readily removed and staining of the wood will be avoided.

The joint can be forced home with a rubber or wooden mallet. When the joint is made, it should be tested for squareness and corrected as necessary. No clamping is required, and the work can be laid aside to allow glue to set.