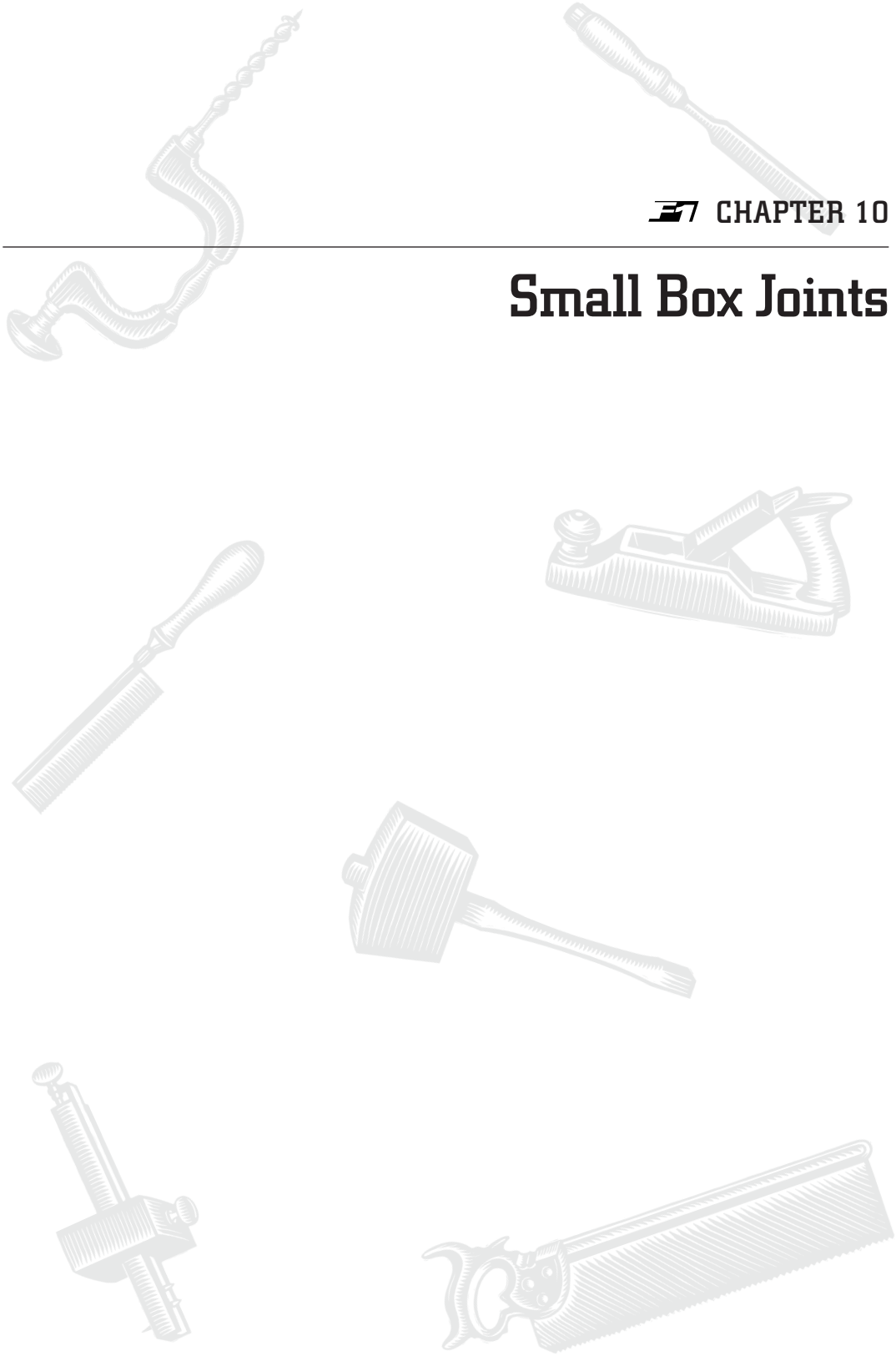
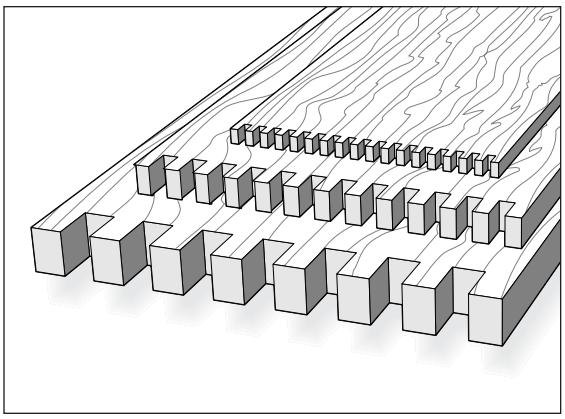


CHAPTER 10

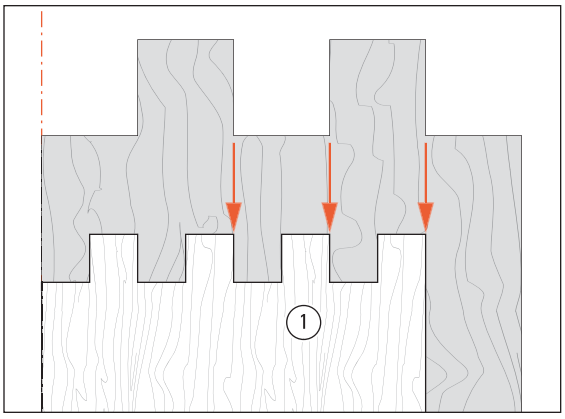
Small Box Joints

Chapter Foreword

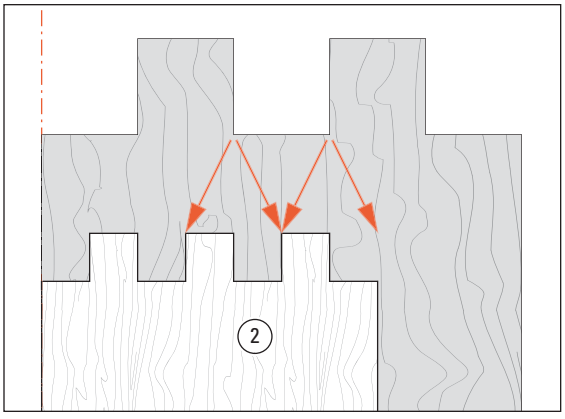
These instructions are based on the assumption that you have mastered the routing of the basic box joint, and are thoroughly familiar with those procedures. Also that you have read the Hints and Tips Chapter 12.



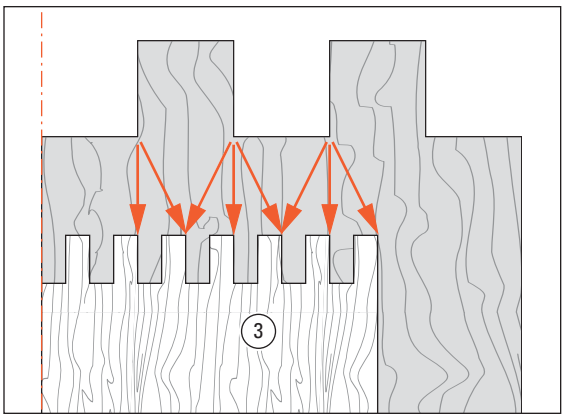
10-1 Small Box Joints
The template pin positions for square and rounded finger joints are a quarter pitch apart. This allows routing of half-size, even quarter-size box joints (it does not work on rounded finger joints). You get the advantage of routing thicker, wider boards with ¼"[6mm] box joints on the ½"[12mm] template; or as small as 1/16"[2mm] on the ¼"[8mm] template. *There are some specific rules for routing small box joints; see figures 10-2 to 10-7 starting below.*



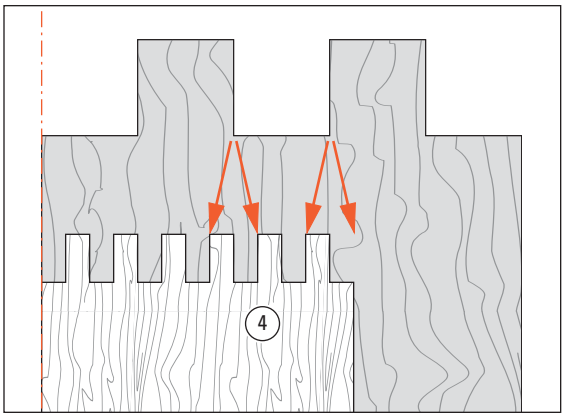
10-2 Board Widths For Small Box Joints
These widths have to be calculated (by simple addition or subtraction) from the board width charts on pages 37 and 38. The simple calculation rules are:
Use any one of the board widths listed under the selected comb size, with the following additions or subtractions.
Half-size asymmetrical ①: width as per chart.
Note: The grey background in these four illustrations represents the chart width.



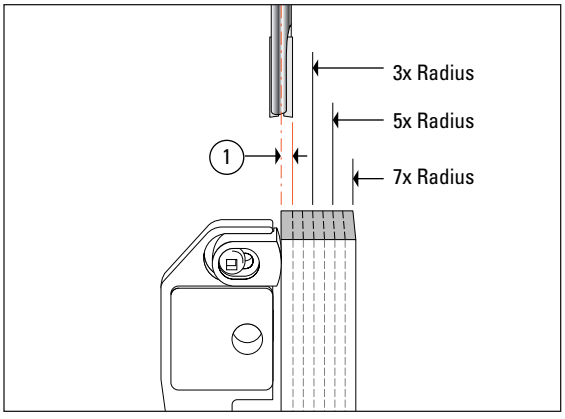
10-3
Half-size symmetrical ②:
Chart width plus or minus diameter of small cutter.



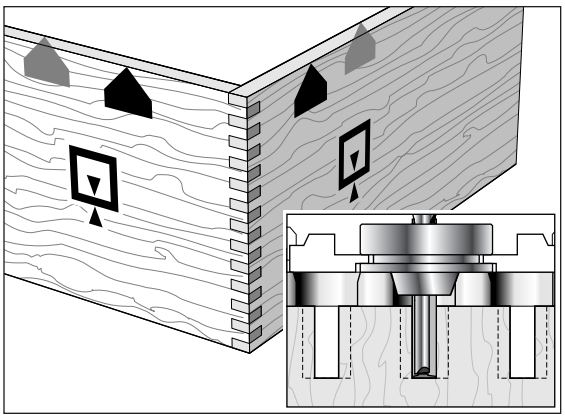
10-4
Quarter-size asymmetrical ③:
Chart width, or chart width plus or minus two diameters of small cutter.



10-5
Quarter-size symmetrical ④:
Chart width plus or minus diameter of small cutter.

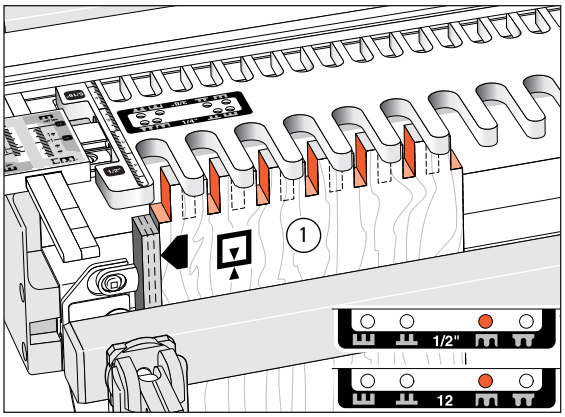


10-6
Block away from side stops. If you used the standard side stop positions for small box joints, the side sockets or side fingers would not be cutter sized. To ensure the correct edge finish, it is necessary to block the board away from the side stop by the radius of the small cutter ①. Obviously this "block" (strip) could be so small as to be difficult to make and attach. So make up a block that is an odd multiple (3x, 5x, 7x, etc.) of the cutter radius.



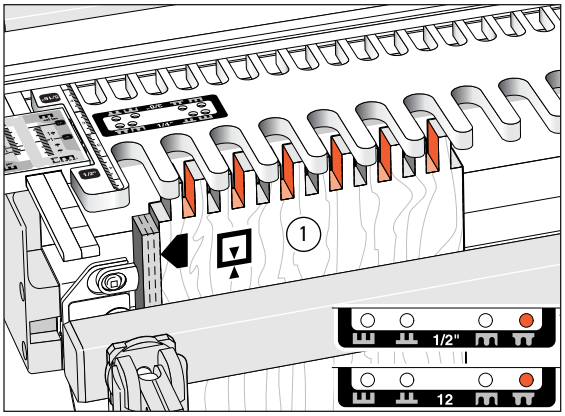
10-7 Box Joints Half the Nominal Size

E.g., ¼"[6mm] box joints on the ½"[12mm] comb. Use the same size guide bush for the selected comb, but **use a cutter of half the nominal size**.



10-8

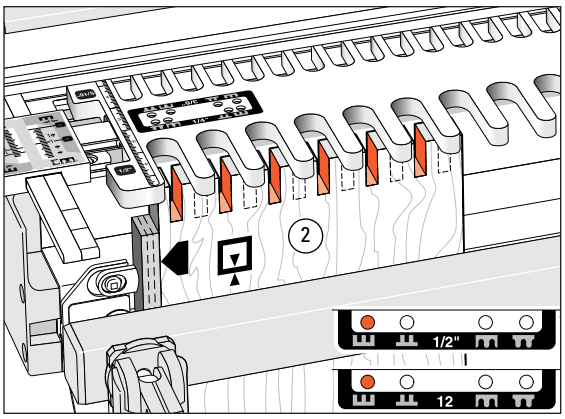
Put the template pin in setting , rout the half-size sockets but leave the board ① in the clamp. Note: this example is a symmetrical joint, yours can be asymmetrical. Also, depending on the actual size of the side stop block, your number ① board edge at the side stop may start with a pin instead of a socket. It doesn't matter, the mating board will automatically match.



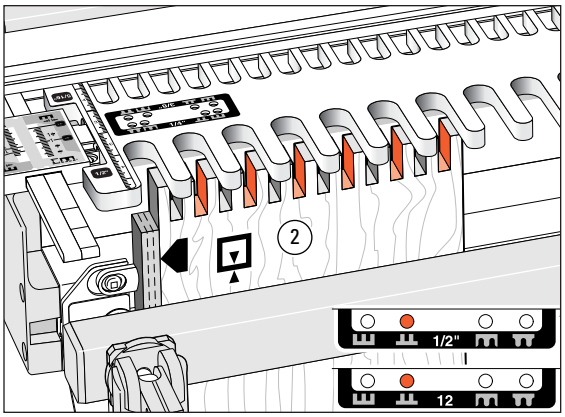
10-9

Move the template and put the template pin in the setting . Rout the other half-size sockets and remove the board. This board ① will now have fingers and sockets half the nominal size.

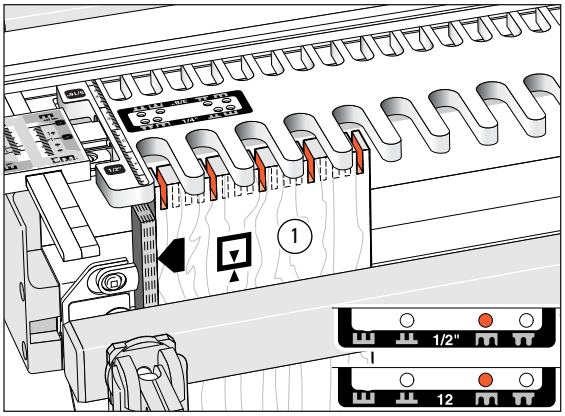
Repeat 10-8 and 10-9 on the other end of the board ① and both ends of board ③.



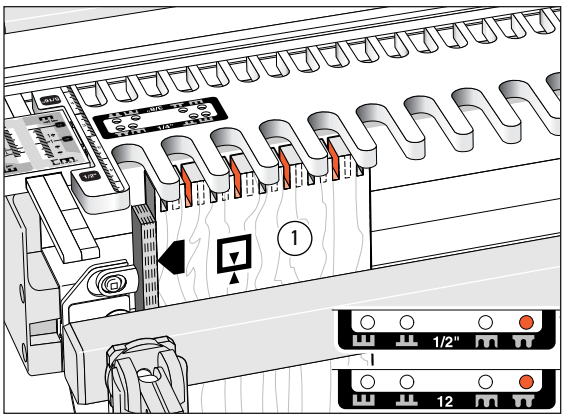
10-10
Mount the mating board ②. Put the template pin in setting and rout the sockets. Leave the board in place.



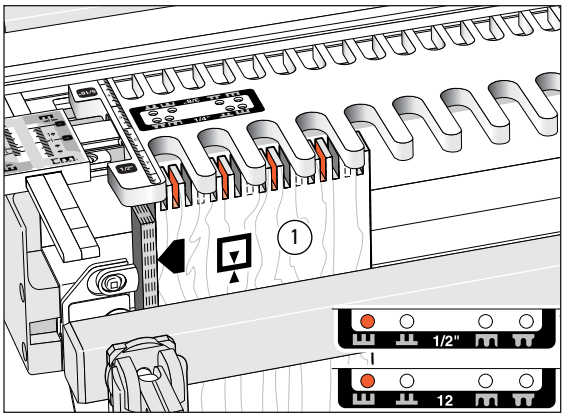
10-11
Move the template and template pin to setting and rout the sockets. Fit the boards together. You may need to adjust the VGS to get the right fit.
Repeat 10-10 and 10-11 on the other end of board ② and on both ends of board ④.



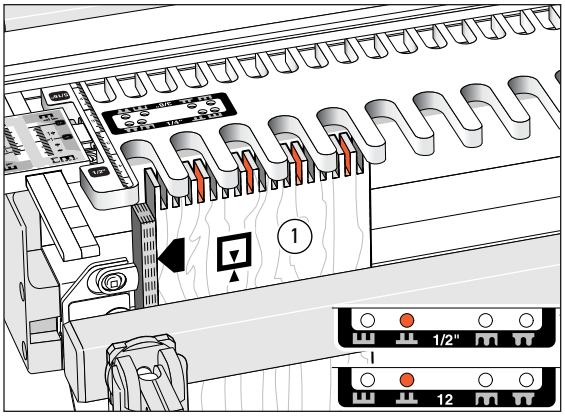
10-12 Box Joints a Quarter the Nominal Size
Mount board ①. Use a guidebush of the nominal size for the chosen comb, but **use a cutter one-quarter the nominal cutter size**. Rout board ① in the pitch setting (as shown here) and in each of the other pitch settings as follows **without unclamping the board**.



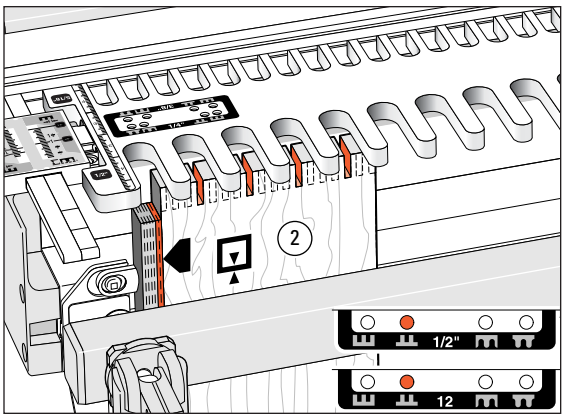
10-13
Pin position .



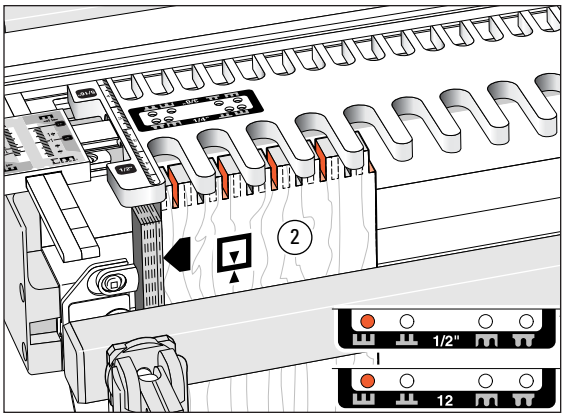
10-14
Pin position .



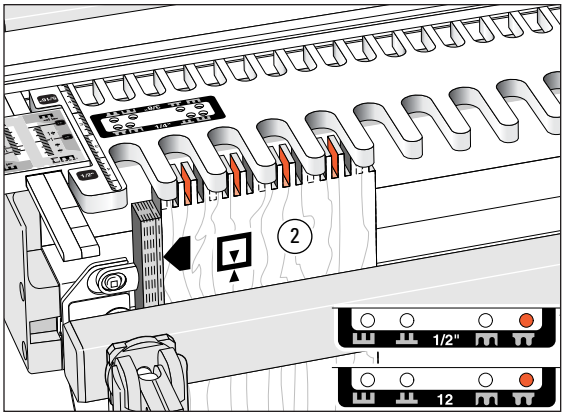
10-15
Pin position .
Repeat 10-12 through 10-15 on the other end of board ① and on both ends of board ③.



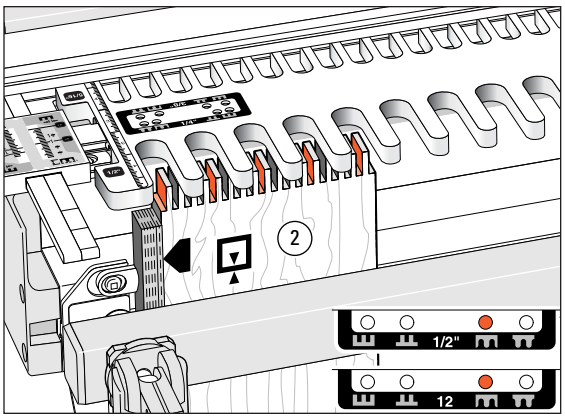
10-16
We have now run out of template offsets, so to make the two boards mate flush at the side edges we need to offset board ② by one diameter of the small cutter, shown here as a red block (See 10-20 for very small joints). Rout board in all four pin positions, here in , then in...



10-17
...pin position .



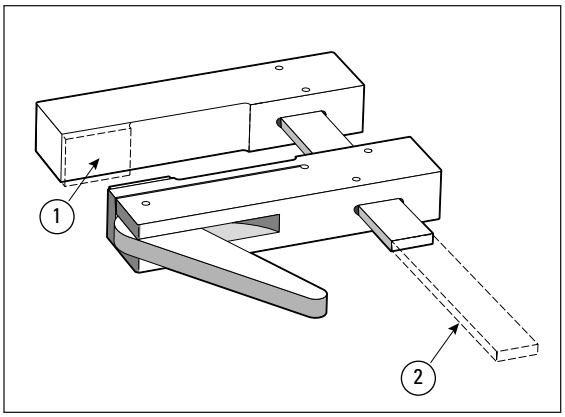
10-18
Pin position .



10-19

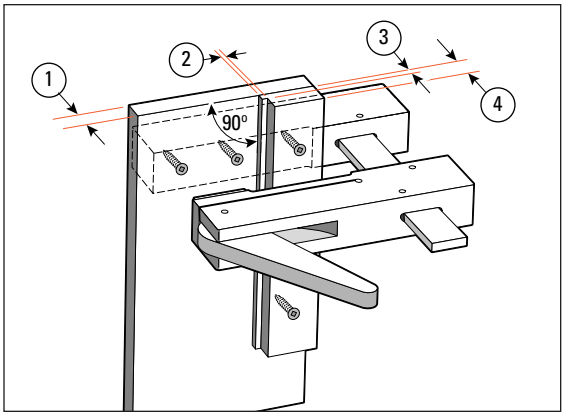
Pin position ⋒.

Repeat 10-16 through 10-19 on the other end of board ② and on both ends of board ④.



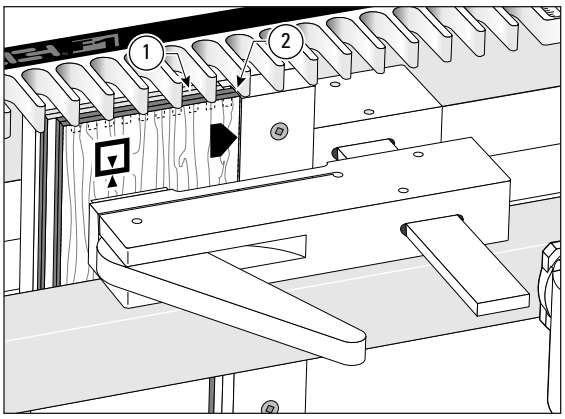
10-20

For very thin or short boards, make up an auxiliary clamp with its own *stepped* side stop by adapting a stock clamp. Remove the grip pad ① flush to the fixed jaw face. Remove the excess metal bar ②. These useful wooden clamps are generally available from most good woodworking tool stores.

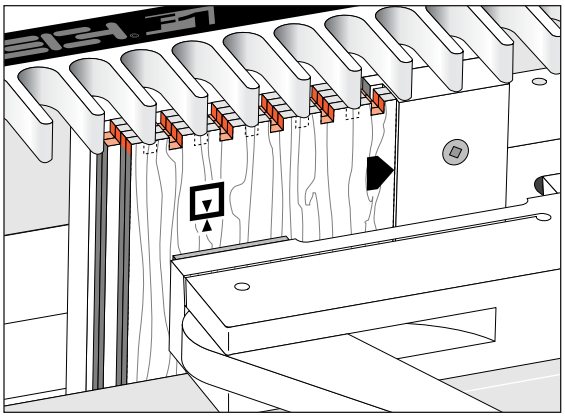


10-21

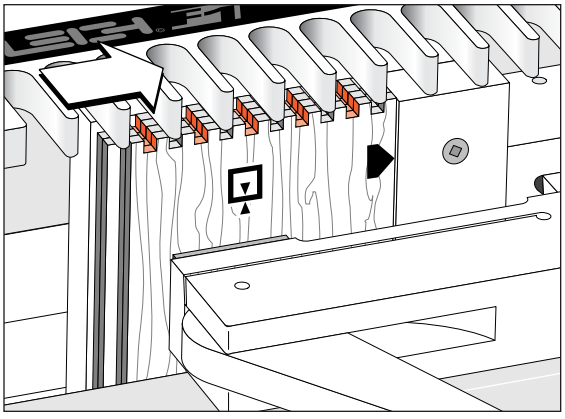
Rout up to four pieces at once, and speed up small box joint routing. Adjust the scale settings to allow for the backboard thickness, e.g., a ½"[12mm] backboard ①; move the template ½"[12mm] further toward you. ② is a step, equal to the small cutter diameter used. ③ is slightly less than one or two board thicknesses. ④ is greater than all board thicknesses combined.



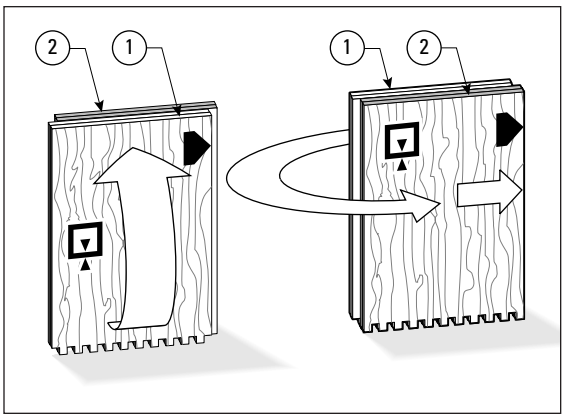
10-22
The front jig clamp holds the auxiliary clamp by its stepped side stop. The small boards may slide behind the jig front clamp bar if necessary. The rear two boards ① are offset from the front two boards ② by the stepped side stop, at an amount equal to the small cutter diameter used.
Adjust the auxiliary clamp left and right in the jigs front clamp to allow for the correct side edge finish.



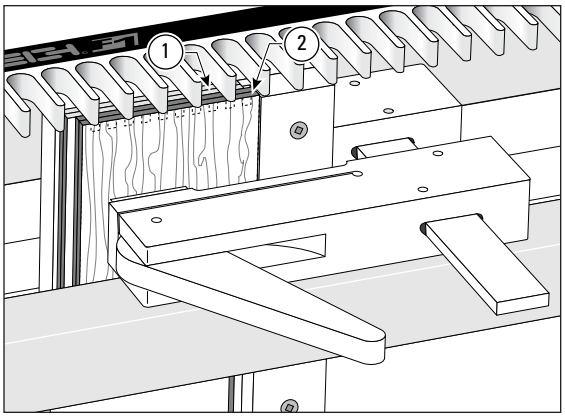
10-23
In this example, a half-size joint is being simultaneously routed in all four box board ends. First in one pin position...



10-24
...then in the next.



10-25
Remove all four boards together, and turn end for end, keeping the same edges to the side stop. Move boards ② back to the front before re-clamping.



10-26
Now rout these four ends in the same two template pin positions as before.