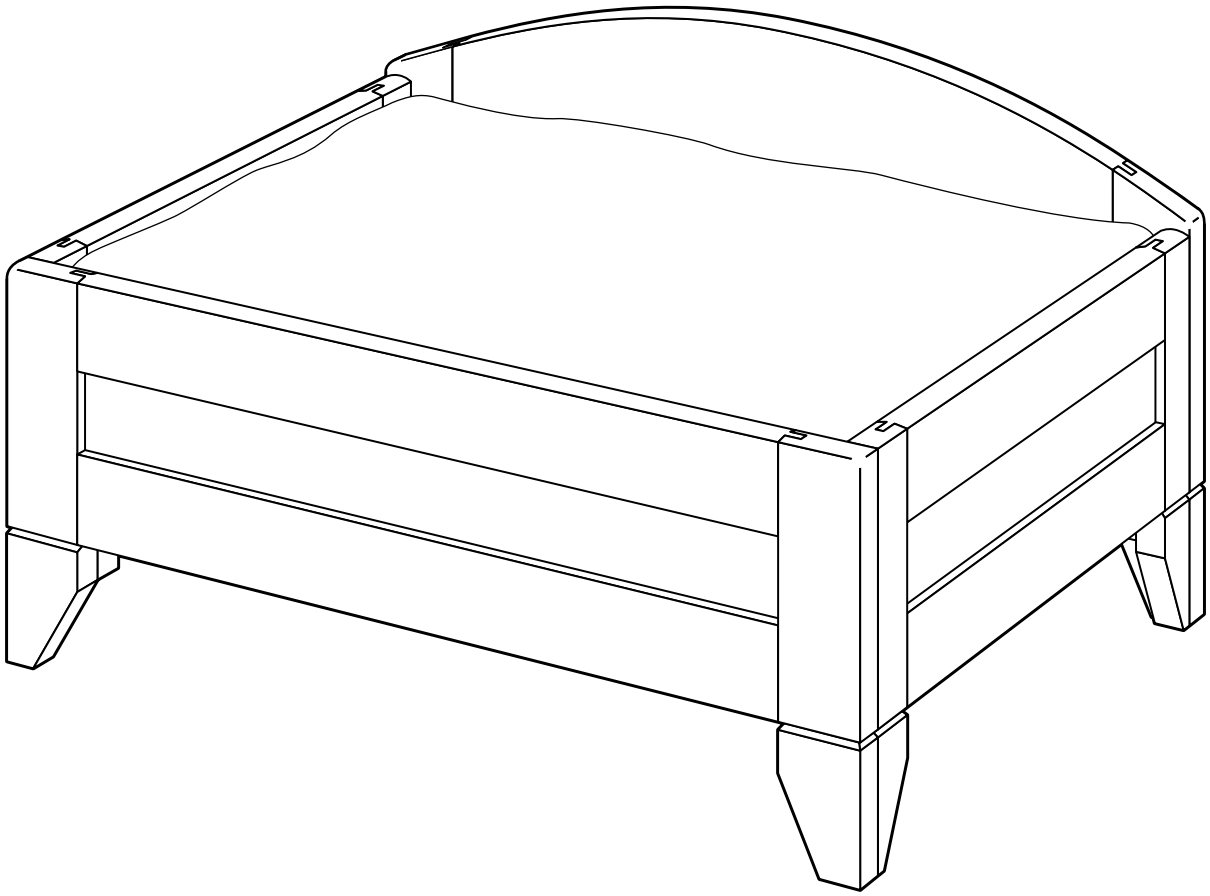
MINWAX

WOODWORKS: INTERMEDIATE PROJECT 2013-2014

DOG BED



All dogs love a soft and cozy bed, so why not give your beloved pet a great-looking place to call its own! Made mostly of solid wood, it can be varied to fit the size of any ready-made pad and the dog who'll use it. It's a great way for intermediate woodworkers to learn to make table saw tongue-and-groove joints and recessed panels and to find out about biscuit joinery. And after you build it, you will learn more about applying stain and using finishes to protect the wood and keep it looking beautiful.

TOOLS REQUIRED

Hand Tools
– Adjustable square

Power Tools
– Table saw
– Router table
– Band saw
– Drill with drum sander
– Orbital or finish sander

Miscellaneous
– Tape measure
– Pencil
– Wood glue
– Safety glasses
– 120- and 220-grit sandpaper
– Sanding block
– Clean, lint-free cloths
– Respirator
– Gloves for finishing
– Mineral spirits, for cleanup of oil-based finishes
– Good quality, natural-bristle brush

SHOPPING LIST

Recommended Wood: Solid oak and hardwood veneer plywood

Note: Dimensions for this piece correlate with a pad that is 14-1/2" x 21". Buy the dog bed pad before starting your project to make sure the dimensions work out.

Parts	Material	Quantity
A, B, C, D, E, F, G, H, I, J, K	3/4" × 7-1/4" solid oak	8'
L	3/4" plywood or 3/4" solid wood, glued up	2' × 2'
#10 Biscuits		8

Pad: Petco Orthopedic Dog Mat, www.petco.com

CUTTING LIST

Note: Dimensions are for the recommended pad are 2-1/2" x 14-1/2" x 21", which are the inside dimensions of the bed. For larger or smaller or thicker pads, the stile, rail, panel, and mattress board dimensions will need to be changed accordingly. For example, if the pad is 2" wider and deeper, make all the rails 2" longer.

Overall dimension: 2-1/2" x 14-1/2" x 21"			
Part	**Name**	**Qty**	**Dimension**
A	Front & Back Rails	3	¾" × 2" × 19¼"
B	Headboard Rail	1	¾" × 5½" × 19¼"
C	Side Rail	4	¾" × 2" × 12¾"
D	Front Stiles	2	¾" × 2" × 6"
E	Back Stiles	2	¾" × 2" × 8"
F	Side Stiles	4	¾" × 1¼" × 6"
G	Side Panels	2	¼" × 2 11⁄16" × 12 11⁄16"
H	Front Panels	2	¼" × 2 11⁄16" × 19 3⁄16"
I	Side Legs	1 (Glue-up Dimension)	¾" × 1¼" × 15"
J	Front & Back Legs	1 (Glue-up Dimension)	¾" × 2" × 15"
K	Inside Corners	4	¾" × 1¼" × 3¾"
L	Mattress Board	1	¾" × 14 7⁄16" × 20 15⁄16"

WOOD FINISHING PRODUCTS

Recommended Finish
Prep: Minwax® Pre-Stain Wood Conditioner (oil-based)
Stain/Finish: Minwax® PolyShades®, Pecan, Gloss

Alternate Finish
Prep: Minwax® Pre-Stain Wood Conditioner (oil-based)
Stain: Minwax® Wood Finish™, English Chestnut
Finish: Minwax® Fast-Drying Polyurethane, Semi Gloss

BEFORE YOU BEGIN

Good craftsmanship begins and ends with good work habits, so make the following steps part of your routine workshop practice. If you have any doubts or questions about how to proceed with a project, always discuss them with your shop instructor.

- Carefully and fully review plans and instructions before putting a tool to the project lumber.
- Work sensibly and safely. Wear safety goggles. Wear the appropriate respirator whenever making sawdust or working with thinners or other solvents.
- At the end of every work session, clean up your shop area and put away all portable tools.

CUTTING AND ASSEMBLY

1. Cut the rails (A,B, and C) and the stiles (D and E) to length. Note that the back stiles (E) are cut longer than the finished length. If you are making panels G and H from board stock and not plywood, start by ripping the thickness of 3/4" stock in half and then planing it down to 1/4" (see Fig. 1).

2. Using a ripping blade in the table saw, cut the grooves for the panels. Set the blade to a height of 3/8". Position the table saw fence so that two passes with each face against the fence produce a groove just wide enough to receive the panel material; this ensures that the grooves will be centered in the edges of the stiles and rails (see Fig. 2). If a sliver of material remains in the middle, reset the fence to remove it after first making all the grooves.

Woodworker's Tip: *Use a flat top-grind blade for this process to get a flat bottomed groove. Make test cuts in scrap that's exactly the same thickness as the project material. Set the height of the blade to 3/8". Use a feather board to hold the material tight to the fence and a push stick to push the stock past the blade.*

3. Set up a 1/2" dado head in the table saw. Set the height of the dado at 1/4" and set the fence so 3/8" of the dado head projects past the fence.

4. Make test cuts in scrap exactly the same thickness as the project material. Form a tongue by making two passes over the dado blade, flipping the piece between cuts.

5. Adjust the dado height and the fence position until the tongue fits perfectly into the groove.

6. When cutting the tongues for A, B, and C, add a sacrificial fence to the miter gauge to prevent splintering on the exit side of the cuts (see Fig. 3).

7. Dry assemble the frames and measure for panels G and H.

8. Cut panels G and H to size.

9. Sand the panels and inside edges of frame pieces. Be careful not to round over the edges of the frame parts.

10. Glue and clamp the frames. Check to make sure each frame is perfectly square.

11. Glue together the two leg blanks, I and J (see Fig. 4).

12. After the glue dries, cut the L-shaped piece to 7" long, enough for two 3" legs. It's easier to do the rest of the work on the legs using two long pieces rather than four short ones.

Woodworker's Tip: *Leaving the leg material slightly (1/16") thicker than the rail material will add visual interest to the result, creating a slight reveal between the bottom edge of the panels and top edge of the legs.*

13. Lay out the leg angle by striking lines 1/4" from the inside corners and 2" from the bottom ends of the legs (see Fig. 5).

14. Cut the angle on a bandsaw. Sand the cuts.

15. Cut the legs to their final length, 3".

16. Set up a 45-degree chamfer bit in the router table.

17. Set the height of the bit to 1/8" and chamfer the top edges of the legs. Use a back-up board to prevent splintering and to stabilize the leg.

18. To lay out the headboard (B), draw a line perpendicular from the middle of the top edge and make a mark from the edge so that the dimension from the mark to the bottom edge is 5-1/2". Make a mark on each stile (E) 6-1/4" from the bottom end.

19. Put small clamps at these two marks. Set a thin flexible stick between them and then pull the stick back to the mark on the headboard. Trace the resulting curve on the stiles and the headboard (see Fig. 6).

20. Using the band saw, cut the headboard curve and sand edges.

21. Lay out the biscuit slots, 2 per corner. The centers should be 1-1/2" from the edge (see Fig. 7).

22. Cut the slots for #10 biscuits.

23. Dry assemble the footboard corners. Mark the location of the inside corner on the footboard.

24. Set up a 1/4" round-over bit in a router table. Round over the top corners of the side rails completely, from end to end. Round over the outside corner of the footboard completely from end to end. Round over the inside corner of the footboard by stopping at the pencil lines indicating the location of the inside corner. Round over both outside corners of the top of the headboard.

25. Sand all parts in direction of the wood grain.

26. Glue and clamp the bed assembly, making sure it's square and that the bottom edges are perfectly flush, panel to panel (see Fig. 8).

Woodworker's Tip: *Be sure to wipe off any excess glue immediately. Dried glue will seal the pores of the wood and prevent it from absorbing your wood stain. Use an absorbent cloth soaked in water to remove the excess. Make sure the cloth is soaked (not just damp) with water. The water will dilute the glue, permitting the fibers of the cloth to absorb the glue with the excess water.*

27. Make the inside corners, K. The dimensions given, using a 3/4" thick mattress board, leave 2-1/2" from the top of the mattress board to the top of the rails. If you use a different dog pad (of different thickness) you may need to change the length of the inside corners.

28. Glue and clamp the inside corners, K, into the rail assembly. The corners need to project 1" past the bottom edge of the rails.

Woodworker's Tip: *Instead of measuring for uniform projection of the inside corners, make a 1" spacer and position them with it. If you are making a large dog bed, add additional support for the mattress board by gluing additional blocks to the inside faces of the panels.*

29. The footboard still has a square outside corner that needs to be rounded to match the other corners. This can easily be done by hand sanding.

30. Sand the exterior surfaces of the bed.

31. Glue and clamp the legs to the inside corners (see Fig.9). The chamfering done earlier on the top of the legs helps mask any irregularities between the legs and the panels.

32. Cut plywood or solid wood to make the mattress bottom (L). Solid wood should be edge-joined with glue. After finishing, set L in place. In order to facilitate cleaning do not fasten the mattress board in place.

STAINING AND FINISHING

Woodworker's Tip: *Though you may be tempted to cut short your sanding, preparation, and application time, don't do it. These tasks are very important steps in obtaining a high-quality finish. Remember, it is the finish, just as much as the fit and smoothness of the parts, that will have an impact on how people judge your craftsmanship. To ensure an excellent result, follow the steps listed in this section as well as the instructions the finish manufacturer puts on its products.*

FINISHING TIPS

- Test the stains and finishes you are planning to use on scraps of wood. On the back of the scrap, mark the stain/finish combination and the type of wood. Allow all samples to dry thoroughly before making your final finish selection. Save your samples for quick reference on future projects.
- All stains and finishes must be allowed to dry thoroughly between coats. Remember that drying times can vary due to temperature, humidity and other climatic conditions.
- If you have some leftover stain or finish, wipe the can rim so that stain or finish in the rim won't dry out and prevent the lid from forming a tight seal.

BEFORE YOU STAIN

Carefully sand the parts in the direction of the grain. Start with 120-grit paper and finish with 220-grit. Remove all the sanding dust. Then proceed with the stain and finish of your choice.

RECOMMENDED STAIN AND FINISH

1. Before applying Minwax® PolyShades®, apply Minwax® Pre-Stain Wood Conditioner (oil-based), following the directions on the can. Applying a pre-stain conditioner will help to ensure even absorption of stain and prevent blotchiness.

2. Apply Minwax® Polyshades® following the label directions. Use a good quality, natural-bristle brush suitable for use with polyurethane. Stir the can contents thoroughly before starting and periodically during your work session.

3. Dip the brush an inch or so into the can, gently tapping it against the inside to remove any excess. Do not wipe. Apply a very thin, even coat following the direction of the wood grain. Make sure to maintain a "wet edge." To minimize brush marks and bubbles after staining, tip off the surface by holding the brush at a 45-degree angle and lightly run the bristles over the entire wood surface. Allow the first coat to dry at least 6 hours.

4. For the second coat, sand all surfaces lightly with very fine (000) steel wool. Remove all dust. Apply a second coat of Polyshades®, following the directions above. To achieve a deeper color, you may apply a third coat after 6 hours or longer, repeating the application directions above.

ALTERNATE STAIN AND FINISH

Alt 1. Before applying Minwax® Wood Finish™, apply Minwax® Pre-Stain Wood Conditioner (oil-based), following the directions on the can. Applying a pre-stain wood conditioner will help to ensure even absorption of stain and prevent blotchiness.

Alt 2. Apply the Minwax® Wood Finish™ color you have chosen using a brush or a clean, lint-free cloth following the directions on the can. A brush will help you get the stain into the inside corners. Allow the Wood Finish™ to sit for about 5 to 15 minutes, and then wipe off any excess. To achieve a deeper color, you may apply a second coat after 4 to 6 hours, repeating the application directions for the first coat. Allow the stain to dry for 24 hours before applying the protective clear finish.

Woodworker's Tip: *When wiping off stain, make certain that your last wipe with the cloth goes with the grain of the wood.*

Alt 3. Apply Minwax® Fast-Drying Polyurethane following the directions on the can. Stir Polyurethane thoroughly. Using a good quality, natural-bristle brush, apply a thin coat. Allow the first coat to dry for 4 to 6 hours

Alt 4. To apply a second coat, sand all surfaces lightly with 220-grit sandpaper. Dust off and wipe all surfaces with a cloth lightly dampened with mineral spirits. Apply a second coat and set the piece aside to dry for 4 to 6 hours.

Alt 5. If desired, apply a third coat following step Alt 4. Allow the final coat to dry 24 hours before normal use of the piece.

PRODUCT SAFETY
For your safety and the safety of those you work with, always read and follow the safety warnings that manufacturers print on their labels.

WARNING! Removal of old paint by sanding, scraping, or other means may generate dust or fumes that contain lead. Exposure to lead dust or fumes may cause brain damage or other adverse health effects, especially in children or pregnant women. Controlling exposure to lead or other hazardous substances requires the use of proper protective equipment, such as properly fitted respirators (NIOSH approved) and proper containment and cleanup. For more information, call the National Lead Information Center at 1-800-424-LEAD (in U.S.) or contact your local health authority.

DANGER: Rags, steel wool, other waste soaked with oil-based stains and clear finishes, and sanding residue may spontaneously catch fire if improperly discarded. Immediately place rags, steel wool, other waste soaked with oil-based products, and sanding residue in a sealed, water-filled metal container. Dispose of in accordance with local fire regulations.

When using oil-based wood finishing products:
CAUTIONS: CONTAINS ALIPHATIC HYDROCARBONS.
Contents are **COMBUSTIBLE.** Keep away from heat and open flame. **VAPOR HARMFUL.** Use only with adequate ventilation. To avoid overexposure, open windows and doors or use other means to ensure fresh air entry during application and drying. If you experience eye watering, headaches, or dizziness, increase fresh air, wear respiratory protection (NIOSH approved), or leave the area. Avoid contact with eyes and skin. Wash hands after using. Keep container closed when not in use. Do not transfer contents to other containers for storage.

FIRST AID: In case of eye contact, flush thoroughly with large amounts of water for 15 minutes and get medical attention. For skin contact, wash thoroughly with soap and water. In case of respiratory difficulty, provide fresh air and call physician. If swallowed, call Poison Control Center, hospital emergency room, or physician immediately.

DELAYED EFFECTS FROM LONG-TERM OVEREXPOSURE.
Contains solvents, which can cause permanent brain and nervous system damage. Intentional misuse by deliberately concentrating and inhaling contents may be harmful or fatal.

WARNING: This product contains a chemical known to the State of California to cause cancer and birth defects or other reproductive harm.

DO NOT TAKE INTERNALLY. KEEP OUT OF REACH OF CHILDREN.
CONFORMS TO ASTM D-4326. Contact a physician for more health information.

FIG 1.

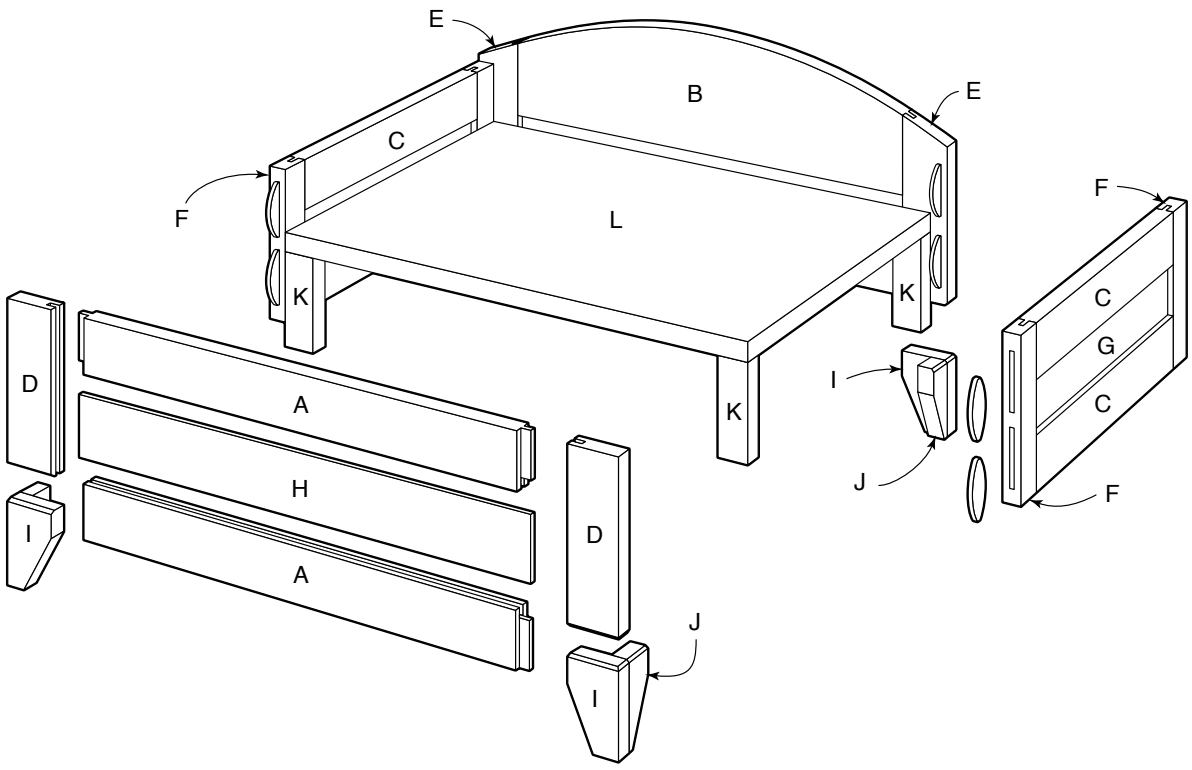


FIG 2.

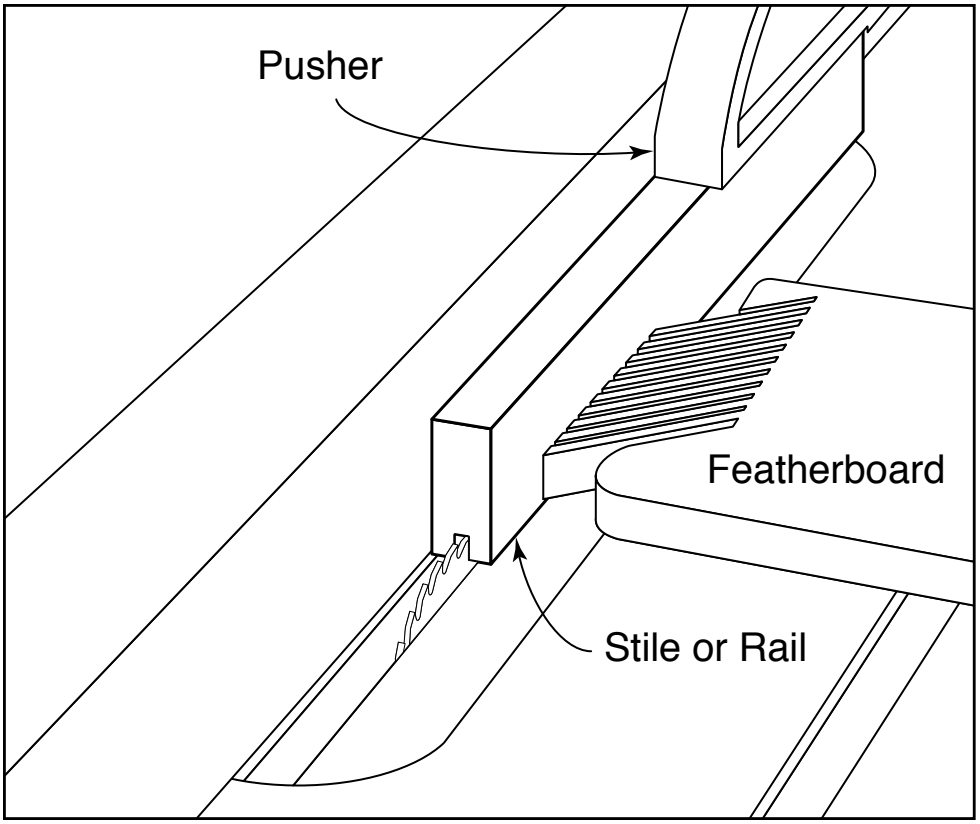
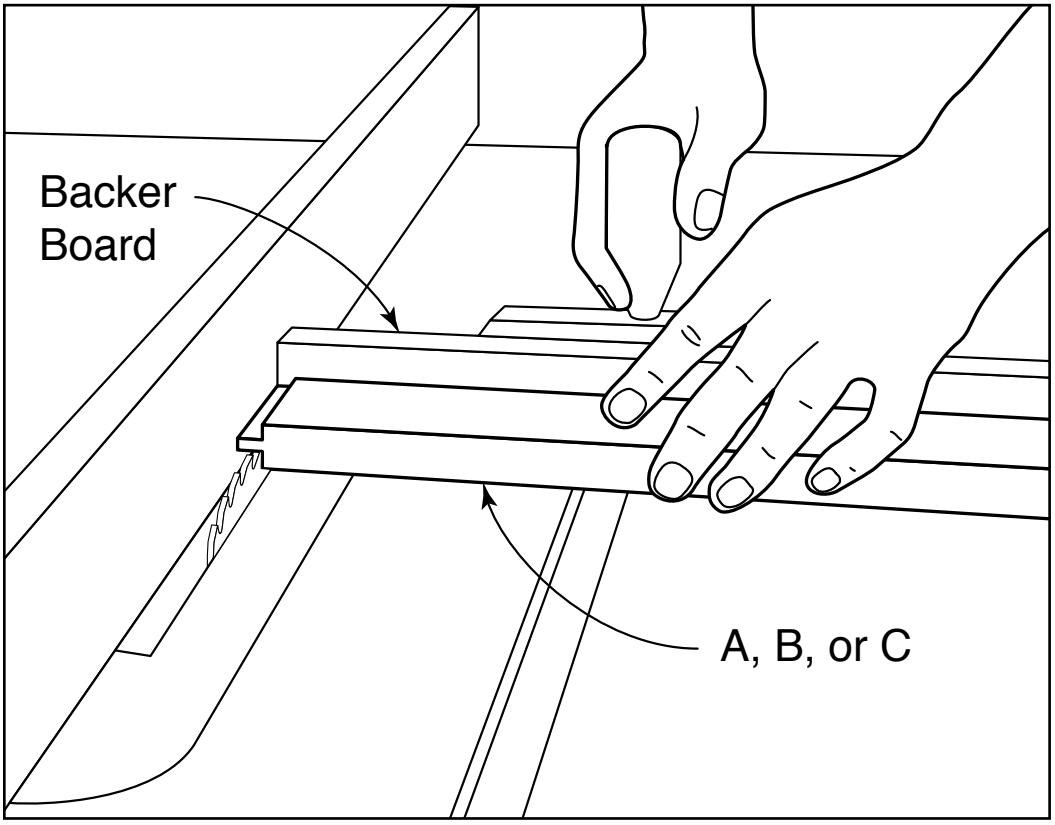


FIG 3.



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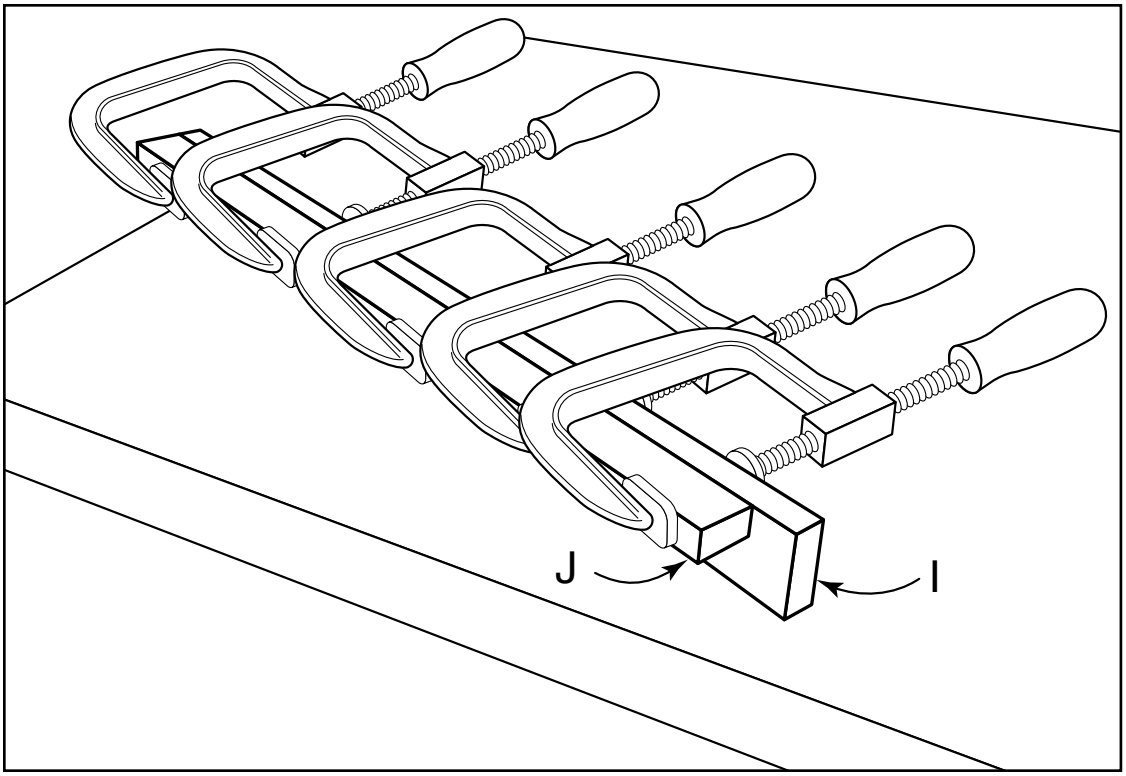

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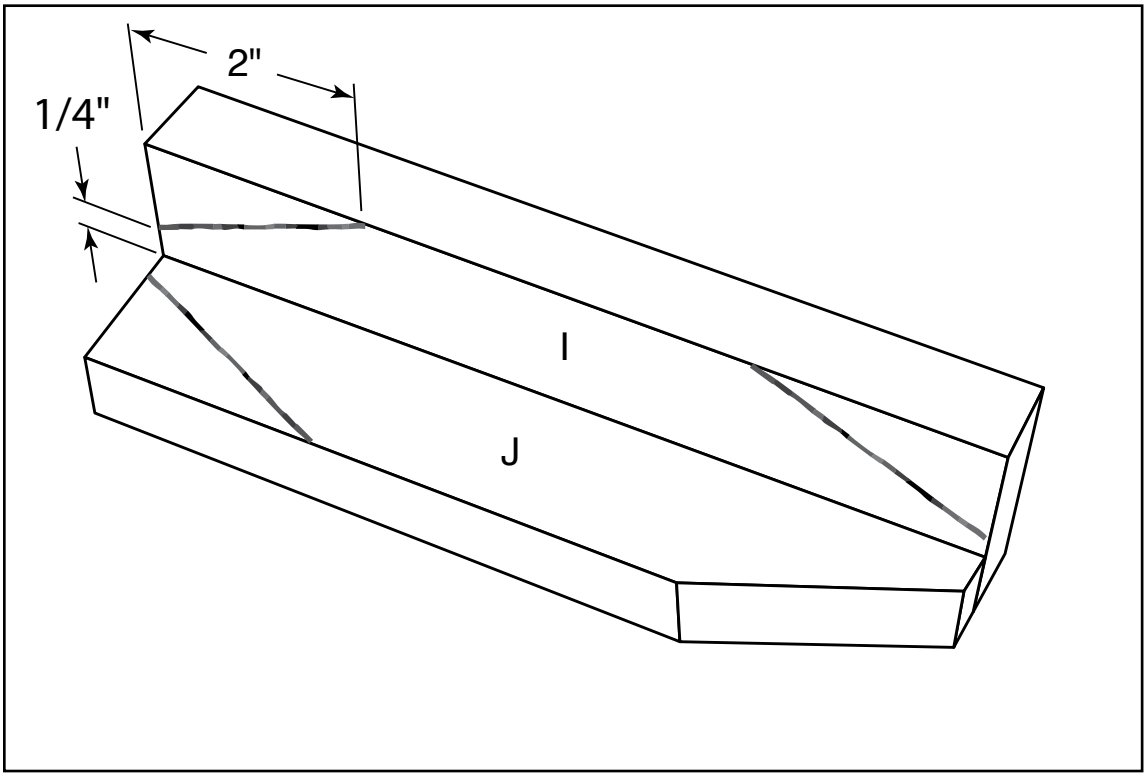

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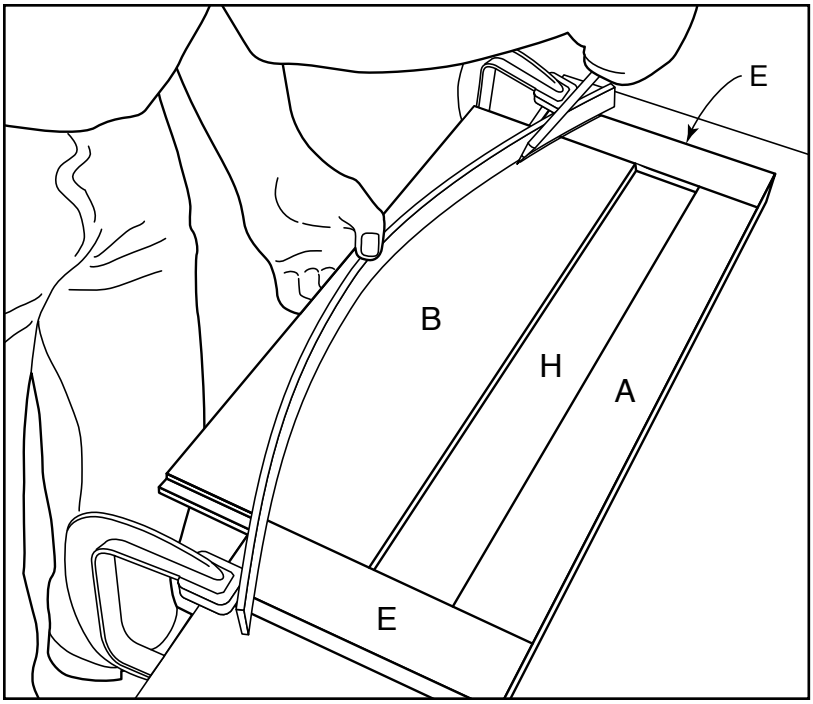

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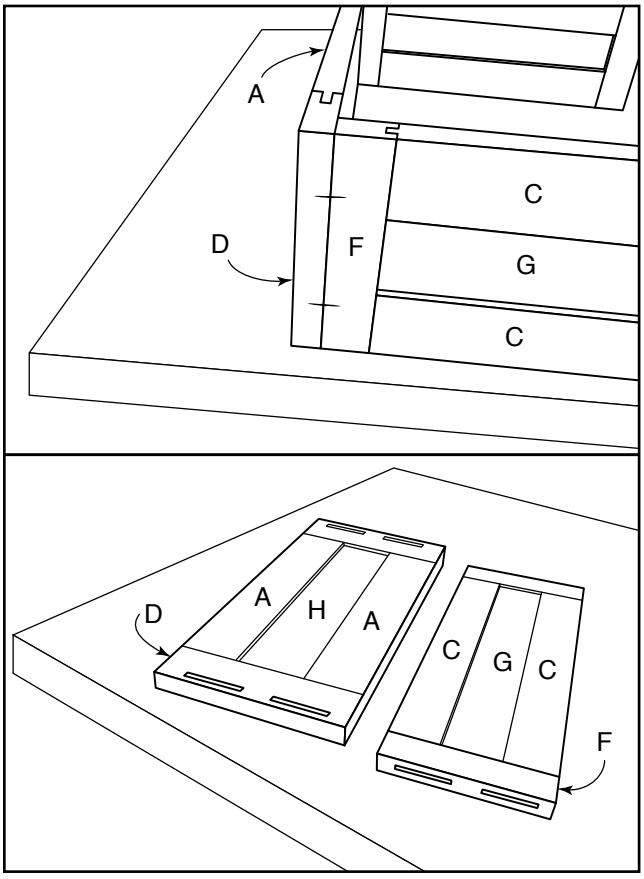

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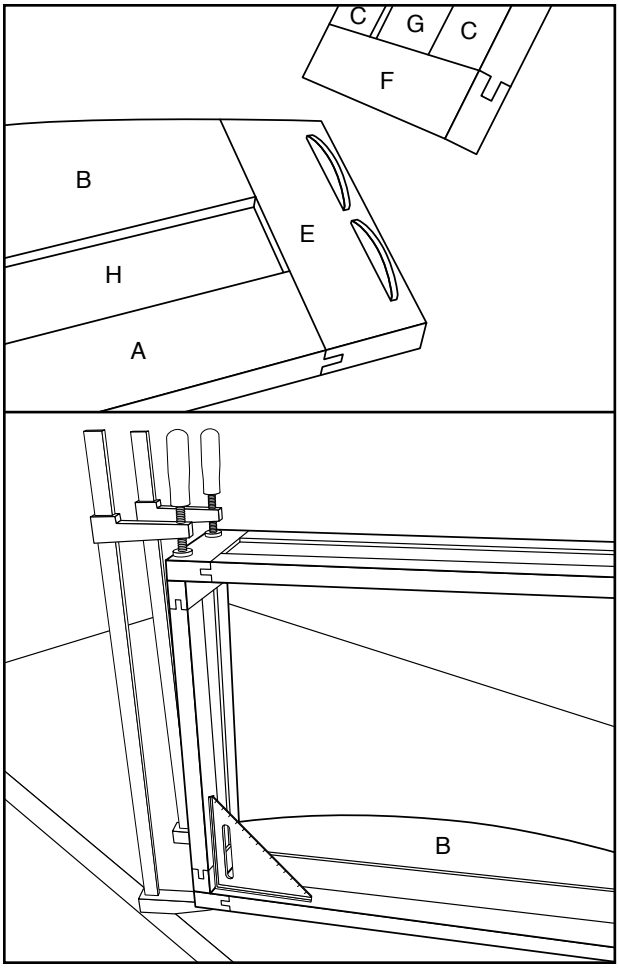

FIG 9.