CHAPTER 26

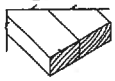
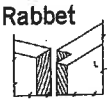
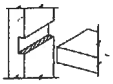
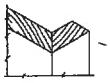
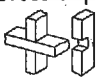
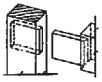
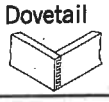
Common Joints and Their Uses

Furniture, houses, and the items you make in the shop are all assembled with *joints*. While there are over one hundred different kinds of joints, most of them are somewhat alike. Only eight are really different from each other. You will use the simpler ones when you build the projects shown in this book. The more difficult joints are found in fine furniture and are usually made with machines. When you take an advanced course in woodworking, you will have a chance to make some of these. Fig. 26-1.

MAKING JOINTS STRONGER

Joints are held together with glue or with glue plus nails or screws. Sometimes a joint is made stronger by adding dowels or a spline. See

COMMON WOOD JOINTS

Kinds	Uses	How Made	Similar Kinds
Edge 	For tops of tables, chairs, desks, and other furniture needing large surfaces.	Plane a square edge on both pieces. Add dowels or spline for strength. Glue.	Dowel, tongue-and-groove, or rabbet.
Butt 	For simple boxes, cases, cheap drawers, frames, and chairs.	Cut corners square in a miter box. Fasten with nails or screws and/or glue. Use doweling jig for corner dowel joint.	Glued and blocked or doweled corner for greater strength.
Rabbet 	For corners of modern furniture, simple drawer construction, and boxes.	Cut rabbet with backsaw. Glue, nail, or fasten with long screws.	Dado and rabbet for good drawer corners.
Dado 	For shelves, steps, drawers, and bookcases.	Cut with backsaw and trim out with router plane or chisel. Fit second piece into dado. Glue.	Blind dado (gain) for front edge that doesn't show joint.
Miter 	For frames of pictures, boxes, molding around doors or furniture.	Cut with miter box. Fit corners carefully. Fasten with glue, nails, or corrugated fasteners.	Dowel or spline for greater strength.
Cross-Lap 	For legs of furniture, doors, frames, and braces.	Make like two dadoes. Assemble with glue.	Half-lap to lengthen material. End-lap for frames. Middle-lap for doors.
Mortise-and-tenon 	For best chair, table, and chest construction.	Cut tenon with backsaw. Drill out mortise on drill press. Trim out with chisel.	Open mortise-and-tenon for frames. Haunched mortise-and-tenon for panel construction.
Dovetail 	For best drawer and box construction. Furniture corners.	Cut dovetail with jigsaw. Glue.	Blind dovetail for quality furniture.

26-1. ***Common woodworking joints.***

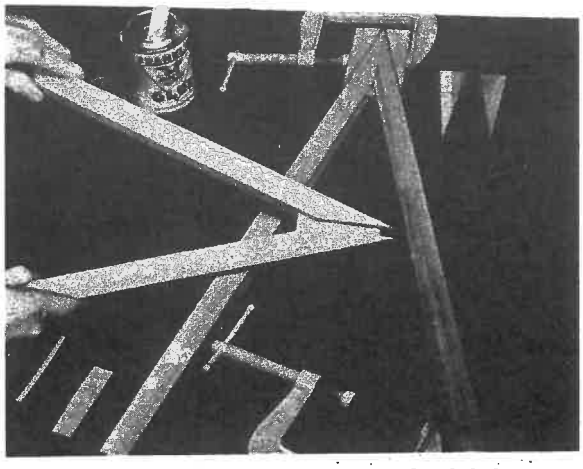
Chapter 27. A *spline* is a thin piece of wood inserted in a groove between the two parts of a joint. Fig. 26-2.

EDGE JOINT

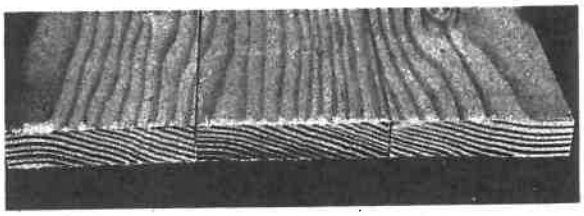
In an *edge joint* boards are fastened together to make a larger piece. Fig. 26-3. For instance, the top of a table can be made in this way. The simplest is a plain edge joint in which the edges are planed and then glued together. Often a spline or dowels are added for strength. Fig. 26-4. A *rabbet* (recess) cut on both pieces also strengthens the joint. The *tongue-and-groove joint* has a groove cut along one edge and a tongue along the other. The floorboards in many homes are put together with tongue-and-groove joints.

BUTT JOINT

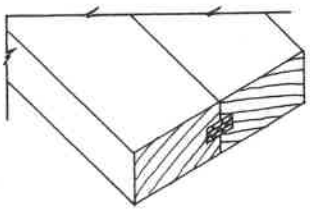
A *butt joint* is very simple. The end of one piece is fastened to the surface or edge of the other. Fig. 26-5. It is used to make a simple box



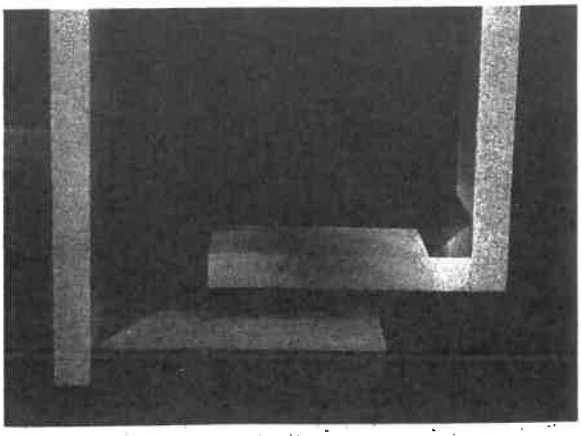
26-2. ***A spline is a good device for joining two pieces of wood without nails. A groove, or slot, is cut in each piece and then a thin piece of wood is inserted and glued in place. This strengthens the joint.***



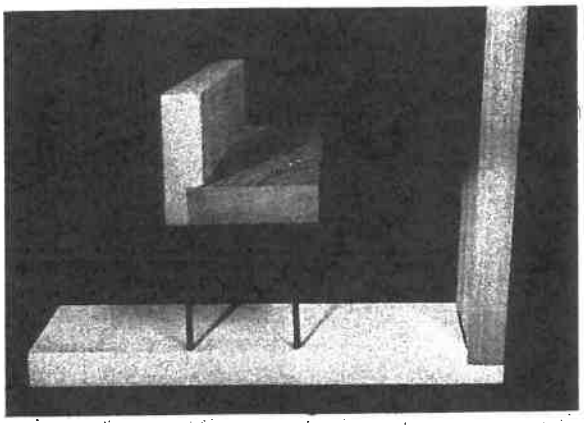
26-3. ***A simple edge joint.***



26-4. ***An edge joint can be strengthened with a spline.***



26-5. ***At the left is a simple butt joint. At the right is a butt joint that has been glued and blocked. Adding this triangular corner block to the wood strengthens the joint.***



26-6. ***Rabbet joints are often used in making boxes and drawers. This joint can be made with or across the grain.***

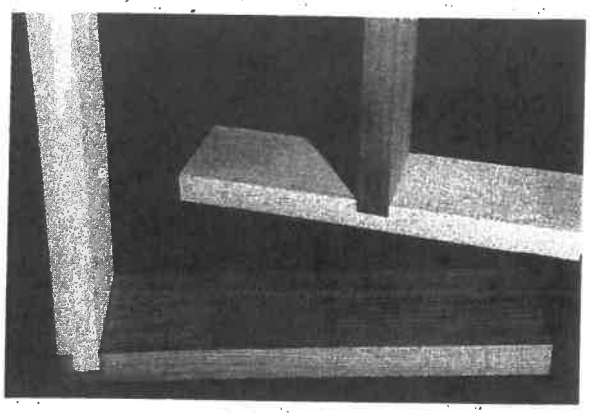
or to fasten two pieces at right angles. The butt joint is a popular one for house building. Dowels or a corner block may be added to make the joint stronger.

RABBET JOINT

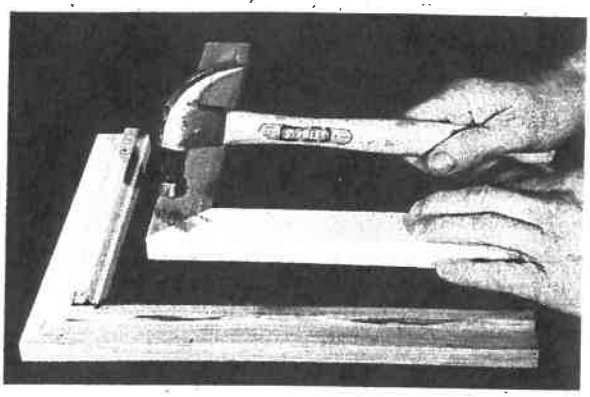
In a *rabbet joint* the first piece fits into a channel cut across the end or edge of the second piece. Fig. 26-6. It is found in simple furniture and in some box construction.

DADO JOINT

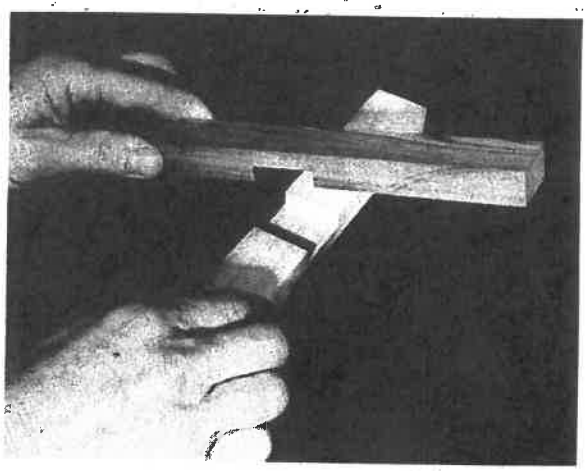
A *dado joint* is a good one for shelves, steps, bookcases, bookracks, chests and other types of cabinets. Fig. 26-7. A *blind dado,* or *gain,* is one in which the dado is cut only partway across the board. A notch must then be cut out of the second piece. This makes it look better from the front edge because the dado doesn't show. The *dado and rabbet* is a good joint for drawers.



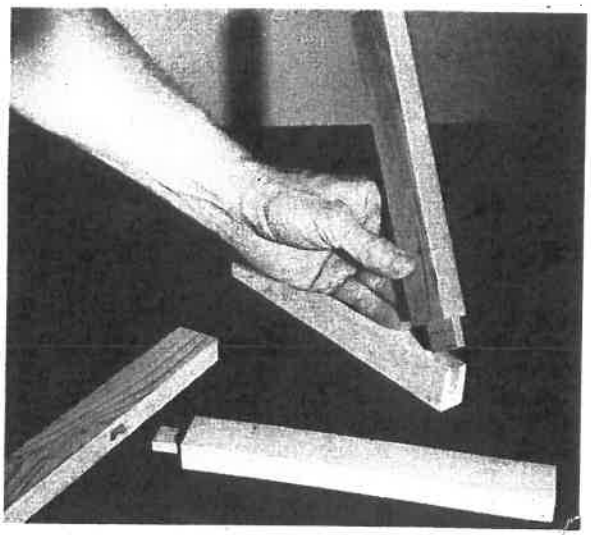
26-7. *The dado joint is shown at the right. The dado-and-rabbet joint at the left is used on better drawer construction.*



26-8. *The miter joint is used to make frames, moldings, and corners on modern furniture. This window screen frame is being fastened with corrugated fasteners.*



26-9. *Cross-lap joint. Outdoor furniture frequently has this kind of joint.*



26-10. *The mortise-and-tenon joint is found in the best furniture. The blind mortise-and-tenon joint (at the left) is used to fasten rails to legs on tables, chairs, and similar furniture. The one on the right is called an open mortise-and-tenon joint.*

MITER JOINT

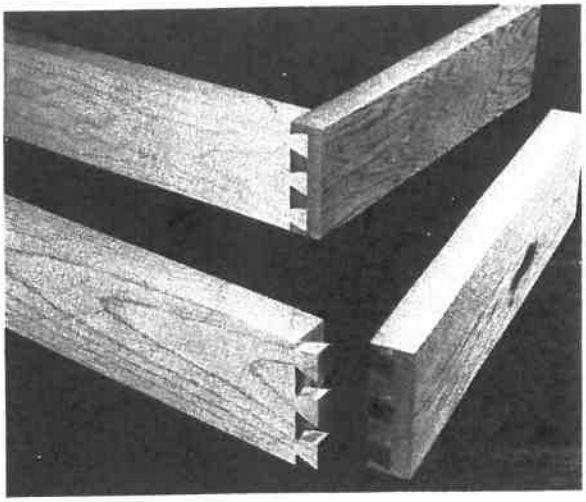
In a *miter joint* the corners are cut at an angle, usually 45 degrees. When the two pieces are joined, they form a right angle. A picture frame is a good example. Trim around doors and windows is also made with a miter joint. A way to strengthen this joint is to use a dowel, spline, or key (a thin piece of wood inserted across the corner). Fig. 26-8.

LAP JOINT

The *cross-lap joint* is made when two pieces of wood must cross. You find it on frames, table legs, and some kinds of chairs (especially outdoor furniture). Fig. 26-9. The carpenter often uses it to strengthen the frame of a house. The pieces may cross at any angle. Other common kinds are the *half-lap*, the *middle-lap*, and the *end-lap*. Lap joints are made in the same way as rabbet or dado joints.

MORTISE-AND-TENON JOINT

The *mortise-and-tenon joint* is one of the strongest. It is found on better-quality chairs, tables, and benches. Fig. 26-10. The *mortise* is the rectangular opening and the *tenon* is the part that fits into the opening. Mortise-and-tenon joints take a lot of time and experience when made by hand. With power tools they can be made quickly.



26-11. ***The dovetail joint is found in fine box and drawer construction. The most difficult joint to make, it is found only in highest quality furniture.***

DOVETAIL JOINT

The *dovetail joint* is used on the corners of the best drawers and boxes. Fig. 26-11. Look at a drawer on a well-made chest or cabinet. The front and sides almost always have dovetail joints. This joint is very difficult to make by hand. Today, power tools are used.

QUESTIONS

1. How many basic kinds of joints are there?
2. How can joints be strengthened?
3. Sketch an edge joint and tell what it is used for.
4. What is a butt joint?
5. What is a rabbet joint?
6. Name the principal uses for the dado joint.
7. At what angle is the corner of a miter joint usually cut?
8. Where are lap joints used?
9. What kind of joint is found in better-quality chairs and tables?
10. What is a mortise?
11. What is a tenon?
12. Where are dovetail joints usually found in furniture?