PLATE JOINERY COMES OF AGE

This innovative tool can boost both the speed and quality of trim and cabinet work.

by Clayton DeKorne

Plate joinery has proven itself as a fast and effective means of making carcase and face-frame joints in production cabinet shops. But residential trim carpenters are just beginning to explore the use of plate or "biscuit" joiners.

The growing popularity of plate joiners is no doubt due to their availability at discount prices. Plate joiners now retail from mail-order houses for as little as $159.00 and so are accessible to even the smallest operator.

Swiss Origins

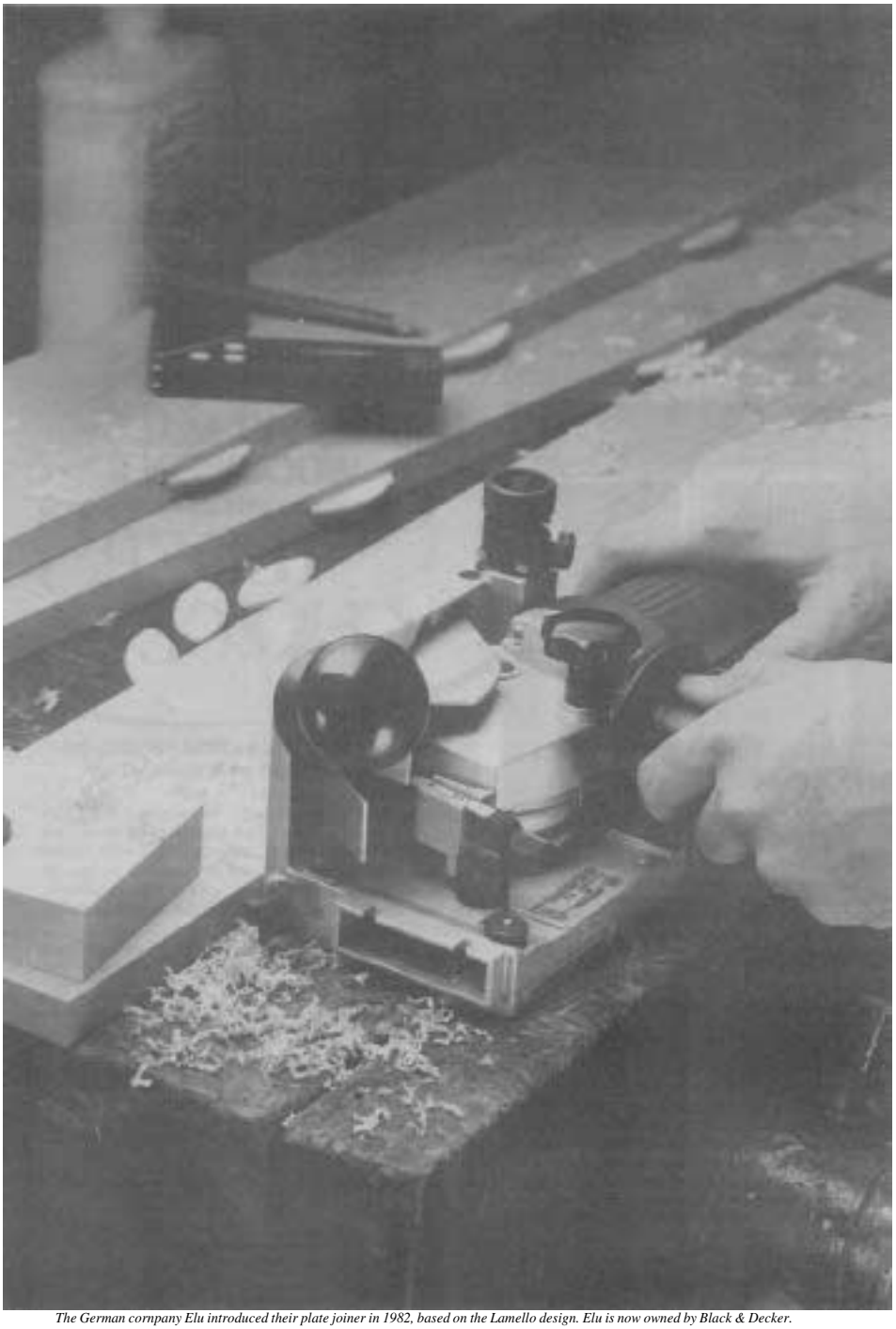
Plate joinery was designed in the 1950s by a Swiss cabinetmaker, Herman Steiner. Steiner's Lamello joiner has been widely used in Europe ever since. It was first introduced to the U.S. market in 1972, but because of its high price it was only used by large production cabinet shops. In 1982 a German machine company Elu (which has recently been taken over by Black and Decker) tried, with limited success, to produce a similar machine that would survive the scrutiny of the U.S. patent office. Since then, however, the exclusive patent rights to Lamello's basic design have expired and several companies now produce inexpensive copies of the original machine with only minor variations. The most widely available joiners are made by Lamello, Freud, Virutex, Porter Cable, and Black and Decker.

Fast, Accurate Splines

All of the plate joiners on the market work in the same way. They are basically small circular saws designed to cut a semicircular kerf into the edge of each piece to be joined. A football-shaped wood plate is inserted into the slots to produce an effective spline.

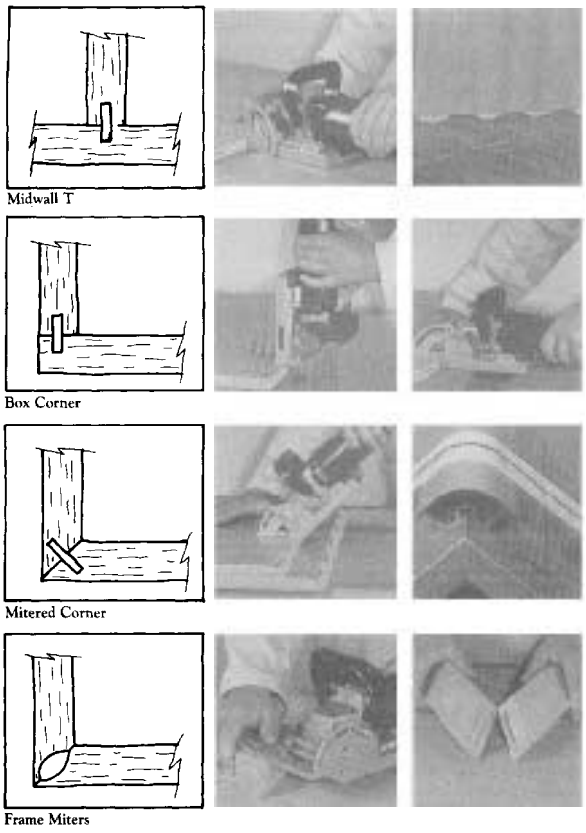
The spline—sometimes called a "biscuit"—is made of slightly compressed beech, cross-hatched by grooves to hold glue. The spline is intended to swell in contact with any water-based glue to ensure a strong bond and a very tight joint. The grain of the spline lies at about 30 degrees diagonal to its length, providing incredible resistance to shear. Trying to break such a joint usually breaks the surrounding wood rather than the spline itself.

Using the joiner is simple. The two pieces to be joined are marked by a common line wherever a spline is to be placed. These can be quick pencil slashes (rather than squared marks) since only one point on the edge of each piece is needed to align the cuts. Marks on the fence of the joiner allow it to be accurately placed over these points. The fence rests on the corner of the work and by pushing the body of the

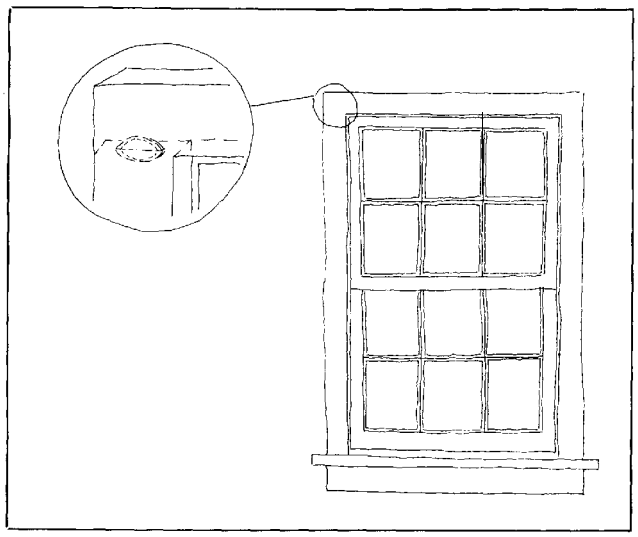


The German cornpany Elu introduced their plate joiner in 1982, based on the Lamello design. Elu is now owned by Black & Decker.

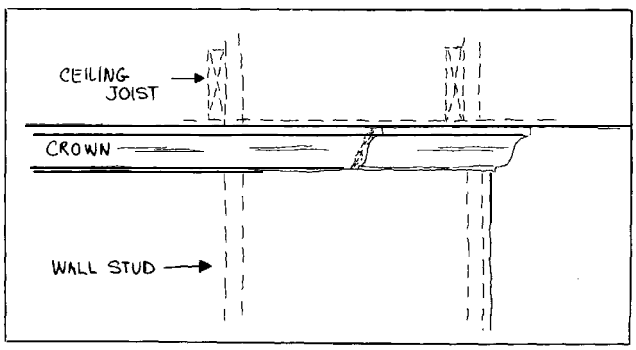
Types of Joints



The biscuit jointer can make quick work of most standard cabinet joints.



Moldings, such us crown, can be joined between studs, simplifying nailing.



Door or window trim can be preassembled with plate joints, and installed as a single unit.

tool straight into the work, the blade is plunged in to a set depth.

It is important to keep the tool parallel with the work or the slot will be cut too thick to provide a tight fit. The slot, however, is intentionally overcut in length to provide as much as 1/8 inch of lateral movement. This is extremely helpful when finally aligning the glued-up pieces and is the great advantage of plate joining over doweling. The work should be clamped, if possible, and of course a few judiciously placed toenails can often suffice to provide the needed tension until the bond sets. However, a tight bond is made as soon as the plate has swelled in contact with glue (about 10 minutes) instead of the usual 30 minutes it takes for glue to set. This can speed up production when a limited number of clamps are available.

Plate joiners are portable and very well-suited for on-site production work. For joining site-made cabinet and shelving carcases out of sheet material they are unsurpassed. With pneumatic nailers and staplers, the danger of blow-outs-especially in ½-inch and smaller stock—is high and there is not a lot to be said for end-nailing ply material. Screws provide a better bond but are time-consuming to predrill and countersink, and are conspicuous unless plugged—also very time consuming. And conventional splines, rabbets, and tenons are neither satisfactory for ply material nor practical for production work.

Useful for Trim, Too

Plate joining is also well-suited for increasing both the production and quality of residential trim carpentry. Here are a few examples of how it can be used.

Baseboard. Using a plate joiner to run baseboard has one basic advantage: Joints don't need to be broken on studs. Lengths can be cut at random or as the material permits. This is particularly useful where there's no double plate to provide high nailing, in the upper stories of balloon-framed houses where no plate exists, or with wide baseboard. With unpainted trim, joints can often be placed in inconspicuous places such as behind doors and radiators. Mitered joints are unnecessary, though even these can be plate-joined. Face alignment is automatic and freshly glued joints won't tend to slip open as easily as they are nailed into place.

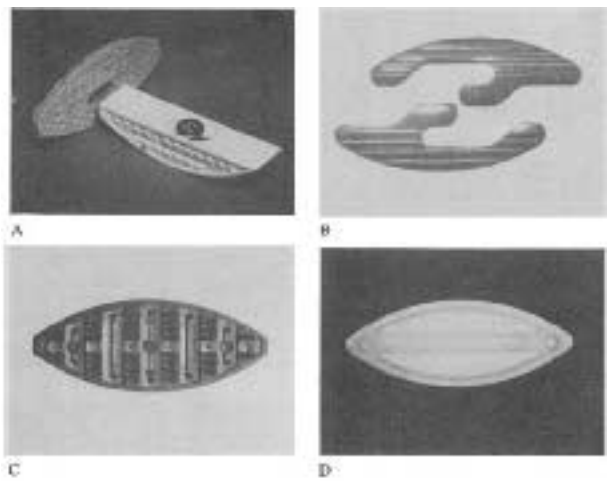
Window and Door Casing. Splining the joint between the head and side casings ensures a tight bond that won't open and a uniform finish plane that won't shift over time. I have often been disappointed to see these joints shrink open after even one day in a warm, dry room. But plate joints just don't seem to open. Stock can be applied immediately after being received from a lumber yard without first being stickered up.

In new construction, you can prebuild casings for stock windows. Complete units including sill extensions and aprons can be assembled off-site, and will remain square when transported. Installing these units is very quick and gratifying.

Door Jambs. Rather than rabbeting or screwing the head jamb to each side piece, you can use two evenly spaced splines. If 5/4 stock is used, the splines can be stacked with a space between them to provide a more stable joint. Using plate joinery, each piece can be installed individually. The jamb is assembled in the rough opening, using shims to squeeze the joints together. I prefer this to other methods. Rabbeting is time consuming and seems only necessary in the rare cases where existing work dictates its use. Pre-building a jamb using screws is awkward. It is often difficult to find the floor space to lay out the full-sized jamb on a site crowded with tools and co-workers. Moreover, it often requires an additional set of hands to hold the work square for predrilling and assembly, whereas alignment with plate joining is automatic.

Crown Molding. Installing crown molding in balloon-framed houses is time consuming because the ceiling-joist and wall-stud layouts are often offset, and it is difficult to provide adequate nailing at joints without the use of backer blocks. But using plate joints eliminates the need to line up joints and framing. It is especially advantageous to plate-join a crown molding that is being used as a light valence (which seems to be so in vogue these days) where the top edge is entirely unsupported.

Specialty Fasteners



The inventor of biscuit joining, Lamello, has taken the system beyond the basics with a number of innovative fasteners to replace the standard wood plate. These include two kinds of knock-down joints (A, B), a barbed plate for joints that cannot be clumped (C), and a polypropylene plate (D) for joining Corian, Avonite, and similar translucent synthetics.

Using a plate joiner has completely revolutionized my approach to finish carpentry. I now think "joining" when I previously thought "fastening." For example, I now install interior window trim as a single, unified assembly rather than as many separate pieces subject to move over time. Few innovations have altered the basic methods of the age-old profession of joinery, but the plate joiner is certainly one of them. ■

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Suppliers of Biscuit Joiners

Colonial Saw
P.O. Box A
Kingston, MA 02364
617/585-9375
(importer of Lamello)

Porter-Cable Corp.
P.O. Box 2468
Jackson, TN 38302
901/668-8600

Freud, Inc.
P.O. Box 7187
High Point, NC 27264
800/334-4107

Black & Decker,
U.S. Power Tools Group
10 N. Park Drive
Hunt Valley, MD 21030
800/638-0683

Holz Machinery
45 Halladay St.
Jersey City, NJ 07304
800/526-3003
(importer of Virutex)