

Carving Incised Letters

Just a few tools do the job

by Roger Holmes

I first saw Frank Cushwa carve a sign at the Bridgewater Fair, a cattle-and-cotton candy fest up the road from us in rural Connecticut. With a single skew chisel and a couple of gouges, Cushwa incised eight or so 2-in.-high letters in a piece of pine, a nameplate for someone's vacation home. Layout and carving took all of about 20 minutes. It was a handsome sign. Though sketched freehand, the letters were nicely formed and spaced, and the carving was crisp. Until then, I had thought letter carving required complicated layout and a trunkful of carving tools. Cushwa made it look easy—well, accessible at least—so I decided to look him up and find out more.

Cushwa and his wife, Rhonda, run their business, Kent Carved Signs, out of a building just behind an old railroad station in the center of Kent, Conn. While Frank carves at a waist-high, lecturn-like bench, Rhonda tends the phone, the order book and the computer. It's clear from a glance at the 15 or 20 signs displayed around the showroom that carving is only part of the job. Most are painted pine or poplar, though some are polyurethaned butternut or walnut. After carving, letters are either painted to contrast with background colors, or gilded with 23K gold leaf. Gold leaf is popular for commercial signs—doctors' and lawyers' offices, bakeries, shops. Gold, according to Cushwa, reflects light as well as status and makes a letter stand out like nothing else. It is also expensive: 2-in.-high letters, for example, cost \$5 apiece painted, \$8 each gilded.

Cushwa is a self-taught carver. After receiving his master's degree in music performance on the clarinet, he decided against music as a career—he liked the playing, but hated the hustling required to make it pay. In 1979, a chance encounter with a sign carver demonstrating his work in a shopping mall planted the seed of his new career. A carver in Amherst, Mass., told him a bit about tools and techniques; type books provided a short course in lettering. Experiment and practice did the rest.

Cushwa's technique is straightforward and involves using carving tools rather like knives, pushing or pulling them to make slicing instead of chopping cuts. The technique is similar to chip carving, in that several angled cuts pop a chip of triangular cross section out of the wood to create an element of a letter. Straight cuts are made with a skew chisel that is as large as practical for the letter size. Curves are roughed out with a skew, then the outside, concave curves are finished with one or two gouges, the inside, convex curves with the skew. Almost all the cutting is done from just four hand positions, shown in photos 2, 3, 4 and 7. Cushwa has built up the shafts of some of his tools with duct tape to



Frank Cushwa carves a sign (top) with only a skew chisel and a few gouges. His waist-high bench, its surface about 2½ ft. on a side, allows him to move around large signs. Cushwa lays out letters freehand (bottom), using a plastic rule for straight lines. Spaces between letters should be roughly equal in area.



Three basic hand positions are shown here as Cushwa sets in and makes two vertical straight cuts for an I. Some trimming with the skew completes the letter.

make the pencil-grip he frequently employs more comfortable.

The beauty of the method is most evident in the curved gouge cuts. With the waste cleared by the skew, the gouge needs only to establish its own bearing surface as it slices down at the beginning of the cut. Then, pushed or pulled according to grain direction, it cuts a fair curve across the wood, guided by the rubbing of its bevel on the surface just cut and, minimally, by hand and eye. This flowing movement is essential to the technique, whether the cut is straight or curved. In some cuts, the hands, wrists and tool may be rigid, the upper arms and body moving them as a unit across the wood. In others, the fingers and wrists combine to pivot the cutting edge in an arc.

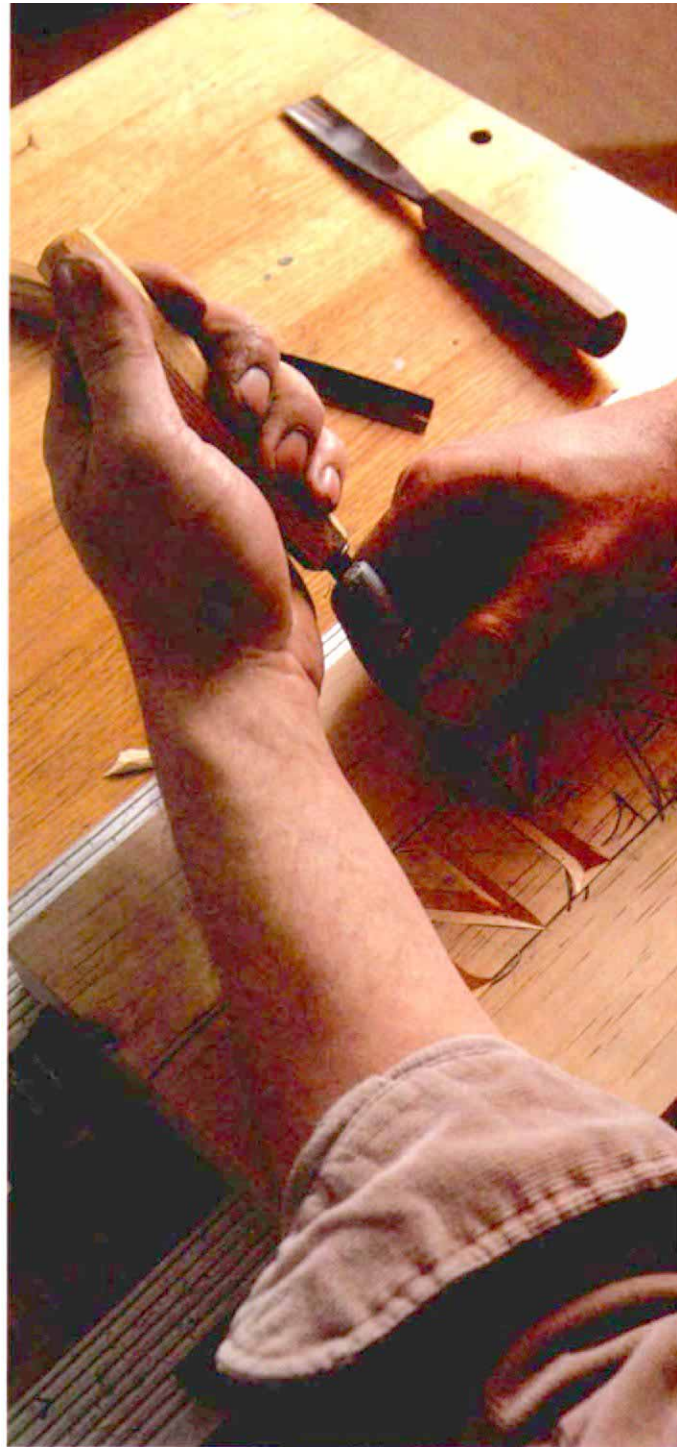
As economical as Cushwa's method is, it's hard work, and hard on the body. A run of some 300 signs carved over a twelve day period at the New England States Exposition last year induced a painful case of tendonitis in his right elbow. To lessen the strain, Cushwa has been experimenting with other carving styles, as well as the use of a router to clear waste prior to hand cutting.

Though a simple sign may require only a skew and two gouges to carve, Cushwa's tool collection is much larger than that. To accommodate letters of varying size, his skews range in width from $\frac{3}{8}$ in. to $1\frac{1}{4}$ in. Gouges are similar widths, the sweeps mostly #5, #6 or #7, and include a few in a fishtail pattern. Punctuation—periods, commas and so on—require narrower, tighter-radius gouges.

Cushwa prefers thin tools, which slice through the wood with less effort. To reduce drag on the skews further, he extends the sharpening bevels back about $\frac{1}{2}$ in. from the cutting edge. He doesn't grind the bevels, but works them over a series of oil-stones—medium and fine India, then hard Arkansas. Three increasingly fine grits of buffing compound on a wheel, followed by stropping with leather, bring the tool to a mirror polish, which also lessens friction. He works a small, second bevel at a slightly higher angle on the hard Arkansas stone, then rounds the tip minutely and the skew is ready to carve. Gouge bevels are also lengthened, though not quite as much—most of the



To avoid cutting against the grain on a diagonal cut (above), reverse the skew and push it away from you. Cushwa uses the hand position at right to make the top cut of a horizontal letter stroke.



wood is removed first by a skew, so drag isn't as important. Corners are slightly rounded to keep them from catching during a cut. Once he prepares a tool with stones and buffing, Cushwa can carve pine with it for days with only frequent touch-ups on the hard Arkansas stone.

Cushwa's skews are extremely sharp but fragile because of the long bevel. A surprising amount of flexing occurs on curved cuts (Cushwa likens the varying flexibility among skews to that found in clarinet reeds), and you must be constantly aware of the stress on the tool. Rounding the tip, Cushwa discovered a couple years back, helps keep it from snapping off on curves, and saves much tedious sharpening time.

Regardless of how well it's carved, a sign is only as good as the form and layout of its letters. Cushwa has a good eye and what penmanship teachers used to call a good "hand." He keeps a copy of the Lettraset catalog of transfer type close at hand for reference, and studies other type books from time to time. (These books are available at most art supply stores or libraries.) Most of Cushwa's signs employ letters based on the Caslon face, an austere, distinguished face consisting of straight lines and simple arcs. Serifs, small tails ending the strokes that form, the letter, add a simple touch of grace.

Cushwa rules layout lines on the board, then draws the letters with a 6B pencil (1). A short plastic ruler aids him with the straight lines, but curves are all freehanded. The letter shapes are roughly, but fluidly indicated; Cushwa defines the final shape while carving. Spacing is important and more difficult to alter once carving has begun. After establishing the center of a line by measurement, he spaces the letters and words by eye, trying to make the spaces between the letters in a word roughly equal in area. Cushwa will erase three, four or more times until a layout looks right—he says he spends more money on erasers than he does on tools.

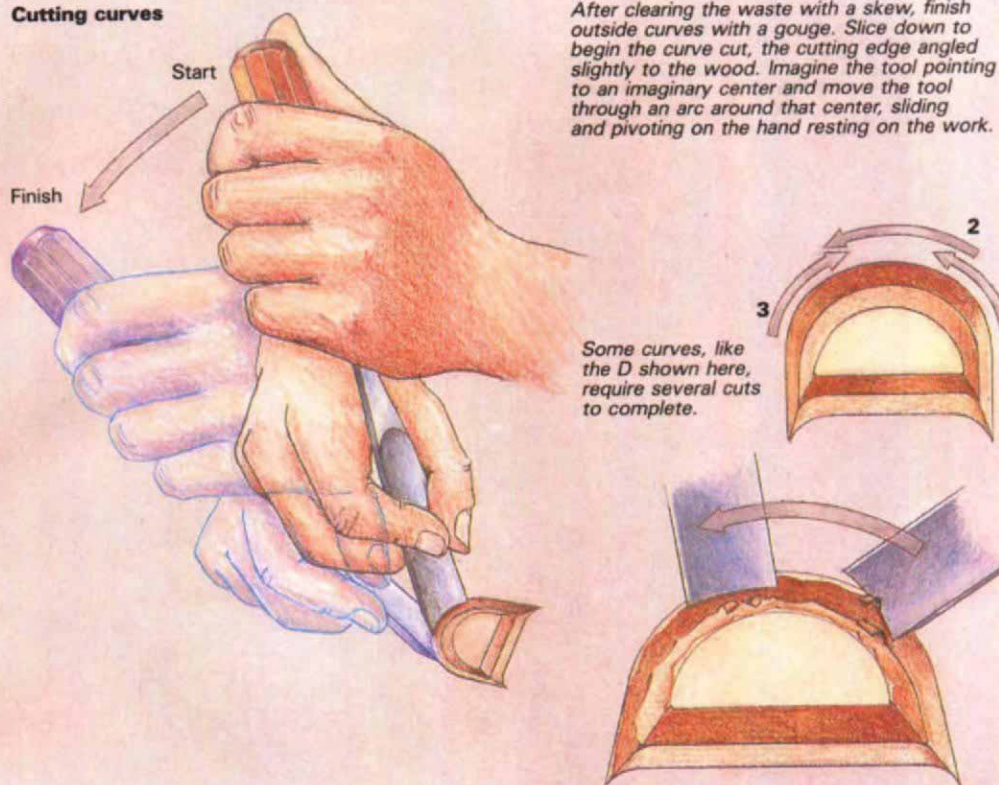
Lettering freehand mirrors the carving style—the movements are much the same for both, so the two tasks are complementary. If you're uncomfortable with freehand lettering, you can trace letters, shrinking or enlarging them if needed with an overhead projector. Blue, black or white carbon paper works for transferring the tracings, depending on the color of the groundwork.

After layout, Cushwa fixes the board securely to the carving bench with as little obstruction as possible. Small signs are held by two commercially made aluminum bar clamps called Back-to-Back Bench Clamps, which clamp to the benchtop and the work (available from Woodcraft Supply Corp., 41 Atlantic Ave., P.O. Box 4000, Woburn, Mass. 01888). C-clamps hold large signs. Carving begins by making cuts with a skew along the base and height

lines; Cushwa calls these stop cuts (2). Make them deep in the center and shallow at both ends, which form the points of the serifs. Two vertical cuts complete an I, the simplest letter (3, 4). Each cut begins and ends at the points of the serifs, curving with a twist of the wrist into or out of the straight cut. The hands and tool are rigid for the straight cuts, pulled by the upper arms and shoulders. In these and virtually all other cuts, the heel of the right hand rests on the work (as for holding a pencil) and steadies the cut. Likewise, all cuts are made holding the tool at an angle between 30° and 40° to the wood. Cushwa says precise angles and the depth of the cuts are less critical than the width of the letter's strokes. Nevertheless, his cuts are of a fairly uniform angle, resulting in the narrow strokes being shallower than the wider strokes.

After clearing the chip, clean the juncture of the two cuts and the serifs. Trim as needed to even the surfaces and straighten lines (5). Remember, this is freehand carving; each letter need

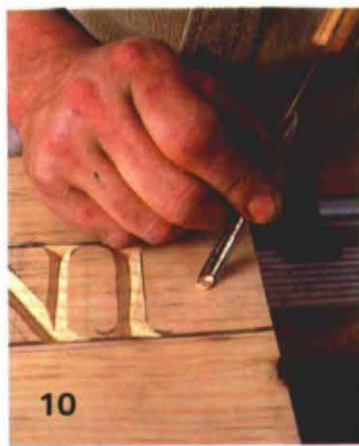
Cutting curves



Rough out the inside and outside arcs of curved strokes with a skew before slicing around the outside curves with a gouge.



Tight curves are cut with a narrower gouge and a pivoting motion (left). A 360° pivot around a tight radius makes a period (right).



Gold leaf against a painted background brings out the full character of incised letters.

not be uniform or perfect to create a pleasing sign.

Diagonal cuts are made much like vertical cuts—hands and tool moved as a unit by the upper arms and shoulders. In photo 6, Cushwa has reversed the skew and is pushing it away from his body in order to cut with the grain. Horizontal cuts are complicated only by the tendency of the tool to follow the grain. Top and bottom stop cuts for an E are just like those for an I, only stretched out between the points of the serifs at each end. After cutting the letter's vertical stroke, make vertical stop cuts at the ends of the letter's three horizontal strokes, then make the remaining horizontal cuts (7). The horizontal strokes are narrower than the vertical one and are, therefore, shallower, widening and deepening into the serifs.

Cushwa roughs out curved letter strokes with a skew, shifting hand positions and reversing tool direction as the grain dictates to cut both the inside and outside curves of the stroke (8). A

gouge of as large a sweep as is comfortable finishes the outside curve, as shown in the drawing. Think of the tool as pointing to the center of an imaginary cone forming the outside curve. Slice into the wood and rotate the tool through an arc around that center to make the cut. While the upper arms and shoulders move the hands and tool laterally, the tool is also pivoted, the right hand serving as fulcrum. Large curves may require several cuts to complete. Finish inside curves with a skew.

Small-radius curves are cut much like large ones. Rough them out with a skew. Pay particular attention to grain direction on an S. The gouge cut may be almost entirely pivoted (9). A period is the tightest radius curve—twirling the tool almost on a point pops out a tiny plug (10). Photo 11 shows how nicely gilded letters stand out on a painted background.

Roger Holmes is an associate editor of *Fine Woodworking*.