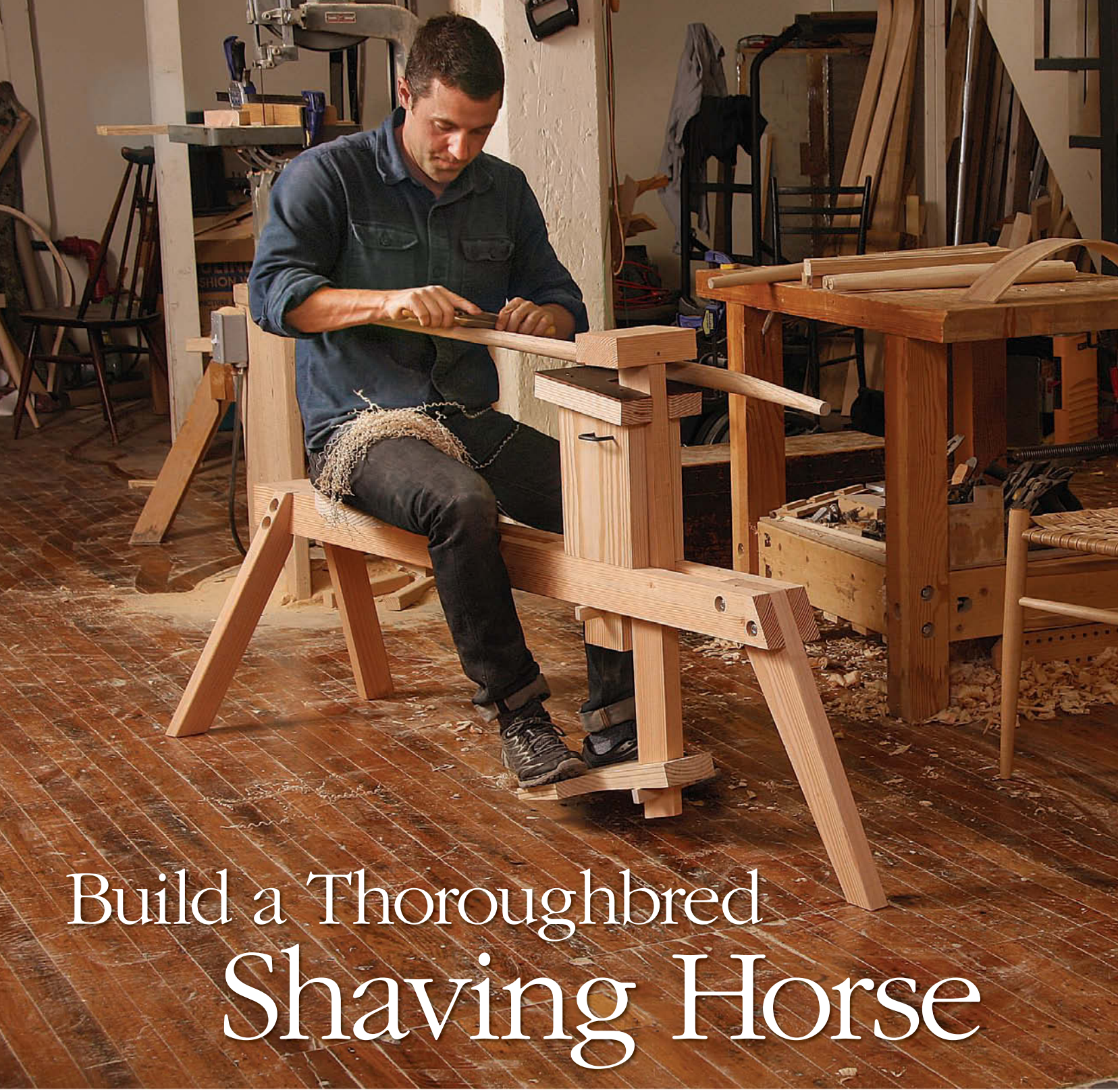

Build a Thoroughbred Shaving Horse

Intelligent design delivers a strong, stable structure and a powerful grip

BY TIM MANNEY

The first woodworking I ever did was on a shaving horse. I had just turned 20, and a 12-year-old sat me down at a shaving horse with a drawknife and taught me how to make a spatula from a piece of red maple firewood. I was hooked. The simple elegance and intuitive feel of the horse and drawknife completely drew me in as shavings piled up around my feet. Since then I've had the good fortune to spend countless hours on shaving horses and to work extensively with other shaving horse aficionados.

Photos: Jonathan Binzen

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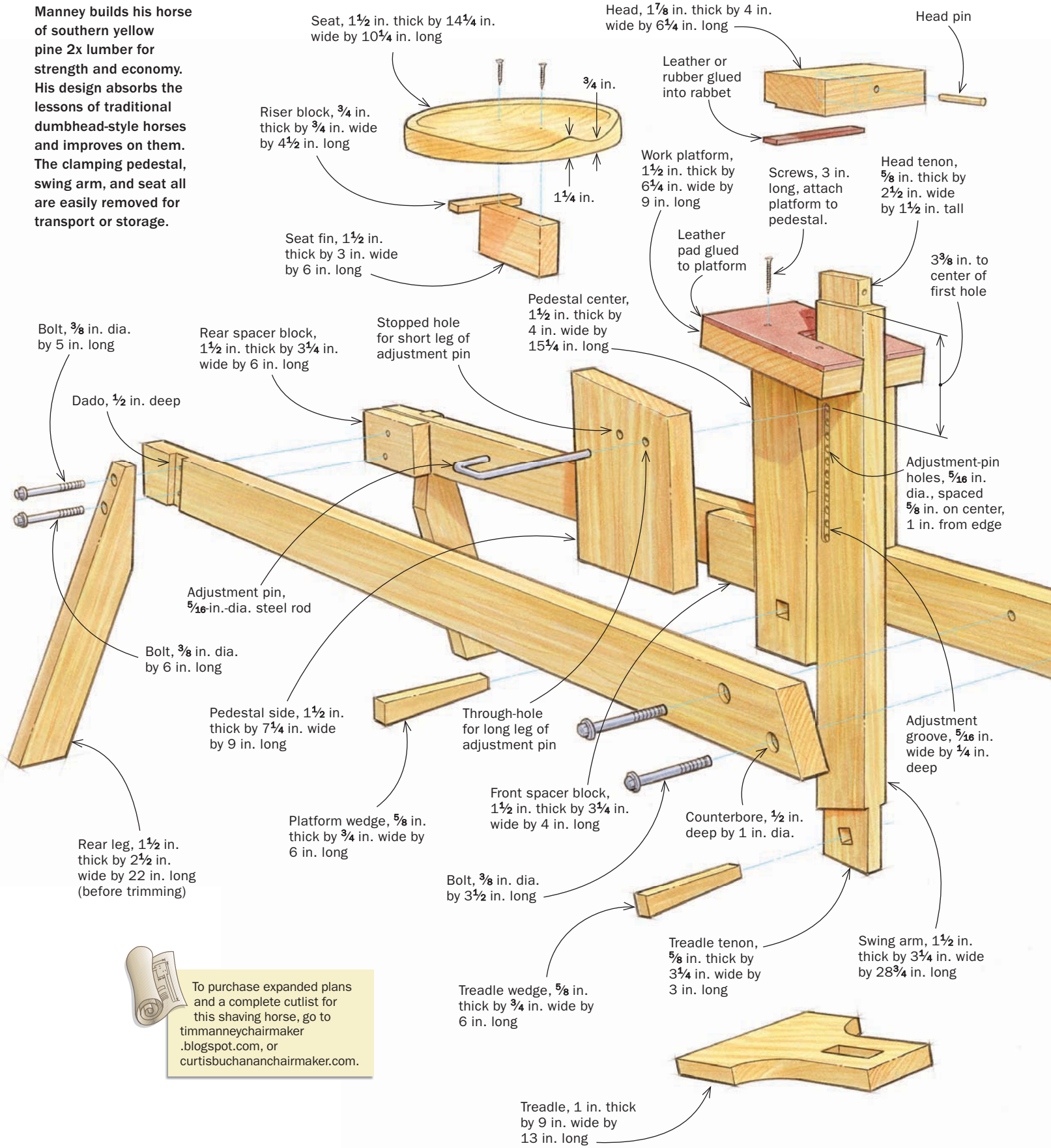
Shaving horse

Manney builds his horse of southern yellow pine 2x lumber for strength and economy. His design absorbs the lessons of traditional dumbhead-style horses and improves on them. The clamping pedestal, swing arm, and seat all are easily removed for transport or storage.



To purchase expanded plans and a complete cutlist for this shaving horse, go to timmanneychairmaker.blogspot.com, or curtisbuchananchairmaker.com.

Drawings: Dan Thornton

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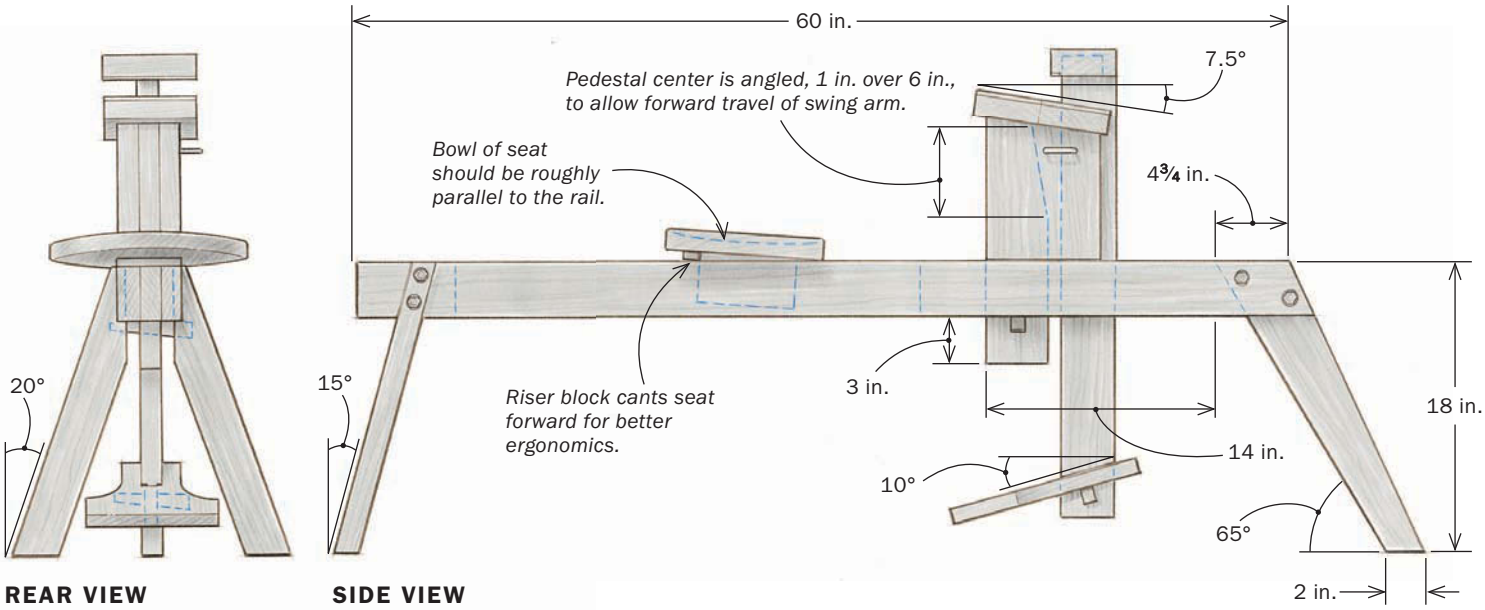
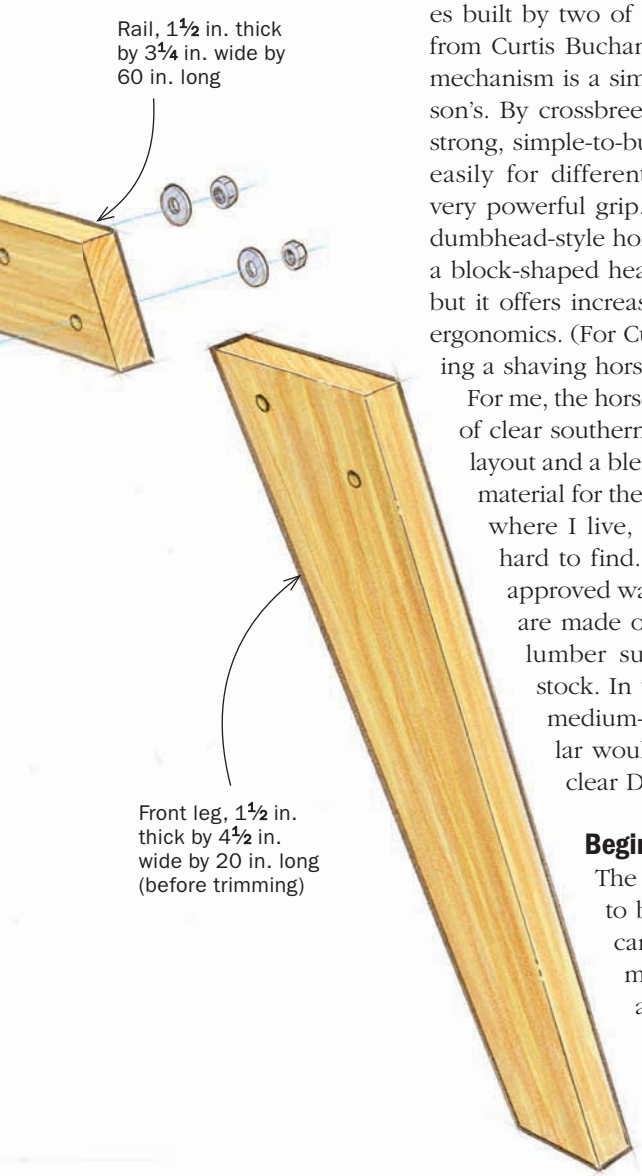


REAR VIEW **SIDE VIEW**



My current horse is the offspring of great horses built by two of my mentors. The base comes from Curtis Buchanan's horse, and the clamping mechanism is a simplified version of Carl Swensson's. By crossbreeding these two steeds I got a strong, simple-to-build shaving horse that adjusts easily for different-size workpieces and has a very powerful grip. It looks similar to traditional dumbhead-style horses, which grip the work with a block-shaped head rather than a clamping bar, but it offers increased holding power and better ergonomics. (For Curtis Buchanan's advice on using a shaving horse, see Handwork, pp. 26–29.)

For me, the horse starts with a single 16-ft. 2x10 of clear southern yellow pine. With thoughtful layout and a blemish-free plank, this is enough material for the entire horse. In New England, where I live, southern yellow pine can be hard to find. But I discovered that OSHA-approved walkboard planks for scaffolding are made of it, and a good construction-lumber supplier should have them in stock. In the absence of yellow pine, a medium-soft hardwood like tulip poplar would work, or, in the Northwest, clear Douglas fir.

Begin with the beam

The base of a shaving horse needs to be extremely solid. If the base can flex, your horse will creak, moan, and trot across the floor as you work—undesirable traits for a horse of this sort. The laminated-beam construction I use makes for a very rigid base that won't flex under the heaviest use.

To make the beam, start by milling the spacer blocks and the front leg to the same thickness, and then glue the spacer blocks between the rails. Wait to glue the front leg in place until after the spacer blocks have cured. This lets you true up the beam by passing it through the planer after the initial glue-up. It also lets you take your time to get the front leg aligned just right at glue-up.

Fit and fix the legs

All three legs should be several inches overlength at assembly; you'll trim them to final length only after they're all glued and bolted. The front leg is tapered, being wider at the top to allow for a greater offset between the two bolts that will hold it in place. If the bolts were placed one directly above the other, they would provide much less resistance to racking forces. I glue in the front leg, and then drill counterbores and clearance holes for its bolts, nuts, and washers. With those bolts in place, it's on to the rear legs.

The rear legs fit into angled dadoes in the rails of the beam that produce the legs' 15° backward rake. To rough out the dadoes and establish their depth, I cut multiple kerfs with a circular saw. I clear the waste and chop the shoulders with chisels, and then clean up the bottom of the dadoes with a router plane. Alternately, you could cut these dadoes with a router. The fit should be tight to prevent the rear legs from racking over time.

Drilling for the bolts through the back legs takes some finessing. Start by drawing a square line across the top of the beam from the center of

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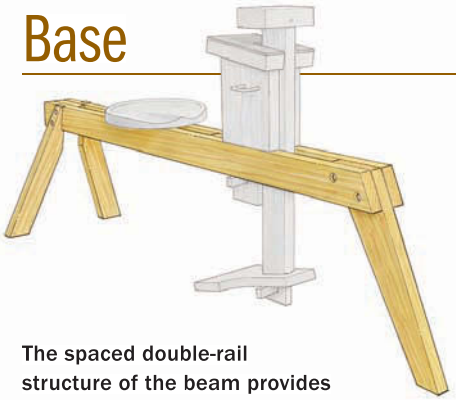
Base



The spaced double-rail structure of the beam provides rigidity without excess weight and also creates the slot that neatly accepts the front leg, pedestal, swing arm, and seat.

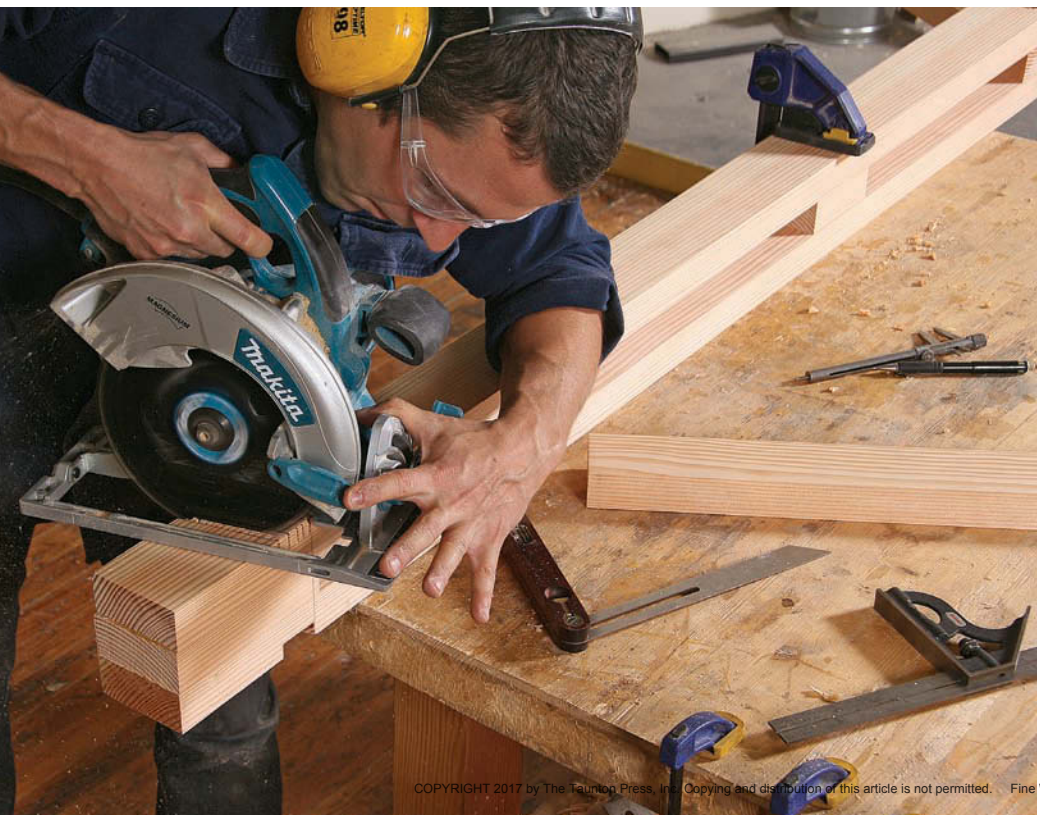
The spine of a horse. *Manney creates a stout beam by gluing spacers between a pair of rails. He trims the assembly afterward with a pass through the planer.*

Front leg first. *Cut from stock milled to the same thickness as the spacers, the front leg is glued in next. When the glue dries, Manney adds carriage bolts to the joint.*

one dado to the other. Then clamp the legs in position, leaving enough room above the clamps to drill the top hole. I drill the counterbores first, then the bolt-clearance hole. Using the line across the top as a sighting aid, drill the clearance hole with a long 7⁄16-in. bit, drilling in from both sides. You might want to have a friend—or a mirror—on hand to help ensure that the bit stays horizontal as you drill.

If the bolt slides right through the clearance hole, take a moment to give yourself a little pat on the back. If it doesn't, wallow out the hole with your drill bit, or chase through the original hole with a larger bit to create more clearance. Insert and tighten the upper bolt, then remove the clamps and drill the lower hole. When that's finished, spread glue on the dadoes and bolt the rear legs in place.

With all three legs glued and bolted to the beam, find a large flat surface so you can level the legs. The goal, after trimming, is to have the top of the beam 18 in. from the floor. Use blocks and wedges under the legs to get the horse level from side to side and



Dadoes in the beam. *Multiple kerfs with a circular saw (left) make quick work of roughing out the angled dadoes for the rear legs. Manney follows up with chisels (above) and a router plane.*

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front to back. Then use a scribe—I clamp a pencil to a scrap of wood—to mark a cut line around each leg. If the beam is 21 in. above the flat surface, for example, you'll need a 3-in.-high scribe. Cut to the scribe lines with a handsaw, chamfer the edges with a knife or a chisel, and you've completed the base.

The heart of the horse

The clamping mechanism is the heart and soul of this shaving horse. The tight tolerances of the work platform and the swing arm prevent the head from racking and make for a stronger grip. And a simple improvement to the height-adjustment mechanism makes the horse far easier to use. Like many dumbhead-style shaving horses, this one has a row of holes that allow you to adjust the swing arm up and down to accept thick or thin workpieces. But on this horse the adjustment holes all lie in a groove. As you draw the pin from the hole to adjust the height of the head, the pin remains in the groove, making it simpler to slide the pin into one of the holes above or below.

The pedestal that supports the work platform is laminated from three pieces. The center piece forms a long tenon and has a wedged mortise at the bottom that locks the assembly to the beam. The angle cut on its front edge allows the swing arm to pivot all the way forward. The center piece should be thicknessed so that it just slides between the rails of the beam. The two outer pieces of the pedestal form massive tenon shoulders that pull tight against the rails of the beam when the wedge is driven home.

When you glue the side pieces to the center piece, be sure to orient them pith-side in. Flatsawn yellow pine boards this wide will cup a little over time. Placing them this way should prevent them from cupping in toward the swing arm and pinching it.

Boring for a bolt. *After counterboring for the top bolt, Manney carefully drills the clearance hole.*

Flatten the tops. *A thin shim protects the beam as Manney saws the rear legs nearly flush.*

Shim and trim. *After shimming the legs until the beam is parallel with the bench, scribe a line around each leg. Then cut them to length.*

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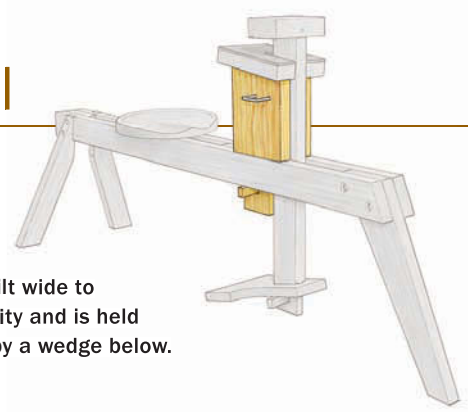
Pedestal



The clamping pedestal, a U-shaped unit that slots into the beam, is built wide to maximize stability and is held firmly in place by a wedge below.

The pedestal is a sandwich. *Having already glued one side of the pedestal to the center board, Manney uses the beam to support and register the work as he glues on the second side.*

A slice off the pedestal. *After glue-up, cut the top of the pedestal at an 82.5° angle.*

Mark for the mortise. *Strike a line along the bottom of the beam to locate the mortise for the wedge that will lock the pedestal in place.*

Drill and chop. *Cut the top cheek of the mortise slightly over the line to be sure the wedge will pull the pedestal fully home.*

On to the swing arm

When the work pedestal is glued up and wedged to the base, plane the swing arm to fit the channel in the pedestal. The swing arm should move easily, but it shouldn't be loose—a good fit here will prevent the swing arm from racking to the left or right when a piece of wood is held under only one side of the jaw.

With the swing arm dimensioned, drill the height-adjustment holes and rout the groove they sit in. I drill the holes 1 in. from the front edge of the arm. The groove should be on the same side of the horse as your dominant hand when you are on the horse.

I prefer a low-profile head on the shaving horse. That makes it easier to reach over the head to work on the front side of the swing arm and keeps you from ever having to push the drawknife. The joint that attaches the head to the swing arm is a bit odd. The mortise is oriented across the grain of the head, with end grain forming the two long side walls. This is not ideal for joint strength, but it's the trade-off that lets me keep the head profile low. I remove the bulk of the mortise on the drill press, then square it up with chisels. To compensate for the glue-surface issues, I use epoxy and make certain this joint has an exceptional fit.

I make the treadle next. I do the layout on a rectangular blank and take it to the drill press to rough out the through-mortise for

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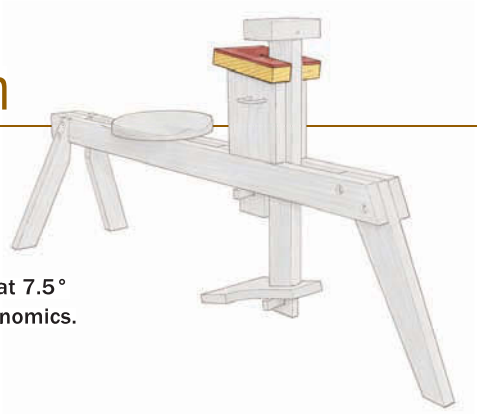
Platform



The platform serves as the lower jaw of the vise. It is canted upward at 7.5° to improve ergonomics.

Cover the platform. *Glue leather to the top face of the work platform (far left), then screw the platform to the pedestal, sinking the screws below the surface of the leather.*

Adjustment pin

Preparing the adjustment pin. *Use a propane torch to heat the steel rod and bend it in a vise (above). Once it's bent and cut to size, insert the long leg in the through-hole and mark for a stopped hole (right) for the short leg.*

the swing arm. Next I cut out the overall shape at the bandsaw. You can clean up the sawn edges or leave them as is, as I would tend to do. Last, I clean up the sides and ends of the mortise with chisels.

With the head and treadle made and mortised, I cut the tenons on both ends of the swing arm. Before gluing on the head, I cut a rabbet into its gripping edge and glue in a strip of thick leather or 80A polyurethane rubber. This will make the head grippier and keep it from denting the workpiece. With the jaw lining installed, glue the head to the swing arm. Once the glue has cured and the clamps are off, drill through the tenon, insert a piece of ¼-in. steel rod, and epoxy it in place.

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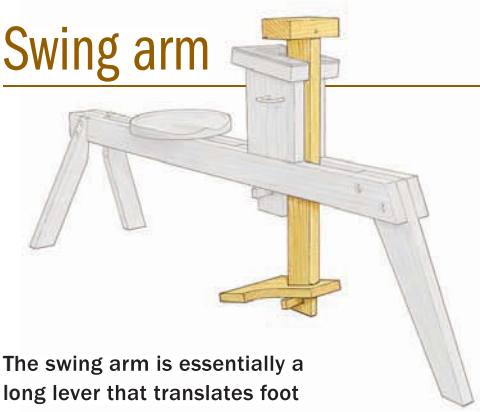
Swing arm



The swing arm is essentially a long lever that translates foot pressure into gripping power.

Start the treadle tenon. *Manney makes most of the cheek cut on the bandsaw, but because the shoulder is angled, he can't complete it there. He finishes the cut with a handsaw.*

Piercing the treadle. *After drilling out most of the waste, Manney uses chisels to clean up the mortise in the treadle.*

Wedge issue. *With the tenon finished, fit the treadle and strike a line to begin mortise layout for the wedge that will hold the treadle in place.*

On with the head. *Manney glues the head with epoxy because the mortise cheeks are mostly end grain. He uses an angled cutoff as a clamping caul.*

Leather lip. *A strip of leather glued into a rabbet at the front of the head gives the horse more grip and less bite.*

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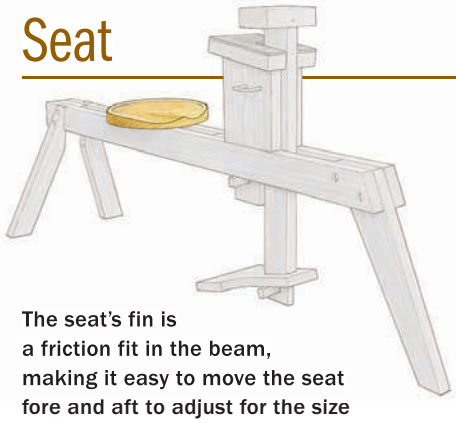
Seat



The seat's fin is a friction fit in the beam, making it easy to move the seat fore and aft to adjust for the size of the workpiece (and the worker).

Scoop and saw. *After scooping out the seat with a scorp and a spokeshave, Manney cuts it to shape at the bandsaw.*

An important little pin

I bend the end of the adjustment pin to a U-shape, so it's easier to grasp. I insert the short leg in a stopped hole to keep the pin stationary as I work. A propane torch provides plenty of heat for bending the 5/16-in.-dia. rod. Locate the first bend by inserting the pin into the pedestal as far as it will go and making a mark on the pin ½ in. from the surface of the wood. Use an awl so that the mark will not disappear when the rod is heated. Heat the pin, place the mark in line with the jaw of a metal vise, and bend the remaining portion of the rod 90°. Make a second bend 1½ in. from the first, and cut the short leg to length. Then insert the long leg and use the short leg to locate the position of the stopped hole. Now put the swing arm in place, and install the adjustment pin to make sure everything glides smoothly. Sometimes the pin requires some light filing to keep the swing arm from binding.

All the horse lacks now is a seat. The one I like is based on a stool by Pete Galbert. It is big enough to be comfortable, and small enough that you won't bump it getting on and off. After the seat is shaped, I attach a fin to the bottom that fits between the rails of the beam. Then I add a riser block at the back to give it a slight forward tilt. Now this horse is ready to ride. □

Tim Manney builds chairs and hand tools in Brunswick, Maine.

Fin details. *Attach the fin with countersunk screws through the top of the seat (left). Then add a riser block at the back (below) to tip the seat forward for better ergonomics.*

Saddle up. *The seat is a friction fit in the gap between the beam's rails, so it can easily be adjusted up and back for comfort.*

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