

HANDMADE MUSIC FACTORY

★ THE ULTIMATE GUIDE TO MAKING FOOT-STOMPIN'-GOOD INSTRUMENTS ★

MIKE ORR WITH CONTRIBUTIONS FROM
SHANE SPEAL

FOREWORD BY
BRUCE M. CONFORTH Ph.D., BEN L. MINNIFIELD, AND DR. TANYA SCOTT
ROBERT JOHNSON BLUES FOUNDATION



"It is fantastic to see this resource put together to help people reconnect with the roots of modern music!"
—Jeff Davidson, Producer: "Sun Studio Sessions" (Memphis, TN)



"What an absolutely brilliant, beautiful piece of work! In the right hands (or wrong, depending on your perspective) this book could provide all the tools necessary to turn the homemade instruments movement into a full-blown revolution!"

— pat mAcdonald (Purgatory Hill)



"Mike Orr shows you how to get back to music's primal roots... there's nothing else that compares to playing a simple guitar you built with your own hands."

— Shane Speal, *Cigar Box Nation*



"Travel back in time to where it all began. A cigar box, a broom handle, three strings, two pickups and tuning pegs. Plug it in, and the primitive meets the industrial age."

— Lucy Tight and Wayne Waxing (Hymn for Her)



HANDMADE **MUSIC**
FACTORY



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FACTORY**

★ THE ULTIMATE GUIDE TO MAKING FOOT-STOMPIN'-GOOD INSTRUMENTS ★

MIKE ORR

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ABOUT THE AUTHOR



PHOTOGRAPHS BY JENNIFER STATLER PHOTOGRAPHY

Mike Orr is a professional flooring installer and owner of Built2Last Guitars. He has designed, built, and sold hundreds of recycled-material instruments. The highlight of his career was when guitar legend Luther Dickinson played one of his guitars in front of a live audience. When he is not in the shop, Mike can usually be found touring the music festival circuit in his VW van on weekends.



PHOTO BY JOHN MCELIGOTT/KM PHOTOGRAPHY.

SHANE SPEAL

Shane Speal is a performing blues/rock songwriter who plays a primitive guitar made from an empty cigar box and a stick. He is also the leader of the modern Cigar Box Guitar Revolution, a growing fan base of cigar box guitar builders and players who congregate at Speal's website, www.CigarBoxNation.com. Speal has performed concerts throughout the country and has been featured in many TV, newspaper, and national magazine features. He is also the central figure in Max Shores' documentary on cigar box guitars, *Songs Inside the Box*.

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NET CONTENTS ONE U. S. GALLON

 THE SPIRITS OF

Gum Turpentine

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 FROM THE LIVING PINE

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THE WARNER GRAHAM CO.

 BALTIMORE 2, MD.

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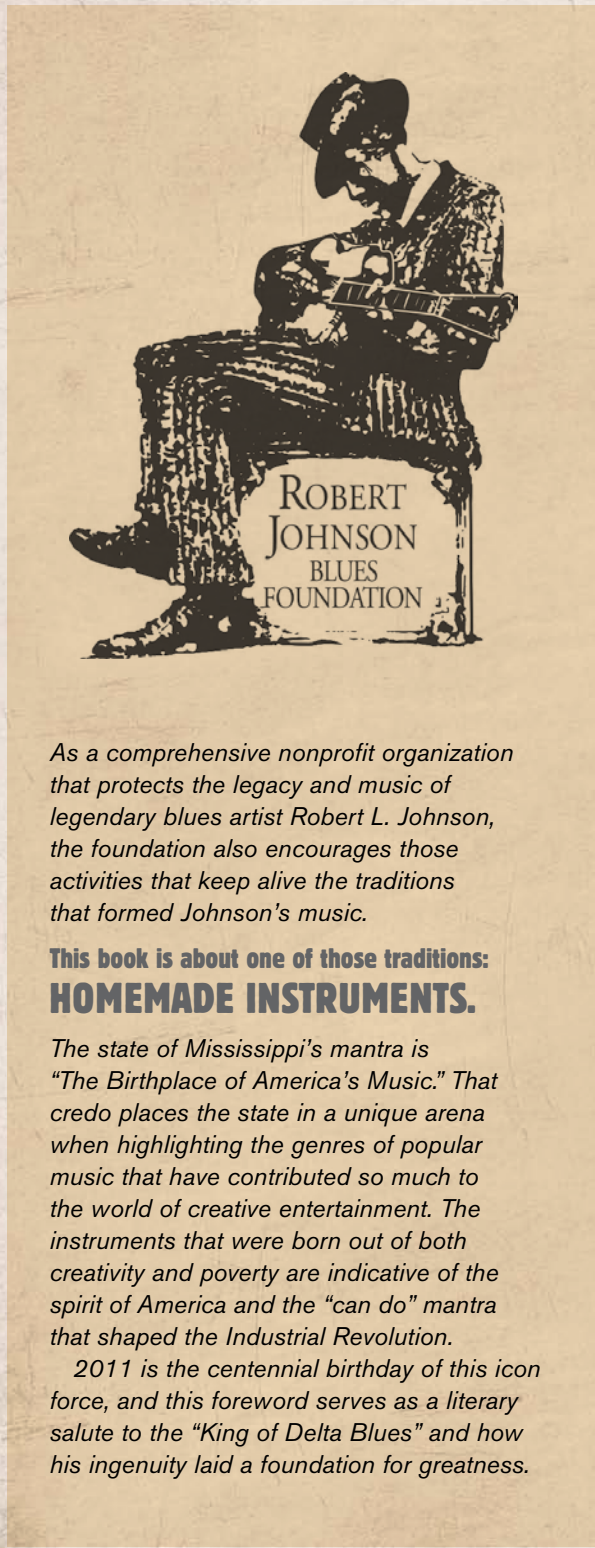
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FOREWORD

BY BRUCE M. CONFORTH PH. D., BEN L. MINNIFIELD, AND DR. TANYA SCOTT—
ROBERT JOHNSON BLUES FOUNDATION



As a comprehensive nonprofit organization that protects the legacy and music of legendary blues artist Robert L. Johnson, the foundation also encourages those activities that keep alive the traditions that formed Johnson's music.

**This book is about one of those traditions:
HOMEMADE INSTRUMENTS.**

The state of Mississippi's mantra is "The Birthplace of America's Music." That credo places the state in a unique arena when highlighting the genres of popular music that have contributed so much to the world of creative entertainment. The instruments that were born out of both creativity and poverty are indicative of the spirit of America and the "can do" mantra that shaped the Industrial Revolution.

2011 is the centennial birthday of this icon force, and this foreword serves as a literary salute to the "King of Delta Blues" and how his ingenuity laid a foundation for greatness.

Blues music has its origin in the work songs sung by slaves in the southern states of America. During slavery, Africans adapted to using the leftovers of plantation owners as mechanisms for survival and entertainment. They also used their own traditions to transform the American cultural landscape. The cultural relationship of slave and slave owner was complex and often a give-and-take exchange. From foodways (using cast-off pig intestines to create the delicacy of chitterlings), to architecture (slaves introduced the "front porch" to America), to folk medicine and traditions, slave culture brought much to American life.

Music was a particularly interesting area of exchange. Although slave owners often encouraged musical expression among their slaves, believing a misguided rationale that a singing slave was a happy slave, they also felt instruments could be used to communicate secret messages that would lead to rebellion. The 1739 South Carolina slave codes, for instance, were the first to ban drumming among slaves for fear that the rhythms would foment insurrection. However, the African musical tradition slaves brought to the New World included much more than just drums. There was a rich African tradition of stringed instruments, from the one-string fiddle to the

"If the blues tell stories about life experiences revolving around race, love, and social class, then these instruments provide the background upon which those stories were sung."

multi-stringed kora. Perhaps the most important of these African retentions was the banjar, which would morph into the banjo—oddly enough, an instrument that would become associated with Anglo-American folk music and ultimately one of the signature sounds of the proto-typical white roots music "bluegrass."

After slavery, though still under the oppression of Jim Crow and segregation, the power of song and music provided a base for inspiration and entertainment. America's earliest documentation of songs from this era is found in Allen, Ware, and Garrison's 1867 book, *Slave Songs of the United States*. In this seminal text, we see work and secular songs, as well as the spiritual roots that would eventually form the blues. This early documentation speaks to music used to open the core of a person's soul through verse and instrumentation, and explore the pain and pleasure of living. This is the basis of the blues.



From L to R Standing: Steven Johnson, grandson of Robert Johnson & VP; Michael Johnson, grandson of Robert Johnson & Treasurer. **Seated:** Ben L. Minnifield, VP Global Marketing & Media; Dr. Tanya Scott, VP Global Business Development; Claud Johnson, son of Robert Johnson & founder; Vasti Jackson, Artist & Musical Director. Painting by artist Earl Klatzel.

It is no accident that at the same time African Americans were creating the lyrical and musical roots for the blues, they were also creating their own ad hoc musical instruments. The earliest extant examples of cigar box guitars, for example, stem from this period (although reported history dates them to just before the Civil War). By the 1880s, plans to build simple cigar box banjos were appearing in print. While there were, of course, white children who also built their own homemade instruments, the particular poverty of the southern Black made such creations more of a necessity than a social curiosity. If you were a young southern Black growing up on a plantation, and you wanted to learn to play guitar, it was almost a given that you'd have to make one yourself. And this is precisely what Robert Johnson, and so many before and after him, did.

Johnson's childhood friends recall how he took three strings of baling wire and nailed them to the side of the sharecropping shack he shared with his mother, Julia, and stepfather, Dusty Willis, in Commerce, Mississippi. Johnson slid two bottles under the wires to increase the tension, and then picked out tunes on his homemade diddley bow. And while those same friends said they couldn't make any sense out of what he was playing, no doubt to the young Robert it was pure music. It wasn't long after that that Robert got his first guitar, but the roots of his music had been laid on the homemade diddley bow.

The great slide-guitar evangelist Blind Willie Johnson began on a one-string cigar box guitar. Big Bill Broonzy,

Muddy Waters, B.B. King, and so many others did likewise. It's not stretching the point too far to wonder whether the blues would have developed as they did had it not been for these homemade instruments. Mike Orr does a wonderful job of relating this tradition to a new generation of America, updating some plans to include electric pickups, while still remaining true to the underlying impulses that gave birth to the instruments and the music played on them. This book deftly takes us through the creation of these instruments so we can find our own connection with these musical roots.

If the blues tell stories about life experiences revolving around race, love, and social class, then these instruments provide the background upon which those stories were sung.

Robert Johnson's musical acumen came as a result of creating his own instrument to simulate the sound of a guitar. It was that zeal to find solace in music that comforted his soul as he lived a very transient lifestyle in rural Mississippi. It is that same zeal that can be shared through this book.

Brooklyn Park

Ben L. Minnifield

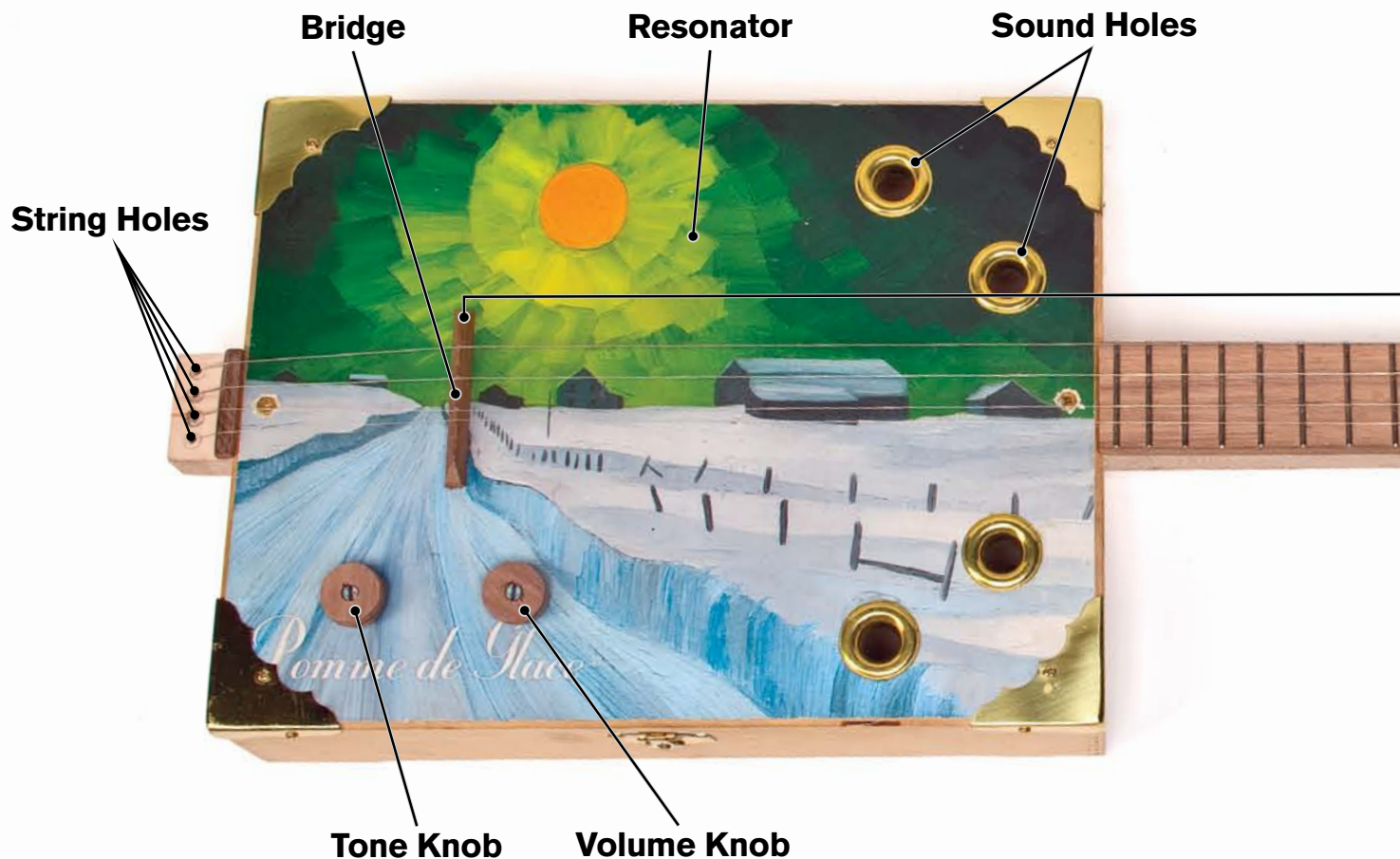
Tanya Scott

ABOUT THIS BOOK

Anyone can make a musical instrument and play it—all it takes is some basic instruction (which you're holding in your hands), some inspiration (I think you've already got that, or you wouldn't be here!), some simple tools (you've probably got 'em already), and materials (you can find these at yard sales, swap meets, and even in the garbage). This book specializes primarily in stringed instruments, but there are some percussion pieces as well—in fact, there's everything you need in these pages to create enough instruments for an entire band!

I'd suggest starting out with the simpler accompaniment instruments—the One-String Washtub Bass (page 20) and

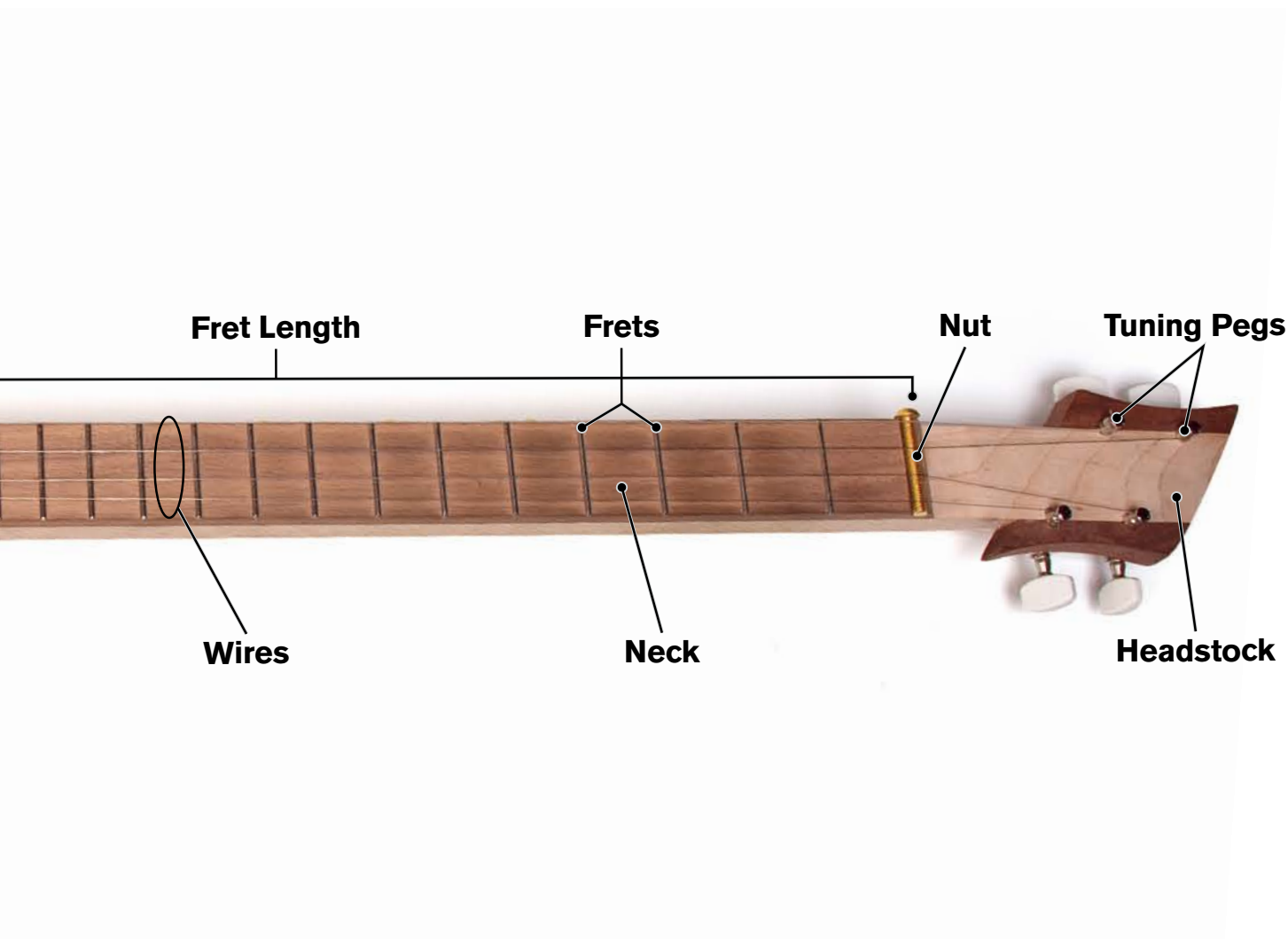
Soup Can Diddley Bow (page 30) are quick and easy to build, and don't require many materials at all. The chapter on stomp and scrub percussion (page 38) will show you how to make an electrified washboard and stompbox. After you've got those down, venture into guitar territory—use a cigar box or cookie tin to create an easy-build slide version (page 48, 66). Then, when you're comfortable with all the ins and outs of guitar building, take a crack at creating a more complex fretted guitar (page 78) or lap steel guitar (page 94). Be sure to visit the chapter on Electrifying Your Instruments (page 106) for detailed instructions on adding electricity to the



projects—and don't forget to make your own amp by upcycling an old tape deck (page 112).

Along the way, you'll discover lots of interesting music tidbits, scattered on the bottoms of the pages and throughout as sidebars. Keep your eye out for photos of professional musicians jamming on their own handmade instruments, info about other simple instruments you can cobble together, and who knows what else? The King of the Cigar Box Guitar, Shane Speal, chips in periodically with fascinating historical information and other rubber-meets-the-road experiences with the instruments. Don't forget to flip through the amazing galleries of handmade

music instruments near the front (page 10) and the back (page 118)—there's plenty of inspiration to get you going! Before you dive in, take a moment to familiarize yourself with the Anatomy of a Guitar, below—it'll help you keep your bearings when you get into the thick of building. Let's get started—and remember, there are no rules! Build it 'til you like it.





MIKE'S TIP:

See the fretboard templates section for instructions on making fret marks on the neck.

31 File the string grooves. Remove the bridge and using a knife file, evenly file the four grooves into your bridge. Be sure that the marks are evenly spaced across the bridge. Adjust the bridge so it and the nut are exactly 25" (635mm) apart.

32 Tune and play. Adjust the scale to 25" (635mm) exactly by sliding the bridge up and down the tin. Measure the scale from the top of the bolt to the exact point where the string touches the bridge. Tune the guitar and play. I suggest starting with the open tuning D-G-B-D and a slide.



CHAPTER 6

FRETTED FOUR-STRING TENOR GUITAR

Instruments with playable frets occupy the upper echelon of “primal lutherie.” While the process of normal fretting is fairly easy (as the following plans show), many builders have come up with homemade ways as well. Uncommon fret materials include large roofing staples, toothpicks glued onto the neck, nylon string tied around the neck at fret locations, and even bicycle spokes. If you’re interested in making an electric version of the instrument, be sure to read the chapter on Electrifying Your Instruments (page 106).

MATERIALS

- Wine box with a thin lid or cigar box
- Piece of maple for the neck, 1½" x 7½" x ¾" (40 x 190 x 20mm)
- Piece of walnut for the fretboard, ¼" x 1½" x 20" (5 x 40 x 510mm)—or a pre-slotted purchased fretboard. Note: The fretboard should be ¼" (5mm) thicker than the box lid.
- Two pieces of walnut for the headstock pieces, 4" x 1½" x ¾" (100 x 40 x 20mm)
- Piece of walnut for tailpiece, ¼" x ¼" x 1½" (6 x 6 x 38mm)
- Piece of walnut for the bridge, ¼" x ½" x 2½" (5 x 15 x 65mm)
- Patterns for fancy #2 headstock, wedge, and fret placement template (page 150, 146)
- Tuning pegs, 2 left and 2 right, or 4 left, depending on headstock style
- Four tarp grommets, or a sound hole pattern (page 157)
- Wiring harness with volume, tone, piezo, and output jack
- Silicon
- Bolt ¼" ¼-20 x 1.3" course thread (or 1½" threaded rod)
- Various screws (please itemize quantity and size—for pull, electronics, tuning pegs...)
- Waterproof wood glue or other adhesive
- Painter’s tape
- Danish oil or wood finish of your choice
- Ornamental brass corners and brass drawer pull (optional)

- Guitar strings, D–G–B–E, acoustic light gauge
- Medium fret wire

TOOLS

- Coping saw
- Measuring tape
- Power drill and assorted bits, including an appropriate hole saw or ⅝" (16mm) paddle bit to drill holes for tarp grommets, ⅛" (3mm), and ¼" (6mm) countersink
- Assorted sandpaper and sanding blocks, or belt sander
- Handsaw
- Miter box
- Screwdriver, both Phillips and flat head
- Clamps
- Pencil
- Square
- Utility knife
- Adjustable wrench
- Rag or brush to apply wood finish
- ¼" (6mm) rattail rasp, to shape the neck
- ½" (13mm) file (or, optional, a power router with a ¾" (19mm) quarter-round bit)
- Small knife file, for cutting string grooves
- Fretsaw, .023" (.58mm) thickness (or to match fret wire)
- Wire cutters
- Small hammer with hard plastic head
- Small miter box (directions for building one are included on page 85)



FRETTED FOUR-STRING TENOR GUITAR



80



BUILDING THE NECK

1 Create the headstock angle at one end of the neck by completing Steps 1 through 6 from Chapter 4 (pages 52–53). At this point, you should decide what headstock pattern you want to use on your project. I chose to laminate fancy wood pieces to the headstock to give it more of a custom guitar look (Fancy #2 style, page 150). There are other headstock designs on pages 150–152, including two easy-to-build patterns that require less time and fewer tools to complete.

If you decide to build one of the two fancy headstock styles, trace and cut out two of the headstock patterns from $\frac{3}{4}$ " (19mm)-thick hardwood of your choice, and then continue with Step 2, below.

If you decide to use one of the simple headstock designs, trace the pattern onto the headstock area and continue with Step 7, next page.

MIKE'S TIP:

Be sure to hold the drill perfectly horizontal when using a hand drill to drill these holes. To determine the correct drill bit size, drill a test hole in a piece of scrap wood, and then test fit the peg to the hole. A drill press will do this job best if you have access to one.



2 Drill holes for the tuning pegs. Use your headstock pattern to mark the peg holes and drill them using appropriately sized drill bits. Placing a block of wood under the neck before drilling the holes will keep the wood from splintering around the holes when the bit exits at the bottom of the neck.

3 Drill holes for the screws. After the peg holes are drilled, place the tuning pegs in the holes. Mark the pilot holes for the screws that attach the pegs to the back of the neck. Use a drill bit slightly smaller than the screws.



4 Attach the tuning pegs. Use the included screws to attach each tuning peg. Test your tuning pegs; turn each peg a few times to make sure it turns freely.

MIKE'S TIP:

If you accidentally drill the holes too large or strip them out, glue a toothpick into the hole. When it's dry, break it off, sand it smooth, and re-drill with a smaller bit. Another option is to carve your own "toothpicks" using a utility knife and the same type of wood as the neck.

PREPARING THE BOX



5 **Cut notches in the box.** Use the centering tool (page 156) to mark the notches in the center of each end of the wine box. Next, use a utility knife to cut out the pieces of wood. Another method of marking notches in a box was covered in Chapter 4, Steps 7–11 (pages 54–55).



6 **Test fit the box to the neck.** Place the neck in the notches and make sure there is a snug fit. Enlarge the holes, if necessary, by using a file or utility knife. If the holes are too large, you can fill the gaps with hot glue or wood putty.

MIKE'S TIP:

If you would like to alter the number of frets, adjust the bridge position to leave more or less of the neck above the top of the box. This will vary depending on the size of box or tin you are using. If you are using a smaller box, be sure to make the fretboard a few inches longer—this will leave a few inches of the fretboard with no frets.



7 **Locate the bridge position.** Mark the nut position on the neck, $\frac{1}{2}$ " (13mm) below the neck angle. Slide the box so the bridge position will be exactly 25" (635mm) from the nut. There are multiple spots that satisfy the 25" requirement; by changing the bridge location, you are also changing the amount of neck that sticks out the top of the box. When you are satisfied with your bridge location, make a mark where the neck comes out of the box.

SHAPING THE NECK AND SOUND HOLES

Before continuing, be sure the neck is shaped and sanded to your liking—but first, make a mark 1" (25mm) from where the neck exits the box. Do not sand or file the neck beyond this mark; this will ensure the neck fits snugly into the box. If you own or have access to a power router with a quarter-round bit, it is a fast and easy way to contour the back of the neck.

Also, if you are planning on cutting custom sound holes, do that now. Use your pattern and a scroll saw, a rotary tool with a cutting bit, or even a utility knife. When cutting custom holes remove the lid—it can be easily reattached later. I do not recommend cutting custom holes on paper-covered boxes. They usually end up with ugly edges.

JOIN THE HANDMADE MUSIC REVOLUTION!

There's a revolution unfolding in the music world: instruments—and the music they make—are coming off the pedestal. Anyone willing to spend a little time working with simple tools and accessible materials can craft creative and beautiful-sounding instruments right at home.

With *Handmade Music Factory*, you can become part of this innovative movement of subversive music makers. Musician and handyman Mike Orr shows how to turn ordinary objects like cigar boxes, soup cans, and cookie tins into instruments as much fun to make as they are to play. You'll learn to build eight ingenious instruments, ranging from a one-string washtub bass to a three-string cigar box slide guitar. In addition to covering fretted and steel guitars, Orr will show you how to electrify your instruments and assemble an amp using inexpensive parts from the local electronics store.

With amazing photo galleries, tidbits of handmade music history, and profiles of the musicians leading the charge, *Handmade Music Factory* will be your guide as you wade into the movement of handmade music. There's no need for expensive tools and hi-tech equipment; all you need is your imagination, creativity, and a desire to create your own sound with an instrument you built yourself.

"These are the instruments that created the foundation of blues and American music. Guitar makers, music fans, and anyone who appreciates the art of craftsmanship will find something appealing."

— Shelley Ritter, Director: *Delta Blues Museum* (Clarksdale, MS)

"Roots music is the soundtrack of America. Blues, Country, Folk, and Gospel were often played on handmade instruments like the ones featured in this book."

— Carol Harsh, Director: *Museum on Main Street*, Smithsonian Institution (SITES)

