

# Exterior Shutters and Hardware

*Operable period reproduction shutters come with authentic architectural detailing and sympathetic hardware.* By [Mary Ellen Polson](#)



Louvered shutters are angled so that they will shed water when closed. (Photo: Atlantic Premium Shutter)

Forget about fake aluminum shutters fixed to the house with lag bolts. A vintage house deserves shutters with real raised panels, louvers, or some combination of the two. Whether your home is a true colonial, Colonial Revival, Storybook, or another Romantic Revival variation, shutters add relief and a solid dose of contrast or color to the exterior, bringing its details into focus.

While the most common type of exterior shutter is the fixed louver, other forms include movable louver, paneled, combination, [board-and-batten](#), and Bermuda. Louvered shutters are composed of horizontal slats held in place by stiles and rails. Movable versions are equipped with a narrow post that allows for the adjustment of the slats to permit more or less light, privacy, and ventilation.



Deeply beveled panels, rabbeted channels, and properly hung, functional hardware are all hallmarks of period-specific shutters. (Photo: Vixen Hill)

Paneled shutters have solid beveled (“raised”) or flat planks. These can be embellished with decorative cut-outs in simple, classic designs like stars, hearts, acorns, or four-leaf clovers.

Since individual shutters usually feature two (or even three) panels or sections of louvers, it’s easy to create shutters that combine both styles. A typical combination might be raised panel below, louver above, or vice versa. For additional decorative impact, add a decorative cut-out to the flat face of the panel.

Board-and-batten shutters are composed of long vertical strips secured with cross members. A variation is tongue-and-groove, which have interlocking planks, similar to beadboard. Another configuration is the Bermuda, a single, full-width louvered panel that is hinged from the top and swings out at the bottom, like older wooden storm windows. Bermuda shutters are making a comeback in beach communities and tropical locales, where they can come in handy during hurricane season.



Board-and-batten shutters give a house a picturesque look. (Photo: Designer Doors)

While shutters can be specified in woods like Western red cedar and Honduras mahogany, many operable period-look shutters are made of composite materials that are moisture-, rot-, and termite-resistant. Others may incorporate weather-impervious, marine-grade fiberglass.

In order to look right and operate properly, shutters should be the same shape as the window sash for which they are intended. A pair (or single shutter, in the case of Bermuda styles) should cover the window completely when closed. Hang the shutters on the inside of the window casing, next to the sash. When you measure, take care to determine whether the opening is actually square (it probably isn't); the depth of the reveal, which is the thickness of the channel allotted for the shutter; and the appropriate amount of clearance needed to permit opening and closing. Check with your manufacturer for more help on measuring before you order.

Last but not least: If you've chosen shutters with louvers, make sure the louvers face down and toward the house when they're in the open position. That way, should you ever need to close them, the louvers will shunt rainwater away from the window, rather than against it—a real consideration if anyone in your household tends to leave windows open during a thunderstorm!

**Published in: [Old-House Interiors August/September 2009](#)**

# How To Repair Sagging Shutters

*If time and the elements have left your exterior shutters hanging loose, use this step-by-step repair to set them right again.*

Story and photos by [Ray Tschoepe](#)



Some old shutters fall into the category of romantic ruin, but most can be repaired and rehung.

For centuries, exterior wooden shutters protected homes—from Elizabethan cottages to 19th-century plantations—from the elements and added a measure of security. By the late 19th century, though, the arrival of storm windows reduced the role of shutters to architectural ornament. Today, even if you have operating shutters on your house, it's likely that you don't use them. But while exterior shutters no longer serve an essential function, they can still be vital to the overall aesthetic of a traditional house, and regular care will help them weather the years to come.

Wood maintenance is necessary, of course, but old shutters often need hardware repairs, too. Shutter hardware comes in three categories: hinges that hold a shutter to the window jamb or wall, allowing it to open and close; “shutter dogs” (or tie-backs) that hold shutters open; and interior latches that keep shutters closed. Homeowners commonly encounter problems with hardware in the first category—the hinges.

Shutter hinges often take the form of a strap hinge, made up of a cylindrical opening (or “eye”) and a pintle, a short piece of bar stock that is secured in a fire-welded iron strap and fastened to the jamb. (A variation on this puts the pintle in the hinge and the eye on the jamb mounting.) The pintle can be attached to the jamb either on a back plate, as an L-shaped lag screw that is turned into the woodwork, or, in its most common form, connected to a tapering length of iron (called a “tang”) that is driven into woodwork or masonry joints.

Even when pintles have been securely installed, they can easily loosen due to wood rot, wear from years of opening and closing, or after banging around on windy days. While repairs can be as simple as adding a small wedge above or below the loosened iron tang and securing it with construction adhesive, this solution is difficult to reverse. The alternative—a Dutchman repair, which adds a new patch of wood into the worn, loose area—requires a few more steps, but is durable and will preserve the integrity of the building for years to come.

## 7 Steps to Repairing a Loose Pintle

1. Remove the shutter and investigate the loose pintle. It may slide out with just a slight tug; if it seems loose but resists removal, you may need to remove the interior window casing, as the tang may have been hammered over upon installation to keep it extra secure. You can try bending the flange back, but it’s easier to simply cut the bent portion using an angle grinder or even the metal cutting wheel of a small rotary tool. (Be sure to wear safety gear and protect the surrounding area while doing this, as cutting the metal will generate sparks.)



A

2. Once the pintle is extracted, remove any large rust flakes with a wire brush and coat the pintle with a rust converter (a special primer applied to rusty surfaces to inhibit oxidation and turn the rust into a durable coating), or use a wire brush followed by coarse steel wool and sandpaper to remove most of the rust from the iron before coating it with a rusty-metal primer. Carefully mark out a rectangle around the center of the enlarged or deteriorated opening in the jamb. If possible, leave at least 1” on each side of the opening for stability and at least 1 1/2” above and below. (If the wood is rotted, you’ll need to replace the entire lower portion of the jamb by cutting out the rotted jamb components and splicing in new wood, attaching it with epoxy and/or stainless steel fasteners.)

3. With a spade bit attached to a drill, remove most of the wood within the rectangle to a depth of about 2" to 3". Using a chisel or oscillating multi-tool, pare away the wood along the sides of the rectangle to produce a clean mortise **[A]**.



B

4. Cut a block of wood from a similar species. Fit the new block tightly into the space, and orient it so the new grain matches up with the old for a more seamless repair. (It's OK if the patch protrudes from the mortise a bit, since you will plane it later.) Coat the block and the sides of the mortise with epoxy, and tap the block into the mortise. Once the epoxy has cured (typically overnight, but check your epoxy for specific curing times), plane the block so that it's flush with the surface, and prepare to mark the new position of the tang **[B]**.

5. Begin by marking a vertical line on the new block that measures the same distance from the inside of the jamb as the upper or remaining pintle. Next, hang the shutter on the remaining hinge and place it in the closed position. Mark the position of the bottom of the hinge where it intersects with the vertical line. This new mark represents the shoulder point at the base of the pintle, which is often the top of the tang. Measure the projection of the remaining pintle to determine how deep to drive the tang, scribing a line on the tang to mark the spot. (Usually, there will be significant paint buildup that clearly indicates the previous depth.) Measure the length and width of the tang, and transfer these measurements to the block.



C

6. Using a long drill bit that's the same width as the tang, drill a hole at the cross section of your markings for the tang. Then drill two holes at the top and bottom

of the same markings to mimic the angle of the tang. Use the drill and bit to clear away as much wood as possible, then use a small chisel to clean out the remainder of the mortise until it is as wide as the tang but about 1/16" shorter. Shaping the mortise in this way ensures that the wood fibers will hold securely against the top and bottom edge of the tang. The sides merely help the pintle resist rotation; they don't contribute significantly to the holding power of the hinge, and wedging the tang at the sides could cause the jamb and the new block to split **[C]**.



D

7. Reinstall the hardware, then hang the shutter and test fit. If there is still a gap between the bottom of one strap hinge and the shoulder of the pintle, it can be bridged with bronze bushings, which are available at hardware stores and some home centers. After it's been painted, the new Dutchman repair will be virtually invisible and will support the shutter for another century or more **[D]**.

Published in: [Old-House Journal July/August 2009](#)

# How to Make Rivets for Shutters

*When shutter rivets wear out, make new ones to repair an original hinge.* By [Ray Tschoepe](#)



Using rivets to secure strap hinges on shutters can ramp up period authenticity.

Shutters can be a great accessory on many old houses. Not only do they look good, but they're practical, too, helping modulate light and breezes. They also harken back to the days when the earliest houses donned them out of necessity, for protection against attacks and intruders. And strap hinges—like those visible on shutters from the 18th and 19th centuries—are a perfect accessory to the shutters themselves, providing period detail as well as an engineering boost.

By design, strap hinges add strength to standard stile-and-rail construction because the strap overlays mortise-and-tenon joints with a layer of iron or steel. Today's reproduction strap hinges get attached with factory-manufactured screws. The originals, however, were secured into place using rivets—visible as a large, hammered head on the outside of the shutter, and a lump of metal on the interior. After many decades of use, original rivets can wear out. But re-creating rivets is a fairly straightforward job, well within reach of a handy homeowner aiming to restore the appearance of an original, rivet-fastened strap hinge, or secure a reproduction strap with a period detail.



## History First

Rivets are a simple technology—bars of soft iron with a convex head formed onto one end. Their straight shaft is driven through the metal object being fastened and “peened” over it (hit with the ball portion of a ball peen hammer). This hammering action mushrooms the head, making it wider than the shaft and hole, and locking the rivet into place. There is no screw to loosen or nut to work free, creating a simple, effective, and lasting fastener. Today we usually associate rivets with enormous steel constructions like skyscrapers, highway bridges, and ocean liners. But in the 18th and 19th centuries, rivets were a common means of fastening strap hinges to shutters and doors. Because they were inexpensive and quick to install, rivets were a favorite among era builders and tradesmen.

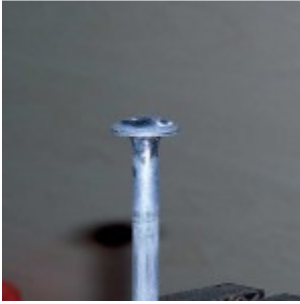
## Creating Rivets



A

Today, a number of blacksmiths will supply rivets. But if you have a source of high heat like a torch, you can make your own. Most people can produce visually convincing and fully functional rivets after a simple trip to the hardware store. Start by purchasing carriage bolts the same size as the hole diameter on your strap hinge, and long enough that the unthreaded portion is at least  $\frac{3}{4}$ " longer than the thickness of the shutter. You'll also need a canister of MAPP gas (methylacetylene-propadiene, a high-temperature fuel) and the appropriate gas nozzle. (Propane isn't quite hot enough for this job.)

Before you begin, you'll need to remove any existing rivets **[A]**. Strike the center of the rivet on the hinge side with a center punch or nail. Drill into the center with a  $\frac{1}{8}$ " drill bit, about  $\frac{3}{8}$ " deep. Successively increase the size of your drill bit until the rivet's peened end is cut free. Then, use a nail set or pin punch to remove the remainder of the rivet.



B



C



D



E

Prepare the carriage bolts by cutting away excess length; they should be  $\frac{3}{4}$ " longer than the shutter/hinge assembly. Then, stand them head-up in a vise and file or grind away the square head to match the round shaft **[B]**. Next, flip the bolt

around and heat the last inch or so with the MAPP gas torch until it glows bright orange [C]; this process anneals, or softens, the metal, making it easier to peen. (Note: Always don appropriate safety gloves and goggles when filing and working with the torch.) Let it cool overnight (do not quench it in water; it will harden the metal). Once the bolt has cooled, lightly sand it and spray it with a rust-inhibiting primer.

Insert the bolt through the shutter hinge. Next, use a hacksaw or angle grinder to cut off all but 1/4" to 5/16" of the area protruding above the hinge [D]. Clamp the shutter and hinge securely over a strong, flat surface to prepare for peening [E].



F

Wearing ear and eye protection, strike the center of the protruding shaft with the ball portion of a ball peen hammer [F]. With a little practice, you will be able to mushroom the metal evenly around the shaft until it forms a shallow mound covering the hole.

If the metal was sufficiently softened, peening will take no more than five minutes per rivet. When you have finished peening all the rivets, the hinge should sit tight. Finally, coat the hammered ends with a clean metal primer and paint with two finish coats of paint. Your finished shutter—accented by era hardware—should function for another century.

**Ray Tschoepe**, one of OHJ's contributing editors, is the director of conservation at the Fairmount Park Historic Preservation Trust in Philadelphia.

Published in: [Old-House Journal August/September 2010](#)