

On Pulling Nails

Use good tools and the right technique

by Gene Schnaser

Unless you specialize in salvage work, chances are you'll hear five times more about hammering nails than you will about pulling them. Carpenter Duane Clarke, of Burnsville, Minn., has a theory on why this might be. His hunch is that there's a stigma attached to the subject of pulling nails, which probably stems from when we were all beginners and were taught that pulling a lot of nails on the job was a sign of incompetence.

Another reason, Clarke speculates, is that pulling nails is more or less a personal thing. There are no hard-and-fast rules. How you do it depends not only on the tools you use, but also on techniques you pick up by watching others and trying different ways yourself.

According to Clarke, there are two basic kinds of nail pulling. First there is pulling nails that are bent while hammering or mistakenly driven into the wrong place. Anytime you watch a crew frame up a house, you'll see a fair share of this. Knots, slippery hammer faces, defective or weak-shanked nails and awkward nailing positions can all lead to bent nails. So can poor hammering technique.

Then there's pulling nails in order to dismantle or recycle lumber. Here nail pulling may be a secondary objective; the first order of business is to get that lumber apart, and then take care of the nails later.

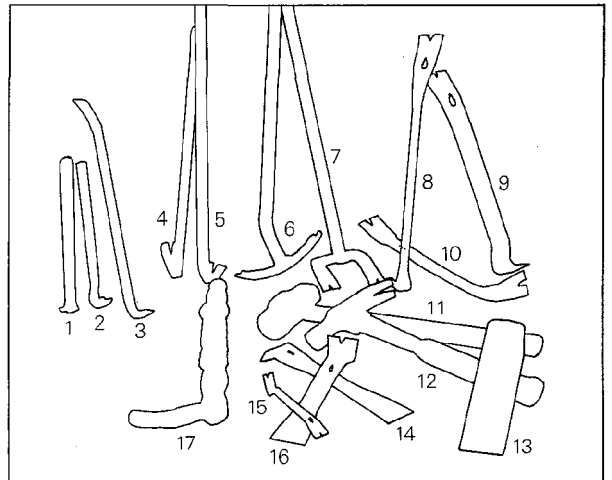
The difficulty of removing a nail depends on the nail itself, how it was driven, and what it was nailed into. Hot-dipped galvanized nails, spiral or ring-shanked nails and cement-coated nails are harder to pull because the shank surface creates a lot of friction. The resin-type adhesive on a cement-coated nail actually "sets" when the nail is driven, creating a bond between wood and metal. Duplex nails, on the other hand, are made to be pulled. They're used for temporary fastening of such things as scaffolding, wall bracing or concrete forms.

Leverage—Over the years hand-tool manufacturers have come up with quite a variety of nail pullers. The photo at right shows a sampling. These tools have either claws or slots to capture the nail head, a prybar to loosen nails by forcing lumber apart or a blade to sever nails. Many nail-pulling tools combine these features. Unlike other areas of carpentry, nail pulling hasn't been motorized. There are no pneumatic or electric nail pullers.

All nail-pulling tools use what physics teachers call first-class and second-class leverage. With



A nail-pulling arsenal. Size, shape and chief purpose are diverse in nail-pulling tools. #1, #2 and #3 on the silhouette are cat's-paws. #4 and #5 are wrecking bars (often mistakenly called crowbars). #6 and #7 are double-headed wrecking bars. #8 and #9 are prybars. #10 is a ripping bar. The hand drilling hammer (#11) is the tool to use if you have to pound on a nail puller. The framing hammer (#12) can pull most nails 16d or smaller. The wedge (#13), commonly used for splitting firewood, is also useful when two pieces of lumber have to be pried apart. #14, #15 and #16 are small prybars sometimes referred to as handy bars. They're good for removing trim that will be reused. #17 is a sliding-handle nail puller.





Using a scrap of wood, top left, is a good way to increase your leverage when pulling nails. This can work with a hammer or almost any kind of prybar. Top right, the cat's-paw, which is available in a variety of sizes, is ideal for removing nails that are embedded in the wood, out of a hammer claw's reach. The twin-bladed tool shown at right is a specialized wrecking bar designed to remove plank sheathing. Its fulcrum is the rafter or floorjoist, and the twin blades exert equal pressure on both sides of the load. Above, the sliding-handle nail puller is used primarily for removing plywood, and can grip a nail with a lot of pressure because of the pincer design of the jaws.

first-class levers, the fulcrum (or pivot point) is between you and the load, or the nail you are pulling. This is the leverage you get with hammers and other tools with claws at 90° to the handle. The second-class lever has the load between you and the fulcrum. This is the kind of leverage you get when you pull up on tools with nail slots in the handle.

The hammer—The basic hammer is also the most widely used nail puller, though some carpenters hate to use it for that task for fear of breaking the handle. Clarke, for example, uses

22-oz. and 16-oz. framing hammers, and prefers straight claws to curved claws for a couple of reasons. Straight claws can easily be forced between two pieces of lumber to pry them apart. And the straight claws don't require bending over as far to get the claws under the head of a nail. Other carpenters like curved claws because they provide better leverage for nail pulling.

Hammer handles can be wood, fiberglass or steel. Wood and fiberglass have good shock-absorbing qualities, while a one-piece, steel forged hammer is generally thought to be the most durable. Any good-quality hammer should

last through many nail-pulling sessions if the proper technique is used—a steady, smooth pulling motion that avoids sudden jerks.

When you buy a hammer, it's good to evaluate it as a nail-pulling tool as well as as a driving tool. Make sure the claw is heat-treated and well tempered. The V of the claw should be clean and sharp so that you can get a good bite on a nail as big as 16d. Good claw hammers have ground and polished heads of drop-forged steel, not brittle cast iron.

The weakest part of any hammer is where the handle enters the head. To reduce strain on this

part of the handle when pulling nails, many carpenters use a scrap block of wood as an added fulcrum under the tool. It can be a piece of 1x, or any scrap wood (top left photo, facing page). Gaining this extra mechanical advantage is especially helpful for deeply embedded nails or nails driven into hardwood. To make extra nail-pulling leverage a permanent feature, some carpenters weld a short stub of steel rod across the top of the hammer head. Improving leverage this way results in straighter pulled nails. Even though used nails haven't much status today, there are times you run out of spikes and need just a few more to finish. That's when a bucket of used nails comes in handy.

Wherever the point of the nail protrudes, you can drive it back to make the head accessible. If the end of the nail just barely penetrates through the lumber, you can use a nailset to back the head out enough to get your hammer claw under it. The cupped end of a 1/16-in. or 3/32-in. nailset will fit nicely over the nail's point to keep it from slipping off. Clinched or bent-over nails can be restraightened for backing out by using the claw of the hammer. Alternatively, you can pry the two boards partially apart, then hammer them back together. This usually exposes the nail head.

Once in a while the head of the nail will break off when you're pulling it. If this happens, one way to gain purchase on the nail is to push it as far into the V-notch of the hammer claw as possible and twist the hammer a quarter turn to each side. The sharp inside edges of the V-notch will groove the nail to provide grip as you pull it. Another way is to use pliers or nippers, along with a scrap wood fulcrum if necessary, to inch the nail up and out.

Some beginners are tempted to use a second hammer to get a tight grip on tightly embedded nails, striking the face of the hammer that has the nail engaged in its claw. This can be extremely dangerous. Two hardened metal surfaces striking with force are likely to cause a brittle metal chip to fly off at high speed. In one eyelid, Clarke still carries a small metal fragment from a cross-hatched framing hammer as proof of hammering hazards. Today most hammers are sold with warnings that advise users to wear safety goggles. This is sound advice. If you do need to snug up a hammer claw on a nail, it's best to use a mallet or a drilling hammer, or a short length of 2x.

Other nail pullers—There are plenty of nail-pulling situations where a hammer isn't the tool of choice. If you need to pull nails that have their heads set below the surface of the wood, it's possible to expose the head by chiseling carefully around it to give the hammer's claw some purchase. But it's much easier (especially on your chisels) to use a cat's-paw. The claws on these tools—which are usually curved 90° from the handle but may also include a straight claw—are made to be driven into the wood and under a nailhead (top right photo, facing page). Cat's-paws are made of bar-steel stock and can be struck with a drilling hammer or sledge. Nevertheless, you should still wear eye protection.

Nails bigger than 16d usually demand more leverage than a hammer or cat's-paw can pro-

vide. This is where wrecking bars come in. The terms "wrecking bar" and "crowbar" are often used interchangeably. But technically, crowbars are 5 ft. to 6 ft. long, while wrecking bars are generally smaller, with one end that's slightly angled and another that's curved 90°, goose-neck fashion (photo, p. 53).

On the racks of a well-stocked hardware store today, you'll see some newer variations on the wrecking bar. Prybars and ripping bars are similar to wrecking bars but flatter in section. A specialized type of wrecking bar has a double head, and looks something like a claw-tipped horse-shoe attached to a steel handle at about 45°. This tool can work well for prying up flooring, siding, sheathing and roof boards. Set on the joist or rafter with its two-pronged head under the boards, the tool lets you use a fast rolling action to loosen the wood (bottom right photo, facing page). Homemade versions of this tool exist, but you have to be a fair welder to make one up.

The sliding-handle nail puller is the most expensive nail-pulling tool you can buy. It usually costs between \$30 and \$40, and it's worth every penny. During general construction you won't get that much use out of it. But if you're removing plywood sheathing or if you're doing a lot of remodeling, it's a worthwhile investment. The tool has a sliding handle that acts like a pile driver to push one of its jaws under the nail head. Then you simply push or pull the tool and the second jaw grabs under the nail head. As you continue the motion, the tool pulls the nail out (bottom left photo, facing page).

While not exactly for nail pulling, iron wood-splitting wedges can come in handy for unfastening nails. Wedges are especially helpful when you need to separate large nailed-together beams or headers. Instead of trying to pull nails out individually, put the lumber on edge and, with prybars or wrecking bars, use the "buddy system" to separate the pieces. When you get them separated enough at one end, insert a wedge. Then keep moving down toward the other end of the lumber. Keep adding wedges as the split opens up while you work from one end to the other.

Removing trim—Salvaging lumber can sometimes call for a more delicate touch, particularly if you are pulling nails from trim or molding that you want to re-use. I carry two small, flat prybars, the Wonderbar (Stanley Tools, Slater Rd., New Britain, Conn. 06050) and the Superbar, (Vaughan & Bushnell Mfg. Co., 11414 Maple Ave., Hebron, Ill. 60034) for this kind of work. The Superbar is the cheaper of the two (about \$3), and I grind an end of one bar down quite thin. This gives me a very fine edge that won't leave an indentation when I slip it behind a piece of molding. After the molding has been raised slightly, I insert the second bar, then I use both bars alternately to pry the trim off.

Another way of taking off trim is to use a nailset to punch the nail completely through the wood. Large trim that won't pry off easily is a good candidate for this treatment, but it can only work if the trim is fastened with finish nails. The disadvantage is that you end up with larger

holes in the wood. Smaller holes will result if you pry the trim off and then pull the nails through the back of the trim with a hammer or pliers. For this job I use some nippers, or a pair of channel-lock pliers. Nippers, because of their sharp bite, can really take hold of a nail, but to exert strong pulling pressure you need a long-handled pair.

If trim is attached with flat-headed nails, you can first pry the molding out and then push it back in the hope that some nail heads will be exposed so that you can pull them. The only problem here is that flathead nails—especially when they've been set and covered with wood putty—will probably tear out some of the surrounding wood as they're pushed (or hammered) out head first.

When removing doors and windows installed with casing nails, what works well for me is to use either a Sawzall or a hacksaw blade to cut the nails off between the jamb and rough opening. Then, after pulling the unit out, you can either back out the nails, or leave them in place and nip off what's left on the back side.

What about hardened nails in concrete? If you are removing walls and prying up a bottom plate, cut nails will usually pull right through the 2x stock. So you end up with nails sticking up out of the slab. If they don't pull out easily, one solution is simply to break them off. Cut nails are brittle, and a whack with a sledge does the job. Be sure to wear protective goggles when you do this. If the plate was glued down, as well as nailed, your only answer may be a sledge and ripping bar, though this approach will generally leave you with a bunch of kindling wood.

Choosing the best tools—The best nail pullers are made from heat-treated high-carbon (1078 or 1080) steel. The 10 stands for a straight carbon series steel; the last two digits indicate the percent of carbon. Many flat prybars are made of 1095 spring-tempered forged steel. The claws or "working" ends of the tool should be forged, ground and painted.

Because of the competition in today's tool market, a higher price means higher quality most of the time. Another thing to go by is how long the manufacturer has been in business. Many name-brand nail-pulling tools are made by companies that go back to horse-and-buggy days. Even these companies get tools returned to them occasionally, but returns amount to less than 1%. Of these, most have been misused. Many have been overly muscled with extensions. Others have been overheated during grinding, with a resulting loss of temper.

Nail-pulling tools forged in one piece will generally be stronger than those with welded parts. This is not to say you should avoid welded tools. But if you are buying a tool that's been welded, take time to examine the bead closely. Pass up any tool that looks like it might have a defective bead. It's bad business to break such a tool, especially if it's being used under heavy pressure and you're perched on a roof or a top plate, or standing on a ladder. □

Freelance writer Gene Schnaser lives in St. Paul, Minn. Photos by the author.