

HOLLOW-WALL FASTENERS

A variety of new anchors offer strength, speed, and versatility for attaching to drywall

by Lewis Lorini

One day in the mid-1940s, Fred Crosseant heeded his wife's complaints and finally fixed the shaky toilet paper holder, and the rest, as they say, is history.

To do the job, Crosseant, a toolmaker by trade, invented the Molly (named for Mrs. Crosseant) expansion fastener, which, by all reports, was the world's first hollow-wall fastener. The product, originally marketed in 1947 on match books, was patented in 1951. About 75 million pieces are still produced annually.

Securely fastening shelves, towel bars, or toilet paper holders to hollow walls has come a long way since Mrs. Crosseant inspired Fred to do a little work around the house. Now a wide variety of hollow-wall anchors let you match the fastener to type of job.

Anchors for All Seasons

Most hollow-wall anchoring can be handled by Molly-type fasteners, along with two variations: the *Toggler*, made by Mechanical Plastics, and the *Poly-Toggle*, made by Rawlplug. All of these anchors require pilot holes, but otherwise can be installed consistently and quickly. They can also support the weight of most fixtures commonly attached to hollow walls.

Compared to the Molly, the Toggler is a mere child, having been on the market for about 20 years. But it is not well-known among contractors, since for much of that time the product has been sold directly to industrial users.

Both the Toggler and the Poly-Toggle combine the clamping strength of a toggle-bolt type of anchor with the flexibility of plastic. The nylon plastic anchors have a collapsible pair of wings that are opened after the anchors are pushed through pilot holes. The difference between the two versions

is that the Toggler's wings fold up under the collar, and the Poly-Toggle's wings fold out. The retracted Toggler is shorter than the Poly-Toggle and can be used in walls with shallower cavities (see Figure 1).

The plastic collar on both brands of toggle anchor will accept a range of screw sizes. A drywall or sheet-metal screw will cut a custom thread in the collar's soft material. As the screw penetrates the collar, it will catch the center of the spread wings and tighten them against the inside of the wall.

The Molly-type metal expansion anchors work in a fashion similar to the Toggler, except that they come with a screw attached. After pushing one of those anchors through the pilot hole, the screw is tightened,

which pulls three or four metal wings (depending on the model) against the inside wall. The screw is then removed and reinserted through the item that is being attached to the wall. Gripper prongs on the inside of the cap prevent the unit from turning inside the hole when the screw is withdrawn (see Figure 2).

A version of Molly-brand fasteners is available that has a sharp point and can be driven directly into wallboard without a pilot hole. In addition to Molly, Rawlplug and Star Expansion Corp. also make versions of the metal expansion anchor.

When Strength Is Essential

When attaching heavy items to an interior wall, it's best to find a stud. When that's not possible, toggle-type

anchors offer the most strength. Some designs exceed the strength of the drywall, which for most interior walls is the ultimate limit.

Properly installed wallboard typically has a "burst limit" of about 70 pounds per square inch (psi). That means that 70 pounds of pressure concentrated on a square inch of drywall will cause the paper and gypsum sandwich to fail, ripping a jagged hole in the wall. Of course, that limit applies to each fastener, which is why shelves attached with hollow-wall anchors routinely support more than 70 pounds. The other limit to consider is the "shear" strength of the screw or bolt. But since those limits, even for the smallest fasteners, exceed the strength of the wallboard, they are less important. The wallboard will most likely fail before the screw shears.

Toggle bolts maximize the strength of the wallboard by distributing a load over a greater area and by transferring much of the stress to the metal components with a clamping action. Toggle-bolt anchors typically spread the load carried by the fastener over at least a couple of square inches (depending on the size of the toggle wings). Specialty toggle-bolt anchors with wings as large as 6 inches are available for hanging items from ceilings.

There are essentially two types of toggle-bolt anchors:

- Spring-loaded double wings identify the most common type of toggle bolts. These anchors typically come with the bolt, which is convenient. But they are primarily designed for attaching things that will not be moved. Unscrew the bolt, and the wings drop to the bottom of the wall cavity. All that is left is the hole.
- Single-wing or swing-

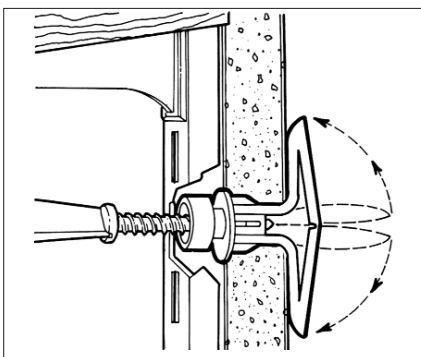


Figure 1. Plastic toggle anchors install quickly and hold a lot of weight. The main difference between the Toggler (left), and the Poly-Toggle (right) is that the Toggler wings fold in, while the Poly-Toggle wings fold out.

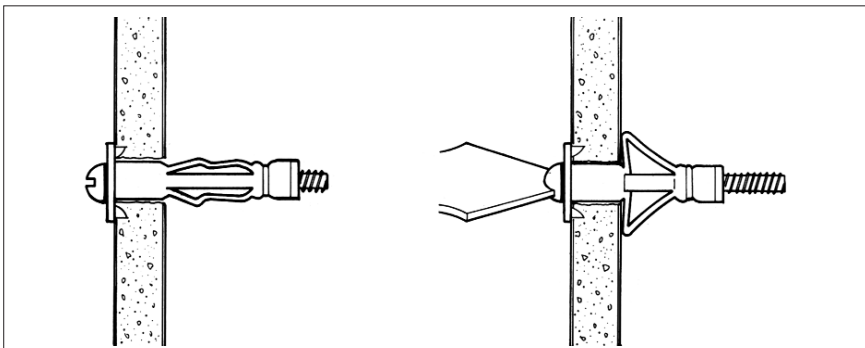


Figure 2. Classic Molly-type metal expansion anchors clamp the wallboard between the opened wings and a thin collar on the face of the fastener.

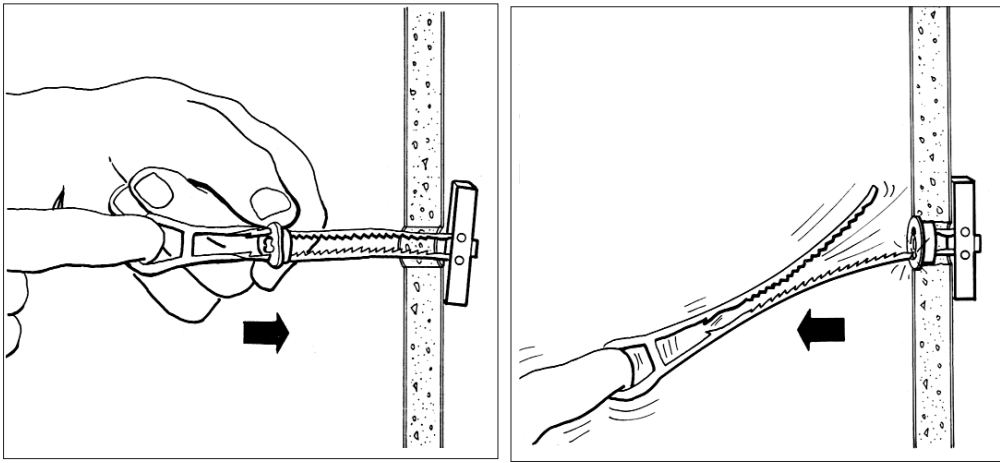


Figure 3. The innovative single-wing toggle bolt, from Mechanical Plastics, installs using plastic legs with ratchet teeth and a locking collar. The advantage of this fastening system is that when the bolt is removed the inside wing stays in place and is reusable.

type toggle bolts do not rely on springs to position the inside part of the fastener. Instead, the wing pivots on an axle (or in some cases a pair of axles) at its center and moves into place as the bolt is tightened.

The single-wing toggle anchor made by Mechanical Plastics (see Figure 3) not only delivers the strength of other toggles, but it also stays in the wall when the bolt is removed and can be reused. Unlike most other toggle bolts, which are positioned by tightening the bolt, this one has plastic legs with teeth and a locking cap. After sliding the single wing into a pilot hole, the plastic legs are pulled tight through a cap that locks the leg teeth. Leftover plastic is snapped off, leaving a clean plastic-shielded entry point for a bolt.

When Speed Is The Need

Strength, however, is not always the most important consideration. Often the load is light, but the units are numerous. In that situation, quick and reliable installation takes precedence over holding power.

The key to speedy installation is the elimination of predrilling. There are at least two types of drywall anchors that will make their own way into a wall

without a pilot hole.

One such anchor resembles a large self-tapping screw with extra-wide threads and a Phillips head. ITW Buildex makes a version of this anchor called *Ez-Ancor*, available in both metal and plastic, and Rawlplug Company also makes metal and plastic versions brand-named *Zip-It* (see Figure 4).

The advantage of this type of anchor is that it can be installed without changing screw gun bits. The Phillips bit used to drive the screw will also drive the anchors. But the strength of these anchors is limited. They are mainly held in the wall by friction with some assistance from the deep-cut threads, which compress the drywall around the core.

Ez-Ancor, which has been on the market for about four years, has a rated pull-out limit of about 55 pounds in 1/2-inch drywall. The manufacturer reports that *Ez-Ancors* are typically being used to hang some shelving, towel bars, and closet organizing systems.

The main difference between the two brands is the way they pierce the drywall. While the *Ez-Ancor* uses a three-pronged head the width of the anchor's core, *Zip-It* relies on a sharp point to pilot the threads through the

wallboard. The sharp point does less damage to the drywall, which accounts for slightly better holding power.

Even faster than screwing, but with less holding strength, is nailing. Grabco Inc. markets an anchor called *Wall Grabb'r*, which is flat and thin, with a sharp point to facilitate nailing (see Figure 5). As a screw is turned into the spring-steel anchor, it expands, using friction to stay in place.

One advantage of the *Wall Grabb'r* is that the spring steel contracts when a screw is removed, which permits the anchor to be withdrawn through a thin slit that does minimal damage to the wall.

Lightweight Specialty Systems

Two new fasteners that may prove to be useful in special situations are the *Arrow Xpando Fastening System* and the *Rawlplug Nail-In*.

Arrow's Xpando fasteners are similar to more familiar Pop Rivets. The Arrow system uses rivets that are installed with an Arrow T-50 staple gun equipped with a special head. After placing the rivets in pilot holes, the stapler pushes a pin through a split sleeve that splays on the backside of the board. The splayed ends pull the rivet head tight on the wall face. The largest size of these fasteners will hold

1/2-thick items against 1/2-inch drywall. But considering the relatively thin pin width of even the large size Xpando fastener, they may be better suited to attaching metal to metal, as when assembling drain pipes.

The Rawlplug Nail-Ins work in a similar way, except instead of a stapler, you use a hammer to drive a pin through a sleeve that expands at the

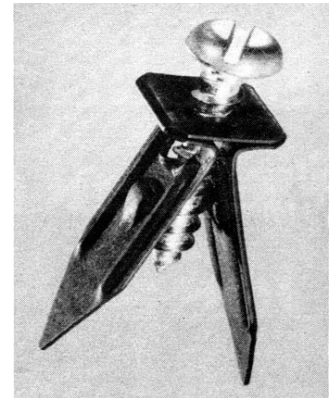


Figure 5. The *Wall Grabb'r* is nailed into the wall and expands as a screw is turned into it. When the screw is withdrawn the anchor resumes its thin profile and is easily removed, leaving only a slit.

end. They are intended for light-duty use, but have thicker and longer pins than the Arrow system, so they can hold thicker items. ■

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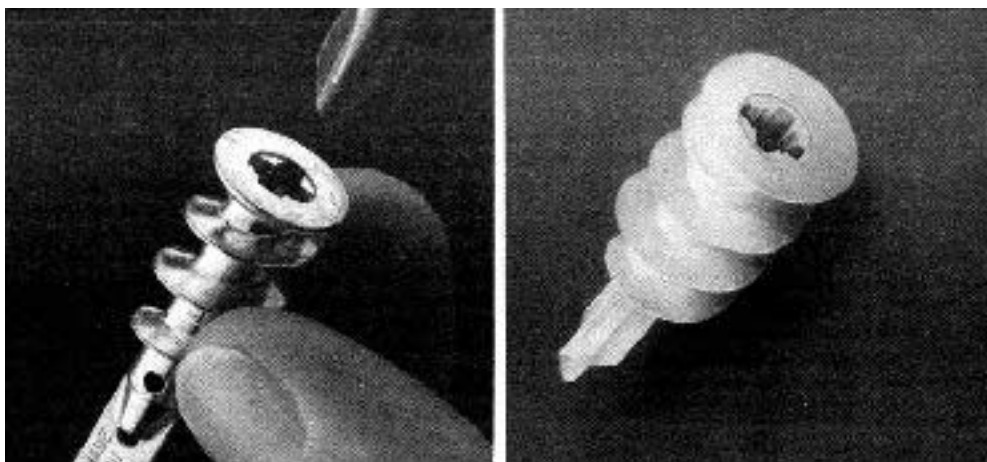


Figure 4. Both the *Ez-Ancor* (left) and *Zip-It* (right) anchors screw directly into the wall without a pilot hole.

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