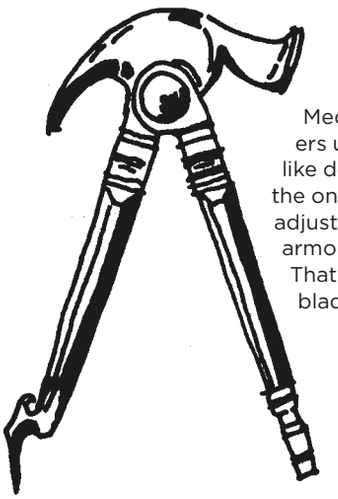
Backfill

The Screw: A Long Look Back

Many familiar carpentry tools and materials have ancient roots. As author Witold Rybczynski points out in his engaging *One Good Turn: A Natural History of the Screwdriver and the Screw* (Touchstone Books, 2000), squares, plumb lines, chalk lines, levels, and toothed saws were all well-known to the builders of the Egyptian pyramids. Chisels, axes, hammers, and nails date back at least to the Bronze Age. The Romans invented the plane and forged-iron nails, and relied on nuts and bolts to assemble the portable wooden A-frames used for lifting heavy objects.

Somehow, though, the Romans never developed the screw. The first known examples seem to date from the 15th century, when armorers and gunsmiths used them to fasten the metal mechanical parts of early firearms to their wooden stocks. Because screws were made by hand and were not commonplace, screwdrivers (or "turnscrews," as they were called until well into the 19th century) were evidently not taken very seriously. In describing one of the earliest known screwdrivers — which appeared on an armorer's combination tool that also included a hammer, wire cutter, and nail puller — Rybczynski notes sadly that it "resembles the kind of gimcrack household gadget that is sold by Hammacher Schlemmer."

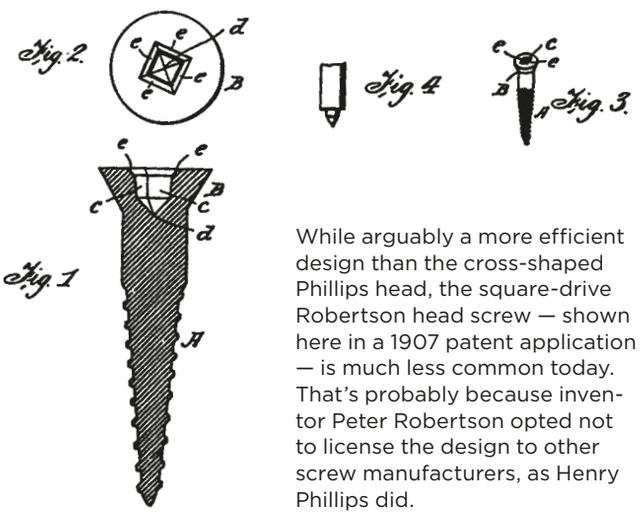
Widespread use of screws for carpentry didn't become practical until after 1760, when two English brothers, Job and William Wyatt, patented the first screw-making machinery. The Wyatts' factory was bad news for a class of workers called "girders," who had previously worked in their cottages laboriously hand-filing threads onto screw blanks hammered out by local blacksmiths. But it meant more and better work for finish carpenters — especially in combination with the mass-produced butt hinge, another innovation that appeared at about the same time. Unlike the earlier strap hinges, which were roughly fastened with clinched nails, the newer butt hinges called for skillful fitting and had to be screwed in place.



Medieval armorers used multi-tool-like devices similar to the one shown here to adjust and repair plate armor worn by knights. That's a screwdriver blade at lower right.

Further innovations followed. Machine-made screws had blunt ends until 1859, when a Providence, R.I., mechanic named Cullen Whipple patented a method of producing pointed screws. Decades later, Canadian inventor Peter L. Robertson and American Henry L. Phillips separately improved the screw's other end, replacing the traditional slot with a square socket — still known as the Robertson head — and the familiar cross-shaped recess of the Phillips head. In the 1950s, Illinois fire-protection engineer Paul Quigg and a team of co-workers at the U.S. Gypsum Corp. perfected the drywall screw.

Long story short, the screw has, over the past 600 years, made up for its late start. One is struck, when reading Rybczynski's book, by the painstakingly incremental nature of invention — even when the item being invented is as humble and seemingly simple as the common screw. It makes you wonder: What other obvious ideas for hardware are floating out there, as yet unconceived? Will future carpenters be joining pieces of lumber with some sort of fastener that's as far advanced beyond the screw as the screw is from the nail? — *Jon Vara*



While arguably a more efficient design than the cross-shaped Phillips head, the square-drive Robertson head screw — shown here in a 1907 patent application — is much less common today. That's probably because inventor Peter Robertson opted not to license the design to other screw manufacturers, as Henry Phillips did.

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