

In searching for the first screwdriver I've become interested in screws. Its predecessor, the wrought-iron nail, is a remarkable fastener. It bears little resemblance to the modern nail. The modern nail is round and pointed and forces itself between wood fibers. It's reasonably effective when driven into softwood, but will usually split hardwood. And even in softwood, the holding power of a modern nail is weak, since it's kept in place only by the pressure of the fibers along two sides. The wrought-iron nail, on the other hand, is square in cross-section with a chisel point. The chisel point cuts through the wood fibers rather than forcing its way between them. It can be driven into the hardest wood without splitting, and it's almost impossible to remove.

The wrought-iron nail has limitations, however. If it's driven into a thin piece of wood, its holding power is greatly reduced. That's why the earliest screws replaced nails in small-scale applications. Even a short screw has great holding power. Unlike a nail or a spike, a screw is not held by friction but by a mechanical bond: the interpenetration of the sharp spiral thread and the wood fibers. This bond is so strong that a well-set screw can be removed only by destroying the surrounding wood.

But the problem with these early screws was that, compared to nails, they were expensive. A blacksmith could turn out nails relatively quickly. The whole procedure took less than a minute. Making a screw was more complicated. A blank was forged, pointed, and headed. Then a slot was cut into the head with a hacksaw. Finally, the thread was laboriously filed by hand. By the mid-sixteenth century, applications for screws had grown to include watches, guns, and armor. Yet it was another two hundred years before demand grew enough that a screw industry developed.

In the mid-eighteenth century, a superior method of cutting screws emerged. The method involved three separate operations. First, the countersunk head was shaped with a file. Next, a revolving saw-blade cut a slot into the head. Finally, the blank was placed in a second spindle and the thread was cut. This was the most original part of the process. Instead of being guided by hand, the cutter was connected to a pin that tracked a lead screw. In other words, the operation was automatic. Now, instead of taking several minutes, a girder could turn out a screw in six or seven seconds. It took sixteen years to raise the capital required to convert a disused mill into the world's first screw factory. Then, for unexplained reasons, the enterprise failed.¹ And the mind's struggle for mastery over the body has become a kind of mortal combat.²

Rumpelstiltskin is pleased to present an exhibition featuring five sculptures by Esme Chant and five paintings by Colin Oulighan. The exhibition will open on Friday March 1st with a reception for the artists from 6–8pm and will run through April 13th.

¹ Rybczynski, W. (2001b). *One good turn: A Natural History of the Screwdriver and the Screw*. Simon and Schuster.

² Ehrenreich, B. (2018). *Natural causes: An Epidemic of Wellness, the Certainty of Dying, and Killing Ourselves to Live Longer*. Twelve.