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## Screwdrivers

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# Screwdrivers and Obviousness

A few years back, I did a program on Witold Rybczynski's book, *One Good Turn* – his history of screwdrivers. He found that screwdrivers are surprisingly new. They've been around only a few hundred years. Why did anything so *obvious* take so long to invent?

Actually, all sorts of things that involve turning were very hard to invent. The wheel wasn't invented until we'd had *pottery* and *woven fabric* for millennia. The hand *crank* was invented long after the waterwheel and indoor *plumbing*. The *piston* engine seems far more complicated than rotating turbine blades, yet we didn't have practical steam turbines until after we had telephones.

All of these things seem obvious. And yet, one of the *requirements* for an idea to receive an American patent is that it not be obvious. Well, I can't speak for you, but I find anything that I understand obvious, and everything else *incomprehensible*.

There's a story about a math professor at the *blackboard*. He reached one point in his *derivation*, and said, "Now it's obvious that this *term* can be neglected. So we ... Wait a minute." And he stared at the board for five minutes. Then he excused himself and went back to his office. A half hour later, he returned with a *sheaf* of scribbles and said, "Yes, it is obvious we can neglect that term. So we then ... " and he continued as though nothing had happened. The screwdriver is likewise so obvious that no one invented it until the eighteenth century.

I find my life has been *littered* with transitions from incomprehensible to obvious. And so many have to do with rotary or cyclic motion. How on earth does a differential gear let the two back wheels of a car rotate at different speeds? How does a *sewing* machine needle work? How did *escapements* work on mechanical clocks?

Here's another fact about screwdrivers that struck me as obvious, only after a technician pointed it out to me. He said, "I *curse* the guy who invented roundhead screws." And I suddenly realized that a roundhead screw offers the deepest slot to the screwdriver at its centre, where the force is almost *negligible*. At the edge, where the force is greatest, the slot is most shallow. That makes a roundhead screw a whole lot easier to *strip* than a square one.

But roundhead screws have about gone the way of all flesh. Most have been replaced with a *dizzying* variety of more efficient heads

– each one obvious in its function once we see it, but each one unimaginable before we do. Our world is afloat upon the obvious technology that flows from one person or another's non-obvious *perception* – five-wheeled chairs that don't *tip over*, octagonal pencils that don't roll off the desk, O-ring seals.

So our world divides into two parts, one obvious, one incomprehensible. The incomprehensible one is the joyous world - filled with all the wonders yet to be invented: quantum computers, teletransporters – and, perhaps, even the perfect screwdriver. ■

**Der Schraubendreher ist ein einfaches und offensichtliches Werkzeug - und trotzdem noch nicht sehr alt. Was vermeintlich so offensichtlich scheint, muss dennoch erfunden werden.**



<i>blackboard</i>	Tafel
<i>crank</i>	Kurbel
<i>curse, to</i>	verfluchen
<i>derivation</i>	Ableitung
<i>dizzying</i>	Schwindel erregend
<i>escapement</i>	Hemmung (in einer Uhr)
<i>fabric</i>	Gewebe
<i>incomprehensible</i>	unverständlich
<i>litter, to</i>	übersäen
<i>negligible</i>	unwesentlich
<i>obvious</i>	offensichtlich
<i>obviousness</i>	Offensichtlichkeit
<i>perception</i>	Wahrnehmung
<i>piston</i>	Kolben
<i>plumbing</i>	Wasserrohre
<i>pottery</i>	Töpferwaren
<i>requirement</i>	Anforderung
<i>sew, to</i>	nähen
<i>sheaf</i>	Bündel
<i>strip, to</i>	ausdrehen, abdrehen
<i>term</i>	Ausdruck, Term
<i>tip over, to</i>	umfallen
<i>weave, to (wove, woven)</i>	weben

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