

# Electric

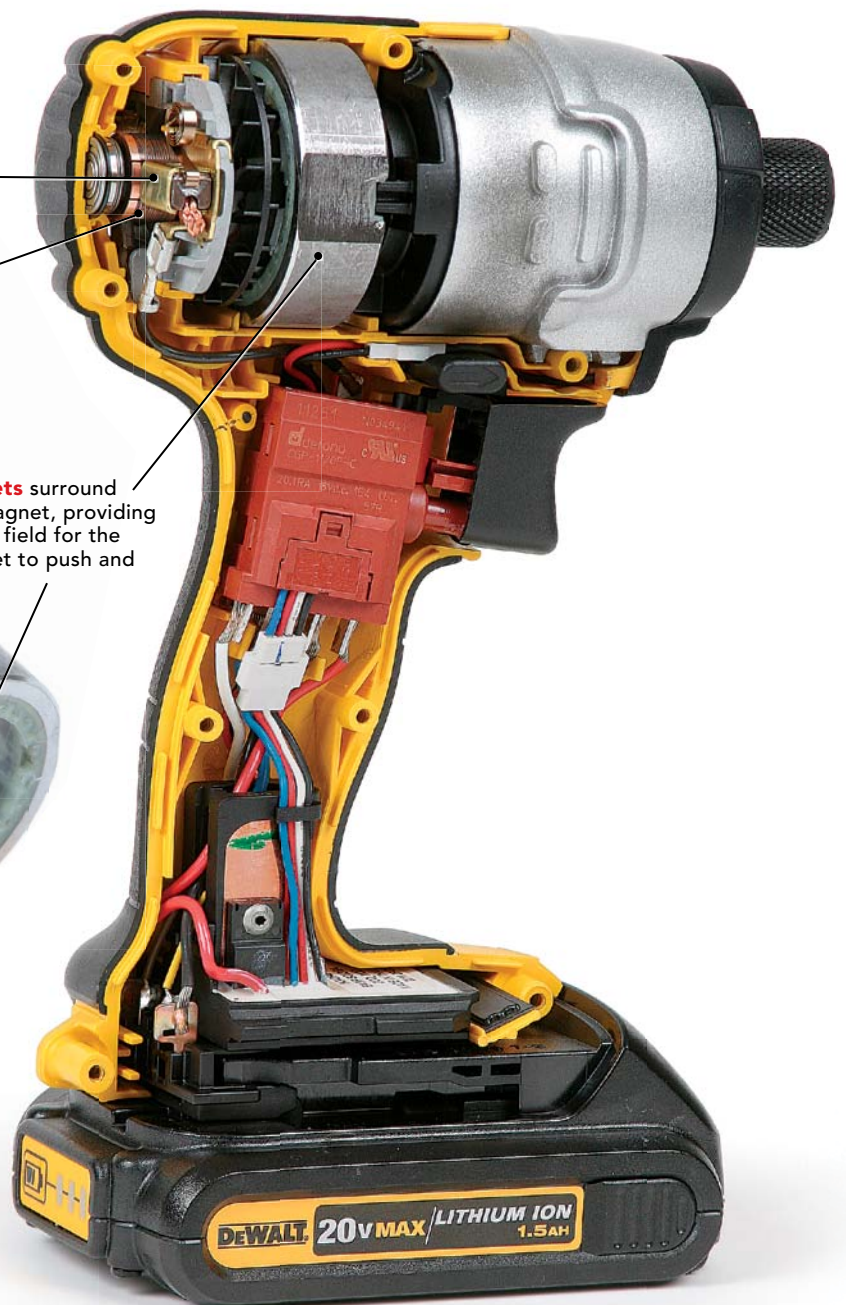
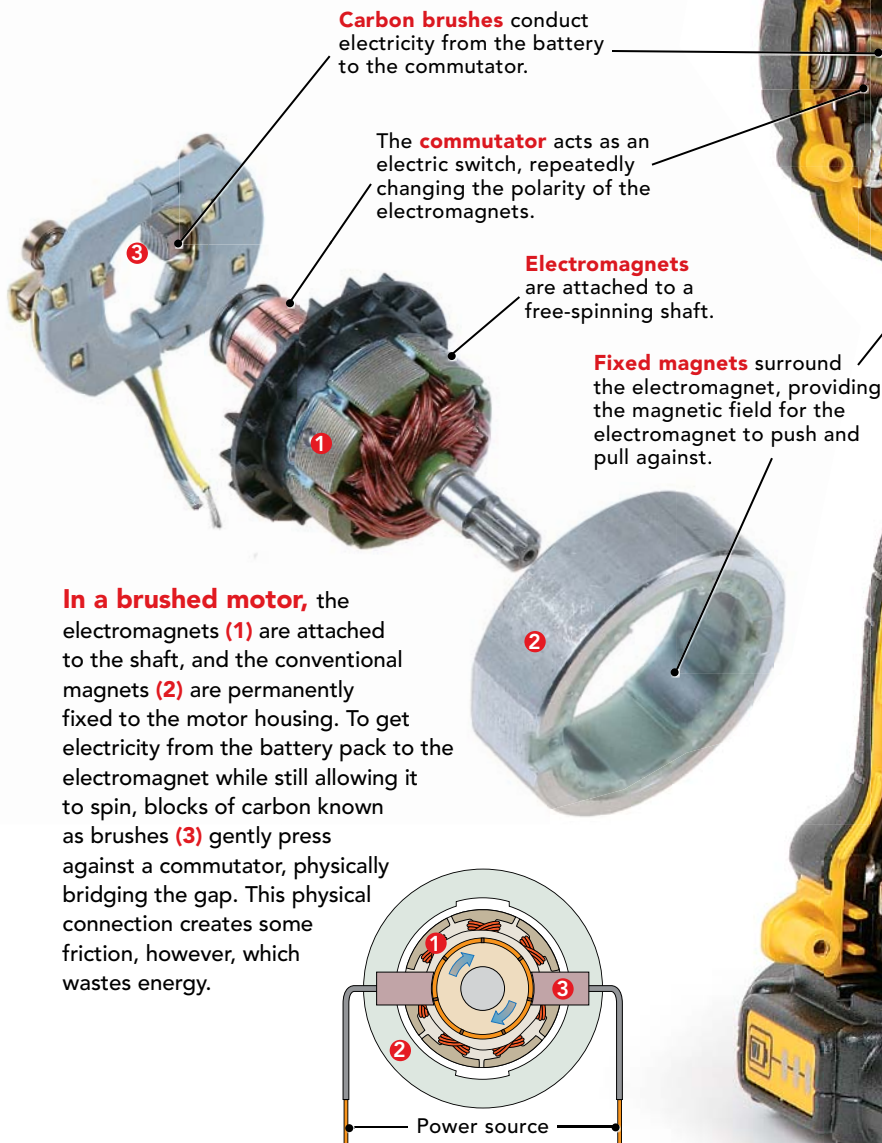
**S**weeping changes to power-tool technology don't come often. The last big shift was the introduction of Li-ion batteries in 2005. The next one is brushless motors (for more, see "Tools & Materials" on p. 28).

Most major tool brands now are either entering the brushless-motor category or expanding their current brushless offerings, and all will be promoting the new

option with much fanfare. As a buyer, you'll be faced with a decision: the standard brushed-motor tools you've used for years, or the new wave of premium-priced brushless-motor tools. An informed decision starts with an understanding of basic electric-motor technology.

Electric motors, both brushed and brushless, rely on a combination of conventional magnets and electromag-

## Brushed



# motors

BY JUSTIN FINK

nets. Every conventional magnet has two poles (north and south). Opposite poles attract each other, and like poles repel each other. Electromagnets behave the same way, but only when electricity is flowing through them. In other words, electromagnets are like a magnet with an on/off switch. To make the shaft of an electric motor spin, the electromagnet constantly switches polarity,

alternately pushing and pulling against the conventional magnets to create rotation. What makes a brushless motor different from a brushed motor are the position of the magnets and the way the incoming power is delivered. Here's how it works.

*Justin Fink is a senior editor.*

## Brushless

