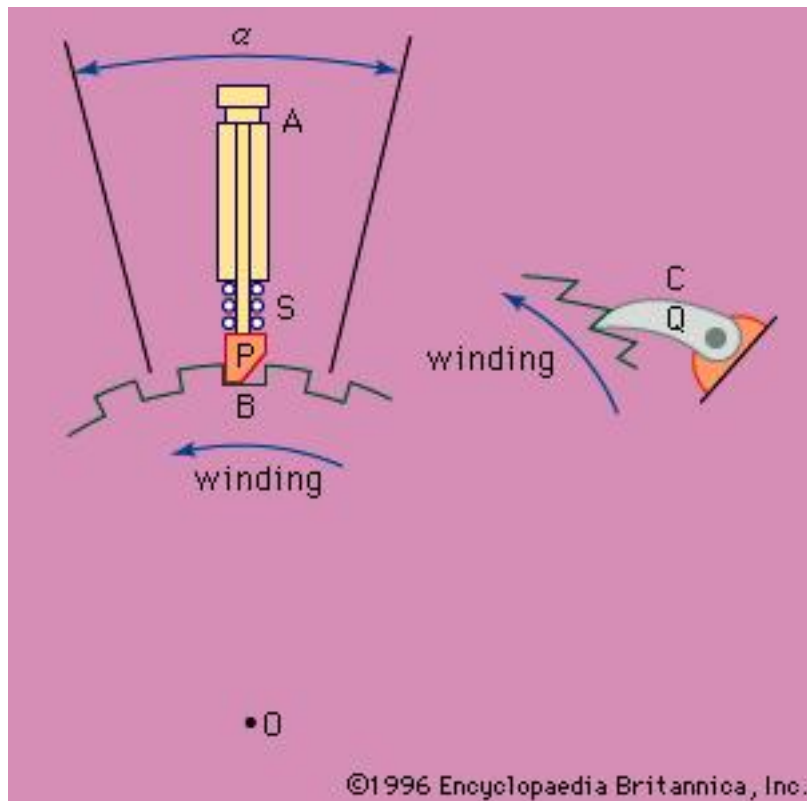


For this research I've decided to do the ratcheting socket wrench, or commonly called a ratchet. By definition a ratchet is mechanical device that transmits intermittent rotary motion or permits a shaft to rotate in one direction but not in the opposite one (Ratchet). The ratchet tool works differently as it rotates in both directions.



In the Figure the arm A and the ratchet wheel B are both pivoted at O. The stem of the pawl P can slide in the arm and is kept in its lowest position by the spring S. If the arm oscillates through the angle α (alpha), the pawl rotates the wheel intermittently in a counterclockwise direction; if the arm rotates clockwise, the sloping side of the pawl rides over the teeth and has no turning effect on the wheel. If the pawl is rotated half a turn so that its sloping side is on the left, oscillation of the arm rotates the wheel in a clockwise direction only. (Ratchet)

The ratchet is used for tightening or loosening a bolt through a reciprocating motion. To change it from tightening or loosening mode, simply switch the lever from left to right, or right to left depending on the type of wrench you own.

I think this is cool because it speeds up the process of using a regular wrench. Normally a wrench requires you to refit the tool onto the piece after each turn. The ratchet avoids that by leaving the tool on the piece while repeating the motion.

The simple machines that are included with the ratchet is a lever, and gears.

Bibliography

"Ratchet". Encyclopædia Britannica. Encyclopædia Britannica Online. Encyclopædia Britannica Inc., 2015. Web. 09 Sep. 2015 <<http://www.britannica.com/technology/ratchet>>.

Also, here is a link on how to rebuild a Snap-On ratchet with a repair kit.

<https://www.youtube.com/watch?v=sREfrMf9LEQ>