READING COMPREHENSION

Common Types of Fastening Tools

The list below includes some **Fastening Tools widely used in DIY jobs, Electrical Repair Shops and Construction Sites**. There are **Hand Tools** (operated manually) and **Power Tools** (electrically-powered equipment).

HAND TOOLS

HAMMERS have **a heavy head attached to a handle**. Hammers can be used for **hitting nails, shaping metal objects and breaking things apart**. There are many different types, which vary by size, head shape and weight, handle length, materials, etc. These four hammer types are widely used for driving nails in repair and construction jobs:

- **Ball-Peen Hammers, Ball Pein Hammers or Machinist Hammers** have a flat face and a round face, which can be used for shaping metal objects, for example closing rivets.

- **Claw Hammers** have a round head used for driving nails and a forked tail used for pulling them out. This claw is also used for breaking thing apart, for example tearing drywall.

- **Electrician Hammers** are similar to Claw Hammers, but they have an insulated handle and a rubber-coated grip. This makes them safe to be used for electrical work.

- **Rip Claw Hammers** or **Ripping Hammers** are larger and heavier than Claw Hammers, with a flatter profile. They are excellent for demolition works.

SCREWDRIVERS are used for the **insertion and removal of screws**. You turn the screwdriver clockwise to tighten the screw, and anticlockwise to loosen it ("Righty Tighty, Lefty Loosey").

Screwdrivers are available in a multitude of variations, and they are **classified by the tip shape**, which must fit the hole shape on the screw head. Here are some examples:

SCREWDRIVER TYPE	SCREW HEAD	COMMENTS
Standard Screwdriver, Flat Head Drive or Slot Head Drive (abbreviated SL)	 Straight-line shape  One-way screw	Simple and cheap to manufacture, Flat Head Drives have a tendency to slip out of the screw head, which may cause injuries. One-way screws are used for securing materials from being tampered with or stolen. You need a special tool to remove them.
Phillips Drive (abbreviated PH)	 X-shape	Phillips screw heads allow a tighter fit than Flat Head screws. Commonly used in electronics, appliances, and automotive applications.
Robertson Drive or Square Drive (abbreviated SQ or SD)	 Square shape	Popular in Canada, this screwdriver provides more grip than a Flat Head Drive or a Phillips Drive. It is safer and easier to use one-handed.
Socket Drive, Hex Key, Allen Key or Allen Wrench	 Hexagonal shape	Allen screws have better holding power than other types of screws. Commonly used in furniture products and mechanical installations.
Torx Drive or Star Drive	 6-Point Star shape	Specifically designed to prevent cam-out (slipping) and stripped (damaged) screw heads.

Other types of screws have **more complex designs**, which can **prevent unauthorized removal and modification of devices**. They are commonplace in consumer electronics and in public area properties, such as public toilets.

MULTI USE SCREWDRIVERS or MULTI-BIT SCREWDRIVERS are equipped with **removable bits,** which come with **an assortment of tip sizes and styles.** You have a set of different screwdrivers in one convenient tool.

NUT HEAD DRIVERS are similar to screwdrivers, but they have a socket instead of a shaped tip. They are used for **tightening nuts and bolts**.

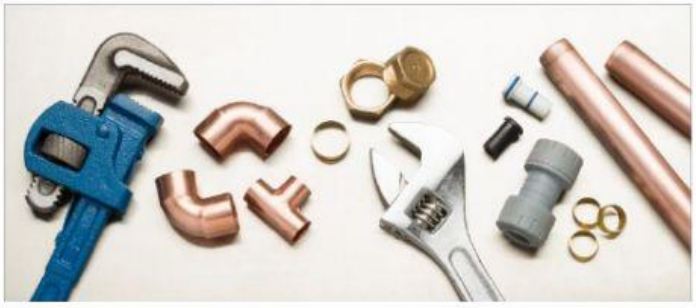
SPANNERS or WRENCHES are tools that have **a hole, projection, or hook at one or both ends of the head for grasping nuts & bolts** or other cylindrical objects. There are many types; they can be classified into three main groups:

- **General type.** They are size-specific, with fixed head shapes. The openings must be slightly larger than the nuts or bolts they are designed to fit.

    - **Open-ended or Open-end:** they have a U-shaped profile.
    - **Ring-ended or Box-end**: they have an O-shaped profile, whichs offers a firmer grip than a U-shaped profile.
    - **Combination spanners:** one head is U-shaped and the other one is O-shaped.

- **Adjustable type.** They have **one fixed jaw** and **one movable jaw,** which allows to graps objects of different sizes. In the UK, the fixed type tool is known as a spanner, and the adjustable type of tool is known as a wrench. In the USA, both fixed and adjustable tools are known as a wrench.

    - **Crescent Wrench.** The jaws are almost parallel to the handle, and the movable jaw moves left or right.
    - **Pipe Wrench.** This tool is used for basic plumbing purposes; its jaws are perpendicular to the handle and they have small teeth.
    - **Monkey Wrench.** This is an older type of adjustable wrench. It is similar to a Pipe Wrench, but it has smooth jaws.



- **Socket Wrenches.** They attach to different-sized sockets (cylindrical receptacles). Their design allows the user to apply torque more easily, with less strain and fatigue.

POWER FASTENING TOOLS

FASTENER GUNS are power tools used for driving fasteners. They perform the same functions as hand tools, much faster and with less effort. **The power source can be electric, hydraulic or compressed air**. If driven by electricity, they have **a battery or a cord that plughs into an electrical outlet.**

- **IMPACT WRENCH, IMPACT GUN, AIR GUN or TORQUE GUN.** It is a socked wrench designed to deliver high torque output. This tool is used for driving and removing fasteners in wood, metal and concrete. With it, you can drill through metal and dense or knotty wood.

- **NAIL GUN or NAILER.** It is designed to fire round-head, flat-head, and finish nails at high speed and precision.

- **STAPLE GUN or POWERED STAPLER.** This tool is ideal for projects that involve hard materials or require large staples. **Manual Staple Guns** are not power tools; they work with a simple lever and squeeze technique.

- **RIVET GUN, HAND RIVETER or RIVET HAMMER.** To install rivets, first you need to punch or drill holes in the materials to be joined. **Power Rivet Guns** are used in factories and construction sites. **Manual Rivet Guns** are used for small jobs and for more delicate applications, such as decoration.


ELECTRIC DRILLS or POWER DRILLS are tools used for making round holes or driving fasteners. They are fitted with **Drill Bits,** which are Cutting Tools. Bits come in many sizes and shapes, and they can create different kinds of holes in many different materials.


QUIZ:

Activity 1. Identify the Fastening Tools. Write the number next to the name.


1


2


3 4


5


6


7


8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11


12

10


13


14

Ball-Peen Hammer

Claw Hammer

Combination Spanner

Crescent Wrench

Electrician Hammer

Flat Head Drive

Monkey Wrench

Multi-Bit Screwdriver

Nut Head Driver

Open-Ended Spanner

Phillips Drive

Pipe Wrench

Rip Claw Hammer

Socket Wrench

Activity 2. Match the Screwdriver style with the screw head design. Write the number next to the screw head design (hole shape).

1. **Flat Head Drive**
2. **Phillips Drive**
3. **Robertson Drive**
4. **Hex Key**
5. **Torx Drive**

- **Hexagonal shape**
- **6-Point star shape**
- **Straight-line shape**
- **Square shape**
- **X-shape**

Activity 3. Identify the Fastening Tools and accessories: **Drill Bits/ Impact Wrench/ Manual Rivet Gun/ Manual Stapler Gun/ Nail Gun/ Power Drill.**