

॥ नमस्ते ॥



WRENCHES

Wrenches

- Wrenches are used to fasten a joint comprising a nut and bolt. Wrenches are also known as spanners in some parts of the world. They are made from a chromium-vanadium alloy. Chromium plating helps in preventing the wrench from rusting. The patent of the first wrench belongs to Solymon Merrick, who had it patented in the year 1835. There are many kinds of wrenches that a common man may need in his day-to-day life for different purposes.

Types of the Wrenches

1. Open-ended

This type of wrench is open-ended at both its ends. The openings are U-shaped. These openings are not of the same size. These wrenches are useful when dealing with nuts and bolts that are difficult to access. They provide much more ease in turning such nuts and bolts.



2. Box-ended

A box-ended wrench has a closed loop at both its ends. This loop is usually designed to fit a hexagonal shape, and in some cases it may be designed to fit a square shape. The loops at both the ends are of different sizes. These wrenches are used in cases where open-ended wrenches are of no good. Box-ended wrenches will avoid the rounding-off at the edges that may occur on use of open-ended wrenches.



3. Combination

- A combination wrench, as the name suggests, is a combination of both an open-ended wrench as well as a box-ended wrench. This wrench has a closed loop at one end, while it is open-ended at the other. These can be used to unfasten nuts and bolts with the box-end, and then separate them quickly using the open-end. Combination wrenches are generally put to use in this combination, and hence both the ends are of the same size.



4. Adjustable

This is an open-ended wrench. It can be used only from one end. The size of the opening is not fixed. It can be varied based on the size of the nut and bolt. These can be used on nuts and bolts of multiple sizes, as opposed to the earlier seen wrenches where one unit can be used for a single or at the most two sizes. However, such types of wrenches are difficult to use in remote or confined areas



5. Allen

This wrench has a hexagonal end. It comes in either a T-shape or an L-shape. A T-shaped wrench is similar to an L-shaped wrench (shown below), except for the handle it has, which is made up of either metal or plastic, at the end that is absent in the L-shaped one. These wrenches are used with heads that have hexagonal recesses in them. Allen wrenches are used to turn such screws or bolts. The way in which they operate is similar to that of screwdrivers.



6. Socket

In case of a socket wrench, it fits completely over a nut or a bolt. Such a wrench also requires a handle. Hence, most of them have an in-built joint. When socket wrenches are used, they need not be removed completely from the head of nut or bolt after the completion of the turn. The handle can be removed and re-inserted, while the socket remains on top of the nut or bolt.



7. Line

A line wrench lies somewhere between an open-ended wrench and a box-ended wrench. This wrench is open-ended at both its ends, unlike a box-ended wrench. On the other hand, unlike an open-ended wrench, the openings are just wide enough to fit over the head of a nut or bolt. These are used when the nuts or bolts are of softer metals. Line wrenches cover the maximum area of the nut/bolt head and allows for maximum contact, thus minimizing the damage to the softer metal heads.



8. Ratcheting

A ratcheting wrench is similar to a socket wrench. In this case, a metal handle is attached to a ratcheting mechanism, that is in turn attached to a socket. As it is attached to a socket, there is no need for the wrench to detach itself from the head of the nut/bolt till the job is done. These are used when there are restrictions on time and space. These wrenches get the job done quickly. They can also function in a limited space.



9. Pipe

This is a type of an adjustable wrench. The jaws of the wrench are like a saw. It is generally used on soft iron pipes and fittings that are round in shape. The saws are designed in such a manner that when the handle is pulled forward, the jaws become tighter. Due to the saw-like nature of the jaws of these wrenches, they are used mainly for plumbing purposes. The serrated jaws, though, leave some scratches behind on the surfaces that they are used on.



10. Torque

A torque wrench provides a specific amount of torque for fastening purposes. This will help in avoiding over-tightening of the nut-bolt assembly. The required amount of torque can be achieved by calibrating the wrench. In a few cases, like in the automobile industry, the level of torque required for fastening is precise. They are used in the assembly of such precision mechanisms, where excess torque is as dangerous as inadequate.



11. Alligator

This wrench, has serrated jaws on one side, while the other jaw is flat. The shape of this wrench is like the mouth of an alligator, and hence the name. This kind was in vogue when wrenches were designed for square heads, unlike today, where they are designed for hexagonal heads. Alligator wrenches are not in much use today, as with time, the designs of wrenches have been made friendlier for use on hexagonal heads. In its heyday, these were used whenever regular wrenches failed in their job.



12. Drum Key

This is a type of square wrench. It is used for the tuning of percussion musical instruments. This wrench is a specialty wrench, and cannot be used for any purpose other than the intended one. Tuning can be achieved by using these wrenches for tightening the rods or strings of instruments. As the name suggests, these can be used for tuning of drums as well.



13. Spark Plug

A spark plug wrench is a type of socket wrench. It is similar to a ratcheting wrench. It has openings at both the ends. This is also a specialty wrench. These wrenches are used only with spark plugs. They help in the removal and fitting of spark plugs, that, in general, are inaccessible. These cannot be put to any other use.



14. Fire-hydrant

A fire-hydrant wrench is a type of a box-ended wrench. The loop is pentagonal shaped. The valve on the fire-hydrant is also pentagonal. The valves cannot be opened with any other type of wrench. These are specialty wrenches with the above mentioned purpose. The irregular shape makes the valves temper-resistant.



15. Lug

This wrench has sockets in four directions, and the handles are larger than regular wrenches. This wrench is also known as a wheel brace. These are specialty wrenches that are used in the automobile industry. They are used to tighten the nuts on the wheels of automobiles.



16. Plumber

A plumber wrench is an adjustable wrench. It is similar to a pipe wrench. It is exclusively used for plumbing purposes. These are used to fasten or loosen the nuts used on the pipes in a plumbing system. As these are adjustable wrenches, the same wrench can be used for pipes of varied sizes. These are specialty wrenches.



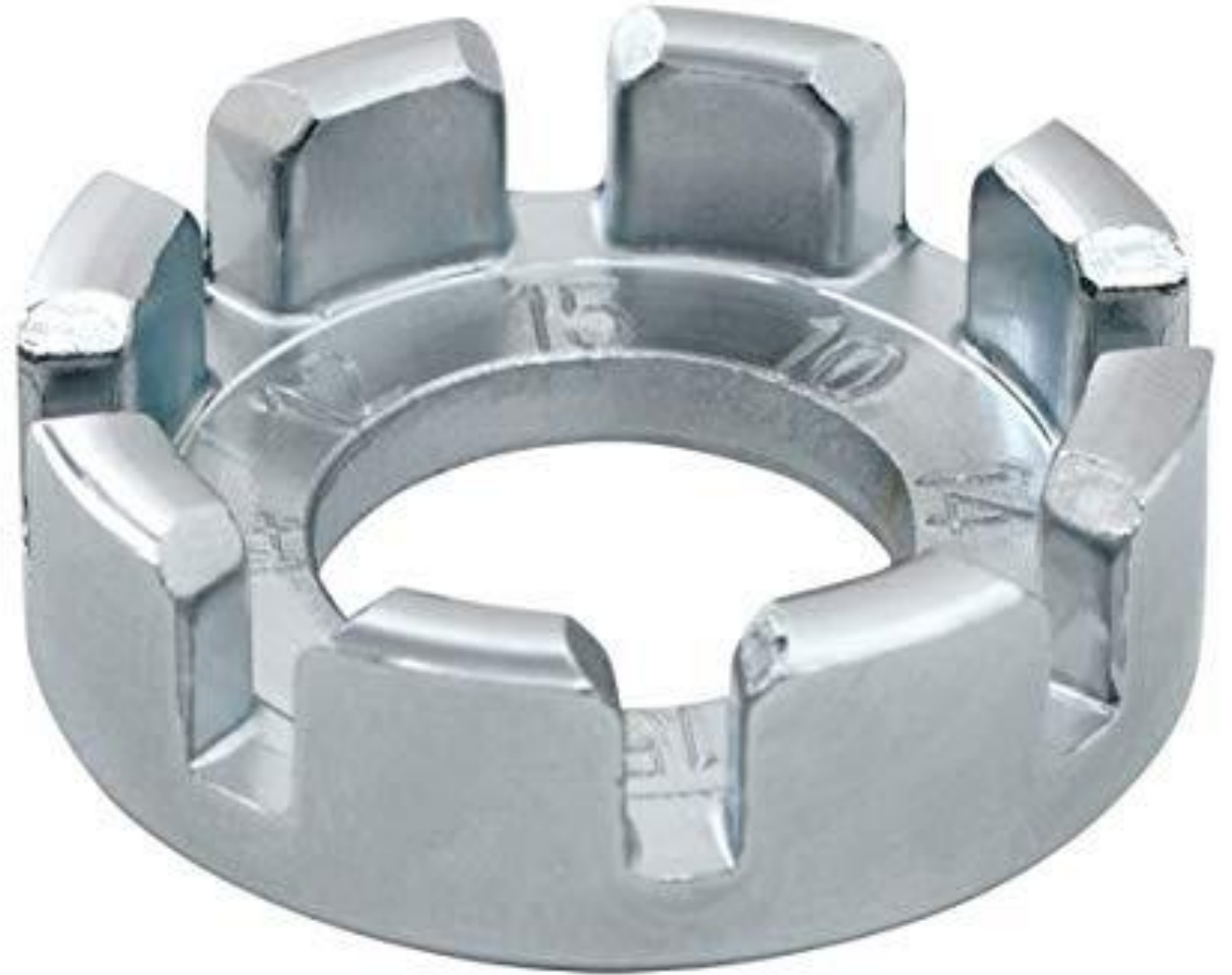
17. Dumb-bell

This is a box-ended wrench. This is also known as a dog-bone wrench. The loop sizes at both the ends are, in general, different. These are specialty wrenches. They are designed to be specifically used on bicycles. These wrenches can be difficult to fit into tight spaces.



18. Spoke

This is an open-ended wrench. The handle is at an offset to make it easy to grip, despite its, in general, short size. The handle has to be short enough for the wrench to fit in between spokes. These are designed to be used on the spokes of a wheel. This spoke is designed to manipulate the tension in the wheel.



19. Spud

A spud wrench is open-ended at one end and has a spike at the other. This kind is not much in use today, owing to the plumber wrench. These were originally used to line up bolts using the spiked end, and fasten using the wrenched end. Before the plumber wrench became a preferred choice, spud wrenches were used for plumbing purposes.



20. Impact

This is also known as an air wrench or an air gun. This kind is either powered electrically or through compressed air. It is designed to provide high torque for the fastening or unfastening process. It is a type of socket wrench. These can be used in most processes. These wrenches, however, cannot be used when precision is required in the torque delivered during the process. They are, hence, not used in precision mechanism.



21. Male Die-stock wrench

Is used for the threading on a nut.



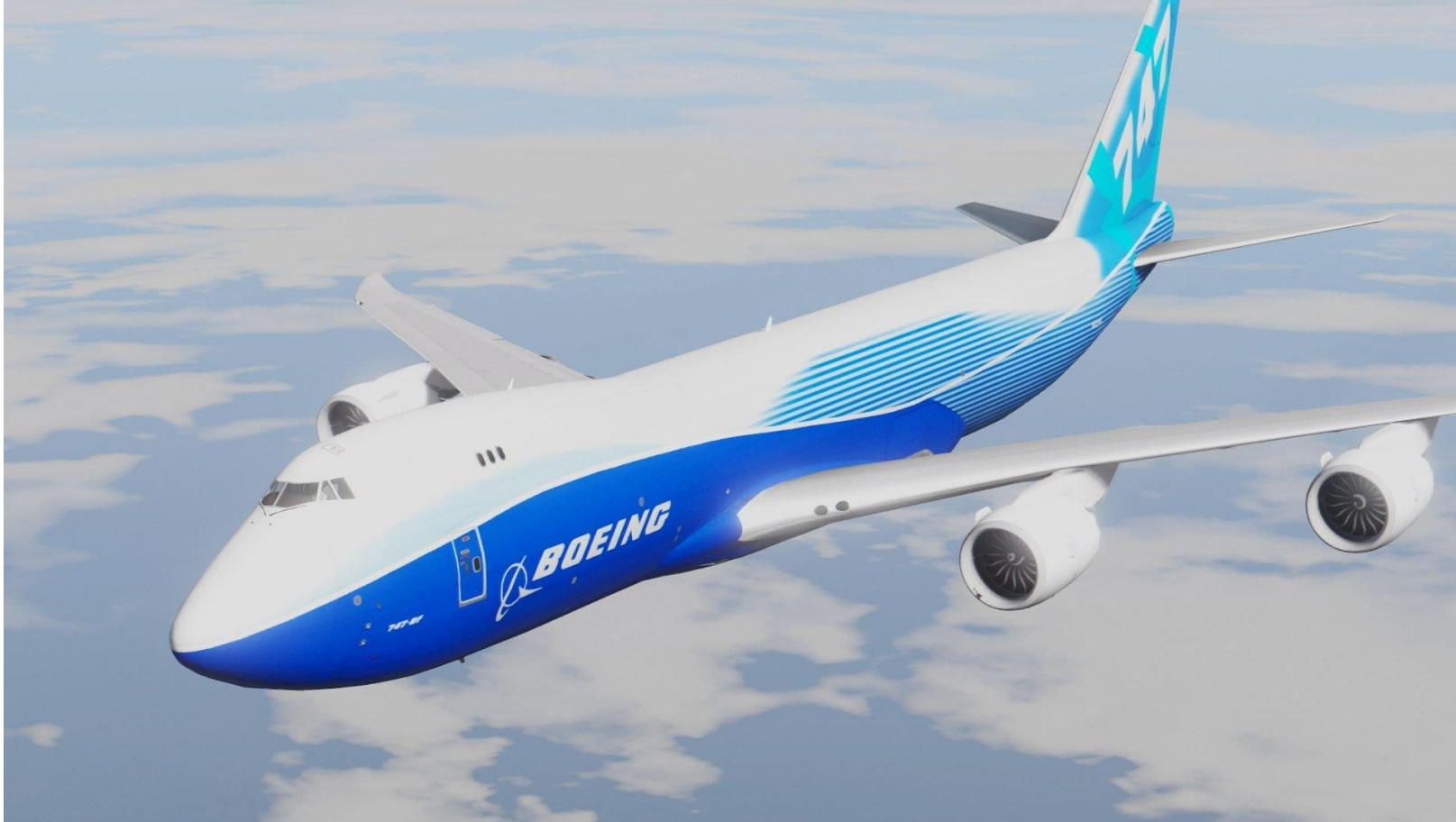
22. Female Die-stock wrench

It is used for threading on bolts.



TODAY'S AMAZING FACT???????

A Boeing 747 is made up of six million parts



By Mr.Pankaj Salunkhe , Wingsss College Of Aviation
Technology, Pune. Download
<http://kkingson18.wixsite.com/aerospaceservices>

धन्यवाद