

DESCRIPTION OF ADJUSTABLE PLIERS FOR A FIRST-YEAR STUDENT

by
Bethany G. Roberts

INTRODUCTION

Pliers are a hand tool used to grip, bend, or cut a variety of materials, including wires, bolts, nails, and more fasteners*. Pliers are so versatile that they come in many shapes and sizes, including utility, tongue-and-groove, long-nose, linesman, and wire cutters*.

Adjustable pliers specifically were invented in 1933 by the Champion-DeArment Tool Company, or Channellock*. These began as slip joint pliers with jaws ranging from 45 to 60 degree angles*. These pliers were so versatile and popular that "channellocks" and "adjustable pliers" quickly became interchangeable terms*.

When viewed from the front, the adjustable pliers are about the height of a sheet of letter paper. The pliers are made of two long pieces of metal connected with a nut, bolt, and washer towards the top. The two bottom handles are thick and flattened, about the width of a staple. The top jaws are roughly the width of a pencil.

Adjustable pliers consist of six major parts: the left and right handles, the left and right jaws, the tongue, and the grooves.

HANDLES

The handles are used to hold the pliers with a steady grip and to adjust their width as needed. Adjustable pliers consist of two handles wrapped in a red rubber coating from the bottom up. Near the top of the handle, the rubber ends, leaving a half-dollar space of metal on the pliers before an intersection of the handles.

JAWS

Moving upwards, the jaws are the narrower tips of the adjustable pliers used to grip the nuts, bolts, and so forth themselves. The left handle controls the right jaw, and the right handle controls the left jaw. Both jaws have several ridges on their inner edges to allow for better gripping. The upper right jaw has a slightly curved outer edge, but the lower left jaw has a straighter outer edge.

TONGUE

The tongue is used to slip in and out of the grooves for adjusting the width of the jaws, and to hold the jaws in place once adjustments are complete. When looking at the pliers from above, the tongue appears beneath the left jaw on the inner edge. This tongue is a slightly curved piece of metal that covers about a thumb's width of space along the inner edge of the pliers. Opening and closing the adjustable pliers will show the tongue slipping in and out of the metal grooves.

GROOVES

The grooves hold the tongue in place between adjustments so that the pliers can fulfill different jobs. When looking at the pliers from above, five semicircular grooves are visible in the inner edge of the pliers beneath the right jaw. Like the tongue, they are each about a thumb width long with alternating thick and thin strips of metal in between.

CONCLUSION

To adjust the pliers, hold one handle in each hand. From the bottom of the handles, pull the left and right legs outward to fully extend the pliers. Ensure that the tongue is fully outside of the grooves. Next, hold the left handle firmly while pulling or pushing the pliers above the desired groove. Once the tongue is positioned above the correct groove, push the right handle back down and fully into the groove.

To use the pliers once adjusted, lift the right handle as high as necessary to fit the pliers over the nut or washer you wish to tighten or loosen. Next, lower the right handle back into place. Squeeze both handles together in one hand, then turn the nut or bolt clockwise to tighten and counterclockwise to loosen.

*<https://www.engineeringworldchannel.com/pliers-history/#:~:text=In%201933%2C%20the%20first%20%E2%80%9Ctongue,angles%20from%20the%20tool's%20handles.>

*<https://www.hunker.com/12003392/what-are-pliers-used-for>

