Some machines are so simple and deeply ingrained into everyday life that we seldom pay them much attention. The humble zipper is one such machine.

**The Hooks**

While the zipper is a relatively modern invention, it uses two ancient tools: the wedge and the hook. A wedge is an object with a slanted surface that exerts force on other objects in order to move them up or to the side. A hook, as everyone knows, is simply a curved object used to fasten on to another object.

If you take a close look at a zipper, you’ll see that it consists of two tracks, each containing teeth spaced evenly apart. The teeth are hooks; the spaces in between are where the hook latches on. A zipper works because the tracks are designed so that the teeth on one track line up opposite the hollows on the other track. When the tracks are brought together, each tooth fits snugly into its corresponding hollow, forming a tight bond.

**The Wedge**

But how are the tracks brought together in the first place? That’s where the wedge comes in. Actually, a zipper uses a series of wedges to guide the tracks into place. When you zip up your jacket you use a device called a slide, which consists of a handle used to pull a triangular piece of metal up and down the zipper tracks.

When you pull the slide up, the tracks enter on an angle and are forced together by a wedge system inside the slide. When you pull the slide down, the wedges push into the interlocking teeth and force them apart. Simple but effective.

有些机器如此简单，深深扎根于日常生活中，我们很少关注它们。不起眼的拉链就是这样一台机器。

### 钩子

虽然拉链是一个相对现代的发明，它使用两个古老的工具：楔子和钩子。楔形物是具有倾斜表面的物体，其对其他物体施加力以将它们向上或向侧移动。众所周知，钩子只是一个用来固定在另一个物体上的弯曲物体。

如果仔细观察拉链，你会看到它由两条轨道组成，每条轨道都包含均匀分开的齿。牙齿是钩子; 两者之间的空间是钩子锁定的位置。拉链是有效的，因为轨道的设计使得一条轨道上的齿与另一条轨道上的凹槽对齐。当轨道被放在一起时，每个齿都紧密地配合到相应的空心中，形成紧密的结合。

### 楔子

但是首先将曲目汇集在一起​​的是什么？这就是楔子进入的地方。实际上，拉链使用一系列楔子将轨道引导到位。当你拉上夹克时，你会使用一种称为滑动装置的装置，它包括一个用于在拉链轨道上下拉三角形金属片的手柄。

当您向上拉动滑块时，轨道以一定角度进入，并通过滑块内的楔形系统强制在一起。当您向下拉动滑块时，楔块会推入互锁齿并将它们分开。简单但有效。