

ZIP IT UP!

Everything you ever wanted to know about zippers

by Kelly Lucas-Cilley, Supply Chain Manager

The zipper is such a commonplace closure today that most people probably don't give a thought to its origin. Yet the story of its creation is an interesting one, with a surprising number of plot twists.

HISTORY OF THE ZIPPER^{1,2}

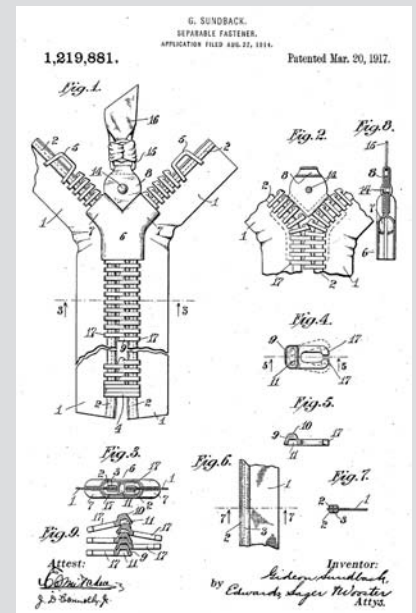
In 1851, inventor Elias Howe (a pioneer of the lockstitch sewing machine) received a patent for a device he called an "Automatic Continuous Clothing Closure." It was similar in design to the modern-day zipper, in that individual clasps were joined manually and pulled shut to create a gathered effect. However, after receiving the patent, Howe did not continue to develop his invention.

Several years later, a patent was issued to inventor Whitcomb L. Judson for a product that could be used to close the space between the clasps on one side of a shoe and the attachments on the other side.

Unimaginatively but accurately referred to as a "Clasp Locker or Unlocker for Shoes," the design proved difficult and time consuming to produce.

Judson went back to the drawing board, and in 1893 was granted a second patent for a product he called "C-curity." This design featured a series of loops that were manually laced into a boot or shoe. Although this design was more efficient than Judson's previous design, it still was considered ineffective because of its tendency to spring open.

As the saying goes, the third time is the charm. An engineer by the name of Gideon Sundback enhanced the previously-patented designs to create the "Plako fastener." Sundback's design used oval hooks that protruded from the tape they were sewn to, and provided a more secure fit than previous models. However, this design also had its flaws: it was not flexible and did not stay closed when bent. Finally, in 1913, Sundback introduced a new design that used oval scoops in place of hooks, which could be joined together with a slider in one swift movement. The patent for this design, issued in 1917, is what we know today as the zipper.



However, the device didn't become known as a zipper until 1923, when it was coined by B.F. Goodrich to mimic the sound that the slider made when the interlocking teeth were being closed.

At first, the zipper was slow to be adopted by retailers. In the early years, it was used exclusively for boots and tobacco pouches. It wasn't until World War I that zippers started to be incorporated into other items, specifically flying suits and money belts. In 1925, Schott NYC began using zippers for clothing. Originally, zippers were only manufactured in aluminum, nickel and brass, but now they can be found in a variety of materials and colors. Easy Way prides itself on the ability to source any color and material style of zipper for our customers.

THE ANATOMY OF A ZIPPER²

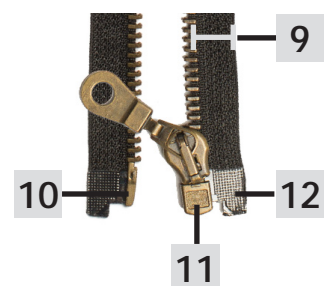
Zippers have multiple components, some of which vary depending on the zipper type.

1. **Top Tape Extension** – The fabric part of the zipper that extends beyond the teeth, at the top of the chain.
2. **Top Stop** – The two devices affixed to the top end of a zipper that prevent the slider from coming off the chain.
3. **Slider** – The device that moves up and down the chain to open or close the zipper.
4. **Pull Tab** or **Puller** – The part of the slider that is held to move the slider up or down.
5. **Tape** – The fabric on both sides of the zipper chain.
6. **Chain** or **Zipper Teeth** – The continuous piece that is formed when both halves of a zipper are meshed together. The term "chain width" refers to the specific gauge of the chain; common gauges are #3, #5, #7, #8 and #10. The bigger the number, the wider the teeth/chain is.
7. **Bottom Stop** – The device affixed to the bottom end of a zipper to prevent the two halves of the zipper from separating.
8. **Bottom Tape Extension** – The fabric part of the zipper that extends beyond the teeth, at the bottom of the chain.
9. **Single Tape Width** – The width of the fabric on one side of the zipper chain.
10. **Insertion Pin** – The device used on a separating zipper to allow the joining of the two zipper halves.
11. **Retainer Box or Pin Box** – The device used on a separating zipper to correctly align the pin for the joining of the zipper halves.
12. **Reinforcement Film** – The strip of plastic fused to each half of the zipper tape that allows a manufacturer to electronically "weld" the zipper onto the garment or item that is being manufactured, without the need for sewing or stitching.

Closed-end zipper



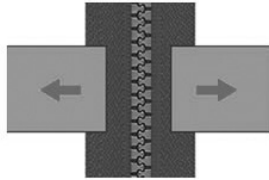
Open-end zipper



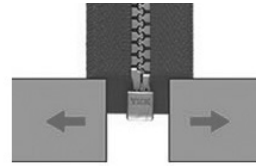
ZIPPER STRENGTH TESTING³

Because zippers are used in a multitude of products today, strength testing has become a priority for most retailers and manufacturers. Recognizing the importance of zipper strength when it comes to long-lasting cushions and pillows, Easy Way only purchases zippers from reliable suppliers who test their zippers on a regular basis. Testing reports can be produced upon request. There are several methods used to test the strength of zippers, all of which are documented under ASTM, ISO, BIS, JIS, DIN, ISI, and other well-known International Standards.

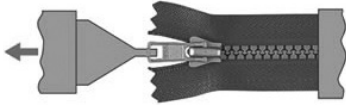
Chain crosswise strength



Separating units crosswise strength



Top stop holding strength



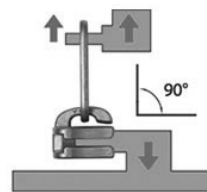
Slider lock strength



Bottom stop holding strength



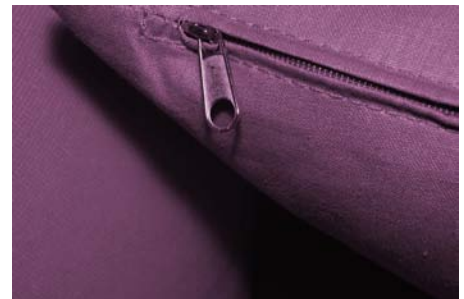
Slider tab pull off strength (90°)



CONCLUSION

When used in combination with any of the high-quality fabrics Easy Way offers, a zippered closure can help to create cushions and pillows that are both durable and easy to maintain.

We encourage you to speak with an Easy Way design expert about the benefits of adding zippers to your specific project.



REFERENCES

1. "The History of the Zipper." The History of the Zipper. Accessed August 22, 2016. <http://www.thomasnet.com/articles/hardware/zipper-history>.
2. "Zipper." Wikipedia. July 27, 2016. Accessed August 22, 2016. <https://en.wikipedia.org/wiki/Zipper>.
3. "Testing Methods." Zipper / YKK FASTENING PRODUCTS GROUP. Accessed August 22, 2016. <http://www.ykkfastening.com/quality/standard/methods.html>.