

VELCRO

(1948)

George de Mestral



One lovely summer day in 1948, a Swiss amateur-mountaineer and inventor decided to take his dog for a nature hike. The man and his faithful companion both returned home covered with burrs, the plant seed-sacs that cling to animal fur in order to travel to fertile new planting grounds. The man neglected his matted dog, and with a burning curiosity ran to his microscope and inspected one of the many burrs stuck to his pants. He saw all the small hooks that enabled the seed-bearing burr to cling so viciously to the tiny loops in the fabric of his pants. George de Mestral raised his head from the microscope and smiled thinking, "I will design a unique, two-sided fastener, one side with stiff hooks like the burrs and the other side with soft loops like the fabric of my pants. I will call my invention 'velcro' a combination of the word velour and crochet. It will rival the zipper in its ability to fasten."

Mestral's idea met with resistance and even laughter, but the inventor 'stuck' by his invention. Together with a weaver from a textile plant in France, Mestral perfected his hook and loop fastener. By trial and error, he realized that nylon when sewn under infrared light, formed tough hooks for the burr side of the fastener. This finished the design, patented in 1955. The inventor formed Velcro Industries to manufacture his invention. Mestral was selling over sixty million yards of Velcro per year. Today it is a multi-million dollar industry.

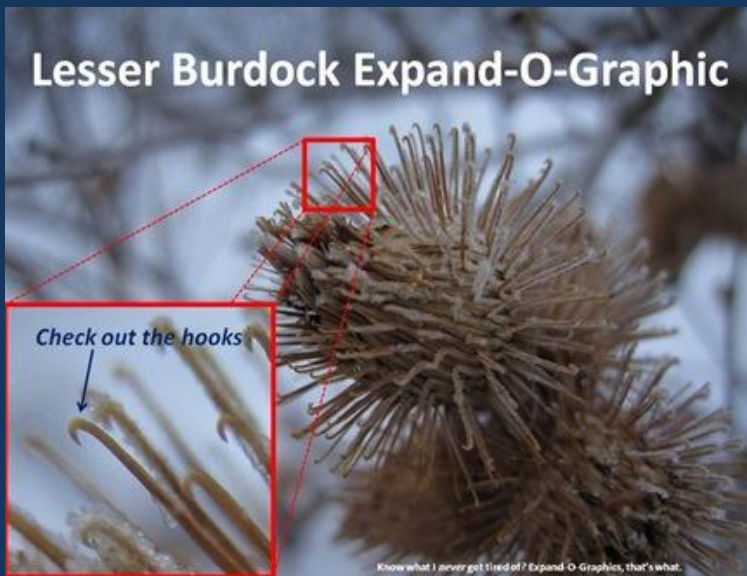
A wonderful invention based on Mother Nature.

Advantages and Disadvantages

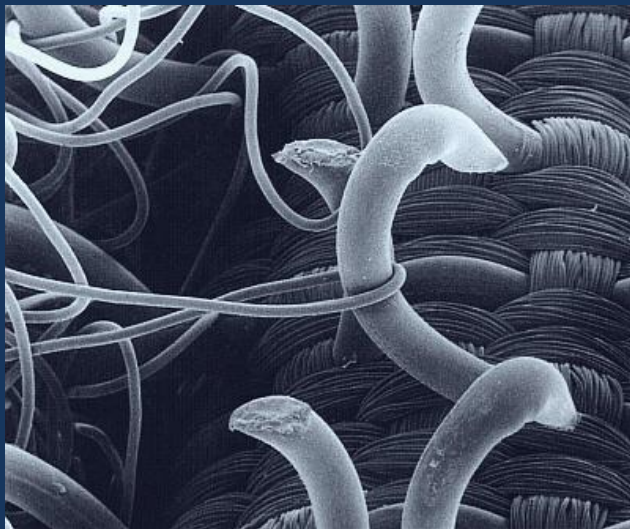
In favor of Velcro, it is easy to use, safe, and maintenance free. There is only a minimal decline in effectiveness even after many fastening and unfastenings. The tearing noise it makes can also be useful against pickpockets. Additionally, in the United States Air Force, where Velcro is used to attach patches to flight suits, aircrew have learned that they can remove small cloth pile balls that accumulate on the suits by using the hook side on the back of the patches like a brush to remove them.

Velcro has several deficiencies: it tends to accumulate hair, dust, and fur in its hooks after a few months of regular use. The loops can become elongated or broken after extended use. Velcro often becomes attached to articles of clothing, especially loosely woven items like sweaters. Additionally, the clothing may be damaged when one attempts to remove the Velcro, even if they are separated slowly. The tearing noise made by unfastening Velcro makes it inappropriate for some applications. For example, a soldier hiding from the enemy would not want to alert the enemy to his position by opening a Velcro pocket. It also absorbs moisture and perspiration when worn next to the skin, which means it will smell if not washed.

Textiles can contain chemicals or compounds, e.g. dyes, that may be allergenic to sensitive populations. Velcro products have been tested according to the Oeko-tex certification standard which imposes limits on the chemical content of textiles to address the issue of human ecological safety.



The Burdock seeds that inspired George Mestral.



The connections of Velcro.