

## History of Screen Printing

Historians are not sure exactly when screen printing was discovered. The basic processes are seen in the work of early Polynesian Island natives, who cut designs into banana leaves. They then forced dyes (ink) through the leaf openings. This left an image of their cut design on bark cloth, or “tapa.” It has been suggested that they may have received this idea by watching insects eat holes through leaves and then seeing rain run through the holes. This is the basic process of **screen printing**. That is, forcing ink through a porous opening in a stencil. Stencil means the outline of an image.

The earliest stencils were produced during the Sung Dynasty (A.D. 960-1280). There are many examples of stencil printing that date back to this time period in Japan (please see the Japanese stencil on your design brief from today). The Japanese were extremely skillful in cutting these stencils. It was easy enough to print solid images by cutting out large areas, but what would you need to print intricate images, with great detail? They had to devise some way to hold parts of the stencil in place. Imagine you wanted to print a circle inside a circle, inside of a circle, and so on. This would be similar to trying to print a detailed image, but less complicated. What would hold the inner circle or circles in place, while you forced the ink through the non stencil areas?

The solution the Japanese came up with was to hold pieces or loose parts (inner circles in our example) of the stencil in place by gluing human hair! This process must have been very tedious and time consuming. However, this solved the problem, because human hairs were strong enough to hold the stencil parts in place, while still letting ink pass through (see “ties” diagram below). These strand of human hair were called “ties” because they tied together all the parts of the stencil. The Japanese used paper made out of rice, called “rice paper,” to make prints. During the 1700s, Englanders used “ties” to make wall paper for upper-class homes, but the “ties” made it difficult to make intricate detailed designs. Later, human hair was replaced by silk material, because it was stronger and left a more detailed, uniform print. This is where the name silk screen printing comes from. Even though you may still hear it called silk screen printing, silk is rarely used today. Today human made fibers such as plastic or metal fibers are used. You will learn more about these screen fibers.

During the early years of the United States, the stencil was a well-guarded secret. Traveling teachers often sold the idea to local printers and sign makers. Back then, there were not patents to protect the works of an inventor. The local sign maker or printer would pay well for knowledge on how to make stencils, because then they could have consistent prints. Printing press like systems existed back then, but you were limited to the size of the available printing press—this was not very big, which is evidenced in many old books. What if you wanted to make a large “JESSE JAMES WANTED DEAD OR ALIVE” sign like you see in western movies. The screen printing technology allowed local printers or sign makers to make consistently registered signs of almost any size.

**Registered** means that the print lines up in the same place on each print.



It was not until 1907 that Samuel Simon of Manchester, England, was granted a patent for his new concept of the “tieless stencil.” His design used coarsely woven silk fabric. Extremely intricate designs could then be glued to the fabric. The ink passed around the design, through the fabric threads, leaving an image in places where material had not been glued to the silk fabric. During World War I (1914-1918) screen printing became a significant part of industry. You may recall seeing in your history books army recruitment signs from this time with Uncle Sam saying, “Uncle Sam wants you to Join the Army (please see fig 1 and 2).” Large Uncle Sam signs were made possible by screen printing. The screen printing process was ideal for making high quality signs in a short amount of time. It was not ideal for high quantity, but you were not limited in size. Color was a possibility with screen printing—way back then they did not have ink jets and color laser printers! You could also include illustrations along with text. Modern screen printing has grown to be a part of many products, from bill boards to electronic circuits, that we use and see everyday.

