

UNITED STATES PATENT OFFICE.

FRANK ZEMAN, OF PHILADELPHIA, PENNSYLVANIA.

PROCESS OF DYEING.

SPECIFICATION forming part of Letters Patent No. 440,414, dated November 11, 1890.

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To all whom it may concern:

Be it known that I, FRANK ZEMAN, a citizen of the United States, residing in the city and county of Philadelphia, State of Pennsylvania, have invented a new and useful Improvement in a Process of Dyeing Silk, which improvement is fully set forth in the following specification.

In carrying out my invention I first thoroughly wash the silk. I prepare a composition or bath of six pounds of chlorate of potash, two and one-half pounds of sulphate of copper, twenty-five pounds of rock-salt, and two hundred gallons of lukewarm water, all well stirred together, and then left to stand for two hours. I take about one hundred pounds of silk and draw the same through the above-named bath for about one hour, after which it is well wrung out and placed in a drying-chamber for about twelve hours. Steam is next introduced into said chamber sufficiently to make the silk quite wet, and a quantity of acetic acid placed in said chamber, this imparting to the air or atmosphere a sour taste, which has the effect of coloring the silk dark-black green, the silk being retained in the chamber for six or eight hours. The silk is removed and subjected to a bath of silicate of soda and water, the latter being 140° Fahrenheit, the silk being drawn through said bath for about one-quarter of an hour,

after which it is thoroughly washed in clean water. If the color is not quite black, the silk as dyed is subjected to another bath of 180° Fahrenheit with sumac, logwood, and soap, and drawn through the same until it has acquired the desired deep dark color, when it is washed in clean water and then dried.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The method of dyeing silk, consisting in first washing the same, then subjecting the washed material to a dyeing-bath, then drying the same, next steaming it, and subjecting it to vaporized acetic acid for setting the color, then subjecting it to a heated bath of silicate of soda, and afterward washing it in clean water, substantially as described.

2. The method of dyeing silk, consisting in first washing the same, then subjecting it to a dyeing-bath, next drying it, then steaming it, and subjecting it to the vapor of acetic acid, next subjecting the material to a bath of silicate of soda, then subjecting it to a hot bath of sumac, logwood, and soap until the desired color is obtained, and finally washing the said material, substantially as described.

FRANK ZEMAN.

Witnesses:

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