

UNITED STATES PATENT OFFICE.

ERNEST C. HASERICK, OF LAKE VILLAGE, NEW HAMPSHIRE, ASSIGNOR OF ONE-HALF HIS RIGHT TO GAYTON P. LORING, OF BOSTON, MASS.

IMPROVEMENT IN BLEACHING WOOLS, YARNS, &c.

Specification forming part of Letters Patent No. 129,819, dated July 23, 1872.

To all whom it may concern:

Be it known that I, ERNEST C. HASERICK, of Lake Village, in the county of Belknap and State of New Hampshire, have invented an Improvement in Bleaching Wool, Woolen Yarns, and Fabrics; and I do hereby declare that the following is a full and exact description thereof.

The nature of my invention consists in the employment of a compound or salt of sulphurous acid and an alkali—such as hyposulphite of soda—as the bleaching agent in the bleaching of wool, woolen yarns, and fabrics, whereby the process is greatly hastened, and the offensive smell of sulphurous acid or sulphur in stuffs even when they come to market—the effect of the ordinary process of bleaching such fabrics by the fumes of burning sulphur—is avoided, and the fabrics will not discolor when in contact with fancy colors, nor rust or corrode the machinery in the process of spinning and weaving, as is common with stuffs bleached by the sulphurous-acid process in use.

In order to carry out this improved process the goods, materials, or fabrics are first scoured with soap, as usual. The blue, red, or other coloring is here to be added to the soap if a colored white is wanted to secure evenness. The goods are then rinsed from the soap, and, when clean, are ready for bleaching. To effect this they are handled in a bath in which a salt of sulphurous acid and an alkali—such as hyposulphite of soda—is dissolved. For bleaching one hundred pounds of wool or woolen fabrics four pounds of the salt suffices in the first instance, with water enough to sufficiently immerse or saturate the goods, the liquid being slightly warmed. The same bath may be used for successive batches of goods; and, in that case, three pounds of the salt are sufficient for each successive batch, a portion of the hyposulphite being left in each preceding bath; and so on indefinitely.

As this salt is a cheap material the cost of the bleaching is very little.

The salt enters the fibers of the wool, and, when it is subsequently decomposed and the sulphurous acid set free among the fibers, the bleaching takes place quickly and thoroughly. But before the goods are subjected

to the acid water for the purpose, after being handled in the sulphite bath for fifteen minutes or more, they are taken out and rinsed in cold water to get rid of any free hyposulphite not absorbed by the fibers of the fabrics. This rinsing is necessary; otherwise the free particles of the sulphite would become decomposed and cause the goods to smell of the sulphur, as after the old fuming process, and would make the fabrics yellow. A little soap may be added to the hyposulphite bath, which will help the rinsing and freeing of the fabrics more thoroughly from the loose particles of the salt not absorbed by the fibers. After thorough rinsing, as above, the goods are passed through a cold or warm bath of some acid or sour water, which will decompose the salt and set the sulphurous acid free in the fibers of the fabrics, whereby the bleaching is almost instantaneously effected. Such a sour bath may be cheaply made with common sulphuric acid, two pounds of which, in a sufficient quantity of water to make a bath for a hundred pounds of the goods, are a proper proportion. Thus the sulphurous acid performs its office at the moment of being set free, and there is no excess of it left to remain free among the fibers of the fabrics and produce the disagreeable effects of the fuming process, above designated. The goods after coming from the acid or sour bath are rinsed in clean water, to which a little whiting or carbonate of lime is added to neutralize any excess of the acid which may remain in the goods or fabrics.

Yarn or wool bleached and treated as above will not corrode machinery—such as the needles in knitting hosiery, &c.—nor will it injure the colors in goods with which it comes in contact either during the manufacture or in market—as, for instance, in fancy hosiery when white and anti-sulphur colors are combined.

If it is desired to quickly and very economically bleach raw wool the sulphite salt may be added at once in the scouring-kettle while scouring, and, after thoroughly rinsing therefrom, add sulphuric acid, enough to make the water a little sour, while in the rinsing-box; then, after a few minutes, rinse out the acid and dry, ready to card and spin at once.

By this process two men can bleach about five thousand yards of cloth a day, and with-

out smell, using very simple and cheap apparatus; while by the common process for such a quantity of cloth large bleaching-houses are required with the services of four men; and still, the next day, the fabrics have to be rinsed and washed in fresh water to get rid of the odor, which cannot be entirely effected without detracting from the white color, which is a chemical result.

I do not confine myself to hyposulphite of soda above specified, though that serves the purpose well and is cheap.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In the process of bleaching wool and woolen fabrics, the employment of a com-

pound of sulphurous acid and an alkali or a sulphite in a water-bath, and then subjecting the wool or fabrics to an acid or sour bath to decompose the sulphite and set the sulphurous acid free, substantially as herein specified.

2. In the process of bleaching wool and woolen fabrics by the successive use of a compound of sulphurous acid and an alkali and then of a decomposing-acid bath, the subjecting of the wool or fabrics to a rinsing in water between the two baths, substantially as and for the purpose herein specified.

ERNEST C. HASERICK.

Witnesses:

THOMAS HAM,

H. G. WHITTIER.