UNITED STATES PATENT OFFICE.

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PROCESS OF DYEING.

No. 882,543. Specification of Letters Patent. Patented March 17, 1908.

Original application filed December 29, 1906, Serial No. 349,973. Divided and this application filed June 7, 1907. Serial No. 377,763.

To all whom it may concern:

Be it known that we, GUSTAV ADOLF WALDINGER and CARL FRIEDRICH ISERLOTH, citizens of the German Empire, residing at Elberfeld, Germany, Kingdom of Prussia, have invented new and useful Improvements in Process of Dyeing, of which the following is a specification.

In French Letters Patent No. 367,921, filed July 9, 1906, a process for dyeing vegetable fibers with sulfur coloring matters is described, which process consists in dyeing with these dyestuffs, in baths prepared in the usual way with the aid of alkaline sulfids and sulfur coloring matters, but with the addition of ammonium salts. By this process level and uniform shades are obtained which in many cases are even deeper and faster to washing than those obtained without the employment of ammonium salts.

The present application is a divisional application from our application, Serial No. 349,973, filed December 29, 1906, and covers specifically the process for dyeing vegetable fibers with sulfur coloring matters, under the addition of acids.

We have found that this favorable action of the ammonium salts seems to be due to the fact that the ammonium salts neutralize the free alkali present in the alkaline sulfid dye-bath, and that acids will produce the same result. The acids are generally added to the baths in such quantities that a distinct smell of H_2S is evolved, but care must be taken that no dyestuff or leuco-compound is precipitated.

The new process is also suitable for dyeing by machinery.

In order to illustrate the new process more fully, the following example is given, the parts being by weight: A dyebath is prepared from 2000 parts of water, 10 parts of Katigen indigo B extra, 20 parts of crystallized sodium sulfid, 20 parts of Glaubers' salt, and 5 parts of soda. To this dye-bath 3 parts of sulfuric acid are added, and 100 parts of cotton yarn are then dyed in this bath at 50 degrees C. for 3/4 hour. The dyed goods are squeezed out, exposed to the air and rinsed.

The process is the same for other dyestuffs, and other acids, capable of binding alkali, such as acetic acid, or the like, may be used. The quantities added ought to be sufficient to neutralize the free alkali, but care must be taken not to add an excess, and to avoid the precipitation of the dyestuff.

Having now described our invention and in what manner the same is to be performed, what we claim, is:

1. The herein-described process for dyeing the vegetable fiber with sulfur dyestuffs, which process consists in dyeing the fiber in a sulfur dyestuff bath in the presence of an acid, substantially as described.

2. The herein-described process for dyeing the vegetable fiber with sulfur dyestuffs, which process consists in dyeing the fiber in a sulfur dyestuff bath in the presence of sulfuric acid, substantially as described.

In testimony whereof we have hereunto set our hands in the presence of two subscribing witnesses.

GUSTAV ADOLF WALDINGER. [L. S.]
CARL FRIEDRICH ISERLOTH. [L. S.]

Witnesses:
OTTO KÖNIG,
OSKAR KLUG.