

UNITED STATES PATENT OFFICE.

CHARLES SIMON, OF PATERSON, NEW JERSEY.

PROCESS OF WEIGHTING SILK.

No. 840,264.

Specification of Letters Patent.

Patented Jan. 1, 1907.

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To all whom it may concern:

Be it known that I, CHARLES SIMON, a citizen of the United States, residing in Paterson, Passaic county, New Jersey, have invented a certain new and useful Improvement in the Treatment of Silk, whereby to Weight the Same; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to processes of silk dyeing, and it has reference particularly to that phase or branch of this art which comprehends weighting the silk being treated.

The essential feature of my invention is the employment, together with a suitable mordant or mordants, of what is known as "quebracho," being a product of a tropical tree of the same name and used principally in tanning and which is commonly used in the form of an extract.

In the dyeing of silk the weighting agent heretofore used was the gambier (gambir) variety of catechu. In the use of quebracho, which has also been employed in the silk-dyeing processes, it has been observed that an augmentation in weight of the silk resulted. Such augmentation, however, was but slight and was, in fact, regarded as so inappreciable and insufficient that for that purpose quebracho so used had very little material advantage over gambier, if any.

I have discovered that the weighting qualities of quebracho are only developed to the best advantage and to the highest extent when the quebracho is made to affect the silk while a mordant or mordants is or are operating as such on the silk. The preferred manner of performing the treatment is to first mordant the silk by the use of, say, iron and prussiate as mordants and then subject the silk to the action of quebracho in the presence of tin as a mordant, or the silk may be first mordanted and then subjected to the quebracho alone. Various other treatments and sequences of treatments are possible with varying advantageous results so long as the quebracho is made to affect the silk while the mordant or mordants is or are operating as such on the silk. The result is that as against increasing each pound (sixteen ounces) of silk to twenty-four ounces, as by the known use of quebracho, I am able to increase each pound of silk to as high as sixty-four ounces weight.

As a specific example of the process the following is presented: To weight black souple to one hundred and fifty per cent., the silk is given two passes of red iron mordant, 25° Baumé, and after each such pass of mordant it is washed and given a bath of carbonate of soda, twenty per cent., 35° Réaumur warm, and then washed again. The silk is then given a bath of thirty per cent. prussiate of potash and forty per cent. hydrochloric acid, 20° Réaumur warm, whereupon it is "turned" (manipulated) one hour and then washed again.

A bath of quebracho extract, 6° Baumé, is then prepared and into this the silk is entered at 50° Réaumur warm, whereupon it is given three turns. The bath is then brought to the boiling-point and the silk worked down to 50° Réaumur, whereupon fifteen per cent. of tin crystals are added and the silk turned for five hours and then washed. Fresh quebracho extract is then added to the old quebracho bath to bring the latter up to 5° Baumé, whereupon five per cent. tin crystals are added and the silk entered at 50° Réaumur and turned five hours and then washed. If the silk is not weighted enough, it is returned for the third time in the same quebracho bath brought up to 5° Baumé, five per cent. tin crystals being added and the silk entered at 50° Réaumur and turned five hours and then washed, which treatment may be supplemented by a bath of forty per cent. logwood extract and one per cent. methyl-violet, 35° Réaumur warm, and then washed. The silk is then given a bath of one hundred per cent. soap, 30° Réaumur warm, and turned one and one-half hours. It may be subjected to a second soap-bath treatment, thirty per cent. 35° Réaumur, and given five turns and then washed. Finally, the silk is finished with ten per cent. olive-oil, ten per cent. glue, and thirty per cent. acetic acid, 35° Réaumur warm, and then dried. By giving additional passes of quebracho extract black souple can be weighted up to three hundred per cent., (i. e., sixteen ounces of raw silk made to weigh sixty-four ounces dyed.) Gambier may be also used in connection with quebracho. Again, quebracho may be used in a similar way on boiled-off silk.

It will be understood that I am not limited to the particular mordants herein mentioned.

Having thus fully described my invention,

what I claim, and desire to secure by Letters Patent, is—

1. The process of weighting silk which consists in acting upon the silk with a solution of
5 a metallic salt and with a solution of quebracho extract, substantially as described.

2. The process of weighting silk which consists in acting upon the silk with a solution of a metallic salt and with a solution of que-

bracho extract in the presence of a tin salt, substantially as described.

In testimony that I claim the foregoing I have hereunto set my hand this 7th day of May, 1906.

CHARLES SIMON.

Witnesses:

JOHN W. STEWARD,
ADELE GLATT.