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ADOLPHE PIERRE VIOL AND CESAIRE PIERRE DUFLO, JR., OF PARIS, FRANCE.

Letters Patent No. 81,709, *dated September* 1, 1868.

IMPROVEMENT IN BLEACHING AND DYEING FEATHERS.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that we, ADOLPHE PIERRE VIOL and CÉSAIRE PIERRE DUFLO, Jr., both of Paris, France, have invented a new and useful Improvement in Bleaching and Dyeing Feathers; and we do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to fully understand and make use of the same.

The object of this invention is to bleach feathers of ostriches, vultures, and other birds, which are naturally either black, brown, grey, or of other more or less tawny color or hue, and which heretofore have been used in trade only in their natural colors, or dyed black.

Our invention consists in first removing the natural color of the above-named feathers, rendering them quite or nearly white, and afterwards dyeing them in any desired color or colors by any known process.

In carrying out our invention, we proceed as follows:

First, we subject the feathers to a bleaching process, either by the action of chlorine in the gaseous form or in solution, or by means of chlorine salts, or by the action of sulphurous acid in a gaseous form or in solution, or by sulphites, or by chromates, bichromates, or oxygen salts and acids, or, in some cases, by alkalies, such as soda, potash, &c., all of which materials may be applied separately, or in succession, or even simultaneously. The best result we have ever obtained, however, is effected by dipping the feathers into a weak solution of nitric acid, which is mixed with chromate or bichromate of potash. By the action of this bath, the feathers are deprived of their color, the carbon and coloring-matter contained in the vanes and ribs being burnt off, so that said feathers turn white, or sufficiently so to be submitted after washing to any well-known dyeing process.

We are aware that white feathers have before been dyed to any desired color, and we do not claim this process as our invention; but

What we claim as new, and desire to secure by Letters Patent, is—

The within-described process of treating black, grey, brown, or otherwise tawny-colored feathers, by first subjecting them to a bleaching, and afterwards to a dyeing operation, substantially as and for the purpose set forth.

ADOLPHE PIERRE VIOL,
CESARE PIERRE DUFLO.

Witnesses:
EDWARD TUCK,
LAVIALLE.