

# UNITED STATES PATENT OFFICE.

CHARLES F. A. SIMONIN, OF PHILADELPHIA, PENNSYLVANIA, AND EDWARD  
W. COFFIN, OF GLENDALE, NEW JERSEY.

## IMPROVEMENT IN CLEANING WOOL AND HAIR.

Specification forming part of Letters Patent No. 102,166, dated April 19, 1870.

### *To all whom it may concern:*

Be it known that we, CHARLES F. A. SIMONIN, of the city of Philadelphia, in the State of Pennsylvania, and EDWARD W. COFFIN, of Glendale, Camden county, New Jersey, have invented a new and Improved Process for Cleaning Wool, Hair, Hides, Fur, Feathers, and similar substances; and we do hereby declare the following to be a full, clear, and exact description thereof, which will enable others skilled in the art to which it appertains to practice our invention.

Our invention has reference to the cleaning of the substances above named by removing the natural oil or grease preparatory to spinning, dyeing, felting, or any other manufacture.

We take any of the lighter hydrocarbons produced by the distillation of petroleum or coal, such as naphtha, benzine, benzole, or gasoline, and apply the vapor thereof to the wool or other substance to be cleansed. For this purpose we distill the hydrocarbon and pass the vapor upward through the wool or hide, which is laid on racks or on a grating. That part of the vapor which takes up the oil and grease is deposited below in a receiver as a liquid hydrocarbon, holding the oil and grease in solution. We then redistill this liquid, leaving the oil and grease in the bottom of the still. The hydrocarbon, thus separated from the grease, is passed into a condenser, after which it is ready to be used again, or it may be used immediately on a fresh portion of wool or hair without previously condensing it. That

portion of the vapor which has passed through the wool without taking up any oil or grease, and which has consequently not been condensed, may be either condensed or immediately used again.

By means of this process the natural oil or grease of hair or wool, &c., is saved, and may be purified, and used for mercantile purposes. This process is also more effective than that of washing the substance to be cleaned in the liquid hydrocarbon, as the vapor pervades all parts of the wool much more thoroughly than the liquid can. This process also requires no mechanical arrangement for washing, which must be employed when the liquid is used.

Again, the hair and wool are much more thoroughly cleaned by our process than by the alkaline treatment commonly in use, which frequently leaves so much oil in the wool that it will not take the desired color, and the dyer is obliged to rewash it.

What we claim as our invention, and desire to secure by Letters Patent of the United States, is—

The process of cleaning wool, hair, hides, feathers, &c., by means of the vapor of the lighter hydrocarbons distilled from petroleum or coal, such as naphtha, benzine, benzole, or gasoline.

CHS. F. A. SIMONIN.  
EDWARD W. COFFIN.

Witnesses:

JAMES MCFADDEN,  
WM. R. WRIGHT.