

# UNITED STATES PATENT OFFICE.

JOHN RUCH AND JOHN RUCH, JR., OF PHILADELPHIA, PENNSYLVANIA,  
ASSIGNORS TO THEMSELVES AND GEORGE RUCH, OF SAME PLACE.

## MOTH-PROOFED HAIR AND PROCESS OF PREPARING THE SAME.

SPECIFICATION forming part of Letters Patent No. 459,897, dated September 22, 1891.

Application filed September 30, 1889. Serial No. 325,591. (No specimens.)

*To all whom it may concern:*

Be it known that we, JOHN RUCH and JOHN RUCH, Jr., citizens of the United States, residing at Philadelphia, Pennsylvania, have  
5 invented certain new improvements in treating hair, curled hair, wool, and like materials in such a manner as to destroy live moths, prevent the breeding of moths, and at the  
10 same time preserving the hair from the attacks of moths and other insects, of which the following is a specification.

Our invention relates to certain new and useful improvements in the treatment of hair, curled hair, wool, and like materials used for  
15 upholstering purposes with the object of destroying any live moths that may be contained therein and preventing the breeding of moths in said material, while at the same time preserving it from attacks by moths and  
20 other insects. It is well known that the hollow interior of hair contains an animal fat called "lanoline fat." In horse-hair, which is the principal material used for high-grade upholstering, the small quantity of this fat,  
25 its condition, and the circumstances under which the hair is used render unnecessary that any precaution should be taken against decomposition in order that the hair shall remain available for use indefinitely. The  
30 presence of the fat in its natural state is, however, disadvantageous, for the reason that it is a food for moths and the like, which eat through the walls of the hair in order to gain access to the interior fat and make an abiding  
35 and breeding place of the hair, destroying it, and of course attacking the upholstery-cover, so as to form the moth-cocoons.

The objects of our invention are to destroy  
40 any moths or moth eggs or larvæ that may be present in the hair as it comes to the upholsterer; secondly, to charge the fat with materials that will destroy its nutritive or food character, so as to render it incapable of supporting moth life, and, thirdly, rendering the  
45 entire body of hair obnoxious to the moth insect, so that it will not seek lodgment within it. We have found that these ends are subserved by the treatment hereinafter described, and

that as a further incident to said treatment the quality of the hair itself for the uses of 50 upholstery is materially improved.

In carrying out our invention we preferably suspend the hair upon suitable rods or hangers within a building designed for the purpose, in manner similar to that in which tobacco-leaves are suspended when dried or  
55 cured by artificial heat in tobacco-kilns. In the lower part of the building we build a wood fire, which we maintain in slow combustion, so as to give off a plentiful amount of smoke, 60 which smoke rises through the suspended hair. The condensable pyroligneous vapors and wood-tar vapors impregnate the hair and become deposited therein, entering into the composition of the fat and destroying it as a  
65 moth food, and imparting a characteristic odor to the hair repellent to moths and other insects, and destroying any form of moth life that may have been present in the hair before treatment. We have also found that 70 the treatment employed imparts a gloss or luster to the hair that enhances its value as a commercial product, and in the case of curled hair that by hardening the hair it renders the kinks or twists more permanent, so that 75 as upholstering material it will be more elastic, retaining its shape with greater tenacity.

While we have described wood as the preferred material for producing the smoke utilized in our invention, we desire to be understood as intending the invention to cover any  
80 equivalent material producing pyroligneous vapors, such as spent tan-bark, or tanned articles, such as scraps of leather, old shoes, and the like. 85

Having thus described our invention, what we claim is—

1. The method of destroying moth life in hair and the like and of rendering the same moth-proof, which consists in subjecting it to 90 the action of pyroligneous vapors, substantially as described.

2. The method of destroying moth life in hair and the like and of rendering the same moth-proof, which consists in subjecting it to 95 the pyroligneous and wood-tar vapors given

off during the slow combustion of wood, substantially as described.

3. As a new article of manufacture, hair  
impregnated with the pyroligneous and tarry  
5 products given off during the slow combustion  
of wood, substantially as described.

In testimony whereof we have signed our

names to this specification in the presence  
of two subscribing witnesses.

JOHN RUCH.  
JOHN RUCH, JR.

Witnesses:

ELLA RUCH,  
GEORGE RUCH.