

UNITED STATES PATENT OFFICE.

EDMUND TWEEDY, OF DANBURY, CONNECTICUT, AND HENRY L. BREVOORT
AND ISAIAH L. ROBERTS, OF BROOKLYN, NEW YORK.

PROCESS OF TREATING FUR WITH PREPARED OXIDIZING-VAPORS.

SPECIFICATION forming part of Letters Patent No. 339,352, dated April 6, 1886.

Application filed October 30, 1885. Serial No. 181,419. (No specimens.)

To all whom it may concern:

Be it known that we, EDMUND TWEEDY, of Danbury, county of Fairfield, in the State of Connecticut, and HENRY L. BREVOORT and
5 ISAIAH L. ROBERTS, of the city of Brooklyn, county of Kings, and State of New York, all citizens of the United States, have made a new and useful Improvement in Processes of Treating Fur with Prepared Oxidizing-Vapors; and
10 we do hereby declare that the following is a full, clear, and accurate description thereof, sufficient to enable others skilled in the art to practice the same.

We have already applied for a patent, Serial
15 No. 166,183, describing the treatment of fur with prepared oxidizing-fumes, so that the said fur may subsequently be felted. In this application the fur to be fumed is, in the preferred mode of treatment, described as being
20 placed in a box or chamber in which the fumes are prepared or made, or to which they are admitted after being made. The box described had an outlet, and this was not described as being open during the fuming operation,
25 though it was to be used when the operation was completed, to empty the box of the fumes or vapors.

By the preferred method, described in this previous application, we find that considerable
30 time is occupied in the fuming operation, (some seven or eight hours,) for the fur is only exposed to such fumes as the air can carry, and fresh and strong fumes are not brought into contact with the fur with sufficient rapidity during the treatment of the fur.

The quantity of the fumes or vapors which the air can carry is limited at various temperatures, and we have found that when the fumes are admitted into a chamber containing
40 air and having no open outlet, though the fumes may act forcibly at the beginning of the operation, they soon give up a large part of their oxygen, and are not then replaced by fresh and strong fumes until considerable time
45 has elapsed, and this makes the process a slow one.

Our present invention causes the work to be done more rapidly; and it consists in causing
50 either the fur to pass through the fumes or the fumes to flow in a current past the fur, or both, the object being to have fresh and strong fumes

constantly passing about and around the fur, so that they may act thereon.

We can use a chamber in which the fumes are made or prepared, or into which they are
55 conducted, and within which the fur to be treated is placed, the said chamber having openings in it at a suitable point or points, through which the fumes may escape. This chamber may consist of a box, or, preferably,
60 of a brick room, having within it supports upon which the skins or furs may be placed, and the fumes or vapors may be produced or prepared from material or materials heated in a pot or other suitable vessel, either in or
65 outside of the chamber, and if a fire is used the products of combustion may be conducted to a suitable chimney or stack. At a distant point of the room from that in which the fumes are prepared or enter, an opening or openings
70 may be made through which the fumes may escape into a stack or into the open air, the relative position of the pot for preparing the fumes, of the apertures through which they enter the chamber, and the escape-openings
75 being such that the fumes pass the fur to be treated, and will then pass out through the openings, while their place is taken by fresh and strong fumes. The fumes may be prepared in or conducted into a chamber through
80 which, on a moving endless or other belt or like device the fur is carried, and the current of fumes may be in any direction with reference to the line of motion of the belt. If the two move in the same direction, it is best to
85 give them different velocities; and we further prefer to have a current of fumes either in an opposite direction or at right angles to the line of movement of the fur. It is unnecessary to describe such a structure, for it may
90 consist simply of a belt of suitable material moving through a chamber, room, or box in which are the fumes, and this belt may be arranged to move horizontally or in an inclined direction through a long box or cham-
95 ber, or vertically through an upright chamber, either plan being capable of ready adoption.

Our invention is in no wise limited to any particular apparatus, and we do not here
100 claim such apparatus; but the substance of our invention consists in causing the fur and the

fumes which we employ to move in relation one to the other, thus subjecting the fur constantly to fresh and strong fumes.

Of course, the fumes which we employ are to be prepared oxidizing-fumes, as described in our previous application, and we prefer to prepare them by using saltpeter, sulphuric acid, and heat; but we do not limit ourselves to nitric or nitrous fumes, as other oxidizing-fumes may be used, which may be prepared in different ways. The material or materials from which the fumes are to be produced are not to be placed upon the fur, but the fur is to be in contact only with the vapors or fumes. Fur upon the pelt or off the pelt may be thus treated.

As we have said, we prefer to use fumes produced from the action of sulphuric acid upon saltpeter when subjected to heat. No precise proportions are necessary; but, for example, five (5) pounds of saltpeter may be placed in a cast-iron pot, and eight (8) pounds of sulphuric acid may be added. When this is heated to about 250° Fahrenheit or above, satisfactory fumes will be evolved, which will be given off in greater quantities as the heat is increased. Fumes made in this way we have found very satisfactory.

Our theory is, that there is some form of animal grease or fat upon the fur fibers that it is necessary to oxidize, so that the fur fibers themselves will be in a proper condition to be wet by the hot water used in felting. This

grease in the process of oxidation takes oxygen from the fumes and renders the fumes comparatively weak and useless, and thus a constant current of fresh fumes is desirable, so as to bring fumes which are rich in oxygen in contact with the fur. Our theory may not be correct, but the beneficial results herein referred to can be obtained by following the methods described in this specification.

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

1. As an improvement in the art of treating fur with oxidizing-vapors to adapt it for felting, the process which consists in first preparing the oxidizing fumes or vapors from proper material or materials, and then in causing the fumes or vapors to flow in a current around, in contact with, and past the fur to be treated, substantially as described.

2. As an improvement in the art of treating fur with oxidizing fumes or vapors to adapt it for felting, the process which consists in first preparing the oxidizing vapors or fumes from proper material or materials, and then in moving or passing the fur to be treated through the said fumes, substantially as described.

EDMUND TWEEDY.
HENRY L. BREVOORT.
ISAIAH L. ROBERTS.

Witnesses:

JOSEPH L. LEVY,
A. J. LEHMAN.