

United States Patent Office.

PETER CASSOU, OF SAN FRANCISCO, CALIFORNIA.

Letters Patent No. 107,447, dated September 20, 1870.

IMPROVEMENT IN REMOVING BURS FROM WOOL.

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

To all whom it may concern :

Be it known that I, PETER CASSOU, of the city and county of San Francisco, State of California, have invented certain new and useful Improvements in the Method of "Burring Wools;" and I do hereby declare that the ingredients used, and the manner of mixing and applying the same to the said wool, with the best apparatus known to me for that purpose, are described in the following specification with sufficient clearness to enable those skilled in the art or science to which it most nearly appertains to effectually carry out my said process without further invention or experiment.

My invention relates to those processes for burring wool, which employ acid to destroy the vegetable fiber, and consists in protecting the wool, when placed in the acid-bath, by means of salts, and will be fully described hereinafter.

For carrying into effect this my said process, I employ a tank constructed of wood or other material, and have found red pine to be the best wood to resist the action of the acid employed.

In the tank I put a quantity of sulphuric acid, which is reduced with water, so as to bring it to about (7°) seven degrees Baumé in density, for ordinary wools, and to eight (8) degrees Baumé in density for that grade of wools that are very full of burs.

For the preservation of the wool from the direct action of the acid, I add to the bath one pound of salts of tartar, and one hundred (100) grammes, or one-fifth of a pound of sea-salt in every twenty-five (25) gallons of the solution in the tank or bath.

Keeping the strength at the point described, the bath so formed will last for several months. A splinted tub or basket, of sufficient size to fit the tank or vessel, is suspended in such a manner above the solution as to be easily raised and lowered, and in it I place a quantity of wool to be treated, and lower it in the bath, letting the wool soak for about two hours, after which time the basket is withdrawn from the tank, and the solution allowed to drain from the wool.

The wool is now transferred to what I call a centrifugal or airing-machine, consisting of a cylindrical slotted basket with openings of sufficient size to throw off the remaining portion of the solution.

The cylinder is placed in a water-tight tank, open at the top, and rapidly revolved, which deprives the wool of most of the remaining solution, which is received into the tank, and may be pumped back to the saturating tank for use again.

By this operation the process of airing is also partially performed. When this is accomplished, the wool is removed and spread out in the free air, or placed in an oven or hot-air chamber for further drying; but, if hot-air is employed for further drying, the temperature should not exceed 104° Fahrenheit,

otherwise the wool will become discolored and of a yellowish hue.

Furthermore, iron or copper cannot be employed in the airing-machine or drying oven, as these metals soon oxidize by the action of the acid in the presence of heat. Apparatuses of wood, or wood lined with lead, I have found in every way suitable.

The next step in the process is the carbonization of the burs by subjecting the wool to a greater temperature of heated air, and this is the most important part of the operation. Although the acid has been removed, the burs have not lost their tenacity for the wool.

For carrying this part of the process into effect, I place the wool on endless rotating aprons, in a hot-air chamber, over a closed furnace, provided with hot and cold-air tubes or flues as regulators, so that I can heat the chamber to a temperature of two hundred and twenty-five (225) degrees Fahrenheit.

The endless aprons are made of wire-gauze, and galvanized with lead, so as not to be effected by any acid that might chance to remain in the wool. These aprons are rotated slowly by means of pulleys, or otherwise, placed outside of the chamber. The wool may remain in the chambers from fifteen to twenty minutes, but the temperature should not exceed two hundred and twenty-five (225) degrees.

Screens or sieves of wood may be used to place the wool upon, instead of the galvanized wire-gauze, and be operated, after the manner of a gigging-machine, to and fro horizontally, in the hot-air chamber or carbonizer. The wool coming out of the carbonizer, after the treatment above described, retains all of its whiteness and elasticity, but the burs will be black and charred, and can be ground to dust between the fingers, having entirely lost their tenacity upon the fibers of the wool.

After this part of the process has been performed, the wool is transferred to a picker, in shape of a truncated cone, or otherwise, which is about three feet long, and two and a half feet in diameter, furnished with teeth or spikes throughout its surface or circumference. This turns on an axis fixed in a strong wooden frame, inclosed on all sides, but the ends of the case turning on hinges which allow them to be let down; the lower part is not, however, close boarded but splinted, so as to admit any dirt or parts of burs extracted by the operation to fall through. On the axle of this drum is a wheel, and over the cylinder, within the case, are five smaller rollers or cylinders, also covered with teeth, and turning on axes fixed in the frame.

The teeth of the rollers and those of the drum or cylinder intersect each other during the rotation, as do also teeth of the rollers themselves. Motion is

given to the whole by a fast and loose pulley, or other contrivance, to connect the machine with the first mover. The front door is now turned down on its hinges, and a quantity of raw wool, as it is received from the carbonizer, is laid upon it; the door is then closed, by which means the wool is brought within reach of the teeth of the drum or central cylinder, which carries it upward, so as to work it between its own teeth and those of the upper rollers.

The motion of the cylinder is very rapid, and, as the wool is drawn from tooth to tooth, it is opened, and the carbonized burs broken. After a certain number of revolutions, a door, similar to the one last described, is opened at the other end of the machine, and the wool is thrown out by the centrifugal force of the cylinder; it is then again closed, the former one opened and supplied with another charge of wool, which is in like manner ejected, and so on with fresh charges.

The wool coming out of the picking-machine may now be called commercially pure, and free from vegetable matter or foreign substances, and prepared for the further treatment well known to manufacturers.

Having thus described my invention or process, What I claim, and desire to secure by Letters Patent, is—

In the process described, the employment of salts of tartar and sea-salt to preserve the wool in the acid-bath, as set forth.

In witness whereof I have hereunto set my hand and seal,

P. CASSOU. [L. S.]

Witnesses:

NOBLE LOVELY,
C. W. M. SMITH.