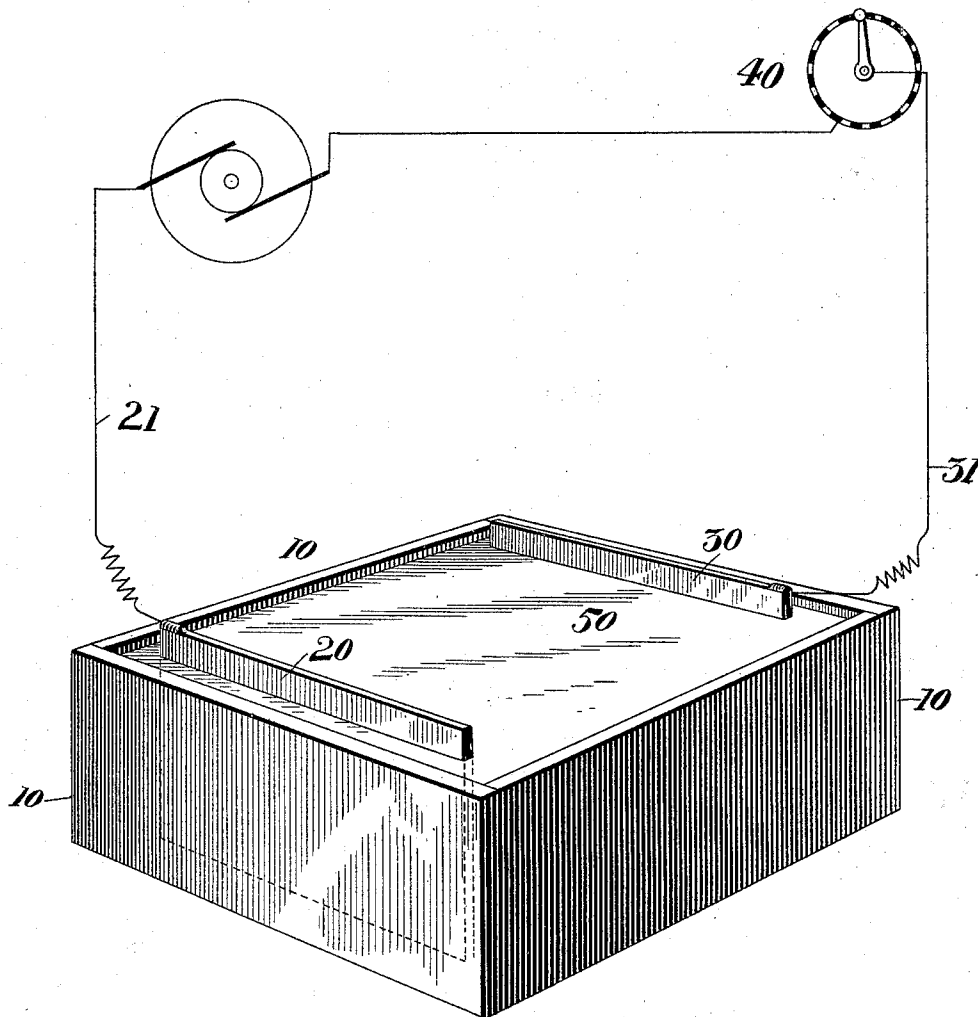


(No Model.)

G. D. BURTON.  
ART OF EXTRACTING GREASE FROM WOOL.

No. 537,403.

Patented Apr. 9, 1895.



WITNESSES

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# UNITED STATES PATENT OFFICE.

GEORGE D. BURTON, OF BOSTON, MASSACHUSETTS.

## ART OF EXTRACTING GREASE FROM WOOL.

SPECIFICATION forming part of Letters Patent No. 537,403, dated April 9, 1895.

Application filed October 31, 1894. Serial No. 527,532. (No specimens.)

*To all whom it may concern:*

Be it known that I, GEORGE DEXTER BURTON, a citizen of the United States of America, residing at Boston, in the county of Suffolk, in the State of Massachusetts, have invented certain new and useful Improvements in the Art of Extracting Grease from Wool, of which the following is a specification.

The object of this invention is to effect the extraction of oil and grease from wool in a rapid and economical manner.

The invention consists essentially in extracting the grease from the greasy, fibrous substance by subjecting said substance to the action of an electrolytic solution, the proper electric current being passed through that portion of the solution with which the fibrous substance is commingled, said electric current being of a character which causes a dielectric polarization of the fibrous substance and tends to separate the fibers thereof and thoroughly expose them to the action of the solution.

The accompanying drawing represents a perspective view of an apparatus for carrying out this process.

Any suitable vat, as 10, preferably constructed of wood, earthenware or other non-conductive material constitutes a part of this apparatus and serves as a receptacle for the cleansing liquor. An electrode 20, which may serve as the anode, is disposed in the vat, preferably at one end or one side thereof, and another electrode, as 30, which may constitute the cathode, is also disposed in the bath, preferably at the other end or other side thereof. These electrodes are preferably composed of lead, but may be constructed of carbon, zinc, or other suitable material, or the anode may be composed of carbon and the cathode of lead or other material. I have found that when both electrodes are composed of lead, a quicker cleansing action is obtained than when a carbon anode and a lead cathode are employed. For a vat having a capacity of thirty gallons, more or less, the electrodes are usually about a foot square and three eighths of an inch thick. A wire 21 connects the anode 20 with a dynamo, electric service wire or any suitable source of electricity, and a conductor 31 connects the cathode 30 with the negative pole of said elec-

tric source or with a negative service wire. A rheostat 40 is preferably inserted in the circuit on either side of the vat.

A cleansing liquor 50 is disposed in the vat. This cleansing liquor preferably consists of a strong or saturated solution of bichromate of potash but any equivalent solution or liquor may be employed. As an instance of an equivalent solution, I will state that I have used for this purpose a solution of sulphuric acid of chloride of sodium and water in the proportions of about five pounds of chloride of sodium, three ounces of sulphuric acid and twenty gallons of water. The composition and the proportions thereof may be varied without departing from the scope of this invention.

For a bath of thirty gallons consisting of a solution of bichromate of potash, having a strength sufficient to raise the gravity of the liquid to 1.050, an electric current of two hundred and twenty volts and sixty-five amperes will heat the bath in five minutes to the boiling point; and after that the current may be reduced to twenty amperes, which will be sufficient to maintain the proper temperature of the liquor. The voltage may remain practically or substantially the same during and after the heating of the liquor. To heat the bath more quickly, the gravity of the solution and the ampèreage of the current are increased.

In the use of this process, the wool to be cleansed is immersed in the cleansing liquor 50 in the tank 10 and the required current of electricity is switched on. The current passes from the electrode 20 to the electrode 30, through that portion of the liquor which is disposed between said electrodes and with which the fibrous material is commingled. The current has an electrolytic action upon said liquor, developing gases therein, and also effect a dielectric polarization of the fibrous material which has a tendency to cause the fibers to separate and sway in the liquor and become thoroughly exposed to the action thereof. The fibers of the material being treated are thus agitated and brought into intimate contact with the liquor and the oil or grease contained thereon readily separates therefrom rapidly and rises to the surface of the liquor, from which it can be re-

moved in any suitable manner. The kind of gases formed depends upon the character of the solution employed. A current of the character substantially as described raises the temperature of the liquor to 155° Fahrenheit, more or less. The wool is subjected to the action of the electrolyzed liquor for a period of from fifteen to twenty minutes, according to the quantity of grease contained in the wool. When the grease has been fully extracted, it may be skimmed off the top of the solution and the wool is then removed from the liquor in a cleansed condition and may be washed in clear water.

Instead of taking the wool out of the vat, the cleansing solution may be drawn off and a supply of fresh water for washing purposes may be passed through the vat.

This process may be applied to cotton and other substances containing oil, grease or fatty matter to be extracted.

The voltage may vary from one hundred and ten volts to five hundred volts, and the ampèreage may vary from fifty to five hundred according to the size of the bath and the quantity of wool being cleansed.

I claim as my invention—

1. The art of extracting grease from a fibrous substance, which consists in subjecting the greasy fibrous substance to the action of an electrolyzed solution, the electric current passing through that portion of the solution with which the fibrous substance is commingled and causing a dielectric polarization and movement of said substance.

2. The art of extracting grease from a fibrous substance, which consists in immersing the substance in an electrolytic solution,

and passing an electric current, which causes a dielectric polarization and movement of the fibrous substance, directly through that portion of the solution in which the fibrous substance is immersed, and with which it is commingled.

3. The art of extracting grease from a fibrous substance, which consists in immersing the fibrous substance in a watery solution of bichromate of potash, and passing an electric current therethrough during the immersion.

4. The process of extracting grease from a fibrous substance which consists in immersing the fibrous substance in a watery cleansing solution, and passing therethrough during the cleansing operation an electric current having substantially the voltage and ampèreage herein set forth and which causes a dielectric polarization and movement of the fibrous substance.

5. The art of extracting grease from a fibrous substance which consists in immersing the substance in an electrolytic solution and passing an electric current directly through that portion of the solution in which the fibrous substance is immersed and with which it is commingled, said current being of a character which maintains the proper temperature of the solution during the extracting operation and which causes a dielectric polarization and movement of the fibrous substance.

GEO. D. BURTON.

Witnesses:

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