

UNITED STATES PATENT OFFICE

LEAVITT N. BENT, OF HOLLY OAK, DELAWARE, ASSIGNOR TO HERCULES POWDER COMPANY, OF WILMINGTON, DELAWARE, A CORPORATION OF DELAWARE

PROCESS OF RECOVERING ROSIN FROM ROSIN-CONTAINING SOAP PRODUCED IN THE MANUFACTURE OF PAPER PULP FROM ROSIN-CONTAINING WOOD

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In the manufacture of paper pulp, by the soda process or the so-called sulphate process, from wood chips containing rosins, the rosins are separated by the alkaline liquor and form dark colored rosin soaps, which float on the surface of the recovered liquid as a scum or froth, which is skimmed off. It has been proposed to precipitate the rosin from this soap by the use of hydrochloric acid, sulfuric acid or nitre cake, but such of these processes as are satisfactorily operative are so expensive that they have not gone into successful commercial use, and it is customary, therefore, to make no attempt to recover the rosin, the soaps being destroyed in the heat treatment to recover the alkali salts by regeneration.

The object of my invention is to treat the soaps for recovery of the rosin in marketable condition by a process that is so inexpensive that the value of the rosin will greatly exceed the cost of recovery. A supplementary object of the invention is to provide a rosin-recovery process that will permit of the recovery of the alkali salts as well as the rosin.

Examples of ways of practicing my process will be described.

The rosin soap, containing more or less moisture, is dissolved in water. The amount of water added will depend upon the character of the soap. In exceptional instances, the addition of water may not be necessary. In a typical operation, 300 parts of the rosin soap containing about 30 per cent. of moisture, was dissolved in 2700 parts of water. A rapid current of carbon dioxid is passed through the solution (preferably by bubbling it through under pressure) for about four hours. Precipitation of the rosin by the carbon dioxid is by this time complete. Completion of the precipitation may be determined by removing a sample and testing by adding dilute sulfuric acid.

The rosin, which is in a finely divided state, may be separated from the water in various ways. It may be extracted with a low boiling hydrocarbon, such as gasoline, benzol or other rosin solvent immiscible with water; or the solution may be allowed to stand for about

a day, at ordinary temperature, at the end of which time practically all the rosin will have settled; or the solution may be heated for a short time so that the rosin coagulates to a solid mass, from which the liquor may be drawn off.

The thus recovered rosin amounts to about 150 parts of a soft rosin having an acid number of 150. While somewhat darker in color than average commercial wood rosin, under similar conditions it will give a soap of about the same color as can be obtained from such commercial wood rosin, which soap shows little discoloration with age.

One hundred parts of the above soft recovered rosin was, fractionally distilled under one half inch pressure of mercury and the following cuts obtained:

	Quantity	Acid No.	Saponification No.
	Parts		
1	36	150	155
2	22	172	175
3	19	118	131
Residue	20		
Loss	3		

Because of the presence of rosin oil, cut No. 1 was rather soft. The second cut was also slightly softer than ordinary distilled rosin. The hardness of these cuts may be improved by distilling from a still having a fractionating column and making a preliminary cut in which the rosin oil is concentrated, leaving a rosin remainder of as high a quality as the higher commercial grades of wood rosin and giving soaps similar to those obtained from gum rosins or similar grades of rosin.

My process is commercially practicable because of the inexpensiveness of the treating agent, which may be obtained from flue gases. My process is further advantageous and economical because of the use of carbon dioxid leaves the sodium salts from which the rosin is separated in the form of sodium carbonate, which is easy and cheap to recover in the paper pulp plant.

In specifying that the rosin is precipitated by the carbon dioxid, I mean it to be understood that the rosin is so separated in solid

form from the salt solution that it is capable of being recovered by means of a solvent immiscible with water, or by coagulation, or in any other known way of separating rosin from a salt solution.

5 Having now fully described my invention, what I claim and desire to protect by Letters Patent is:

10 1. The process of recovering rosin from rosin soaps of the character of those produced in the manufacture of paper pulp from rosin-containing wood, which comprises precipitating the rosin by means of carbon dioxid, and separating out the rosin.

15 2. The process of recovering rosin from rosin soaps of the character of those produced in the manufacture of paper pulp from rosin-containing wood, which comprises adding water and precipitating the rosin by passing through the soap solution carbon dioxid, and separating out the rosin.

20 3. The process of recovering rosin from soaps, containing rosin, alkali salts and water, of the character of those formed in the manufacture of paper pulp from rosin-containing wood, which comprises precipitating rosin and converting the salts to carbonates by passing through the soap solution carbon dioxid.

25 In testimony of which invention, I have hereunto set my hand, at Wilmington, Del., on this 21st day of May, 1927.

LEAVITT N. BENT.

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