

UNITED STATES PATENT OFFICE.

JACOB S. ROBESON, OF CAMDEN, NEW JERSEY, ASSIGNOR TO ROBESON PROCESS COMPANY, OF CAMDEN, NEW JERSEY, A CORPORATION OF NEW JERSEY.

COMPOSITION OF MATTER AND PROCESS OF MAKING THE SAME.

No. 851,381.

Specification of Letters Patent.

Patented April 23, 1907.

Application filed June 8, 1906. Serial No. 320,883.

To all whom it may concern:

Be it known that I, JACOB S. ROBESON, a citizen of the United States, and a resident of Camden, Camden county, New Jersey, have invented an Improved Composition of Matter and Process of Making the Same, of which the following is a specification.

My invention relates to compositions of matter having adhesive properties, and consists of an improved compound comprising a mass of sulfite liquor and wood tar, or pitch, as the material particularly from coniferous woods is sometimes called. By the term wood tar, (or pitch) is meant the heavy liquid by-product from the condensed products of the destructive distillation of woody tissues in the manufacture of pyroligneous acid and methyl alcohol &c.

My invention comprises further the method or process of making this improved composition of matter.

In the manufacture of cellulose or paper pulp under what is known as the "sulfite process," which consists in boiling wood and other fibres under pressure in a solution containing sulfurous acid and a base, such as lime or magnesia, a vast quantity of a watery mixture known as "waste sulfite liquor" is produced that hitherto has had little value, besides being highly objectionable in a number of ways and very difficult of disposal.

In carrying the method or process of my present invention into effect, I employ a concentrated or evaporated solution of the same; preferring to use a neutral, undecomposed and concentrated mass of this waste liquor made in accordance with a method I have developed for utilizing such material. In my patent, No. 833,634, dated October 16, 1906, I have set forth a process of treating this raw waste liquor, by rendering it substantially neutral with the aid of milk of lime or other suitable alkaline material, and then quickly concentrating such neutralized body *in vacuo*, without decomposition, to a desirable density.

In the preferred method or process of making my improved compound, I propose to use this substantially neutral, undecomposed and concentrated mass of sulfite liquor made in accordance with the process above set forth, and to a quantity of this liquor at a

density of about 30° B., I add the same quantity by volume of wood tar, of substantially the same density.

In practice I have found that the emulsion formed by this combination of the neutral and concentrated waste sulfite liquor, and the by-product commonly known as "wood tar," produces a composition of matter having adhesive properties of a high degree, and possesses the further characteristic of being non-hygroscopic; rendering it highly valuable for use as a binder in the briquetting of all forms of inorganic mineral matter, notably the ores of the various metals, particularly iron ore, and all forms of carbonaceous fuel.

I may add the wood tar at the same density as the concentrated sulfite liquor, which compound thus formed is ready for practical use, or may, if desired for any purpose, be subsequently reduced in density for practical use by the addition of an aqueous liquid, or a combination of the ingredients may be made in a relatively thin condition in which the material may, under some circumstances, be employed. For many purposes the density may be reduced by heat and this will permit a better admixture with the material to be briquetted.

The combined mixture is preferably subjected to the action of heat to insure the intimate and complete admixture of the ingredients thereof, although substantially satisfactory results can be secured by mixing the ingredients at ordinary temperatures.

I claim:

1. An adhesive comprising the non-cellulose elements of wood in solution, and the liquid by-product from the destructive distillation of woody tissue.

2. An adhesive comprising a sulfite solution of the non-cellulose elements of woody tissue, and the condensed liquid from the destructive distillation of woody tissue.

3. An adhesive comprising sulfite liquor and the liquid by-product from the destructive distillation of woody tissue.

4. An adhesive comprising concentrated sulfite liquor and the condensed liquid from the destructive distillation of woody tissue.

5. An adhesive comprising a neutral, undecomposed and concentrated mass of sulfite

liquor, and the liquid by-product resulting from the destructive distillation of woody tissue.

5 6. A liquid adhesive comprising a mass of chemically unaltered sulfite liquor, and wood tar.

7. An adhesive comprising concentrated sulfite liquor and wood tar, in equal proportions.

10 8. An adhesive comprising a neutral, undecomposed and concentrated mass of sulfite liquor, and wood tar.

15 9. An adhesive comprising a neutral, undecomposed and concentrated mass of sulfite liquor, the liquid by-product resulting from the destructive distillation of woody tissue, and an aqueous thinning agent.

20 10. A liquid adhesive comprising a mass of neutral, undecomposed and concentrated sulfite liquor, and wood tar.

25 11. The process herein described of making an adhesive, said process consisting in concentrating sulfite liquor, and then adding thereto a quantity of the liquid by-product from the destructive distillation of woody tissue.

30 12. The process herein described of making an adhesive, said process consisting in concentrating sulfite liquor, and adding to a certain quantity of the same an equal quantity of the liquid by-product from the destructive distillation of woody tissue.

13. The process herein described of making an adhesive, said process consisting in concentrating sulfite liquor, adding to a quantity of the same a certain quantity of wood tar, and then incorporating said materials by the agency of heat.

14. The process herein described of making an adhesive, said process consisting in concentrating sulfite liquor, and adding to a certain quantity of the same an equal quantity of wood tar.

15. The process herein described of making an adhesive, said process consisting in concentrating sulfite liquor, adding thereto a quantity of the liquid by-product from the destructive distillation of woody tissue, and incorporating said products in a homogeneous body by the agency of heat.

16. The process herein described of making an adhesive, said process consisting in concentrating sulfite liquor, adding thereto a quantity of wood tar, and incorporating said products in a homogeneous body by the agency of heat.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

JACOB S. ROBESON.

Witnesses:

MURRAY C. BOYER,
JOS. H. KLEIN.