

UNITED STATES PATENT OFFICE.

HERRMANN WOLFF, OF NEW YORK, N. Y., ASSIGNOR OF TWO-THIRDS TO
ALEXANDER MENKE AND HERMAN OPPENHEIMER, OF SAME PLACE.

BINDING MATERIAL FOR ARTIFICIAL FUEL.

SPECIFICATION forming part of Letters Patent No. 626,199, dated May 30, 1899.

Application filed September 28, 1898. Serial No. 692,080. (No specimens.)

To all whom it may concern:

Be it known that I, HERRMANN WOLFF, a citizen of Germany, and a resident of New York, county and State of New York, have invented certain new and useful Improvements in Binding Materials for Artificial or Compounded Fuel, of which the following is a full, clear, and exact specification.

My invention relates to artificially-produced or compounded fuel materials; and it consists of a composition of matter suitable as a binding component for combining the dry or solid ingredients of such fuel.

The composition of matter consists of wax-tailings or residue of oil, barium sulfate, benzin, and of silicate of soda in suitable proportions, and is applicable as a binding component to various compositions of matter used as artificial fuel and consisting of coal, peat, coke, lignite, pitch, and similar carbonaceous substances as the solid or dry ingredients thereof. The composition binds the solid or dry ingredients, causes the fuel produced to harden rapidly, and does not melt or disintegrate in fire. In combining such fuel materials the dry ingredients are thoroughly mixed in a drum and then successively combined with the binding material into a plastic mass, of which bricks or blocks of suitable form and size are formed and pressed. When the binding materials heretofore known are used, these bricks or blocks require to be thereafter dried in atmospheric air to render them dry and hard. This drying and hardening process requires considerable time, and it is necessary to maintain a large shed for that purpose.

I have discovered that by the combining of wax-tailings or of the semiconsistent residue of mineral oil, barium sulfate, silicate of soda, and benzine a binding material is produced which causes the bricks or blocks to harden when removed from the press so rapidly that they may be immediately piled up in rows, like building-bricks, or transported. This binding material does not melt in fire and holds the fuel together until fully consumed.

In practicing my invention I proceed as follows: The binding material is prepared by melting the wax-tailings in a separate vessel and heating the same to approximately 220° to 240° Fahrenheit, whereupon finely-pulverized barium sulfate is added thereto. The mixture is then agitated until the barium sulfate is fully absorbed in the wax-tailings, whereupon a quantity of silicate of soda is added thereto and united with the other ingredients by continually mixing the heated fluid. When the silicate of soda is totally absorbed in the mixture, the same is allowed to cool off to about 140°, and a quantity of benzin is added thereto. The proportionate quantities of the several ingredients of this binding material are three parts (weight) of wax-tailings, one part of barium sulfate, one part of silicate of soda, and one part of benzin. The binding material thus produced is suitable for uniting the solid ingredients of artificial fuel consisting of any kind of coal, including also a pulverized lignite or so-called "soft" coal, coke, peat, and pitch or any combination of these ingredients.

Instead of wax-tailings the non-volatile residue of oils remaining after refining can be used, the effect of barium sulfate and of the silicate of soda thereon being the same as explained in my application for United States Letters Patent with relation to the wax-tailings.

I claim as my invention and desire to secure by Letters Patent—

1. Binding material for artificial fuel consisting of wax-tailings, barium sulfate, silicate of soda and benzin.

2. Binding material for artificial fuel consisting of three parts of wax-tailings, one part of barium sulfate, one part of silicate of soda and one part of benzin.

3. Artificial fuel consisting of disintegrated carbonaceous substances and of wax-tailings, barium sulfate, silicate of soda and benzin.

HERRMANN WOLFF.

Witnesses:

ROBERT VALENTINE MATHEWS,
CLIFFORD E. DUNN.