UNITED STATES PATENT OFFICE.

THOMAS A. EDISON, OF LLEWELLYN PARK, NEW JERSEY.

METHOD OF BRICKING FINE ORES.

SPECIFICATION forming part of Letters Patent No. 465,251, dated December 15, 1891.

Application filed August 24, 1891. Serial No. 403,533. (No specimens.)

To all whom it may concern:

Be it known that I, THOMAS A. EDISON, a citizen of the United States, residing at Llewellyn Park, in the county of Essex and State of New Jersey, have invented a certain new and useful Improvement in the Method of Bricking Fine Ores, (Case No. 925,) of which the following is a specification.

The object of the present invention is to put finely-divided iron-ore, which has been concentrated by suitable means, into lump form in a practicable manner.

The invention consists in the use (alone or with clay) of a soluble resinate, such as resinate of soda, with the fine ore to bind the particles together. One part of soda is combined with about fifteen parts of common rosin. The resinate, which has the consistency of molasses, is worked in a pug-mill with the ore so as to be thoroughly mixed therewith. The whole mass is then dried in an oven at 250° or thereabout, this temperature being insufficient to produce combustion of the resinate. The mass is then broken up into lumps of proper size and is then ready for shipment. The ore is previously to being mixed with the resinate washed to eliminate any phosphate of calcium dust which may be in the ore. About twenty pounds of common brick-clay may be mixed with the ore at the same time with the resinate. The object of the clay is to prevent the lumps from falling to pieces in the blast-furnace in which the ore is to be reduced in an ordinary manner, which they will do without the clay, owing to the combustion of the resinate; but since the clay hardens under the effect of heat (while the resinate softens) the tenacity of the block is not destroyed until the temperature is sufficient to melt the clay. The amount of resinate of soda, with the proportions of soda and rosin given, which is required per ton of ore whose particles pass through a fifty-mesh screen, is about fifty pounds. The lumps, formed as above described, are shipped in closed cars, as it is necessary to keep them dry. The lumps will not, however, be hygroscopic, so that they will not absorb moisture from the air.

What I claim is—

1. The method of lumping fine ores which consists in mixing with the ore a resinate, substantially as described.

2. The method of lumping fine ores which consists in mixing with the ore a soluble resinate (such as resinate of soda) and hardening the brick or lump, substantially as described.

3. The method of lumping fine ores which consists in mixing with the ore clay and a resinate and subsequently hardening the brick or lump by heat, substantially as described.

4. The method of lumping fine ores which consists in washing the ore to eliminate phosphate of calcium, mixing clay and a resinate with the ore, and then hardening the brick, substantially as described.

5. The method of lumping fine ores which consists in mixing with a mass of fine ore clay and a resinate, drying the same, and breaking up the mass into lumps of desired size, substantially as described.

This specification signed and witnessed this 31st day of July, 1891.

THOS. A. EDISON.

Witnesses:
JOHN F. RANDOLPH,
FREDERICH OTT.