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METHOD OF SINTERING FINE ORES AND THE LIKE.

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To all whom it may concern:

Be it known that I, ANDERS HOLMBERG, a citizen of the Kingdom of Sweden, residing at Stockholm, Sweden, have invented new and useful Methods of Sintering Fine Ores and the like, of which the following is a specification.

This invention relates to an improved method of sintering fine ores and the like.

It is well-known to sinter fine ores and the like in such manner that the ore is intimately and uniformly mixed with pulverulent fuel and the mixture charged in flat pans whereupon the charge is ignited at the upper surface and the fuel combusted by a downwardly induced current of air. In operating in such manner the ore in the lowermost layers of the charge is generally heated to a higher temperature and is more strongly sintered than in the uppermost layers on account of the fact that the former part of the charge is heated not only by the combustion of the fuel mixed therewith but also by heat which is conveyed by the combustion gases from the upper layers. This circumstance is a considerable draw-back especially in treating hard-sintered ores which require a high percentage of fuel for securing igniting and sintering of the surface layer, in as much as the high percentage of fuel easily causes smelting and partial reduction of the ore in the undermost layers which makes the ore unsuitable for further treatment.

The object of the present invention is to avoid said draw-back and simultaneously to save fuel in sintering fine ores in sintering pans. The invention consists, chiefly, in charging the sintering pan with layers of ore containing different percentages of fuel in such manner that the percentage of fuel gradually decreases from the top to the bottom of the sintering apparatus, and then igniting the charge on the upper surface and combusting the fuel by a downwardly induced current of air. By said manner of distributing the fuel in the charge a very good and uniform sintering effect is obtained. The number of layers containing different percentages of fuel may be two or more.

When sintering fine iron ores in a flat sintering pan having a depth of 300 m. m. for instance 6% by weight of finely ground cokes must be added to the ore when the fuel is uniformly mixed with the ore. According to my invention I can obtain a better and more uniform sinter for instance by charging the pan with an undermost layer of 100 m. m. thickness containing 1% coke only, then a second layer of 150 m. m. thickness containing 5% coke, and uppermost a layer of 50 m. m. thickness containing 7% coke. Such charge is easily ignited at the upper surface and the combustion of the fuel by a downwardly induced current of air causes a uniform heating of the whole charge resulting in a very good sinter. Moreover one third of the fuel is saved in comparison with the above mentioned example with an ore that is uniformly mixed with fuel in the whole charge.

What I claim is:

Method of sintering fine ores in sintering pans, consisting in charging the sintering pan with layers of ore containing different percentages of fuel in such manner that the fuel gradually decreases from the top to the bottom, igniting the charge at the upper surface and combusting the fuel by a downwardly induced current of air.

In testimony whereof I have signed my name.

ANDERS HOLMBERG.