

UNITED STATES PATENT OFFICE.

LÉON BRUNET, OF BRIOUDE, FRANCE.

METHOD OF FORMATION OF A LITHOPONE HAVING A SULFITE OF BARYTA BASE.

No. 838,769.

Specification of Letters Patent.

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Application filed February 27, 1906. Serial No. 303,151.

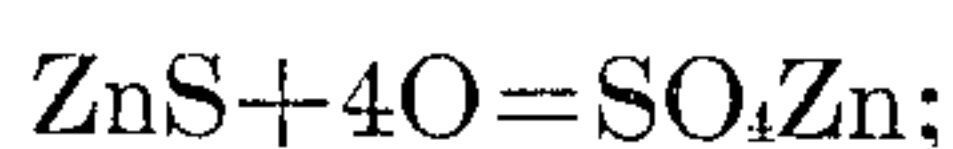
To all whom it may concern:

Be it known that I, LÉON BRUNET, engineer, a citizen of the Republic of France, residing at Brioude, Haute-Loire, in the Republic of France, have invented certain new and useful Methods of Formation of a Lithopone Having a Sulfite of Baryta Base, (for which application has been made in France, dated February 28, 1905; in Belgium, dated January 15, 1906, and in Italy, dated January 20, 1906,) of which the following is a specification.

The present invention relates to the treatment of the complex ores containing zinc by an industrial preparation of the sulfite of zinc (SO_3Zn) and to the subsequent utilization of the solution of this salt in order to obtain a lithopone having a sulfite of barium base.

In the ordinary methods of treating the mixed or complex ores the aim has been to obtain sulfates by roasting said ores in an open-hearth furnace. It has not been observed that the sulfates in presence of coal and roasted to volatilization are reduced and give oxids acted on by the fumes and the sulfurous anhydrid. The efforts were limited to the obtaining of a sulfated liquor.

If employing the above-described cheaper, more rapid, and continuous process in roasting the ore in a low-blast furnace or a lime-kiln, the sulfids of the compound pyrites will certainly give sulfates near the base, because



but in the upper portions I will have the following reaction:



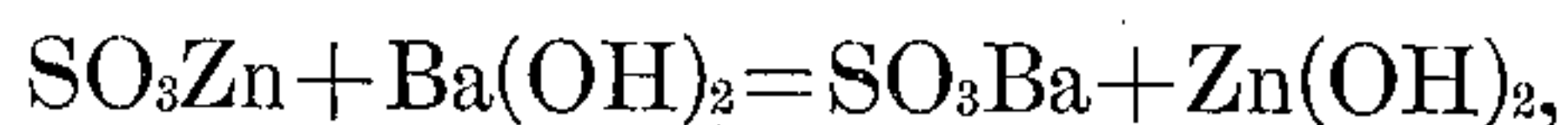
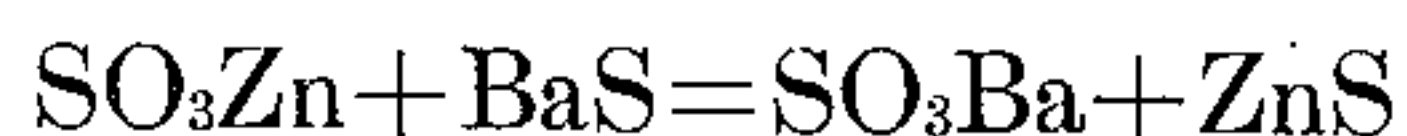
I convert, therefore, the sulfur into sulfurous anhydrid and the metals into volatile oxids. Carrying out the operation by the known means—ventilators, towers, gloves, or others—I will have in presence of the water



and the solution gathered will be chiefly a solution of zinc sulfite, but containing a small amount of zinc sulfate. The other metals—Pb, Sb, Cu, and the like—will give also oxids, sulfites, and sulfates; but they are found precipitated from the sulfite liquor, because they are insoluble.

The liquor of sulfite of zinc so prepared may be applied to different uses. For instance, I may extract the zinc therefrom by

electrolysis or precipitate it with solutions of other salts; but my present invention relates more especially to its use for obtaining a lithopone having a sulfite-of-barium base. Commercial lithopone contains sulfid of zinc or oxid of zinc, according as the sulfid of barium or baryta has been used as a precipitant. By double decomposition, in adding sulfite of zinc to sulfid of barium or baryta to the said solution, a white precipitate is obtained,



composed of sulfid or hydroxid of zinc and sulfite of barium, which may be used as the actual lithopone, offering over the present commercial article considerable advantages both in economy of manufacture and the avoiding of the otherwise necessary use of colorless oil for the preparation of the white color having a zinc base as a substitute for white lead in the whole of its applications. In fact, it is sufficient to throw a few drops of sulfuric acid into the mixture of lithopone having a sulfite base with any brown oil to cause the decomposition of a small portion of sulfite and a formation of sulfurous acid, whose discoloring action is instantaneous.

I declare that what I claim is—

1. The improvement in the process of obtaining lithopone, which consists in adding a solution of sulfite of zinc to a solution of sulfid of barium.

2. The improvement in the process of obtaining lithopone paint which consists in forming a mixture of sulfite of barium and white zinc compound other than sulfate and ordinary colored oil, and bleaching the same by adding a small portion of sulfuric acid.

3. As a new article of manufacture a lithopone pigment consisting of sulfite of barium and a white zinc pigment.

4. As a new article of manufacture a paint consisting of sulfite of barium, a white insoluble compound of zinc, and a transparent paint menstruum.

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

LÉON BRUNET.

Witnesses:

ANTOINE MONTEILHET,
H. C. COXE.