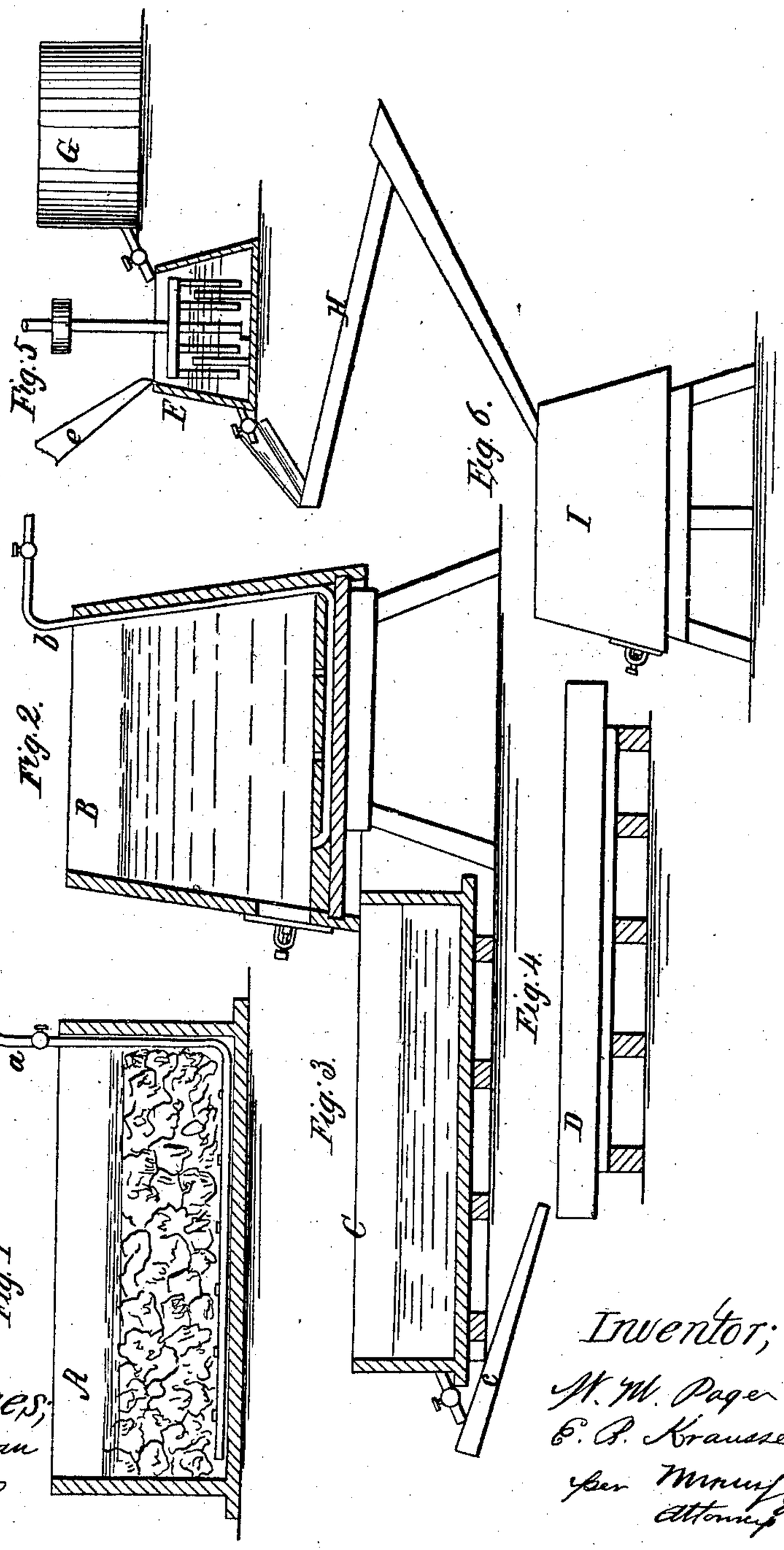
W. M. PAGE & E. B. KRAUSSE.

PROCESS OF PREPARING SULPHATE OF BARYTES.

No. 82,154. Patented Sept. 15, 1868.



Witnesses;
Wm. A. Morgan
G. E. Cotton

Inventor;
W. M. Page
E. B. Krausse
per Munn & Co
Attorneys

United States Patent Office.

WILLIAM M. PAGE AND EMIL B. KRAUSSE, OF ST. LOUIS, MISSOURI.

Letters Patent No. 82,154, *dated September* 15, 1868.

IMPROVED PROCESS OF PREPARING SULPHATE OF BARYTES.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that we, WILLIAM M. PAGE and EMIL B. KRAUSSE, of St. Louis, in the county of St. Louis, and State of Missouri, have invented a new and improved Process for Preparing Sulphate of Barytes; and we do hereby declare that the following is a full, clear, and exact description thereof, which will enable those skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification.

This process is a simple and effective series of operations for treating the mineral known as sulphate of baryta, or heavy spar, so called, whereby the mineral is refined and reduced to a fine powder, known in commerce as sulphate of barytes.

The accompanying drawings represent the apparatus employed in the different stages of tne process.

The "tiff," (as the crude, heavy spar, as it comes from the mine, is called,) is placed in a vat, A, (Figure 1,) and covered with distilled water, which is made to boil by or with steam, conducted through the pipe *a* to the bottom of the tiff in the vat.

After being boiled for about an hour it is taken out and dried, and crushed in any suitable crushing-mill.

The crushed tiff is then placed in the tub or tank B, (Figure 2,) and again boiled by steam through a pipe, *b*, in a weak solution of any suitable acid, as sulphuric acid.

This operation extracts iron and other impurities usually found accompanying the tiff.

The acid solution is then drawn off and replaced by a weak solution of silicate of soda in distilled water, in which the crushed tiff is again boiled by means of steam as before, the boiling process lasting about an hour.

The tiff thus treated, is then discharged into a vat, C, (Figure 3,) which in practice is located under the tub B, so that the tiff may be readily discharged therein.

In this vat the tiff is washed in distilled water and silicate of soda, by means of any suitable stirring-mechanism or hand-implement.

This bath is then drawn off from the vat, and replaced by a saturated solution of alum-water, and again stirred or agitated as before.

The product thus far treated, is then conveyed by a chute, *c*, or other suitable means, to a copper drying-pan or pans, D, (Figure 4,) in which the mineral is dried by means of steam-pipes or other suitable heating-apparatus.

When dried, the mineral is conveyed to any suitable grinding-mill, and reduced to a fine powder.

From the mill it is conveyed, by a chute, *e*, to a mixing-tub, E, (Figure 5,) provided with any suitably-constructed mixing-mechanism, as that shown, where the mineral is again agitated in distilled water from the tank G, and thus thoroughly mixed for floating.

It is then conveyed through a trough, H, about one hundred and eighty feet in length, to a tank or tub, I, (Figure 6,) and left to settle from the water with which it entered the tub I.

From this tub it is then run out into shallow copper pans and dried.

It is then ready for barrelling as the trade article of "sulphate of barytes."

These are the general steps of the operation, but we desire to be understood as not limiting ourselves to the precise means for producing the various operations, or the particular form or sequence of the apparatus, or arrangement of the same, as some changes may be made in the same without materially affecting the success of the process.

It will be seen from the foregoing that the principal features of improvement of our process over that commonly used, are—

First, the boiling of the tiff in water or by steam-vapor to render it more friable.

Second, boiling the tiff in acid solution to remove impurities.

Third, the use of silicate of soda to remove such impurities as are not affected by the acid-solutions.

Fourth, the use of alum-solutions to whiten the tiff.

Fifth, the use of distilled water to obtain sulphate of barytes in greater purity.

And as each of these features constitutes in itself a new and advantageous feature, not dependent upon the others, we desire to secure them against appropriation in other combinations.

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent, is—

The process, substantially as described, for heating sulphate of baryta, and producing therefrom the refined product known to the trade as "sulphate of barytes."

WILLIAM M. PAGE,
EMIL B. KRAUSSE.

Witnesses:
CHAS. H. ELKER,
LOUIS REINKEN.