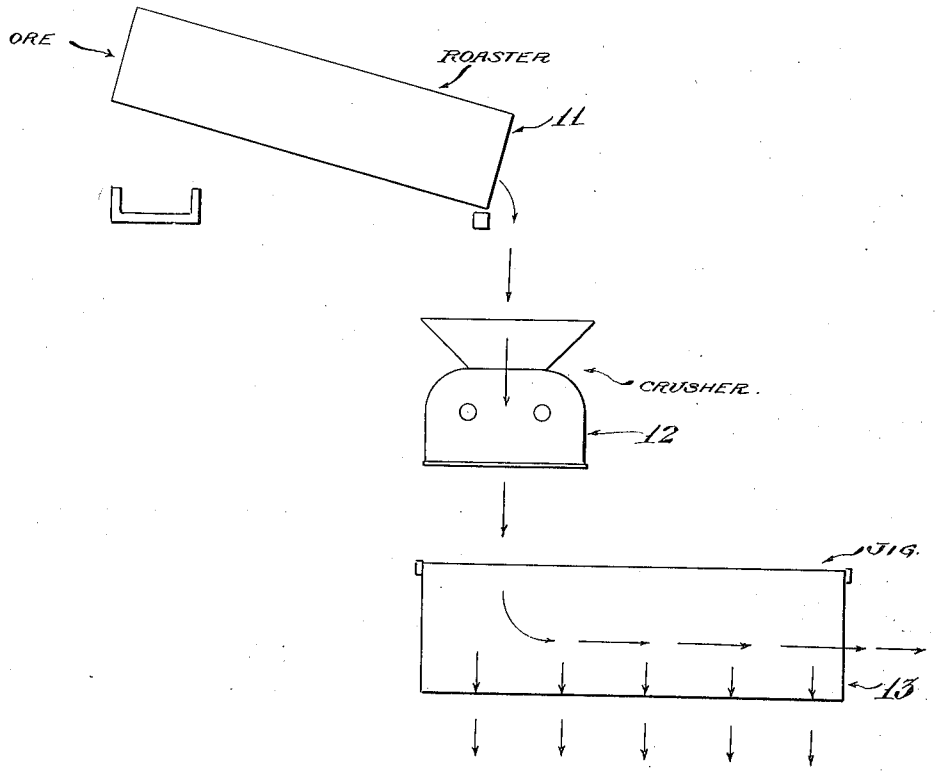
H. W. FAULKNER.

METHOD OF SEPARATING BORATES FROM THEIR GANGUE.

APPLICATION FILED JUNE 26, 1917.

1,269,170. Patented June 11, 1918.



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UNITED STATES PATENT OFFICE.

HERBERT W. FAULKNER, OF RYAN, CALIFORNIA, ASSIGNOR TO PACIFIC COAST BORAX COMPANY, OF RENO, NEVADA, A CORPORATION OF NEVADA.

METHOD OF SEPARATING BORATES FROM THEIR GANGUE.

1,269,170. Specification of Letters Patent. Patented June 11, 1918.

Application filed June 26, 1917. Serial No. 177,145.

To all whom it may concern:

Be it known that I, HERBERT W. FAULKNER, a subject of the King of the United Kingdom of Great Britain and Ireland, residing at Ryan, in the county of Inyo and State of California, have invented a new and useful Method of Separating Borates from Their Gangue, of which the following is a specification.

My invention relates to the art of separating borates from borate bearing material. There exist a great many deposits of borate bearing ground which are considered more or less valueless due to the difficulty of separating the borate from the accompanying minerals. Such for example are many of the deposits of colemanite and ulexite found in California. There also exist in existing borate workings many large dumps which contain large quantities of borate which it has not been found practicable up to the present time to recover. The principal difficulty found in working such deposits and dumps is due to the fact that the borate as found in such locations has a specific gravity very close to that of its accompanying gangue.

The principal object of my invention is to utilize such borate deposits and to recover from such dumps the greater portion of the borate contents. This I accomplish by the apparatus shown diagrammatically on the inclosed drawing and by the process hereinafter described.

In this drawing, I provide a roaster 11 through which the material to be treated is passed and in which the borates are dehydrated, the water of crystallization being in a large measure driven off so that the borates are considerably lightened. This roasting has practically no effect on the weight of the accompanying materials. The roasted materials are then passed into a crusher 12 and are then passed to a jig 13. The term "jig" as used herein includes all sorts of oscillating tables and all sorts of other devices which are suited to separate heavy particles from lighter ones. Many commercial forms of jigs and concentrators are available. On the jig 13 the light dehydrated particles of borates are separated from the heavy particles of accompanying gangue, the separated borates being collected and further treated if desired to produce a commercial product.

My invention consists in first dehydrating the borates to lighten them, and in then crushing and separating the borates from the gangue by any sort of a jig.

I claim as my invention:—

1. A process of recovering borates from their gangue which comprises subjecting a mixture of borate and gangue to a heat sufficient to dehydrate the borate to such a degree that its specific gravity is altered and thereafter subjecting the mixture to separation according to the specific gravity of the components.

2. A process as in claim 1 in which the mixture is crushed after dehydration and before separation.

3. A process as in claim 1 in which the separation is effected by a jigging operation dependent on the specific gravities of the components.

4. A process as in claim 2 in which the separation is effected by a jigging operation dependent on the specific gravities of the components.

In testimony whereof, I have hereunto set my hand at Ryan, California, this 18th day of June, 1917.

HERBERT W. FAULKNER.