

UNITED STATES PATENT OFFICE

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METHOD OF TREATING SULPHUR

No Drawing.

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The invention relates particularly to an improved method of treating sulphur after it has been removed from the earth.

As sulphur is recovered from the earth it is usually contaminated with various impurities which are co-mingled with the sulphur and which may not be removed readily by filtration or similar methods. By the processes now in vogue the sulphur is recovered from the earth by reducing it to a molten condition by means of heated fluids in the strata where the sulphur occurs. This molten sulphur is then forced or drawn to the earth's surface and is ready to be used commercially. However, the sulphur is sometimes more or less discolored due to the contaminating substances therein, the principal source of these substances being oil and similar deposits with which the sulphur has come in contact. It is well known that sulphur changes from a solid to a fluid state at 240° F. and remains in a fluid, but more or less viscous, condition at higher temperatures. The sulphur, however, is most fluid at about 280° F. to 300° F. and it is therefore desirable to handle it at about this temperature. When removing the sulphur from the earth if it is subjected to temperatures above 320° F. for any considerable time it then becomes discolored so that in locating the various wells on the sulphur dome it is sometimes impossible to recover the sulphur before it becomes discolored from over-heating. Even at ordinary temperatures sulphur sometimes becomes contaminated with oil or petroleum residues, causing discoloration.

It is one of the objects of this invention to provide an improved method of treating the sulphur to restore its lustre.

Another object of this invention is to reduce in quantity the impurities, particularly those of petroleum origin, as these are objectionable for some of the uses to which sulphur is put.

Another object of the invention is to treat the sulphur while in a molten condition by spraying it with chemicals which will react with the contaminating substances.

Another object of the invention is to spray the molten sulphur with sulphuric acid.

A still further object of the invention is to so co-mingle the molten sulphur and the chemical re-agents that the contaminating substances will be subjected to chemical action with the re-agent.

Another object of the invention is to treat the sulphur with a chemical which will have the proper reaction with the contaminating substances to oxidize, carbonize or char them so that they may be readily removed by either washing or filtration processes or both.

It is also an object of the invention to treat the sulphur with chemicals which will react with the contaminating substances and reduce them to a form which may be speedily removed by filtration.

Other and further objects of the invention will be readily apparent to those skilled in the art to which the improvement appertains when the following description is considered.

In the past various methods and substances have been resorted to for the treatment of the sulphur to remove contaminating substances and to improve its lustre and color, but the present method is believed to surpass those formerly in use as a brighter sulphur results and the method is simple and economical due to the fact that sulphuric acid is the principal product manufactured from sulphur.

It is important from a commercial standpoint that the sulphur be produced for use as a bright yellow material. For some purposes the discolored sulphur is satisfactory but it is not successful from a commercial standpoint due to the discoloration and it is with this in mind that the present method has been devised to restore the original color of the sulphur. When the sulphur is in molten condition it may be filtered through sand and similar materials. The action of the sand or filtering material, however, is believed to be that of absorption or adsorption and the efficiency of the filtering material is soon impaired. This process is very slow and has not been found to be entirely successful, but if the nature of the discoloring impurities is so changed by charring, carbonizing or oxidizing, the final separation of the