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LIQUID AND GAS SEPARATOR

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The invention relates to a mechanism for converting an alternating flow of liquid and gas to constant flow of the separated liquid and gas.

The present invention is particularly related to separating sulphur and the gas with which it is associated in its recovery from the earth. Sulphur is usually mined by means of the Frasch process or modifications thereof, which constitute the passing of heated liquid into the sulphur-bearing formation so that the sulphur is melted and will accumulate in a sump or pit at the base of the eduction tube. In this manner the sulphur is raised to the surface intermittently with charges of gas so that the alternating heads or surges of sulphur and gas appear at the mouth of the well. In order to ascertain the production of the individual wells and to estimate the quantity of sulphur produced, it is desirable to pass the sulphur from each individual well through some type of a metering device before it is discharged into the receiving bin or passed into association with production from other wells. Before the liquid sulphur may be metered, however, it is necessary to separate it from the gas with which it emerges from the well.

It is one of the objects of the present invention to devise a separator which will convert the intermittent flow of liquid and gas to a constant flow of sulphur and to permit the escape of the gas.

Another object of the invention is to devise a separator wherein a head of liquid sulphur will be maintained which will be of greater weight and therefore exert a pressure greater than the gas pressure issuing from the well.

Still another object of the invention is to devise a separator having an inverted flow device which will permit gases entrapped in the sulphur to escape.

A still further object of the invention is to devise a separator wherein the gases may be separated from the sulphur and drawn off to be passed through a suitable scrubber or washing apparatus.

A still further object of the invention is to devise a separator which may be manipulated to divert a flow of air or water from the separator in the event the flow of sulphur ceases.

It is also one of the objects of the invention to devise a separator which may be jacketed in order to maintain the sulphur in molten condition and to provide in combination with the separator a level indicator.

Other and further objects of the invention will be readily apparent when the following description is considered in connection with the accompanying drawings wherein

Fig. 1 is a sectional view of the separator and scrubbing apparatus.

Fig. 2 is a top plan view of the mechanism, certain parts being broken away to illustrate the structure.

The discharge pipe from the well is indicated at 1. This pipe comprises an inlet for the separator or converter. This pipe, as best seen in Fig. 2, leads into a valve housing 2, which housing is provided with a valve 3 adapted to be manipulated by means of a handle 4. This valve is of the double seating type and is arranged to seat at 5 when it is desired to have the flow from the well enter the inlet 6 of the converter. However, when the flow of sulphur from the well ceases the valve may be moved to contact the seat 7 and in this manner permit the flow of gas or water through the blow pipe 8.

Fig. 1 shows the inlet pipe 6 in section and for purposes of illustration a head or surge of gas 10 is shown as entering the separator or converter. A head of sulphur 11 is shown in the pipe 1 on its way into the separator. In this manner it will be readily apparent that alternating surges of sulphur and gas enter the separator. This separator comprises a housing 15, which is made up of an upper chamber 16 and a lower receptacle 17. Both the chamber 16 and the receptacle 17 are shown as being enclosed within a jacket 18 so that steam or some other heating medium may be utilized to maintain the sulphur in a molten condition. The invention as here illustrated includes a partition 20, which is arranged to be retained by the upper and lower portions of the housing 15. This partition 20 is provided with a passage 21 which leads from the chamber 16 into the receptacle 17. The passage 21 is equipped with an