

a gas containing much dust, which passes quite readily with the gas through long lengths of pipe.

There are two ways at present in use for the purification of blast furnace gases.

1. Passing the gas through scrubbers containing sawdust or coke, is exactly the same way as is done with producer gas.

2. The gas is caused to pass through a centrifugal fan. A jet of water enters the axis of the fan, and is driven outwards in the form of a fine spray. This spray of water gathers up all the dust in the gas. This latter method was tried in the Differdingen plant already mentioned, with the result that while the gas contained 4 gms. dust per cubic metre when it left the furnace, it held only .25gm. after passing through the fan, and could then be used with success in the engines.

The calorific value of this gas, as might be expected, is very variable. It may be taken that rich gas means poor operation in the blast furnace, while poor gas represents good operation therein. The average calorific value is about 110 B.T.U. per cubic feet, and an average analysis shows CO, 28%; H, 2.5%; CO₂, 7.25%; N, 61.3%.

This paper has been an endeavor to point out a few of the merits of the gas producer. The subject can only be taken up in a general way, because there are so many conditions to be met in the problem of power generation, that each case must be taken up separately, nevertheless the success of the producer, during the few years, in which it has been developed, makes a thorough knowledge of this piece of apparatus necessary to anyone who pretends to be up to date in power plant work. The small producer plant has a field in sparsely-settled districts which cannot be as well met by any other existing piece of apparatus. The blast furnace engines are also growing in popularity as their operation becomes better known. As has already been pointed out, there is a great deal of power going to waste at present in existing blast furnaces. If the whole of the power from Niagara was utilized, it would only give three times the H.P. that is thrown away by the blast furnaces of the United States of America alone. From these facts one is encouraged to believe that the gas engine industry has a bright future before it, now that the gas producer has proved to be a commercial success.