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(12) **Patent:**

(11) **CA 265063**

(54) PARAFFIN-HYDRO-CARBON PRODUCTION

(54) PRODUCTION D'HYDROCARBURES DE PARAFFINE

(72) ⋯ (Country):	**HANS TROPSCH** (Not Available) **FRANZ FISCHER** (Not Available)
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*** Note: Data on abstracts and claims is shown in the official language in which it was submitted.

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To all whom it may concern:

Be it known, that we, Professor Dr.Franz Fischer, citizen of Germany, and Dr.engineer Hans Tropsch, citizen of the Cechoslovak republic, both residing at 1, Kaiser-Wilhelm-Platz, Mülheim on the Ruhr, Germany, having invented certain new and useful improvements in a "Process for the production of paraffin-hydrocarbons with more than one carbon atom", do hereby declare that the following is a full, clear and exact description of the same:

It is generally known that the oxides of the carbon can be converted into methane by catalytic reduction (to see Sabatier, Die Katalyse in der organischen Chemie, Leipzig 1914, page 63 and followings). The best temperature for attaining this effect differs according to the employed catalyser. Applicants now have found that, instead of the methane, its homologues like ethane, propane and yet higher homologues are obtained if the temperature is lowered beyond that which is necessary for obtaining by means of the just used catalyser a smooth formation of methane. The reaction speed which is reduced hereby must then be compensated by increased activating of the catalytic agent or catalyser.

For instance by a catalyser consisting of a mixture of zinc-oxide and finely distributed iron at 430° C, only methane is obtained as hydrocarbon. But when the temperature is lowered to 380° C the obtained hydrocarbons consist of 80% methane and of 20% higher homologues. At 300° C the proportion is already more than inversed. The hydrocarbons consist in this case of only 10% methane and of 90% paraffin hydrocarbons with more than one carbon atom.

Examples of this kind may easily be increased as well

for the use of simple as for that of combined catalytic
agents in so far as they are apt at all for the reduction
of carbon oxyde or carbonic acid: An exception is only
given for those catalysers which also at lowered tempera-
tures essentially cause only the formation of methane as
long as the catalytic reaction takes place at all. This is
the case especially for pure nickel.

The technical importance of the present invention
consists in that the way has been found to synthesise
higher hydrocarbons than methane from the oxides of carbon
without the application of such high pressures as were
necessary according to known methods. A pressure of a few
atmospheres or atmospheric pressure itself or even reduced
pressure are quite sufficient for the purpose of the present
process.

What we do claim as pur invention and desire to secure by Letters Patent is:-

A process for obtaining paraffin-hydrocarbons with more than one carbon atom from oxides of carbon, characterized in that oxides of carbon in the presence of hydrogen are treated by catalytic agents and under normal, slightly increased or reduced pressure at temperatures which are lower than those at which for the just used catalytic agent or mixture of catalysers, exclusively methane is formed, the employment of such catalysers as pure nickel being excluded which also at lowered temperatures essentially cause only the formation of methane as long as the catalytic reaction takes place at all.

Signed at *Mülheim. Ruhr.*, Germany, this.*29 th*. day of.*April*.....1926.

Doctor Franz Fischer

Doctor Hans Tropsch

WITNESSES:*p. Hans Broche*

Wilhelm Midendorm