J. R. McCABE.

PROCESS FOR PRODUCING MOTOR FUEL.

APPLICATION FILED OCT. 27, 1919.

1,376,713. **Patented May 3, 1921.**

2 SHEETS—SHEET 1.

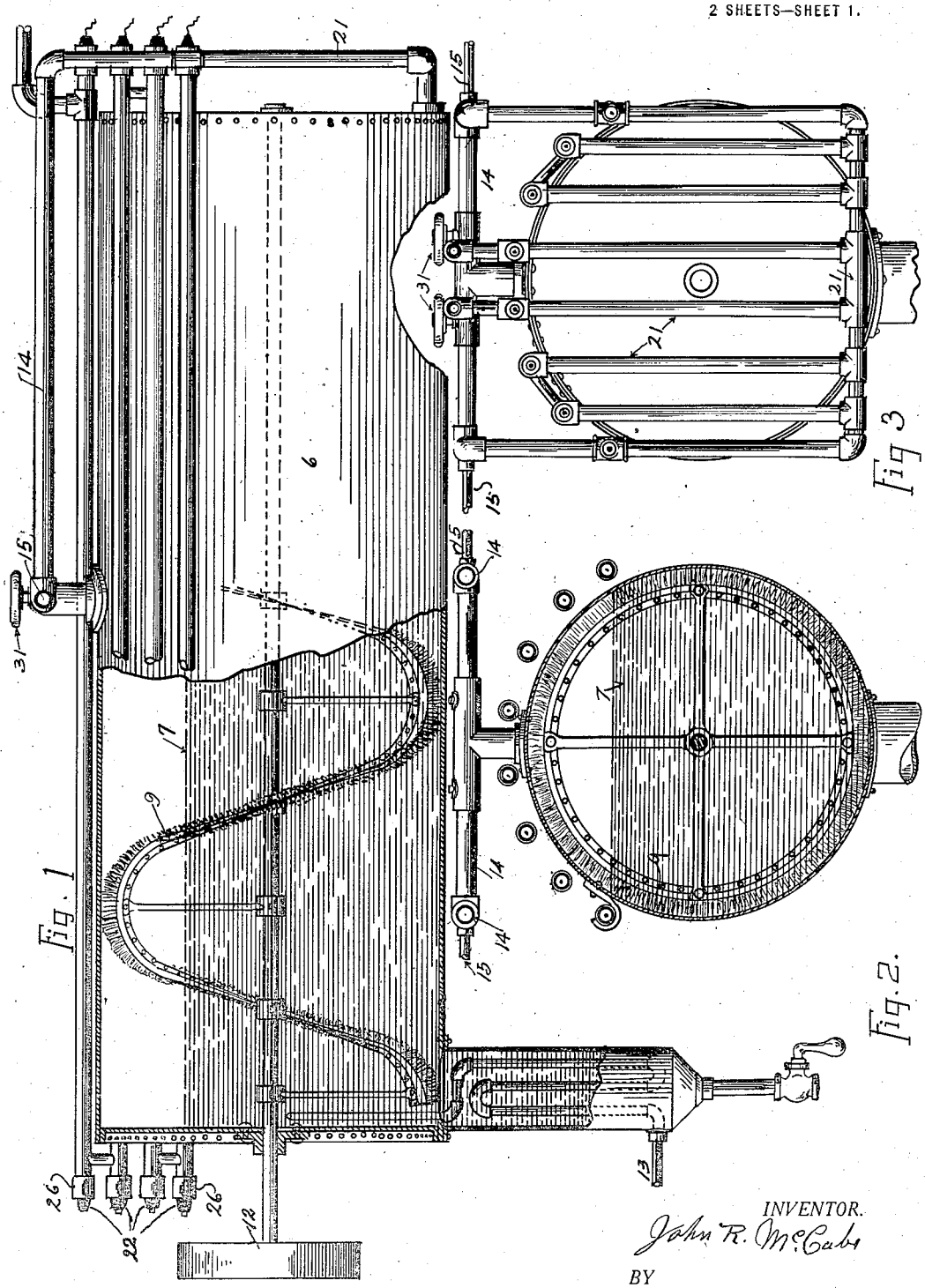


Fig. 1

Fig. 2.

Fig 3

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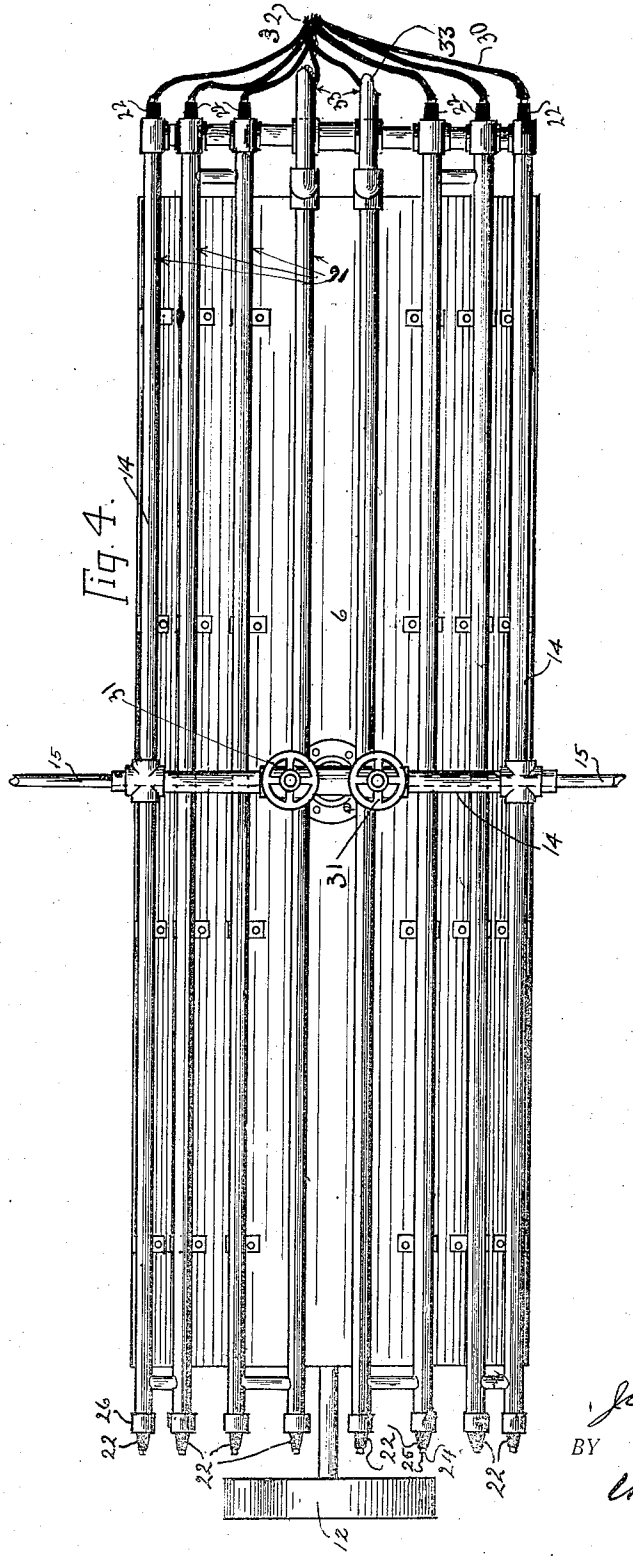


Fig. 4.

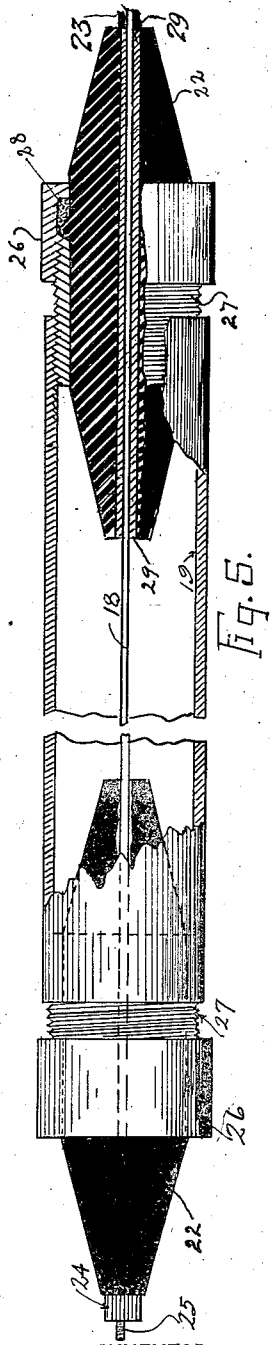


Fig. 5.

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PROCESS FOR PRODUCING MOTOR-FUEL.

1,376,713. Specification of Letters Patent. Patented May 3, 1921.

Application filed October 27, 1919. Serial No. 333,432.

To all whom it may concern:

Be it known that I, JOHN R. McCABE, a citizen of the United States, residing at Wichita, in the county of Sedgwick and State of Kansas, have invented a certain new and useful Process for Producing Motor-Fuel, of which the following is a specification.

My invention relates to processes for producing motor fuel, and the principal object in view is to devise a simple and inexpensive process and apparatus whereby certain common hydrocarbon oils and gases may be so treated as to produce a hydrocarbon liquid, having the properties necessary for fuel, suitable for internal combustion engines.

The object of my invention is to provide a process wherein hydrocarbon liquids are vaporized and said vapors mixed with hydrogen gas or hydrocarbon gases and said mixture so treated as to produce a hydrocarbon liquid having the properties which render said resultant hydrocarbon a most satisfactory fuel for use in internal combustion engines.

With these general objects in view the invention will now be described, with reference to the accompanying drawings for carrying out said process, after which the novel features of the invention will be set forth and defined in the appended claims.

In said drawings:—

Figure 1 is a side view illustrating an apparatus adapted for carrying out the practice of the invention, parts removed for convenience of illustration.

Fig. 2 is an end view of said apparatus showing drainage connections of the treating tubes.

Fig. 3 is a cross section of apparatus showing the treating tubes and conveyer.

Fig. 4 is a top view of apparatus showing the arrangement of treating tubes and pipes for carrying the hydrocarbon gases, also electric wires entering said tubes.

Fig. 5 is an enlarged portion of a treating tube showing assembly and construction of same.

Referring now more particularly to the accompanying drawings illustrating the apparatus, first a still 6, which is charged with hydrocarbon oils 7, and subjected to heat at 8, while being heated the contents of the still are subjected to the action of a conveyer 9, which conveys the heavy hydrocarbons to an apartment 10, in one end of the still and deposited therein and said deposits removed at 11.

The conveyer is a spirally formed piece of metal so constructed as to receive metallic brushes in the outer edge, said brushes adapted to contact with the inner walls of the still, the object of which is to remove or agitate formations of sediment, said spiral is mounted on a shaft supported by radial arms as shown. The conveyer shaft is supplied with a pulley 12, for the purpose of attaching any convenient power for revolving same.

A supply pipe 13, for supplying additional hydrocarbon oils as the contents of the still are worked out.

A gas supply pipe 15, for supplying hydrogen gases into hydrocarbon oil vapors at 14.

A series of treating tubes 16, wherein said mixtures of hydrocarbon oil vapors and hydrogen gases are passed through from 14 to 17, and subjected to the action of a high frequency electric discharge 20, passing from 18, to the walls of the treating tubes 19.

A series of drainage connection 21, showing the manner of draining the treating tubes into the still.

An insulation 22, a metal electrode 23, leading through the center of the treating tube, an adjusting tension nut 24, to adjust the tension of 23, a portion of the electrode 23, a packing nut 26, forming a part of the body for insulation 22, an insulation body 27, holding insulation 22, and so threaded as to screw into the ends of treating tubes. A packing gland 28, a metal sleeve 29, metal wire conductors 30, extending through treating tubes 16, and connected with a supply of electricity at 32, a valve 31 for closing either series of the treating tubes, operating at less capacity when desired. Vapor lines 33, leading to a fractionation tower or condenser.

A simple and sufficient and readily controlled process and apparatus therefor are thus provided by my invention for carrying out the purpose stated.

While the foregoing illustrates and describes one practical method and means for performing the process various changes or modifications are possible, without departing from the principle of my invention, I desire to reserve the right to make such

variations as may fall within the scope of the appended claims.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:—

1. The method of producing motor fuel from hydrocarbon oils consisting in: heating hydrocarbon oils, passing the resultant vapors through metal tubes, in which tubes the vapors are subjected to high frequency electric discharges which pass transversely through said tubes.

2. The method of producing motor fuel from hydrocarbon oils consisting in: heating hydrocarbon oils in a still, and causing the resultant vapors to circulate through a metal tube, in which tube the vapors are subject to high frequency electric discharges which pass transversely of said tubes.

3. The method of producing motor fuel from hydrocarbon oils consisting in: heating hydrocarbon oils in a still, and causing the resultant vapors to circulate through a metal tube, in which tube the vapors are subjected to high frequency electric discharges which pass transversely of said tubes, said discharges occurring between the walls of the tube and a longitudinal wire centrally positioned in the tube and surrounded by air space.

4. The method of producing motor fuel consisting in: preheating hydrocarbon oils in a preheater, passing the oil into a still, heating the oil in said still, and causing the resultant vapors to circulate through a metal tube, and subjecting the vapors continuously to high frequency electric discharges which occur between the walls of said tube and a longitudinal wire positioned within said tube and insulated therefrom.

JOHN R. McCABE.

Witnesses:
W. A. Nethercot,
Nellie M. Porter.