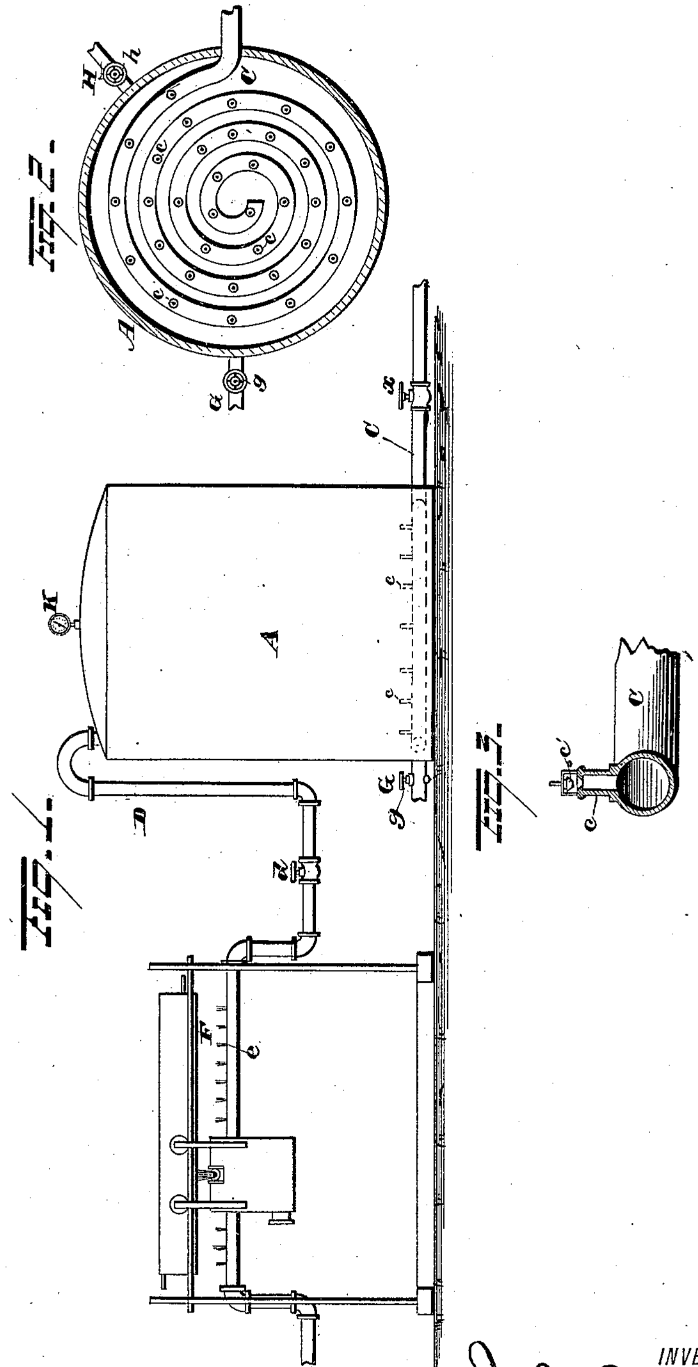
(No Model.)

J. T. DYSART.

APPARATUS FOR MANUFACTURING CARBON BLACK.

No. 343,446. Patented June 8, 1886.



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UNITED STATES PATENT OFFICE.

JOHN T. DYSART, OF SHIPPENSVILLE, PENNSYLVANIA.

APPARATUS FOR MANUFACTURING CARBON-BLACK.

SPECIFICATION forming part of Letters Patent No. 343,446, dated June 8, 1886.

Application filed November 27, 1883. Serial No. 112,956. (No model.)

To all whom it may concern:

Be it known that I, JOHN T. DYSART, of Shippensville, in the county of Clarion and State of Pennsylvania, have invented certain new and useful Improvements in Processes of Manufacturing Carbon-Black; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to an improvement in the process of manufacturing carbon-black, the object of the same being to thoroughly impregnate a hydrocarbon gas with carbon before it reaches the flame-jets, thus causing the flame to deposit a great quantity of carbon-black upon the condensing-surface.

To explain the method of carrying my invention into effect, reference will be had to the accompanying drawings, in which—

Figure 1 represents the impregnator and condenser. Fig. 2 is a detached view of the bottom of the impregnator with pipes in position, and Fig. 3 one of the branch feed-pipes.

A represents a tank, made of any convenient size and shape, partially filled with petroleum or other carbonaceous liquid. The pipe C enters the tank A at the bottom or at some other suitable point, and is either provided with branches or joints by means of which it is allowed to extend around or across the bottom of the tank as many times as required. A number of short vertical pipes, *c*, are attached to the pipe C at different points about the bottom of the tank. Each of these short upwardly-extending pipes *c* is provided with an automatic valve, *c'*, opening upward.

Hydrocarbon gas, either derived from the earth in its natural state or manufactured, is brought under pressure and admitted through the pipe C, provided with a valve, *x*, into the bottom of the tank A. From the vertical branches of the pipe C the gas bubbles up through the petroleum or other carbonaceous liquid in the tank and collects in the top part of the tank. In passing through this liquid the gas will take up more or less of the carbon in the liquid. The object is to have a sufficient number of vertical pipes attached to the pipe C at the bottom to thoroughly distribute the gas throughout the liquid and thus afford it an opportunity to take up all the carbon possible. From the top of the tank the gas is conducted through the pipe D, having the valve *d*, to the jets *e*, where it is ignited and the carbon-black deposited on the condensing-surfaces F. The tank A is provided at the bottom with the pipe G, having the valve *g* for the purpose of drawing off the liquid whenever desired, and with the pipe H, having the valve *h* or other convenient arrangement at the bottom of tank for renewing the supply of petroleum or other carbonaceous liquid as desired. The tank A is further provided with a gage, K, whereby the pressure of the gas in the tank is recorded.

The automatic valves *c'* in the vertical branches *c* keep the gas in the tank from forcing the petroleum into the feed-pipe C, but open whenever the pressure of the gas in pipe C is greater than that of the gas and liquid in the tank. By this means the flow of the liquid into the pipe C is prevented in case of a sudden break in the pressure, and much annoyance, which would be caused by this back-flow, avoided.

By means of the gage K and the valve in the feed-pipe C the necessary pressure can readily be maintained and the danger of over-pressure avoided.

The apparatus for collecting the carbon-black may be of any approved construction. One of the most effective machines for this purpose is fully illustrated and described in Letters Patent No. 266,953, dated October 31, 1882, a portion of which is represented in the accompanying drawings.

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

1. The process of making carbon-black, consisting in introducing hydrocarbon gas into a carbonaceous liquid through a series of small openings, whereby the entire volume of gas becomes saturated with the carbon, then conducting the gas to burners and depositing the carbon on condensing-surfaces.

2. A tank provided with a gage and adapted to hold a quantity of carbonaceous liquid, and further provided with chambers at the bottom, said chambers being furnished with au-

tomatic valves and connected with a reservoir of gas under pressure, a gas-supply pipe having a throttle-valve, a pipe adapted to conduct the gas to the igniting-jets, the igniting-jets, and condensing-surfaces, the whole constructed and arranged for the purpose substantially as set forth.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

JOHN T. DYSART.

Witnesses:
R. K. McCORMICK,
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