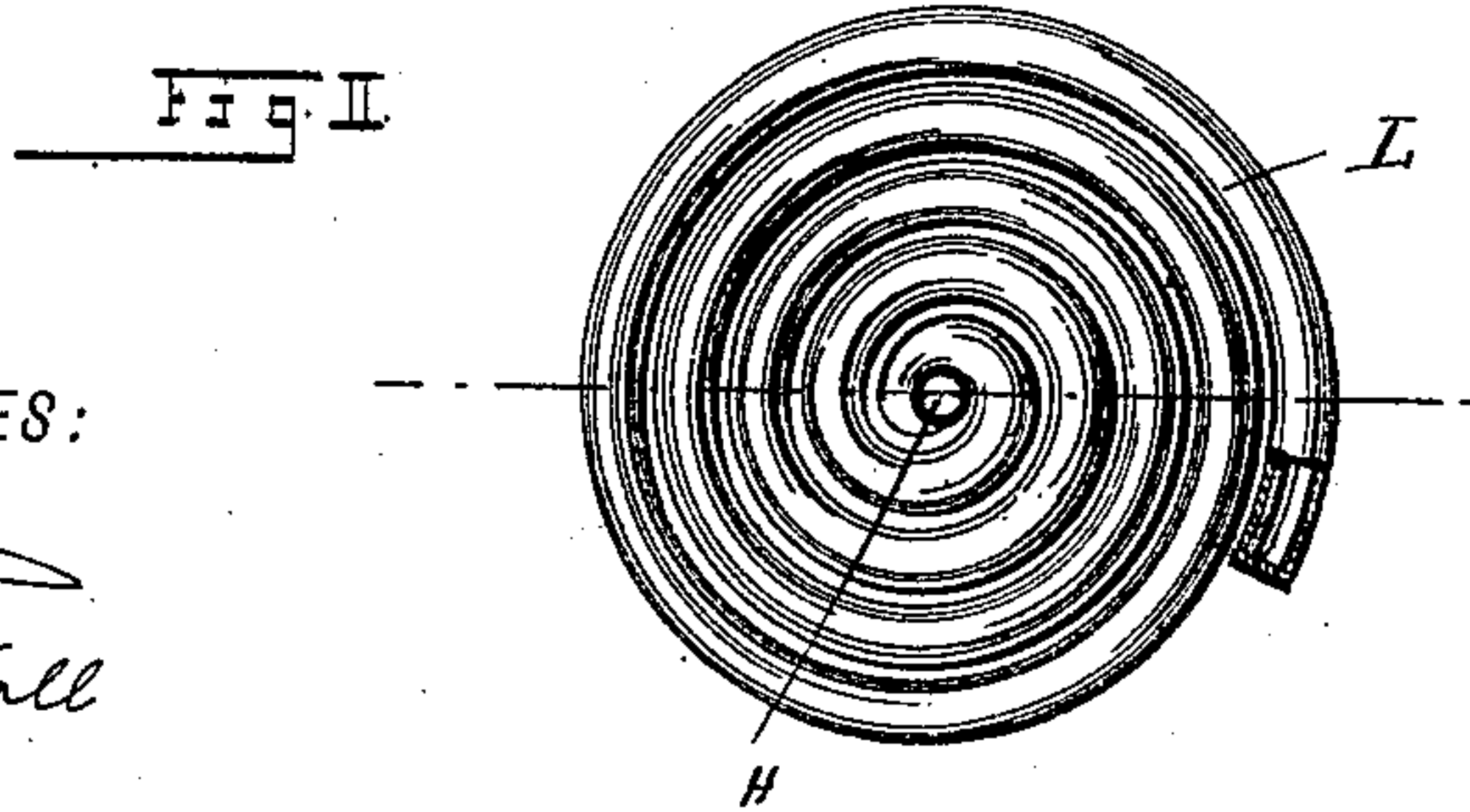
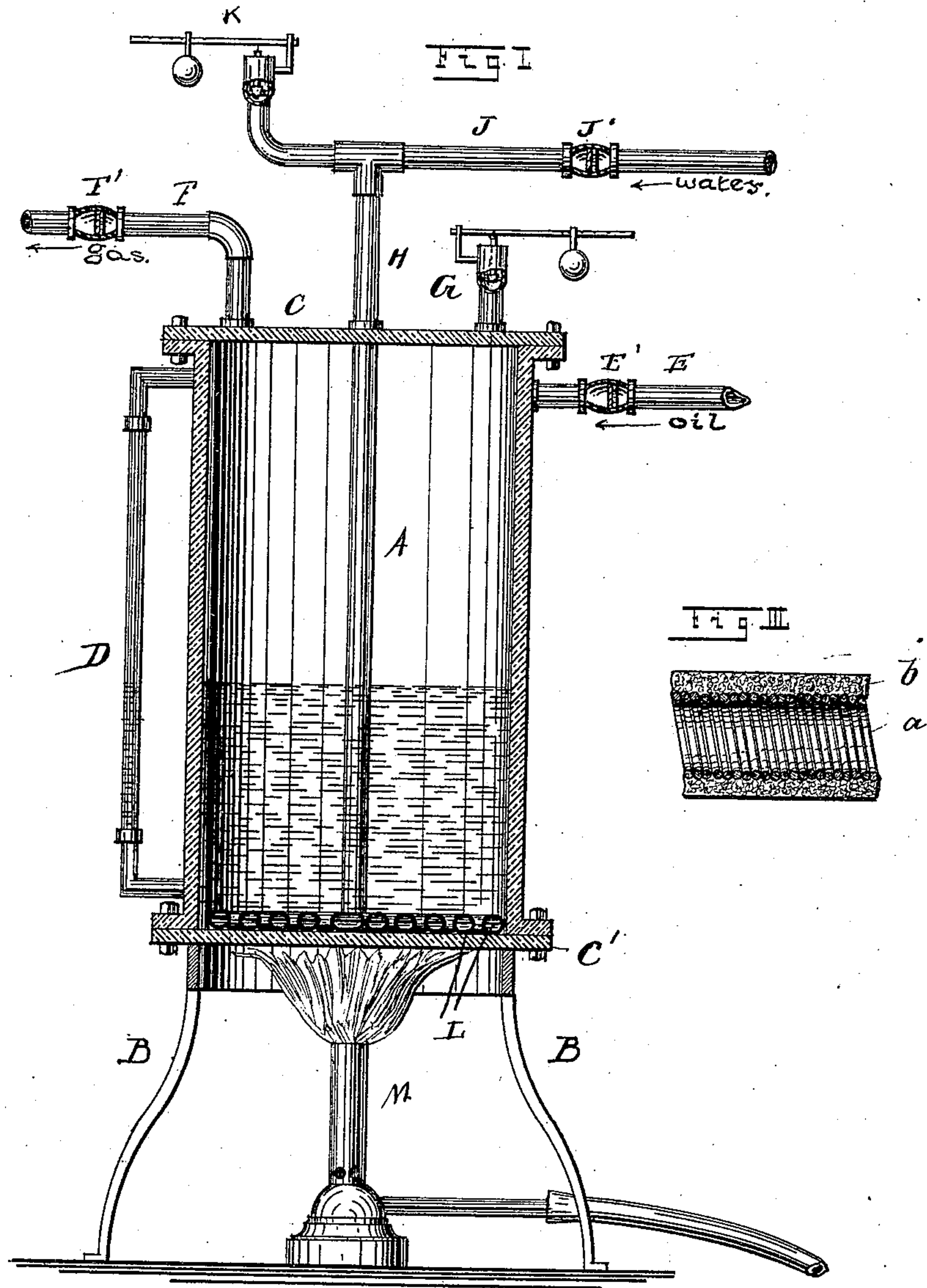


(No Model.)

A. RICHTER.  
APPARATUS FOR GENERATING GAS.

No. 464,040.

Patented Dec. 1, 1891.



WITNESSES:  
*Chas. H. Hall*  
Marion Hall

INVENTOR  
A. Richter  
BY *James H. Jagger*  
ATTORNEYS.



# UNITED STATES PATENT OFFICE.

ADOLPH RICHTER, OF NEW YORK, N. Y.

## APPARATUS FOR GENERATING GAS.

SPECIFICATION forming part of Letters Patent No. 464,040, dated December 1, 1891.

Application filed May 4, 1891. Serial No. 391,497. (No model.)

*To all whom it may concern:*

Be it known that I, ADOLPH RICHTER, a citizen of the United States, residing at the city of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in an Apparatus for Generating Gas from Kerosene, of which the following is a specification.

The object of my invention is to provide a new and improved apparatus for generating gas from kerosene.

The invention consists in the construction and combination of parts and details, which will be fully described hereinafter, and finally pointed out in the claims.

In the accompanying drawings, Figure 1 is a vertical longitudinal sectional view of my improved apparatus for generating hydrocarbon gas. Fig. 2 is a plan view of the bottom spiral tube, parts being broken out; and Fig. 3 is an enlarged detail longitudinal view of the spiral tube.

Similar letters of reference indicate corresponding parts.

The cylindrical receptacle A is provided with the legs B and with the top and bottom heads C C'. It is also provided with a gage-glass D, to show the height of the liquid in the same. A tube E, having a check-valve E', serves to conduct kerosene into the cylindrical vessel, and the tube F, having a check-valve F' and passing through the top head of the vessel, serves for carrying off the gas. A safety-valve G is provided at the top of the vessel to permit the gas to escape when it has reached a certain pressure. A vertical pipe H passes through the top head and is connected with the pipe J, having a check-valve J', through which pipes J and H water is to be forced from a suitable pump or reservoir into the vessel A. The pipe H is provided with a safety-valve K, which opens when the pressure of the water is too great. The lower end of the pipe H is connected with one end of a flat spiral L, formed of a helically-twisted wire *a*, surrounded by a layer *b*, of greater or less thickness, of cotton-battening or cotton fabric or any other suitable fibrous material. The free end of the flat spiral L is closed, as shown in Fig. 2. A Bunsen burner M is arranged below the vessel A, or said vessel may be heated by means of a coal fire or by any other suitable means.

A certain quantity of kerosene is conducted into the vessel A and the kerosene is heated. At a predetermined degree of heat the pump or other apparatus is started to pump water through the pipes J and H into the coil L, which is arranged in the bottom of the vessel A. The water under pressure oozes through the interstices between the windings of the helical wire *a* and through the cotton-battening *b*, and is vaporized with the kerosene. A vapor is formed, passing off through the pipe F. The vapor can be used for driving an ordinary engine, the expansibility of the vapor being used to drive the engine, and then the vapor after having operated the engine or motor can be again used in an explosion-motor, such as a gas-engine or hydrocarbon-engine, or it can be used as fuel or for lighting purposes, and part of it can also be used for heating the kerosene in the vessel A.

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

1. In an apparatus for producing combustible gas, the combination, with a closed vessel, of a pipe extending vertically to the bottom of the vessel, a flat coil connected with the lower end of said pipe, which flat coil is composed of wire surrounded by fibrous material, through which the water can ooze, an outlet-pipe for the gas, an inlet-pipe for the oil, and means for heating the vessel, substantially as set forth.

2. In an apparatus for generating gas, the combination, with a closed vessel, of a pipe extending vertically to the bottom of the vessel, a flat coil connected with the lower end of said pipe and formed of coiled wire surrounded by fibrous material through which the water can ooze, a pipe for conducting kerosene into said vessel, a pipe for conducting off the gas, a safety-valve on said vessel, a safety-valve on the pipe extending to the bottom of the vessel, and means for heating the vessel, substantially as set forth.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

ADOLPH RICHTER.

Witnesses:

OSCAR F. GUNZ,  
A. M. BAKER.