

No. 883,845.

PATENTED APR. 7, 1908.

C. WHITFIELD.  
GAS PRODUCER PLANT.  
APPLICATION FILED APR. 24, 1905.

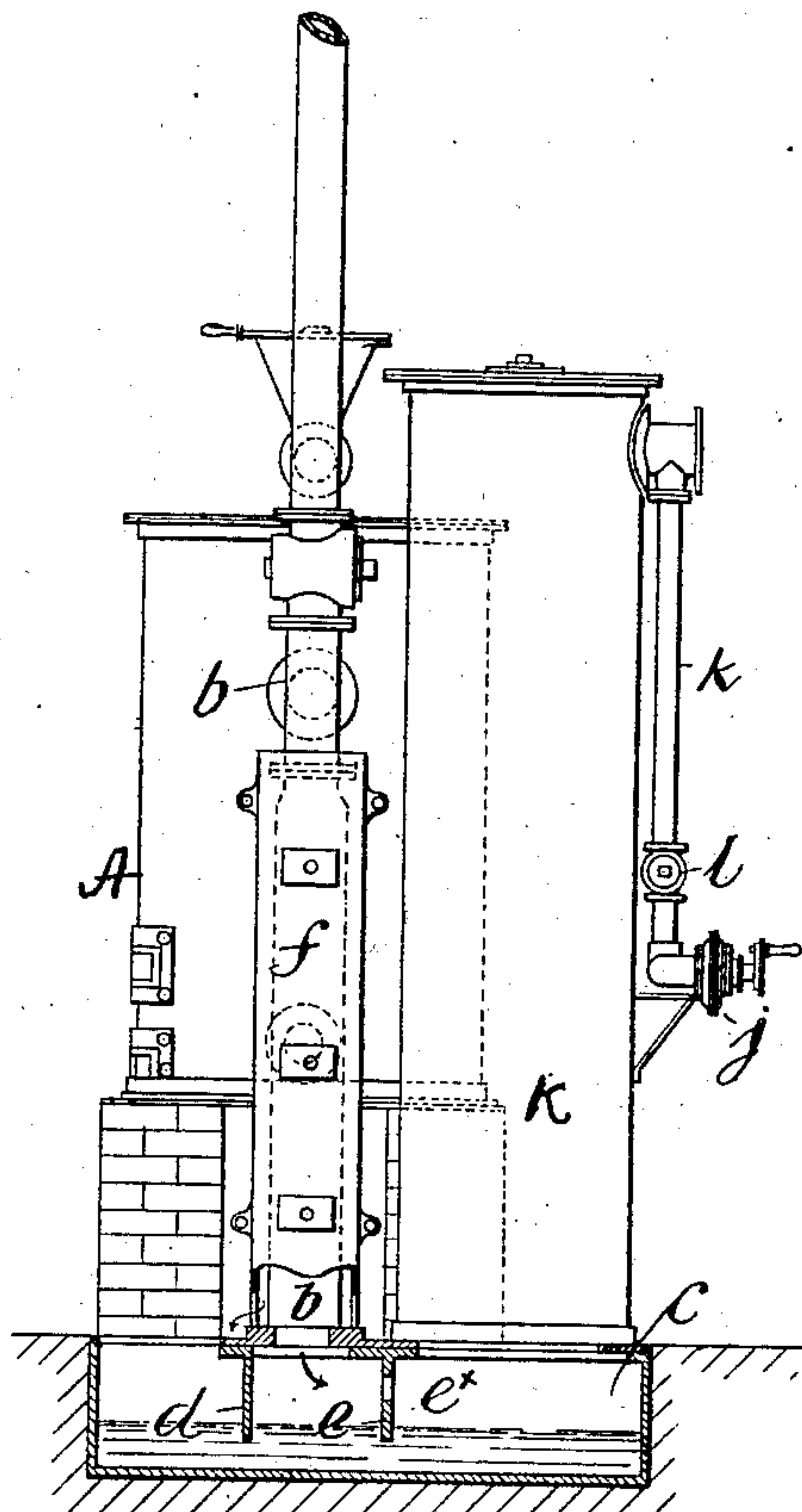


Fig. 1.

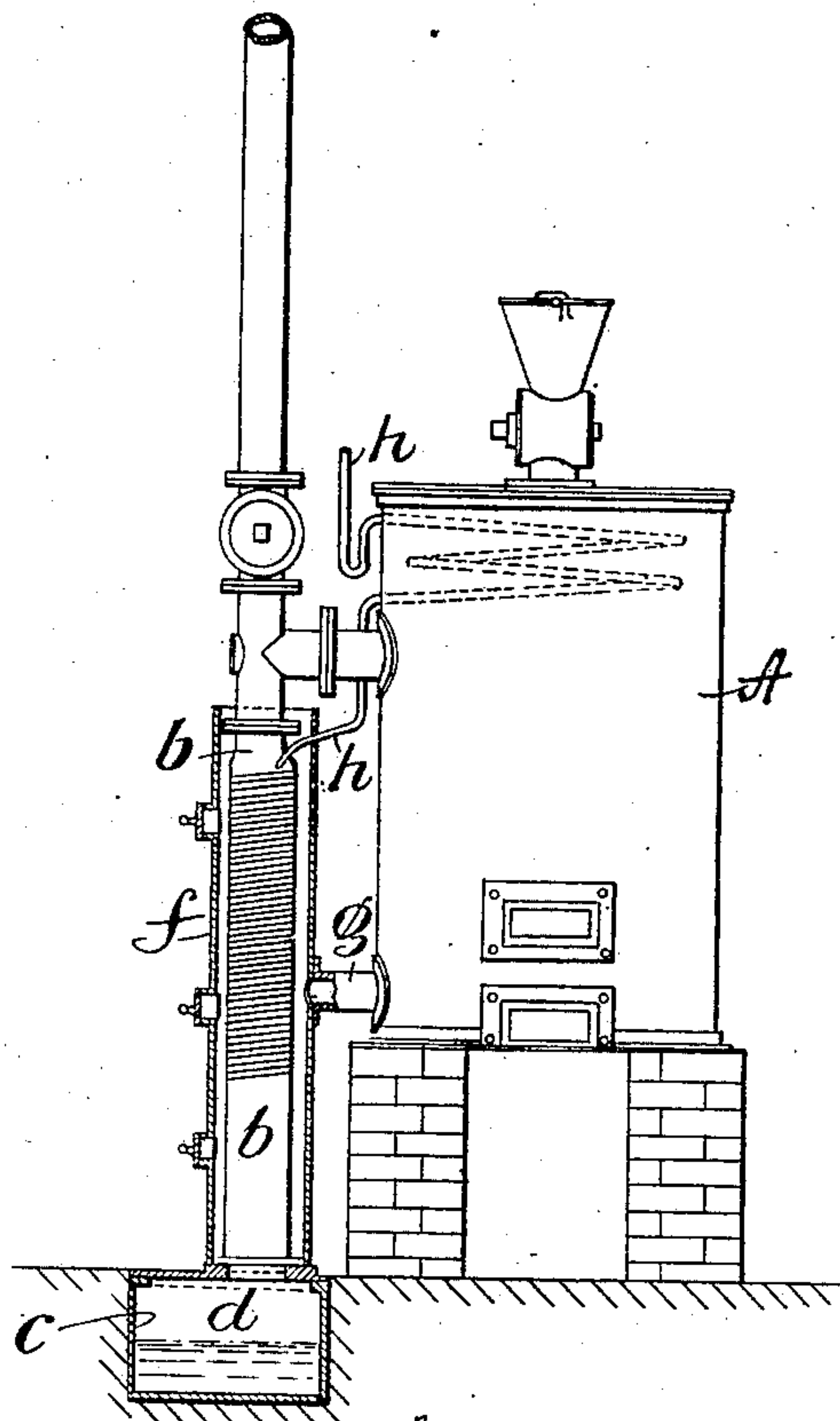


Fig. 2.

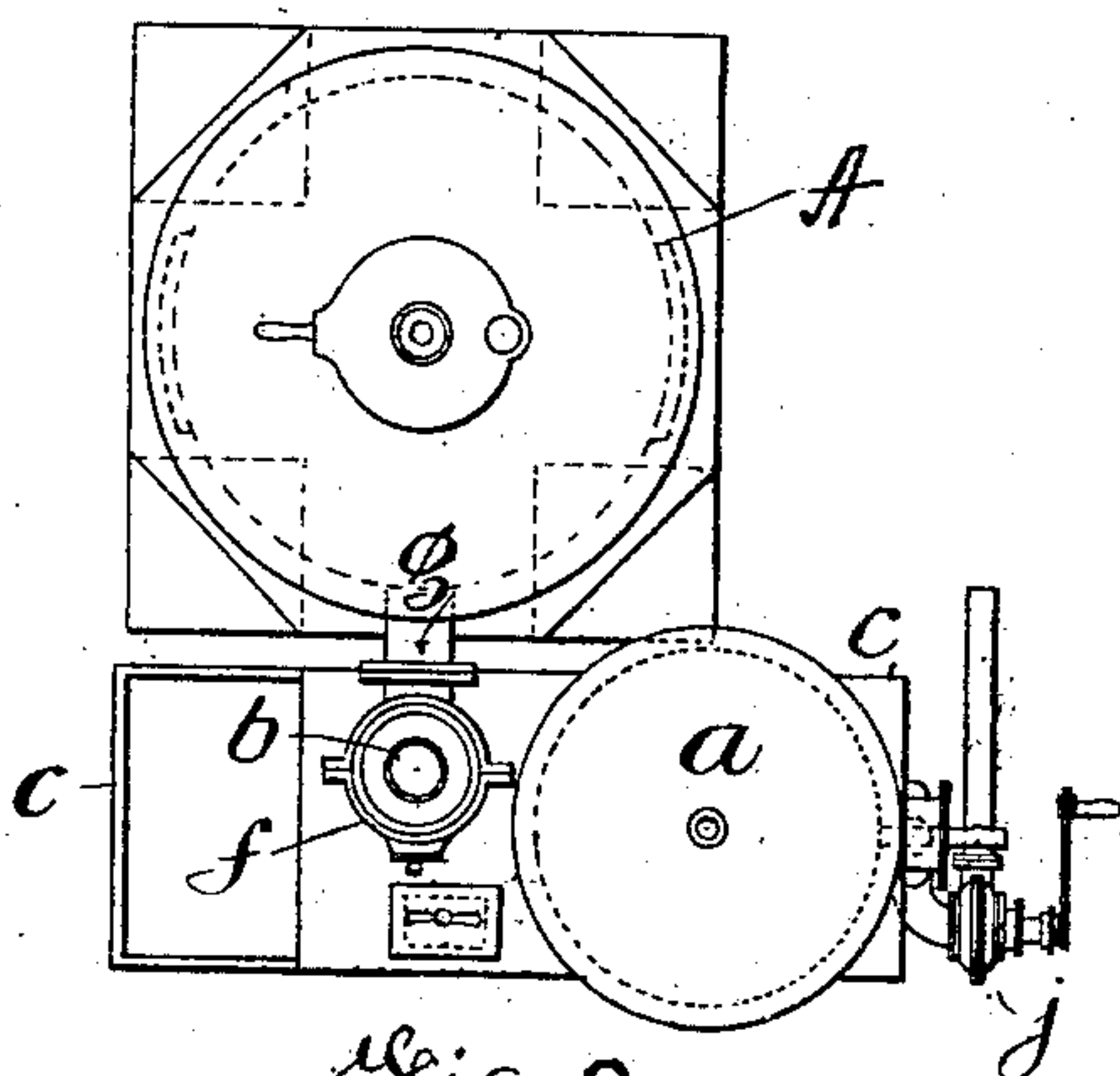


Fig. 3.

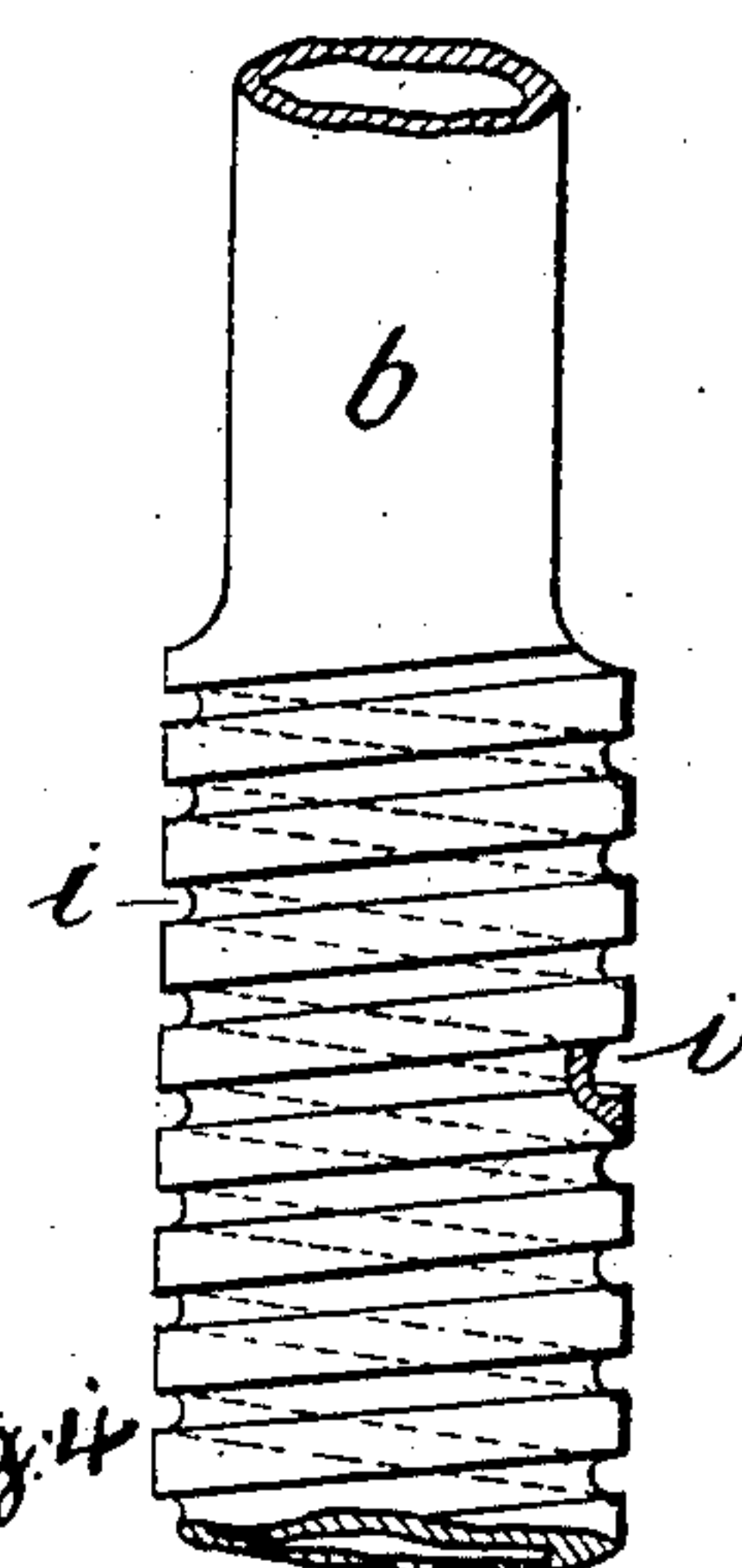


Fig. 4.

WITNESSES:  
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# UNITED STATES PATENT OFFICE.

CHARLES WHITFIELD, OF KETTERING, ENGLAND.

## GAS-PRODUCER PLANT.

No. 883,845.

Specification of Letters Patent.

Patented April 7, 1908.

Application filed April 24, 1905. Serial No. 257,124.

*To all whom it may concern:*

Be it known that I, CHARLES WHITFIELD, a subject of the King of Great Britain and Ireland, and resident of Kettering, in the county of Northampton, England, have invented certain new and useful Improvements in or Relating to Gas-Producer Plants, of which the following is a specification.

These improvements refer more particularly to what is known as suction gas producer plant in which the generator is open to the atmosphere and the gas as it is produced and after it is cooled and passed through a scrubber, is drawn directly into the cylinder of a gas engine by the charging stroke of the piston.

The object of the invention is so to supply air and steam to the producer that only the amount necessary for the production of the gas for the time being passes into the producer, the surplus passing freely into the atmosphere.

According to the invention, the pipe through which the hot gas passes to the scrubber is inclosed by a jacket or sleeve which produces an open-ended annular space all round the pipe, and such sleeve, through a suitable branch, opens into the producer at a point below the grate. On to the exterior of the said pipe trickles the water to be vaporized and used for mixing with the air, and such water passes, by preference, through a coiled pipe in the upper part of the producer so as to be partially vaporized before passing on to the pipe. To insure of the best results the pipe may have a spiral undercut groove formed in its exterior surface on to which the water may flow, but it is not strictly necessary provided the water flows film fashion down the pipe.

Upon the engine making its suction stroke, and after the water seal has risen, the suction thereby caused serves to draw in a supply of air and vapor into the producer from the space within the pipe jacket, only just the amount necessary for working the producer being drawn in and any surplus passing away through the open end of the jacket, or any shortage being made up from the outside atmosphere through such jacket.

Upon the accompanying drawing Figure 1 illustrates in side elevation, Fig. 2 in front elevation, and Fig. 3 in plan a suction gas producing plant embodying the invention. Fig. 4 illustrates a detail to a larger scale.

As shown (A) is the producer, (b) the gas outlet pipe and (K) the scrubber.

(C) is the tank which is partially filled with water, which, in conjunction with the depending flange (d), forms a seal. In the flange (e) is an opening (e<sup>x</sup>) so that the gas may pass freely through into the scrubber. At one end the tank is open to the atmosphere.

(f) is the open-ended sleeve or jacket surrounding the pipe (b) and opening into the lower part of the producer via pipe (g).

(h) is a pipe for delivering water in small and regular quantities on to the exterior of the pipe (b), this latter, if desired, being grooved spirally to convey the water around the pipe, and the groove being undercut, see Fig. 4, to form a duct or channel for the water to flow in. Any water that finds its way to the bottom of the sleeve falls into the tank.

For augmenting the heat of the gas in the pipe (b) the pipe (h) may pass through the upper part of the producer see Fig. 2, and thus cause the water to be heated or partially vaporized before flowing on to the pipe (b). As the water flows down the pipe it becomes completely vaporized and fills the space between the pipe and sleeve with vapor, a large part of which is formed and flows below the pipe (g) so that on the gas engine making its charging stroke and the air being drawn into the producer, a supply of vapor is drawn in with it at the right moment and to the extent required. Any excess of vapor escapes through the open end of the jacket, while any shortage of air is made up from the atmosphere.

For starting the producer a small rotary fan or blower (j) may be employed and coupled to the outlet of the scrubber by pipe (k) and designed to draw the gas and air through the scrubber until the mixture issuing from the delivery nozzle of the burner ignites, when the pipe (k) is closed by cock (l).

What I claim is:—

1. In combination in a suction gas producer, a producer, a pipe leading from the gas outlet of the producer, an open-ended sleeve forming an air shaft through which the air may circulate by natural draft, and a branch pipe leading from the said sleeve to the interior of the producer below the grate, substantially as set forth.

2. In combination in a suction gas producer, a producer, a pipe with spiral groove

on its exterior leading from the gas outlet of  
the producer, an open-ended sleeve forming  
an air shaft through which the air may cir-  
culate by natural draft, and a branch pipe  
5 leading from the said sleeve to the interior of  
the producer below the grate, substantially  
as set forth.

In witness whereof I have hereunto set my  
hand in the presence of two witnesses.

CHAS. WHITFIELD.

Witnesses:

ELDON A. KING,  
JOHN CAMP.