

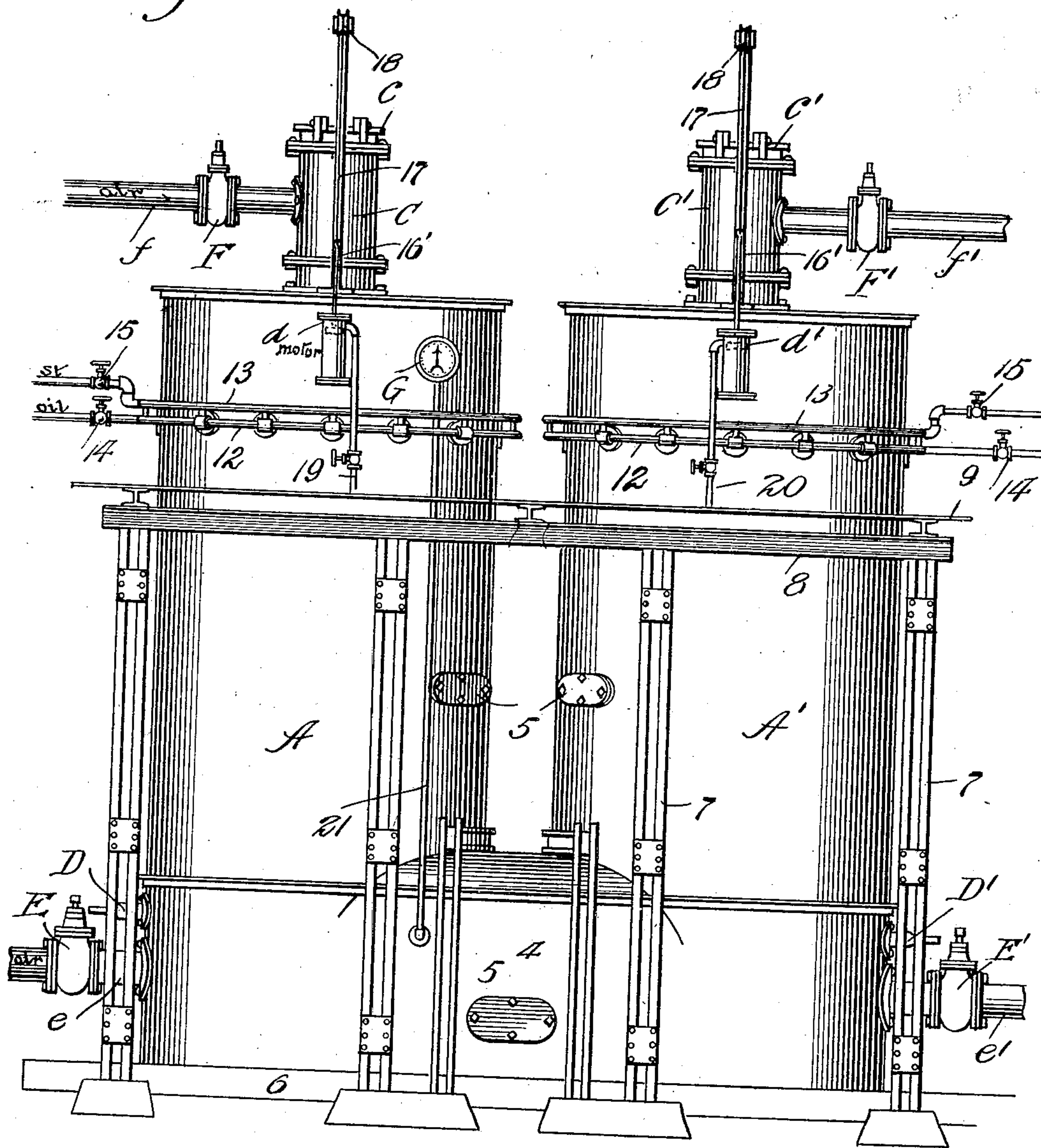
No. 891,665.

PATENTED JUNE 23, 1908.

A. D. BRASSON.
GAS GENERATING APPARATUS.
APPLICATION FILED NOV. 5, 1907.

3 SHEETS—SHEET 1.

Fig. 1.



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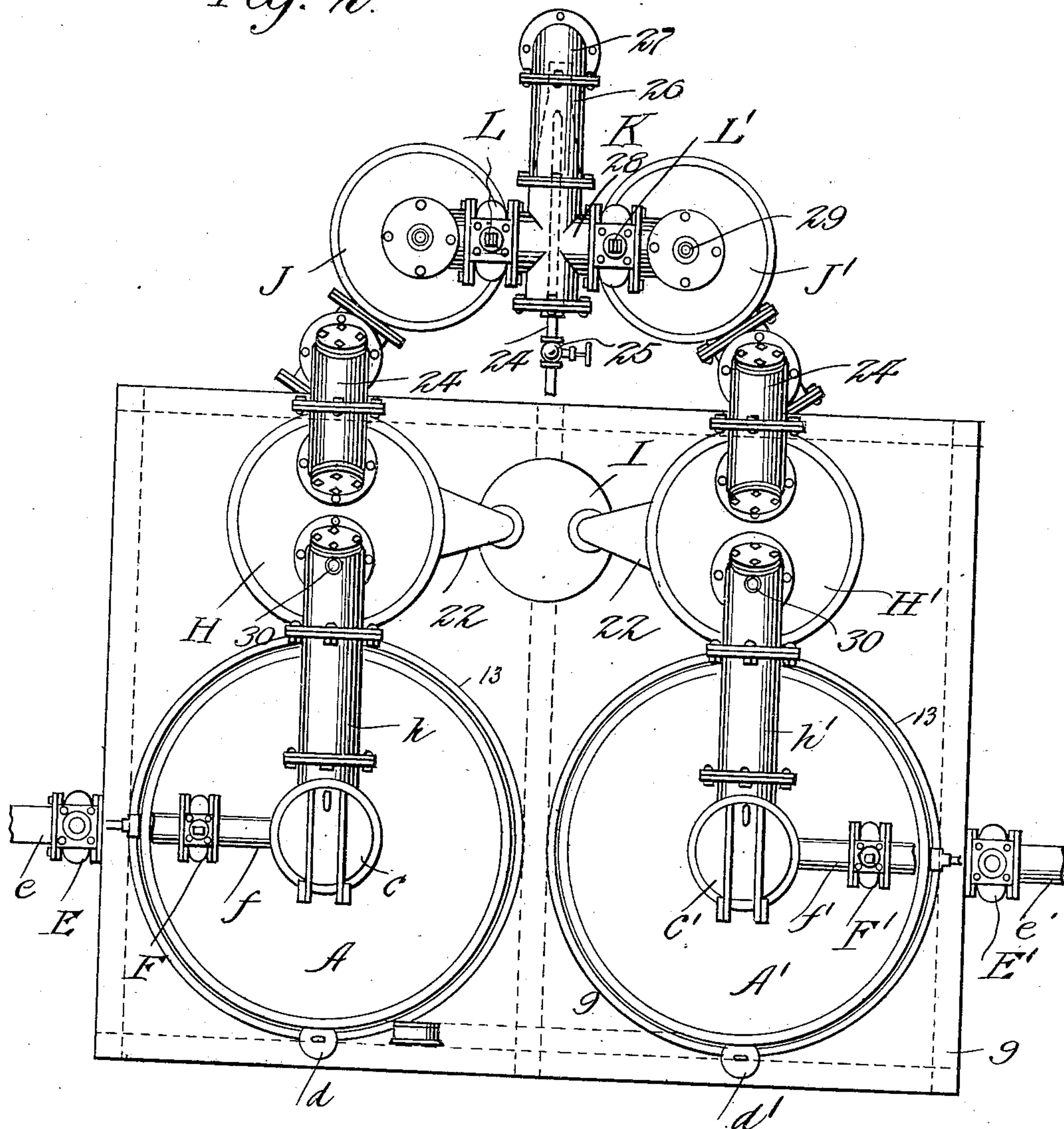
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3 SHEETS—SHEET 2.

Fig. 2.



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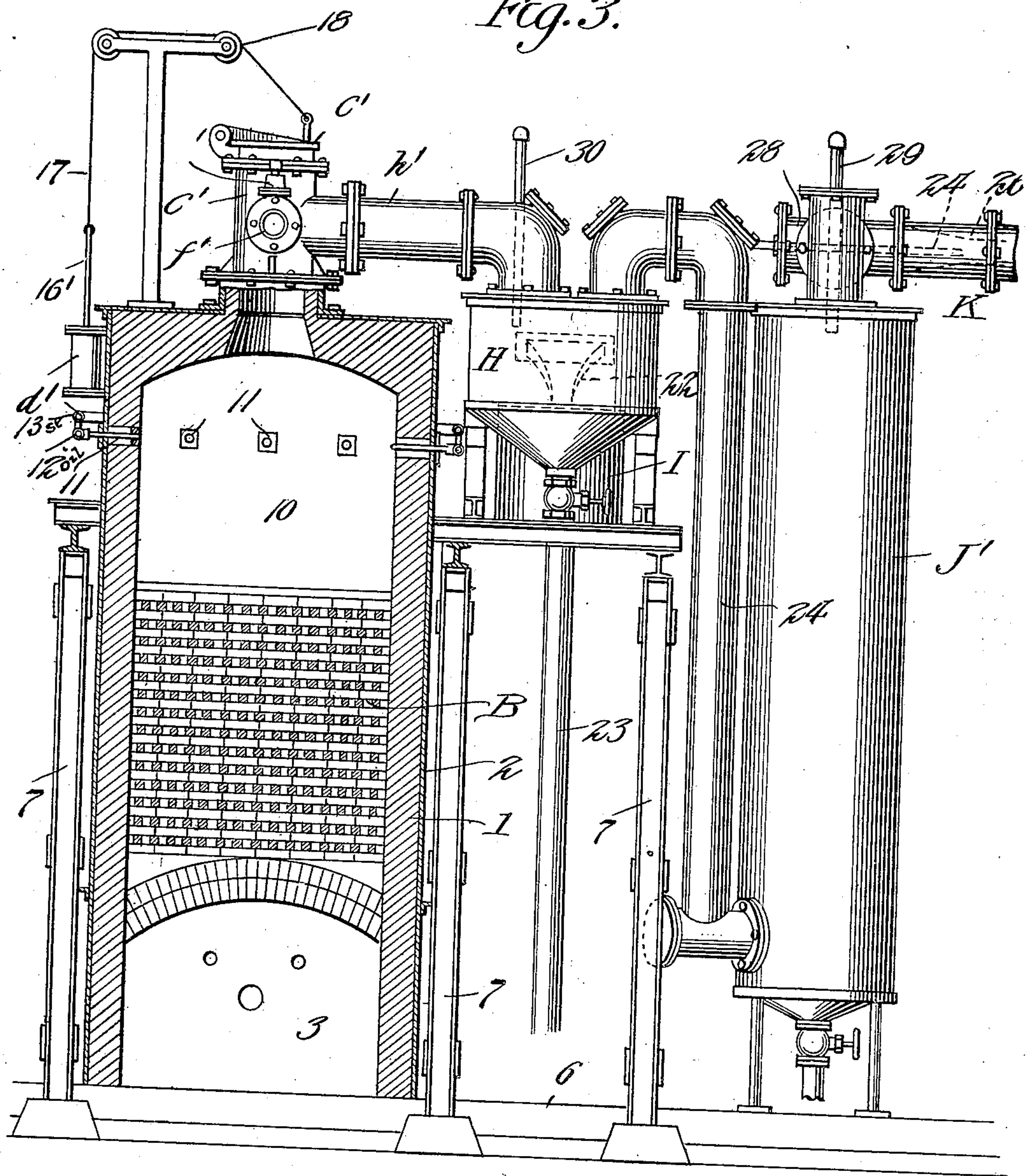
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3 SHEETS—SHEET 3.

Fig. 3.



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UNITED STATES PATENT OFFICE.

ADELARD D. BRASSON, OF SAN FRANCISCO, CALIFORNIA.

GAS-GENERATING APPARATUS.

No. 891,665.

Specification of Letters Patent.

Patented June 23, 1908.

Application filed November 5, 1907. Serial No. 400,793.

To all whom it may concern:

Be it known that I, ADELARD D. BRASSON, a citizen of the United States, residing at San Francisco, in the county of San Francisco and State of California, have invented new and useful Improvements in Gas-Generating Apparatus, of which the following is a specification.

This invention relates to gas generating apparatus of that type designed especially for the production of gas from liquid hydrocarbons.

The invention has for one of its objects to improve and simplify the construction and operation of apparatus of this character so as to be highly efficient in operation, easy to manage and of large capacity, and comparatively simple and inexpensive in construction.

A further object of the invention is the provision of a gas making machine composed of separate generators communicating at their lower ends and each containing a mass of fire brick to form a generator and adapted to be alternately heated to the desired temperature for producing gas by a mixture of steam and oil passed through the heated fire brick in its course through the generator to the washing and scrubbing devices.

Another object of the invention is the employment of means whereby fire bricks in the generators can be effectively heated by the combustion of steam and oil under the influence of an air blast which causes the heat to traverse one or the other of the generators at a time to raise the fire brick therein to the desired temperature for gasifying purposes.

A still further object is to provide separate washers and scrubbers for the generators, in combination with a single suction device for drawing off the washed gas from the apparatus.

The invention has as an additional object, the novel arrangement and construction of the various parts of the apparatus whereby the carbon can be effectively removed from the gas produced from the steam and oil, and gas of good quality can be economically produced.

With these objects in view and others, as will appear as the description proceeds, the invention comprises the various novel features of construction and arrangement of parts which will be more fully described herein-after and set forth with particularity in the claims appended hereto.

In the accompanying drawings, which illustrate one of the embodiments of the invention, Figure 1 is a front view of the apparatus. Fig. 2 is a plan view thereof. Fig. 3 is a side view with one of the generators in vertical section.

Similar reference characters are employed to designate corresponding parts throughout the several views.

Referring to the drawings, A and A' designate the two generators of the apparatus which are of any approved construction and preferably of upright cylindrical form and consisting of a masonry wall 1 incased in a metal shell 2, there being a combustion chamber 3 at the bottom of each generator, and the combustion chambers are in permanent communication through a duct 4 disposed between the lower ends of the generators, as shown in Fig. 1. The generators and duct 4 are provided with manholes covered by plates 5. The generators are mounted upon a suitable foundation 6 and surrounding the generators is a frame composed of uprights 7 and horizontal beams 8, and on the top of the frame is a platform 9 for the operator. Above the combustion chamber in each generator is a body of fire bricks B laid in any suitable manner to provide flue spaces for the passage of the gases, the said body of fire bricks serving as a regenerator, whereby the mixture of steam and oil will be gasified while traversing the flue spaces thereof. In the top of each generator is a mixing chamber 10 into which steam and oil is discharged through a plurality of radial injecting tubes 11. The tubes are connected with an oil feeding pipe 12 and a steam supply pipe 13 which extend around the outside of the generator and the supplies of steam and oil are controlled by the valves 15 and 14, it being preferable to have independent oil and steam supplying means for the generator so that the generators may be operated alternately for the successive runs of the apparatus. Rising from the generators are flues C and C' that are closed at their upper ends by swinging valves c and c', and these valves are independently opened by steam or other motors d and d' whose piston rods 16' are connected respectively with the flue valves by flexible elements 17 passing over pulleys 18 and fluid is supplied to the motors from any suitable source through the pipes 19 and 20. Leading into the combustion chambers 3 are steam and oil injecting devices D and D'

which are adapted to be operated independently, and also connected with the combustion chambers are the air supplying pipes *e* and *e'* that are controlled by the valves *E* and *E'*. The flues *C* and *C'* are connected respectively with air supply pipes *f* and *f'* that are controlled respectively by valves *F* and *F'*. These pipes are adapted to be connected with a suitable source of air under pressure, and a blower may be used effectively for this purpose. For indicating the pressure within the generators, a pressure gage *G* of any suitable character is employed which is connected with the duct 4 by a pipe 21 so that a single pressure gage will be employed for operating either generator.

Associated with the generators are washers *H* and *H'* of any approved design and connected respectively with the flues *C* and *C'* by the pipes *h* and *h'*. The washers overflow through the discharge spouts 22 into a seal pot *I* of any approved construction, and the carbon separated from the gas passes off with the overflow water from the washer. For the purpose of cleaning out the washers, each is provided with a valved drain pipe 23 as shown in Fig. 3. Connected with the tops of the washers are gas conducting pipes 24 that lead downwardly and connect respectively with the scrubbers *J* and *J'* adjacent the bottom of each. The scrubbers may be of any approved construction.

The washed gas is drawn off from the scrubbers by means of an injecting device designated generally by *K* which discharges the gas to any suitable reservoir. The device *K* consists of a steam pipe 24 having a cut-off valve 25 and leading into a nozzle piece 26, shown by dotted lines in Fig. 2, which nozzle piece is located within the pipe 27. The pipe 27 is connected by a cross connection 28 with the two scrubbers *J* and *J'*, and interposed between the scrubbers and the discharge pipe 27 are the controlling valves *L* and *L'*. Leading into the top of each scrubber is a water supply pipe 29 for delivering water into the gas as the same passes upwardly through the scrubber, and also leading into the top of each washer is a water supply pipe 30.

In practice, the blower for supplying the air is started into operation, after which the valves of either generator are opened, as for instance, the valves *E'* and *F'*, thereby supplying air directly into the combustion chamber of the generator *A'* and into the mixing chamber of the latter. The steam and liquid fuel supplying device *D'* is then put into service and the mixture ignited within the combustion chamber of the generator *A'*, after, however, the hinged valve *c* of the flue *C* has been opened by the motor *d*. The products of combustion, together with the air supplied downwardly through the regenerator of the generator *A'* and air supplied

directly to the combustion chamber, pass into the combustion chamber of the generator *A* thence through the fire bricks, so as to highly heat the same before passing off to the atmosphere through the flue *C*. After combustion has been maintained for a sufficient time to bring the fire bricks in the generator *A* to the proper temperature, the supply of steam and fuel for the device *D'* is cut off and the supply of the air from the blower cut down to such a point as to prevent the outflow of gas through the pipes *e'* and *f'*. The washers and scrubbers are supplied with water, and after the valve *L'* is opened and steam admitted to the injecting device *K*, the supplies of steam and oil to the mixing devices or injecting tubes 11 of the generator *A* are opened so that the mixture of oil and air will be drawn downwardly through the highly heated fire bricks so as to be gasified thereby and the gas then passes through the combustion chambers to the generator *A'* and upwardly through the latter, thence to the washer where the carbon is eliminated, and finally through the scrubber to the injecting or suction device *K*, it being understood that the valve *C* is closed prior to the discharge of oil and steam into the mixing chamber so as to prevent air from being drawn into the generator. By operating in this manner for thirty or forty minutes, the fire bricks in the generator *A* become so reduced in temperature as to stop the run and begin a new one by utilizing the generator *A'*.

For the second run, the blower is again brought up to normal speed and the valves *E* and *F* are opened, while the valves *E'* and *F'* are closed and a combustible mixture is supplied to the combustion chamber of the generator *A* by the device *D*, which mixture is ignited and heated gases produced thereby conducted upwardly through the fire bricks of the generator *A'* and discharged through the flue *C'* whose valve *c'* is opened. After the fire bricks have become thoroughly heated, the valve *c'* is closed and the pressure of the air supplied to the generator *A* sufficiently reduced for normal operation, and following this the mixture devices 11 of the generator *A'* are cut into service. In the meantime, the valve *L'* is closed and the valve *L* opened so that the suction produced by the device *K* will draw the gas downwardly through the heated fire bricks of the generator *A'*, upwardly through the generator *A* and successively through the washer and scrubber associated with the generator *A*, and finally to the point of exit through the suction device *K*. It will thus be seen that the generators are alternately brought into operation.

From the foregoing description, taken in connection with the accompanying drawings, the advantages of the construction and of the method of operation will be readily apparent

to those skilled in the art to which the invention appertains, and while I have described the principle of operation of the invention, together with the apparatus which I now consider to be the best embodiment thereof, I desire to have it understood that the apparatus shown is merely illustrative, and that such changes may be made when desired as are within the scope of the claims.

10 Having thus described the invention, what I claim is:—

1. In a gas generating apparatus, the combination of a plurality of generators each including separate combustion and mixing
15 chambers separated by a body of fire bricks, means for discharging fuel and steam into the mixing chamber, means for supplying air and fuel into the combustion chamber, a duct connecting the combustion chambers
20 together, a flue rising from the top of each generator, separately controlled means for supplying air to the flues, a gas conducting pipe leading from each flue, a valve on each flue for permitting the latter to discharge
25 into the atmosphere, a washer for each generator connected with the said gas-conducting pipe leading therefrom, a seal pot in open communication with the washers, a plurality of scrubbers, gas-conducting pipes connect-
30 ing the scrubbers and washers together, a

suction device including an injector for drawing off the gas from the scrubbers, a valved connection between the suction device and each scrubber for operating the latter independently, and means for supplying fluid to
35 the injector.

2. In a gas generating apparatus, the combination of a plurality of generators permanently connected at their lower ends, flues rising from the top of the generator, a
40 motor-actuated valve for each flue for permitting the same to discharge into the atmosphere, a valved conduit connected with each flue, a gas - conducting pipe leading from each flue, a washer for each generator and
45 connected with the gas conducting pipe leading therefrom, means for supplying water to each washer, a plurality of scrubbers, a pipe connecting the top of each washer with the bottom of the adjacent scrubber, a suction
50 device, a pipe connecting each scrubber with the suction device, a valve in the pipe between each scrubber and suction device, and a seal pot connected with the washers.

In testimony whereof I affix my signature
55 in presence of two witnesses.

ADELARD D. BRASSON.

Witnesses:

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