

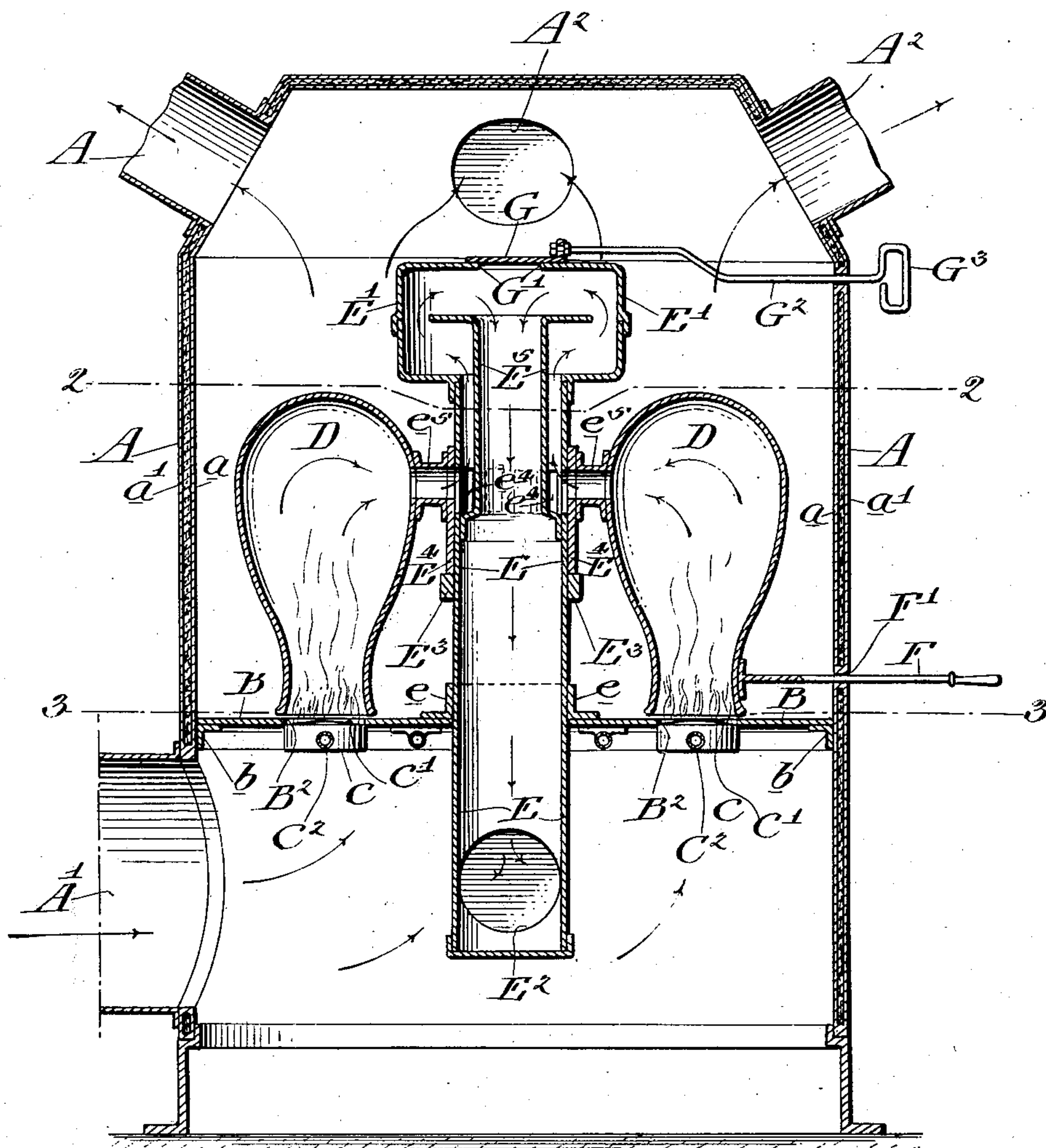
J. C. GOODWIN.
GAS HEATER.

APPLICATION FILED MAY 8, 1903.

NO MODEL

2 SHEETS—SHEET 1.

FIG. 1.



WITNESSES:

Harvard
Eugene W. Cogges

INVENTOR.

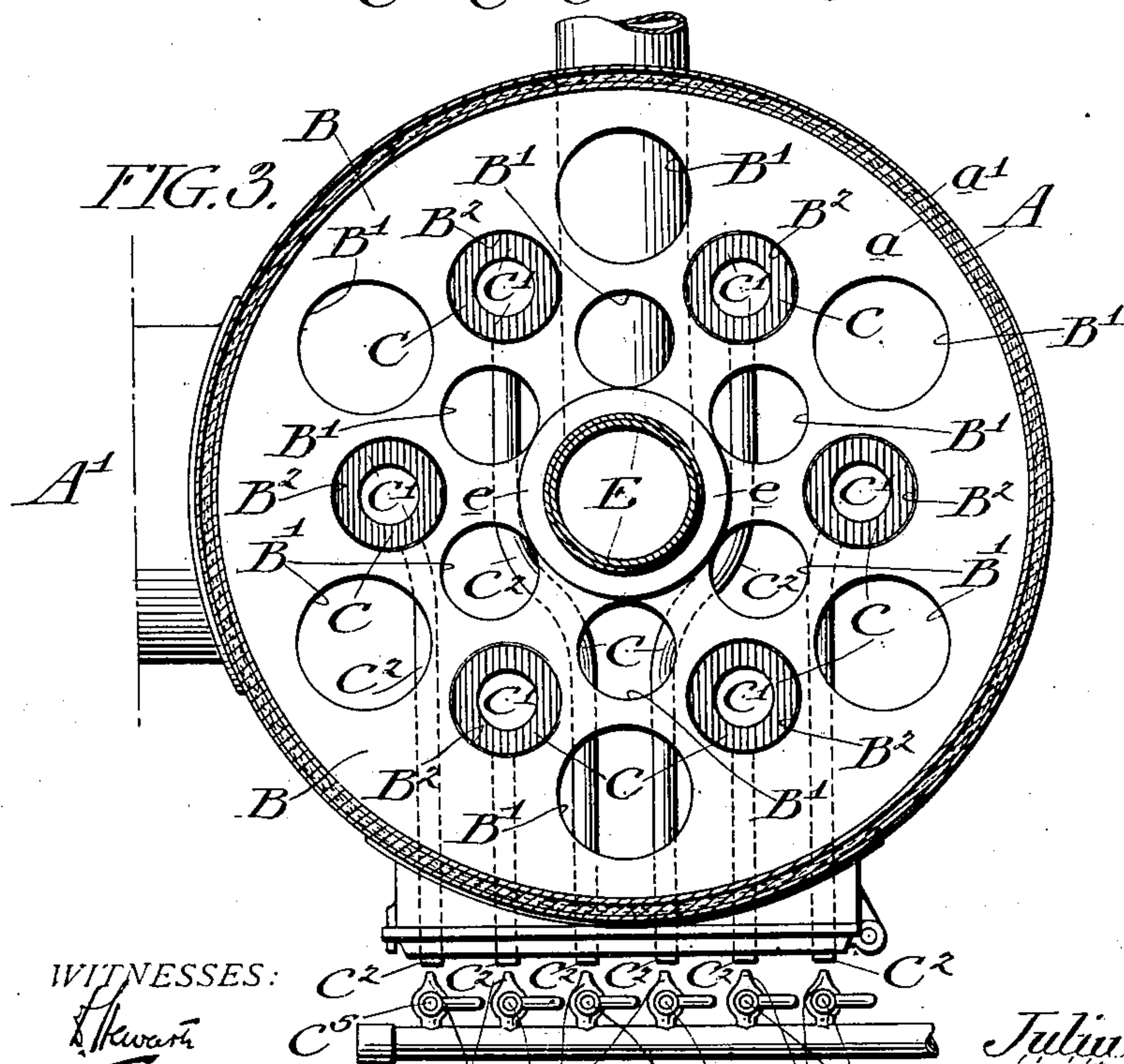
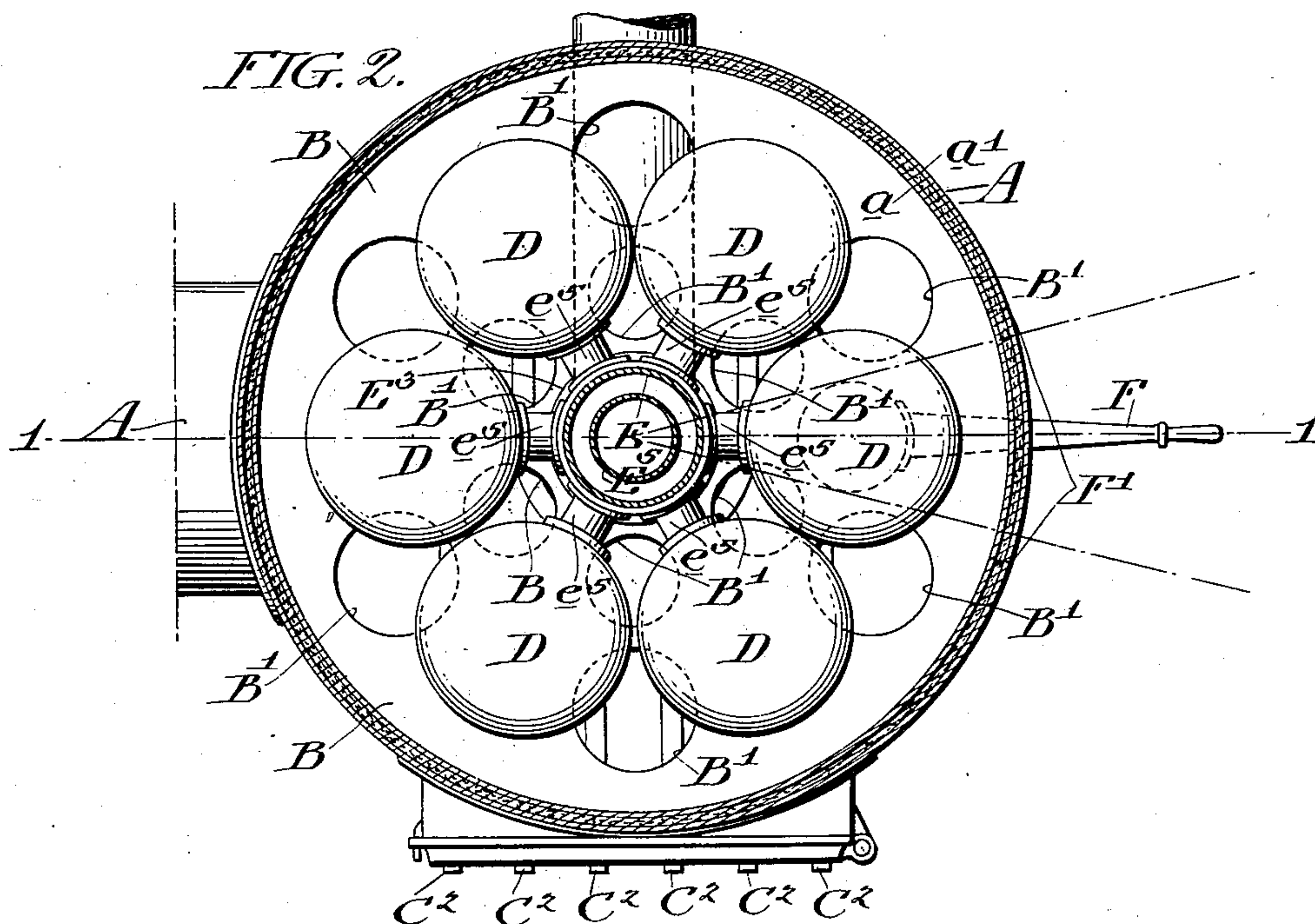
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2 SHEETS—SHEET 2.



WITNESSES:

H. K. K. K.
Eugene W. Coggey.

INVENTOR.

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UNITED STATES PATENT OFFICE.

JULIUS C. GOODWIN, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR OF ONE-HALF TO MARCUS H. DARROW AND FREDERICK CHASE, OF PHILADELPHIA, PENNSYLVANIA.

GAS-HEATER.

SPECIFICATION forming part of Letters Patent No. 735,752, dated August 11, 1903.

Application filed May 8, 1903. Serial No. 156,143. (No model.)

To all whom it may concern:

Be it known that I, JULIUS C. GOODWIN, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Gas-Heaters, of which the following is a specification.

My invention relates to improvements in gas-heaters of the type shown and described in my prior application, filed July 16, 1902, Serial No. 115,779, allowed March 31, 1903.

My present invention, while embodying the same general construction and arrangement as that shown in the application above referred to, also embodies numerous details of construction whereby the radiating-hoods may be moved to and from the burners by a less complicated arrangement and by which a greater amount of heating-surface may be obtained to heat the air as it passes through the casing.

The nature of my invention will be more fully understood by reference to the accompanying drawings, forming part of this specification, and in which—

Figure 1 represents a vertical section taken through the center of the heater on a line 1 1 of Fig. 2. Fig. 2 is a horizontal section taken on the line 2 2 of Fig. 1, and Fig. 3 is a similar section taken on the line 3 3 of Fig. 1.

Referring now to the reference-letters of the drawings, A represents a cylindrical casing, which is preferably made in the form of two shells *a* and *a'*, between the walls of which is a layer of asbestos, mineral wool, or other non-conducting material for the purpose of retaining a large amount of heat within the inclosure.

The casing A is provided with a table B, located about midway between the top and bottom of the casing and supported upon a ring of angle-iron *b*. This table is provided with a series of holes or apertures *B'*, through which the air may freely circulate in passing from a pipe or connection *A'*, located in the lower part thereof, to the discharge pipes or connections *A''*, which are arranged at the top of the casing. In addition to the openings *B'* the table B is also provided with a number of openings *B''*, below which are arranged a series of gas-burners C. Each of

these burners is provided in the ordinary manner with a circular burner-head *C'* and a mixing-tube *C''*, which is supplied with the requisite amount of gas delivered by a supply-pipe *C'''* through a nozzle *C''''*, provided with a regulating cock or valve *C'''''*, the end of the mixing-tube *C''* adjacent to the nozzle *C''''* being open, so that as the jet is projected into the tube a quantity of air will be induced and, mixing with the gas, will be consumed at the burner-head *C'* with an intensely-hot flame free from smoke or odor.

Each of the burners C is provided with a radiator in the form of a hood D, the hoods being arranged in a circular series about a central pipe E, which pipe projects through the table B and is secured thereto by a flange *e*. The pipe E is provided at the top with a dome *E'* and at the bottom with a discharge connection *E''*, which passes through the casing to any suitable point of exit. The pipe E is provided with a collar *E'''*, above which is mounted a sleeve *E''''*, encircling a series of apertures *e''''*, and projecting out from the sleeve is a series of small connections *e'''''*, which unite the hood to the sleeve and form communications for the escape of the products of combustion from the hoods into the pipe E. The pipe E is provided at the top with an inner casing *E''''''*, which acts as a baffle and causes the products of combustion to pass upward through the dome *E'* before they descend and pass out through the connection *E''*.

In order to facilitate the lighting of the burners, I provide one of the radiators D with a lever F, which passes through a slot *F'* in the side of the casing and which by being moved laterally will cause all of the radiators to turn with the sleeve *E''''* and in so doing expose the burner-head *C'* for the purpose of lighting the same or examining them from time to time as necessity may require. In most cases it is preferable to separate the products of combustion from the air passing through and being heated in the casing A. Sometimes, however, where rooms are properly ventilated and where it is desired to utilize the hot gases in conjunction with the heated air passing from the casing, I provide the dome *E'* with a damper G, which normally closes an opening *G'*, but which may be withdrawn for the purpose of

allowing the hot gases within the dome to intermingle with the heated air by withdrawing the damper through the medium of a lever G^2 , which passes through the casing and may be manipulated by a handle G^3 .

The operation of my device is as follows: To light the burners, the lever F is turned, moving the radiators D to one side, and after they are again moved back into their normal position the products of combustion will pass through the same, heating them to a high temperature, and will continue through the connections e^5 to the dome E' and thence downward through the pipe E to the discharge connection E^2 , all the parts traversed by the products of combustion being highly heated. The air which it is desired to convey to compartments to be heated is admitted through the opening A' and passing through the openings in the table B will be heated by contact with the radiators D , the dome E' and other connecting parts, and will be carried off to any points desired through the pipes A^2 .

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

1. In a gas-heater comprising in combination, a plurality of gas-burners, radiating-hoods arranged above the same, and connected to a central discharge-pipe, and means for moving the radiating-hoods to and from the burners, substantially as described.

2. A gas-heater comprising a circular series of burners, a circular series of radiating-hoods mounted above the same, connected to and discharging into a central discharge-pipe, and means for rotating the radiating-hoods to cause them to move to and from the burners, substantially as specified.

3. A gas-heater comprising a hollow support, a sleeve surrounding the same, a series of radiating-hoods connected to said sleeve and in open communication with the hollow support, a series of gas-burners adapted to engage the open ends of the radiators, and means to cause the radiators to move from and to the burners, substantially as specified.

4. A gas-heater comprising a hollow support constituting a chimney, a radiator mounted above the same, a discharge-pipe, leading from the lower end of the support, a series of radiators sleeved about said support, and in open communication therewith, burners adapted to engage the lower open ends of the radiators, and means to cause the radiators to move from and to the burners, substantially as specified.

5. A gas-heater comprising in combination a casing provided at the bottom with an air-supply pipe and at the top with one or more discharge-pipes, a table supported within the casing, being provided with a series of gas-burners, a central pipe supported upon the table provided at the top with a radiating-dome and at the bottom with a discharge connection, a series of radiators connected to a sleeve mounted upon said central pipe and

communicating by branches therewith, said radiators being adapted to surmount said burners, and means to cause the radiators to turn upon said central pipe and to move to and from the burners, substantially as specified.

6. The combination in a gas-heater, of a casing provided with inlet and discharge connections, a table supported within said casing, a circular series of burners supported below the table, a central pipe projecting through the table, provided at the top with a radiating-dome, and at the bottom with a discharge connection, a series of radiators arranged above said burners, connected by branches to a sleeve surrounding said central pipe, and in open connection therewith, and means to cause said radiators to turn upon said central pipe, and to move to and from the burners, substantially as described.

7. A gas-heater comprising in combination a casing provided at the bottom with an opening for the ingress of air, and at the top with one or more discharge connections, a table supported within said casing about midway between the top and bottom thereof, and provided with openings or passages, a series of gas-burners arranged below the table, and adapted to other openings therein, a central pipe supported upon said table, provided at the top with a radiating-dome, and at its lower depending portions with a discharge connection, a collar, mounted upon said central pipe, a sleeve slidable upon said collar and surrounding said pipe, a series of radiators encircling the central pipe, and connected to the sleeve by branches, and a lever to operate said radiators, and to cause them to move to and from the burners over which they are normally located, substantially as specified.

8. A gas-heater comprising in combination, a casing provided at the bottom with an air-inlet passage and at the top with a discharge-passage, a table supported within said casing, provided with openings or passages through which the air may freely pass from the lower to the upper portions, of the casing, a series of gas-burners mounted upon said table, a series of radiators arranged to normally surmount said burners, a central pipe supported by said table, being provided at the top with a radiating-dome, and at the bottom with a discharge connection, a damper arranged at the top of said dome, a sleeve surrounding said central pipe, and in open connection therewith through branches which unite the sleeve to the radiators, a collar fastened to the central pipe and supporting and forming a bearing for said sleeve, and a lever for turning the radiators to cause them to move to and from the burners, substantially as specified.

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

JULIUS C. GOODWIN.

Witnesses:

ARNOLD KATZ,
DAVID S. WILLIAMS.