

No. 730,532.

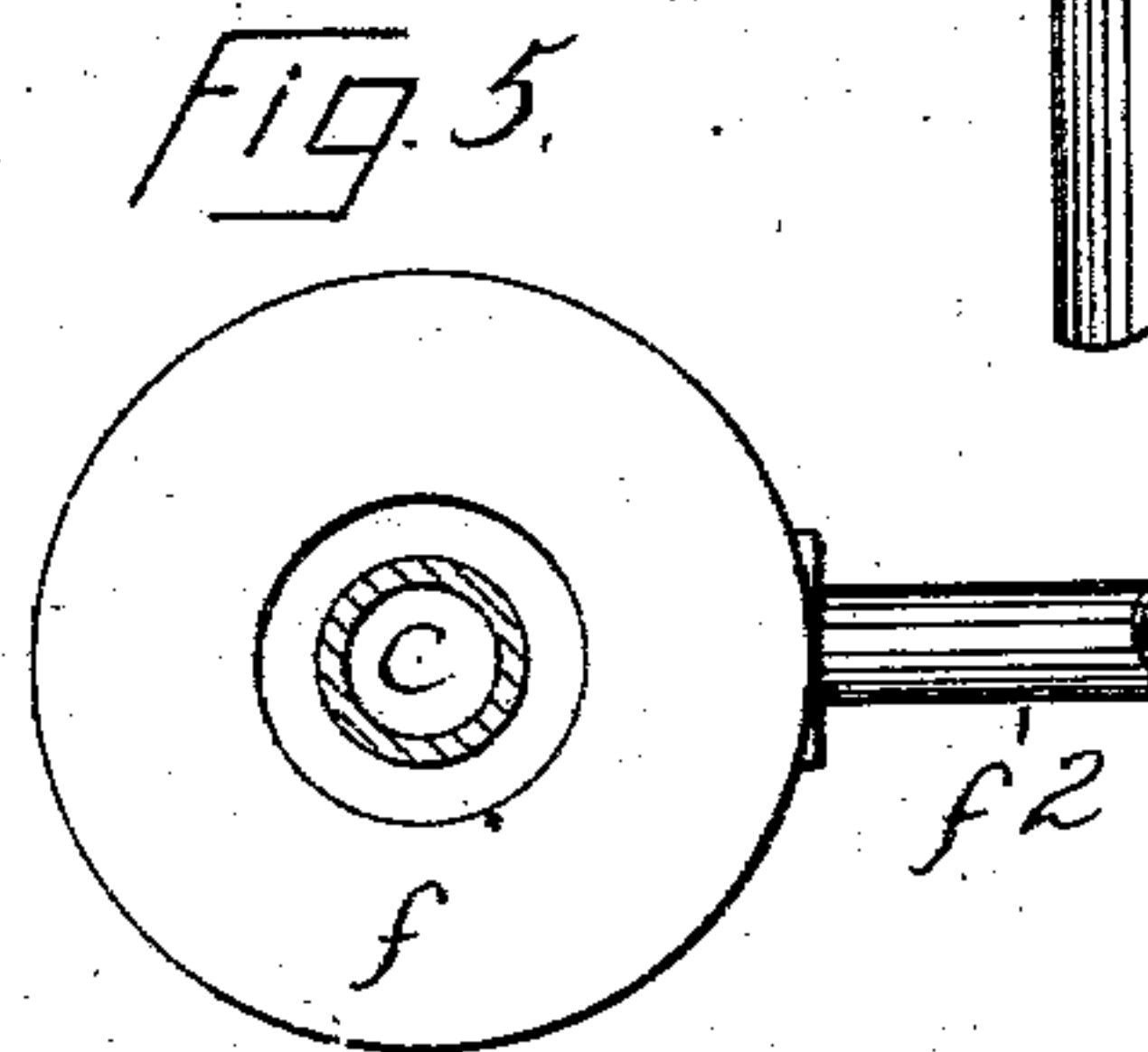
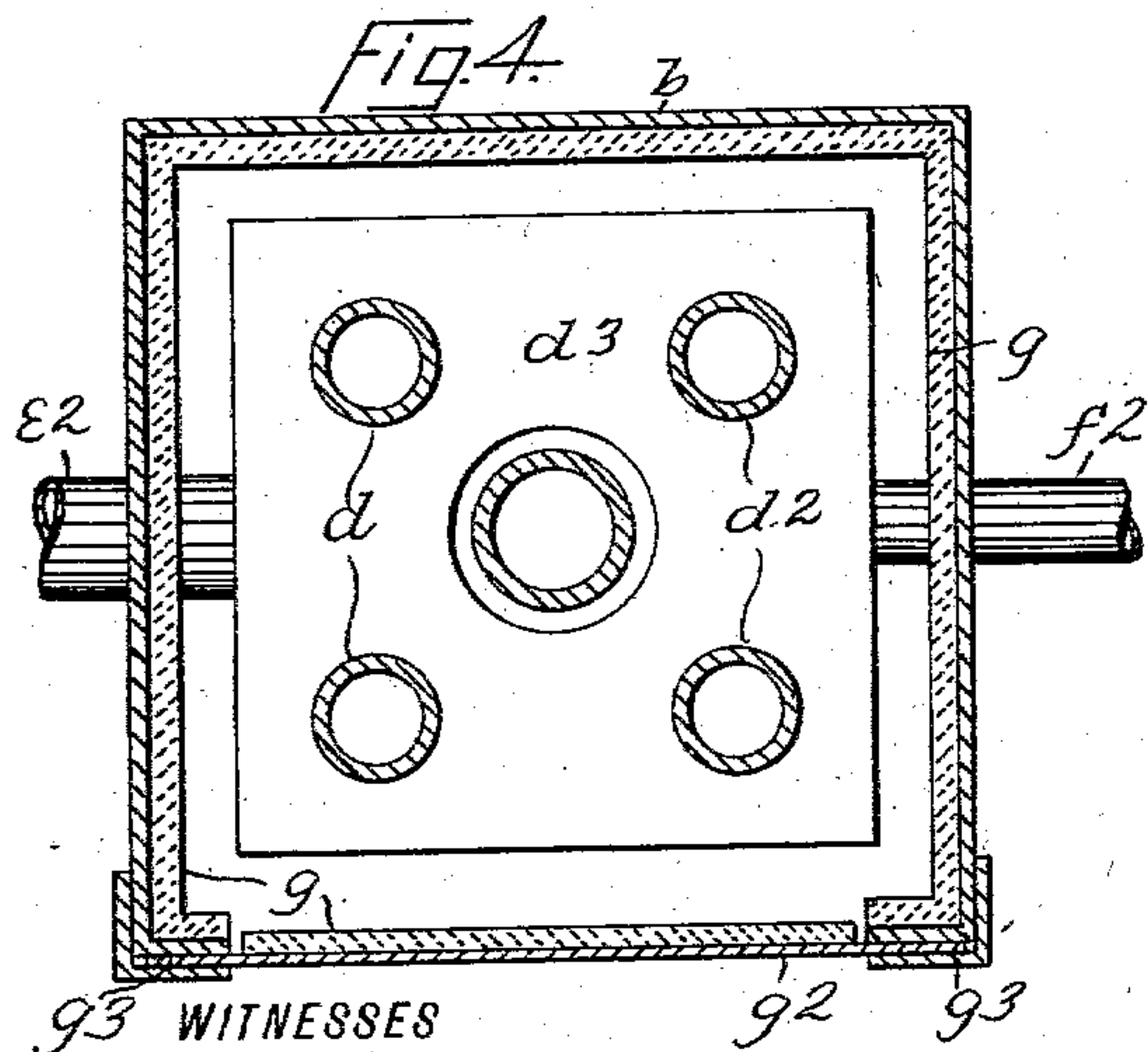
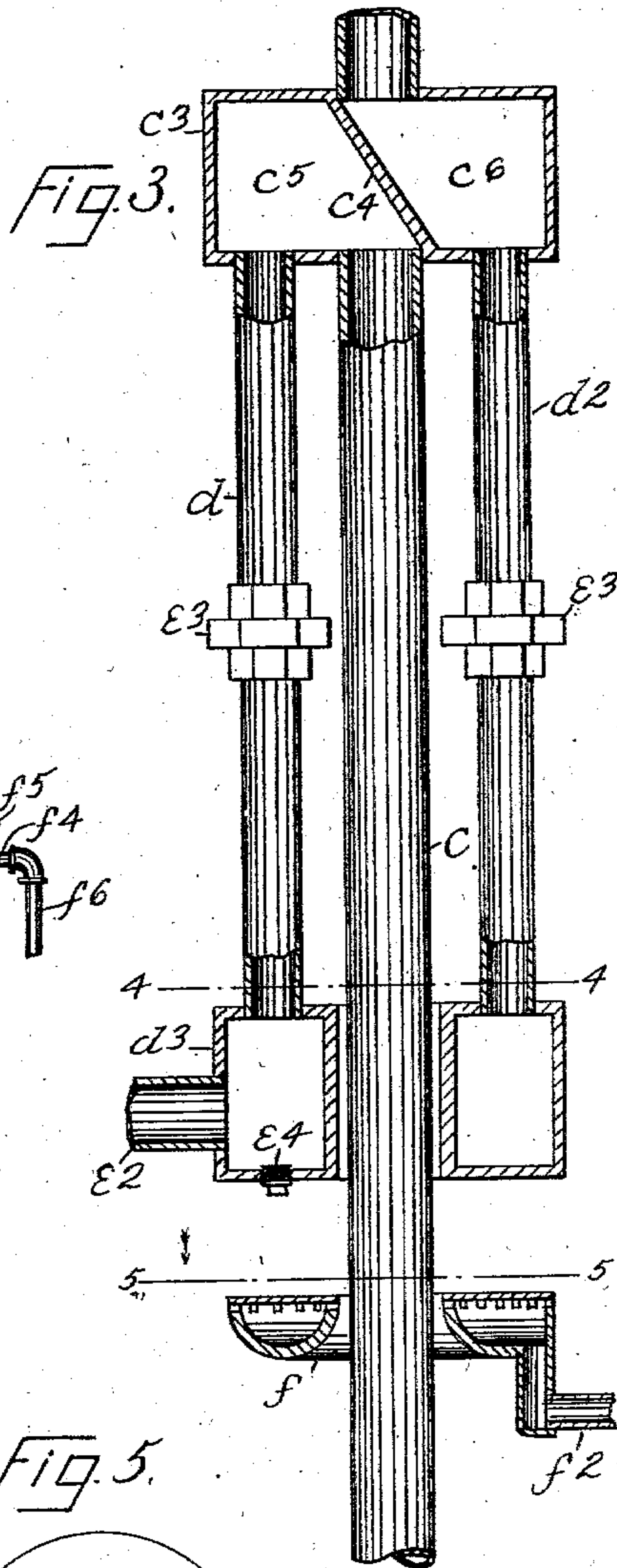
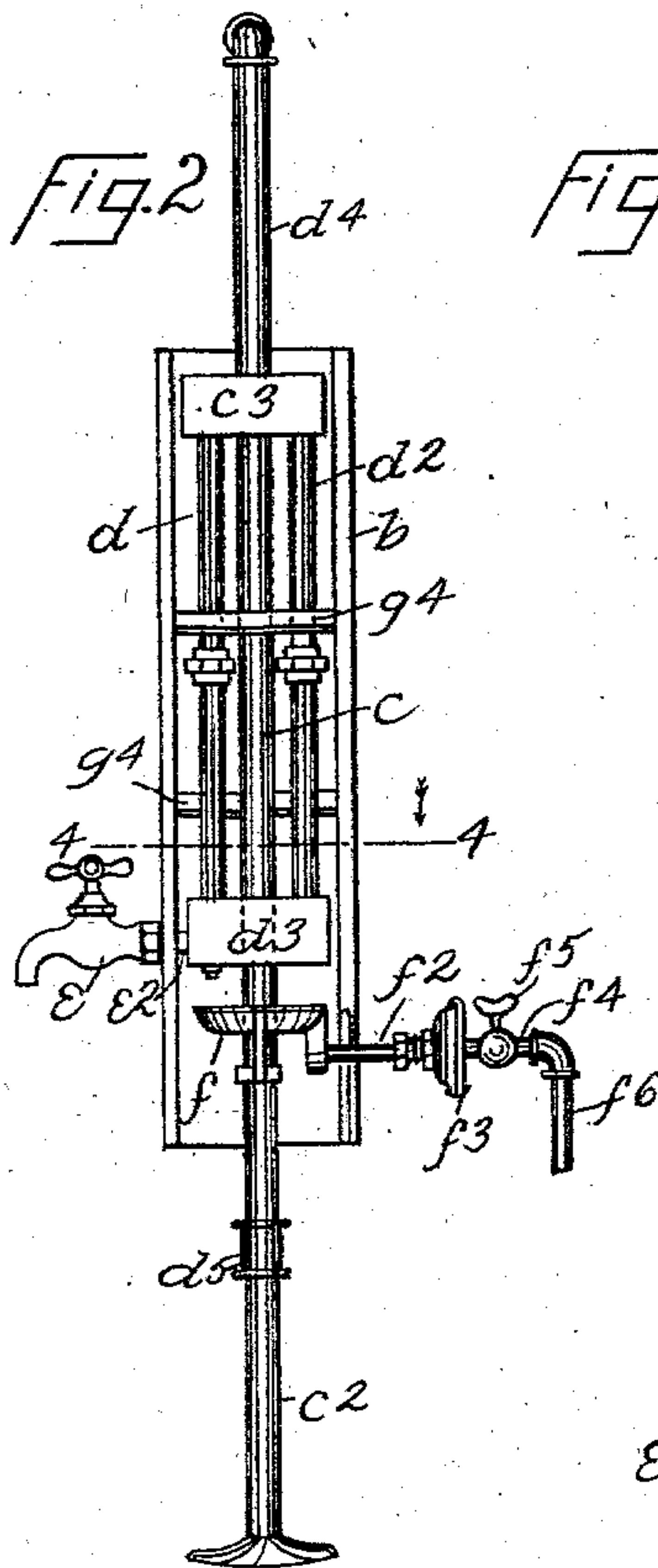
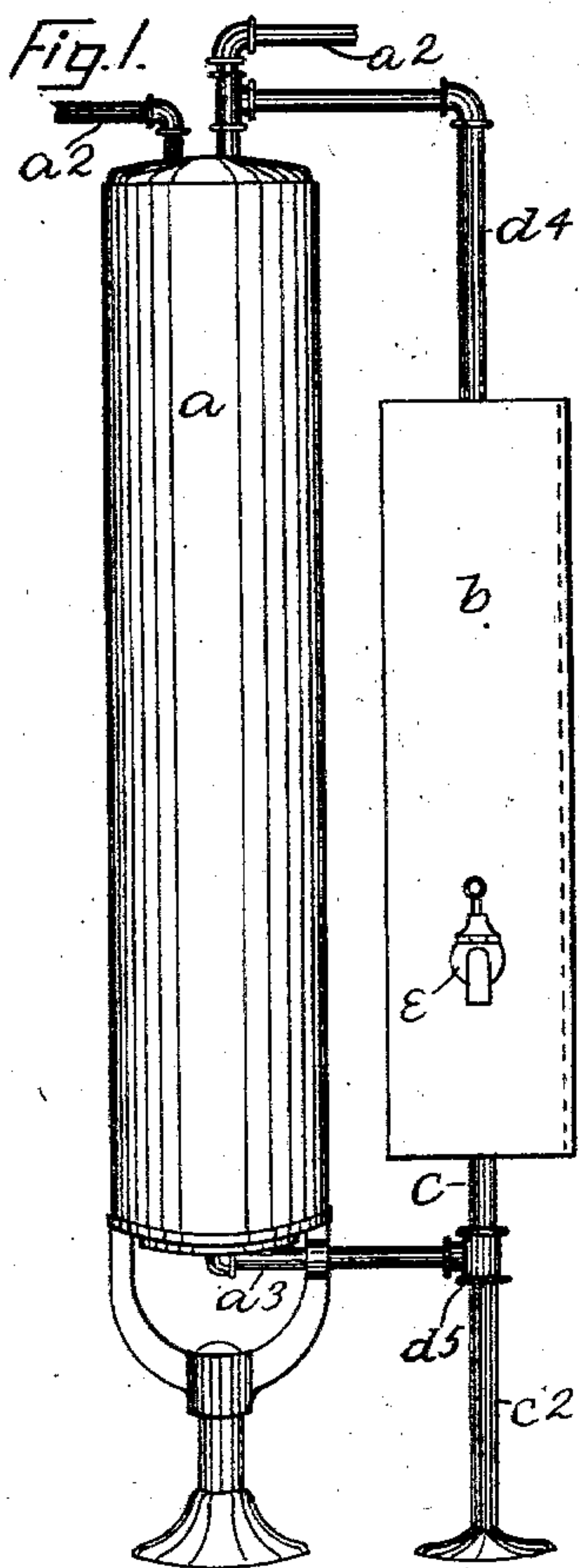
PATENTED JUNE 9, 1903.

J. F. HALEY & H. F. DREYER.

WATER HEATER.

APPLICATION FILED APR. 16, 1902.

NO MODEL.



WITNESSES
J. C. Larsen.
F. A. Stewart

INVENTORS
James F. Haley
Hermann F. Dreyer.
BY
Edgar Tate
ATTORNEYS

UNITED STATES PATENT OFFICE.

JAMES F. HALEY AND HERMANN F. DREYER, OF BROOKLYN, NEW YORK.

WATER-HEATER.

SPECIFICATION forming part of Letters Patent No. 730,532, dated June 9, 1903.

Application filed April 16, 1902. Serial No. 103,117. (No model.)

To all whom it may concern:

Be it known that we, JAMES F. HALEY and HERMANN F. DREYER, citizens of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Water-Heaters, of which the following is a full and complete specification, such as will enable those skilled in the art to which it appertains to make and use the same.

The object of this invention is to provide an improved water-heater for use in connection with the pipes of a water-circulating system in dwelling-houses, apartment-houses, or other buildings of any kind or class, a further object being to provide an improved water-heater which may be used in connection with an ordinary boiler, such as is now employed in connection with a range, stove, or other heater, said boiler being in connection with said range, stove, or other heater in the usual manner or which may be used independently of any such connection; and with this and other objects in view the invention consists in a heater of the class specified constructed as hereinafter described and claimed.

The invention is fully disclosed in the following specification, of which the accompanying drawings form a part, in which the separate parts of our improvement are designated by the same reference characters in each of the views, and in which—

Figure 1 is a side elevation of an ordinary water-boiler and showing our improved water-heater in connection therewith, the boiler being such as is now usually employed in connection with a range, stove, or other heater; Fig. 2, a front elevation of the heater detached and showing the front of the casing of the heater removed; Fig. 3, a sectional elevation of the heater removed from the casing and on an enlarged scale; Fig. 4, a section on the line 4 4 of Fig. 2 and on an enlarged scale, and Fig. 5 a section on the line 5 5 of Fig. 3.

In the drawings forming part of this specification, reference being made to Fig. 1, we have shown at *a* an ordinary water-boiler, such as is now employed in connection with an ordinary stove or other form of heater, and this boiler is provided at the upper end thereof with circulating-pipes *a*² and at the

bottom with a supply-pipe *a*³, and in the practice of our invention we provide a heater of the class and for the purpose specified which in its preferred form comprises a casing *b*, which, as shown in the drawings, is oblong and rectangular in cross-section, and this casing is open at both its top and bottom ends, and passing upwardly thereinto is a water-supply pipe *c*, which is supported by a base member *c*² and the upper end of which is connected with a water-box *c*³, which is preferably provided with a partition *c*⁴, whereby two separate compartments *c*⁵ and *c*⁶ are formed.

One side of the box *c*³ is provided at the bottom thereof with two depending pipes *d*, which in the form of construction shown communicate with the compartment *c*⁵, and the other side of said box is provided at the bottom thereof with two pipes *d*², which in the form of construction shown communicate with the compartment *c*⁶, and the lower ends of all of these pipes are connected with a second water-box *d*³, through which the water-supply pipe *c* passes, and in the form of construction shown the water-supply pipe *c* is in communication with the compartment *c*⁵ in the upper or top water-box *c*³, which is also provided with a circulating-pipe *d*⁴, which in the form of construction shown communicates with the compartment *c*⁶, and said pipe *d*⁴ is also connected with one of the circulating-pipes of the boiler *a*, and the lower end or portion of the water-supply pipe *c* is connected with and in communication with the water-pipe *a*³ at the bottom of said boiler by means of a coupling *d*⁵.

The bottom water-box *d*³ is also preferably provided with a faucet *e*, which is connected therewith by means of a pipe *e*², which passes through one side of the casing *b*.

The pipes *d* and *d*², which connect the top and bottom water-boxes *c*³ and *d*³, are composed of separate sections connected by couplings *e*³, and by means of these couplings the separate sections of the pipes *d* and *d*² may be disconnected and the water-boxes *c*³ and *d*³ may also be disconnected whenever desired, and the pipes *d* and *d*² may be connected with said boxes in any desired manner. The bottom water-box *d*³ is also provided in the bottom thereof with a discharge-opening, which is closed by a screw plug or tube *e*⁴ and

through which the said box may be cleaned whenever necessary.

We also provide an annular gas-burner *f*, which is mounted on the water-supply pipe *c* 5 below the bottom water-box *c*³, and this burner may be of any desired construction and may be connected with said pipe in any desired manner and is provided in one side with a gas-supply pipe *f*², which passes through a 10 slot in one side of the bottom of the casing *b*, and said pipe is also provided with a suitable coupling *f*³, having a pipe *f*⁴, provided with a valve *f*⁵, and with which a flexible or other tube *f*⁶ may be connected for the purpose of 15 supplying gas to the burner *f*.

The casing *b* is provided, as shown in Fig. 4, with an asbestos lining *g*, and said casing is also provided with a removable front or side plate *g*², the edges of which are adapted to enter keepers *g*³ at the opposite sides of said 20 casing, and said plate *g*² may be slipped into position whenever desired or removed therefrom either at the upper or lower end of said casing, and this removable front or side plate 25 *g*² is also provided with the asbestos lining *g*.

The casing *b* may be connected with the heater proper by means of transverse plates or fastening devices *g*⁴, connected with the pipes *d* and *d*², or said casing may be con- 30 nected with the heater proper or the separate parts thereof in any desired manner.

It will be observed that the burner *f* is directly beneath the bottom water-box, and the heat from the burner or the hot gases of com- 35 bustion are free to circulate entirely around and upwardly through the bottom box *d*³ and around the pipe *c* and around the pipes *d* and *d*² and around the top box *c*³, and by means thereof great heat may be generated in said 40 box, and the circulation of the water in the form of construction shown is upwardly into the pipe *c*, into one side of the box *c*³, and downwardly through the pipes *d* into the bottom box and upwardly through the pipes *d*² 45 into the other side of the box *c*³ and from said box through the pipe *d*⁴.

It will be apparent that this heater might be put in an ordinary water-circulating system without the use of or connection with the 50 boiler *a*, and our invention is not limited to any particular use or application of our improved heater.

When our improved heater is used independently of the boiler *a*, as when said heater 55 is placed in an ordinary circulating system or is used in connection with any water-circulating system, the faucet *e* is of particular value, as by means thereof water may be withdrawn for kitchen use and for various other 60 purposes, and our invention is not limited to exact location of this faucet as herein shown and described, and this faucet when placed in the position shown will also serve as means for discharging any sediment that may collect 65 in the bottom water-box.

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

1. A water-heater comprising two boxes one of which is arranged vertically over the other, the top box being also provided with an upright partition forming two separate compartments therein, a water-supply pipe passing upwardly through the bottom box and communicating with one of the compart- 75 ments in the top box, water-circulating pipes forming a communication between the bottom box and the separate compartments of the top box, and a circulating-pipe communicating with one of the compartments of the 80 top box, substantially as shown and described.

2. A water-heater comprising two boxes one of which is arranged vertically over the other, the top box being also provided with an upright partition forming two separate 85 compartments therein, a water-supply pipe passing upwardly through the bottom box and communicating with one of the compartments in the top box, water-circulating pipes forming a communication between the bot- 90 tom box and the separate compartments of the top box, and a circulating-pipe communicating with one of the compartments of the top box, said water-circulating pipes being composed of separate detachable parts, sub- 95 stantially as shown and described.

3. A water-heater comprising two water-boxes one of which is arranged vertically over the other and provided with an upright partition forming two separate compartments, 100 a water-supply pipe passing upwardly through the bottom box and of less diameter than the opening in the bottom box through which it passes, and water-circulating pipes forming a communication between the bottom box and 105 the separate compartments of the top box, substantially as shown and described.

4. A water-heater comprising two water-boxes one of which is arranged vertically over the other and provided with an upright 110 partition forming two separate compartments, a water-supply pipe passing upwardly through the bottom box and of less diameter than the opening in the bottom box through which it passes, and water-circulating pipes forming a 115 communication between the bottom box and the separate compartments of the top box, said water-circulating pipes being composed of separate detachable parts, substantially 120 as shown and described.

In testimony that we claim the foregoing as our invention we have signed our names, in presence of the subscribing witnesses, this 14th day of April, 1902.

JAMES F. HALEY.
HERMANN F. DREYER.

Witnesses:

F. A. STEWART,
C. E. MULREANY.