(No Model.) 2 Sheets—Sheet 1.

J. J. SEIDSCHEC.

REVOLVING GAS FIXTURE.

No. 354,252. Patented Dec. 14, 1886.

Fig. 1.

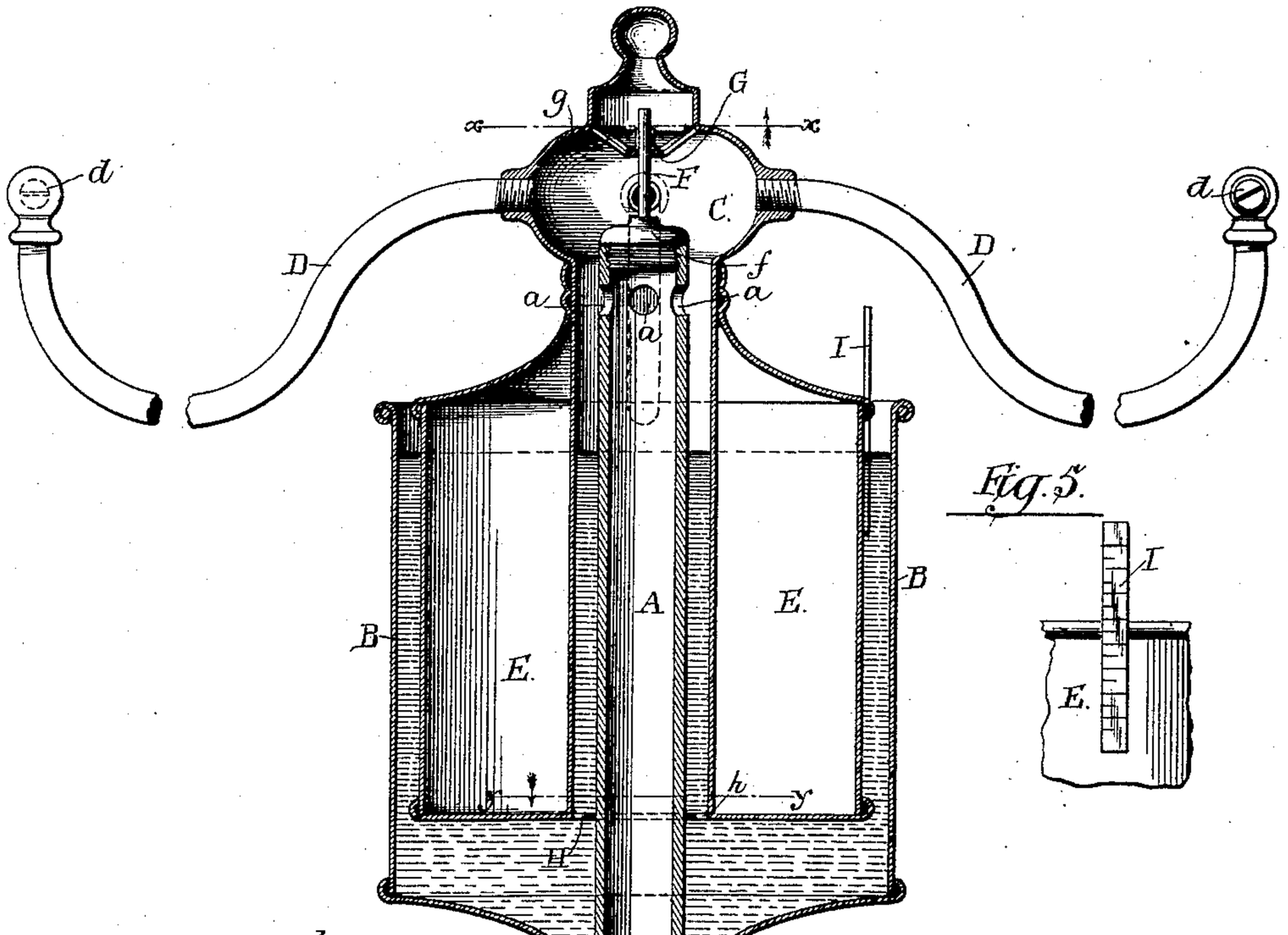


Fig. 5.

Fig. 2.

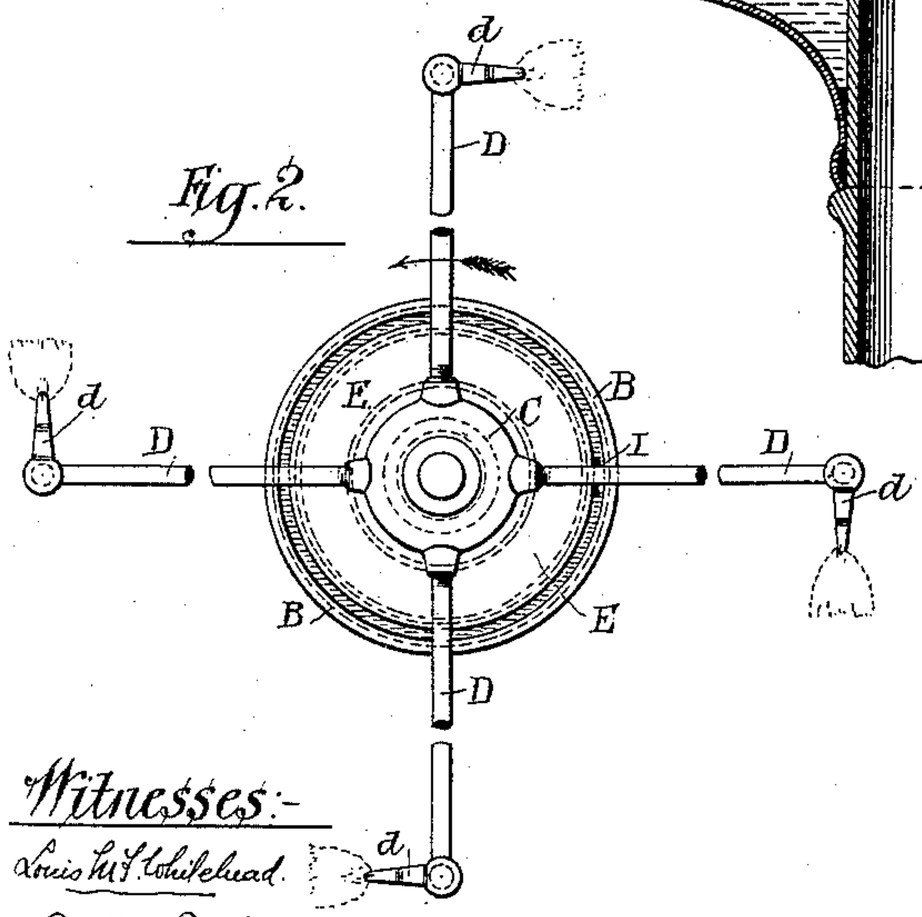


Fig. 3.

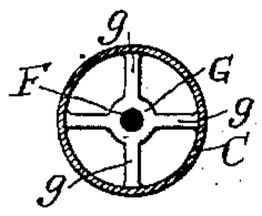
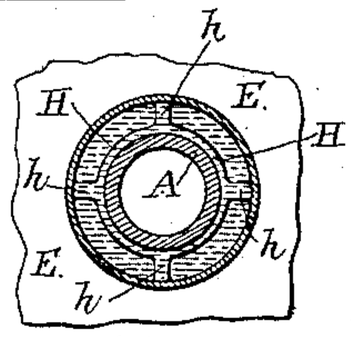


Fig. 4.



Witnesses:-

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(No Model.) 2 Sheets—Sheet 2.

J. J. SEIDSCHEC.

REVOLVING GAS FIXTURE.

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Fig. 6.

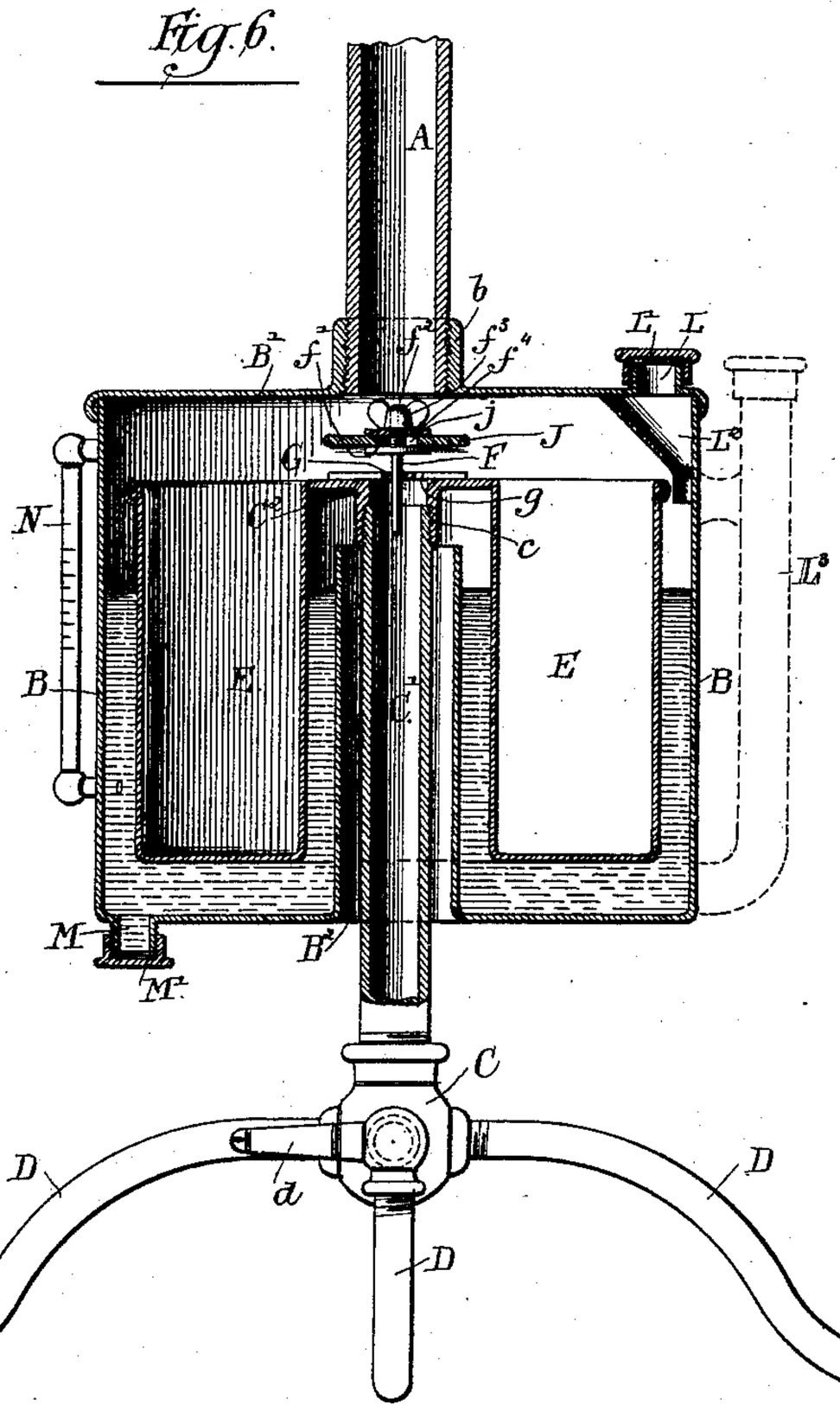


Fig. 7.

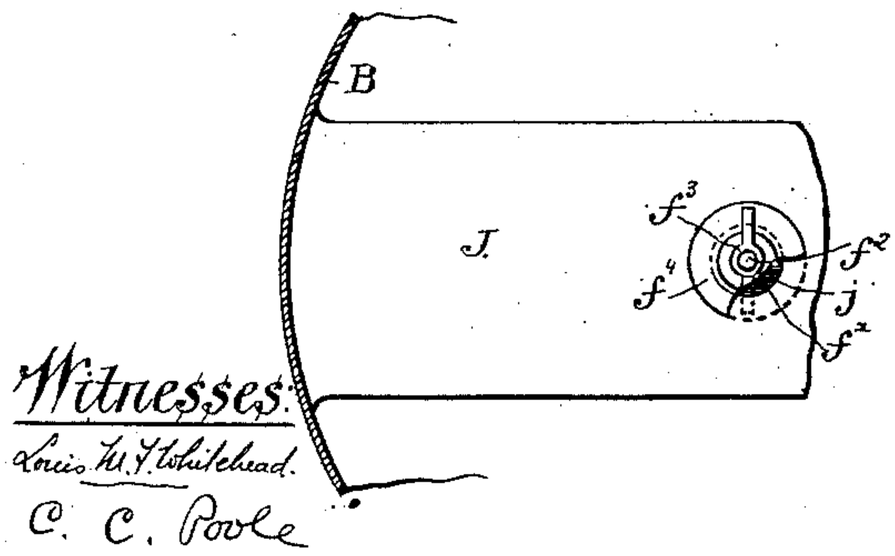
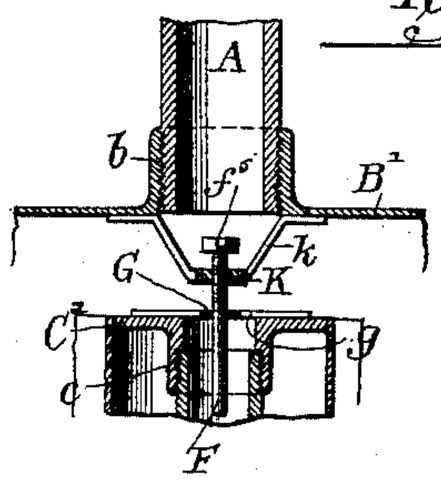


Fig. 8.



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UNITED STATES PATENT OFFICE.

JOSEPH J. SEIDSCHEC, OF CHICAGO, ILLINOIS.

REVOLVING GAS-FIXTURE.

SPECIFICATION forming part of Letters Patent No. 354,252, dated December 14, 1886.

Application filed February 4, 1886. Serial No. 190,781. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH J. SEIDSCHEC, of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Revolving Gas-Fixtures; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to that class of revolving gas-fixtures which comprise a series of revolving arms, each provided at or near its end with a lateral orifice or burner so arranged that the exit of gas therefrom will produce by reaction a rotary movement of the arms, and in which the said arms are connected with the supply-pipe by means comprising a water or liquid seal, whereby the arms may be easily rotated, while at the same time a gas-tight joint is produced. In a device of this character, as heretofore usually constructed, the burner-arms and a central part or casing supporting them have been sustained with relation to the supply-pipe by a central needle-point or conical pivot attached to said supply-pipe, a gas-tight joint being formed between the lower part of the said casing and the supply-pipe by means of a liquid-seal formed by a suitable annular liquid-tank and an annular depending flange extending into said tank, in a well-known manner.

A construction such as above described is found objectionable for the reason, among others, that a bearing for supporting the movable parts which will run with a sufficiently small amount of friction is expensive to make, and is liable soon to wear out, and the conical bearing-point of said bearing also being necessarily made fine and delicate in order to give the required ease of motion, said point is very liable to become broken off and the apparatus thereby rendered useless by any slight jar given to the burner by striking it or otherwise.

The object of this invention is to provide a construction whereby the objections above mentioned to revolving burners, as heretofore constructed, may be obviated; and to this end I connect the movable part of the fixture with and support it by an air chamber or float which is located within a suitably-arranged vessel or tank containing liquid, so that said float forms the liquid seal, and at the same time sustains the weight of the moving parts of the apparatus. The said moving parts of the apparatus are preferably held so as to revolve upon a vertical axis by means of one or more narrow annular bearing surfaces or rings attached within the said revolving parts and engaged with stationary cylindric parts or bearing-pins suitably located within the apparatus.

In the operation of the device, when constructed as described, the only frictional resistance to the movement of the parts caused by the metal parts in contact will be that due to the said bearings for causing the revolution of the said moving parts about a vertical axis, and any tendency to displacement of the said moving parts sidewise or laterally being occasional and accidental, the friction of the parts when the device is running will obviously be reduced to a minimum. In this construction, furthermore, there being no fine or delicate bearing points, an accidental blow or stroke tending to displace the moving parts of the burner will have no injurious effect, unless of sufficient force to break or rupture one of the main parts of the apparatus. It will be further noted that in the construction in which the moving parts are sustained by an annular float, as proposed by me, the float will always be immersed to the same depth in the water or other liquid forming the seal, so that the depth of the seal, or, in other words, the amount of pressure required to allow the passage of gas through the seal, will always be the same whenever there is sufficient liquid in the vessel or tank of the device to sustain the float; and inasmuch as the motion of the arms will stop as soon as the quantity of liquid in the tank is less than will sustain the float free from the bottom of the tank, the liquid seal will always be the same when the device is running, and in case of a lessening of the quantity of liquid in the tank by evaporation or otherwise notice will

be given by the stoppage of the arms before the quantity of liquid is reduced sufficiently to allow the escape of any gas.

The invention may be more readily understood by reference to the accompanying drawings, in which—

Figure 1 is a central sectional view of one form of gas burner or fixture constructed in accordance with my invention. Fig. 2 is a plan view of the same. Fig. 3 is a detail sectional plan view of one of the annular bearings for holding the moving parts from lateral displacement, taken upon line *x x* of Fig. 1. Fig. 4 is a similar detail view taken upon line *y y* of Fig. 1. Fig. 5 is a detail view of a part of the float shown in Fig. 1, illustrating an index or scale for showing the amount of liquid in the tank as applied to said float. Fig. 6 is another form of the gas burner or fixture adapted for suspension from the top of a room or ceiling. Fig. 7 is a detail sectional plan view taken upon line *x x* of Fig. 6. Fig. 8 is a detail view illustrating a modified form of support for the bearing-pin shown in Fig. 6.

In the form of the device illustrated in Figs. 1, 2, 3, 4, and 5 of said drawings, A indicates a vertical gas-supply tube, which may be rigidly sustained in a vertical position by attachment to a suitable stand or base, or to the fixed gas-supply pipe of a room or store-window, or otherwise, and which is provided near its upper end with apertures *a* for the exit of gas therefrom. B is a cylindric tank or vessel surrounding the pipe A and open at its top, and connected with and supported from the said pipe at its bottom. C is a vessel or chamber surrounding the upper end of the pipe A, and which is provided with a series of radial arms, D, through which gas escapes from the said vessel to the burners *d;* and E is an annular float which is located within the vessel B around the tube A, and is connected at its upper end with the chamber C, the said float being constructed to sustain the said vessel and arms, and to form a seal to prevent the escape of gas passing from the openings *a*, except through the arms D. The burners *d* are attached to the ends of the arms D in such manner as to extend laterally therefrom, whereby the gas issuing from the burners operates to cause, by reaction, the revolution of the said arms and the parts to which the latter are attached in the direction indicated by the arrow in Fig. 2.

In the particular construction of the apparatus shown in said Figs. 1, 2, 3, 4, and 5, the movable parts of the fixture are held from lateral displacement by means of a vertical cylindric bearing-pin, F, attached to the top end of the pipe A, and engaging a circular aperture in a bearing-ring, G, connected with the sides of the chamber C by radial arms *g*. The said bearing-pin F is, as illustrated and preferably constructed, fixed in a screw-plug, *f*, inserted in the top end of the pipe A; but the said bearing-pin may be in practice sustained upon the pipe otherwise, as found convenient or desirable. The said bearing-pin F is desirably made of a diameter as small as is consistent with the necessary strength therein, and the ring G, Figs. 1 and 2, of little vertical thickness, so that the surfaces of the parts in contact are relatively small in area, and thereby occasion little frictional resistance to the rotation of the moving parts. Inasmuch as there will, in the operation of the device, be no force or forces tending to displace the float E laterally, the single bearing formed by the pin F and the ring G will generally be found sufficient to hold the moving parts properly in place concentric with the pipe A. If found necessary or desirable, however, a second annular bearing-ring, H, may be secured to the lower part of the float E in position to bear upon the exterior of the pipe A, said ring H being connected with the float by radial arms *h*, as clearly shown in the drawings, Figs. 1 and 4.

The bearing-surfaces of the pin F and of the pipe A in its part engaged by the ring H are desirably made cylindric for a considerable distance vertically, to allow a free vertical movement of the bearing-rings G and H thereon, so that in case the float E is allowed to sink by a diminution of the quantity of liquid in the vessel B, arising from evaporation of said liquid or otherwise, the said bearing-rings may move downwardly without increase of friction between the parts. From this construction it is entirely obvious that the moving part will revolve with the same freedom as long as there is sufficient fluid in the vessel B to sustain the float E free from the bottom of the vessel; and in this connection it will be noted that inasmuch as the depth to which the float sinks into the fluid determines the efficiency of the water seal—that is to say, the amount of pressure required to enable the gas to escape by forcing the fluid out from between the float and the vessel—the depth of the seal will remain the same whenever the float is sustained free from the bottom of the tank, so as to allow the rotation of the parts.

To provide means for indicating the quantity of liquid in the vessel B, so that the latter may be replenished when necessary, the float E (shown in Fig. 1) is desirably provided with a scale, I, marked on or attached to the said float, Figs. 1 and 5, said scale being provided with a mark indicating the point at which the float will rest upon the bottom of the vessel, so that by glancing at the scale the necessity for replenishing the fluid may be ascertained before the movement of the apparatus ceases on account of a deficiency in the quantity of liquid within the vessel.

Another and for some reasons a preferable form of device or apparatus embodying my invention is shown in Fig. 6. This form of device is more particularly adapted for attachment to a gas-supply pipe which depends from the ceiling of a room or store-window; and in-

asmuch as it is usually more convenient to attach the device to such depending pipe, the form of the apparatus shown in Fig. 6 is for this, among other reasons, preferred to that first above described. As illustrated in said figure, the liquid vessel or tank B is attached by means of a closed top, B′, to the lower end of a depending gas-supply pipe, A, the supply-pipe being open at its lower end, so as to admit the gas freely to the vessel B. The float E is in this case also of annular form, and is located in an annular liquid-space formed between the side walls of the vessel B and an inner upwardly-extending wall or tube, B^2, connected at its lower margins with the bottom wall of the said vessel, and open at both its upper and lower end. The chamber C, to which the burner-arms D are attached, and through which the gas passes to said arms, is in this case attached to and supported from the float by means of a vertical tube, C′, which extends through the open tube B^2 of the vessel B, and is connected at its upper end with the inner wall of the annular float. By this construction it is entirely obvious that the gas may flow freely from the supply pipe A through the tube C′ and chamber C to the burner-arms, but that any escape of gas from the chamber will be prevented by the fluid within which the float is placed, which prevents any passage of the gas around the float to the opening formed by the tube B^2. The moving parts are in this case held so as to rotate freely without contact with the stationary parts by means of a bearing-ring, G, connected with the top of the tube C′ by means of arms *g*, and engaging a vertical bearing-pin, F, attached to the top part of the tank in suitable position for the purpose.

In the particular construction shown in Fig. 6 the pin F is attached to a cross-bar or plate, J, Figs. 6 and 7, which is secured in the tank over the float after the latter has been placed therein and before the top B′ has been soldered to the side walls of the tank, this construction being preferably used when the tank is made, in the ordinary manner, of sheet metal, to enable the bearing-pin to be placed and accurately centered before the tank is finally closed. When, however, the parts are made with such accuracy that when brought together the pin will come in its proper place, the part sustaining said pin may be otherwise attached to the tank—as, for instance, the construction shown in Fig. 8 may be used, in which the pin is held in a plate, K, attached by arms *k* to the top B′ of the tank, adjacent to the lower end of the pipe A.

Means for connecting the bearing-pin F with the tank, whereby said pin may be readily adjusted in position laterally in placing the parts together, is shown in Figs. 6 and 7. As illustrated in said figures, the cross-bar or plate J is provided with an aperture, *j*, and the pin is provided with or attached to a flat disk or plate, *f′*, located beneath the plate J, which disk or plate is provided with a central screw-threaded shank, f^2, passing upwardly through the aperture *j* and provided upon its upper end with a thumb-nut, f^3, between which nut and the plate J is placed a broad washer, f^4. The aperture *j* is made considerably larger than the shank f^2, so that the pin is rendered capable of lateral movement relatively to the plate J, while at the same time it may be firmly clamped in a desired position by the action of the thumb-nut upon the washer f^4 acting to clamp the said washer and the disk *f′* against the plate J.

The particular device shown and above described for attaching the bearing-pin F to its support in such manner as to permit of its lateral adjustment is, however, only one of many devices which may be employed for this purpose, and my invention as it relates to this feature thereof is not limited to the particular construction illustrated, except in the claim in which said construction is specifically set forth.

In the device for sustaining the pin F (shown in Fig. 8) the said pin is screw-threaded in its upper part and engaged with a threaded aperture in the plate K, said pin in this case being provided with a slotted head, f^5, or other means whereby it may be readily turned, so that the said pin may be readily inserted in putting together the parts of the apparatus. In the form of the top B′ illustrated, the said top is provided with a central hub, *b*, into which the pipe A is secured by a threaded joint, this construction obviously allowing the pin F, when sustained as shown in Fig. 8, to be readily inserted after the top has been secured in place.

As herein shown, the vertical tube C′ is connected with the float E by means of a horizontal plate or flat ring, C^2, provided with a central depending hub or flange, *c*, into which the top of the said tube is secured by a screw-joint, the said plate or ring C^2 being connected with the inner wall of the float E, which in this case is shown as open at its top, by solder or otherwise. In this connection it may be observed, however, that the parts composing the tank, float, and other parts of the apparatus may be made and joined up in any way found convenient or desirable in practice, and the appended claims are therefore intended to cover the several parts or combinations of parts therein set forth as constituting my invention, whether said parts are constructed in the particular manner herein shown or otherwise.

To provide a convenient means for filling or replenishing the tank when the fluid therein becomes low by evaporation or otherwise, an inlet-opening, L, is provided, herein shown in Fig. 6 as formed in the top B′ of the tank and provided with a screw-cap, L′. When the inlet-opening is thus located and an open-topped float is employed, a deflecting-piece or shield, L^2, will desirably be placed beneath the open-

ing, to direct or carry the liquid entering the opening to one side of the float, and thereby prevent its falling into the float. Instead of this construction, however, a filling-tube may be located at the side of the tank and connected with the lower part of the latter, as indicated in dotted lines at L^3, Fig. 6. M in said Fig. 6 indicates an emptying-orifice, whereby the liquid may be removed from the tank for cleaning it, or other purposes. Said orifice, when present, may be closed by a screw cap, M′, as shown, or otherwise.

Only one bearing is shown in Fig. 6, and, as far as I am now aware, this will be found sufficient to hold the moving parts from lateral displacement; but in cases where it is found necessary or desirable another bearing-ring similar to that indicated by H, Figs. 1 and 4, may be attached to the bottom of the tube B^2 in position to bear upon the tube C′.

In order to enable the quantity of liquid within the tank B to be ascertained at any time, a glass gage-tube, N, of familiar construction may be attached to the side of the tank B, said gage-tube being provided with a mark indicating the least quantity of liquid which will sustain the float, so that the necessity for replenishing the vessel may be readily ascertained.

It will of course be understood, in connection with the form of the device shown in Fig. 6, that the supply-pipe A may communicate with the top or upper part of the tank B otherwise than centrally and vertically, as shown, with the same result as far as the operation of the device is concerned.

The fluid employed for making the seal may be water, oil, or other substance having sufficient fluidity to enable the float to readily turn therein.

It is to be understood that the appended claims cover the parts or devices therein set forth when said parts are in form to obtain one or more and less than all of the advantages or benefits obtained or arising from them in the particular form thereof herein illustrated.

I am aware that it has been proposed heretofore to employ in a revolving gas-fixture of the general construction shown a revolving float located within a suitably-arranged liquid-tank and constructed to sustain the weight of the moving parts of the apparatus. In such a device as heretofore made, however, the float has been held from lateral movement by a bearing-surface engaging the exterior of the gas-supply pipe, and any bearing causing slight frictional resistance, such as is obtained by the bearing-pin F and bearing ring G herein shown, is entirely absent. The device of the character described containing said bearing pin and ring adapted to allow a free vertical movement of the float is therefore herein claimed as part of my invention, as set forth in the appended claim one.

I claim as my invention—

1. The combination, with the gas-supply pipe, of a vessel or tank containing liquid to form a seal, a chamber, C, provided with radial arms having laterally-directed exit-openings or burners, an annular float connected with and sustaining said chamber C, and a bearing-ring, G, and a vertical cylindric bearing-pin, F, attached, one to the float and the other to one of the stationary parts of the device, so as to hold the float from lateral displacement, substantially as described.

2. The combination, with a gas-supply pipe, of a vessel or tank closed at its top and communicating with the said supply-pipe, said tank being provided with an inner tubular wall, B^2, and containing liquid to form a seal, an annular float located within said tank, and a chamber, C, provided with tubular arms having laterally-directed burners or exit-openings, said chamber being located below the tank and connected with the float through the opening formed by the tubular wall B^2, substantially as described.

3. The combination, with a gas-supply pipe, of a vessel or tank closed at its top and communicating with the said supply-pipe, said tank being provided with an inner tubular wall, B^2, and containing liquid to form a seal, an annular float located within said tank, a chamber, C, provided with tubular arms having laterally directed burners or exit-openings, a tube, C′, connecting said chamber with the float, a stationary bearing-pin, F, sustained in the upper part of the tank, and a bearing-ring, G, attached to the float at the top of the latter, substantially as described.

4. The combination, with a gas-supply pipe, of a vessel or tank containing liquid to form a seal, a chamber, C, provided with burner-arms, a float connected with and sustaining said chamber, a bearing-ring attached to the moving parts of the apparatus, and a stationary bearing-pin engaging said bearing-ring, said bearing-pin having laterally-adjustable connection with the plate or part supporting it, substantially as described.

5. The combination, with a gas-supply pipe, of a vessel or tank closed at its top and communicating with said supply-pipe, said tank being provided with an inner tubular wall, B^2, and containing liquid to form a seal, a chamber, C, provided with burner-arms and connected with the float, a bearing-ring attached to the float, a bearing-pin engaged with said ring, and a bar or plate, J, secured in the upper part of the tank and affording support for the said bearing-pin, substantially as described.

6. The combination, with the tank B and float E, provided with a bearing-ring, G, of a plate, J, secured in the tank, and a bearing-pin, F, having laterally-adjustable connection with said plate, substantially as described.

7. The combination, with the tank B and float E, provided with a bearing-ring, G, of a bearing-pin, F, a plate secured in the tank and provided with an aperture, *j*, and means for adjustably connecting the pin with the

plate, consisting of a screw-shank and disk upon the pin, a washer, and a nut, substantially as described.

8. The combination, with the tank B, closed at its top and provided with a filling-orifice, and an open-topped float, E, therein, of a deflecting-plate, L^2, located beneath said filling-orifice and extending over the edge of the float, substantially as described.

In testimony that I claim the foregoing as my invention I affix my signature in presence of two witnesses.

JOSEPH J. SEIDSCHEC.

Witnesses:
C. CLARENCE POOLE,
V. F. MAYER.