

No. 646,981.

Patented Apr. 10, 1900.

A. M. GRIFFIN.
ACETYLENE GAS GENERATOR.

(Application filed Sept. 30, 1898.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 5.

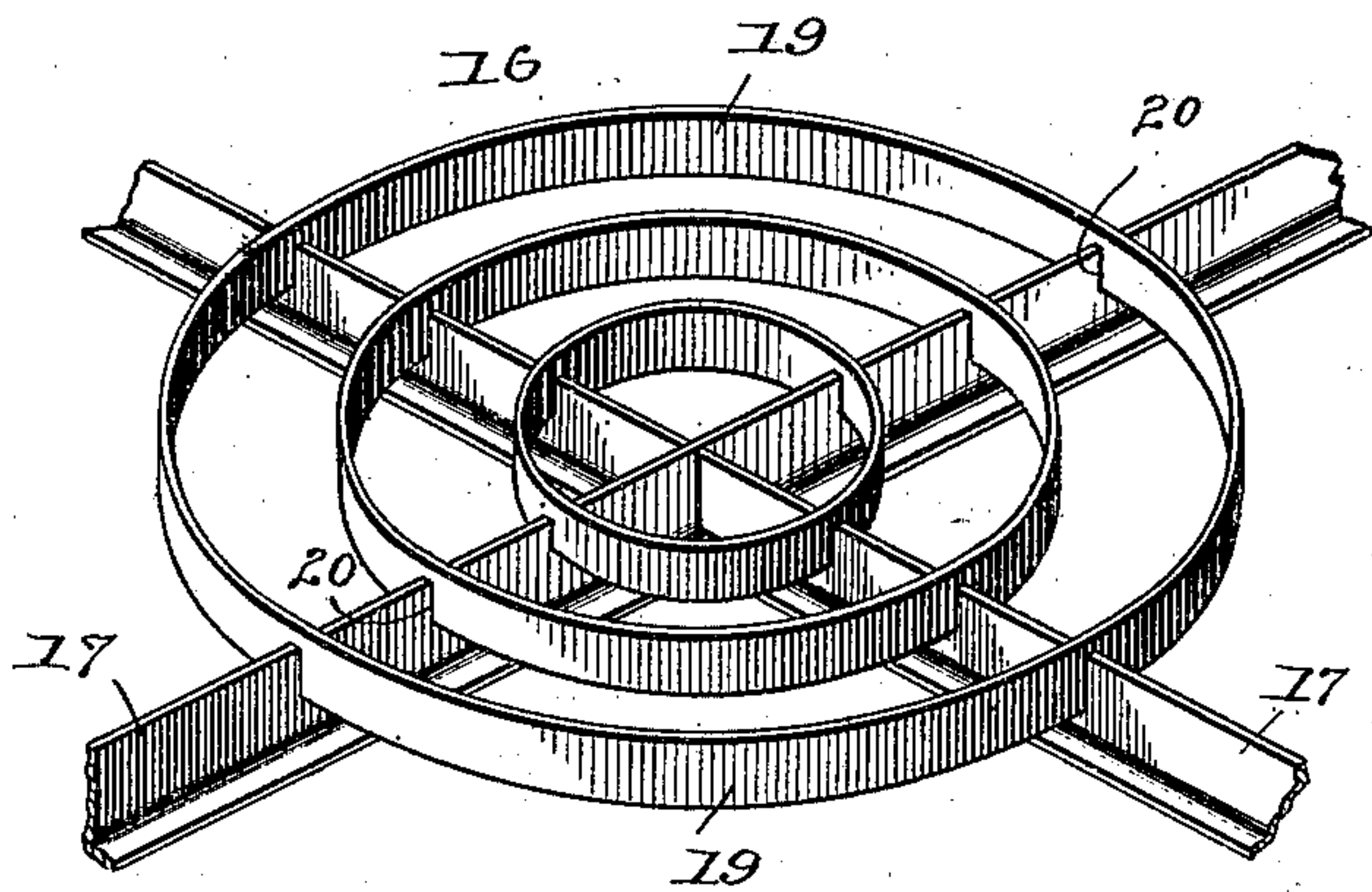
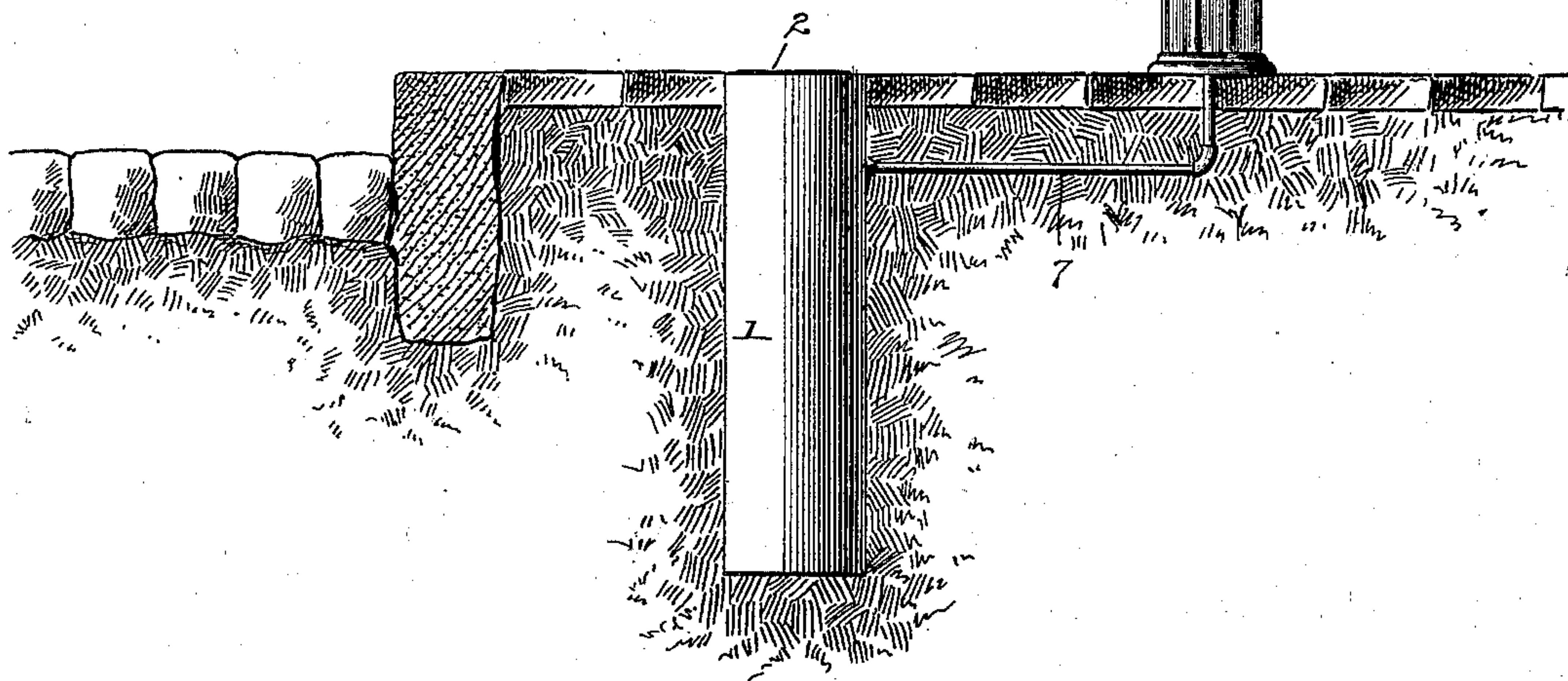


Fig. 1.



Witnesses

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2 Sheets—Sheet 2.

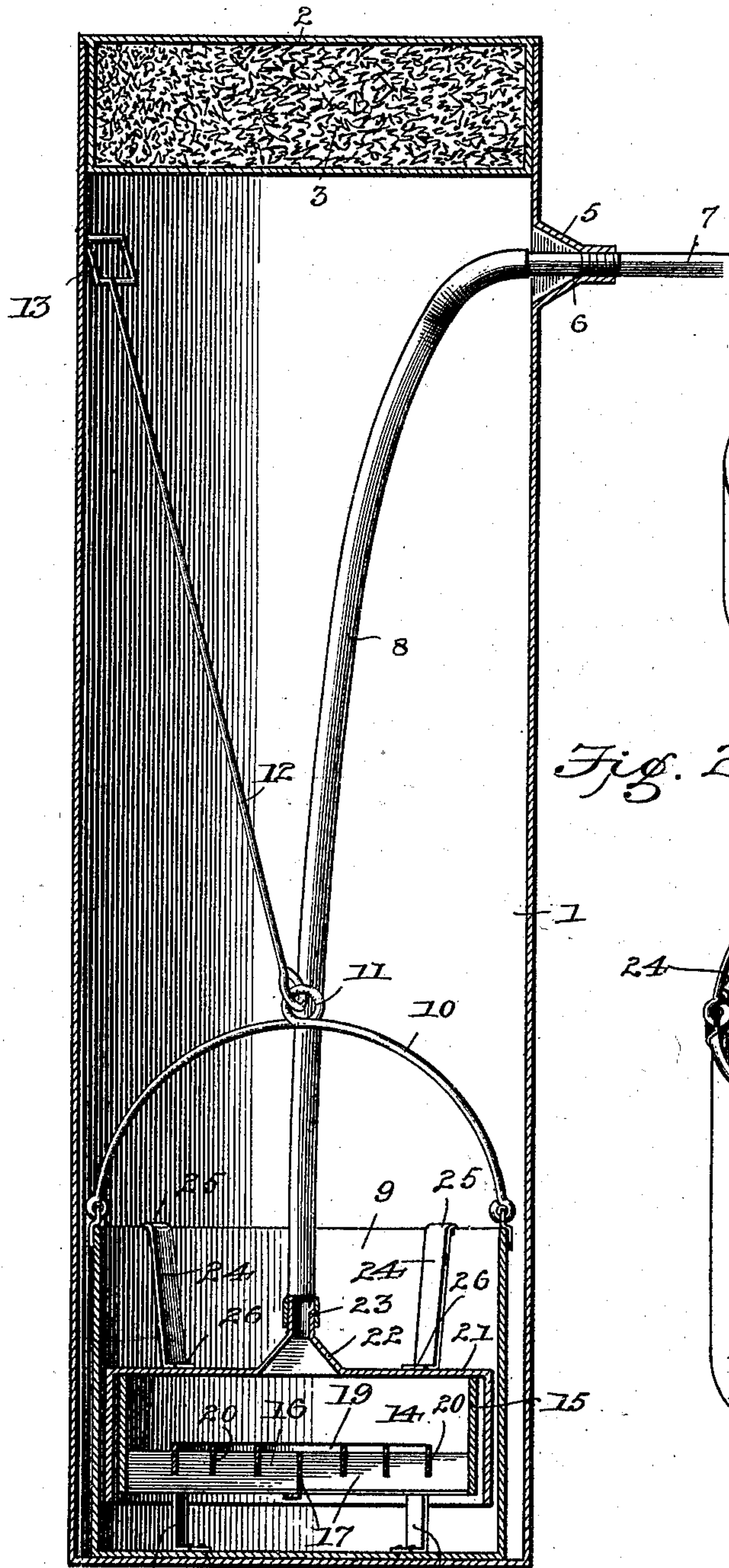


Fig. 3.

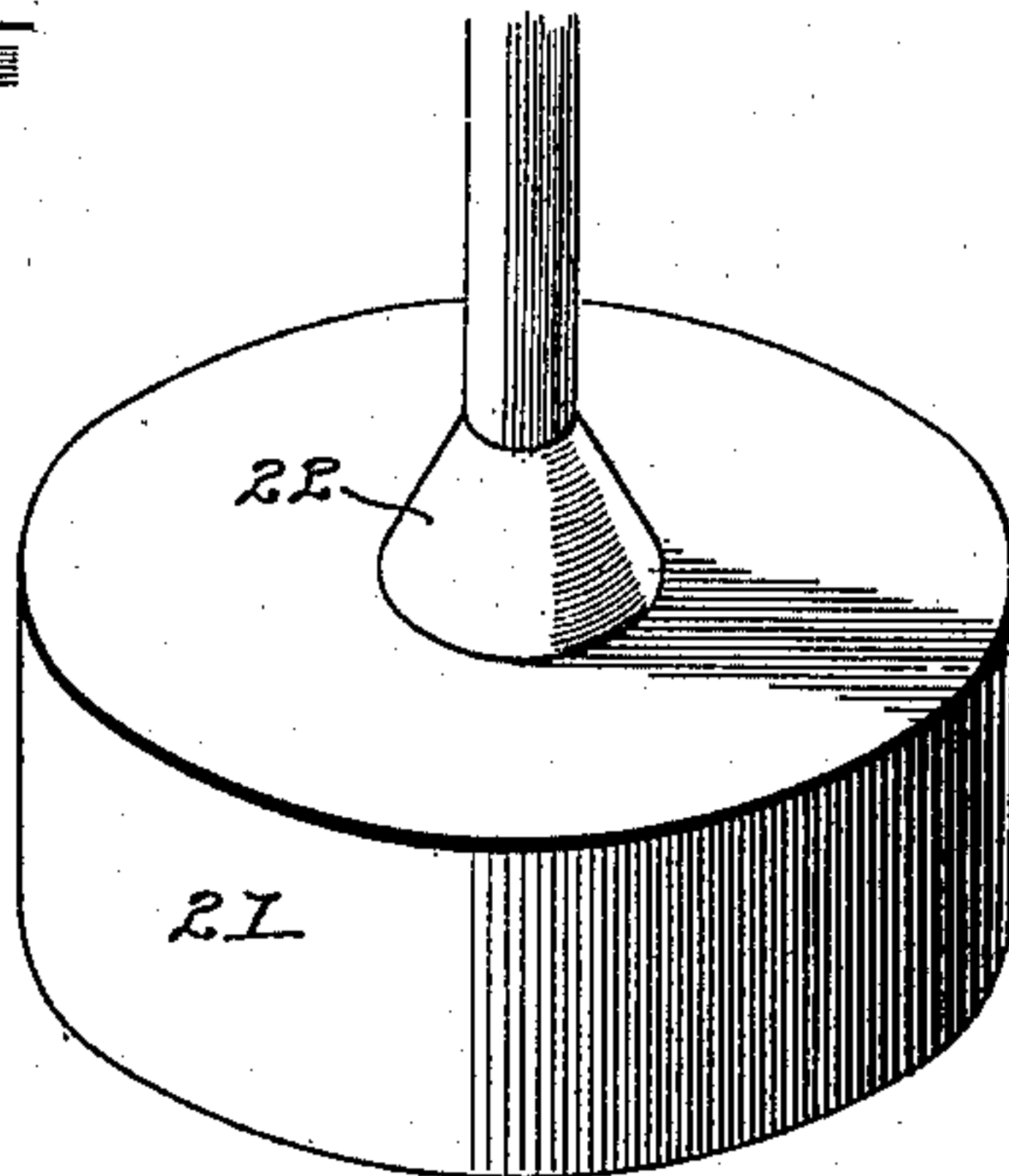


Fig. 2

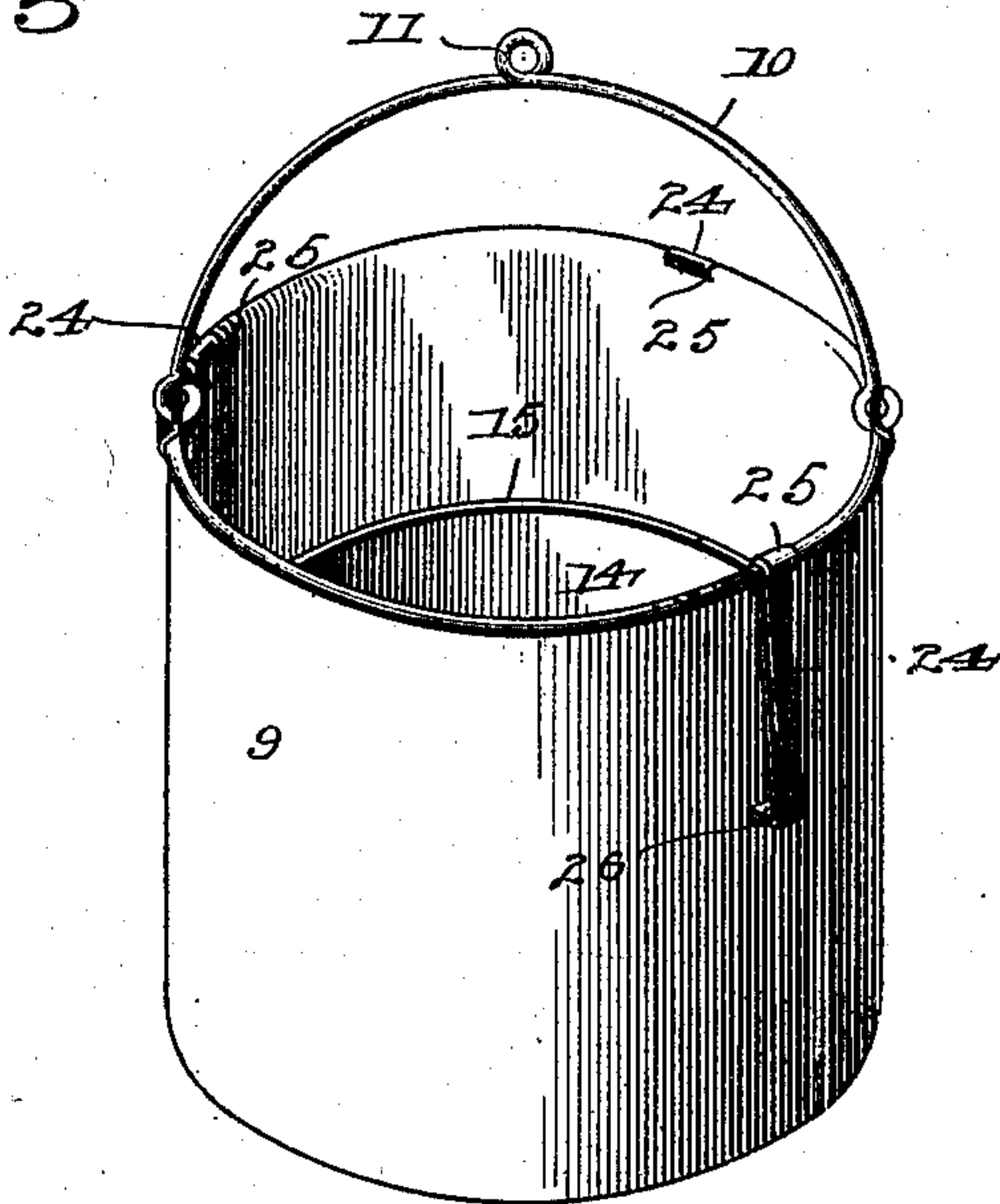


Fig. 4

Witnesses

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UNITED STATES PATENT OFFICE.

ALVAH M. GRIFFIN, OF MARYSVILLE, KANSAS, ASSIGNOR TO THE GRIFFIN GAS COMPANY, OF SAME PLACE.

ACETYLENE-GAS GENERATOR.

SPECIFICATION forming part of Letters Patent No. 646,981, dated April 10, 1900.

Application filed September 30, 1898. Serial No. 692,312. (No model.)

To all whom it may concern:

Be it known that I, ALVAH M. GRIFFIN, a citizen of the United States, residing at Marysville, in the county of Marshall and State of Kansas, have invented a new and useful Improvement in Acetylene-Gas Generators, of which the following is a specification.

This invention relates to acetylene-gas generators; and it has for its object to provide a simple and practical generator of this type specially designed for use in connection with street-lamps.

To this end the invention primarily contemplates an improved construction of acetylene-gas generator made of a minimum number of parts which can be readily taken apart and assembled together to facilitate the operation of recharging the generator. The construction of the generator also specially adapts the same for supplying a single light, such as for a street-lamp post, as the invention provides means for supplying gas to a single jet for a prescribed period at a uniform pressure, so as to produce a clear steady flame particularly adapted for street-lighting.

A further object of the invention is the provision of novel means for housing or protecting the generator, so that the same can be placed at any suitable depth in the ground adjacent to a lamp-post and at the same time be thoroughly protected from foreign influences, and especially frost, while at the same time being readily accessible for the purpose of recharging.

With these and other objects in view the invention consists in the novel construction, combination, and arrangement of parts hereinafter more fully described, illustrated, and claimed.

While the invention is capable of general application as an acetylene-gas generator, the preferred embodiment thereof is illustrated in the accompanying drawings, in which—

Figure 1 is a general view showing the protective curb or casing for the generator seated in the ground and the service-pipe connection from the curb or casing to a street-lamp post. Fig. 2 is a vertical longitudinal sectional view of the protective curb or casing and the generating apparatus housed therein.

Fig. 3 is a detail in perspective of the gas bell or holder of the generator. Fig. 4 is a detail in perspective of the generating vessel with the gas bell or holder removed therefrom. Fig. 5 is a detail in perspective of the carbide-supporting grate.

The gas-generating apparatus forming the subject-matter of the present application, while capable of general application for the generation of acetylene gas to be supplied to a single jet or burner, is specially constructed with reference to street-lighting and for use in connection with a street-lamp post. So an essential part of the invention is the provision of means for properly housing the apparatus at a point adjacent to the lamp-post, and to provide for this there is preferably employed a protective curb or casing, (designated in the drawings by the numeral 1.)

The protective curb or casing 1 is constructed of heavy sheet metal and is preferably made in a cylindrical form, being tightly closed at the bottom and provided with an open top, which removably receives therein a hollow lid or cover 2. The lid or cover 2 tightly closes the upper open end of the protective curb or casing 1 and is constructed hollow, so as to receive therein a filling of sawdust or other packing 3, which serves the function of a non-conducting packing for the exclusion of frost from the interior of the curb or casing, and thereby prevents freezing of the water used for the generation of the gas. The protective curb or casing is constructed of a sufficient length so as to dispose the generating apparatus below the frost-line and is designed to be placed within the ground at a point adjacent to the lamp-post 4, as plainly illustrated in Fig. 1 of the drawings, the top of the curb or casing being exposed at the surface of the ground, so that the lid or cover can be readily removed when it is necessary to recharge the apparatus.

At a point adjacent to its upper end the protective curb or casing 1 is provided with a lateral offset neck 5, in which is fitted a nipple 6, to the outer end of which nipple is coupled the gas-service pipe 7 for the lamp-post 4, while the inner end of said nipple has fitted thereto one end of the flexible gas-tube 8, arranged within the protective curb or casing and op-

erating in connection with the gas-generator proper, which I shall now proceed to describe.

The working parts of the generator are held within a generating vessel or bucket 9, preferably made of heavy sheet metal and of a cylindrical form. The generating vessel 9 is open at the top and has loosely connected to its top edge an inverted-U-shaped bail 10, provided centrally between its terminals with a loop or eye 11, to which is loosely connected the lower end of a lift-rod 12, provided at its upper end with a handle 13, which is grasped by the operator when the generating apparatus is raised out of or lowered within the protective curb or casing 1, it being understood that when the apparatus is in service the generating vessel 9 rests directly on the bottom of the curb or casing, as plainly illustrated in Fig. 2 of the drawings, and by reason of the loose connection of the bail 10 with the vessel said bail will normally drop to a position on the rim of the vessel.

The generating vessel 9 is entirely closed, except at the top, and has arranged therein a carbide-receptacle 14. The carbide-receptacle 14 essentially comprises a circular rim 15 of a less diameter than the vessel 9 and a carbide-supporting grate 16, rigidly fitted within the lower portion of the said rim. The circular rim 15 of the carbide-receptacle is entirely open at the top and bottom and is held in an elevated position above the bottom of the generating vessel 9 by means of the short supporting-legs 17^a, rigidly connected at their upper ends with the lower edge of the rim 15 and securely fastened at their lower ends, as at 18, to the bottom of the said vessel 9. By reason of the leg connection 17^a between the rim 15 and the bottom of the vessel 9 the carbide-receptacle 14 is carried by the generating vessel as a rigid part thereof, while at the same time being held in a position within the vessel whereby the water may readily pass upward through the rim 15 and the carbide-supporting grate to the carbide to provide for the generation of the acetylene gas.

The carbide-supporting grate 16 essentially comprises a pair of flat right-angularly-crossing supporting-strips 17 and a plurality of flat concentric circular bands 19, intersecting and supported by the said strips 17. The flat supporting-strips 17 of the grate extend diametrically across the chamber confined within the rim 15 and are rigidly connected at their ends to the rim at diametrically-opposite points, and to provide for the proper support of the flat circular bands 19 the said flat strips 17 are provided in their upper edges with a plurality of vertically-disposed notches, in which are seated the lower edges of the said circular bands 19. The series of concentric flat circular bands 19 are spaced at regular distances apart to form, in connection with the flat strips 17, elongated segmental meshes through which the water rises and falls as it passes to and recedes from the chemical on the grate, and at this point it

will be observed that the upper edges of the concentric circular bands 19 project above the plane of the upper edges of the strips 17, so as to prevent lodging of particles of carbide at the corners of the meshes. This construction of grate also insures a washing action of the water as it rises and falls through the meshes of the grate against the flat vertical sides of the strips and bands 17 and 19 forming the same, while at the same time permitting a free passage of the water to the carbide at all points on the grate, so that there will be a uniform generation of gas through the entire interior area of the carbide-receptacle 14.

To provide for the collection and distribution of the gas generated within the carbide-receptacle 14, there is employed a gas bell or holder 21. The gas bell or holder 21 is of the usual cup form and is arranged in an inverted position over the carbide-receptacle 14, so that the depending shell of said bell or holder will extend through the space between the rim 15 and the wall of the vessel 9 to a point in close proximity to the bottom of said vessel, while the flat closed top of the bell or holder will rest directly on the top edge of the rim 15 of the carbide-receptacle. The bell or holder 21 is necessarily entirely open at its lower end to provide for the free passage of the water from the interior of the generating vessel to the carbide-receptacle, and at its top the gas bell or holder is provided with a central conical gas-pocket 22, from which is projected a short neck or nipple 23, to which is fitted one end of the flexible gas-tube 8.

When arranged in position within the vessel 9 and over the carbide-receptacle 14, the gas bell or holder 21 is held rigidly in place by a plurality of fastening-arms 24. The fastening-arms 24 consist of straight strips hinged or pivoted at one end, as at 25, to the top edge of the generating vessel 9 at regularly-spaced points, the hinged or pivotal connection between said arms and the vessel permitting the former to be readily swung into and out of the vessel to provide for fastening and releasing the gas bell or holder 21. At their free ends the straight fastening-rods 24 are provided with the angled engaging feet 26, which when the arms are swung inward within the generating vessel 9 are adapted to bear directly against the flat top of the gas bell or holder, and thereby prevent upward displacement of the same under the pressure of the generated gas. When the generator is to be recharged, the hinged fastening-arms 24 are swung outward over the top edge of the generating vessel, as shown in Fig. 4 of the drawings, so that the gas bell or holder can be readily lifted out of the vessel.

In the operation of the generator it will be understood that the water which is placed within the generating vessel 9 passes around the bottom edge of the gas bell or holder and upward through the grate 16 to the carbide supported thereon. The usual chemical reaction takes place, and the acetylene gas

which is evolved collects in the gas-pocket 22 and thence passes through the flexible gas-tube 8 to the service-pipe 7 for the burner.

When it is desired to charge the generator, the lid or cover 2 of the protective curb or casing is first removed and then by grasping the lift-rod 12 the entire generating apparatus can be lifted out of the protective curb or casing 1. By now releasing the hinged fastening-arms 24 from engagement with the gas bell or holder this part of the generator may also be readily removed, so that a fresh supply of carbid can be placed within the receptacle 14 on the grate 16. The bell or holder 21 is next replaced and secured in position by the arms 24 and sufficient water placed in the vessel 9 until it rises to a level above the top of the gas bell or holder, after which the apparatus is lowered again into the protective curb or casing ready for use. By placing this measured quantity of water into the generating vessel the gas will be produced under the proper pressure and will continue to be evolved steadily and uniformly until the full charge of chemical is entirely exhausted.

From the foregoing it is thought that the construction, operation, and many advantages of the herein-described acetylene-gas generator will readily be understood by those skilled in the art without further description, and it will be understood that changes in the form, proportion, and minor details of construction may be resorted to without sacrificing any of the advantages or departing from the spirit of the invention.

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

1. In an acetylene-gas generator, the gas-generating vessel having an interior chemical-receptacle comprising a circular rim elevated above the bottom of the vessel, and a chemical-supporting grate rigidly held within the lower portion of the rim, a gas-bell inverted over the rim of said receptacle and having a

flat top portion resting directly on the top edge of the rim, and a plurality of fastening-arms attached to the generating vessel and arranged to engage with the top of the bell to hold the same rigidly upon said rim, substantially as set forth.

2. In a gas-generator, a generating vessel having an interior chemical-receptacle provided with a circular rim elevated above the bottom of the vessel, a gas-bell inverted within the vessel and having a flat top portion resting on the top edge of the rim, and a plurality of fastening-arms hinged at one end to the top edge of the vessel and provided at their free ends with angled terminals forming engaging feet adapted to engage flatly against the top portion of the bell, said arms being capable of swinging over the top edge of the vessel into and wholly outside of the latter, substantially as set forth.

3. In a gas-generating apparatus, the combination of the curb or casing having an open upper end, and provided below the latter with a fixed side-service connection, a removable closure for the open upper end of the curb or casing, a receptacle holding all of the working parts of the generator and removably seated within the curb or casing on the bottom thereof, a flexible tube connecting the side-service connection with the gas-outlet of the generator, and of a sufficient length to permit the removal of the receptacle with all of its contained parts through the open top of the curb or casing and past the fixed connection for the tube, a bail connected with the receptacle, and a lifting-rod connected with the bail and normally housed within the casing below the removable closure, substantially as set forth.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

ALVAH M. GRIFFIN.

Witnesses:

VICTOR ANDERSON,
FRANK P. GRAHAM.