

No. 672,186.

Patented Apr. 16, 1901.

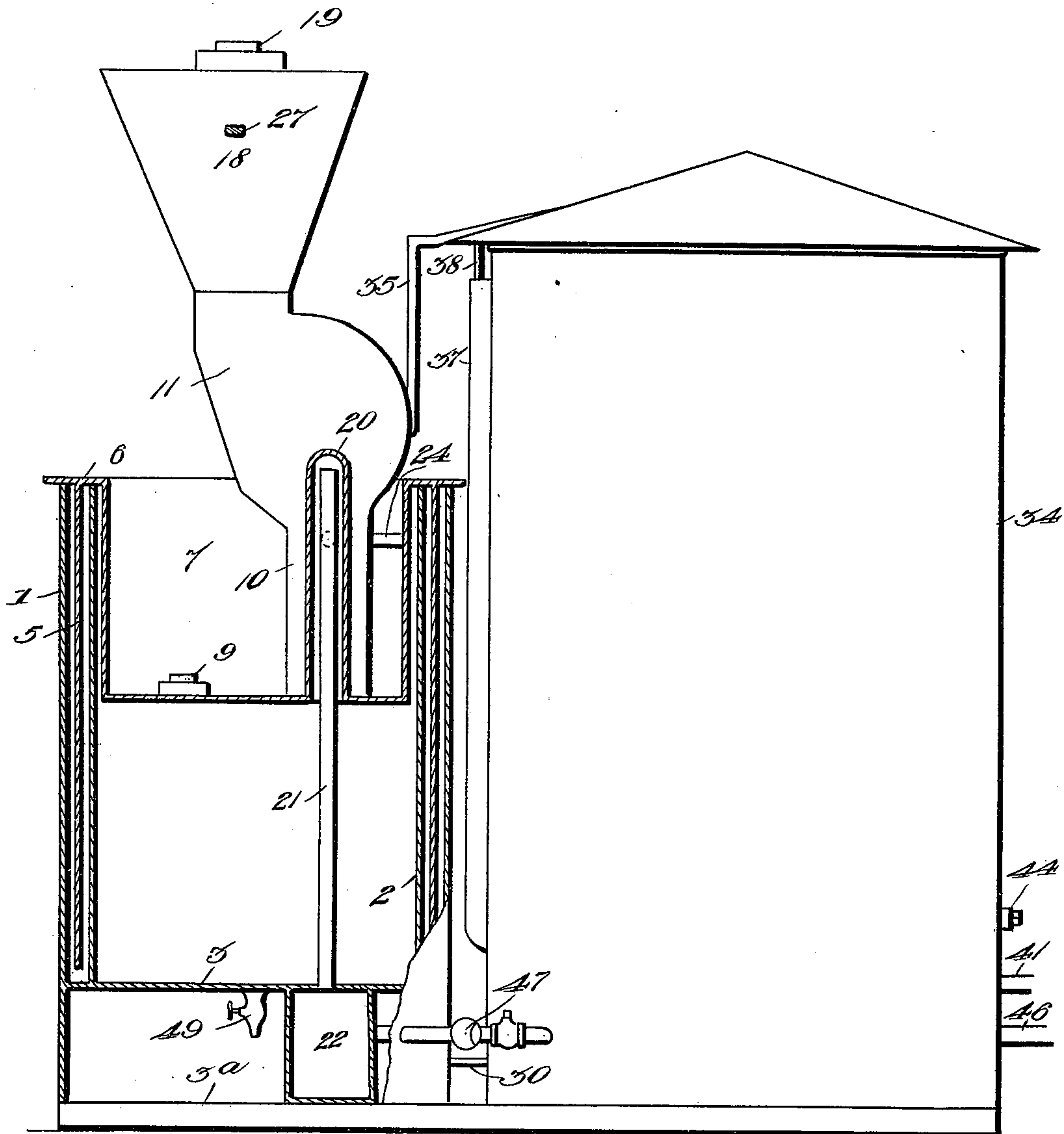
J. T. EDWARDS.
ACETYLENE GAS GENERATOR.

(Application filed July 24, 1900.)

(No Model.)

4 Sheets—Sheet 1.

Fig. 1.



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Witnesses

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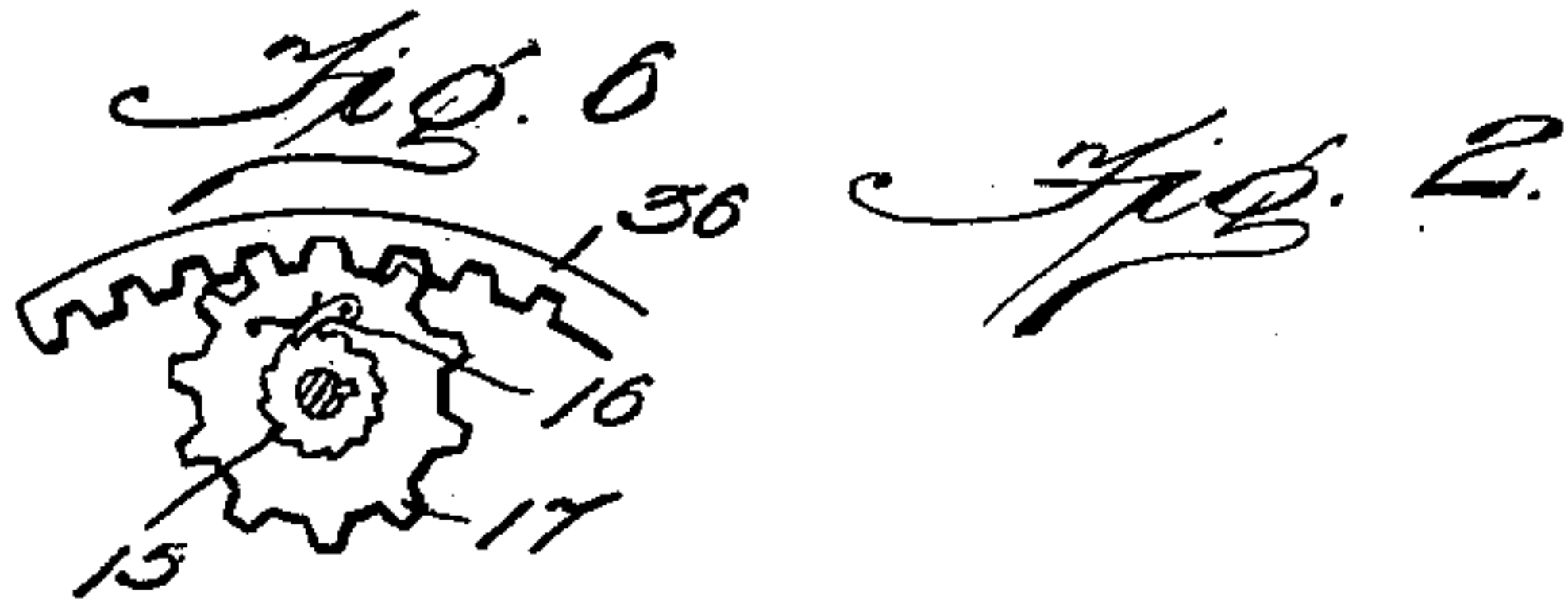
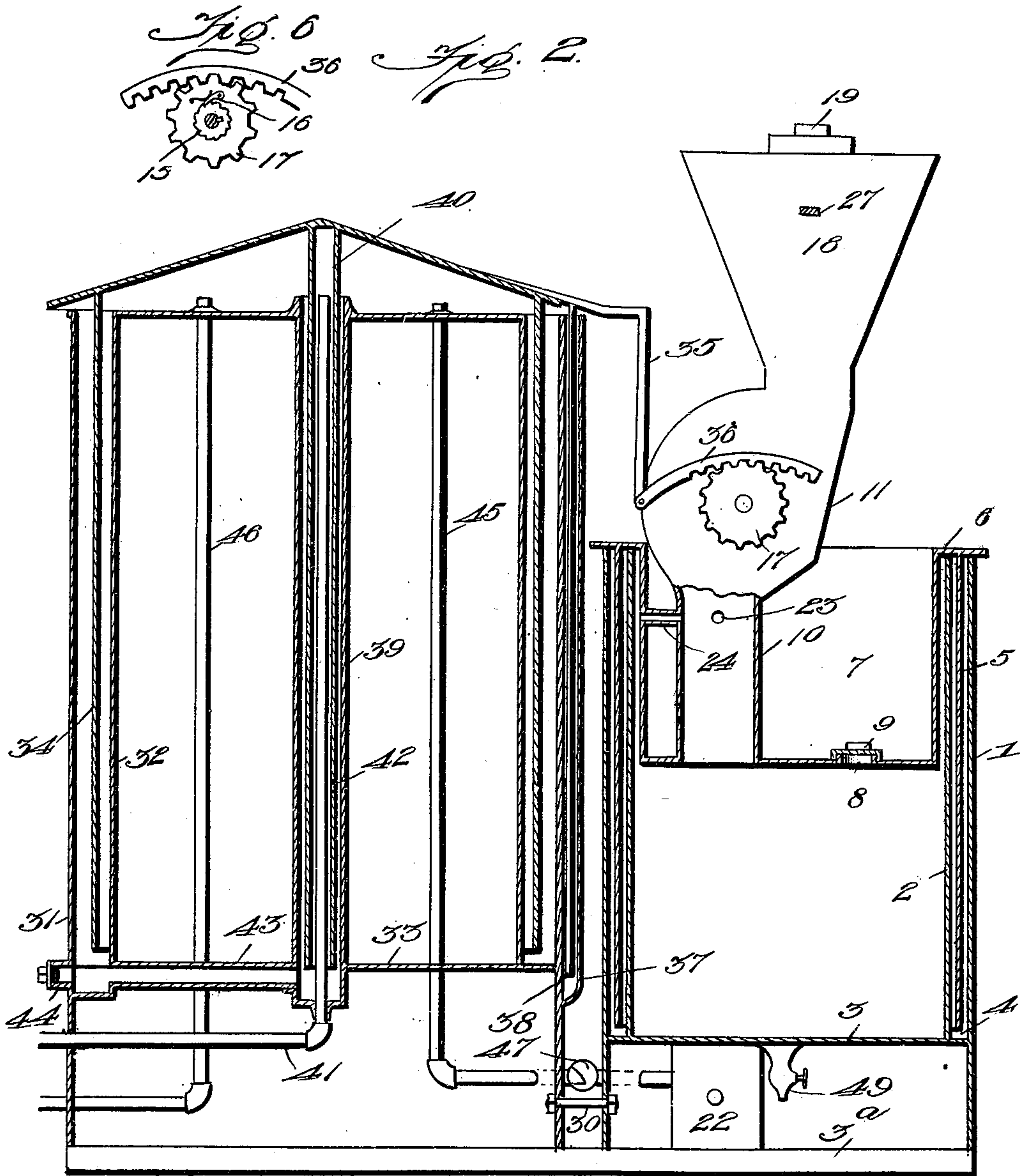
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4 Sheets—Sheet 2.



Witnesses *Fig. 5*
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Fig. 5
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Fig. 5
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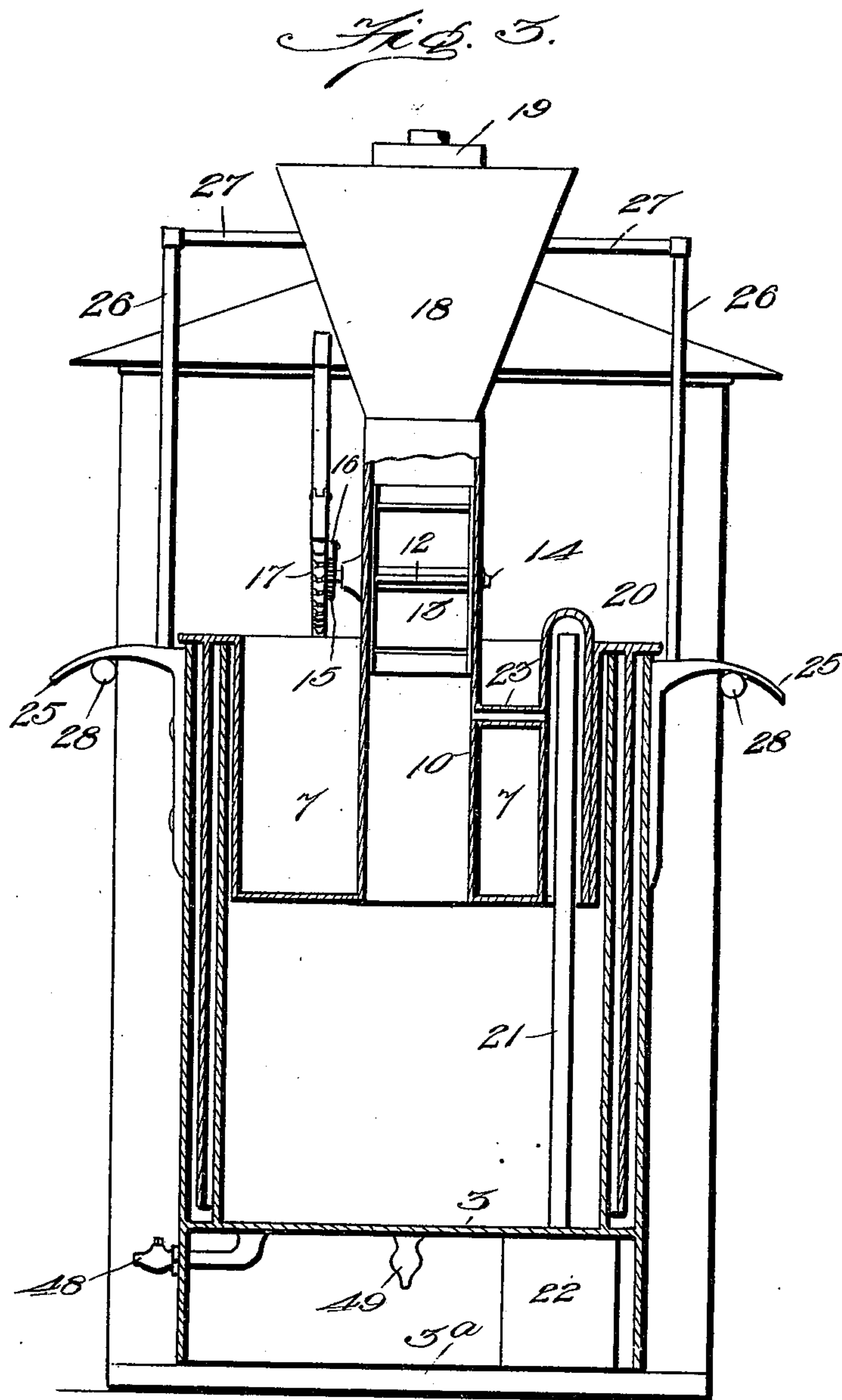
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4 Sheets—Sheet 3.



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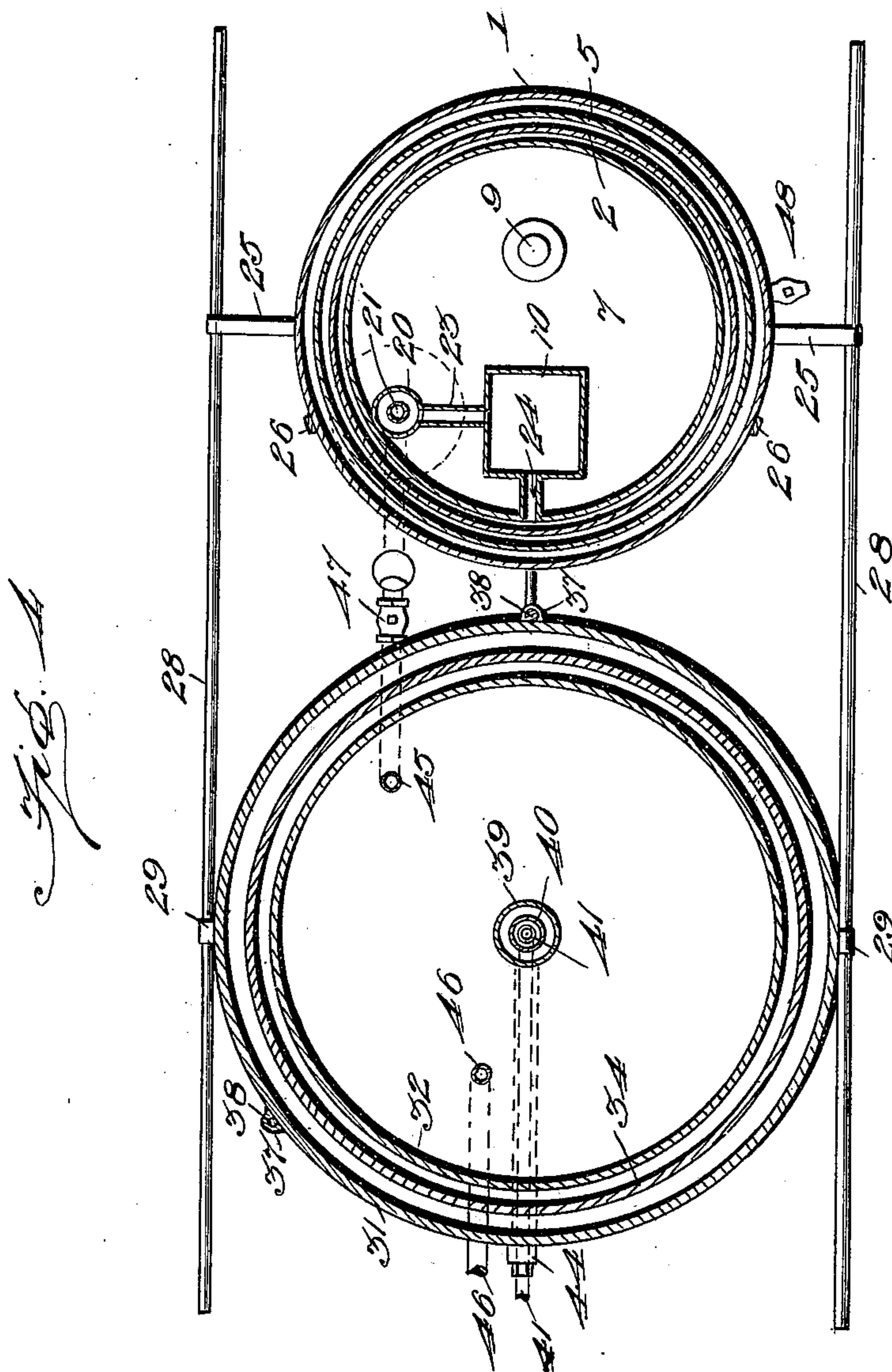
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(Application filed July 24, 1900.)

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4 Sheets—Sheet 4.



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UNITED STATES PATENT OFFICE.

JOSEPH T. EDWARDS, OF WEAVERVILLE, CALIFORNIA.

ACETYLENE-GAS GENERATOR.

SPECIFICATION forming part of Letters Patent No. 672,186, dated April 13, 1901.

Application filed July 24, 1900. Serial No. 24,677. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH T. EDWARDS, a citizen of the United States, residing at Weaverville, in the county of Trinity and State of California, have invented new and useful Improvements in Acetylene-Gas Generators, of which the following is a specification.

This invention relates to new and useful improvements in acetylene-gas generators, and is especially adapted for mining and other similar purposes. Its primary object is to provide a device which is simple and durable in construction, which is extremely light when charged, and which can be readily transported from place to place.

To these ends the invention consists in providing a generator formed of a tank having an outer and an inner wall, the space between which is filled with a suitable liquid and is adapted to receive the side walls of a bell. This bell is provided at its top with a receptacle having a suitably-closed opening which communicates with the interior of the generator. A passage extends from the bottom of this receptacle to the lower end of a hopper, which is provided with a carbid-feed of suitable construction. A tube also projects upward from the bottom of this receptacle and is closed at the top, said tube receiving the end of a pipe which extends downward through the generator into a catch-basin or compartment thereunder. The generator is provided with suitable brackets, to which are secured horizontally-extending bars whereby the device may be readily carried. These cross-bars are also secured to a gasometer of peculiar construction, which is bolted in any suitable manner to the generator. This gasometer comprises an inner cylinder, closed at the top and bottom and inclosed by a concentric wall which forms the outer wall of the gasometer. The space formed between the cylinder and the outer wall is filled with suitable material, as oil, and is adapted to receive the wall of the vertically-movable bell of the device. This bell has a depending tube which extends into a tube passing through the center of the cylinder of the gasometer and is adapted to receive a suitable exhaust-pipe. A pipe extends through the cylinder into a compartment formed thereunder and to the

catch-basin of the generator heretofore referred to. Gas is conducted through this pipe from the generator to the gasometer, as will be hereinafter more fully described. A suitable supply-pipe extends from the gasometer, and valved drains, &c., are provided in the gasometer and generator at desired points and for the purpose heretofore described.

The invention also consists in the further novel construction and combination of parts hereinafter more fully described and claimed, and illustrated in the accompanying drawings, showing the preferred form of my invention, and in which—

Figure 1 is a side elevation of the complete device, showing the generator in section. Fig. 2 is a longitudinal section through the complete device viewed from the opposite side thereof. Fig. 3 is a transverse section through the generator. Fig. 4 is a transverse section through the generator, Fig. 2. Fig. 5 is a section through the feed-pulley. Fig. 6 is a detail view showing the pawl-and-ratchet mechanism of the feed.

Referring to said figures by numerals of reference, 1 is the wall of the generator, which is formed of any desired material and incloses a concentric wall 2, which is supported upon a partition 3, formed within the outer wall 1 of the generator at a point above the base 3^a thereof. The space 4, formed between the walls 1 and 2, is filled with any suitable material, as oil, and is adapted to receive the wall 5 of a bell 6. This bell is provided at the top with a depending receptacle 7, in the bottom of which is an outlet 8, covered by a suitable cap, as 9.

Extending upward from the bottom of the receptacle 7 is a tube 10, which is secured at its upper end to a casing 11 of a compartment containing suitable feed mechanism. This mechanism comprises a pulley 12, having recesses 13 in its periphery, mounted upon a shaft 14, which is journaled within the side walls of the casing 11. A ratchet-wheel 15 is secured to this shaft and is adapted to be normally engaged by a pawl 16, pivoted to the inner face of a toothed gear 17, which is loosely mounted upon the shaft 14. A hopper 18 is secured to the upper end of the casing 11 and communicates therewith, and a

suitable inlet is provided in the top of the hopper, which is closed in any desired manner, as by means of a cap 19.

Projecting upward from the bottom of the receptacle 7 is a tube 20, which is closed at the top and adapted to receive the end of a pipe 21, which extends upward from the top of a catch-basin or compartment 22, formed below the partition 3. A pipe 23 connects this tube 20 with the passage 10, and a second pipe 24 runs from said passage to the wall of the receptacle 7, thereby permitting any gas which may accumulate between said wall and the inner wall of the generator to flow into the passage 10, and thence through pipe 23 into tube 20.

Arms 25 extend from opposite sides of the generator, and rods 26 extend upward therefrom and are secured at their upper ends to the hopper 18 by means of cross-bars 27. These cross-bars are detachable from the bars 26 and, as is obvious, prevent vertical movement of the bell 6 within the generator.

Side bars 28 are bolted or otherwise secured to the arms 25 of the generator and also to brackets 29, which extend from opposite sides of the gasometer of the apparatus. This gasometer is secured to the generator in any desired manner, as by means of bolts 30, and comprises an outer wall or casing 31, within which is located a cylinder 32, which is closed at the top and which rests upon a partition 33, formed above the base of the gasometer. The space between the outer casing and the cylinder of the gasometer is filled with suitable liquid, as oil, and is adapted to receive the wall 34 of the bell of the gasometer. This bell extends over the cylinder 32 and is provided with a downwardly-extending arm 35, to the lower end of which is pivoted a toothed rod or rack 36, which rests upon and engages with the teeth of the gear 17 of the carbid-feed.

A suitable number of tubes or passages 37 are arranged vertically upon the outer wall of the gasometer, and each is adapted to receive a rod 38, which extends from the top of the bell of the gasometer and serves as a guide therefor.

A tube 39 is formed within the center of the cylinder 32 and is closed at the bottom, as shown. This tube is adapted to receive a similar tube 40, which depends from the center of the top of the bell and which receives an escape-pipe 41, which extends through the bottom of the tube and is provided with a suitable outlet. A perforation or passage 42 is formed within the tube 40 at a point above its lower end, whereby gas may escape there-through and through the pipe 41 when the bell is raised to a predetermined height by the too-rapid generation of gas.

The tube 39 is normally filled with oil and is connected with the oil-compartment formed between the wall 31 and cylinder 32 by means of a pipe 43. It will thus be seen that oil will be retained at the same level in both the

tube and the seal inclosing the cylinder. A suitable outlet, as 44, is provided at the end of pipe 43, whereby oil may be readily withdrawn from the gasometer.

A pipe 45 extends from a point above the top of the cylinder 32 down through the partition 33 and thence into the catch-basin 22 of the generator and will, as is obvious, conduct gas from said basin to the interior of the bell. A suitable distributing-pipe 46 also extends from the interior of the bell at a point above the top of the cylinder 32, as shown.

A suitable check-valve 47 is located within the conducting-pipe 45 at a point between the gasometer and the generator, and a valved outlet 48 for the oil is located within the wall of the generator to permit the oil to be withdrawn therefrom. A drip or drain 49 is located within the bottom of the generator to permit the contents thereof to be readily withdrawn when desired.

It will be seen that water is admitted to the generator through the inlet 8 after the receptacle 7 has been filled. After the generator has been filled to the proper height the cap 9 is placed in position and carbid dropped into the water within the generator through the passage 10. The gas generated thereby will rise into said passage and pass into the tube 20 by way of pipe 23. Such gas as may accumulate between the wall of the receptacle 7 and the inner wall 27 of the generator will, as is obvious, flow through the pipe 24 into the passage 10 and thence into the tube 20 by way of pipe 23. The gas will then pass through pipe 21 into the compartment 22 and thence to the bell of the gasometer through pipe 45. It is obvious that the bell will then be carried upward, carrying the rack 36 therewith. As the rack is in engagement with the gear 17, this upward movement of the bell and the rack will cause said gear to revolve upon its shaft 14, causing the bolt 16 to slip over the teeth of the ratchet-wheel. It will thus be seen that the shaft 14 and the feed-pulley 12 will remain stationary during the upward movement of the bell. As the gas is withdrawn from the gasometer through pipe 46 the bell will return to its normal position and the downward movement thereof will cause the gear 17 to revolve, the pawl thereof engaging the ratchet-wheel and turning the same and its shaft 14 and the feed-pulley 12, secured thereto. As the feed-pulley is turned the carbid, which is turned into the upper recesses 13 therein from the hopper 18, will be discharged downward into the water within the generator. It will be understood that should the gas generate too rapidly the same will raise the bell to such a position that the aperture 42 within the tube 40 will be brought to a point above the level of the oil within the tube 39 and will thereby permit the escape of such gas out through the pipe 41.

When it is desired to clean the generator, it is merely necessary to detach the connecting-strips 27 from the rods 26, and the hopper

18 and the receptacle 7, which depends from the lower end thereof, can then be removed by withdrawing the wall 5 of the bell from between the walls 1 and 2. It will be understood that the contents of the generator can be discharged through the inlet 49.

By providing a cylinder 32 within the gasometer and filling the space formed between said cylinder and the inclosing wall with oil I secure an effective seal for the bell of the gasometer and avoid the extreme weight of water which has been heretofore used to fill the entire gasometer.

In the foregoing description I have shown the preferred form of my invention; but I do not limit myself thereto, as I am aware that modifications may be made therein without departing from the spirit or sacrificing the advantages thereof, and I therefore reserve the right to make such changes as fairly fall within the scope of my invention.

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

1. In an apparatus of the character described, the combination with a gasometer; of a generator communicating therewith and comprising inner and outer concentric walls; a bell mounted therebetween; a receptacle within the top of the bell, having an outlet in the bottom thereof; a tube extending from the bottom of the receptacle; a hopper mounted upon the tube; and means for securing said hopper to the outer wall of the generator.

2. In an apparatus of the character described, the combination with a gasometer; of a generator comprising inner and outer walls; a bell mounted between the walls; a receptacle in the top thereof having an outlet in the bottom; a tube extending from the bottom of the receptacle; a hopper upon the tube; a second tube extending from the bottom of the receptacle and closed at the top; a pipe projecting into said tube and communicating with the interior of the gasometer; and a pipe connecting the tubes.

3. In an apparatus of the character described, the combination with a gasometer; of a generator comprising inner and outer walls; a bell mounted between the walls; a receptacle formed by the top of the bell and having an outlet in the bottom thereof; a tube extending from the bottom of the receptacle; a hopper thereon; a carbide-feed device between said hopper and tube; a second tube extending from the bottom of the receptacle and closed at the top; a catch-basin; a pipe extending from said catch-basin into said sec-

ond tube; a second pipe connecting the catch-basin with the interior of the bell of the gasometer; a pipe connecting the tubes of the generator; and means for detachably securing the hopper to the outer wall of the generator.

4. In an apparatus of the character described, the combination with a gasometer; of a generator comprising inner and outer walls; a bell mounted between said walls; a receptacle formed by the top of said bell having an outlet in the bottom thereof; a tube extending from the bottom of the receptacle; a hopper mounted thereon; a carbide-feed between said tube and hopper; a second tube extending from the bottom of the receptacle and closed at the top; a catch-basin; a pipe extending from said basin into said second tube; a second pipe projecting from the catch-basin into the bell of the gasometer; a pipe connecting the tubes of the generator; a pipe extending from the wall of the receptacle to the tube of the carbide-feed; and means for detachably securing the hopper to the outer wall of the generator.

5. In an apparatus of the character described, the combination with a gasometer having a concentric hollow cylinder therein; of a generator comprising an inner and an outer wall; a bell mounted therebetween; a receptacle formed in the top of said bell; a tube secured to the bottom of the receptacle; a hopper upon the tube; a feed-wheel between said hopper and tube; a second tube extending from the bottom of the receptacle and closed at the top; a pipe within said tube; a catch-basin communicating with the pipe; a pipe extending through the cylinder of the gasometer into said catch-basin; and means for operating the feed-wheel by the movement of the gasometer.

6. In an apparatus of the character described, the combination with a base; of a gasometer thereon having brackets at opposite sides thereof; a generator upon the base; means for securing said generator to the gasometer; a bell to the generator; a hopper thereon; rods extending from the generator; strips secured to the hopper and detachably secured to said rod; arms at opposite sides of the generator; and bars secured to said arms and to the brackets of the gasometer.

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

JOSEPH T. EDWARDS.

Witnesses:

B. U. STILLER,
J. D. MURRAY.