

No. 719,633.

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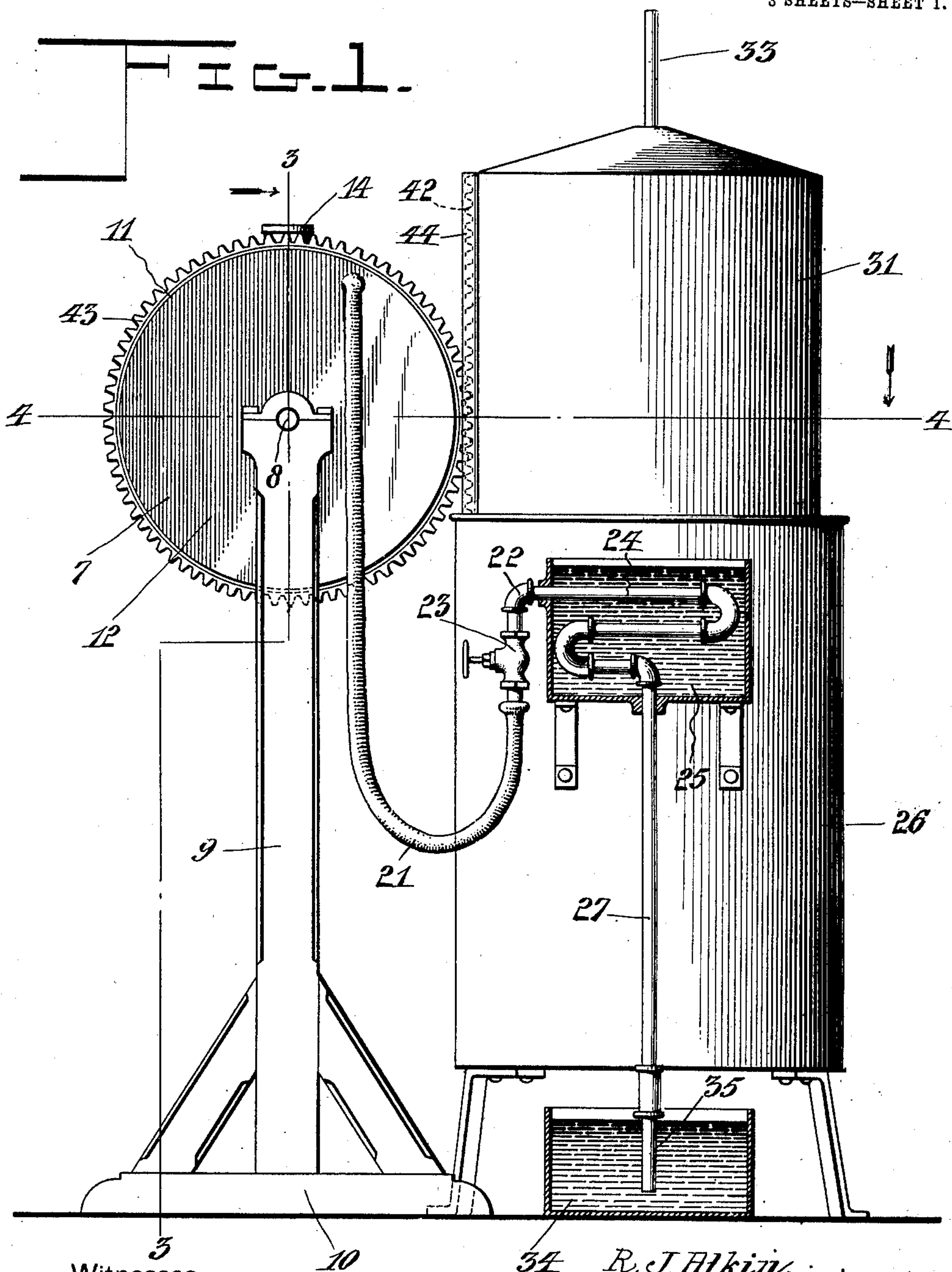
R. J. ATKIN & M. R. EAGLESON.

ACETYLENE GAS GENERATOR.

APPLICATION FILED JAN. 16, 1902.

NO MODEL.

3 SHEETS—SHEET 1.



Witnesses:

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Attorneys

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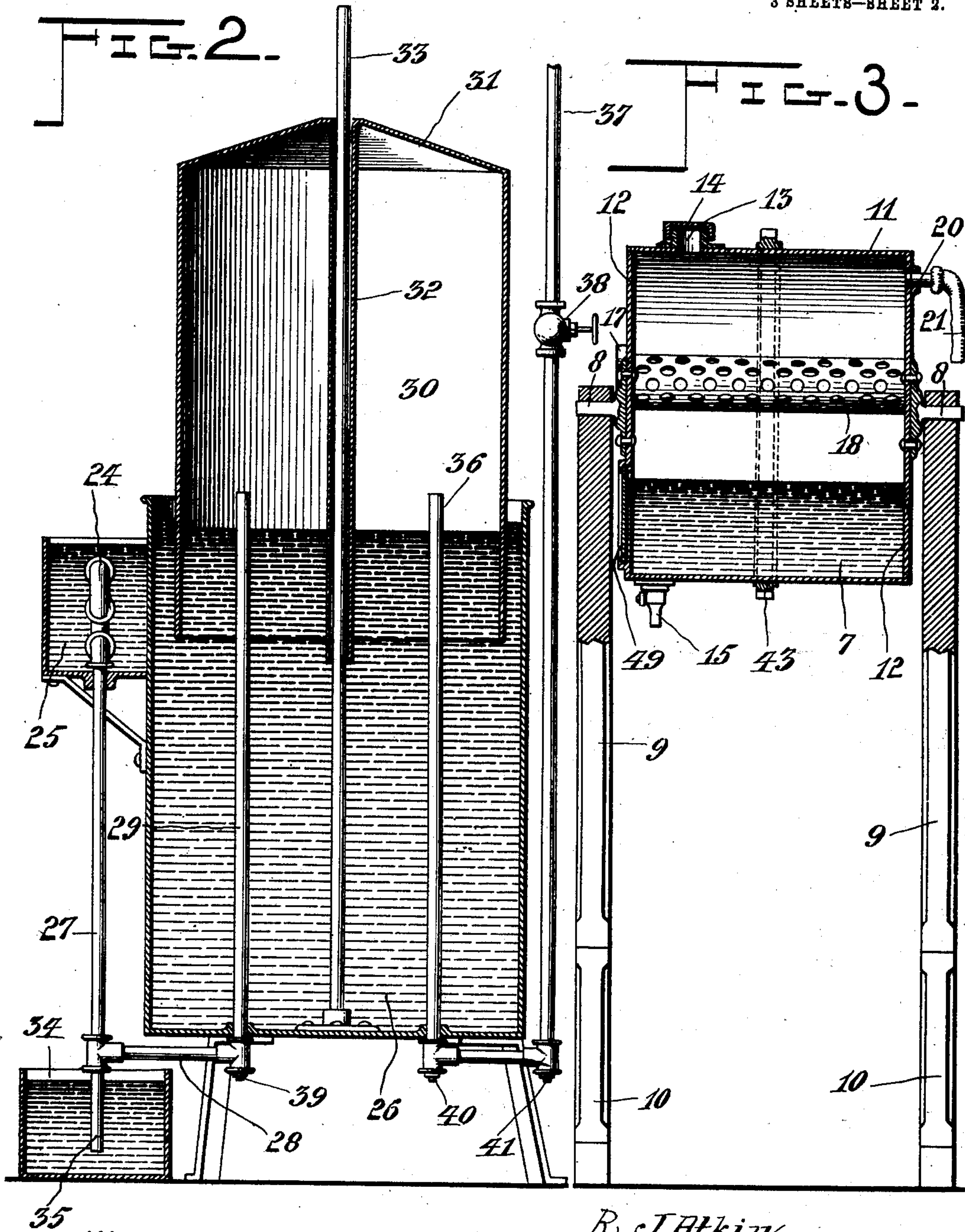
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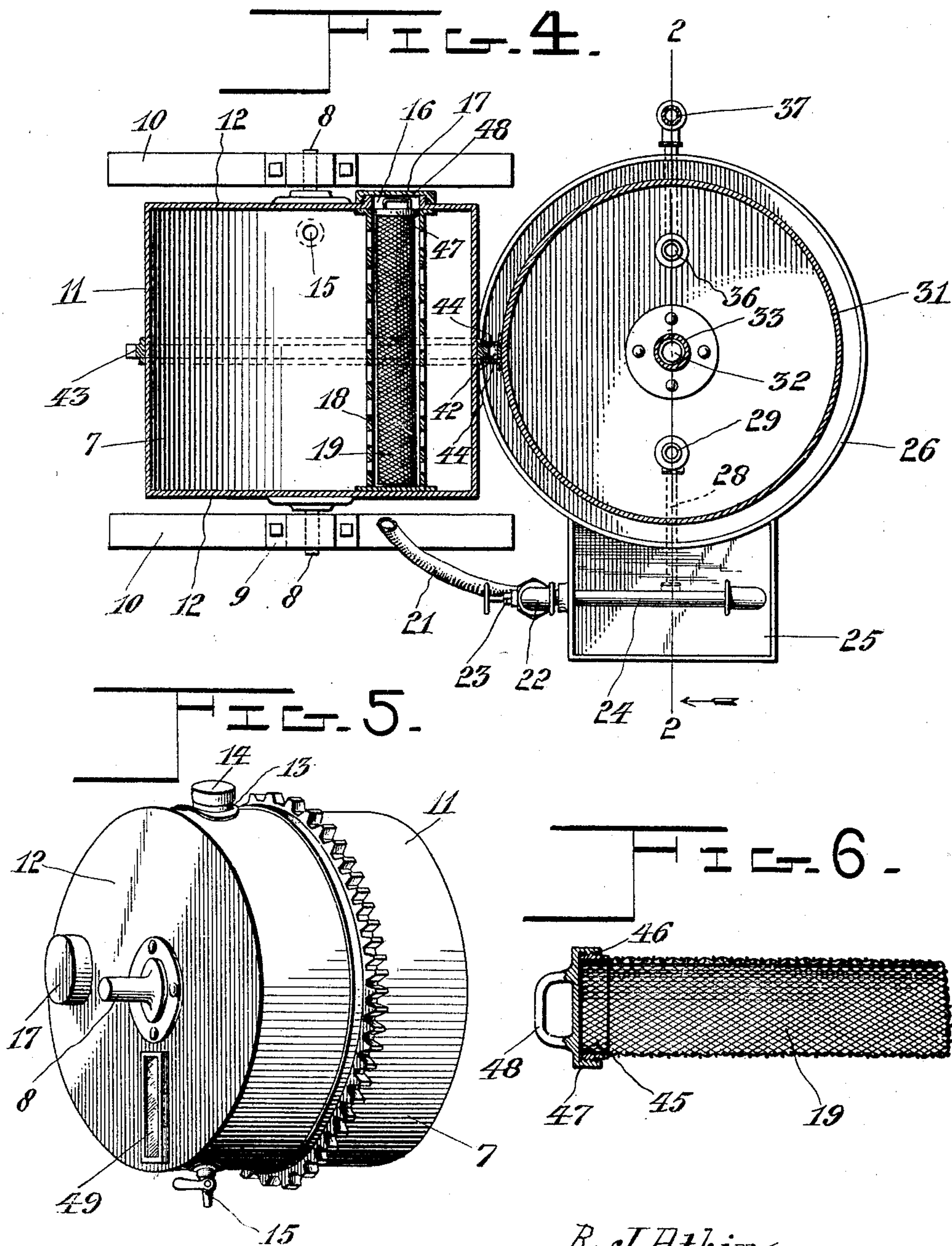
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# UNITED STATES PATENT OFFICE.

RODRICK JAMES ATKIN AND MARK ROBERT EAGLESON, OF LILLOOET,  
CANADA.

## ACETYLENE-GAS GENERATOR.

SPECIFICATION forming part of Letters Patent No. 719,633, dated February 3, 1903.

Application filed January 16, 1902. Serial No. 89,972. (No model.)

*To all whom it may concern:*

Be it known that we, RODRICK JAMES ATKIN and MARK ROBERT EAGLESON, subjects of the King of Great Britain, residing at Lillooet, county of Cariboo, Province of British Columbia, Canada, have invented certain new and useful Improvements in Acetylene-Gas Generators; and we do hereby declare that the following is a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

Our invention relates to a new and improved acetylene-gas generator of the type wherein a mass of carbid is successively immersed and withdrawn from the water-tank according to the amount of gas called for, said operation being performed automatically through a suitable connection with a rising-and-falling gasometer.

The object of our invention is to produce an automatic machine which will operate without further attendance than will be necessary for the occasional charging of carbid and the removal of the sludge formed by the generation of gas.

A further object of the invention is to avoid the consumption of superfluous water more than is actually needed for the work of generating gas.

Still a further object of the invention is to produce a machine which may be charged and refilled without interfering with the action of the gasometer and in which consequently no diminution of the light is caused by charging the generator with water or carbid.

Still a further object of the invention is to simplify the design and construction of apparatus of this type so as to enable a thoroughly-reliable machine to be produced at a small first cost and one which will not get out of order and occasion expensive repairs.

Other objects of the invention will appear in the accompanying description and claims.

We have shown our improved acetylene-gas generator in the accompanying sheets of drawings, wherein—

Figure 1 shows a rear elevation of an acetylene-gas generator embodying our invention.

Fig. 2 is a vertical central section through the center of the gasometer on a plane at right angles to Fig. 1 and on the line 2 2 of Fig. 4. Fig. 3 is a similar section taken on the line 3 3 of Fig. 1. Fig. 4 is a plan section of the generator and gasometer, taken on the line 4 4 of Fig. 1. Fig. 5 is a perspective view of the generator, and Fig. 6 is a sectional side view of the carbid-cartridge.

The same numerals of reference denote like parts in all the figures of the drawings.

Referring to the drawings, 7 denotes the generator, which is in the form of a barrel pivotally supported at the necessary height upon trunnions 8, which rest in bearings upon the upper ends of the supporting-columns 9 of a stand 10. The generator consists of a cylindrical drum 11, having heads 12 and an opening 13, provided with a screw-cap 14 for the admission of water. At the opposite side of the drum from the charging-opening 13 is provided a draw-off cock 15 for withdrawing the water and sludge when desirable. The head 12 at the front side of the generating-barrel is provided with an opening 16, which is preferably situated approximately on a level with the trunnions 8 and on the side adjacent to the gasometer for the admission of the charge of carbid, which opening when the generator is in operation is closed by a screw-cap 17. Extending from the opening 16 between the two heads 12 of the generating-barrel and secured to the latter is a perforated cylinder 18, into which is adapted to be inserted the carbid-cartridge 19. Upon the rear head 12 near the top of the barrel is inserted a short nipple 20, to which may be attached a flexible tube 21. The other end of the flexible tube 21 is attached to a pipe 22, having a cut-off valve 23 therein, and the pipe 22 is connected at its other end to a circulating-coil 24 in a condensing-tank 25, which for convenience we have mounted upon the side of the gasometer-tank 26. The gas is adapted to pass from the generator through the flexible pipe 21 and the condensing-coil 24 and will thence pass through a descending pipe 27, a short horizontal pipe 28, and an upwardly-extending pipe 29 into the gas-



space 30 of the gasometer-bell 31. The latter has at its center a depending tubular portion 32, adapted to embrace a vertical guide-rod 33, which is riveted to the bottom of the gasometer-tank 26. A drip-tank is also provided at 34, into which an extension 35 of the pipe 27 is led to catch the water of condensation from the condensing-coil 24 and the pipes 28 29.

36 is the service-pipe for drawing off the gas from the gasometer to the point of consumption and extends downwardly through the bottom of the gasometer and thence upwardly, as shown at 37, to the mains, and it may be provided with a valve 38 for regulating the flow of gas to the burners. Plugs 39, 40, and 41 are provided upon the lower ends of the pipes 29, 36, and 37, respectively, to which drip-pipes may be attached, if desirable, in the same manner as shown at 35 for the pipe 27.

For the automatic operation of the generator by the gasometer there is provided upon the side of the latter a rack 42, which meshes with spur-teeth 43, encircling the drum 11 of the gasometer-barrel 7, and said rack is preferably formed with closed sides 44 for retaining it in proper alinement with the spur-teeth 43.

The carbide-cartridge 19 is formed of perforated material and, as shown, consists of wire-gauze drawn into cup-shape form of a size adapted to fit into the perforated cylinder 18. Upon the open end or top of the wire-gauze is attached a ring 45, having screw-threads 46 formed upon its outer side, over which screws a cap 47 and a handle 48 for the withdrawal and insertion of the cartridge.

In order to maintain the proper level of water in the generator and to enable the operator to view at all times the operation of the machine, we establish a glass slide 49 in the front head of the barrel.

In the operation of the machine the cock 23 must first be operated to close the connection between the generator and gasometer to prevent backflow of gas while charging the generator. The cap 17 will then be removed and a carbide-cartridge 19 inserted through the opening 16 into the perforated cylinder 18, whereupon the cap 17 is replaced and screwed tight. The cap 14 is next removed, and water may be poured in at the opening 13 until it reaches the height shown in Fig. 3, and it may be seen through the glass slide 49. The cap 14 having been replaced, the valve 23 is opened. If the gas-holder is nearly exhausted, the cylinder 18 will be in such a position as to come below the surface of the water thus poured in, and gas will be generated and will flow into the gasometer through the flexible connection 21, the condensing-coil 24, and the pipes 27, 28, and 29. The inflow of gas thus produced will cause the gasometer to rise, whereby the generating-barrel 7 will be turned by the rack 42 and the teeth 43 into

the position shown in the drawings, wherein the carbide is no longer immersed in the water, and the generation of gas will cease. As soon, however, as the withdrawal of gas from the gasometer through the pipes 36 37 causes it to descend the carbide will be reimmersed and generation of gas will again proceed, and so on until the charge of carbide is exhausted. The generator will then be refilled in the same manner as before, the spent cartridge 19 being removed and a fresh one immediately inserted, it being understood that several of such cartridges will ordinarily be kept on hand for this purpose. It will be seen that the bulk of the sludge formed by the generation of gas will be retained by the cartridge-case and will be withdrawn from the generator along with the latter; but such small masses of sludge as accumulate from time to time in the bottom of the generator may be readily withdrawn through the draw-off cock 15.

Changes within the scope of the appended claims may be made in the form and proportion of some of the parts, while their essential features are retained and the spirit of the invention is embodied. Hence we do not desire to be limited to the precise form of all the parts as shown, reserving the right to vary therefrom.

Having thus described our invention, what we claim as new is—

1. In a gas-generator, a generating-barrel adapted to contain water and mounted upon trunnions in the heads thereof, a perforated cylinder mounted in the interior of the barrel parallel to its axis, a carbide-cartridge within the cylinder, and means for periodically turning the barrel to immerse the cartridge in the water.

2. A gas-generator comprising a generating-barrel adapted to contain water and having a perforated cylinder supported therein adapted to receive a carbide-cartridge, spur-teeth upon the cylindrical side of the barrel, and a gasometer having a rack attached to the side thereof engaging with the spur-teeth and adapted to oscillate the barrel to immerse and withdraw the cartridge from the water.

3. A gas-generator comprising a generating-barrel adapted to contain water and having a perforated cylinder supported therein on one side thereof, a perforated carbide-cartridge supported within the cylinder, spur-teeth on the cylindrical side of the barrel, a gasometer having a rack on the side thereof engaging said spur-teeth, a gas-outlet in the upper side of the barrel, a flexible tube connecting the gas-outlet with the gasometer, a condensing-tank fixed to the side of the gasometer-tank, and a condensing-coil in the tank through which the gas passes on its way to the gasometer from the generator.

4. A gas-generator having a circular opening in the side thereof for the insertion of a



charge of carbid, and a cylindrical perforated holder for the carbid surrounding the opening and attached to the interior of the generator, in combination with a carbid-cartridge  
5 composed of a cup of wire-gauze adapted to fit in the carbid-holder and closed at its upper end by a screw-cap having a handle thereon to withdraw the cup from the holder.

In witness whereof we have hereunto set our hands in the presence of two witnesses. 10

RODRICK JAMES ATKIN.  
MARK ROBERT EAGLESON.

Witnesses:

SAMUEL GIBBS,  
PHILIP P. McCALLUM.