

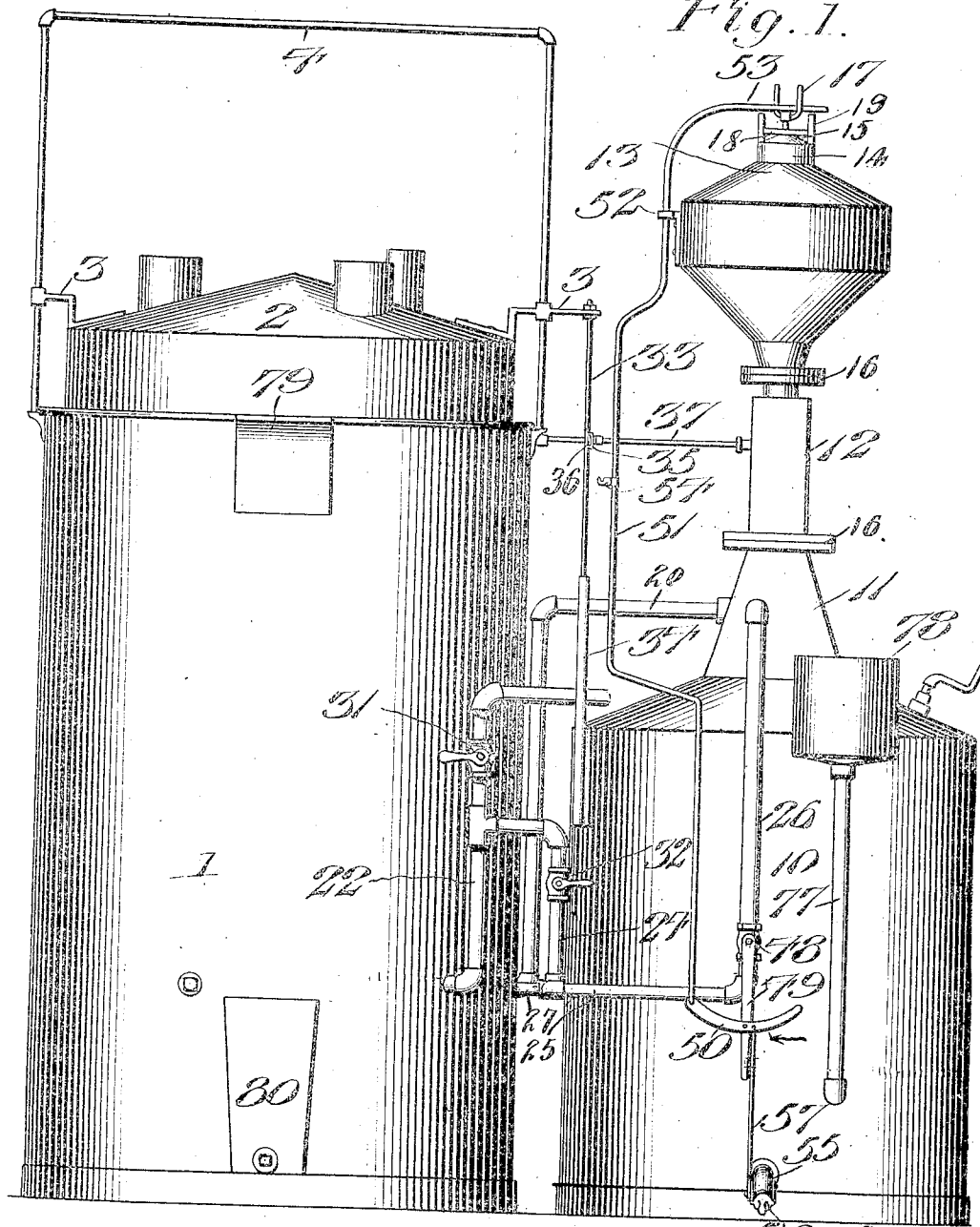
L. J. OLSON.
ACETYLENE GAS APPARATUS.
APPLICATION FILED SEPT. 19, 1906.

932,997.

Patented Aug. 31, 1909.

2 SHEETS—SHEET 1

Fig. 1.



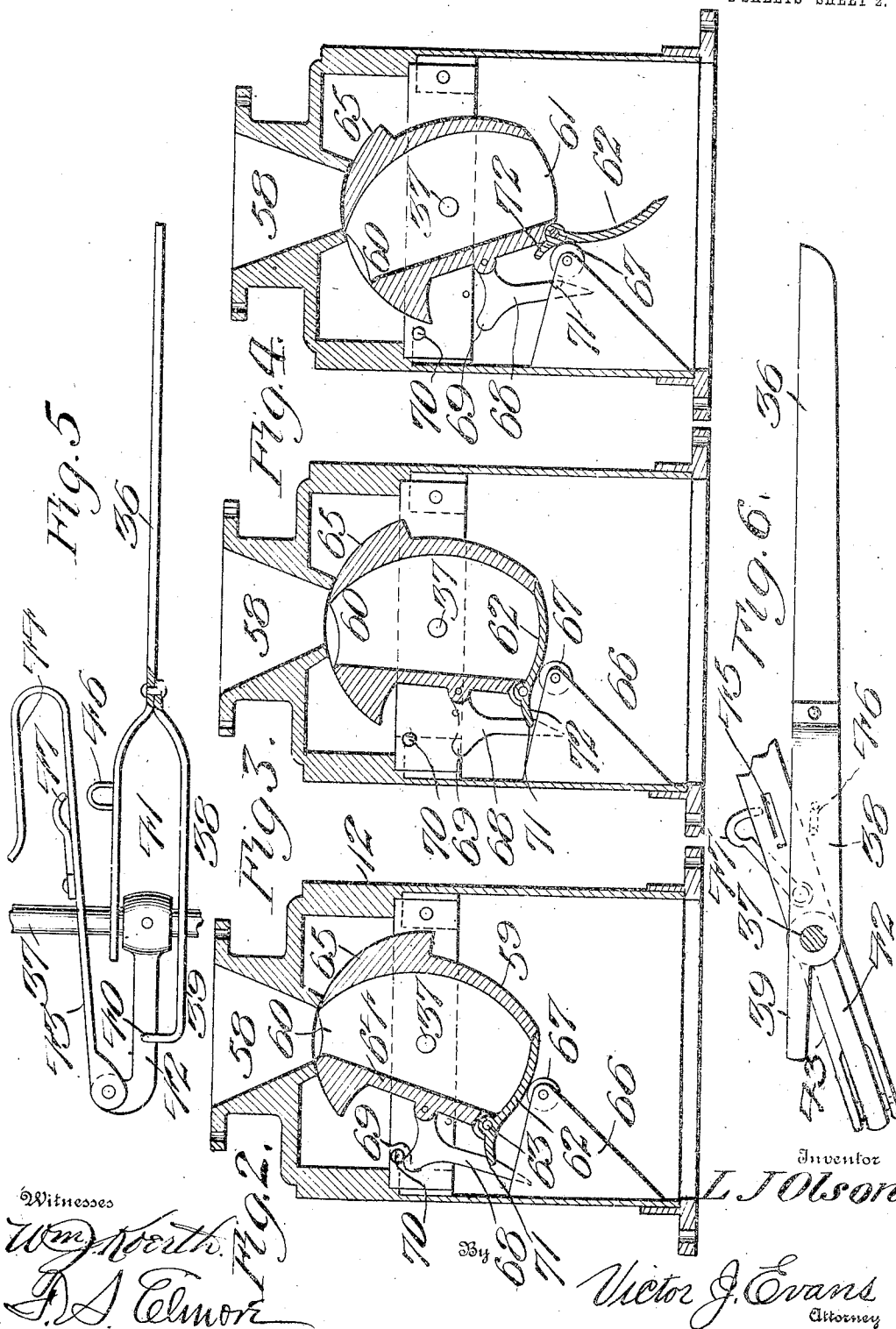
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UNITED STATES PATENT OFFICE.

LARS J. OLSON, OF ALEXANDRIA, MINNESOTA.

ACETYLENE-GAS APPARATUS.

932,997.

Specification of Letters Patent. Patented Aug. 31, 1909.

Application filed September 19, 1905. Serial No. 335,296.

To all whom it may concern:

Be it known that I, LARS J. OLSON, a citizen of the United States, residing at Alexandria, in the county of Douglas and State of Minnesota, have invented new and useful Improvements in Acetylene-Gas Apparatus, of which the following is a specification.

This invention relates to acetylene gas apparatus of the type embodying a generator, a container from which charges of carbid are fed into the generator and a gasometer which receives the generated gas and from which the latter is taken for use through a suitable service pipe or pipes.

The invention has for its objects to provide a comparatively simple, inexpensive device of this character which will be wholly automatic in action, one wherein charges of a determined quantity will be delivered from the container to the generator, and one in which the feeding of the carbid will be effectually controlled by the movements of the gasometer bell.

A further object of the invention is to provide a novel form of valved measuring vessel through which charges are delivered from the container to the generator, which vessel will be automatically moved to charge receiving and delivering positions through the movement of the bell, the valve for closing said vessel being normally and effectually locked in the closing position and automatically released and opened upon completion of the movement of the vessel to discharging position.

The invention, in its preferred form of details, will be described in the following specification, reference being had particularly to the accompanying drawings, in which,

Figure 1 is a side elevation of an acetylene gas apparatus, embodying the invention. Fig. 2 is a detailed sectional view through the generator throat, showing the carbid delivering vessel in normal position for receiving a charge. Fig. 3 is a similar view showing the vessel in an intermediate position, assumed under the action of the bell. Fig. 4 is a similar view showing the vessel in discharging position with its closing valve open. Fig. 5 is an enlarged plan view of the governing device. Fig. 6 is a side elevation of the governing device.

Referring to the drawings, 1 designates the gasometer equipped with a vertical movable bell 2, having guide arms 3 slidably en-

gaging the vertical side portions of the guide frame 4 fixed upon the upper end of the gasometer 1.

Positioned at one side of the gasometer is a generating tank 10 having a reduced conical mouth 11 connected, by a tubular coupling member or throat 12, with the lower discharge end of a carbid holder or container 13. The upper end of the carbid holder is formed with an inlet mouth 14 normally closed by a removable cap 15, there being provided, on the ends of the coupling bar 12, suitable flanges 16, adapted to be bolted to corresponding flanges formed respectively on the mouth 11 and lower discharge end of the container, while fixed upon the cap 15 is a vertical substantially U-shaped member or fork 17, and a horizontal cross bar 18, adapted to contact, at its ends, with the vertical arms 19 arising from the inlet mouth 14, for holding the cap against rotation in one direction.

Coupled to the mouth 11 of the generator and leading therefrom into the gasometer tank is a gas inlet pipe 20, while leading from the gasometer tank is an outlet pipe 22. Beyond the gasometer, the pipe 22 is connected by means of a branch pipe 24 with a safety or exhaust pipe 25, having a vertical portion 26 in communication with the mouth 11 of the generator, while the branch pipe 27 establishes communication between the safety pipe 25 and the gasometer tank. The service pipe 22 is equipped, at a point above the branch pipe 24, with a cut-off valve 31, said branch pipe being also provided with a cut-off valve 32, the former being normally opened and the latter closed while the apparatus is in action.

Secured at the upper end to the adjacent guide arm 3, and thereby movable with the bell 2, is a vertical rod 33 which extends downward to the tubular guide 34 fixed to the generator. The rod 33 is provided, intermediate of its ends, with a bearing 35, through which extends the outer end of the normally horizontal member or bar 36, the latter being loosely journaled, at its inner end, on a rotary feed shaft 37. The feed shaft is mounted in suitable bearings with one of its ends extended into the coupling member or throat 12, for a purpose which will later appear. Secured to the arm 36 is a rearwardly projecting section 38 also fulcrumed upon the shaft 37 and terminating, at its rear end, in a finger 39 having an in-

turned portion 40, the inner end of the arm 36 and the section 38 diverging from their point of juncture to form a space 41 between them. The member or bar 36 is included in the governing device which also includes a crank arm 42, secured upon the shaft 37 and projecting therefrom in a direction opposite to that of the bar 36, there being pivoted to the crank arm 32 a locking member or hasp 43 having its forward ends bent into substantially U-shaped form to form a contact portion 44. Between its ends, the member 43 is provided, at a point in advance of the shaft 37, with an opening 45 adapted to receive a U-shaped member or shackle 46 carried by the bar 36, a latching member or hook 47 being carried by the locking member 43 to engage the shackle 46, when in the opening 45, thereby securing the locking member to the bar 36.

Arranged in the lower portion of the branch pipe 26, which leads from the generator to the exhaust, is a normally closed cut-off valve 48 adapted for operation by means of a handle 49, to which handle is fixed an arcuate cross piece 50 connected, at one end, with the lower end of the vertical movable clamping member or rod 51. The rod 51 is slidably disposed adjacent its upper end in a guide bearing 52, fixed on the container 13 and, at its upper end, is formed to provide a horizontal portion 53 normally engaging the fork 17. Fitted on the rod 51, at a point beneath and suitably remote from the bar 36, is a contact finger 54, adapted for engagement by the contact portion 44 of the locking member. A drain cock 55 communicates with the generator, at a point near its bottom, said cock being closed by means of a cut-off valve 56 connected by a rod 57 with the cross piece 50.

Fixed upon the shaft 37 for movement therewith and within the coupling member or throat 12, which has a conical inlet mouth 58, is an oscillatory delivering vessel 59 preferably of the form shown and having an inlet opening or mouth 60 which normally registers with the lower end of the mouth 58, and a lower discharge opening 61 normally closed through the medium of a valve or closure 62 pivoted at one side as at 63 to the lower end of the adjacent side wall 64 of the vessel, the other side wall of which is formed at its upper end as at 65 for closing the mouth 58 when the vessel is moved to discharging position, as more fully hereinafter explained.

Mounted in the coupling member 12 beneath the vessel 59 is a bearing bracket 66 in which is journaled a guide roller 67 over which the valve 62 rides during movements of the vessel, while pivoted to the wall 64 of the latter is a locking member or dog 68 having a projecting cam portion 69 adapted to contact with a stop 70 for moving the dog

to locking position, there being formed in the dog, the lower end of which is arranged within the path of and to contact with the roller 67, a notch or seat 71 designed to receive a projection 72 formed on the valve 62 for locking the latter in closed position. Communicating with the tank at a point adjacent its lower end is a filling tube 77 provided at its upper end with a vessel 78.

The tank 1 is provided at its upper end with a funnel 79 through which it may be filled and at its lower end with a funnel 80 through which the lower compartment of the gasometer may be filled.

In practice, the tank 1, the lower compartment of the gasometer and tank 10 are suitably filled with water and the holder or container 13 with a supply of carbid, it being understood, of course, that an initial charge of carbid is introduced into the tank 10 prior to filling the same with water and in order to start the operation of the apparatus. As the gas generates in tank 10, it passes through the pipe 20 into the gasometer tank, and into the bell 2 which, of course, gradually rises as usual under the influence of the gas. As the bell rises the shaft 37 is rotated in a direction for moving the vessel 59 to charge receiving position, whereby it will, at the limit of the upward movement of the bell, occupy the position seen in Fig. 2, thus to receive a charge of carbid from the container 13. As the bell descends, owing to the gas having been taken therefrom through the service pipe 22 and to a decreased amount of gas being generated in the tank 10, the shaft 37 will be rotated in a direction for moving the vessel 59 to discharging position, as seen in Fig. 4, which position it will have reached upon the completion of the downward movement of the bell. When the vessel 59 reaches the position shown in Fig. 4, the lower end of the locking member 68 will contact with roller 67 and thus be tripped for disengagement from the extension 72, thereby permitting the valve or closure 62 to swing to open position and discharge the carbid from the vessel 59 into the tank 10. As soon as the fresh charge is deposited in the generator the generation of gas is renewed and the bell again rises, whereupon the foregoing operation is repeated, it being understood that as the bell moves upward the valve 62 in riding on the roller 67 is moved to closed position and is finally locked in such condition when the vessel 59 is in position to receive a charge owing to contact of the projecting cam portion 69 with the stop 70, as seen in Fig. 2. When the apparatus is set for operation, the bar 36 included in the governing device is locked rigidly to shaft 37 by means of the locking member 43 which is then secured by the latching member 47, as heretofore explained, it being apparent that when the bar 36 is locked the finger 40 will bear on the

crank arm 42, thus adapting the parts to move as shown in rotating the shaft, the arm being, of course, for this purpose, actuated through the movements of the bell 2 and owing to its engagement with the bearing 35. When it is desired to clean the apparatus the handle 49 is swung from right to left as indicated by the arrow in fig. 1, thereby opening the cut-off valve 48 and at the same time moving the rod 51 upward, thus positioning the stop 54 for contact with the engaging portion 44 of the locking member, or, that is, in position to contact with the portion 44 when the bell is at the limit of its normal descent. As the rod 51 is moved upward the portion 53 thereof is disengaged from the member 17 and at the same time the rod 57 is operated for opening the valve 56 which controls the drain cock 55. The valve 31 is next closed and the valve 32 opened, thereby permitting the residue of gas in the tank 1 and tank 10 to escape through the pipe 25. The parts having been so arranged, the cap 15 may be readily removed for permitting access to the carbid holder for cleaning the same.

Having thus described my invention, what I claim is:

1. A device of the character described, comprising the combination of a carbid-hop-

per, with a covered carbid-dropper adapted to be rocked thereunder, the cover of said carbid-dropper having a receiving opening in communication with the delivery opening of the carbid-hopper in one position of said dropper, and an end-gate, detachably securing means for said end-gate and means for releasing said end-gate when said carbid-dropper arrives at its discharge position.

2. A device of the character described, comprising the combination of a gas-generating chamber, a carbid-chamber provided with a delivery funnel, a covered carbid-dropper attached to a rock-shaft below said funnel, and having an opening in communication with said funnel in one position of said dropper, an end-gate on said carbid-dropper, a latch on said dropper provided with means for holding said end-gate closed, means for disengaging said latch when said carbid-dropper has arrived at its discharge position, and suitable means for actuating said rock-shaft.

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

LARS J. OLSON.

Witnesses:

H. JENKINS,
CONSTANT LARSON.