

L. B. LAKE.
 PIPE FRAME FOR ACETYLENE MACHINES.
 APPLICATION FILED JUNE 19, 1909.

959,359.

Patented May 24, 1910.

3 SHEETS—SHEET 1.

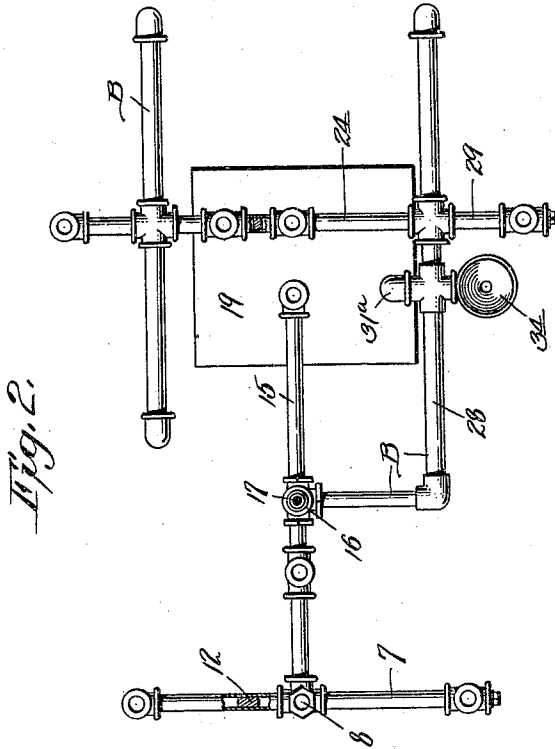


Fig. 2.

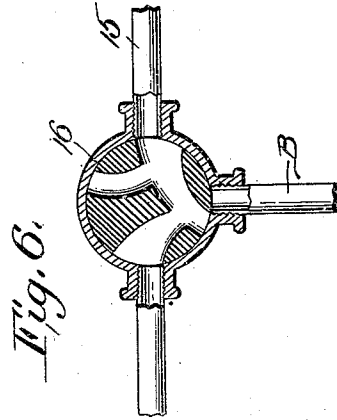


Fig. 6.

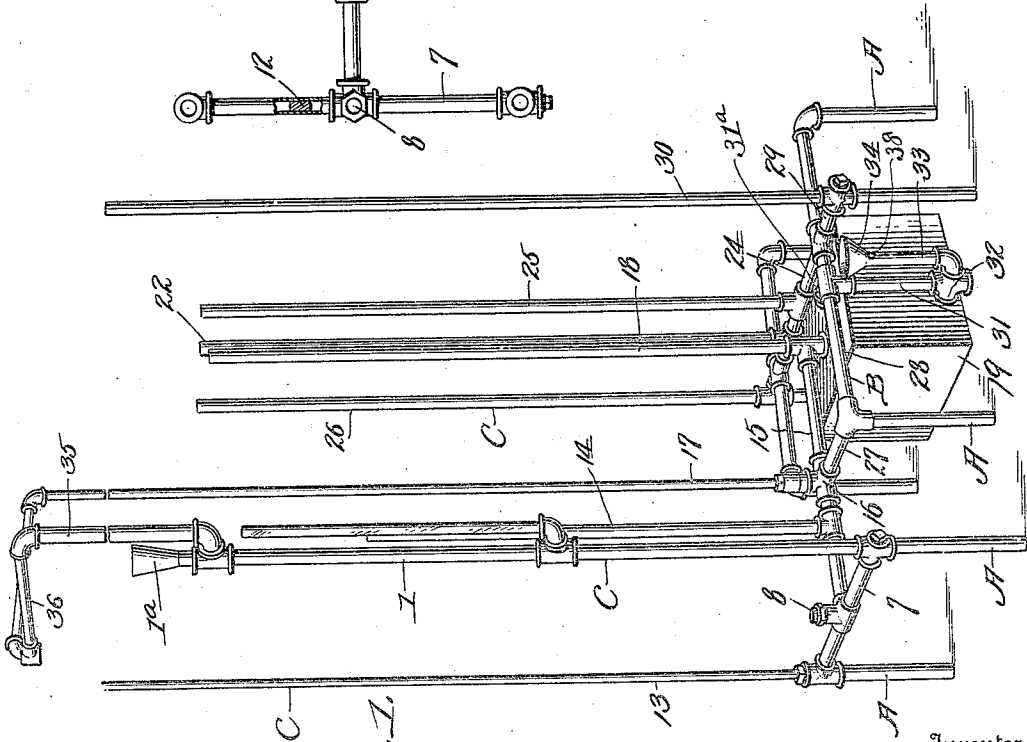


Fig. 1.

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Witnesses

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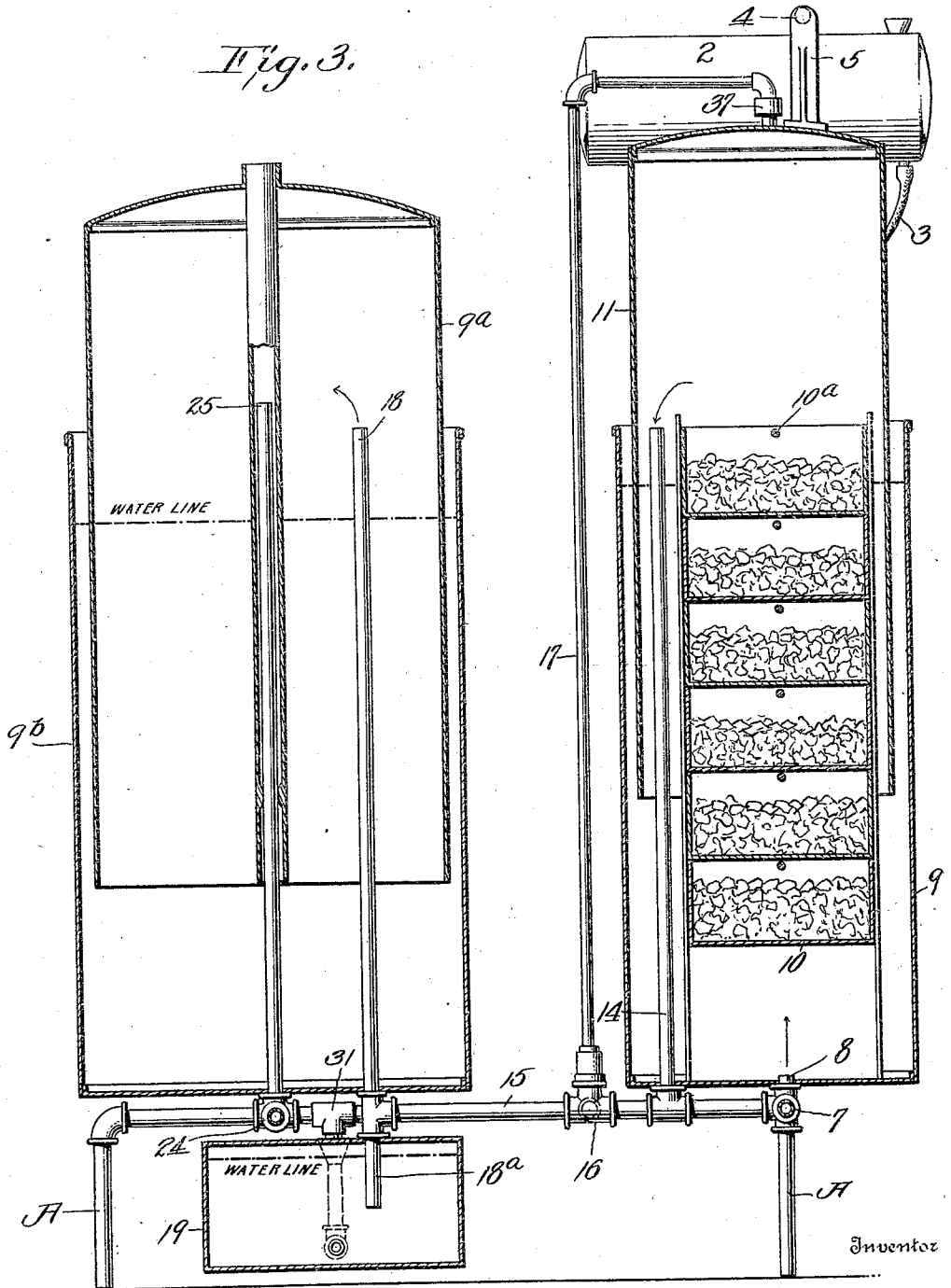
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Fig. 3.



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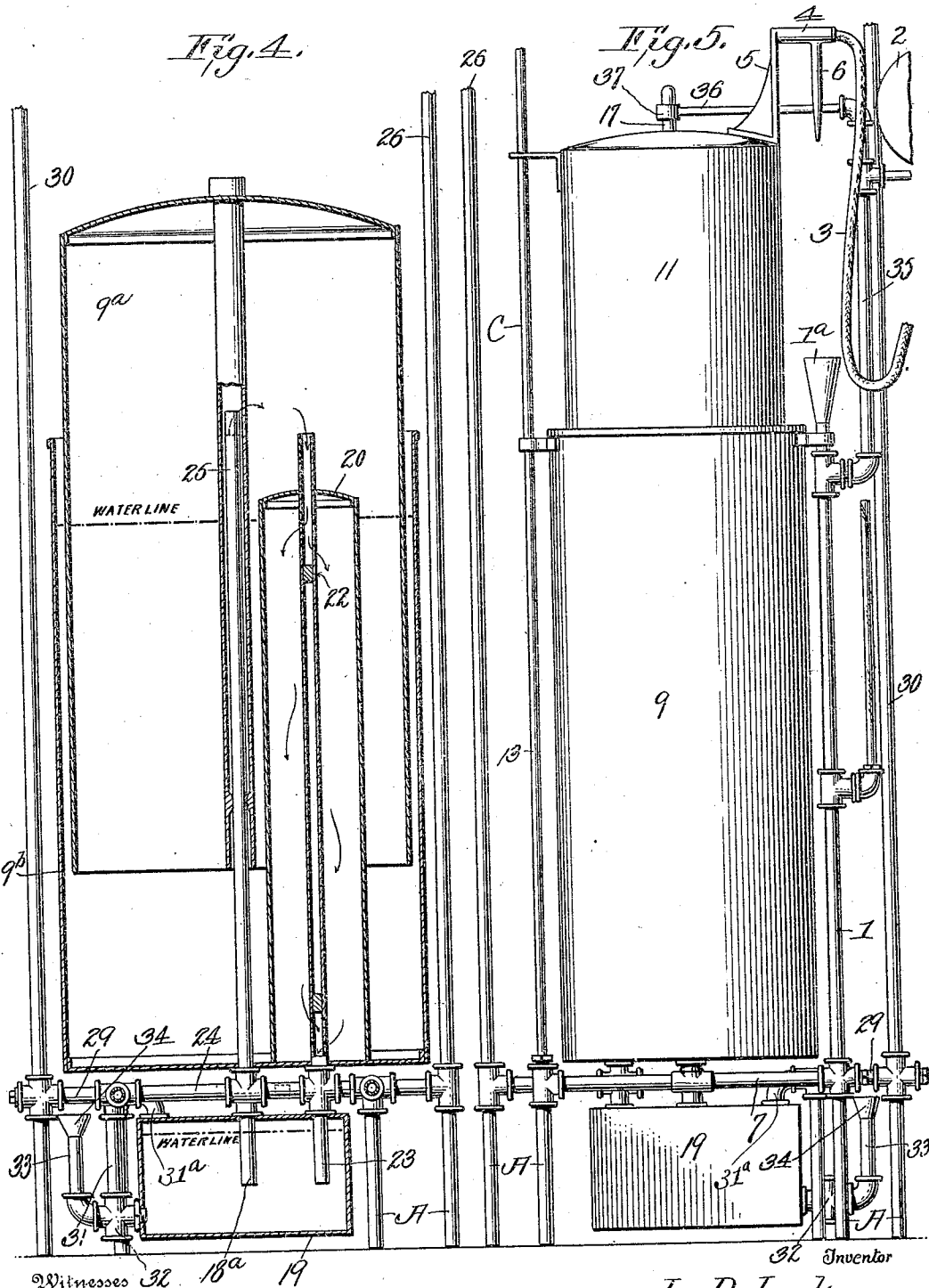
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3 SHEETS—SHEET 3.



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PIPE-FRAME FOR ACETYLENE-MACHINES.

959,359.

Specification of Letters Patent.

Patented May 24, 1910.

Application filed June 19, 1909. Serial No. 503,168.

To all whom it may concern:

Be it known that I, LEVI B. LAKE, a citizen of the United States, residing at St. Joseph, in the county of Buchanan and State of Missouri, have invented a new and useful Improvement in Pipe-Frames for Acetylene-Machines, of which the following is a specification.

This invention relates to a pipe frame for the purpose of supporting the tanks, both generating and storage, employed in acetylene gas machines, the pipes serving both as a support and as a means for supplying water to the carbid cups, and as means for conveying the generated gas from place to place.

In the usual form of acetylene gas generators the pipes are more or less supported from the tanks instead of serving both as pipes and as the supporting frame. By means of my construction, I remove all weight of the pipes from the tanks, making it easier to remove the tanks for the purpose of cleaning, and I also secure a double use of the pipes thereby reducing the cost of the machines as no supports are required for any parts of the device other than that furnished by the said pipes, with the exception of a few pipe sections which are employed in connection with the frame work, but through which neither gas nor water passes, and a few sections which are employed as guide rods, but which would otherwise require additional framework to support.

The invention consists in the novel features of construction hereinafter fully described, pointed out in the claims and shown in the accompanying drawings, in which:

Figure 1 is a perspective view of my frame complete, the water supply, storage and generating tanks being removed. Fig. 2 is a plan view of the ground frame upon which the vertical pipes are mainly supported. Fig. 3 is a vertical section taken centrally through the supporting frame and through the tanks, a water supply tank being shown in elevation. Fig. 4 is a vertical section taken on the line of the pipe 24 shown in Fig. 2, the storage tank, gas purifier and condenser being shown in section. Fig. 5 is an end elevation showing the generating tank and the condenser, and Fig. 6 is a detail sectional view of a valve mechanism.

In these drawings A represents the supporting legs of a horizontally arranged

frame B and C represents a series of vertically arranged pipes rising from the frame B, all of these parts being preferably formed of sections of gas pipe. As the arrangement of these various pipes can be best explained in connection with the use to which said pipes are put and their relationship to the complete machine, the construction and use of all of the various parts will be described together. Referring therefore to the reference numerals, 1 represents a water feed pipe at the upper end of which is placed a funnel 1^a, said feed pipe rising from a corner of the frame B, as shown most clearly in Fig. 1. A water supply tank 2 has connected thereto a flexible pipe 3 which leads to a short pipe section 4 supported by a bracket 5 which bracket is carried by the bell 11 of a generating tank 9. A discharge nozzle 6 permits the water to drip into the funnel 1^a as long as the short pipe section 4 is below the water level in the tank 2. Whenever the pressure of gas in the generator 9 raises the bell 11 to such an extent that the pipe section 4 is lifted above the water level at that time maintained in the tank 2, the supply of water is automatically cut off. The water supply passes through the pipe 1 to a pipe 7 of the frame B and rises through a suitable discharge opening 8 into the generator 9 which is supported by that part of the frame B of which the pipe 7 forms the end, said generator and its bell being also connected with a vertical pipe 13. Suitable carbid cups 10 are arranged within the generator, said cups being in vertical alignment and supplied with water from below, the uppermost cup being used last. Each of these cups is supplied with a transverse bail 10^a so that the cups may be readily lifted from position.

As shown in Fig. 2 the pipe 7 is plugged as at 12 immediately beyond the discharge opening 8, and it may be stated that all of the pipes are provided with similar plugs where it is necessary to prevent communication between different portions of the same pipe. The gas after being generated leaves the bell 11 through a vertically arranged pipe 14, the lower end of which is secured to a T coupling on pipe 15 which is the central longitudinal pipe of the frame B. This pipe is provided adjacent the generator tank with a three-way valve 16 operated by a stem 17 the upper portion of which projects over the bell 11 and forms not only an operating han-

dle for rotating the valve 16, but also serves as a lock for the purpose of preventing the removal of the bell while gas is confined within the generator, as will hereafter appear. After passing through the valve 16 the gas flows through the pipe 15 and passes up a pipe 18 into the bell 9^a of a gas storage tank 9^b. This bell is provided with the usual guide sleeve which works upon an upright pipe 25 mounted upon a pipe 24 which is parallel to the pipe 7 and adjacent the opposite end of the frame B. Beneath the frame B and also below the storage tank 9^b is a condensing tank 19 and arranged in the storage tank is a cylinder 20 through which extends vertically a pipe 22, also mounted upon the pipe 24 and communicating with said pipe, the pipe 22 being plugged opposite the upper and lower ends of the purifying cylinder, the lower and upper portions of said pipe being perforated, and the cylinder 20 is filled with any suitable material for filtering and purifying the gas. It will be understood that this filter is not claimed as a part of the invention, but is shown and described in order that other parts of the invention may be clearly understood. From the pipe 24 the pipe 23 depends into the condensing tank 19 which pipe is also in alignment with the pipe 22. The gas after passing through the pipe 25 and entering the bell 9^a passes into the pipe 22 through the filtering device and thence into the pipe 24 to an exhaust pipe 30. Pipe 24 is plugged between pipes 22 and 25.

The pipe 15 and the pipe 24 are connected by means of an angled pipe 28 which communicates with the pipe 15 through the three-way valve 16. A short pipe 29 arranged in alignment with the pipe 24 supports a service pipe 26. The pipe 31 leads downwardly from the pipe 28 and by means of a branch 31^a connects with the top of the condenser 19. Said pipe also connects with the lower portion of the condenser by means of a coupling 32, said coupling also supporting the vertical pipe 33 provided at its upper end with a funnel 34 through which water may be supplied to the condenser. The pipe 35 is carried by the upper end portion of the pipe 1 and extends upwardly above said pipe and carries a horizontal pipe 36 rotatably mounted upon the pipe 35 and the outer end of which serves as a rest or support for the free end of the lever 17, thus serving to prevent accidental movement of said lever in attending to the machine and which movement might occur if no support was afforded for the lever. By providing the free end of the pipe 36 with a cup shaped socket upon which the free end of the lever

17 rests accidental movement of said lever is still further guarded against.

The three-way valve 16 is so arranged in place that when the lever 17 is supported by the cup 37, thus preventing removal of the bell 11 from the tank 9, the gas generated flows freely to the storage tank through the pipe 18. But when the lever 17 is turned in one direction the valve will cut off communication between the generator and the storage tank 9^b and will open communication between pipe 14 and pipe 28, through the pipe 15 and the valve 16, thus exhausting gas through the pipe 30 from the generator tank and holding it under pressure in the storage tank. By throwing the lever in the opposite direction both the generator and storage tanks will be brought into communication with the pipe 28 and pipe 30, thus exhausting gas from both tanks.

The pipe 18^a serves as a drain pipe into the condenser, draining from the pipe 24 any water which may be carried over by the gas. This pipe also serves as a safety relief as in the event of too great a pressure in the reservoir the gas would pass down through said pipe 18^a into the water of the condensing casing 19, thence up through pipe 31^a into pipe 28, thence to pipe 29 and out through the exhaust 30. A small vent opening 38 formed in the pipe 33 prevents the water level of the condensing tank 19 rising above a predetermined limit, thereby maintaining at all times an air space in said tank into which gas forced by too high a pressure can escape.

What I claim is:

The combination, with a frame composed of horizontally-arranged pipes; of an acetylene generator and a storage tank supported directly on said pipes; a vertical discharge pipe for the generated gas arranged within the generator and connected at its outlet end to one of the frame pipes; a vertical inlet pipe arranged within the storage tank and connected at its inlet end to said frame pipe for supplying the gas to said tank; a valve arranged in said frame pipe between the points of connection of said discharge and inlet pipes thereto, to open and close communication between said generator and tank; and an operating lever for said valve extending normally above the bell of the generator, for preventing removal of the same when the said generator and tank are in communication through said valve.

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Witnesses:

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