M. W. CARRIER.

ACETYLENE GAS GENERATOR.

APPLICATION FILED JULY 29, 1909.

**959,994.**

Patented May 31, 1910.

3 SHEETS—SHEET 1.

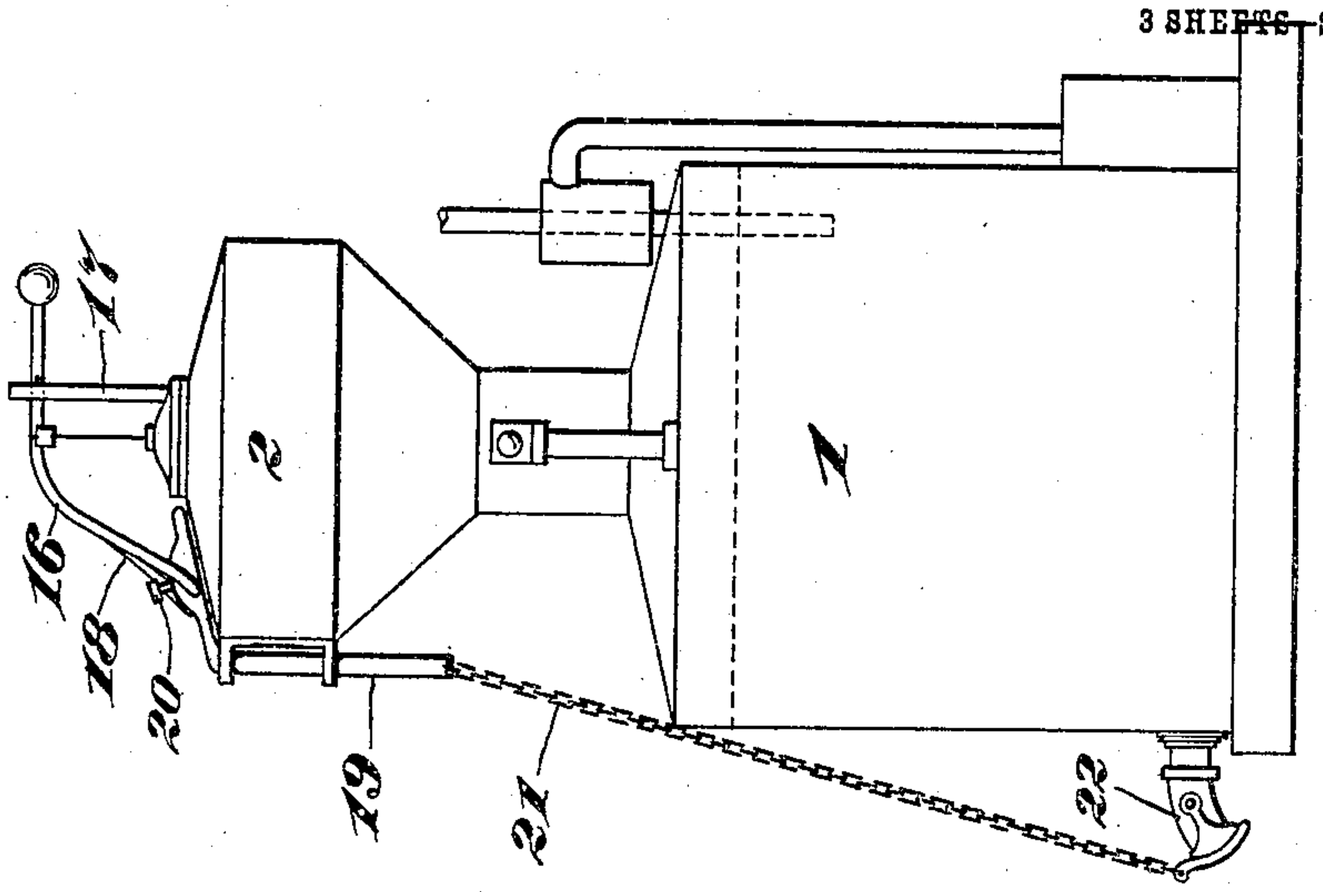


Fig. 2.

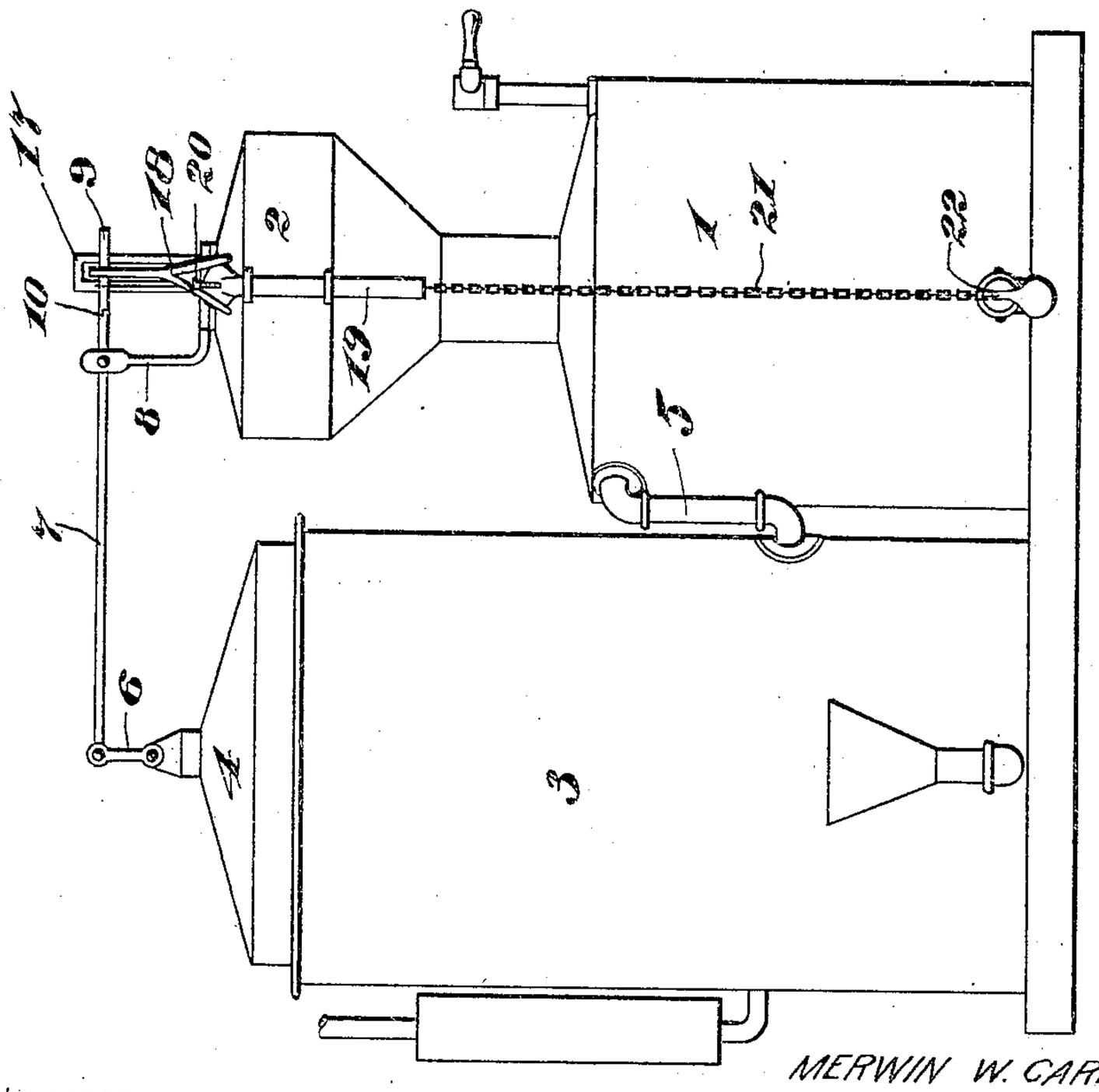


Fig. 1.

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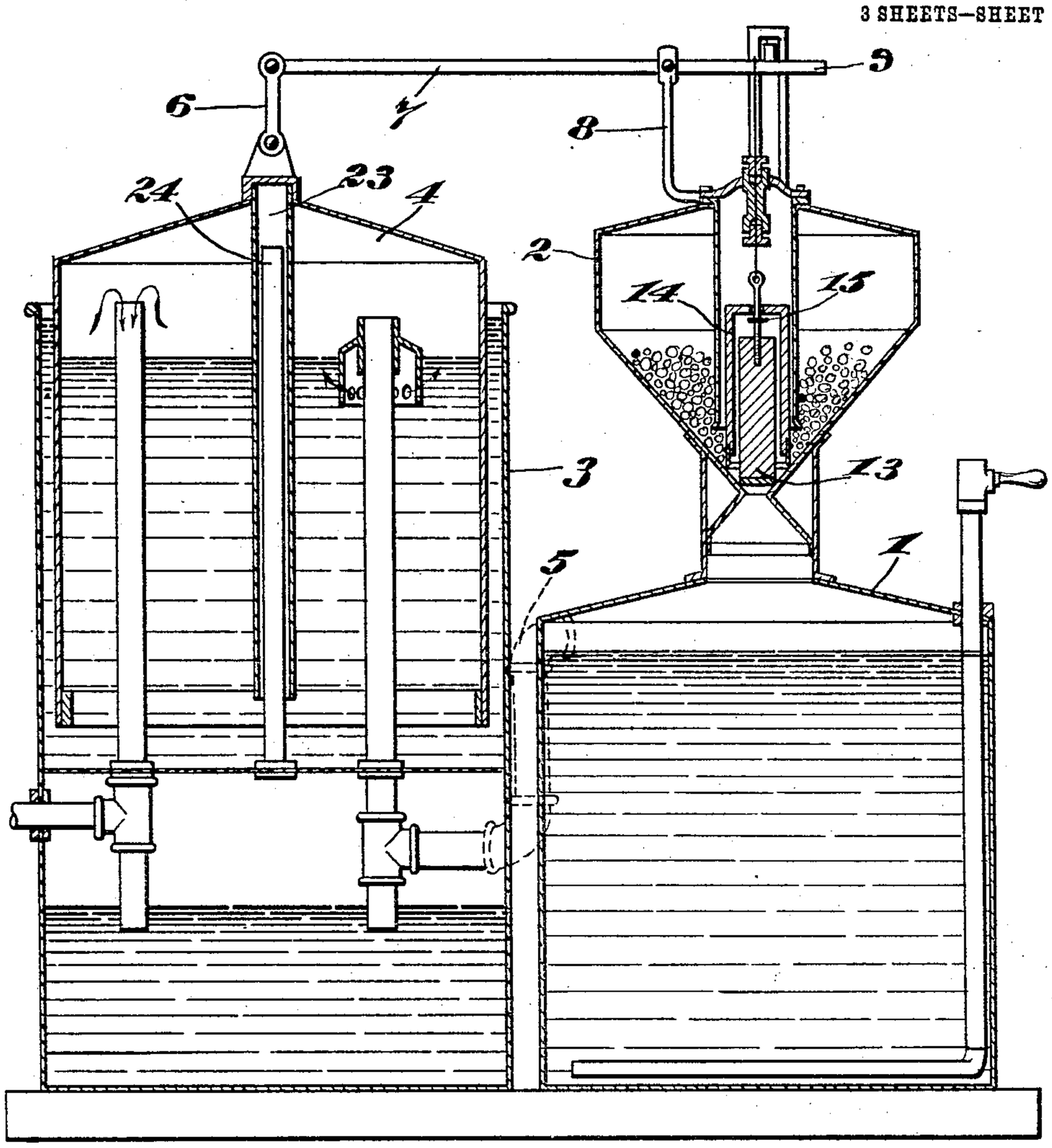


Fig. 3.

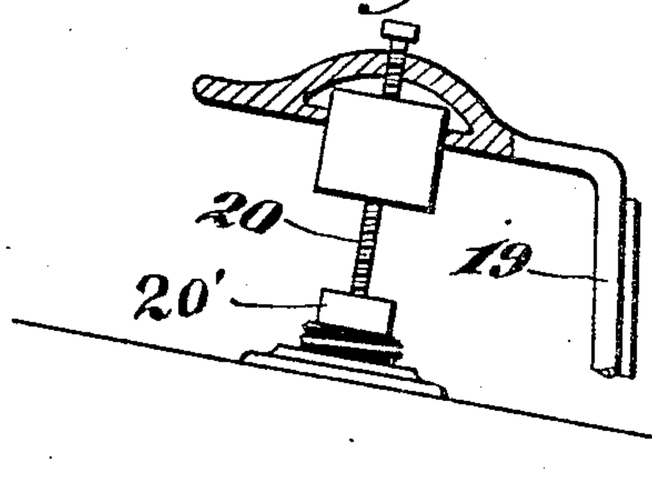


Fig. 10.

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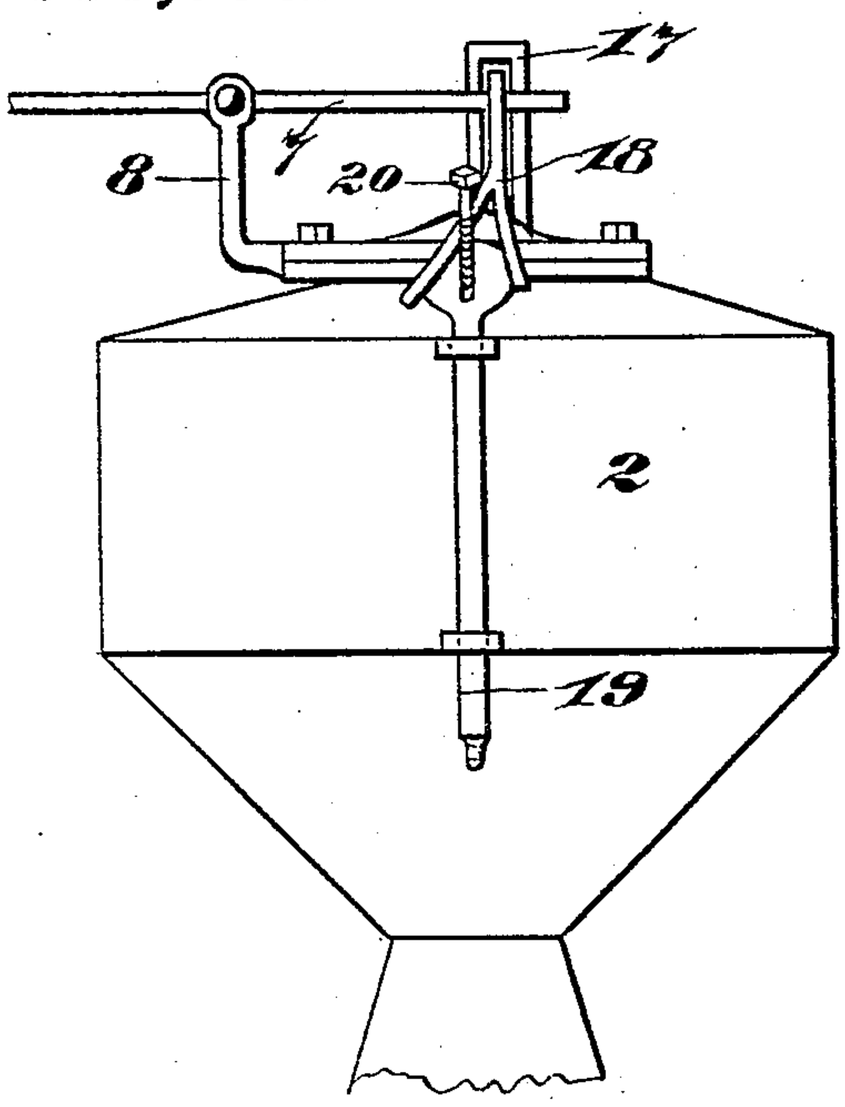
3 SHEETS—SHEET 3.



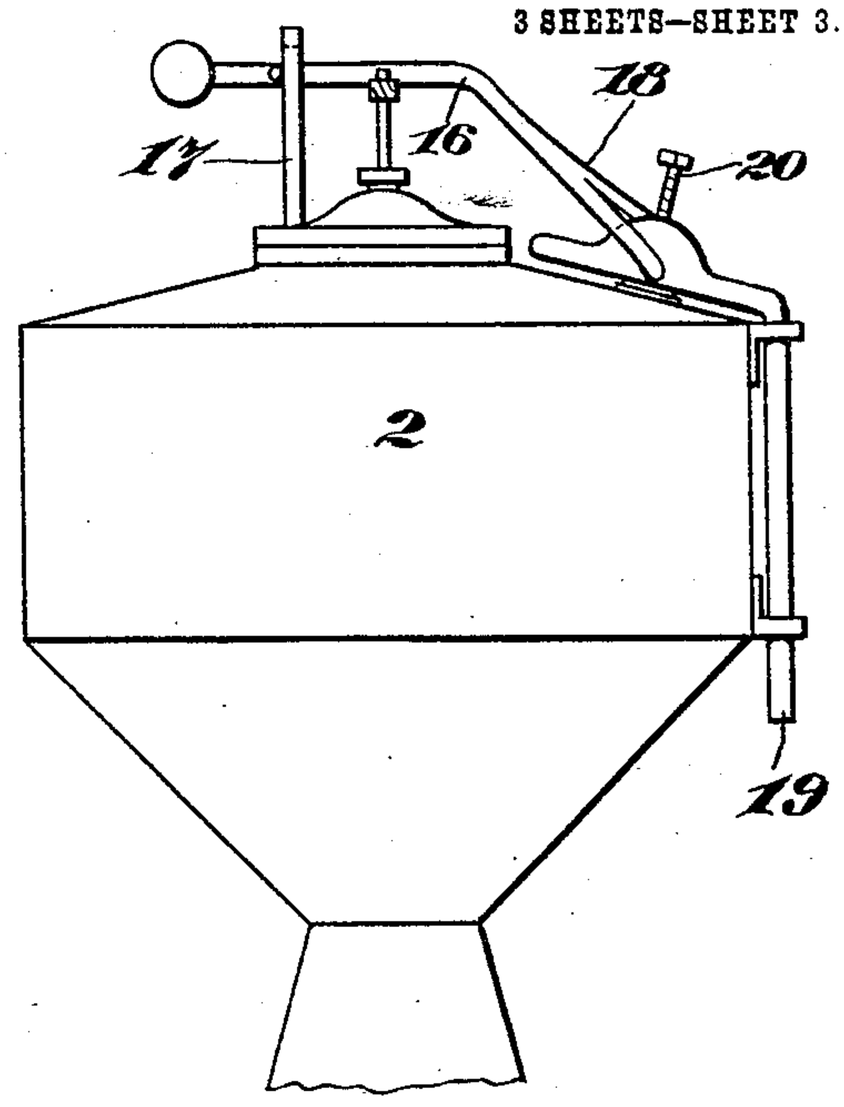




Fig. 4

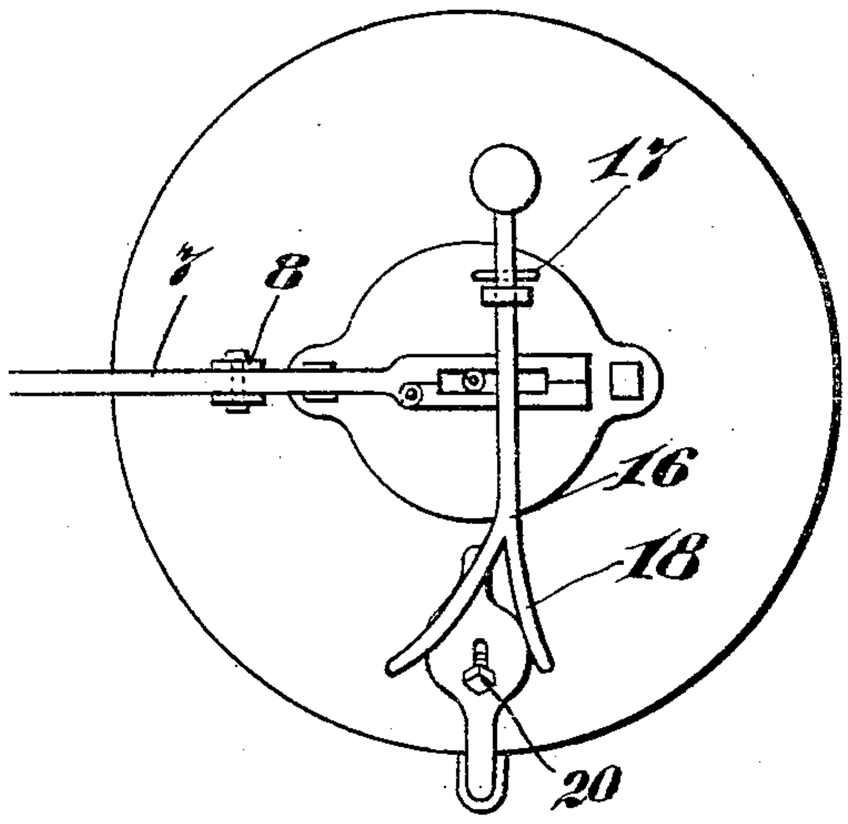



Fig. 5

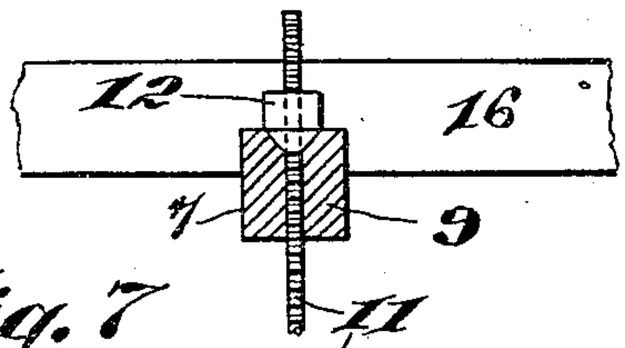



Fig. 7

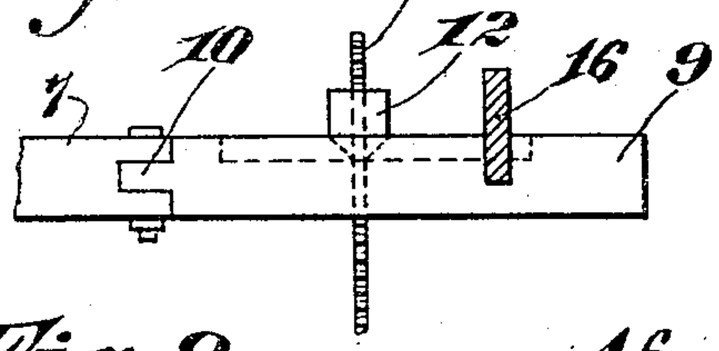



Fig. 8

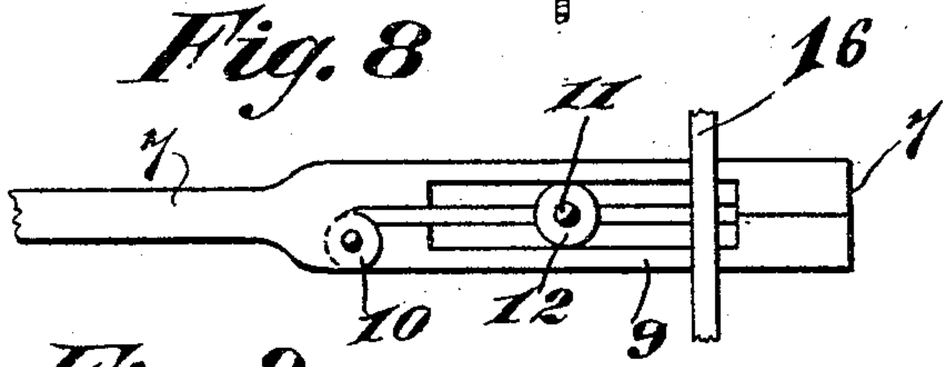



Fig. 6

Fig. 9

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# UNITED STATES PATENT OFFICE.

MERWIN W. CARRIER, OF FREDERICTON, NEW BRUNSWICK, CANADA, ASSIGNOR TO THE MONITOR MANUFACTURING COMPANY, LIMITED, OF FREDERICTON, CANADA.

## ACETYLENE-GAS GENERATOR.

959,994. Specification of Letters Patent. **Patented May 31, 1910.**

Application filed July 29, 1909. Serial No. 510,217.

*To all whom it may concern:*

Be it known that I, MERWIN W. CARRIER, a citizen of the United States, residing at Fredericton, in the county of York, in the Province of New Brunswick, Canada, have invented certain new and useful Improvements in Acetylene-Gas Generators; and I 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.

The invention to be hereinafter described relates to gas generators and particularly to acetylene gas generators of the inverted bell variety.

Broadly speaking, it comprises a generating tank, a carbid chamber communicating therewith, valves for cutting off communication between the carbid tank and generating chamber, a gas tank communicating with the generating tank, a bell movably mounted in the gas tank, a lever pivotally mounted on the carbid chamber, connections between the bell and lever, adjustable connections between the valves and lever, means for removing the waste material from the generating tank, and means for automatically operating the waste removing means and disconnecting the valves from the lever.

In order to more clearly disclose the construction, operation and use of the present invention, reference should be had to the accompanying drawings forming part of the present application.

Throughout the several figures of the drawings like reference characters designate the same parts.

In the drawings:—Figure 1 is a side elevation of the generator, complete; Fig. 2 is a right hand end view of Fig. 1; Fig. 3 is a vertical longitudinal section of the complete generator; Fig. 4 is an enlarged side elevation of the carbid chamber and attachments, as shown in Fig. 1; Fig. 5 is a view similar to Fig. 4, looking toward the left of Fig. 1; Fig. 6 is a top plan view of Fig. 4; Fig. 7 is an enlarged detail, showing a cross section of the valve operating lever; Fig. 8 is a right hand side elevation of Fig. 7; Fig. 9 is a plan view of Fig. 7; and Fig. 10 is an enlarged sectional detail of the adjusting device for the lever 16.

The present invention has been particularly designed to provide a quick automatic action of the shut-off valves of the carbid chamber whenever the plug of the filling opening is removed.

Referring to the drawings in detail, 1 indicates a gas generating tank above which is supported the carbid tank 2. Adjacent the generating tank is arranged a gas tank 3 in which is movably mounted the inverted bell 4. The generating tank and the gas tank communicate through pipe 5. Consequently gas generated in tank 1 will pass through pipe 5 and into tank 3 beneath the bell 4, causing the bell to rise. From the top of bell 4 extends a link 6 which is pivotally connected at its opposite ends respectively to the top of the bell 4 and to the outer end of a lever 7. The lever 7 is pivotally mounted in a bracket 8 extending from the carbid chamber and has its short end bifurcated and longitudinally slotted. One arm 9 of the bifurcated end of the lever is hinged to the lever at 10, to swing laterally therefrom. A threaded rod 11 projects through the slot of the lever 7 and is provided with an adjusting nut 12 screwed down thereon. The nut is provided with a conical end adapted to rest on the tapered faces of the adjacent portions of the bifurcated end of the lever arm. To the lower end of this rod is connected a rubber faced plug valve 13 adapted to close the feed opening in the bottom of the carbid chamber. Disposed about this plug valve is a cylindrical supplemental valve 14 which is raised from its seat by engagement with a pin 15 passed through the rod 11. According to this arrangement the valve 13 will be raised from its seat before the pin 15 engages and raises the supplemental valve 14. In closing or shutting off the feed of carbid the valve 14 will first reach its seat and then the valve 13 will reach its seat.

It is necessary, of course, to retain the arm 9 in closed position in order to prevent the dropping of the rod 11 and nut 12 through the bifurcated end of the lever 7. To this end a weighted lever 16 has been provided. This lever is provided with a notch adapted to exactly fit about the bifurcated end of the lever 7 in such manner as to absolutely prevent lateral swing of the arm 9 while the lever 16 is in operative position. The weighted end of this lever is mounted to travel freely in a guide bracket 17 extending from the carbid chamber

while its opposite end is forked, as at 18; to loosely embrace the upper deflected end of a sliding rod 19 mounted in perforated ears or small brackets extending from the face of the carbid chamber. A nut 20′ is threaded onto this rod and engages the under face of the arm 19 to adjust it as desired. The upper end of the rod 19 is provided with an adjusting or gage screw 20 which passes therethrough and rests on a cap or closing plug for the filling opening of the carbid chamber. Consequently whenever the closing plug is removed the rod 19 will have to be raised. When the rod 19 is raised it will engage the branches of the fork 18 and so raise the lever 16 so that its notch will be raised from the bifurcated end of lever 7. In such position the arm 9 may swing laterally. The weight of valves 13 and 14 will draw the cone of the nut 12 down through the slot or space between the branches of the bifurcated end of the lever 7, forcing the arm 9 to swing laterally. Of course, as the nut 12 passes down between the branches of the bifurcated end of lever 7, the valves 13 and 14 will be seated. Consequently, whenever the carbid chamber is being recharged the valves 13 and 14 will be seated. The rod 19 is connected by a chain or other flexible device 21 to a waste cock 22 by which the generating tank may be emptied.

In order to guide the bell 4 accurately in its movements a sleeve 23 depends from the interior top of the bell and coöperate with guide post 24 extending upwardly from the bottom of tank 3.

Assuming the parts to be in the position shown in Fig. 3, the operation of the invention will be as follows:—To recharge the carbid chamber raise the rod 19 and swing its upper end laterally to allow access to the plug of the filling opening. As the rod 19 is raised preliminary to lateral movement, it will engage the forked end 18 of the weighted lever 16 and raise the lever so that its notched portion will be lifted from the bifurcated end of lever 7. At this point the weight of the valves 13 and 14 will draw the nut 12 through the slot of the lever 7 and force the hinged portion 9 to swing on its pivot. As the arm 9 swings on its pivot the rod 11 will drop, allowing the valves 13 and 14 to be seated and cut off the feed of carbid. As the rod 19 is raised it will draw up the flexible connection 21 and open the waste cock 22. In this way the feed of carbid is automatically cut off and the waste cock is automatically opened simultaneously with the removal of the plug of the filling opening. Ordinarily when the apparatus is in operation the feed of carbid from the carbid chamber will be automatically cut off by rising of the bell 4. As gas enters the bell 4 it will rise and carry with it the long end of the lever 7 allowing the short end to fall. As the short end falls it will allow the valves 13 and 14 to seat and so cut off feed of carbid to the generating chamber. Of course, as the generation of gas ceases the bell will gradually fall and the valves 13 and 14 will be again unseated and more carbid will be fed to the generating chamber.

It is clear that changes may be made in the construction, arrangements and disposition of the several parts of the invention without in any way departing from the field and scope of the same and it is meant to include all such within this application, wherein only a preferred form has been disclosed.

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

1. In an acetylene generator, a generating chamber, a carbid chamber adapted to deliver carbid thereto, a gas tank, connections between the generating chamber and gas tank, a bell movably mounted in the gas tank, a lever operated by the bell and provided with one bifurcated end, valves mounted in the carbid chamber, means for detachably connecting the valves to the lever, a movably mounted arm connected to the bifurcated end of the lever and adapted to maintain the valve connecting means in operative position, and means for maintaining the movable arm in operative position.

2. In an acetylene generator, a generating chamber, a carbid chamber adapted to deliver carbid thereto, a gas tank, connections between the generating chamber and gas tank, a bell movably mounted in the gas tank, a lever operated by the bell and provided with one bifurcated end, valves mounted in the carbid chamber, a connecting rod attached to said valves, an adjusting nut on said rod, a movably mounted arm connected to the bifurcated end of the lever and adapted to support the adjusting nut to maintain operable connections between the lever and valve mechanism, and means for maintaining said arm in operable position.

3. In combination with an acetylene gas generator, a generating chamber, a carbid chamber adapted to deliver carbid thereto, a gas tank, connections between the generating chamber and gas tank, a bell movably mounted in the gas tank, a lever operated by the bell and provided with one bifurcated end, valves mounted in the carbid chamber, means for detachably connecting the valves to the lever, an arm movably connected to the bifurcated end of the lever and adapted to maintain the valve connecting means in operative position, and a weighted lever to engage said movable arm and hold it in operable position.

4. In combination with an acetylene gas generator, a generating chamber, a carbid

chamber adapted to deliver carbid thereto, a gas tank, connections between the generating chamber and gas tank, a bell movably mounted in the gas tank, a lever operated by the bell and provided with one bifurcated end, valves mounted in the carbid chamber, means for detachably connecting the valves to the lever, an arm movably connected to the bifurcated end of the lever and adapted to maintain the valve connecting means in operative position, a weighted lever adapted to engage said arm and hold it in operative position, a rod movably mounted on the carbid chamber and adapted to be operated when the closure for the filling opening of the carbid chamber is opened, and a fork extending from the end of the weighted lever and adapted to be engaged and operated by said rod.

5. In combination with an acetylene gas generator, a generating chamber, a carbid chamber adapted to deliver carbid thereto, a gas tank, connections between the generating chamber and gas tank, a bell movably mounted in the gas tank, a lever operated by the bell and provided with one bifurcated end, valves mounted in the carbid chamber, means for detachably connecting the valves to the lever, an arm movably connected to the bifurcated end of the lever and adapted to maintain the valve connecting means in operative position, a weighted lever adapted to engage said arm and hold it in operative position, a rod movably mounted on the carbid chamber and adapted to be operated when the closure for the filling opening of the carbid chamber is opened, a fork extending from the end of the weighted lever and adapted to be engaged and operated by said rod, a waste cock connected to said generating tank, and connections between said movably mounted rod and said waste cock whereby the waste cock will be opened as the rod is raised.

6. In combination with an acetylene gas generator, a generating chamber, a carbid chamber adapted to deliver carbid thereto, a gas tank, connections between the generating chamber and gas tank, a bell movably mounted in the gas tank, a lever operated by the bell and provided with one bifurcated end, valves mounted in the carbid chamber, means for detachably connecting the valves to the lever, an arm movably connected to the bifurcated end of the lever and adapted to maintain the valve connecting means in operative position, a weighted lever adapted to engage said arm and hold it in operative position, a rod movably mounted on the carbid chamber and adapted to be operated when the closure for the filling opening of the carbid chamber is opened, a fork extending from the end of the weighted lever and adapted to be engaged and operated by said rod, and means for adjusting said movable rod.

7. In combination with an acetylene gas generator of the character described, a pivotally mounted lever provided with a bifurcated end having a movably mounted arm, valves provided with a connecting rod, an adjusting nut thereon and adapted to be engaged by the movable arm, a weighted lever adapted to engage said arm and hold it in operative position, a waste cock and connections between the weighted lever and waste cock for operating the former from the latter.

8. In combination with an acetylene gas generator of the character described, a pivotally mounted lever provided with a bifurcated end having a movably mounted arm, valves provided with a connecting rod, an adjusting nut thereon and adapted to be engaged by the movably mounted arm, a weighted lever adapted to engage said arm and hold it in operative position, a filling opening plug, a movably mounted rod provided with an extension adapted to overlie said plug, and connections between said weighted lever and the extension of said rod whereby movement of said rod will actuate said lever.

In witness whereof I have hereunto set my hand in the presence of two witnesses.

MERWIN W. CARRIER.

Witnesses:
T. B. KIDNER,
W. H. IRVINE.