

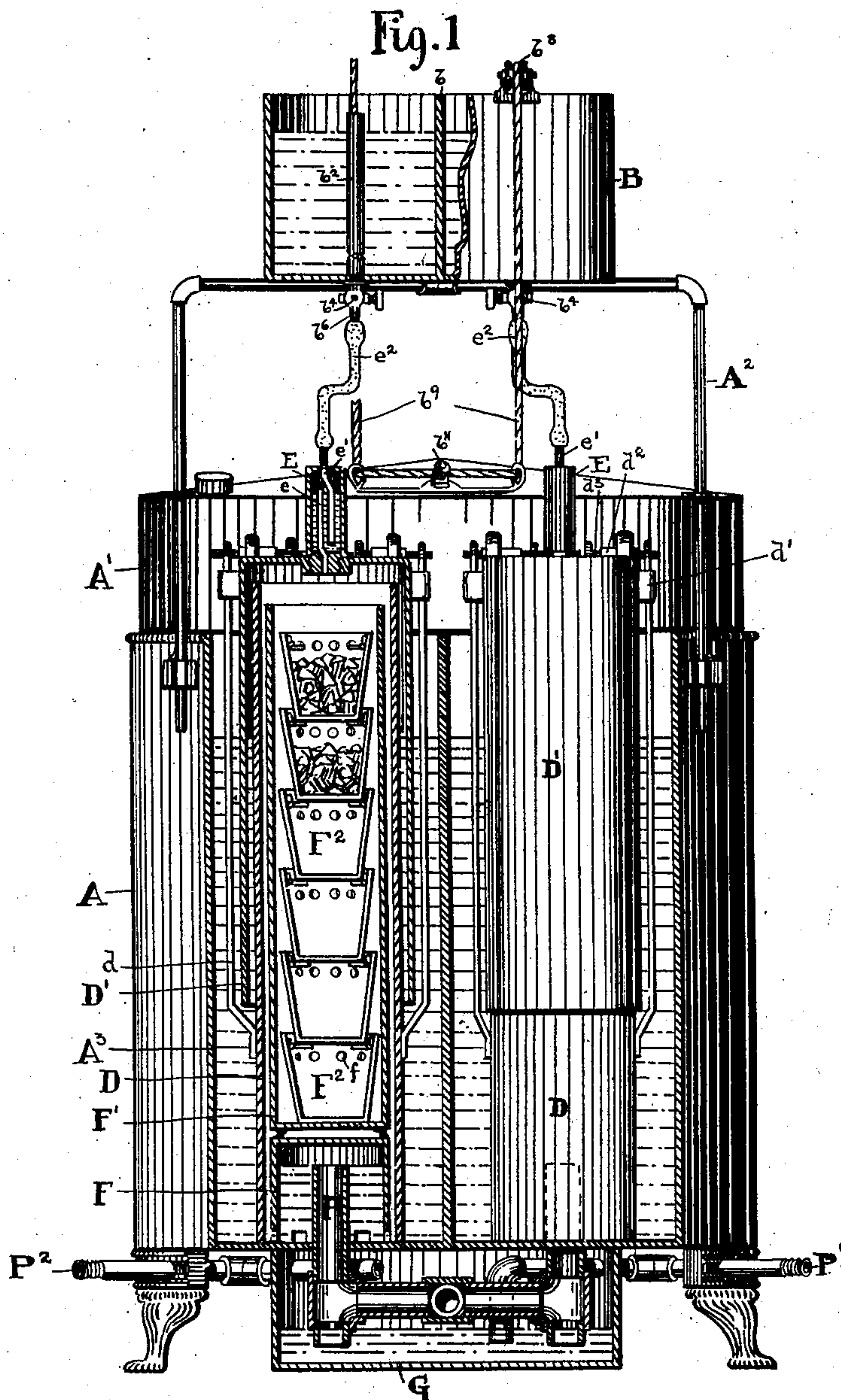
No. 735,800.

PATENTED AUG. 11, 1903.

J. McLEAN.
ACETYLENE GAS GENERATOR.
APPLICATION FILED SEPT. 22, 1900.

NO MODEL.

3 SHEETS—SHEET 1.



Witnesses.
Philippe Deserres.
Mary Agnes Gahan.

Inventor
John McLean.
By William B. Roberts.
Attorney

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NO MODEL.

Fig. 2

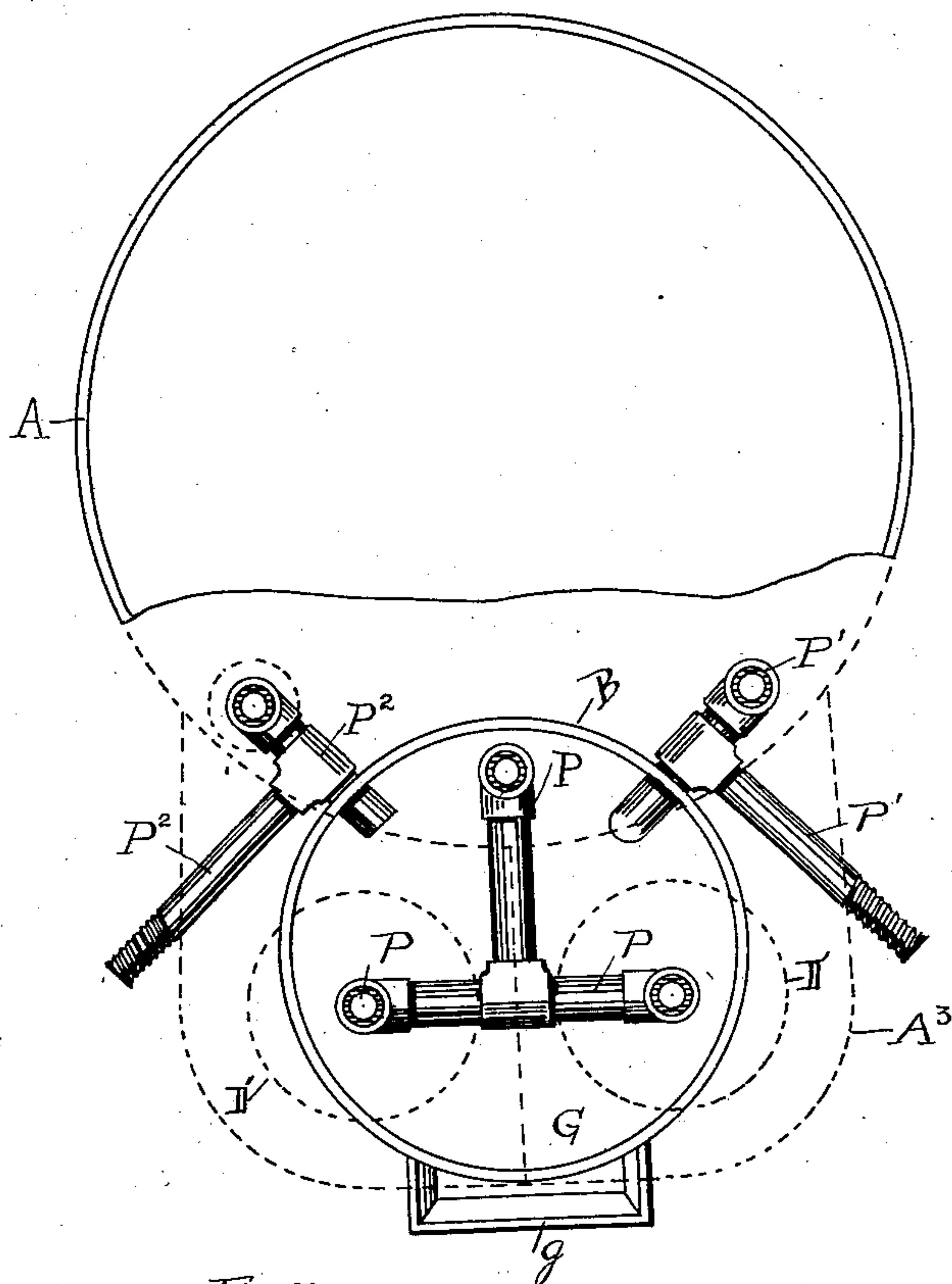
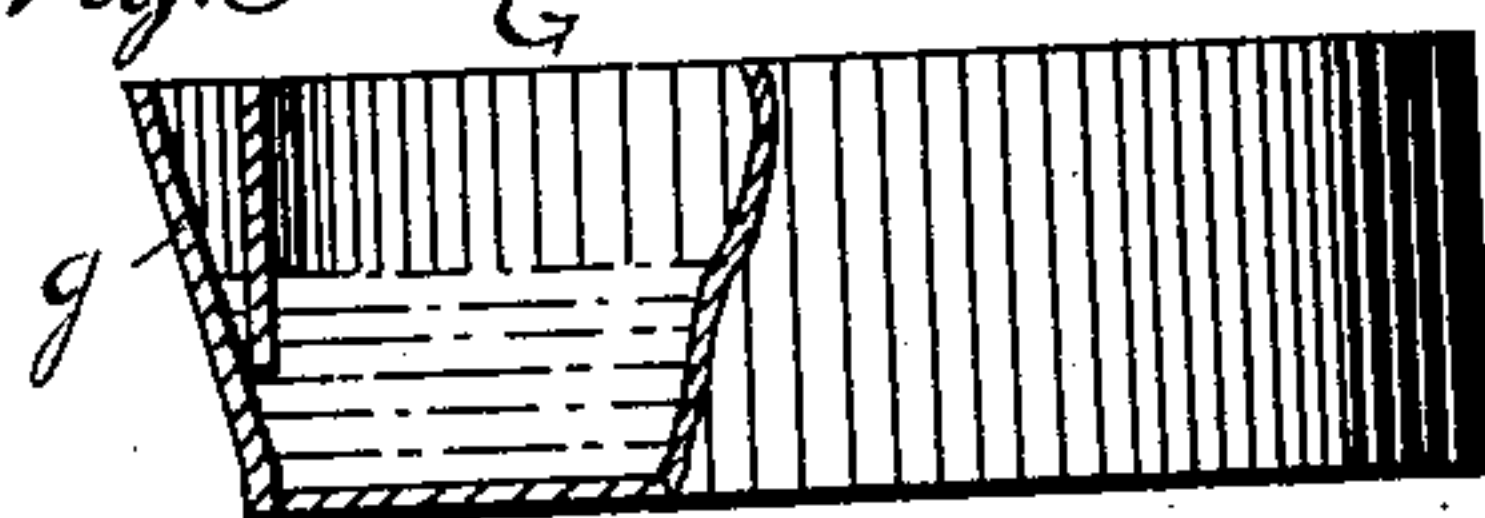


Fig. 3



Witnesses
Philippe Deserres
Mary Agnes Gahan.

Inventor
John McLean.
per
William B. Roberts.
Attorney

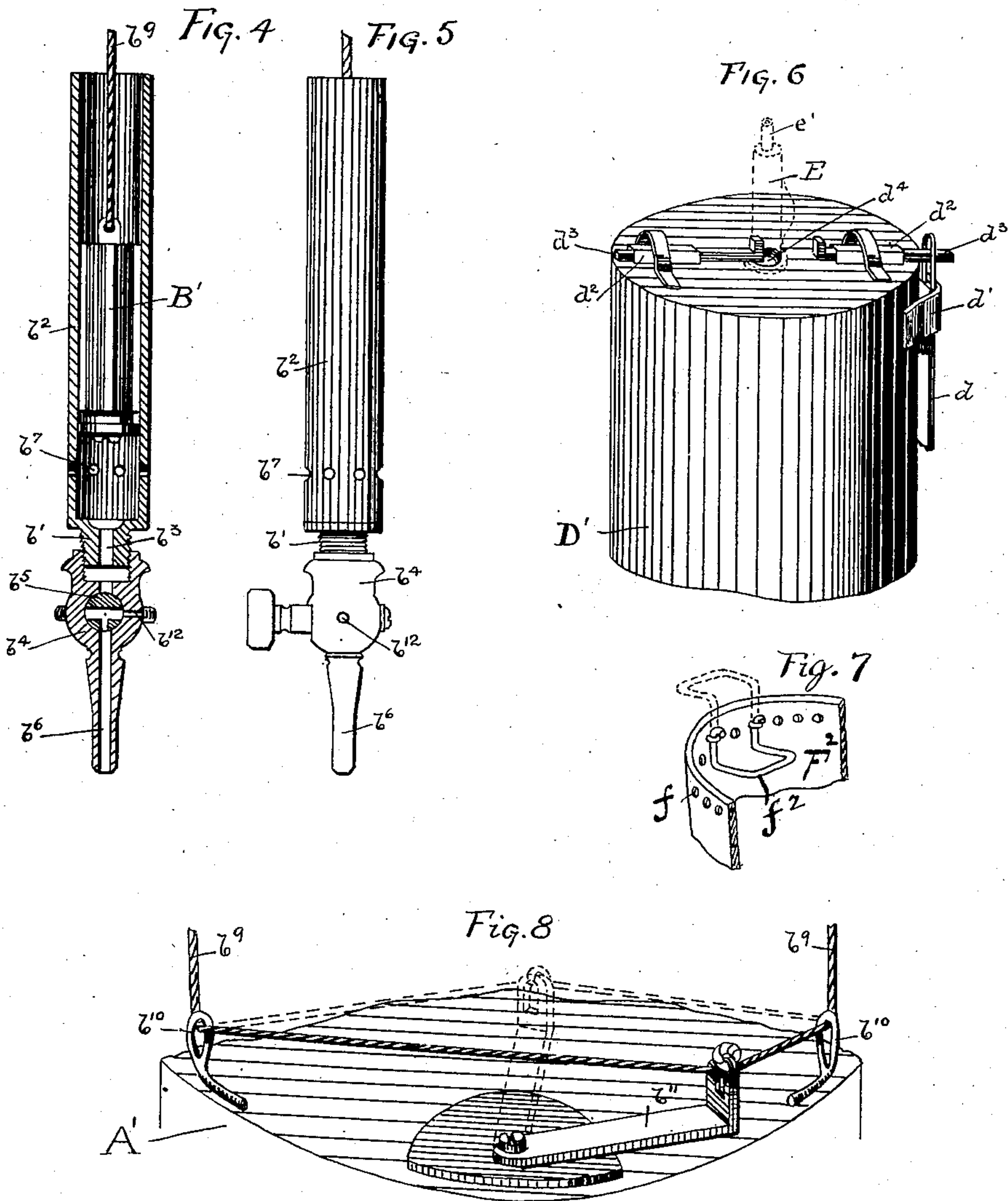
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UNITED STATES PATENT OFFICE.

JOHN McLEAN, OF MONTREAL, CANADA.

ACETYLENE-GAS GENERATOR.

SPECIFICATION forming part of Letters Patent No. 735,800, dated August 11, 1903.

Application filed September 22, 1900. Serial No. 30,783. (No model.)

To all whom it may concern:

Be it known that I, JOHN McLEAN, a subject of the Queen of Great Britain, residing at Montreal, in the Province of Quebec, Canada, have invented a new and useful Acetylene-Gas Machine, of which the following is a specification.

This invention relates to acetylene-gas machines; and its object is to provide a machine of this character which is simple in construction, effective, and absolutely reliable in operation and which may be manufactured at a minimum cost and operated by any unskilled person.

A further object is to provide an acetylene-gas machine which will operate one generator until the charge is exhausted and then automatically operates the other, or will operate both together if working above its capacity, changing again to the first generator as soon as the number of lights is reduced.

A further object is to provide an acetylene-gas machine with means whereby the volume of gas generated can be regulated in predetermined quantities without changing the amount of carbid.

To these ends the invention consists in an acetylene-gas machine constructed and operating substantially as hereinafter illustrated and described, and defined in the appended claims.

Referring to the drawings, in which similar letters of reference indicate similar parts, Figure 1 is a front elevation of a complete acetylene-gas-generating machine constructed in accordance with this invention, portions thereof being in section to show the construction. Fig. 2 is a top view thereof, parts being broken away to show the arrangement of the pipes. Fig. 3 is an elevation, partly in section, of the refuse-receptacle. Fig. 4 is a longitudinal central section of the water-supply valve. Fig. 5 is an elevation thereof. Fig. 6 is a view in perspective of the upper portion of the cover of the generator-chamber, showing the construction of the locking mechanism. Fig. 7 is a view in perspective of a portion of one of the carbid-receptacles. Fig. 8 is a similar view of a portion of the top of the gasometer, showing details of construction.

In the drawings, A represents the tank in

which the gasometer A' is mounted so as to be capable of vertical movement and which is provided with the usual liquid seal. The tank may be provided with any suitable support, and upon the sides of the upper portion thereof are arranged securing devices, in which the frame A² is removably supported and upon which the bell of the gasometer is guided.

Upon the frame A² is removably mounted the water-reservoir B, which is divided into two compartments by means of the partition b. At a convenient point in the bottom of each compartment is a perforation in which is inserted the reduced end b' of the tube b². A passage b³ is formed through the end b', which communicates at its upper end with the interior of the tube b² and at the lower end with the passage of the valve-casing b⁴, which passage is controlled by the rotary three-way valve b⁵ of any usual or preferred construction. The valve-casing b⁴ is threaded onto the reduced end b' of the tube b² and is provided with the nipple b⁶, having a passage communicating with the valve-passage, as clearly shown in Fig. 4. Suitable perforations b⁷ are formed in the side of the tube b² for the admission of the water of the reservoir. The bottom of the reservoir is clamped between the end of the tube b² and the valve-casing b⁴, whereby the tube b² is rigidly secured in its operative position.

Upon the upper edge of each compartment of the reservoir B is arranged a guide-roller b⁸, over which passes the cord b⁹, to each end of which is attached the weighted valve B', which is adapted to move vertically in the tube b², whereby the passage b³ and the openings b⁷ are opened or closed for controlling the supply of water from the reservoir. The cord b⁹ passes downwardly through suitable guide-loops b¹⁰ on the top of the gasometer A' and is secured at its central portion to an arm b¹¹, which is pivotally mounted on the top of the gasometer, so as to be turned from its normal or central position to either side, as shown in Fig. 8.

It will be evident from the construction above described that when the arm b¹¹ is in its normal or central position the two parts of the cord on either side thereof will be of equal length, and hence the weighted valves

B', attached thereto, will move simultaneously and exactly the same distance, thus opening or closing the passages b^3 and the openings b at the same instant. When the arm b^{11} is turned to either side of the center, one portion of the cord is lengthened, as will be obvious, and hence the weighted valve on that end or the lengthened portion will close the water-passage controlled thereby at any predetermined instant that may be desirable. By means of this construction it is possible to accurately and automatically regulate the volume of gas generated to suit the requirements. It is also obvious that by means of this construction it is possible to shut off all but one generator and regulate the supply of water to that generator so as to generate any desired volume of gas without the necessity of varying the quantity of carbid stored in the generator. When it is desired to shut off a generator, it is only necessary to close the three-way valve b^5 , as will be obvious.

Through the side of the valve-casing b^4 is formed an air-vent b^{12} , which communicates with the passage of the valve b^5 , whereby air is admitted to the interior of the generator when the valve b^5 is in its closed position. By this means any vacuum that may be formed in the generator after the generation of the gas will be at once destroyed.

Fixed upon one side of the tank A is a supplemental tank A^3 , within which is adapted to be placed the generators D D, of which there may be two or more. For all practical purposes two generators have been found to give satisfactory results, and hence two only are shown, though it is evident that the number might be increased, if desired. Each generator D comprises a cylindrical casing arranged in the supplemental tank A^3 and having its open end closed by a suitable cover D' , which is water-sealed in the supplemental tank A^3 in the usual manner, as clearly shown in Fig. 1.

Upon the sides of the generator D are secured locking-rods d , which extend upwardly through suitable keepers d' , fixed upon the upper sides of the cover D' . Upon the top of the cover D' are fixed guides d^2 , in which are slidably mounted the lock-bars d^3 , the outer end of each of which is adapted to engage the loop in the upper end of the locking-rods d , whereby the covers are securely retained in their proper position.

Centrally arranged in the top of each cover D' is a threaded orifice d^4 , which is so located as to be in the path of movement of the lock-bars d^3 . In the threaded orifice d^4 is removably secured a gas-trap E by means of a suitable threaded plug, to which the body portion of the trap is secured in any suitable manner, which forms a stop limiting the backward movement of the lock-bars d^3 , thus preventing the withdrawal of said bars while in position. By means of this construction it will be impossible for the generator to be opened until after the gas-trap E has been

removed and the water-supply has been cut off, thus obviating the possibility of accidental escape of gas from the generator. Furthermore, the removal of the gas-trap E will admit air into the interior of the generator, thus destroying any vacuum that may have formed therein and preventing the binding of the cover D. The gas-trap E is in the form of an inclosed tubular chamber and is partially filled with water. A small tube e is secured in the bottom of the interior of the trap and rises to a point near the top and communicates through the top of the cover D' into the interior of the generator. The lower end of the tube e is thus located directly over the center of the cover D' of the generator in position to direct the water upon the contents of the carbid-receptacles placed therein. Secured to the top of the trap E is a second tube e' , which passes downwardly to a point near the bottom thereof, its upper end extending above the top of the trap. A flexible tubing e^2 connects the upper end of the tube e' with the nipple b^6 , mounted on the water-reservoir, as clearly shown in Fig. 1. By means of this construction a sudden violent discharge of water into the generator is prevented and all possibility of the escape of the gas through the reservoir obviated.

In the bottom of the casing of each generator is located a support F, which is preferably constructed with a closed top and open bottom and is provided with openings in its bottom edge for free passage of the gas. Resting upon and supported by said support F is the carbid-receptacle F' , which is preferably constructed in the form of a pail having a closed bottom and supporting-legs and which is adapted to rest upon the support F and having an open top through which the carbid-buckets F^2 are adapted to be inserted and removed. A suitable handle is provided on the upper portion of the receptacle F' , whereby it may be readily removed from the generator-casing or replaced therein.

The carbid-buckets F^2 , of which there may be any desired number, are substantially dish-shaped, having a greater diameter at the top than at the bottom, and are provided with a plurality of perforations f , arranged near the upper portion thereof. Upon opposite sides of the bucket are pivoted suitable wire bails or handles f^2 , the arms of which are bent at an angle near the pivotal point, as shown in detail in Fig. 7. By means of this construction the handles f^2 are adapted when folded inwardly within the bucket to serve as a support for the next bucket and also as a means for handling the bucket when turned upwardly in the position shown in dotted lines in Fig. 7. The desired quantity of carbid is placed in each bucket and the buckets arranged in the carbid-receptacle, as shown in Fig. 1. It will be seen that the uppermost bucket is located directly beneath the gas-trap E, through which the charge of water passes to the bucket, which when filled

overflows in the bucket next beneath, and so on until the whole series of buckets has been utilized. The gas as generated passes down between the sides of the carbid-receptacle F' and the inner sides of the generator-casing, which are kept cool by the water contained in the supplemental tank A³. The cooled gas passes through the orifices in the support F and is forced through the small amount of water contained therein to the pipe P, which leads downwardly into the refuse-holder G and thence into the tank A. The water in the support F should be regulated so as not to overflow under the pressure into the pipe P.

The service-pipe P' leads from the interior of the tank A out through the side thereof at a point preferably near the bottom and is provided with an offset which leads into the refuse-receptacle G, the lower end of said pipe being sealed in the water contained in said receptacle. On the opposite side of the tank is located the escape-pipe P², which leads from the interior of the tank A and is provided with an offset which extends into the refuse-holder above the water-line thereof. The inner end of the pipe P² is covered by a sleeve fixed to the top of the gasometer-cover in the usual manner.

The refuse-holder G is located below the supplemental tank A³ and is preferably secured thereto and is provided with a spout g, leading into the interior thereof, whereby it may be filled with water when necessary.

It is important that the water-reservoir be divided by partitions into compartments corresponding in number with the number of generators. Thus each generator can receive only the amount of water necessary to decompose all the carbid contained therein and no more. By this means no generator can be accidentally flooded. As stated above, by regulating the length of the cord b⁹ on either side of the arm b¹¹ the second generator may

automatically augment the first should the volume of gas generated by the first be temporarily insufficient. For example, supposing one generator is set to carry a certain number of lights and that number is suddenly increased the gasometer will descend below the normal point, thus opening the valve of the second generator and admitting water thereto.

The operation of the remaining parts of the machine will be readily understood in view of the above description without further detailed explanation.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In an acetylene-gas machine, the combination with a suitable reservoir; of a plurality of generators; valved outlets arranged in said reservoir; a flexible tube connecting each of said outlets with each of said generators; an arm pivotally mounted on said gasometer; a cord adjustably connected with said arm and with the valves of said outlets, whereby a predetermined quantity of water may be automatically fed to either or both generators, substantially as described.

2. In an acetylene-gas machine, a generator; a removable cover therefor; bolts slidably mounted on said cover; and adapted to lock said cover to said generator; a gas-seal removably secured to said cover in the path of movement of said bolts, whereby the seal must be removed before the said cover can be unlocked, substantially as described.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of the subscribing witnesses, this 13th day of September, 1900.

JOHN McLEAN.

Witnesses:

WILLIAM B. ROBERTS,
MARY AGNES GAHAN.