

(No. Model.)

A. B. GRIFFEN.  
APPARATUS FOR GENERATING ACETYLENE GAS.

No. 605,958.

Patented June 21, 1898.

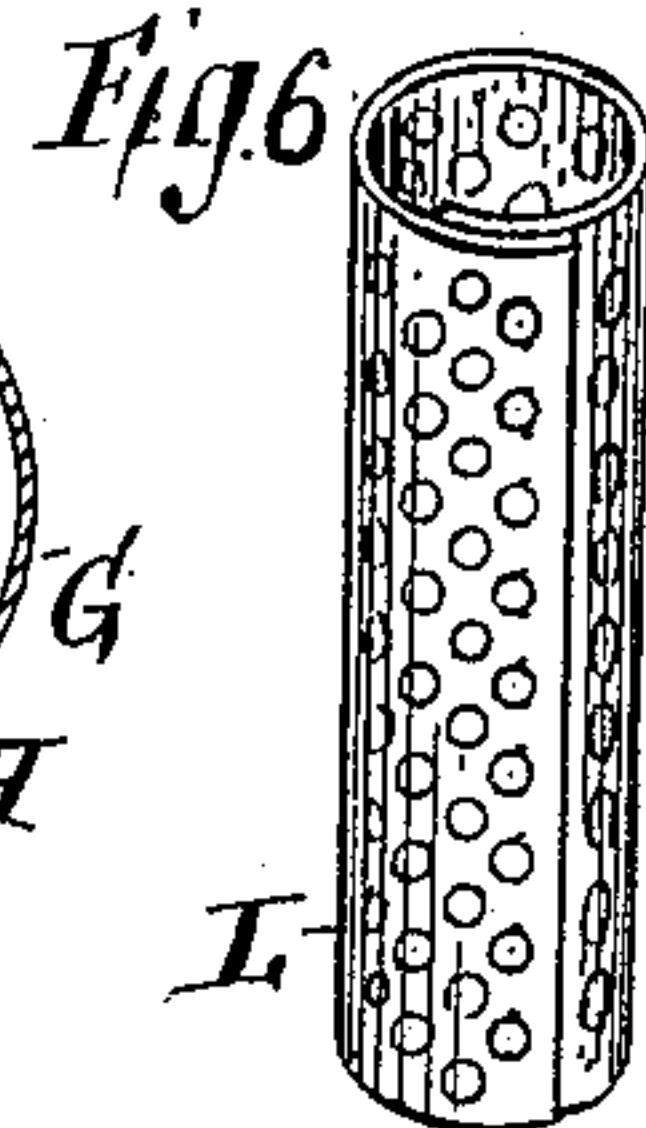
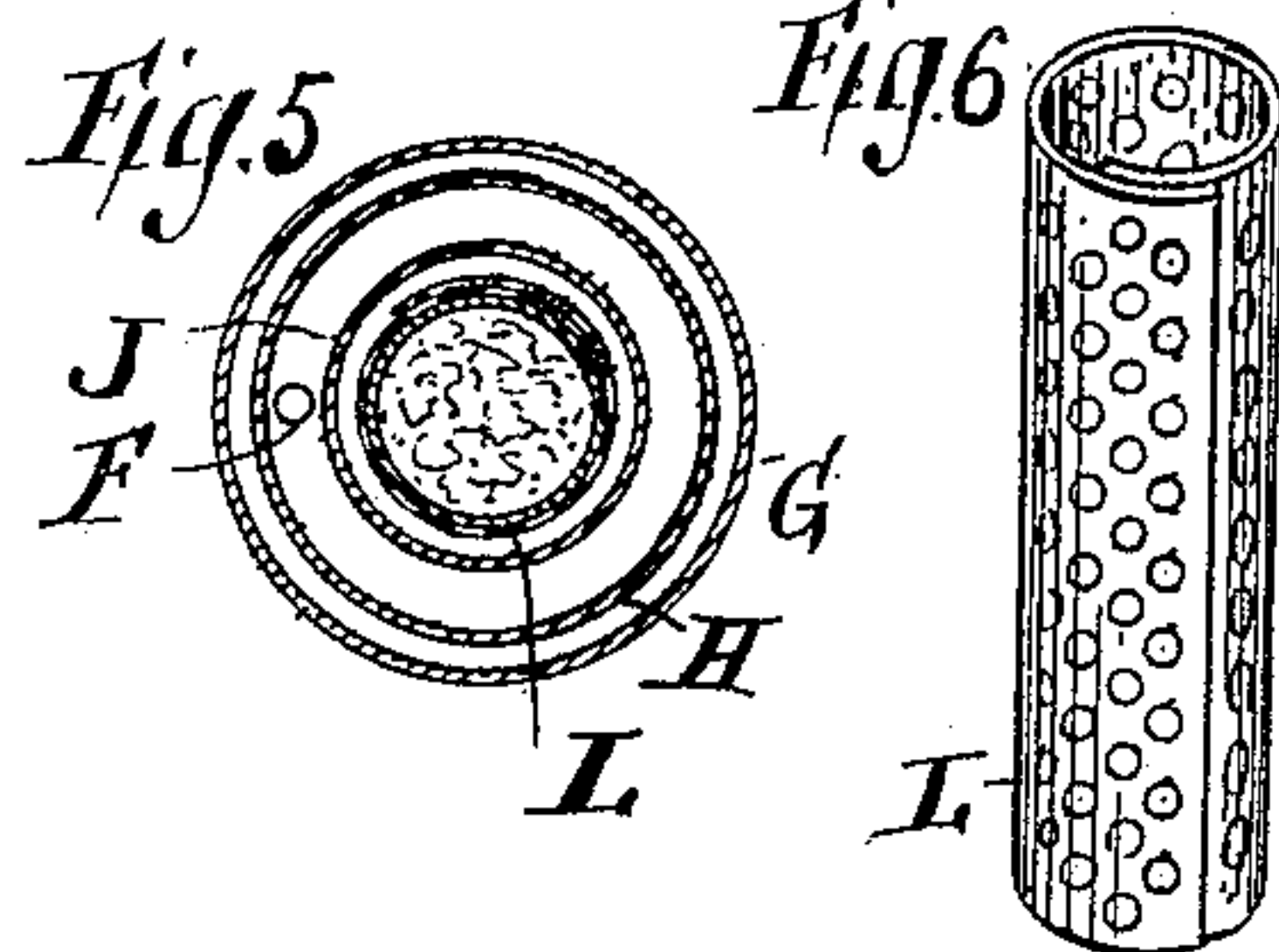
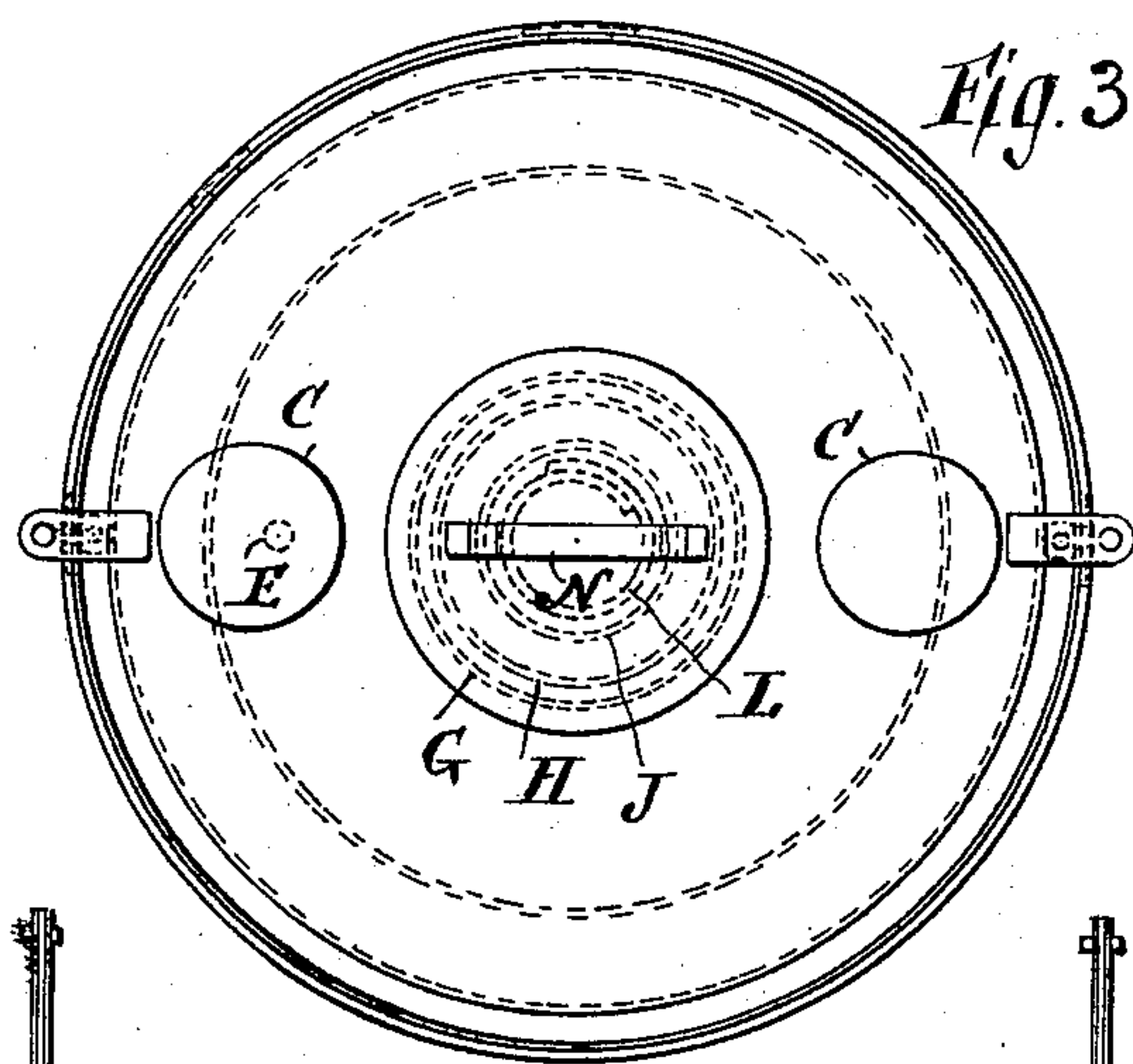


Fig. 2

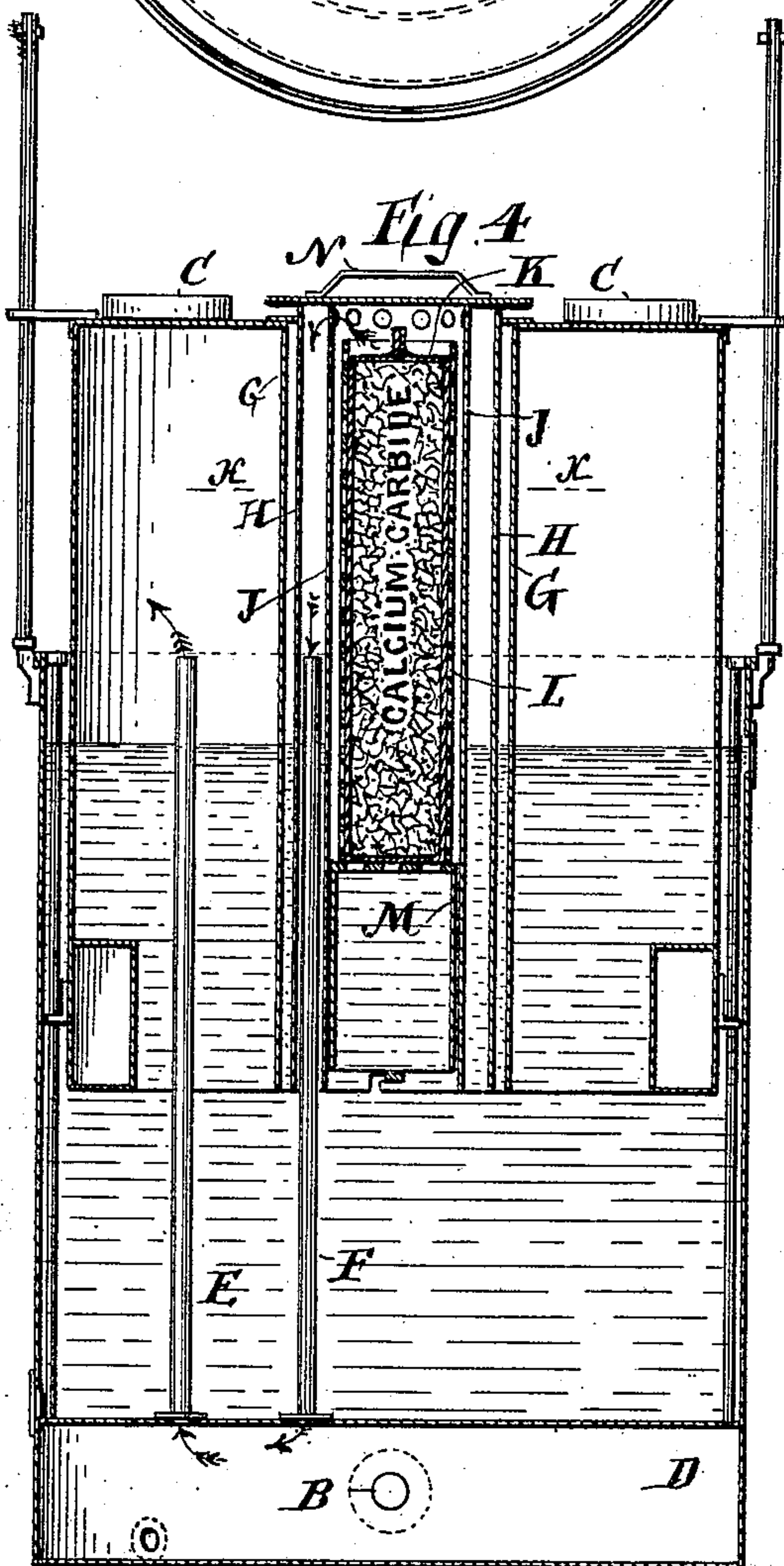
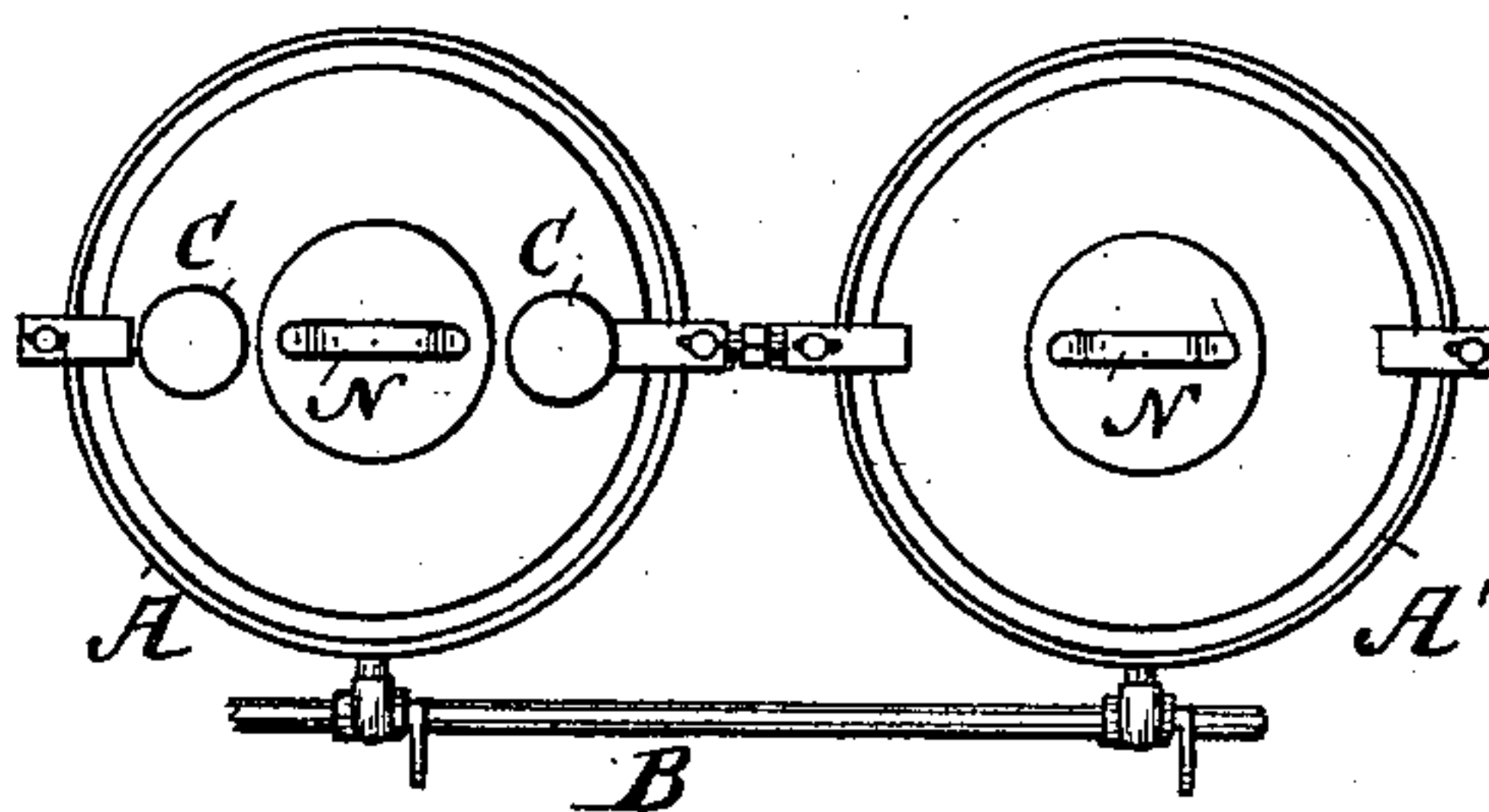
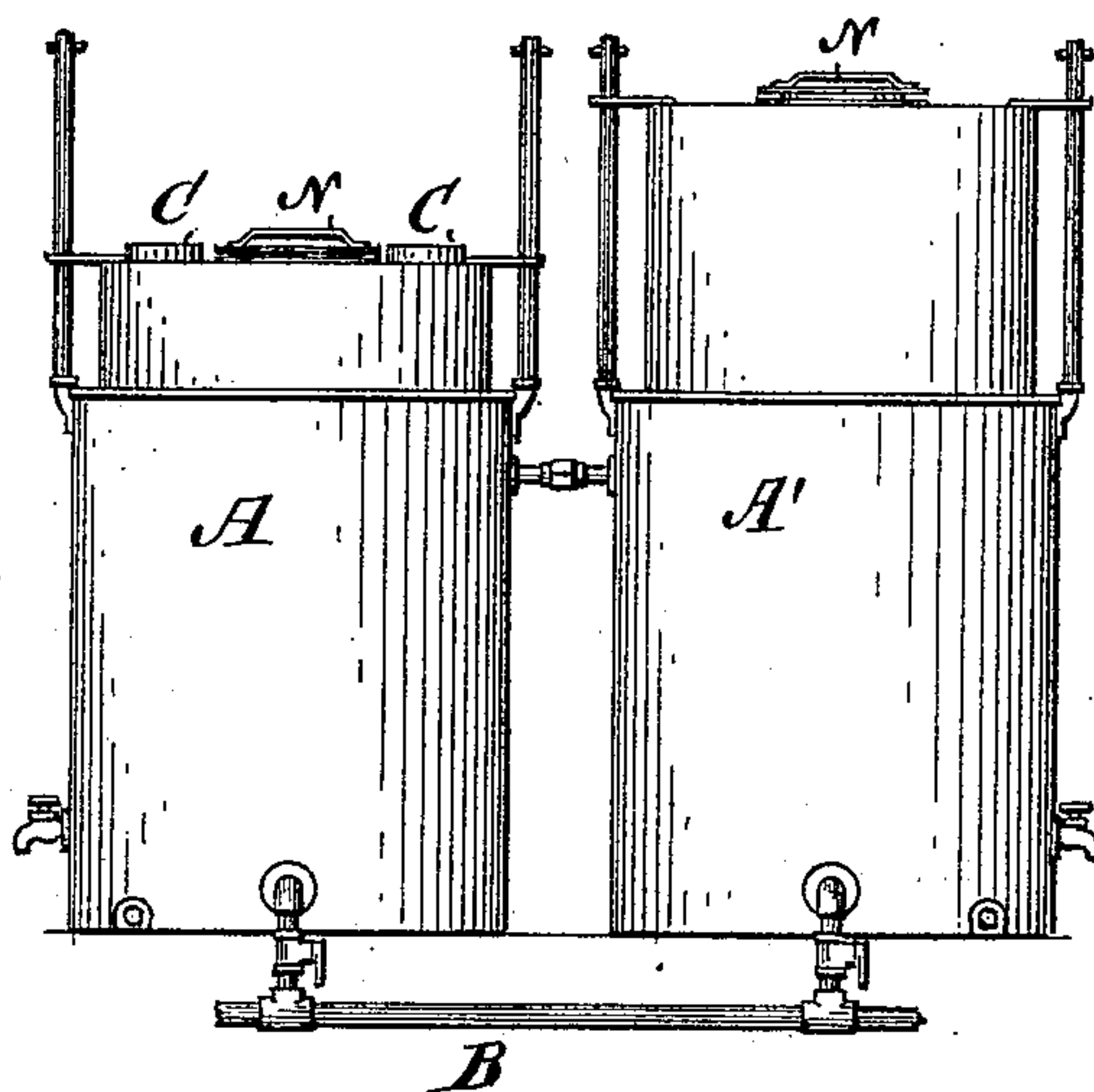


Fig. 1



Witnesses.  
E. Wadman  
H. Cantant

Inventor.  
Arthur B. Griffen  
By his Attorney  
E. N. Dickerson



# UNITED STATES PATENT OFFICE.

ARTHUR B. GRIFFEN, OF VERONA, NEW JERSEY, ASSIGNOR TO THE ACETYLENE APPARATUS MANUFACTURING COMPANY, OF WEST VIRGINIA.

## APPARATUS FOR GENERATING ACETYLENE GAS.

SPECIFICATION forming part of Letters Patent No. 605,958, dated June 21, 1898.

Application filed November 16, 1896. Serial No. 612,173. (No model.)

*To all whom it may concern:*

Be it known that I, ARTHUR B. GRIFFEN, of Verona, Essex county, State of New Jersey, have invented certain new and useful Improvements in Apparatus for Generating and Supplying Gas, of which the following is a specification, reference being had to the accompanying drawings.

My invention relates to that class of apparatus of limited capacity used in supplying gas in small local plants, as in country houses, and is more especially intended to be used in connection with the production of gas by means of metallic carbids, such as calcium carbid, which, as is well known, upon being brought in contact with water is decomposed, together with the water, giving as the result of decomposition acetylene gas. A considerable amount of residue of decomposition in the shape of wet lime remains and has to be periodically removed from the generator; and the object of my improvements is to provide an apparatus in which this can be done and a fresh charge of carbid inserted without interrupting the flow of gas to the burners and which shall be economical in construction and simple in its mode of operation. To this end I provide a series of expandible gas-holders, each of which is connected with the delivery gas-pipe leading to the burners. The number and size of these are determined by the length of time it is desired the apparatus shall run without recharging. The gas is generated directly in the holders, each holder being provided for this purpose with an opening in the top thereof, having a removable cover. To this cover is attached a vessel or chamber for containing the carbid to be employed, which when the cover is in place projects downward into the holder and, when the holder is not raised by gas-pressure, into the water with which the lower part of the holder is filled. Each holder of the series is so weighted that the gas from it will be delivered from it to the main gas-pipe under a pressure different from that under which the gas from any other holder of the series will be delivered. By means of this difference in the pressure upon the different holders the gas is not fed to the delivery-pipe from all the holders simultaneously,

but from each separately, that holder which is under the greatest weight being first emptied, then that which is next lower in the series in point of weight, and so on until all the holders are emptied. When one or more of the holders have delivered their supply of gas, they may be cut off from the delivery-pipe by cocks provided for the purpose and the residue of decomposition removed and fresh charges of carbid inserted without interfering with the delivery of gas from those still in operation.

My invention will be readily understood from the accompanying drawings, in which—

Figure 1 represents a vertical elevation of two holders so connected; Fig. 2, a plan view of the same; Fig. 3, a plan view, on a larger scale, of one of said holders; Fig. 4, a vertical section through Fig. 3; Fig. 5, a section through Fig. 4 on the line *xx*, and Fig. 6 a view of the receptacle for inclosing the calcium carbid.

A A' represent two holders suitably connected to delivery-pipe B by means of valve-pipes, as shown. These holders are provided with movable weights C C, which are shown in position upon the holder A. These holders may be of any suitable construction, provided they are arranged to carry and support the gas-producing material, such as calcium carbid, intermittently brought in contact with the water. In the form shown they are provided with a lower dry chamber D, connecting with the gas-outlet and with pipes E F, of which E passes into the main chamber of the gas-holder and F into an intermediate chamber in the removable cover.

The top of the holder is provided with a cylindrical receptacle G, projecting forward toward the bottom of the movable part of the holder. Within this is the interior removable bell H, which forms an annular chamber between its walls and those of the cylinder J, into which annular chamber the pipe F enters. Within the interior chamber formed by the walls of the cylinder J the carbid is supported in any suitable way. As shown, it is placed in the sack K, inclosed within the flexible support L, which is made of perforated metal. A perforated cylindrical box M, provided with a bayonet-joint or other suitable supporting



means, is placed in the bottom of the inner cylinder J. The upper part of the cylinder J is provided with holes or openings communicating with the chamber between the bell H, carrying the walls of the cylinder J and the bell H.

When a holder is to be charged, it is removed by a handle N and the box M detached from the cylinder J. A sack K of carbid is placed within a holder L and the latter, with the sack, inserted in the tube J and the box M replaced to retain the holder and sack in the cylinder J.

In operation the holders are differently weighted. For instance, the weight is first placed, as shown, upon the holder A. When this has been exhausted and sunk, the holder A' comes into action. In this case it is desirable to turn off the delivery-cock from the holder A, when the weight there can be placed upon the holder A' and the holder A recharged. When, however, all the holders are connected to the delivery-pipe B, the gas will not be drawn from all the holders, though all are open to the delivery-pipe, but only from that which is subjected to the greatest pressure, the others remaining inactive until its supply of gas is exhausted. When the gas has all been drawn from that holder which is subjected to the greatest pressure, that which is next in the series in point of pressure will begin to deliver its charge, and so on with all of the holders in succession until all are empty. When the gas in one or more of the holders is exhausted, such holders may be cut off from the main delivery-pipe by means of the valves, so as to prevent a backflow of gas from the holders still in operation, and by removing the bell H and withdrawing the residue of decomposition and inserting fresh charges of carbid such holders are again charged with gas and ready for operation. It will be evident that the operation of recharging the spent holders will not interfere with

the delivery of gas from the holder in operation at the time, the delivery of gas to the burners being continuous.

In case of an accidental overcharge of carbid to any one of the holders in recharging the excess of gas developed over the capacity of such holder will be taken up by the partly-emptied holder in operation at the time, and thus an excess of pressure is prevented.

In effect the series of holders constitute a sectional holder the capacity of which is the combined capacity of the series and each section of which receives its gas independently of the others and delivers its gas only when those sections in which the gas is under greater pressure are exhausted.

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

1. The combination with the gas-holder of the removable bell H and a cylinder J, a carbid-receptacle supported by the cylinder J, an annular chamber between the walls of the cylinder J and the bell H, the pipe F, the pipe E, and an intermediate chamber D communicating with said pipes, substantially as specified.

2. The combination of a series of gas-holders, each of which is provided with a removable bell H and a cylinder J, and having an annular chamber between them, a carbid-receptacle supported by the said bell, the pipe F, the pipe E, and a chamber D intermediate said pipes and with which they communicate, and a supply-pipe with which each of the chambers D of the holders are in communication through a valved connection, substantially as specified.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ARTHUR B. GRIFFEN.

Witnesses:

W. LAIRD GOLDSBOROUGH,  
H. COUTANT.