

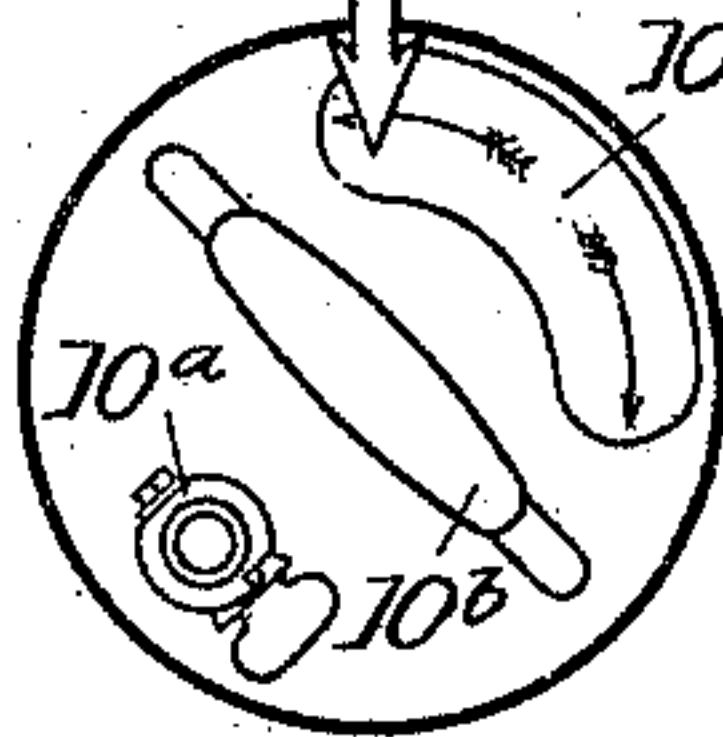
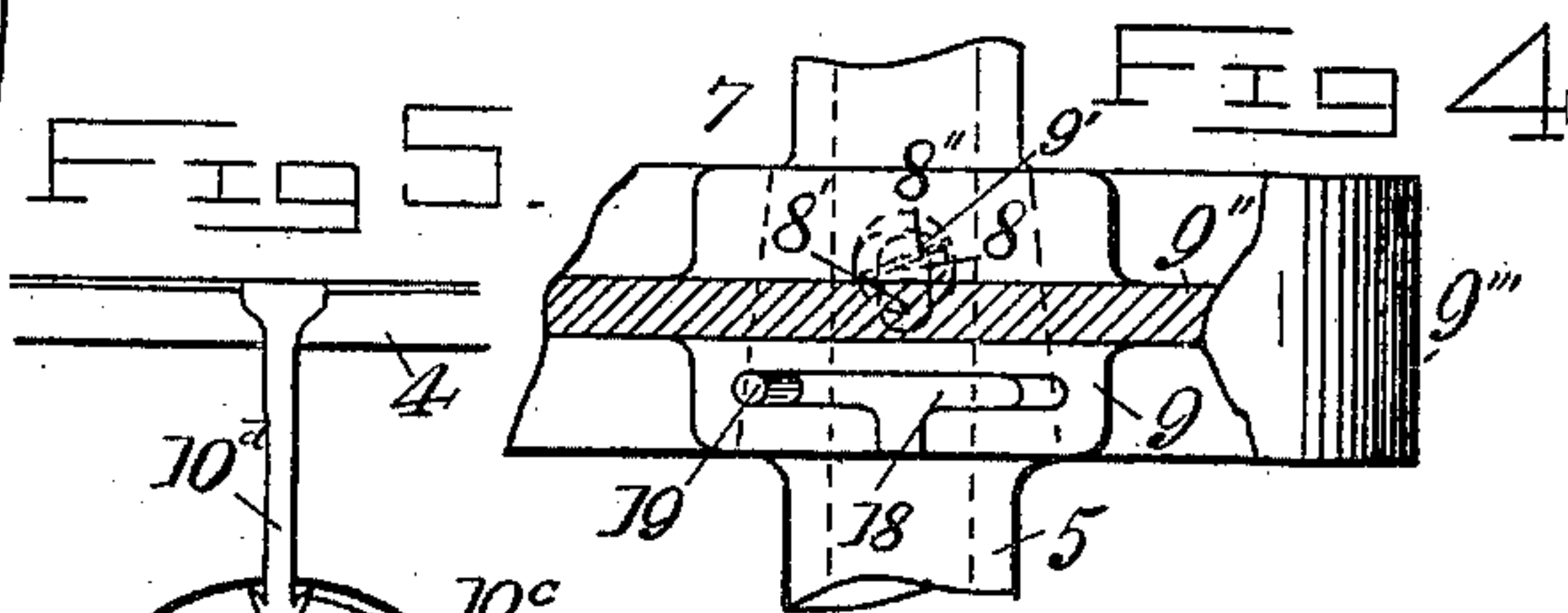
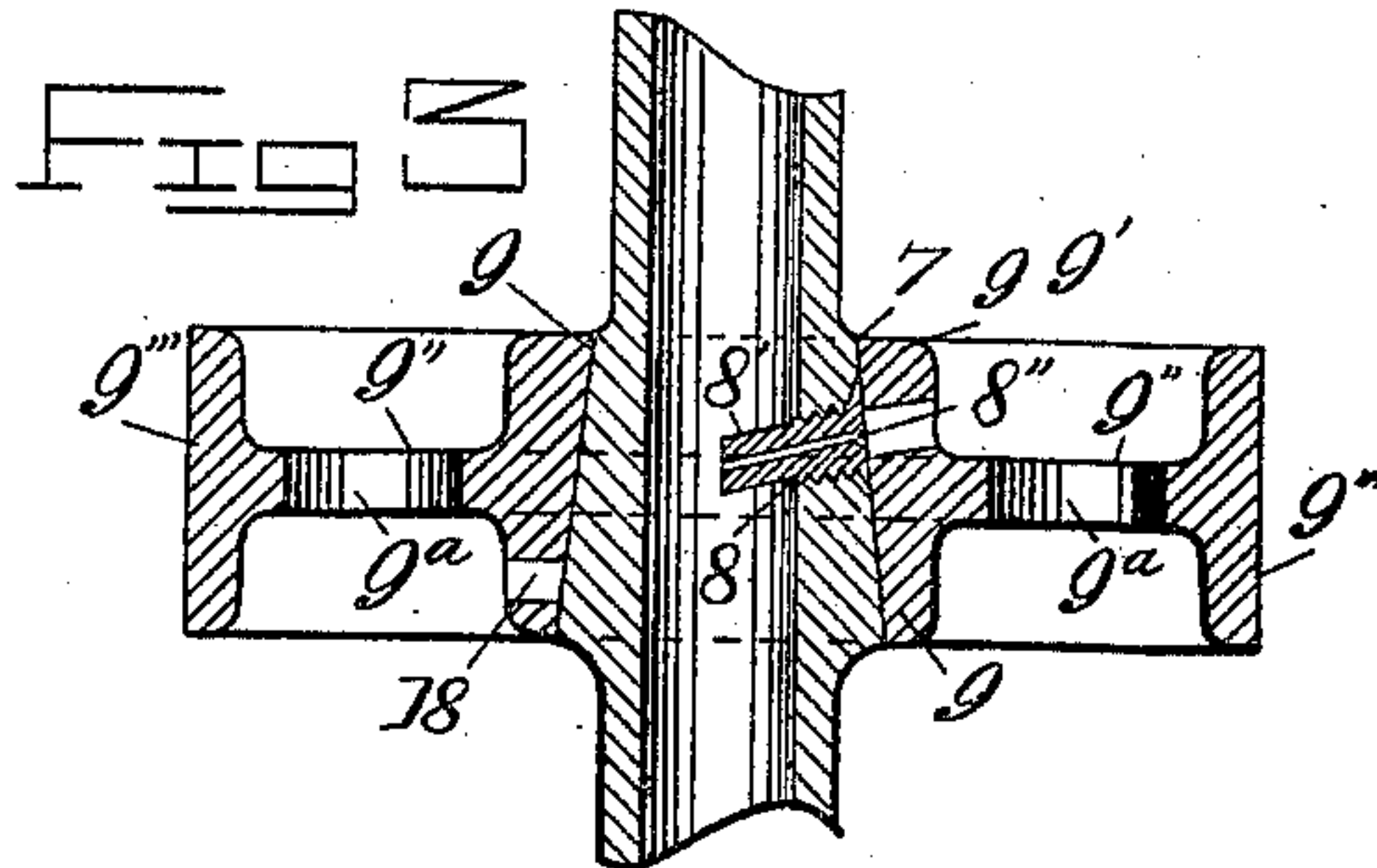
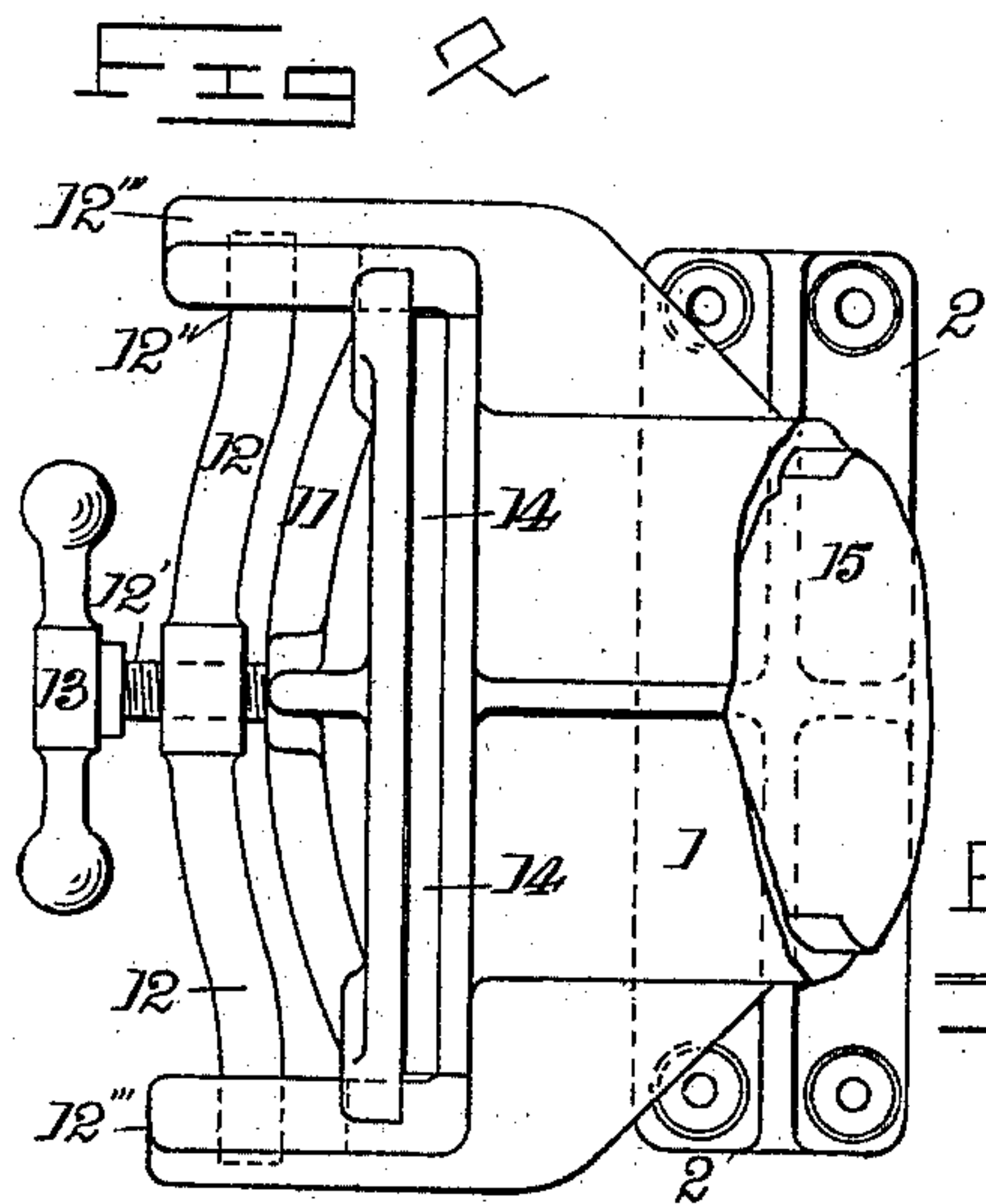
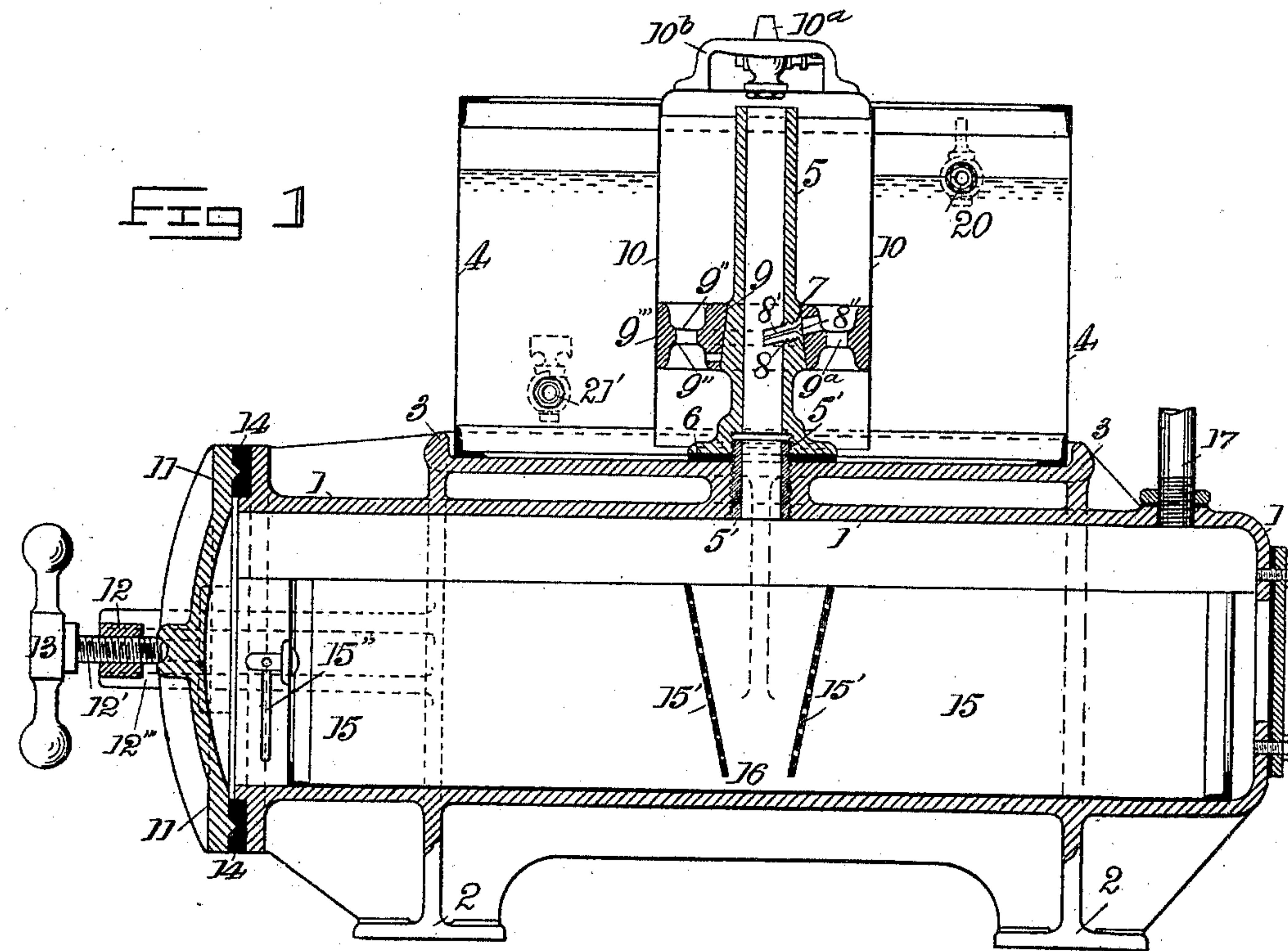
No. 622,616.

Patented Apr. 4, 1899.

C. S. FORBES.
ACETYLENE GAS GENERATOR.

(Application filed Oct. 3, 1898.)

(No Model.)



Witnesses
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UNITED STATES PATENT OFFICE.

CHARLES STEWART FORBES, OF STRATHDON, SCOTLAND.

ACETYLENE-GAS GENERATOR.

SPECIFICATION forming part of Letters Patent No. 622,616, dated April 4, 1899.

Application filed October 3, 1898. Serial No. 692,499. (No model.)

To all whom it may concern:

Be it known that I, CHARLES STEWART FORBES, baronet, a subject of the Queen of Great Britain, residing at Castle Newe, Strathdon by Aberdeen, Scotland, have invented certain new and useful Improvements in or Applicable to Acetylene-Generators; and I do hereby declare the following to be 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.

My invention relates to improvements in or applicable to acetylene-generators, the objects I have in view being to simplify the construction of such apparatus and provide an efficient means for regulating the supply of water and cleaning the apertures through which it is admitted to the carbid.

My invention will be better understood by reference to the annexed drawings, in which—

Figure 1 is a longitudinal section through the complete apparatus. Fig. 2 is a part plan showing the means employed for closing the mouth of the generator. Fig. 3 is an enlarged sectional view of dripping-nozzle cone and ring. Fig. 4 shows an enlarged view of bayonet-joint. Fig. 5 is a plan of gas vessel.

In the drawings, 1 is the generating-chamber. This is preferably a plain casting of iron. It may, however, be built up or otherwise made in any suitable metal and fitted with feet 2. A tray or ledge 3 is formed as shown, and on this is mounted a tank 4. A tube 5, of cast or wrought iron or other suitable metal, is threaded by means of a nipple or otherwise, as at 5', into the top of the generator, the joint inside the tank being made with a rubber ring or equivalent packing 6. On this tube is mounted or formed a cone 7, through which in a suitable position a hole 8 is bored. This I prefer to tap, and into it I insert a perforated screwed dripping-nozzle 8', the head having a nick 8'' and being countersunk. The ring 9, formed of metal, is drilled with a corresponding hole 9' and then bored out and ground to fit the cone. It is formed with a web 9'' and flange 9''', by which it is secured to the pressure vessel 10, which is thus supported by the tube 5, but is free to turn upon it. The web 9'' of the ring is cored out, as at 9^a. The top of the pressure vessel is fitted with an air-cock 10^a and handle 10^b, and it may be

marked with arrows 10^c, a pointer 10^d being placed upon the side of the tank to indicate the relative positions of the apertures. The mouth of the generating-chamber is fitted with a cover 11, fastened by a cross-bar 12 and screw 12', fitted with handle 13, the two ends of the cross-bar being mounted in slots 12'' in the lugs 12''' . The joint is made by a packing-ring of rubber or the like 14. Within the generating-chamber is a trough or tray 15, divided into two portions by perforated plates 15', so arranged as that the water falling from the dripping-nozzle shall drop into the space 16 and be absorbed by the carbid of calcium placed in each portion. A service-pipe 17 conveys the acetylene gas formed to the lamps or to a gasometer, as the case may be. To prevent the pressure vessel from being lifted off the tube by any undue pressure, I form a long T-shaped slot or bayonet-joint 18, which engages with a pin 19, driven into the cone.

By means of the construction described the dripping-nozzle, ring, and air vessel can be removed, the apertures cleaned, and the apparatus replaced in a few minutes.

The tank is fitted with two cocks 20 21', the height of the water being regulated by the upper one and the level being maintained by a ball-cock or the like device controlling the main supply. The lower cock is employed for emptying the cistern.

A drop-handle 15'' is fitted to the end of the carbid-tray for the purpose of withdrawing same.

The operation of my invention is as follows: The cover of the generator is removed, the trough withdrawn, charged with carbid of calcium, and replaced. The cistern is now filled with water and the air-cock opened. The water then rises in the pressure-chamber. The pressure-chamber is now turned around by the handle until the holes in the ring and nozzle are coincident. Water can now pass through the nozzle and fall in drops upon or between the perforated plates, its absorption by the carbid generating acetylene gas, which passes up the tube 5 to the pressure-chamber and also through the service-pipe to the lamps or gasometer. If the pressure of gas increases beyond that required, the water is forced downwardly in the vessel 10 until beneath the aperture in the ring, and

the further generation of gas is moderated or ceases altogether until the normal pressure is restored. By turning around the pressure vessel and thus restricting or augmenting the amount of water passing through the nozzle the generation of the gas may be controlled and undue heating avoided.

Having described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In an acetylene-generator, the combination of a generating-chamber and a combined gas and dripping tube extending upward therefrom with a tank supported on top of the said generating-chamber, and a pressure-chamber which surrounds the said tube within the said tank and is supported thereby, being free to turn thereon, the said tube and chamber being provided at one point with means of communication adapted to be opened and closed by such turning for the purpose of regulating the supply of water, substantially as set forth.

2. In an acetylene-generator, the combination with a generating-chamber having an opening at the top and means for supplying water through the said opening, of a tray arranged to be inclosed within the said generator and provided with perforated partition-plates 15 leaving a space 16 between them

under the said opening, the carbid of calcium being arranged between the said plates and the ends of the said tray in order that the water may reach it through the said perforations, substantially as set forth.

3. In an acetylene-gas generator, the combination of a generating-chamber with a tank, a tube making communication between the said chamber and tank, and a regulating device rotatable on the said tube for regulating the supply of water, the said device and tube being connected by a bayonet-joint, substantially as set forth.

4. In an acetylene-gas generator, the combination of a generating-chamber and its supply-tube having a cone 7 formed thereon and a nozzle extending in through the same, of a ring 9 bored to fit the said cone and having an opening which registers with the said nozzle, a pressure-chamber attached to the said ring and a tank surrounding the said pressure-chamber and supplying water through the same to the said tube, substantially as set forth.

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

CHARLES STEWART FORBES.

Witnesses:

DAVID DUNCAN,

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