

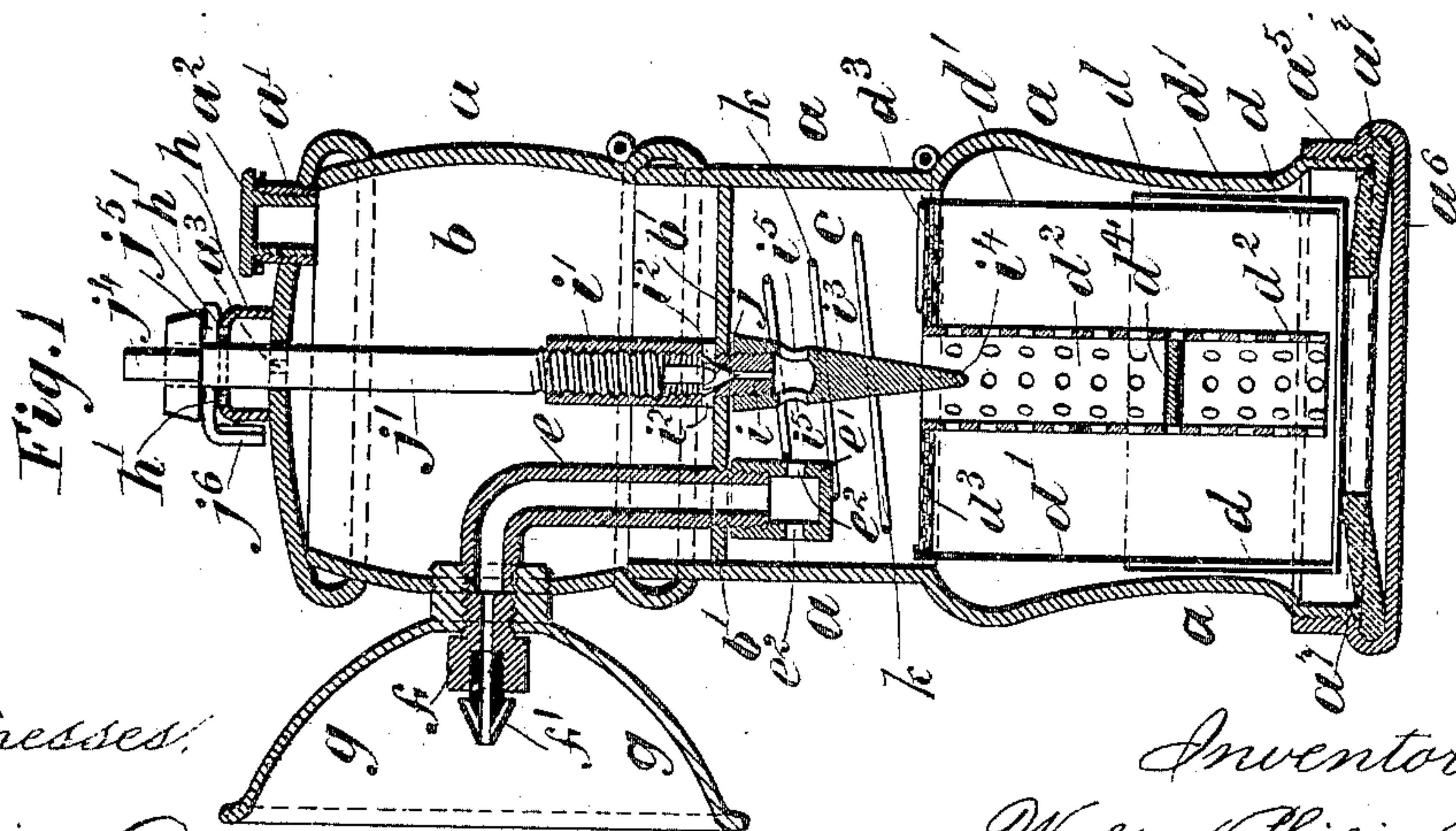
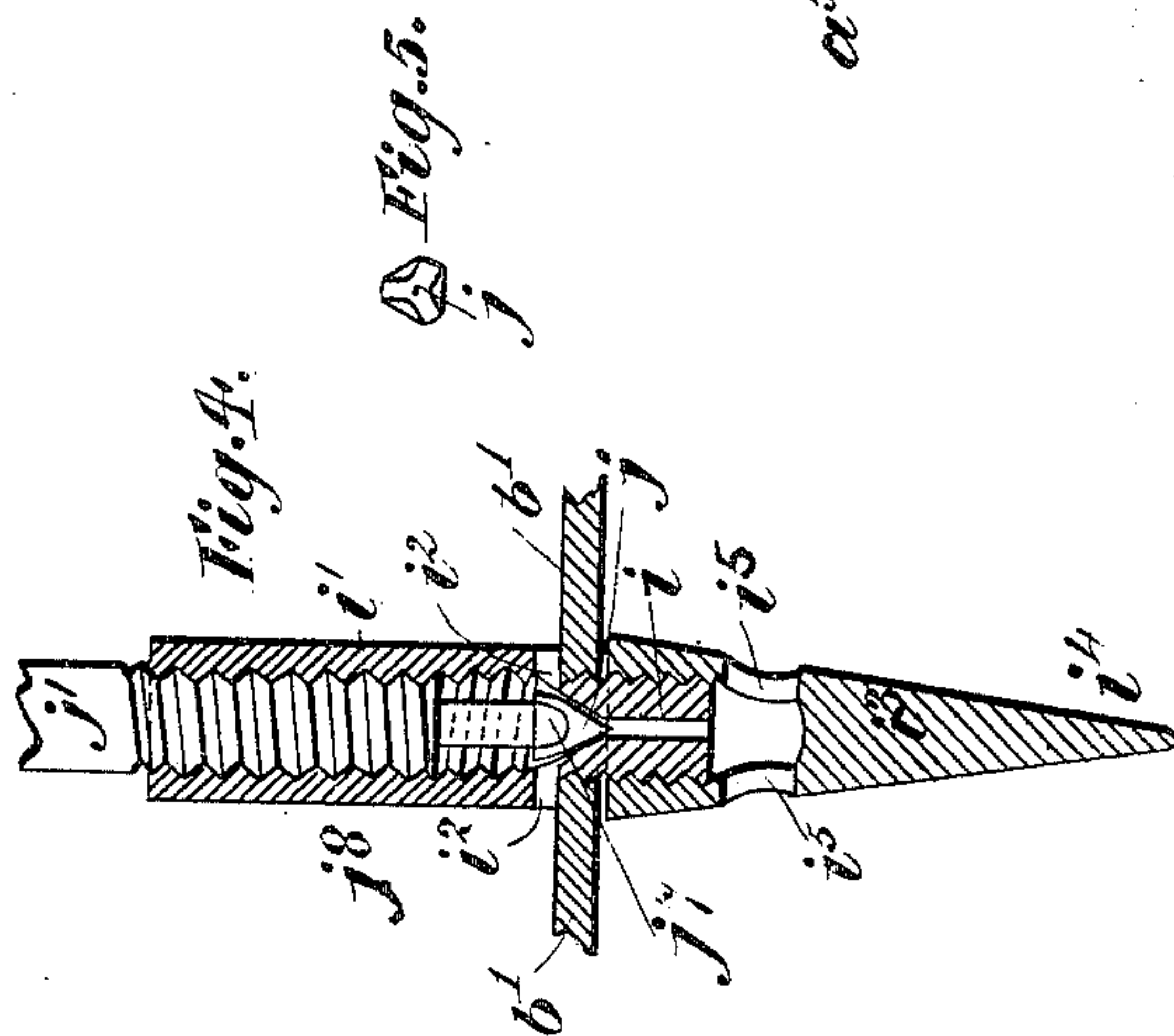
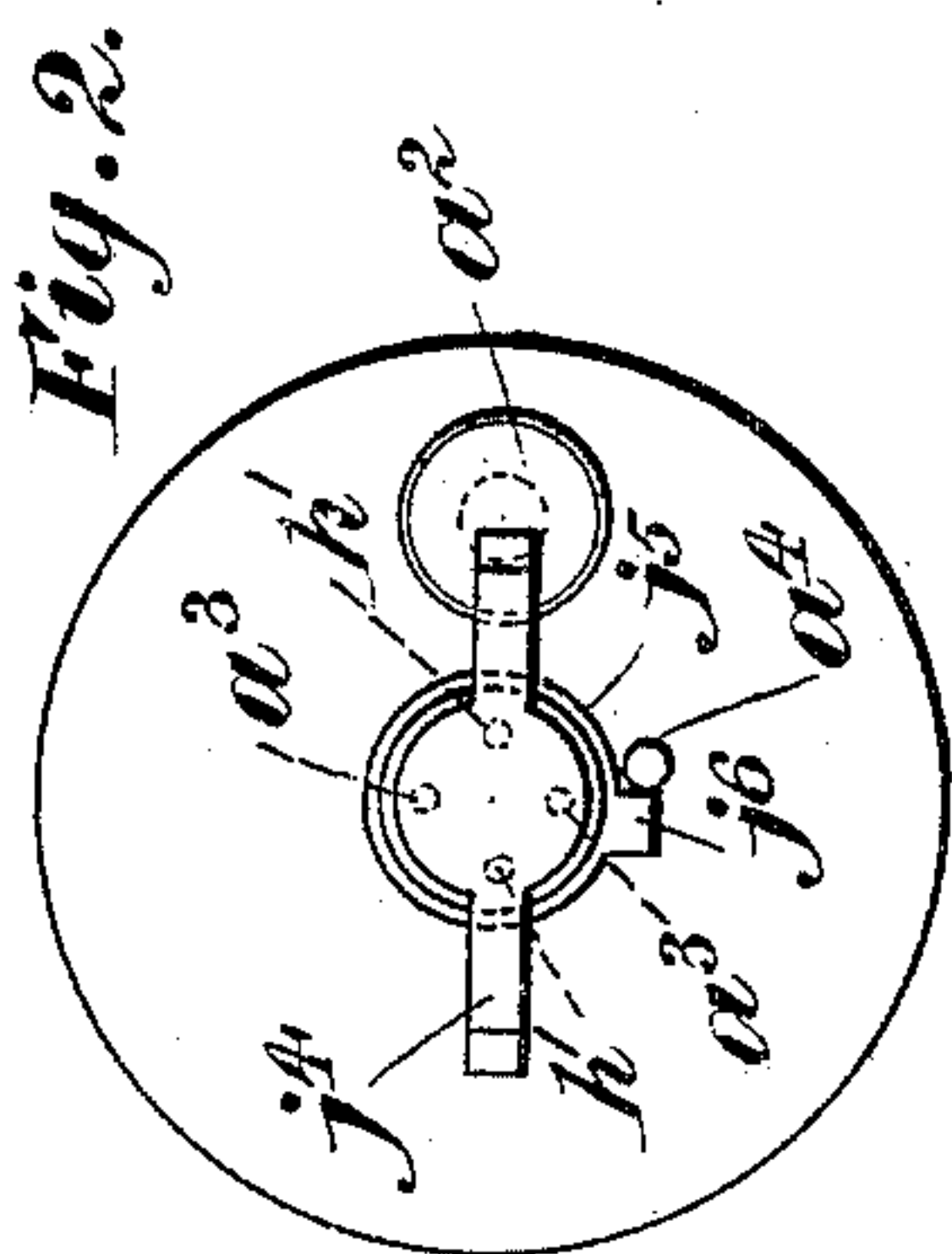
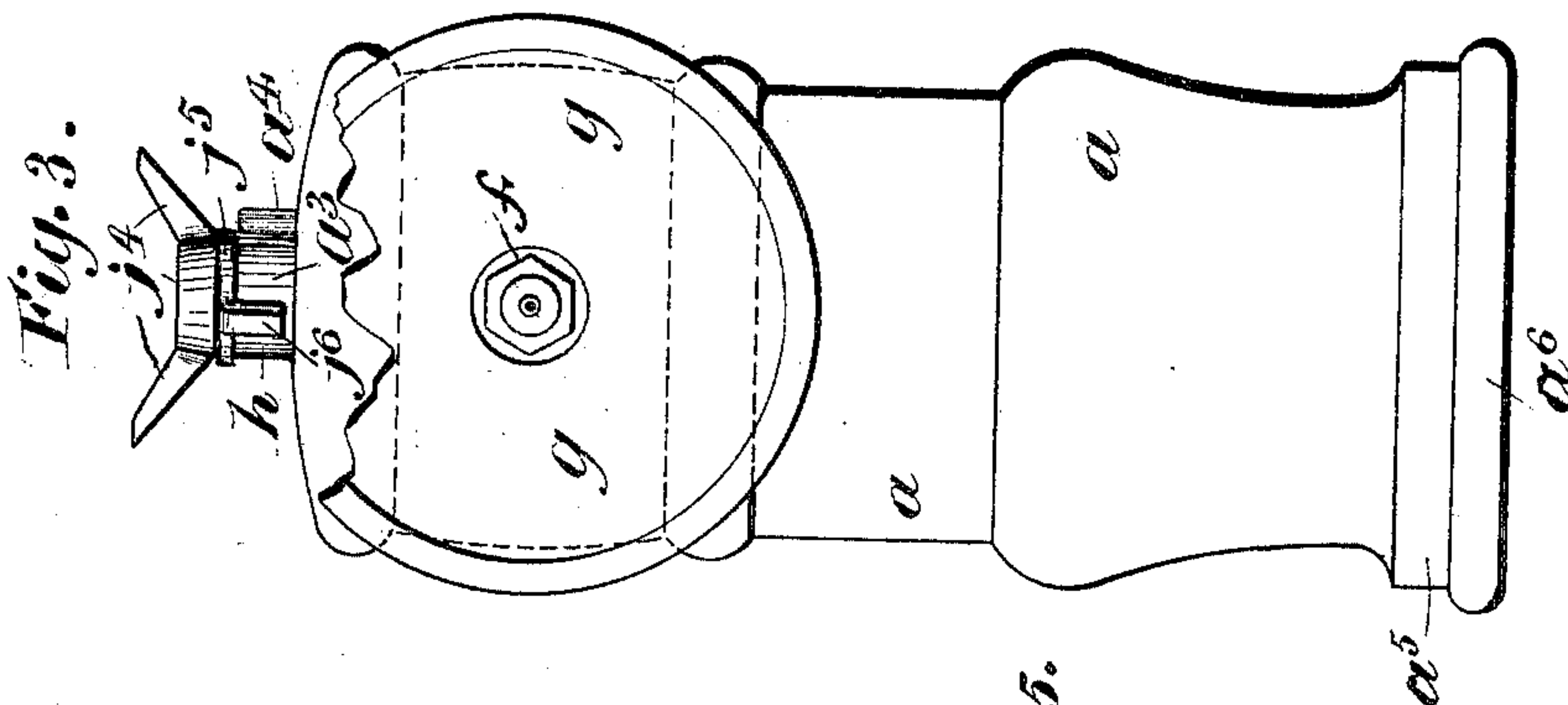
No. 622,751.

Patented Apr. 11, 1899.

W. P. BARLTROP.
ACETYLENE LAMP.

(Application filed Oct. 31, 1898.)

(No Model.)



Witnesses:
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UNITED STATES PATENT OFFICE.

WALTER P. BARLTROP, OF LONDON, ENGLAND.

ACETYLENE-LAMP.

SPECIFICATION forming part of Letters Patent No. 622,751, dated April 11, 1899.

Application filed October 31, 1898. Serial No. 695,034. (No model.)

To all whom it may concern:

Be it known that I, WALTER PHILIP BARLTROP, a subject of the Queen of Great Britain, residing at London, England, have invented certain new and useful Improvements in Acetylene-Lamps, of which the following is a full, clear, and exact description, and for which I have made application for British Patent No. 21,576, dated October 13, 1898.

The invention relates to that class of acetylene-lamps in which the water-reservoir is at the upper part, the gas-chamber at the center, and the carbid-chamber at the lower part; and the improvements have principally for their object the continuous supply of a regulated quantity of water to the carbid, means for causing the water to attack the carbid at about its center, and means for preventing or materially reducing the entrance of water into the gas-conducting tube, and thereby avoiding the flickering or extinguishing of the light.

The improved lamp is more particularly applicable for use with velocipedes, but is also useful as a hand-lamp and for other purposes.

I will describe my invention by the aid of the accompanying drawings, in which—

Figure 1 is a vertical section, Fig. 2 a plan or top view, and Fig. 3 a front elevation, of the improved lamp. Fig. 4 is a vertical section of the water-controlling valve and dropper to an enlarged scale, and Fig. 5 is an end view of the water-supply valve.

a is the body of the lamp; *b*, the water-reservoir; *c*, the gas-chamber; *d d'*, the carbid-container; *e*, the pipe conveying the gas from the chamber *c* to the burner *f*, and *g* is the reflector.

a' is the water-supply nozzle, which is closed by a screw-plug *a²*. In order to allow air to enter the water-reservoir *b* and at the same time prevent the escape of water therefrom in the jolting of the lamp, I form one or more vent-holes *a³* in the cover of the chamber *b*, and I fix around such vent hole or holes a cap *h*, in which I form one or more vent-holes *h'*, which are not immediately over the vent-holes *a³*. Thus any water that may find its way through the vent-holes *a³* will enter the space within the cap *h* and there lose its force, while it cannot escape therefrom through the vent-holes *h'*, as they are not immediately over the vent-holes *a³*. In the plate *b'*, forming the

bottom of the water-reservoir and dividing it from the gas-chamber *c*, I fix a tube *i i'*, the lower part *i* of which extends a short distance into the gas-chamber *c* and is externally screw-threaded and has the valve-seat formed at the upper end thereof. The upper part *i'* of this tube is internally screw-threaded to receive the screw-threaded lower end of the stem *j'* of the valve *j*, by the rotation of which the valve is raised and lowered. One or more holes *i²* is or are formed in the lower part of the tube *i'* to give access of the water to the drip-fitting *i³*. The upper end of the valve-stem *j'* passes through the cap *h* and has fixed thereon a winged head *j⁴*, attached to the under side of which is a disk *j⁵* of irregular surface, which acts as a friction-spring to prevent any accidental rotation of the valve-stem, thereby facilitating the regulation of the water feed and at the same time retaining the valve securely in the desired position. The winged head *j⁴* or disk *j⁵* carries a stop *j⁶*, which acts in connection with a fixed stop *a⁴* on the top of the lamp. When screwed home, the valve *j* fits its seat at the top of the short tube *i* and forms an effectual seal to the water. In this position the stop *j⁶* is away from the fixed stop *a⁴*. The drip-fitting *i³* I form to a point *i⁴*. It is screwed onto the lower part of the valve-seat tube *i* and extends below the plate *b'* into the central space *d²* of the carbid-container to insure the water dropping in the right place. It is bored vertically nearly half its length at the upper part, and the walls thereof are pierced by one or more fairly large transverse holes *i⁵*, so that the water released by the valve *j* passes out of these holes and down the outside of the lower pointed part *i⁴* of the drip-fitting drop by drop, according to the water feed supplied by the valve *j*. The sides of the valve *j* just above the sealing portion are formed with facets *j⁷*, and the valve is connected to the screwed part of the stem *j'* by a reduced part *j⁸* to assist in regulating the water feed. The object of this special form of drip-fitting or stem *i³* and valve is to overcome the uncertainty in the feed of the water which is frequently met with in water-feeding arrangements of small capacity hitherto in use consequent on the accumulation of water by capillary attraction and other causes, among

them being internal pressure of the gas interrupting the water feed, thereby causing want of uniformity in the generation of gas, also to avoid choking of the valve by carbid residue and other substances accumulating in the body of the lamp.

Instead of connecting the carbid-chamber to the waist or central part of the lamp the carbid-chamber hereinafter described is introduced from the bottom of the lamp by means of a cap or cover a^5 to screw onto the bottom of the lamp-body a , which latter is screw-threaded at that part for this purpose. This cap a^5 has a hollow projecting rim a^6 at the base, which rim is milled to facilitate the screwing and unscrewing to the body a , while inside, on the floor of the cap a^5 and fitting into the rim a^6 , is placed a rubber washer a^7 , so that when the cap a^5 is screwed home on the lamp-body a the lower part or carbid-chamber is made gas-tight. I also in lieu of forming the carbid-container conical form it cylindrical with two concentric walls or cylinders d' d^2 , between which the carbid is packed. The inner wall or cylinder d^2 is perforated, while the annular space between the outer and inner walls or cylinders d' d^2 at the upper end is closed with one or more thickness d^3 of perforated metal and with or without the application of canvas between the same. About half-way up the space formed by the inner wall or cylinder d^2 I fix a little plate or disk d^4 , so that the water dripping onto it attacks the carbid from the heart or center and causes the action to be from the center outward. The cap or cover d fits over the lower end of the outer wall d' of the container, so that no part of the carbid or residue comes into contact with the inside of the body of the lamp, and thus avoids dirt and clogging of the lamp. A spring k above the carbid-container keeps it in position during the trepidation and jolting of the vehicle on which it may be mounted and allows the gradual expansion of the carbid under the action of the water.

In some acetylene-lamps it is frequently found that under pressure of the gas and from other causes water or vapor is forced out with the gas into the gas-conducting tube e , and this makes the flame to flicker and even on occasions altogether to go out, as is frequently the case with ordinary gas-lights when water or other fluid enters or accumulates in the pipes. To overcome this difficulty, I extend the gas-pipe e down a little into the carbid or gas chamber c , and on this end I screw a small fitting e' , cylindrical in shape and closed at the lower end. In about the middle of this fitting I make one or more small transverse holes e^2 for the exit of the gas from the chamber c into the tube e . Water or vapor is thus prevented from disturbing the equilibrium of the flame.

I have also improved and altered the construction of the burner by forming it of a hollow fitting screw-threaded at one end to

screw into the body of the lamp, while the outer end is externally of hexagonal form and in its interior receives a lava or other tip f' of suitable form.

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

1. In an acetylene-lamp having a water-chamber at the upper part and a gas-chamber containing a carbid-holder at the lower part, the combination therewith of a tube fixed in the bottom of the water-chamber and extending a short distance above and below the same, an internal screw-thread in the upper, and an external screw-thread on the lower, part of said tube, side perforations in such tube just above the water-chamber bottom, a valve-seat formed in the lower part of said tube, a valve fitting the valve-seat and formed with facets at its upper part, a valve-stem screw-threaded near its lower end and fitting into the internally-screw-threaded tube, a reduced portion of the valve-stem between the screwed portion and the valve, a head on such valve-stem by which it can be rotated, a friction-spring to prevent accidental rotation and stops to limit the rotative motion given to such valve-stem, an air-vent fitting fixed on the lamp-cover and through which the valve-stem passes, one or more air-ventholes in the lamp-cover inclosed by the fitting, one or more air-vent holes in the top of the fitting not immediately over the air-vent hole or holes in the lamp-cover, and a conical drip-fitting screwed onto the valve-seat tube and extending a short distance into the carbid-container, such drip-fitting being solid at the lower part, hollow at its upper part, and formed with holes in its sides communicating with the bore thereof, substantially as herein set forth and for the purpose stated.

2. In an acetylene-lamp having a water-chamber at the upper part and a gas-chamber containing a carbid-holder at the lower part, the combination therewith of a tube fixed in the bottom of the water-chamber and extending a short distance above and below the same, an internal screw-thread in the upper, and an external screw-thread on the lower, part of said tube, side perforations in such tube just above the water-chamber bottom, a valve-seat formed in the lower part of said tube, a valve fitting said valve-seat and formed with facets at its upper part, a valve-stem screw-threaded near its lower end and screwing into the internally-screw-threaded tube, a reduced portion between the screw-thread and the valve, an air-vent fitting at the top of the lamp through which the valve-stem passes, a head on such valve-stem by which it is operated, stops to limit the rotary motion of the valve-stem, a friction-disk to prevent accidental rotation of the valve-stem, a drip-fitting fixed to the lower part of the valve-seat tube, a hollow upper part to said drip-fitting, a solid conical lower part to said drip-fitting,

side perforations in the hollow part of the drip-fitting, a carbid-container consisting of concentric cylinders, the outer cylinder being imperforate and the inner cylinder perforated, a solid disk fixed about midway of the inner cylinder, a cap or cover closing the lower end of the carbid-container, perforated plates with interposed canvas forming the upper part of the carbid-container, and a spring acting upon the upper side of the carbid-container, substantially as herein set forth, and for the purpose stated.

3. In an acetylene-lamp having a water-chamber at the upper part and a gas-chamber containing a carbid-holder at the lower part, the combination therewith of a carbid-con-

tainer consisting of concentric cylinders, the outer cylinder being imperforate and the inner cylinder perforated, a solid disk fixed about midway of the inner cylinder, a cap or cover closing the lower end of the carbid-container, perforated plates with interposed canvas forming the upper part of the carbid-container, and a spring acting upon the upper side of the carbid-container, substantially as herein set forth and for the purpose stated.

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

WALTER P. BARLTROP.

Witnesses:

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WM. GIRLING.