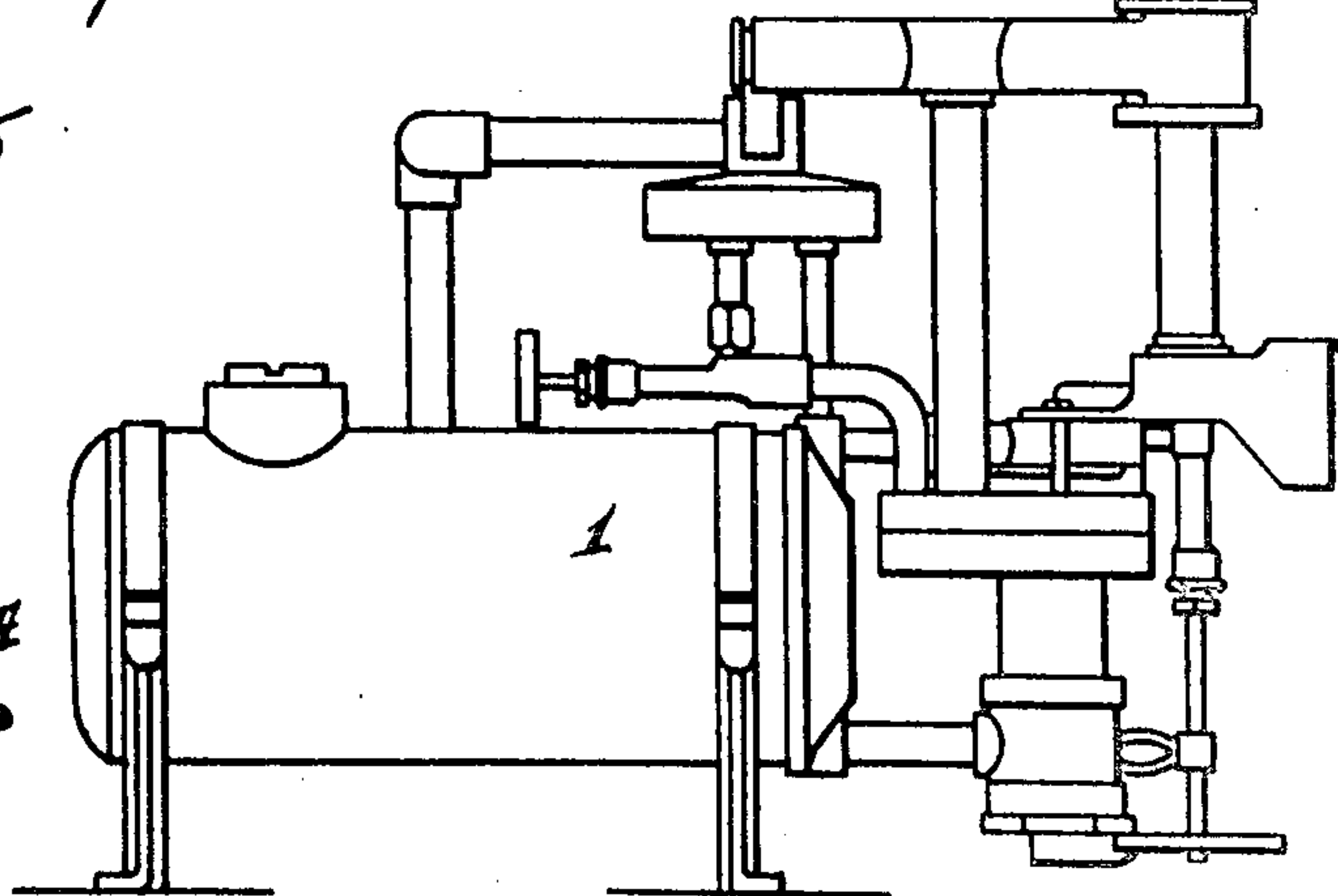
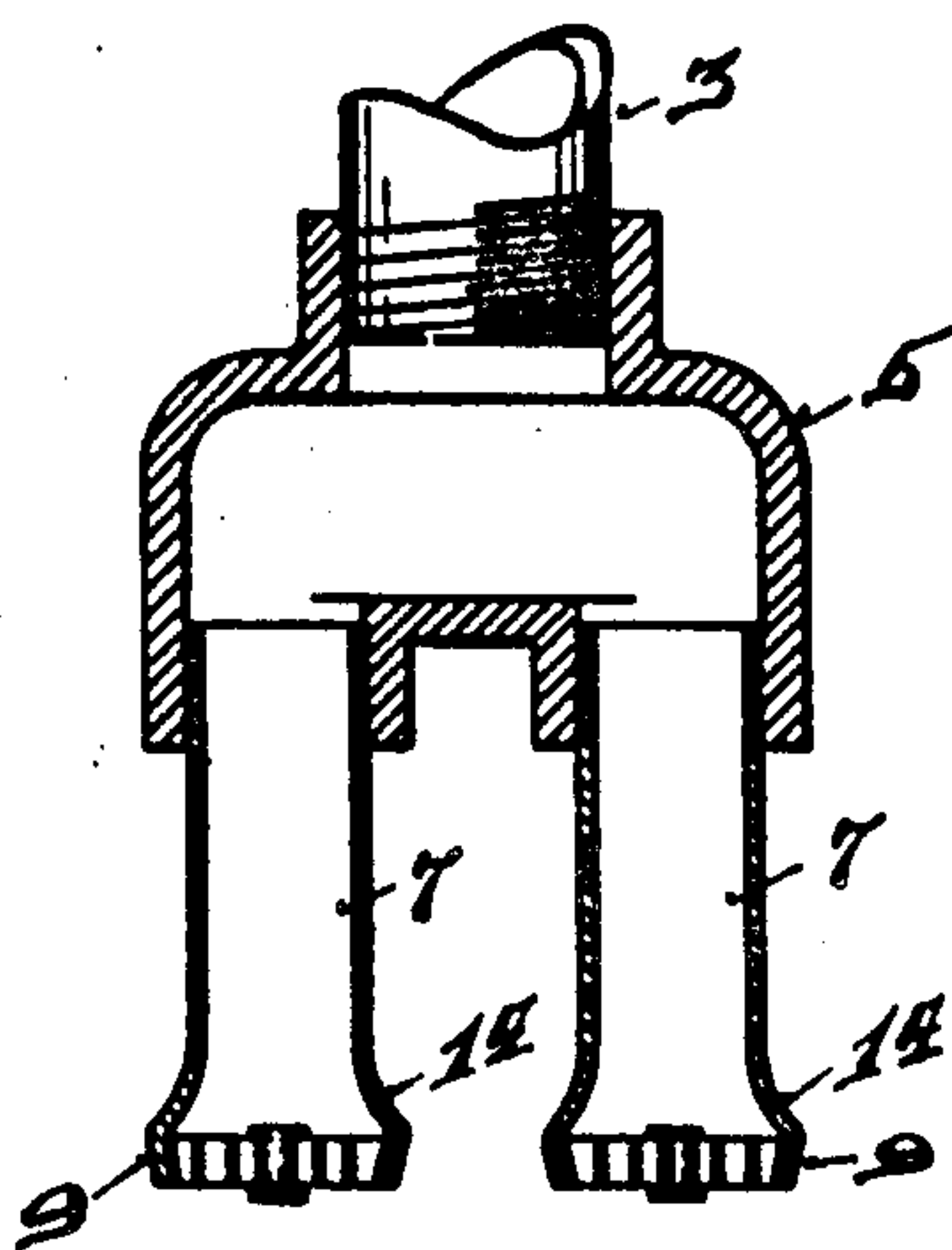
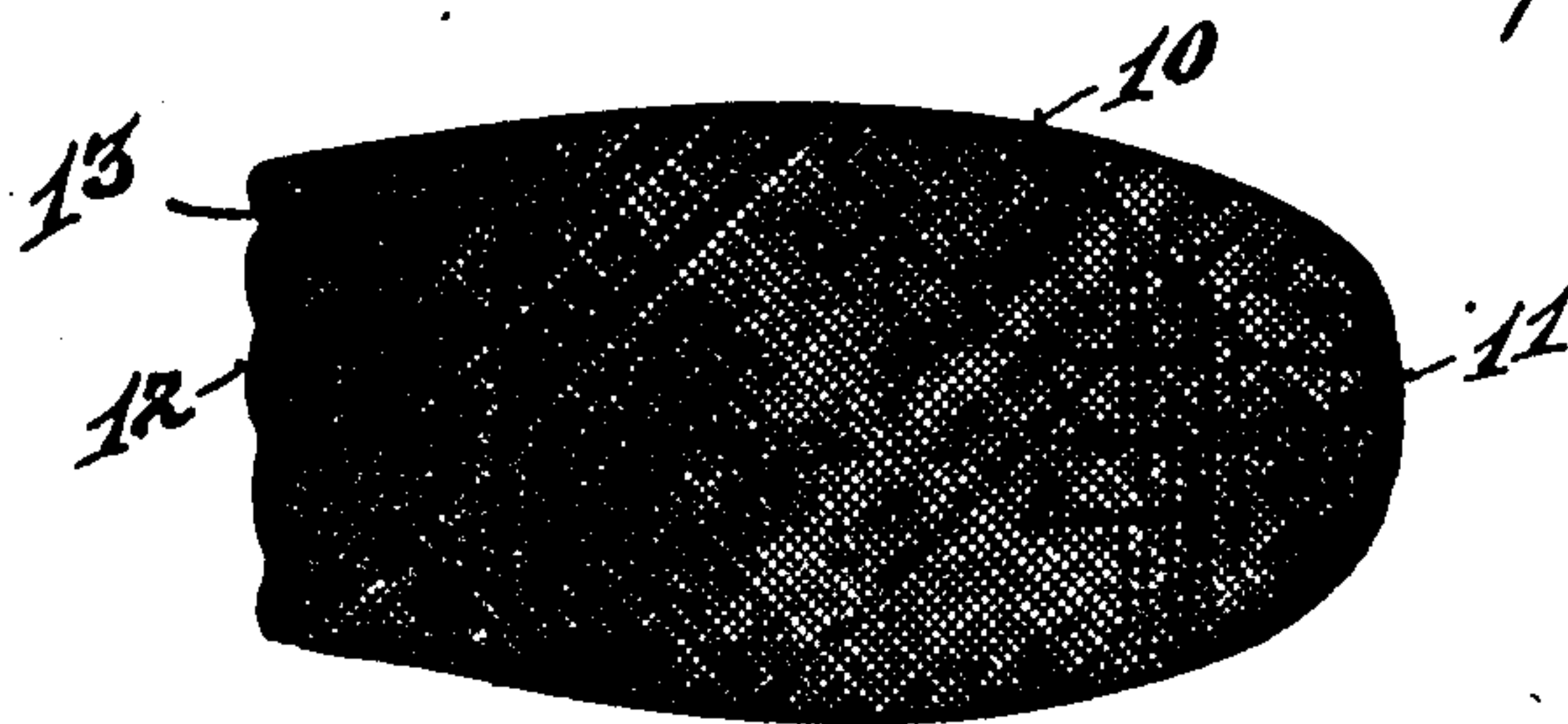
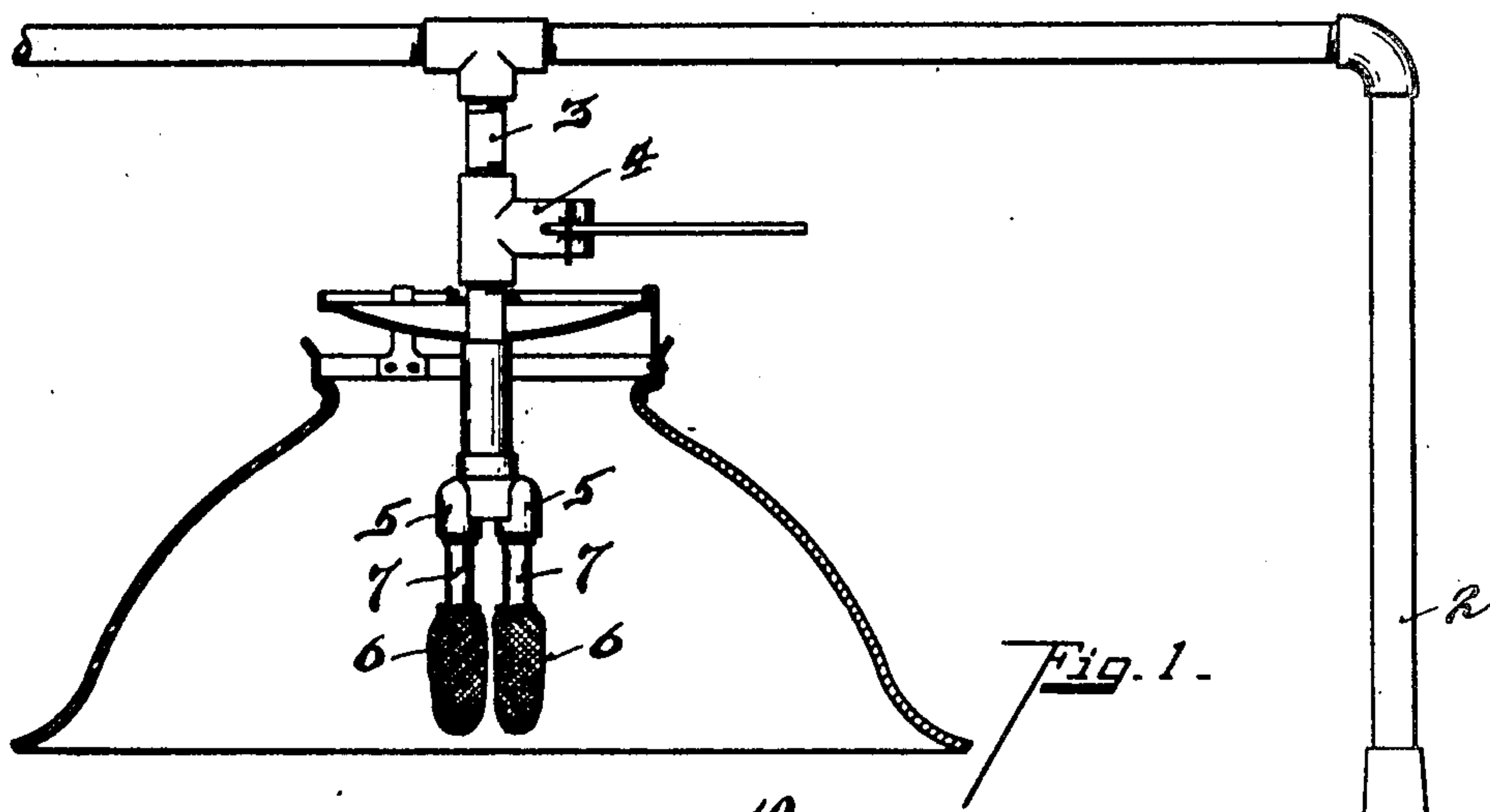


No. 875,634.

PATENTED DEC. 31, 1907.

J. STUBBERS.  
INCANDESCENT LAMP FIXTURE.  
APPLICATION FILED MAY 14, 1906.



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# UNITED STATES PATENT OFFICE.

JOSEPH STUBBERS, OF COVINGTON, KENTUCKY, ASSIGNOR TO THE INCANDESCENT LIGHT & STOVE COMPANY, OF CINCINNATI, OHIO, A CORPORATION.

## INCANDESCENT-LAMP FIXTURE.

No. 875,634.

Specification of Letters Patent.

Patented Dec. 31, 1907.

Application filed May 14, 1906. Serial No. 318,860.

*To all whom it may concern:*

Be it known that I, JOSEPH STUBBERS, a citizen of the United States, residing at Covington, in the county of Kenton and State of Kentucky, have invented certain new and useful Improvements in Incandescent-Lamp Fixtures, of which the following is a specification.

My invention relates to an improvement in the construction, the handling and use of incandescent mantles, and particularly the method of forming the mantles in combination with the burner tips and flames of a hydro-carbon lighting system generating and supplying the combustible vapor under considerable pressure.

It is well known that in present practice a tubular carrier fabric is impregnated with the chemicals forming the incandescent structure, the carrier is burned away, the residuum incandescent mantle is formed in a blow pipe flame in the factory and when so formed is covered with paraffin to give the mantle sufficient rigidity to be shipped and to be applied to the burner tips in connection with which it is to be used. Notwithstanding this, the paraffin carrier is so fragile that the breakage in forming, shipping and applying to the burners is very considerable. The loss due to the breakage of the mantles after the fabric carrier is burned away and before the paraffin carrier is applied, is also very considerable. The paraffin carrier mantles have to be carefully packed with cotton in tubular paste-board boxes, the expense of which is considerable. These disadvantages are effectually overcome by my invention. I also form the mantle directly in the flame of the burner tip of the lighting system in which the mantle is to be permanently used. By so doing the mantle is shaped substantially to fit the outline of the flame of its burner and thus lies perfectly within that heating zone of the flame which is of the highest efficiency.

I have found from repeated tests that with my system of lighting a gallon of gasoline lasts much longer than with a similar illuminating system employing the ordinary mantles shipped in paraffin carriers, and the light is greatly increased in brilliancy.

The use of an inverted or downwardly pro-

jecting burner tip in connection with a lighting system in which the gas is generated and supplied under sufficient pressure to inflate, or partially so, the residuum mantle, the mantle is shaped to the outline of the flame by the internal pressure of the gas.

I am aware that inverted burner tips and mantles have been previously used, but it has always been with the ordinary paraffin carrier mantles which have been previously given their permanent shapes in the factory.

My method of suspending the mantle carrier and fabric from the burner tip, I believe to be also new, and it has attendant advantages which will be later explained.

These and other features of my invention will be more fully set forth in the description of the accompanying drawings, forming a part of this specification, in which:—

Figure 1 is an elevation, partly in section, showing a type of generating apparatus with burners and mantles. Fig. 2 is a plan view of the flat or collapsed mantle carrying fabric. Fig. 3 is a section through the burner tips, shown in Fig. 1.

1 represents a gasoline vapor generating system of the type shown in my Patent No. 683,232, granted September 24, 1901, for improvement in carbureter.

2 represents the service pipe from which depends the burner pipe 3, in which is a controlling valve, not shown, but lying within the fitting 4.

5 represents the supports for supporting the inverted burner tips 7.

6 represent the incandescent mantles which have been shaped and hardened in the flames of the particular burner tips in connection with which the mantles are used.

I have shown two burners as a desirable form.

The burner tips 7 are screw threaded into the support 5 on the end of the burner pipe 3. The burner tips 7 are provided at their lower ends with the peripheral flanges 9, which constitute the mantle supports.

10, see Fig. 2, represents the flat or collapsed mantle carrying fabric, the lower end 11 is substantially closed and the top end 12 is slightly constricted relative to the diameter of the carrier by means of a draw string 13. This mantle carrying fabric consists of



a suitable net work impregnated with the chemicals which form the incandescent mantle, chiefly nitrate of thorium. These bag-like mantle carrying fabrics are knit or  
 5 woven and impregnated with the suitable chemicals in the factory and when dry, are shipped to the consumer in this flat or collapsed condition shown in Fig. 2, in which condition they can be shipped compactly,  
 10 handled with impunity and applied to the burner tips with perfect ease and safety.

In applying the carrier to the burner tip the constricted end 12 is slipped loosely over one of the flanges 9 of the burner tip, there  
 15 being a just sufficiently tight enough fit to allow the mantle carrying fabric to remain suspended. The carrier fabric which is generally cotton, is then burned away, leaving the residuum incandescent mantle somewhat  
 20 shrunken in size and still somewhat collapsed. The gas is then turned on and ignited, and as the pressure is considerable, the mantle inflates somewhat and assumes the oblong oval contour, shown in Fig. 1.

25 The shaping and hardening action is effected under the joint influence of the internal pressure of the gas and heat of the flame. The mantle considerably contracts during this process and fits itself to the outline of  
 30 the flame, the constricted end of the mantle contracting further so as to securely fit over the end of the flange of the burner tip from which it is suspended.

It will be seen that I thus shape and  
 35 harden the individual mantle to the individual burner tip flame of the lighting system with which the mantle is to be regularly used in illuminating.

The flange 9 which forms the support on  
 40 the burner tip for the mantle has a rounded upper surface or seat portion 14. The neck of the mantle contracted around this seat portion is prevented from dropping off and yet fits rather loosely or adjustably to its  
 45 seat. As the mantle depends vertically from this seat, gravity tends to hold it straight, and it will automatically right itself into proper alinement with the burner tip under the jars and vibrations to which the burner tube is  
 50 constantly subjected. This greatly increases the life of the mantle for the reason that the vibrations do not break the edges of the mantle at the point of support, or throw the mantle out of alinement with the burner tip  
 55 so that the flame impinges more at one point than at another. It also greatly increases the efficiency of the light, as the mantle is always held properly in the flame. The fact that the neck of the mantle is supported non-  
 60 rigidly and adjustably directly from the mouth of the burner tip is thus seen to be of great practical importance.

The support lies entirely within the inner periphery of the upper end of the mantle,

and there are no external bindings or supporting elements and no rigid points of attachment.

This system of lighting has the further advantage that none of the supporting structure lies under the burner and the light is  
 70 therefore shadowless. Again, the escaping products of combustion rise up around the inverted burner tip and materially superheat the gas or air and vapor mixture at a point just prior to its combustion, which is  
 75 of considerable practical value in the efficiency of the light.

This invention is highly advantageous in connection with a hydro-carbon vapor generating system of illumination. The reason  
 80 for this is that in a hydro-carbon illuminating system the mixture of vapor and air is not only heavier than air but it is delivered to the burner tip under considerable pressure, so that it expands the web work of rare earths  
 85 constituting the mantle after the carrier fabric has been burned away.

The invention can however be used in connection with ordinary illuminating systems wherever the pressure is sufficient to insure  
 90 the results above explained. Each time the gas is extinguished the mantle contracts and warps or draws up to irregular shapes, while when the gas is turned on and ignited the mantle automatically fills out and shapes  
 95 itself to the cone of the flame. Thus it is evident that the support for the mantle must permit of this constant variation.

Having described my invention, I claim:—

1. In combination with an illuminating  
 100 system, an inverted burner tip, a mantle carrying fabric impregnated with rare earths, and means for loosely suspending the said mantle directly from the burner tip, substantially as described.

2. In combination with an illuminating  
 105 system, an inverted burner tip, a web work of rare earths shaped to the outline of the flame and loosely suspended directly from the mouth of the burner tip, substantially as described.

3. In combination with an illuminating  
 110 system, an inverted burner tip, a conical flange formed on the tip, a mantle carrying fabric impregnated with rare earths and having its upper end drawn in above and around the flange, whereby the said mantle is loosely suspended from the burner tip, substantially as described.

4. In combination with an illuminating  
 120 system, an inverted burner tip, a conical flange formed on said tip, a web work of rare earths shaped to the outline of the flame, having its upper end constricted around said flange, whereby the mantle remains adjustably suspended from the mouth of the burner tip, substantially as described.

5. In combination with an illuminating

system, an inverted burner tip, a flange  
around the burner tip, a mantle carrying fab-  
ric impregnated with rare earths having its  
upper end constricted around and loosely  
5 fitting the flange, whereby the mantle is di-  
rectly suspended from the mouth of the  
burner tip, substantially as described.

In testimony whereof, I have hereunto set  
my hand.

JOSEPH STUBBERS.

Witnesses:

OLIVER B. KAISER,  
LUISE BECK.