

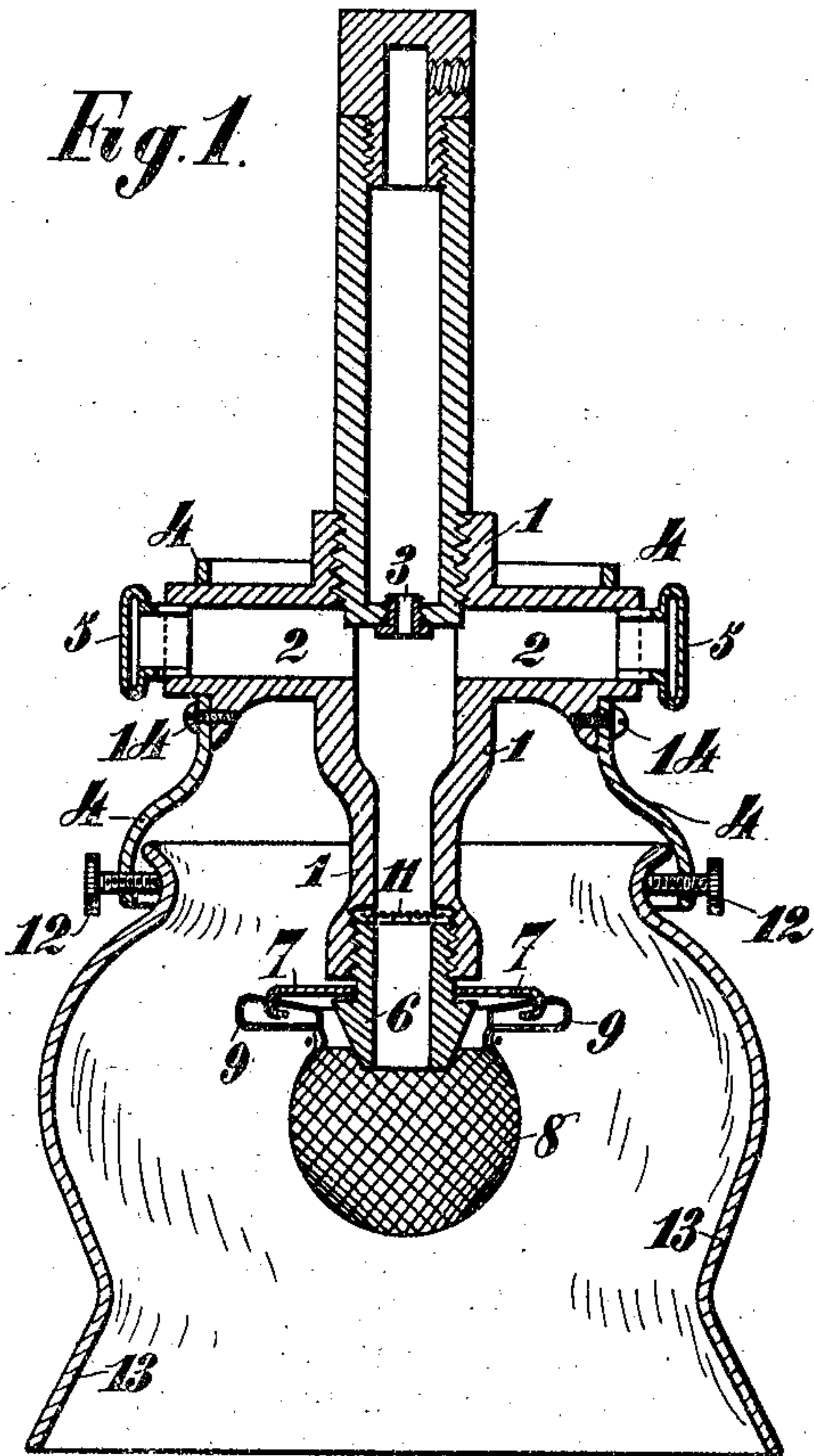
No. 768,382.

PATENTED AUG. 23, 1904.

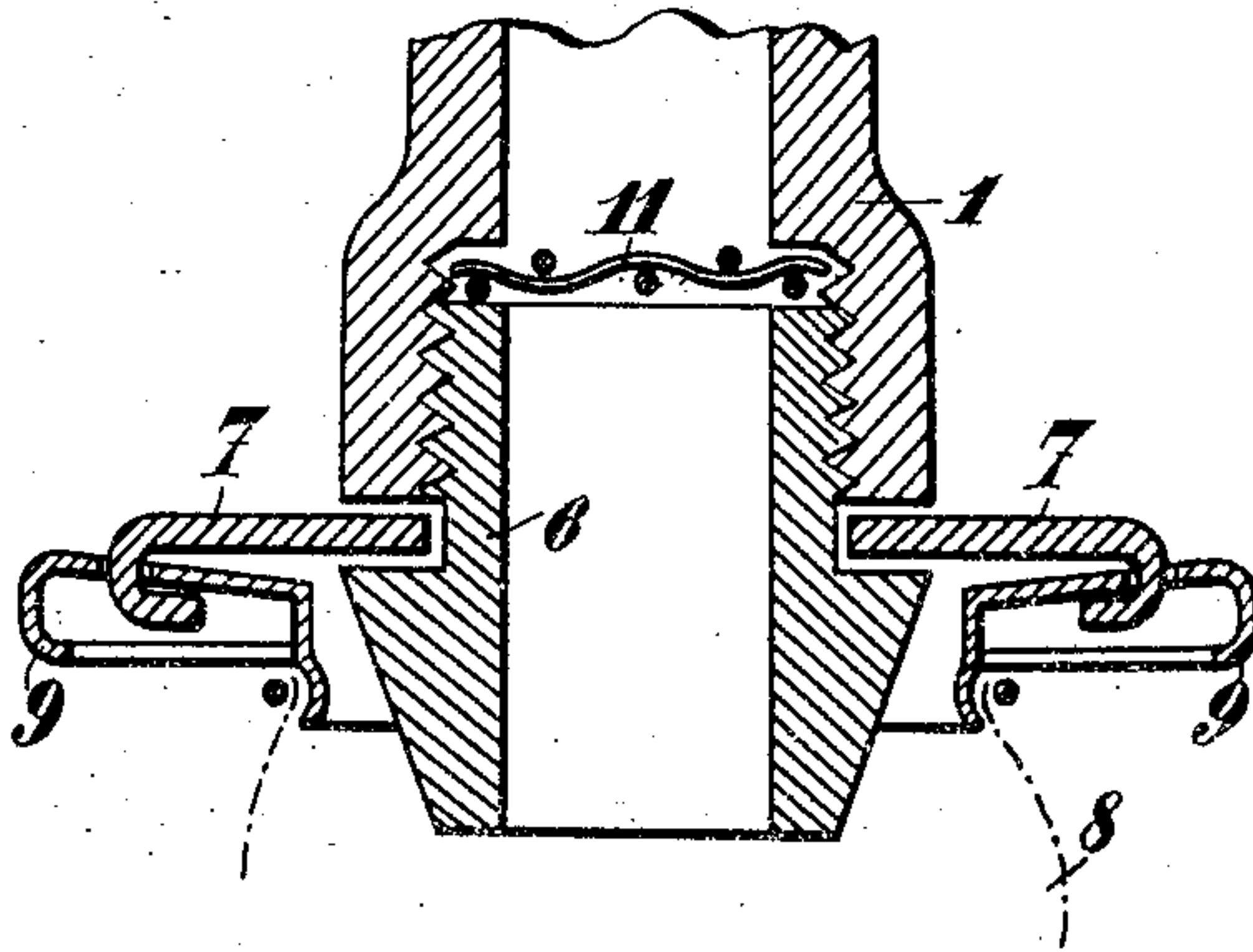
L. LIAIS.  
VAPOR INCANDESCENT LAMP.  
APPLICATION FILED AUG. 20, 1903.

NO MODEL.

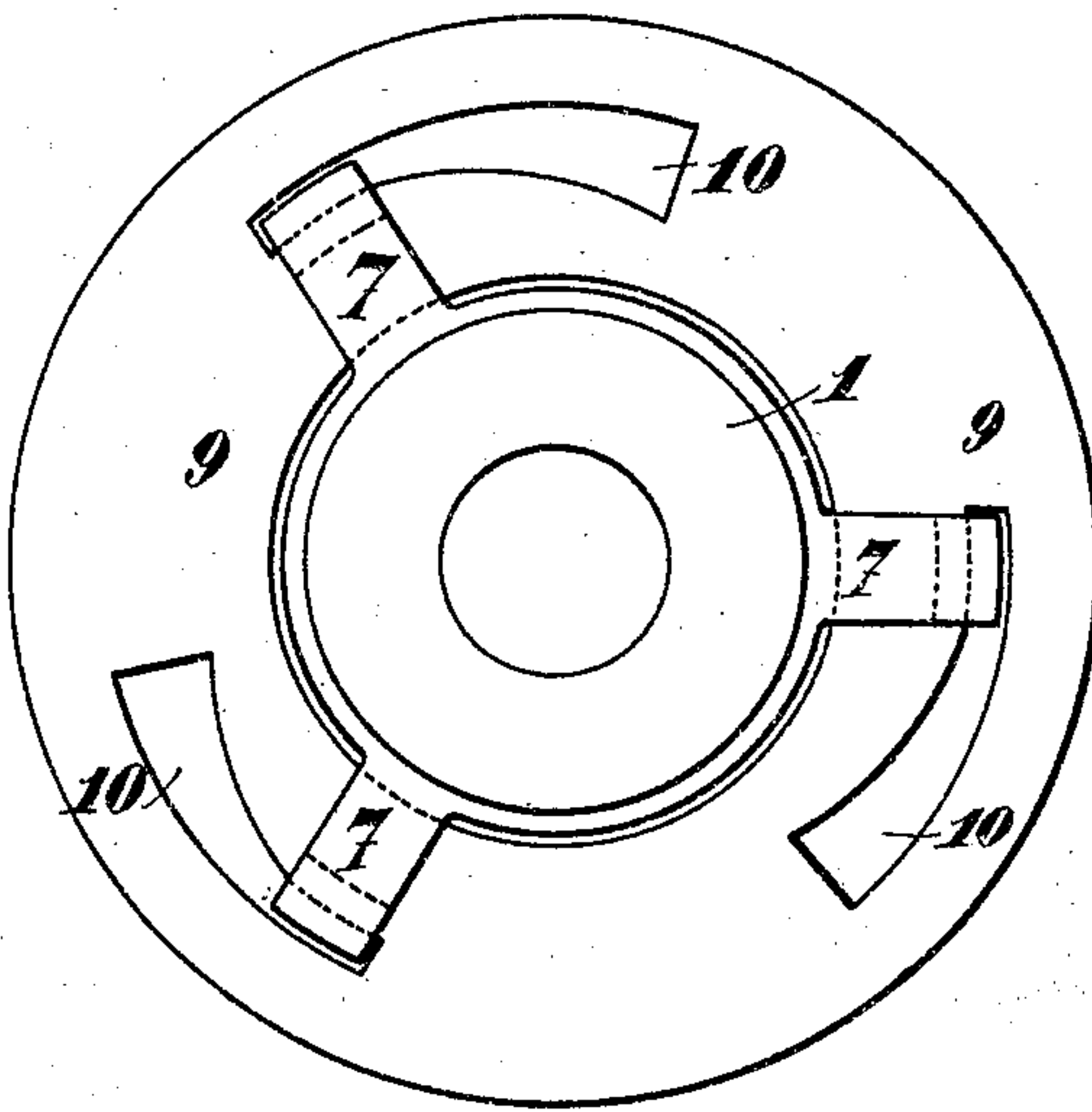
*Fig. 1.*



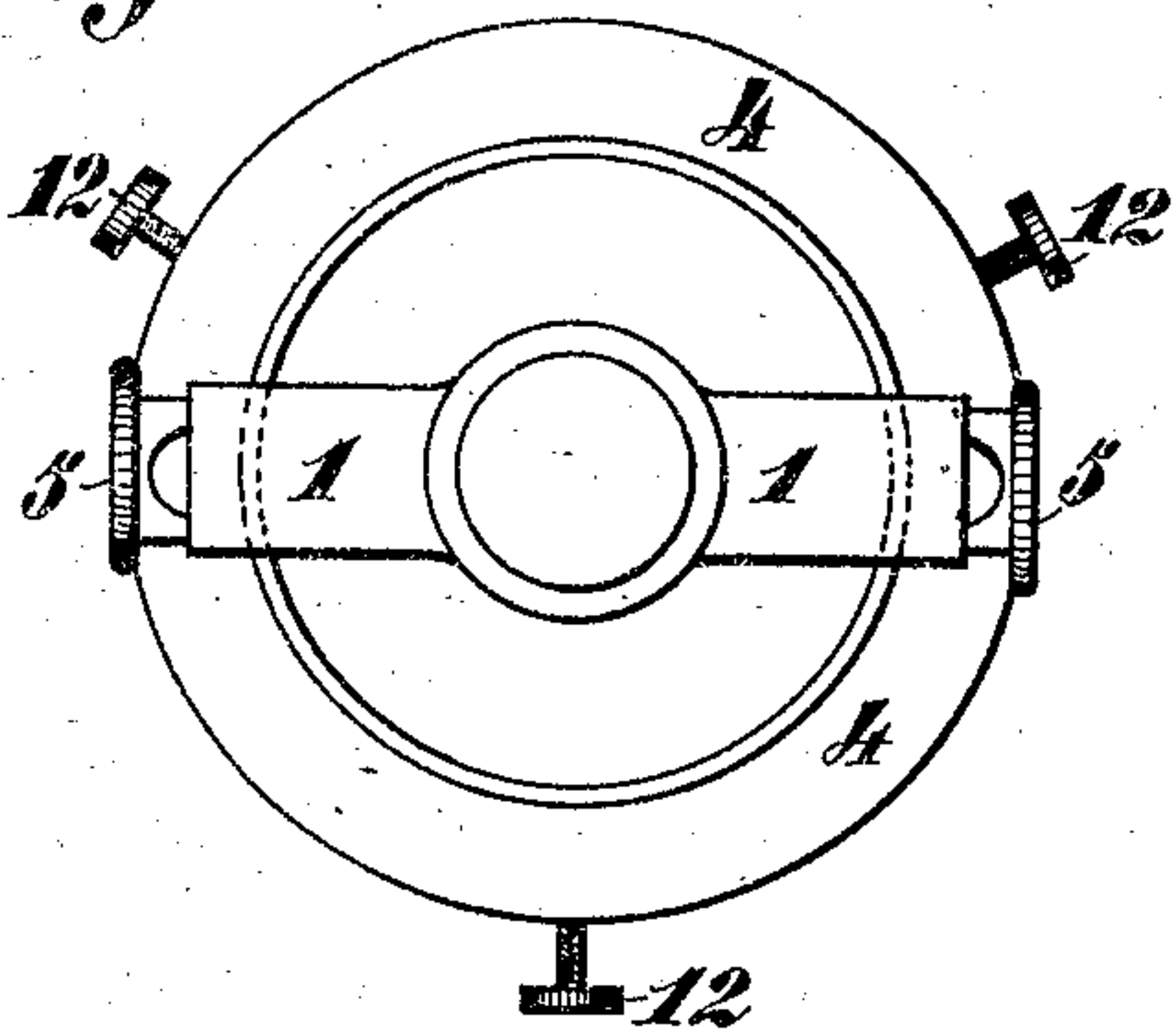
*Fig. 3.*



*Fig. 4.*



*Fig. 2.*



Witnesses:  
Waldo M. Chapin  
Frank D. Ober

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att'y



# UNITED STATES PATENT OFFICE.

LUCIEN LIAIS, OF PARIS, FRANCE.

## VAPOR INCANDESCENT LAMP.

SPECIFICATION forming part of Letters Patent No. 768,382, dated August 23, 1904.

Application filed August 20, 1903. Serial No. 170,153. (No model.)

*To all whom it may concern:*

Be it known that I, LUCIEN LIAIS, engineer, a citizen of the French Republic, residing at Paris, in the Department of the Seine, France, have invented certain new and useful Improvements in and Relating to Vapor Incandescent Lamps; 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.

This invention relates to a lamp for burning the vapor or gas from pit-coal, oil, alcohol, petrol, or other volatile combustible liquid in conjunction with a mantle capable of being raised to incandescence, the flame being inverted.

The accompanying drawings illustrate the construction and disposition of the lamp and its constituent parts and will be hereinafter referred to.

Figure 1 shows the lamp in vertical section. Fig. 2 shows it in plan with the shade removed. Fig. 3 illustrates to a larger scale the burner and device for attaching the mantle. Fig. 4 represents a plan of the parts shown in section in Fig. 3.

The burner consists or is formed of a metallic or other body which may be cast, stamped, or drawn and is provided with a central tube 1 for the passage of the gaseous mixture and with one or more (and preferably two) side tubes 2 for the admission of air, the whole forming, with the gas or vapor injector or passage 3, a Bunsen burner. The side tubes 2, which may be horizontal, are so disposed and arranged that they or their inlets or orifices are outside of the gallery 4 (see Figs. 1 and 2) and serve to admit the air to the burner. The quantity of air admitted may be regulated by moving the valves, stops, or plugs 5.

The arrangement described possesses the advantage of collecting or concentrating within the central part of the gallery the products of combustion from the burner and of conducting these products of combustion above and around the air-inlets of the side tubes 2, thus heating them and preventing the products of combustion from entering the

tubes which thus only receive air. The burner terminates with or in a nozzle 6 of steatite or other incombustible substance, which is held in place in any suitable manner and is formed or provided with or has attached to it the arms 7 for supporting the mantle.

The mantle 8 is approximately spherical and is secured to a carrier or plate 9, having slots 10 of varying width (see Fig. 4) arranged to engage with the returned ends of the arms 7. To engage the mantle with the burner, it is evident that it will only be necessary to pass the ends of the arms 7 into or within the broad ends of the slots 10 in the plate 9 and turn the latter until the arms and plate are locked with each other. To disengage the mantle, the operation is reversed.

11 is a gauze or like sieve or grating which may be placed between the nozzle 6 and the tube 1.

The gallery 4 is secured to the burner by means of screws 14 and is provided with screws 12 for holding the shade 13 in place.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is—

1. In an inverted-flame vapor incandescent lamp, the combination of a central tube for the passage of a gaseous mixture, one or more lateral tubes admitting air to said central tube, a burner at the lower extremity of the central tube, a lamp-gallery having imperforate side walls below the air-admission tubes, said gallery providing a free and unrestricted passage for the products of combustion which are thereby conducted into contact with the exterior of said air-admission tubes, said central tube being protected from external air at all points between the air-admission tubes and the burner.

2. In an inverted-flame vapor incandescent lamp, the combination of a central tube for the passage of a gaseous mixture, one or more lateral tubes admitting air to said central tube, regulating plugs or valves in said lateral tubes, a burner at the lower extremity of the central tube, a lamp-gallery having imperforate side walls below the air-admis-

sion tubes, said gallery providing a free and unrestricted passage for the products of combustion which are thereby conducted into contact with the exterior of said air-admission tubes, said central tube being protected from external air at all points between the air-admission tubes and the burner.

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

LUCIEN LIAIS.

Witnesses:

GEORGE E. LIGHT,  
HENRI CRESPIN.