

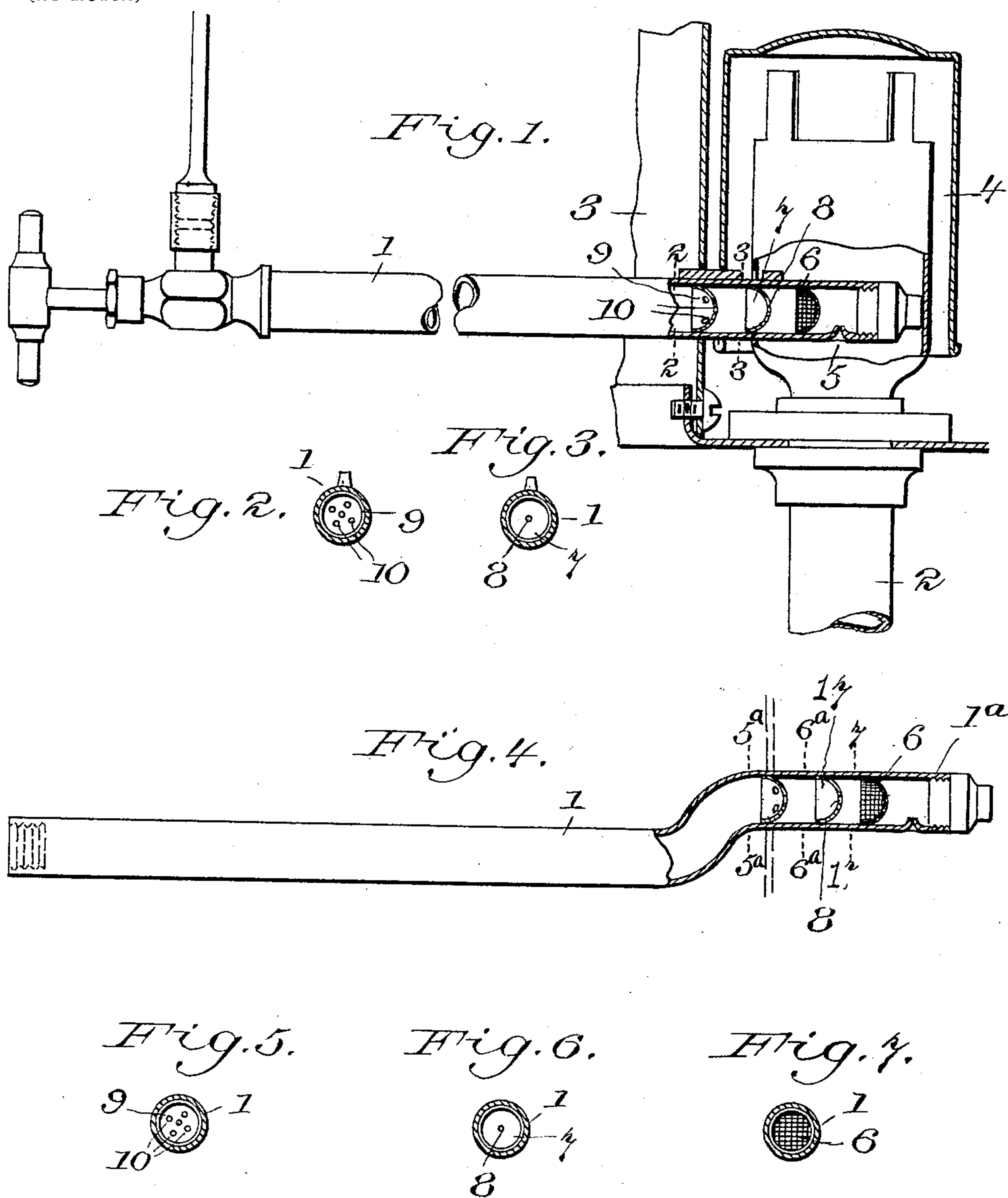
No. 632,498.

Patented Sept. 5, 1899.

A. KITSON.
VAPORIZING TUBE.

(Application filed Mar. 6, 1899.)

(No Model.)



WITNESSES:

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VAPORIZING-TUBE.

SPECIFICATION forming part of Letters Patent No. 632,498, dated September 5, 1899.

Application filed March 6, 1899. Serial No. 708,023. (No model.)

To all whom it may concern:

Be it known that I, ARTHUR KITSON, a sub-
ject of the Queen of Great Britain, and a resi-
dent of Philadelphia, county of Philadelphia,
5 State of Pennsylvania, have invented certain
new and useful Improvements in Vaporizing-
Tubes, of which the following is a specifica-
tion.

My invention relates to vapor-burning ap-
10 paratus, and is specifically designed to pro-
duce an improved form of vaporizing-tube.

One difficulty encountered in the use of va-
por-burning apparatus in which the heat of
the burner vaporizes the oil in a vaporizing-
15 tube or other chamber is that when poor grades
of oil are used a considerable quantity of car-
bon or other solid matter is deposited in the
vaporizing-tube and getting into the dis-
charge-orifice interferes with the discharge
20 of vapor and the even operation of the lamp.
My present invention presents one method of
overcoming this difficulty, which consists in
inserting in the vaporizing-tube, near the end
having the discharge-orifice, one or more dia-
25 phragms having small perforations therein.
The perforations in the diaphragm have a
cross-sectional area which is only a minute
fraction of the cross-sectional area of the va-
porizing-tube. Several of these diaphragms
30 may be used, the total area of the openings
in the respective diaphragms increasing as
the distance of any particular diaphragm
from the discharge-opening increases. These
diaphragms, while effective when placed in an
35 ordinary straight vaporizing-tube, are still
more beneficial in their effects when located
in a portion of the vaporizing-tube raised
above the level of the main body of said tube.

The preferred form of apparatus embody-
40 ing my invention is disclosed in the accom-
panying sheet of drawings, in which—

Figure 1 represents a vaporizing-tube, partly
broken away, with the cooperating parts of the
lamp and the perforated diaphragms shown
45 in position. Fig. 2 is a cross-section of the
vaporizing-tube on the line 2 2 of Fig. 1. Fig.
3 is a similar cross-section on the line 3 3.
Fig. 4 is a detail view of a bent tube, partly
broken away, with the diaphragms in posi-

tion. Fig. 5 is a cross-section on line 5^a 5^a of 50
Fig. 4. Fig. 6 is a cross-section on line 6^a 6^a
of Fig. 4. Fig. 7 is a cross-section on line 17
17 of Fig. 4.

Throughout the drawings like reference-
figures refer to like parts. 55

The vaporizing-tube 1 discharges into the
mixing-tube 2, being suspended in the lamp-
frame 3. There is a muffler 4 placed over the
mouth of the mixing-tube, and the vaporizing-
tube has a discharge-opening 5. The usual 60
strainer of wire-gauze 6 may be inserted in
the tube near the discharge-opening, and
back of that I place a diaphragm 7, having a
minute opening 8 therethrough. Back of this
may be placed another diaphragm 9, having 65
two or more similar openings 10 10.

In the modification shown in Fig. 4 the dia-
phragms are all located in the portion 1^a of
the vaporizing-tube, which is bent to one side
of and above the main body of the tube, but 70
which is preferably parallel thereto.

The mode of operation of my invention is
evident. The openings 8 and 10 10 having
an area which is but a minute fractional por-
tion of the cross-sectional area of the vapor- 75
izing-tube, said diaphragms operate to keep
back the carbon and other deposited matter
and prevent it accumulating over and in the
discharge-openings 5. It is evident that but
a small portion of the solid matter will get 80
by the first diaphragm 9, and this will un-
doubtedly be deposited before it gets to the
second diaphragm 7, and so on, as many dia-
phragms as are necessary being inserted.

Where the diaphragms are inserted in the 85
raised portion 1^a of the tube, as shown in
Fig. 4, there is a further tendency for the
carbon to deposit in the lower main body of
the tube, and so the discharge-orifice is still
further protected from clogging. When the 90
tube and diaphragm-openings become clogged
up, so as to interfere with the operation of
the tube, the diaphragms may be punched out
and the tube cleaned, new diaphragms being
inserted or the old ones cleaned and put back. 95

The advantages of my invention reside in
its simplicity and effectiveness in protecting
the discharge-opening and also in the ease

with which the parts may be removed for cleaning or replacement.

It is evident of course that various changes could be made in the details of construction 5 above shown and described without departing from the spirit and scope of my invention. Different forms of diaphragm might be employed, a greater or less number than that shown might be used, and the diaphragms 10 might be used to advantage when different vaporizing-tubes are used; but all of these I consider mere changes in form and not in substance.

Having therefore described my invention, 15 what I claim as new, and desire to protect by Letters Patent, is—

1. The combination of a continuous horizontal vaporizing-tube, having its end containing the discharge-opening bent above the 20 level of but parallel to the main body of the tube, and a removable vertical diaphragm

near the discharge end thereof, which diaphragm has one or more perforations whose total cross-sectional area is a minute fraction of the cross-sectional area of the vaporizing- 25 tube.

2. The combination of a vaporizing-tube, and a series of diaphragms near the discharge end of the tube, said diaphragms having perforations whose cross-sectional area is a minute fraction of the cross-sectional area of 30 the vaporizing-tube, the total area of the perforations in respective diaphragms increasing as the distance from the discharge-opening increases.

Signed by me at Philadelphia, Pennsylvania, this 24th day of February, 1899. 35

ARTHUR KITSON.

Witnesses:

J. W. RICH,
LOUIS R. BAKER.