

No. 633,168.

Patented Sept. 19, 1899.

H. STRACHE.  
SWITCHING DEVICE FOR GAS GENERATORS.

(Application filed Mar. 17, 1899.)

(No Model.)

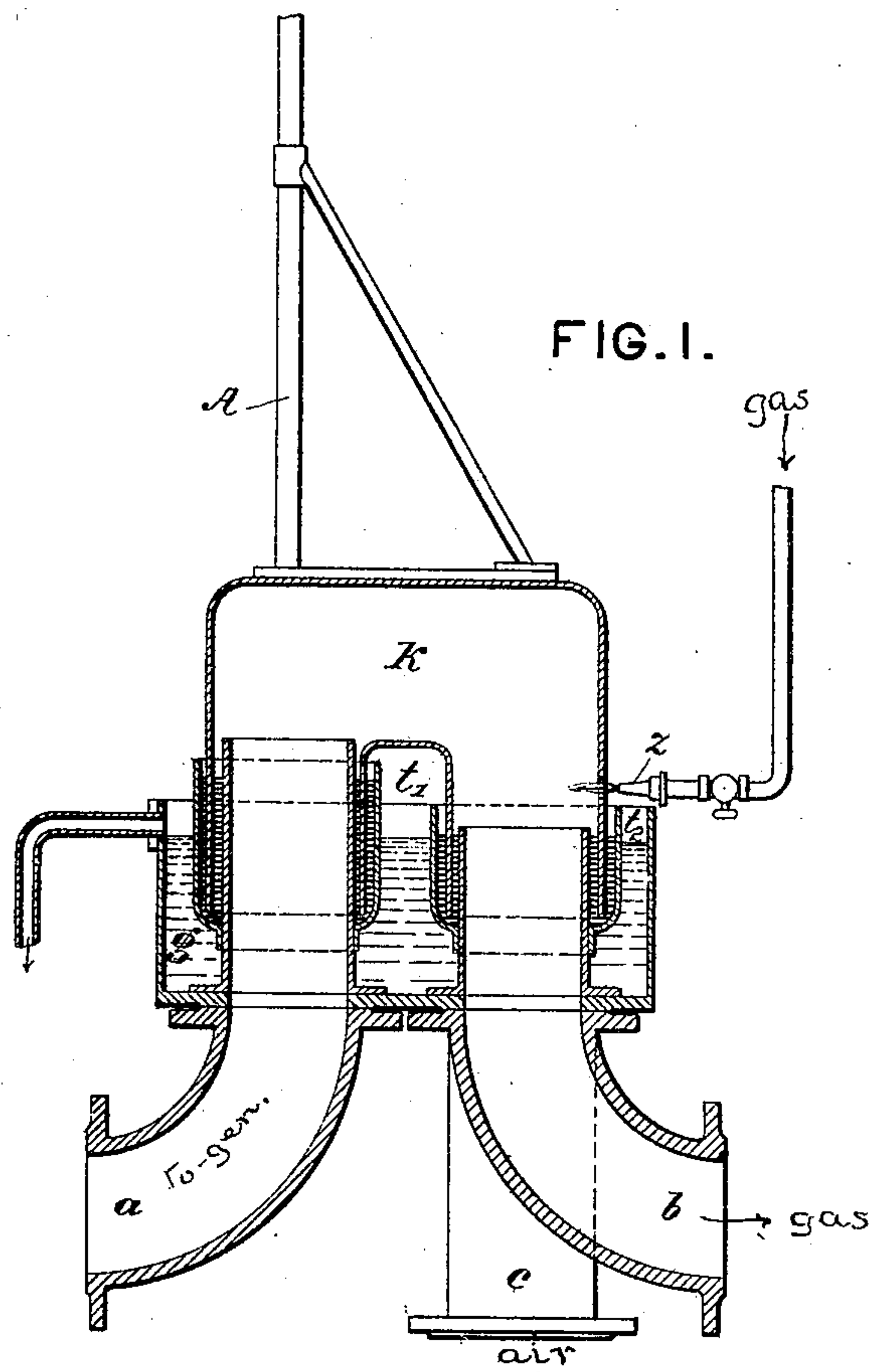
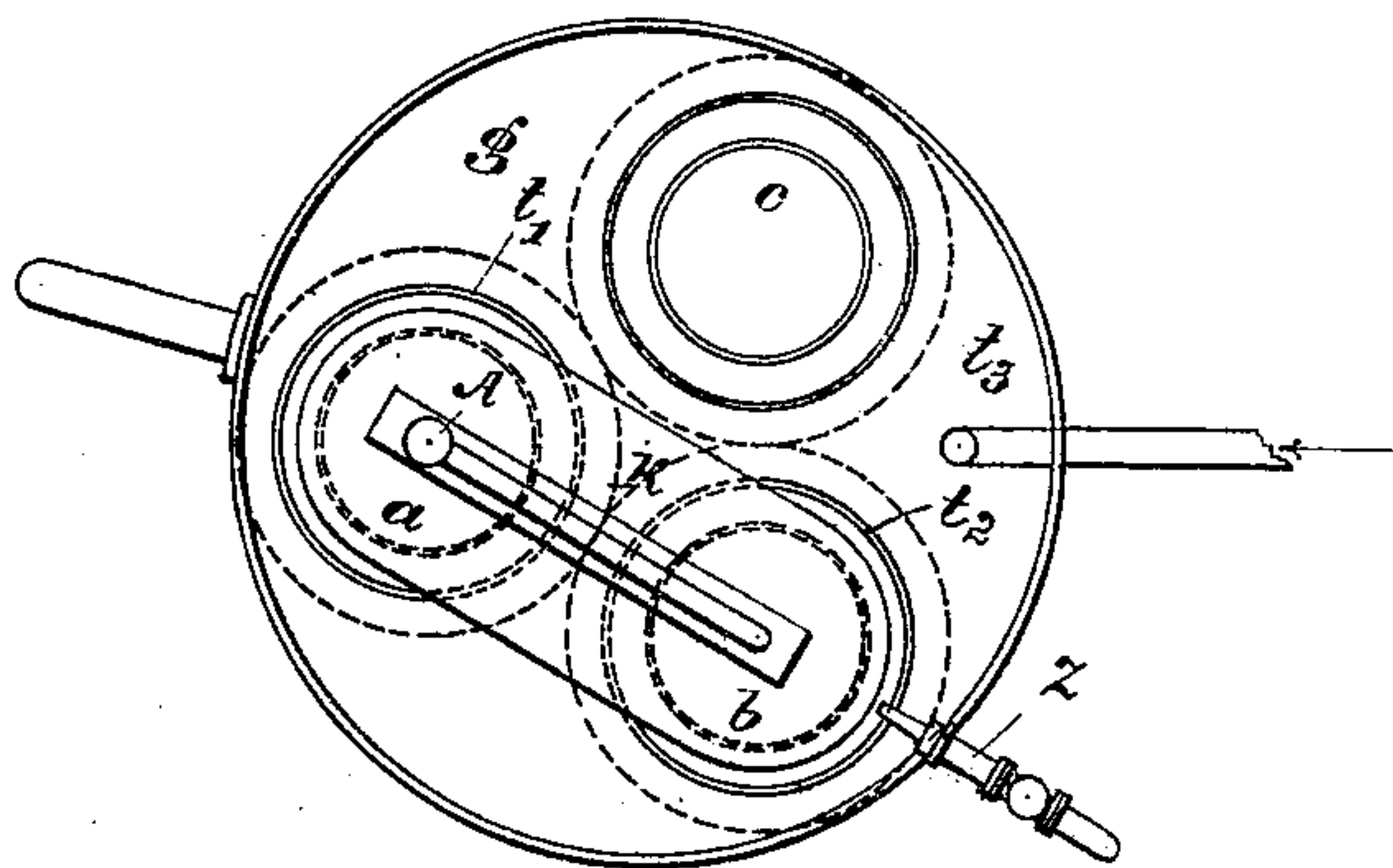


FIG. 2.



WITNESSES:

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INVENTOR

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# UNITED STATES PATENT OFFICE.

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## SWITCHING DEVICE FOR GAS-GENERATORS.

SPECIFICATION forming part of Letters Patent No. 633,168, dated September 19, 1899.

Application filed March 17, 1899. Serial No. 709,510. (No model.)

*To all whom it may concern:*

Be it known that I, HUGO STRACHE, chem-  
ist, of Alserstrasse 49, Vienna VIII, Austria-  
Hungary, have invented certain new and use-  
ful Improvements in Switching Devices for  
Wind and Gas in Water-Gas Generators, of  
which the following is a description.

In the working of water-gas generators it  
is known that air is blown into these during  
the period of "warm blowing," whereas dur-  
ing the period of "gas-making" water-gas is  
discharged from them. Up to the present  
time feeding of air (of the wind) and the con-  
nection of the generator with the gas-conduit  
has been practiced by closing or opening of  
ordinary shutters or valves or by switching  
three-way valves. These switching arrange-  
ments not getting tight, gas can enter the  
wind-conduits, or vice versa, whereby explo-  
sions may be caused. By providing safety-  
channels in the tightening faces of shutters,  
whereby the gas or the air could escape, it  
was attempted to avoid this inconvenience.  
These means are, however, only reliable as  
long as no serious leakage occurs. Moreover,  
explosions are also caused by the circum-  
stance that gas is still contained in the gen-  
erator after gas-producing is over. At the  
beginning of winter-time explosive mixtures  
of gas are formed in switching which are set  
on fire in the generator. These experiences  
led to the invention explained below, by which  
leakages and mixture of gas and air, and  
therefore formation of an explosive mixture  
in the generator, are avoided.

Figure 1 is a vertical section, and Fig. 2 a  
plan, of the switching device.

The tube *a* is connected to the generator,  
tube *c* to the wind-tube, and tube *b* to the gas-  
discharge. At their upper ends these tubes  
are provided with cups *t*<sup>1</sup> *t*<sup>2</sup> *t*<sup>3</sup>, filled with a  
liquid, (conveniently with mercury.) The  
connection of tube *a* with tube *b*, respectively,  
with *c* is performed by a U-shaped tube *K*,  
the ends of which plunge into cups, filled with  
shutting liquid, of the respective tubes, where-  
by a gas-tight closure is attained. In the  
drawings, for instance, the connection of tube  
*a*, leading to the generator, with the gas-dis-

charge tube *b* is shown. If switching is de-  
sired after the period of gas-producing, the  
connecting-tube *K* is lifted until its connec-  
tion with the cup of tube *b* is interrupted. In  
this moment the interior of connecting-tube  
*K* communicates with the outside air and the  
gas contained in the switching device is in-  
flamed by the constantly-burning flame *z*,  
filling all cavities of the switching device with  
gases of combustion, (carbonic acid, steam,  
and nitrogen.) The connecting-tube *K* is then  
turned around its axis *A*, situated in suitable  
guides, and plunged into the cup of tube *c*,  
whereby it connects the generator with the  
wind-conduit. When air is injected, it is  
separated by a layer of gases of combustion  
from the gas in the generator. As the gases  
of combustion enter the generator first and  
after these the air, every explosive mixture  
of gas and air is avoided. To cool the shut-  
ting liquid contained in the cups, (mercury,)  
the cups are surrounded by a vessel *g*, com-  
mon to all three, through which a cooling  
liquid (water) circulates. It is quite impos-  
sible for gas to pass over into the wind-con-  
duit, or vice versa, as the tubes are entirely  
separated from one another and never com-  
municate.

Having now particularly described and as-  
certained the nature of my invention, I de-  
clare that what I claim is—

1. In combination, the pipe *a* leading from  
the generator, the gas-discharge tube *b*, the  
air-tube *c*, the switching-tube operating be-  
tween the said tubes *a*, *b* and *c* and the burner  
having its flame extending to the switching-  
tube, substantially as described.

2. In combination, the pipes *a*, *b* and *c* each  
having thereon a liquid-containing cup, a  
switching-tube adapted to connect the tubes  
*a*, *b* and *c* and the vessel *g* containing a cool-  
ing liquid surrounding the cups, substan-  
tially as described.

In witness whereof I have hereunto set my  
hand in presence of two witnesses.

HUGO STRACHE.

Witnesses:

C. B. HURST,  
ALVESTO P. HOGUE.