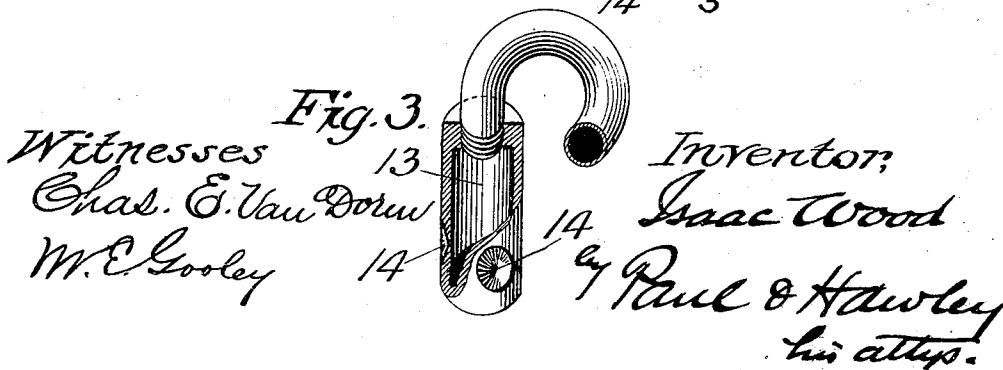
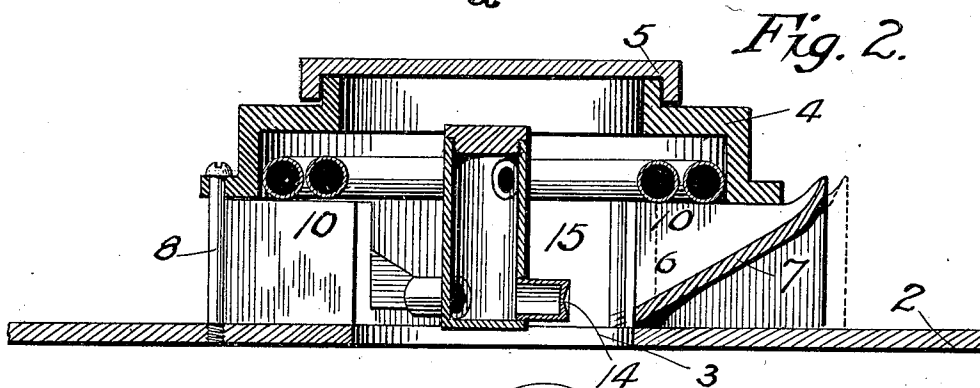
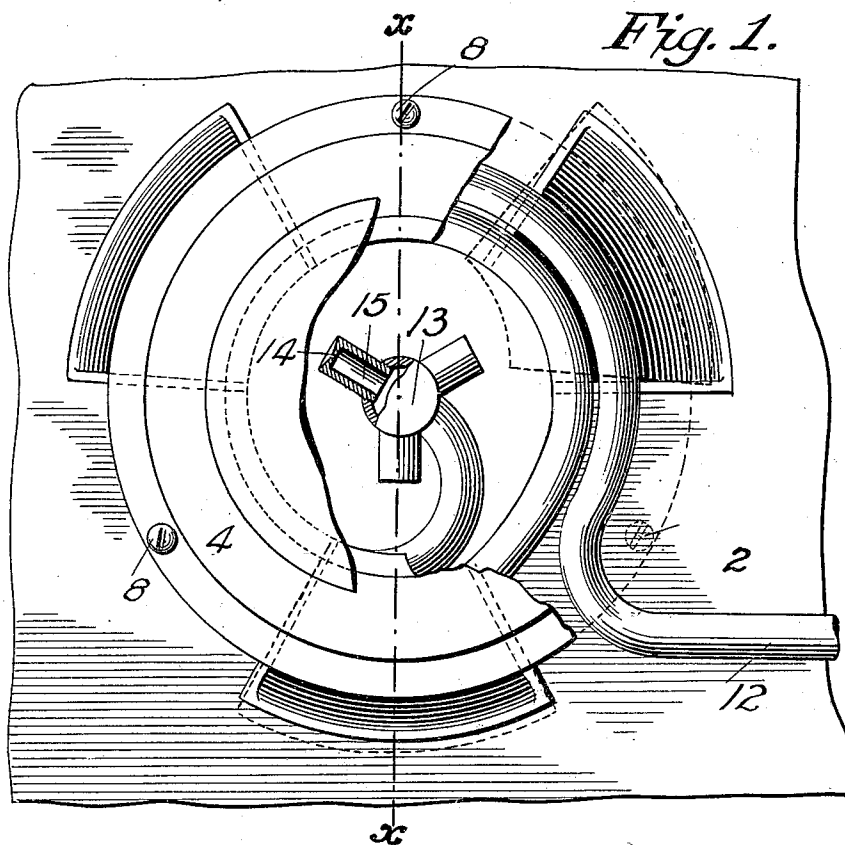


(No Model.)

I. WOOD.
OIL GAS BURNER.

No. 513,028.

Patented Jan. 16, 1894.



UNITED STATES PATENT OFFICE.

ISAAC WOOD, OF MINNEAPOLIS, MINNESOTA.

OIL-GAS BURNER.

SPECIFICATION forming part of Letters Patent No. 513,028, dated January 16, 1894.

Application filed August 26, 1893. Serial No. 484,112. (No model.)

To all whom it may concern:

Be it known that I, ISAAC WOOD, of the city of Minneapolis, county of Hennepin, State of Minnesota, have invented certain new and useful Improvements in Oil-Gas Burners, of which the following is a specification.

My invention relates to means for generating gas or fine oil vapor from oil, and mixing the same with air immediately before ignition; and the object of my invention is to provide a cheap, compact burner which will accomplish the above results and which will in itself, permit of an easy adjustment to secure the best work under varying conditions.

A further object is to so construct a burner that repairs thereon may be easily and cheaply made; and further, one which may be cleaned and kept in good order by any person.

With the above in view, my invention consists in certain constructions and in combinations all as hereinafter described and particularly pointed out in the claims.

The invention will be more readily understood by reference to the accompanying drawings, in which—

Figure 1 is a plan view of a burner embodying my invention, portions being broken away to more clearly show underlying parts. Fig. 2 is a vertical section on the line $x-x$ of Fig. 1. Fig. 3 is a perspective detail, partly in section, showing modified form of discharge head.

As a base for the burner, I provide the plate 2 which is made to fit the fire box and prevent the upward draft of air, except through a special inlet hole 3 of the plate for each burner employed thereon. Above this hole or aperture 3 is a cap-ring or housing 4, open at the top but normally closed and completed by a lid 5 setting down over a rim on the ring and acting to prevent a direct upward draft compelling the air to pass through the hereinafter described mixing chambers. The opening within the ring is of about the size of that in the plate. The heat retaining ring or cap is supported upon a number of boxes 6, sector-like in form and having the upwardly and outwardly inclined bottoms 7, which terminate in the curved or upwardly flaring lips 7', acting as deflectors to throw the flames upward. The mixing chambers or boxes 6 are adjustable in all directions and are locked by

screws 8 passing down through the housing 4 and fastened in the plate 2. As shown, there is a considerable space 9 beneath the flange of the ring above the inner ends of the walls 10 of the adjustable boxes. In this space and resting on the walls 10 is a coil of thin wrought metal pipe, two turns being preferably used. The oil (kerosene is usually employed) enters through the end 12 and is heated and vaporized in the coil, being then discharged into the head 13, from whence it is emitted through the comparatively small openings 14 arranged either in the walls of the hollow head 13 or in small nipples 15 extending therefrom. These openings through which the oil gas is discharged are located in front of the mixing chambers and the gas jets play across and create upward flowing currents of air through the bottom, which air being intensely heated, mixes thoroughly with the oil gas and is ignited in the long narrow mouths formed between the lips 7' of the boxes and the ring 4.

When the burner is in use the openings under the ring and between the boxes are filled with a suitable composition to prevent the entrance of conflicting drafts.

It often occurs that a slight variation of the position of a box or mixing chamber will cause the burner to work better, and such adjustment is made easy by the use of independent boxes or mixing chambers with the locking means described. When the cap is taken off, a bent needle may be easily inserted to clean out the jet holes, the same being countersunk, as shown, to guide the needle to the center.

While but three boxes are shown in the drawings, it is obvious that any number may be employed.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The combination, in an oil gas burner, of a plate, with adjustable mixing chambers or boxes thereon, a cap arranged above said boxes, which latter have discharge openings, and means for injecting oil gas or vapor into said boxes and for admitting air with the gas, substantially as described.

2. The combination, in an oil gas burner, of a plate or base, with movable mixing chambers or boxes, means for locking said boxes

on said plate, said plate having a central opening to lead air into said chambers, and means for injecting oil gas or vapor into the inner ends of said chamber substantially as described.

3. The combination, in an oil gas burner, of a base plate, having a central air opening, with mixing chambers or boxes movably arranged about said opening, a heat retaining ring or cap arranged above said boxes, means for locking said boxes in place, a super-heating coil arranged above the boxes beneath said cap, and a central discharge head for said coil said head having jet openings opposite the several mixing chambers or boxes, substantially as described.

4. The combination, in an oil gas burner, of a base plate having a central opening, with sector shaped mixing boxes or chambers ar-

ranged about said opening, and having the upwardly inclined bottoms, the ring resting upon the tops of said boxes, a cap for closing the opening in said ring, a coiled pipe resting upon the tops of said boxes and beneath said ring, the end of said pipe terminating in a discharge head provided with jet openings facing the several mixing chambers or boxes, and screws connecting said ring and plate to adjustably lock said boxes in place upon said plate, all substantially as described and for the purpose specified.

In testimony whereof I have hereunto set my hand this 14th day of August, 1893.

ISAAC WOOD.

In presence of—

C. G. HAWLEY,
F. S. LYON.