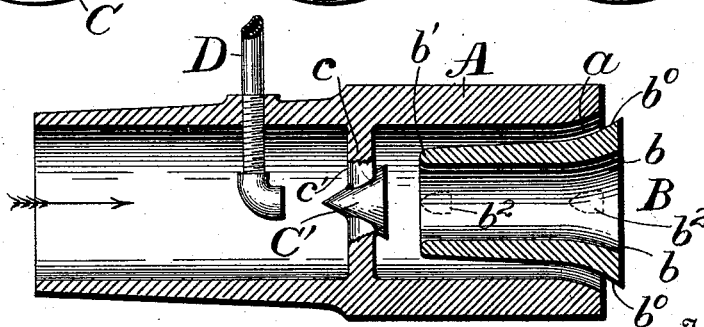
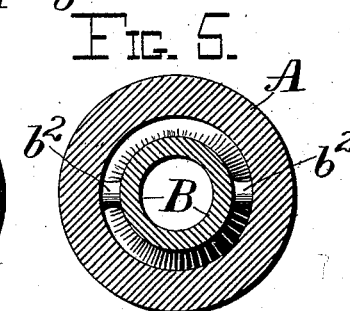
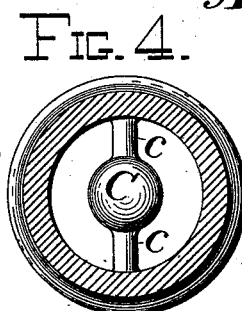
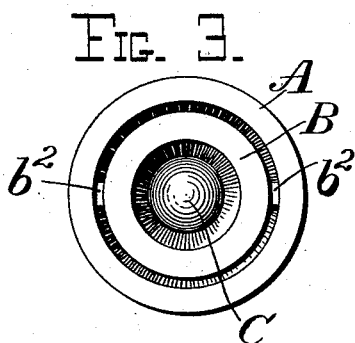
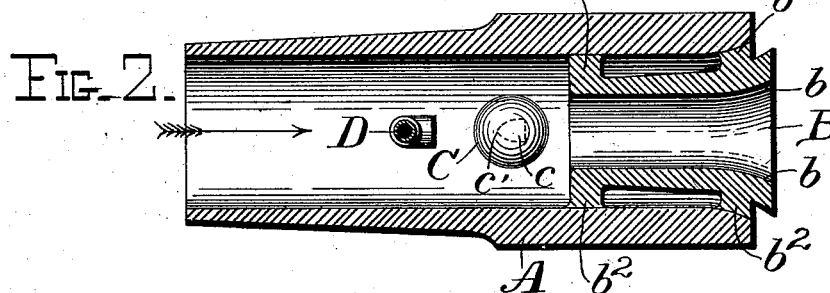
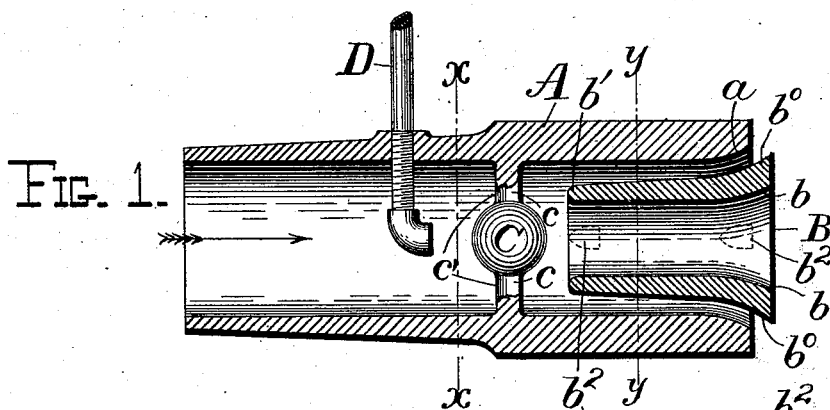


(No Model.)

R. WALTEN & T. REES.  
OIL BURNER.

No. 524,268.

Patented Aug. 7, 1894.



Witnesses

*Percy C. Bowen*  
*John C. Wilson*

FIG. 6.

Inventors  
*Richard Walten,*  
*Thomas Rees,*  
by *Whitman & Williams,*  
Attorneys.

# UNITED STATES PATENT OFFICE.

RICHARD WALTEN AND THOMAS REES, OF ALTOONA, PENNSYLVANIA.

## OIL-BURNER.

SPECIFICATION forming part of Letters Patent No. 524,268, dated August 7, 1894.

Application filed February 23, 1894. Serial No. 501,261. (No model.)

### *To all whom it may concern:*

Be it known that we, RICHARD WALTEN and THOMAS REES, citizens of the United States, residing at Altoona, in the county of Blair and State of Pennsylvania, have invented certain new and useful Improvements in Oil-burners; and we 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.

Our invention relates to improvements in oil burners, and it consists of the certain novel features hereinafter described and claimed.

Figure 1 represents a longitudinal section through the burner, the atomizing device being shown in full lines. Fig. 2 represents a longitudinal section made by a plane at right angles to that shown in Fig. 1. Fig. 3 represents a front view of the burner. Fig. 4 represents a section along the line  $xx$  of Fig. 1 and looking to the right. Fig. 5 represents a section along the line  $yy$  of Fig. 1, and looking to the right, and Fig. 6 represents a similar view to that shown in Fig. 1, and shows a modification of the atomizing device.

A represents a tube or casing secured to the end of an air pipe, not shown; the said tube flaring outward as at  $a$  and having a cylindrical interior chamber throughout the major portion of its length. Fixed in the end of this tube is the hollow bell-shaped piece B flaring at its mouth internally as at  $b$  and externally as at  $b'$ , and tapering at its opposite end as at  $b''$ . The said bell-shaped piece B is hollowed out in center throughout its length, to form an air passage. This piece B is secured in the tube A by ribs  $b^2$  tapering to a sharp edge to cut the gases passing by them.

C represents a deflecting or atomizing device, by means of which the oil coming through the pipe P under pressure, is broken up into spray. This atomizer C is connected to the sides of the tube A by ribs  $c$  sharpened along their forward edges as at  $c'$ , to more readily split the air coming in the direction of the arrow through the air pipe.

In the modification shown in Fig. 6, the ball C of the other figures, is replaced by a cone, having its apex pointed toward the orifice of

the oil pipe D, and having its axis coincident with the axis of the tube A.

The operation of the device is as follows:— Oil is admitted through the pipe D under pressure, and at the same time air is admitted under pressure in the direction of the arrow. The oil strikes the deflector C, by which it is broken up into spray, and mixing with the air passing around the deflector, the mixture passes into the annular space between the tube A and the piece B, and also through the orifice in the center of the said piece B escaping into the atmosphere; and when ignited it forms a large clear white flame at the mouth of the burner which is intensely hot.

Owing to the herein described arrangement of parts, the mixture of the air and the oil is extremely intimate, and perfect combustion and intense heat are obtained.

It will be evident that the relative proportions of air and oil may be varied at will, by suitable valves, not shown, in the pipes supplying the air and the oil.

Having thus described our invention, what we claim, and desire to secure by Letters Patent of the United States, is—

1. In a burner of the character described, the combination with a tube or casing, and an oil pipe delivering oil into the axis of the same, of a smaller tube fixed in said casing and concentric therewith, with a space between said tubes and a deflecting or atomizing device fixed in said casing between said oil pipe and the inner end of said smaller tube, substantially as described.

2. In a burner of the character described, the combination with a tube or casing having a cylindrical chamber therein flaring outward at its mouth, and an oil pipe delivering oil into the axis of said casing, of a smaller bell-shaped tube fixed in said casing concentric therewith and open throughout its length, with a space between said tubes and a deflecting device fixed in said casing between said oil pipe and the inner end of said smaller tube, substantially as described.

3. In a burner of the character described, the combination with a casing having a cylindrical chamber therein flaring outward at its mouth, of an oil pipe terminating in an elbow

to deliver oil into the axis of said casing and  
in an axial direction, a smaller bell-shaped  
tube fixed in said casing and concentric there-  
with, with air passages through and around  
5 said smaller tube, a rounded deflecting de-  
vice fixed in said casing between said oil pipe  
and the inner end of said bell-shaped tube,  
and wedge-shaped ribs connecting said de-  
flecting device and said inner tube to said

casing, substantially as and for the purposes 10  
described.

In testimony whereof we affix our signatures  
in presence of two witnesses.

RICHARD WALTON.  
THOMAS REES.

Witnesses:

J. S. MANN,  
M. A. MALLOY.

Affidavit having been filed showing that the name of the first-mentioned patentee in Letters Patent No. 524,268, granted August 7, 1894, for an improvement in "Oil Burners," should have been written and printed *Richard Walton* instead of "Richard Walten," it is hereby certified that the proper correction has been made in the files and records pertaining to the case in the Patent Office, and should be read in the Letters Patent that the same may conform thereto.

Signed, countersigned, and sealed this 4th day of September, A. D. 1894.

[SEAL.]

JNO. M. REYNOLDS,  
*Assistant Secretary of the Interior.*

Countersigned:

S. T. FISHER.  
*Acting Commissioner of Patents.*