(No Model.)

O. COOK.

LIMEKILN.

No. 390,208. Patented Oct. 2, 1888.

Fig. 1.

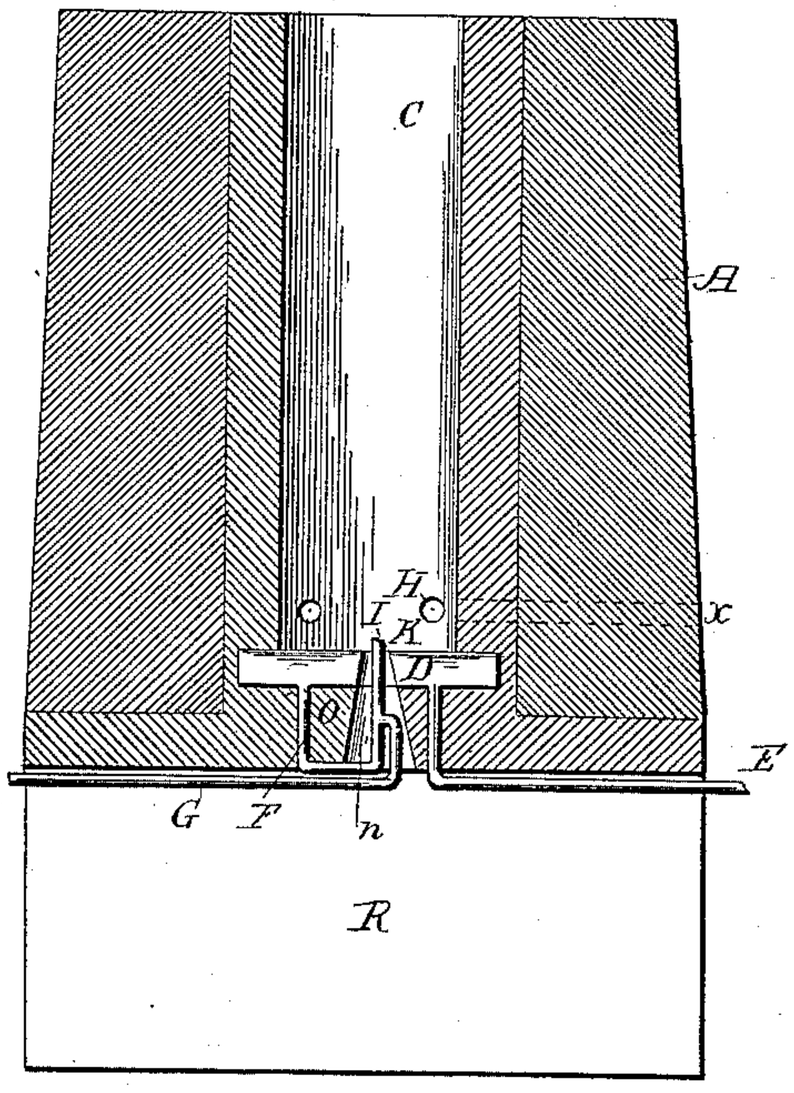


Fig. 2.

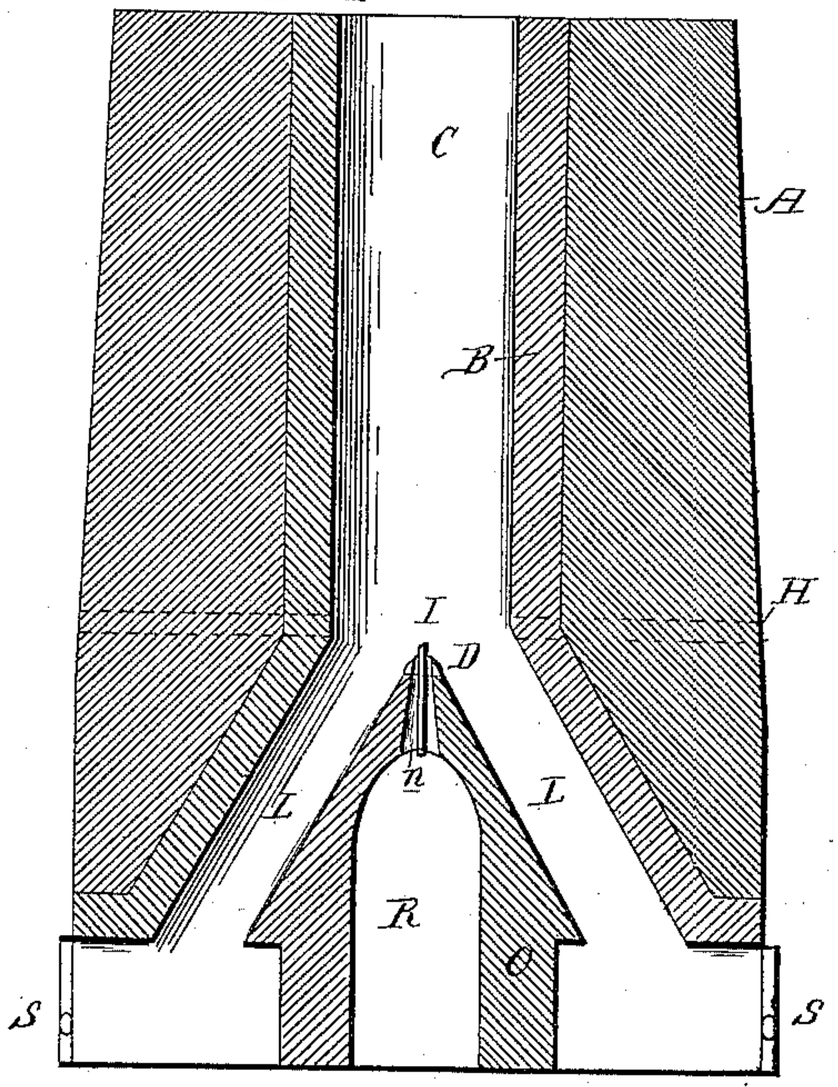
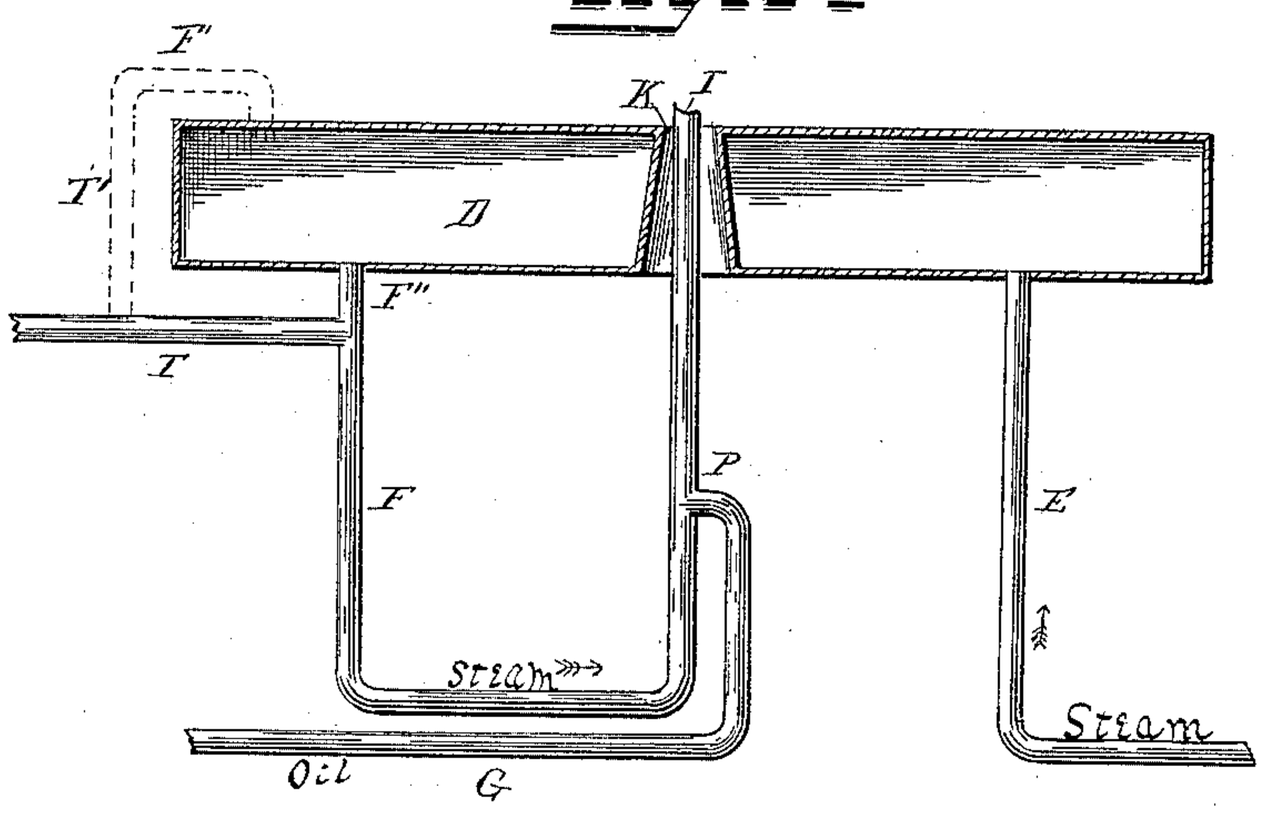


Fig. 3.



WITNESSES

Wm. T. Robertson

Thos. E. Robertson

INVENTOR

Ossian Cook

by Roberts & Real

Assoc. to Attorney

UNITED STATES PATENT OFFICE.

OSSIAN COOK, OF OSHKOSH, WISCONSIN.

LIMEKILN.

SPECIFICATION forming part of Letters Patent No. 390,202, dated October 2, 1888.

Application filed January 19, 1888. Serial No. 261,304. (No model.)

To all whom it may concern:

Be it known that I, OSSIAN COOK, a citizen of the United States, residing at the city of Oshkosh, in the county of Winnebago and State of Wisconsin, have invented certain new and useful Improvements in Limekilns; and I do 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, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

My invention relates to improvements in limekilns; and the objects of my invention are, first, to apply the fire centrally in a gas or oil burning kiln; second, to provide a central bridge-wall dividing the cupola and supporting the central fire; third, to protect the central bridge-wall from heat by capping it with a steel or iron boiler containing water or steam; fourth, to supply a superheated-steam blast to the burner; fifth, to furnish a superheated supply of air for combustion, and, sixth, to provide a means of easy access to the burner and supply-pipes. I attain these objects by the construction and mechanism illustrated in accompanying drawings, in which—

Figure 1 is a sectional view of kiln, showing longitudinal section of boiler and bridge-wall. Fig. 2 is a sectional view of kiln, showing cross-section of boiler and bridge-wall. Fig. 3 shows longitudinal section of boiler and connecting-pipes.

Similar letters refer to similar parts throughout the several views.

A is the kiln-wall, with fire-brick lining B.

C is the cupola; D, a semicircular boiler capping the bridge-wall O.

E is a pipe supplying steam to the boiler D from an outside boiler.

F is a steam-pipe leading from the boiler, which connects with the oil or gas pipe G at P and furnishes the blast to atomize the oil or gas. When water is used in the boiler, the pipe communicating with the boiler should open into it at the top, as indicated by dotted lines in the drawings.

T is an alternative escape-pipe, to be used when the burner is turned off.

K is a circular opening or core through the center of the boiler, to admit the passage of the oil or gas pipe, the burner being attached at I. This opening also admits a supply of air for combustion, and is large enough to admit of repairs or removal of burner or pipes.

R is the man arch or opening through the bridge-wall O, by which a man can enter from either side, and through the opening *n*, corresponding with the boiler-opening K, punch away the stone from the burner or repair or remove the burner and pipes. The steam and oil supply pipes also pass through the man-arch from each side.

H H are punch-holes at right angles with the boiler, through which a man from the outside may punch the stone from the boiler.

X is a blind arch at one end of boiler, the masonry of which may be removed in order to repair or remove the boiler.

By capping the bridge-wall at the apex with a boiler filled with steam or water I protect it from the excessive heat of the kiln where it is most exposed, and thereby prevent it from burning out and crumbling away. The protected bridge-wall enables me to introduce the fire to the center of the mass of stone in the cupola, the lime passing each side of the bridge-wall down through the draw-chutes L L as it becomes burned.

The boiler is heated by the radiated and reflected heat from the stone and burner, distributes heat along the mass of stone, and superheats the steam within to supply the superheated-steam blast through the pipe F to the burner.

Easy access is obtained to the burner and pipes through the man-arch connecting with the opening through the boiler K. A workman may pass into the arch and reach any of the pipes or burner or punch away the limestone from the burner through opening *n*, connecting with boiler-opening K.

I obtain my supply of air for combustion through the man-arch up through the opening in the boiler K, where it becomes superheated from the boiler. I also obtain air for combustion through slides in the doors of the draw-openings S S, the air passing up through the burned lime in the draw-chutes L L, thereby cooling the lime and superheating the air for combustion.

Therefore what I claim as my invention, and desire to secure by Letters Patent, is—

1. In a limekiln, the combination of the cupola, a central bridge-wall, on the apex of which is the hydrocarbon-burner, and an oil or gas supply pipe communicating with said burner, suitable openings around the burner being provided for supplying air thereto.

2. In a limekiln, the combination of the kiln-walls, an interior bridge-wall, on the apex of which is the hydrocarbon-burner, a steam or water boiler capping the bridge-wall, and suitable exhaust and supply pipes for said boiler, whereby the heat may be uniformly distributed and excessive heat at the bridge-wall is obviated.

3. In a limekiln, the combination of the kiln-walls, an interior bridge-wall, on the apex of which is the hydrocarbon-burner, a steam or water boiler capping the bridge-wall, an oil-supply pipe for said burner, and a steam-supply pipe connecting the boiler and burner-pipe, as and for the purpose set forth.

4. In a limekiln, the combination of the kiln-walls, an interior bridge-wall, on the apex of which is the hydrocarbon-burner, a steam-boiler capping the bridge-wall, suitable openings being provided around the burner for combustion, and said bridge-wall being provided with a man-arch communicating with the openings.

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

OSSIAN COOK.

Witnesses:
HENRY L. WOLCOTT,
HENRY ECKSTEIN.