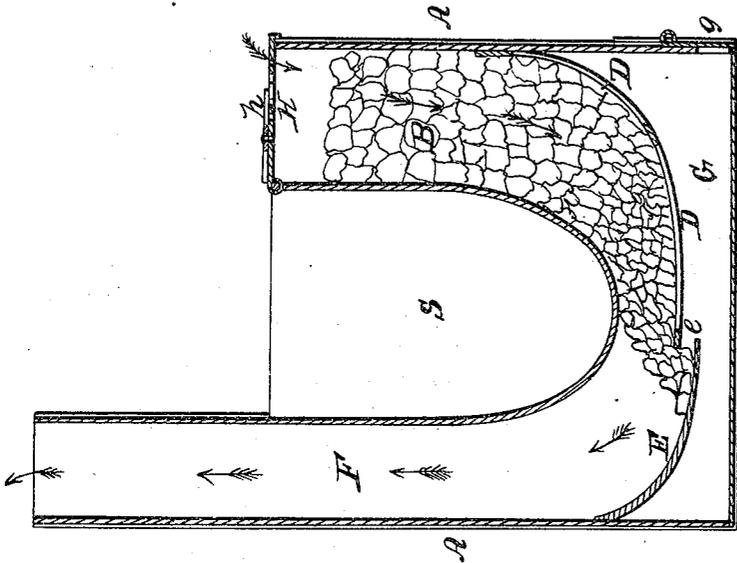


NO PRINTED COPY OF SPECIFICATION IN OFFICE.

J. EKIN.  
FURNACE.

No. 34,714.

Patented Mar. 18, 1862.



Witnesses.

John Ekin

Inventor.

Octavius Knight Per Munnislee  
James H. Bradley

U.S.P. Attorneys

# UNITED STATES PATENT OFFICE.

JOHN EKIN, OF XENIA, OHIO, ASSIGNOR TO HIMSELF AND WM. AND S. M. ALLISON, OF SAME PLACE.

## FURNACE.

Specification of Letters Patent No. 34,714, dated March 18, 1862.

*To all whom it may concern:*

Be it known that I, JOHN EKIN, of Xenia, in the county of Greene and State of Ohio, have invented a certain new and useful Improvement in Furnaces; and I do hereby declare the following to be a full and exact description of the same, reference being had to the accompanying drawings, making part of this specification, and being a vertical section of a furnace illustrating my improvement.

The nature of my invention consists in the combination of a chamber for a gravitating supply of fuel, a combustion chamber furnished with an inclined grate with opening for the discharge of slag and combustible material, a close ash chamber and a discharge chimney all in one continuous flue as hereinafter explained.

To enable others skilled in the art to make and use my invention I will proceed to describe its construction and operation.

A A represent external walls of the furnace.

B is a fuel supply chamber.

D is a curved and inclined grate.

E is a back plate the front edge of which projects beneath the rear edge of the grate at a short distance therefrom.

F is the flue through which the products of combustion pass off.

G is a close ash pit furnished with a tight door *g*.

H is a perforated and hinged cover placed at the top of the fuel supply chamber B. The cover H is provided with a register *h*, to regulate the ingress of air as required.

The operation is as follows: The fire is kindled upon the grate D and the chamber B filled with coal. The air entering through the perforations in the cover H passes down through the mass of coal in the chamber B, to support the combustion which takes place at the lower part and the gaseous products of combustion are carried off through the flue F. The back plate E supports the lower portion of the incandescent fuel for a suffi-

cient length of time to insure its complete combustion and the space *e* between the grate and back plate permits the escape into the ash pit G, of clinkers, or other incombustible matter. The ash pit is kept constantly closed excepting when it is desired to remove ashes therefrom, at which time the door *g* is opened.

The constant draft of cold air down through the mass of coal in the chamber B operates to keep it cool and prevent any wasteful or offensive emission of gases therefrom.

The space S between the supply chamber and flue and above the fire may constitute an air heating chamber or may be used for cooking purposes or occupied by a steam boiler.

Thorough and careful tests have demonstrated the fact that the above described manner of burning fuel possesses great economy and convenience.

It is evident that slight changes may be made in the relative arrangement of the various parts of my furnace without departing from the essential principles of the invention. Thus for instance two fuel supply chambers may be used with the chimney between them or more than one flue may be used.

The invention is not confined to any specific number or relative arrangement of the supply chambers or flues.

What I claim as new herein and desire to secure by Letters Patent is:—

The combination of the supply chamber B inclined grate D, slag aperture *e* close ash pit G and chimney F, when constructed to operate in the manner and for the purposes hereinbefore explained.

The above specification of my improvement in furnaces and stoves signed this seventh day of January, 1862.

JOHN EKIN.

Witnesses:

OCTAVIUS KNIGHT,  
JOHN J. ELLIOT.