

E. A. COWPER.  
Regenerative Hot-Blast Stove.

No. 218,357.

Patented Aug. 5, 1879.

FIG.1.

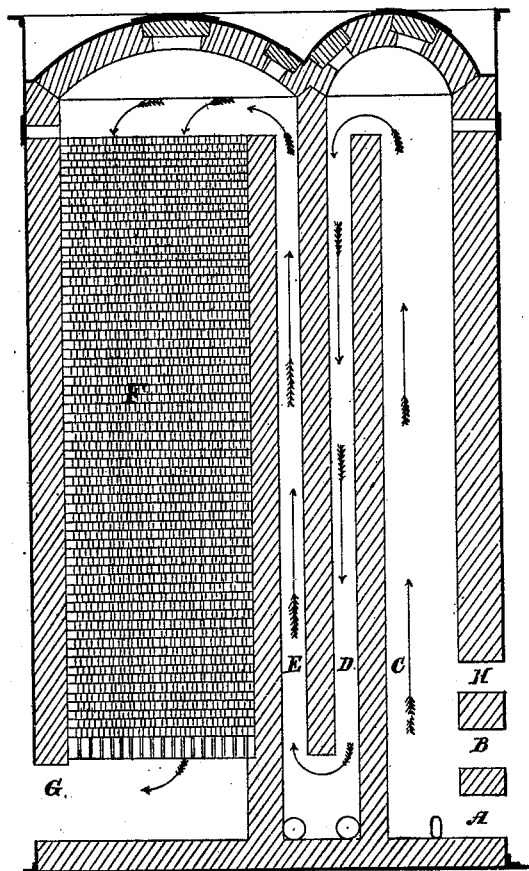
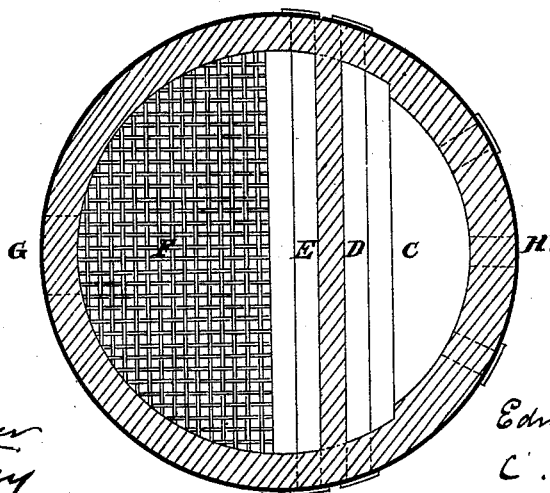


FIG.2.



WITNESSES

*Saml R. Turner*  
*Wm. Dancy*

INVENTOR

*Edward Alfred Cowper*  
*C. S. Whitman*  
ATTORNEY

# UNITED STATES PATENT OFFICE.

EDWARD A. COWPER, OF WESTMINSTER, COUNTY OF MIDDLESEX, ENGLAND,  
ASSIGNOR TO CHARLES WILLIAM SIEMENS, OF SAME PLACE.

## IMPROVEMENT IN REGENERATIVE HOT-BLAST STOVES.

Specification forming part of Letters Patent No. **218,357**, dated August 5, 1879; application filed April 30, 1879; patented in England, March 23, 1872.

*To all whom it may concern:*

Be it known that I, EDWARD ALFRED COWPER, of Westminster, county of Middlesex, England, have invented certain Improvements in Regenerative Hot-Blast Stoves for Heating Air, Steam, and other Gases, of which the following is a specification.

My invention relates to that class of hot-blast stoves in which surfaces are arranged for absorbing and giving off heat, on the principle described in the Letters Patent of the United States granted to Charles W. and Frederick Siemens on the 1st day of March, 1864; and the nature thereof consists in combining within the casing of the stove a number of flues and passages, so arranged that the flame or products of combustion shall pass alternately up and down therein, and a chamber divided into a number of small passages, and presenting a large absorbent surface.

Figures 1 and 2 of the accompanying drawings show, respectively, a vertical section and a sectional plan of an arrangement of a regenerative hot-blast stove, having large vertical passages, in which the combustion of the flame takes place, and a regenerator formed of bricks placed one above the other. The gas for combustion enters at the opening A, and the air for combustion at the opening B, causing a flame and products of combustion to pass through the large vertical passages C, D, and E in the direction shown by the arrows.

After leaving them the heated products of combustion pass downward through the regenerator F, which absorbs the greater part of the heat remaining in them, after which they pass away to the chimney by the opening G. When the valves are reversed the cold blast passes up through the regenerator F and through the passages E, D, and C in the opposite direction to that shown by the arrows, and leaves the stove through the opening H to the hot-blast valve.

English Letters Patent were granted to me for the invention herein described on the 23d day of March, 1872.

Having thus described my invention, I claim and desire to secure by Letters Patent of the United States—

The combination, within the casing of a hot-blast stove, of a number of upright passages, in which the flame or products of combustion pass alternately up and down, and a chamber or chambers divided into a number of small passages and presenting a larger heat-absorbent surface.

In testimony that I claim the foregoing I have hereunto set my hand this 10th day of February, 1879.

EDWARD ALFRED COWPER.

Witnesses:

CHARLES EDWARD COWPER,  
AMBROSE AUGUSTUS MYALL.