REUBEN R. FINCH.

Improvement in Hot Air Furnaces.

No. 120,257. Patented Oct. 24, 1871.

Fig. 1.

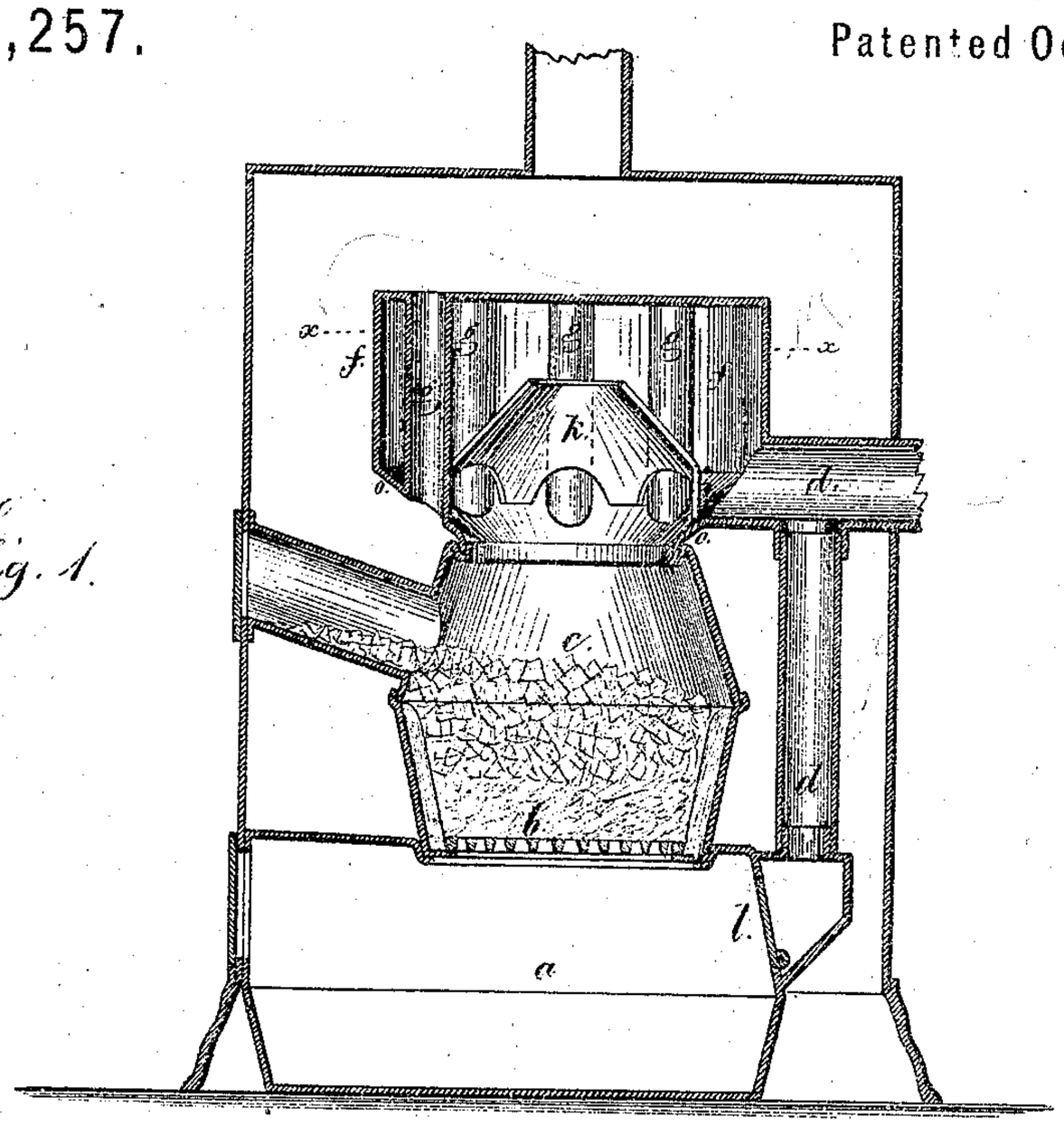
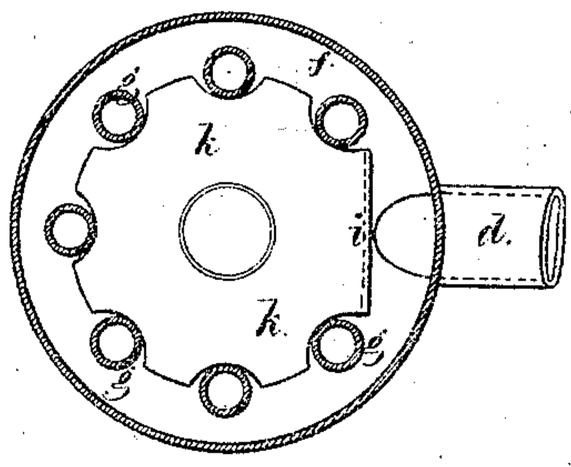



Fig. K.




Witnesses,

Chas. A. Smith

Geo. H. Walker

Reuben R. Finch

Samuel N. Sewell atty.

# UNITED STATES PATENT OFFICE.

REUBEN R. FINCH, OF PEEKSKILL, NEW YORK, ASSIGNOR TO UNION STOVE-WORKS, OF SAME PLACE.

## IMPROVEMENT IN HOT-AIR FURNACES.

Specification forming part of Letters Patent No. 120,257, dated October 24, 1871.

*To all whom it may concern:*

Be it known that I, REUBEN R. FINCH, of Peekskill, in the county of Westchester and State of New York, have invented an Improvement in Hot-Air Furnaces, and the following is declared to be a correct description thereof.

This invention is made for detaining the products of combustion sufficiently to insure the transfer of the heat to the cylinder and air-tubes, and to prevent the heat passing off with rapidity to the chimney.

I make use of a truncated cone within the chamber over the fire and between the vertical air-tubes that pass through said chamber; thereby the heat is obliged to ascend to near the top of said chamber and then descend among the said air-tubes and pass to the escape-flue.

In the drawing, Figure 1 is a vertical section of the furnace, and Fig. 2 is a horizontal section at the line *x x*.

The ash-pit *a*, grate *b*, fire-pot *c*, damper *l* for dust from the ash-pit and flue *d* to the chimney, are to be of the usual character. Over the fire-pot *c* and combustion-chamber is the chamber *f*, made of a cylindrical case, with a conical rim, *o*, connecting with *c*, and through this chamber *f* the air-tubes *g* pass. These air-tubes are open at their ends to allow the atmosphere to circulate freely through them and convey the heat to the rooms above. Within the chamber *f* the truncated cone *k* is employed, its lower edge being notched at the places where the air-tubes *g* pass; but there is a small space left between the end of the cone and the rim *o*, so that ashes may be removed from above this rim *o*. At one side of the truncated cone *k* is a downward projection forming a shield, *i*, opposite the entrance to the flue *d*, so that the heated products of combustion are compelled to pass nearly to the top of the chamber *f* before escaping from the truncated cone, and thence they pass down among the tubes *g* and escape by the flue *d*. In this manner the heat is imparted to the air-tubes and cylinder and the passage of the products of combustion directly to the flue prevented.

I claim as my invention—

The truncated cone *k* and shield *i* in combination with the chamber *f* and air-tubes *g* above the furnace or fire-pot *c*, substantially as and for the purposes set forth.

Signed by me this 14th day of August, A. D. 1871.

REUBEN R. FINCH.

Witnesses:

HAROLD SERRELL,

CHAS. H. SMITH.

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