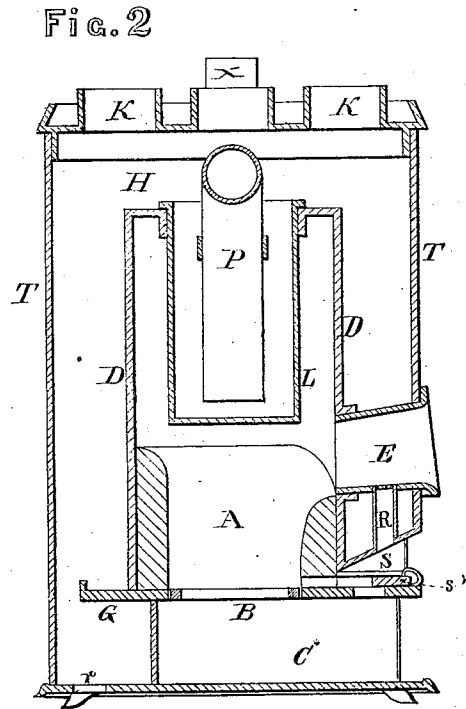
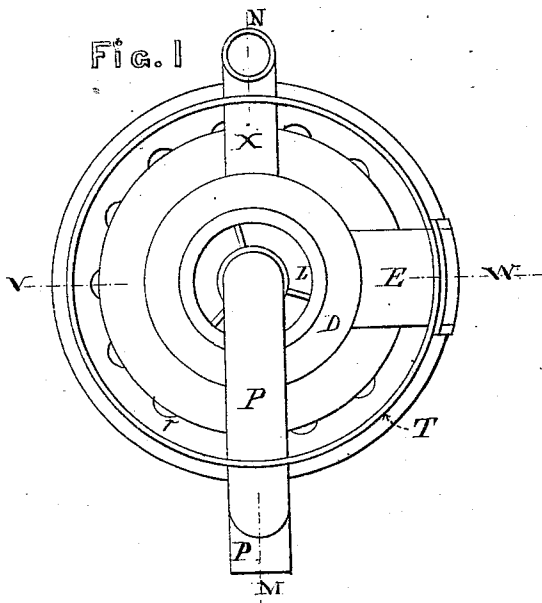


M. H. ROBERTS.

Heater.

No. 159,844.

Patented Feb. 16, 1875.



Witnesses { John F. Grant
Frank D. Bright

Inventor.
Matthew H. Roberts
per Edw. Brown
attorney

UNITED STATES PATENT OFFICE.

MATTHEW H. ROBERTS, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR
OF ONE-HALF HIS RIGHT TO JOHN MCCOY, OF SAME PLACE.

IMPROVEMENT IN HEATERS.

Specification forming part of Letters Patent No. **159,844**, dated February 16, 1875; application filed
December 7, 1874.

To all whom it may concern:

Be it known that I, MATTHEW H. ROBERTS, of 1210 Market street, Philadelphia, Pennsylvania, have invented certain Improvements in Heaters, of which the following is a specification:

My invention relates to the particular arrangement of the dust-flue in relation to the feeder-neck, the poke-hole mouth-piece, and damper. It consists in the combination of a dust-flue, a feeder-neck, poke-hole mouth-piece, and a damper in the under side of the mouth-piece. The dust-flue passes from the top side of the poke-hole mouth-piece, and enters the under side of the feeder-neck. The sliding damper answers the double purpose of a damper for the dust-flue, and a slide covering the clinker dump-hole.

By this arrangement the dust from the ash-pit or mouth-piece, and also the air, which may be drawn into either, can be diverted to the combustion-chamber by closing the fire-door and poke-hole when it is desirable to check the draft and have a slow combustion.

In the drawings, Figure 1 is a plan of the heater, with the sand-box removed. Fig. 2 is a vertical section on the line V W.

A is the fire-pot; B, the grate; C, the ash-pit, closed to the external air, except through the ash-pit door or the damper; D, the wrought-iron heating-drum around the combustion-chamber; E, the feeder-neck, by which coals are admitted to the fire. Just at the level of the top of the ash-pit is a plate, G. An outer case, T, is placed around the fire-pot A and drum D. Cold air enters through the openings *r* in the base-plate, and, passing upward within the case T, is warmed in contact with the outside of the drum D. The air passes then into the chamber H, and thence out at the pipes K to the rooms above. The air, instead of passing directly upward to the cham-

ber H, can be made to pass up and down in contact with heated annular casings resting on the plate G, and which are between the outside case T and the fire-pot, as is shown in previous patents. X is the smoke-pipe leading to the chimney. S is the poke-hole mouth-piece, communicating with the fire on the surface of the grate through a hole in the base of the fire-pot. R is a dust-flue connecting the top of the poke-hole mouth-piece with the bottom of the feeder-neck E, to carry off the dust from the poke-hole or ash-pit. A perforated cast-iron plate covers the top of the dust-flue, to prevent coals falling down it as they are being put on the fire. *s'* is a sliding damper-plate covering a hole in the bottom of the mouth-piece, which hole answers for the clinker dump-hole, and also as a communicating-passage for air from the ash-pit through the poke-hole mouth-piece and dust-flue R into the combustion-chamber above the fire, to carry off any leakage of air which may enter the ash-pit at night when a slow combustion is desirable. Through this damper-opening the dust passes into the feeder-neck E when the grate is shaken, the feeder-door and poke-hole door being closed at the time. The usual doors are placed in front of the feeder-neck, poke-hole, and ash-pit.

I am aware that a dust-flue connecting the feeder-neck and poke-hole is not new. To such, broadly, I make no claim.

I claim—

The combination of the feeder-neck E, poke-hole mouth-piece S, the connecting dust-flue R, and the damper *s'*, connecting the mouth-piece S with the ash-pit, substantially as herein described.

MATTHEW H. ROBERTS.

Witnesses:

EDWD. BROWN,
JOHN F. GRANT.