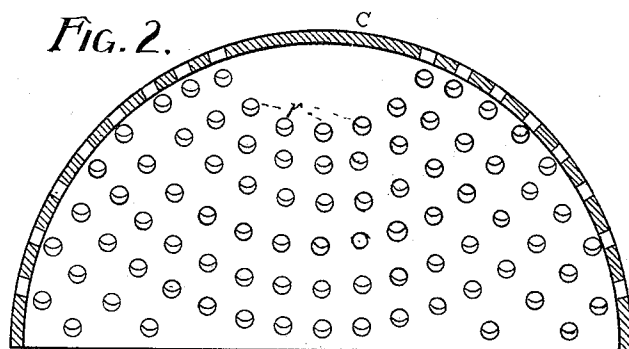
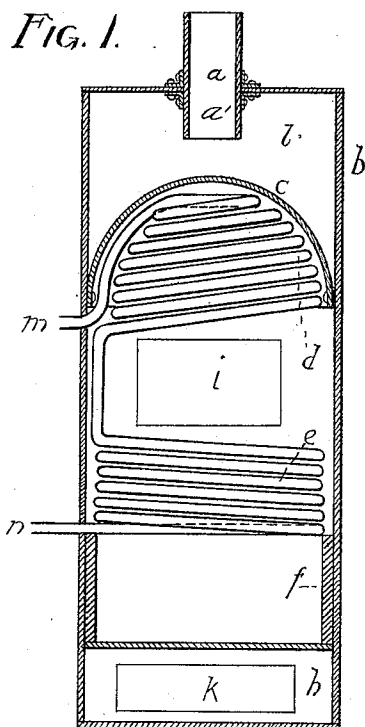


(No Model.)

G. M. EDWARDS.
HEATER.

No. 466,092.

Patented Dec. 29, 1891.



WITNESSES.
A. C. Libby
R. D. Libby

INVENTOR.
Granville M. Edwards.
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UNITED STATES PATENT OFFICE.

GRANVILLE M. EDWARDS, OF BOSTON, MASSACHUSETTS, ASSIGNOR OF ONE
HALF TO WILLIAM E. DENNISON, OF PORTLAND, MAINE.

HEATER.

SPECIFICATION forming part of Letters Patent No. 466,092, dated December 29, 1891.

Application filed January 28, 1891. Serial No. 379,468. (No model.)

To all whom it may concern:

Be it known that I, GRANVILLE M. EDWARDS, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Heaters; and I do hereby declare that the following is a full, clear, and exact description of the invention, which 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 letters of reference marked thereon, which form a part of this specification.

My invention relates to improvements in heaters, and specially to hot-water heaters. It consists in a peculiar arrangement of the water-pipes, a hemispherical perforated drum placed between the said pipes and the top of the case, and a safety device for preventing the escape of hot coals through the smoke-flue in case of the overturning of the heater.

In the drawings herewith accompanying and making a part of this specification, Figure 1 is a vertical section; Fig. 2, a vertical section of hemispherical partition.

The same letters refer to like parts.

In said drawings, *a* represents the flue; *b*, the heater-casing; *c*, the hemispherical partitions having perforations *r*; *e*, the pipe below the feed-door; *d*, the pipe above the feed-door, and *f* the heater-lining. The water-pipe enters the heater near the top of said lining, and is coiled around several times until near the feed-door, as indicated by that part of the pipes marked *e*, thence extends directly upward at the side to a point above the feed-door, thence in a series of coils, each succeeding one having a less diameter, until it reaches nearly to the top of the hemispherical partition, thence passing out of the heater to the circulating system.

The advantages of the arrangement of the pipes herein illustrated consist in the fact that the hot air rises and strikes directly against the under side of each coil, and in addition the hot air is reflected from the inside

of the hemispherical partition down upon the top of each coil, due to the decreasing diameter of each coil. The heating capacity of a given heater is thus greatly increased. It is necessary that the hemispherical partition be perforated, in order that the smoke and gases may pass off.

In order that the heater may be safe in case of being overturned and not allow the hot ashes to escape through the smoke-flue, the end *a'* of said flue extends downward some distance into the heater and the top of the hemispherical partition is made solid where it comes directly under said flue, so that any ashes that might by chance pass through the said partition would be caught in the top of the heater-case and could not pass through the flue.

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

1. In a heater, the combination, with a hemispherical perforated partition attached to the casing of the fire-chamber between the fire-pit and the smoke-flue, of a pipe having the form of a coil of gradually-decreasing diameter located between said perforated partition and said fire-pit, substantially as and for the purposes set forth.

2. In a heater having a suitable casing and a smoke-flue extending downward into said casing, the combination, with a hemispherical partition having that part which comes directly beneath said flue solid and the remainder perforated, of a pipe having the form of a coil of gradually-decreasing diameter located between said partition and the fire-pit, substantially as and for the purposes set forth.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

GRANVILLE M. EDWARDS.

Witnesses:

FRANK O. PURINGTON,
ELGIN C. VERRILL.