W. KROEGER.

Heat Radiator.

No. 48,184. Patented June 13, 1865.

Fig. 1.

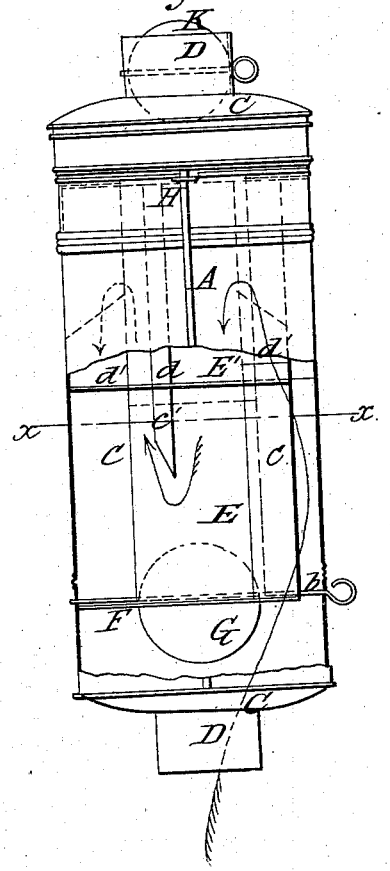


Fig. 3

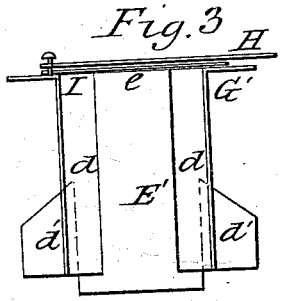
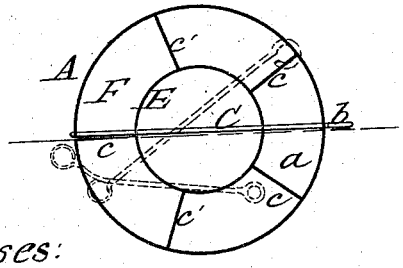


Fig. 2.



Witnesses:
Theo Rusch
Wm. Trewin

Inventor:
Werner Kroeger
per Munn & Co
Attys

UNITED STATES PATENT OFFICE.

WERNER KROEGER, OF MILWAUKEE, WISCONSIN.

STOVE-PIPE DRUM.

Specification forming part of Letters Patent No. **48,184**, dated June 13, 1865.

To all whom it may concern:

Be it known that I, WERNER KROEGER, of Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented a new and Improved Heat-Radiator; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable those skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is an elevation of my invention, partly in section; Fig. 2, a horizontal section of the same, taken in the line *x x*, Fig. 1; Fig. 3, a detached side view of a portion of the internal arrangement pertaining to the same.

Similar letters of reference indicate corresponding parts.

This invention relates to a new and improved heat-radiator, designed more especially for stove-pipes, to arrest the heat passing through the same and radiate it into the apartment, so that it cannot escape into the flue with the products of combustion.

A represents a cylinder, which is made considerably larger in diameter than the stove-pipe to which it is to be applied, said cylinder being provided with a head, C, at each end, top, and bottom, and each head provided with a flange, D, to receive a joint of stove-pipe. Within the lower part of this cylinder A there is fitted and permanently secured a smaller cylinder, E, which is equal in diamater to the stove-pipe, the lower end of E being fitted centrally in a horizontal disk, F, which is secured in the lower part of cylinder A, a short distance above its lower end. This disk F has an opening, *a*, made in it, the area of which is equal to one-fifth the area of the disk, (see Fig. 2,) and in the lower part of the cylinder E there is a damper, G, the arbor *b* of which passes through the side of the cylinder A.

On the exterior of the cylinder E there are secured radially upright plates *c c'*, five in all, at equal distances apart. Three of these plates, *c c c*, extend from the disk F up to the top of the cylinder E, while the other two, *c' c'*, extend from the top of E a short distance downward. Two of the plates *c* are placed successively in position on E, with the opening *a* between them, and the other plate *c* is between the two short plates *c' c'*. The cylinder E extends upward about half the height of cylinder A, and directly over E there is fitted a similar cylinder, E', which is provided at its exterior with long and short plates *d d'*, corresponding precisely with the long and short plates *c c'* of cylinder E, the upper end of E' having a disk, G', upon it, which is precisely like the disk F of E, and is provided with an opening, *e*, between two of its long plates *d d*. The plates of both cylinders E E' extend outward to the cylinder A, and the upper cylinder, E', has a rod, H, attached to it, which passes through A, for the purpose of turning E', a rod, I, being attached to the disk G', having its ends bent or curved to fit into a groove in the inner surface of A and hold E' in position. The cylinder E' is allowed to turn on E, and it is turned by actuating the rod H.

The upper flange D is provided with a damper, K.

The operation is as follows: When both dampers G K are open the products of combustion will pass directly up through the cylinders E E', the draft being the same as if no heat-radiating device were applied to the pipe. By closing both dampers G K and turning the upper cylinder, E', so that the opening *e* in G' will be in line with the space adjoining that in which the opening *a* of disk F is, it will be seen that the products of combustion will have a sinuous route through the cylinder A, as indicated by the red arrows in Fig. 1, the induction being through the opening *a* in the disk F of cylinder E, and the eduction through the opening *e* of the disk G' of the cylinder E'.

By this arrangement the heat which would otherwise escape into the flue is radiated from the cylinder A and a direct draft obtained whenever required, as in kindling a fire, by opening both dampers G K.

I claim as new and desire to secure by Letters Patent—

The cylinder A, provided with the two internal cylinders E E', having long and short plates *c c' d d'* attached to their exterior surfaces, and having disks F G at their ends, provided with openings *a e*, all arranged substantially as shown, with the dampers G K, to operate substantially as and for the purpose set forth.

WERNER KROEGER.

Witnesses:

HERMANN KROEGER,

HENRY SURYES.