E. DETWILER.

Heat Radiator for Stove Pipes.

No. 60,490. Patented Dec. 18, 1866.

Fig. 3.

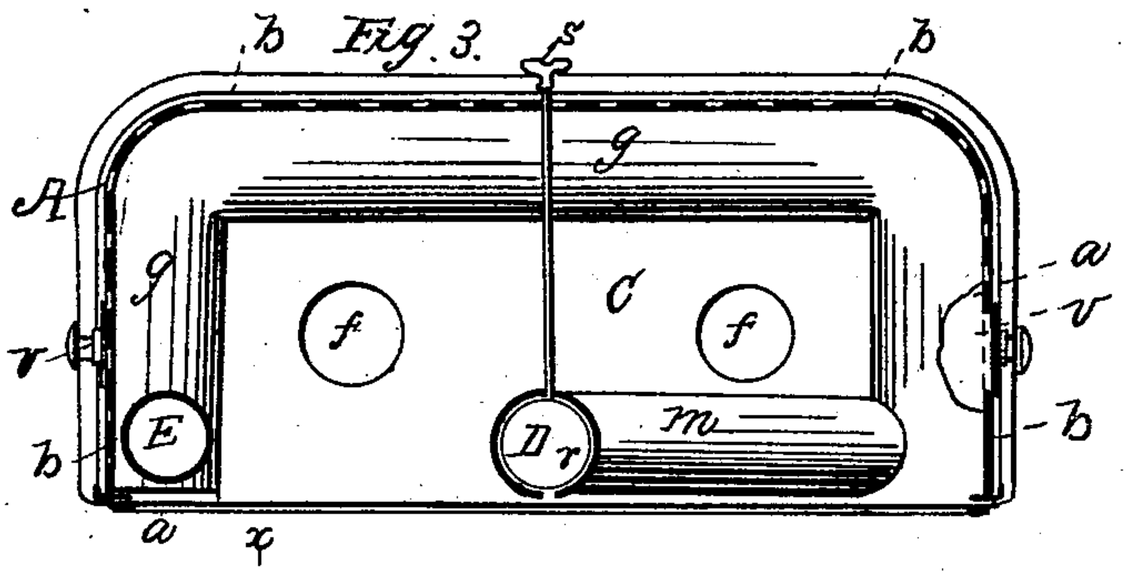


Fig. 1.

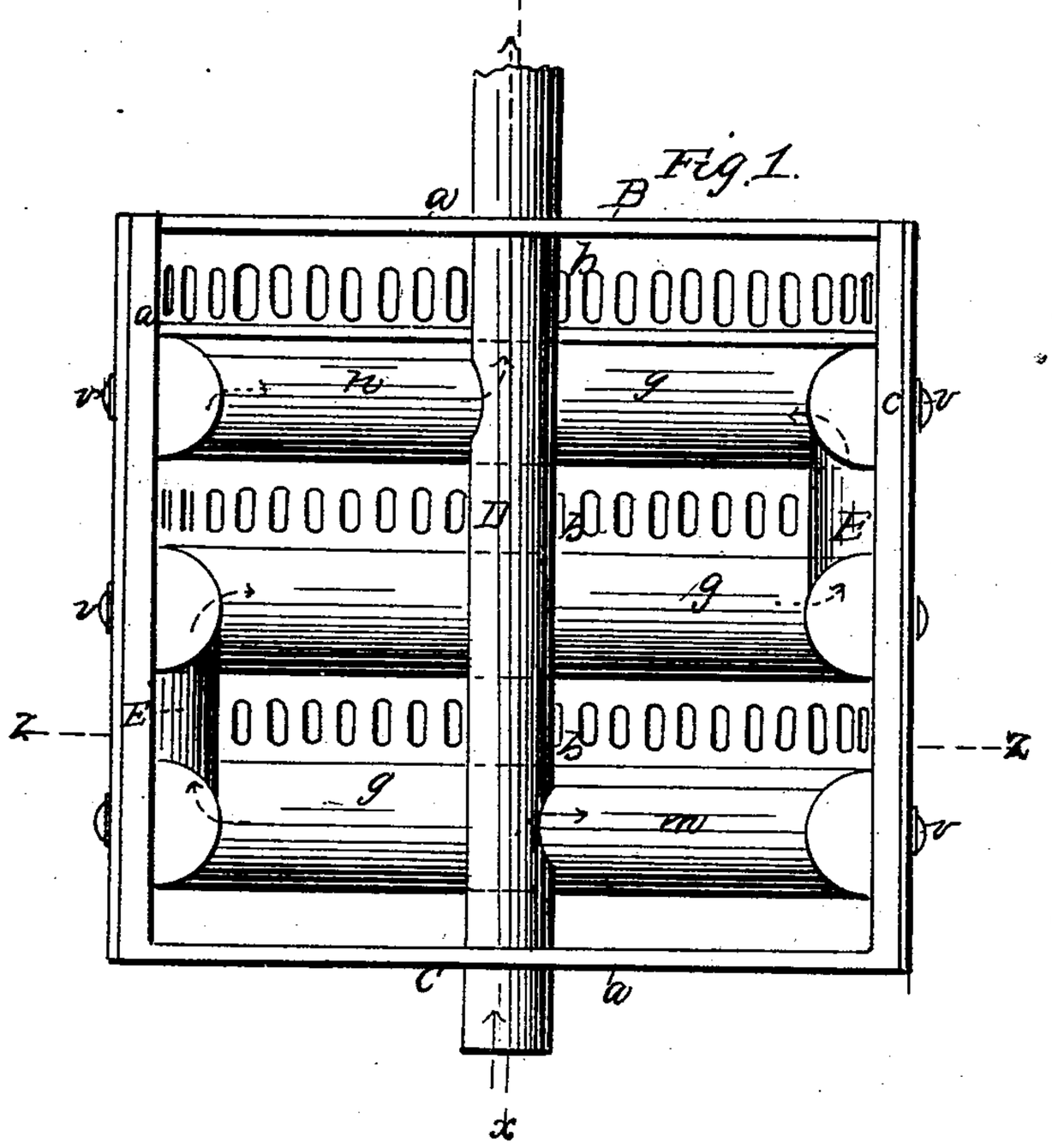
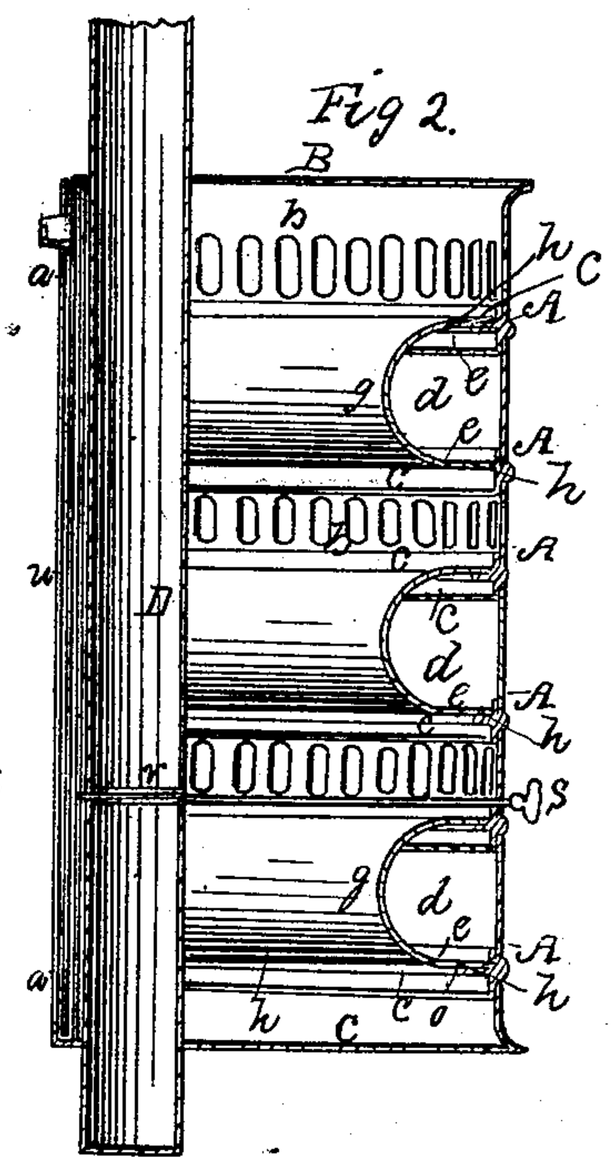


Fig 2.



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United States Patent Office.

IMPROVED HEAT RADIATOR FOR STOVE-PIPES.

EMANUEL DETWILER, OF MILWAUKEE, WISCONSIN.

Letters Patent No. 60,490, *dated December* 18, 1866.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, EMANUEL DETWILER, of Milwaukee, in the county of Milwaukee, and State of Wisconsin, have invented certain new and useful improvements in Heat Radiators; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a rear elevation of a heat radiator, constructed according to my invention.

Figure 2 is a vertical transverse section of the same, taken in the line *x x* of fig. 1.

Figure 3 is a horizontal transverse section of the same, taken in the line *z z* of fig. 1.

Similar letters of reference indicate corresponding parts in all the figures.

This invention consists in a novel construction of a heat radiator, whereby the same is made of greater strength, and may be much more cheaply and conveniently manufactured than those in common use, and whereby a much more effective radiation or distribution of heat is obtained than with such ordinary radiators.

To enable others to understand the nature and construction of my invention, I will proceed to describe it with reference to the drawings.

A represents horizontal ribs or braces, which are made of T-iron and are bent into a form corresponding with the circumferential shape of the front and sides of the radiator, and have their extremities secured by any suitable means to a rectangular metallic rim, *a*, which constitutes the edges of the rearmost side of the radiator, the said ribs being situated one above another and at suitable distances apart. Each alternate space between the ribs A has fitted into it a strip or plate of perforated sheet metal, as shown at *b*, the edges of each of these strips being secured to the flanches, *c*, of the ribs A, in any suitable manner, and either to the inner or outer surfaces of the said flanches. Fitted into the remaining alternate spaces between the aforesaid ribs A, are strips of sheet metal, as shown at *d*, the edges of the said strips being secured to the said flanches *c* of the ribs A, in the same manner that those of the perforated strips are secured to the flanches *c* of the said ribs, as just hereinbefore mentioned. These parts *d* constitute the outermost sides of the radiating flues of the radiator, as will be presently fully set forth. The top of the radiator is marked B in the drawings, and the bottom is marked C. The top and bottom just mentioned are made of sheet metal, and the bottom is provided with any suitable number of openings, *f*, through which air may ascend to the radiator, Extending upward through the radiator, at the rearmost side thereof, and passing through the top and bottom of the same, is a vertical pipe, D, the lower end of which is connected with the pipe of a stove situated at any required distance from the radiator, or in any suitable position with reference to the same, while the upper end of the said pipe D communicates with any suitable smoke-conducting flue or chimney. The inner sides of the radiating tubes are shown at *g*, and are of course situated immediately opposite the sheet metal strips *d*, which constitute the outer sides of the said flues. These inner sides of the radiating flues are formed of sheet metal bent transversely in the manner shown more clearly in fig. 2, with the edges of the said sheet metal attached securely, in any suitable way, to the inwardly-projecting flanches, *h*, of the ribs A, as shown in the said figure. The alternate ends of these flues, *d g*, are united by short vertical flues, E, so that the flues *d g* and E constitute a zigzag series, the lower portion of which communicates with the pipe D, near the lower end thereof, by means of a short horizontal flue, *m*, while the upper portion thereof communicates in like manner with the upper end of the pipe D, by a similar horizontal flue, *n*. Fitted into the central portion of the pipe D is a damper, *r*, which is operated or turned by means of a horizontal rod, *s*, the forward end of which projects through the front side of the radiator, and is furnished with a knob, *s'*, of any appropriate form. Formed in the outer side of each of the horizontal flues, *d g*, near each end thereof, is an opening, *u*, which may be closed by a cover, *v*, of any suitable kind, and which is designed to afford access to the interior of the flue as required in cleaning the same. The back or rear side of the radiator may be closed by a sheet-metal plate or sheet, *w*, if desired. The damper, *r*, being closed by turning the rod *s*, the heated gaseous products of combustion rising from the stove-pipe into the pipe D, are directed into the horizontal flue *m*, and thence into the flues E and *d g*, and after circulating through the last-mentioned flues pass into the upper end of the pipe D, through the horizontal flue *n*, and thence into the chimney with which the said flue communicates, as hereinbefore explained. The heat radiated from the aforesaid gaseous products of combustion, as they pass through the flues aforesaid, being thus equally distributed at different parts of the

radiator, the air passing up into the radiator through the openings *f*, is very effectually and uniformly heated thereby, after which it passes through the perforations in the sheet-metal strips *b*, into the apartment in which the radiator is situated, and thus properly warms the same. Furthermore, inasmuch as the T-iron ribs A not only constitute the outer frame or skeleton of the radiator, but also furnish the means by which the inner sides or portions of the flues *d g* are united to the outer sides thereof, the radiator is not only rendered very strong and durable, but may also be made more cheaply, and be more readily constructed and put together than those in ordinary use.

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

1. The T-iron ribs or braces A, combined in relation with the flues *d g*, substantially as herein set forth for the purpose specified.

2. The horizontal flues *d g*, and vertical flues E, arranged in relation with each other and with the flues *m n*, and the pipe D, substantially as herein set forth for the purpose specified.

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Witnesses:

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