

(No Model.)

F. KEISER.
HEAT RADIATOR.

No. 501,479.

Patented July 11, 1893.

Fig. 1.

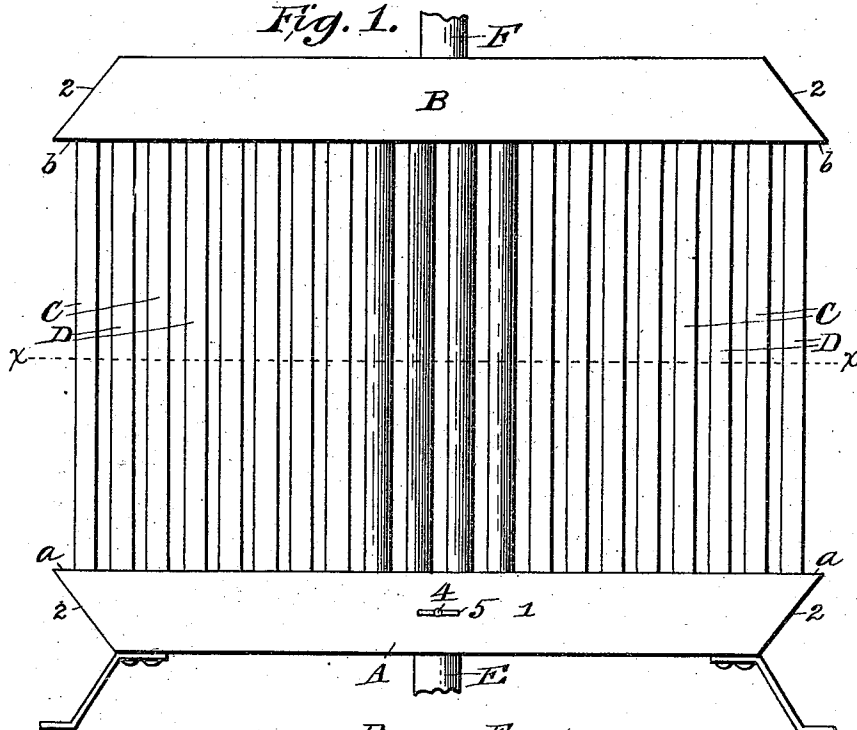


Fig. 2.

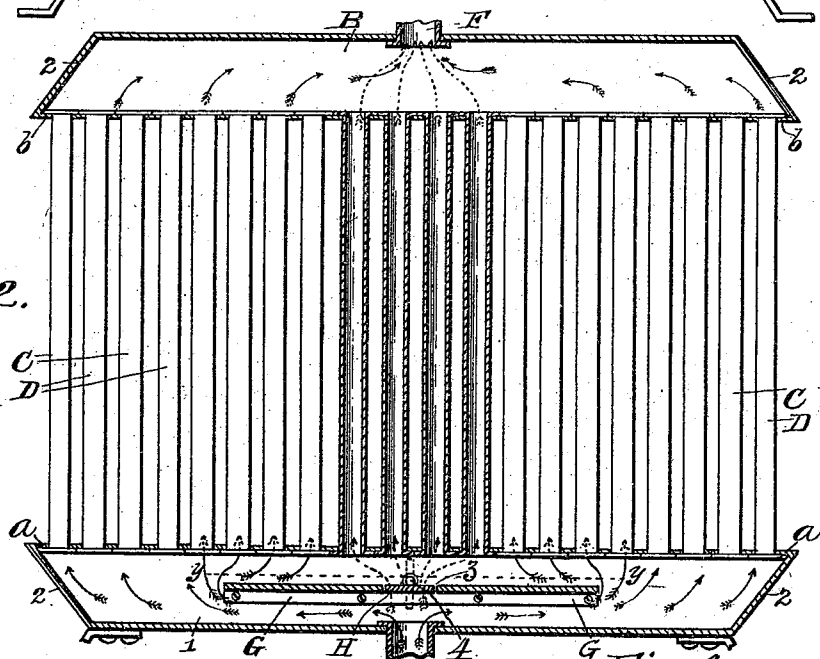


Fig. 3.

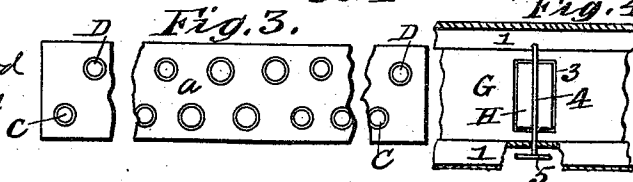
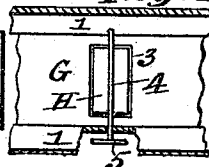


Fig. 4.



Witnesses
Jas H Blackwood
A. B. Blackwood

Inventor
FRANCIS KEISER
By
Wm Hunter Myers
Attorney

UNITED STATES PATENT OFFICE.

FRANCIS KEISER, OF MAHANAY CITY, PENNSYLVANIA.

HEAT-RADIATOR.

SPECIFICATION forming part of Letters Patent No. 501,479, dated July 11, 1893.

Application filed April 4, 1893. Serial No. 469,039. (No model.)

To all whom it may concern:

Be it known that I, FRANCIS KEISER, a citizen of the United States of America, residing at Mahanoy City, in the county of Schuylkill and State of Pennsylvania, have invented certain new and useful Improvements in Heat-Radiators, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to an improved heat-radiator; and it has for its object the production of a cheap, light, and efficient device for utilizing that portion of the heat from a stove which usually escapes with the gases in heating one or more rooms other than the one in which the stove is located.

The invention will first be described in connection with the accompanying drawings and then pointed out in the claims.

Figure 1 of the drawings is a front elevation of my improved heat-radiator. Fig. 2 is a central vertical section of the same, the damper being shown open in dotted lines. Fig. 3 is a broken horizontal sectional view, taken on the line *x x*, Fig. 1, showing the relative arrangement of the flues. Fig. 4 is a broken horizontal sectional view, taken on the line *y y*, Fig. 2, showing the deflector and the damper.

Referring to the drawings, A and B are two sheet-metal drums, the sides 1 and the ends 2 of which are preferably sloped as shown, the flue-plates *a* and *b* being rectangular.

C and D are two series of sheet-metal flues, whose ends are secured in plates *a* and *b*, as clearly shown in Fig. 2, these flues being in horizontal rows, the flues in one series standing in staggered relation to those in the other series—that is to say, so that the two series are out of transverse alignment with each other, as seen in Fig. 3. Two or more of the middle flues in each series are larger in cross section than the others, for a purpose that will be hereinafter stated.

E is a short section of pipe leading into the lower drum A and secured thereto. This is designed to be attached to the pipe of a stove or range, to convey the hot air and gases from said stove or range into the radiator; and F is an exit-pipe secured in the top of the radiator.

G is a deflector, consisting of a short flat

metal plate secured inside of the lower drum A, about midway between the top and bottom, it being of the full width of the drum, as seen in Fig. 4. In this plate immediately above the inlet-pipe E, is an opening 3, closed by a swinging damper H, hung on a rod 4, having its bearings in the sides of the drum, and provided outside of the drum with a handle 5, all clearly seen in Fig. 4.

My radiator is designed to be placed in a room over the one in which the stove is located, the inlet-pipe being connected to the stove-pipe, and the outlet-pipe led into the chimney. Good results may be obtained by using another radiator in the room over the one in which the first is placed, the connection being made in an obvious manner.

When it is desired to have the radiator give out as much heat as possible the damper is closed, and the heated air and gases entering through the inlet-pipe will then come into contact with the deflector and be thereby caused to move longitudinally of the radiator until they pass the ends of the deflector, when they will have a tendency to rise through the nearest flues; but as the middle flues are larger than the others, and therefore give a better draft, a portion of the heat will be drawn toward them, as indicated by the arrows in Fig. 2, thereby insuring the heating of all the flues. After passing through the flues the heated air and gases will enter the upper drum and be drawn toward the exit, which is midway of the drum, whereby the latter will be heated throughout. On the other hand, if but little heat is required in the room the damper in the radiator may be opened, when the draft will be directly upward through the larger flues only, and thence to the exit, which is immediately above said flues. By this means it is possible to also utilize the heat by a second radiator, placed in a room above the one in which the first is located, very good results in this respect having been obtained by me on actual tests in cold weather.

As my radiator is rectangular in shape, it occupies but very little space in the room. The two series of flues being out of transverse alignment with each other, direct forward and rearward radiation of the heat from the flues in one series is not impeded by the flues in the other. The deflector being flat and ex-

tending entirely across the lower drum, and the flues over the middle portion of the deflector being larger than the other flues and affording greater draft, the currents of heat, when the damper is closed, are compelled to traverse all parts of said drum and be taken up in all the flues. And, furthermore, by means of the opening in the deflector, the damper, and the larger flues, I am enabled, by simply opening the damper, to pass the hot air through the radiator with but slight radiation of the heat.

The radiator, being comparatively small and made of sheet metal, is very light, and can be easily detached from the pipes with which it is connected and carried out of the room when it is desired to clean it, the soot, &c., being discharged through the inlet and exit pipes.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A heat-radiator having an upper and a lower drum, flues connecting said drums, an inlet-pipe at the bottom, an exit-pipe at the top, and a deflector secured in the lower drum and extending entirely across it from front to rear, the flues above the middle portion of the deflector having a greater interior diameter than the other flues, for the purposes set forth.

2. A heat-radiator having an upper and a lower drum, flues connecting said drums, an

inlet-pipe connected with the lower drum, an exit-pipe connected with the upper drum, a deflector through which there is an opening, said deflector being secured in the lower drum and extending entirely across it from front to rear, and a damper for closing said opening, the flues above the opening in the deflector having a greater interior diameter than the other flues, all substantially as described and for the purposes set forth.

3. A rectangular heat-radiator having an upper and a lower drum, two longitudinal rows of flues connecting said drums, the flues of one row being out of transverse alignment with those of the other row, an inlet-pipe connected with the lower drum, an exit-pipe connected with the upper drum, a deflector through which there is an opening, said deflector being secured in the lower drum and extending entirely across it from front to rear, and a damper for closing said opening, the flues above the opening in the deflector having a greater interior diameter than the other flues, all substantially as described and for the purposes set forth.

In testimony whereof I affix my signature in presence of two witnesses.

FRANCIS KEISER.

Witnesses:

W. P. RAMSAY,
JOHN I. MATHIAS.