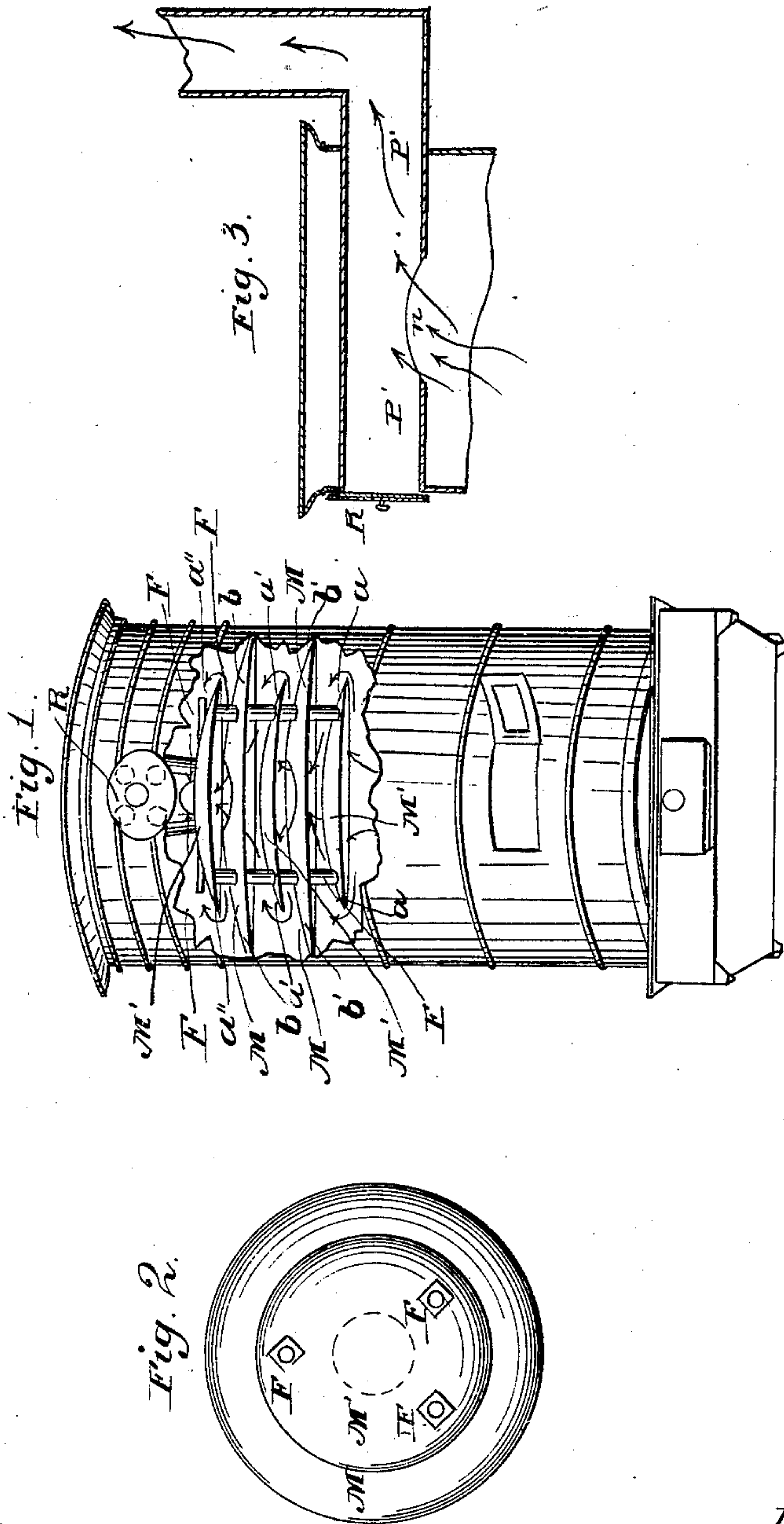


CONVER & BORTHWICK.

Heat Radiator.

No. 57,481.

Patented Aug. 28, 1866.



Witnesses:
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UNITED STATES PATENT OFFICE.

JESSIE CONVER AND JOHN BORTHWICK, OF PHILADELPHIA, PA.

HEAT-RADIATOR.

Specification forming part of Letters Patent No. 57,481, dated August 28, 1866.

To all whom it may concern:

Be it known that we, JESSIE CONVER and JOHN BORTHWICK, both of the city of Philadelphia, in the county of Philadelphia, in the State of Pennsylvania, have invented a new and Improved Mode of Radiating the Heat in all Heating Apparatus; and we do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, forming part of this specification, and in which—

Figure 1 is a perspective view of a stove with our heat-radiator and heat-cylinder set in. Fig. 2 is a top view of the heat-radiator. Fig. 3 is a sectional longitudinal view of the heat-cylinder.

The nature of our joint invention consists in an apparatus composed of reverberating metallic disks disposed and held together by bolts running through them all, forming a whole which, placed into a stove or any other heating apparatus, will stop the heat from escaping too fast through the smoke-pipe; and also in a heat-cylinder fixed on the top of the above-mentioned heat-radiator, so as to direct and control the heat at will.

To enable others skilled in the art to make and use our joint invention, we will proceed to describe its construction and operation, similar letters referring to similar parts in the annexed drawings.

We cut from any suitable metal three or more disks, M, of a size to fit exactly that of the stove or any other heating apparatus it is to be applied to. We give said disks a several inches concave shape, and we punch a hole through them of about two-thirds of the radius of the disk or diameter. We then cut a similar number plus one of metallic disks, M', of a smaller diameter, and to which we give the same concavity as above. Our disks thus prepared, we fix them by means of bolts F F, running through them all, as shown in Fig. 1, so that their convexity be uppermost, and alternating the disks M' and M, so that the small one be at the top and bottom of the apparatus. Thus finished and held together, the radiator is introduced into the stove, as in Fig. 1.

The stove-pipe or smoke-pipe should have its inside mouth a few inches above the top disk, and then a cylinder, P', of a size to fit on smoke-pipe, is fixed to run all through the top of the stove P P, Fig. 3, from smoke-pipe to the outside of the stove over the fire-grate.

Said cylinder is provided with a circular hole, n, corresponding vertically and in diameter with that punched through the larger disks, M. A register, R, is fixed on the outside end of cylinder P'.

Now the heat rising in the stove is stopped by disk a, around which, pressing and radiating, as shown by arrows C, it reaches disk a', goes through hole c, presses and radiates around disk a'', and so on from disk to disk, until reaching hole n in cylinder P', whence it reaches the smoke-pipe slowly if the register R is shut, rapidly if it is open.

It is obvious that the heat forced to radiate in the upper part of the stove shall impart more caloric than when allowed to reach the stove-pipe at once. Our apparatus, the radiator, is therefore a fuel-saving one.

Again, the cylinder P' being in direct contact with the heat directs it surely and almost at will, enabling by a wise management of its register n to keep it in the stove or accelerate its rapid egress into the smoke-pipe.

We are aware that a patent for a damper composed of metallic disks has been already granted to A. E. Elmer in 1865, and we want it distinctly understood that we do not claim the metallic disks as our invention. Elmer's object, as appears from his specification, is to regulate the draft at will, and he places his damper in the smoke-pipe of his stove. We do not regulate the draft at all with our heat-radiator. We force the heat to radiate before it leaves the stove, and our heat-radiator is permanent, and cannot, as Elmer's damper, be open or shut at will.

Having thus described our invention, what we claim as our joint invention, and desire to secure by Letters Patent of the United States, is—

1. The heat-radiator composed of metallic disks permanently attached together and combined with the body or fire-place of any stove, or any device or devices substantially the same, for the purpose and in the manner above described.

2. The combination of our heat-radiator with cylinder P', for the purpose and in the manner aforesaid described.

JESSIE CONVER.
JOHN BORTHWICK.

Witnesses:

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C. T. COLLADAY.