# D. C. PROCTOR.

## Heating Stoves.

No. 151,430. Patented May 26, 1874.

FIG. I.

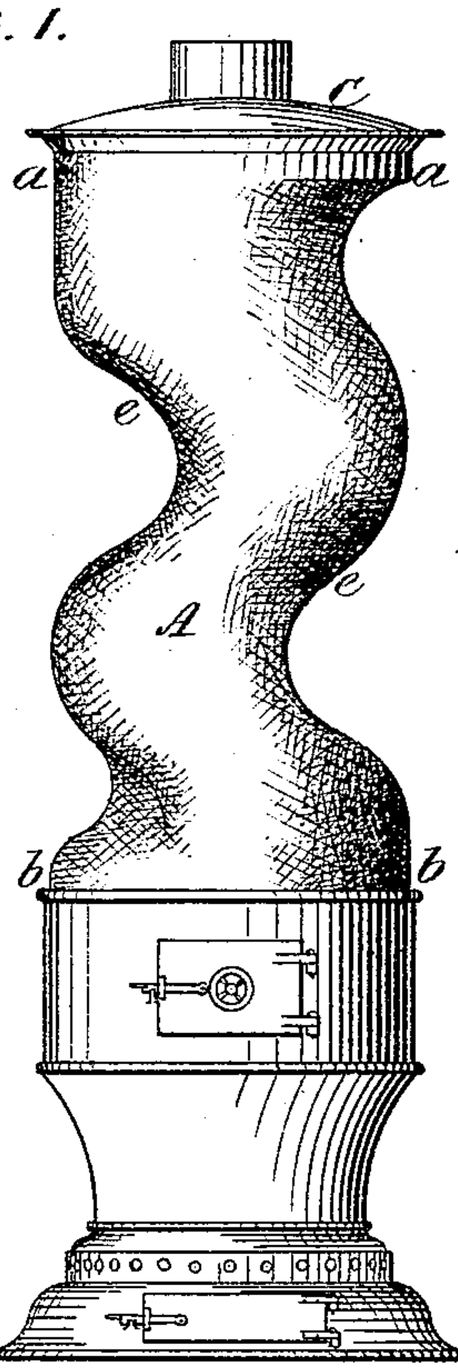



FIG. III.

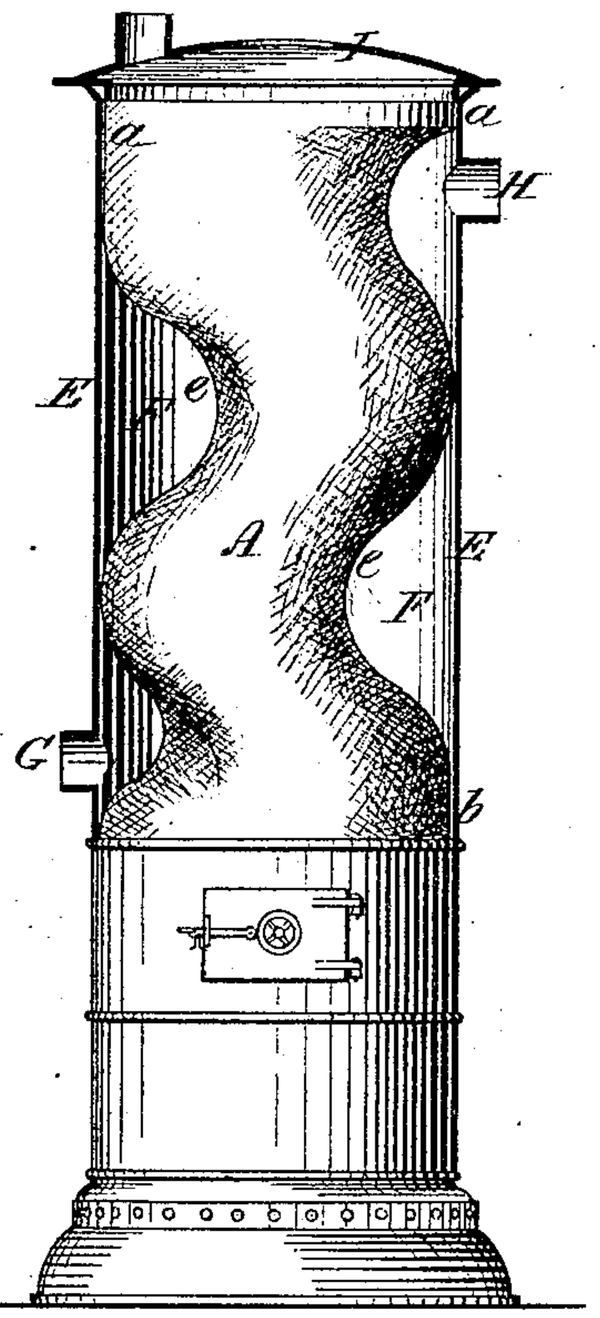



FIG. IV.

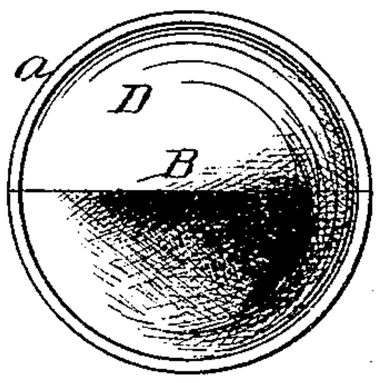



FIG. II.

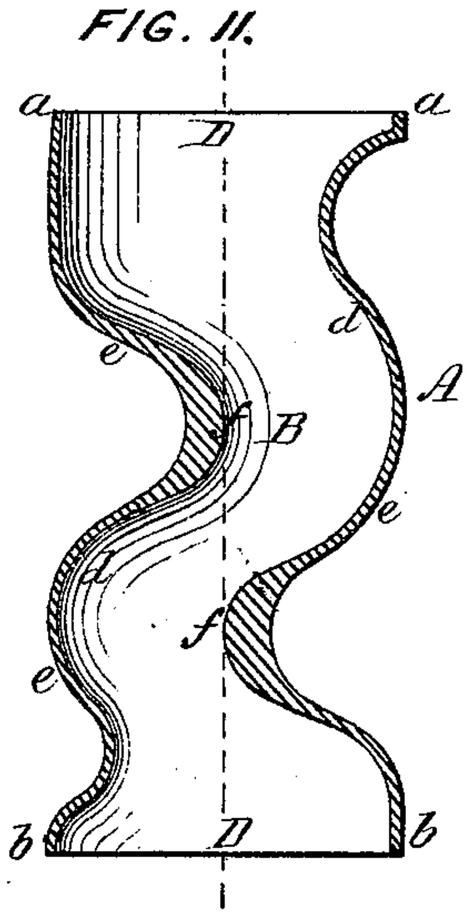
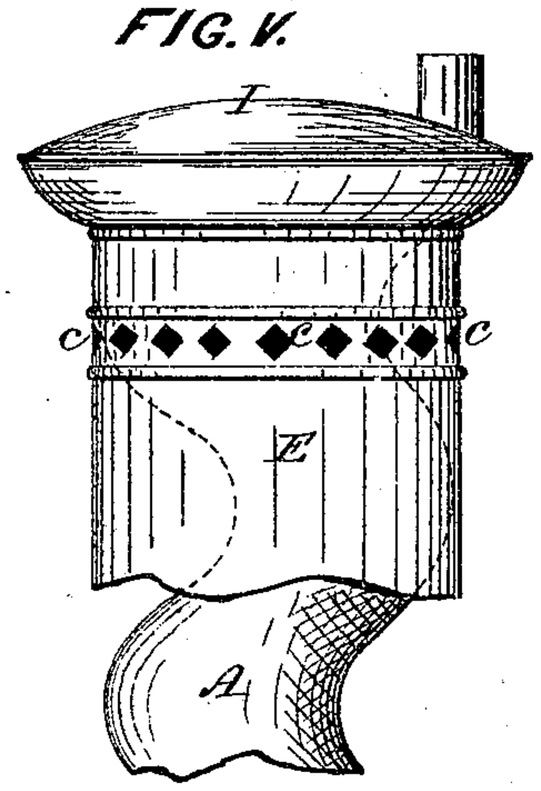



FIG. V.




WITNESSES:

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# UNITED STATES PATENT OFFICE.

DAVID C. PROCTOR, OF PEORIA, ILLINOIS.

## IMPROVEMENT IN HEATING-STOVES.

Specification forming part of Letters Patent No. **151,430**, dated May 26, 1874; application filed April 8, 1874.

*To all whom it may concern:*

Be it known that I, DAVID C. PROCTOR, of Peoria, in the county of Peoria and State of Illinois, have invented a new and useful Improvement in Heating Stoves and Furnaces, of which the following is a specification:

The invention herein may be used either as a stove or furnace; and the particular features of novelty consist of a scroll-shell flue having enlarged annular receiving and exit ends, in combination with an intervening scroll-way in which the folds close the direct draft, whereby a free inlet and outlet is obtained for a passage-way, interrupted at its central line by the varying folds of the inner curved surface between the said openings, and through which interrupted scroll-way the draft is promoted by the termination at both ends of a comparatively small scroll-way into the enlarged annular openings. The second feature of my invention consists in the combination, with a scroll-shell flue forming a central scroll-exit for the products of combustion, with an inclosing-case forming an air-heating flue, the said combination constituting a double scroll-flue—an inner and an outer one—and the two formed by the interior and exterior vertical scroll contour of a single center flue and the outer case, whereby the air passing through said circumferential flue is constantly impinging against the outer vertically-curving walls of the central flue, and in this way obtain a large heating-surface in an inclosed flue, while maintaining a free direct draft for the air into and through the flue, receiving at the bottom and discharging at the top into the room, or conveyed in any direction by air-flues.

In the accompanying drawings, Figure 1 represents an elevation of the scroll-flue as a heating-stove; Fig. 2, a vertical section of the scroll-shell flue; Fig. 3, an elevation of the same as a heating-furnace; and Fig. 4, a top view of the scroll-shell with the top plate removed.

As a heating-stove, the scroll-flue A is mounted upon a fire-pot base, so that the central scroll-conduit B forms a continuation of the fire-pot chamber, and its upper end is closed by a cap, C, from which the smoke-pipe leads. The scroll-shell proper is, therefore, open at both ends, and these open ends D terminate in equal area to the circle formed by the circumference of the winds of the scroll, while the latter in its cross-section is of much less diameter than the open ends, bringing the passage in effect to one side of the axis-line of the shell. This construction gives a free inlet and outlet to the scroll-flue, and preserves the vertically central appearance of the scroll structure. It is cast in two equal parts and secured together in any suitable manner with the central flue B, formed by the scroll-walls, which interrupts the direct draft and retards the passage of the heat by the scroll-surface, which has the effect of promoting the consumption of the smoke and gases, while practically obtaining a free central draft; and as the exterior contour *e* is the counterpart of the interior *d*, the radiating-surface must be greatly increased, especially at the base. If desired, it may be inclosed in any way that will not prevent radiation, as by cast open or fret work; but this would only be as a skeleton cover for the scroll, and to give symmetry with the base and cap.

As a furnace, the shell-scroll flue is inclosed by a case, E, which is fitted closely over the upper and lower circular ends *a b*, to form an outer scroll-flue, F, for heating air to be conveyed to different rooms in the building, the cold air being received at the bottom opening G, and, heated, passes out at the top of the flue by suitable connecting-pipes H, or into the room by opening *c* near the top of the case, as shown in Fig. 5, so that a cold and a hot air scroll-flue is thus formed by a single scroll-shell flue, and each has equal surface for the heat and the cold air, for the latter, entering at the base, spreads over the entire vertical scroll-walls, and is thereby not only more rapidly but more uniformly heated, while obtaining a free open flue for the rapid circulation of the air to be heated, and holding it under some pressure at the top by the termination of the scroll-walls in the circular rim. The furnace-case is closed by a cap-plate, I, with suitable exit-pipe openings; the chief design of the scroll-flue being to obtain from a single shell a central and an outer radiating-surface, whose walls *d e* stand up in scroll form, and thereby, when incased, give ample heating-surface for a furnace. The innermost folds *f*

*f* of the scroll, Fig. 2, are made thicker than the shell, because, as these points intercept the direct line of draft, and thereby receive the more direct impingement of the flame, they are so made to prevent the folds from burning out at these interior projecting points.

I claim—

1. The enlarged open ends D, in combination with the intervening shell-flue B, curved substantially as described, to obtain the advantages stated.

2. A shell-flue, A, with inner and outer vertical walls *d e* of corresponding scroll contour, in combination with the case E, having inlet and outlet passages G H *c* for air into and from the outer flue, substantially as and for the purpose described.

3. A scroll-shell flue having enlarged inlet and outlet openings D D, in combination with the thickened folds *f*, as described, whereby the direct-draft-intersecting points of the shell are rendered durable.

DAVID C. PROCTOR.

Witnesses:

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