

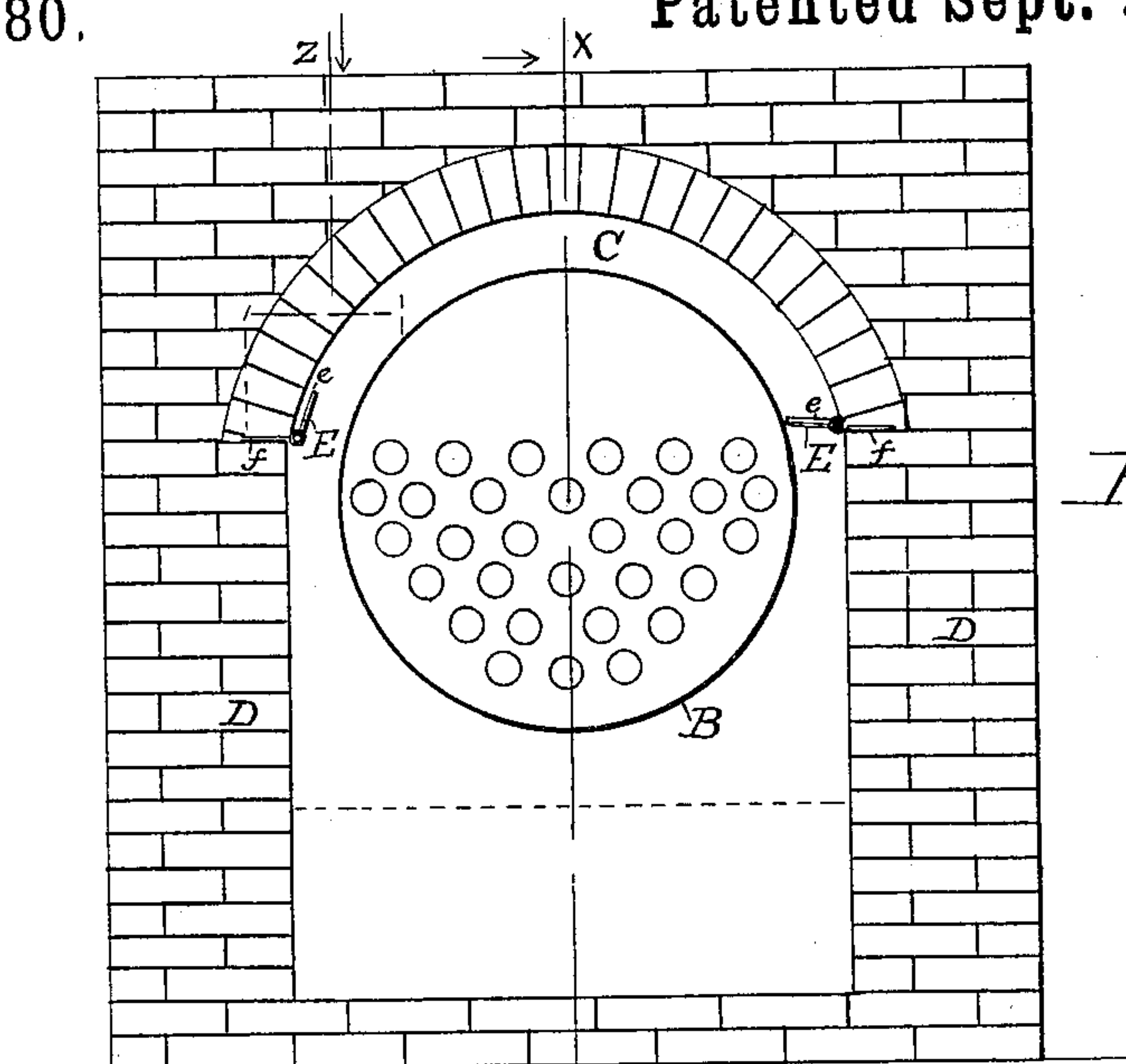
(No Model.)

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STEAM BOILER FURNACE.

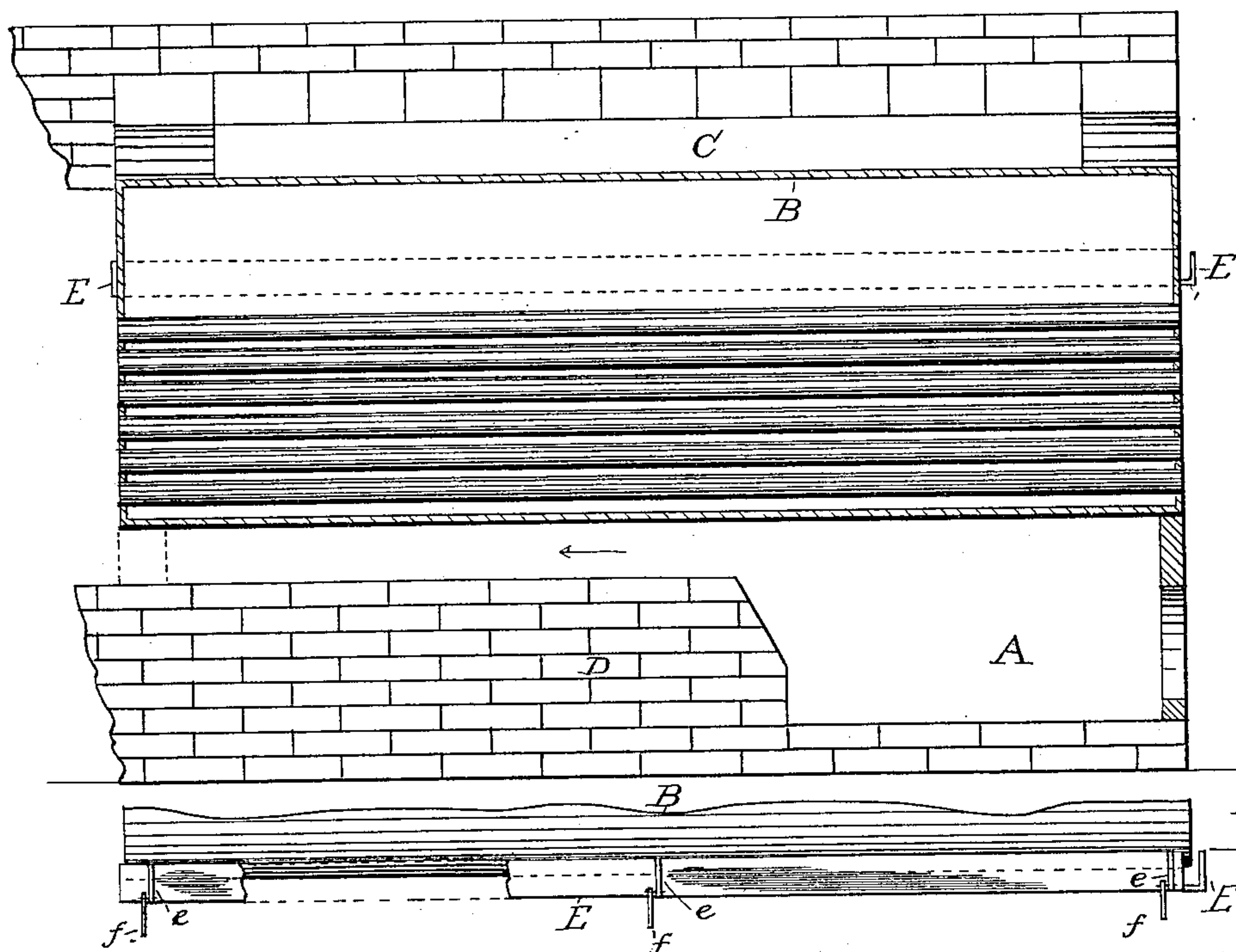
No. 326,980.

Patented Sept. 29, 1885.



*Fig. 1.*

*Fig. 2.*



*Fig. 3.*

Witnesses,  
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# UNITED STATES PATENT OFFICE.

MILTON P. HENDERSON AND ANDREW BERGLAND, OF STOCKTON, CAL.

## STEAM-BOILER FURNACE.

SPECIFICATION forming part of Letters Patent No. 326,980, dated September 29, 1885.

Application filed June 9, 18-5. (No model.)

*To all whom it may concern:*

Be it known that we, MILTON P. HENDERSON and ANDREW BERGLAND, citizens of the United States, residing at Stockton, in the county of San Joaquin and State of California, have invented certain new and useful Improvements in Steam-Boiler Furnaces, of which the following is a specification, reference being had therein to the accompanying drawings.

Figure 1 is a vertical cross-section of our improved furnace. Fig. 2 is a vertical section through line *x x*, Fig. 1. Fig. 3 is a detached view of the damper and a section of the boiler through line *z*, Fig. 1.

Similar letters of reference indicate corresponding parts.

The object of our invention is to construct a boiler furnace with a hot-air chamber above the boiler provided with dampers for admitting or excluding the hot air from such chamber.

D is a brick furnace constructed in any known form and having the boiler B embedded in the brick-work above the fire place A. Above the boiler B is an arched chamber, C, provided with openings through which the hot air may pass from the lower part of the furnace into such chamber. We control the flow of the hot air into the chamber C' through the openings above mentioned by means of dampers constructed of a strip of sheet-iron of suitable length and shape, E, having attached to it at one end a handle, E'. Hinge-plates *e* are fastened to the iron strips E, and connected hinge-plates *f* are secured in the sides of the furnace D.

Fig. 1 of the drawings represents one of the dampers closed and the other one open.

Any form of damper may be used which acts as a cut-off for the hot air passing from lower part of furnace into the chamber above the boiler.

We claim advantages by constructing a furnace as described in this, viz: that there is a very decided saving of fuel in concentrating the heat above the boiler in the chamber C', the flow into it being controlled by the dampers, so that at times when it might be desirable to exclude it so as not to warp the boiler's surface, such exclusion may be readily and easily accomplished. The steam is also kept dry by the direct application of hot air to the portion of the boiler above the flues.

Cast or wrought iron plates, or any other suitable material, may be used for the plates E of the dampers.

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

1. In combination with the furnace D and boiler B, the arched hot-air chamber C, and the dampers, substantially as and for the purposes set forth.

2. In combination with the furnace D, having the fire-place A, boiler B, above fire-place A, and arched chamber C, above the boiler B, the dampers composed of the sheet-iron strips E, handle E', hinge-plates *e*, attached to sheet-iron strips E, and hinge-plates *f*, attached at one end to plates *e* and having the other ends embedded in brick-work of furnace D, as described and for the purposes specified.

In testimony whereof we affix our signatures in presence of two witnesses.

MILTON P. HENDERSON.  
ANDREW BERGLAND.

Witnesses:

THOMAS MEADE,  
ELIHU B. STOWE.