(No Model.)

S. B. DEXTER.

WATER COOLED DAMPER.

No. 474,227. Patented May 3, 1892.

Fig. 1.

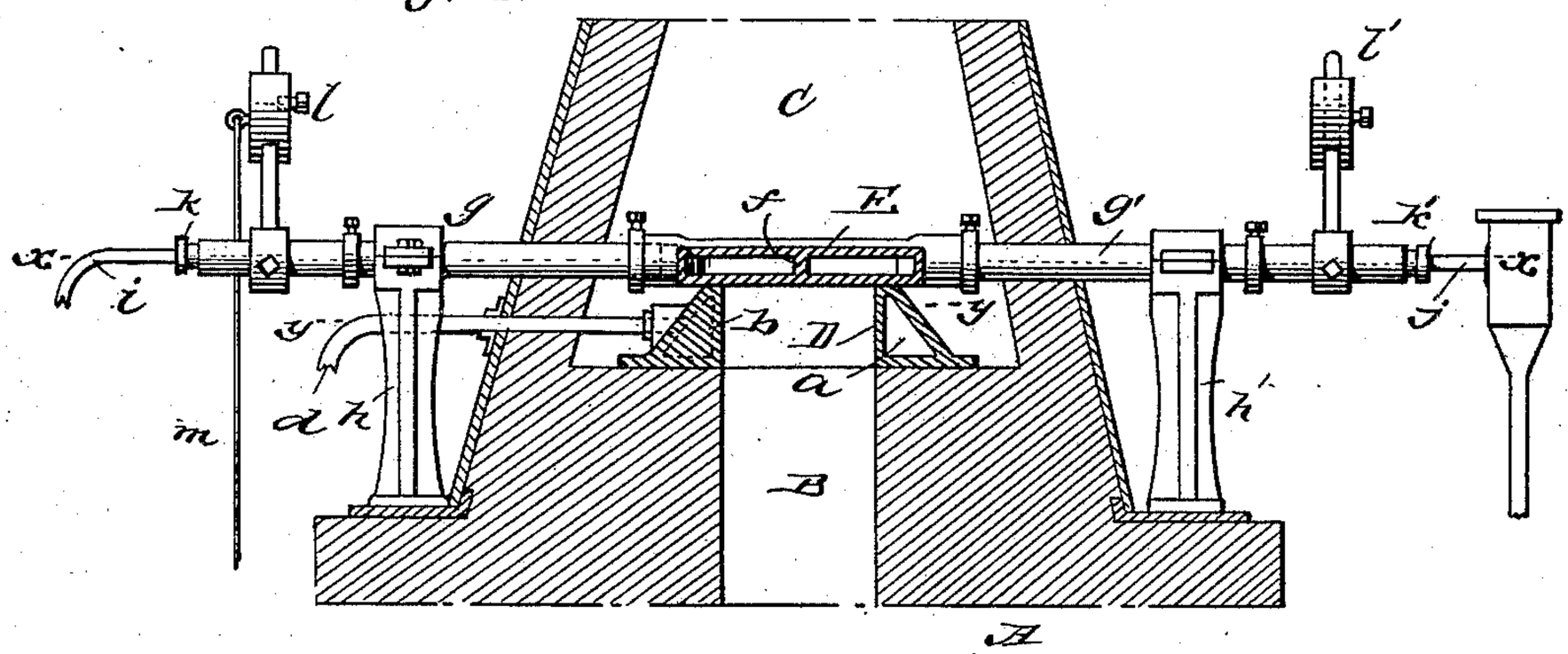


Fig. 2.

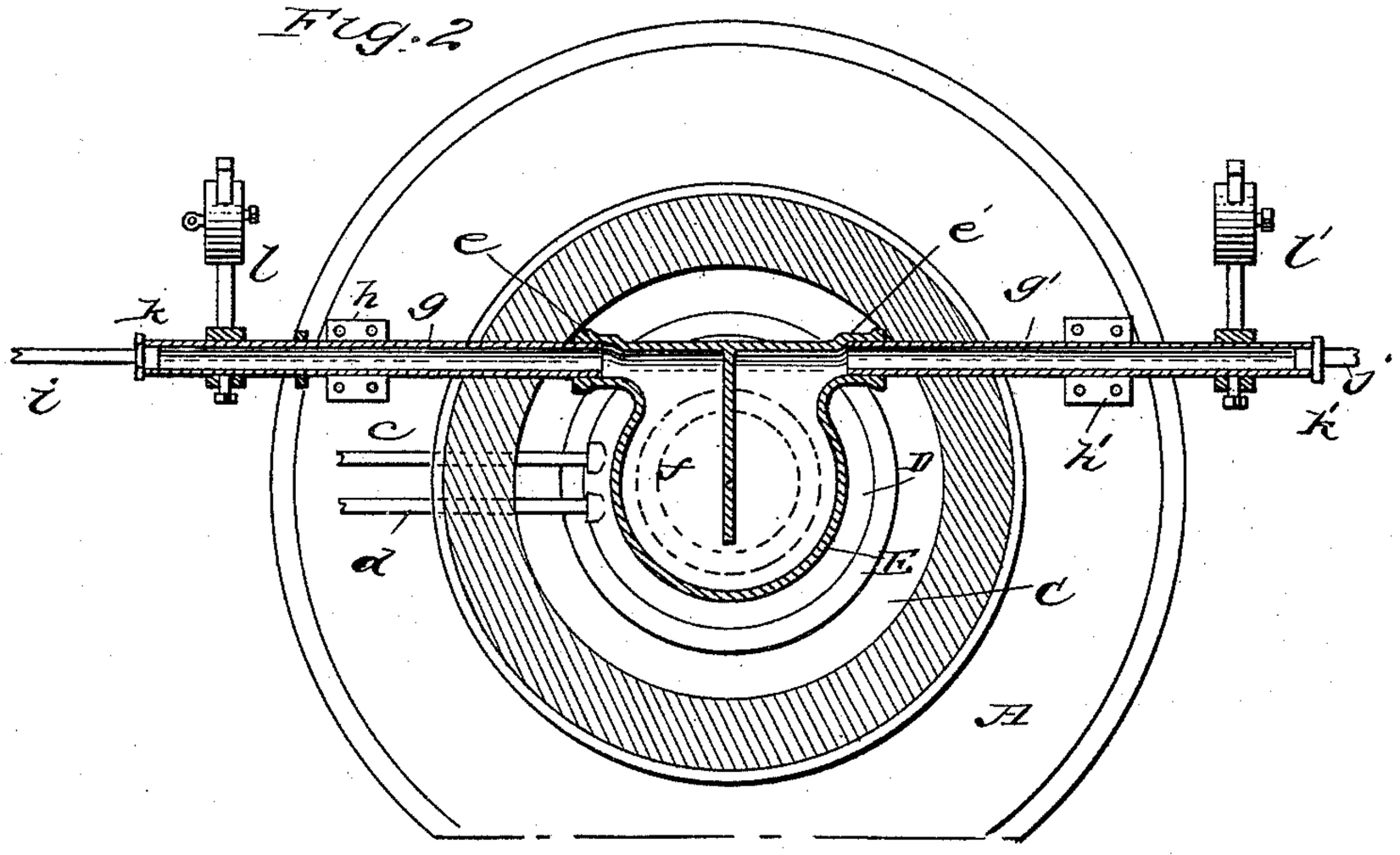
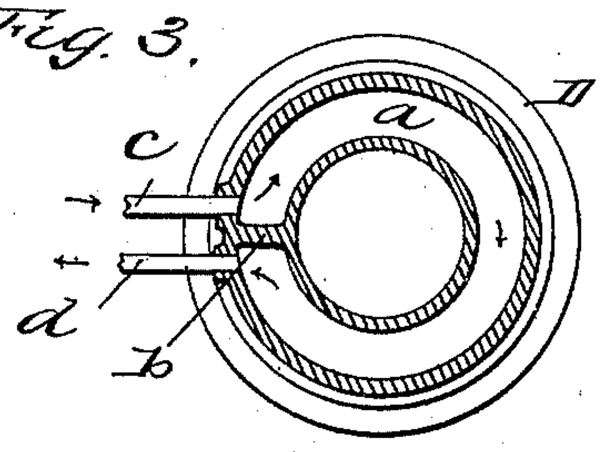


Fig. 3.



WITNESSES:

H. R. Davis,

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INVENTOR:

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UNITED STATES PATENT OFFICE.

SIMON B. DEXTER, OF GLENDALE, MONTANA.

WATER-COOLED DAMPER.

SPECIFICATION forming part of Letters Patent No. 474,227, dated May 3, 1892.

Application filed August 20, 1890. Serial No. 362,510. (No model.)

To all whom it may concern:

Be it known that I, SIMON B. DEXTER, of Glendale, in the county of Beaver Head and State of Montana, have invented a new and Improved Water-Cooled Damper, of which the following is a specification, reference being had to the annexed drawings, forming a part thereof, in which—

Figure 1 is a vertical transverse section of a portion of a furnace to which my improved damper is applied. Fig. 2 is a horizontal section taken on line *x x* in Fig. 1, and Fig. 3 is a horizontal section taken on line *y y* in Fig. 1.

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

The object of my invention is to provide a damper applicable to all ducts or flues where flame and hot products of combustion pass, and more particularly for use in connection with my improved ore-roasting furnace described in my patent, No. 436,340, dated September 16, 1890.

My invention consists in the construction and arrangement of parts hereinafter described and claimed.

The furnace-walls A are provided with a duct B, leading to the flue C. Upon the walls A is placed a hollow annular damper-seat D, which is preferably of triangular section. The aperture of the damper-seat is of the form and size of the duct B and forms practically a continuation of the said duct. The water-space *a* in the annular seat D is stopped at one point by the partition *b*, and in the annular seat, at one side of the partition, is inserted the water-supply pipe *c* and in the opposite side of the partition is inserted the discharge-pipe *d*. The water for cooling the damper-seat enters through the pipe *c*, passes through the annular space in the seat, and is discharged through the pipe *d*.

The damper E, which is fitted to the seat D, is chambered and provided with lateral branches *e e'*, which are axially in line with each other, their common axis being tangential to the circle upon which the body of the damper is formed. The central partition *f* extends from the side of the damper provided with the branches *e e'* nearly to the opposite side. In the branches *e e'* are inserted pipes *g g'*, which form the shaft of the damper, and also serve to convey water to and away from the damper. The pipes *g g'* are journaled in standards *h h'*, and in the outer end of the pipe *g* is inserted a water-supply pipe *i* and in the opposite end is inserted the discharge-pipe *j*, the joint between the supply and discharge pipes being made tight by stuffing-boxes *k k'*. The damper E is counterbalanced by weighted levers *l l'*, attached to the pipes *g g'* near their free ends. To the lever *l* is pivoted a rod *m*, by means of which the damper is opened or closed. Water enters the damper E through the supply-pipe *i*, the pipe *g*, and the branch *e*, and passing through the damper it is made to flow around the partition *f*, after which it passes out through the branch *e'*, the pipe *g'*, and the discharge-pipe *j*.

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

1. The combination, with the hollow seat D, having inlet and outlet water-pipes, of the hollow vertically-swinging damper or valve resting on the upper edge of said seat and provided with inlet and outlet pipes *g g'*, respectively, bearings *h h'*, in which said pipes are journaled, arms projecting from pipes *g g'*, adjustable counterbalancing-weights *l l'*, mounted on said pipes, and means for operating the valve, substantially as set forth.

2. The combination, with the enlarged flue C and the smaller duct B, leading downward from its bottom, of the hollow annular seat on the bottom of the flue concentric with its duct and having the inlet and outlet pipes, the vertically-swinging counterbalanced hollow damper E on top of the seat and having inlet and outlet pipes *g g'* extending out through the walls of the flue, bearings *h h'*, in which said pipes are journaled, and means for operating the damper, substantially as set forth.

SIMON B. DEXTER.

Witnesses:
THOMAS H. TEAL,
GEO. B. CONWAY.