

E. BURNS.
Coke Oven.

No. 232,389.

Patented Sept. 21, 1880.

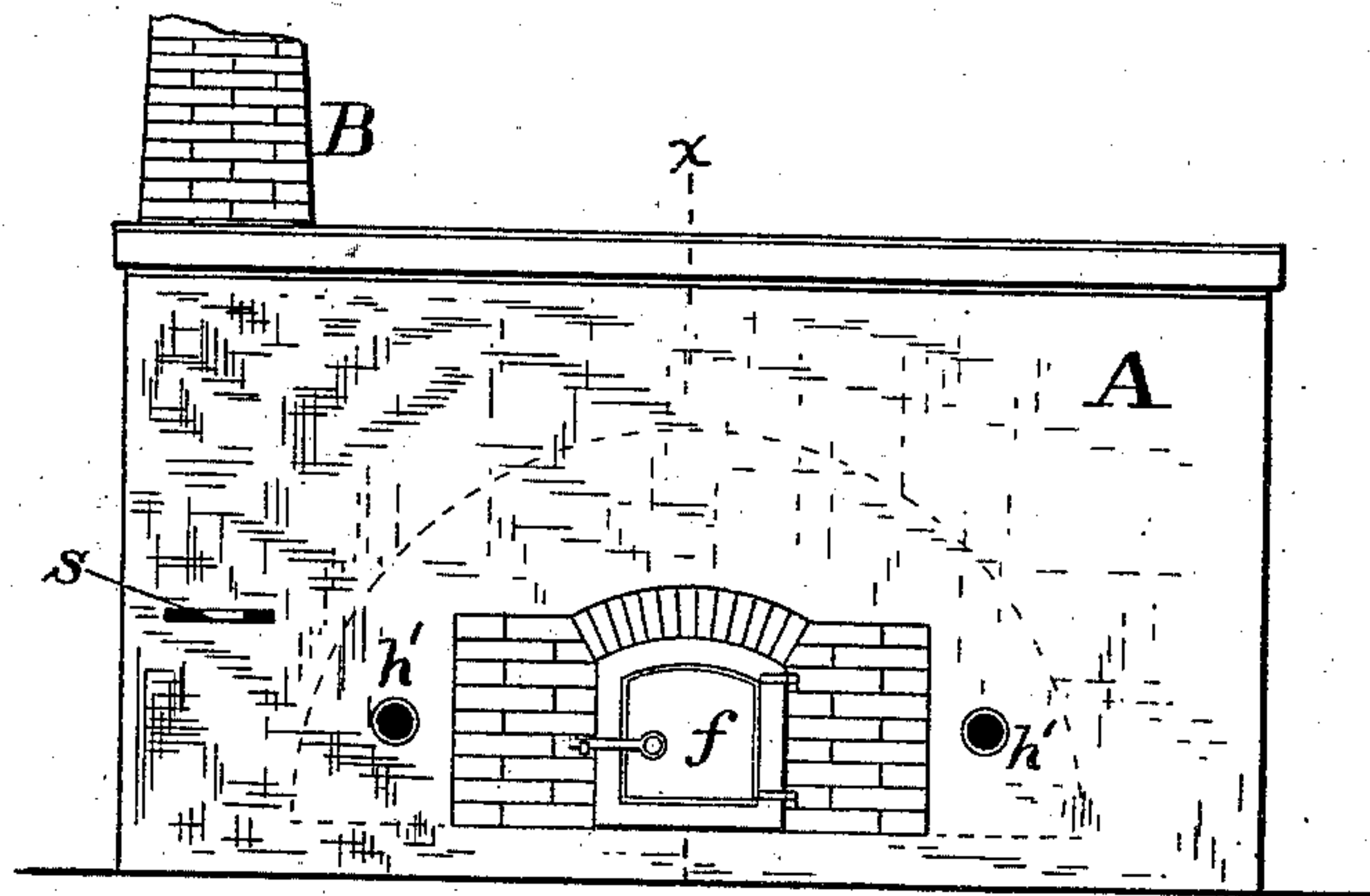


Fig. 1.

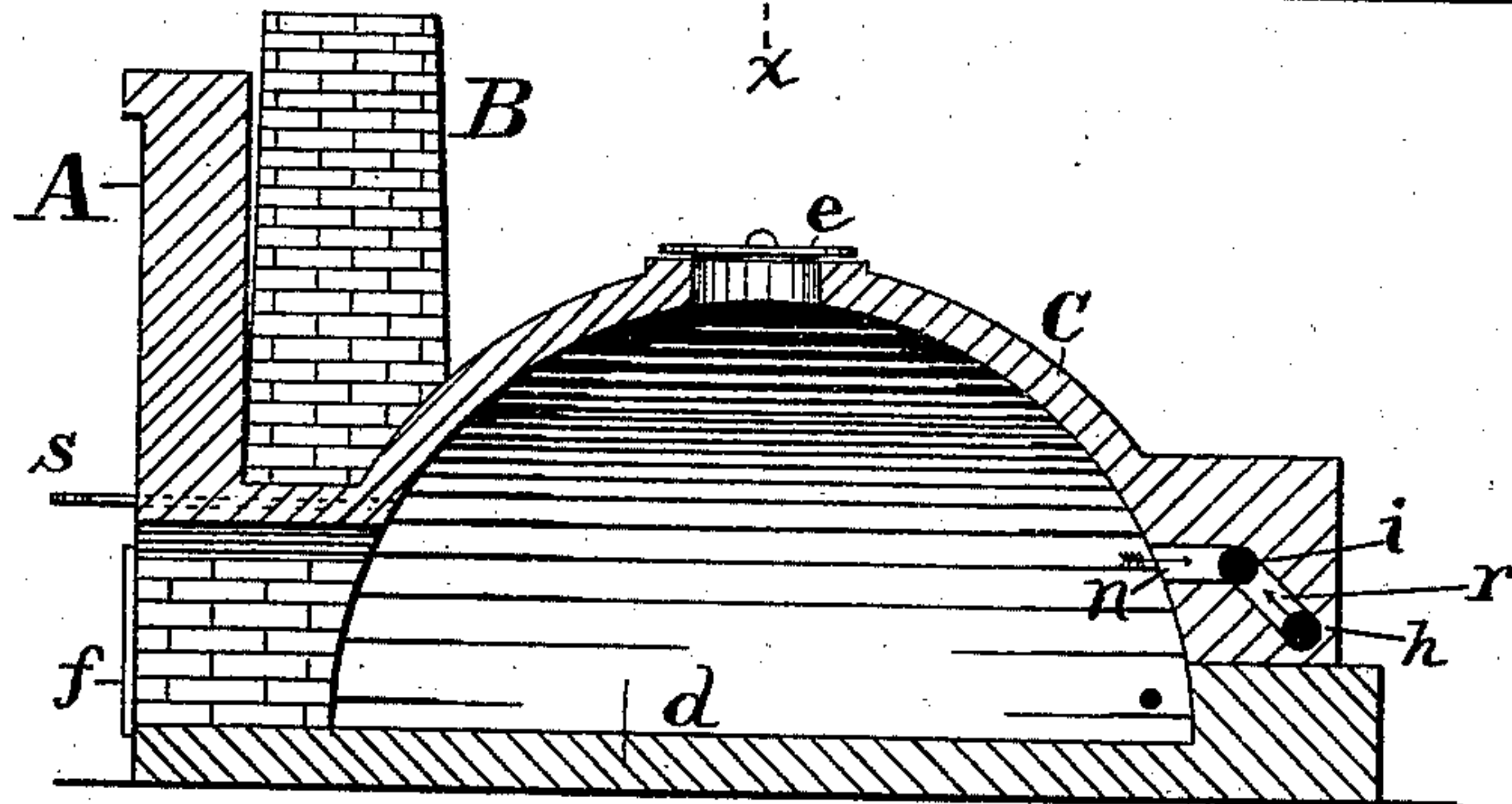


Fig. 2.

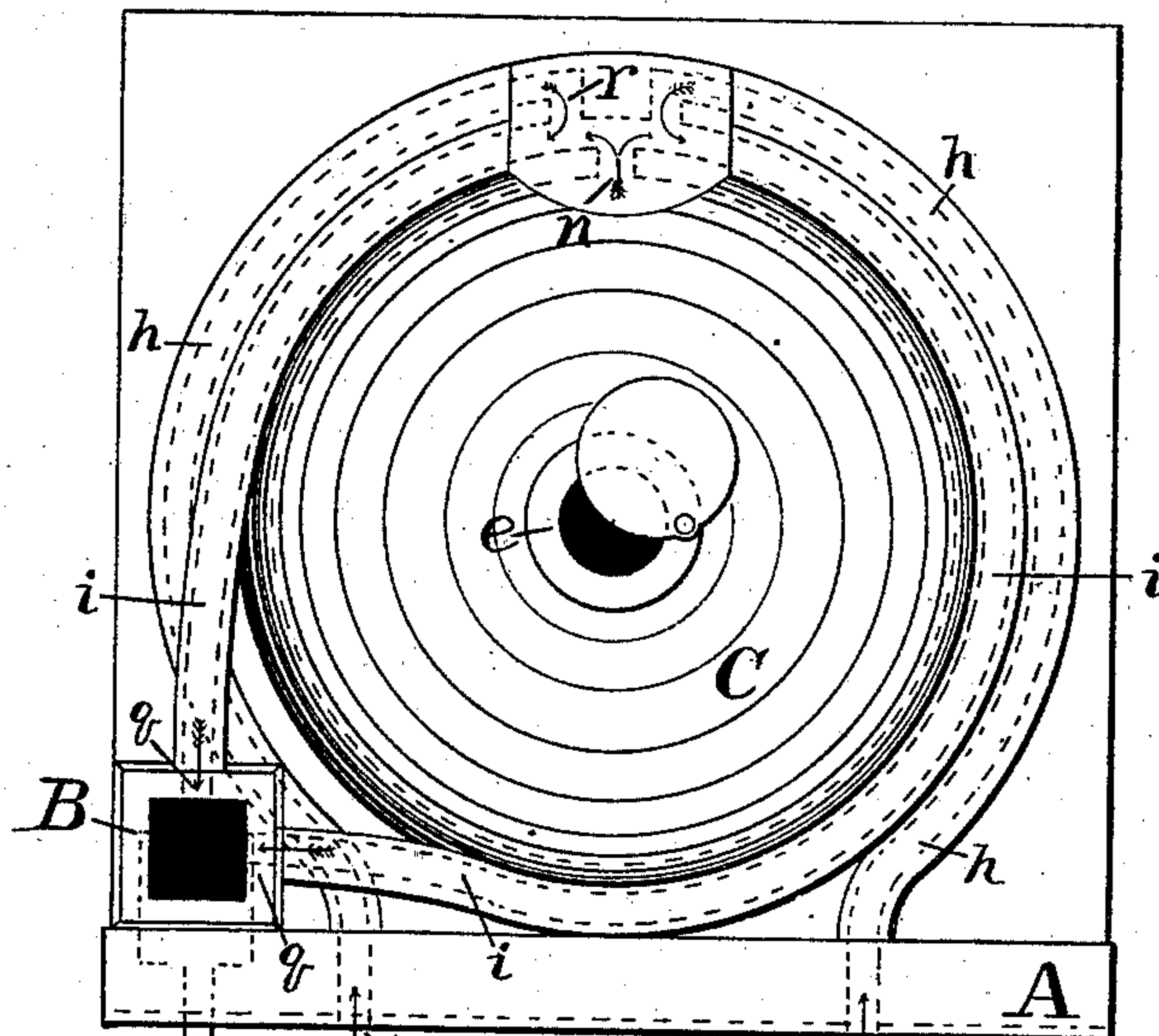


Fig. 3.

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UNITED STATES PATENT OFFICE.

EDWARD BURNS, OF BROAD FORD, PENNSYLVANIA.

COKE-OVEN.

SPECIFICATION forming part of Letters Patent No. 232,389, dated September 21, 1880.

Application filed February 12, 1880.

To all whom it may concern:

Be it known that I, EDWARD BURNS, of Broad Ford, in the county of Fayette and State of Pennsylvania, have invented a certain new and useful Improvement in Coke-Ovens, of which the following is a specification.

My invention relates to that class of ovens or furnaces in which the volatile matters of coal are expelled, leaving the coke or carbonaceous portion.

The construction of a coke-oven embodying my improvements will first be described, and the invention designated in the claim.

In the drawings hereto annexed, Figure 1 is a front elevation of the oven. Fig. 2 is a vertical transverse section taken through line *x*, seen in Fig. 1. Fig. 3 is a plan or top view of the oven.

The letter A designates the front wall; B, the smoke-stack; C, the dome-shaped arch of the oven; *d*, a hearth, preferably circular in shape; *e*, the charging-hole in the top, provided with a suitable cover; and *f*, a door in the front wall for withdrawing the coke. The several parts thus far named are of ordinary construction.

On the exterior sides of the base of the oven, commencing at the front wall, an air-flue, *h*, extends to the rear side, forming, as seen in Fig. 3, a half-ring. These flues connect with openings *h'* in the walls, of which one is on each side of the door. The other end of the air-flues connect at the rear side with a ring-shaped smoke-flue, *i*, which, in the present instance, entirely surrounds the dome of the oven on a higher plane than the two air-flues. The inlet to the smoke-flue from the oven is shown at *n* in Figs. 2 and 3, and the ends of the ring smoke-flue, where they discharge into the smoke-stack, are shown at *q*, Fig. 3.

It will be seen the flame from the gases of the charring coal will pass out of the oven at *n* and turn in both directions to the smoke-stack. At *r* (shown in dotted lines in Figs. 2 and 3) the half-ring air-flues connect with the

smoke-flue, and the supply of air thus afforded will effect the combustion of the gases which the coal may yield.

The letter *s* designates the damper placed in the smoke-stack above the point *q*, whereat the smoke-flue enters the stack. This damper is operated at the front wall, and affords means for regulating the draft.

It will be understood this oven is intended to be partly under ground, preferably on a hillside, so as to render it easy for the coal to be hauled to the charging-hole.

The construction herein described has been demonstrated by practical operation to be well adapted for producing good coke. It is convenient for operation, and when being charged there is no escape of flame to annoy the operator.

I am aware that it is not new to mingle air and the products of distillation in the walls of a coke-furnace by means of pipes or flues passing around or through the walls of the oven, and I do not claim, broadly, means for accomplishing that result; but my invention relates to a certain arrangement of smoke and air flues, which effect the aforesaid mingling at a certain point.

Having described my invention, I claim and desire to secure by Letters Patent of the United States—

In a coking-oven, the combination of the ring-shaped smoke-flue *i*, extending horizontally around the oven, and at the rear side connected with its interior by the flame-aperture *n*, and the two air-supply flues *h*, each having its inlet at the front wall and extending around the oven below the smoke-flue, and at the rear having a connection, *r*, with the ring-shaped smoke-flue, but upon opposite sides of the flame-aperture, as set forth.

EDWARD BURNS.

Witnesses:

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