

(No Model.)

C. W. RENEAU.
FURNACE DOOR.

No. 503,875.

Patented Aug. 22, 1893.

Fig. 1.

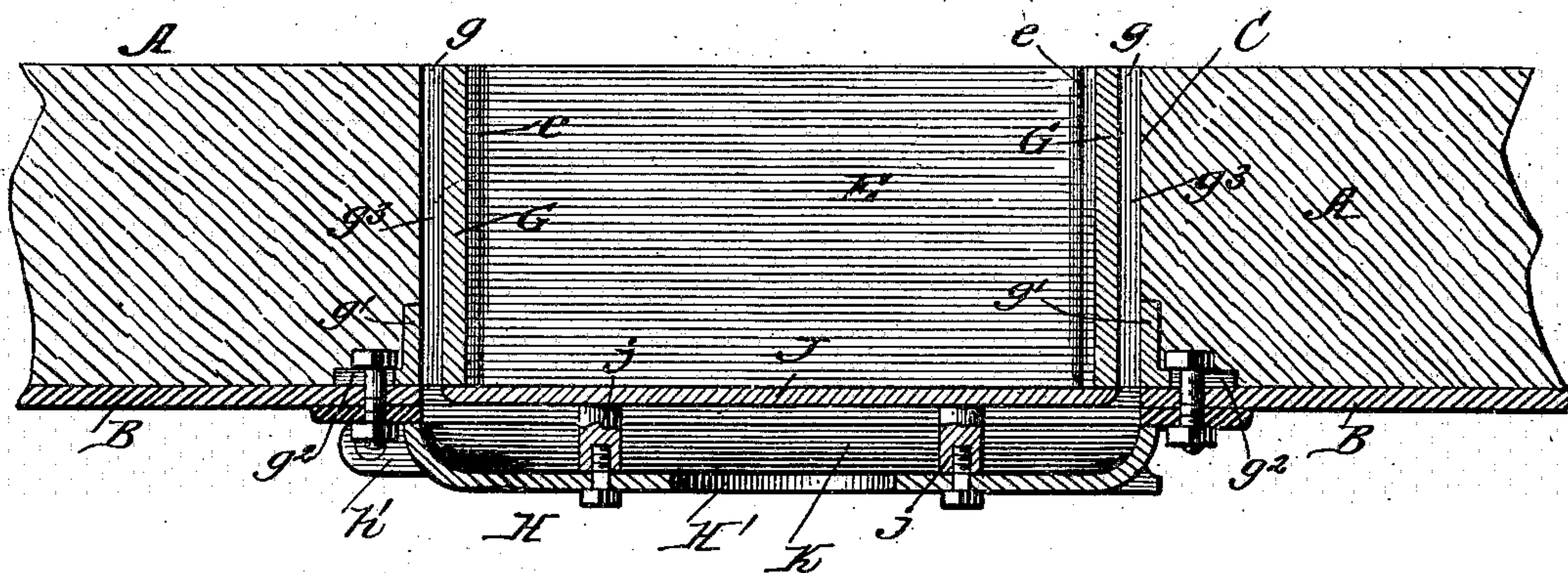
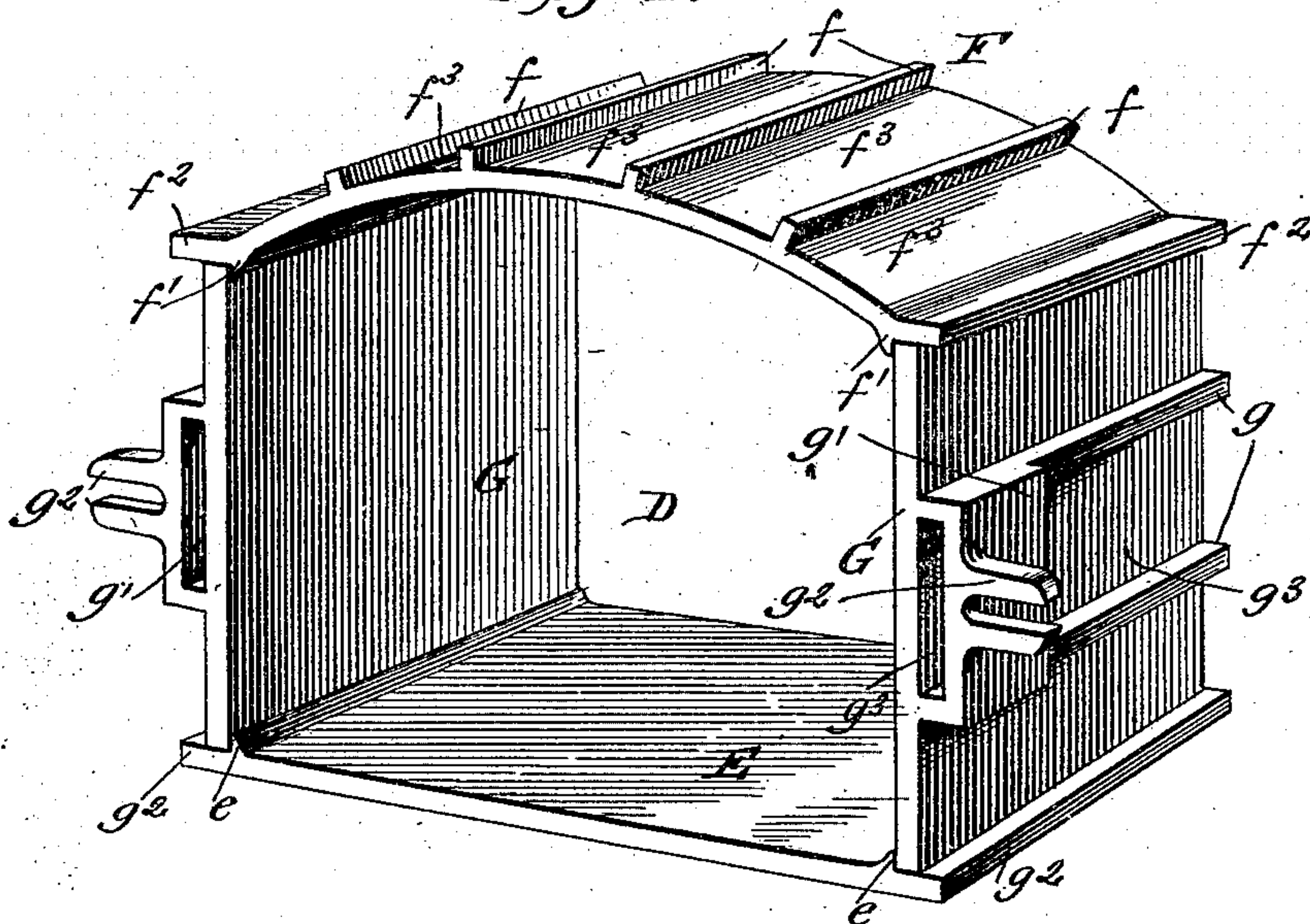


Fig. 2.



WITNESSES:

Fred G. Dietrich
W. R. Blondel

INVENTOR

Charles W. Renau

BY

Munn & Co

ATTORNEYS.

UNITED STATES PATENT OFFICE.

CHARLES W. RENEAU, OF MERIDIAN, MISSISSIPPI, ASSIGNOR OF ONE-HALF
TO JOHN A. LEWIS, OF SAME PLACE.

FURNACE-DOOR.

SPECIFICATION forming part of Letters Patent No. 503,875, dated August 22, 1893.

Application filed February 2, 1893. Serial No. 460,752. (No model.)

To all whom it may concern:

Be it known that I, CHARLES W. RENEAU, residing at Meridian, in the county of Lauderdale and State of Mississippi, have invented certain new and useful Improvements in Furnace-Doors, of which the following is a specification.

My invention relates to improvements in that class of fire doors, which have surrounding air spaces, and it has for its object to provide a door of this character in which the surrounding liners or casing portions are so constructed as to admit a free entrance of air into the fire box, at the sides of the opening.

It also has for its object to provide a lining simple and economical in its construction, and in which the sides and ends are made separable, whereby when any one of the side or end sections burns out, such sections can be quickly replaced without the necessity of removing the remaining ones.

My invention consists in the peculiar construction and novel arrangement of parts, all of which will hereinafter be fully described, in the specification and particularly pointed out in the claims, reference being had to the accompanying drawings, in which—

Figure 1 is a horizontal section of a portion of a furnace wall with my improved fire door applied, and Fig. 2 is a perspective view of the liner or casing detached.

In the accompanying drawings A indicates a portion of the fire brick wall, B the boiler front and C the door opening.

Within the opening C is disposed the liner or casing D, the construction of which is most clearly shown in Fig. 2 of the drawings, by reference to which it will be seen the same consists of a base plate E formed with transverse ribs *e* on its upper face near its ends, the crown plate F which has a series of transverse ribs *f* on its upper face, and a flange *f'* on its under face near each end, and the side plates G, which have transverse ribs *g* on their outer faces, the front ends of which are joined by vertical portions *g'* having bifurcated ears *g²* as shown.

In the practical construction of my improved door, the base plate E is set in the bottom of the opening C, the side plates G are

set with their lower edges against the end ribs *ee*, and the crown plate is slipped onto such side pieces with the ribs *f'* against the upper ends of such side plates. It will also be noticed that the ends of the crown and base plates project beyond the side plates as at *g²*, *f²*, and such projections and the ribs *g* seat against the brick wall, whereby to form air spaces *g³*, which open into the fire chamber as clearly shown in Fig. 1.

H indicates the door or shutter which has a central opening H' and lateral members *h'* whereby it is hinged or otherwise secured to the bifurcated ears *g²* of the liner.

J indicates a solid cast iron shield which has stud like portions *j* to which the door H is bolted such studs also serving to hold the casting J and the door spaced apart, whereby to form an air space K as shown. This casting J when the door is held to a closed position snugly fits over the open front end of the liner and closes the said opening. By providing the crown plate with transverse ribs, air spaces *f³* are formed between such plate and the wall.

From the foregoing description taken in connection with the drawings, it will be seen that by constructing and arranging a fire door in the manner described, effective means are provided for admitting air to the furnace, thereby obtaining a more perfect combustion than is usually secured. Furthermore by providing air spaces at the sides and top of the liners, keeps the front cool and makes the door specially adapted to close fire rooms, as on steam vessels. Finally by arranging the liner as stated and forcing the air around it and the shield as indicated by the arrows, keeps the shield protected and cool, thereby making it last for an indefinite period.

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

1. In combination with the furnace opening and a lining having transverse ribs on its sides whereby air spaces are formed between such sides and the wall of the opening, of a door or shutter, having an air inlet, and an air space opening into the air spaces at the sides of the lining and a shield adapted to cover

the interior opening of the lining all substantially as and for the purpose described.

2. The combination with the furnace opening, the liner blades E, F and G, the plates G
5 having transverse ribs g , on their outer faces such ribs connected at their front ends as at g' and formed with bifurcated ears g^2 , the door H, having an inlet H', the shield J, secured to the door, and held apart whereby an

air space K is formed, and means for securing the door to the bifurcated ears g^2 all arranged substantially in the manner and for the purposes described.

CHARLES W. RENEAU.

Witnesses:

ERNEST T. GEORGE,
J. B. MOORE.