

G. F. GALLAGHER.  
FURNACE.

No. 493,923.

Patented Mar. 21, 1893.

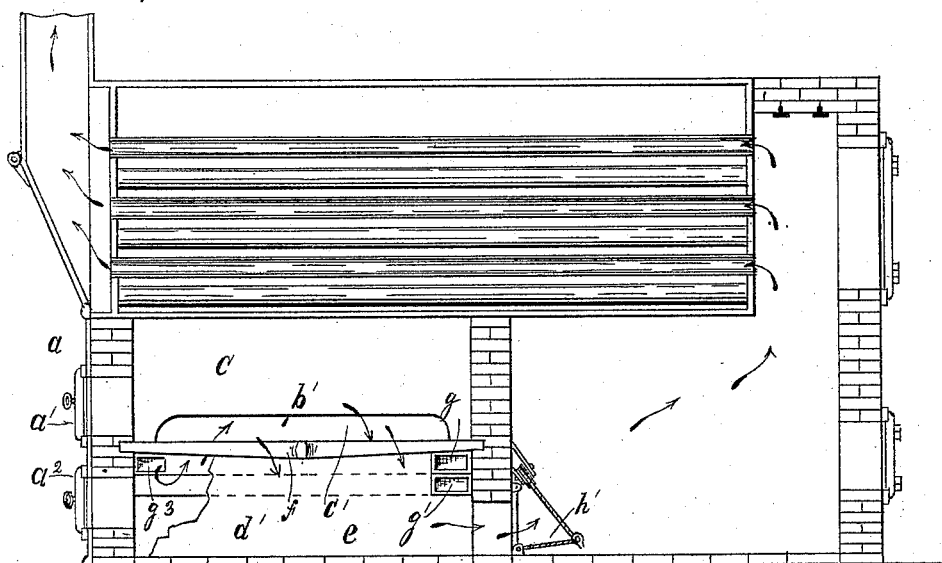


Fig. 1.

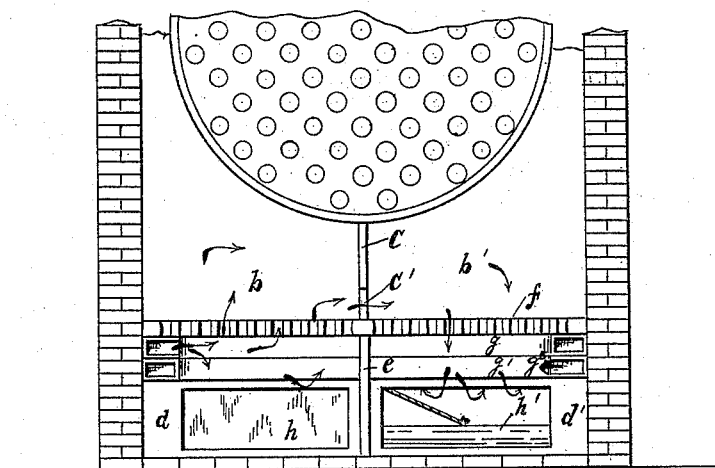


Fig. 2.

Witnesses.

Chas. Knechtel  
F. P. Forster

Inventor.

George F. Gallagher  
By

W. T. Miller  
Attorney.

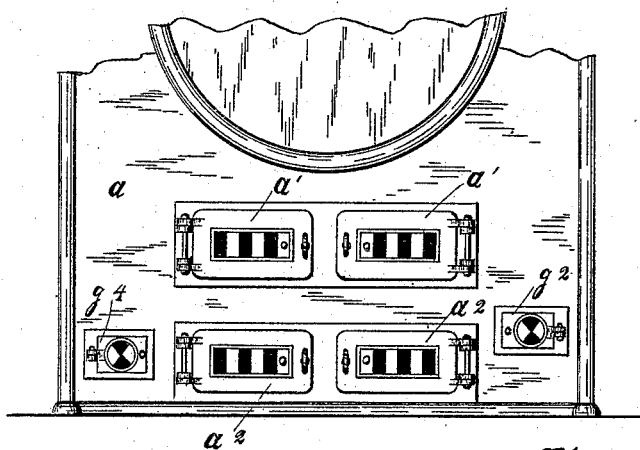
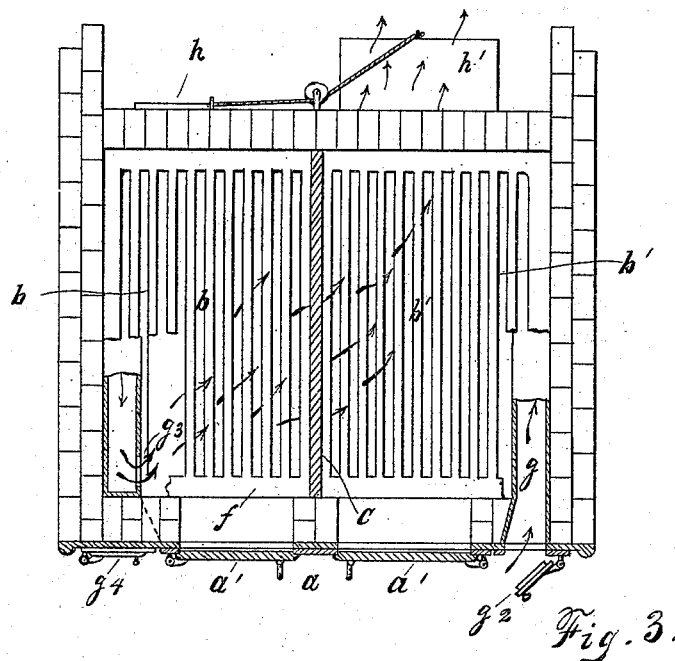
(No Model.)

2 Sheets—Sheet 2.

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Witnesses.  
Chas. Specktel,  
J. P. Krsten

Inventor.  
George F. Gallagher  
By  
W. T. Miller  
Attorney.

# UNITED STATES PATENT OFFICE.

GEORGE F. GALLAGHER, OF ROCHESTER, NEW YORK.

## FURNACE.

SPECIFICATION forming part of Letters Patent No. 493,923, dated March 21, 1893.

Application filed August 3, 1892. Serial No. 442,002. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE F. GALLAGHER, a citizen of the United States, residing at Rochester, in the county of Monroe and State of New York, have invented certain new and useful Improvements in Furnaces; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

My invention relates to that class of furnaces which are intended to consume as much as possible, the products of combustion and it consists substantially in a furnace the fire-box of which is divided into two sections by a partition wall extending partially down to the grate-bars for the passage of the products of combustion. The ash-pit is also divided into two sections by an entirely closed partition, and passages are provided below the grate-bars and leading around the upper side and rear walls of the ash-pit for the admission and heating of air.

I will now proceed to describe the manner in which these parts are assembled and operate in carrying out my invention.

In the drawings, Figure 1 is a vertical longitudinal section of my improved furnace. Fig. 2 is a vertical transverse section of the same. Fig. 3 is a horizontal section of my improved furnace with portions broken away, and Fig. 4 is a partial front view of my improved furnace.

Referring to the drawings, *a* is the furnace front (see Fig. 4), having the fire box doors *a'* and ash-pit doors *a'' a'''*.

*b b'* are the two sections into which the fire-box is divided by the partition or dividing wall *C* which extends partially down to the grate bars and has the opening *c'*. Both sections *b b'* of the fire-box are, as shown in the drawings, closed all around above the grate bars.

*d d'* are the two sections of the ash-pit formed by the closed partition or wall *e*.

*f*, are the grate bars below which and extending around the upperside and rear walls of

the ash-pit in opposite directions are the flues or passages *g—g'* of which the flue *g* starts at the door *g''* in the front of the furnace and opens at *g'''* into the front of the ash-pit. The other flue *g'* starts at the door *g''* and opens into the front of the ash-pit on the opposite side at *g'''*.

*h—h'* are adjustable doors in the rear wall of the ash-pit which are manipulated to shift the draft from one side to the other.

The construction just described is intended for alternately coking the coal on both sides of the partition *C*.

The operation of my improved furnace is as follows. The fresh coal to be coked is placed upon the fire in the section *b*, and the door *g''* of the passage *g*, being opened the draft passes through the passage *g*, to the opening *g'''* in the front of the section *d* of the ash-pit. The air heated in its passage to the opening *g'''* is drawn up through the grate bars and fuel into the section *b* of the fire-box across the fire-box and down through the fuel and grate-bars of the opposite section into the section *d'* of the ash-pit, thence out through the open door *h'* where it passes through the flues of the boiler. When coal is to be coked on the other side of the fire-box the operation is simply reversed by closing the door *g''* and opening the door *g''*, which will admit the air into the passage *g'* to the opening *g'''* at the front of the ash-pit where it will pass up through the grate bars into the section *b'* of the fire-box then across over into the section *b*, and down through the grate-bars into the section *d*. The door *h* being opened and the door *h'* closed the draft will pass out through the door *h* where it passes through the flues of the boiler.

I claim—

1. A furnace having a closed fire-box centrally divided by a partition extending part way to the grate-bars having a space between the grate-bars and the partition, for the passage of the products of combustion, an ash-pit divided centrally by a closed partition and adjustable doors in the rear wall of each section of the ash-pit for controlling the direction of the draft all combined and operating substantially as and for the purpose stated.

2. A furnace having a closed fire-box centrally divided by a partition extending part way to the grate-bars having a space between the grate-bars and the partition, and ash-pit  
5 divided centrally by a closed partition, for the passage of the products of combustion air passages located in the ash-pit below the grate-bars and adapted to conduct air from the outside to the rear of the ash-pit and thence to the  
10 front of the same where it is discharged in the front of the ash-pit and adjustable doors

in the rear walls of each section of the ash-pit for controlling the direction of the draft, all combined and operating substantially as and for the purpose stated.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

GEORGE F. GALLAGHER.

Witnesses:

G. H. SHOENBERGER,  
EDWARD N. WILSON.

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