

(No Model.)

J. FRODSOM & A. McLINDEN.
AIR FEEDING DEVICE.

No. 417,913.

Patented Dec. 24, 1889.

Fig - 1 -

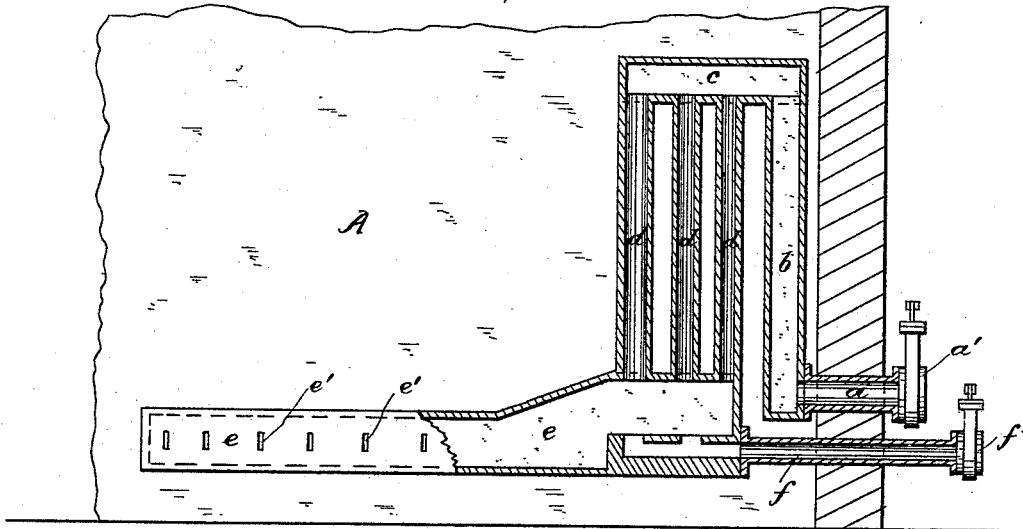
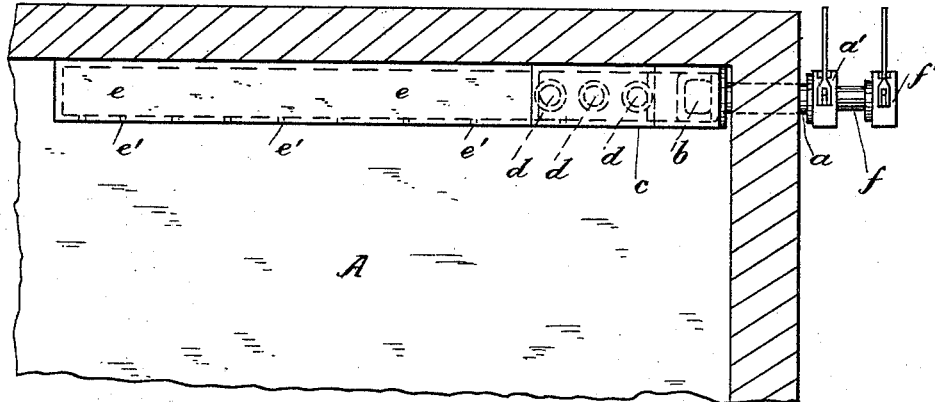


Fig - 2 -



WITNESSES

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UNITED STATES PATENT OFFICE.

JOHN FRODSOM AND ANDREW McLINDEN, OF MARYPORT, COUNTY OF CUMBERLAND, ENGLAND.

AIR-FEEDING DEVICE.

SPECIFICATION forming part of Letters Patent No. 417,913, dated December 24, 1889.

Application filed June 10, 1889. Serial No. 313,727. (No model.) Patented in England August 13, 1888, No. 11,631.

To all whom it may concern:

Be it known that we, JOHN FRODSOM and ANDREW McLINDEN, residing at Maryport, in the county of Cumberland, England, have
5 invented certain new and useful Improvements in Devices for Admitting Air to Furnaces, (for which we have obtained a patent in England, No. 11,631, dated August 13, 1888,) of which the following is a specification.

10 This invention relates to heating and distributing a supply of air in the combustion-chamber of a furnace; and it consists in the novel combination of parts hereinafter fully described and claimed, whereby the combustion in said chamber is rendered more perfect.

15 In the drawings, Figure 1 is a longitudinal section through the apparatus, showing portions of the combustion-chamber. Fig. 2 is a plan view of the apparatus from above, also showing portions of the combustion-chamber.

A is the combustion-chamber, which may be of any approved form. This chamber is
25 filled with burning gas, the heat of which may be applied to heating water contained in a boiler or air contained in pipes or flues, as required for blast-furnaces. The inflammable gas is introduced into the chamber in
30 any approved manner, and may be supplied with air to support combustion at various points, or air may be blown into the chamber through one or more pipes connected to the hot-blast pipes. As these parts are all
35 of ordinary construction, and as they do not form an essential part of the present invention, although used in conjunction with it, they are not shown in the drawings. An inlet-pipe *a* is provided with a regulating-
40 valve *a'* outside the combustion-chamber, and to the pipe *a* is connected the cold-air pipe *b*, which is placed inside the furnace or in the furnace-wall in such position as not to be subjected to any very great heat. The
45 air enters through pipe *a* and passes through pipe *b* into the receiving-chamber *c*. A series of pipes *d* connect the chamber *c* with the distributing-chamber *e*, and these pipes *d* are arranged in the combustion-chamber,
50 so that they are subjected to considerable heat. The chamber *e* is provided with a series of perforations *e'* upon one side of the

point of connection with it of the said pipes *d*, and *f* is a cold-air-inlet pipe connected directly with the chamber *e* upon the other
55 side of the point of connection of the pipes *d*. A valve *f'* serves to regulate the inlet of cold air into the pipe *f*, which communicates therethrough with the air outside the furnace.

The apparatus can be made in duplicate
60 and applied to each side of a furnace, and its various parts can be differently arranged to adapt themselves to the shape of the furnace. More than one pipe *b* may be used, if desired, and as many pipes *d* as required
65 may be used; the greater the number and length of pipes *d* the more finely will the air be divided up and the hotter it will become before issuing into the combustion-chamber. The heated air passes out of the
70 perforations *e'* in finely-divided streams into parts of the furnace where air is usually lacking, and it thus insures a much more perfect combustion of the whole body of the gas in the combustion-chamber. When the
75 air issuing through perforations *e'* is too hot, the valve *f'* may be opened slightly to permit some cold air to enter the chamber *e* without passing through the heating-tubes *d*.

What we claim is—

80 The combination, with a combustion-chamber, of a cold-air-inlet pipe provided with a valve outside the combustion-chamber, a cold-air pipe connected directly with said
85 inlet-pipe, a cold-air receiver arranged inside the combustion-chamber and connected to said cold-air pipe, a second cold-air pipe provided with a valve outside the combustion-chamber, a distributing-chamber provided with a series of perforations and di-
90 rectly connected with said second inlet-pipe, and a series of pipes freely exposed to the burning gas in the combustion-chamber and connecting the cold-air receiver with the
95 said distributing-chamber at a point intermediate between the second cold-air inlet and the said series of perforations, substantially as and for the purpose set forth.

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Witnesses:

WM. HOBSON,
EDWD. TYSON.