F. P. DIMPFEL.

Furnace.

No. 167,441. Patented Sept. 7, 1875.

Fig. 1

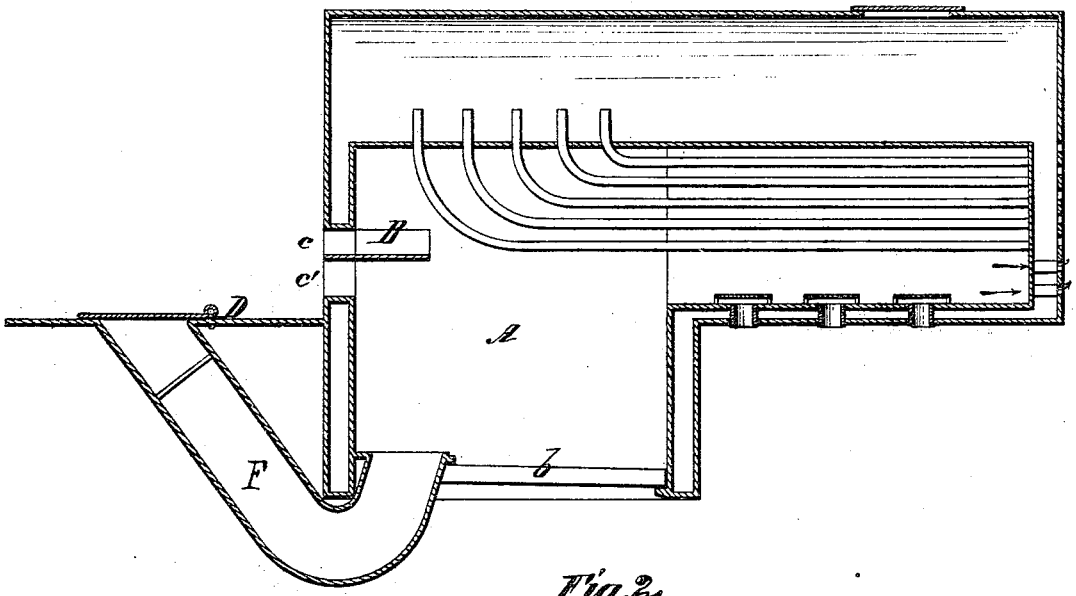
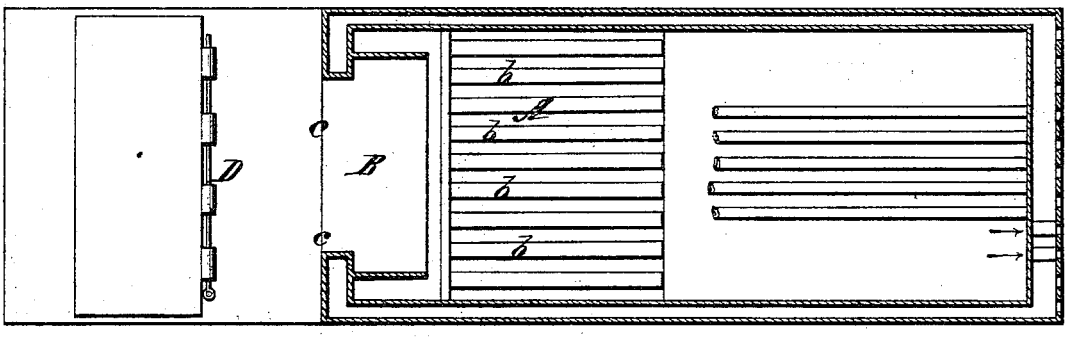


Fig. 2.



Witnesses.
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UNITED STATES PATENT OFFICE.

FREDERICK P. DIMPFEL, OF BALTIMORE, MARYLAND.

IMPROVEMENT IN FURNACES.

Specification forming part of Letters Patent No. **167,441**, dated September 7, 1875; application filed July 1, 1875.

To all whom it may concern:

Be it known that I, FREDERICK P. DIMPFEL, of the city and county of Baltimore and State of Maryland, have invented a mode of effecting the more perfect combustion of fuel, and preventing waste of same; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making part of this specification.

The nature of my invention relates to the preparing of the raw fuel before it is thrown upon the fire-bed of a furnace, and for rendering a fresh charge of fuel into such preliminary condition as shall conduce to its economical and better combustion when thrown upon the incandescent mass. And my invention consists in adapting to furnaces a means for heating the fuel previous to its being thrown on the fire, which fuel, being previously heated, will readily ignite, while those particles of comminuted coal will be consumed which ordinarily are carried off by the draft unconsumed under the old mode of supplying fuel to a furnace.

To illustrate my invention I have shown it applied to the furnace of a locomotive of well-known construction, of which Figure 1 is a vertical, and Fig. 2 a horizontal longitudinal, section.

In these views, A indicates the furnace; *b*, the ordinary fire-bed, and D the foot-board, of a locomotive, and *c'* the ordinary opening of the fire-door. B represents a platform or shelf attached to the front wall of the furnace and projecting inwardly therefrom over the fire-bed *b*, as shown.

This platform B, which serves as a supplemental fuel-receptacle, may be constructed horizontal, as represented in the drawings, or it may be made dishing or convex, or in any other form adapted to sustain thereon a sufficient quantity of fuel to constitute a charge for the fire-bed of the furnace, provided the fuel is exposed to the action of fire at the top, and the platform is adapted for bearing the intense heat which it is subjected to in a furnace requiring a strong draft. Access to this platform is had through the opening *c*, which, as well as the opening *c'*, is closed with a door.

The operation is as follows: A fire having been kindled upon the fire-bed *b* of the furnace A, the requisite quantity of coal to supply the fire-bed with additional fuel is placed upon the platform B, after which the openings *c* and *c'* are closed. As the fire in the furnace A proceeds, the intense heat generated by the mass of incandescent fuel upon the fire-bed thoroughly heats all portions of the fuel—both large and small—placed upon the platform B, and, as the draft does not pass through the platform B, the gases evolved from the thus heated coal become ignited and consumed in the furnace A, instead of being carried off, as is now the case when the supply-fuel is thrown directly upon the fire-bed of the furnace. The fuel upon the platform B thus becoming heated to a high temperature, is in a condition to readily ignite when cast upon a bed of burning fuel. When this condition of the fuel upon the platform B has been reached, the attendant, with any proper implement therefor, shoves the charge off from the platform onto the burning mass upon the grate *b* below.

By this mode of supplying fuel to furnaces—no matter what kind of furnace it may be—fuel may in full charges be supplied to the fire-bed, which charges, at the instant of supply, are prepared to ignite and be consumed without materially checking the fire already burning upon the fire-bed of the furnace. By this mode of supply it will also be seen that the charges of coal will not be subjected to the strong draft of the fire until they have been prepared for ignition, and thus that the fine particles of coal and gases will be more readily ignited and thoroughly consumed.

In Fig. 1 of the drawings, F shows a coal-feed to the fire-bed *b* of the furnace A; but this feature I do not claim under this application.

What I claim is—

The supplemental bed B, for holding the supply-fuel for the fire, constructed and applied to have the fuel exposed to the direct action of the fire without having the draft pass through the supply-fuel previous to its being placed upon the fire-bed proper.

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Witnesses:

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