(No Model.)

H. MASON.

FEEDING LIGHT FUEL.

No. 261,864. Patented Aug. 1, 1882.

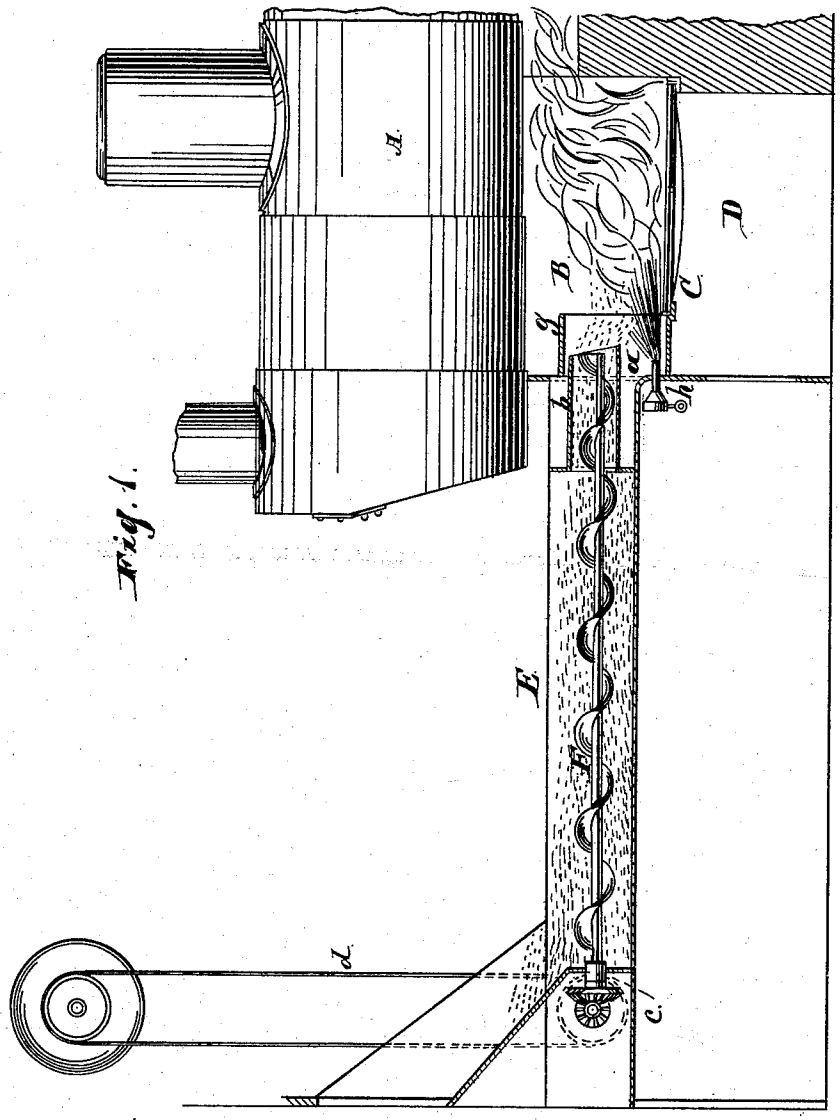


Fig. 1.

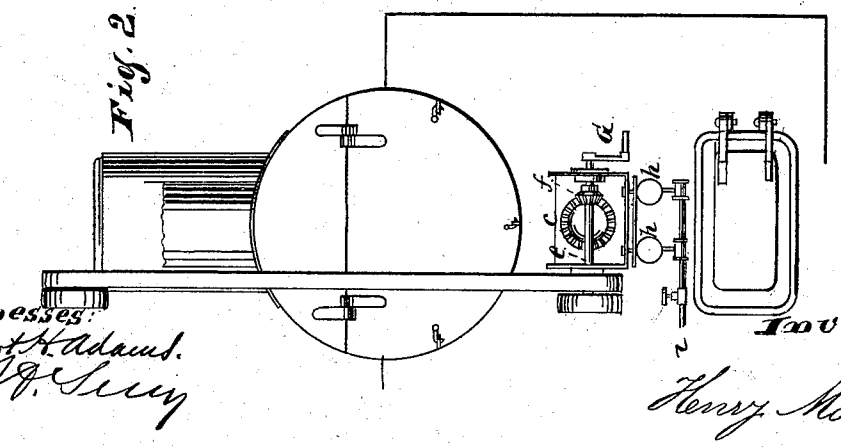


Fig. 2.

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UNITED STATES PATENT OFFICE.

HENRY MASON, OF CHICAGO, ILLINOIS.

FEEDING LIGHT FUEL.

SPECIFICATION forming part of Letters Patent No. 261,864, dated August 1, 1882.

Application filed February 8, 1882. (No model.)

To all whom it may concern:

Be it known that I, HENRY MASON, residing at Chicago, in the county of Cook and State of Illinois, and a citizen of the United States, have invented new and useful Improvements in Feeding Light Fuel to Furnaces, of which the following is a full description, reference being had to the accompanying drawings, in which—

Figure 1 is a longitudinal vertical section, some parts being shown in elevation. Fig. 2 is an end elevation.

This invention relates to improvements in the means employed to feed light fuel to the fire-chamber of a boiler or other furnace, and has for its object to perfect the feed of the fuel and insure its proper distribution to various parts of the fire-chamber by means of simple and efficient mechanism.

The invention is clearly illustrated in the accompanying drawings, and the improvements will be fully hereinafter described in detail, and specified in the claim.

In the drawings, A represents a steam-boiler; B, the fire-chamber for a furnace; C, the grate; D, the ash-pit.

E is a tube or delivery-spout, through which the light fuel is delivered to the fire-chamber. The inner end of this tube covers a suitable opening, *a*, in the front wall of the fire-chamber. Within the tube E, and at the inner end thereof, is a short and smaller tube, *b*.

F is a screw-feed located in the feed-tube E, the outer end of which is supported in a suitable bearing, and, as shown, is provided with a beveled-gear wheel, *c*. The inner end of the screw-feed is supported, as shown, in the small tube *b*. This screw-feed F is to be driven in any suitable manner. As shown, it is driven by means of a belt, *d*, which drives the shaft *e*, upon which is a small beveled pinion, *f*, engaging with the wheel *c*. As shown, there is a short tube or chamber, *g*, located within the fire-chamber at the opening through which the fuel is delivered.

h h' are two short tubes, through each of which a jet of steam or air, or both, is delivered into the fire-chamber, as shown in Fig. 1, the steam being supplied, as represented, through the pipe *i*, the air, when used in connection with steam, being being drawn in by the action of the steam-jet in the usual manner. I think it advisible that at least two of the jets be used with each delivery-tube E. A single delivery-tube may be used with each fire-chamber; or two or more may be so used, if desired, when the furnace is large. The tube through which the steam or air is delivered is to be located so that the light fuel will fall into or be acted upon by the jet, as shown in Fig. 1.

The operation is as follows: The light fuel is to be delivered in any suitable manner into the delivery-tube E, at or near its outer end, and such fuel will be conveyed by the screw-feed and be delivered through the inner end of the short tube *b* into the fire-chamber, and, being acted upon by the jet of air or steam, the fuel will be blown and distributed to various parts of the fire-chamber, and will be mingled with the air or steam, or both, and will be consumed as fast as fed to the furnace, producing a steady heat and nearly-uniform temperature in the furnace.

I have found it desirable in practice to use the small tube *b* instead of delivering the fuel from a tube having its inner end as large as the body of the main delivery-tube E. The tubes E and *b* must be of a suitable capacity for delivering the required amount of fuel, and the speed of the screw-feed F must be adapted to the rapidity with which the fuel is to be fed. The devices for feeding the fuel can be arranged so that they can be stopped at any time, if desired.

I provide a crank, G, by means of which the shaft *e* can be rotated, if desired, the object of this being to supply the light fuel to the furnace when the fire is first started and before steam sufficient has been generated to drive the mechanism.

I do not limit myself to the use of the screw-feed F. A plunger might be used for forcing the fuel into the furnace; but it is my opinion that the screw-feed will be the most efficient and will act more uniformly.

My invention has been in actual use long enough to demonstrate its practical utility.

The delivery-spout and the air or steam jets might be arranged at the side of the furnace; but when practicable I prefer to locate them at the front.

When only light fuel is used it is not necessary to provide grate-bars.

Light fuel has heretofore been fed and dis-

tributed in the fire chamber of a furnace by means of a hopper, a feed-conveying tube, and a fan-blower for forcing the fuel through the tube, also by means of hollow cups located inside the furnace, to which the fuel is supplied, said cups being connected with steam or blow pipes, so that the fuel would be thrown over the grate-bars in the fire-chamber; but such means of feeding and distributing the fuel do not constitute my invention.

What I claim as new, and desire to secure by Letters Patent, is as follows:

The combination, with a furnace, of a fuel-delivery conveyer or tube, E, having a contracted end or smaller tube, *b*, opening directly into the fire-chamber, a screw arranged in the fuel-delivery conveyer or tube, and having one end supported in the contracted end or smaller tube thereof, and an air or steam jet arranged below the delivery-mouth of the said contracted end or smaller tube, substantially as and for the purposes described.

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Witnesses:
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