

Car Heater.

Patented March 30, 1858.



UNITED STATES PATENT OFFICE.

T. DWIGHT INGERSOLL, OF MONROE, MICHIGAN.

AIR-HEATING FURNACE.

Specification of Letters Patent No. 19,781, dated March 30, 1858.

To all whom it may concern:

Be it known that I, T. DWIGHT INGERSOLL, of Monroe, in the county of Monroe and State of Michigan, have invented a new and useful Improvement in Air-Heating Furnaces; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1, is a vertical central section of a furnace showing my improvement (*x*), (*x*), Fig. 2 indicating the plane of section. Fig. 2, is a plan or top view of ditto. Fig. 3, is a horizontal section of ditto, taken in the line (*y*) (*y*) Fig. 1. Fig. 4, is a detached transverse section of a damper.

Similar letters of reference indicate corresponding parts in the several figures.

This invention consists in arranging the radiators and dampers of a furnace in such a way that the dampers may be made to perform the double function of dampers and scrapers and the radiators thereby kept perfectly clean with the greatest facility.

To enable those skilled in the art to fully understand and construct my invention I will proceed to describe it.

A, represents the case or body of the furnace, and B, is a cylindrical radiator or drum which is placed above the furnace and communicates with it by two flues C, D. The flue C, is cylindrical, but the flue D, has two parallel sides with semi-circular ends a transverse section forming an oblong as shown clearly in Fig. 3.

E, is an air-heating chamber, which is of circular form and fitted horizontally within the radiator B. This air-heater is quite shallow and communicates with the external air by means of passages (*a*), the orifices of which project through the side of the radiator B. A passage (*b*) is made through the chamber E, said passage being in line and corresponding in form with the flue D, and F, is a smoke pipe which communicates with the upper part of the radiator B.

G, is an arbor which passes vertically through the radiator B, and air-heating chamber E. This arbor is allowed to turn freely within them. On this arbor G, two dampers H, I, are placed, one directly over the other and in the same plane, as shown clearly in Fig. 1. These dampers are

formed of flat metal plates of a rather greater width and length than the orifice of the flue D, as shown clearly in Fig. 3, both dampers being constructed precisely alike, and each having a vertical flanch (*a*^x) at their sides. The damper H, is placed directly over the bottom plate (*c*) of the radiator B, and the damper I, is placed directly over the top plate (*d*) of the air-heating chamber E, as plainly shown in Fig. 1.

To the upper end of the arbor G, a wheel J, is attached, and one end of a rod K, is attached to one side of this wheel, the opposite end of the rod being connected by a pin (*e*) to the upper end of a vertical rod (*f*), the lower end of which forms the joint rod of the door L, of the furnace.

The operation is as follows: The products of combustion pass up through the flue C, through the radiator B, and through the passage (*b*) which is made through the air-heating chamber E, and also up between the edge of the chamber E, and the inner sides of the radiator, the chamber E, being somewhat less in diameter than the radiator, the products of combustion pass through the pipe F into the flue. The damper H, works directly over the orifice of the flue D, and the damper I, works over the upper orifice of the opening (*b*), and it will be seen that as the door L, is opened and closed the dampers H, I, will work or move over the orifices of the flue D, and passage (*b*), keeping the orifices of said passages perfectly free from soot or dirt the dampers closing the flue D, and passage (*b*) when the door is closed, and moved free or off from the orifice as the door is opened to prevent the escape of smoke or gas into the room. By detaching the rod K, from the rod (*f*), the dampers H, I, may be turned completely around so that all the soot and dirt may be loosened and scraped so as to pass down the flues C, D.

By this invention much labor will be saved, for it is extremely difficult to clean many forms of radiators it being impossible to render their interiors very accessible, but by having the dampers arranged so as to operate as herein shown, the radiator may be kept in a perfectly clean state.

The flues may be arranged in any proper way, one or more being used. One or more dampers may be employed as may be de-

sired. I do not confine myself to any particular number of flues or dampers.

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

Constructing the radiator B, and arranging the dampers H, I, within it, substantially

as shown, so that the dampers may perform the double function of dampers and scrapers as set forth.

T. DWIGHT INGERSOLL.

Witnesses:

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