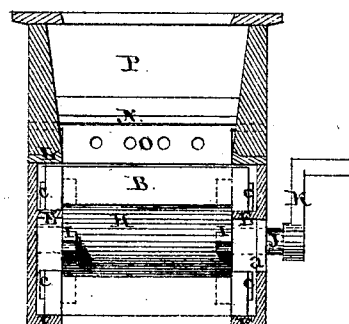
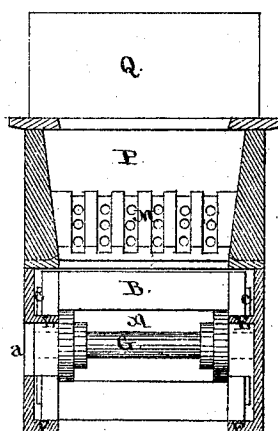
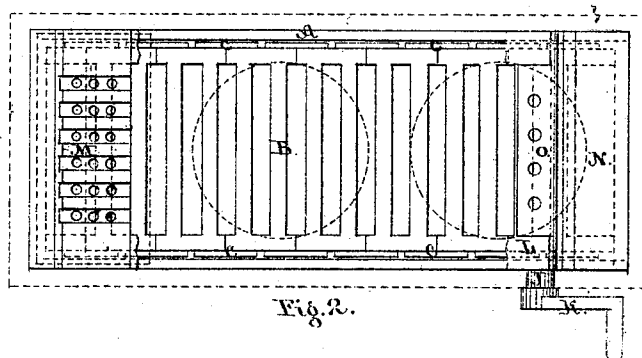
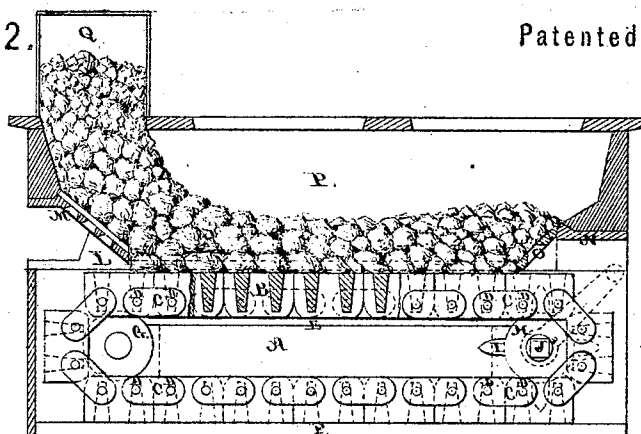


Royal F. Weller's
GRATE.

No. 118,762.

Patented Sep. 5, 1871.



William H. Lorr
James Pettit

Witnesses.

Royal F. Mellen

UNITED STATES PATENT OFFICE.

ROYAL F. WELLER, OF ALBANY, NEW YORK.

IMPROVEMENT IN FIRE-GRATES.

Specification forming part of Letters Patent No. 118,762, dated September 5, 1871.

To all whom it may concern:

Be it known that I, ROYAL F. WELLER, of the city and county of Albany and State of New York, have invented certain improvements in grates for burning coal, &c., in stoves, heaters, steam-boilers, furnaces, and in any kind or style of furnace to which it may be adapted, of which the following is a full and exact description, reference being had to the accompanying drawing making a part of this specification, in which—

Figure 1 is a longitudinal section through the casing and fire-chamber in the direction of their lengths for the purpose of more clearly showing the internal arrangements. Fig. 2 is a plan view of the grate and its accessories, and Figs. 3 and 4 transverse sectional views of each end.

My invention relates to grates formed by attaching a series of sections together with links after the manner of an endless chain; and consists in devices to prevent waste of the finer portions of the fuel, to prevent clogging and injury of the grate, and to deliver and keep the fuel in proper position upon it.

A is the casing, of a rectangular form, having a draught-hole, *a*, through the frontplate. B is the grate, consisting of a number of sections, of one, two, or more bars. The outer sides of the bars of these sections are made of a rounded form for the purpose of preventing the refuse particles of fuel from clogging between the sections as they pass around the drum H. These sections are fastened together by means of the links CC, which turn upon the pins D D. These pins are of wrought-iron, inserted in the molds in their proper places and having the grate-sections cast upon them. At the top and bottom of the casing the sections of the grate slide upon and are held in a horizontal position by the ribs E E and F F. At one end of the casing the sections of the grate pass around the drum G, the heads of which fit between the ends of the sections and guide them sidewise. At the other end of the casing the sections pass around the drum H, the body of which is constructed to conform to the shape of the under side of the grate-sections for the purpose of sustaining them against injury from the slate or clinkers that may be carried between the bars and the plate N. It (the drum H) is provided with the projections I I to pass into the spaces between the bars of the grate. A prolongation of the shaft J of this drum passes through the front

of the casing and receives the hand-crank K, whereby motion is imparted to it. L is the top plate of the casing, covering the ends of the sections of the grate and their links, so as to prevent the dust and ashes from dropping into them and impeding the motion of the grate. At one end of it (the top plate L) the ribbed and perforated plate M is attached in an inclined position, as shown, leaving sufficient space between them for the free passage of air into the perforations. At the other end the bridge-plate N is attached, leaving ample space beneath it for the passage of air into the perforations of the hinged perforated plate O, and (when this latter plate is raised for the purpose) to allow the coals and cinders contained in the fire-chamber to be carried out therefrom by the forward movement of the grate. P is the fire-chamber, of a rectangular form, to the top plate of which and at the end directly over the plate M the feeder or magazine Q for containing the fuel is attached. The hinged plate O may be made without the perforations when desirable; but preferably I construct it as hereinbefore described.

The fire should first be lighted upon the plate M, and as the fuel becomes ignited a gradual movement forward of the grate covers the whole of its surface to the extent of the fire-chamber with the burning coals. This motion may be continued until a proper depth of fuel is obtained, which is effected by the "banking up" of the fuel caused by the obstruction presented to its passage by the plate O. When it is necessary to raise this plate in order to empty the fire-chamber the crank K is turned backward, carrying the fuel upon the grate away from the plate, permitting it to be raised freely, and then, upon again turning the crank forward, the grate carries the contents of the fire-chamber out beneath the bridge-plate, where they may be collected in proper receptacle. A partial cleansing of the fire from the ashes may be effected by giving the grate a short and quick movement forward and backward, and the ashes dropping through the grate may be collected in a pan inserted in the draught-hole *a*.

What I claim as my invention is—

1. The grate B, consisting of sections, constructed as herein described, in combination with the links C C and pins D D, when arranged as and for the purposes herein specified.

2. In combination with the grate B, the perforated plate M, as and for the purpose herein set forth.

3. The hinged perforated plate O, in combination with the grate B, as and for the purpose herein described.

4. The drum H, having its body constructed to conform to the shape of the under side of the grate-sections, as herein described, and for the purposes set forth.

5. The combination of the grate B, drum H,

and perforated plate M, when constructed and arranged as herein described, and for the purposes specified.

6. In combination with the grate B and links C C, the top plate L of the casing, as and for the purpose herein described.

ROYAL F. WELLER.

Witnesses:

WILLIAM H. LOW,
JAMES PETTIT.