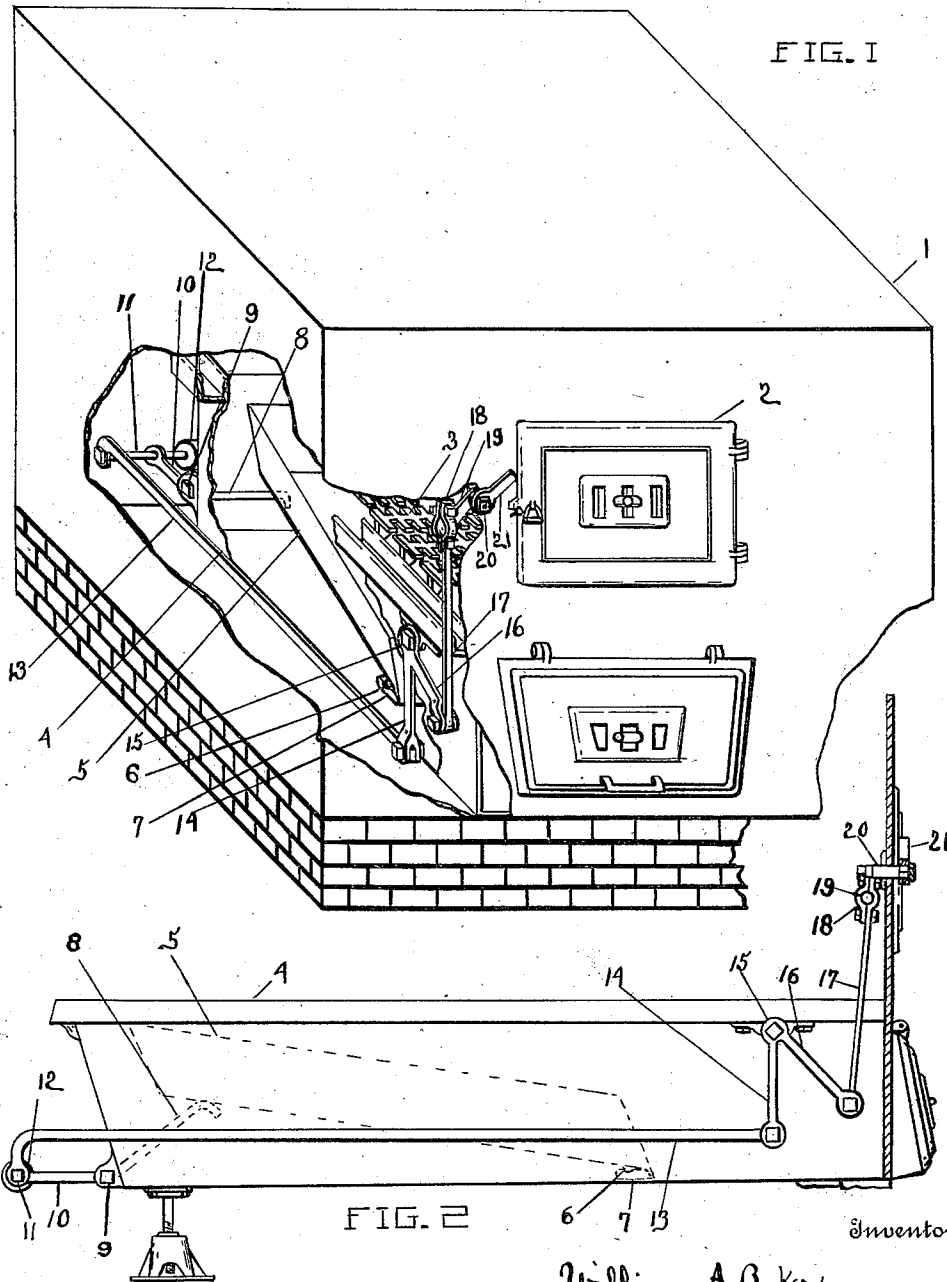


W. A. BAKER.
GRATE PROTECTOR.
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1,044,970.

Patented Nov. 19, 1912.



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WILLIAM A. BAKER, OF TOLEDO, OHIO.

GRATE-PROTECTOR.

1,044,970.

Specification of Letters Patent.

Patented Nov. 19, 1912.

Application filed January 4, 1912. Serial No. 669,388.

To all whom it may concern:

Be it known that I, WILLIAM A. BAKER, a citizen of the United States, residing at Toledo, Lucas county, Ohio, have invented
5 new and useful Grate-Protectors, of which the following is a specification.

This invention relates to a device for preventing the burning out of grates in solid fuel furnaces.

10 This invention has utility when connected up as a mechanism operated by ash accumulation to lock a portion of the furnace movable in normal use of the furnace.

Referring to the drawings: Figure 1 is
15 a perspective view with parts broken away showing an embodiment of the invention therein; and Fig. 2 is a fragmentary side elevation of the device as embodied in the structure in Fig. 1.

20 The furnace 1 is provided with the fire door 2 freely movable in normal operation of the furnace for charging the combustion chamber with fuel upon the grate bars 3 above the ash pit 4. Disposed in an inclined
25 position in the ash pit and extending under that portion of the grate which is subjected to the greatest usage is an inclined member or auxiliary pan 5 having at its lower forward end a rocker bearing 6 resting on a
30 seat 7 transversely of the ash pit or primary ash pan 4. The after end of the member 5 is normally held in a lifted position by one or more arms 8 pivoted at 9 and having rigid with each thereof arm 10 connected
35 to bar 11 having counterweight 12 thereon to maintain the pan 5 lifted against slight loading with ashes. As there is ash accumulation in the member 5, counterweight 12 is overcome and the pan 5 settles, thus rock-
40 ing the angle lever 8, 10, to throw the bar 11 and thus cause link 13 to rock the arm 14 provided with pivot 15 and having rigid therewith the arm 16 so that arms 14, 16, form an angle lever. This rocking of the
45 angle lever 14, 16, pushes upward the link 17 having ball joint 18 connected to arm 19 fixed to pin 20 extending through the furnace front and having rigid therewith the arm 21 which by this movement is
50 rocked to swing in front of the edge of the fire door or movable furnace member 2 and thus hold the fire door in locked position until the ashes are removed from the pan 5 and the mechanism operates to lift the
55 pan up and simultaneously move arm 21 to unlock the fire door 2. By this device the

fireman has an indicator outside the furnace directly telling him whether or not his ash pit needs cleaning and the mechanism is all disposed within the furnace so that
60 it may not be tampered with during normal furnace operation. There is accordingly insured a furnace with a freedom from neglect of removing ashes from the pan so that there need not be ash accumulation to
65 radiate heat below the grate bars and thus destroy them. There is further an avoidance of reduced air space between the ash accumulation in the ash pit and the grates above, thus additionally preventing deterioration of both grates and linings from this
70 source.

What is claimed and it is desired to secure by Letters Patent is:

1. The combination of a fire pot provided
75 with a fuel feed opening, a fire door for said opening, a grate in the fire pot, an ash pit below the grate and means in the ash pit normally disconnected from the fire door and movable by a predetermined
80 amount of ash accumulation in the ash pit to preclude opening of the fire door, whereby the grate is protected from the accumulation of any undue amount of ash in the
85 ash pit.

2. The combination in a furnace of a fire pot provided with a fuel feed opening, a door for said opening, a grate in the fire
90 pot, an ash pit below the grate, ash accumulation actuated means in said ash pit, and connections from said means operable by said means receiving a predetermined
95 amount of ash accumulation, and a lock for the door, to which lock said connections extend, said connections being concealed within the furnace during assembled furnace
100 operation, whereby the means, connections and lock may protect the grate from the accumulation of any undue amount of ash in the ash pit.

3. The combination in a furnace of a fire pot provided with a fuel feed opening, a grate in the fire pot, a movable ash receiving
105 member below the grate, a lock actuable by the member, a movable furnace member normally independent of the lock disposed by its movement to permit supply of fuel to the fire pot through said fuel feed opening, said lock movable by a predetermined
110 amount of ash accumulation in the ash receiving member to engage and hold said movable furnace member to preclude move-

ment thereof, whereby the grate is protected from the accumulation of any undue amount of ash in the ash receiving member.

4. The combination in a furnace of a fire
5 pot provided with a fuel feed opening, a fire
door for said opening, a grate in the fire
pot, an ash pit below the grate, an auxiliary
ash pan in the ash pit, a counterweight for
poising the auxiliary ash pan, a lock for the
10 door, and linkage connection from the auxiliary ash pan to operate the lock by a pre-

determined amount of ash accumulation settling the auxiliary ash pan, whereby the grate is protected from the accumulation of any undue amount of ash in the ash pit. 15

In testimony whereof I affix my signature in the presence of two witnesses.

WILLIAM A. BAKER.

Witnesses:

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."