C. W. LEITENBERGER.

FUEL SUPPLY CONTROLLER.

APPLICATION FILED APR. 5, 1910.

990,053. **Patented Apr. 18, 1911.**

Fig. 1.

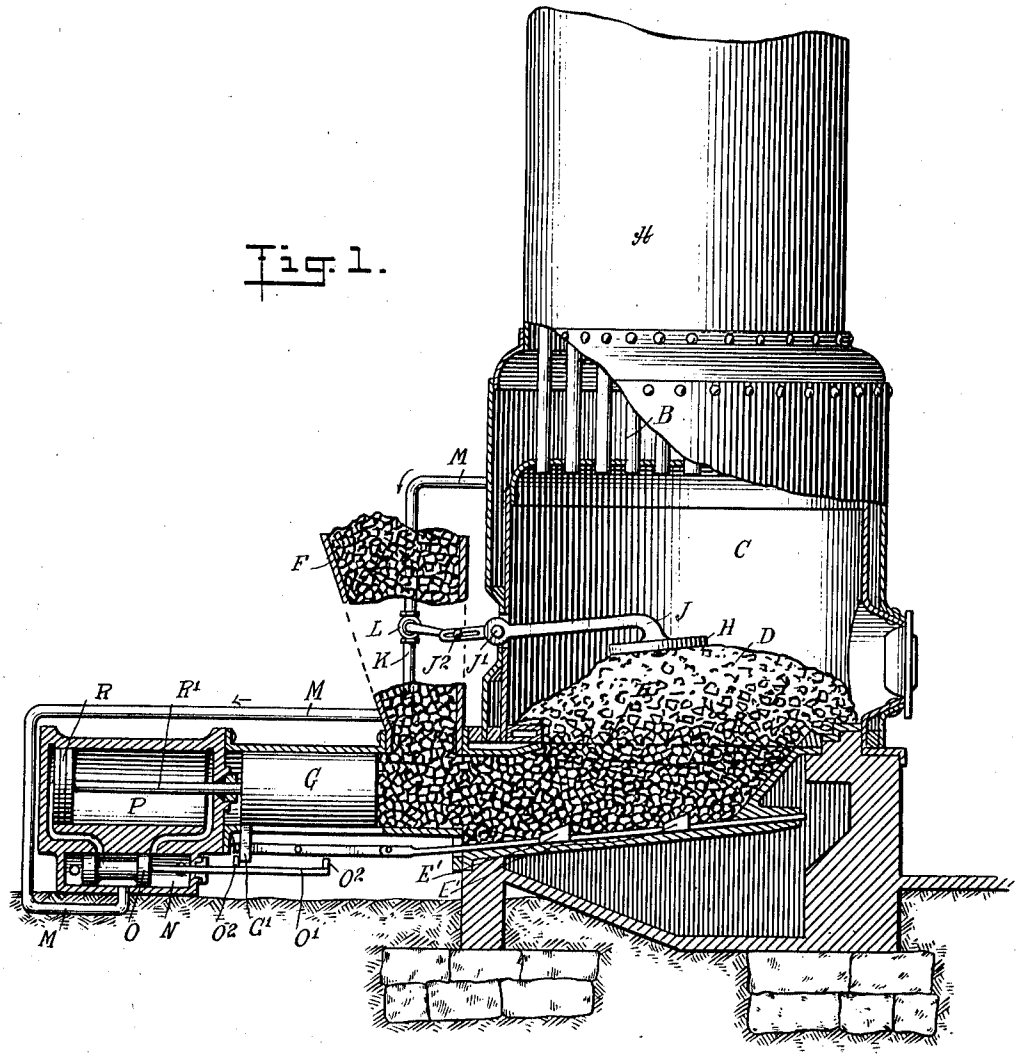
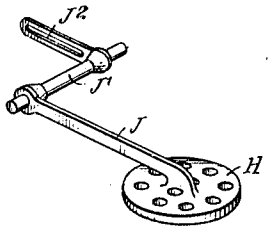


Fig. 2.



WITNESSES:

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FUEL-SUPPLY CONTROLLER.

990,053. Specification of Letters Patent. Patented Apr. 18, 1911.

Application filed April 5, 1910. Serial No. 553,475.

To all whom it may concern:

Be it known that I, CARL W. LEITENBERGER, a citizen of the United States, and a resident of Johnstown, in the county of Cambria and State of Pennsylvania, have invented a new and Improved Fuel-Supply Controller, of which the following is a full, clear, and exact description.

My invention relates to furnaces, heaters, boilers or other apparatus in which fuel is burned, and has for its object to regulate the supply of fuel automatically as the amount of fuel within the combustion chamber varies.

This invention may be carried out in many different ways, according to the nature of the fuel employed and of the apparatus in which it is burned. In the accompanying drawings, I have illustrated my invention as applied to the furnace of a vertical boiler provided with a Jones underfeed stoker.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in both the figures, and in which—

Figure 1 is a vertical section of the apparatus with parts broken away, and Fig. 2 is a perspective view of the movable member or follower arranged to follow the rise or fall of the fuel in the combustion chamber and to control the supply of fuel.

A indicates the shell of the boiler, B the fire tubes or smoke tubes, C the combustion chamber, D the incandescent fuel receiver, E the grate, E′ the fuel pusher, F the hopper or fuel receiver, from the lower part of which an opening or passage leads to the fuel chamber or combustion chamber C, and G the piston or pusher of the stoker, which by moving toward the right, supplies additional fuel into the combustion chamber. This piston may also be provided with a projection G′, to operate the fuel pusher E′. So far the parts may be of any well-known or approved construction.

According to my invention, I employ a follower, the position of which varies according to the amount or level of the fuel in the combustion chamber, and the movement of this follower is utilized to control the supply of fuel, and in the particular case illustrated, this is done by controlling the operation of the fuel feeder or mechanical stoker. I have shown the follower made in the shape of a disk H (perforated so that it will obstruct the rise of the combustion gases as little as possible), adapted to rest on top of the bed of incandescent fuel, and secured to a lever J, which extends through the wall of the combustion chamber and is fulcrumed upon said wall at J′. The outer end of the lever has a pin-and-slot connection J^2, with an arm K, secured to the plug of a valve or controller L, which controls the passage of steam, air or other medium under pressure, through a pipe M. This pipe leads to the valve chest N containing the slide valve O, the rod O′ of which has two projections O^2, between which the projection G′ of the stoker is arranged to move. The slide valve controls the usual ports in a cylinder P, containing a piston R, connected by a rod R′ with the pusher G.

The operation will be readily understood. If the level of the fuel bed D falls as combustion progresses, the follower will move down and the outer end of the lever J will rise, turning the valve L in such a way as to admit the driving medium to the cylinder P. Through the action of the piston R and of the slide valve O, operated at the proper moment by the projection G′, the stoker or pusher G will be reciprocated to transfer fuel from the hopper F to the interior of the furnace. The level of the fuel being raised by this operation, the follower H and lever J will move in the opposite direction to that first referred to, causing the valve L to close and stop the further supply of fuel until combustion has again lowered the level of the fuel bed.

Various modifications may be made without departing from the nature of my invention as defined in the claims.

I desire it to be understood that where in the claims I speak of "supplying fuel," or "fuel-feeding" devices, I do not mean to restrict myself to mechanism which exerts a positive propelling action on the fuel, but intend to cover all devices which control the supply of fuel.

Although I have shown a particular form of my invention for the purpose of description, it will be understood that I do not limit myself to such construction, the scope of the invention being defined in the appended claims.

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

1. The combination with an apparatus having a combustion chamber, of a follower arranged to rest on top of the fuel bed in said chamber and perforated to allow combustion gases to rise therethrough, and means controlled by said follower, for supplying fuel to said chamber.

2. The combination with an apparatus having a combustion chamber and a grate for supporting the fuel, of a follower arranged to rest on top of the fuel bed in said chamber and to move toward and from said grate as the fuel level varies, and means controlled by the movement of the follower, for supplying fuel to said chamber.

3. The combination with an apparatus having a combustion chamber, of a follower arranged to rest on top of the fuel bed in said chamber, and means controlled by the movement of said follower, for supplying fuel to said chamber.

4. The combination with an apparatus having a combustion chamber, of a follower arranged to rest on top of the fuel bed in said chamber, a fuel-feeding device, operating mechanism therefor, adapted to be driven by a fluid medium, a pipe connected with said mechanism and adapted to convey said fluid medium, a valve in said pipe, and an operative connection between the valve and the follower.

5. The combination with an apparatus having a combustion chamber, of a follower arranged to rest on top of the fuel bed in said chamber, a pipe for conveying a fluid medium, a valve in said pipe, an operative connection between the valve and the follower, a cylinder connected with said pipe, a slide valve controlling the cylinder connections, a piston in the cylinder, and a fuel feeder operated by the piston and governing the slide valve.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CARL W. LEITENBERGER.

Witnesses:

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ALEX N. HART.