

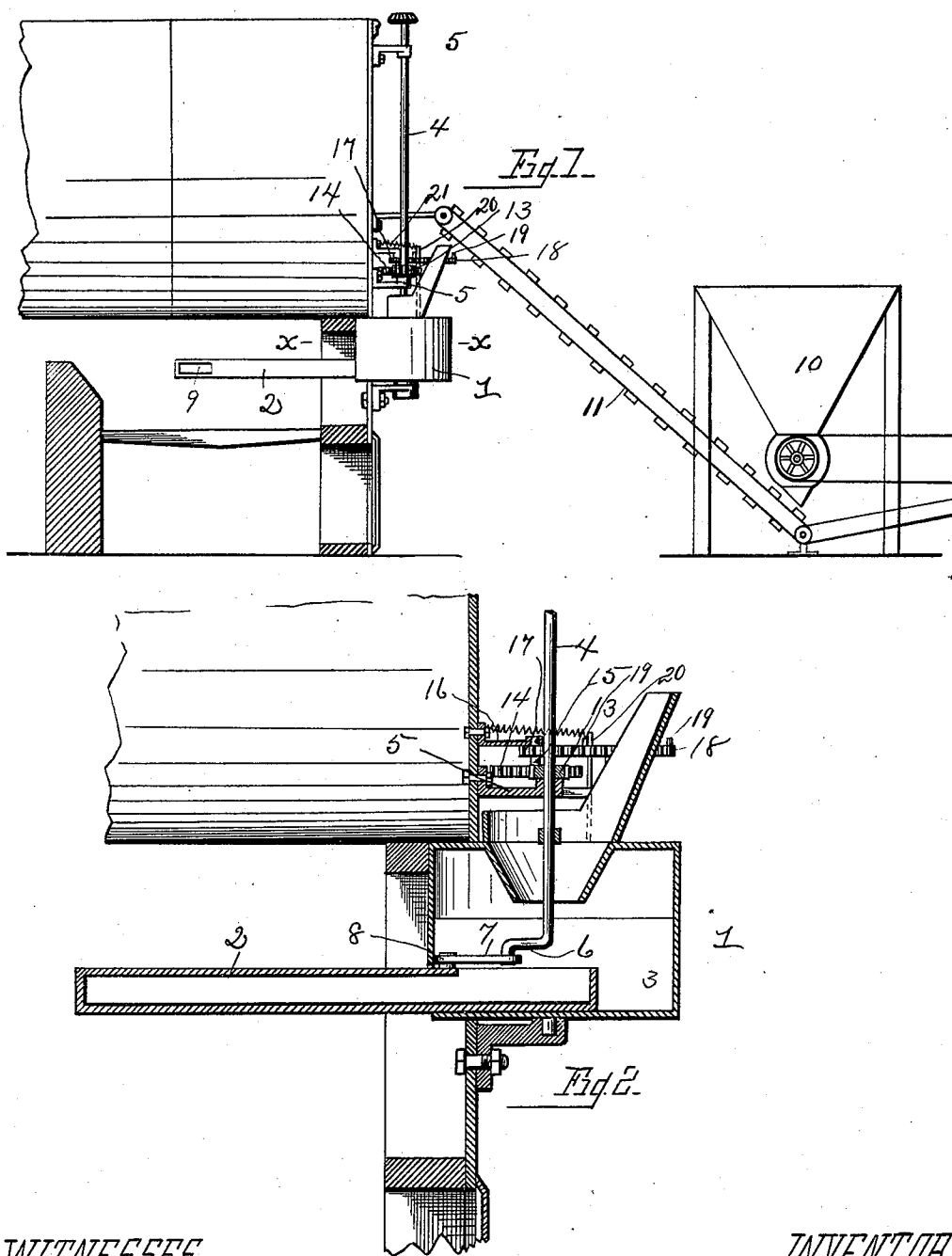
(No Model.)

2 Sheets—Sheet 1.

L. MYERS.
FUEL FEEDER AND DISTRIBUTER.

No. 567,190.

Patented Sept. 8, 1896.



WITNESSES

Carroll J. Webster
Bertha M. Schweiger

INVENTOR

Luther Myers
By William Webster
Att.

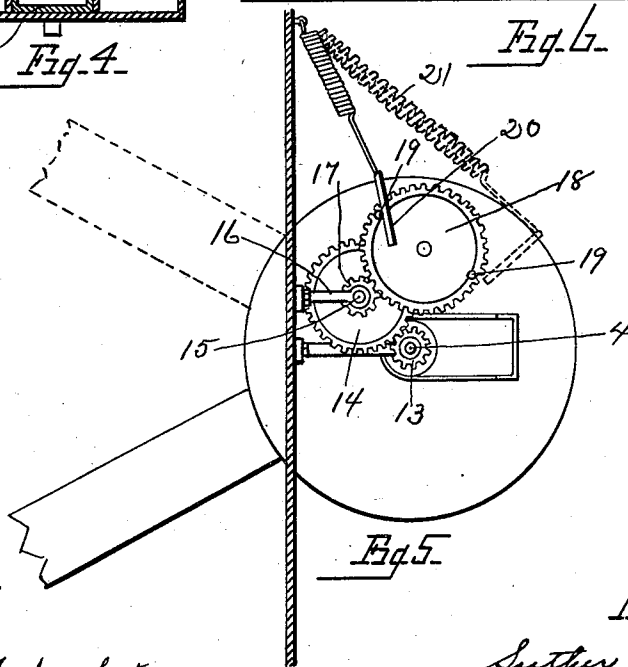
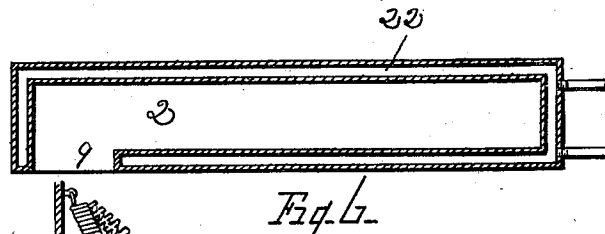
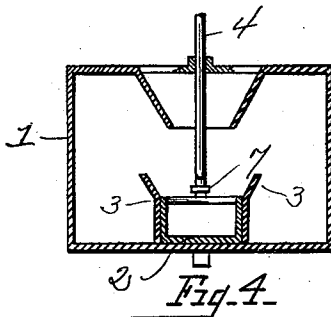
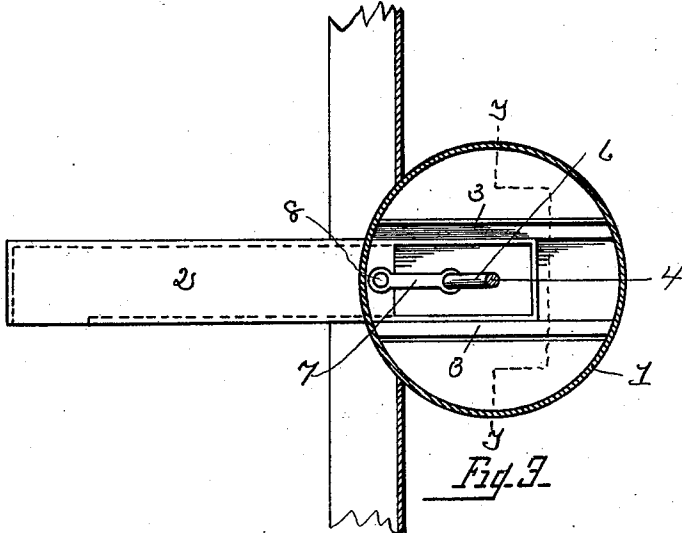
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FUEL FEEDER AND DISTRIBUTER.

No. 567,190.

Patented Sept. 8, 1896.



WITNESSES

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UNITED STATES PATENT OFFICE.

LUTHER MYERS, OF MAUMEE, OHIO.

FUEL FEEDER AND DISTRIBUTER.

SPECIFICATION forming part of Letters Patent No. 567,190, dated September 8, 1896.

Application filed May 28, 1894. Serial No. 512,757. (No model.)

To all whom it may concern:

Be it known that I, LUTHER MYERS, of Maumee, county of Lucas, and State of Ohio, have invented certain new and useful Improvements in Fuel Feeders and Distributers; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form part of this specification.

My invention relates to a fuel feeder and distributor for furnaces, boilers, &c., and has for its object to effect an even and continuous feed of fuel to the grate-bars of the furnace, boiler, &c., and distribute the same evenly over the entire surface of the grate.

The invention consists in a spout and means for giving a vibratory motion to the same to feed the fuel, and means for giving side movement to distribute the fuel over the entire surface of the grate.

The invention further consists in the parts as shown, described, and claimed.

Figure 1 is an elevation of a portion of the furnace provided with my invention. Fig. 2 is a sectional elevation illustrating the means for giving a vibratory movement to the spout. Fig. 3 is a sectional view of the device, taken at a point indicated by lines *xx*, Fig. 1, illustrating the guides for the spout in the revolving hopper. Fig. 4 is a sectional elevation taken at a point indicated by lines *yy*, Fig. 3, in further illustration of the guides for the spout. Fig. 5 is a plan view of the revolving hopper, showing more particularly the mechanism for revolving the same. Fig. 6 is a detail view of the spout, illustrating the modification comprising a jacket for use when it is desired to employ a cooling medium to lower the temperature of the spout.

This invention has for its object economy of fuel, which is accomplished, first, by an even feed of fuel to the grate-bars; second, by an even distribution of the fuel over the entire surface of the grate-bars; third, by coking the fuel previous to the feed to the grate-bars, and, fourth, by admission of the necessary quantity of air to support perfect combustion. These objects are accomplished,

first, by a vibratory movement of the hopper, which causes an even feed of the fuel therein, and comprises a hopper 1, having a spout 2 extending into the furnace and above the grate-bars. The spout has a vibratory movement along the length of the same and slides back and forth, guided by ways or guides 3.

4 designates a shaft journaled in the bearing 5 upon the front of the furnace and extending inside of the hopper, having a crank-arm 6, there being an arm 7 pivotally connecting the crank-arm and the spout at 8, whereby, when the shaft 4 is revolved, the crank is caused to revolve and through the medium of the arm 8 vibrating the spout backward and forward, the fuel having an even feed into the spout through the opening 9 in the hopper, and to cause an even feed to the hopper I provide a crusher 10, driven by any suitable source of power, there being a conveyer 11 to convey the fuel from the crusher into the opening 9 to the spout. The quantity to feed to the spout is regulated by the movement of the conveyer.

In order to distribute the fuel as it issues from the opening 9 in the spout over the entire surface of the grate, the hopper 1 revolves back and forth, carrying the spout therewith. Therefore the movement of the spout is over the entire surface of the grate. The mechanism for revolving the hopper comprises a pinion 13 upon shaft 4, which meshes with and revolves a pinion 14 upon a shaft 15, journaled in a bearing 16, secured to the front of the furnace, and upon said shaft 15 there is a pinion 17, which in turn meshes with and revolves a gear-wheel 18. Upon the upper surface of the gear-wheel 18 are a plurality of upwardly-projecting arms 19, which revolve in the path of travel of the arm 20, secured to the hopper. Therefore, as the shaft 4 revolves, gear-wheel 18 will be revolved through the medium of pinions 13, 14, and 17, and the upwardly-projecting arms 19, as they revolve, will carry the arm 20 therewith, which is bent down, as shown in Figs. 1 and 2, and secured to the edge of the hopper, and consequently carry the hopper, until released by reason of the arm 19 revolving away from arm 20, in which event the arm 20 is released, when spring 21 will revolve the hopper back to its original position, or until the arm 20 strikes

the opposite arm 19, the operation being repeated.

The spout extending into the furnace above the grate-bars in path of travel of the flame is heated to a degree to coke the fuel as it passes therethrough, liberating the gases, so that combustion of the same takes place as soon as it is fed to the grate, thereby making perfect combustion and consuming all the products of combustion, obviating the smoke, and by reason of the draft through the spout air is drawn therethrough, which mixes with the unconsuming products at a point above the grate-bars, adding the necessary air to support combustion of the same.

By reason of the intense heat to which the spout may be subjected, if desired, I may jacket the spout, forming a water-space 22, which will serve to keep the temperature of the spout down to a degree to prevent the same from melting.

In operation fuel is fed into the hopper of the crusher and the crusher and feeding mechanism are started. The crusher will crush the fuel as it passes therethrough into the desired size, the conveyer carrying it to the spout. The spout of the crusher and conveyer being regulated will determine the amount of fuel to be fed into the furnace.

While I have shown the vibratory spout having side motion the width of the grate, I wish it understood that I may vary this feature broadly. As, for instance, the spout may have a vibratory side motion or move in and out, the operation being the same.

What I claim is—

1. In a fuel feeder and distributor, a furnace, a grate therein, a spout and means for mechanically carrying the fuel thereto, and means for moving the spout sidewise above the grate.

2. In a fuel feeder and distributor, a furnace provided with a grate, a spout and means for mechanically carrying the fuel thereto,

and mechanism for vibrating and giving side movement to the spout above the grate.

3. In a fuel feeder and distributor, a furnace provided with a grate, a crusher, a spout having mechanism for vibrating the same above the grate, and an endless conveyer connecting the crusher and the spout.

4. In a fuel feeder and distributor, a furnace provided with a grate, a revoluble hopper and means for revolving the same, a spout carried thereby and revoluble therewith, and means for vibrating the spout independently of the movement of the hopper, the inner end of the spout extending within the furnace above the grate.

5. In a fuel feeder and distributor, a furnace provided with a grate, a revoluble hopper secured to the furnace, a spout carried thereby, a shaft and means for revolving the same, a crank located upon the lower end of the shaft, and a link connecting the crank and the spout.

6. In a fuel feeder and distributor, a furnace provided with a grate, a hopper secured to the furnace exteriorly of the same, a spout carried thereby, mechanism for revolving the hopper in one direction, and means for automatically releasing the said mechanism and returning the hopper to its original position.

7. In a fuel feeder and distributor, a furnace provided with a grate, a revoluble hopper secured thereto, a spout carried thereby having a chamber for cooling medium surrounding the same, the inner end of the spout extending into the furnace and above the grate.

In testimony that I claim the foregoing as my own I hereby affix my signature in presence of two witnesses.

LUTHER MYERS.

Witnesses:

FLOYD R. WEBSTER,
CARROLL J. WEBSTER.