

G. ANDERSEN.
STOKER.

APPLICATION FILED APR. 13, 1908.

941,486.

Patented Nov. 30, 1909.

2 SHEETS—SHEET 1.

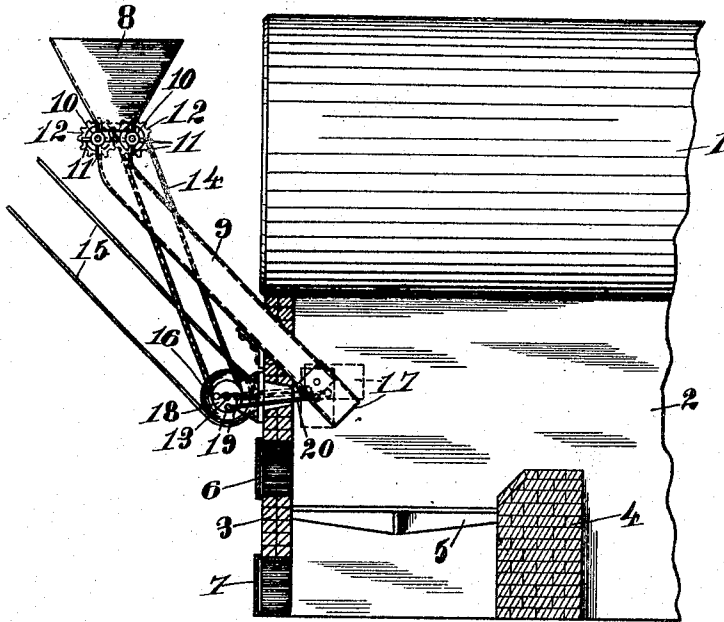


Fig. 1.

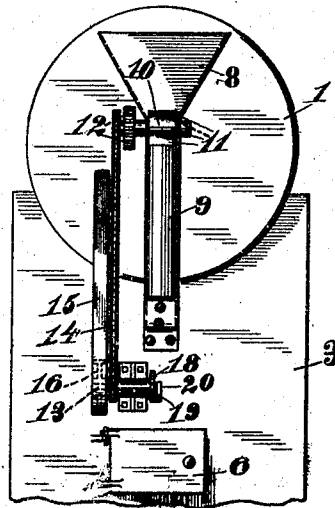


Fig. 2.

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2 SHEETS—SHEET 2.

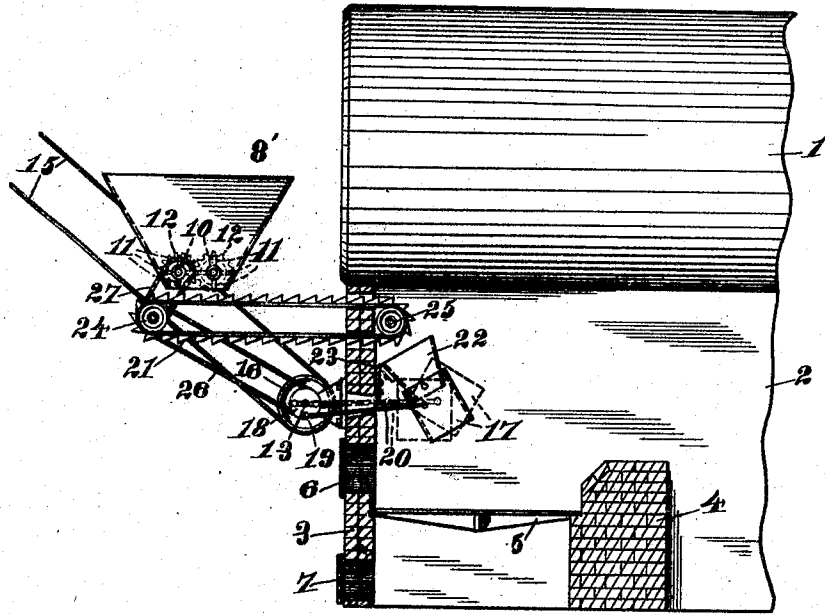


Fig. 3.

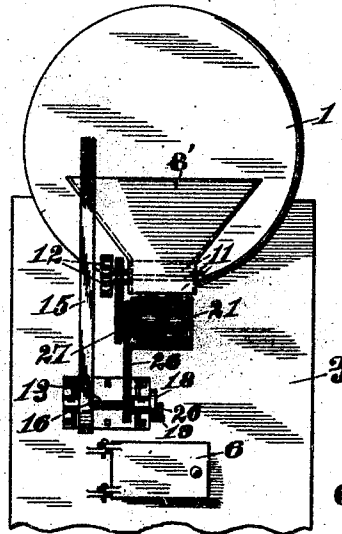


Fig. 4.

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UNITED STATES PATENT OFFICE.

GEORGE ANDERSEN, OF CHICAGO, ILLINOIS.

STOKER.

941,486.

Specification of Letters Patent.

Patented Nov. 30, 1909.

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To all whom it may concern:

Be it known that I, GEORGE ANDERSEN, a citizen of the United States, residing at Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Stokers, of which the following is a specification.

My invention relates to furnaces and particularly to automatic stokers, especially adapted for use with steam boiler furnaces.

With stokers as heretofore devised, considerable difficulty has been experienced in properly distributing the fuel over the bed of the fire.

The object of my invention is to provide a stoker which will automatically feed the fuel to the furnace and which will properly distribute the same to obtain a more perfect fire, and a better consumption of the fuel.

Other objects will appear hereinafter.

With these objects in view, my invention consists generally in a furnace having the usual walls and grate and the usual feed door, in combination with a fuel hopper arranged upon the outside of said furnace, a chute extending through said hopper through the wall of said furnace and above the grate, means for feeding fuel from said hopper to said chute and means on the end of said chute for distributing the fuel properly over the grate or bed of the fire.

My invention further consists in a furnace of any ordinary or preferred type in combination with a fuel chute extending into said furnace above the grate, an oscillatory nozzle upon the end of said chute and means for oscillating said nozzle.

My invention further consists in various details of construction and arrangements of parts all as will be hereinafter fully described and particularly pointed out in the claim.

My invention will be more readily understood by reference to the accompanying drawings forming a part of this specification, in which,

Figure 1 is a vertical longitudinal section through the front end of a boiler furnace equipped with a stoker embodying my invention in its preferred form, Fig. 2 is a front elevation thereof, Fig. 3 is a view similar to Fig. 1 illustrating a modified form of a stoker, and Fig. 4 is a front elevation of a boiler furnace equipped with the stoker illustrated in Fig. 3.

Referring now to Figs. 1 and 2 of the drawings, 1 indicates a boiler and 2 its furnace of which 3 indicates the front wall, 4 the bridge and 5 the grate. The front wall is provided with the usual feed door 6 and ash door 7.

Suitably arranged upon the outside of a furnace and above the furnace, is a fuel hopper 8 which is kept supplied by any suitable means. On account of the height of the hopper it is preferable to provide a mechanical conveyer for supplying the same with fuel. Extending downwardly from the hopper is a fuel chute 9 which extends through the wall, preferably the front wall of the furnace and terminates some distance above the level of the feed door. Arranged at the upper end of the chute or at the mouth of the hopper, is suitable feed mechanism which feeds the fuel from the hopper to the chute in regular and constant quantities. This comprises a pair of rollers 10—10 each having a plurality of radial vanes or paddles. Any number of vanes may be employed but I prefer to use four for each roller. The rollers 10 are arranged at the side of the fuel passage and the vanes are of such length that two, that is one upon each roller will close the passageway. The rollers are rotated in opposite directions which feed the fuel in measured quantities and the vanes when in horizontal position close the passageway both against entrance of the fuel in one direction and smoke or gases in the opposite direction, that is from the furnace. The feed rollers are provided with the intermeshing gears 12 and are driven from a power shaft 13 by sprocket gearing 14. The shaft 13 is bracketed upon the front wall of the furnace above the feed door and is driven in any suitable manner and from any suitable source as by the belt 15 and pulley 16.

Pivotally connected to the lower end of the chute 9 is a swinging or oscillatory nozzle 17. As the fuel is fed through the chute, the nozzle is oscillated, distributing the fuel from the front to the rear of the grate. The nozzle may be actuated by any suitable means, but I prefer to drive it from the shaft 13. To this end the shaft is provided with a disk 18 having an eccentric pin 19 which is coupled to the nozzle by a link 20 passing through the front wall of the furnace.

It should be noted that the end of the

chute extends into the oscillatory nozzle at all times. In this way a continuous feed may be had when desired without the fuel being discharged over the inner or upper end of the nozzle.

In Figs. 3 and 4 I have illustrated a modification wherein the feed hopper is arranged low enough to be readily filled by hand and provide suitable means for conveying the fuel from the hopper to the chute, the latter being arranged entirely within the furnace. 8⁷ indicates the hopper having the feed mechanism 10—11 which is in every way similar to that illustrated in Figs. 1 and 2. Arranged beneath the hopper is an endless conveyer belt 21 which extends a short distance within the furnace and above the flared or funnel shaped chute 22 which is bracketed as at 23 to the inner face of the wall 3. The conveyer passes around the rollers 24 and 25, the former of which is coupled or connected to the shaft 13 by the sprocket gearing 26. The roller 24 is also coupled or connected to one of the rollers 10 of the feed mechanism by the sprocket gearing 27. The chute 22 is provided with an oscillating distributing nozzle 17 which is similar in construction and operation to

that illustrated and described in connection with Figs. 1 and 2.

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

In a device of the class described, a furnace having the usual walls and grate, in combination with a fuel hopper and a fuel chute, means for feeding the fuel to said chute in measured quantities, an oscillatory nozzle of greater diameter than the end of said chute and pivotally mounted over the same for distributing the fuel over said grate, a rotary shaft arranged in front of said furnace and substantially parallel with the front wall thereof, a crank disk on said shaft, a pitman connecting said crank disk and said nozzle and sprocket gearing connecting said shaft with said fuel feeding means, substantially as described.

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

GEORGE ANDERSEN.

Witnesses:

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HELEN F. LILES.