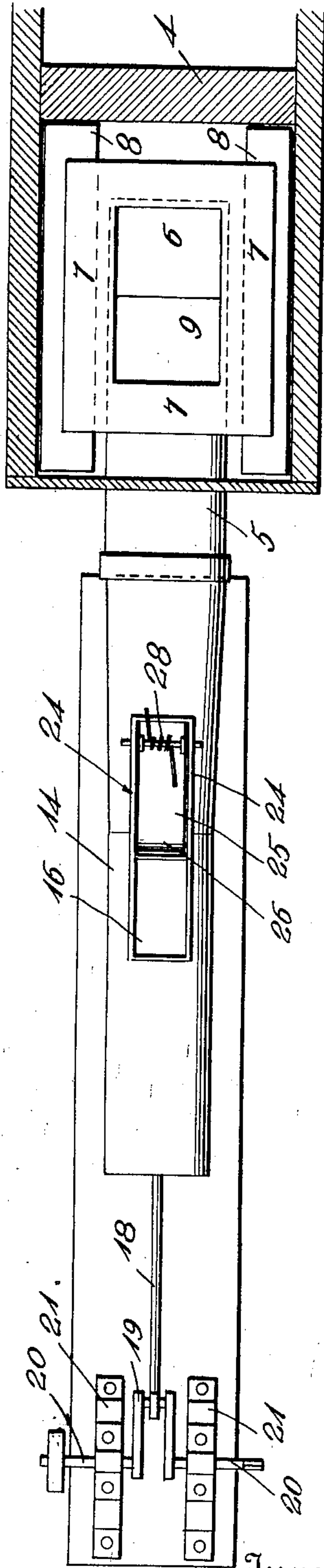
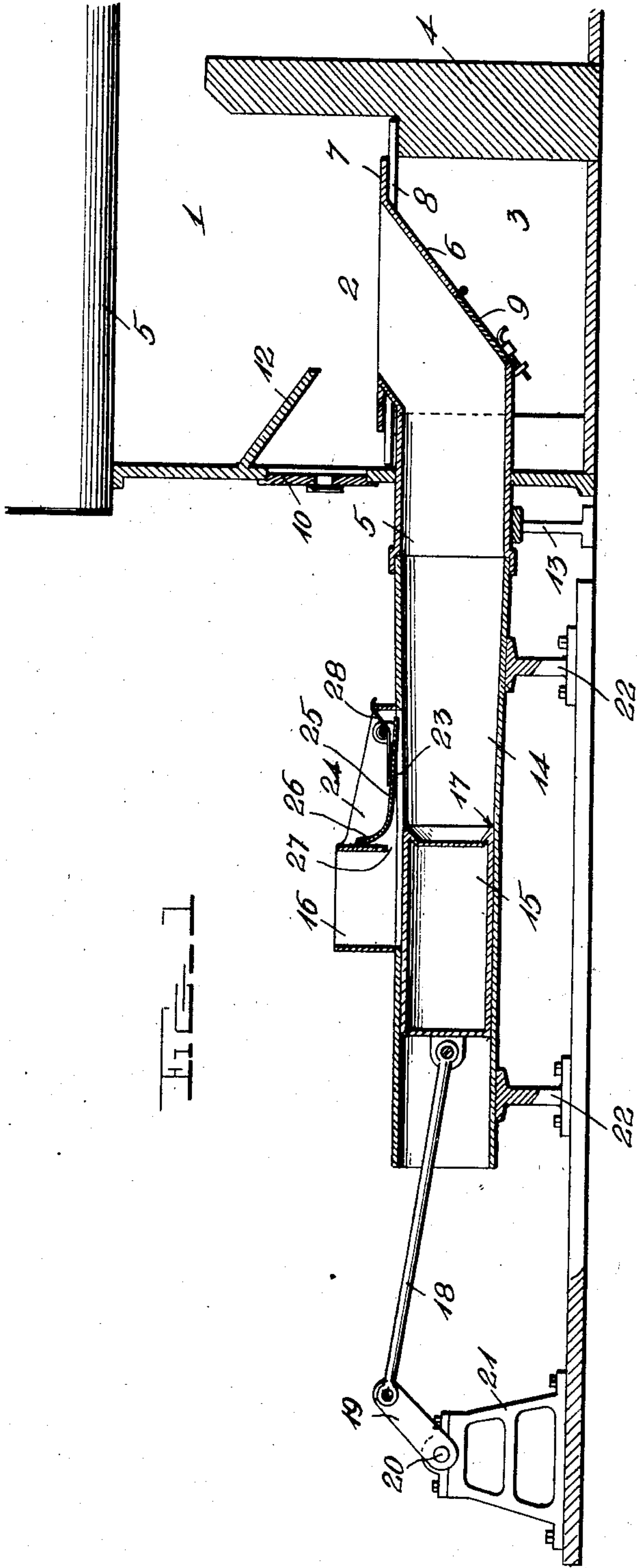


G. WEILAND.
 UNDERFEED FUEL STOKER.
 APPLICATION FILED JAN. 14, 1909.

931,536.

Patented Aug. 17, 1909.



Witnesses

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UNITED STATES PATENT OFFICE.

GUSTAVE WEILAND, OF STOCKTON, CALIFORNIA.

UNDERFEED FUEL-STOKER.

No. 931,536.

Specification of Letters Patent.

Patented Aug. 17, 1909.

Application filed January 14, 1909. Serial No. 472,350.

To all whom it may concern:

Be it known that I, GUSTAVE WEILAND, a citizen of the United States, residing at Stockton, in the county of San Joaquin and State of California, have invented certain new and useful Improvements in Underfeed Fuel-Stokers; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in underfeed fuel stokers.

The object of the invention is to provide a fuel stoker of this character by means of which wet or dry saw dust, shavings, tan bark, straw or similar material may be readily consumed in the furnace to which the stoker is applied and an intense, uniform heat produced from the burning of such refuse material.

A further object is to provide means whereby the plunger of the stoker will be prevented from becoming clogged by small blocks or chips.

With these objects in view, the invention consists of certain novel features of construction, combination and arrangement of parts as will be described hereinafter and particularly pointed in the appended claims.

In the accompanying drawings, Figure 1 is a central vertical longitudinal sectional view of the stoker showing the same applied to a furnace; and Fig. 2 is a horizontal sectional view through the furnace taken above the stoker and showing a top plan view of the latter.

Referring more particularly to the drawings, 1 denotes a furnace which may be of any suitable construction, and is here shown as consisting of a fire box, 2, beneath which is arranged an ash pit, 3, and in the rear of said ash pit and fire box is arranged a bridge wall, 4. Above the fire box is arranged the boiler, 5.

Adapted to project through the front wall of the ash pit is a fuel feeding tube, 5, the inner end of which inclines upwardly as shown at 6, and is provided on its upper edge with supporting flanges, 7, adapted to engage and rest upon supporting bars, 8, secured to the front wall of the furnace and the bridge wall, as shown. In the lower end of the inclined portion 6 of the feed tube is arranged a clean-out-door, 9. In the front of the furnace, immediately above the tube,

5, is arranged a fire door, 10, the same being also used as an air inlet. On the inner side of the front wall of the furnace, immediately over the door, 10, is arranged a downwardly and inwardly inclined deflecting plate, 12, by means of which the draft of air entering the door 10 is directed downwardly.

The outer end of the tube, 5, is preferably supported upon a suitable standard, 13, and to said outer end of the tube is adapted to be connected the end of a plunger cylinder, 14, in which is slidably mounted the reciprocating plunger, 15. Connected to the upper side of the cylinder, 14, substantially midway between its ends is a feed hopper, 16, in which the saw dust or other fuel is placed.

The plunger 15 is of preferably hollow metal construction and on its forward end is provided with a beveled flange forming a sharp cutting edge, 17. To the outer end of the plunger is connected the inner end of a plunger rod, 18, the outer end of which is connected to a suitable operating mechanism which is here shown and is preferably in the form of a crank, 19, arranged on a drive shaft, 20, mounted in a suitable support, 21, and operated by any suitable driving mechanism, not shown.

The cylinder 14 is supported upon suitable standards 22 and in the upper side of the cylinder is formed an opening 23 which extends from the rear side of the hopper to a point beyond the front wall thereof. The portion of the opening 23 beyond the hopper is surrounded on three sides by an upwardly projecting flange 24 and is covered by a movable lid or plate 25 pivoted within said flange. The end of the plate adjacent to the hopper curves upwardly as at 26, and forms a closure for an opening 27 in the side of the hopper and communicating with the opening, 23, in the cylinder, as shown. The opposite end of the plate 25 is hingedly mounted in the outer end of the flanged enclosure above the opening, 23, and said plate is yieldingly held down in a closed position by means of a spring, 28. By means of the plate, 25, any chips or small blocks which may become caught by the end of the plunger will be prevented from clogging and stopping the plunger, as when said chips or blocks are forced against the underside of the plate by the movement of the plunger, the plate will swing upwardly against the tension of the spring, 28, which will allow the block to be forced

forwardly and to drop into the cylinder ahead of the plunger.

While I have described the shaft 20 as being operated by a suitable driving mechanism, it is obvious that the same may be operated by hand to reciprocate the plunger and thereby force the saw dust or other fuel through the cylinder and into the feed tube, 5, from whence it passes upwardly through the inclined portion 6 of the tube and into the fire box of the furnace.

While the device has been shown and described as being applied to a boiler furnace, it is obvious that the same may be applied to any style of furnace or to stoves of suitable construction and that a perfect combustion may be maintained and the heat of the furnace kept uniform and intense, because, the constant replacing of the consumed fuel by my improved underfeed stoker, obviates the necessity of opening any doors for supplying fuel, and thereby reducing the temperature of the furnace.

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

1. In an under feed fuel stoker, the combination of a feed tube adapted to be arranged in the ash pit of the furnace and to communicate at its inner open end with the fire-box thereof, a plunger cylinder adapted to communicate with the outer end of said feed tube, said cylinder having an opening formed in its upper side, a hopper arranged on the upper side of said cylinder over a portion of the opening therein and having

an opening in its front wall at the bottom thereof communicating with the portion of the opening in the cylinder which extends beyond said hopper, a plunger slidably mounted in said cylinder, and a hinged yieldably mounted plate adapted to close the portion of the opening in the cylinder adjacent to and beyond the opening in the front wall of the hopper to prevent coarse pieces of fuel caught by the plunger from clogging the cylinder.

2. In an under feed fuel stoker, the combination of a feed tube adapted to be arranged in the ash pit of a furnace, and to open into the fire box thereof, a plunger cylinder adapted to be connected to the outer end of said feed tube, said cylinder having an opening formed in its upper side, a flange arranged around three sides of a portion of said opening, a hopper communicating with the unflanged portion of the cylinder opening, a hinged plate adapted to close the flanged portion of said opening and having an upwardly curved end to bear against the front of the hopper and form a closure for the opening therein, a spring arranged to yieldably hold said plate in closed position, a plunger slidably mounted in said cylinder, and means for reciprocating said plunger.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

GUSTAVE WEILAND.

Witnesses:

ROBERT MEYER,

BALDASSARE GIOTTOURNI.