

No. 835,952.

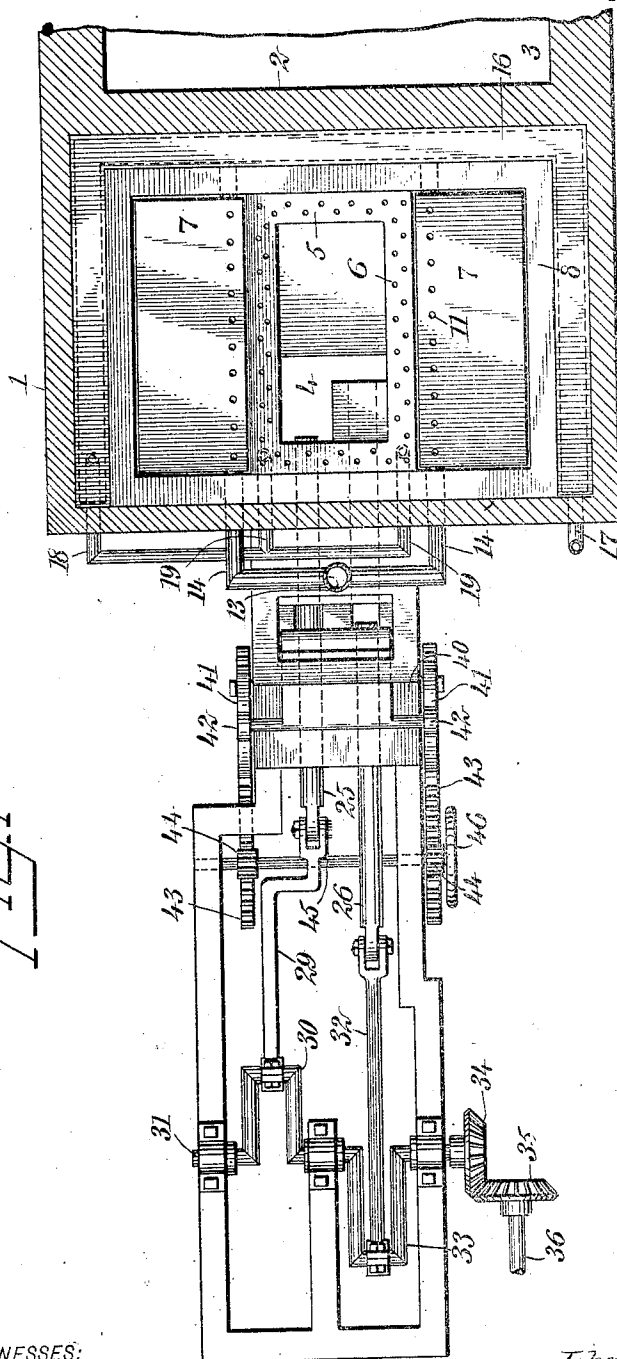
PATENTED NOV. 13, 1906.

J. T. JENKINS & E. THACKWELL.
FUEL FEEDER OR STOKER FOR FURNACES.

APPLICATION FILED OCT. 28, 1905.

2 SHEETS—SHEET 1.

Fig. 1



WITNESSES:
J. T. Proply
C. R. Ferguson

INVENTORS
John T. Jenkins
Edward Thackwell
BY *McMurry*
ATTORNEYS

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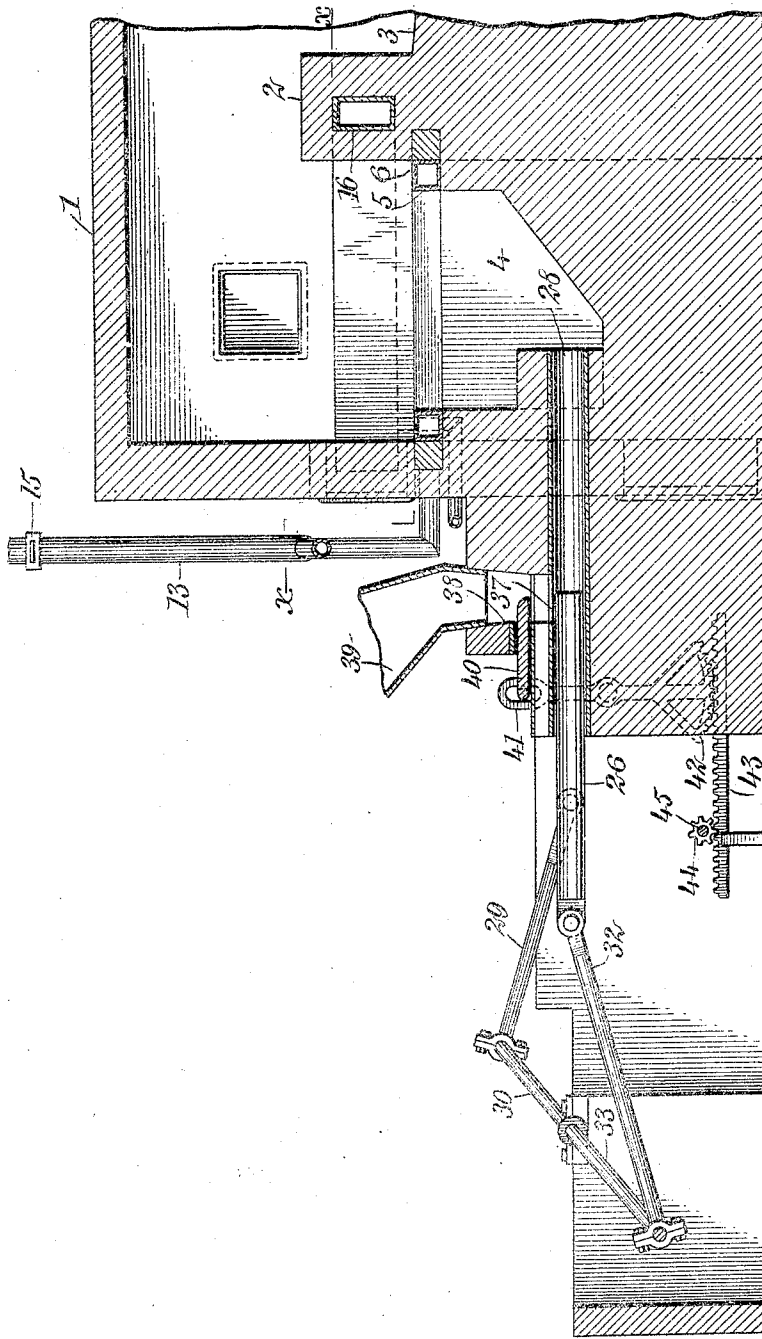


Fig. 2

WITNESSES:

J. A. Bishop
C. R. Ferguson

INVENTORS

John T. Jenkins
Edward Thackwell
BY

Wm. D. Munn
ATTORNEYS

UNITED STATES PATENT OFFICE.

JOHN T. JENKINS AND EDWARD THACKWELL, OF MASSILLON, OHIO,
ASSIGNORS OF ONE-THIRD TO EDWARD H. VAUGHN, OF GIRARD,
OHIO.

FUEL FEEDER OR STOKER FOR FURNACES.

No. 835,952.

Specification of Letters Patent.

Patented Nov. 13, 1906.

Application filed October 28, 1905. Serial No. 284,886.

To all whom it may concern:

Be it known that we, JOHN T. JENKINS and EDWARD THACKWELL, citizens of the United States, and residents of Massillon, in the county of Stark and State of Ohio, have invented a new and Improved Fuel-Feeder or Stoker for Furnaces, of which the following is a full, clear, and exact description.

This invention relates to improvements in puddling, scrap, and heating furnaces used in iron and steel mills and particularly to a stoker employed in connection therewith, the object being to provide a simple and novel stoker by the means of which the coal will be evenly distributed. Other objects of the invention will appear in the general description.

We will describe a furnace embodying our invention and then point out the novel features in the appended claims.

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 figures.

Figure 1 is a plan, partly in section, on the line *xx* of Fig. 2, of a furnace embodying our invention. Fig. 2 is a longitudinal vertical section thereof.

The furnace comprises the usual ends, side, and top walls 1, arranged within which is a bridge-wall 2, and rearward of the bridge-wall is the hearth 3. Forward of the bridge-wall 2, and considerably below the plane thereof, is a stoking-chamber 4, into which coal is forced by a mechanism to be hereinafter described. Arranged around the upper edge of the stoking-chamber is a framelike steam-receiving chamber 5, having perforations 6 in its top for the outlet of steam, and at the sides of this steam-chamber 5 are the fuel-supporting plates 7, which instead of being in grate form are solid. At the inner edges or at the edges adjacent to the steam-chamber 5 the plates 7 have trunnion-bearings in a frame 8, seated in the furnace-walls, the forward trunnions being tubular and these tubular trunnions communicating with hollow portions 10 of the fuel-supporting plates, the upper walls of these tubular portions being provided with perforations 11 for the outlet of air to mingle with steam to promote combustion, as will be hereinafter described. By employing these fuel-support-

ing plates the fuel is held until entirely reduced to ashes, which may be dumped into the ash-pits by turning the said plates downward. Any suitable means may be employed for turning the plates. An air-supply pipe 13 has branches 14 communicating with the tubular trunnions, and in this air-supply pipe 13 is a regulating slide-valve 15, which may be operated by any suitable means.

Extending through the bridge-wall and through the side walls of the furnace is a steam-superheater consisting of a boxing 16, which at one end has an inlet-pipe 17 for steam, and at the other end there is an outlet-pipe 18, having branches 19, leading into the steam-chamber 5.

We will now describe the means for stoking or forcing coal into the stoking-chamber 4. This means comprises two plungers 25 and 26, operating, respectively, in passages 27 28, leading through the front wall of the furnace into the stoking-chamber. The plunger 25 has a pitman connection 29 with a crank 30 on a crank-shaft 31, and the plunger 26 has a pitman connection 32 with a crank 33 on said crank-shaft. The crank-shaft may be driven by any desirable means; but we here show it as provided with a bevel-gear 34, engaging with a bevel-gear 35 on a driving-shaft 36. The passages 27 and 28 have openings 37, which communicate with a feed-chamber 38, into which coal is received from a hopper 39. The passage of coal through the chamber 38 may be controlled or entirely cut off by means of a slide-valve 40, movable through an opening in the front wall of the chamber and having studs at its ends, which engage in slots formed in the upper ends of levers 41, and on the lower ends of these levers are segment-racks 42, which mesh with racks 43, the said racks being engaged by pinions 44 on a shaft 45, to which, as here shown, is attached an operating hand-wheel 46. While this hand-wheel is arranged close to one of the racks or to the furnace, it is obvious that the shaft 45 may be extended so that the hand-wheel may be located at any desired distance.

In the operation steam and air will be admitted through the parts heretofore described, and the mingling steam and air by passing into the fuel will cause a thorough and complete combustion and burning of the fuel.

This is especially so because of the inlet of superheated steam. It will be noted that the cranks 30 and 33 extend in opposite directions, so that the plungers are operated in opposite directions. Therefore, when the plungers are forced into the stoking-chamber the coal therein will be forced by the fresh supply injected onto the fuel-supporting plates 7.

It is obvious that the invention may be used in connection with any form of furnace, and, therefore, we do not limit the same to the particular furnace here shown.

Having thus described our invention, we claim as new and desire to secure by Letters Patent—

1. A furnace having a stoking-chamber from which passages lead outward through the front wall of the furnace, plungers for operating in said passages, the said passages having openings at the top communicating with a feed-chamber near the front wall of the furnace, a hopper connecting with said feed-chamber, a regulating-valve for operating in the feed-chamber, levers connecting with the valve, segment-racks on said levers,

and sliding racks with which the segment-racks engage.

2. A furnace having a stoking-chamber, passages leading from said stoking-chamber outward through the front wall of the furnace, plungers for operating in the passages, the said passages having openings communicating with a feed-chamber, a hopper leading into the feed-chamber, a plate-valve movable in the feed-chamber, levers with which said valve connects, segment-racks on the lower ends of said levers, horizontally-movable racks engaging with said segment-racks, a shaft, and pinions on the shaft engaging with said horizontally-movable racks.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

JOHN T. JENKINS.

EDWARD ^{his} × THACKWELL.
mark

Witnesses:

IRVING FESSELL,
JOHN C. GINTHER.