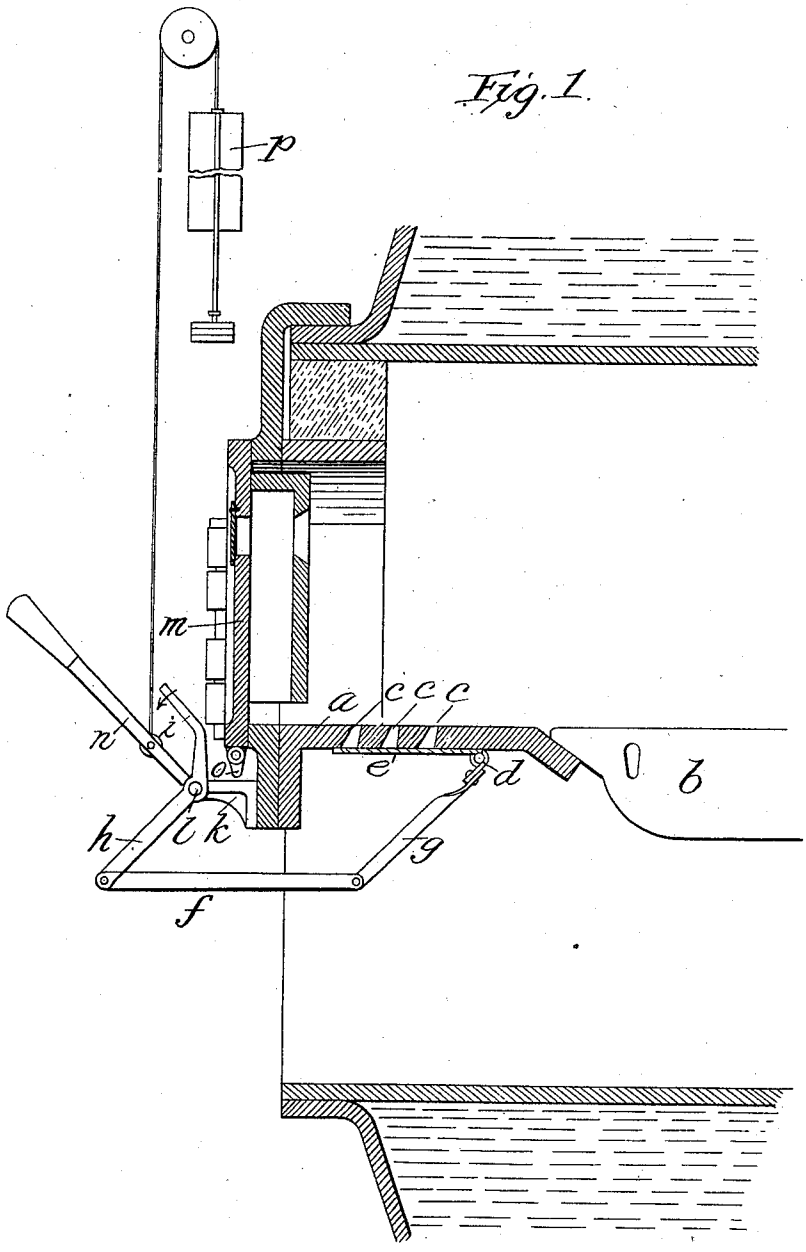
No. 660,456. Patented Oct. 23, 1900.

F. PINTHER.

AUTOMATIC AIR FEEDING APPARATUS FOR FURNACES.

(No Model.) (Application filed Dec. 19, 1899.) 2 Sheets—Sheet 1.

Fig. 1.



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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

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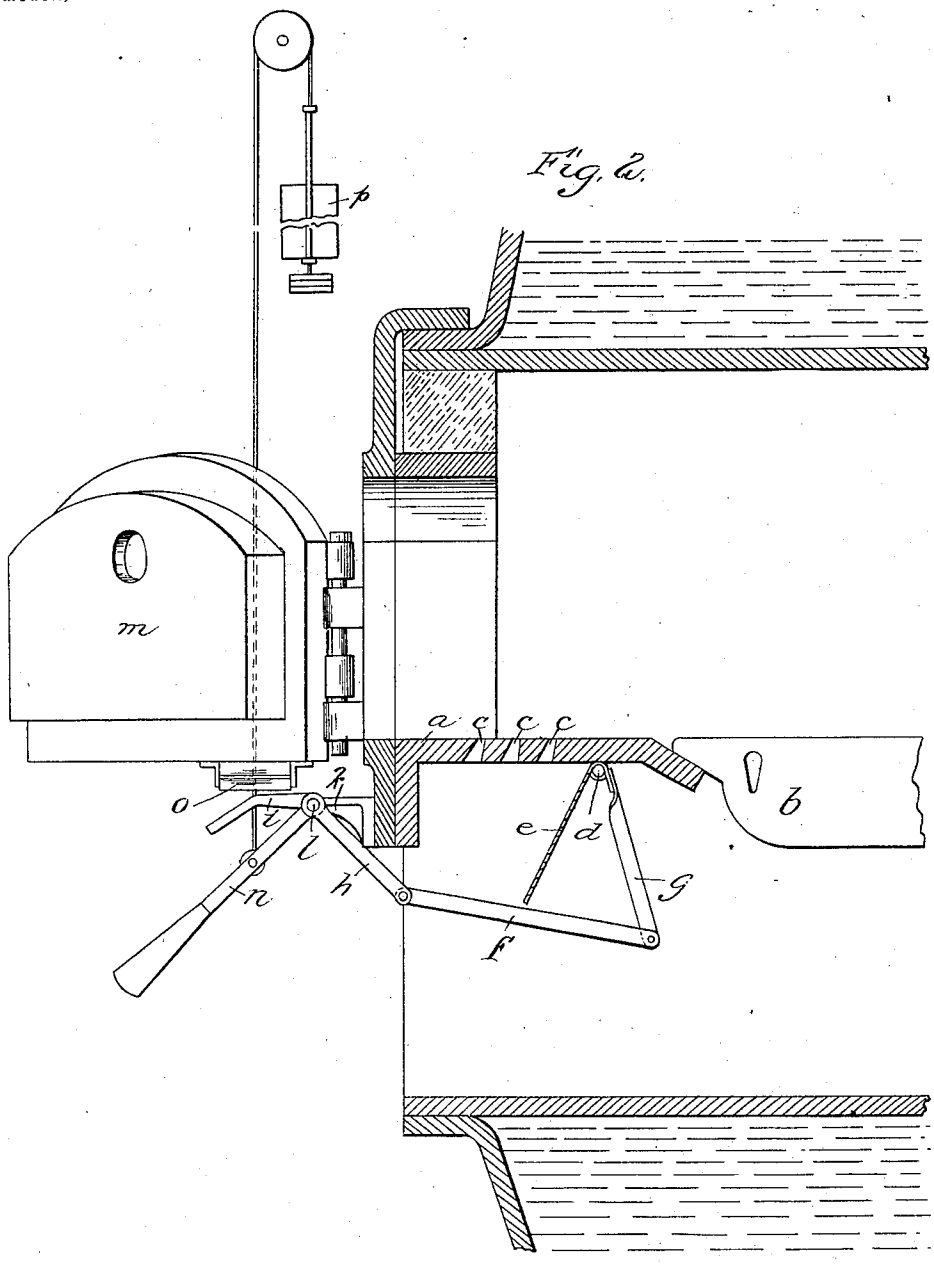
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Fig. 2.



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UNITED STATES PATENT OFFICE.

FELIX PINTHER, OF BERLIN, GERMANY.

AUTOMATIC AIR-FEEDING APPARATUS FOR FURNACES.

SPECIFICATION forming part of Letters Patent No. 660,456, dated October 23, 1900.

Application filed December 19, 1899. Serial No. 740,917. (No model.)

To all whom it may concern:

Be it known that I, FELIX PINTHER, engineer, a subject of the King of Prussia, Emperor of Germany, residing at No. 56 Baerwaldstrasse, Berlin, in the Kingdom of Prussia, German Empire, have invented a new and useful Improvement in Automatic Air-Feeding Apparatus for Furnaces, of which the following is a specification.

It has been proved with grate-furnaces that if air is supplied in the right quantity and at the proper time and place, and if there is a sufficient temperature in the fire-box, and if provision is made for a proper mixture of the air with the gases produced, the combustion can be rendered perfectly smokeless; but when making trials under these circumstances it was found that in practice the mixture of air with the products of combustion and also the corresponding exact regulating of the air-supply could not be obtained permanently by the stoker.

The object of the present invention is to enable the mixing and regulating of the air-supply automatically in a useful manner and without any attendance.

In the accompanying drawings, Figure 1 is a sectional view showing the parts in one position, and Fig. 2 is a similar view showing the parts in reversed position.

The furnace-plate *a*, on which the grate *b* rests, is provided with several parallel slits *c*, which are closed below by a trap-door *e*, hinged on rod *d*. To this door *e* a lever *g* is fixed at a certain angle hinged to the rod *f*, to the other end of which the angle-lever *h* is hinged. The latter is firmly connected to the shaft *l*, which turns in bearings *k* in front of the fire-box. On the same shaft *l*, by the side of the fire-door *m*, the draw-lever *n*, provided with a handle, is arranged, at the outer end of which a chain or rope guided over a pulley to a stopping device *p* is provided.

The function of the apparatus is as follows: Suppose the coals on the grate *b* have burned so far as to require a fresh supply. If for this purpose the fire-door *m* is opened, the lower side of the same at which a small latch *o* may be provided touches the arm *i* of the angle-lever *h* and places the same in the direction of the arrow shown into the position represented by Fig. 2, during which movement lever *h* acts on the rod *f* and the latter on lever *g*, which then opens the trap-door *e*, thus opening the slits *c* in the fire-plate. If particles of coal should have collected in the slits while the trap-door is closed, these can fall off from the slanting surface of the trap-door when the same is opened. The slits themselves are widened below, which prevents little pieces of coal getting wedged in them.

There can be no doubt that by dividing the air-current by means of the slit-openings *c* into several currents of air of comparatively great speed of admission an excellent distribution of the air over the fuel and in the gases developing out of the same is effected, thus fulfilling the condition of a good mixture.

As aforementioned, the draw-lever *n* moves on the shaft *l* before the fire-box, with which it is firmly connected, and also being connected in suitable manner with a stopping device. The latter is so arranged that when the trap-door *e* is completely opened, in which case the draw-lever *n* stands in the position indicated by Fig. 2, it is drawn up again by means of a spring or weight, according to the course of combustion, and the trap-door *e* is thus closed. By regulating the stopping device in suitable manner the trap-door *e* can be closed, as may be required. Shortly after putting fresh fuel on the fire the greater part of the air is therefore introduced with greater speed absolutely automatically in finely-dispersed currents, while, according to the degasification of the fuel on the grate, less air and with less speed is introduced also automatically. When the degasification is complete, the trap-door *e* closes entirely and the air is stopped.

What I claim is—

In a furnace the combination with the furnace-plate having openings therein, a door *e* for closing said openings and a furnace-door, of a rock-shaft having connections leading to the door *e* for controlling the same, a projection from the shaft extending in the path of the furnace-door and adapted to be operated thereby, an arm extending from the rock-shaft and means for automaticlly moving said arm whereby said door *e* is closed through the said connections, substantially as described.

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

FELIX PINTHER.

Witnesses:

WOLDEMAR HAUPT,

HENRY HASPER.