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PATENTED NOV. 20, 1906.

G. POLITZ.  
FURNACE.

APPLICATION FILED FEB. 23, 1906.

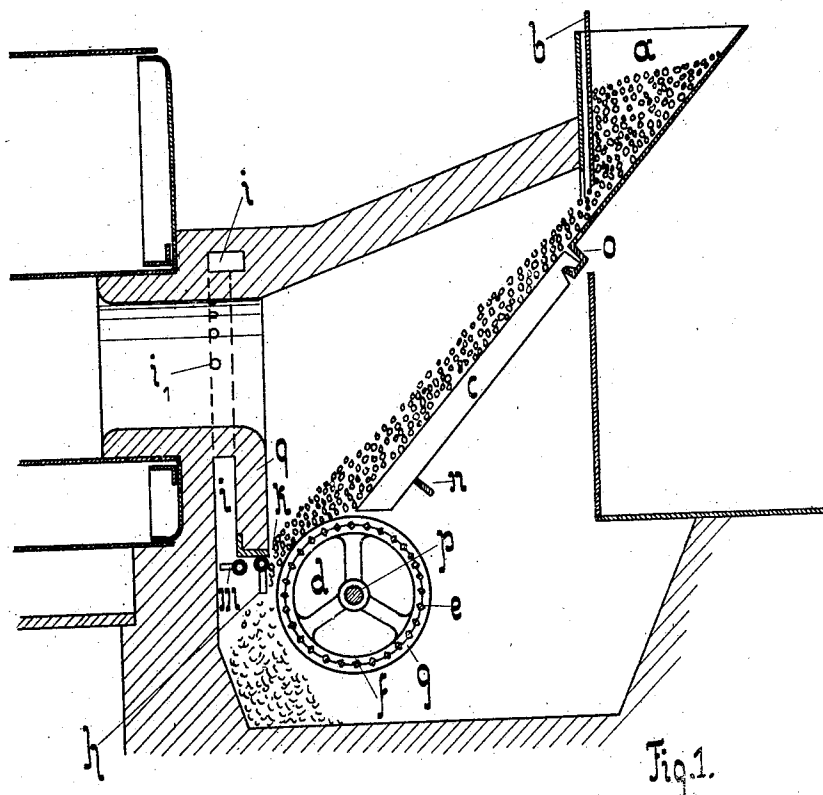


Fig. 1.

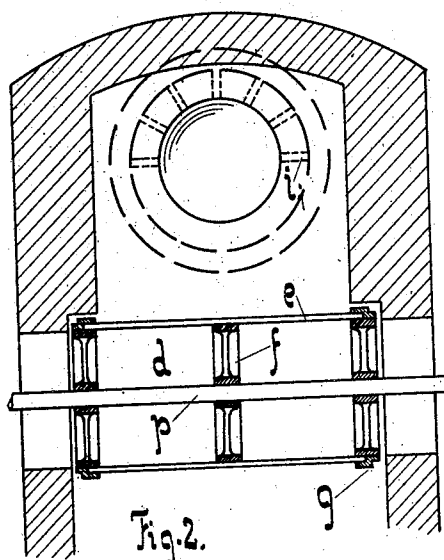


Fig. 2.

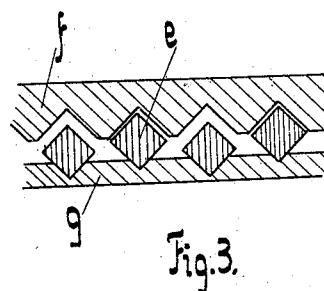


Fig. 3.

Witnesses:  
L. M. Sweeney.  
J. D. Klinge.

Inventor:  
Gustav Politz  
by *Nelson & Randall*  
Attorneys.

# UNITED STATES PATENT OFFICE.

GUSTAV POLITZ, OF KATTOWITZ, GERMANY.

## FURNACE.

No 836,402.

Specification of Letters Patent.

Patented Nov. 20, 1906.

Application filed February 23, 1906. Serial No. 302,450.

*To all whom it may concern:*

Be it known that I, GUSTAV POLITZ, a subject of the King of Prussia, German Emperor, and a resident of Kattowitz, Upper Silesia, Prussia, Germany, have invented a new and useful Improved Furnace, of which the following is a specification.

The subject-matter of the present invention relates to furnaces having slanting grates and provided with revolving grates at their lower ends.

The chief feature of the invention is the arrangement whereby the revolving grate forms the supply-channel for the air for supporting combustion.

A second feature consists in the grate-bars of the revolving grate being movably supported in a special manner in order to facilitate the passage of the air and of the ash-particles through said revolving grate.

The invention also consists in the details of construction and combination of parts, as hereinafter described and claimed.

One embodiment of the present invention is illustrated in the accompanying drawings, in which—

Figure 1 is a longitudinal section through a complete furnace; Fig. 2, a vertical cross-section through the installation shown in Fig. 1, the section being taken through the axle of the revolving grate; and Fig. 3 a developed cross-section, on an enlarged scale, of a portion, hereinafter described, of the rotary grate.

Referring to Fig. 1, the coal passes from the hopper *a*, provided with the regulating feed-shutter *b*, onto the slanting grate *c*, which is supported upon the bars *n* and *o*. The coal is drawn down from the latter by means of the revolving grate *d*, which is set in slow rotation by any suitable means. *e* represents the grate-bars of said revolving grate. This revolving grate is open at one or both of its ends, and the wall or walls of the furnace are provided with one or more openings or air-passages communicating with the open end or ends of the grate, so that the latter forms the supply-channel for the air for supporting combustion, which air becomes warmed by its proximity to the bars *e*, while simultaneously cooling down the latter and passing between them in part directly into the combustible lying on the revolving grate *d* and in part under the slanting grate *c* and in part as secondary air,

through the annular channel *i* and the openings *i'* into the furnace-gases.

The fire-chamber is closed in front, so as to prevent the entrance of air.

The peripheral body of the revolving grate *d* is formed of a number of bars *e*, which are arranged on a plurality of disks *f*, provided with openings, said disks being connected firmly with the revolving axle *p*. The bars are prevented from falling out by means of rings *g*, placed over their ends. The disks *f* and rings *g* are provided with corresponding recesses, in which the grate-bars *e* are supported. Every second grate-bar *e* preferably has greater space for play on account of its recesses being enlarged, so that the grate-bars in question fall lower into the rings *g* when they are on the under side of the revolving grate than their neighboring bars. On account of the grate-bars being thus movably supported it results that the spaces between the bars are continually maintained open for the purpose of enabling the passage therethrough of the air and the removal of the particles of ash which have fallen into the revolving grate.

A space *k* is left between the revolving grate *d* and the fire-bridge *q*, through which the larger ashes fall. In order to render possible the passage through said space of still larger pieces, a swinging suspended plate *h* is there arranged, which plate is forced aside by such larger pieces, and on account of its weight afterward resumes its perpendicular position. Another plate or flap *m* is situated in front of the opening of the annular channel *i* for the purpose of enabling the air for the support of secondary combustion to be regulated.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination with means for feeding combustible material to a furnace, of a slanting or inclined grate in the fire-chamber, and to which grate said combustible material is fed, and a hollow revolving grate at the lower end of said slanting grate, said revolving grate having an open end or ends so as to form a supply-channel for the air supporting combustion, and the wall or walls of the furnace having one or more openings or air-passages communicating with the said open end or ends of said grate.

2. The combination with means for feeding combustible material to a furnace of a

slanting or inclined grate in the fire-chamber, and to which grate said combustible material is fed, a hollow revolving grate at the lower end of said slanting grate, said revolving-grate having an open end or ends so as to form a supply-channel for the air supporting combustion, and the wall or walls of the furnace having one or more openings or air-passages communicating with the said open end or ends of said grate, a fire-bridge arranged in proximity to but slightly separated from said revolving grate, so as to afford a space between itself and said grate for the passage therethrough of ashes, and a normally vertical, freely-swinging suspended plate arranged in said space.

3. In a furnace having a closed fire-chamber, the combination of means for feeding combustible to the furnace, a slanting grate in the fire-chamber onto which grate said combustible is fed, and a revolving grate at the lower end of said slanting grate, said revolving grate forming the supply-channel for the air supporting the combustion and comprising a revoluble axle, a plurality of grate-bars, and means for loosely supporting said grate-bars on said axle, whereby when the axle revolves the grate-bars move relatively to one another, substantially as and for the purpose set forth.

4. In a furnace having a closed fire-chamber, the combination of means for feeding combustible to the furnace, a slanting grate in the fire-chamber onto which grate said combustible is fed, and a revolving grate at the lower end of said slanting grate, said revolving grate forming the supply-channel for the air supporting the combustion and comprising a revoluble axle, a plurality of rings having recesses in their outer surface, means for supporting said rings on said axle, a plurality of grate-bars engaging in said recesses, a plurality of rings having recesses of differing size in their inner surface surrounding said grate-bars, and engaging with the latter by means of their recesses, and means for supporting said latter rings on the axle, substantially as and for the purpose set forth.

5. In a furnace having a closed fire-chamber, the combination of means for feeding combustible to the furnace, a slanting grate in the fire-chamber onto which grate said combustible is fed, and a revolving grate at the lower end of said slanting grate, said revolving grate forming the supply-channel for the air supporting the combustion and comprising a revoluble axle, a plurality of rings having recesses of differing size in their outer surface, means for supporting said rings on said axle, a plurality of grate-bars engaging in said recesses, a plurality of rings having recesses in their inner surface surrounding said grate-bars, and engaging with the latter by means of their recesses, and means for supporting said latter rings on the axle, substantially as and for the purpose set forth.

6. In a furnace having a closed fire-chamber, the combination of means for feeding combustible to the furnace, a slanting grate in the fire-chamber onto which grate said combustible is fed, a revolving grate at the lower end of said slanting grate, said revolving grate forming the supply-channel for the air supporting the combustion, a fire-bridge having a main passage for the furnace-gases and an annular passage round said main passage and having an opening into the lower part of the fire-chamber and branch passages from said annular passage to the main passage and said bridge being arranged in proximity to said revolving grate, and leaving a space between itself and said grate for the passage therethrough of ashes, and a normally vertical freely-swinging suspended plate arranged in said space and an adjustable plate arranged at the opening into the fire-chamber of the above-mentioned annular passage, substantially as and for the purpose set forth.

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

GUSTAV POLITZ.

Witnesses:

A. W. MAN,  
ERNEST KATZ.