

UNITED STATES PATENT OFFICE.

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REVOLVING GRATE FOR GAS-PRODUCERS.

937,466.

Specification of Letters Patent.

Patented Oct. 19, 1909.

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To all whom it may concern:

Be it known that I, HUGO REHMANN, a subject of the German Emperor, and resident of Bürgerstrasse 10, Mülheim-on-the-Ruhr, Germany, have invented certain new and useful Improvements in Revolving Grates for Gas-Producers, of which the following is a specification.

The invention relates to revolving grates for gas producers which are provided with a towerlike erection turning with the grate; it consists essentially in the surfaces of the grate being formed out of several steep turrets provided with openings. The combustible continually slips down the steep turrets and thus gets well broken up. The distribution of air is improved and the formation of large clinkers avoided. In order to prevent the settling of slag or clinker on the wall of the generator, and to prevent the baking together of the coal on the top of the grate, one or more lateral projections in the form of scrapers are arranged on the revolving grate which reach near to the wall of the gas producer. It is advisable to construct these projections with cutting edges, so that the slag may be easily scraped off during the rotation of the grate.

In order to bring about a uniform introduction of the blast, it is led into each turret of the grate and in addition steam pipes are arranged in the blast distribution pipes, which lead steam under the turrets of the grate as well as each lateral projection in order to prevent the grate turrets from burning away while working in the red hot cinders.

The drawing shows a form of construction of the new revolving grate.

Figure 1 is a vertical section, Fig. 2 is a plan, and Fig. 3 is a partial side view of the revolving grate with a lateral projection.

The producer body *p*, which is supported in the usual way, projects with its bottom end into the water seal basin *q*. The latter is fixed on the plate *r*, which is turnably arranged in any well known manner and which is provided with the towerlike erection. In the form of construction shown the arrangement of this erection is represented as being at the side of the axis of rotation *a*, and around the middle turret *b* at unequal distances from the same, there are four turrets *c*, *d*, *e* and *f*. To the underside of the grate plate *r* there is fixed an annular flange *t* which dips into a water

seal *v* arranged in the foundation *u* of the producer.

The plate *r* together with the turrets is rotated in the well known manner by a worm not shown in the drawing and engaging into a worm wheel *s* fixed to the plate *r*.

o is a lateral projection in the form of a scraper for removing slag from the wall *p* of the producer. One of such scrapers *o* may be provided on each of the outer turrets. These scrapers are best made hollow and provided with openings. Each of the turrets is likewise provided with openings *g*.

h is the tube for leading in the blast, and its upper part is fixed to the grate itself. This upper part dips into the water seal *z*, and bears distributing pipes *k* leading into the turrets. In the tube *h* the steam pipe *l* is arranged the upper part of which can turn in the collar *m*, and terminates in several branch pipes *n*, which lead directly under the grate turrets and under the projection *o*. If the grate plate is rotated the distribution pipes *k* and branch steam pipes *n* are also rotated, so that their position relative to the turrets always remains the same.

By the rotating motion of the turrets lying at unequal distances from the axis of rotation, the combustible is moved toward the producer wall, and continually slips down the steep turrets and is thus well broken up; whereby the caking of the combustible and the settling of the latter on the grate is prevented, and a better distribution of the blast led in through the pipes *h* and *k* obtained. Moreover, by the scrapers *o* the combustible next to the producer wall *p* is broken up and the slag scraped off from the latter.

In order to prevent the turrets of the grate and the scrapers *o* from burning away while working in the red hot cinders, steam is led under the turrets and the scrapers through the pipes *l* and *n*.

In the form of construction shown around the central turret there are four further turrets arranged. The scope of the invention will not however be exceeded, if more or fewer turrets are arranged around the central one.

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

1. In a grate for gas producers in combination, a tower like erection arranged in the middle part of the grate plate and consisting of a plurality of steep turrets integral

with each other and adapted to move the combustible toward the producer wall, said turrets being hollow and provided with apertures, means for rotating the said grate plate together with said tower like erection, and means for leading a blast of air into said steep turrets, substantially as set forth.

2. In a grate for gas producers in combination, a tower like erection on the grate and consisting of a plurality of turrets arranged at unequal distances from the vertical axis of the grate, said turrets being hollow and provided with apertures, means for rotating the said grate together with the said turrets, means for leading a blast of air into said turrets, and means for leading steam into said turrets, substantially as set forth.

3. In a grate for gas producers in combination, a tower like erection on the grate and consisting of a central turret and a plurality of turrets arranged around the said central turret, means for rotating the said grate together with the said turrets, a lateral projection on one of the said outer turrets, said lateral projection having a cutting edge, said turrets and lateral projection being hollow and provided with apertures, means for leading a blast of air into said turrets, and means for leading steam into said turrets, substantially as set forth.

4. In a grate for gas producers in combination, a tower like erection on the grate and consisting of a hollow central turret and a plurality of hollow turrets arranged around the said central turret, means for rotating the said grate together with the said turrets, lateral projections on said outer turrets, each of said lateral projections having a cutting edge and adapted to remove clinker from the walls of the gas producer, there being apertures in said hollow turrets and lateral projections, means for leading a blast of air into said turrets, and means for leading steam into said turrets, substantially as set forth.

5. In a grate for gas producers in combination a tower like erection on the grate and consisting of a hollow central turret and a plurality of hollow turrets arranged around the said central turret, means for rotating the grate together with the said turrets, lateral projections on said outer turrets, each of said lateral projections having a cutting edge and adapted to scrape clinker from the wall of the gas producer, there being apertures in said hollow turrets and lateral projections, a main tube for the blast terminating in a water seal, an upper main tube dipping into said water seal, branches of said upper main tube adapted to lead the blast under each turret, and means for leading steam under each hollow turret and lateral projection, substantially as set forth.

6. In a grate for gas producers in combination a tower like erection on the grate and consisting of a hollow central turret and a plurality of hollow turrets arranged around the said central turret, means for rotating the grate together with the said turrets, lateral projections on said outer turrets, each of said lateral projections having a cutting edge and adapted to scrape off the clinker from the wall of the gas producer, there being apertures in said hollow turrets and in said lateral projections, a main tube for the blast of air terminating in a water seal, an upper main tube dipping into said water seal branches of said upper main tube, adapted to lead the blast under each turret, a main steam pipe terminating in a collar, an upper pipe rotatable on said collar, and branches of said upper pipe adapted to lead the steam under each turret and lateral projection, substantially as set forth.

In testimony whereof I have hereunto signed my name this 29th day of April 1907, in the presence of two subscribing witnesses.

HUGO REHMANN.

Witnesses:

M. ENGELS,

ALFRED POHLMAYER.