R. KLEPKE.

CHAIN GRATE.

APPLICATION FILED SEPT. 26, 1910.

996,095.

Patented June 27, 1911.

2 SHEETS—SHEET 1.

Fig. 1.
(A—B)

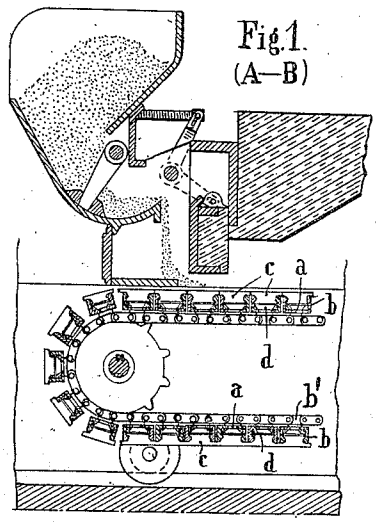



Fig. 2.

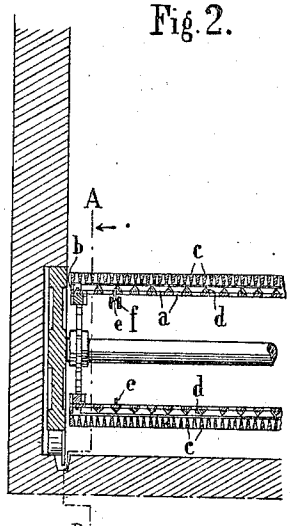



Fig. 3. (C—D).

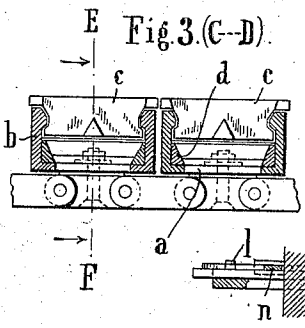



Fig. 4.
(E—F + G—H.)

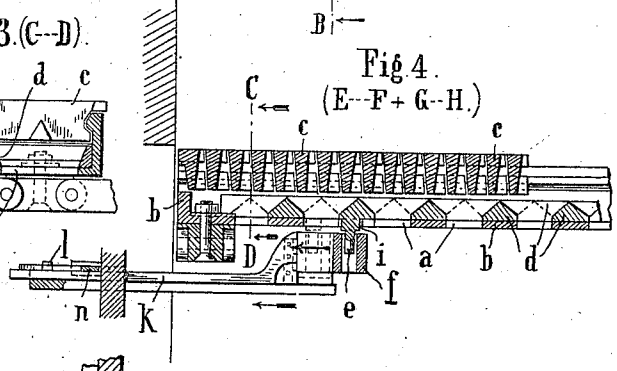
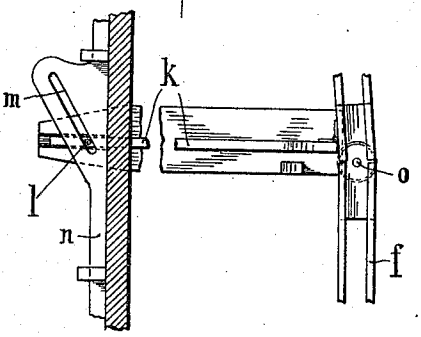



Fig. 6.

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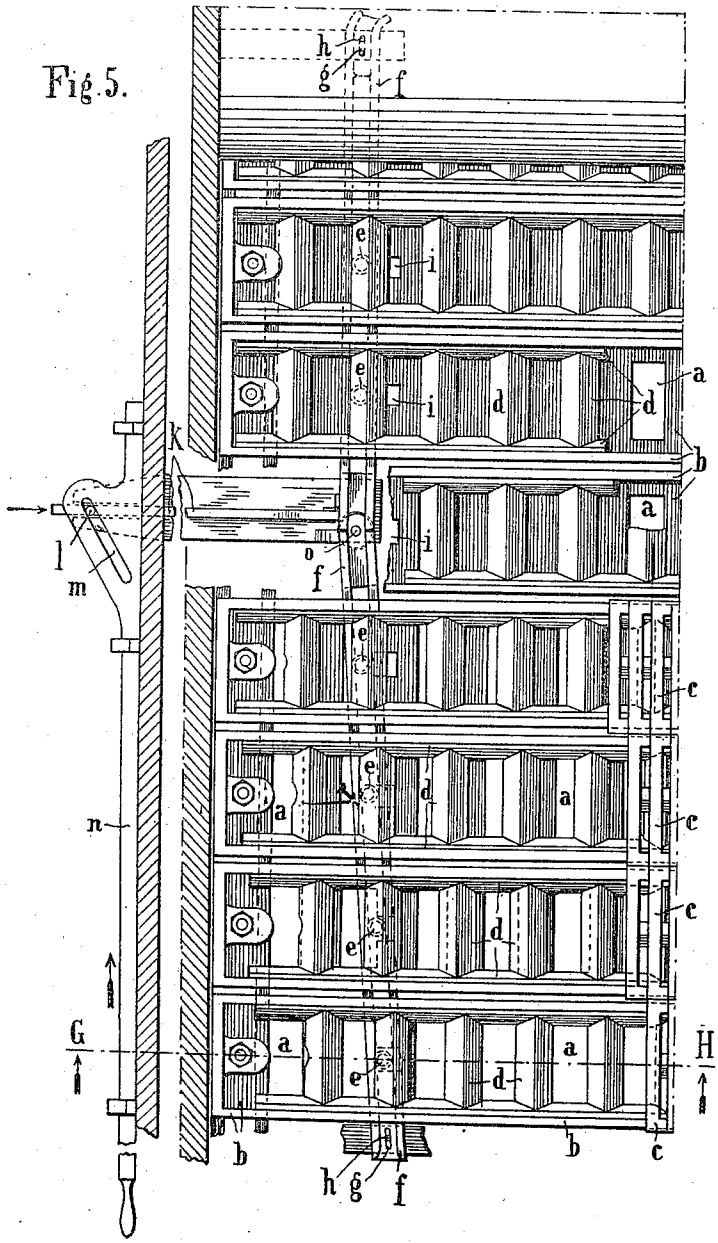
2 SHEETS—SHEET 2.

Fig. 5.

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# UNITED STATES PATENT OFFICE.

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## CHAIN-GRATE.

996,095. Specification of Letters Patent. Patented June 27, 1911.

Application filed September 26, 1910. Serial No. 583,895.

*To all whom it may concern:*

Be it known that I, ROBERT KLEPKE, a subject of the German Emperor, and residing at Blasewitz, near Dresden, Germany, have invented certain new and useful Improvements in Chain-Grates, of which the following is a specification.

The subject-matter of my invention is a chain grate comprising box-like grate bar frames having fire bars pushed laterally therein. The openings in the bottoms of each frame can be closed and opened by a perforated damper plate in such manner that, according to the position of an adjustable guide rail into which a guide pin of each damper plate extends, the positions of the damper plates and the admission of air are regulated. The guide rail consists of a front and a rear portion which are pivotally connected together and are also pivotally supported at their outer ends. In this manner I arrange that the supply of air can be changed from one part of the grate to another and regulated to varying extents on the front, central and rear parts of the grate.

Owing to the improved constructional form interruptions in working are prevented because, in contradistinction to former arrangements in which the damper plates lie directly on the fire plate, the damper plates are not heated and ash falling through the fire bars into the box-like frames and carried along with the grate when the air is shut off falls out of the frames when the latter leave the guide rail, because the damper plates are opened automatically at the bend in the guide rail and open the openings in the grate-bar frames, so that the grate is cooled again.

One illustrative embodiment of my invention is represented by way of example in the accompanying drawing, wherein:—

Figure 1 is a vertical longitudinal section according to the bent line A—B in Fig. 2 showing the front portion of the grate, Fig. 2 a vertical transverse section through part of the grate, Fig. 3 a vertical section according to the line C—D in Fig. 4, Fig. 4 a section taken on the lines E—F in Fig. 3 and G—H in Fig. 5, while Fig. 5 is a plan of the grate, part being broken away for showing the pivotal connection of the two parts of the guide rail, and Fig. 6 is a plan view showing means for adjusting the guide rail, Figs. 3 to 6 being on an enlarged scale.

Referring to the drawing, my chain grate consists substantially of chains $b'$ carrying the box-like, grate-bar frames $b$ having openings $a$ in their bottoms which can be closed by the perforated damper plates $d$. These plates are located between the fire bars $c$ and the bottoms of the frames. The ends of the fire bars rest on the vertical sides of the frames. The ridge-shaped bars of the damper plates $d$ can be pushed over the openings $a$ and partially or entirely close the same, according to the position of the regulating or guide rail $f$. The latter is arranged below the frames and comprises two parallel vertical guides connected at their ends, as clearly shown in Fig. 5. Slots $g$ through which pins $h$ pass are provided in the ends of the rail $f$, and each damper plate carries a pin $e$ guided by the rail.

The guide rail comprises two parts able to rock about the pins $h$. These parts are pivotally connected by a pivot $o$ at about the center of the grate in such manner that in their end positions they form a bend, but the vertical guides fit one another so well that the pins $e$ are guided at the bend.

In the position of the grate shown in Fig. 5 the openings in the front frame are open and are gradually more and more closed up to the center of the grate. From here to the rear end the closure is more perfect, the small slots $i$ in the bottoms of the frames for allowing the pins $e$ to slide being left open. The two parts of the rail $f$ are positively connected with a slide $n$ by a cross bar $k$ which carries at its exterior end a vertical pin $l$ projecting into the slot $m$ in the slide, so that when the slide $n$ is moved to and fro the pin $l$ slides in the slanting slot $m$ and reciprocates the cross bar $k$ and consequently bends the parts of the rail $f$ connected with it.

A stronger or weaker draft can be obtained as desired by moving the rail $f$. In the position shown in Fig. 6 the damper plates from the front of the grate to the bend in the rail, that is, about up to the center of the grate, are open, *i. e.* the openings $a$ in the frames are open and a stronger draft produced. From the center to the end of the grate the openings $a$ are gradually

closed. The rear end of the guide rail *f* has a bend, whose purpose is to open the damper plates as they leave the rail and thereby to eject the ash through the openings *a*.

I claim:—

In a chain grate, the combination, with chains, of a plurality of box-like, grate-bar frames having openings in the bottoms thereof carried by the chains, grate bars in each frame, a perforated damper plate in each frame between the grate bars and openings therein for controlling the openings, a two-part guide rail having a bent rear end arranged transversely of the frames, a pin on each damper plate, adapted to be guided by the guide rail, a cross-bar carrying a pivot connecting the inner ends of the two parts of the guide rail rocking about their other ends, and manually-operated means for moving said cross-bar longitudinally of the frames.

In testimony whereof, I affix my signature in the presence of two witnesses.

ROBERT KLEPKE.

Witnesses:

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