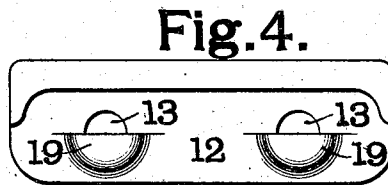
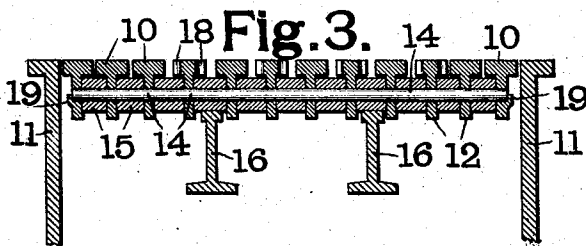
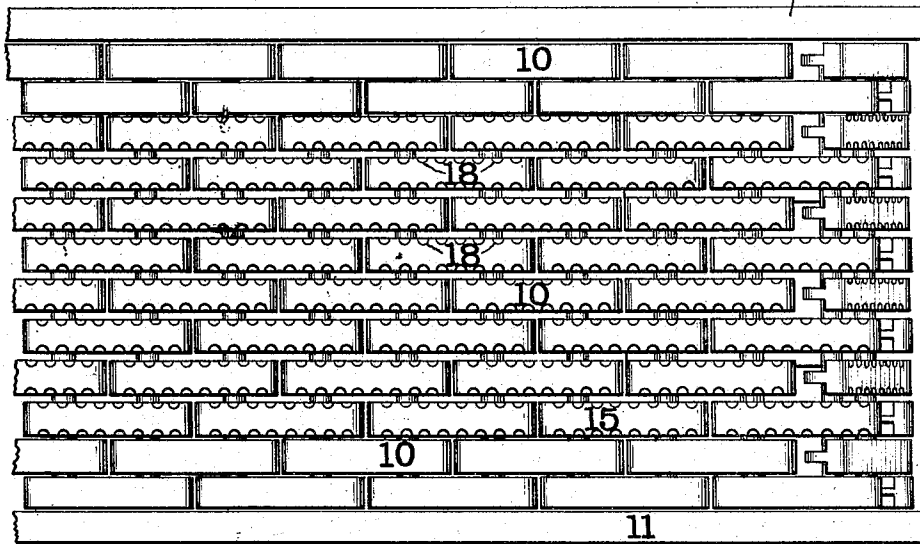
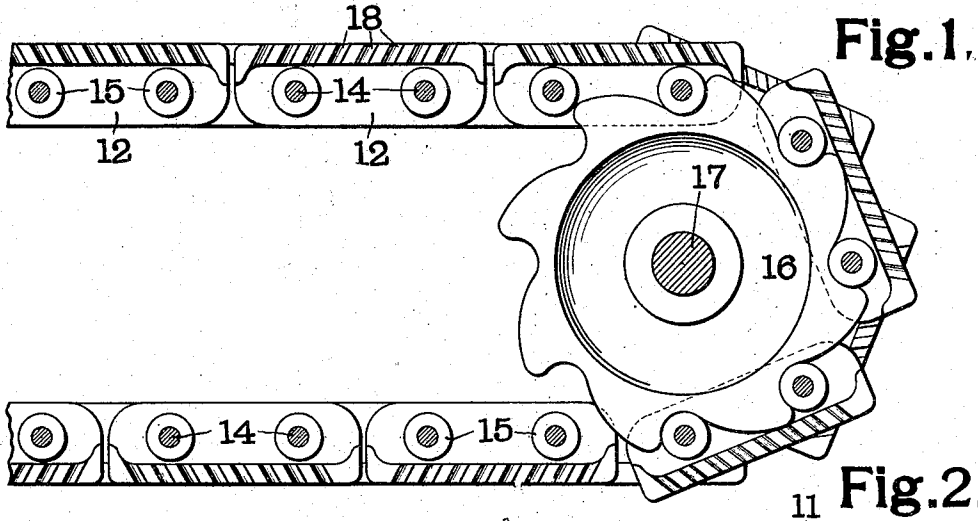


F. GIRTANNER.
FURNACE GRATE.
APPLICATION FILED NOV. 20, 1908.

941,572.

Patented Nov. 30, 1909.



Witnesses
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UNITED STATES PATENT OFFICE.

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FURNACE-GRATE.

941,572.

Specification of Letters Patent.

Patented Nov. 30, 1909.

Application filed November 20, 1908. Serial No. 463,524.

To all whom it may concern:

Be it known that I, FREDERICK GIRTANNER, a citizen of the United States, residing at the city of St. Louis, in the State of Missouri, have invented a certain new and useful Furnace-Grate, of which the following is such a full, clear, and exact description as will enable anyone skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, forming part of this specification.

My invention relates to a furnace grate and more particularly to that class of grates known as chain grates, which consists of a plurality of rows of links which are fed forward by suitable mechanism to feed the fuel.

One object of my invention is to provide means for regulating the flow of air between the links so as to obtain uniform combustion throughout the width of the grate.

Another object of my invention is to provide improved means for driving the grate thereby preventing the breakage of the links.

In the accompanying drawings which illustrate one form of grate made in accordance with my invention, Figure 1 is a vertical section through one end of the grate; Fig. 2 is a top plan view; Fig. 3 is a cross section and Fig. 4 is an enlarged side view of one of the links.

Like marks of reference refer to similar parts in the several views of the drawings.

The grate consists of a plurality of rows of links 10 which are arranged so as to break joints, as shown in Fig. 2, and which run between side frames 11. Each of the links 10 is provided with a web 12 in which is formed two openings 13 for the passage of the pivot rods 14. In order to separate the links 10 I surround the pivot rods 14 between the webs 12 by cylindrical distance pieces 15. I find that in order to secure uniform combustion throughout the width of the grate it is necessary to have a greater flow of air between the links at the center of the grate than at the sides. In order to accomplish this, I use distance pieces 15 of different lengths and place the longest distance pieces at the center of the grate so as to separate the links at the center a greater distance than those at the side, as is clearly shown in Figs. 2 and 3 of the drawings.

These distance pieces 15 cooperate with the driving wheels 16 carried on a driving shaft 17 so that when the chain is driven the liability of breaking the links is greatly reduced. If one of the distance pieces 15 becomes broken from contact with the driving wheel it is only necessary to replace the distance piece instead of replacing the entire link as would be the case where the driving wheel cooperates directly with the link.

In order to further regulate the supply of air between the links I provide the edges of the links at the central portion of the grate with air passages 18, such air passages being omitted from the links at the sides of the chain. The links of the rows at the extreme edge are provided with stops 19 partially closing one side of the opening 13 so as to limit the lateral movement of the pivot rods 14.

It will be evident that the same links can be used for grates having any desired width of spaces between the links, it being only necessary to change the distance pieces 15 to secure any desired width between the links. By the use of the distance pieces and the air openings 18 uniform combustion can be secured throughout the entire width of the grate and at the same time the use of distance pieces to cooperate with the driving wheel greatly lessens the liability of the links becoming broken.

Having fully described my invention, what I claim as new and desire to secure by Letters Patent of the United States, is:

1. In a furnace grate, the combination with a plurality of rows of links, said links being arranged to allow the passage of a greater volume of air at the center of the grate than at the sides, of means for driving said links to feed the fuel.

2. In a furnace grate, the combination with a plurality of rows of links, of distance pieces separating said rows of links, said distance pieces being wider at the center of the grate than at the sides, and means for driving said links to feed the fuel.

3. In a furnace grate, the combination with a plurality of rows of links, of pivot rods passing laterally through said links, cylindrical distance pieces independent of said links and surrounding said rods and separating said links, said distance pieces being of different lengths to regulate the

volume of air passing between said links, and driving wheels coöperating with said distance pieces to drive said links to feed the fuel.

- 5 4. In a furnace grate, the combination with a plurality of rows of links, of pivot rods passing laterally through said links, the links of the outer rows being provided with stops to limit the movement of said pivot

rods, and means for driving said links to 10 feed the fuel.

In testimony whereof I have hereunto set my hand and affixed my seal in the presence of the two subscribing witnesses.

FREDERICK GIRTANNER. [L. s.]

Witnesses:

BURT C. RANDALL,
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