J. W. FOWLER.

GRATE.

APPLICATION FILED DEC. 4, 1906.

949,065. Patented Feb. 15, 1910.

Fig. 1.

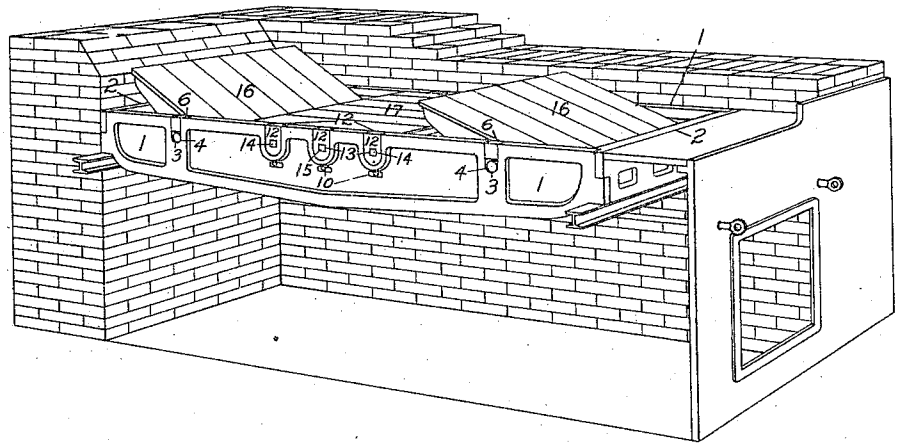


Fig. 3.

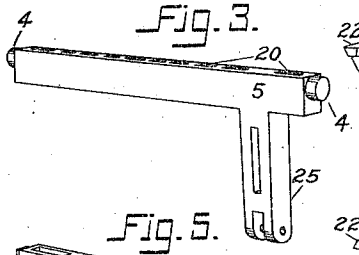


Fig. 2.

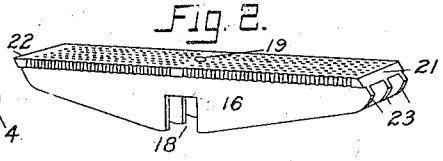


Fig. 4.

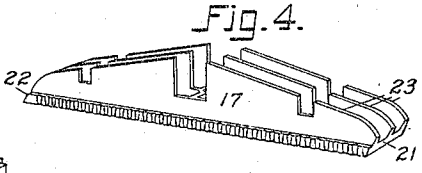


Fig. 5.

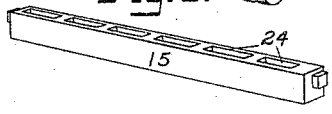


Fig. 7.

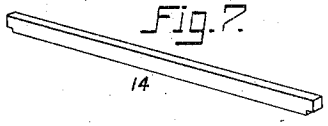


Fig. 6.

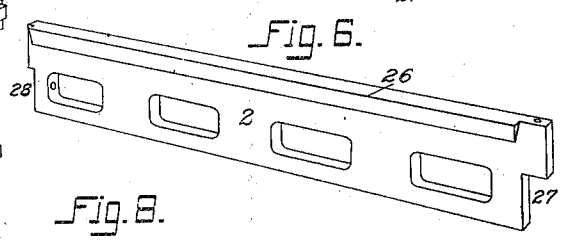
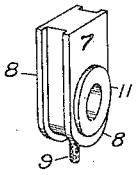


Fig. 8.



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GRATE.

949,065. Specification of Letters Patent. Patented Feb. 15, 1910.

Application filed December 4, 1906. Serial No. 346,262.

To all whom it may concern:

Be it known that I, JOHN W. FOWLER, a citizen of the United States, residing at Scranton, in the county of Lackawanna and State of Pennsylvania, have invented certain new and useful Improvements in Grates, of which the following is a specification.

This invention relates to new and useful improvements in grates and it particularly pertains to a construction in which the fuel supporting portion is composed of a series of removable leaves or bars.

In connection with the above general features of construction, novel means are provided for supporting the leaves or bars in such a manner that a part of the bars may be dumped or tilted while the rest of the bars are not capable of a dumping or tilting movement.

The detailed construction will appear in the course of the following description in which reference is had to the accompanying drawings, forming a part of this specification, like numerals designating like parts throughout the several views therein.

Figure 1, is a perspective view in part diagrammatic showing my grate applied to a fire-box, Fig. 2, is a view in perspective of the tiltable leaf or bar, Fig. 3, is a perspective view of the cross-bar which supports the tiltable leaves or bars, Fig. 4, is a perspective bottom view of the stationary leaves or bars, Fig. 5, is a view in perspective showing the center cross-bar, on which the stationary leaves or bars are mounted, Fig. 6, is a perspective view of one of the end bars, Fig. 7, is a perspective view of the smaller cross-bars, and Fig. 8, is an enlarged view in perspective showing the removable bearing block.

In the practical embodiment of my invention, I employ a supporting frame of rectangular outline comprising the side bars 1, and end bars 2, which in turn are supported by bars or I beams that project beyond the sides of grates and into the side walls of furnace.

The side bars 1, are provided with recesses 3, for the reception of the journals 4, of the movable cross-bars 5, said journals 4, being held from an upward movement by means of the slightly tapered wedge 6, which is driven in place after the cross-bars 5, are placed.

In the modified construction shown in Fig. 8, a different bearing is employed which takes the place of the wedge as previously described. The recesses 3, are formed to receive the bearing block 7.

Extending around the sides and bottom of the bearing block 7, are ribs 8, adapted to fit into corresponding grooves in the recesses 3, of the side bar 1, for the purpose of preventing horizontal movement.

At the lower extremity of the bearing block 7, Fig. 8, and midway between the ribs 8, is a pin 9, which is inserted in a corresponding perforation in the opening 3, of the side bar 1.

The pin 9, is perforated near its lower end and is adapted to receive a cotter pin or key, which prevents an upward movement of the grates while in service. The cotter pin or key is inserted through openings as at 10, Fig. 1.

The bearing block 7 may be provided with bosses 11, on one or both sides as desired.

The bearing blocks 12, are in every respect similar to the ones just described, barring the perforation at 13, which are of rectangular cross section for the purpose of preventing a rocking movement of the cross-bars 14, and 15.

The fuel supporting portion of my grate comprises the tiltable bars 16, and the stationary bars 17. The tiltable grate bars 16, are provided with openings 18, on their under sides, preferably midway between the extreme ends of bars, to receive the cross bars 5, on which they are mounted. The grate bars or leaf castings 16, are secured to the movable cross bars 5, by passing bolts through the perforations 19, and 20.

At the extreme ends of the grate bars 16 and 17, I cut away or bevel the surface as at 21 and 22, for the purpose of preventing a backward tilting of bars as would otherwise occur. It will be noticed that at 21, the upper surface is cut away, while at 22 the under surface is beveled. This construction also prevents the unconsumed fuel from passing between the bars when in normal position.

In order to strengthen the bars 16 and 17, downwardly extending ribs 23 are formed, which preferably extend the entire length of bars.

For the purpose of forming more rigid construction I employ three cross bars for the support of the stationary grate bars 17, as shown in Figs. 1 and 4. The center bar 15, which is of greater area in cross section than the bars 14, is provided with openings

24, through which bolts are passed to secure the members 17, and 15 together.

The cross bars 5, on which the tiltable grate bars 16, are mounted is provided with a downwardly extending arm 25, through which motion is imparted to the tiltable grate bars by any known method.

On one of the end frames on the top and inner surface an extending rib, with its under side beveled as at 26, Fig. 6, is formed to correspond with the beveled surface of the grate bars as shown at 21, Figs. 2 and 4. The opposite end bar is cut away on its top and inner surface to correspond with cut away portion of grate bars, as shown at 22, Figs. 2 and 4.

By referring to 27 and 28, Fig. 6, it will be apparent that the side bars and end bars, which comprise the frame proper, may be secured together by means of passing bolts vertically through the members as shown at 27, or horizontally as shown at 28.

In the drawings I have shown perforations in the fuel supporting portion of grates to supply the necessary air space, but it will be apparent that fingers and slots, or other openings may be formed without departing from the spirit of my invention.

Having now described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a grate, a frame including side bars having recesses which extend from the top faces of the bars downwardly, said bars being formed with openings which are spaced from and disposed below the bottoms of said recesses, bearing blocks conformably received in said recesses, cross bars, grate bars supported by said cross bars, said cross bars being carried by said bearing blocks, a downwardly depending pin carried by each bearing block, said pins extending into said openings and each having a transverse perforation and a cotter pin passed through each perforation so as to engage the top wall of said openings and thereby prevent upward movement of the bearing blocks.

2. In a grate, a frame composed of side bars and end bars, said end bars at the upper inner faces being beveled, a series of stationary grate bars, located central of the length of said side bars, a series of supporting bars for said grate bars connected to said side bars, each of the grate bars having their end faces beveled, a series of movable grate bars on each side of said stationary series, said movable grate bars having their end faces beveled to conformably fit said beveled portion of the end bars of the frame.

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

JOHN W. FOWLER.

Witnesses:
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PAUL W. GARDNER.