Nov. 28, 1944. R. L. BEERS 2,363,932

DETACHABLE GRATE BAR CONSTRUCTION FOR TRAVELING GRATES

Filed March 9, 1942 2 Sheets-Sheet 1

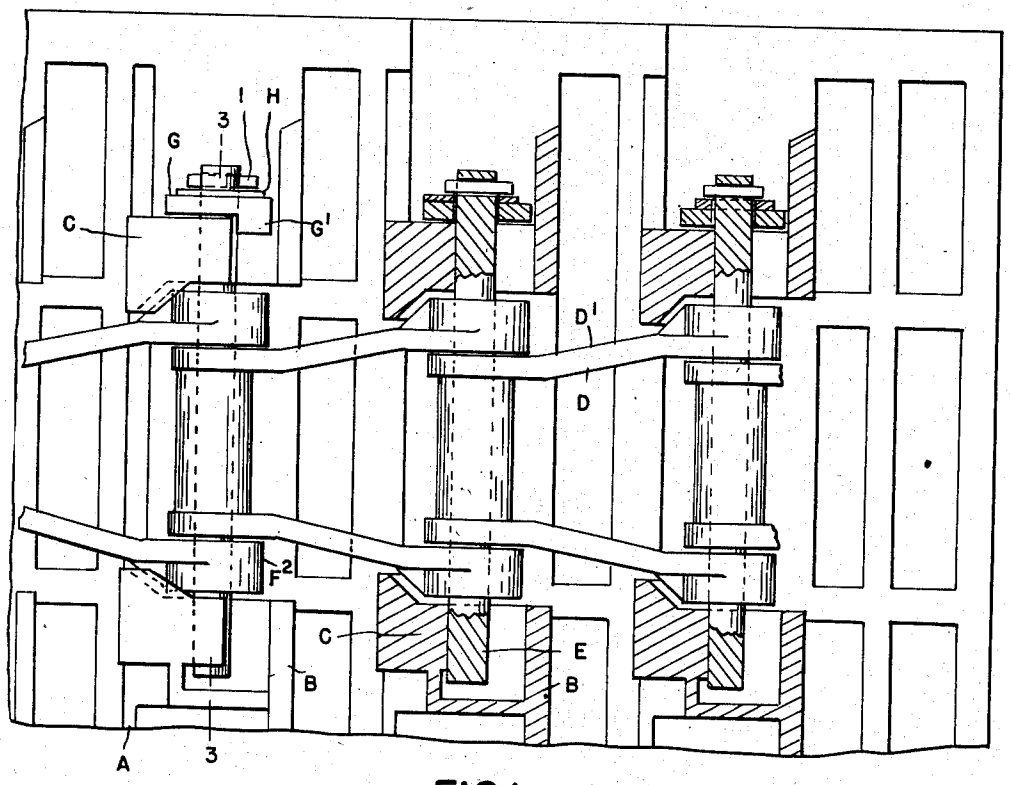


FIG.I.

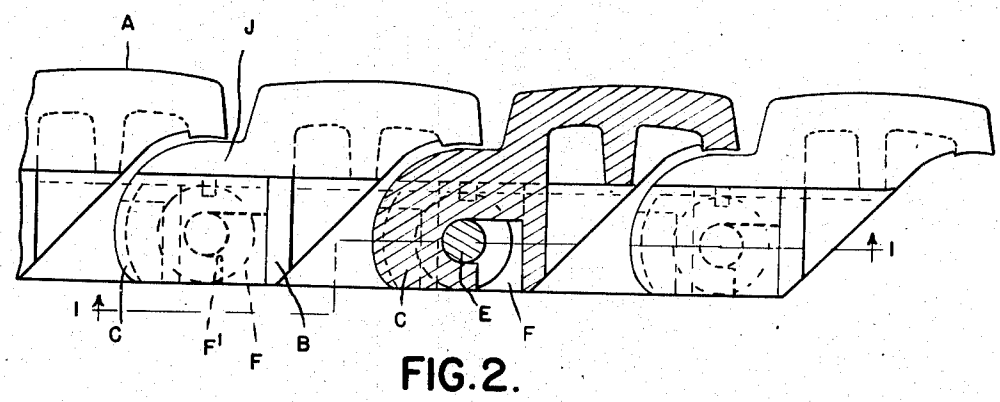


FIG.2.

INVENTOR.

ROYCE L. BEERS

BY

Whittemore Hulbert & Belknap

ATTORNEYS

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DETACHABLE GRATE BAR CONSTRUCTION FOR TRAVELING GRATES

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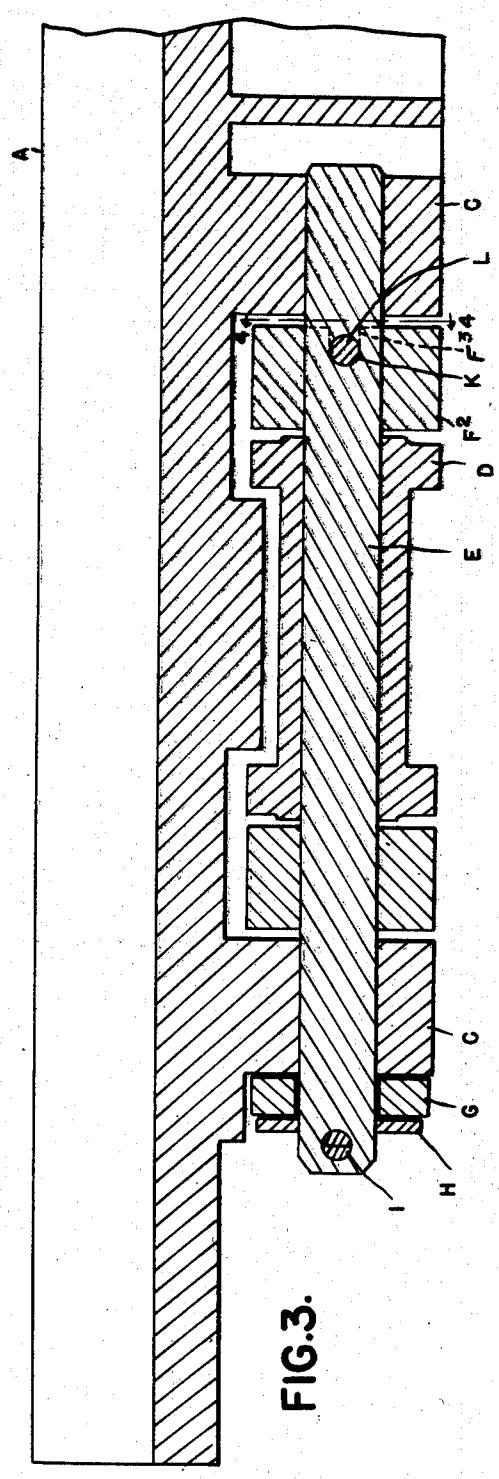


FIG.3.

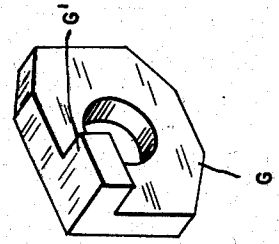


FIG.5.

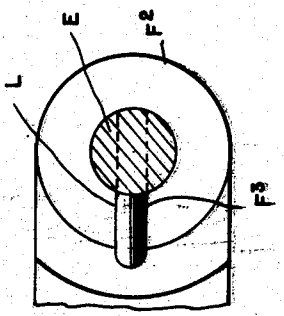


FIG.4.

INVENTOR.
ROYCE L. BEERS
BY
Whittemore Hulbert & Belknap
ATTORNEYS

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UNITED STATES PATENT OFFICE

2,363,932

DETACHABLE GRATE BAR CONSTRUCTION FOR TRAVELING GRATES

Royce L. Beers, Birmingham, Mich., assignor to Detroit Stoker Company, Monroe, Mich., a corporation of Michigan

Application March 9, 1942, Serial No. 433,980

6 Claims. (Cl. 110—40)

The invention relates to traveling grates of that type comprising a series of parallelly arranged transversely extending individual grate bars attached to a sprocket chain to travel therewith between and around spaced sprocket wheels. It is usual, in such constructions, to provide for detaching the bars, as it is occasionally necessary to replace the same. It is also usual to attach the bars to the chain by the same pivot pins which connect the links of the chain with each other. Consequently, to remove a bar, it is necessary to move the pivot pin axially, and because of the tension on the chain, this operation requires the application of considerable force. It is the object of the instant invention to obtain a construction in which the grate bars may be attached or detached from the chain without the necessity of any axial displacement of the pivot pins with respect to the chain links which they connect. To this end the invention consists in the construction as hereinafter set forth.

In the drawings:

Fig. 1 is a bottom plan view taken substantially on the line 1—1 of Fig. 2;

Fig. 2 is a side elevation, with parts broken away;

Fig. 3 is a section on line 3—3 of Fig. 1;

Fig. 4 is a section on line 4—4 of Fig. 3; and

Fig. 5 is a perspective view of the retaining means.

As illustrated, the traveling grate comprises a series of individual grate bars A, each having at its forward edge a depending flange B and spaced lugs C forward of this flange for embracing the propelling chain D and forming pivotal attachment thereto. The chain comprises a series of links D' pivotally connected to each other by pins E which latter extend beyond the links at opposite ends for engagement with the lugs of the bars. As heretofore constructed, to attach or detach a bar from the chain, the pivot pin E must be axially displaced or, in certain constructions, completely detached. This I have avoided by the following construction:

The lugs C have formed therein angular or bayonet slots F open at the bottom and having the horizontal portion F' thereof extending forwardly. These slots are of a width to receive projecting end portions of the pivot pins E and after said pins pass upward therein, a rearward movement of the bar A will engage them with the portion F' of the slot. This will form a half bearing for receiving the thrust of the pin, and as the chains travel forward and frictional resistance opposes movement of the bars, the principal stress will be carried by such bearing. However, to normally hold the pin from rearward displacement, a washer G is engaged with said pin outside the lug C, said washer having a lug G' which engages the entrance portion of the slot F. The washer G is held in position by a second washer H and cotter pin I and will therefore prevent any rearward movement of the pin E in the slot portion F'.

To prevent sifting of fuel between adjacent grate bars, there is a ledge J above the lugs C and extending the length of the bar, which ledge underlaps the rear edge portion of the next forward bar. This ledge portion J forms a reinforcement for the lugs C, which compensates for any weakening due to the entrance slot F.

The pivot pin E is preferably of uniform diameter throughout its length. It is non-rotatively fixed in position in one of the links D' by providing it with a transversely extending small aperture K in which is driven a pin L. The link D' has a hub portion F^2 provided with a channel F^3 for engaging the projecting portion of the pin L and thus holding it against rotation. The cotter pin I is arranged at the opposite end of the pin E, and when engaged, will hold said pin against longitudinal displacement.

With the construction as described, whenever it is desired to remove a grate bar, it is only necessary to first detach the washers G, after which the bar may be moved forward to permit the pin E to travel rearward in the horizontal portion F' of the slot F. The bar is then free to be lifted, the pin E disengaging through the vertical portion of the slot F.

What I claim as my invention is:

1. In a traveling grate, the combination with a series of adjacent grate bars and a propelling chain therefor extending transversely and intermediate the ends thereof, of means for detachably connecting a grate bar to said chain comprising a pin projecting laterally from said chain, a lug depending from said bar having a bearing for receiving the forward thrust of said projecting pin and provided with a rearwardly extending entrance slot therefor, means for holding said lug against endwise movement on said pin and detachable means for holding said bearing in engagement with said pin.

2. In a traveling grate, the combination with a series of adjacent grate bars and a propelling chain therefor extending transversely and intermediate the ends thereof, of means for detachably connecting a grate bar to said chain comprising a pin projecting laterally from said chain,

a lug depending from said bar having a bearing for receiving the forward thrust of said pin and provided with a rearwardly and downwardly extending entrance slot therefor, means for holding said lug against endwise movement on said pin and detachable means for holding said bearing in engagement with said pin.

3. In a traveling grate, the combination of a series of adjacent grate bars and a propelling chain therefor extending transversely and intermediate the ends thereof, said chain being formed of a series of links and pivot pins connecting the same, of means for detachably connecting a grate bar to said chain without displacement of said pivot pins in said links comprising opposite end extensions of said pivot pins, spaced lugs depending from said bar embracing said chain, each of said lugs being provided with a bearing for receiving the forward thrust of a pin and having an entrance slot extending rearward and downward, means for holding said pin against endwise movement in said lugs, and means detachably mounted on one of the extensions of said pin for holding the same against disengagement from the adjacent lug.

4. In a traveling grate, the combination with a series of adjacent grate bars and a propelling chain therefor extending transversely and intermediate the ends thereof, said chain being formed of a series of links, and pivot pins connecting said links, of means for detachably connecting each of said grate bars to said chain comprising opposite end extensions of a pivot pin, spaced lugs depending from said bar and embracing a link of said chain, each lug being provided with a bearing for receiving the forward thrust of said pin and having an entrance slot extending rearward and downward therefrom, means for holding said pin against endwise movement in said lugs, and a washer detachably mounted on said pin having a projecting lug engaging the entrance slot of an adjacent depending lug to hold the pin from disengagement from the bearing.

5. In a traveling grate, the combination with a series of adjacent grate bars and a propeller chain therefor formed of a series of links, of pivot pins connecting said links each of uniform diameter throughout its length and being of a length greater than the width of said links, one of each pair of links being provided with a radially extending recess therein, a smaller pin projecting laterally from each of the aforesaid pins and engaging said recess to hold said pivot pin from rotation in said link and also to position it longitudinally with its opposite end portions projecting beyond the opposite sides of the link, means cooperating with said pivot pin for detachably connecting a grate bar comprising lugs depending from said bar and embracing a pair of links of said chain, each of said lugs being provided with a bearing for receiving the forward thrust of said pivot pin and having an entrance slot extending rearward and downward therefrom, a washer sleeved upon an end portion of each of said pivot pins and provided with a lug for engaging said entrance slot of the adjacent depending lug to hold the pin from disengagement from said bearing, and a cotter pin for holding said washer from disengagement.

6. In a traveling grate, the combination of a series of adjacent grate bars and a propeller chain therefor extending transversely and intermediate the ends thereof, said chain being formed of a series of links and pivot pins connecting the same, means for detachably connecting each grate bar to said chain without displacement of said pivot pins in said links comprising opposite end extensions of said pivot pins, spaced lugs depending from said bar and embracing said chain, each of said lugs being provided with a bearing for receiving the forward thrust of a pin and having an entrance slot extending rearward and downward, means for holding said pin against endwise movement in said lug, means detachably mounted on one of the extensions of said pin for holding the same against disengagement from the adjacent lug, and a ledge on each grate bar above said lugs to reinforce the same, said ledge extending extending the length of the bar and underlapping the rear edge portion of the next forward bar to prevent sifting of fuel between said bars.

ROYCE L. BEERS.