

S. H. HUNT.

GRATE.

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1,060,683.

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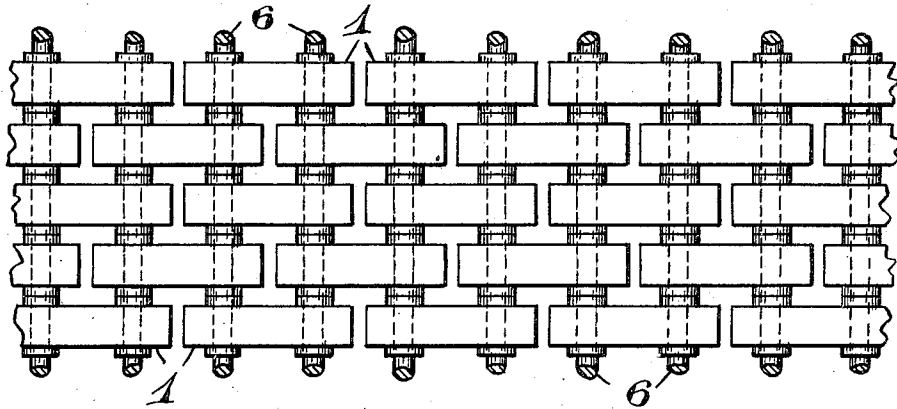


Fig. 1

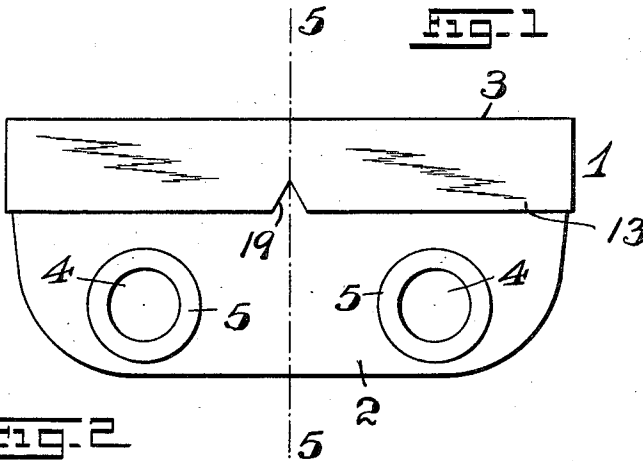


Fig. 2

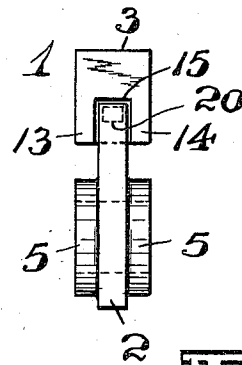


Fig. 3

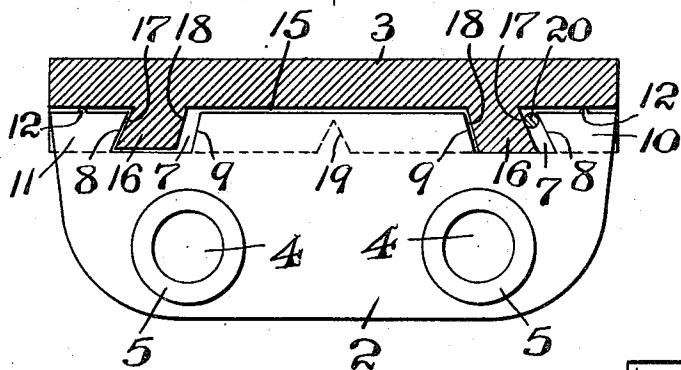


Fig. 4

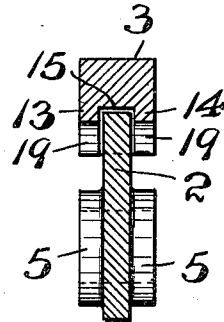


Fig. 5

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GRATE.

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To all whom it may concern:

Be it known that I, SYLVESTER H. HUNT, a citizen of the United States, residing at Long Branch, in the county of Monmouth and State of New Jersey, have invented certain new and useful Improvements in Grates; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to characters of reference marked thereon, which form a part of this specification.

This invention has reference, generally, to improvements in grates, and the present invention, has reference, more particularly, to chain grate stokers comprising a series of sectional links or pivotally connected elements.

The present invention has for its principal object to provide a novel and simply constructed element in the form of a link, a suitable number of such links being used to make up the movable grate, and said links forming the top thereof, and the said top of the grate being subject to intense heat and consequent deterioration, the said links shall be removable from the body which forms the chain of the grate, and the top-member of each link being adapted to be replaced by a new one without the stopping of the grate.

The invention has for its further purpose to provide a chain grate stoker comprising sectional links, the removable portion of each link being so constructed that a renewal of the part can be made without interfering with or otherwise disturbing the adjacent links or without stopping the grate or affecting its operation in any manner.

The invention has for its further object a novel means for locking the renewable part of each link by means of a metal cylinder which causes a toe or projecting portion to become jammed in a recess of the link proper when there is any tendency for the top to fall or be forced off, while returning on the under side of the grate; and, the invention has for its further object to provide a removable portion of the link of such construction so that it will lap over both sides of the link proper in a manner to protect and cover the locking device herein-above mentioned and prevent its working out of its position or being otherwise affected by heat or obstructions.

The invention has for its further object to arrange the toe or projecting portion of the removable part of the link in such a manner, so that an engagement can be made by inserting the same in the recess of the link proper in the direction in which the grate is running; and, furthermore, to provide a link, the recesses in the link proper or the supporting portion thereof being symmetrical with respect to the center line of the link, thereby avoiding any possibility of the renewable link-section being applied incorrectly.

The invention has for its further object to provide a link of the general character herein-above set forth, comprising a lower supporting element or link-proper and an upper renewable element or link-section, the supporting element being provided with ridges upon which the renewable element rests, and said renewable element being formed with a notch or notches midway between said ridges, all for the purpose of easily breaking the renewable section when the same is to be removed and is to be replaced by a new section.

Other objects of this invention not at this time more particularly enumerated will be clearly understood from the following detailed description of the present invention.

With the various objects of the present invention in view, the invention consists, primarily, in the novel construction of chain grate hereinafter set forth; and, the invention consists, furthermore, in the novel grate-link hereinafter described, and comprising, generally, a lower supporting member or link proper and a renewable upper link-section or element mounted thereon, and provided with a retaining or locking means, all arranged so that the renewable part of the link is readily secured in place against any accidental displacement and to prevent it from falling off while returning on the under side of the grate.

Figure 1 is a plan view of a portion of a chain grate stoker, made up of a number of grate-links embodying the principles of the present invention. Fig. 2 is a side elevation of one of the grate-links; Fig. 3 is an end view of the same; Fig. 4 is a view showing more particularly the locked relation of the lower supporting element, which is represented in side elevation, and of the upper renewable element mounted upon said lower element, said renewable element be-

ing shown in longitudinal vertical section; and Fig. 5 is a transverse vertical section of the grate-link, said section being taken on line 5—5 in said Fig. 2.

5 Similar characters of reference are employed in all of the above described views, to indicate corresponding parts.

Referring now to the several figures of the drawings, the reference-character 1 indicates the complete grate-link, the same comprising a lower supporting element or link-proper 2 and an upper and renewable link-section 3 mounted and supported upon the said lower element.

15 The lower element 2 is provided near its respective end-portions with suitable holes or openings, as 4, preferably surrounded by marginal flanges, as 5, for pivotally mounting the grate-links in staggered relation, upon the usual cross-rods 6 of the grate, substantially in the manner illustrated in Fig. 1 of the drawings. In its upper portion, the said supporting element or link proper is provided with suitably disposed recesses, as 7, the laterally extending sides or surface-portions 8 and 9 of the said supporting element, and which bound the said recesses 7, being inclined preferably at different angles, as will be seen from an inspection of Fig. 4 of the drawings, and the end-portions 10 and 11 of the said element 2 forming suitable holding lugs. The lugs 10 and 11 are usually provided with laterally extending ridges 12. The upper and renewable link-section or element 3, previously mentioned, is of greater width than the width of the lower supporting element or link proper 2, the said section or element 3 being provided with longitudinally extending and downwardly projecting side-flanges 13 and 14 in the form of petticoats, and forming with the upper body-portion of the said section or element 3 a longitudinally extending channel 15. Extending laterally across the said channel, at proper points, from the side flange 13 to the side-flange 14 are suitable holding or retaining lugs, as 16, the said lugs being formed with the angular surface-portions 17 and 18, corresponding to the respective angular surface-portions 8 and 9 herein-above mentioned, the said lug 16 being made narrower than the width of the said recesses, substantially as shown. The said side-flanges 13 and 14 are also provided midway between their free end-portions with suitably formed notches, as 19, for the purposes to be presently more fully set forth.

In order that the upper and renewable link-section 3 may be operatively mounted in its locked position upon the upper portion of the said lower supporting element or link proper 2, one of the holding or retaining lugs 16 is first inserted in one of the said recesses 7, and a suitable jam-means,

preferably in the form of a cylindrical holding or locking pin 20, of the proper length, is then placed in the angle formed by the surface-portion 17 of the other lug 16 and the base of the element 3, so that the jam-means, that is the pin 20, will rest in said angle, being held there by the surface-portion 17 and the edge-portion formed by the surface-portions 8 and the adjacent upper surface-portions of the lugs 10. The base or lower part of the lug 16 of the upper element 3 having been first inserted in the said recess 7 the parts are forced together, so that the parts will assume the assembled relation, clearly represented in the several figures of the drawings, with the upper element 3 resting upon the said ridges 12 of the lower element 2, and the pin 20 being tightly wedged, not at the bottom of the recess 7, but at the top thereof, substantially in the position shown in Fig. 4 of the drawings. The result will be that the said pin 20 positively locks the upper link element or section 3 in its supported relation upon the upper edge-portion of the lower element or link proper, any lateral displacement being prevented by the downwardly extending side-members 13 and 14 of the upper element 3. The angular surface-portions of the various parts, as well as the said longitudinally extending and downwardly projecting side-portions 13 and 14, will prevent the jam lock or pin 20 from working out. It will also be understood that the removable portion or upper link element is thus made to lap over both sides of the lower element or link proper in a manner to fully protect and cover the said locking device, so as to prevent its being affected by heat or other obstructions.

To remove the upper portion of the link, which is subject to intense heat and consequent deterioration, without interfering with or otherwise disturbing the adjacent links, or without stopping the grate or affecting its operation in any manner, all that is necessary is to strike the burned or destroyed upper link-section or element 3 a blow by means of a hammer or other tool, such blow causing the said link-section or element 3 to readily break at a point across the notched out portions, while the said link-section 3 is supported upon the fulcrum-like ridges 12. When thus broken, the parts of the said link-section or element 3 can readily be removed, without stopping the grate or affecting its operation and the removed link-section or element 3 can be readily replaced by a new section, which is locked in place in the manner herein-above stated.

I am fully aware that some changes may be made in the general arrangement and combinations of the various devices and parts, as well as in the details of the con-

struction of the same, without departing from the scope of the present invention, as set forth in the foregoing specification, and as claimed in the clauses of the claims which are appended thereto. Hence, I do not limit my present invention to the exact arrangements and combinations of the various devices and parts as described in the said specification, nor do I confine myself to the exact details of the construction of the said parts, as illustrated in the accompanying drawings.

I claim:—

1. In a grate of the general character set forth, a sectional grate-link comprising a lower link proper and an upper renewable link-element, a locking means for operatively mounting said upper link-element upon said lower link proper, said upper link-element having portions in the form of petticoats overlapping the sides of the lower link proper, said petticoats extending the entire lengths of said link-elements, and all arranged and constructed to prevent said locking device working out of place, or being otherwise affected by heat or obstructions.

2. In a grate of the general character set forth, a sectional grate-link comprising a lower link proper, and an upper renewable link-element, said lower link proper being formed with transversely extending recesses formed with inclined surface-portions, said upper link-element being provided with downwardly extending retaining lugs having inclined surface-portions, said lugs extending into and registering with the recesses in said lower link proper, and a locking means in one of said recesses, said locking means being journaled between and into holding engagement with the inclined surface-portions of said recess and the lug which registers with said recess, so as to retain said lug in holding engagement with the retaining lug in said recess.

3. In a grate of the general character set forth, a sectional grate-link comprising a lower link proper, and an upper renewable link-element, said lower link proper being formed with transversely extending recesses formed with inclined surface-portions, said upper link-element being provided with downwardly extending retaining lugs having inclined surface-portions, said lugs extending into and registering with the recesses in said lower link proper, and a cylindrical locking pin in one of said recesses, said locking pin being jammed between and into holding engagement with the inclined surface-portions of said recess and the lug which registers with said recess, so as to retain said lug in holding engagement with the retaining lug in said recess.

4. In a grate of the general character set forth, a sectional grate-link comprising a

lower link proper, and an upper renewable link-element resting upon said upper link, said lower link proper being formed with transversely extending recesses formed with inclined surface-portions, said upper link-element being provided with downwardly extending retaining lugs having inclined surface-portions, said lugs extending into and registering with the recesses in said lower link proper, and a locking means in one of said recesses in holding engagement with the retaining lug in said recess, said upper link-element having portions overlapping the sides of said lower link proper, and also overlapping the end-portions of said locking means, all arranged and constructed to prevent said locking means working out of place, or being otherwise affected by heat or obstructions.

5. In a grate of the general character set forth, a sectional grate-link comprising a lower link proper, and an upper renewable link-element resting upon said upper link, said lower link proper being formed with transversely extending recesses formed with inclined surface-portions, said upper link-element being provided with downwardly extending retaining lugs having inclined surface-portions, said lugs extending into and registering with the recesses in said lower link proper, and a cylindrical locking pin in one of said recesses in holding engagement with the retaining lug in said recess, said upper link-element having portions overlapping the sides of said lower link proper, and also overlapping the end-portions of said locking pin, all arranged and constructed to prevent said locking pin working out of place, or being otherwise affected by heat or obstructions.

6. In a grate of the general character set forth, a sectional grate-link comprising a lower link proper and an upper renewable link-element, said lower link proper being provided upon its upper surface with supporting ridges upon which the lower surface-portion of said upper link rests, said upper link-element having portions overlapping the sides of the lower link proper, all arranged and constructed to protect the said lower link proper, and said overlapping portions of the upper link-element being provided with notches, so as to permit the upper link-element to be readily broken for removal from said lower link, substantially as and for the purposes set forth.

7. In a grate of the general character set forth, a sectional grate-link comprising a lower link proper and an upper renewable link-element resting upon said upper link, said lower link proper being formed with transversely extending recesses formed with inclined surface-portions, said lower link proper being formed with transversely extending recesses formed with inclined sur-

face-portions, said lower link proper being formed also with supporting ridges, said upper link-element being provided with downwardly extending retaining lugs having inclined surface-portions, said lugs extending into and registering with the recesses in said lower link proper, and a cylindrical locking pin in one of said recesses in holding engagement with the retaining lug in said recess, said upper link-element having portions overlapping the sides of the lower link proper, and also overlapping the end-portions of said locking pin, all arranged and constructed to prevent said locking pin working out of place, or being otherwise affected by heat or obstructions, and said overlapping portions of the upper link-element being provided with notches, substantially as and for the purposes set forth.

8. A grate comprising a series of pivotally connected sectional links forming a chain-like body, each link comprising an upper and a lower link-element, and a holding means secured by compression between said link-sections, and longitudinally extending flanges connected with one of said link-sections, said flanges forming petticoats which embrace portions of the other link-section and also the end-portions of said holding means, so as to entirely conceal said means and prevent the latter from working out of place, or being otherwise affected by heat or obstructions.

9. A grate comprising a series of pivotally connected sectional links forming a chain-like body, each link comprising an upper and a lower-link-element, one of said link-sections being provided with a receiving recess, and the other link-section being provided with a retaining lug in said recess,

the width of said receiving recess being greater than that of said lug so as to provide a space, and a holding means in said space, said holding means being secured by compression in said space, and longitudinally extending flanges connected with one of said link-sections, said flanges forming petticoats which embrace portions of the other link-section and also the end-portions of said holding means, so as to entirely conceal said means and prevent the latter from working out of place, or being otherwise affected by heat or obstructions.

10. A grate comprising a series of pivotally connected sectional links forming a chain-like body, each link comprising an upper and a lower link-element, one of said link-sections being provided with a receiving recess, and the other link-section being provided with a retaining lug in said recess, the width of said receiving recess being greater than that of said lug so as to provide a space, and a retaining pin in said space, said pin being secured by compression in said space, and longitudinally extending flanges connected with one of said link-sections, said flanges forming petticoats which embrace portions of the other link-section and also the end-portions of said holding pin, so as to entirely conceal said pin and prevent the latter from working out of place, or being otherwise affected by heat or obstructions.

In testimony, that I claim the invention set forth above I have hereunto set my hand this 30th day of March, 1912.

SYLVESTER H. HUNT.

Witnesses:

FREDK. C. FRAENTZEL,

FREDK. H. W. FRAENTZEL.