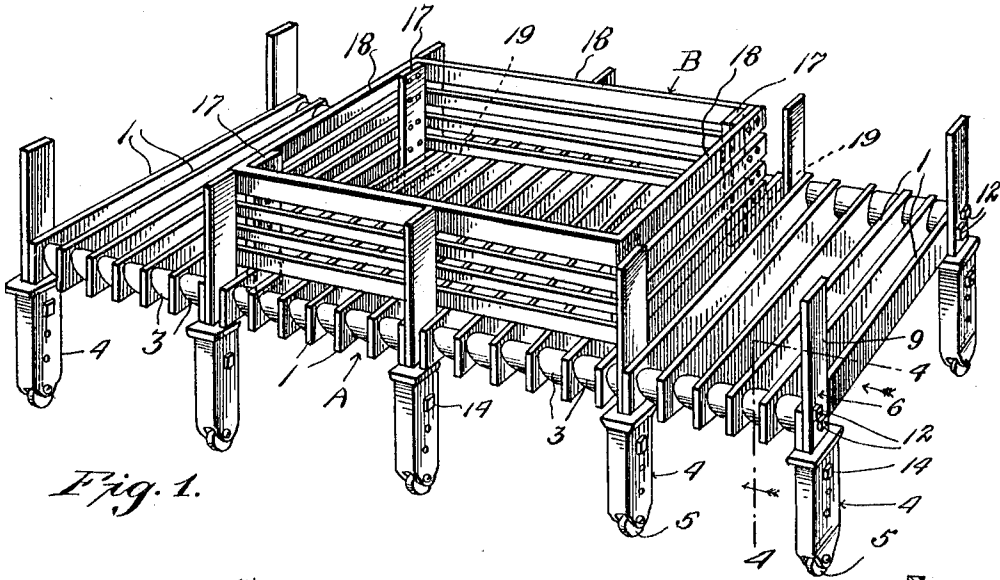
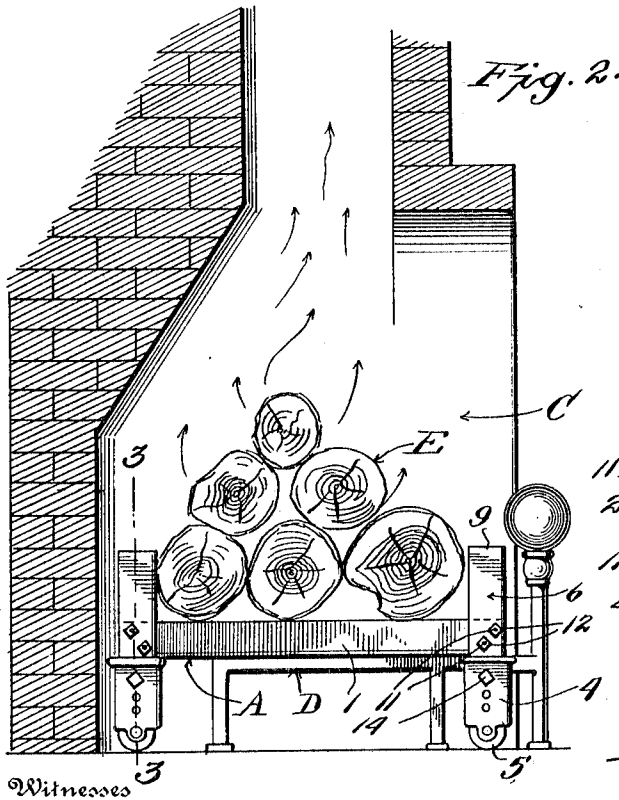
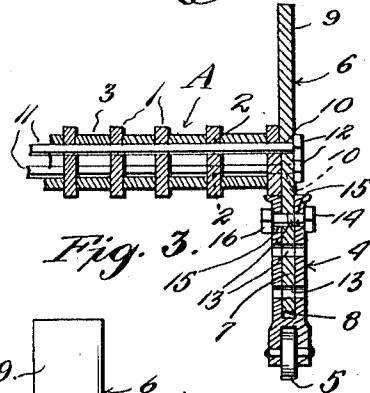
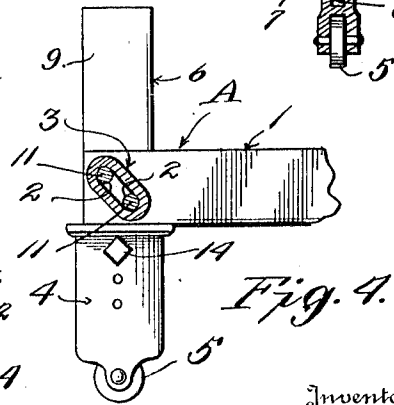


E. A. LAUGHLIN.
FIRE GRATE.
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1,118,501.

Patented Nov. 24, 1914.



Witnesses

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FIRE-GRATE.

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To all whom it may concern:

Be it known that I, ELMYR A. LAUGHLIN, a citizen of the United States, residing at Chicago, in the county of Cook, State of Illinois, have invented certain new and useful Improvements in Fire-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.

This invention relates to certain novel and useful improvements in a movable and adjustable grate adapted to be installed in a fire place.

As is well known, the usual type of fire place grate embraces a one piece structure of cast iron which requires not only a special pattern for each size, but also, usually a special pattern for each fire place, inasmuch as fire places generally differ one from another in size, design and construction. Consequently in many respects such a grate is relatively expensive, not only in the cost of manufacture, but also from the standpoint of maintenance. For instance, the burning out or warping of one or more bars, especially in the center of the grate, necessitates the discarding of the entire grate and the installment of a new one in its place. Furthermore, in addition to the relatively high initial cost of manufacture of the one piece grate, its expense to the ultimate purchaser is further increased by the crating and transportation charges necessarily incident to its bulky character.

To obviate these and other disadvantages incident to the ordinary type of grate as above mentioned, I have made the invention herein shown and described.

In the construction of my grate, I employ but one pattern, and am thereby enabled to considerably reduce the cost of manufacture. Furthermore, with my improved grate, should one or more of the grate bars burn or warp out the injured bar or bars may be removed and a new bar or bars substituted, thereby saving the expense of an entirely new grate.

Another object incident to my invention is that the grate is adjustable as to height, so that it may, if desired, be readily placed over andirons of various heights, and I also propose to so construct my grate that it may be made of any desired width by simply adding or removing grate bars, as may be

required. Furthermore, my improved grate is in the nature of a knock-down or collapsible structure, that is to say, the component parts thereof may be disassembled and packed for shipment and storage, and when it is desired to use the grate, the parts may be easily and quickly assembled in the fire place.

Another, and very important feature, incident to the construction of my improved grate, is that it is provided at its front and rear with a series of vertically disposed bars or spaced standards, the lower portions of which constitute leg sections for the grate, while the upper portions of these standards rise above the bed or body of the grate and form guards by means of which logs or other fuel is prevented from rolling off the grate. Furthermore, the standards rising above the grate at the rear of the latter prevent injury to the fire brick lining of the fire place by confining the fuel to the bed of the grate, and at the same time these rear standards by preventing the fuel from packing at the back of the fire place insure that the proper draft at the rear of the grate shall be unimpeded.

I also propose to provide an improved adjustable, knock-down grate which will permit the free passage of air to insure the proper combustion of any kind of fuel without allowing small fuel to drop there-through. This free access of air also assists in cooling the grate bars, thereby preventing the latter from burning out, twisting or warping.

Another object of the invention is the provision of a grate of this character which will embody the desired features of simplicity, efficiency, economy and convenience.

With the above recited objects and others of a similar nature in view, my invention consists in the construction, combination and arrangement of parts set forth in and falling within the scope of the appended claims.

In the accompanying drawings: Figure 1 is a perspective view of a grate embodying my invention and showing a removable coal or fuel basket mounted thereon. Fig. 2 is a view in end elevation of a grate showing it installed in a fire place and used in connection with andirons. Fig. 3 is a sectional view taken on the line 3—3 of Fig. 1. Fig. 4 is a sectional view taken on the line 4—4 of Fig. 1.

Before entering into a detailed description of my invention, I may briefly state that it embraces a grate floor or bed formed of a series of detachable spaced grate bars, this bed being supported above the ground by vertically adjustable standards, the lower portions of which constitute the legs of the grate and are provided with suitable casters, while the upper portions rising above the grate bed act as front and rear guards. The standards and the grate bars are connected together in assembled position by longitudinal tie rods which pass through the standards, the grate bars and spacing thimbles or sleeves between the grate bars. In Fig. 1 I have shown such a grate as provided with a removable fuel retaining basket, while in Fig. 2 I have shown the grate in the position it occupies over an andiron, the basket being removed.

Referring now to the accompanying drawings in detail, the letter A indicates as an entirety the body or bed of the grate which is composed of a series of horizontally disposed parallel grate bars 1, preferably made of fire box steel, each grate bar having adjacent each end thereof a pair of transverse apertures 2, the apertures in adjacent ends of all of the bars alining or registering, as will be readily understood. Between the grate bars are arranged the sleeves or thimbles 3, which are in the nature of short tubular spacing members, the ends of each sleeve, of course, bearing against the opposing faces of a pair of bars, thereby holding said bars spaced apart. In order to support the grate body or bed above the ground, I provide a series of adjustable supporting standards, each support comprising a lower socket section 4, which is provided with a floor caster 5, and a vertical bar section 6, the lower portion 7 of which seats within the socket 8 of the section 4, while the upper portion 9 of the vertical bar rises above the bed of the grate and forms a fuel guard. Each bar section 6 of the adjustable support is provided with a pair of transverse apertures 10 which are disposed in register with the apertures in the grate bars and the bores of the sleeves or thimbles 3, and as will be seen by reference to Fig. 1, the adjustable supports are assembled and connected with the remainder of the grate by means of the longitudinal tie rods 11, which pass through the apertures in the grate bars, the bores of the sleeves or thimbles 3, and the registering apertures in the vertical bars 6 of the adjustable supports, the ends of these tie rods 11 projecting beyond the end supports of the grate and are threaded for the reception of nuts 12 by means of which the bars are secured or fastened and the parts of the complete grate held against displacement. In order to adjust each bar section 6 in its socket member 4, I provide the lower por-

tion of such bar section 6 with a suitable number of transverse spaced apertures 13 adapted to permit the passage of the bolt 14 by means of which the bar is fastened in the socket member in an adjusted position, as the bolt, of course, may be passed through any one of these apertures at the option of the user.

It will be readily understood that if it is desired to raise the height of the grate up above the ground, each bolt 14 is removed from its socket and the bar member 6 of such socket raised to bring the proper apertures 13 thereof in position to receive this bolt 14 and the bolt is then inserted through such aperture, each fastening bolt 14, of course, being passed through alining openings 15 in the side walls of the socket and retained by means of a nut 16.

In Fig. 1 I have shown a fuel basket B removably mounted upon the grate, this basket being formed of the corner posts 17, and the horizontal, spaced rails 18, the lowermost rails of the basket being adapted to bear upon the top surface of the grate bed, while the lower ends 19 of the corner posts 17 which depend below the bottom rails of the basket are adapted to project downward between adjacent bars of the grate bed so that the basket will be held against displacement on the grate. In Fig. 2 I have shown the grate as installed in the fire place C, and above an andiron D. and in this instance, it will be noted that the fuel basket B is removed and the fuel on the grate consists of the logs E. From this it will be seen that my grate may be used over the andirons, thus preserving the artistic beauty of such a setting, or it may be used alone, if desired, with pleasing effect.

From the above description, taken in connection with the accompanying drawings, the manner of employing my improved grate, and of assembling and dismantling the same will be readily understood. In assembling the grate, the adjustable standards or supports, the bar sections 6, the grate bars and the spacing sleeves or thimbles are properly threaded upon the tie bars in the manner readily understood, until a grate of suitable length has been formed. Vertical bars 6 are then adjusted in their sockets 4 to support the grate bed at the proper height above the floor of the fire place. If desired, the removable fuel basket may then be placed upon the grate as shown in Fig. 1. The various nuts are then properly applied and tightened and the device is ready for use. In dismantling the grate, it is only necessary to remove the longitudinal tie bars and also take the bar sections 6 from their sockets 4, when the parts of the grate may be packed and stored for shipment.

It will be noted that I have provided an exceedingly simple, efficient, yet durable

form of grate, wherein the proper supply of air may be had for the combustion of the fuel, and in which any bar or part which may be warped or otherwise injured by the heat may be removed and replaced in a very short time at a relatively low cost. Furthermore, it will be seen by prolonging the supporting standards to a point above the grate bed, I provide a series of guards at the front and rear of the grate, which keep burning logs, and the like, away from the fire wall, thereby giving the necessary back draft for proper burning and at the same time prevent injury to such wall by the contact of the fuel therewith.

While I have herein shown and described one particular embodiment of my invention, I wish it to be understood that I do not confine myself to all the precise details of construction herein set forth by way of illustration, as modification and variation may be made without departing from the spirit of the invention or exceeding the scope of the appended claims.

What I claim is:

1. In a fire place grate, the combination of a series of horizontal, parallel grate bars, separate hollow spacing members holding the bars spaced apart, vertical supporting members for the grate, and removable tie rods passing through the ends of the grate bars, the hollow spacing members and the central portions of the vertical supporting members for uniting the supporting members, the grate bars and the spacing members rigidly in assembled position.

2. The combination with a series of vertically disposed sockets, of a series of vertical supporting members adjustably supported in the sockets, the upper portions of said members constituting fuel guards, a grate

formed of a series of removable bars, a series of spacing members disposed between the bars, and horizontal tie rods passing through and connecting the grate bars, the spacing members and the intermediate portions of the vertical supporting members carried by the sockets.

3. The combination with a series of vertical, extensible supports, each support comprising a lower section and an upper section adjustable relative to the lower section, of a grate formed of a series of removable bars, and horizontally extending removable tie rods passing through the ends of the grate bars and through the upper sections of the vertical supports for detachably uniting the grate bars with the supports.

4. The combination with a grate bed, of vertical supporting members therefor, and a bottomless fuel basket removably mounted on the grate bed.

5. The combination with a grate bed, of vertical supporting members therefor, and a fuel basket removably mounted on the grate bed and having extensions depending through the bars of the grate bed to prevent displacement.

6. The combination with an extensible grate bed, of a series of vertically disposed bars constituting combined supports and fuel guards, vertical sockets in which the vertically disposed bars are adjustably mounted, and traction rollers for said sockets.

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

ELMYR A. LAUGHLIN.

Witnesses:

JOHN C. ROTH,
EDITH ELLING THAM.