

No. 808,523.

PATENTED DEC. 26, 1905.

W. C. ENGEL.

GRATE.

APPLICATION FILED JUNE 23, 1904.

Fig. 1.

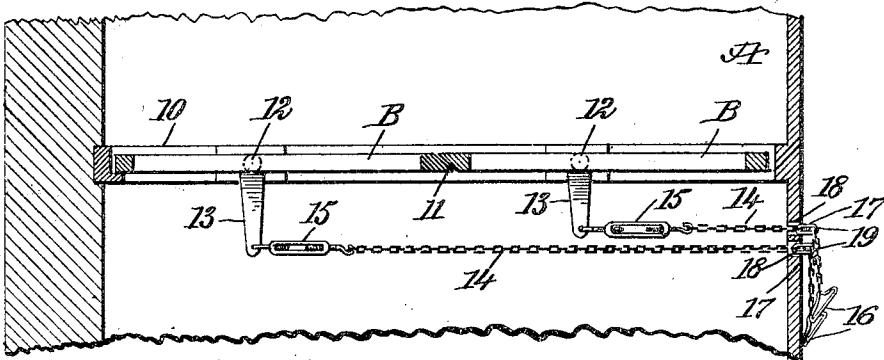


Fig. 2.

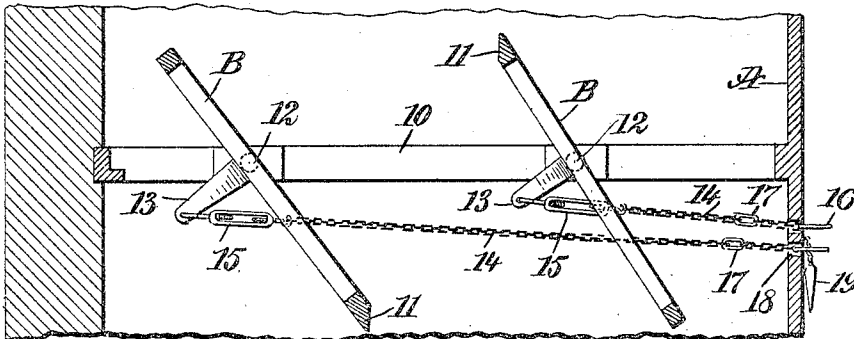
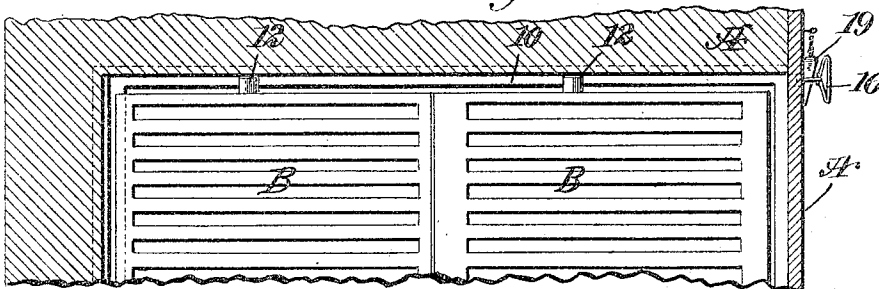


Fig. 3.



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WILLIAM CRISTIAN ENGEL, OF FOUNTAIN SPRINGS, PENNSYLVANIA.

GRATE.

No. 808,523.

Specification of Letters Patent.

Patented Dec. 26, 1905.

Application filed June 23, 1904. Serial No. 213,799.

To all whom it may concern:

Be it known that I, WILLIAM CRISTIAN ENGEL, a citizen of the United States, and a resident of Fountain Springs, in the county of Schuylkill and State of Pennsylvania, have invented a new and Improved Grate, of which the following is a full, clear, and exact description.

The purpose of the invention is to provide a grate made in two or more sections, each section being individually operated, so that the live coals from one section may be transferred to the adjoining section and the dead coals dumped from the first-named section and the live coals again placed on the section dumped and restored to its normal position, while the other section may then be dumped, and thus the grate be entirely cleaned from all obstructions and a new bed be placed on the live coals for kindling.

A further purpose of the invention is to so construct the sections of the grate that they will be self-dumping and to provide simple means for holding the grate-sections in horizontal alinement, which is their working or normal position, and for releasing any one section to permit it to assume a dumping position.

The invention consists in the novel construction and combination of the several parts, as will be hereinafter fully set forth, and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a vertical section through the fire-box, the grate being shown in normal position and in longitudinal section, the fastening devices for the grate-sections being shown in side elevation. Fig. 2 is a section similar to that shown in Fig. 1, the sections of the grate being shown in dumping position; and Fig. 3 is a horizontal section through the fire-box and a plan view of the grate, parts being broken away.

A represents a fire-box, in which fire-box a frame 10 is mounted, and B represents sections of a grate. In the drawings two sections are shown; but it will be understood that more sections may be employed, if desired. Where the sections B of the grate come together their opposing ends are beveled in opposite directions, as is illustrated at 11 in Figs. 1 and 2, and when the sections of the grate B are in their normal position,

which is a horizontal position, (shown in Fig. 1,) the beveled opposing edges of the sections are brought more or less closely together, and when a section of the grate is to be dumped the section occupies the downwardly-inclined position shown in Fig. 2.

Each section of the grate is provided between its center and its rear end with trunnions 12, and these trunnions are mounted to turn in suitable bearings in the frame 10, secured in the fire-box, as is shown particularly in Fig. 3.

Each section B of the grate is provided with a downwardly-extending lug 13, located usually at one side and beneath one of the trunnions 12. The said lugs 13 are of different lengths, the lug carried by the rear grate-section being longer than the lug carried by the forward grate-section. Chains 14 are employed to hold the grate-sections in their normal horizontal position, and these chains are connected with turnbuckles 15 or their equivalents, which turnbuckles are connected directly or indirectly with the lugs 13, as is shown in Figs. 1 and 2. The chains 14 are made to pass out through apertures 18, produced in the front of the fire-box. Each chain 14 is provided at its outer end, preferably, with a handle 16, which is of such size as to prevent the chain being drawn within the fire-box, and between the center of each chain and its handle 16, a large link 17 is located, which large links 17 when the sections of the grate are in their normal positions extend out through the openings 18 and receive keys 19, preferably attached in any approved manner to the exterior of the fire-box, thus holding the sections of the grate in their normal positions, and the turnbuckles 15 are employed, so that the adjustment of the large links 17 may be made in such manner as to receive the keys 19 when the grate-sections are to be held in working position. The sections B of the grate being pivoted between their centers and rear ends when the keys 19 are removed from engagement with the chains 14, and the chains are consequently loosened, the grate-bars of themselves will drop to the dumping position shown in Fig. 2.

The main advantage which is urged for this improved structure is that when the fire is low and cannot be conveniently enlivened the heated coals or kindling on the rear section B of the grate can be drawn over on the forward section of the grate and there retained in a lively form, while the chain con-

ected with the rear section of the grate is released and the dead material on the said section thereby dumped. The rear section of the grate can then be restored and fastened in its normal position, and the live material on the second or forward section can be transferred to the rear section and the forward section dumped in its turn to discharge the dead material carried thereby. The forward section of the grate is then again brought to its normal position, and by distributing the live fire over the two sections and supplying it with additional combustible material a fire can be quickly rekindled without the loss of material.

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

1. In a furnace, the combination with a fire-box having openings in its front wall, and a frame, in the fire-box and provided with bearings, of a grate formed of two gravity-dumping sections arranged one in front of the other, each section being provided with trunnions at one side of the center and mounted to turn in the bearings of the frame, the said sections being each provided on its undersurface at one side with a downwardly-extending lug, the lug of each section being beneath one of the trunnions, and the lug of the rear section being longer than the lug of the front section, a turnbuckle secured to each lug, chains secured to the turnbuckles and extending out through the openings in the front of the fire-box, each chain being provided with a handle at its free end and with an enlarged link a short distance from the handle,

and keys for entering the large links of the chains, said keys when in the links resting against the front of the fire-box and holding the grate-sections in horizontal positions, whereby when the keys are withdrawn from the links of the chains the sections will drop by gravity into dumping positions, substantially as shown and described.

2. In a furnace the combination with a fire-box having openings in its front wall, of pivoted grate-sections arranged one in front of the other, the trunnions of the sections being at one side of the center to permit the sections to drop to dumping positions by gravity, each section being provided with a downwardly-extending lug on its under side, chains secured to the lugs of the sections and extending out through the openings in the front of the fire-box and provided with handles at their free ends, by means of which the chains can be manipulated to return the sections from dumping into horizontal positions, and keys entering the links of the chains and resting against the front of the fire-box, whereby the sections will be held in horizontal positions and when the keys are withdrawn from the links of the chains, the sections will drop by gravity into dumping positions, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WILLIAM CRISTIAN ENGEL.

Witnesses:

WM. R. McCONNELL,
D. L. HUFMAN.