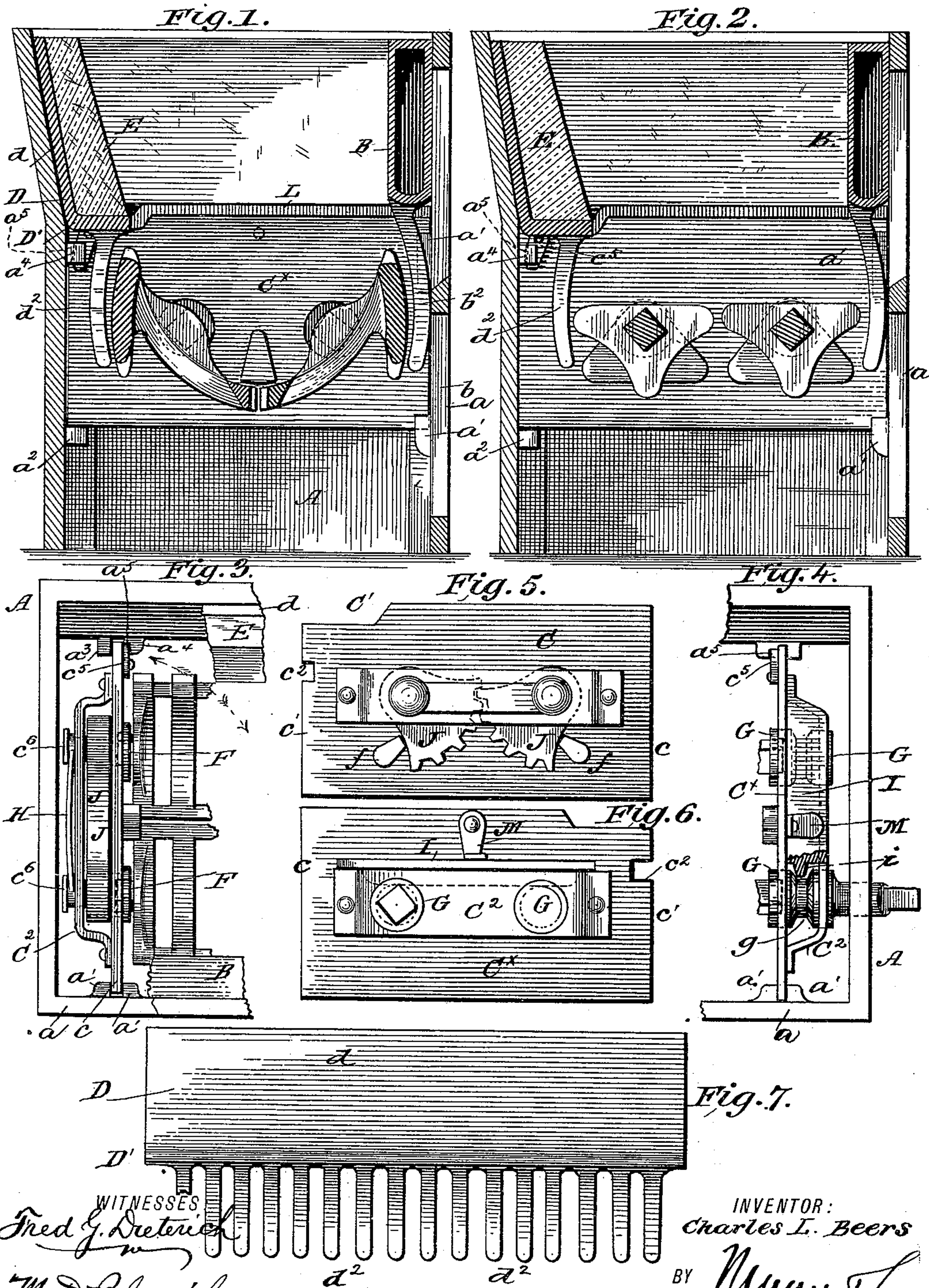


(No Model.)

C. L. BEERS.  
STOVE GRATE.

No. 437,553.

Patented Sept. 30, 1890.



WITNESSES  
*Fred G. Dieterich*  
*M. D. Blondel*

INVENTOR:  
*Charles L. Beers*  
BY *Munn & Co.*  
ATTORNEYS



# UNITED STATES PATENT OFFICE.

CHARLES L. BEERS, OF SCRANTON, PENNSYLVANIA.

## STOVE-GRATE.

SPECIFICATION forming part of Letters Patent No. 437,553, dated September 30, 1890.

Application filed May 28, 1890. Serial No. 353,516. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES L. BEERS, residing at Scranton, in the county of Lackawanna and State of Pennsylvania, have invented certain new and useful Improvements in Stove-Grates, of which the following is a specification.

My invention, which relates more particularly to grates of cooking-stoves, ranges, or furnaces, has for its object to provide a grate which shall be adapted to be easily removed from its supports in the stove-frame and easily repaired without disturbing the water-back or water-front or the gears.

My invention has also for its object to provide for the ready removal of the grate-sections from their bearings and in providing certain side guards formed on the water-front and a supplemental or false back plate, which will project down beyond the sides of the grates, whereby different kinds of grates can be used in the same bearings or supports; and, finally, my invention has for its object to provide a grate of such construction whereby the several parts of the grate are interchangeable, quickly connected with each other or detached, and whereby they may be cast or otherwise formed at a small cost.

To this end my invention consists in the novel arrangement and peculiar combination of parts, all of which will hereinafter be described in the annexed specification and particularly pointed out in the claims, reference being had to the accompanying drawings, in which—

Figure 1 is a cross-section of a fire-box of a stove with my improvements applied, concaved grate-sections being shown. Fig. 2 is a similar view showing flat grate-sections in position. Fig. 3 is a top plan view of one end of the fire-box, showing one of the grate-supports in position. Fig. 4 is a similar view illustrating the opposite support. Figs. 5 and 6 are rear views of the two grate-supports, and Fig. 7 is a front view of the supplemental fire-back plate having depending arms adapted to form one side of the grate-chamber.

In the accompanying drawings, A indicates the fire-box, the front wall of which is formed with the usual water-front B, arranged above the opening b in said wall. C C<sup>x</sup> denote the

grate-supporting frames, which are detachably held within the fire-box chamber in a manner most clearly shown in Figs. 3 and 4 of the drawings, by reference to which it will be seen that I provide the front wall a of the fire-box with two pairs of parallel lugs a' a' and the rear wall with a supporting-lug a<sup>2</sup>, a stop-lug a<sup>3</sup>, and a locking-lug a<sup>4</sup>. In adjusting the said supports in position the ends c are inserted between the lugs a' a' on the front a, and the opposite end c' thereof is swung laterally (see arrow, Fig. 3) against the stop-lug a<sup>3</sup>, the lower part of said end c' resting on the lug a<sup>2</sup>.

Now by referring to Figs. 5 and 6 it will be seen that the supporting-plates C C<sup>x</sup> are each formed with a notch c<sup>2</sup>, which, when the said plates are swung in position, will pass over the locking-lugs a<sup>4</sup>, latches c<sup>5</sup>, which are pivoted to the plates C C<sup>x</sup>, as shown, and which fit the channels a<sup>5</sup> in the lugs a<sup>4</sup>, serving to hold said plates or supports C C<sup>x</sup> in place. One end of each of the plates C C<sup>x</sup> is cut away, as at C', said cut-away portion serving as a seat upon which rests the horizontal member D' of a supplemental back plate and fire-brick support D, said support, which is most clearly shown in Figs. 1 and 6, being formed with an upward extension d, which rests against the rear wall of the fire-box and serves as a false back for the brick lining, the member D' serving to support the fire-brick E, which also rests against the extension d, as shown. Projected downward from and preferably formed integral therewith are a series of grate-fingers d<sup>2</sup> d<sup>2</sup>, which extend down below the outer edge of one of the grate-sections, (see Fig. 1,) the water-front B being formed with a similar arrangement of downwardly-projecting fingers b<sup>2</sup>, which project down beyond the outer edge of the opposite grate-section. By this construction it will be seen that when the concaved grate-sections are used, as shown in Fig. 1, the fingers d<sup>2</sup> and b<sup>2</sup> will serve, when the grate is locked, to hold any and all of the coal or clinkers from becoming wedged between the edges of the grate and the sides of the fire-box, and furthermore said fingers will serve to form the side walls of the grate-chamber when flat-top grate-sections are employed, as shown in Fig. 2, there



by rendering my peculiar arrangement of the fire-box adapted for use with two or more kinds of grates.

As before stated, the several grate-sections are detachably held in the supports C C<sup>x</sup>, and such connections being precisely similar at each end avoid the necessity of casting right and left grate-sections, as said sections can be used at either side.

By reference to Figs. 3 and 4 of the drawings it will be seen that I provide hub-sections F and G, which are journaled in the said supports C C<sup>x</sup>, and bracket-pieces C<sup>2</sup>, riveted to or cast integral therewith, said hubs being formed with non-circular sockets, in which the non-circular ends of the grate-sections fit.

To prevent the hubs F from becoming accidentally detached from their bearings, I extend same through the bracket C<sup>2</sup> and form them with heads C<sup>6</sup>, under which is fitted a spring-plate key H, as shown, and to provide simple means whereby the hubs G are securely held in position I provide a cap-plate I, formed with a longitudinal rib *i*, which fits into grooves *g g* in the hubs, which is held in engagement therewith by means of a pivotal locking-bolt M, as shown. One end of one of the hubs G is extended and squared to receive the operating-lever.

In Figs. 3 and 5 it will be seen I gear the grate-sections together by means of the gear-segments J J, to prevent said segments from swinging entirely down by gravity and thereby becoming disconnected. When the grate-sections are removed, I provide stop-lugs *f f* on the rear face of said supporting-plates, which limit the downward movement of said gear-segments.

L denotes the end brick-rests, which are supported on the end plates, as shown.

From the foregoing description, taken in connection with the drawings, the advantages of my improvements will readily appear.

It will be seen that the arrangement and construction are exceedingly simple and that the grates and grate-supports can be quickly adjusted in or out of position after the brick linings and supplemental back have been removed. By forming the supplemental or false back plate with the upward extension

the same will serve as an additional fire-back, and thereby protect the back wall of the fire-box from being burned out. By providing the supplemental frame or brick-rest with the downwardly-extending grate-fingers and the water-front with similar fingers the fire-box will be adapted so that various kinds of grates of the character described may be used, such as are now in most common use. It will also be readily seen that the entire parts of the fire-box can be repaired without removing or in any way disturbing the water-front.

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

1. As an improvement in stove-grates, the combination of the fire-box A, the grate-sections detachably supported therein, the water-front B, formed with depending fingers *b<sup>2</sup>*, extended below the outer edge of the front grate-section, and the detachable brick-support D, formed with depending fingers *d<sup>2</sup>*, adapted to extend below the outer edge of the rear grate-section, substantially as and for the purpose described.

2. The combination, with the frame A, provided with guide and supporting lugs *a' a'* at one side, stop and guide lugs *a<sup>2</sup> a<sup>3</sup>*, and a locking-lug *a<sup>4</sup>* on the opposite side, of the grate-supporting frames C C<sup>x</sup>, each formed with a recess *c<sup>2</sup> c<sup>2</sup>*, adapted to fit over the locking-lug when the frames C C<sup>x</sup> are adjusted in position, and means for holding said frames in locked position, substantially as shown and described.

3. As an improvement in grates and their supports, the supporting-frame C<sup>x</sup>, formed with a bracket portion C<sup>2</sup>, a plurality of journals journaled in said frame and bracket, said journals formed with annular grooves, the locking-plate I, having a rib entering said grooves, and a pawl pivoted to the frame C<sup>x</sup> and adapted to be swung down against said plate I and hold it in position, substantially as and for the purpose described.

CHARLES L. BEERS.

Witnesses:

SOLON C. KEMON,  
FRED G. DIETERICH.