No. 702,891. Patented June 17, 1902.

H. TRUESDELL.

GRATE BAR.

(Application filed Mar. 2, 1900.)

(No Model.)

Fig. 1

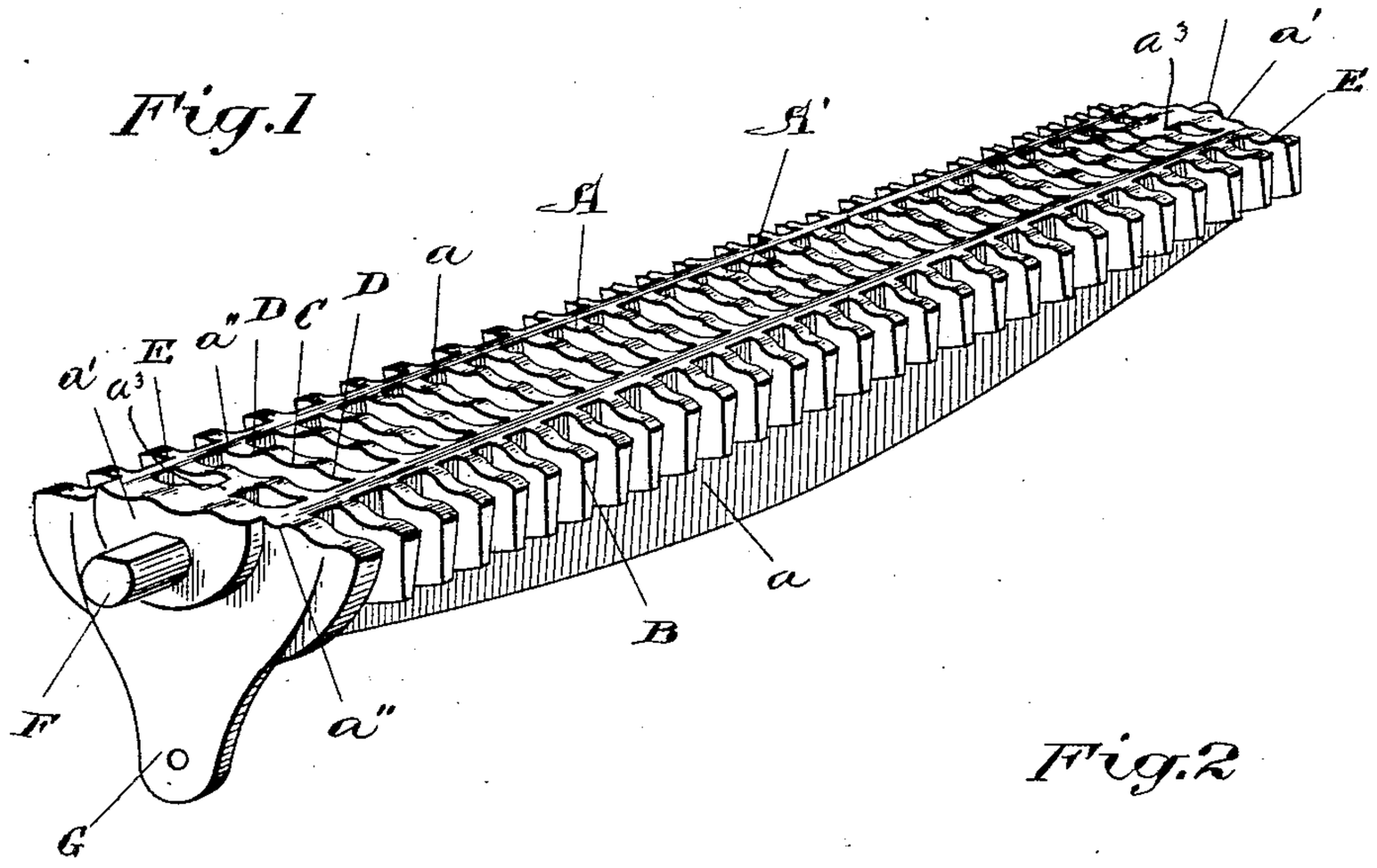
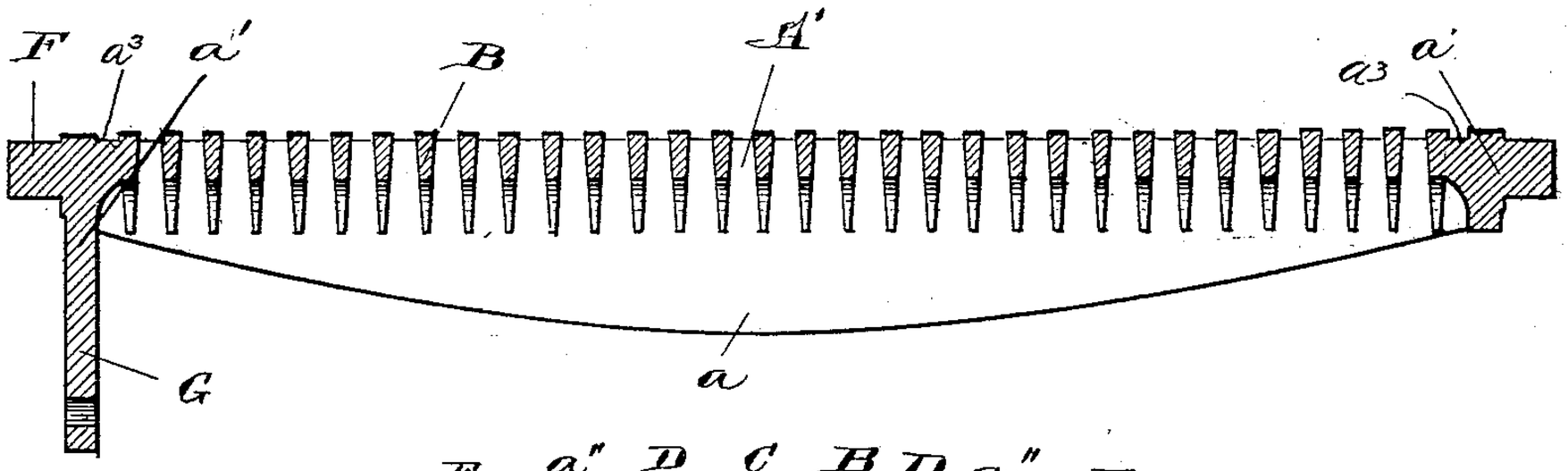


Fig. 2



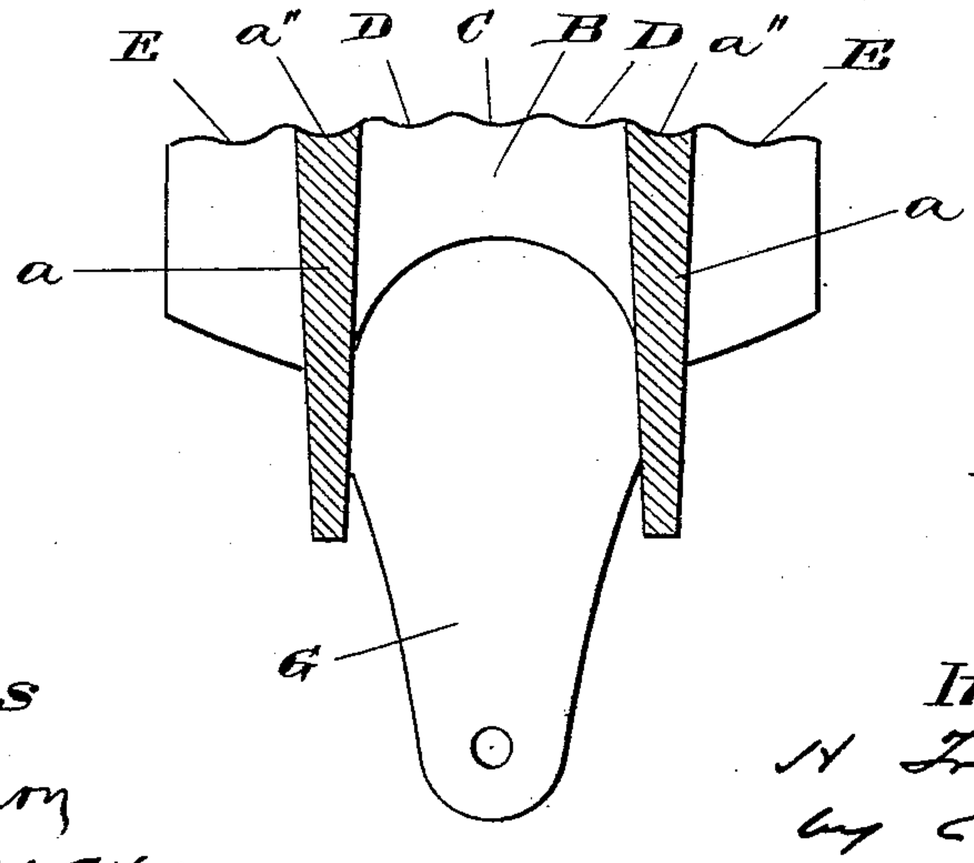


Fig. 3

Witnesses
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UNITED STATES PATENT OFFICE.

HENRY TRUESDELL, OF TORONTO, CANADA.

GRATE-BAR.

SPECIFICATION forming part of Letters Patent No. 702,891, dated June 17, 1902.

Application filed March 2, 1900. Serial No. 7,137. (No model.)

To all whom it may concern:

Be it known that I, HENRY TRUESDELL, a citizen of the United States, residing at 16 Camden street, in the city of Toronto, in the county of York and Province of Ontario, Canada, have invented certain new and useful Improvements in Grate-Bars; and I hereby declare that the following is a full, clear, and exact description of the same.

The object of this invention is to so construct a grate-bar that it will provide a sufficient draft to the fire to produce a practically perfect combustion and to so arrange the grate-bar that it can be cheaply and economically made and repaired and simply operated; and the grate-bar consists, essentially, of a substantially rectangular frame and a series of transverse sections connected to the rectangular frame, the top surfaces of which are provided with longitudinal grooves or corrugations extending from end to end of the grate-bar, as hereinafter more fully set forth, and more particularly pointed out in the claim.

In producing the present invention it has been my main object to make a much simpler and more practical grate than the one described in my patent issued August 7, 1900, No. 655,663, and also the Patent No. 499,732, issued June 20, 1893. The improvement over these patents lies in the construction of the ends, the brace-webs, and the longitudinal bars, these bars and brace-webs being provided with slight grooves, which aline with corrugations of the sections and ends, and thus present surfaces which do not allow the collection of ashes and clinkers in the grate, and thus prevent the clogging thereof. The parts are also made integral and are so made as to thoroughly support the entire grate and prevent sagging when subjected to a great heat.

In the drawings, Figure 1 is a perspective view of a grate-bar. Fig. 2 is a longitudinal section through the same. Fig. 3 is a transverse section.

Like letters of reference refer to like parts throughout the specification and drawings.

A represents the frame of the grate-bar, which consists of two opposite and parallel sides *a a* and two ends *a' a'*. Each of the sides *a a* is substantially truss-shaped, as shown in Fig. 1, and the top of each of the sides is provided with a longitudinal corrugation or groove *a''*, extending from end to end of the same.

Formed integrally with the sides *a a* are a series of transverse sections B, the top of which are on the same plane and of the same shape as the ends *a' a'*. By referring to Fig. 3 of the drawings it will be noticed that the top of each of the ends and sections is of a convexed nature.

Extending along the middle of the top of the sections B and ends *a' a'* is a groove or corrugation C, and at each side of the groove or corrugation C is a groove or corrugation D. The grooves or corrugations D are intermediate the grooves or corrugations C and the grooves or corrugations *a'' a''*. By reference to the drawings it will be noticed that the ends *a' a'* and sections B project beyond the sides *a a* of the frame and that grooves or corrugations E extend along the top of the projecting ends *a' a'* and sections B from end to end of the grate-bar.

The sections B in cross-section are substantially wedge-shaped in order that the space A' between the sections at the bottom will be greater than at the top to provide an increase in the force of the draft through the grate-bar to the fire. The under side of each of the sections B intermediate the sides of the frame is concaved or arch-shaped to provide, first, for a free circulation of air from end to end of the grate-bar between the sides, and, second, to reduce the weight of the grate-bar and at the same time enable the sections to successfully sustain their load. By means of this construction a sufficient draft to the fire is provided to establish a practically perfect combustion.

Projecting outwardly from the middle of each end *a'* is a trunnion F, and depending from one of the ends *a'* is a lug G, having a hole in its lower end. The frame, sections, trunnion, and lug are preferably cast in one piece. In order to strengthen the ends *a' a'* in line with the trunnions, I provide the short webs a^3 a^3, which connect said ends with the next adjacent sections B B, as clearly shown in Figs. 1 and 2. These webs a^3 strengthen

the grate-bars at these points and prevent warping, and as only two of such webs are employed the draft is not impeded.

By providing the longitudinal corrugations along the top surfaces of the grate-bar a passage is provided for the air-current to combine before reaching the fire.

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

A grate-bar made in a single casting and comprising two ends having each a series of corrugations upon their upper edges, trunnions formed upon the outer faces thereof, a lug depending from the lower portion of one of the ends so that a series of the bars may be secured to be rocked in unison, a pair of longitudinal parallel bars connecting the ends together and having their upper edges grooved and in line with the corrugations of said ends, a series of transverse sections in parallel with the ends and supported by the bars, said sections being provided with corrugations similar in shape and number to the corrugations of the ends and having the same ones in line with said bars, said sections also having their lower edges in the same line but above the lower edges of the bars, and brace-webs connected to the inner faces of the ends and adjacent faces of the outer sections intermediate of the bars so that each brace-web's groove is in line with the central corrugation of the ends and sections.

Toronto, February 7, 1900.

H. TRUESDELL.

In presence of—
C. H. RICHES,
GEO. H. KILMER.