(No Model.)

C. BRANDT.

GRATE.

No. 522,190. Patented July 3, 1894.

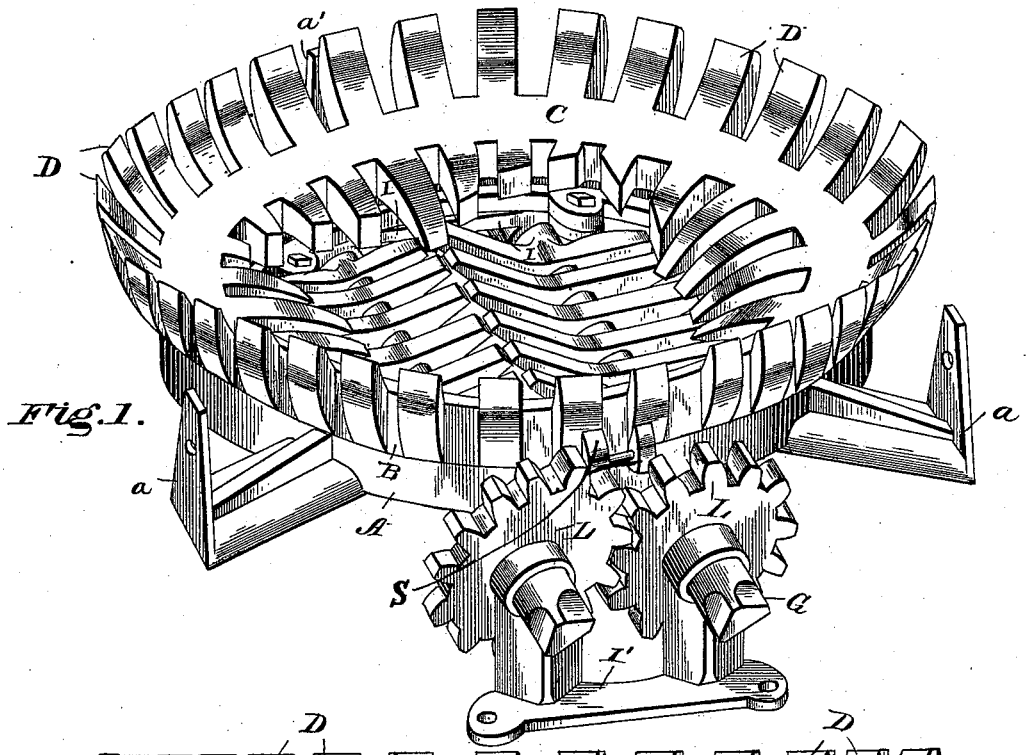

Fig. 1.

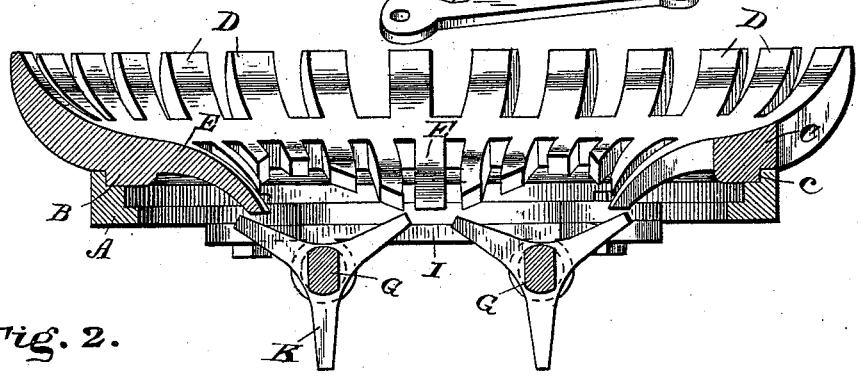

Fig. 2.

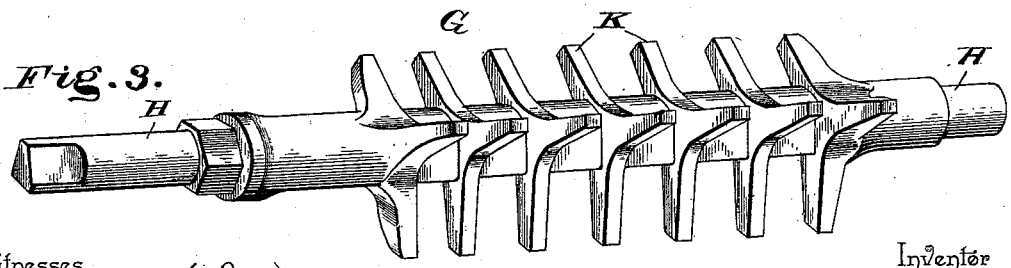

Fig. 3.

Witnesses

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UNITED STATES PATENT OFFICE.

CARL BRANDT, OF CEDAR FALLS, IOWA.

GRATE.

SPECIFICATION forming part of Letters Patent No. 522,190, dated July 3, 1894.

Application filed October 20, 1892. Serial No. 449,452. (No model.)

To all whom it may concern:

Be it known that I, CARL BRANDT, a citizen of the United States, residing at Cedar Falls, in the county of Black Hawk and State of Iowa, have invented a new and useful Grate, of which the following is a specification.

My invention relates to improvements in that class of stove and furnace grates capable of being shaken and a portion or all of the fire removed or dumped into the ash-pit by the partial or complete movement of one or more sections; and the objects in view are to improve their construction and operation, to provide for the accumulation of the ashes at the center of the grate, and to so adapt and arrange the parts as to enable cinders and clinkers to be removed from the grate-bars or fingers.

Further objects and advantages of my invention will appear hereinafter and the novel features thereof will be particularly pointed out in the appended claims.

In the drawings, Figure 1 is a perspective view of a grate embodying my invention. Fig. 2 is a transverse section of the same. Fig. 3 is a detail view of one of the rotary sections, detached.

Inasmuch as the manner of fastening my improved grate in the stove or furnace forms no part of this invention, I have shown the grate detached, in the drawings.

The grate-support, A, which is annular in shape and is rabbeted to form a bearing for the grate proper, is provided with lateral arms, *a a*, and the rear arm, *a'*, which are upturned at their terminals and perforated, to enable them to be attached to the walls of the stove or furnace.

The grate proper, B, is annular in shape and comprises, essentially, a ring or web, C, from which project inward and outward extending fingers. The ring or web is shouldered, as shown at *c*, to fit in the rabbet of the support, A, the outward extending, or exterior fingers, D, are curved upward toward their terminals, and the inward extending or interior fingers, E, are curved downward toward their terminals. All of the fingers are radially-disposed. The upward curvature of the exterior fingers and the downward curvature of the interior fingers give the grate a dish-shape which has the effect of causing the ashes, &c., to gravitate toward the center of the grate and escape between the fingers E, while the incandescent fuel is supported by the grate above the rotatory bars. This operation and disposition of parts is attained by the peculiar construction of the section B.

G G represent twin rotary sections, arranged side by side and parallel with each other in the space inclosed by the annular section of the grate. These rotary sections are composed, each, of a central stem or spindle, mounted in suitable bearings at its front and rear ends, and triplicate series of radial fingers, which are adapted, when the rotary sections are turned, to intermesh with or pass between the interior fingers of the annular section. The stems or spindles, H, of the rotary sections are mounted at their rear ends in bearings in the casting, I, which may be secured to the under surface of the supporting ring, as shown, or may be attached to the wall of the stove or furnace, and at their front ends in bearings in the casting, I', which is preferably secured to the stove or furnace and, therefore, is shown detached in the drawings.

It will be noted that by arranging the radial fingers, K, of the rotary sections in triplicate series, as above described, the upper sides of said sections, in either of their three operative or normal positions, are concave. The spindles of the rotary sections are provided with twin intermeshing gears, L L, whereby both sections may be operated by the manipulation of either, and whereby, when one section is adjusted the other is necessarily brought to its operative or normal position. Furthermore, by thus gearing the spindles of the rotary sections together, they are always turned in opposite directions, namely, either toward or from each other, whereby when one of the spindles is agitated by partially turning in opposite directions, the agitation of the fire is accomplished in an effective manner, especially from the fact that at each oscillation of the rotary sections their outer fingers rise between the interior fingers of the annular section.

The annular section is revoluble and is provided with means such as the parallel lugs S S shown in Fig. 1, which may be engaged by any ordinary shaking device.

Changes in the form, proportion and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention.

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

1. In a device of the class described, the combination with an annular support, of an annular grate-section made in a single piece and comprising a ring or web C, exterior fingers D extending around the entire upper edge of the web and inclined upward toward their outer ends and having concaved inner sides, and interior fingers E arranged around the entire lower edge of the web and inclined downward toward their inner ends and having convex upper sides, both sets of fingers being radially disposed and the outer fingers joining with and forming a regular compound curve with the inner fingers, whereby the grate is given a dished-shape, and rotary sections arranged beneath the space inclosed by the annular grate section, substantially as specified.

2. In a device of the class described, the combination with an annular rotatable grate-section comprising a ring or web C, and exterior and interior fingers D and E curved respectively upward and downward toward their free terminals, and arranged in a continuous series around the entire upper and lower edges of the web, and rotary sections arranged below the plane of the terminals of the interior fingers and beneath the space inclosed by the annular section, and provided with radial fingers spaced to align with the intervals between the said interior teeth of the annular section, all substantially as specified.

3. An annular grate-section comprising a ring or web C, integral exterior fingers D which curve upward toward their outer ends and have concave upper sides, and integral interior arms E which curve downward toward their inner ends and have convex upper sides, the upper sides of both exterior and interior fingers being flush with the upper surface of the ring or web C, in combination with movable or rotary bars arranged in the space inclosed by the annular grate-section substantially as specified.

4. The annular rabbeted grate support A, in combination with the revoluble grate B, annular in shape, and shouldered to fit in the rabbet of the support, said grate having exterior fingers D and interior fingers E both sets being radially disposed and the outer fingers joining with and forming a regular compound curve with the inner fingers whereby the grate is given a dish shape which has the effect of causing the ashes and cinders to gravitate toward the center, and the twin rotary sections C arranged parallel with each other in the space inclosed by the annular grate section and below the plane of the terminals of the interior fingers, and provided with a triplicate series of fingers which are adapted to pass between the interior fingers, the triplicate series of fingers on the rotary sections providing a concaved upper side for the rotary sections in either of their three operative positions, substantially as specified.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

CARL BRANDT.

Witnesses:
LAMFEAR KNAPP,
W. A. DUGANE.