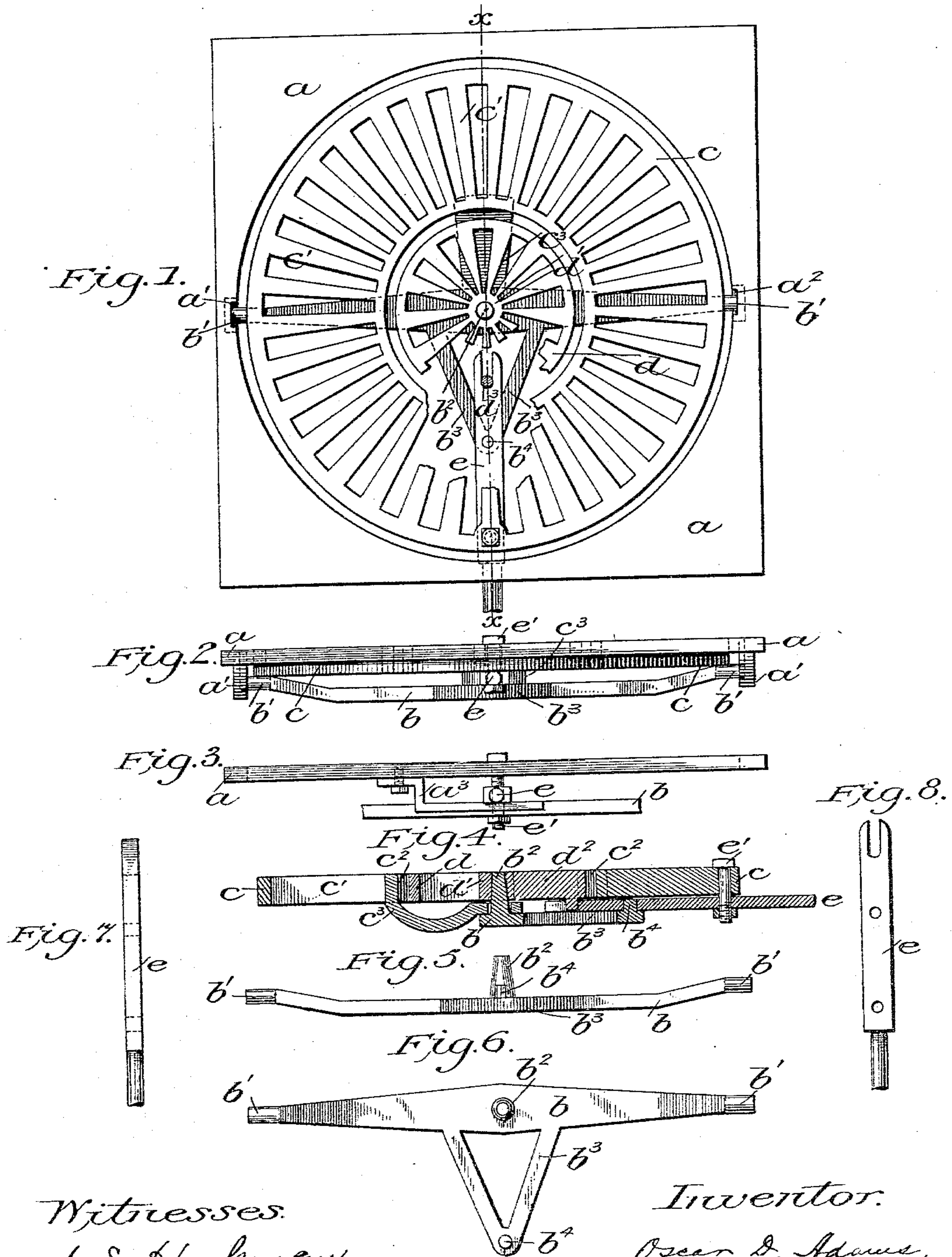


(No Model.)

O. D. ADAMS.
ROTARY GRATE.

No. 545,119.

Patented Aug. 27, 1895.



Witnesses:
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ROTARY GRATE.

SPECIFICATION forming part of Letters Patent No. 545,119, dated August 27, 1895.

Application filed March 27, 1894. Serial No. 505,337. (No model.)

To all whom it may concern:

Be it known that I, OSCAR D. ADAMS, a citizen of the United States, residing at Springfield, in the county of Hampden and State of Massachusetts, have invented a new and useful Improvement in Rotary Grates, of which the following is a specification, reference being had to the accompanying drawings, forming part thereof.

My invention relates to rotary grates for furnaces, heaters, &c.; and it has for its object to provide a form of grate which will have a capacity for quickly and easily separating ashes from the unconsumed fuel in the fire-box, and which will insure the removal of the ashes from the center as well as from the outer portions of the fire-box.

To this end my invention consists in the grate comprising an annular grated member, a centrally-disposed grated member, and means for simultaneously rotating said members in opposite directions, as hereinafter fully described, and particularly pointed out in the claims.

Referring to the drawings, in which like letters designate like parts in the several views, Figure 1 is a plan view of a grate embodying the invention, the same being partly broken away to show the operating mechanism beneath it. Fig. 2 is a front edge view of the same. Fig. 3 is a cross-section taken upon line $x x$ of Fig. 1. Fig. 4 is a partial front view showing more clearly the means for permitting a dumping movement of the grate. Fig. 5 is a front view of the supporting bridge-piece. Fig. 6 is a plan view thereof. Fig. 7 is an edge view of the operating-lever. Fig. 8 is a plan view of the same.

The letter a designates the grate-supporting frame, which, as herein shown, is of rectangular form, and which is provided with the usual circular opening to receive the grate. Said frame is provided at opposite sides thereof with two downwardly-projecting ears a' , in which are located the sockets a^2 , opening inwardly and upwardly, as shown.

The letter b designates a bridge-piece, which is preferably made with a slight upward bend near each end, (see Figs. 5 and 6,) and which terminates at each end in a trunnion b' , adapted to enter and have a turning movement within one of the sockets in said frame.

Said bridge-piece is provided midway between its ends with the upwardly-projecting stud b^2 , which is preferably made with a slight taper, as shown, and with a centrally-disposed forwardly-projecting arm b^3 , carrying at its outer end the shorter stud b^4 , said arm being preferably made of a V shape, as shown, to afford a greater clearance for ashes beneath the grate.

The letter c designates the annular grate member, which has an outer diameter but slightly less than that of the opening in frame a , and is provided with the series of radially-disposed grate-bars c' , surrounding its central opening c^2 . Said annular grate member is also provided at its under side with the bracket c^3 , which extends inwardly to a point beneath the center of the grate, and is there provided with a hole to receive the stud b^2 on bridge-piece b , whereby said member is revolutely supported upon said bridge-piece.

The letter d designates the central member of the grate, which is circular in form, of a diameter somewhat less than that of the central opening in member c , and is provided with the central hub d' and radially-disposed grate-bars d^2 , said hub being bored to receive the stud b^2 on the bridge-piece. Said member is thus adapted to rest upon the bracket c^3 of the member c and to revolve about the stud b^2 as a center independently of said annular member, in a manner which will be obvious from an inspection of Fig. 3 of the drawings. Said member d of the grate is provided near its outer edge with a downwardly-projecting stud d^3 , with which engages the forked end of the operating-lever e , (shown detached in Figs. 7 and 8,) said lever being fulcrumed upon the stud b^4 of the bridge-piece and projecting outwardly beyond the edge of frame a , where it is provided with a suitable handle. The annular grate member c is operatively connected to said lever, near the outer edge of the former, by a bolt e' , and the connections between the two members of the grate and said lever being located upon opposite sides of the fulcrum of the latter it follows that movement of the outer end of said lever in either direction will rotate said members in opposite directions about their common center.

The frame a is provided at its front side with a depending bracket a^3 , (shown more

clearly in Fig. 4,) upon which the outer end of the operating-lever normally rests, and which is of sufficient length to permit said lever to have the necessary vibratory movement to secure the desired amount of rotary movement of the grate members without leaving said bracket. Said bracket thus serves to normally retain the grate in a horizontal position, and to dump the grate it is necessary simply to turn the operating-lever to a point where it clears the end of said bracket and press downwardly thereon; thereby causing the bridge-piece to turn upon its trunnions and tilt the two grate members as one. The positive rotation in opposite directions imparted to the grate members by means of the operating-lever not only causes the rapid separation of ashes from the fuel on the grate, with but slight exertion on the part of the operator, but it also causes said separating action to be distributed evenly throughout the entire area of the grate and prevents any accumulation of ashes at any point upon the grate to interfere with a free draft of air through the latter. I thus secure not only a material saving in time and labor in the care of the furnace, but also a more rapid and thorough combustion. The grate devised by me, moreover, is possessed of great strength and durability, is composed of few parts, and can be manufactured at a comparatively small cost. It is adapted for use in connection with boiler-furnaces and heaters of all kinds in which a grate of circular form is practicable. It will be obvious that various changes in the details of construction herein described can be made without departure from the spirit of the invention.

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

1. In a grate, a supporting frame provided

with a circular opening, a bridge-piece journaled at its ends on said frame and spanning said opening, an annular grated member and a centrally disposed, grated member supported upon said bridge-piece and revoluble about a common center, an operating lever fulcrumed upon said bridge-piece and operatively connected with said grate members respectively upon opposite sides of its fulcrum, and means for normally retaining said grate members in a substantially horizontal position, combined and operating substantially as set forth.

2. In a grate, a supporting frame provided with a circular opening, a bridge-piece having a rocking bearing at each end in said frame and provided midway between its ends with an upwardly projecting stud, an annular grate member and a centrally disposed, circular grate member both of which are centrally mounted upon said stud, and means substantially as described for simultaneously rotating said grate members in opposite directions about said stud as a center, combined and operating substantially as set forth.

3. In a grate, the combination with a supporting frame, as *a*, of the bridge-piece *b* provided with the central stud *b*² and arm *b*³ carrying stud *b*⁴, annular grate member *c* and circular grate member *d* centrally mounted upon said stud *b*², the latter member having the depending stud *d*³, and lever *e* fulcrumed upon the stud *b*⁴ of said bridge-piece, said lever embracing by its forked inner end the stud *d*³ on said member *d* and having a pivotal connection, upon the opposite side of its fulcrum, with said member *c*, substantially as set forth.

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Witnesses:

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