(No Model.)

T. KIRKWOOD.

GRATE.

No. 299,147. Patented May 27, 1884.

Fig. 1.

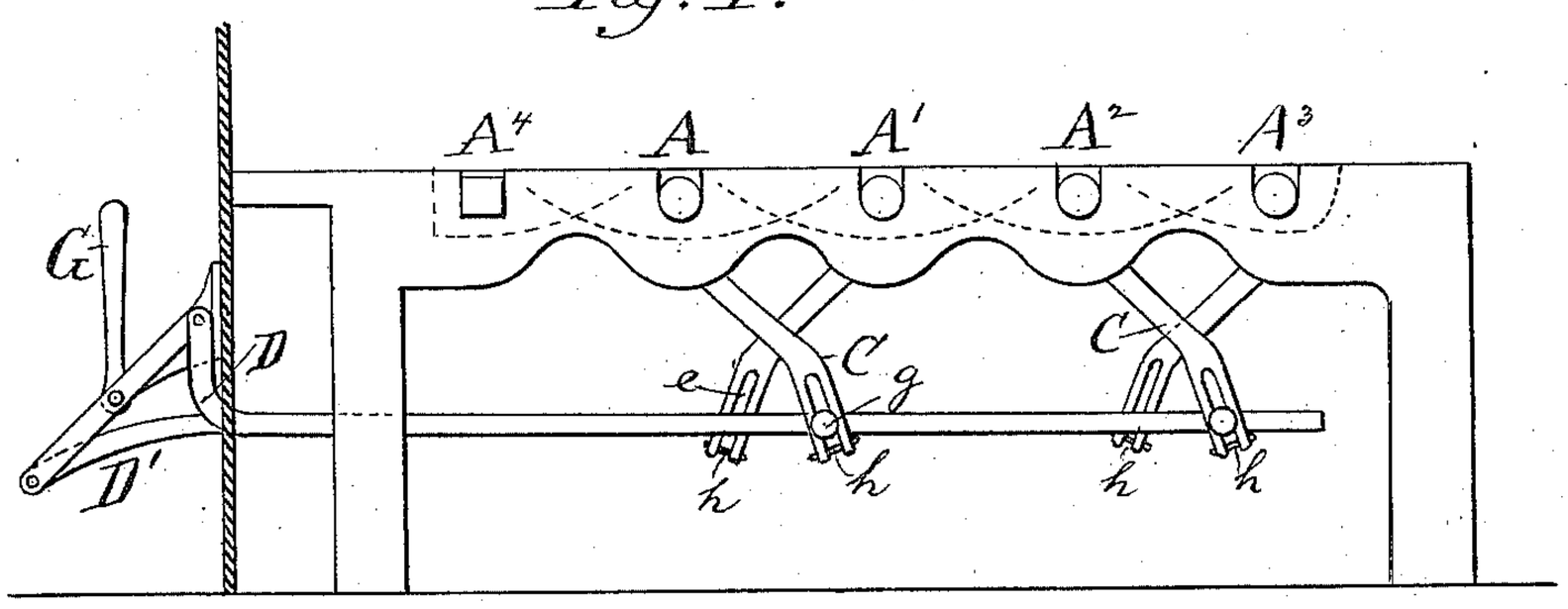


Fig. 2.

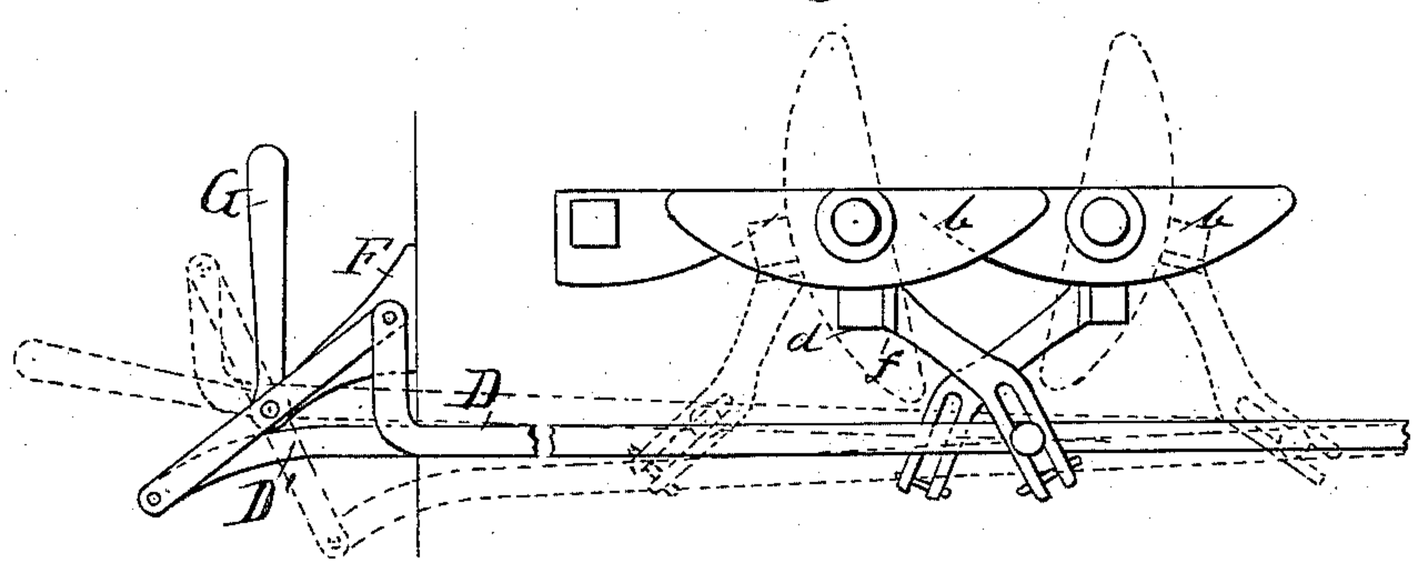
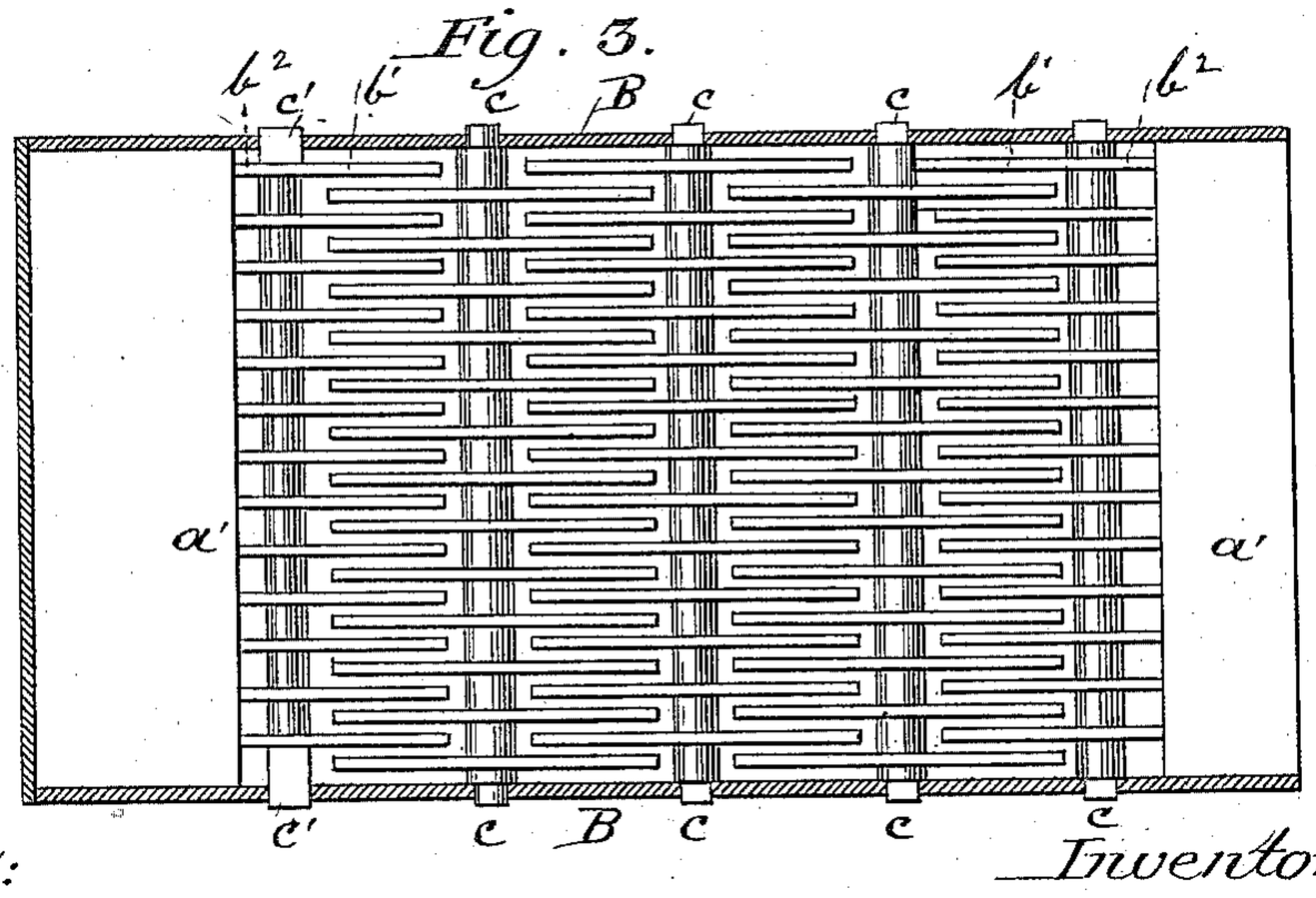


Fig. 3.



Witnesses:

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UNITED STATES PATENT OFFICE.

THOMAS KIRKWOOD, OF CHICAGO, ILLINOIS.

GRATE.

SPECIFICATION forming part of Letters Patent No. 299,147, dated May 27, 1884.

Application filed December 19, 1883. (No model.)

To all whom it may concern:

Be it known that I, THOMAS KIRKWOOD, a citizen of the United States of America, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Grates, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to certain improvements in grates, and is more especially designed as an improvement in the constructions shown and described in Letters Patent No. 277,491, granted to me on the 15th day of May, 1883, and in the application filed by me on the 14th day of September, 1883.

The object of the invention is to obtain a grate by the use of which the fire may be shaken and dumped when desired.

To the accomplishment of the above the invention consists of the novel devices and combination of devices as will be described and claimed.

Reference will be made to the accompanying drawings, in which Figure 1 is a sectional view of the grate; Fig. 2, a similar view showing the grate in the dumping position, and Fig. 3 a plan view.

Like letters refer to like parts in each view.

The grate consist of a series of intermediate sections, A A′ A^2, a moving end section, A^3, and a stationary end section, A^4. Each intermediate section consists of a bar, *a*, upon which is mounted a series of semicircular plates, *b*, the parts held together and arranged as described in the application above referred to, while to the bar *a* of each end section quadrant-shaped plates *b′* are secured in a like manner, said plates being provided with projections b^2, which enter notches in the front and rear rails, *a′*. Each bar *a* is provided on each end with a trunnion, *c*, which rests in suitable notches formed in side bars, B. The bar *a* of the front section, A^4, is provided with square ends *c′*, which rest in square sockets of the side bars, in order to hold such section in a fixed position.

Upon the lower face of one end of each bar *a* there is formed a section, *d*, to each of which is secured an arm, C, situated at an incline to bar *a*, and bent at its lower end, now to be described. The arms of alternate sections are attached, respectively, at the inner or outer end of sections *d*, each arm bent as shown, and provided at its lower end with a slot, *e*. At the upper end of each arm there is formed the arm *f*, through which are passed bolts for securing said arms to the sections *d*. Two arms, D D′, provided with pins *g*, are secured to the depending bent arms C by passing said pins through the slots formed in the lower end of said bent arms, these pins being held in place by pins *h*, passed transversely through said slots. The arms D D′ are attached in the manner described to alternate arms—*i. e.*, arm D is secured to the arms of section A A^2, and arms D′ to sections A′ A^3. At their front ends arms D D′ are passed through an opening made in the front wall of the furnace, the former bent upward, as shown, while the latter is curved downwardly. These arms are secured to opposite ends of an arm, E, which is pivoted at its center in a bracket, F, secured to the front wall, and is operated by a lever, G.

By the arrangement of the parts as described, and as shown in Fig. 2 of the drawings, the sections A A′ are tilted in opposite directions to form an open space between such sections when it is desired to dump the fuel, the sections A^2 A^3 being operated in a like manner.

I am aware that it is old to shake furnace-grates through the medium of straight depending arms and suitable operating mechanism; but with that construction it is not possible to carry the sections to suitable positions for dumping.

I am aware that grate-bars provided with slotted depending arms connected with and operated by a horizontal bar is old, and I therefore disclaim such a construction; but

What I claim is—

The combination, with bars *a*, carrying plates *b*, of the inclined, bent, and slotted arms C, and suitable means for operating such parts, as described and shown.

In testimony whereof I affix my signature in presence of two witnesses.

THOMAS KIRKWOOD.

Witnesses:

M. J. CLAGETT,

LOUIS NOLTING.