J. S. CLARK.

Grate.

No. 62,005. Patented Feb. 12, 1867.

Fig. 3

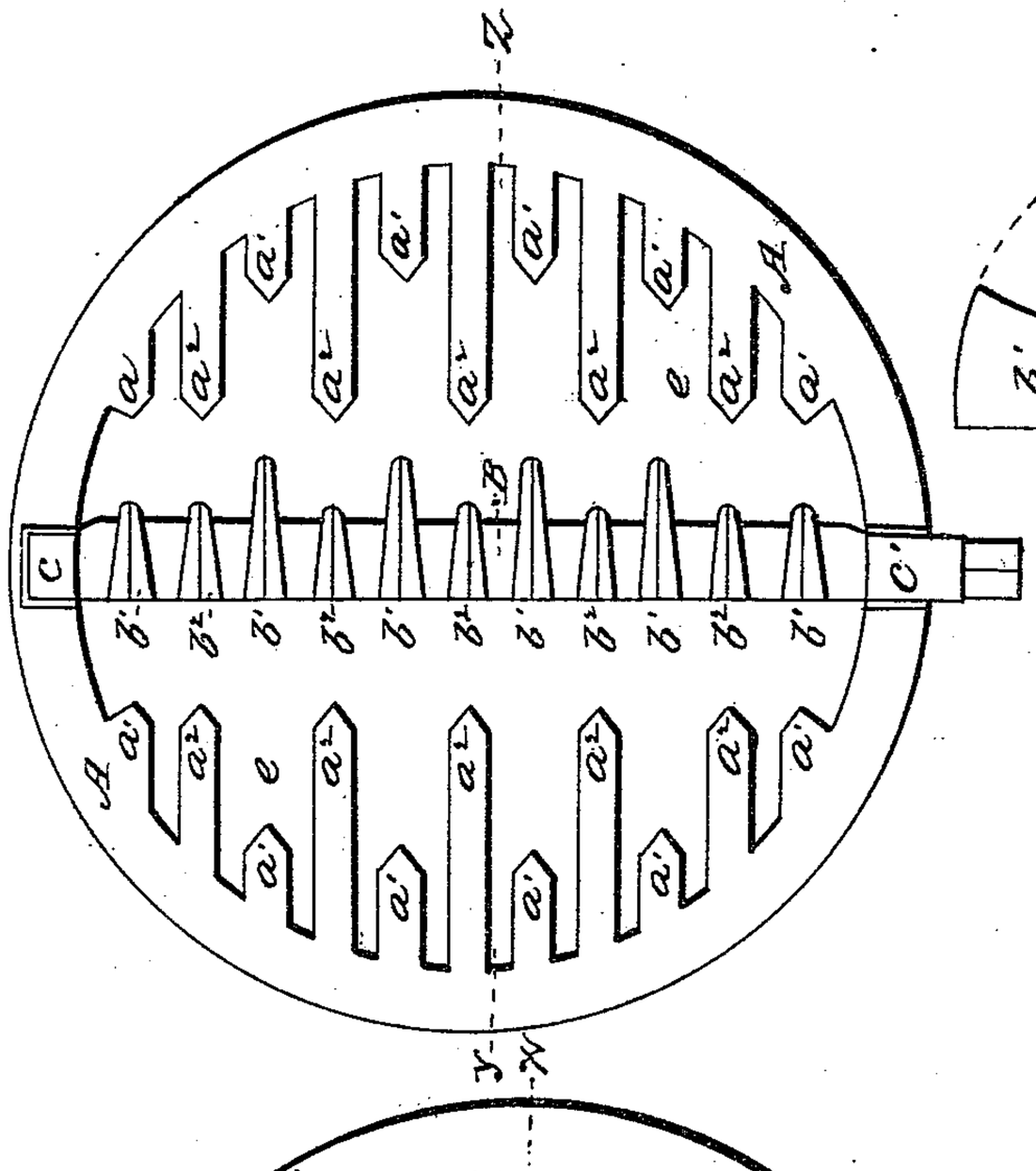


Fig. 4

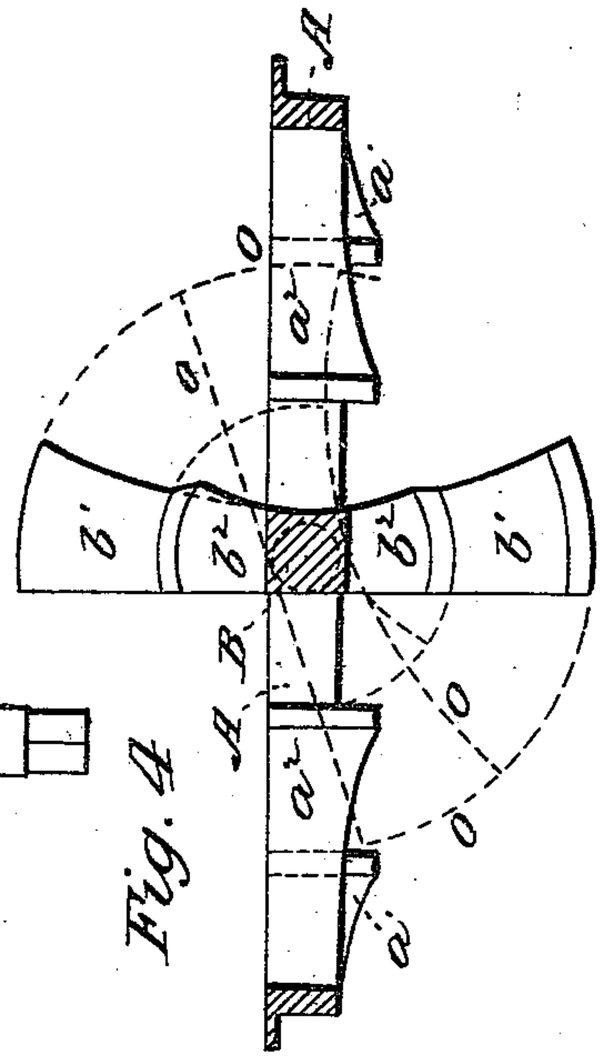


Fig. 1

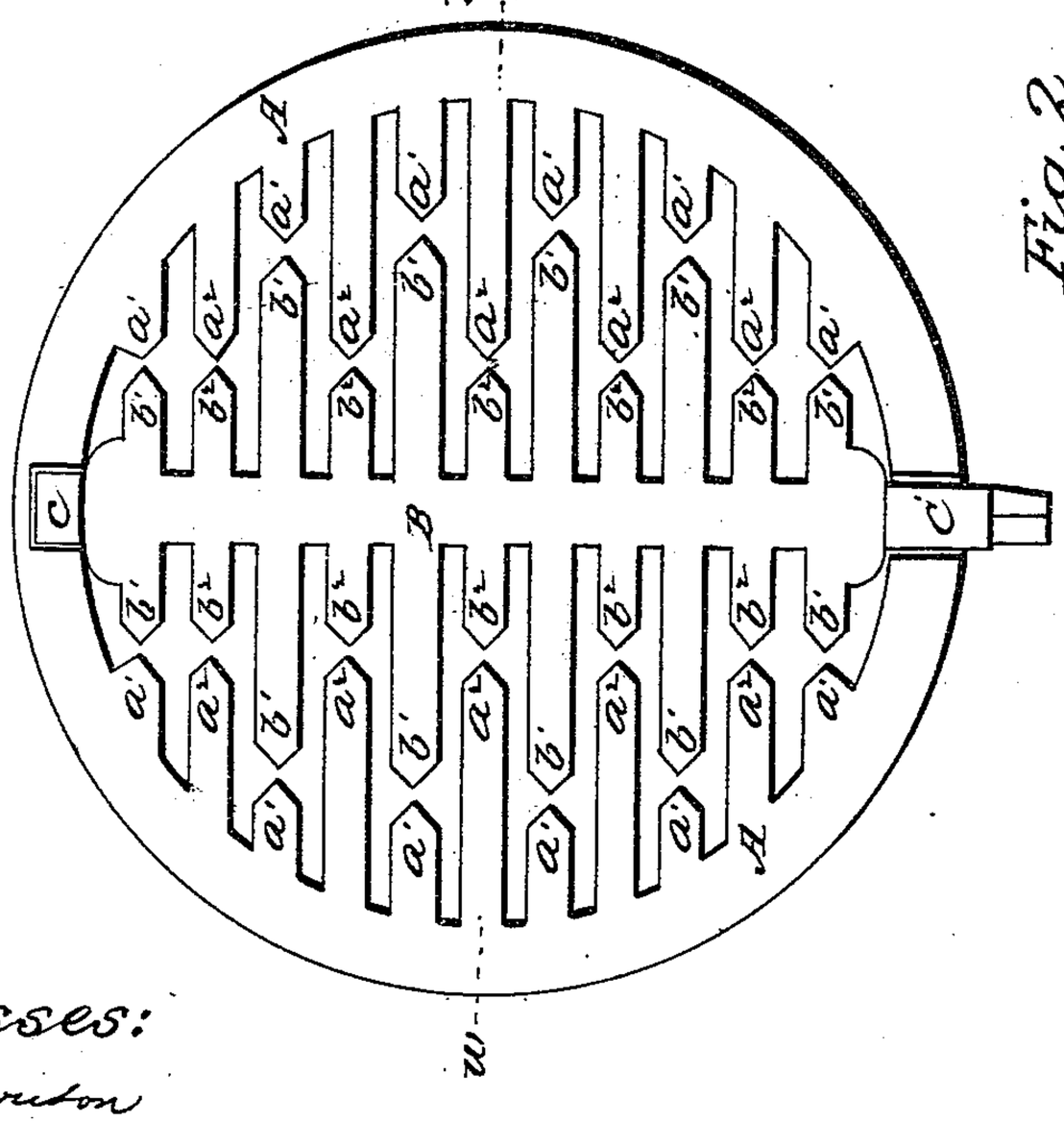
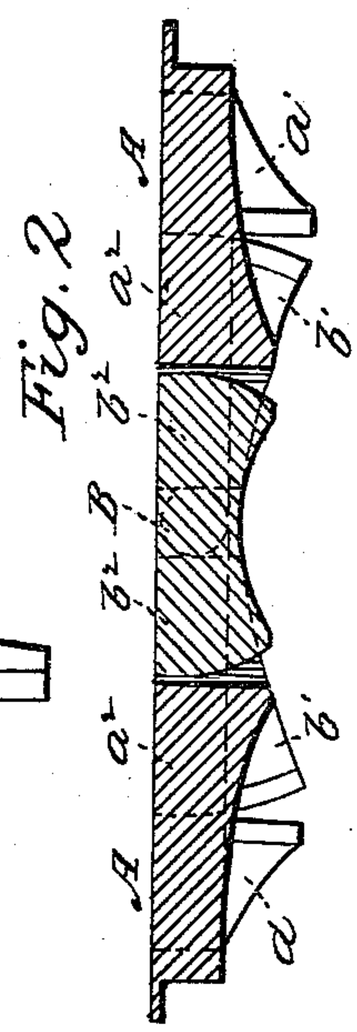


Fig. 2



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JOHN S. CLARK, OF PHILADELPHIA, PENNSYLVANIA.

Letters Patent No. 62,005, *dated February* 12, 1867.

IMPROVEMENT IN GRATES.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, JOHN S. CLARK, of the city of Philadelphia, in the State of Pennsylvania, have invented a new and useful Improvement in Grates for stoves, ranges, &c.; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a plane view of one of the said grates as adapted for a cylindrical fire-chamber: and

Figure 2, a vertical section of the same, on the dotted line *w x* of fig. 1.

Figure 3, a plane view of the same grate, having its rotatory portion turned so as to bring its bars to vertical positions; and

Figure 4, a vertical section of the same cut on the dotted line *y z* of fig. 3 —

Like letters of reference indicating the same parts when in the different figures.

My invention consists of a stationary grate having a series of parallel and alternately arranged short and long bars projecting from two inner opposite sides of its frame, toward and in line with each other, leaving a large, clear space between the two said series for the reception and motion of a rotatory shaft provided with a corresponding series of long and short parallel bars projecting from two opposite sides of the said shaft, so as to be in line with the respective bars on the fixed portion of the grate, and so also that the long and the short bars of the shaft will be opposite to and intervene respectively with the short and the long bars of the frame, when the grate is closed, and leave a wide open space at each side of the bar, between the said rotatory and the fixed portions of the grate, when the same is opened, substantially as hereinafter described and shown, for the purpose of facilitating the operation of separating the ashes from the incandescent fuel, or in discharging the general contents of the fire-chamber. My invention also consists in making the free ends of each of the bars of the different series of the said grate deeper than the frame or shaft from which they respectively project, and curving the ends of the bars of the shaft, and also in bevelling the said free ends of all the bars of the respective series so that each will present a vertical edge to its opposite, substantially as hereinafter described and shown, for the purpose of more effectually preventing lumps of coal or cinder from falling and wedging between the said opposing ends, in oscillating the rotatory shaft for agitating the fuel or separating the ashes therefrom.

In the drawings, A is the ring or frame of the grate, and a^1 a^2 the alternating short and long parallel bars of the two series of the same; B is the rotatory shaft, and b^1 b^2 the alternating long and short parallel bars of the two series of the same. The fixed portion A, with its two series of bars a^1 a^2, is cast in one piece, as represented in the drawings. The rotatory shaft B, with its two series of long and short parallel bars b^1 b^2, is also cast in one piece, and has a cylindrical journal at each end, *c c'*, which rotate in corresponding depressions cast in the frame of the fixed part A, one of which journals *c'* being made long enough to extend through and a little beyond the outer walls of the stove or range, it being also squared at its extremity in the usual manner for the application of a hand-lever. The ends of the bars a^1 a^2 and b^1 b^2 are bevelled so as to present vertical edges, and, when the grate is closed, the opposing ends are, respectively, about an eighth of an inch, more or less, apart, as shown in figs. 1, 2, 3; and, in order to preserve the same distance between the opposing ends of the bars when the shaft B is oscillated to remove the ashes or agitate the fuel, as indicated by the dotted lines *o o*, fig. 4, the said bevelled ends b^1 b^2 are curved concentrically with the central line of the said shaft B, as shown in figs. 2 and 4. When the discharge of the general contents of the fire-chamber is desired, the shaft B is turned sufficiently to bring its bars b^1 b^2 into the vertical positions shown in fig. 4, thus producing the wide open space on each side of it, as shown in figs. 3 and 4.

It will be seen that this grate is well adapted to facilitate the operation of separating the ashes from the fuel, because it will effectually produce a thorough agitation of the contents of the fire-chamber by slightly oscillating the shaft B without any liability to become fast or choked, as other comb-grates, by lumps of coal or cinder wedging between the ends of the fixed and the moving bars; and that it also affords ample spaces, when open, for the discharge of the general contents with the greatest facility and rapidity.

Having thus fully described my improved grate, what I claim as new therein, of my invention, and desire to secure by Letters Patent, is confined to the following, viz:

I claim a stove or range grate consisting of the fixed part A, having the two series of parallel alternate short and long bars a^1 a^2, and the rotatory part B, having the two series of parallel alternate long and short bars b^1 b^2, the said parts being constructed and arranged to operate together, substantially as and for the purposes described.

And, in combination with the subject-matter of the preceding claim, I also claim making the free ends of all the bars, a^1 a^2, b^1 b^2, deeper than the frame or shaft from which they project, and giving to the ends of the movable bars b^1 b^2 the curved-edge form shown, substantially as and for the purposes described.

JOHN S. CLARK.

Witnesses:
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