

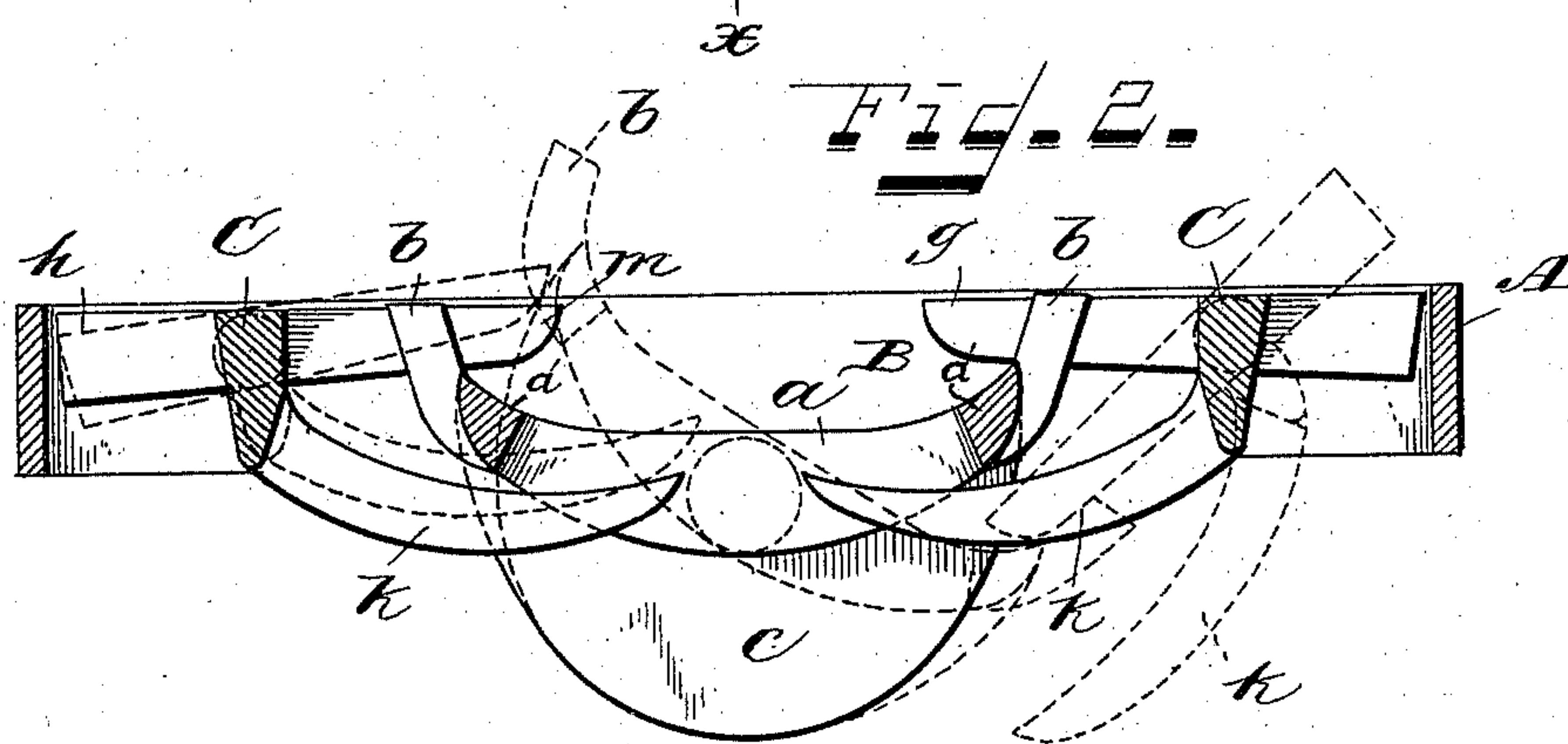
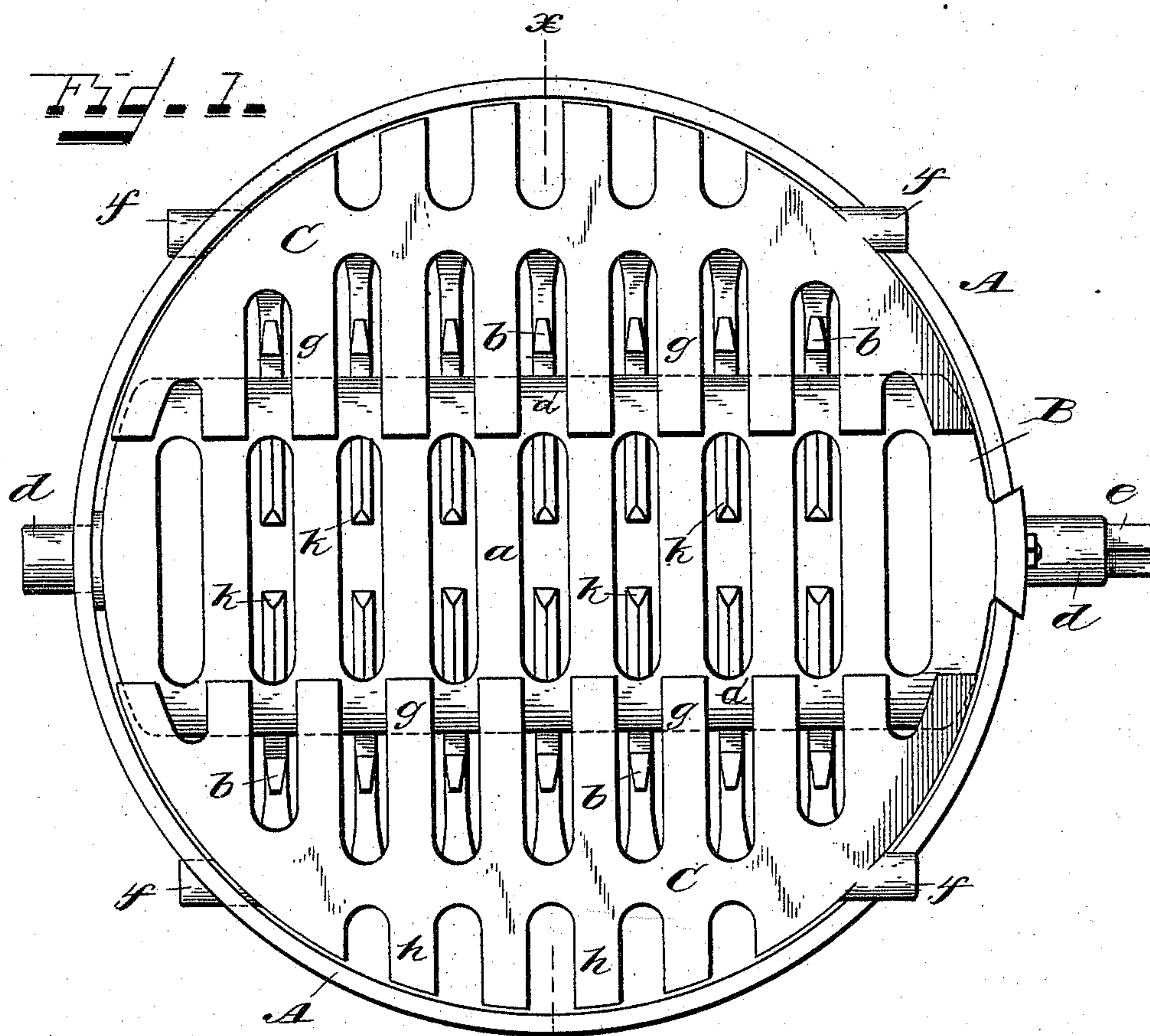
(No Model.)

2 Sheets—Sheet 1.

J. STEINER.
GRATE.

No. 575,436.

Patented Jan. 19, 1897.



Witnesses.

J. Thomson Cross
H. G. Edwards

Inventor.

Joseph Steiner
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Attorney.

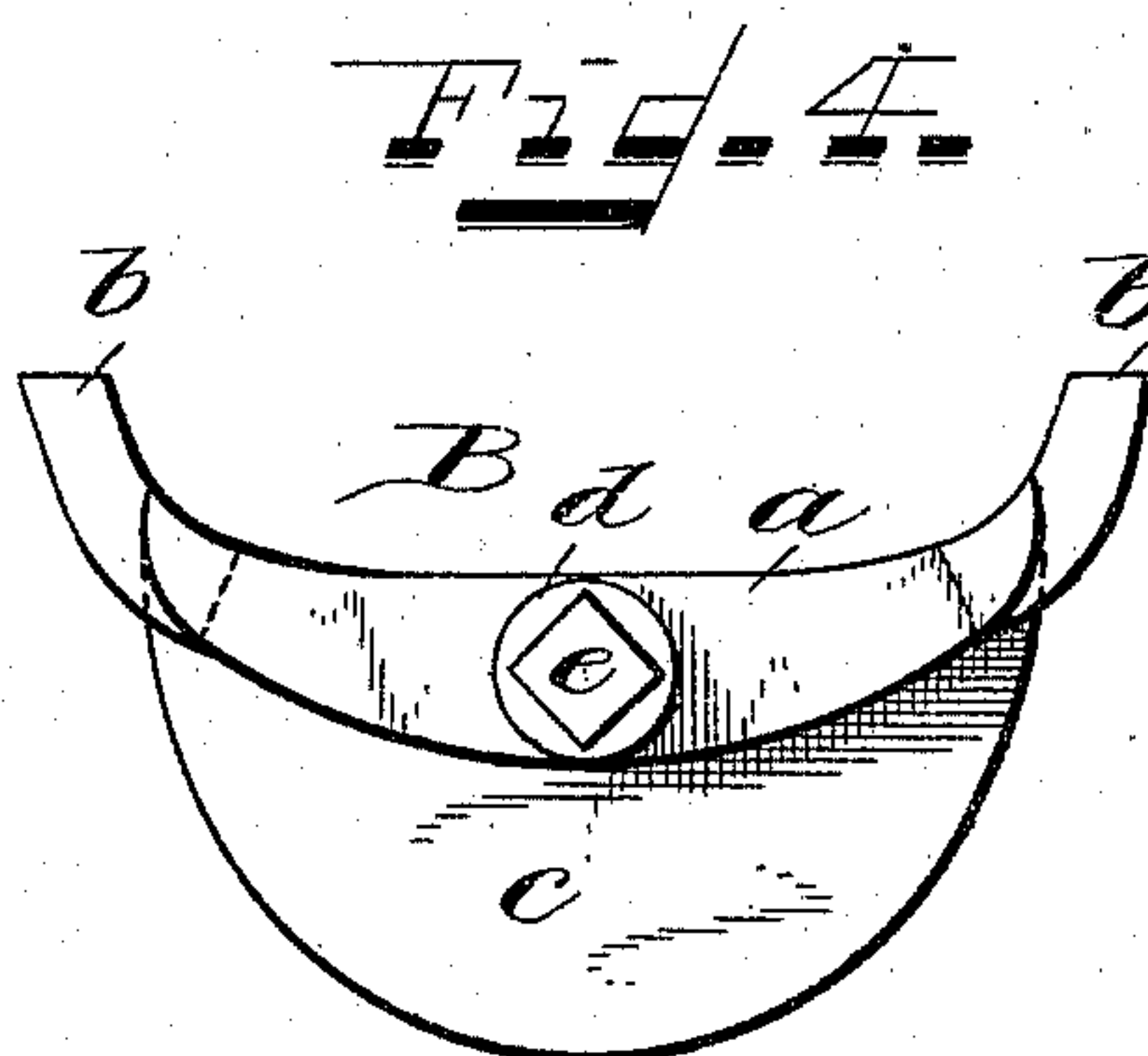
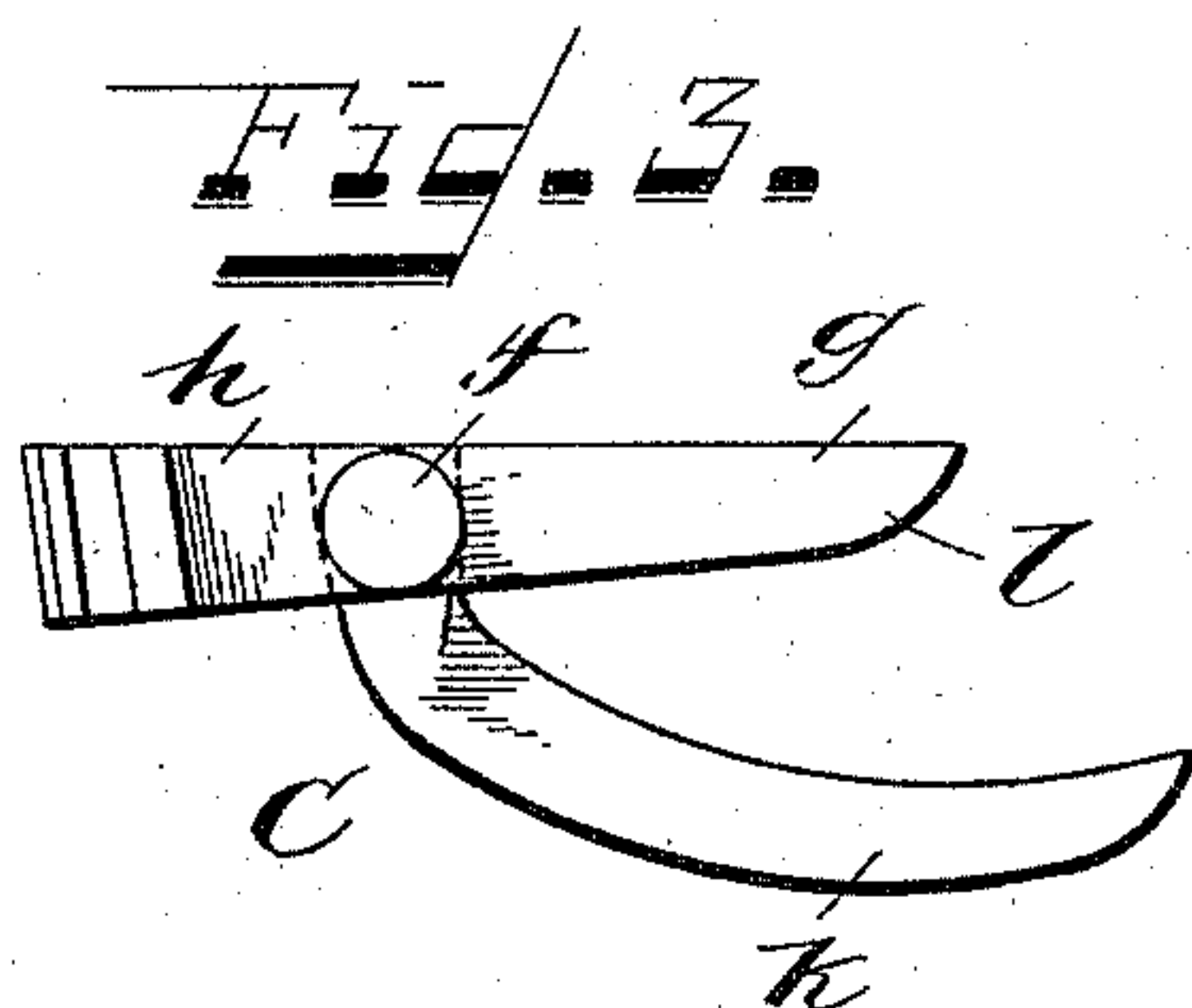
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J. STEINER.
GRATE.

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Harvey Edwards

Inventor.

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UNITED STATES PATENT OFFICE.

JOSEPH STEINER, OF PIQUA, OHIO.

GRATE.

SPECIFICATION forming part of Letters Patent No. 575,436, dated January 19, 1897.

Application filed July 13, 1896. Serial No. 598,951. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH STEINER, a citizen of the United States, residing at Piqua, in the county of Miami and State of Ohio, have invented certain new and useful Improvements in Grates, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

My invention relates to grates for stoves, and is applicable to any kind of heating or cooking stove or furnace; and it consists of a certain novel construction and arrangement of parts, to be hereinafter particularly pointed out and claimed, whereby the ashes and cinders may be readily and quickly shaken out or dumped and the glowing fuel kept constantly exposed to a steady draft.

In the drawings, Figure 1 is a top plan view of the grate. Fig. 2 is a central cross-section of same, taken on lines X X of Fig. 1. Fig. 3 is an end view of one of the side divisions of the grate. Fig. 4 is a similar view of the central section.

I have illustrated my invention as applicable to circular stoves and grates, but it will be understood that the description and claims are equally applicable to rectangular and other forms of grates.

A is the grate-ring, which supports and forms a bearing for the oscillating grate-bars. These grate-bars are in three parts, a central oscillating section B and two side sections C C.

The central section B is a rectangular frame or grid made up of sides $a' a'$ and parallel cross-bars $a a$ and provided with short upwardly-extending fingers $b b$, arranged along the outside of each side bar $a' a'$ of the central grid opposite the openings between the parallel bars $a a$. This central grid B is also provided with a single central cam c , which extends downward under the frame.

The grid B has journal-bearings for its axle d in the supporting-ring A, and one end of the axle is square at e to receive a crank-handle or shaker, by means of which the grid is oscillated. The side grids C C also are pivoted on the ring A in the studs $f f$, so that they can also be oscillated when the central grid is shaken. These side grids, in the circular form of grate shown, have horizontal bars $g g$ extending inward over the sides of

the central grid, and also horizontal bars $h h$ extending outward of a length to conform to the ring A. The side grids also carry fingers $k k$, extending downwardly and inwardly underneath the longitudinal openings in the central grid. The inner ends of the bars $g g$ rest on the sides $a' a'$ of the central grid B between the fingers $b b$, and are beveled or rounded off underneath at l , so as to slide easily on the central grid as it is oscillated by the shaker.

As the central grid is oscillated the grids will take the position shown in dotted lines in Fig. 2. The bars $g g$ of each of the side grids resting on the sides $a' a'$ of the central grid, the central grid will rotate the side grids in a direction opposite to that of the central grid. On one side edge of the central grid the rotation of the two sections will be upward and in opposite directions, while on the other side edges of the central grid the rotation will be downward and also in opposite directions. This rotation of the sections will bring the fingers k on one side up through the longitudinal openings in the central section, and at the same time the fingers $b b$ will work up through the openings between the bars $g g$ in the side grid, while the back rotation of the central grid will accomplish the same result for the other side, thus thoroughly cleaning the grate-bars of ashes and cinders.

To dump the ashes, the central grid is turned half over, and the side grid having also dropped down there is an open space for dumping. In order, however, that the side grid on the other side may not also drop down when the central grid is turned so far over that the fingers $g g$ no longer rest on the central grid, I provide the cam c , which then comes in contact with the central finger g and holds up the side grid during the further turning of the central grid, as shown at m in dotted lines, Fig. 2.

It will be seen from the above description that my improved grate can be dumped on both sides, and that by reason of the double rocking motion in each direction it is impossible for cinders or clinkers to jam the movement of the sections. In the ordinary duplex grate, in which the movement of dumping can be had only in one direction, it is often a difficult matter to get the grate back to its

normal position, while the movement of the parts in my grate, as above described, insures an easy return to the original position. Again, it will be noticed that no gearing of any kind is required in my grate. The central grid by the contact of its fingers in connection with the fingers of the side grids enforces the movement. Where the movable portions of the grate are geared together, the heat of the fire is very apt, in a short time, to warp the gear-teeth, so that they will not mesh properly, and consequently such grates frequently cannot be properly operated. All of these difficulties are avoided in my construction. Moreover, the fingers on the side grids extending downward and inwardly, the metal of the side grids is necessarily thickened at the point of union with the side grids, so that there is no danger of warping or twisting under the heat, and at all times a bed of coals can be kept on the grate-bars. With my grate also, it will be seen, any kind of coal can be used, either hard or soft, and with the extra plate also any kind of wood, thus making the grate adaptable for all sorts of fires.

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

1. In a grate, the combination, of a plurality of oscillating grids, one grid carrying two sets of fingers or bars, with one set resting on the other grid and the other set extending downwardly underneath the longitudinal openings in said grid, and means for oscillating this grid to oscillate the other in the opposite direction, substantially as shown and described.

2. In a grate, the combination, of a plurality

of oscillating grids provided with intermeshing fingers and bars, one set resting on the grid carrying the other set, and an additional set of fingers extending downwardly from one grid under the longitudinal openings in the other grid, with means for oscillating this grid to oscillate the other in the opposite direction, substantially as shown and described.

3. In a grate, the combination, with central and side oscillating grids, provided with intermeshing bars, the inwardly-extending side bars of the side grids resting on the frame of the central grid, of supplemental fingers extending downwardly and inwardly from the side grids under the longitudinal openings in the central grid, and means for oscillating the central grid to oscillate the others in opposite directions, substantially as shown and described.

4. In a grate, the combination, with central and side oscillating grids, provided with intermeshing bars, the side bars resting on the frame of the central grid, of supplemental fingers extending downwardly and inwardly from the side grids under the longitudinal openings in the central grid, cam on the central grid to contact with one of the intermeshing bars of one other grid to sustain said grid when the grate is dumped and means for oscillating the central grid to oscillate the others in opposite directions, substantially as shown as described.

JOSEPH STEINER.

Witnesses:

WM. SCHMIDT,
AL. BASTATTER.