No. 700,188.

Patented May 20, 1902.

C. R. FABEN, JR.

GAS PURIFIER GRID.

(Application filed Aug. 7, 1901.)

(No Model.)

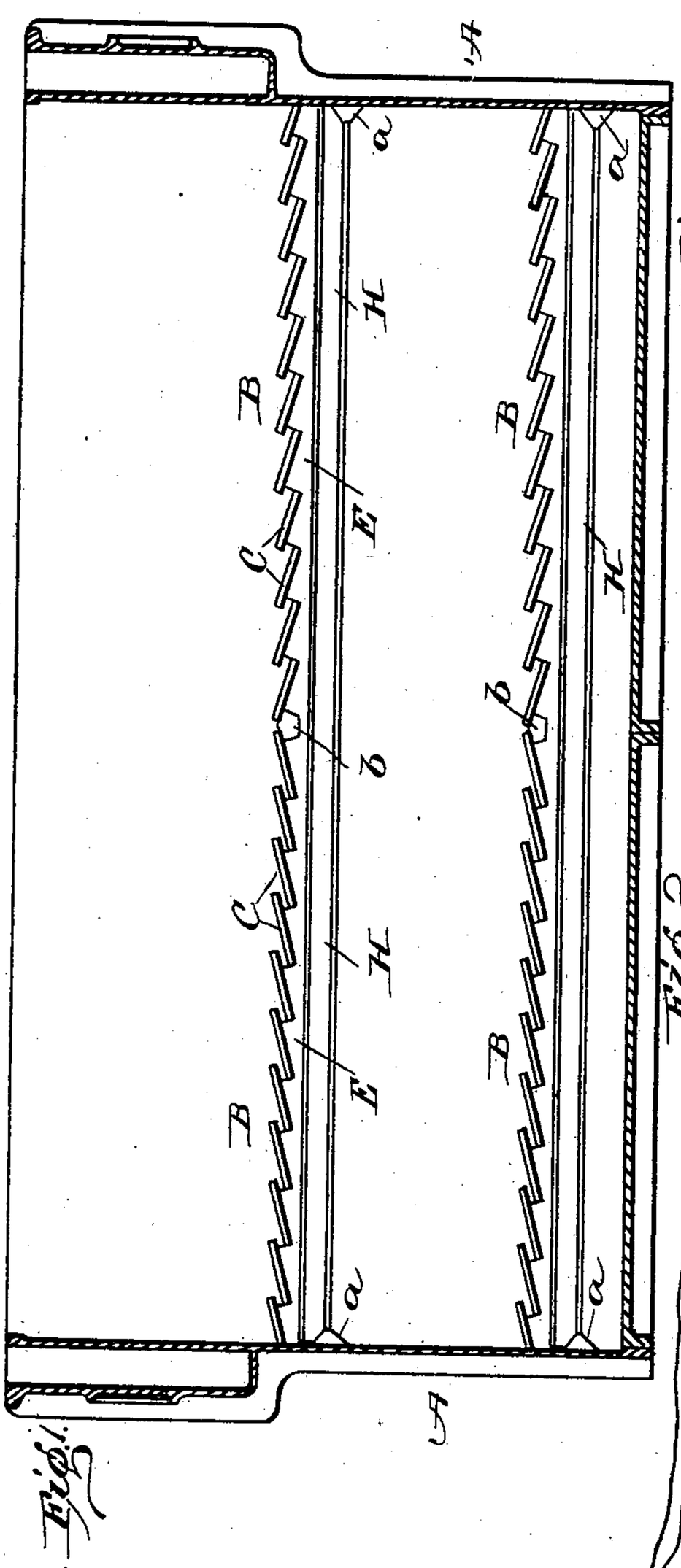

Fig. 1.

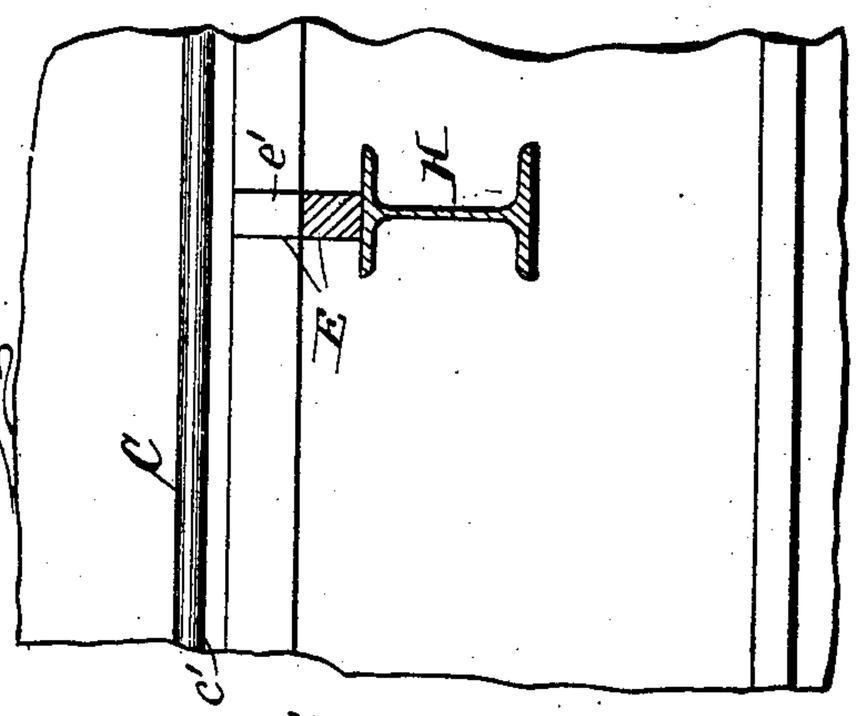

Fig. 3.

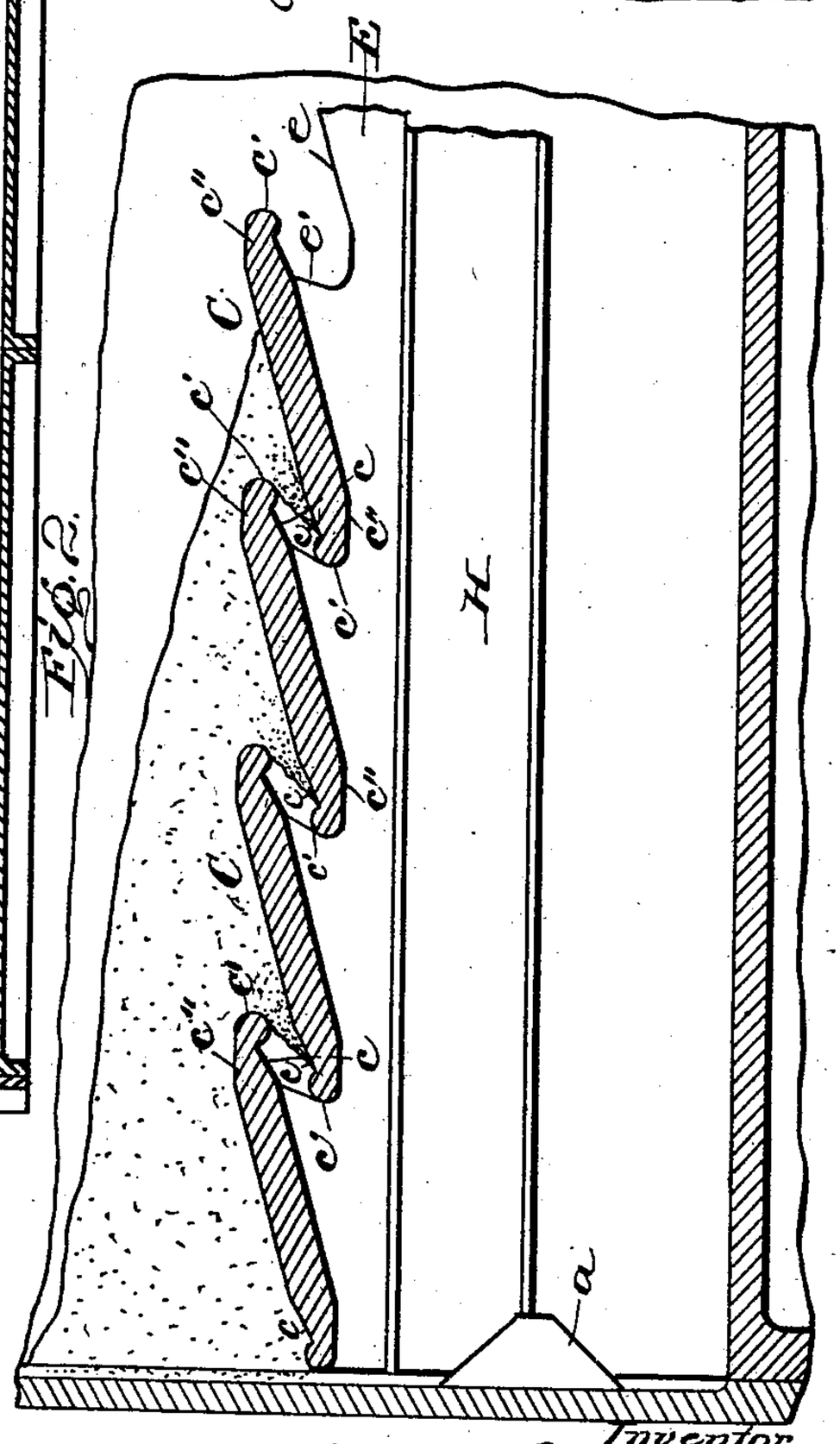

Fig. 2.

Witnesses:

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UNITED STATES PATENT OFFICE.

CHARLES R. FABEN, JR., OF TOLEDO, OHIO.

GAS-PURIFIER GRID.

SPECIFICATION forming part of Letters Patent No. 700,188, dated May 20, 1902.

Application filed August 7, 1901. Serial No. 71,175. (No model.)

To all whom it may concern:

Be it known that I, CHARLES R. FABEN, Jr., a citizen of the United States, residing at Toledo, in the county of Lucas and State of Ohio, have invented certain new and useful Improvements in Gas-Purifier Grids; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to trays or grids for gas-purifier boxes.

The object of my invention is to provide for more effectively and economically supporting very fine purifying material, such as oxid of iron, containing the largest possible per cent. of effective purifying constituents for securing the best results in purifying gas.

Another object of my invention is to provide a tray which is much simpler, cheaper in construction, and easier to repair than the ordinary slatted tray in general use and which is also simpler and more effective in operation, giving more economical and satisfactory results than such tray.

The improvements constituting my invention will be set forth in the claims.

The details of construction of my improved trays or grids are illustrated in the accompanying drawings, in which—

Figure 1 represents a vertical longitudinal section of a gas-purifier box containing my improved trays or grids. Fig. 2 represents a transverse section of the trays or grids, on enlarged scale, made and supported in accordance with my invention and part of a purifier-box. Fig. 3 represents a section at right angles to the section of Fig. 2, showing one of the supports for the grids.

The gas-purifier screens or grids now generally in use are constructed with vertically-disposed slats or bars in the same horizontal plane and spaced to form vertical passages of about one-fourth to five-sixteenths of an inch between them. These screens or grids will not satisfactorily support the very fine oxid of iron (bog-ore in fine powder or cast-iron borings) which is employed without there being mixed therewith an objectionable proportion of coarse inert material—such as planer-chips, wood-shavings, &c.—which naturally reduce the bulk of effective purifying constituent in the material. By means of my improved construction and arrangement of grids this difficulty is overcome and other advantages secured, as above stated.

My trays or grids are made of comparatively wide boards or slats overlapping one another at the edges, where they are vertically spaced apart to form horizontal or nearly horizontal gas-passages, and the upper face of each board has an upwardly-projecting bead or flange near its edge to arrest the fine purifying material at the angle of repose, so that ample provision is made for the flow of gas into and through the material, while the latter is prevented from falling down from the tray.

A convenient and practical embodiment of my invention is illustrated in the accompanying drawings; but my invention is not confined to the details of construction therein shown. The purifier-box A is of the usual construction and is provided with the interior brackets *a* for supporting the I-beams H or other angle-iron bearings for the layers of grids B. The grids are constructed of comparatively wide boards or slats C, which are seated on the serrated boards or blockings E, which are placed at their ends, along the walls of the box, and intermediately on the angle-iron beams H, as shown in Fig. 3. The serrated seating and spacing devices E are made with long inclined seats or bearings *e* and upright bearings or spacing-risers *e'*, so arranged that the slats C shall be vertically spaced apart at their overlapping edges and that the overlaps shall be uniform and of sufficient extent to provide that the angle of repose of the purifying material will permit it to approach the edge of the slat. Since the boards or slats C are transversely inclined to provide for the vertical spacing to form horizontal gas-passages, it is necessary to provide the face of the slat at its edge with a longitudinal stop device to hold the foot or base of the material at the angle of repose, so that the material shall not run over the edge of the slat. For this purpose the face of the board C near its edge is rabbeted or otherwise formed with a longitudinal depression *c*, the bottom of which is inclined toward the base of the bead *c'*. The depression and bead are thus formed in the body of the board or slat in the simplest, cheapest, and most practical

manner. The reverse side of the slat is preferably beveled at c'', so that the strip E need not be so deeply serrated, and thereby weakened, but is made with a corresponding bearing-surface, as shown. The slat at its opposite faces, near its opposite edges, is made with longitudinal depressions and beads substantially alike, and each face is beveled at c'' near the edge, so that the slats shall be right and left and can be reversed on their seats. This construction facilitates the operation of placing the slats in position, as either face may be placed upward and either edge against a spacing-riser of the strip E. The slats C when made of wood are about eight inches wide by one inch thick and lap about two inches over one another and may be six feet long or any other convenient length. They are not fastened together or to their spacing-strip and can therefore be separately lifted out of the box and readily cleaned. By reference to Fig. 1 it will be seen that the slats are laid so as to be inclined upward and inward from the opposite sides of the box toward the middle for directing the gas through the body of purifying material. At the middle the adjacent slats rest at their inner edges on the bar *b*. With the ordinary tray much of the gas passes up between the purifying material and the sides of the box, thereby escaping proper purification. This defective operation is corrected by the above arrangement of the inclined slats composing my grids.

Though I have described the slats C as being made of wood, they may be made of metal or other suitable material. The details of construction may be varied so long as there are retained the slats, overlapping and vertically spaced apart at their edges, making substantially horizontal gas-passages, and each slat having near its edge an upwardly-projecting bead or flange to arrest and hold the fine purifying material at the angle of repose.

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

1. A grid for a gas-purifier composed of comparatively wide bars or slats having their edges in the same horizontal plane, overlapping and vertically spaced apart, making horizontal or nearly horizontal gas-passages, substantially as described.

2. A grid for a gas-purifier composed of comparatively wide transversely-inclined bars or slats having their edges in the same horizontal plane, overlapping and vertically spaced apart, and having means at their lower edges for arresting or holding the purifying material at the angle of repose, substantially as described.

3. In a gas-purifier, the combination with inclined supporting-seats and spacing-risers of wide transversely-inclined overlapping bars, or slats, having horizontal gas-passages between them, substantially as described.

4. A bar or slat for a purifier-grid having flat opposite sides and a bead or flange perpendicular to its face, at one edge, substantially as described.

5. A bar or slat of a purifier-grid having in its face near one edge a longitudinal depression, and at its edge a bead or flange rising above the bottom of said depression, substantially as described.

6. A bar or slat of a purifier-grid having longitudinal beads or flanges projecting from its opposite faces at or near its opposite edges, substantially as described.

7. In a gas-purifier box the horizontally-placed serrated strips having inclined seats and spacing-risers, in combination with the transversely-inclined overlapping bars, or slats, substantially as described.

8. A bar or slat of a purifier-grid having in its face, near one edge, a longitudinal depression, the bottom of which is inclined downward and outward, and a longitudinal bead rising above the bottom, substantially as described.

9. In a purifier-box, the grids composed of overlapping bars or slats inclined upward and inward from opposite sides of the box for directing gas from the sides toward the interior of the purifier material, substantially as described.

10. A bar or slat of a purifier-grid longitudinally beveled at the edge of one face and having in its opposite face near the same edge a longitudinal depression, and at its edge in such face a bead or flange rising above the bottom of said depression.

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

CHARLES R. FABEN, JR.

Witnesses:
HARRY W. LLOYD,
CHARLES F. CHAPMAN, Jr.