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C. W. COWEN, J. H. TURNER & R. C. McLELLAN.

FRAME FOR COVERS FOR CRUCIBLE STEEL MELTING FURNACES.

APPLICATION FILED MAR. 23, 1904.

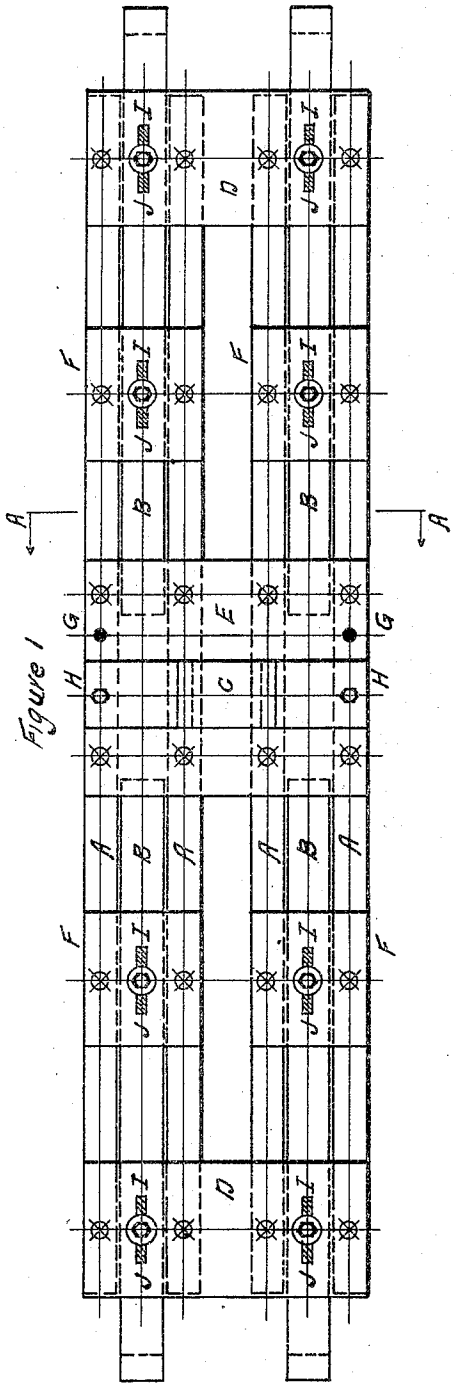

Figure I

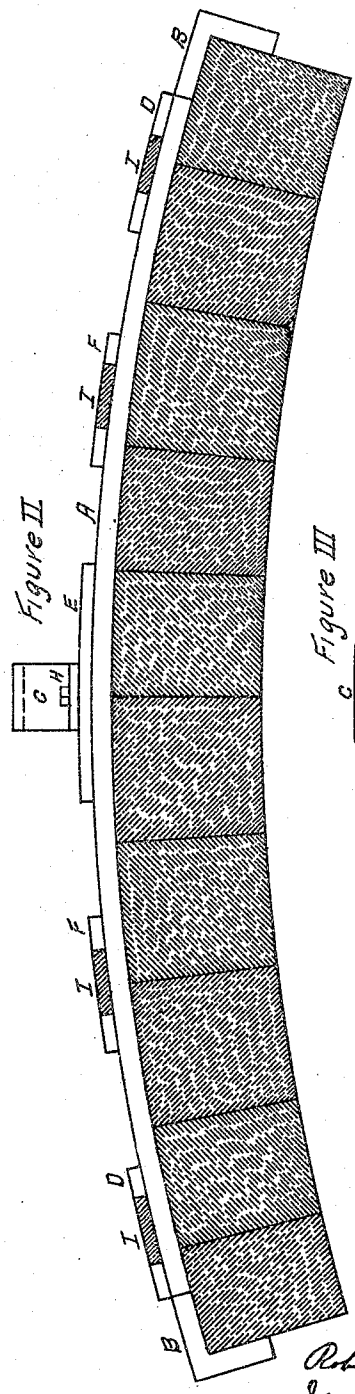

Figure II

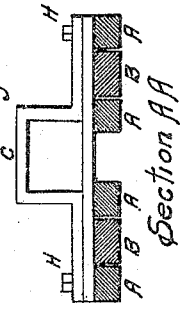

Figure III

Section A A

Witnesses.
James Sharman Sr
Annie Sharman

Inventors
Robert C. McLellan
James H. Turner.
Charles W. Cowen.
Per Atty.
George H. Sharman

No. 779,074. Patented January 3, 1905.

UNITED STATES PATENT OFFICE.

CHARLES W. COWEN, OF RESERVE TOWNSHIP, ALLEGHENY COUNTY, JAMES H. TURNER, OF PITTSBURG, AND ROBERT C. McLELLAN, OF WASHINGTON, PENNSYLVANIA.

FRAME FOR COVERS FOR CRUCIBLE STEEL-MELTING FURNACES.

SPECIFICATION forming part of Letters Patent No. 779,074, dated January 3, 1905.

Application filed March 23, 1904. Serial No. 199,602.

To all whom it may concern:

Be it known that we, CHARLES W. COWEN, residing in Reserve township, in the county of Allegheny, JAMES H. TURNER, residing at Pittsburg, in the county of Allegheny, and ROBERT C. McLELLAN, residing at Washington, in the county of Washington, State of Pennsylvania, citizens of the United States, have invented a new and useful Frame for Covers for Crucible Steel-Melting Furnaces, of which the following is a specification.

Our invention consists of a frame to hold the fire-bricks which are placed over the opening in the furnace which contains the crucibles or pots in which crucible-steel is made, and by a system of slides this frame may be made larger, according to the number of bricks which it may be required to hold, as the opening in the furnace becomes burned out by the heat.

The objects of our invention are to make a frame which, first, may be made larger in order to contain more bricks, up to a certain limit, as the opening which the cover must close becomes larger by being burned out by the heat; second, to provide a means of tightening the bricks in the cover without the use of packing; third, to allow the insertion of a brick into the frame to replace a bad one without materially disturbing the others; fourth, to make a frame which will render it unnecessary to keep a separate frame for every different number of bricks. We attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure I represents a plan of the frame with the slides extended; Fig. II, a vertical section of the frame, showing also the manner in which it is used to hold the bricks; Fig. III, a sectional view of the frame.

Similar letters refer to similar parts throughout the several views, and similar parts bearing the same relation to the whole are given similar letters.

Our invention consists of four arched parallel bars (lettered A) connected at the ends by the plates lettered D and by a plate E, which is off center about two inches. The bars A are connected by plates lettered F into two pairs. The plates lettered F and D have in their middle slots (lettered I) in which works a set-screw, (lettered J.) The plate E has bolt-holes, which are in the center of the frame when the slides are in, which in the drawings are now occupied by the bolts H, and two other bolt-holes, (lettered G.)

Between each pair of bars, (lettered A,) as connected by plates F, work slides B, two at each end, making four in all, the outer end of each slide being bent, as shown in Fig. II. The slides in Fig. I are represented as being drawn out. The slides (lettered B) have at regular intervals screw-holes in which work set-screws J, as shown in Fig. II.

Each frame is made to contain a certain number of bricks when the slides are in place; but packing is generally required in order to make the bricks firm and tight in the frame. To take the place of this packing, we have employed the slots I, in which work the set-screws J, by means of which any slack in the frame may be taken up merely by pushing tighter the slides B and fastening the set-screws J. If another brick must be added to the frame, we unscrew the set-screws J from the slides B upon one end of the frame, draw out the slides B upon that end, screw back the set-screws J into the screw-holes in slides B, insert the brick, and then by means of set-screws J working in slots I take up any slack and tighten, as described above. Then the handle C will be out of center and may be moved into center by unscrewing bolts and changing them so as to screw into bolt-holes (lettered G) in plate E.

What we claim as our invention, and desire to secure by Letters Patent, is—

1. In a frame for a cover for crucible steel-melting furnaces, four arched bars joined at or near the ends by plates, and near the center by a plate; and between the center and end plates by four other plates, two on each side of the center plate, which join the four arched bars into two pairs; being substantially the main body of the frame as described above.

2. In a frame for a cover for crucible steel-

melting furnaces two arched bars, four slides, two in each end, working between the two arched bars connected in pairs, substantially as described above.

3. In a frame for a cover for crucible steel-melting furnaces the combination of four arched bars joined at or near the ends, and near the center, by plates, and between the center and end plates, by four other plates, two on each side of the center plate, which join the four arched bars into two pairs; and of four slides, two in each end, working between the two arched bars connected in pairs; and of the set-screws, working in slots in the end and middle plates, being substantially the whole frame described above.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

CHARLES W. COWEN.
JAMES H. TURNER.
ROBERT C. McLELLAN.

Witnesses:
PRESTON BERRY,
THOMAS B. TURNER.