

No. 875,395.

PATENTED DEC. 31, 1907.

C. WEBER.
CHIMNEY.

APPLICATION FILED OCT. 4, 1906.

Fig. 1.

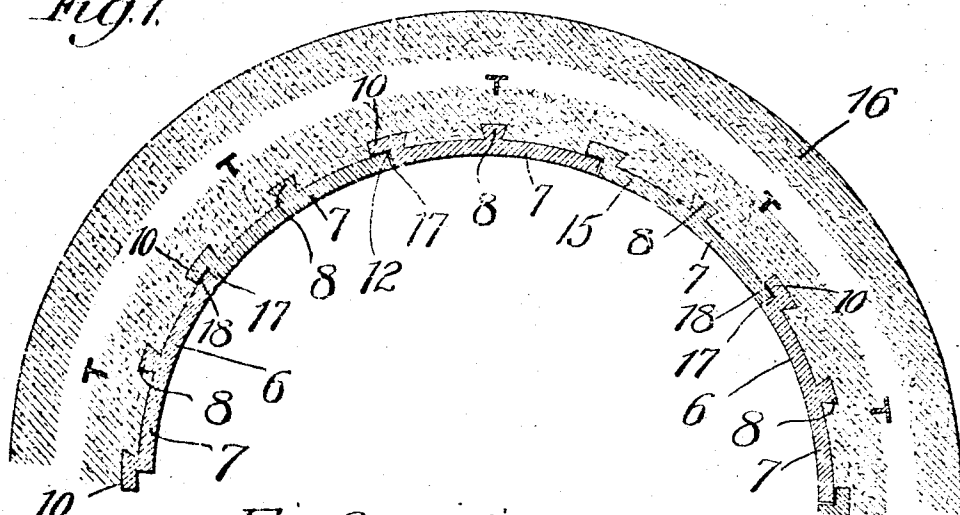


Fig. 2.

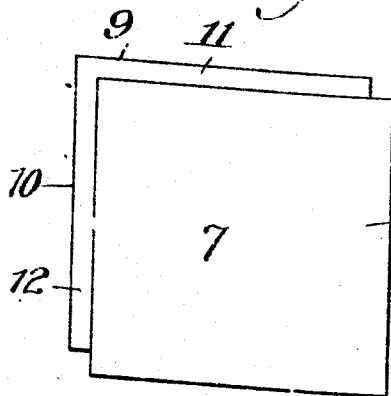


Fig. 4.

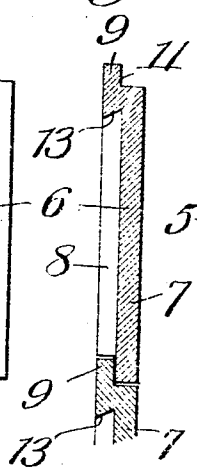


Fig. 3.

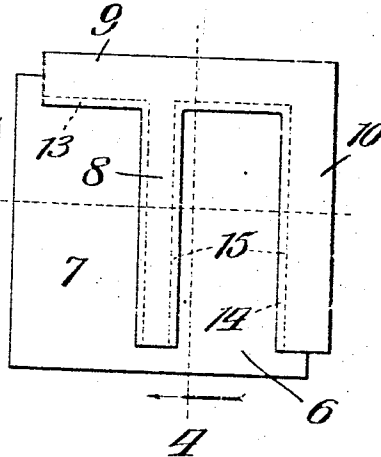
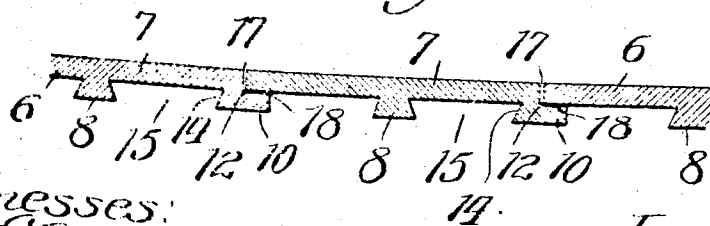


Fig. 5.



Witnesses:

John E. Taylor
John E. Taylor

Inventor:

Carl Weber

By *Dymally Dymally, Sec'y*
Atty

UNITED STATES PATENT OFFICE.

CARL WEBER, OF CHICAGO, ILLINOIS, ASSIGNOR TO WEBER STEEL-CONCRETE CHIMNEY COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

CHIMNEY.

No. 875,395.

Specification of Letters Patent.

Patented Dec. 31, 1907.

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To all whom it may concern:

Be it known that I, CARL WEBER, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Chimneys, of which the following is a specification.

My invention relates, more particularly, to an improvement in the class of chimneys, smoke-flues, and the like, which are constructed of metal-reinforced concrete.

It is found in the practical use of the variety of chimney referred to, for smelter and other work, wherein the structure carries off fumes from sulfur, arsenic, acetic acid, nitric acid, and the like, that the gases tend to exert a more or less deleterious action on the concrete of which the wall of the structure is composed.

The primary object of my invention is to avoid injury to the structure from the stated causes, by providing it, in the process of erection, with an acid-proof, refractory lining of special construction.

My invention is illustrated in the accompanying drawing, in which—

Figure 1 is a broken plan section of a reinforced-concrete round chimney provided with my improvement; Fig. 2, a face view of one of the tiles employed in forming my improved lining; Fig. 3 a back view of the same; Fig. 4, a broken section through two contiguous tiles of the lining, showing the construction of the tile as it appears with the section taken at the line 4 on Fig. 3 and viewed in the direction of the arrow; and Fig. 5, a broken section taken through three of the contiguous tiles of the lining, showing the construction of the tile as it appears with the section taken at the line 5 on Fig. 3 and viewed in the direction of the arrow.

The tile which I have devised for my aforesaid particular purpose, is shown at 6 in the several figures of the drawing, being represented as curved for use in lining the round chimney illustrated in Fig. 1, and as straight in the other figures; and it may be provided in other forms for different requirements as to the shape of the structure to be lined. The tile 6 comprises, as its essential construction, an angular, and preferably rectangular, body 7 having a regular face; and a rib 8 on the back, preferably formed with undercut sides, as represented, and extending centrally of the

back short of the opposite edges thereof between which it extends longitudinally; and from each of two adjacent edges project, respectively, the flanges 9 and 10 forming along their outer sides the offsets 11 and 12, respectively, and along their inner sides the undercut surfaces 13, 14. Each undercut 14 produces with the adjacent undercut side of a rib 8, a dovetailed recess 15. This tile may be composed of any suitable acid-proof, refractory material, such as baked, and preferably vitrified fire-clay, or asbestos.

To provide my improved lining in a chimney 16, such, for example, as is shown and described in Letters Patent of the United States No. 748,242 granted to me on the 29th day of December, 1903, the procedure is as follows: The tiles are laid in the molds employed to surround the skeleton metal structure and receive the concrete for embedding the metal bars, and which is commonly tamped in the molds. For each section of the concrete-filling, determined as to its height by the height of the molds employed, one or more circumferential series of the tiles 6 (depending upon the relative height of the molds and of the tiles) are laid about the outer surface of the innermost mold, with the flange 10 of one tile overlapping the adjacent edge of the next tile in the circumferential series, and the flange 9 of each tile overlapping the adjacent edge of the next tile in a vertical series of the tiles. With the lining so formed for each concrete section of the chimney undergoing construction, the concrete filled into the molds keys to it the tiles by embedding the ribs 8 and the flanges 9, 10, and thus becoming dove-tailed in the recesses formed on the backs of the tiles between the ribs and the flanges. Care is observed in laying the tiles in the molds to leave a slight space 17 between the contiguous edges of adjacent tiles, to provide expansion-joints throughout the lining structure; and where a flange 10 overlaps the adjacent edge of a tile, a slight horizontal space should be provided to receive a filling 18 of plaster of paris, asbestos, or like material that is not injuriously affected by the action of the gases which pass through the chimney, whereby access of such gases to the concrete covered by the tile-lining is prevented to avoid the deleterious action of such gases on the concrete.

By the described construction of lining, the lap-jointed tiles forming it are mutually interlocked and they are also so intimately interlocked with the concrete wall-structure of the chimney as to render the lining, practically, an integral part thereof, while effectually shielding it against injury from the hot gases for carrying off which the chimney is employed.

10 What I claim as new and desire to secure by Letters Patent is:—

1. A lining tile for chimney, smoke-flues and the like formed of refractory material and consisting of a body provided on one surface with a rib undercut along its sides and having offset flanges extending from two adjacent edges and undercut along their inner edges said rib extending from substantially the central portion of one of said flanges and substantially parallel to the other flange.

2. In combination with a reinforced concrete chimney, flue, or the like, a refractory

lining formed of tiles comprising a body portion provided on one surface with a rib undercut along its sides and having offset flanges extending from two adjacent edges and undercut along their inner edges said rib extending from substantially the central portion of one of said flanges and substantially parallel to the other flange whereby said tiles may be lap-jointed in vertical series lengthwise of the structure and horizontal series about the same, with the ribs embedded in the concrete of the structure and the offset flanges forming expansion-joints between adjacent tiles throughout the lining and acid-proof fillings in said lap-joints whereby fumes passing up the chimney will be prevented from attacking the concrete of the structure.

CARL WEBER.

In presence of—

J. H. LANDES,

C. W. WASHBURN.