

No. 780,478.

PATENTED JAN. 17, 1905.

G. Y. BONUS.
BOILER TUBE TILE.
APPLICATION FILED DEC. 3, 1903.

Fig. 1.

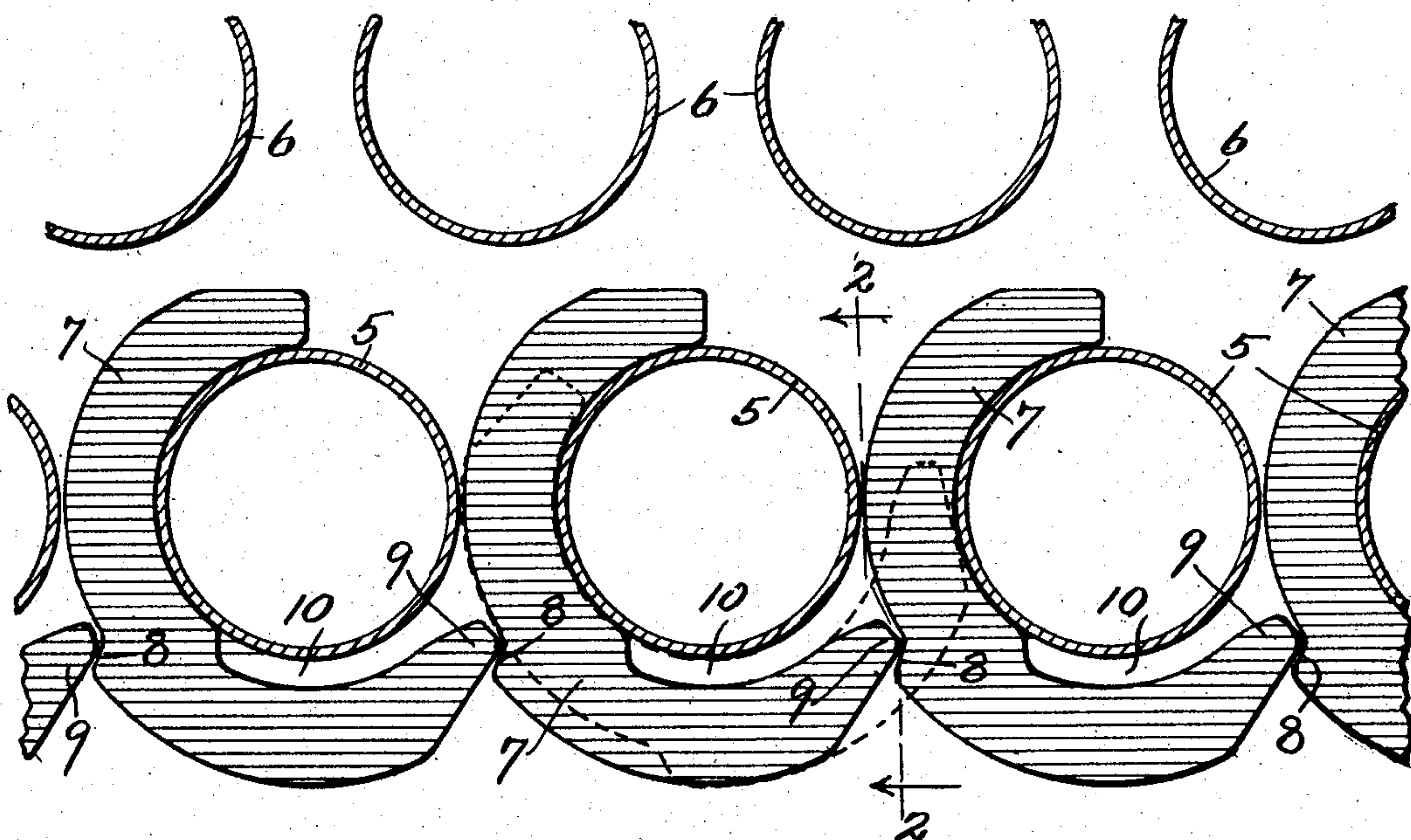


Fig. 2.

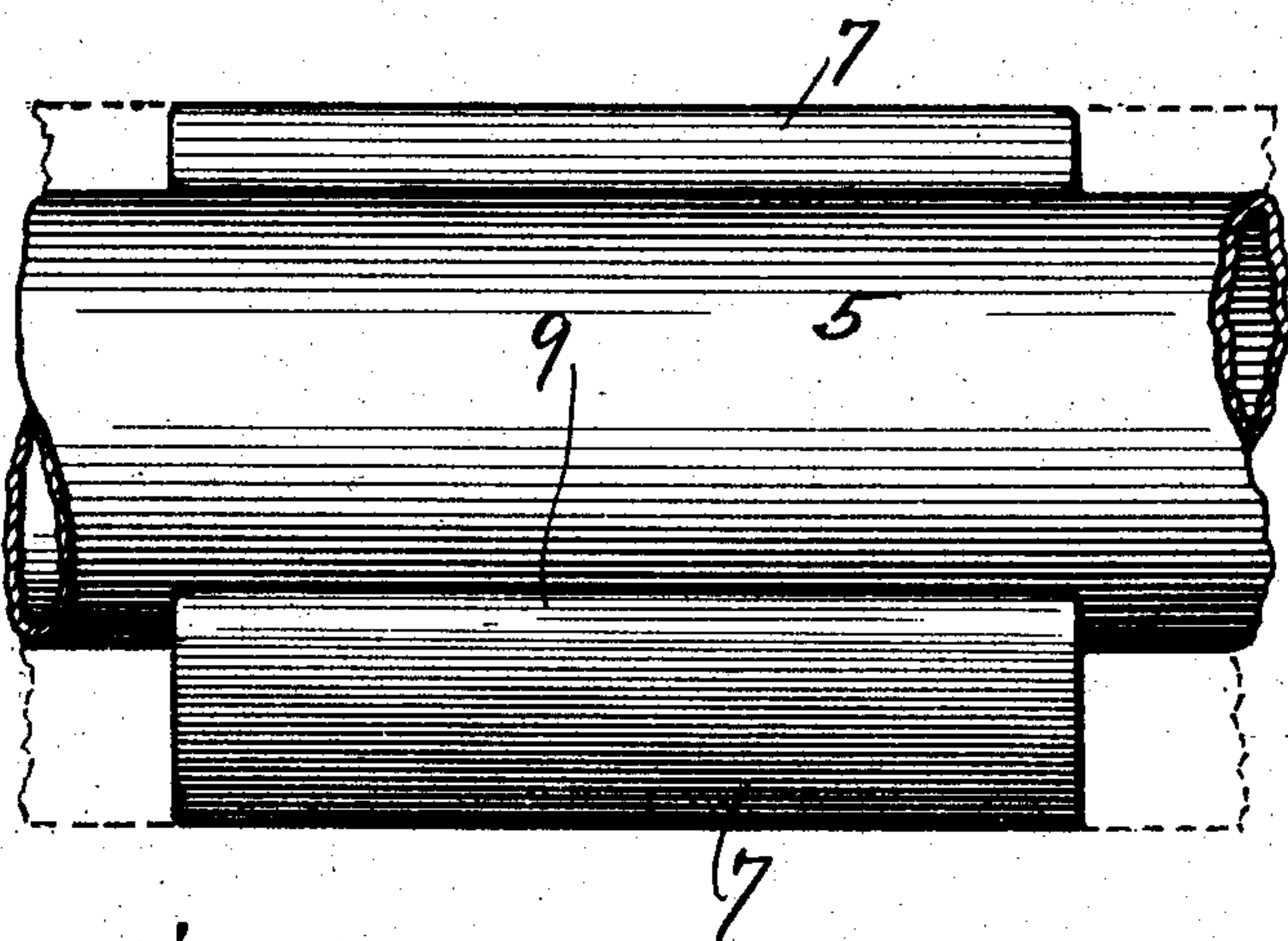
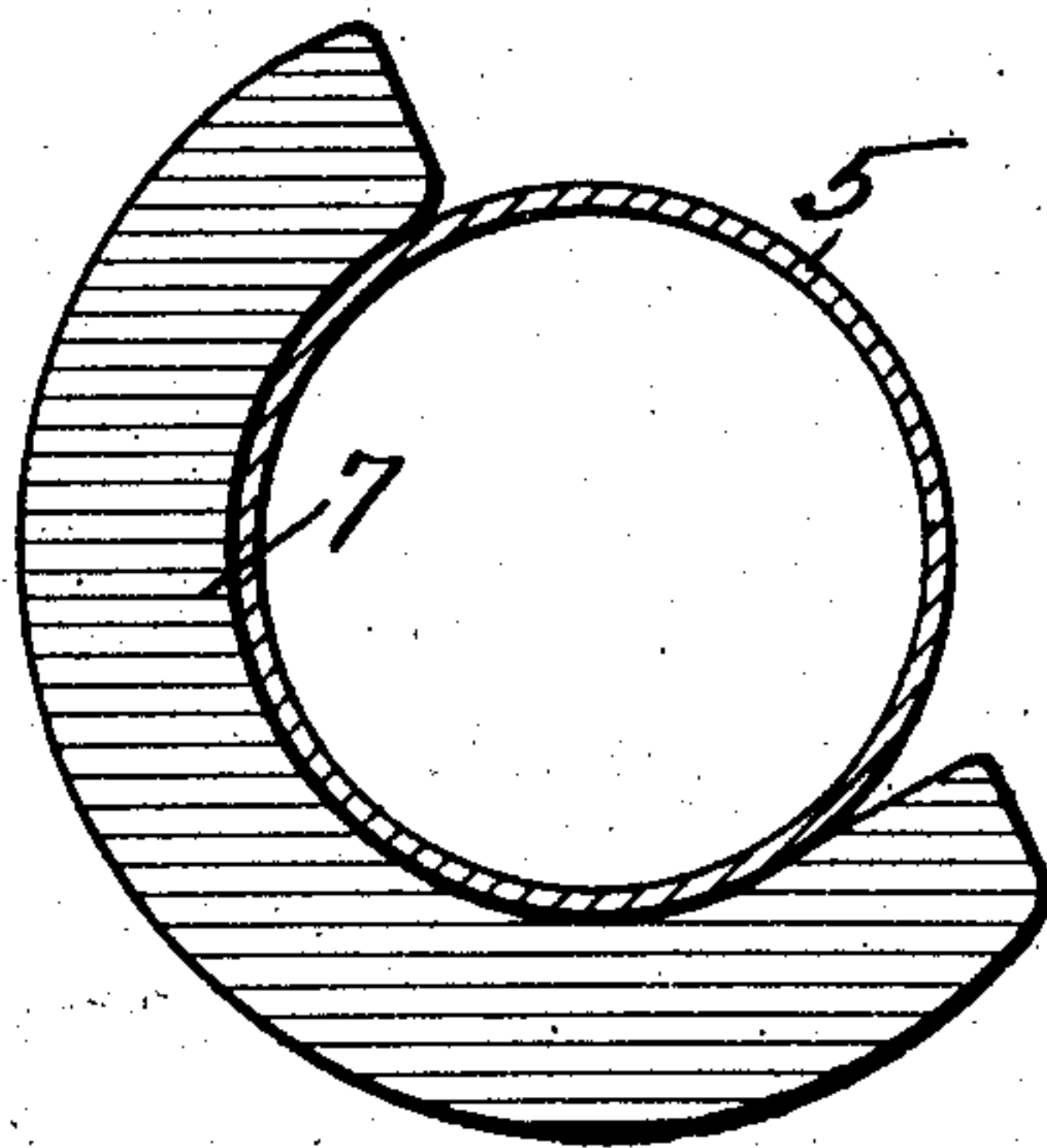


Fig. 3.



Witnesses:
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UNITED STATES PATENT OFFICE.

GEORGE Y. BONUS, OF CHICAGO, ILLINOIS, ASSIGNOR TO HANNAH L. BONUS, OF CHICAGO, ILLINOIS.

BOILER-TUBE TILE.

SPECIFICATION forming part of Letters Patent No. 780,478, dated January 17, 1905.

Application filed December 3, 1903. Serial No. 183,547.

To all whom it may concern:

Be it known that I, GEORGE Y. BONUS, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Boiler-Tube Tile, of which the following is a specification.

My invention relates to improvements in tube-tiles which are used to protect the row of tubes in a water-tube boiler from the intense heat directly above the fire-box, and has for its objects, first, to provide a better protection from extreme heat than has heretofore been possible; second, to reduce the scalding and burning of the tubes, and, third, to economize in the construction and fitting of the tile-wall.

Heretofore no tiles were made to fit closely around the tubes, thus leaving the lower row of tubes entirely exposed to the extreme heat. Sometimes when it was desired to form a baffle for the flame a layer of tiles was laid on top of the lower row of tubes; but the lower row of tubes were not protected from the extreme heat, which soon burned them so they had to be replaced by new ones. These objections are all eliminated by the use of my invention.

The tile is supported by the tubes by partly extending over the upper side of the same. The tile is made in sections, so that as many sections as may be desired can be placed on the tubes. When it is desired to protect the lower row of tubes from the heat of the furnace, only the bottom sides of the tubes need be covered with tile; but to have the tile hang from the tubes it is necessary to extend a portion of the tile over the top of the tubes. I construct each section of the tile alike and have that part below the tube large enough to protect the entire lower side of the tube for a length equal to the length of that particular section of tile and that portion of the tile above the tube extend far enough around the tube to support the tile and still permit of the removal of the tile from the tube.

I have illustrated my invention in the accompanying sheet of drawings, in which—

Figure 1 is a vertical section through a portion of a water-tube boiler, showing my improved tube-tiles applied to the lower row of tubes. Fig. 2 is a vertical section on line 2 2 of Fig. 1, and Fig. 3 is a detail sectional view showing a modified form of my invention.

Similar reference characters refer to similar parts throughout the several views.

In the drawings, 5 represents the lower tubes of a boiler, and 6 represents other tubes above. The tiles 7 are substantially semicylindrical in form to fit over the tubes 5 and are of such a thickness that they close the space between the tubes 5. I preferably construct the tiles with an offset 8, against which the end 9 of the adjacent tile rests. A portion of the tile may be enlarged to form an air-space 10 between the tube 5 and the tile 7.

In Fig. 3 is shown a modified form of my invention, in which the offset 8 and the air-space 10 are omitted.

It will be understood that only that portion of the lower row of tubes is protected by the tile which is liable to become damaged by excessive heat, the balance of the lower tubes being bare.

To place the tile on the tubes, each piece of tile is lifted into position on a bare portion of the tube, as indicated by dotted lines in Fig. 1. Then it is turned to the right as viewed in Fig. 1 until it is in its proper position on the tube, when it is moved longitudinally along the tube to its final position. To remove a tile, this operation is reversed—i. e., the tile is first moved longitudinally along the shaft out of the path of the adjacent tiles, then it is turned about the tube, and finally lowered away from the same. It is obvious that the turning of the tile about the tube in one direction locks the same into position and the reverse turning permits it to be removed from the tube.

This construction of tile may be used on

the upper tubes as well as the lower or any other tubes, if desired.

It will be noticed that two tubes or their equivalent are required to lock the tile into position and that the thickness of a tile is slightly less than the space between two tubes.

Having fully described my invention, what I claim, and desire to secure by Letters Patent of the United States, is—

10 1. A boiler-tube tile of a semicylindrical form having a lower shielding portion and an upper supporting portion extending over a portion of the tube, said upper supporting portion being held in position by the lower end of
15 the tile contacting with the adjacent tile.

2. In a baffle for water-tube boilers the combination of a lower row of tubes, a series of semicylindrically-formed tiles supported on each tube, each tile being of uniform thick-

ness throughout equal to the distance between the exterior of adjacent tubes and held in position by its end contacting with the next adjacent tile.

3. Boiler-tube tiles of a general semicylindrical form having an overhanging supporting end over the tubes, a lower protecting portion separated from the tubes by an air-space and an offset on said lower portion against which the end of the next adjacent tile rests.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, at Chicago, this 30th day of November, 1903.

GEORGE Y. BONUS.

Witnesses:

R. J. JACKER,
A. U. DECKER.