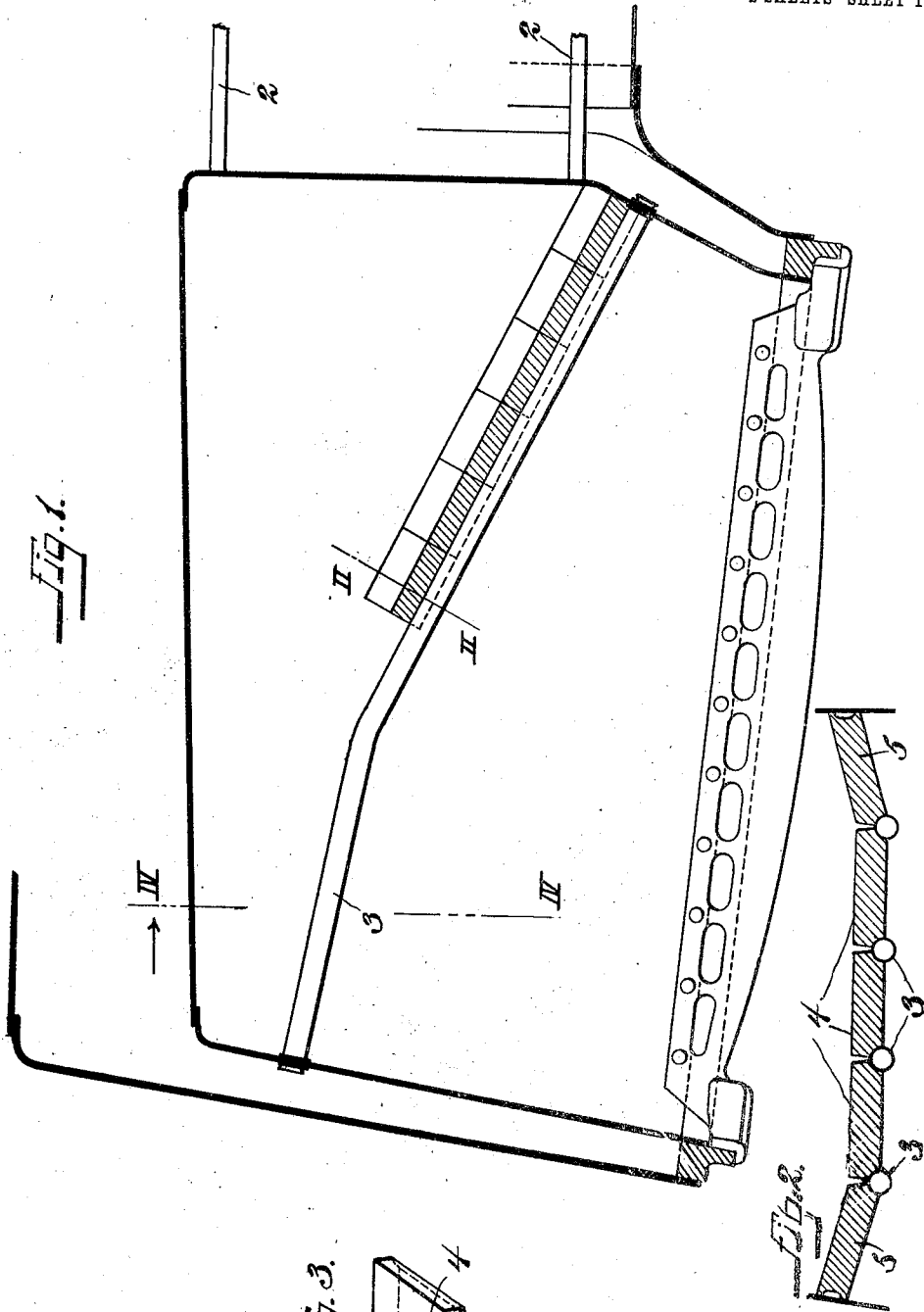


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LOCOMOTIVE BAFFLE WALL.
APPLICATION FILED SEPT. 11, 1908.

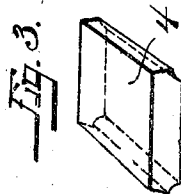
934,723.

Patented Sept. 21, 1909.
2 SHEETS—SHEET 1.



WITNESSES

Harvey L. Lechner
Archworth Martin



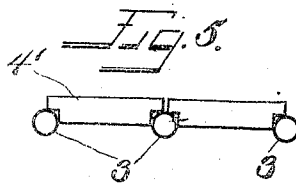
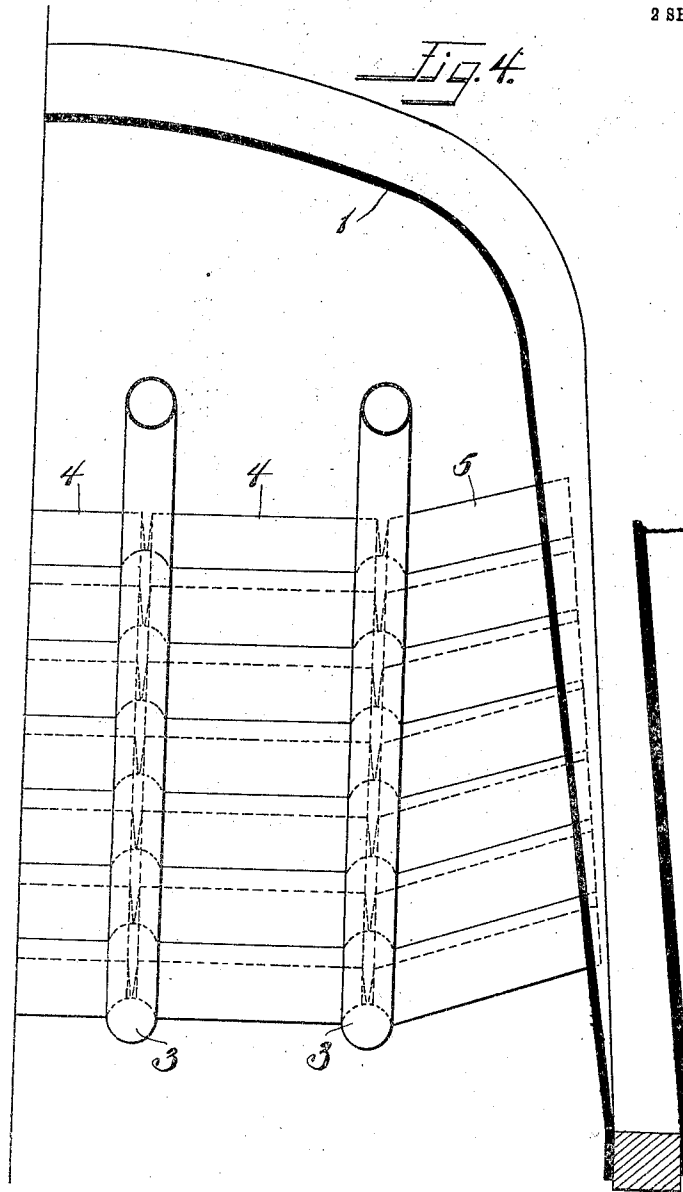
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UNITED STATES PATENT OFFICE.

WILLIAM J. GRAHAM, OF CLEVELAND, OHIO, AND JOHN GERMAN, OF ELKHART, INDIANA.

LOCOMOTIVE BAFFLE-WALL.

934,723.

Specification of Letters Patent. Patented Sept. 21, 1909.

Application filed September 11, 1903. Serial No. 452,625.

To all whom it may concern:

Be it known that we, WILLIAM J. GRAHAM, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, and JOHN GERMAN, a citizen of the United States, residing at Elkhart, in the county of Elkhart and State of Indiana, have invented certain new and useful Improvements in Locomotive Baffle-Walls, of which the following is a specification.

The invention relates to the baffle walls or fire arches employed in locomotive fire-boxes, and has for its principal objects; the provision of an improved arrangement of the fire-bricks constituting the wall; the provision of an arrangement whereby bricks of convenient size for handling may be employed and wherein the bricks are separately supported and easily removable; the provision of a brick construction which will be securely supported by its own weight and is not dependent for such support on adjacent bricks; and the provision of an improved arrangement for supporting the side tiers of bricks from the wall of the fire-box and the adjacent tubes. Certain embodiments of the invention are illustrated in the accompanying drawings, wherein:—

Figure 1 is a longitudinal section through a fire-box provided with the improved baffle wall,

Figure 2 is a transverse section through the wall on the line II—II of Figure 1,

Figure 3 is a perspective view of a single brick,

Figure 4 is an enlarged half section on the line IV—IV of Figure 1, looking in the direction of the arrow, and

Figure 5 is an end view showing a slightly modified form of brick in position upon the supporting tubes.

In the construction of locomotive baffle walls heretofore, it has been common either to use very long fire-brick extending across a number of these supporting tubes, or else use a plurality of separate bricks which were placed entirely above the tubes and were mutually dependent upon each other for support against lateral displacement, and in some cases were dependent upon each other for support against vertical displacement. The large bricks have been found objectionable because of the difficulty of handling and of removing after once in place, and because of the large percentage of break-

age due to handling. The other arrangement of smaller bricks has also been found objectionable in that the breakage of a single brick often permits the displacement of a number of other bricks dependent upon it, and because of the tendency of the bricks to fuse together forming an integral mass very difficult of removal. The construction hereinafter described is intended to avoid the difficulties incident to the use of both of these prior arrangements by the use of a small brick construction easily handled, and of such construction that the ends of the bricks will not fuse together and are so supported that no brick is dependent upon another either for lateral or vertical support.

Referring to the drawings, 1 is the locomotive fire-box, 2 are the fire tubes, two only of which are shown, 3 are supporting water tubes four in number in the particular embodiment illustrated, 4 are the fire bricks constituting the central portion of the baffle wall, and 5 are the fire bricks constituting the edge portions of the baffle wall.

By reference to Figs. 2 and 3, it will be seen that the edges of the fire bricks are rounded out or cut away to fit the curve of the supporting tubes 3. This arrangement permits the bricks to fit down between the tubes to a certain extent and securely supports them against lateral movement, so that the bricks are not dependent upon each other for lateral support and the displacement of one brick will not affect the security of the adjacent bricks. This form of support also has an additional function as applied to the end bricks 5. The sides of the fire-box against which the outer ends of the bricks 5 rest taper slightly and in case it is desired to use a single length of brick for the entire wall these bricks must be tilted at different angles to compensate for the approach of the supporting tube and fire-box wall. The peculiar joint illustrated between the bricks 5 and supporting tubes permit this tilting without affecting in any manner the character of the joint. It will also be noted that the adjacent edges of the bricks do not touch and that such edges are slightly inclined inwardly. This spacing of the ends of the bricks apart prevents their fusing together, and bricks of this construction may be easily removed from the wall without breakage after a long period of service. The clearance afforded by the inclination of the

adjacent ends also facilitates the removal of the bricks. As illustrated in Fig. 4, the supporting tubes 3 are preferably made parallel, so that bricks of uniform length may be used from one end of the furnace to the other. As it would be practically impossible to make the tubes 3 parallel from end to end because of interference with the stay-bolts in the ends of the fire-box, the preferred method of construction will be to make only those portions of the tubes 3 parallel which support the fire brick, bending the other ends of the tubes 3 laterally as much as is necessary to clear the stay-bolts in the front end of the fire-box. It will be seen from the foregoing that all the bricks composing the baffle wall are secured against lateral displacement independent of each other, that these bricks are of such small size that they may be easily handled, and that the construction of the ends of the bricks prevent fusing together, so that the bricks may be easily removed when necessary.

Another advantage of the construction resides in the fact that the bricks serve to brace the tubes themselves and prevent their lateral movement. The tubes by reason of the bricks fitting between them, not only reinforce each other, but are also braced from the side plates of the fire box by the outside bricks 5.

A slightly different form of brick 4' is illustrated in Figure 5. This style of brick has its ends which fit the tubes cut away in a slightly different manner, the construction in other respects being substantially that illustrated in the arrangement heretofore described. It will be obvious that the ends of the bricks might be cut away in a number of different ways all coming within the scope of the invention, it only being necessary that the corner be so constructed that the bricks can fit down between two adjacent tubes in such a manner that lateral displacement of the brick is guarded against.

Having thus described our invention and illustrated its use, what we claim as new and desire to secure by Letters Patent is the following:—

1. A locomotive fire-box comprising in combination, side plates, longitudinally extending forwardly and downwardly inclined circulation tubes between the side plates, rows of bricks upon the tubes socketed at their lower side edges so that their lower portions fit down between the tubes, and a row of bricks extending from each of the outside tubes, to the adjacent side plate, such bricks being socketed at their lower inside edges to engage the tubes at their upper

and outer side portions and being upwardly inclined from their inner to their outer sides with their outer edges resting against the side plates.

2. A locomotive fire-box comprising in combination, side plates, longitudinally extending forwardly and downwardly inclined circulation tubes between the side plate, rows of bricks supported upon the tubes, and a row of bricks extending from each of the outside tubes to the adjacent side plate, such bricks being socketed at their lower inside edges to engage the tubes at their upper and outer side portions and being upwardly inclined from their inner to their outer sides with their outer edges resting against the side plates.

3. A locomotive fire-box comprising in combination, side plates inclined toward each other, longitudinally extending forwardly and downwardly inclined circulation tubes between the side plates with their brick supporting portions in substantial parallelism with the vertical central plane of the fire-box, rows of bricks upon the tubes socketed at their lower side edges so that their lower edges fit down between the tubes, and a row of bricks of uniform width extending from each of the outside tubes to the adjacent side plate, such bricks being socketed at their lower inside edges to engage the tubes at their upper and outer side portions and being upwardly inclined from their inner to their outer sides with their outer edges resting against the side plates.

4. A locomotive fire-box comprising in combination, side plates, longitudinally extending forwardly and downwardly inclined circulation tubes between the side plates, rows of bricks upon the tubes socketed at their lower side edges so that their lower portions fit down between the tubes, with their side edges above the tubes spaced apart to prevent their fusing together, and a row of bricks extending from each of the outside tubes to the adjacent side plate, such bricks being socketed at their lower inside edges to engage the tubes at their upper and outer side portions and being upwardly inclined from their inner to their outer sides with their outer edges resting against the side plates.

In testimony whereof we have hereunto signed our names in the presence of the two subscribed witnesses.

WILLIAM J. GRAHAM.
JOHN GERMAN.

Witnesses:

S. K. DICKERSON,
H. B. SLAYBAUGH.