UNITED STATES PATENT OFFICE.

WILLIAM L. HITCHCOCK, OF PORTSMOUTH, OHIO.

ARCH FOR LOCOMOTIVE FIRE-BOXES.


Application filed March 22, 1915. Serial No. 16,142.

To all whom it may concern:

Be it known that I, WILLIAM L. HITCHCOCK, a citizen of the United States, and a resident of Portsmouth, in the county of Scioto and State of Ohio, have invented certain new and useful Improvements in Arches for Locomotive Fire-Boxes; 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 improvements in arches for locomotive fire boxes, and consists in certain novel features of construction and combinations of parts as hereinafter set forth and pointed out in the claims.

In the accompanying drawings, Figure 1 is a plan view showing the arch supported on the arch tubes; Fig. 2 is an end view; Fig. 3 is a sectional view on the line 3—3 of Fig. 1; Fig. 4 is a section on the line 4—4 of Fig. 1; Figs. 5, 6 and 7 are enlarged plan, side and end views respectively of one of the central series 3 of bricks; Figs. 8, 9 and 10 are similar views of one of the bricks of series 4 and Figs. 11, 12 and 13 are similar views of one of the side series 5 of bricks.

In Figs. 1 and 2 of the drawings four arch tubes, 1, 2, 3 and 4, are shown and extend upwardly from the fire sheet at the front of the fire box to the rear water leg and are in open communication with the boiler at both ends. The arch rests upon the arch tubes, and is composed, in the present instance, of several series of bricks as indicated at 3, 4, 4, and 5. A block 6 having upper beveled faces 7 is located upon each arch tube below the several series of bricks and overlies the lower side edges of the lower bricks of adjacent series. The bricks are made sufficiently small to permit them to be readily passed through the door of the fire box, and when all the series of bricks shall have been assembled upon the arch tubes, the arch thus formed will extend approximately from one side sheet 8 to the other. The bricks of each series may be made with flat upper faces and each brick is made on its under side with two beveled faces 9, 9, which converge under and parallel with the longitudinal axis of the brick, so that when all the bricks of the arch are assembled, transverse channels 10 will be formed to deflect gases and products of combustion laterally. Each brick 11, 12 of each series 3, 4 is made with curved recesses 13 which form seats for these bricks upon the arch tubes 1, 2, and the inner ends of the bricks 14 of each series 5 are similarly provided with curved recesses 15 to afford seats upon the arch tubes 2. The outer end of each brick 14 of each series 5 is made with converging beveled faces 16, so that channels 17 will be formed between the outer ends of adjacent bricks 14 and the side sheets 8.

Respective ends of each brick 11 of the central series 3 and the inner end of each brick 12 of the series 4, may be beveled as at 18, above the lower recessed or seat portions, and the outer ends of the bricks 12 of each series 4 are made with V-shaped sockets 19, into which similarly shaped tongues 20 at the inner ends of the bricks 14 of each series 5 interlocks, said interlocking ends of the bricks of series 4 and 5 being located directly over the arch tubes 2, 2.

Each brick of each series is formed at one side edge with a longitudinal recess 21, and at the other side edge with a longitudinal flange 22, so that the bricks of a series will overlap or lap joints each other, the flange 22 of one brick entering the recess 21 of an adjacent brick. By thus causing the bricks of each series to intermesh by forming lap joints, they will become fused together, thereby so firmly uniting the several bricks of each series, that each series of bricks can be moved only as a mass, so that no brick can fall out of place, nor can a brick be removed without removing entire series. Each series 4 of welded bricks will become welded to the adjacent series 5 of welded bricks.

With the construction of arch herein shown and described, no defective brick can fall out, and will permit removal of a portion of the side water bar without endangering the support of the arch bricks as a whole.

Having fully described my invention, what I claim as new and desire to secure by Letters-Patent, is:

1. The combination with the side walls of a locomotive fire box, and a group of arch tubes, of several rows of arch bricks, the bricks of the side rows having converging end faces cooperating with the side walls of the fire box to form upwardly extending faces leading to the space above the arch, and the bricks of the several rows each having converging bottom faces, the converging bottom faces of the bricks of one row cooperating...
with the converging faces of the adjacent rows to form allining transverse channels communicating with the upright channels at the outer ends of the bricks of the side rows.

2. The combination with side walls of a locomotive fire box and a group of arch tubes, of an arch extending from one side sheet to the other and comprising several rows of arch bricks, the bricks of the two side rows each having one end having two beveled faces converging to the longitudinal axis of the bricks and forming upright channels leading to the space above the arch, the bricks of said side rows seated at their inner ends upon two of the arch tubes, the bricks of the other rows having seats at respective ends resting on the various arch tubes, the several bricks of each row each having a flange at one longitudinal edge and a recess at the other longitudinal edge, with the flange of one brick resting in the recess of the adjacent brick of the row, and all of bricks of the several rows having beveled faces converging below the bodies of the bricks and parallel with the longitudinal axes of the bricks, and forming transverse channels communicating with said upright channels.

In testimony whereof, I have signed this specification in the presence of two subscribing witnesses.

WILLIAM L. HITCHCOCK.

Witnesses:
W. B. HitcHcock,
L. L. HitcHcock.