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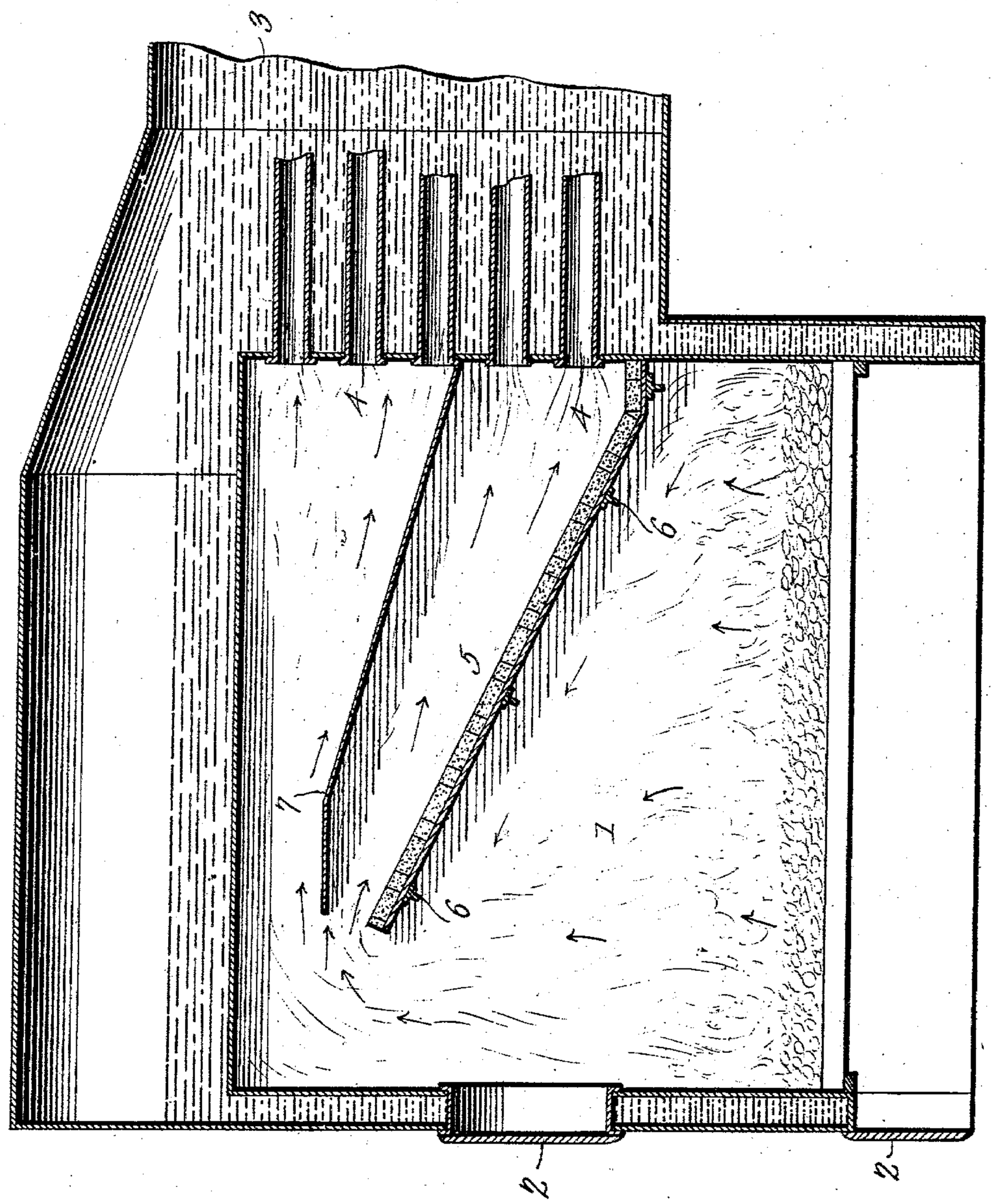
W. J. SEAVOLT.

ATTACHMENT FOR ENGINE FIRE BOXES.

APPLICATION FILED NOV. 29, 1902.

NO MODEL.



Witnesses
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UNITED STATES PATENT OFFICE.

WILLIS J. SEAVOLT, OF ATTICA, OHIO.

ATTACHMENT FOR ENGINE FIRE-BOXES.

SPECIFICATION forming part of Letters Patent No. 720,744, dated February 17, 1903.

Application filed November 29, 1902. Serial No. 133,265. (No model.)

To all whom it may concern:

Be it known that I, WILLIS J. SEAVOLT, a citizen of the United States, residing at Attica, in the county of Seneca and State of Ohio, have invented a new and useful Attachment for Engine Fire-Boxes, of which the following is a specification.

My invention relates to boiler-furnaces, being especially directed to locomotive-furnaces, and has for its objects to provide the same with means which will prevent the heat passing directly into any of the boiler-tubes, will distribute the heat more uniformly to the various tubes, prevent sparks entering the tubes, and reduce to a minimum the amount of cold air entering the tubes upon the opening of the furnace-door.

To these ends the invention comprises, in combination with a boiler-furnace, of boiler-tubes communicating therewith, a deflector mounted in the furnace and abutting with its side walls and with its rear wall below the tubes, and a division-plate mounted above the deflector and abutting with the rear and side walls of the furnace and adapted to distribute the heat to the boiler-tubes.

The invention further consists of the details of construction and combination of parts hereinafter described.

In the accompanying drawing the figure is a side sectional elevation of a boiler-furnace having my improvement applied thereto.

Referring to the drawing, 1 indicates a locomotive-furnace; 2, its door; 3, the boiler, and 4 the boiler-tubes, which communicate at one end with the furnace, as usual. The above parts may all be of the customary or any desired construction and of any suitable material.

In applying my invention I mount in the furnace a deflector 5, of fire-brick or other suitable material, supported, preferably, by cross-bars or girders 6. This deflector, which abuts against the side walls of the furnace, is preferably inclined downwardly from its front toward its rear to a point below the boiler-tubes, where it abuts against the rear wall of the furnace.

7 is a second deflector or division-plate, preferably of metal, mounted above the deflector 5 and about equally dividing the space between the same and the top of the furnace. This plate, which also abuts with the side walls of the furnace, is horizontal for a short distance at its front end and then inclines downward toward its rear, where it abuts with the rear wall of the surface at such point that substantially half the boiler-tubes lie above and the remainder below it.

In operation the heat and products of combustion arising from the fuel will strike the under side of the deflector 5, which will arrest the sparks, causing them to fall again upon the fuel-bed, but will direct the heat upwardly toward the front of the furnace, where it will pass around the end of deflector 5 and meet with division-plate 7, which will serve to divide the heat, directing and distributing it in substantially equal quantities to the upper and lower tubes. This latter is a very important feature, inasmuch as the bulk of the heat has heretofore owing to the exhaust located at the upper forward end of lhe furnace been drawn through the upper tubes, causing them to heat rapidly, while the tower tubes remained comparatively cold. This not only increased the consumption of fuel, but also caused the rapid destruction of the tubes. My invention obviates these objectionable features, inasmuch as the heat must flow to the front of the furnace, where it will be divided and equally distributed to the tubes, as above pointed out. Another attendant advantage is that upon cold air entering the furnace when the door is opened it will be deflected downward toward the fuel and become heated before reaching the tubes. Another material advantage derived from my device is that owing to the heat being uniformly distributed the amount of fuel requisite for firing the furnace is largely reduced, with a consequent reduction of labor; also, the amount of black smoke escaping from the furnace is reduced to a minimum, owing to its being deflected by the plate and being to a considerable extent consumed before it can escape.

Having thus described my invention, what I claim is—

The combination with a boiler-furnace, of

boiler-tubes communicating therewith, a deflector mounted in the furnace and abutting with its side walls and with its rear wall below the tubes, and a division-plate mounted above the deflector, and abutting with the rear and side walls of the furnace and adapted to distribute the heat to the boiler-tubes.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

WILLIS J. SEAVOLT.

Witnesses:

ALVA SUTTON,

CHAS. C. SUTTON.