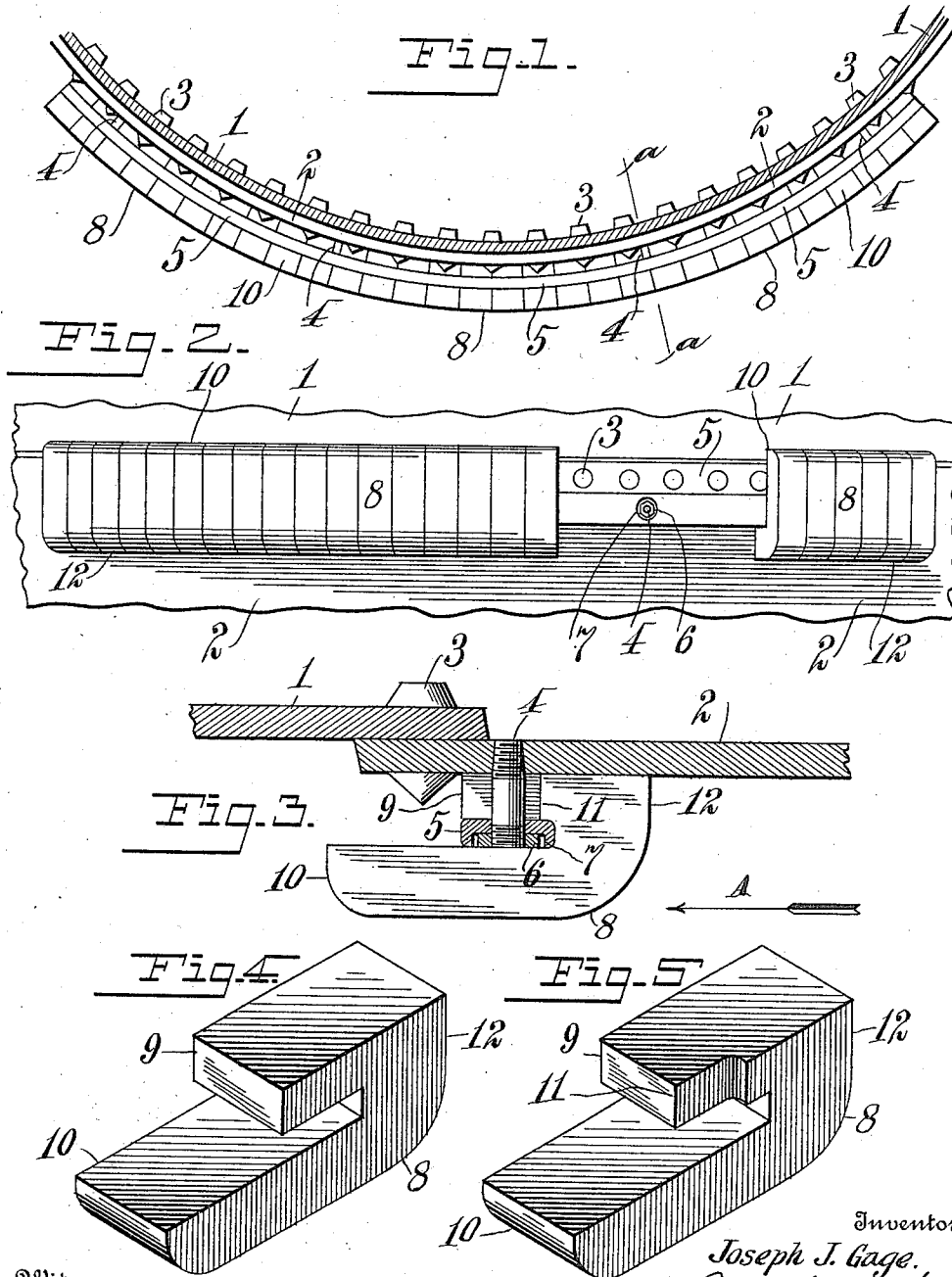


J. J. GAGE.
 MEANS FOR PROTECTING THE SEAMS OF A BOILER EXPOSED DIRECTLY TO THE FIRE.
 APPLICATION FILED MAY 20, 1912.

1,059,962.

Patented Apr. 22, 1913.



Witnesses
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34

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UNITED STATES PATENT OFFICE.

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MEANS FOR PROTECTING THE SEAMS OF A BOILER EXPOSED DIRECTLY TO THE FIRE.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, JOSEPH J. GAGE, citizen of the United States, residing at Dayton, in the county of Montgomery and State of Ohio, have invented certain new and useful Improvements in Means for Protecting the Seams of a Boiler Exposed Directly to the Fire; and I do 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, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

This invention relates to new and useful improvements in means for protecting the seams of a boiler that are exposed directly to the fire.

The object of the invention is to provide a device of this type that is simple in construction, efficient in operation and which may easily be removed when worn out.

Referring to the drawings, Figure 1 is a lateral section through the lower portion of a boiler showing my invention applied thereto; Fig. 2 is a bottom plan view of the same with parts removed; Fig. 3 is a section on the line *a-a* of Fig. 1; and Figs. 4 and 5 are perspective views of individual heat resisting members of the device.

Throughout the specification and drawings, similar reference characters indicate corresponding parts.

Referring more particularly to the drawings, 1 and 2 represent the sheets of the boiler which are united along their abutting edges by rivets 3. The seam thus formed is necessarily weaker than the sheets themselves, and is also subject to the deposit of scale on the inside of the boiler. The heat insulating qualities of the scale prevents the heat being absorbed by the water from the seam which permits the excessive heat to buckle and distort the seam, thereby increasing the weakness of the boiler at this point. To prevent the heat of the furnace striking the joint directly, and to thus maintain a comparatively even temperature, the following device is provided: The flame from the furnace passes under the seams in the direction of the arrow A shown in Fig. 3. Mounted on and extending from the forward

sheet 2 is a plurality of stud bolts 4 which support a semi-circular band 5. The band 5 is supported by the bolts 4 through the agency of nuts 6 which lie in recesses 7 in the band. The band 5 supports a plurality of fire bricks 8 provided with approximately parallel extensions 9 which are adapted to rest upon the band 5 and which lie between the band and the sheet 2 of the boiler. The bricks 8 are also provided with extensions 10 which lie under the band 5 and which project past the rivets 3 thereby preventing the flame of the furnace striking the seam directly. In the drawings, I have shown four stud bolts 4, but it will be understood that any number may be provided. To permit the bricks 8 adjacent to the stud bolts to abut, the extensions 9 of the adjacent bricks may be chipped out or cut away as at 11 in Figs. 3 and 5. The face 12 of the bricks 8 expose a solid face to the flame of the furnace which protects the seam and prevents the same absorbing excessive heat which would produce fire cracks and a consequent leakage and rupture.

Although in the drawings, I have shown the invention as applied to a cylindrical boiler, it is to be understood that the device may be applied to any type of boiler having seams exposed to scale and the direct fire of the furnace.

It will be seen from the above description and drawings that the fire bricks 8 may be easily removed and replaced without drawing the fire by sliding the bricks 8 laterally across the band 5, thereby disengaging and engaging the extensions 9 from or with the band 5. It will also be noted, that, as the seam is exposed at the rear of the bricks 8, the said seam may be inspected without removing the bricks.

Having described my invention, I claim,

1. The combination with a boiler, of a series of fire brick mounted adjacent to the lower portion of the boiler seam and constituting a protecting wall for the boiler seam, each fire brick being provided with parallel projections, one of which extends across the seam and lies away therefrom and whereby the said seam is protected from the heat of the furnace and may be inspected without removing said brick, and the other of which projections engages the boiler adjacent to

the seam, and means for securing said last named brick extension to the boiler, substantially as specified.

2. In combination with the sheets 1 and 2
5 of a boiler, fire bricks 8 having extensions 9 and 10 mounted adjacent to the seam of the sheets 1 and 2, stud bolts 4 extending from said boiler, a band 5 supported by said bolts

4 and engaged by said extensions 9 thereby supporting said fire bricks. 10

In testimony whereof I affix my signature, in presence of two witnesses.

JOSEPH J. GAGE.

Witnesses:

R. J. McCARTY,
MATTHEW SIEBLER.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."
