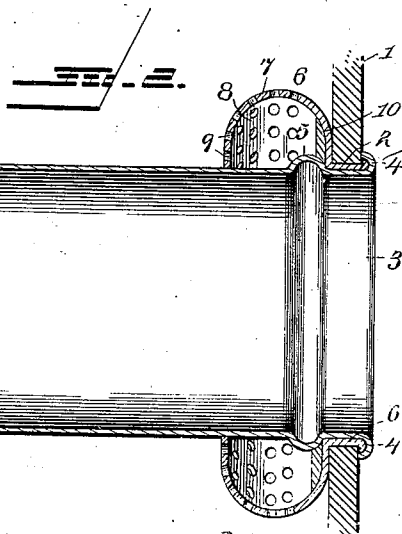
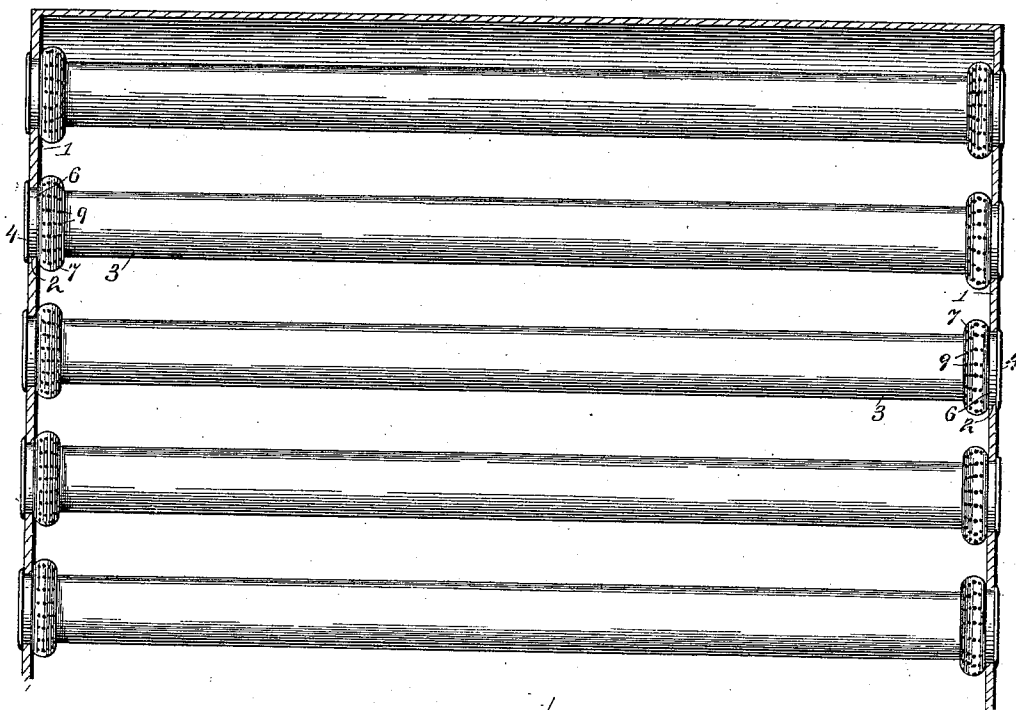


(No Model.)

H. H. SPERRY.
BOILER FLUE ATTACHMENT.

No. 565,370.

Patented Aug. 4, 1896.



Inventor

Henry H. Sperry.

By His Attorneys.

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Witnesses
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UNITED STATES PATENT OFFICE.

HENRY H. SPERRY, OF ALBANY, NEW YORK.

BOILER-FLUE ATTACHMENT.

SPECIFICATION forming part of Letters Patent No. 565,370, dated August 4, 1896.

Application filed December 31, 1895. Serial No. 573,933. (No model.)

To all whom it may concern:

Be it known that I, HENRY H. SPERRY, a citizen of the United States, residing at Albany, in the county of Albany and State of New York, have invented a new and useful Boiler-Flue Attachment, of which the following is a specification.

This invention relates to boiler-flue attachments; and it has for its objects to provide a new and useful device of this character for use in connection with flues of steam-boilers, to provide a simple and efficient connection between the ends of the boiler-flues and the flue-sheets, whereby the flues shall be absolutely prevented from leaking at their point of connection with the flue-sheets, while at the same time allowing the water in the boiler to reach all exposed parts of the boiler and the flues thereof.

With these and other objects in view, which will readily appear as the nature of the invention is better understood, the same consists in the novel construction, combination, and arrangement of parts, hereinafter more fully described, illustrated, and claimed.

In the drawings, Figure 1 is a side elevation of a series of flues of an ordinary steam-boiler, illustrating the connection of the flues with the flue-sheets, the latter being shown in section. Fig. 2 is an enlarged sectional view at the point of connection between a boiler-flue and the flue-sheet, illustrating the antileaking attachment applied to the end of the flue.

Referring to the accompanying drawings, 1 1 designate the ordinary opposite flue-sheets of a boiler, which are provided therein with a series of flue-openings 2 to receive the ends of the flues 3, which are arranged and fitted in position in the ordinary manner. The ends of the flues 3 which fit in the openings 2 of the flue-sheets are illustrated as being provided at their outer edges with the retaining-beads 4, which are flanged over the edges of the openings 2 on the outer faces of the flue-sheets 1, and directly adjacent to the inner faces or sides of the flue-sheets the ends of the flues 3 are illustrated as being provided with inner annular retaining ribs or beads 5, which, in connection with the outer beads 4, provide for securely retaining or fastening the ends of the flues in the flue-sheets.

In the present invention the ends of the

flues 3 which register in the openings 2 of the flue-sheets also snugly fit inside of the metallic lining-ferrules 6, which have a registering fit in the openings of the flue-sheets. The ferrules 6 not only have a tight fit in the flue-openings 2 to form linings for such openings, but also tightly fit the exterior of the tubes 3 to provide a substantial water-tight joint, and at their inner ends the said ferrules 6 are provided with enlarged annular rounded beads 7, which directly surround the inner annular ribs or beads 5 of the flues, but which are sufficiently large to inclose an annular water-chamber 8, directly surrounding the ends of the flues at the inner sides of the flue-sheets.

The enlarged annular rounded beads 7 of the ferrules 6 are provided thereon with a number of perforations or openings 9, which form inlets for the water within the boiler, to allow the same to exert a packing pressure against the flexible washers 10, which are arranged inside of the water-chambers 8. The washers 10 are preferably made of asbestos or other similar material, and are fitted exteriorly on the ends of the flues directly at the inner side of the flue-sheets, and said washers are sufficiently large to closely fit within the beads 7 of the ferrules 6, or, in other words, are of a diameter or width equal to the diameter or width of the said beads. The water which enters through the perforations of the beads 7 into the chambers 8 has an impact on the washers 10 and forces such washers tightly toward the flue-sheets, thereby effectually packing the joint connection between the flues and the flue-sheets to positively prevent leaking, while at the same time not interfering with the free access of the water to the exposed ends of the flues which connect with the flue-sheets.

Changes in the form, proportion, and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention.

Having thus described the invention, what is claimed, and desired to be secured by Letters Patent, is—

1. In a boiler-flue attachment, the combination with the perforated flue-sheet of the boiler, and the flue having its end fitted in

the perforation or opening of the flue-sheet;
of a metallic lining-ferrule snugly receiving
the end of the flue and tightly registering in
the opening of the flue-sheet, said ferrule be-
5 ing provided at its inner end with an enlarged
annular rounded bead inclosing an annular
water-chamber and provided therein with a
number of perforations or openings, and a
flexible packing-washer fitted on the end of
10 the flue directly adjacent to the inner side of
the flue-sheet and arranged within said an-
nular water-chamber to receive thereagainst
the impact of the water entering such cham-
ber, substantially as set forth.

15 2. In a boiler-flue attachment, the combi-
nation with the perforated flue-sheet of the
boiler and the flue having its end fitted in

the perforation or opening of the sheet; of a
metallic lining-ferrule snugly receiving the
end of the flue and tightly registering in the
opening of the flue-sheet, said ferrule being
provided at its inner end with an enlarged
water-chamber, and a flexible packing-washer
fitted on the end of the flue adjacent to the
inner side of the flue-sheet, and arranged
25 within said water-chamber, substantially as
set forth.

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

HENRY H. SPERRY.

Witnesses:

WALTER E. WARD,
FLORA SPERRY.