

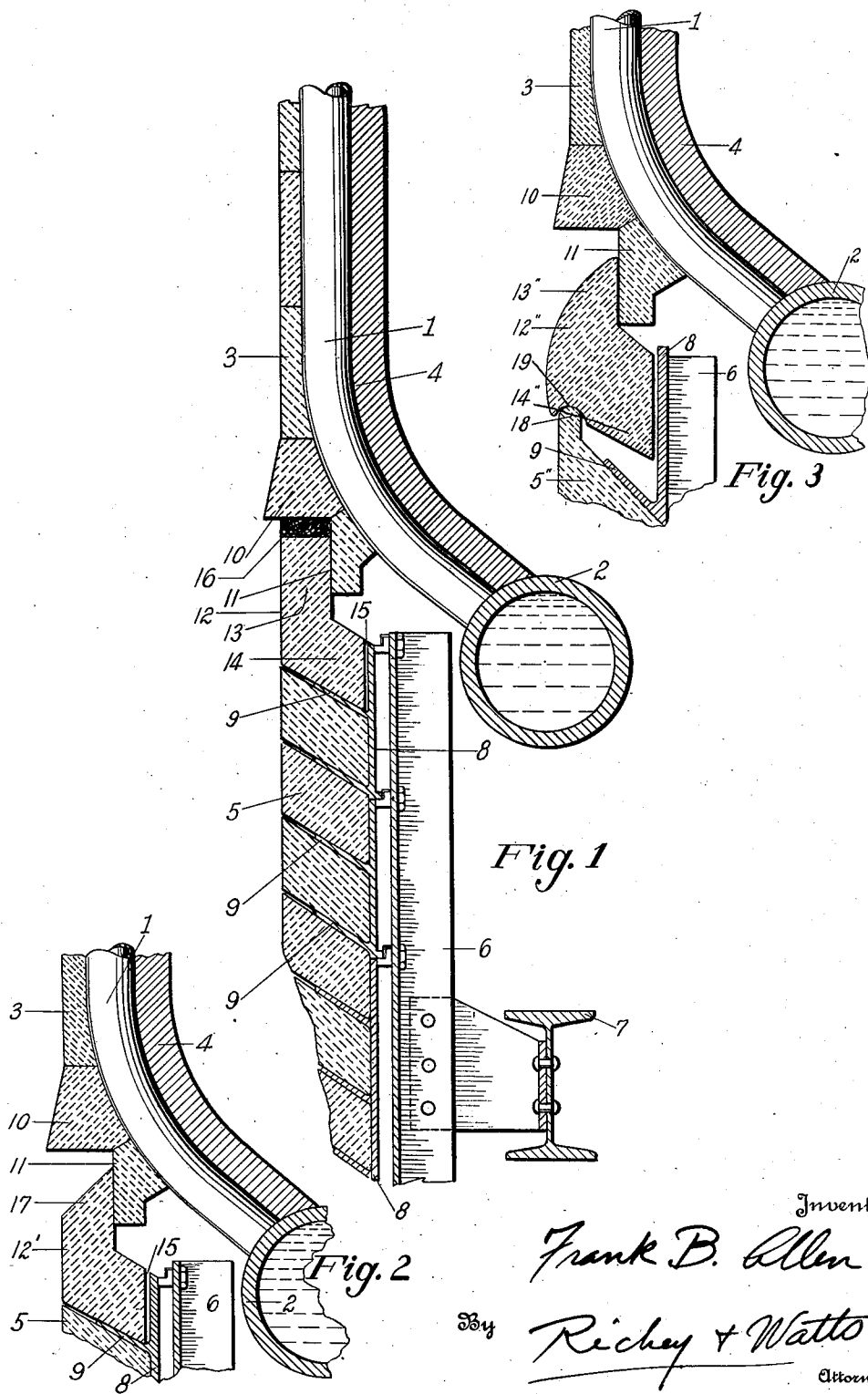
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SIDE WALL SEAL

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UNITED STATES PATENT OFFICE

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SIDE-WALL SEAL

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This invention relates to joints in walls and the like. It is particularly applicable to the walls of boilers, furnaces, and other apparatus in which the walls are subjected to high temperatures and in which it is desirable to maintain a seal at the juncture of different types of wall structures.

An object of the invention is to maintain a seal at the juncture of two wall sections which are exposed to high temperatures, at the same time permitting expansion of the sections of the walls.

Other objects will hereinafter appear.

The invention will be better understood from the description of several practicable embodiments thereof illustrated in the accompanying drawing in which

Figure 1 is a fragmentary cross-sectional view of a boiler wall joint at the juncture of a water wall with a wall lined with refractory blocks,

Figure 2 is a similar view of a slightly modified joint, and

Figure 3 is a similar view of another embodiment of the invention.

The water wall comprises tubes such as that illustrated at 1 which extend upwardly to a header (not shown) from a header 2, the lower ends of the tubes being curved outwardly from the furnace so that the header is on the exterior thereof, and the metallic plates 3 secured to the inner surfaces of the tubes. The outer surface of the water wall may be covered with a layer of heat insulating material 4 to restrain the dissipation of heat therefrom.

Below the water wall is positioned a wall lined with refractory blocks 5. This wall is supported by a metal frame-work 6, which may in turn be supported by floor beams 7 or the like, the framework carrying on its inner surface a series of metallic plates 8 which form an outer sheathing for the wall and have on their inner surface upwardly inclined shelf-like flanges 9, upon which the blocks 5 rest.

The parts thus far described may be of any well known or desired construction.

The series of metallic plates 3 carried by the tubes 1 terminate in two rows, the plates

of the upper of which are so formed that they overhang the refractory lining as at 10, and the plates of the lower of which constitute a shoulder presenting a vertical face 11 well within the overhang and nearer the outside of the furnace than the inner faces of blocks 5. Upon the uppermost flange 9 is positioned a block 12 which consists of a vertical portion 13 and an obliquely laterally extending portion 14 which rests upon the flange. The upwardly extending portion 12 is spaced below the overhanging shoulder 10 by an appreciable distance and the outer face of the upwardly extending portion abuts the vertical face 11 of the metallic covering of the water wall. The outer face of the laterally extending portion 14 is spaced from the supporting sheathing 8 by a gap 15, so that the weight of block 12 tends to slide the same down flange 9 and in an outward direction, thus causing it at all times to press against the vertical face 11 and maintain the seal between the two sections of the wall, while at the same time portions 13 may slide up and down upon face 11 to compensate for expansion or contraction in either or both walls.

The space between shoulder 10 and the upper end of section 13 is preferably filled with asbestos 16 or similar compressible material to prevent the accumulation of ashes which would interfere with the relative movement of these parts.

In Figure 2, the upper, inner corner of block 12 is shown as bevelled as indicated at 17 so that ashes or the like will slide off and not collect between this block and overhanging shoulder 10.

In the modification shown in Figure 3, a block 12' is illustrated, the upper end 13' of which rests against the surface 11, being maintained in contact therewith by rotational movement instead of transitional movement. The lower surface of this block is provided with a groove 19 fitting over a projection 18 extending along the upper edge of the upper block 5'. The block 12' has a large, lower, outwardly extending portion 14' so that its center of gravity is well towards the outside of the wall and this tends to rock the block towards the supporting structure,

which tendency maintains the upper end 13'' at all times in close contact with the surface 11.

While I have described the illustrated embodiments of my invention in some particularity, obviously many others will readily occur to those skilled in the art to which it appertains and I do not, therefore, limit myself to the precise details shown and described but claim as my invention, all embodiments thereof coming within the scope of the appended claims.

I claim:

1. A wall structure comprising upwardly extending relatively movable wall sections, the adjoining ends of which sections are spaced apart, and a complementary section freely supported on the lower wall section and having an upwardly extending portion adapted to be held in contact with the upper wall section by gravity.

2. A wall structure comprising relatively movable wall sections, the adjoining ends of which sections are vertically spaced apart, the end of the lower section being provided with a surface inclined at such an angle that a complementary section disposed on said end of the lower section will slide by gravity laterally into engagement with the upper wall section.

3. A wall structure comprising relatively movable wall sections, the adjoining ends of which sections are vertically spaced apart, the end of the upper section having a downwardly depending shoulder, the end of the lower section having a bearing surface inclined to the horizontal, and a complementary wall section disposed upon the bearing surface and held by gravity thereagainst and against the shoulder.

4. A wall structure comprising upwardly extending relatively movable wall sections, the adjacent ends of the sections being spaced apart, the end of the upper section having a downwardly depending shoulder overhung by the remainder of the end of the section, the end of the lower section having an upwardly extending flange portion, and a complementary wall section loosely disposed upon the upwardly extending flange portion and movable by gravity relative thereto into engagement with the downwardly depending flange portion.

5. A wall structure comprising upwardly extending relatively movable wall sections, the adjacent ends of which sections are spaced apart, the end of the upper section having a downwardly depending shoulder overhung by the remainder of the end, the end of the lower section having a bearing surface inclined to the horizontal, and a complementary wall section loosely disposed upon the bearing surface overhung by the end of the upper wall section and movable by gravity

relative to the lower wall section into engagement with the depending shoulder.

6. A wall structure comprising upwardly extending relatively movable wall sections, the adjacent ends of which sections are spaced apart, the said end of the upper section having a downwardly depending shoulder, the said end of the said lower section having an upwardly inclined surface and a shoulder extending upwardly adjacent the base of the inclined surface, a complementary wall section loosely disposed upon the inclined surface in spaced relation to the shoulder and movable by gravity relative to the inclined surface whereby a portion thereof is maintained in contact with the downwardly depending shoulder.

7. A wall structure comprising relatively movable vertically spaced apart upwardly extending wall sections, the upper end of the lower section being inclined to the horizontal and unitary complementary sections loosely bearing against the upper inclined end of the lower section and having upwardly extending portions adapted to be held against the upper wall by gravity.

In testimony whereof I hereunto affix my signature this 12th day of August, 1927.

FRANK B. ALLEN.