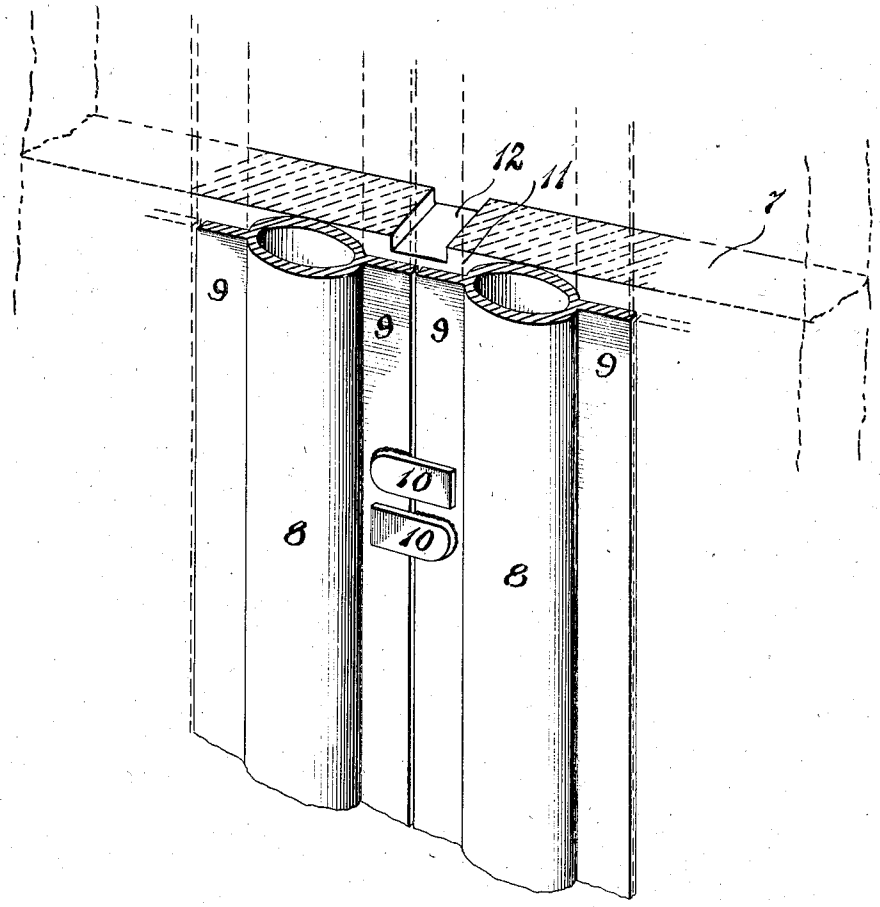
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WATER WALL CONSTRUCTION

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WATER-WALL CONSTRUCTION

Application filed July 25, 1925. Serial No. 45,985.

This invention relates to water walls for furnaces and is especially useful in furnaces adapted for the burning of fuel in suspension, combustion space of which is defined by the water wall.

One of the primary objects of the invention is to provide a simple and effective means for aligning the tubes composing the water wall.

How the foregoing, together with such other objects as may hereinafter appear, or are incident to my invention are realized, is illustrated in preferred form in the accompanying drawing, in which the figure is a partial perspective view of a furnace wall construction embodying my improvements.

As heretofore indicated, the invention is especially useful in upright water walls defining combustion space of a furnace and in the present arrangement I have illustrated the water wall as covering the front wall 7 of a combustion chamber. The water wall comprises a plurality of vertically extending tubes 8, each tube having longitudinal fins 9 welded or otherwise secured to opposite sides thereof, with the fins preferably in alignment and spaced a slight distance. As is customary in this art, particularly where the fuel to be burned is pulverized coal, secondary air for combustion is admitted thru the front wall and the fins are spaced slightly apart, as described, in order to allow such secondary combustion air to enter into the combustion space.

It is, of course, to be understood that the tubes 8 are connected into the circulation of the boiler for which purpose it is customary to have the upper ends of the tubes and the lower ends of the tubes extend thru the wall to the exterior for connection into suitable headers which in turn are connected into the circulation of the boiler proper by downcomers and upcomers.

Very frequently in assemblage the tubes will not align properly, because of distortion, and frequently under service conditions certain of the tubes may become somewhat distorted, making the space between the adjacent fins too large. To meet this condition I weld oppositely extending tabs 10 to the fins 9 at suitable intervals. It will be seen that the tabs secured to one fin overlie the adjacent fin and vice versa so that, altho the tabs are on the same side or face of the wall, nevertheless they co-operate to prevent the fins to which they are respectively secured from shifting out of alignment.

When assembling the tubes in the form of a wall, I may employ a prying member to hold the fins in alignment and then weld the tabs in place. Similarly if the tubes are to be applied to existing installations, a prying member may be employed to hold the fins in alignment, after which the tabs are welded in place. If preferable, however, the tabs may be applied to the tubes before assembling the tubes in the wall.

Air for combustion may be supplied in various ways. In the present showing air enters the spaces 11 between the wall 7 and the and the fins 9 thru inlet openings 12.

What I claim is:

1. In a water wall for combustion chambers, the combination of a plurality of tubes, each tube having fins, the fins and tubes co-operating to form the wall, and means on the fins for maintaining tubes in alignment while permitting adjustment of the relative spacing of the tubes.

2. In a water wall for combustion chambers, the combination of a plurality of tubes, each tube having fins, the fins and tubes co-operating to form the wall, and means for maintaining tubes in alignment, said means comprising metallic members secured to a fin of one tube and over-lying a fin of an adjacent tube in sliding contact therewith.

3. In a water wall for combustion chambers, the combination of a plurality of tubes having longitudinal fins, the fins and tubes co-operating to form a wall, and tabs on the fins, the tab on one fin overlapping the adjacent fin in sliding contact therewith, and the tabs being on the same face of the wall.

4. In a furnace wall construction, the combination of an inner water wall and an outer wall, the water wall being composed of tubes having fins with the fins spaced apart to provide air inlet openings, means whereby air may be admitted thru said inlets, and means

at intervals longitudinally of the tubes for holding the tubes in alignment.

5. In a water wall construction for combustion chambers, a plurality of tubes spaced apart to form air inlets, and means on each tube respectively bearing against the adjacent tube for maintaining the tubes in alignment, said means being located at spaced intervals intermediate the ends of the tubes.

In testimony whereof, I have hereunto signed my name.

CARL S. REED.