L. L. KNOX.

WATER COOLED FLOOR STRUCTURE.

APPLICATION FILED MAR. 4, 1916.

1,244,507. Patented Oct. 30, 1917.

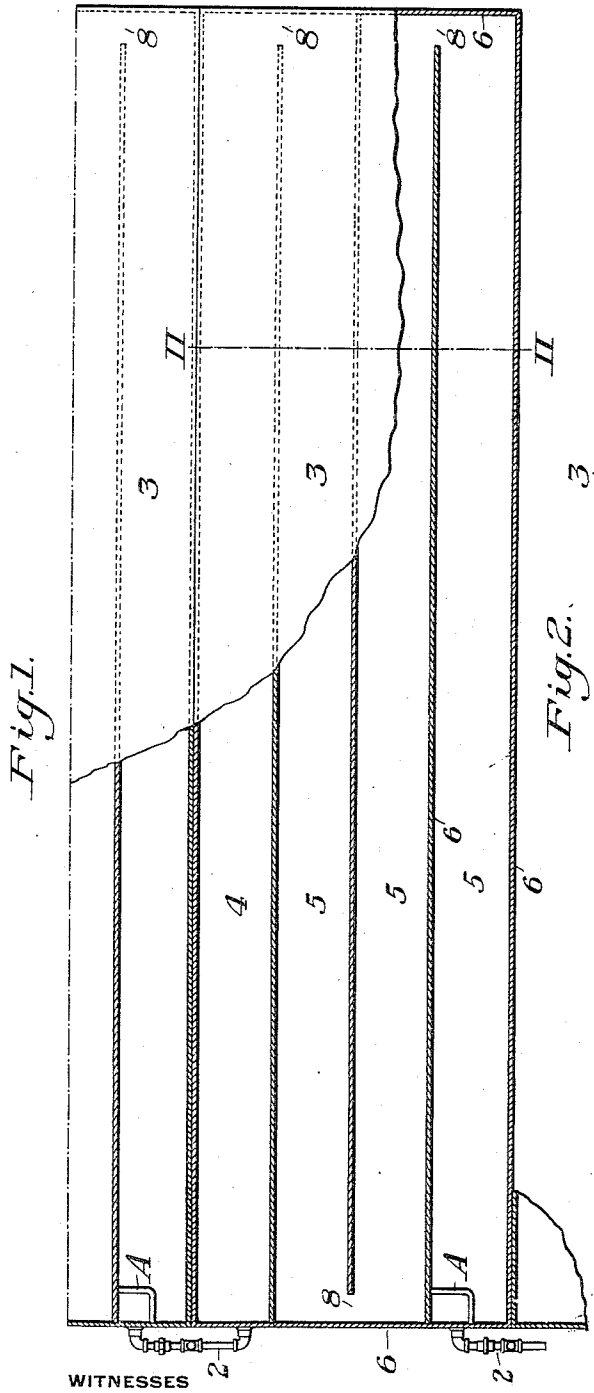


Fig. 1.

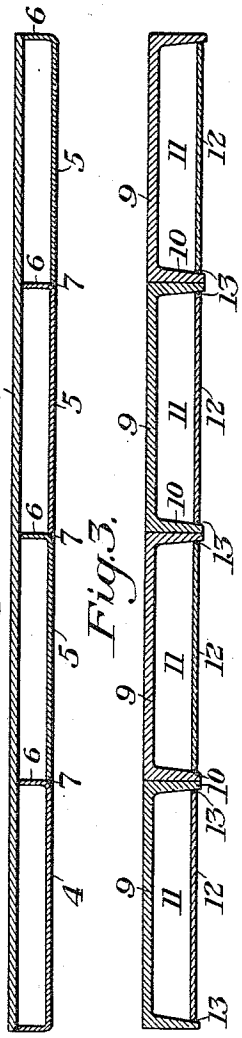


Fig. 2.

Fig. 3.

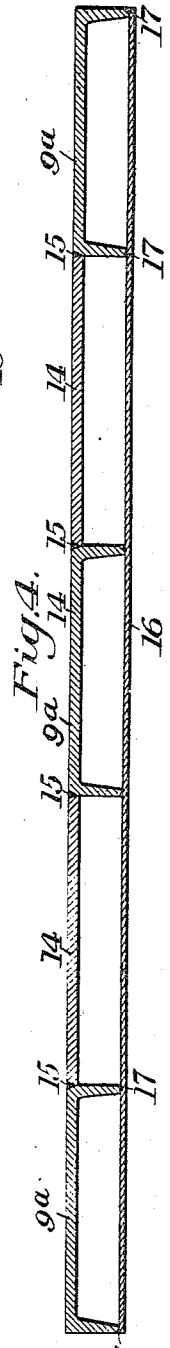


Fig. 4.

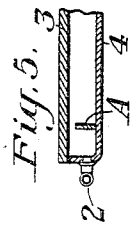


Fig. 5.

WITNESSES

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UNITED STATES PATENT OFFICE.

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WATER-COOLED FLOOR STRUCTURE.

1,244,507. Specification of Letters Patent. Patented Oct. 30, 1917.

Continuation of application Serial No. 868,544, filed October 24, 1914. This application filed March 4, 1916. Serial No. 82,191.

To all whom it may concern:

Be it known that I, LUTHER L. KNOX, a citizen of the United States, residing at Avalon, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Water-Cooled Floor Structures, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a plan view partly broken away of a portion of the floor structure embodying my invention;

Fig. 2 is a cross section on the line II—II of Fig. 1;

Figs. 3 and 4 are views similar to Fig. 2, but showing two different modifications; and

Fig. 5 is a detail view showing the guard or baffle for the outlet.

My invention has relation to water-cooled floors or platforms for use around furnaces and the like, and is designed to provide a simple, strong and durable structure of this character which can be readily manufactured and placed in position.

The present application is a continuation of my pending application, Serial No. 868,544, filed October 24, 1914.

Referring first to that form of my invention shown in Figs. 1 and 2:

The floor structure shown in Fig. 1 consists of a plurality of hollow rectangular units or sections placed side by side with suitable water-circulating connections 2. The number and shape of these units will depend upon the area of the floor space to be covered, as well as upon the shape of such space. In the form shown in these figures, each unit or section consists of an upper floor plate 3 of relatively thick metal and a plurality of bottom plates 4 and 5. The bottom plate 4 has all its edges turned upwardly, and these upwardly turned edges are welded to the under side of the floor plate 3. Each of the plates 5 has three of its edges turned upwardly and welded to said plate. These bottom plates with the floor plate form a plurality of water-containing and circulating chambers, the upturned flanges 6 forming the walls of said chambers and each flange 6, except the outer ones, being common to two adjacent chambers. The edges of the plates 5 which are not flanged are welded to the adjacent plate at points 7.

In order to provide for a continuous back and forth water circulation, the flanges may be cut away at one end, as indicated at 8 in Fig. 1. These flanges not only form spacers which increase the strength of the structure, but they also act as circulating baffles.

In order to hold the water in the chambers and prevent too rapid circulation therethrough, I preferably provide each outlet connection with a guard or baffle A of angular form, as shown in Figs. 1 and 5, this guard being of a less height than the full depth of the chamber, but considerably higher than the level of the outlet connection.

In the form of my invention shown in Fig. 3, the floor plate portion of the structure is composed of a plurality of inverted channels 9, placed side by side with abutting flanges 10. The bottoms of the water spacers 11 are formed by plates 12, which are welded at their edges to the inner surfaces of the flanges, as indicated at 13.

In that form of my invention shown in Fig. 4, the floor plate portion of the structure is formed in part of the channels 9^a similar to the channels 9. These channels are, however, separated from each other, and the floor surface between them is formed by plates 14, whose longitudinal edges are welded to the channels, as indicated at 15. The bottom of the structure consists of a continuous sheet metal plate 16, which may be welded to the flanges of the channels, as indicated at 17.

My invention provides a floor structure which can be readily manufactured and adapted to fit any particular shape, since the different sections or units may be made of any desired size and shape, and each unit may have any desired number of water-containing chambers. In the form shown in Figs. 3 and 4, the circulation between adjacent chambers may be provided by forming openings through the flanges of the channels at desired points.

I claim:

1. A water-cooled floor unit formed of a plurality of members having horizontal portions in different planes extending across one entire dimension thereof, some of said

members in one of the planes having vertical portions formed integrally therewith and fused to a member in the other plane to form water-tight ends and sides of the units as well as water-tight divisions between different parts of the unit, substantially as described.

2. A water cooled floor formed of a plurality of units, each unit having a plurality of members having a vertical flange and a horizontal portion, the horizontal portions of adjacent members being connected to each other at the junction of the horizontal portions and the vertical flanges, and a top plate connected to the upper ends of the vertical flanges, said vertical flanges forming walls for water circulating channels, substantially as described.

3. A water-cooled floor structure comprising a hollow box-like structure, having water inlet and outlet connections, and an angular guard or baffle placed adjacent to the outlet connection and extending to above the outlet connection, substantially as described.

In testimony whereof, I have hereunto set my hand.

LUTHER L. KNOX.

Witnesses:
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