No. 847,681. PATENTED MAR. 19, 1907.

E. H. McCLOUD.

FLEXIBLE FIRE RESISTING CURTAIN.

APPLICATION FILED FEB. 9, 1905.

2 SHEETS—SHEET 1.

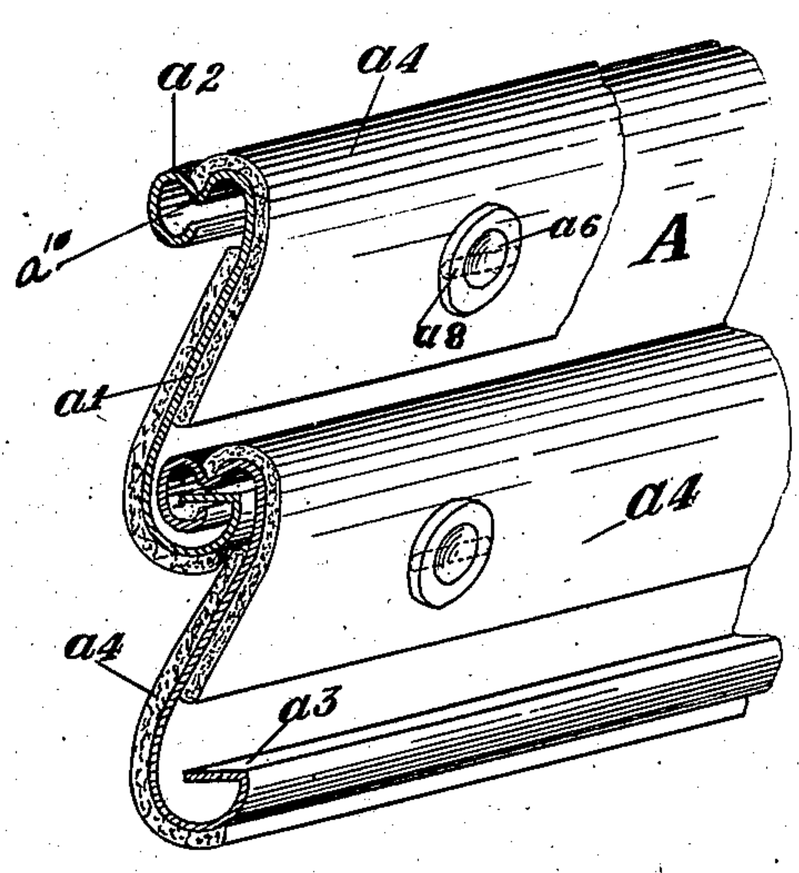

Fig. 1

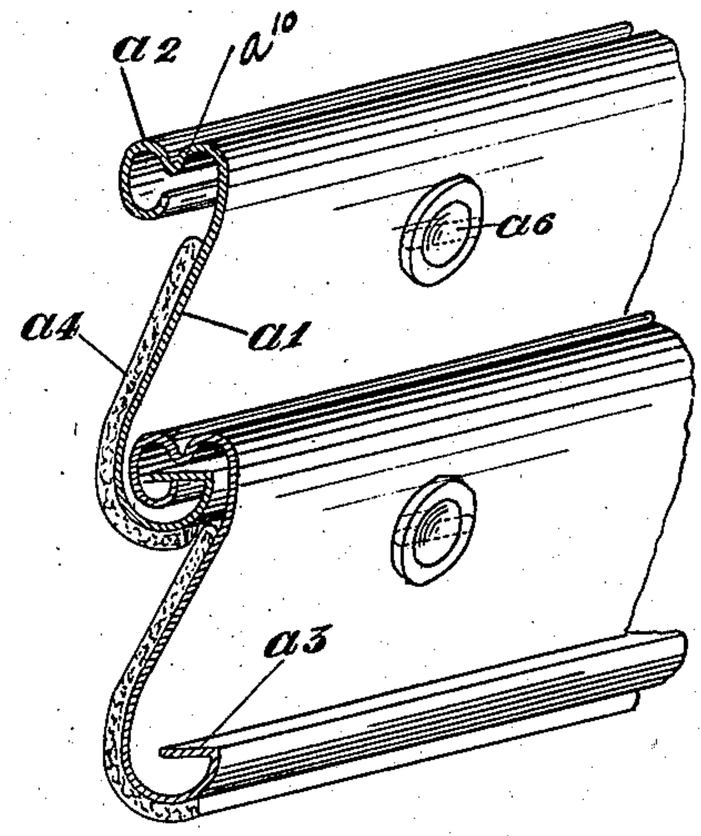

Fig. 2

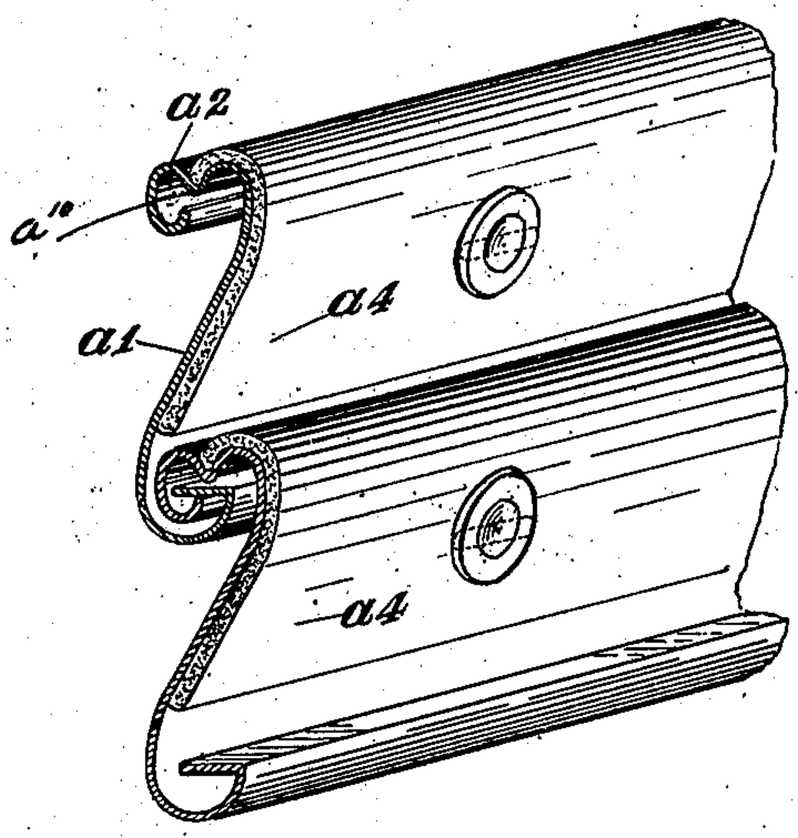

Fig. 3

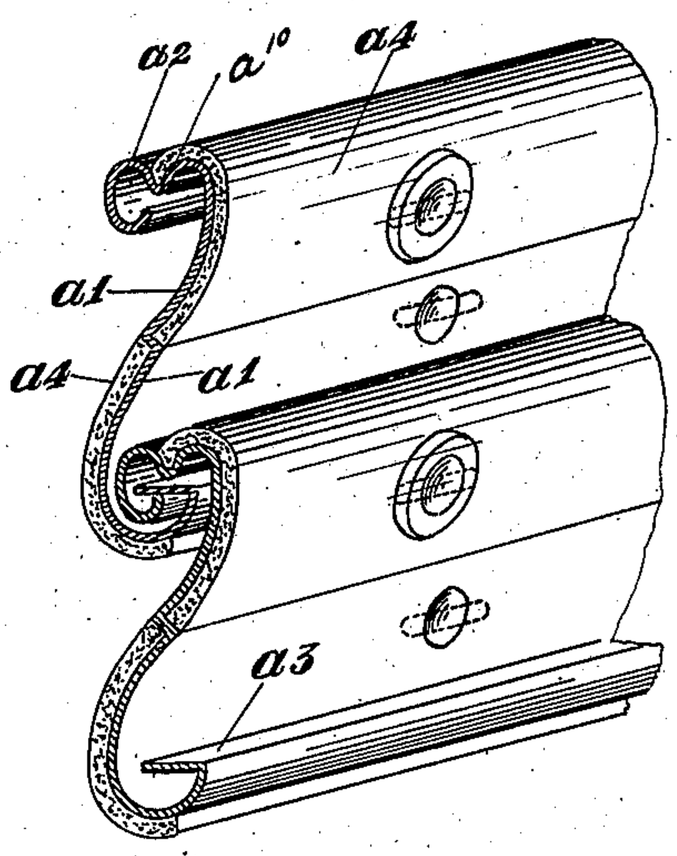

Fig. 4

WITNESSES:

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Justin C Burns

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2 SHEETS—SHEET 2.

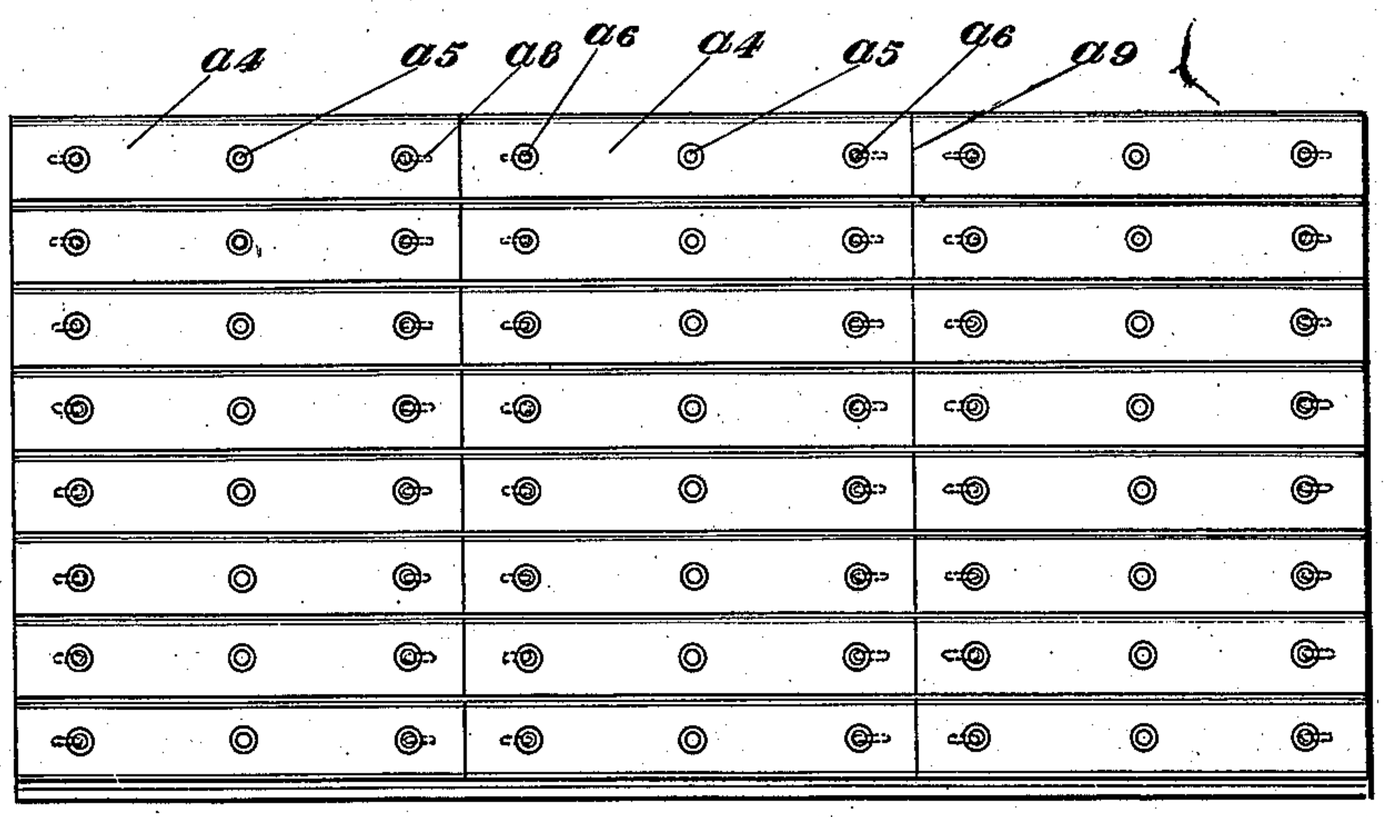

Fig. 5

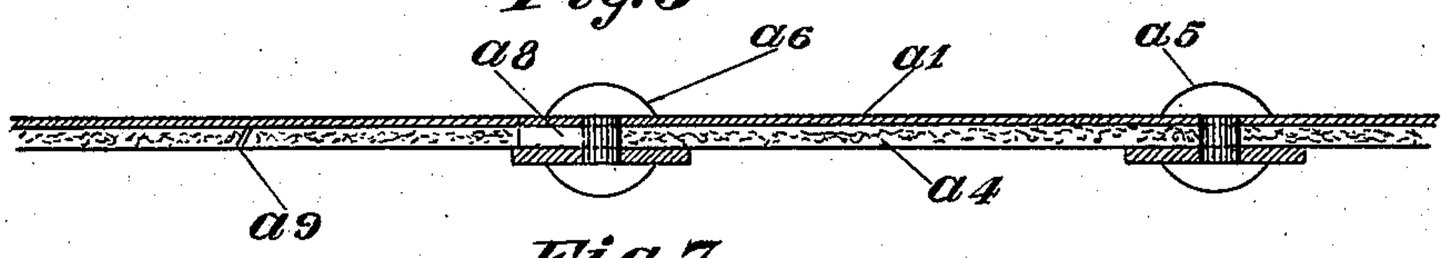

Fig. 7

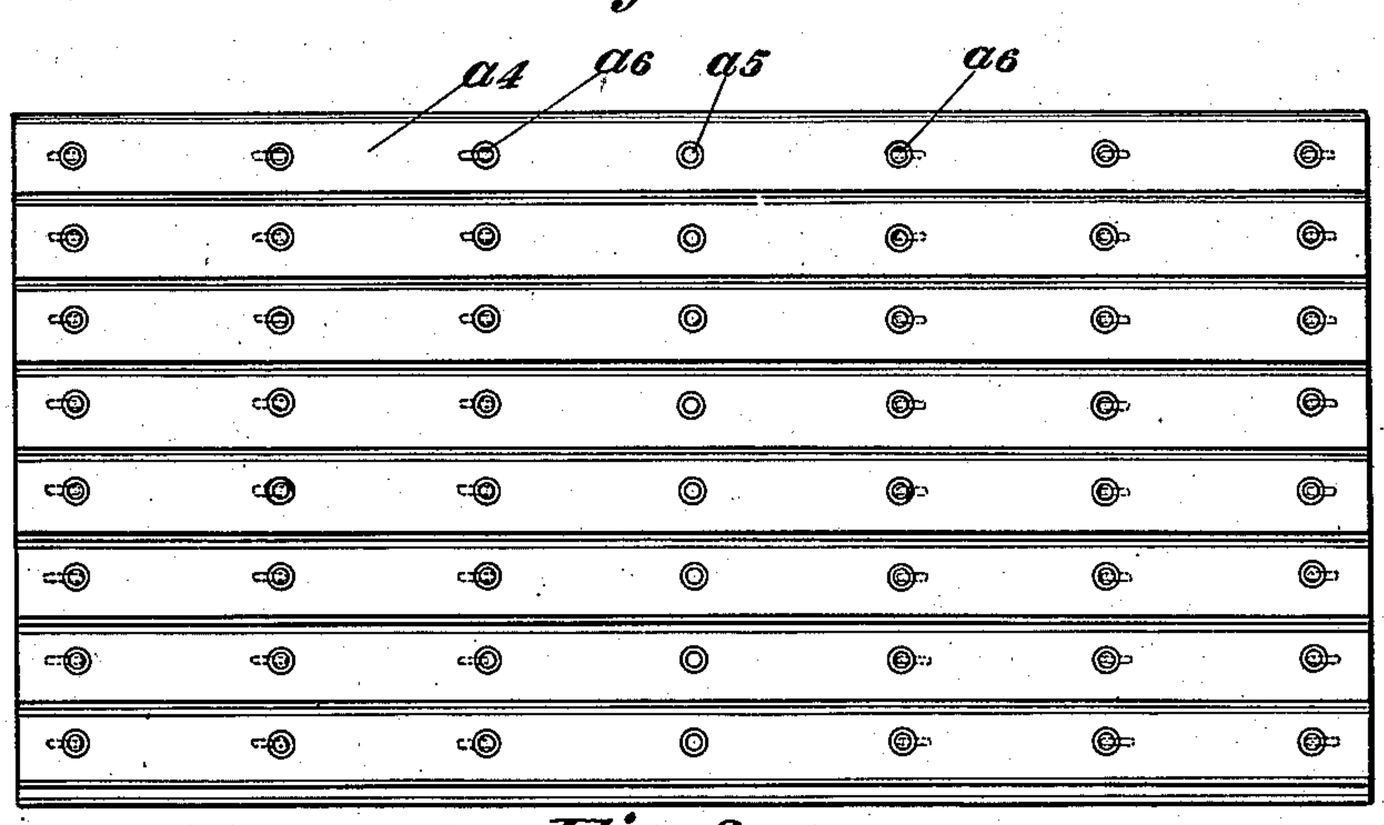

Fig. 6

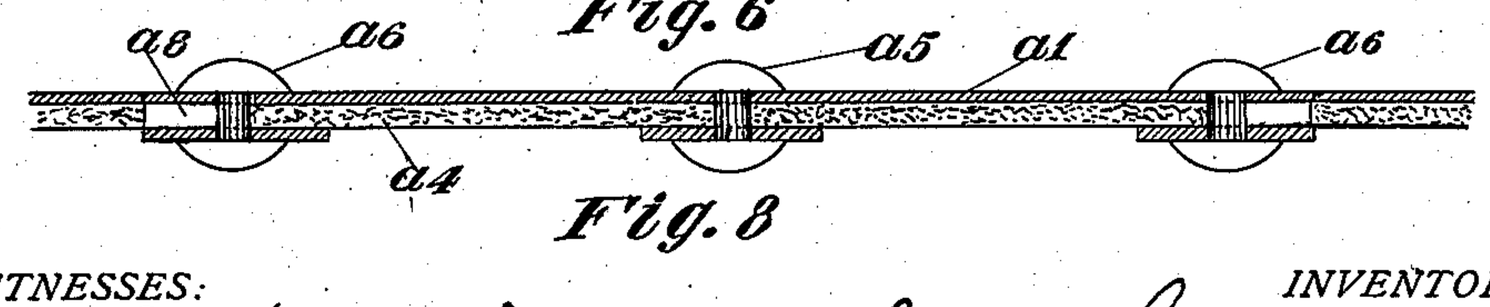

Fig. 8

WITNESSES:

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EDWARD HARRISON McCLOUD, OF COLUMBUS, OHIO.

FLEXIBLE FIRE-RESISTING CURTAIN.

No. 847,681. Specification of Letters Patent. Patented March 19, 1907.

Application filed February 9, 1905. Serial No. 244,991.

To all whom it may concern:

Be it known that I, EDWARD HARRISON McCLOUD, a citizen of the United States, residing at 209 South Monroe avenue, Columbus, in the county of Franklin and State of Ohio, have invented new and useful Improvements in Flexible Fire-Resisting Curtains; and I do hereby 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.

The object of the present invention is to provide a flexible fire-resisting curtain that will tend to prevent the transmission and radiation of heat, and, further, to provide a curtain of peculiar construction in which materials having different physical and caloric properties can be utilized without endangering the safety of the curtain. The manner in which this is attained is illustrated in the accompanying drawings.

Figures 1, 2, 3, and 4 are portions of the curtain shown in isometric projection. Figs. 5 and 6 show the curtain in elevation to a smaller scale. Figs. 7 and 8 are enlarged sectional views.

A represents one of many metallic sections which constitute a curtain; a', the main body of a section; a^2 and a^3, the upper and lower edges of a form adapted to act as hinges when connected with adjacent sections. The upper and lower edges, forming the hinged portions, are oppositely disposed and substantially hook-shaped, and one of said edges is provided with a shoulder a^{10}. The connection is made by longitudinally slipping the lower edge of one section into the upper edge of the adjoining section.

a^4 is a non-conductor of heat secured to the surface a'.

Fig. 2 is similar to Fig. 1, except that the non-conductor is applied to one side only; Fig. 3, the same as Fig. 2, except that the non-conductor is applied to the opposite side. Fig. 4 is a modified combination of Figs. 2 and 3.

When the curtain is subjected to the action of fire, the metallic part of the section will absorb more heat and expand to a greater degree than the non-conductive material. This is particularly true concerning the lateral expansion. It is therefore evident that the length of the metallic part of the section will be different from that of the non-conductive material, and if the two are rigidly connected together a stress will exist between them which would cause a rupture of the weaker material or distort the section from its original shape and probably cause the sections to become disengaged. To obviate this, I have made provision whereby the two materials can act independently of each other. I apply the non-conductive material to the metallic sections either in several short pieces or in one continuous piece, as shown in Figs. 5 and 6. In Fig. 5 the rivet a^5 is placed in the center of the short length a^4. The rivets a^6 on either side of the rivet a^5 fit in circular holes in the metallic section A and in elongated holes a^8 in the material a^4. The excess expansion will occur in the metallic piece A, and the rivet a^6 will move toward the opposite end of the elongated hole a^8. It is obvious that the same results would be obtained by a reversal of the elongated and round holes with respect to the material in which they are placed. At a normal temperature the space a^9 between the parts a^4 will be closed, but will open slightly upon the application of heat. In Fig. 6 at the center of the curtain the material a^4 is secured rigidly by the rivet a^5, fitted in circular holes in the material a^4 and the metallic section A. The rivets a^6 are spaced each side. As intense heat greatly impairs the efficiency of metal, rendering it less stiff and diminishing its strength, I have endeavored to protect, as far as possible, the hinge which joins the sections together.

What I claim, and desire to secure by Letters Patent, is—

1. A flexible fire-resisting curtain composed of a plurality of hinged metallic sections, the surfaces thereof being partly covered by a material, non-conductive of heat; said non-conductive material being divided into sections, means for connecting non-conductive material to the metallic sections and means whereby the non-conductive material and metallic sections can expand independently.

2. In a flexible fire-resisting curtain, composed of hinged metallic sections, the surfaces thereof being partly covered by a material, non-conductive of heat, means for securing to the metallic section, the non-conductive material, and means for permitting the unequal expansion of the non-conductive material and the metallic sections.

3. A flexible fire-resisting curtain composed of a plurality of hinged sections, each section having for its main body a metallic form with non-conductive material secured thereon by rivets in elongated holes.

4. In a device of the class described, in combination, metallic supporting means, a relatively refractory coating, and means adapted to secure said coating upon said supporting means and permit expansion of one of the same relative to the other.

5. A flexible fire-resisting curtain comprising a plurality of hinged metallic sections, the surfaces of said sections having secured thereto a refractory material, and means adapted to secure said refractory material to said sections and permit expansion of one of the same relative to the other.

6. A fire-resisting curtain comprising a plurality of hinged sections, each of which is composed of a metallic member and a refractory member joined together so that one may expand freely relative to the other.

7. In a device of the class described, in combination, a plurality of hingedly-connected metallic sections each comprised by a metallic part and a refractory part, and rivets extending through elongated openings in said refractory part for securing the same to the metallic member

8. In a device of the class described, in combination, a metallic slat provided with means for joining it to other slats and having its body portion provided with a heat-resisting material, and means loosely connecting said material to said slat whereby unequal expansion of said material and said slat is freely permitted.

9. In a device of the class described, a metallic slat provided with means for joining it to other slats and having a heat-resisting material different from that of which the slat is constructed applied to one of its surfaces and means loosely connecting said material to said slat whereby unequal expansion of said material and said slat is freely permitted.

10. In a device of the class described, a metallic slat provided with means for joining it to other slats and having a heat-resisting material different from that of which the slat is constructed applied to its interior and exterior surfaces, and means loosely connecting said slat and said material whereby unequal expansion of said slat and said material is freely permitted.

11. In a device of the class described, in combination, a metallic slat provided at its edge with a hook, a heat-retarding material, portions of which are loosely applied to one of the sides of said slat and to the back of said hook and means loosely connecting said slat and said material whereby unequal expansion of said slat and said material is freely permitted.

12. In a device of the class described, in combination, a metallic slat provided at its edge with a hook and having a refractory material applied to both of its sides, said refractory material on one side extending over the back of said hook while the material upon the other side does not extend to the hook and means loosely connecting said slat and said material whereby unequal expansion of said slat and said material is freely permitted.

13. In a device of the class described, in combination, a plurality of metallic slats provided at their edges with oppositely-disposed hooks and at one of their edges with a shoulder and having a refractory material applied to both sides thereof, said refractory material upon one side thereof extending substantially to the hook and upon the opposite side thereof over the back of the hook and means loosely connecting said slat and said material whereby unequal expansion of said slat and said material is freely permitted.

14. In a device of the class described, in combination, metallic supporting means, a relatively refractory coating, and means adapted to secure said coating upon said supporting means and prevent relative bodily movement therebetween while permitting movement of portions of one of the same relative to the other to compensate for unequal expansion.

15. In a device of the class described, in combination, metallic supporting means, a relatively refractory coating, means adapted positively to secure portions of said coating to said supporting means, and means adapted to secure other portions of said coating to said supporting means so that relative movement can take place therebetween.

16. In a device of the class described, in combination, metallic supporting means, a relatively refractory coating therefor, a plurality of rivets for securing portions of said coating positively to said supporting means, and a plurality of rivets for securing other portions of said coating to said supporting means so that relative movement can take place therebetween.

17. A device of the class described, comprising in combination, a plurality of sections, each of which is composed of materials having different coefficients of expansion joined to permit relative movement therebetween when they are subjected to heat.

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

EDWARD HARRISON McCLOUD.

Witnesses:

CARL LEON CRANDELLE,

ESTELLE OREWILER.