

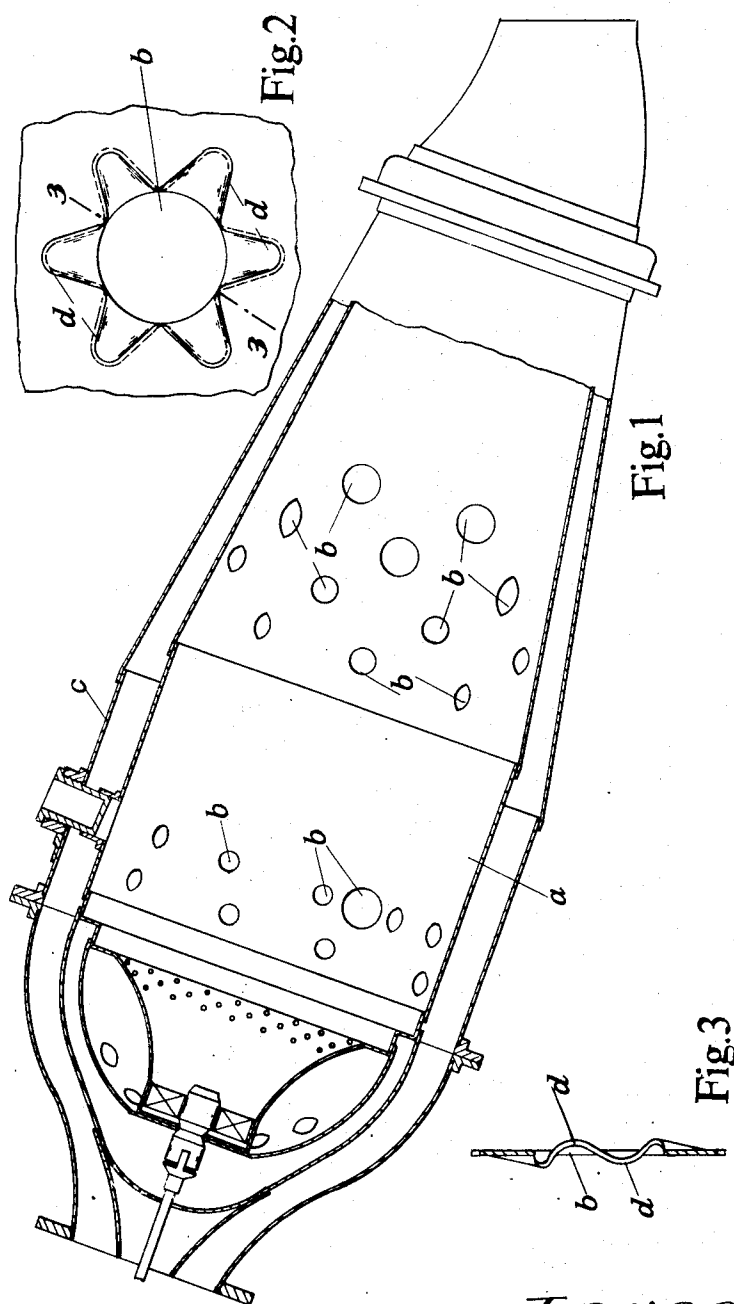
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SHEET METAL COMBUSTION CHAMBER, FLAME TUBE, AND THE LIKE

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SHEET METAL COMBUSTION CHAMBER,
FLAME TUBE, AND THE LIKE

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1 Claim. (Cl. 60—39.65)

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This invention relates to an air-jacketed sheet metal combustion chamber, flame tube, or like body of the kind used in a jet engine, or gas turbine, or for other purposes, and in which hot gases are generated or conveyed, the surface or surfaces of the body having therein holes for the admission of air from the jacket.

One of the difficulties experienced when such a body is in use, is the cracking of the edges of the holes due to stresses set up in the metal by the heating action of the gases, or other causes, and the object of the present invention is to enable this difficulty to be overcome in a simple manner.

The invention consists in forming in the metal around the holes, transverse corrugations adapted to allow free expansion and contraction of the metal at the edges of the holes.

In the accompanying drawing:

Figure 1 is a sectional side elevation of a combustion chamber or flame tube having therein air-admission holes such as are required to be formed in accordance with the invention.

Figures 2 and 3 are respectively a plan and cross section illustrating to a larger scale than Figure 1, a hole shaped in accordance with the invention, Figure 3 being taken on the line 3—3 of Figure 2.

The combustion chamber or flame tube *a* shown in Figure 1 is of known form, and is provided with holes as *b* of the same or different sizes through which air can flow into the chamber or tube from a surrounding air jacket *c*.

According to the invention, and as shown in Figures 2 and 3, the metal around those holes whose edges are liable to crack, is subjected to the action of press tools whereby a ring of transverse corrugations *d* is formed around each hole. These corrugations extend radially from the hole

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to any convenient and suitable extent, and they may be tapered in the direction of their length, the maximum depth being at the edge of the hole. The pitch and depth of the corrugations is made appropriate to the diameter of the hole and thickness of the metal, but in all cases they are such as will relieve the metal of the detrimental stresses.

Whilst for most purposes it is convenient to treat all the holes in the manner above described, this is not essential, as the treatment may be applied only to the edges of those holes which in bodies of conventional construction have been found to be susceptible to cracking.

By this invention, cracking of the edges of the holes can be obviated in a very simple manner.

Having this described my invention what I claim as new and desire to secure by Letters Patent is:

A sheet metal hot gas chamber of elongated form, and an air jacket surrounding said chamber, said chamber being provided with a plurality of holes through which air from said jacket is admissible to said chamber, and the sheet metal around said holes being formed with corrugations which extend radially from said holes and allow free expansion and contraction of the metal bounding said holes.

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References Cited in the file of this patent

UNITED STATES PATENTS

Number	Name	Date
1,159,322	Livingston	Nov. 2, 1915
1,581,488	Lewis	Apr. 20, 1926
2,477,583	DeZubay et al.	Aug. 2, 1949
2,513,325	Hundstad	July 4, 1950
2,543,755	Berger	Mar. 6, 1951