Feb. 21, 1967 R. FRIEDL ETAL 3,305,013

HEAT RADIATOR

Filed Sept. 30, 1964

Fig. 1

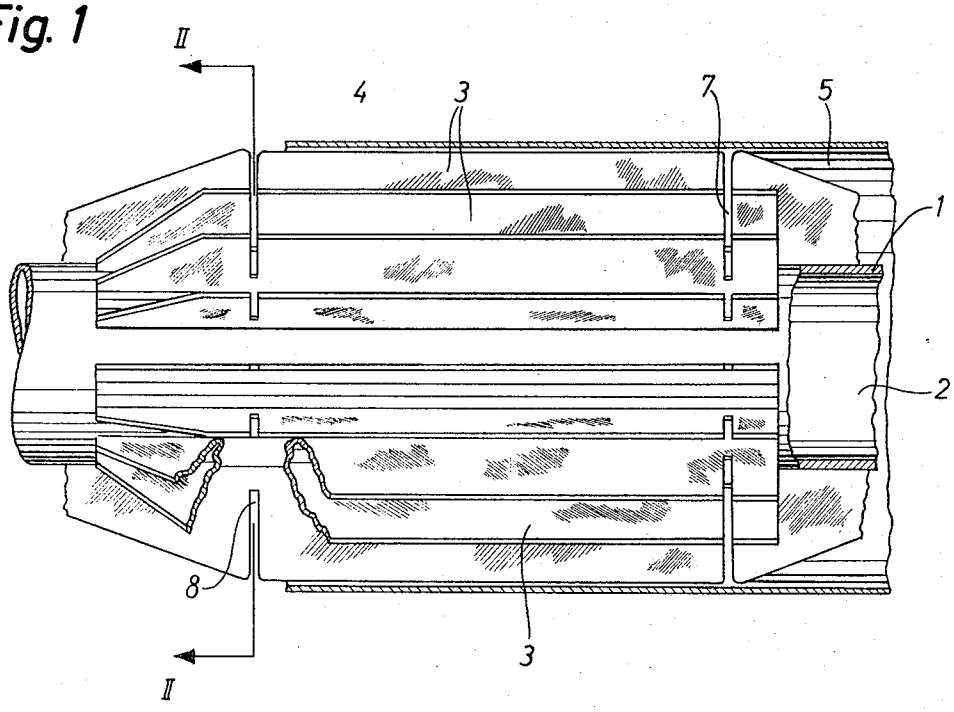
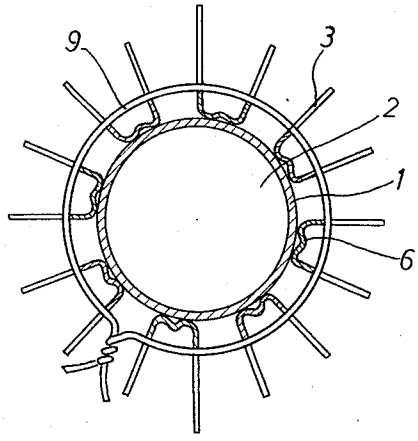


Fig. 2



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United States Patent Office 3,305,013 Patented Feb. 21, 1967

3,305,013

HEAT RADIATOR

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Filed Sept. 30, 1964, Ser. No. 400,495
Claims priority, application Switzerland, Nov. 1, 1963, 13,404/63
2 Claims. (Cl. 165—183)

The invention relates to heat radiators of the kind in which the wall of a heating-gas duct consists of one metal e.g. alloyed or unalloyed steel, and on which fin elements or ribs of another metal, e.g. copper (which may have a length of at least 10 cm. and be soldered in position in a protective gas furnace) are fastened to the duct by a soldering bridge which is preferably formed on each fin element, or between two adjacent fin elements.

The soldering of copper fin elements in a protective gas furnace on heat radiators of the aforesaid type has hitherto been difficult, since when the soldered parts cooled the individual fin element usually became partly detached from the steel wall of the duct. It was therefore necessary to prevent this from happening by special means consisting of very firm fastening by means of wire, but even this was successful in only a few cases, so that economical working in connection with the soldering process has hitherto not been possible.

The present invention is based on the realization that the detachment of the fin elements is not only due to the different coefficients of expansion of copper and steel, but also to the fact that the copper fin elements cool substantially more quickly than the duct, particularly in the parts of the fin elements remote from the soldered joint. In order to avoid the consequent tensions inside the fin element, which lead to the partial detachment at the soldered joints, it is therefore proposed according to the invention that each of the fin elements shall have at least one dividing cut although still supported by the soldering bridge. The distance between a dividing cut or cuts and the nearest end of the fin element should be at most four times, but preferably less than three times, the height of the fin element.

According to one preferred embodiment of the invention, a dividing cut is in the form of a slot. In this case the slot may at the same time be used, by inserting a wire in the base of the slot, for fastening the fin element to the duct by means of this wire before the soldering operation is carried out.

If use is made of a cylindrical heating-gas duct, on which, viewed in cross-section, radially mounted fin elements extending in the axial direction of the duct are fastened, the dividing slots of the various fin elements are, according to a further feature of the invention, in each case disposed in a plane substantially at right-angles to the axis of the heating gas duct, so that with a wire which runs through all the slots lying in this plane it is possible to fasten all the fin elements on the wall of the heating gas duct in spaced peripheral positions.

In the following description of one embodiment of a heat radiator according to the invention reference is made to the accompanying drawings with the aid of which further features of the invention will be indicated. In the drawings

FIGURE 1 shows a heat radiator according to the invention, partly in section, and

FIGURE 2 shows the same in section along the lines II—II of FIGURE 1.

The wall 1 of a heating gas duct 2, which consists of alloyed or unalloyed steel, is provided with copper fin elements 3 which extend into a heating medium duct 5 formed by an outer casing 4. Each two adjacent buffer fin elements 3 are provided with a soldering bridge 6 formed between them. As best seen in FIGURE 1, dividing slots 7 and 8 are provided in the fin elements 3 and lie in groups in a plane substantially perpendicular to the axis of the heating gas duct 2, preferably directly above the soldering bridges but, if a plurality of dividing slots are provided, particularly at the end of the fin element with reference to its height per unit of length, they may also end a certain distance above the soldering bridge.

The abovedescribed arrangement of the group of slots in a common plane affords the advantage that before being soldered the fin elements can be fastened to the duct by means of a single wire 9 as shown for the sake of greater clarity only in FIGURE 2. Corresponding wire fastenings, as necessary, may be provided in the second or other groups of slots.

The invention is not restricted to the details of the embodiment described above, but may be modified in various ways without departing from the scope of the invention as defined in the appended claims.

What we claim is:

1. A heat radiator having a cylindrical heating fluid duct of one metal and fin units of another metal having a different coefficient of expansion and a second duct surrounding said units, said units having fin elements projecting radially from said duct and being elongated in the axial direction of said duct, said fin elements being formed in pairs each of which comprises a sheet of said other metal bent intermediate its width to form a central longitudinal loop and with one of said fin elements at each side of said loop terminating in a free edge, said fin units being soldered to said duct by means of continuous soldering throughout the lengths of said loops, each of said fin elements having a transverse slot in its radially outer portion, said slots having their radially inner extremities terminating in relatively close proximity to said loops, and a binding wire around said units in said slots.

2. A radiator according to claim 1 wherein each loop has a groove facing said first named duct and extending from end-to-end of the associated unit to receive solder.

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