Dec. 11, 1928. 1,694,696

F. M. YOUNG

RADIATOR

Filed July 27, 1928

Fig. 1.

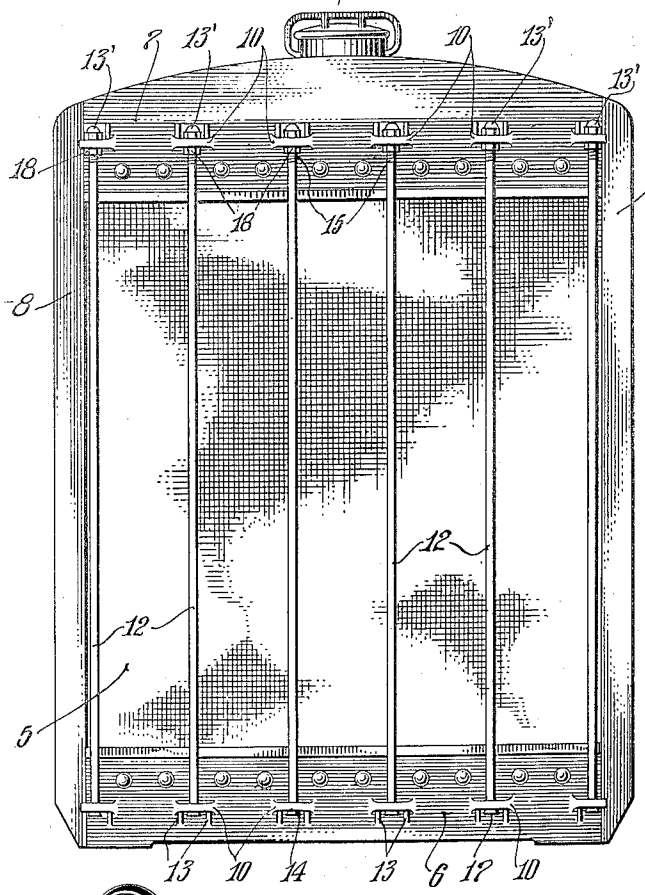
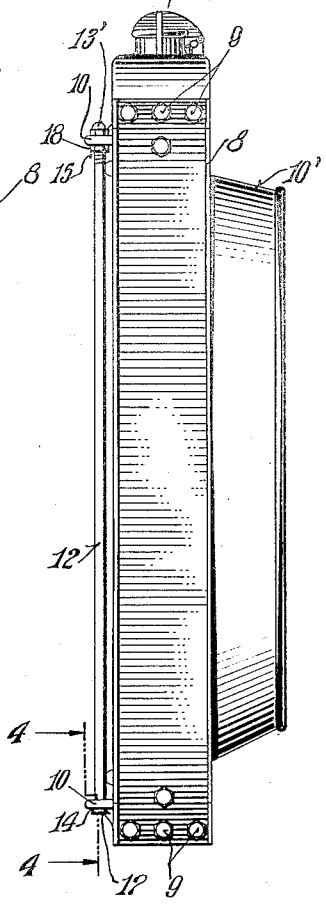


Fig. 2.



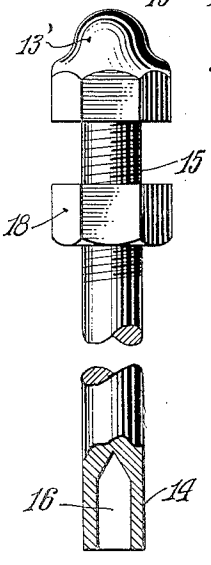


Fig. 3.

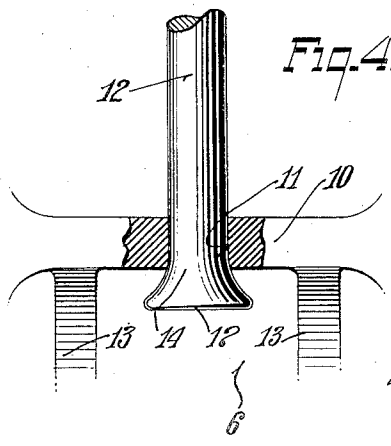


Fig. 4.

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UNITED STATES PATENT OFFICE.

FRED M. YOUNG, OF RACINE, WISCONSIN.

RADIATOR.

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This invention relates to certain new and useful improvements in radiators of the character employed in connection with water cooled internal combustion engines, heaters, condensers, coolers, etc., and has as an object the provision of a reinforcing and guard rod construction which is of simpler construction than those formerly employed and which lends itself more readily to production.

In manufacturing radiators of the guard bar type, in which a conventional flat head is provided on one end of the bar, mechanics in assembling frequently either impose an excessive strain on the rods injuring the radiator shell or else fail to place an even strain on the bolts which results in a generally unsatisfactory condition, and this invention has as a further object the provision of an improved construction whereby the application of excessive strain on the rods is prevented within a reasonable degree and in addition a cheaper and better structure provided.

Another object of this invention resides in the provision of a guard rod of the character described having a nut for drawing the rod taut and having means for preventing the loosening of the nut by vibration.

And a still further object of this invention resides in the provision of an improved radiator construction wherein common stock rod or bar material may be employed in the construction of the guard rods with better results than with special rods having solid heads on one end.

With the above and other objects in view which will appear as the description proceeds, my invention resides in the novel construction, combination and arrangement of parts substantially as hereinafter described and more particularly defined by the appended claims, it being understood that such changes in the precise embodiment of the herein disclosed invention may be made as come within the scope of the claims.

In the accompanying drawing, I have illustrated one complete example of the physical embodiment of my invention constructed according to the best mode I have so far devised for the practical application of the principles thereof, and in which:

Figure 1 is a front view of a radiator construction employed in my invention;

Figure 2 is a side view thereof;

Figure 3 is an enlarged, detail view, with parts broken away and in section, of one of the guard rods detached from the radiator; and

Figure 4 is an enlarged, fragmentary view, partly in section and partly in elevation, taken through Figure 2 on the plane of the line 4—4.

Referring now more particularly to the accompanying drawing, in which like numerals designate like parts throughout the several views, 5 designates a radiator core having its bottom and top closed by cast ends or tank members 6 and 7, respectively, the adjacent ends of the tank members being connected by side channel members 8 secured thereto by cap screws or other means 9. The rear of the radiator may be provided with a fan enclosing casing 10; although it forms no part of this invention.

The forward faces of the members 6 and 7 have forwardly projected vertically aligned lugs 10 preferably cast integrally therewith and apertured, as at 11, to receive vertical guard rods or bars 12 which serve to reinforce the radiator construction and protect the core 5 against damage by collision. The lugs 10 are preferably strengthened by vertical webs 13 to withstand the stresses imposed thereon by the guard rods. Heretofore, the guard rods or bars have been in the form of elongated bolts having the conventional solid head structure, but this has proven objectionable in that they afford no protection against drawing the nuts 13′ on the upper ends thereof too tight and this feature is overcome by replacing the ordinary solid flat heads of the rods by the structure now about to be described.

The lower end 14 of each bar 12 opposite its threaded end 15 is preferably bored a short distance, as at 16, and expanded, as at 17, by the insertion of a suitable expanding tool, not shown, the expanded portion forming the head of the rod. With this construction, a degree of protection is afforded against placing too great a strain on the guard rods in tightening the nuts 13′, as the tapered or flared heads 17 have a degree of resiliency which also assures the placing of an even strain on the guard rods. In addition, the tendency of the rods to become loose and rattle due to the vibration of the engine with which the radiator is employed is overcome by a locking jam nut 18 threaded on the upper end of each guard rod and drawn against the underside of the adjacent lug 10.

In addition to affording protection against

placing of excessive stress on the guard rods and consequently the radiator heads and the assuring of the placing an even strain on all the rods, the construction illustrated permits a more economical construction of the guard rods as ordinary stock rod or bar may be employed, as will be readily apparent.

What I claim as my invention is:

1. In a radiator construction including end members having aligned apertured lugs and a guard rod passed through the apertures of the aligned lugs, a flared head on one end of the rod, and a nut threaded on the other end of the rod and placing a strain thereon.

2. In a radiator construction including end members having aligned apertured lugs and a guard rod passed through the apertures of the aligned lugs, a tubular flared head on one end of the rod, and a nut threaded on the other end of the rod and placing a strain thereon, said head having a degree of resiliency to maintain the rod under tension.

3. In a radiator construction including a core member, top and bottom members for the core member, series of apertured lugs carried by the top and bottom members in vertical alignment respectively, guard rods for the core member having their ends passed through the apertures of aligned lugs, said guard rods each consisting of a rod bored at one end and externally threaded at the other end, an expanded flared head at the bored end of the rod to engage the adjacent member lug, and nuts threaded on the threaded ends of the rods to place a strain thereon, said flared heads having a degree of yieldability to protect the radiator against the placing of excessive stresses thereon in screwing up said nuts.

4. In a radiator construction including end members having aligned apertured lugs and a guard rod passed through the apertures of the aligned lugs, a tubular flared head on one end of the rod, a nut threaded on the other end of the rod and engaging one side of one lug to place a strain on the rod and draw the flared head into the aperture of the other lug, and a lock nut threaded on the rod engaging the other side of the first mentioned lug to prevent displacement of the first nut by vibration.

In testimony whereof I have hereunto affixed my signautre.

FRED M. YOUNG.