Sept. 3, 1935. L. B. GREEN 2,013,385

RADIATOR SHELL FRONT AND GUARD BAR ASSEMBLY

Filed Jan. 31, 1935

Fig. 1

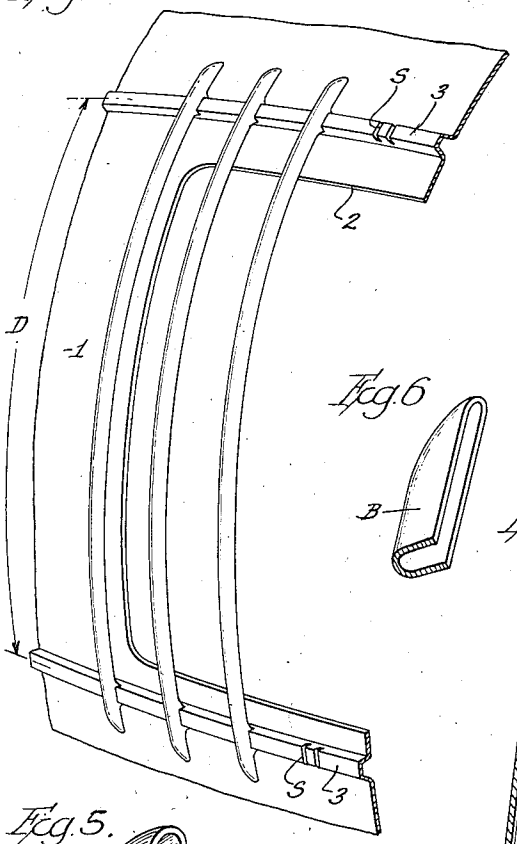


Fig. 2

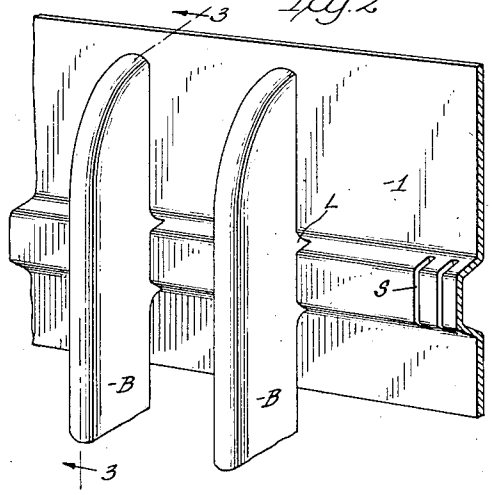


Fig. 6

Fig. 3

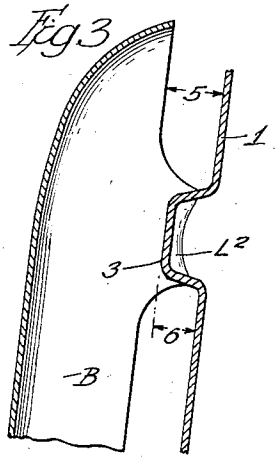


Fig. 4

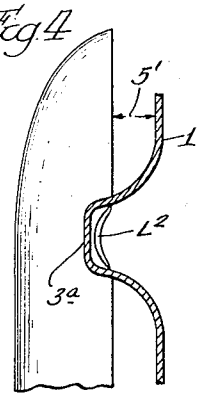


Fig. 5.

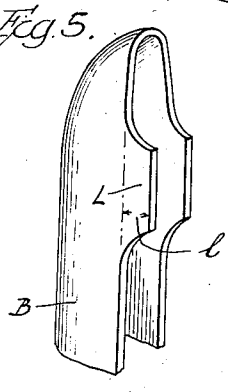


Fig. 8

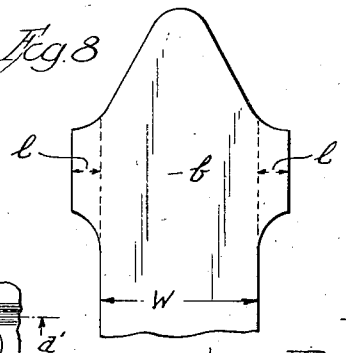
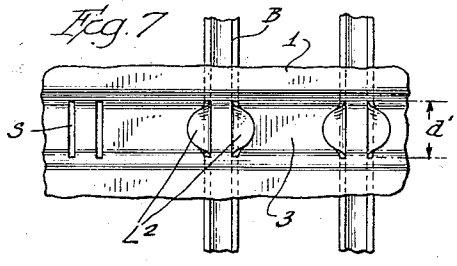


Fig. 7



Inventor:
Lee B. Green
by Albert Scheibli
Attorney

Patented Sept. 3, 1935

2,013,385

UNITED STATES PATENT OFFICE

2,013,385

RADIATOR SHELL FRONT AND GUARD BAR ASSEMBLY

Lee B. Green, Lakewood, Ohio, assignor to The Globe Machine & Stamping Company, Cleveland, Ohio, a corporation of Ohio

Application January 31, 1935, Serial No. 4,367

4 Claims. (Cl. 293—54)

This application is in part a continuation of my copending application #733,101, filed June 29, 1934 on a Grille-guarded radiator shell front.

In general, the objects of my here presented invention are those of providing a grille-guarded apertured member in which the grille blades (or guard bars) extend in front of the said member beyond opposite edges of the aperture, in which these blades or bars can readily be fastened directly to the said member without requiring any bolts or other auxiliary fastening elements, and in which no auxiliary end members will be required for rigidly spacing these blades or bars from one another. Furthermore, my invention aims to provide an assemblage of the just recited characteristics, in which the parts of these bars which reach beyond each aperture will be adequately spaced from the front of the apertured member to permit water to be flushed between the just recited bar parts and the said front for removing accumulated mud or the like.

In my said copending application I have disclosed an automobile radiator shell and guard bar assemblage in which rearwardly open guard bars have their end portions bearing rearwards directly against the front of the radiator shell, and in which each such bar portion is secured to the radiator shell front by a bolt extending through the said shell front. This construction has the disadvantage that it will not readily permit accumulated mud or the like to be flushed out of the entire end portions of the blade if the blade bears directly against the shell front or is only slightly spaced forwardly from the latter.

In addition, the use of auxiliary fastening elements according to my previous disclosure not only adds to the cost of these elements, but also considerably increases the difficulty and expense of adequately finishing the blades. Thus, if the needed anchoring blocks are brazed to the blades, the brazing material usually shows at the exterior of the blades, thus requiring a careful scraping to remove it; and if such blocks are welded to the blades, the welding tool will leave disfiguring exterior indentations.

In my same copending application I also disclosed the providing of a hollow and rearwardly open guard bar with legs which seat on the front of the radiator shell front so as to space the remaining portions of the guard bar forwardly from the said front.

In practice, the extent of this spacing is undesirably limited, particularly when the guard bar is formed of thin metal to reduce its cost and weight, since legs of thin metal would be inadequate for resisting side strains on the guard bar unless the two opposed legs on each end portion of the guard bar are secured to an interposed part of the means which fasten the guard bar to the radiator shell front.

Illustrative of the manner in which my present invention overcomes the just recited shortcomings of my said previously disclosed construction,

Fig. 1 is a fragmentary frontal perspective view of a radiator shell front and guard bar assembly embodying the here presented invention, showing its adaptation to a shell front which curves upwards rearwardly.

Fig. 2 is a fragmentary view, drawn on a larger scale, of a part of a flat fronted and apertured radiator shell front adjacent to the upper end of the aperture in that member, showing the adjacent portions of two already anchored guard bars and also showing a pair of slots for receiving the rearward portions of two legs of another guard bar.

Fig. 3 is a still more enlarged section, taken along the line 3—3 of Fig. 2.

Fig. 4 is a section allied to Fig. 3, showing the use of a guard bar which is not provided with legs, and an adjacent part of a radiator shell front in which a correspondingly deeper frontal ridge affords the needed spacing.

Fig. 5 is a rear perspective view of the upper portion of one of a guard bar allied to the ones shown in Figs. 1 to 3, drawn on a larger scale than Fig. 3.

Fig. 6 is a rear perspective view of the upper portion of one of the guard bars of Fig. 2.

Fig. 7 is a fragmentary rear elevation of assemblages such as those of Figs. 1 and 2, drawn on the same scale as Fig. 2 but showing a closer spacing of the guard bars.

Fig. 8 is a reduced view of an end portion of the sheet metal blank from which each guard bar is formed.

In Fig. 1, the approximately upright radiator shell front portion 1 has the usual air-admitting aperture 2 and has two forwardly embossed hollow ridges 3 extending respectively parallel to the upper and lower edges of the said aperture. Extending rearwardly into the said ridges, but only part way toward the forward face of the said shell front 2, are pairs of slots S which have their slot bottoms parallel to the front of the ridge 3 in which these slots are formed. Each such pair of slots in the upper ridge alines with

a corresponding pair of slots in the lower ridge.

To utilize these slots in the two forwardly embossed ridges for rigidly supporting the guard bars B, I form each such metal guard bar from a sheet metal blank, one end portion of which is shown in Fig. 8. This blank has the major portion of its length of a uniform width W corresponding to that required for forming the major part of a guard bar to the desired U-section, and has each end tapering symmetrically substantially to a point, as shown at the upper end of Fig. 8. In addition, a part of this blank between each end tapering end portion and the major uniform-width portion of the blank is widened so as to present two oppositely directed side extensions *l*, which extensions afford two legs L when one of the illustrated guard bars is formed from such a blank, by a simple punch-press operation, to the generally U-sectioned shaping in which each end is closed as shown in Fig. 6.

Moreover, each guard bar is formed so as to space the legs L of each pair similarly to the spacing of a pair of the said slots S in either ridge of the radiator shell front, the height *l* of each such leg L desirably being greater than the depth of each slot S, and each leg has its foot end of a width corresponding to the distance d^1 (Fig. 7) between the two ends of a slot at the bottom of the latter.

With the mid-lengths to the upper and lower legs on each guard bore spaced similarly to the distance D (Fig. 1) between the medial planes of the two ridges on the radiator shell front, the rear end portions of the upper and lower legs on the guard bar can readily be slid simultaneously rearwardly into the corresponding pairs of slots in the said two ridges **3** until each leg seats on the bottom of the slot entered by it.

Then the portions of the two legs of each guard bar which are housed by such a hollow ridge can be spread forcibly apart to form distended leg portions L^2 pressed against the rear faces of the said frontal portion, this being desirably effected after the manner disclosed in my United States Patent #1,914,253 of June 15, 1933. To increase the resistance of each leg to side strains without having the foot end of the leg project above and below the adjacent ridge so as to interfere with a speedy cleaning operation, I also desirably make each leg of a width which increases forwardly from the free end of the leg, as shown in the drawing.

With the parts disposed as heretofore described, each leg is then rigidly anchored to the radiator shell front. Also, when the slots S correspond closely in width to the thickness of the metal from which a guard bar was formed, each leg engages both sides of the end portions of the slot entered by it, thereby bracing the legs against side strains on the guard bar without requiring the use of an auxiliary stiffening member after the manner disclosed in my previous application.

So also, when each leg is of greater length than the depth of the slot entered by it and each slot extends only part way toward the forward face of the parts of the radiator shell front above and below that ridge, the just recited proportioning makes the clear forward spacing **5** (Fig. 3) considerably greater than the distance **6** to which each such ridge projects forwardly from the said shell front. Consequently, the car washer can readily flush water through either end of the guard bar so as to detach all mud or the like which may have accumulated within, or otherwise adjacent, to the parts of the guard bar that extend beyond the shell front aperture.

Since the only auxiliary provisions required on the radiator shell front are the two ridges which are easily produced in one of the usual punch-press operations for forming the radiator shell, and since all of the slots in each ridge can speedily be made with a single movement of a gang saw, the entire cost of my here presented radiator shell and guard bar assembly is considerably less than that of the one disclosed in my said previous application #733,101. Hence I reduce the manufacturing cost, in addition to obtaining a greater rigidity for the assembly and facilitating an adequate cleaning. In addition, I entirely avoid the additional labor required with my previously presented construction to prepare each blade, after the anchoring block has been attached to the blade, for a firmly adhering plating with chrome metal or the like, such as now is commonly used on guard bars for automobile fronts.

Moreover, many changes might be made in the shaping and relative proportioning of the parts without departing from the spirit of my invention or from the appended claims. For example, if the desired general appearance of the radiator shell front permits the use of the deeper ridges **3***a* shown in Fig. 4, that guard can be cheapened by having no legs formed on them, as the space 5^1 between the bottoms of the slots in each ridge and the portions of the radiator shell front above and below this ridge may then suffice to permit the needed flushing. So also, while my invention has been found immediately suitable for use in connection with automobile radiator shells, it should be obvious without additional illustrations or descriptions that it can likewise be employed for other purposes where an apertured sheet metal member is to have its aperture adequately guarded.

I claim as my invention:

1. A guarded radiator shell front comprising a sheet metal shell front member provided with an air admitting opening and formed to present forwardly embossed hollow ridges extending respectively alongside opposite edges of the said opening, and rearwardly open, closed ended and generally U-sectioned guard bars spanning the said ridges; each guard bar having a portion of each U-web thereof extending into the interior of one of the said hollow ridges and bearing forwardly against a frontal portion of the ridge into which the web portion extends, and each guard bar having rear edge parts of each of its U-webs bearing rearwardly against portions of an adjacent ridge; each web-engaged frontal portion of a ridge being spaced forwardly from the parts of the shell front at opposite sides of the ridge by a distance sufficient to permit water to be flushed between each guard bar and the shell front parts at opposite sides of the said ridges.

2. A radiator shell front and guard-bar combination comprising a shell front member provided with an air-admitting opening and formed to present forwardly embossed hollow ridges extending respectively alongside opposite edges of the said opening, and rearwardly open closed ended and generally U-sectioned blades extending across the said opening and beyond the said ridges, each ridge having pairs of transverse and parallel slots extending rearwardly into it for only a portion of the depth of the said ridge;

each blade having rearward portions of the two U-webs of the blade extending respectively through the two slots of one of the said pairs and engaging the bottoms of the said slots, and the portions of the blade webs disposed within the said slots being bowed both laterally of the blade and forwardly against the inward face of the adjacent ridge so as to clamp the blade to the shell front member; each slot being of less depth than the distance by which the ridge having that slot projects beyond adjacent portions of the shell front member; and each guard bar having both of its U-webs slidably fitting the slots of one of the said pairs in each ridge, and having its U-webs seated on the bottoms of the said slots.

3. A guarded radiator shell front comprising a sheet metal shell front member provided with an air-admitting opening and formed to present forwardly embossed hollow ridges extending respectively alongside opposite edges of the said opening, and rearwardly open closed-ended and generally U-sectioned guard bars spanning the said ridges; each ridge having pairs of transverse and parallel slots extending rearwardly into it for a depth greater than the thickness of the metal of the ridges but less than the distance to which a ridge projects forwardly from adjacent parts of the shell front; each guard bar having rearward portions of the two U-webs of the bar extending through the two slots of one of the said pairs in each ridge, the part of each such bar web portion disposed within one of the said hollow ridges being out of alinement with adjacent exterior parts of the same web and bearing forwardly against a frontal portion of the hollow ridge which houses it, whereby the said bar web parts clamp the bars of the hollow ridges; the portions of the shell front member adjacent to each side of each of the hollow ridges being freely spaced rearwardly from the guard bars for a sufficient distance to permit water to be flushed therebetween.

4. A guarded radiator shell front as per claim 3, in which each guard bar has rearwardly projecting opposed legs on its two webs, each pair of which legs has the rearward portions thereof extending through a pair of slots in one of the said ridges, whereby the length of the said legs effectively increases the said free spacing between the shell front member and the rear edges of the guard bar portions at opposite sides of the last named ridge.

LEE B. GREEN.