

July 23, 1935.

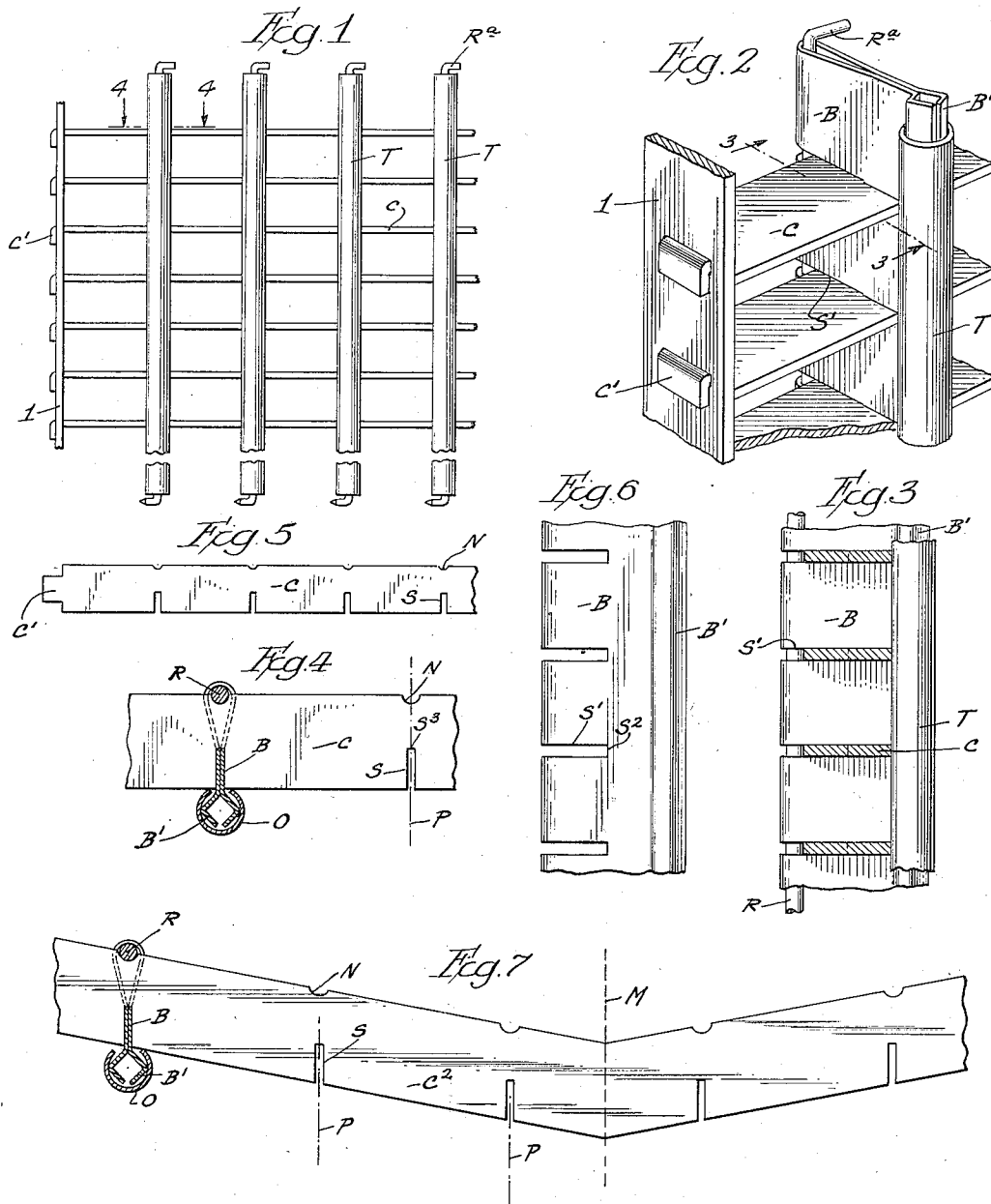
L. B. GREEN

2,008,907

GRID TYPE METAL GRILLE

Filed May 4, 1934

2 Sheets-Sheet 1



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July 23, 1935.

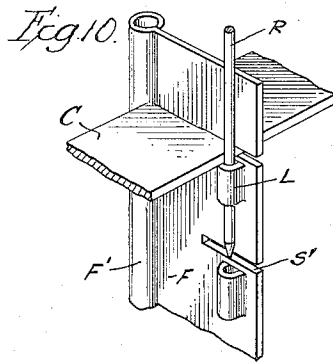
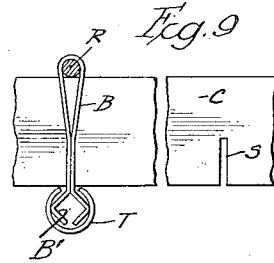
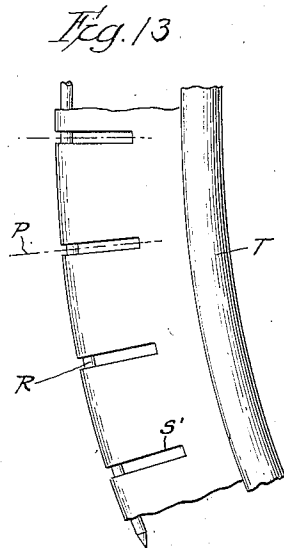
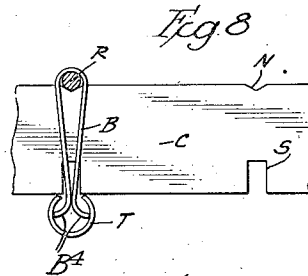
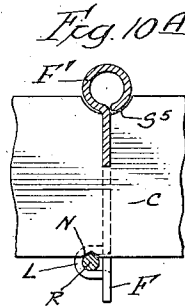
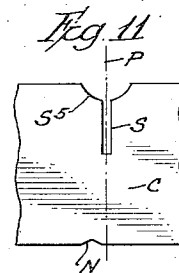
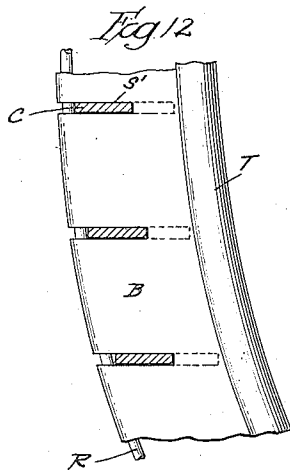
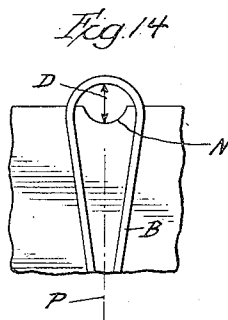
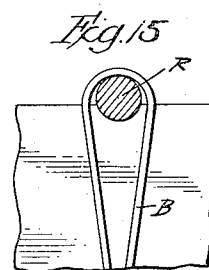
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GRID TYPE METAL GRILLE

Filed May 4, 1934

2 Sheets-Sheet 2



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UNITED STATES PATENT OFFICE

2,008,907

GRID TYPE METAL GRILLE

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Application May 4, 1934, Serial No. 723,948

11 Claims. (Cl. 189—82)

My invention relates to a metal grille of the type in which generally parallel blades extend transversely of cross-members and are anchored to these members into a grid-type assembly, grilles of this type being now extensively used for guarding the frontal apertures in radiator shells on automobiles.

In some of its major objects, my invention aims to provide a grille of this type in which each blade is anchored to all of the cross-members adjacent to it by a single and easily attached anchoring member, instead of requiring a separate operation for fastening the blade to each of these cross-members; in which the blades and the cross-members have relatively interfitting portions arranged for permitting a speedy slidable engaging of the blades with the cross-members; in which each anchoring member can be attached by a mere sliding movement followed by a deforming of one end of this anchoring member; and in which the said portions of the blades and the cross-members will thereafter cooperate with the anchoring members to constitute a rigid grid-like grille assembly.

Furthermore, my invention aims to provide a grille of these characteristics in which the blades can be cheaply formed from simple sheet metal strips, in which quite thin metal for the blades will suffice for affording a grille of ample rigidity and guarding efficiency, in which a piece of wire will suffice for each anchoring member, and in which the resiliency of the metal of the blades will compensate for manufacturing variations in the exact size of certain parts.

In addition, my invention aims to provide a grille of this class in which each blade will be closed both at its frontal edge and at its rearward edge, and in which the forward portion of each blade can be of a chrome-plated or otherwise bright and corrosion-resisting metal while permitting the use of cheaper and more cheaply finished metal for all other parts of the grille.

Generally speaking, I accomplish the objects of my invention by providing the blades and the cross-bars with relatively interfitting slotted portions which allow these members of my grille to be slidably assembled after the manner of the partitioning strips in an egg carton or the like, by forming each blade so as to present aligned eyes or loops through which an anchoring rod can be slid, and by disposing these loops so a slidably inserted anchoring rod will bear forwardly against the rear edges of all of the cross-bars across which that blade extends.

To insure an exact positioning of the medial

plane of each blade with respect to the general frontal plane of the grille, I also desirably provide the rear edges of the cross-bars with notches for receiving forward portions of the anchoring rods; and to afford both the desired frontal ornamentation and a closing of each blade at both its front and rear edges, I desirably also provide longitudinally slitted ornamenting tubes each of which extends in front of the cross-bars and is interlocked with the forward portions of a blade.

Illustrative of my invention and of further objects of the same,

Fig. 1 is a fragmentary front elevation of an upright grille having frontally ornamented blades.

Fig. 2 is an enlarged perspective view of the left-hand upper portion of the grille of Fig. 1.

Fig. 3 is a fragmentary vertical section through the same grille, taken along the line 3—3 of Fig. 2.

Fig. 4 is a fragmentary horizontal section, taken along the line 4—4 of Fig. 1 and drawn on the same scale as Fig. 3, with one blade and its ornamenting tube omitted.

Fig. 5 is a fragmentary plan view of one of the horizontal cross-bars or cross-members of the grille, drawn on the same scale as Fig. 1.

Fig. 6 is a fragmentary side elevation of one of the blades, drawn on the same scale as Fig. 3.

Fig. 7 is a fragmentary horizontal section, allied to Fig. 4, showing the formation of a cross-bar for a V-front grille and including one of the blades, together with the corresponding anchoring member and ornamenting tube.

Fig. 8 is a fragmentary horizontal section, allied to Fig. 4, showing another shape of the rearward recesses in the cross-bar and an alternative shaping of the forward portions of the two webs of the blade.

Fig. 9 is a fragmentary horizontal section, also allied to Fig. 4, showing the use of a cross-bar having no recesses in its rear edge for engaging the anchoring members, and having each frontal slot of such a width that portions of the two webs of a blade conjointly fit into it.

Fig. 10 is a rear perspective view of a fragment of a grille, showing the use of a single-piece blade provided with bridge formations through which the anchoring member extends.

Fig. 10A is a plan section of the last named fragment of a grille, taken in the plane of the upper face of the cross-bar C in Fig. 10.

Fig. 11 is a separate plan view of the cross-bar portion shown in Figs. 10 and 10A.

Fig. 12 is a fragmentary side elevation of a

blade, allied to Fig. 6, but formed so that its forward longitudinal edge is concaved, and also showing the corresponding part of the anchoring bar associated with this blade.

Fig. 13 is a fragmentary side elevation allied to Fig. 1, but showing each slot in the blade as extending at right angles to the adjacent portion of either longitudinal edge of the blade.

Fig. 14 is an enlargement of the upper left-hand portion of Fig. 4, showing the desirable relative positions of the rearward portion of a U-sectioned blade and the notched rear edge of a cross-arm before the anchoring rod is inserted, and Fig. 15 shows the change in the cross-sectional shape of the blade caused by the inserting of the anchoring rod.

In constructing the grille of Fig. 1, I first provide counterpart cross-bars C each formed as in Fig. 5 with a tab C¹ (of less width than the main portion of the cross-bar) projecting from each end thereof, and two side bars I provided with similarly spaced slots through which the said tabs are slidably insertable, only the left-hand one of these side bars being shown in the fragmentary grille part as illustrated in Fig. 1. Each of these cross-bars C has a series of slots S extending rearwardly into it, the spacings and locations of these slots being counterparts in all of the cross-bars when the side bars and the blades are all to be parallel to each other.

Then I provide U-sectioned sheet metal blades B each of which has parallel slots S¹ (Fig. 6) of equal depth extending forwardly into it through its U-back, with the slot walls at right angles to the closed rear edge of the blade. Each such blade is of sufficiently greater width than the cross-bars C so that, when the blade is slid rearwardly over the cross-bars until the slot bottoms of the blades bear against the bottoms S³ of the slots in the cross-bars, as in Figs. 2 and 4, the closed rear (U-back) portions of the blades will project rearwardly beyond the cross-arms, while the forward and unslotted parts B¹ of both webs of the blade will project forwardly beyond the cross-bars.

To prevent a relative movement of the blades (both laterally and vertically) with respect to the cross-bars when they are thus assembled (after the manner of the crossed partition strips in a candy box, egg carton or the like) I make the slots S¹ in each blade of a width substantially equalling the thickness of each cross bar. I also make the width of each cross-bar slot S such that forward unslotted parts of both webs of a blade can readily be slid conjointly into one of these cross-bar slots so as to have the oppositely directed faces of these two blade web parts pressed respectively against the two side walls of the slot by the resiliency of the metal from which the blade was formed.

In addition to thus slotting both the blades and the cross-bars so that they will interlock to form a grid, I preferably provide the rear edge of each cross-bar with upright recesses or notches N, each of which has its upright medial plane P in common with the upright medial plane of one of the slots S in the cross-bar, as shown in Fig. 4.

When the blades and the cross-bars have thus been assembled into a grid-like structure, the rear blade parts which are consecutively spaced by the slots S¹ in the blades present aligned loops behind the aligned notches N of the rear edges of the cross-bars, as shown in Fig. 14. I then anchor

single anchoring member through all of these aligned loops. Each such anchoring member may be a simple rod R having a pointed tip at the end which is inserted first; and after this rod is inserted, each end of it can readily be turned at right angles to the general axis of the rod to latch it against withdrawal, since these exposed ends will be concealed behind the radiator shell front. Or, the unpointed end R_a may be turned over, as shown in Fig. 1, before the rod is inserted.

With blades formed of resilient metal, I preferably proportion the depth of the slots in the blades and the cross-arms to the width of the cross-bars and the cross-sectional dimensions of the blades so that when the bottom of a blade slot bears against the bottom of a slot in the cross-bar, the clear spacing D (Fig. 14) along the said medial plane P between the U-back edge of the blade and the bottom of the adjacent cross-bar notch N is less than the diameter of the anchoring rod, and also form the interior of the said U-back with a greater radius of curvature than the radius of the said rod. Then, when the anchoring rod R is being inserted, this rod stretches the blade to a greater blade width and a reduced spread of its U-back, as shown in Fig. 15. By doing this I utilize the resiliency of the blade for clamping the anchoring bar against the cross-bar, and also to compensate for manufacturing variations in the diameter of the anchoring rod or in the thickness of the metal of the blades, thereby insuring a rigid assembly of the cross-bars and blades.

To close the front of each blade against the entrance of dust, mud, rain or snow, I preferably form each such U-sectioned blade of such a width that its webs can present portions forward of the cross-bars, to which projecting portions a longitudinally slitted tube T can be attached after the blades and cross-bars have been assembled as heretofore described.

Thus, Figs. 2, 3 and 4 each show the blade B as having the forwardly projecting portions of its two webs bent away from each other and thereafter toward each other, so as to form a tube over which an ornamenting tube O can readily be slid, or snapped if the tube is sufficiently resilient. Being manufactured separately from the corresponding blade, each such ornamenting tube can be of a brightly finished metal—as for example, chrome-plated steel or stainless steel—without requiring any expensive finish for the blade ornamented by it.

In practice, I have found the rigidity of my above described simple arrangement for anchoring the blades to the cross-bars to be such that an approximate interfitting of each cross-bar slot by the parts of the two webs of a blade which extend into it will in itself be ample, even if the cross-bar has its rear edge free of the notches N of Figs. 4 and 5—as shown for example in Fig. 9. However, I preferably provide these rear edge notches in the cross-bars, since they permit each slot S in a cross-bar to be so much wider than the joint thickness of the two webs of a blade as to facilitate the slidable assembling of the blades with the cross-bars.

Moreover, while I have heretofore described my invention in connection with a flat-fronted grille for which each cross-bar would have straight front and rear edges, and for which each blade would have the slots S¹ parallel to one another, the adaptability of my grille construction is not limited in these respects. For example, Fig. 7 shows a mid-length part of a cross-bar for a so-

called V-front grille, together with one of the attached blades. To provide this effect, the cross-bar is bent at its mid-length and the common medial plane P of each slot S and the corresponding rear notch N is parallel to the vertical medial plane M of the grille.

If the grille is to curve forward downwardly, the blades can readily be curved accordingly, and when the slots S¹ in the blades are parallel as in Fig. 12, each such blades can readily be slid simultaneously over cross-bars already connected by side bars. Or, if each blade slot has its medial plane P at right angles to an adjacent longitudinal edge portion, as in Fig. 13, the cross-bars can be slid separately over the blades by a forward movement.

Moreover, while I have described the cross-bars of my grille as jointly spanning two side bars, I do not wish to be limited to this or other details of the here disclosed construction, so long as the changes do not depart from the spirit of my invention and from the appended claims.

I also do not wish to be limited as to any particular shaping of the forward blade web portions to which the ornamenting tube is attached, since the forward edge portions of the two webs might merely be spread apart to afford fingers B⁴ as in Fig. 8—over which the slitted tube T is slid.

Furthermore, my grille construction need not be limited to the use of blades of a forwardly open U-section, since a single-webbed blade will suffice if formed so as to present alined loops behind the common plane (or other common surface) of the rear edges of the cross-bars. Thus, Figs. 10A and 10 show the use of a fiat blade F¹ having its forward edge portion rolled into a tube F¹, and having alined bridge-like portions L formed respectively from blade parts between the successive slots S¹. With these bridge portions suitably positioned with respect to the cross-bars, of which a corresponding portion is shown separately in Fig. 11, the anchoring rod R slid through them will bear against the rear edges of each cross-bar C as shown in Fig. 10, and the tube F¹ in itself may afford the ornamental forward part of the blade.

I claim as my invention:

1. A metal grille comprising relatively transverse sets of spaced blades and cross-bars having slotted portions slidably interlocked with each other, the slots in the blades opening rearwardly and each blade having its slot bottom engaging the bottom of a slot in a cross-bar, each blade having loop-like portions extending farther rearward than the cross-bars; and anchoring members each extending longitudinally of a blade through the said loop-like portions of that blade, each anchoring member bearing forwardly against rearwardly facing edge portions of the cross-bars, and bearing rearwardly against bore parts of the loop-like portions of a blade, whereby the anchoring member clamps the blade to the cross-bars.

2. A metal grille as per claim 1, in which each cross-bar has its rear edge provided with notches in each of which a portion of an anchoring member is seated.

3. A grille comprising a grid-like assemblage of spaced and generally parallel blade members with spaced cross-bars extending transversely of the said blades, each blade member having forward portions thereof bearing rearwardly respectively against a rearward portion of each cross-bar, and each blade member having alined loop portions extending farther rearward than

the cross-bars; and anchoring members each extending through the said alined loop portions of a blade member, each anchoring member bearing rearwardly against the loop portions through which it extends and forwardly against the cross-bars so as to clamp the said forward portions of the same blade to the adjacent forward edge portions of the cross-bars.

4. A grille as per claim 3, in which each cross-bar has its rear edge provided with notches each of less depth than the diameter of an anchoring member, into each of which notches one of the anchoring members extends.

5. A grille comprising spaced and parallel blades, each blade being of a generally U-shaped section having its U-back at the rear and presenting forwardly converging webs, and each blade having parallel slots extending forwardly into it through the U-back of the blade; spaced cross-bars extending transversely of the said blades, each cross-bar having parallel slots extending rearwardly into it and of a width not less than the joint thickness of the two webs of a blade, and each cross-bar being of a thickness corresponding substantially to the width of a slot in a blade; the said blades and cross-bars being slidably interfitted with the bottom of each slot in a cross-bar engaging the bottom of a slot in a blade; the depths of the slots in the blades and cross-bars being so proportioned to the widths of the blades and the cross-bars that each blade when thus interfitted with the cross-bars presents alined U-sectioned portions behind the common surface of the rear edges of the cross-bars; and anchoring members each extending through the said alined portions of a blade and bearing rearwardly against the U-back parts of that blade, and each such member bearing forward against the rear edges of the cross-bars so as to clamp the bottoms of the slots in that blade against the bottoms of slots in the cross-bars.

6. A grille as per claim 5 in which each blade is made of resilient metal and formed so that its resiliency tends to spread the two webs of the blade apart, whereby the said resiliency causes parts of the two webs of each blade to press respectively against the two longitudinal walls of each slot in a cross-bar.

7. A grille as per claim 5 in which each anchoring member is a cylindrical rod having a pointed tip; and in which each blade is made of resilient metal and initially so formed that, when the blades are slidably interfitted in the recited manner with the cross-bars, the maximum rearward spacing of the U-back of each blade from the adjacent rear edge portion of a cross-bar is less than the diameter of an anchoring rod, whereby the insertion of a rod "point first" through the said alined U-sectioned blade ports will stretch the width of the blade so that the resiliency of the blade will thereafter effect the recited clamping.

8. A grille as per claim 5, in which each cross-bar has its rear edge provided with notches respectively entered by the anchoring members, each notch having its center in the medial plane of a slot in the cross-bar.

9. A grille as per claim 5, in which each blade has both of its webs projecting forwardly beyond the cross-bars, and in which the said forwardly projecting blade web portions diverge forwardly; in combination with longitudinally slitted ornamenting tubes each straddling the said forwardly projecting portions of a blade and extending

in front of the said portions to conceal the latter.

10. A grille as per claim 3, in which each blade has portions of both webs thereof extending farther forward than the cross-bars, the said forwardly extending portions of the two webs of each blade diverging forwardly and thereafter converging farther forwardly so as to constitute tube-like frontal blade portions; and longitudinally slitted tubes each straddling the said forwardly projecting portions of a blade so as to conceal the forward edges of the two webs of that blade and to prevent the entrance of dust or the like between the said webs.

11. A metal grille comprising spaced and parallel blades, and spaced and parallel cross-bars extending transversely of the said blades and

interlocked with the said blades to constitute a rigid grid-like assembly; each blade having portions thereof extending further forward than the cross-bars, and having loop-like portions extending further rearward than the cross-bars; anchoring members each extending through the said loop-like portions of a blade and bearing forwardly against the cross-bars; and rearwardly open longitudinally slitted tubes extending in front of the cross-bars; each of the said tubes straddling and housing the said forwardly extending portions of one of the blades, and each of the said tubes bearing rearwardly against the cross-bars.

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