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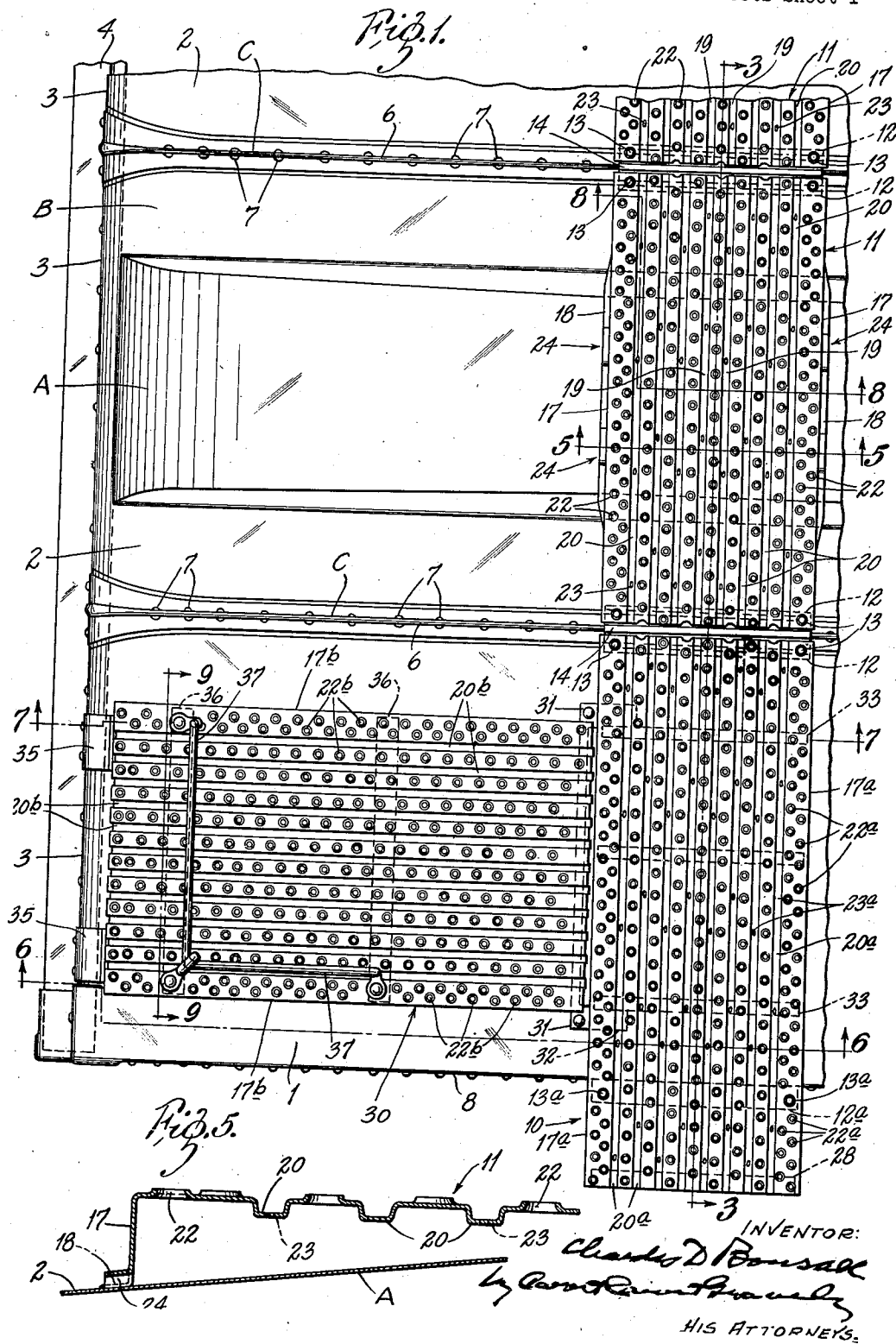
C. D. BONSALE

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CAR ROOF

Filed Oct. 12, 1938

3 Sheets-Sheet 1



Sept. 16, 1941.

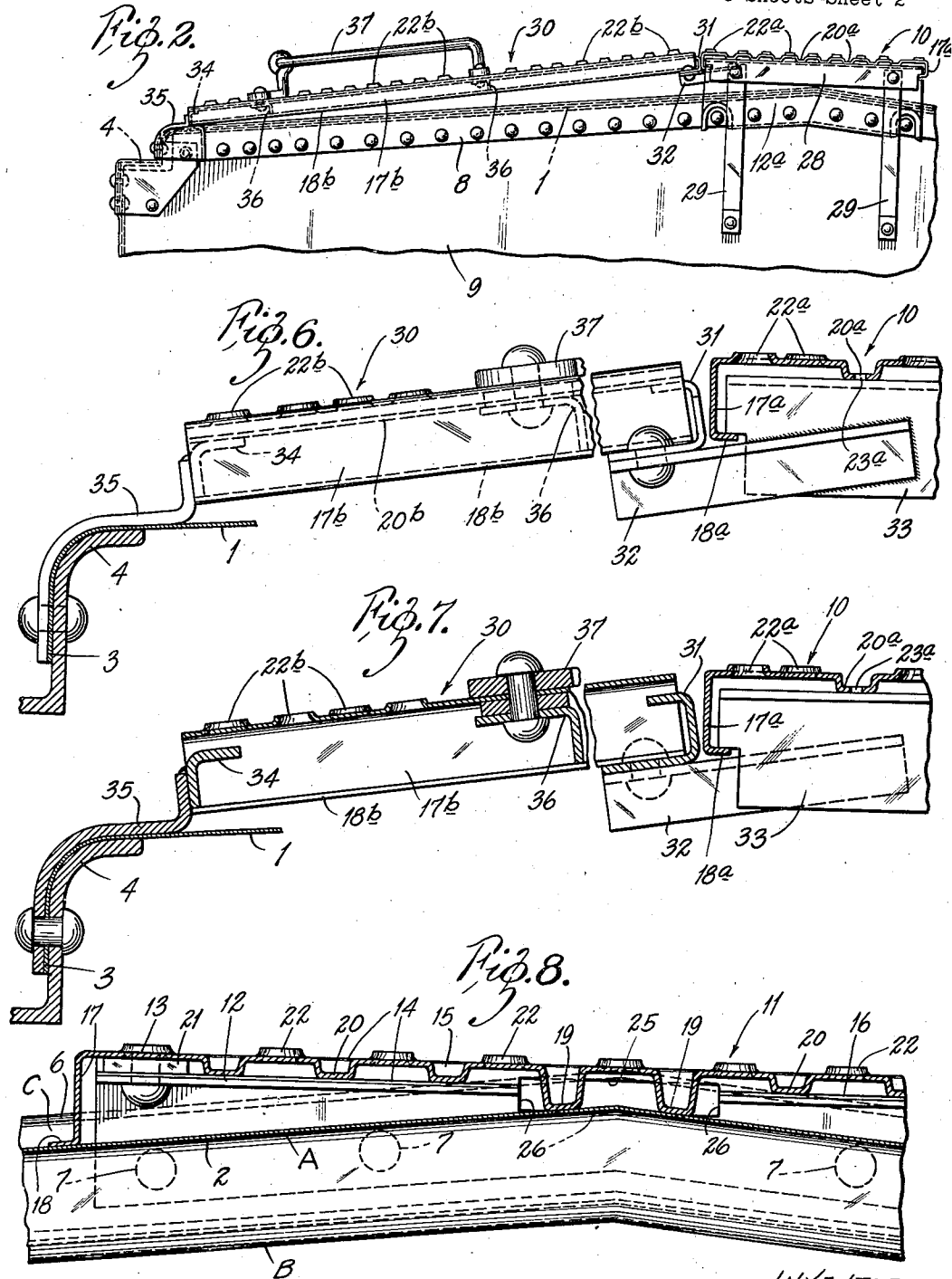
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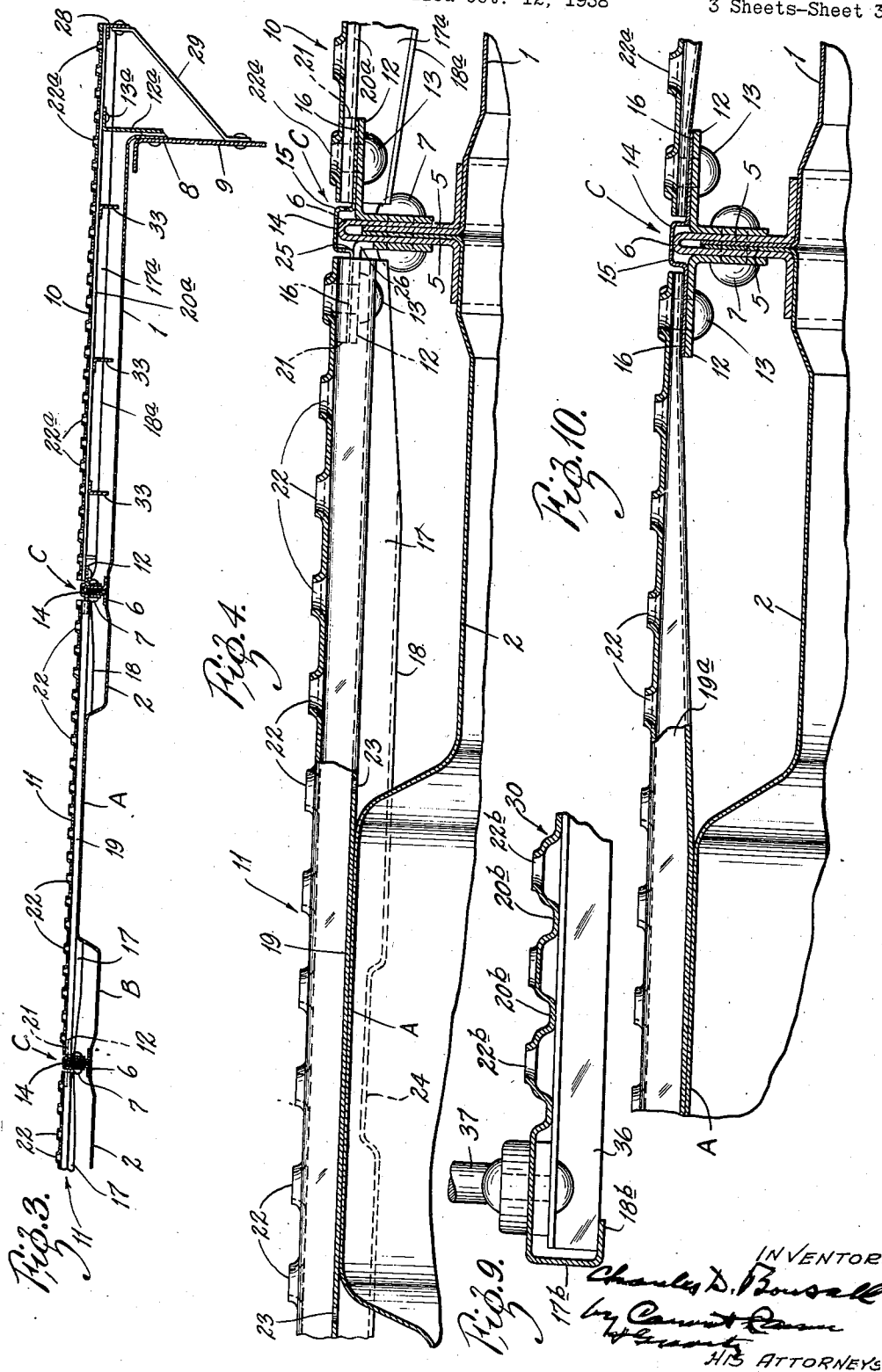
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UNITED STATES PATENT OFFICE

2,256,309

CAR ROOF

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6 Claims. (Cl. 105-457)

This invention relates to car roofs, and more particularly to the metal running board constructions of metal car roofs of the type wherein the roof sheets are adapted and arranged to form a roof having alternating flat-topped ribs and flat-bottom channels and are connected by rigid upstanding seams located in the channels. The principal object of the present invention is to devise a strong and durable, simple and economical lightweight metal running board construction that can be quickly and easily applied to roofs of the above type and that will add little or nothing to the height of the car. The invention consists in the metal running board construction and in the combinations and arrangements of parts hereinafter described and claimed.

In the accompanying drawings, which form part of this specification and wherein like symbols refer to like parts wherever they occur.

Fig. 1 is a plan view of the end portion of a metal car roof provided with a metal longitudinal and latitudinal running board construction embodying my invention.

Fig. 2 is an end elevation of the roof shown in Fig. 1.

Fig. 3 is a vertical longitudinal section at the ridge on the line 3-3 in Fig. 1.

Fig. 4 is an enlarged view similar to Fig. 3.

Fig. 5 is a transverse section on the line 5-5 in Fig. 1.

Figs. 6, 7 and 8 are vertical cross-sections on lines 6-6, 7-7 and 8-8, respectively, in Fig. 1.

Fig. 9 is a fragmentary cross-section through the latitudinal running board on the line 9-9 in Fig. 1; and

Fig. 10 is a fragmentary longitudinal section illustrating a modified longitudinal running board construction.

Referring to the accompanying drawings my invention is shown in connection with metal car roof having alternating flat-topped ribs A and flat-bottomed channels B that extend cross-wise of the car and upstanding seams C that are located in the channels intermediate between the sides thereof. Said metal roof is made up of end roof sheets 1 and intermediate sheets 2 that slope downwardly from the ridge to the eaves of the car where they terminate in down-turned flanges 3 that are riveted or otherwise secured to the side plates 4 thereof. Said roof sheets are provided along their adjacent margins with upstanding flanges 5 that are straddled by seam caps 6, said flanges and caps being secured together preferably by horizontal rivets 7 to form the seams C. As shown in the drawings, the intermediate roof

sheets 2 are off-set upwardly along the middle thereof to form the hollow roof ribs A, while the intervening portions at the lower level cooperate to form the roof channels B, the body of the end roof sheet being located at the lower level and being provided at the end of the roof with a depending flange 8 that is riveted or otherwise secured to the end wall 9 of the car.

The roof is provided with a metal longitudinal running board construction comprising inverted channel-shaped end and intermediate sections 10 and 11, respectively, disposed in endwise alignment along the ridge of the roof with their upper surfaces disposed substantially at the level of the ridge portions of the roof seams C. The adjacent ends of the running board sections are secured to the roof seams C by running board saddles in the form of metal angle brackets 12 that are disposed on opposite sides of said seams with one flange down and secured flatwise to the sides of the seam caps 6 by the securing rivets 7 therefor and with the other flanges extending outwardly beneath the adjacent ends of said running board sections and secured thereto at the corners by vertical rivets 13 having flat upper heads. The portions of the seams located between the spaced ends of the running board sections are protected by means of sheet metal flashings 14 having hollow upstanding ribs 15 that straddle said seams and outstanding base flanges 16 interposed between the outstanding top flanges of the running board saddles 12 and the overlying ends of said sections.

Each of the metal running board sections 11 has a top portion with depending side marginal flanges 17 that preferably increase in depth from their ends towards the hollow roof rib A located therebelow where they are provided with outstanding foot portions 18 that rest flatwise on said rib along the full width thereof. Each of these sections is also provided on its under side intermediate between its side marginal flanges with spaced parallel hollow ribs that extend longitudinally of said section from end to end thereof. The two central ribs 19 are made deep enough to bear flatwise on the top of the roof rib located therebelow adjacent to and on opposite sides of the ridge line of the roof. The remaining ribs 20 are relatively shallow ribs whose end portions overlap the outstanding flanges of the supporting saddles 12 therefor. The rivets 13 that secure the running board sections to the running board saddles 12 are located between the depending side flanges of said sections and the outermost shallow ribs 20 thereof; suitable filler

blocks 21 of a thickness corresponding to said ribs being interposed between the bottoms of said sections and the underlying base flanges 14 of the flashing where the connecting rivets 13 pass through these members. As shown in the drawings, the portions between the depending hollow ribs 19 and 20 of each section are provided with a series of bossed-up openings 22 that are spaced apart longitudinally of said ribs from end to end thereof. The bottoms of said ribs are provided with drain openings 23 and the foot portions 18 of the depending side marginal flanges 17 of each section are pressed upwardly at longitudinally spaced points to provide drain openings 24.

The flashing 14 and the running board saddles 12 are notched as at 25 and 26, respectively, to accommodate the ends of the relatively deep ribs 19 of the running board sections. In the modification shown in Fig. 10, the relatively deep ribs 19a gradually diminish in depth from the roof ribs to the running board saddles so that the end portions of said ribs are shallow enough to overlap said saddles, thus making it unnecessary to form the notches 25 and 26 in the flashing and running board sections, respectively.

The end running board section 19 is provided with spaced longitudinal depending ribs 20a, all of a depth corresponding to a depth of the shallow ribs 20 of the intermediate running board sections 11. Said end section is also provided with bossed-up openings 22a and drain openings 23a similar to the openings 22 and 23, respectively, in the intermediate sections; and it also has depending side marginal flanges 17a with intumed lower edges 18a. At the end of the car, the end running board section is supported on and secured by rivets 13a to the lateral top flange of an end running board saddle 12a whose lower end is riveted or otherwise secured to the end wall of the car. Said end section extends beyond the end of the car and has an end angle 28 welded to the underside thereof that is riveted to the upper ends of running board extension brackets 29 whose lower ends are riveted to the end of the car.

The roof is also provided with a metal latitudinal running board 30 that extends from the longitudinal running board to the eaves of the roof on one side of the end running board section 19. This latitudinal running board, like the longitudinal running board, also has a series of hollow longitudinal ribs 20b depending therefrom, bossed-up openings 22b and depending side marginal flanges 17b with intumed lower edges 18b. The upper or inner end of the latitudinal running board 30 has the rebent upper flange of a pressed angle 31 welded to its underside between its depending side marginal flanges 17b; and the lower flange of said end angle rests on and is riveted to the top flanges of pressed angles 32 that extend from the underside of the end section 19 beneath said end angle at and intermediate between said latitudinal running board. The inner end portion of each of the angles 32 has its depending flange welded or otherwise secured flatwise to the depending flange of a pressed angle 33 that is disposed beneath and crosswise of the end section 19 with its ends supported on the intumed lower edges 18a of the depending side marginal flanges of said section and with its top flange bearing against and preferably welded to the bottoms of the depending hollow ribs 20a of said section.

The outer end of the latitudinal running board 30 has intumed top flange of a pressed angle 34

welded crosswise to the underside thereof with the depending flange of said angle disposed flush with said end and at its ends on the intumed lower edges 18b of the depending side marginal flanges 17b of said running board. This end angle has its depending flange welded to the upturned inner ends of pressed angles 35 that fit the eaves corner of the roof and have their depending flanges secured to depending eaves flanges 3 of the roof by the securing rivets therefor. Cross angles 36 similar to the end angles 31 and 34 are secured to the underside of the latitudinal running board 30 to strengthen and stiffen same and also to facilitate mounting of a right angle or corner hand hold or grab iron 37 thereon.

The hereinbefore described metal running board construction is light, durable and inexpensive and adds nothing to the height of the roof; and it may be quickly and easily applied to the roof without any alteration thereof. The hollow ribs and side marginal flanges serve to greatly increase the load carrying capacity of the running board and to transmit the load to the roof ribs throughout the full width thereof along lines located at and intermediate between the sides of the longitudinal running board, whereby said roof ribs carry the greater part of the load and thus enable the height of the roof seams to be reduced. The bossed up openings form a safety tread to prevent the trainmen from slipping, and they also prevent cinders or snow from lodging on the running board, the vibration of the car in service tending to keep the holes open.

What I claim is:

1. A car roof running board comprising metal sections adapted to be disposed between adjacent seams of a car roof with their ends supported thereon, each of said sections comprising a single pressed metal member having depending side marginal flanges that extend from end to end of said sections and are adapted to rest on said roof and depending hollow ribs that extend from end to end of said section between said flanges, the two central ribs of each section being deep enough to bear on the roof and the remaining ribs being relatively shallow ribs adapted to clear said roof.

2. A car roof running board comprising sheet metal sections adapted to extend from seam to seam of a car roof and across ribs therebetween, and brackets adapted to be secured to said seams for supporting the adjacent ends of the running board sections above the level of the tops of said ribs, each of said sections comprising a single pressed metal member having depending side marginal flanges adapted to bear against the tops of the roof ribs across the full width thereof and series of depending hollow ribs extending longitudinally of said section from end to end thereof between the depending side marginal flanges thereof, the two central ribs of each section being relatively deep ribs adapted to bear flatwise on the tops of the roof ribs across the full width thereof and the remaining ribs of said sections being relatively shallow ribs adapted to clear the tops of said roof ribs, said shallow ribs being supported at their ends on said brackets and said brackets being cut away to accommodate the ends of the relatively deep ribs.

3. A car roof running board comprising sheet metal sections adapted to extend from seam to seam of a car roof and across ribs therebetween, and brackets adapted to be secured to said seams for supporting the adjacent ends of the running

board sections above the level of the tops of said ribs, each of said sections comprising a single pressed metal member having depending side marginal flanges that extend from end to end thereof and are adapted to bear against the tops of the roof ribs across the full width thereof and a series of depending hollow ribs extending longitudinally of said section from end to end thereof between the depending side marginal flanges thereof, all of said depending ribs resting on said brackets at the ends of said sections, the two central ribs of said sections being of greater depth midway of their ends so as to bear flatwise on the tops of said roof ribs across the full width thereof.

4. A car roof running board comprising a longitudinal running board section with depending intumed side marginal flanges and depending hollow longitudinal ribs and cross members supported on said intumed flanges and secured to the underside of said section, a latitudinal running board section having depending side marginal flanges and depending hollow longitudinal ribs, cross members secured to the underside of said latitudinal running board at the ends thereof, members secured to the cross members of said longitudinal section and supporting the cross

member at the inner end of said latitudinal running board, and brackets secured to the cross member at the outer end of said latitudinal running board and adapted to be secured to the car roof.

5. A one-piece sheet metal car roof running board section comprising a top portion with depending side marginal flanges and depending hollow ribs extending from end to end of said section, all of said ribs being of substantially the same depth at the ends of said section, and said flanges and some of said ribs increasing in depth from the ends of said section toward the middle thereof.

6. A metal car roof running board section having depending side marginal flanges with intumed lower marginal portions and depending hollow longitudinal ribs between said flanges, and reinforcing members extending crosswise of said section between said flanges with their ends seated on the intumed lower marginal portions thereof and with their tops bearing against the undersides of said depending hollow ribs, said reinforcing members extending below said flanges between the intumed lower marginal portions thereof.

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