

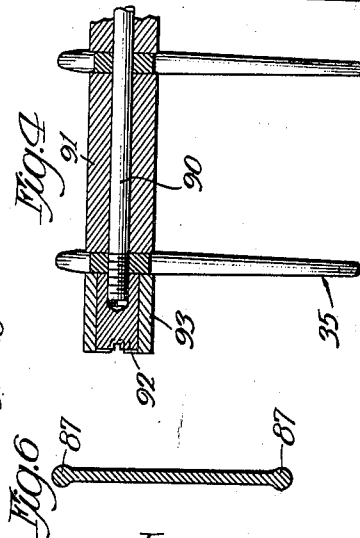
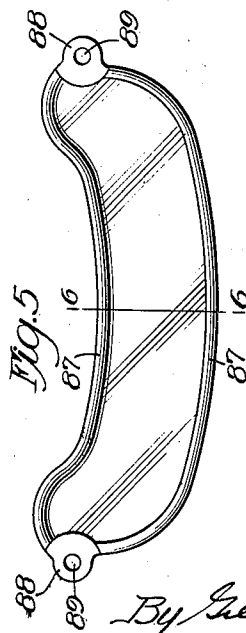
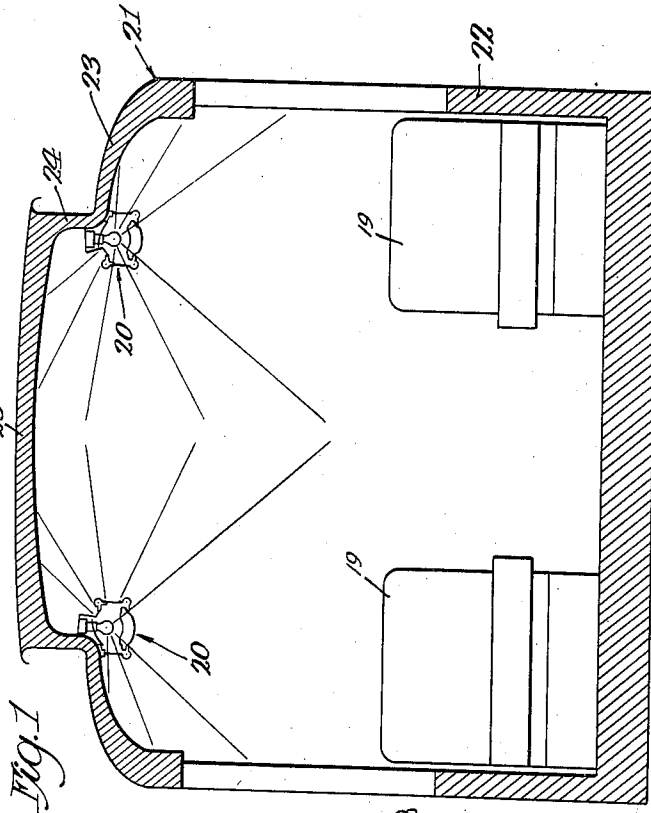
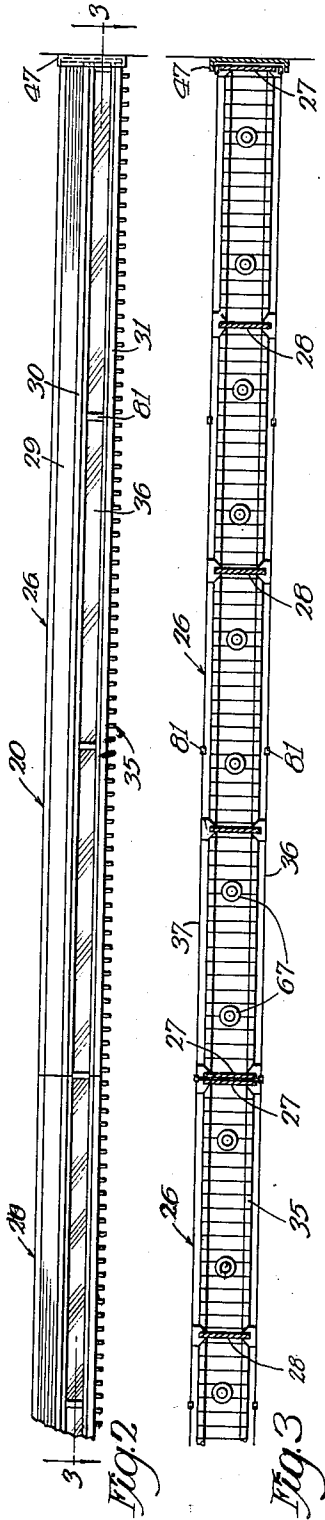
July 29, 1941.

A. T. HAGERTY ET AL
CONTINUOUS LIGHTING FIXTURE

2,250,954

Filed Dec. 31, 1937

4 Sheets-Sheet 1



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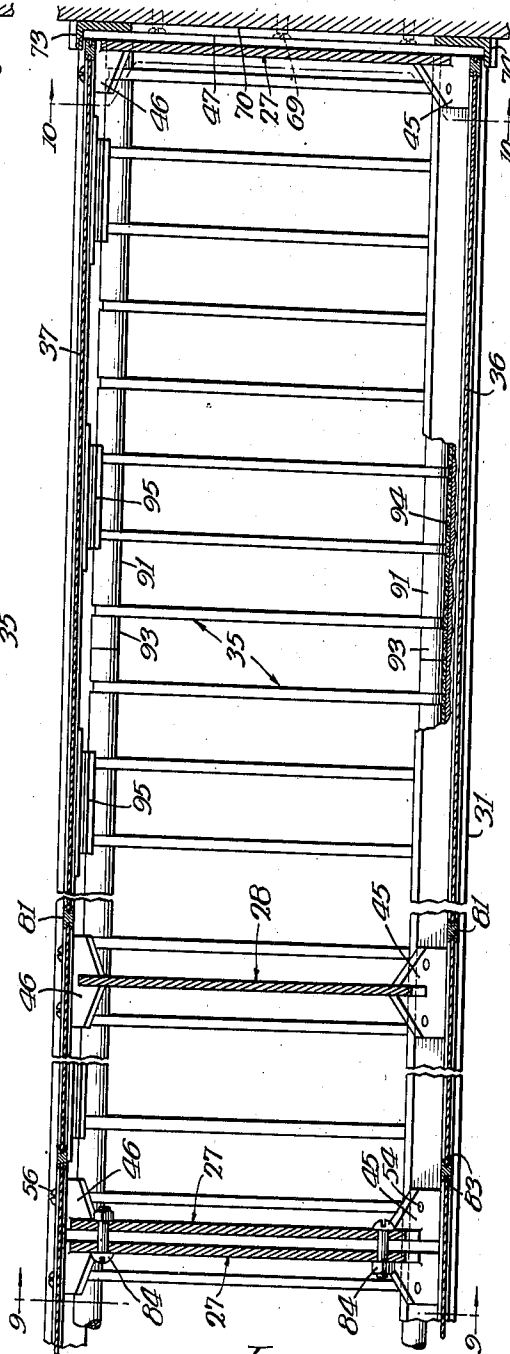
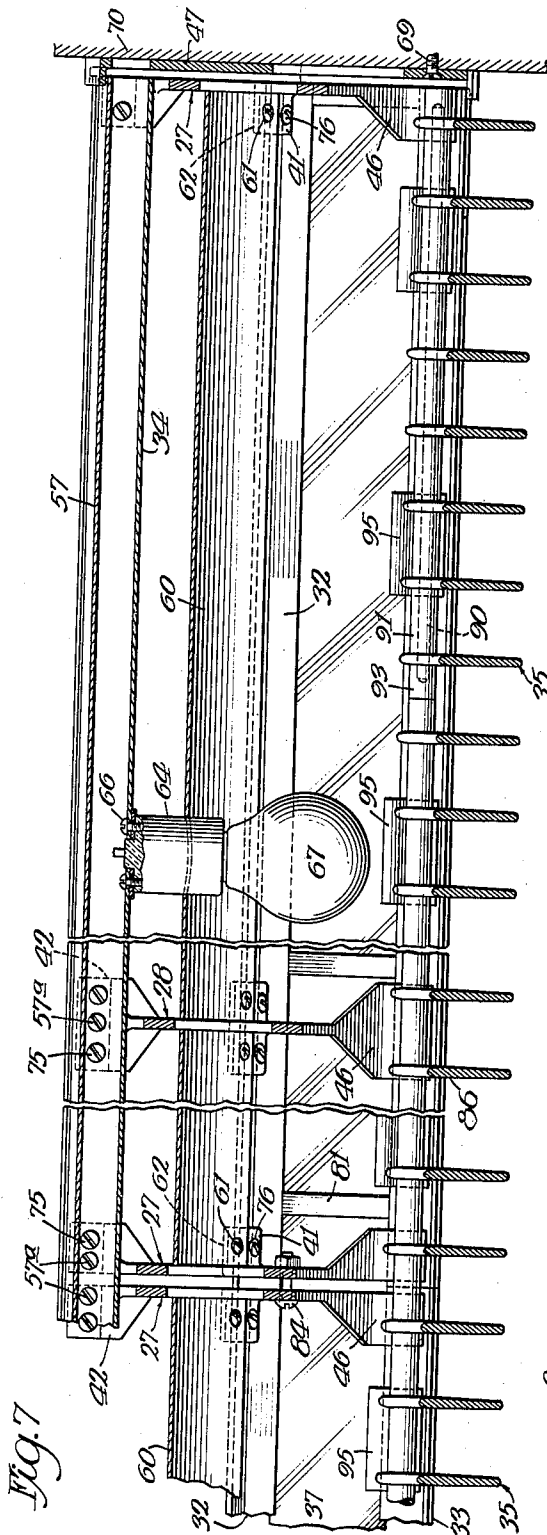
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A. T. HAGERTY ET AL
CONTINUOUS LIGHTING FIXTURE

2,250,954

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4 Sheets-Sheet 2



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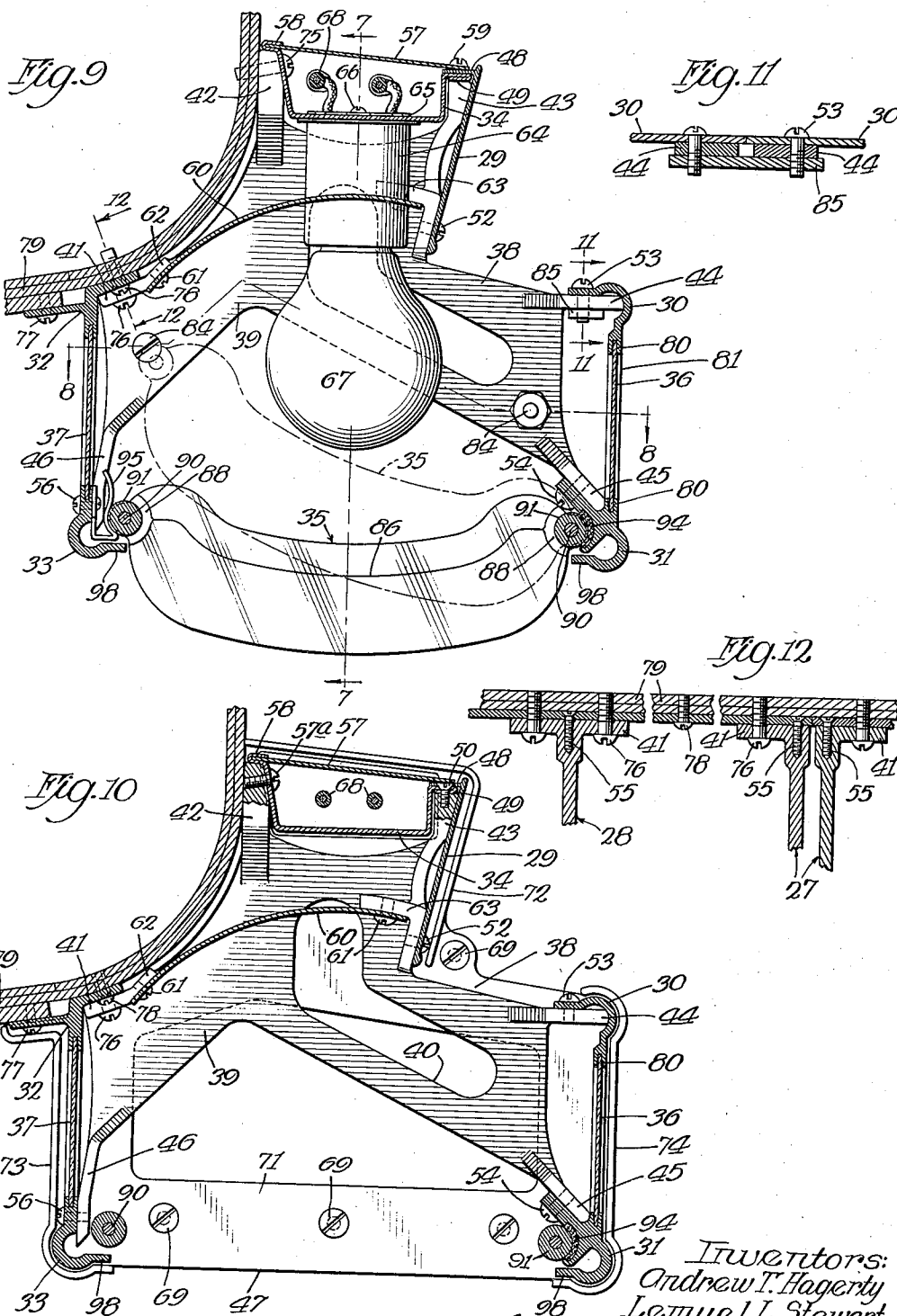
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2,250,954

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4 Sheets-Sheet 3



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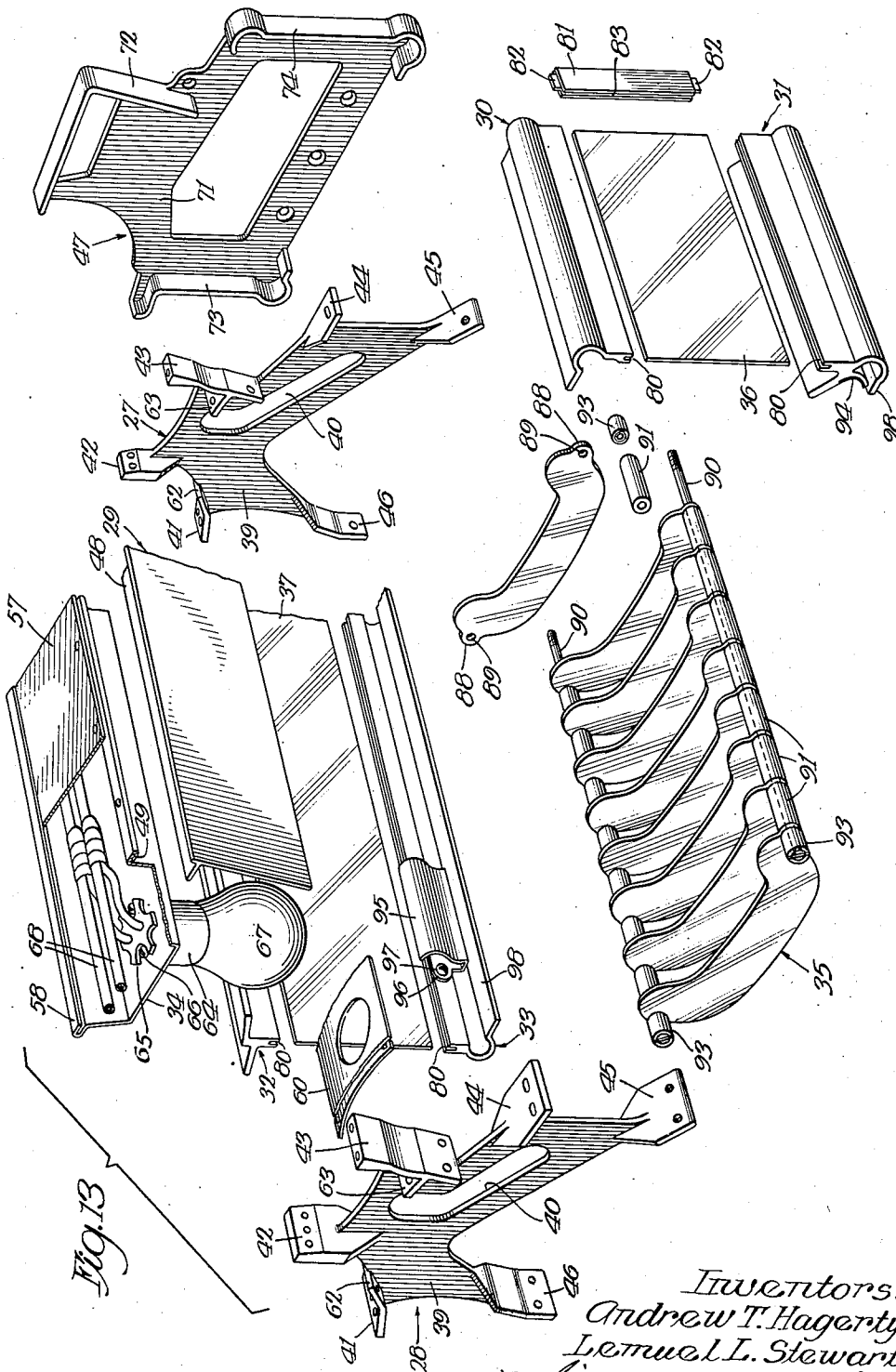
July 29, 1941.

A. T. HAGERTY ET AL
CONTINUOUS LIGHTING FIXTURE

2,250,954

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4 Sheets-Sheet 4



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UNITED STATES PATENT OFFICE

2,250,954

CONTINUOUS LIGHTING FIXTURE

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Application December 31, 1937, Serial No. 182,858

7 Claims. (Cl. 240—7.35)

This invention relates to a continuous lighting fixture for railway cars, buses and the like, particularly of the clerestory type, the principal objects of the invention being to provide a highly efficient, nice-appearing, continuous fixture which can be manufactured at low cost, quickly and inexpensively installed, easily relamped, and conveniently maintained.

Further and other objects of the invention will become apparent as the disclosure proceeds and the description is read in conjunction with the accompanying drawings, in which

Fig. 1 is a cross-sectional view through a railway car equipped with this invention;

Fig. 2 is a side, elevational view showing a portion of the fixture;

Fig. 3 is a fragmentary sectional view taken on the line 3—3 of Fig. 2;

Fig. 4 is a fragmentary, sectional view through the end of one of the louvre units;

Fig. 5 is an elevational view of a modified form of louvre;

Fig. 6 is a cross sectional view through the modified form of louvre shown in Fig. 5, the section being taken on the line 6—6 of that figure;

Figure 7 is a longitudinal vertical sectional view through the fixture with intermediate portions broken away, the section being taken on the line 7—7 of Fig. 9;

Fig. 8 is a horizontal, sectional view taken on the line 8—8 of Fig. 9;

Fig. 9 is a transverse, cross-sectional view taken on the line 9—9 of Fig. 8;

Fig. 10 is a transverse, cross-sectional view taken on the line 10—10 of Fig. 8;

Fig. 11 is an enlarged detail, sectional view taken on the line 11—11 of Fig. 9, and showing the means for alining adjacent brackets;

Fig. 12 is a sectional view taken on the line 12—12 of Fig. 9, showing the application of the brackets to the adjacent wall; and

Fig. 13 is an exploded perspective view showing the relationship between the various elements of the fixture.

The invention set forth in the appended claims may be embodied in various forms and the choice of a specific embodiment for illustration and description is merely in compliance with Sec. 4888 of the Revised Statutes. The claims, therefore, should not be limited to the embodiment shown and described, unless necessary to the validity of the claims, and then only to the extent required for a finding of validity.

The continuous lighting fixture shown in the drawings, and for convenience referred to generally by the reference character 20, has its

greatest applicability to railway cars, or buses, of the clerestory type, although the fixture may be used in other environments.

A railway car 21 is shown somewhat diagrammatically in Fig. 1, the car having sides 22, lower decks 23, half decks 24, and a top deck 25, the cross section of the car identifying the car as one of the clerestory type. The arrangement of seats 19 within the car may be chosen to suit the conditions for which the car is to be used, and for the purpose of this disclosure, they are shown as conventional railway coach seats arranged in tandem.

The fixture 20 is designed for installation along the half deck of the car, and its function is to illuminate the seats below, any advertising cards which may be mounted on the ceiling of the lower deck 23, and provide a certain amount of general illumination directed toward the center of the car and upwardly to the ceiling of the top deck 25.

For convenience of manufacture and installation, the fixture is made in a plurality of sections 26, each of which comprises a bracket 27, one or more intermediate brackets 28, front connecting members 29, 30 and 31, rear or back connecting members 32 and 33, and a top connecting channel 34 which serves as a housing for the electrical conduits.

The brackets with their connecting members form a trough having a bottom opening which is preferably equipped with some form of light controlling means, as for example louvre units, generally designated 35, a front opening which for the purpose of appearance and light control is preferably closed by a translucent plate 36 which may be of opal glass, or plastic material such as phenol-formaldehyde compound, urea-formaldehyde compound, methyl-methacrylate resin, cellulose acetate, a back opening, which likewise is preferably closed by a translucent plate 37, and a top opening 38 which is preferably left open to provide good ventilation of the fixture and to throw light upwardly onto the ceiling of the top deck 25. The intermediate brackets 28 are spider-like castings having a web 39 cut out at 40 to reduce weight, and assist in the distribution of light, and provided with laterally extending attaching flanges 41, 42, 43, 44, 45, and 46 (see Fig. 13). The end brackets 27 are substantially the same as the intermediate brackets 28 with the exception that approximately half of each of the attaching flanges are cut away so that the face which is presented to the end bracket of the adjacent unit, or to the finish

bracket 47 at the two ends of the entire fixture, is substantially planar.

In making up a trough section 26, the end brackets 27 and intermediate brackets 28 are held in suitable jigs and connecting members 29, 30, 31, 32, 33 and 34 (all but the latter being extruded aluminum pieces) are screwed to the attaching flanges of the brackets. The laterally extending flange 48 of the extrusion 29 rests on a bent-over flange 49 of the pressed steel channel 34 and is screwed to the bosses 43 by countersunk screws 50 (Fig. 10); the lower margin of the extrusion 29 is secured to the lower portion of the bosses 43 by screws 52; the extrusion 30 is secured to the bosses 44 by screws 53, the extrusion 31 is secured to the bosses 45 by screws 54; the extrusion 32 is secured to the bosses 41 by countersunk screws 55 (Fig. 12); the extrusion 33 is secured to the bosses 46 by screws 56; and the pressed steel channel 34 is secured to the bosses 42 by screws 57a (Fig. 10).

The cover 57 of the conduit channel 34 is adapted to have one edge slipped under a lip 58 of the channel 34 and be held in place by a plurality of cover screws 59 which pass through the cover, the flange 48 of the extrusion 29 and the bent-over flange 49 of the channel 34. A slightly curved reflector 60 extends the full length of the trough section and is secured by screws 61 to the underside of attaching flanges or bosses 62 and 63 integral with the brackets 27 and 28. The reflector may be made of any suitable material, and be finished as desired, but preferably, a .032 inch Alcoa reflector is used which consists of an aluminum sheet coated with pure aluminum and then treated for the desired finish.

The reflector 60 is punctured at intervals to receive tube sockets 64 which have their upper ends shaped to project through a specially shaped opening 65 in the channel 34 and be secured to the channel by screws 66. The purpose of allowing a portion of the socket to project through the opening 65 is so that the screws 66 are not subjected to shear when lamp bulbs 67 are being screwed into the socket 64. The leads from the socket 64 are suitably spliced to the main electrical conduits 68, access to the channel being readily obtained by removal of the cover 57.

In applying the fixture to the half deck of a car, a finish bracket 47 is first screwed as at 69 to one of the end bulkheads 70 of the car. The finish bracket consists of a web 71 having masking flanges 72, 73, and 74 adapted to receive the end of the adjacent trough section and allow for limited expansion and contraction without showing a clearance between the fixture and the bulkhead to passengers in the car. The first trough section is then located with respect to the finish bracket 47 and the brackets are screwed to the half deck by screws 75 passing through the bosses 42 and screws 76 passing through the bosses 41. Between the brackets, screws 77 and 78, spaced apart a suitable distance, rigidly fasten the extrusion 32 to the finish sheets 79 of the car.

After the first trough section has been secured in place, the panes 36 and 37 are inserted in the grooves 80 provided in the extrusion 30, 31, 32 and 33. Adjacent panes are separated by a spacer 81 (Fig. 13) which has end tongues 82 adapted to slide in the grooves 80, and side grooves 83 adapted to receive the ends of adjacent panes. Preferably, though not necessarily, the panes are of such length that a spacer will occur between adjacent trough sections, but this is not

necessary as the panes may overlap adjacent trough sections.

After the first trough section has been installed, the next trough section is located and fastened to the adjacent wall in the same manner as the first section. The two sections are drawn together by nuts and bolts 84 and to make certain that the extrusions will be in perfect alinement, a short bar 85 is preferably placed beneath the bosses 44 so that when the screws 53 are screwed into place, the plate will serve to place the bosses 44 of adjacent brackets in exact alinement with the result that all other parts of the bracket and sections will be in exact alinement.

After the second section has been installed in place, the panes 36 and 37 and spacers 81 for that section may be slid into place after which the third section is installed, etc.

The louvre units 35 which extend across the mouth of the trough are made up in units of 8 (or any other desirable number), the louvres themselves being preferably made of one of the plastic materials mentioned before. The louvres may be shaped as shown in Figs. 4 and 9, in which the louvres have their greatest thickness along the line 86, or they may be shaped as shown in Figs. 5 and 6, in which the main body of the louvre is relatively thin and the necessary strength is obtained by a marginal bead 87. The advantage of a thin louvre is that the louvre has greater light transmission, and not only is the effect very pleasing, but the efficiency of the fixture as a whole is increased. Whatever the form of the louvre, it preferably has ears 88 pierced at 89 to receive rods 90, the louvres being suitably spaced by plastic spacers 91 of slightly greater radius than the ears 88. The unit as a whole is held together by nuts 92 which for the sake of appearance are press-fitted into plastic collars 93 of the same radius as the spacers 91. The collar 93 is exactly one half the length of one of the spacers 91, so that the end louvres of adjacent louvre units will be uniformly spaced with respect to the other louvres.

The louvre units are installed in place by being tilted laterally as shown in dotted lines in Fig. 9 to bring the front edge of the unit into contact with the felt-lined concave inner surface 94 of the extrusion 31. The unit is slid lengthwise along the fixture while in the dotted line position (or slightly lower), and when the unit is in its proper longitudinal position, the rear side of the unit (i. e. the side adjacent to the extrusion 33) is lowered into a snap fastener 95 which consists of a phosphor bronze spring bent to shape and having ears 96 by which the spring fasteners are secured to the extrusion 33 by screws 97. The fasteners are placed at suitable intervals along the fixture so that there is at least one, but preferably two fasteners, for each louvre unit.

The inwardly extending lips 98 on the extrusions 31 and 33 serve to mask the supporting means for the louvre units and give the fixture as a whole a finished appearance.

The fixture which has been described is highly efficient and provides light in all directions with the desired distribution; is well ventilated; is capable of being manufactured cheaply in sections which permit easy installation; and presents a very neat appearance in the car. In the event a single louvre is broken, the unit containing that louvre may be quickly removed, disassembled and a new louvre substituted for the broken one, and lamps may be replaced without

disturbing any part of the fixture other than removing the louvre section beneath the lamp.

Modifications of detail will readily suggest themselves to persons skilled in the art, and all these are intended to be covered by the appended claims.

We claim:

1. A continuous lighting fixture including a trough section comprising spaced wall brackets each of which has laterally extending front and rear flanges and an intermediate laterally extending flange above said front and rear flanges, front and rear connecting members secured to the front and rear flanges respectively to form an open trough, a longitudinally extending substantially vertical plate secured to the intermediate flanges, a light socket positioned behind the plate adapted to support a lamp projecting below the plate and between the front and rear connecting members, a reflector above the lamp for projecting the light from the lamp downwardly, said front and rear connecting members having light transmitting portions, and louvre units removably positioned at the mouth of the trough.

2. A continuous lighting fixture including a trough section comprising spaced wall brackets each of which has laterally extending front and rear flanges and an intermediate laterally extending flange above said front and rear flanges, front and rear connecting members secured to the front and rear flanges respectively to form an open trough, a longitudinally extending substantially vertical plate secured to the intermediate flanges and extending downwardly in a plane between the plane of the front flanges and the plane of the rear flanges and spaced therefrom to provide an opening between said plate and front wall, a light socket positioned behind the plate adapted to support a lamp projecting below the plate and between the front and rear connecting members for emitting rays of light through said opening, and a reflector above the lamp for projecting the light from the lamp downwardly.

3. A continuous lighting fixture including a trough section comprising spaced wall brackets each of which has laterally extending front and rear flanges and an intermediate laterally extending flange above said front and rear flanges, front and rear connecting members secured to the front and rear flanges respectively to form an open trough, a longitudinally extending substantially vertical plate secured to the intermediate flanges and extending downwardly in a plane outwardly of said inner brackets, a light socket positioned behind the plate substantially in the horizontal projection thereof and adapted to support a lamp projecting below the plate and between the front and rear connecting members, a reflector above the lamp for projecting the light from the lamp downwardly, and a conduit channel connecting the upper portions of the brackets.

4. A continuous lighting fixture including a trough section comprising spaced wall brackets each of which has laterally extending front and rear flanges and an intermediate laterally extending flange above said front and rear flanges and in a plane between the same, front and rear connecting members secured to the front and rear flanges respectively to form an open trough, a longitudinally extending substantially vertical plate secured to the intermediate flange, an upwardly opening channel extending lengthwise to the

lighting fixture and supported on the brackets at their upper extremities between the intermediate plate and the rear connecting member, a plurality of light sockets supported on the channel and depending downwardly therefrom, an electric circuit including wiring in the channel for energizing the light sockets and a light globe in each socket, the sockets and bulbs being disposed relative to this longitudinal vertical plate so that the sockets are substantially within the horizontal projection of the plate and the globes project below said projection.

5. A continuous lighting fixture for use in a car having a passenger compartment, comprising a trough section adapted to be secured to the car above said compartment, comprising spaced wall brackets each of which has laterally extending front and rear flanges and an intermediate laterally extending flange above said front and rear flange, front and rear connecting members secured to the front and rear flanges respectively to form an open trough, a longitudinally extending substantially vertical plate secured to the intermediate flange, a horizontally extending light supporting member mounted adjacent to the top of the brackets, a plurality of light sockets mounted on the supporting member and depending downwardly therefrom, the sockets being substantially within the horizontal projection of the vertical plate, a horizontal reflector below the sockets and with the light supporting member and the vertical plate forming three sides of a box housing, the reflector being perforated at the position of each light socket, and a downwardly projecting light bulb in each socket extending below the vertical plate.

6. A continuous light fixture for use in a car having a passenger compartment, comprising an elongated lighting trough adapted to be secured to said car above said compartment and to extend longitudinally thereof, said trough having front and rear sides and a bottom through each of which rays of light may pass, sources of light, means above the horizontal plane of said trough for suspending said sources of light within said trough, a plate extending longitudinally of the trough above the same and extending downwardly in a plane rearwardly of said front side to conceal said means when viewed from the front of said trough and to form with said front side an opening through which light from said source may be projected upwardly and forwardly from said trough for illuminating an adjacent portion of the roof section of said car.

7. In a railway car having a passenger compartment, an upper deck, and a clerestory, the combination of a continuous light fixture comprising a lighting trough having front and rear sides and a bottom through each of which rays of light may pass, means for securing said trough to the upper portion of said car to extend longitudinally thereof along the juncture of said deck and clerestory, sources of light, means above said trough for suspending said sources of light within said trough, a plate extending longitudinally of said trough above the same and extending downwardly in a plane outwardly from said front side to conceal said means and to form with said front side an opening through which rays of light may pass for lighting said clerestory by direct illumination.

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CERTIFICATE OF CORRECTION.

Patent No. 2,250,954.

July 29, 1941.

ANDREW T. HAGERTY, ET AL.

It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction as follows: Page 3, second column, line 67, claim 7, for the words "outwardly from" read --rearwardly of--; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 9th day of September, A. D. 1941.

(Seal)

Henry Van Arsdale,
Acting Commissioner of Patents.