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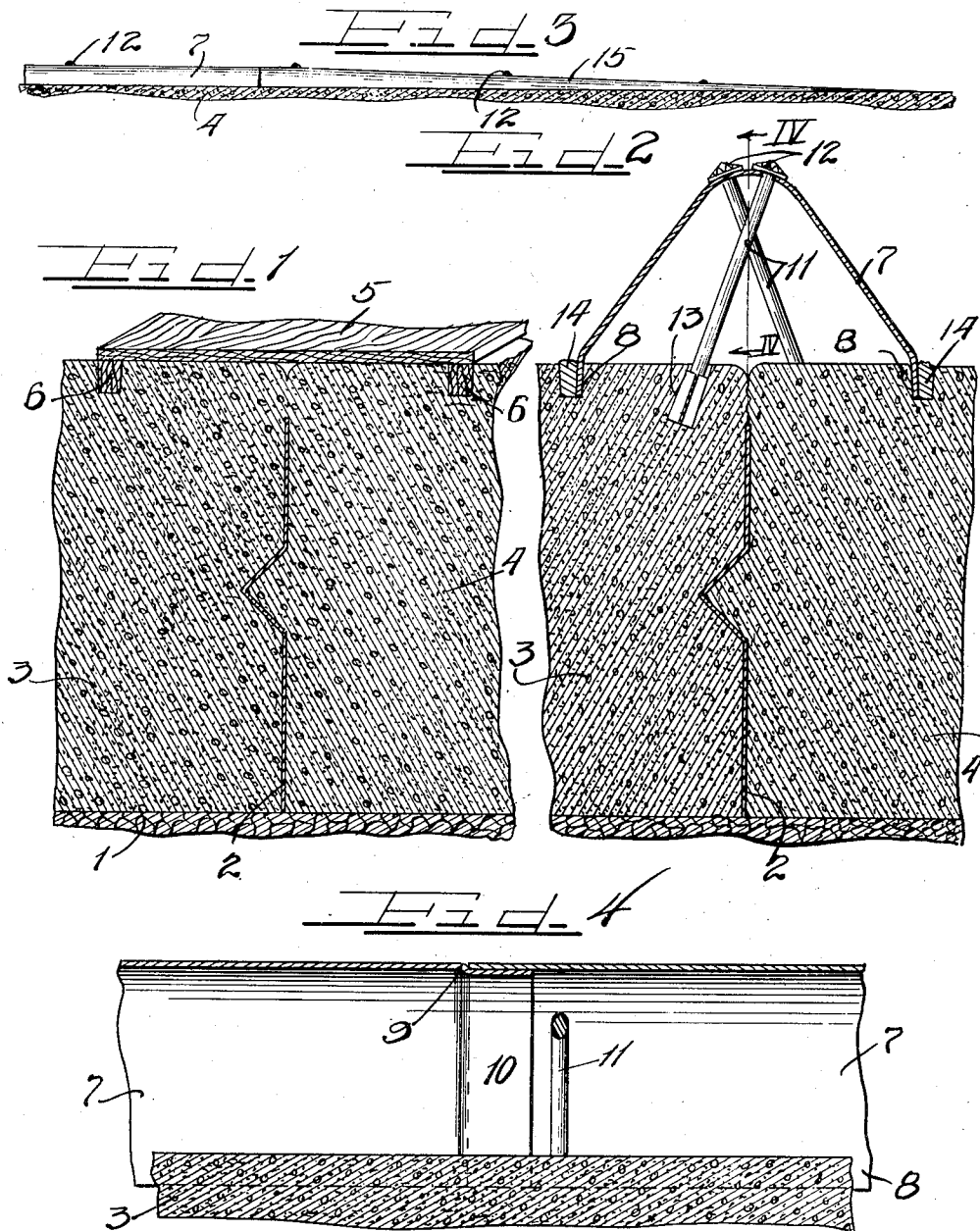
R. R. ROBERTSON

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ROAD TRAFFIC LANE DIVIDER

Filed Dec. 11, 1936

3 Sheets-Sheet 1



INVENTOR
Robert R. Robertson.

Charles Stiles
ATTY.

BY

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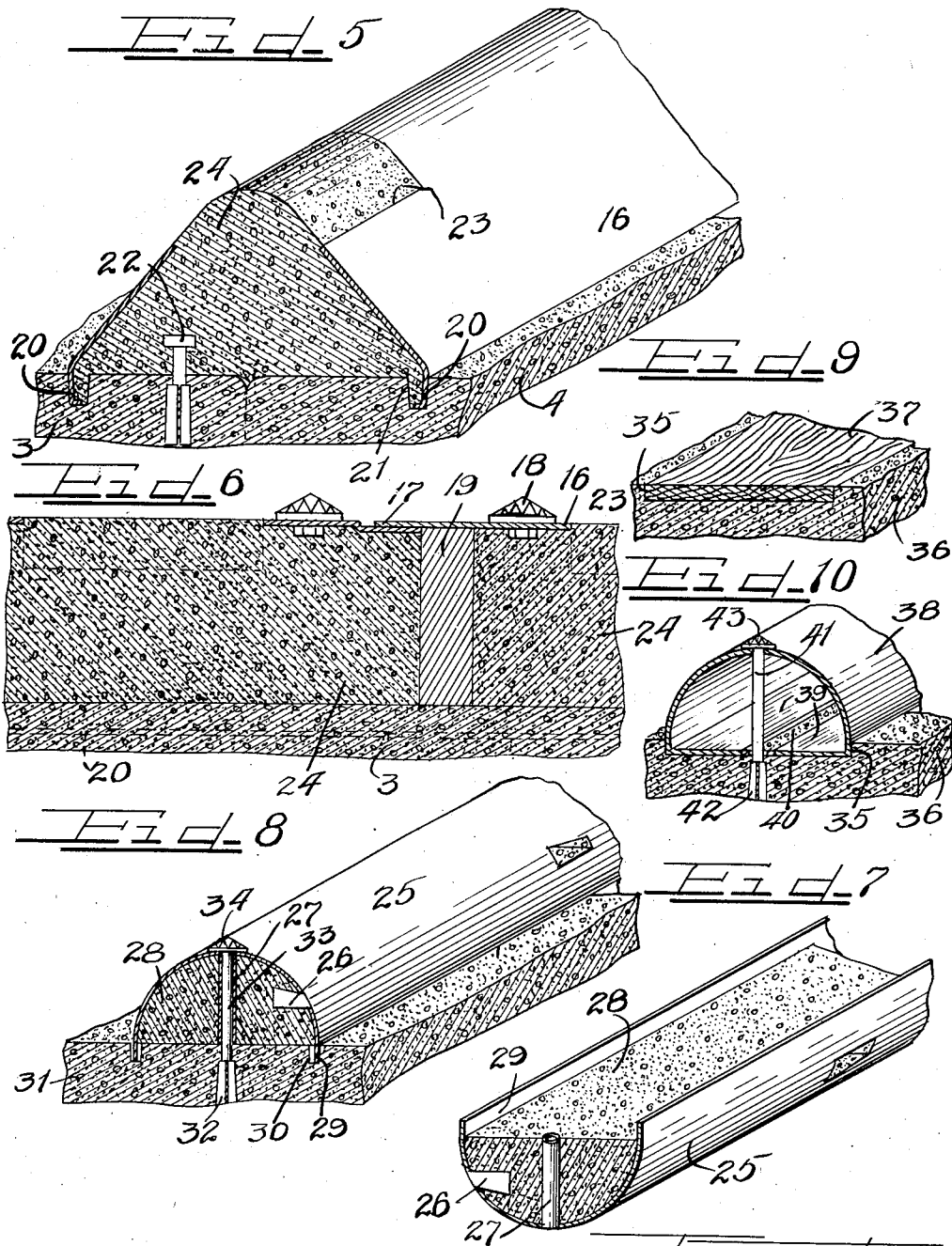
R. R. ROBERTSON

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ROAD TRAFFIC LANE DIVIDER

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INVENTOR
Robert R. Robertson.

Charles H. Hill
ATTY.

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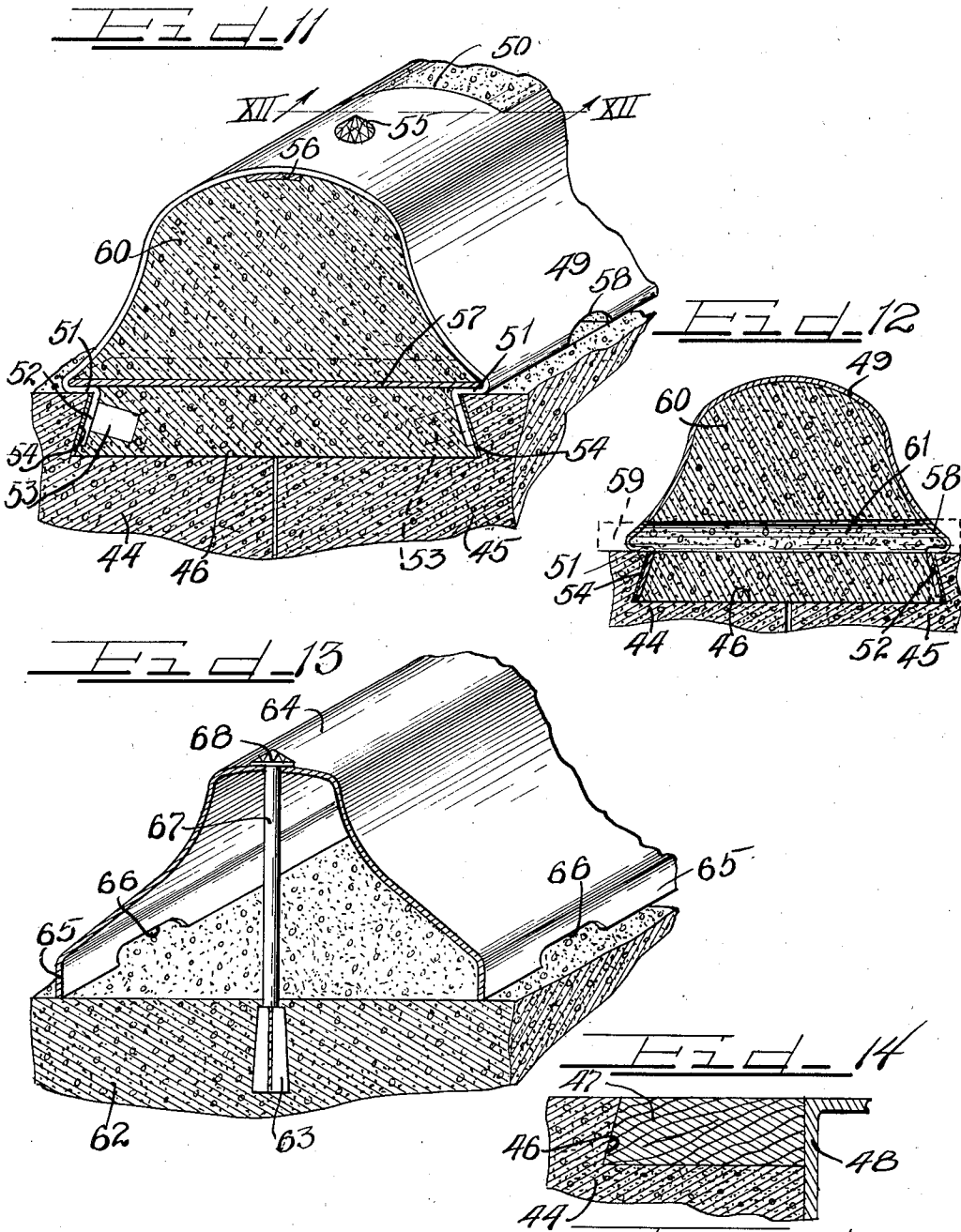
R. R. ROBERTSON

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ROAD TRAFFIC LANE DIVIDER

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3 Sheets-Sheet 3



INVENTOR
Robert R. Robertson.

Charles R. Allen
ATTY.

bu

UNITED STATES PATENT OFFICE

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ROAD TRAFFIC LANE DIVIDER

Robert R. Robertson, Chicago, Ill.

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7 Claims. (Cl. 94—1.5)

This invention relates to traffic dividers for multiple lane concrete roads, and particularly for new roads which under construction are formed with longitudinally disposed parallel grooves or recesses or with single wide grooves or channels for the reception of either hollow or filled dividers which are so constructed that they are adapted to project down into the recesses or grooves to be embedded in plastic fillers for the grooves or recesses and permitting the major portions of the dividers to extend but slightly above the top surface of the road enough to make the driver of an automobile cautious in passing over a divider from one lane into an adjacent lane.

The invention includes the method of arranging for installing the traffic lane dividers, said method including the use of groove forming forms which are placed in position upon the top of the concrete and forced to project therein and are removable after the concrete has been partially cured to prevent water from filling the grooves upon the removal of the forms.

It is an object of this invention to provide a concrete road during its construction with suitable grooves disposed longitudinally upon the top of the road for the reception of the base portions of either hollow or filled dividers, the countersunk portions of which are adapted to be suitably imbedded in plastic filling material provided in the grooves.

It is also an object of this invention to provide a concrete road with spaced traffic lane dividers which are of a height to provide positive dividers between traffic lanes but still permitting vehicles when properly driven to pass thereover from one lane into an adjacent lane.

It is a further object of this invention to provide a concrete road with dividers for separating the traffic lanes, said dividers being countersunk into the concrete pavement and having indicating means mounted thereon for readily indicating the location of the dividers at night.

It is furthermore an object of this invention to provide an improved method for providing a concrete road with traffic lane dividers, said method consisting of first providing the concrete road with grooves or recesses, then placing dividers in position to seat in the recesses and be secured to the concrete road slabs and finally filling any cracks or openings between the concrete road slabs and the bottom portions of the dividers with a plastic filling material to compensate for relative movement of the concrete slabs with respect to the traffic lane dividers.

It is also an object of this invention to provide

a concrete road with countersunk traffic lane dividers, of either a hollow or solid construction, adapted to be anchored in position partially embedded in the concrete and being provided with sparklers or indicators for readily observing the location of the dividers at night.

It is an important object of this invention to provide a concrete road, which during its construction is provided with suitable forms for forming grooves or recesses in the top of the road, said forms having constructed to provide either grooves with vertical side walls or with dovetail grooves for the reception of the base portions of suitably formed dividers which may be of hollow construction or which, if preferred, may be filled with concrete after being mounted in position or before the mounting thereof.

Other and further important objects of this invention will be apparent from the disclosures in the specification and the accompanying drawings.

The invention (in preferred forms) is illustrated in the drawings and hereinafter more fully described.

On the drawings:

Fig. 1 is a fragmentary vertical transverse section of a concrete road having a longitudinal or center joint embedded therein and furthermore illustrating a removable groove-producing form partially embedded in the top of the concrete.

Figure 2 is a similar section of the concrete road illustrating one form of a traffic lane divider anchored in position on the concrete with portions of the divider projecting into the grooves which are filled with a plastic filling material.

Figure 3 is a reduced side elevation of an end portion of a traffic lane divider of the type illustrated in Figure 2 showing the tapered end construction of the divider as it approaches a road intersection.

Figure 4 is a fragmentary sectional view taken on IV—IV of Figure 2 and illustrating an overlapping joint between two lengths of the traffic lane divider.

Figure 5 is a fragmentary isometric view of a modified form of traffic lane divider countersunk or partially embedded in the concrete road and provided with openings for filling the divider with concrete after the same is mounted in place.

Figure 6 is a longitudinal fragmentary section of the divider illustrated in Figure 5, said section being taken through an expansion joint and illustrating indicators or sparklers on the divider housing.

Figure 7 illustrates a fragmentary isometric

view of another modified form of traffic lane divider consisting of a housing or shell having anchoring members struck inwardly therefrom and also provided with sleeve members, said housing or shell adapted to be filled either before or after shipment to location.

Figure 8 is a fragmentary isometric view of the filled traffic lane divider illustrated in Figure 7 mounted in position upon a concrete road with side or base flanges of the divider countersunk or seated in grooves provided in the concrete, said view also illustrating sparkler bolts for anchoring the filled traffic lane divider in position.

Figure 9 is a fragmentary isometric view of a portion of a concrete road having a removable form member engaged in the top thereof and adapted to be removed after the concrete has partially cured to leave a groove in the top of the concrete road for the reception of a traffic lane divider.

Figure 10 is a fragmentary isometric view of the concrete road section illustrated in Figure 9 showing another modified form of traffic lane divider anchored in position with the base portion thereof seated in the groove of the road.

Figure 11 is a fragmentary isometric view of still another modified form of traffic lane divider formed of thin sheet metal provided with base flanges adapted to be seated in a dove-tailed recess provided in the top surface of a concrete road and adapted to be filled with concrete when the main body portion of the divider is filled, said base flanges having plastic means or strips applied against the outer surfaces thereof.

Figure 12 is a transverse detail section taken on line XII—XII of Figure 11.

Figure 13 is a fragmentary isometric view of another modified form of traffic lane divider of a hollow type, constructed of heavy metal adapted to be secured upon the top surface of a road with the base flanges on both sides of the divider provided with drain openings.

Figure 14 is a fragmentary detail section of an upper corner of a concrete road lane showing a removable wooden dove-tailed form seated in the concrete to form a half dove-tailed groove therein for the reception of a dove-tailed base portion of a traffic lane divider of the type illustrated in Figure 11.

As shown on the drawings:

The reference numeral 1 indicates a concrete road subgrade upon which center or longitudinal road joints 2 are supported for forming joints between the concrete road lanes 3 and 4 formed by pouring concrete upon the subgrade to embed the joints as illustrated in Figures 1 and 2. The present invention relates to traffic lane dividers adapted to form definite barriers between adjacent traffic lanes and furthermore includes the method of mounting the dividers countersunk or projecting into the top of the road lanes. Referring to Figure 1, the method includes the use of a form 5 which may be constructed of wood or other suitable material and may be provided with holes or hooks for removing the forms after their service period. Rigidly secured on the bottom of the longitudinal margins of the form 5 are ribs or rail members 6 provided for the purpose of providing spaced parallel grooves in the top surface of the concrete road. The form 5 with the groove forming rails are not used until the poured concrete has been partially cured to allow time for the evaporation or absorption of the moisture or water from

the top portion of the concrete so that when the form is used no water will flow into the grooves. The form 5 is applied to the top of adjacent concrete lanes 3 and 4 as indicated in Figure 1 with the groove forming rails 6 pushed downwardly into the top surface of the concrete, to form spaced parallel grooves on opposite sides of the joint 2 when the form and the rail members forming a part thereof are removed from the concrete after the same has been sufficiently cured.

For the purpose of forming a definite barrier between the two adjacent road lanes 3 and 4 to obviate promiscuous crossing of vehicles from one lane to another, the road lanes are separated by means of an improved traffic divider constructed of a plurality of sections made out of substantially heavy gauged sheet metal. Each of the divider sections 7 is of substantially triangular cross section, that is formed with inclined side walls, the lower margins of which are deflected at an angle to form base flanges 8 which, when the divider sections are mounted in place to bridge the joints between the adjacent traffic lanes, are adapted to be projected or seated in the grooves provided in the top surfaces of the road lanes. As illustrated in Figure 4, one end of each of the divider sections 7 is deflected at 9 to form a reduced or inwardly deflected end portion 10 which is adapted to be frictionally engaged in the straight end of another lane divider 7 to form an overlapping joint between the aligned divider sections which form the positive barrier between the traffic lanes 3 and 4. Each of the divider sections 7 is provided on the rounded top thereof with staggered openings at spaced intervals for the reception of inclined retaining or anchoring bolts 11, the head of which are provided with sparkler heads or caps 12 for making the road lane dividers discernible at night. The lower threaded ends of the retaining bolts 11 are adapted to be threaded into expansible sockets 13 which are embedded in the top portions of the adjacent concrete road slabs 3 and 4 as illustrated in Figure 2.

With the aligned interfitting divider section positioned upon the top of the road with the base flanges thereof seated in the parallel grooves provided in the top of the concrete lanes, the excess space in the grooves is adapted to be filled with a plastic filling 14 which acts as a filling or seal to prevent water from filling the grooves.

When a road which is provided with traffic lane dividers of the class hereinbefore described reaches an intersecting road, the traffic lane dividers, at suitable distances from the intersecting road, are provided with inclined or tapered end divider sections 15 as illustrated in Figure 3. The tapered ends of the dividers near the intersection of two roads permits the movement of vehicles from one lane into another as well as the turning off of the vehicles from one road into the intersecting road. While the use of tapered end sections for the dividers is described in connection with the intersections of roads, it will, of course, be understood that such tapered sections may be provided in any desired locations in the length of a road to permit vehicles to move from one traffic lane into another.

In the present form of traffic lane dividers the dividers are rigidly anchored in position and partially countersunk in the concrete lanes so that the tops of the dividers are low enough to permit a vehicle in one traffic lane to pass over

the top of the divider when the vehicle is slowly and carefully driven, but still being of a sufficient height to form a positive barrier between the traffic lanes to positively separate the traffic in the two lanes and obviate the promiscuous trespassing of the vehicles in adjacent traffic lanes.

Figures 5 and 6 illustrate a modified filled form of traffic lane divider comprising a plurality of aligned interfitting divider sections 16 which are constructed of substantially light weight or thin gauged sheet metal. The divider sections 16 interfit one another at their ends to form a connecting overlapped joint 17. As clearly illustrated in Figure 6, the tops of the divider section 16 are provided at spaced intervals with sparkler buttons 18 to afford visual means for readily locating the dividers at night. Mounted within the divider sections at spaced intervals are expansion joints in the form of compressible filler members or partitions 19.

Each of the divider sections 16 has the longitudinal margins thereof deflected or bent to form angled base members 20 which are moved toward one another by compressing the sides of the sections 16, thereby allowing the members 20 to project into parallel grooves or recesses 21 provided in parallel spaced relation in the top surfaces of adjacent concrete road lanes 3 and 4. The resiliency of the compressed sides of the sections 16 causes the same when released to spring the members 20 outwardly into contact with the outer walls of the grooves. For the purpose of rigidly anchoring the divider sections 16 in position upon the top of a road, with the angled base portions 20 seated in the grooves 21, anchoring bolts 22 are partially embedded at spaced intervals in the top of the road lanes 3 and 4 with the head portions of the bolts 22 projecting above the top surface of the road into the divider sections 16 as clearly illustrated in Figure 5. Each of the divider sections 16 is provided with spaced openings 23 in the top thereof to permit concrete to be deposited in the divider sections 16 to fill the grooves 21 and the interiors of the sections 16 and reinforce the thin metal shell out of which the divider sections are formed. The concrete filling also embeds the projecting anchoring bolts 22 so that when the concrete has been sufficiently hardened or cured the filled traffic lane dividers are rigidly anchored in position to form a definite barrier between adjacent road lanes. The joints 19 provided at spaced intervals between the concrete fillings within the divider sections are adapted to allow for the expansion of the concrete fillings 24 due to temperature changes.

Figures 7 and 8 illustrate another modified form of filled traffic lane dividers which are so formed that they may be filled before they are mounted in position. This form of traffic lane divider comprises a plurality of substantially thin gauged sheet metal half round or arched divider sections 25 having anchoring lugs or wings 26 struck inwardly at spaced intervals. Each of the divider sections 25 is provided with openings in which the outer ends of inwardly projecting sleeves 27 are secured.

Before the divider sections 25 are mounted in position they are inverted as illustrated in Figure 7 to permit the same to be filled with a core or filling of concrete 28. The divider sections 25 may be filled in the factory or on location with the concrete forming the core or filling 28 embedding the anchoring lugs or wings 26 and the

sleeves 27. As clearly illustrated in Figure 7 the concrete 28 forming the core does not completely fill the thin metal divider shell or section 25, and thereby permits the longitudinal margins of the divider section to form base flanges 29. After the divider section 25 has been filled with concrete it is adapted to be inverted and mounted in position as illustrated in Figure 8 with the base flanges 29 projecting into parallel recesses or grooves 30 provided in the top surface of a concrete road 31. The grooves 30 may be formed in the top of the concrete road 31 by means of a groove forming form similar to that illustrated in Figure 1.

In this form of the traffic lane divider the dividers are not shown positioned over a road center joint or longitudinal joint but may be so placed if desired in which case, the sleeves 27 may be offset from the center line of the divider section. For the purpose of anchoring the filled divider section 25 in position expansion sockets 32 are embedded in the concrete 31 to receive the lower threaded ends of anchoring bolts 33 which are projected downwardly through the sleeves 27. The heads of the anchoring bolts 33 are provided with sparkler buttons 34. The grooves 30 if desired may be filled with a plastic filling into which the base flanges 29 may be projected so that a seal is provided with the base portions of the divider sections projecting into the concrete road.

Figure 9 illustrates a modified form for providing a wide groove or recess 35 in the top surface of a concrete road 36 instead of a pair of spaced parallel grooves. The wide groove 35 is formed by placing a board or form 37 upon the top of the concrete after the same has been poured and then pushing the form 37 downwardly until the top surface thereof is substantially flush with the top surface of the road. After the concrete has been cured sufficiently, the form 37 is removed leaving the wide groove in the top of the road.

Figure 10 illustrates another modified form of traffic lane divider section in the form of a hollow shell or body portion 38 provided with inwardly directed base flanges 39 which are slightly spaced apart to provide a slot 40. As clearly illustrated in Figure 10 the base portion of the divider section 38 is seated in the wide groove 35 and is rigidly anchored in position by means of retaining bolts 41 which project downwardly through openings in the divider section 38 to permit the lower threaded ends of the bolts to project through the slot 40 and into expansion sockets 42 embedded in the concrete 36. The heads of the retaining bolts 41 are provided with sparkler buttons 43 for designating the location of the traffic lane dividers at night.

Figures 11 and 12 illustrate another modified form of a traffic lane divider adapted to be constructed out of light-weight sheet metal and furthermore adapted to be filled after the divider shells are mounted in position to partially project into a dove-tailed groove provided between adjacent concrete road lanes. In this form of road lane divider the reference numerals 44 and 45 designate adjacently positioned concrete road lanes each of which is formed with a half dove-tailed groove 46 which, as illustrated in Figure 14, is adapted to be formed by means of a removable half dove-tail form 47 which is placed in position in the concrete forming the concrete road lane 44 after the concrete has been poured between the side forms 48 which are used for the forming

of one road lane at a time. When an additional road lane is added, only one of the side forms 48 is necessary, for the reason that the previously formed road lane may be used as a form. The second half of the dove-tailed groove may be formed by the use of another half dove-tailed form 47 similar to the arrangement illustrated in Figure 14.

In case it is desired to provide a dove-tailed groove in the top of a concrete road lane, between the sides thereof, a removable form may be used, such for example as two dove-tailed side forms and an intermediate straight form, which after the forming of a dove-tail groove in the concrete may first be removed to permit removal of the dove-tail side forms.

The modified form of divider illustrated in Figures 11 and 12, for use with the dove-tailed grooves, comprises a tubular shell or divider section 49 formed of light-weight sheet metal having openings 50 provided at spaced intervals in the top thereof. The divider section 49 comprises a main body portion of substantially mushroom shape cross-section including concave side walls which join up with a curved top. The lower margins of the curved side walls are deflected inwardly to form groove covering shoulders 51 and outwardly inclined base flanges 52 having anchor lugs 53 struck inwardly therefrom to project into the dove-tail groove 46 as illustrated in Figure 11. The base flanges 52, during the placing of a section 49, are compressed to permit the same to project into the dove-tailed groove 46, allowing the flanges, when released to spring outwardly into contact with the side walls of the groove or into contact with plastic liners strips 54.

Rigidly secured upon the top wall of each of the divider sections 49 are a plurality of spaced sparkler buttons 55 for designating the location of the lane dividers at night.

Secured in one end of each of the divider sections 49, against the middle portion of the inner surface of the top wall of the section, is a metal strip 56 one end of which projects outwardly beyond the end of the divider section to permit the strip to project into an adjacent end of another divider section and beneath the top wall thereof to assist in holding the aligned sections 49 against vertical shifting with respect to one another. Positioned transversely in one end of each of the divider sections 49, after the same have been mounted in place, is a cross plate 57 of a width sufficient to permit half of the cross plate to project outwardly beyond the end of the divider section. The end portions of one-half of the transverse plate 57 are seated upon the divider section shoulders 51. When the sections are aligned with respect to one another the transverse plate 57 of one section is adapted to project into the end of an adjacent section to provide a means whereby the overlapping plate 57 between the adjacent ends of aligned divider sections 49 are adapted to serve as a means for holding the sections aligned in position longitudinally as well as preventing vertical or transverse shifting of the sections with respect to one another.

As illustrated in Figure 11 each of the divider sections 49 is provided with oppositely positioned drain openings 58. The drain opening 58 at one side of the divider section is slightly smaller than the opposite drain opening permitting a wedge shaped core pin 59 to be projected through the drain openings 58 transversely through the

divider section, with the ends of the removable core pin 59 projecting beyond the sides of the section as illustrated in dotted lines in Figure 12.

The hollow divider sections 49 are mounted in position as illustrated in Figure 11 with the base flanges 52 projecting downwardly into the dove-tailed grooves and with the plates 56 and 57 of one section projecting into the end of an adjacent section. The removable core pins 59 are also engaged transversely through the hollow divider sections 49. Concrete is now deposited through the openings 50 to fill the divider sections 49 as well as the dove-tailed groove 46 thereby embedding the plates 56 and 57 as well as the anchoring lugs 53 and the core pins 59. After the concrete filling 60 has been partially cured, the core pins 59 are removed to form transverse drain passages 61 at spaced intervals in each of the divider sections 49 with the ends of the drain passages 61 registering with the drain openings 58 in the sides of the lower parts of the body portions of the divider sections. The drain passages 61 are provided for the purpose of permitting water from an inner lane to drain outwardly into the outer lanes to eventually be discharged over the sides of the road.

Figure 13 illustrates a further modification of a traffic lane divider adapted to be supported on the top surface of a concrete road lane 62 having expansion bolt sockets 63 embedded therein. This form of traffic lane divider comprises a plurality of sections mounted end to end in aligned relation with respect to one another longitudinally upon the top surface of a road. Each of the divider sections is constructed of substantially heavy gauged sheet metal formed to provide a hollow body section 64 comprising a comparatively narrow top wall integrally connecting the concave side walls which are inclined to form a substantially wide base for the divider section. The lower margins of the concave side walls are deflected downwardly to form base flanges 65 provided with weep or drain openings 66 at spaced intervals throughout the length of the divider section to permit the drainage of water from one side of the traffic lane divider to pass to the opposite side of the divider allowing the water to eventually drain off of the road. Each of the divider sections 64 is provided with openings at spaced intervals in the top wall thereof for the reception of anchoring bolts 67 the threaded ends of which are adapted to be engaged in the expansion socket 63 embedded in the concrete forming the road lane 62. The heads of the anchoring bolts 67 are provided with sparkler buttons 68 for making the road lane dividers clearly discernible at night.

It will, of course, be understood that various details of construction may be varied through a wide range without departing from the principles of this invention, and it is therefore not the purpose to limit the patent granted hereon otherwise than necessitated by the scope of the appended claims.

I claim as my invention:

1. The combination with a concrete road having a groove in the top thereof, of a traffic lane divider seated upon the road to cover the groove, and a base portion formed on the traffic lane divider and transversely compressible to be sprung into the groove to hold the traffic lane divider anchored in position.

2. The combination with a concrete road having a recess formed in the top thereof, of a traffic

5 lane divider seated on the road over said recess, and having a base portion which is transversely compressible to be sprung into the recess, anchoring means struck inwardly from the base portion of the traffic lane divider below the top surface of the road, and a filling of concrete deposited in the traffic lane divider and in the recess in the road for holding the base portion expanded and embedding the anchoring lugs of the base portion of the traffic lane divider.

10 3. The combination with a concrete road having a recess formed in the top thereof, of a traffic lane divider seated on the road over said recess, and having a base portion projecting into the recess, anchoring means struck inwardly from the base portion of the traffic lane divider, a filling of concrete deposited in the traffic lane divider and in the recess in the road and embedding the anchoring lugs of the base portion of the traffic lane divider, and compressible means positioned between the side walls of the recess and the outer surfaces of the base portion of the traffic lane divider.

25 4. The combination with a concrete road having a groove formed in the top thereof, of a metal traffic lane divider supported on the road over the groove and having openings therein, a base integrally formed on the metal traffic lane divider and projecting into the groove, anchoring members struck inwardly from the base and projecting into the groove, compressible means positioned between the base and the side walls of the groove, and a filling deposited through the openings in the metal divider to fill the same and the groove to form a solid traffic lane divider for the road.

35 5. The combination with a concrete road having

a groove formed in the top thereof, of a metal traffic lane divider supported on the road over the groove and having openings therein, a base integrally formed on the metal traffic lane divider and projecting into the groove, anchoring members struck inwardly from the base and projecting into the groove, compressible means positioned between the base and the side walls of the groove, a filling deposited through the openings in the metal divider to fill the same and the groove to form a solid traffic lane divider for the road, and sparkler means secured on the exterior of the traffic lane divider.

6. A traffic lane divider section for mounting upon a concrete road strip, said divider section comprising a hollow shell, anchoring members projecting inwardly therefrom, sleeve members disposed within the shell, a concrete filling deposited in the shell to only partially fill the same leaving mounting margins and anchoring bolts projecting through the sleeves and into the concrete road for anchoring the divider sections in position.

7. A traffic lane divider section for mounting upon a concrete road strip, said divider section comprising a hollow shell, anchoring members projecting inwardly therefrom, sleeve members disposed within the shell, a concrete filling deposited in the shell to only partially fill the same leaving mounting margins, anchoring bolts projecting through the sleeves and into the concrete road for anchoring the divider sections in position, and sparkler heads on the anchoring bolts for making the divider sections readily discernible at night.

ROBERT R. ROBERTSON.