

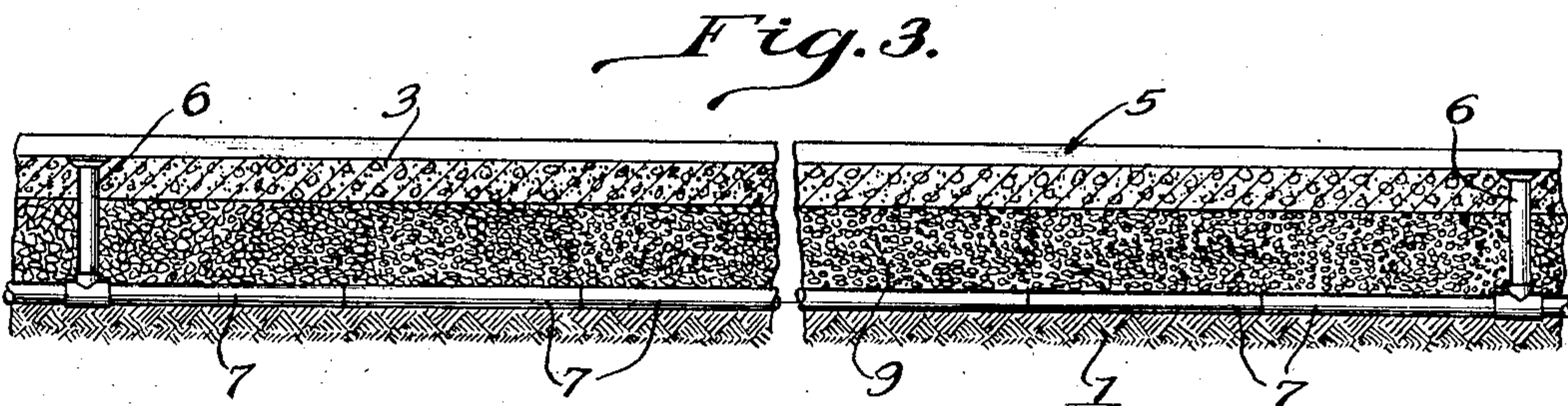
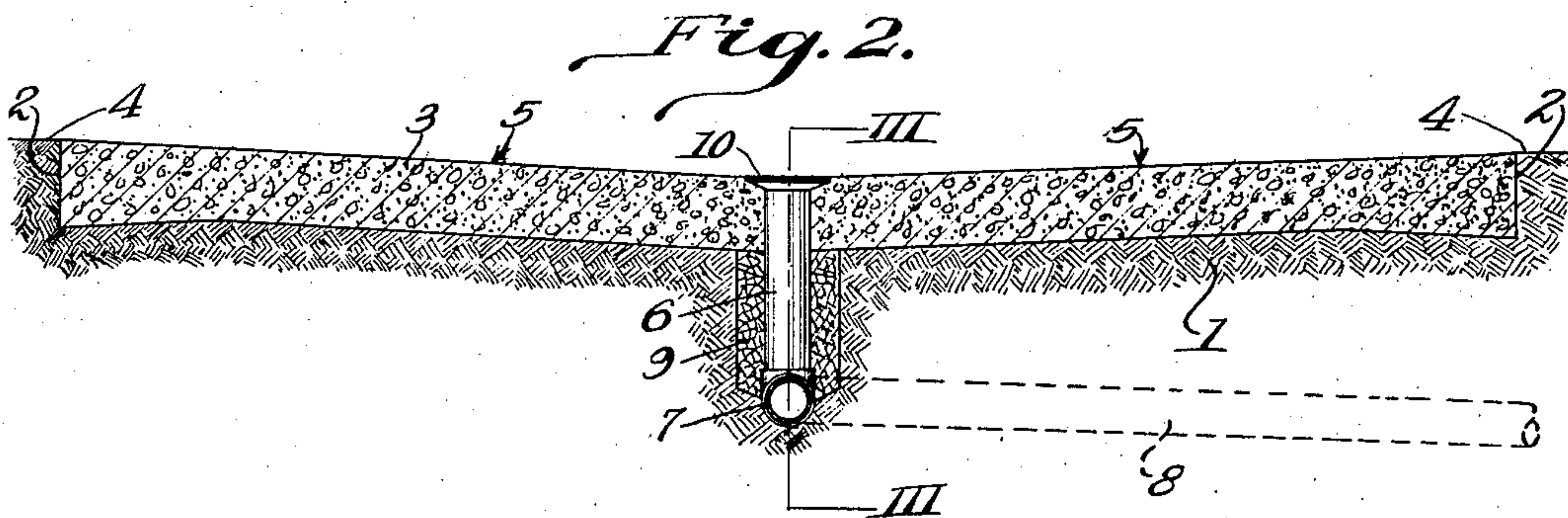
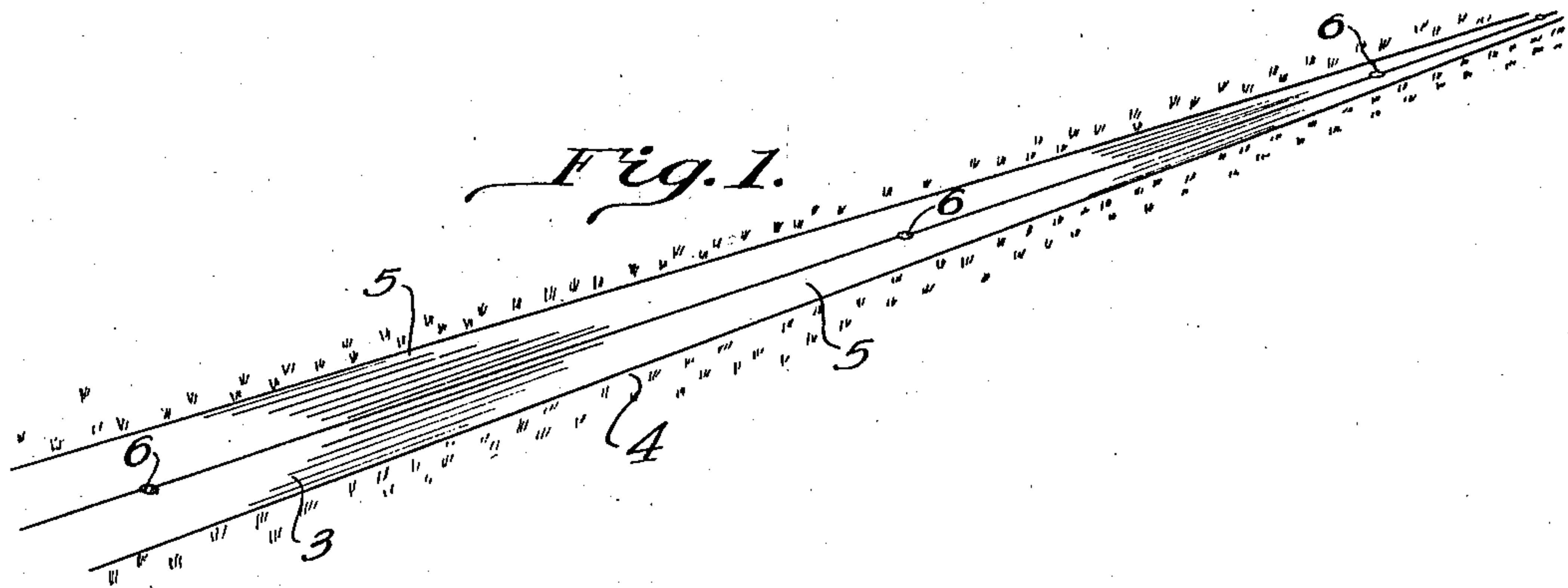
Feb. 28, 1939.

C. W. OZIAS

2,148,773

HIGHWAY PAVING CONSTRUCTION

Filed Sept. 30, 1935



Inventor  
*Clifford W. Ozias*

*W. J. M. Lowell*

By

Attorney



## UNITED STATES PATENT OFFICE

2,148,773

## HIGHWAY PAVING CONSTRUCTION

Clifford W. Ozias, Columbus, Ohio

Application September 30, 1935, Serial No. 42,851

5 Claims. (Cl. 94—33)

This invention relates to improvements in the construction and formation of highway paving and the object of the invention resides in the provision of improved means for draining moisture and water from monolithic highway pavement by providing for the flow of such water or moisture toward the center of the pavement and away from the outer longitudinal edges thereof, the center of the pavement being provided at longitudinal intervals with appropriate drains or outlets, leading to underground ducts, by which water, drained from the upper surface of the pavement, is led to suitable points of discharge.

The ordinary concrete highway pavement usually possesses a crowned or convexed traction surface which in use causes rain or moisture contacting the same to flow toward the outer longitudinal edges or shoulder portions of the highway paving. This water or moisture then tends to seep downwardly at the outer edges of the paving and, apparently through capillary action, penetrates under the lower surface of the pavement, so that in the event the water or moisture freezes, expanding pressures result which frequently crack or disrupt the paving.

These objections, among others, are avoided by the present invention by forming the highway paving so that the latter slopes downwardly and inwardly from its outer longitudinal edges to substantially the central portion thereof, enabling water which engages the upper surface of the pavement to flow toward the center of the latter and then be readily removed through appropriate drains, thus specifically preventing the accumulation and pocketing of moisture and liquid below the under surface of the paving and the formation of destructive forces.

For a further understanding of the invention, reference is to be had to the accompanying drawing, wherein:

Fig. 1 is a perspective view of a paved highway formed in accordance with the present invention;

Fig. 2 is a vertical transverse sectional view taken through the highway and disclosing more particularly the downwardly and inwardly inclined surfaces of the monolithic paving of the highway and an associated centrally disposed drain;

Fig. 3 is a longitudinal sectional view on the plane indicated by the line III—III of Fig. 2.

Referring more particularly to the drawing, the numeral 1 designates the soil bed of the highway paving, the bed 1 being channeled as at 2 to provide for the reception of the concrete or other hard surface forming materials comprising the

paving 3, the shoulder portions of the highway being indicated at 4.

Instead of forming the upper or traction surface of the paving 3 so that it is either convex or approximately flat or horizontal, the paving in this instance is formed to include downwardly and inwardly inclined surfaces 5 which have their lowest points in the center of the paving, whereby to provide for the drainage of moisture or water from the outer or shoulder engaging portions of the paving toward the longitudinal center of the latter.

To remove water from the center of the paving, the latter is provided at spaced longitudinal intervals with vertical drain conduits 6. The lower portions of these conduits communicate with longitudinally extending open joint tiles 7 positioned in a central ditch toward which the upper surfaces of the channel 2 slope. The tiles 7 may be connected at intervals with transverse tiles 8 leading to culverts, ditches or other points of liquid disposal remote from the highway paving. By this construction, water striking the highway is positively conveyed toward the center thereof and away from its outer longitudinal edges. This prevents the water from seeping downwardly between the outer vertical edges of the paving and the adjoining shoulder portions of the highway. I have observed that in ordinary highway construction, a very considerable portion of the water finds its way beneath the paving with the result that the soil bed is weakened, or the water freezes with resultant injury to the usefulness of the paving.

Therefore, the important feature of the present invention resides in forming the upper surface of a highway, street or other thoroughfare so that its lowest point is in the center of the paving. By this formation, the water is conveyed away from the outer longitudinal edges of the paving and delivered to suitable drains for conduction to remote points where the water cannot injure the paving.

I am aware of the fact that roadways have been suggested heretofore having flat upper surfaces with drains located in the centers thereof, but so far as I am aware, it is novel in the art of road building to reversely incline the upper surfaces of the paving to cause positive drainage of water toward the lower central region thereof; whereby to deliver such water to underground longitudinally extending conduits disposed beneath the central longitudinal regions of the pavement and leading to appropriate points of water disposal. Any water which may collect



around the vertical drains 6 or below the center of the pavement will find its way into the open joints of the longitudinally extending tile by the presence of the pervious longitudinal bed of loose rock or other material 9. Suitable perforate cover plates 10 are provided in the upper surface of the highway for closing or screening the open upper ends of the vertical drains 6.

In view of the foregoing, it will be seen that the present invention provides a properly and efficiently drained highway and one of long life and durability. The angle of slope of the traction surface is not critical but merely sufficient to cause positive movement of the water toward the center of the roadway.

What is claimed is:

1. A roadway comprising a channel-shaped road bed provided adjacent its center with a longitudinally extending ditch, the bottom surface of said road bed sloping slightly toward said ditch, an open-joint tile drain positioned in said ditch, a pervious filling material positioned in said ditch above said tile drain, a concrete paving of substantially uniform thickness positioned in said channel-shaped road bed, and spaced vertically extending drains leading from the center of said paving to the drain positioned in said ditch.

2. A roadway comprising a channel-shaped road bed provided intermediate its width with a longitudinally extending ditch, the bottom of said road bed being inclined from the sides toward said ditch, an open joint tile drain positioned in said ditch, a pervious filling material positioned in said ditch above said drain, a concrete paving of substantially uniform thickness positioned in said channel-shaped road bed, and spaced vertically extending drains leading from the center of said paving to the drain positioned in said ditch.

3. In vehicular highway construction, a soil bed having a pavement-receiving channel formed therein, the bottom surfaces of said channel being inwardly and downwardly inclined toward

the center thereof and terminating in a longitudinally extending trench coextensive with the length of the channel, said trench containing a water-pervious filling material, a monolithic pavement filling said channel, said pavement having its upper surfaces inwardly and downwardly inclined from the outer shoulder edges thereof, a drain conduit arranged longitudinally in the bottom of said trench and coextensive with the latter, said conduit being disposed below and spaced from said pavement, and longitudinally spaced vertical drains disposed intermediately of the width of said pavement for conducting water from the intermediate longitudinal area of said pavement to said drain conduit.

4. The structure as specified in claim 3 and wherein the longitudinally extending trench has the upper region thereof terminated immediately below said pavement to directly receive subsurface water draining inwardly between the lower surfaces of said pavement and the inclined adjoining surfaces of the soil bed.

5. In vehicular highway construction, a soil bed having a pavement-receiving channel formed therein, the bottom surfaces of said channel being inwardly and downwardly inclined toward the center thereof and terminating in a longitudinally extending trench coextensive with the length of the channel, said trench containing a water pervious filling material, a monolithic pavement filling said channel, said pavement having its upper surfaces inwardly and downwardly inclined from the outer shoulder edges thereof, an open-joint tile conduit arranged longitudinally in the bottom of said trench and coextensive with the latter, and longitudinally spaced vertical drains for conducting water from the upper surfaces of said pavement to said conduit, the inclined bottom surfaces of said channel providing for the drainage of water accumulating in said bed immediately beneath said pavement into said trench and conduit.

CLIFFORD W. OZIAS.