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EXPANSION JOINT STRUCTURE

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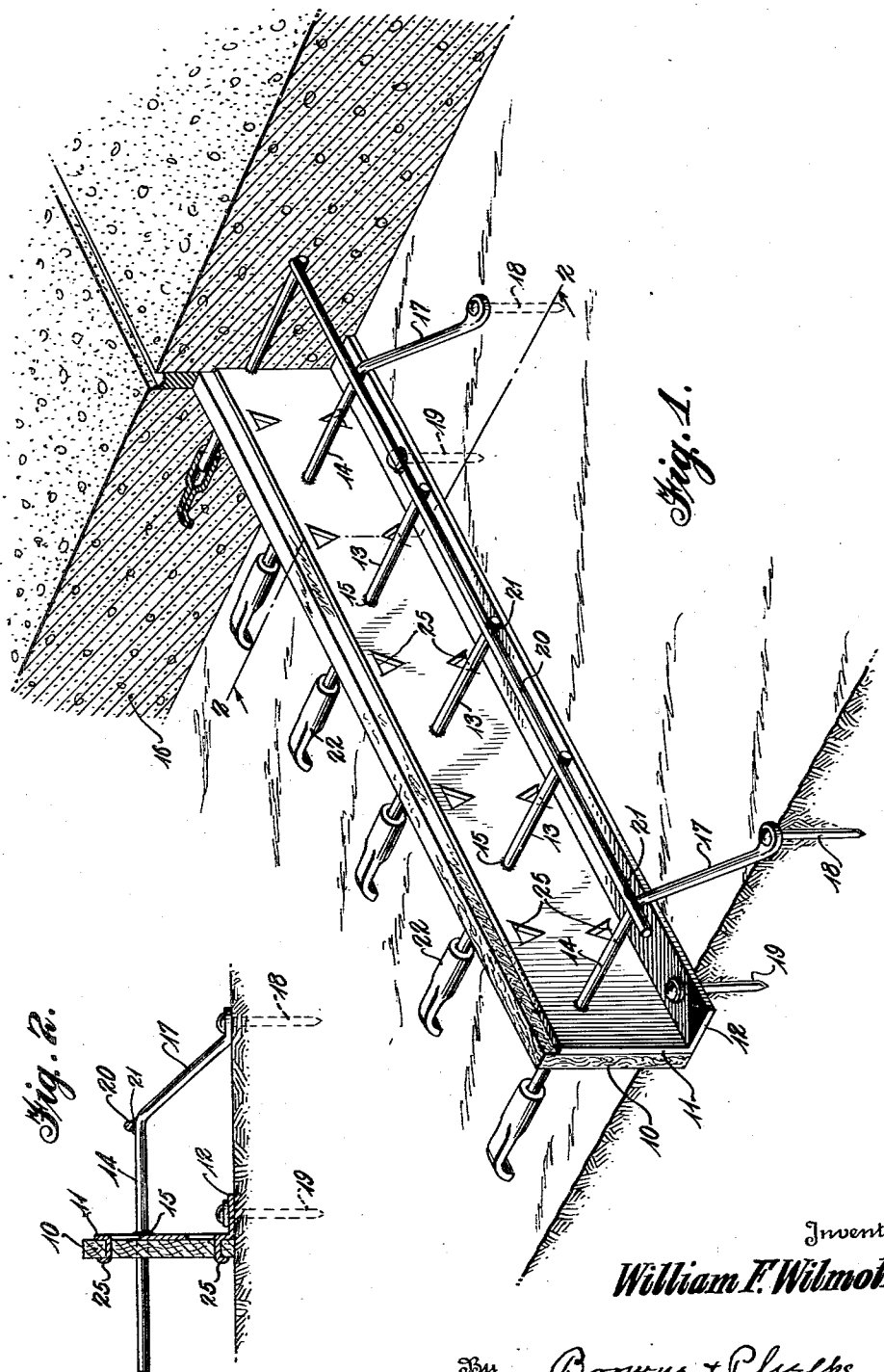


Fig. 1.

Fig. 2.

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EXPANSION JOINT STRUCTURE

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2 Claims. (Cl. 94—18)

The invention relates to expansion joints, particularly for use in concrete pavements and has as an object the provision of a pre-formed structure to be placed upon the subgrade and to act as a form against which the concrete for one section will be cast.

It is a further object of the invention to provide a structure of the class described which will be assembled at the factory and which may be installed by unskilled labor with a minimum chance of faulty construction.

It is a further object of the invention to provide a structure of the class described wherein the dowel pins for connecting adjacent sections of concrete will be preserved in correct alignment.

Further objects of the invention will appear from the following description showing an illustrative embodiment of the invention, and wherein:

Figure 1 is a perspective view of the structure partially installed; and

Figure 2 is a vertical transverse section on line 2—2 of Figure 1.

As shown the device comprises a plate 10 of a usual expansion joint material as asphalt-impregnated felt. To support the plate 10 there is shown a metallic plate 11 having a margin thereof as 12 bent at right angles, the plate 11 being secured to the plate 10 as by means of ears 25 struck out from the material of the plate and penetrating the plate 10 and clinched in the manner shown in Figure 2.

In accordance with accepted practice, the present invention is shown as embodying dowel pins 13, 14 penetrating the plates and desirably secured to the plate 11 as by electric welds 15.

To hold the plates in vertical position against the thrust of the first cast concrete block as 16, certain of the dowel pins as 14 are shown extended and bent downwardly as at 17 and provided in their ends with perforations to receive pins 18 to be driven into the sub-grade. These bent down portions may be provided upon as many of the dowel pins as desired, but every fourth pin as shown is found to be a sufficient frequency for such supports.

To prevent the bottom of the structure from shifting, pins 19 are desirably passed through the angular portion 12 of the plate 11. It is of great importance in structures of this character that the dowel pins are maintained in a position parallel with the surface of the pavement and also parallel with vertical planes normal to the joint. When the structure is installed, the side of the structure presenting the downturned portion 17 is exposed while the block 16 is being cast.

In the installation of the structure with unskilled laborers working thereabout, it is almost certain that some one will step upon the exposed ends of the dowel 13 and unless supported the stepped upon dowel will be forced out of correct position. To hold the pins in correct position, there is shown a rod 20 placed along the ends of the dowel pins 13 and connected to each and to the pins 14 as by electric welding indicated at 21.

In accordance with usual practice sleeves 22 are shown placed upon the free ends of the dowels 13 which will be encased in the concrete and will preserve a space about the ends of the dowels to prevent their abutment against the concrete when set to permit of movement of the pavement in expansion and contraction. In accordance with usual practice the portion of the dowels which carry the sleeves 22, and from said sleeves up to the plate 10, is provided with some type of coating which will prevent the bond of the concrete when set from locking the dowels in the concrete to prevent such movements of the concrete relative to the dowels.

As is well understood the importance of maintaining of the dowels correctly parallel with the expected movements of the concrete in expansion and contraction resides in the fact that if they are at an angle to such movement, the concrete will inevitably break when such movements occur.

The structure of the invention may be assembled at the factory and when shipped to the point of use all that is necessary to assure correct placement is that it be dropped on the subgrade and the pins driven through the openings provided therefor. When this is done, the structure will inevitably stand in the proper position if placed at the point indicated by the engineer.

Minor changes may be made in the physical embodiment of the invention without departing from the spirit thereof.

I claim:

1. An expansion joint structure comprising, in combination: a plate of compressible material; a metallic plate secured thereto, substantially coextensive therewith formed with a bottom marginal flange having anchoring-pin perforations; a plurality of dowel pins secured to said metallic plate, having straight portions extending in both directions from said plates normal thereto; certain of said pins beyond their straight portions and on the metallic plate side of said plates only downwardly deflected to con-

tact a surface upon which said marginal flange rests at points spaced therefrom while said plates are perpendicular to the surface; the ends of said downwardly deflected portions having anchor-pin receiving perforations whereby free ends of the straight portions of said dowel pins at one side of the assembly are slidable in enclosing concrete.

2. The combination of claim 1 with a bar extending between and secured to the straight portions of said dowel pins in spaced relation to said plates adjacent the downwardly deflected portions of said certain pins.

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