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CONSTRUCTION OF EXPANSION JOINTS

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This invention relates to the construction of expansion joints in slab floor or pavement constructions, and is particularly useful in connection with the laying of floors and pavements of concrete or other plastic composition.

In the construction of concrete floors and pavements it is necessary to form the floor or pavement of separate slabs with spaces provided therebetween to compensate for expansion and contraction of the floor or pavement due to changes of temperature. The spaces may be filled with a water-sealing plastic material such as bituminous compositions, or compressible sealing strips of rubber-like material may be employed to close the spaces so that water and dirt is prevented from entering and accumulating in the expansion spaces. For this purpose a resilient rubber expansion joint strip such as that of the Dewhurst and Meyer Patent No. 2,156,681 dated May 3, 1939 may be used.

As it is necessary to keep the surface of floors and pavements smooth and free from projections or shoulders, it is usually desired to employ dowel pins embedded in the adjacent slabs and extending therebetween across the joint to transfer the paving loads from slab to slab and prevent relative vertical movement of the slabs due to shifting of road ballast or action of frost or surface water.

The problem of providing a removable form to mold the expansion joint space is made more difficult by the presence of the dowel rods and makes advisable the use of a form which will support the rods in proper position until the slabs are completed and will permit removal of the form from both.

The principal objects of this invention are to provide for conveniently molding the walls of the space while supporting the dowel rods in proper position, to provide ease of placement and removability, to provide for forming a rebate to seat a resilient sealing strip between slabs, and to provide conveniently for simultaneous embedding of a lower sealing strip in the joint.

These and other objects will appear from the following description and the accompanying drawings.

Of the drawing

Fig. 1 is a perspective view of the form ready for pouring of the concrete, parts being broken away and parts shown in section.

Fig. 2 is a cross-sectional view of a pavement showing portions of adjacent concrete slabs, the dowel pin, and the form and lower sealing strip in place.

Fig. 3 is a perspective view of the resilient dowel support.

Fig. 4 is a perspective view of a modified form of the invention, parts being broken away and parts shown in section to illustrate its construction.

Fig. 5 is a perspective view of the bottom sealing strip.

Referring to the drawing, the numerals 10, 11 designate adjacent spaced slabs of concrete having an expansion space 12 therebetween. To provide for supporting a resilient expansion joint filler at the surface of the slabs, the shoulders of the slabs adjacent the space may be rebated as at 13, 14. A channel shaped resilient strip 15 is provided to seal the space at the bottom so that water cannot enter the joint from below and has wings 16, 17 embedded in the concrete. The strip preferably is formed with its inner walls 15a, 15b upwardly converging as shown in Fig. 5 so that it may be mounted upon the form temporarily simply by gripping the same between such walls without the provision of special attaching devices, and may be readily detached from the form to leave the strip in the bottom of the expansion void.

Load-transferring dowel rods 18 are embedded in the slabs across the joint. These rods may be of solid metal with clearance spaces provided at their ends in any desired manner as by use of tubing forms placed over the ends of the rods, or the rods may be of composite telescoping type. In either case the rods may be lubricated before being embedded in the concrete so as to facilitate sliding movement of the rod with respect to the slabs.

To provide for forming the space 12 a pair of similar strips or plates 19, 20 of strip material such as sheet metal are mounted together in spaced relation by spacing strips 21, 22 to which the strips 19, 20 are secured by screws 23 or other suitable fastening means.

For clearing the dowel rods so that the form may be removed after adjacent slabs have been formed, V-shaped notches or slots 25 are formed in the lower margins of strips 19, 20 at the proper intervals. The notches have arcuate throats having the same radius as the rods 18.

Strips 27, 28 of sheet material having the desired thickness may be affixed to the exposed faces of strips 19, 20 at their upper margins for forming the rebates 13, 14. If desired, the strip 22 may be omitted as in Fig. 4 and where the strips 19, 20 are of springy metal removal of the form from the poured joint is facilitated by the
not readily subject to wear and may be used over and over again.

These and other modifications may be made without departing from the spirit of the invention as it is defined by the following claims.

1. A form assembly for making an expansion joint, said assembly comprising a form structure having notches in the lower margin thereof for accommodating load transfer devices, removable spaced-apart blocks of resilient rubber-like material disposed in slots formed in the lower margin of the form.

2. A form for an expansion joint between floor or paving slabs, said form comprising a pair of spaced form members having notches at a margin thereof to clear a dowel rod, and a block of resilient rubber-like material adapted to be movable positionably in said structure to fill the space between the strips at the notched portion, said block having integral retaining lugs for locating it with respect to the notched portion and for holding it temporarily in place, and said block having a seat for said dowel rod.

3. A form for making an expansion joint, said form comprising a structure notched at its lower margin to accommodate a load-transfer device, and a block of resilient rubber-like material having a seat for said device and being removable positionably in said structure at the notch in relation to support said device on said seat upon removal of the notched structure from the joint, said block being of sufficient length to close the notch opening in the structure, but of a length not substantially greater than its height so as to permit dislodging the block from beneath the load-transfer device by tilting and compressing the block in the joint.

4. A form for making an expansion joint, said form comprising a pair of spaced-apart plates notched at the lower margin thereof to accommodate a load-transfer device, and a block of resilient rubber-like material having a seat for said device and being positionable removably at the notch between the plates in relation to support said device on said seat in the joint upon removal of the plates from the joint, said block being of a size and shape substantially closing the notch opening in the plates and having retaining portions integral therewith and projecting between said plates only a limited extent beyond the notch in such relation as to permit dislodging the block from beneath the load-transfer device by tilting and compressing the block in the joint after removal of said plates.

5. A form for making an expansion joint, said form comprising a pair of spaced-apart plates having notches at spaced-apart positions along the lower margin thereof to accommodate spaced-apart load-transfer devices, and blocks of resilient rubber-like material having a seat for said device and being positionable removably at the notches between the plates in relation to support said load-transfer devices on said seats in the joint upon removal of the plates from the joint, said blocks being of a size and shape substantially closing the notch openings in the plates and
having retaining portions integral therewith and projecting between said plates only a limited extent toward one another in such relation as to permit dislodging each block individually from beneath its load-transfer device by tilting and compressing the block in the joint.

6. Means for supporting a load-transfer device and closing the notch opening of an expansion joint form, said means comprising a block of resilient rubber-like material positionable removably at the notch of the form in relation to support the load-transfer device in the joint upon removal of the notched structure from the joint, said block having a seat for said device and being of a size and shape to close substantially the notch opening in the structure and having ears integral therewith and projecting therefrom in off-set relation to the face of the block for reception within said structure beyond the notch to locate and retain the block temporarily in the form.

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