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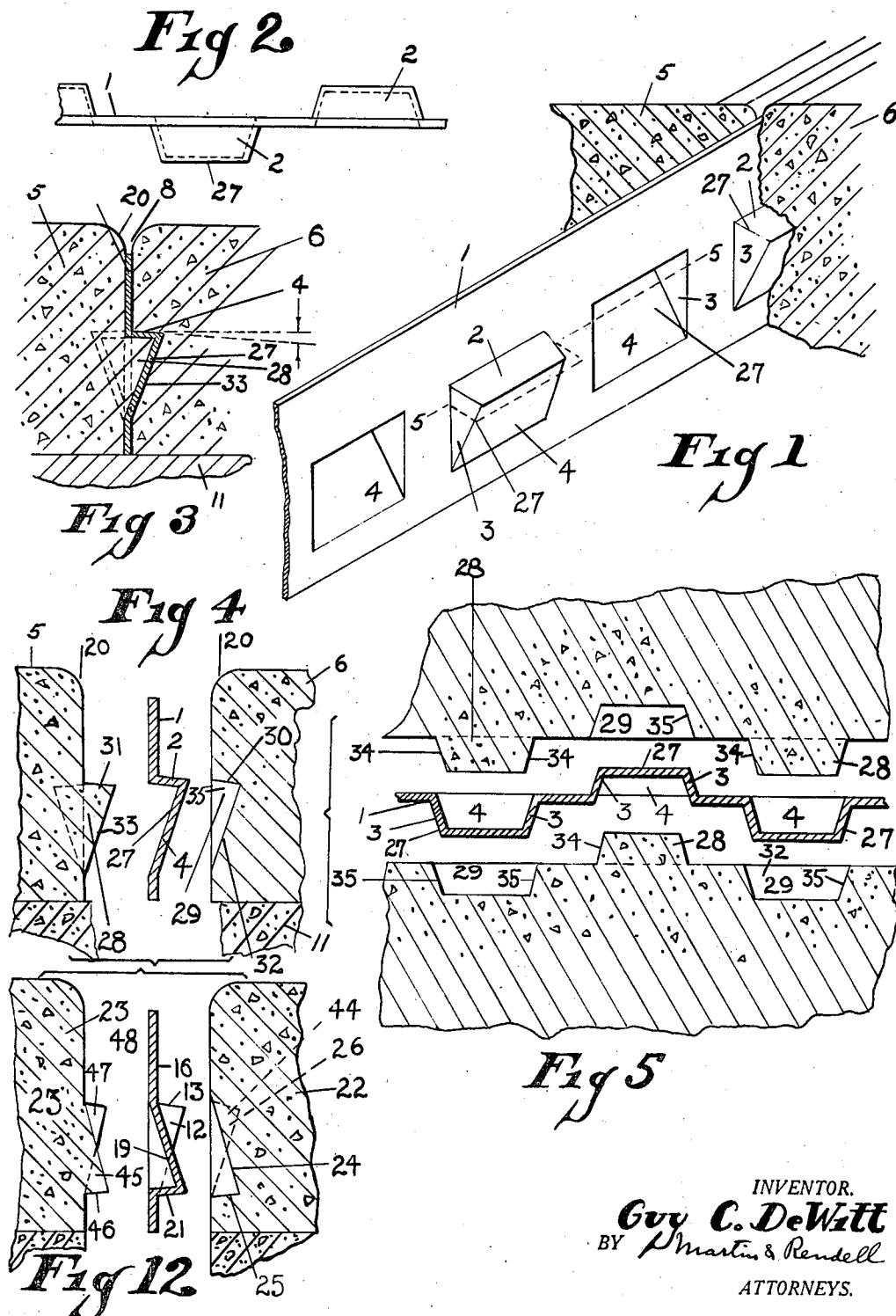
G. C. DE WITT

2,321,067

PREFORMED STRIP FOR FORMING EXPANSION JOINTS

Filed May 15, 1942

2 Sheets-Sheet 1



INVENTOR.
Guy C. DeWitt
BY *Martin & Rendell*
ATTORNEYS.

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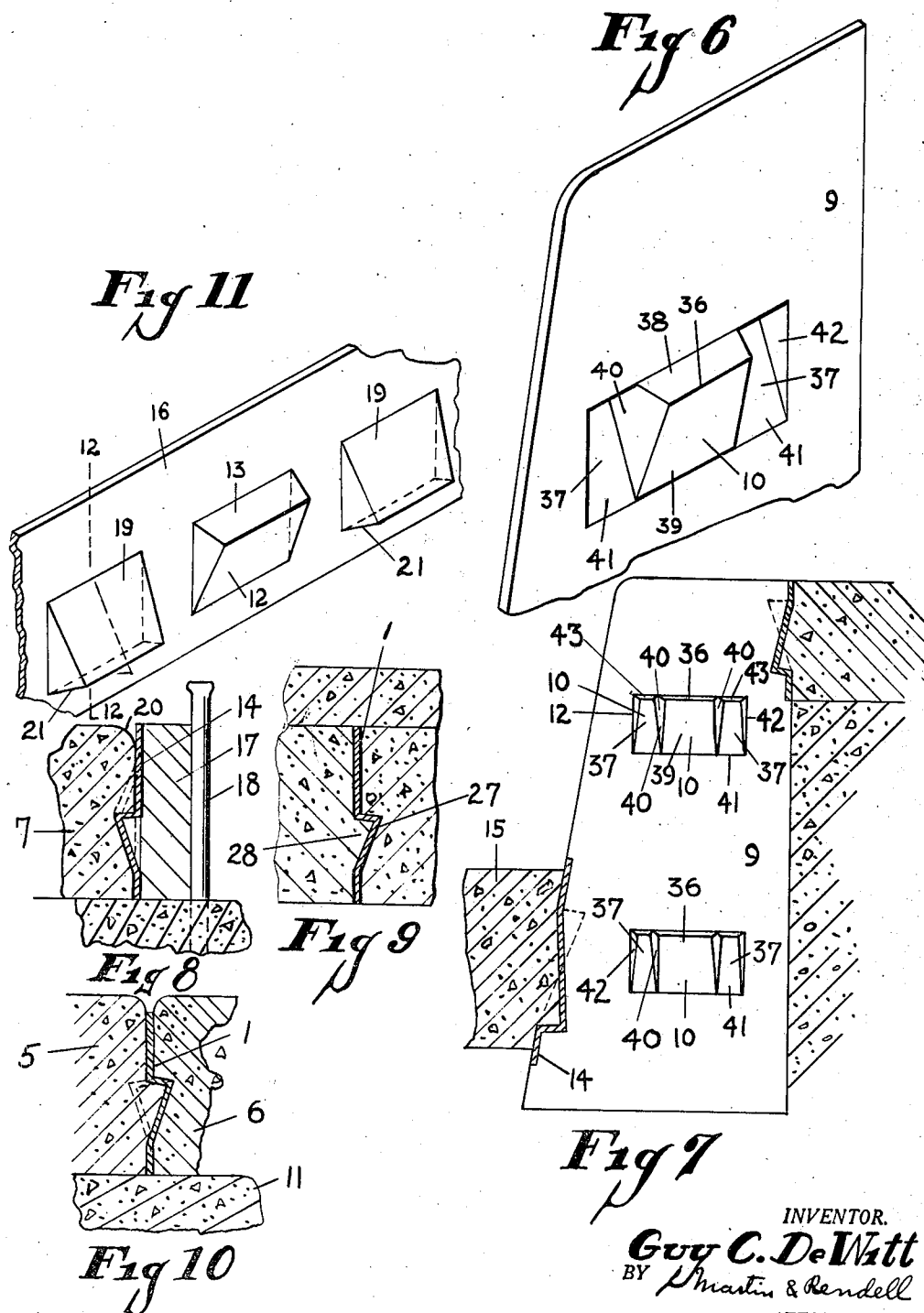
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INVENTOR.
Guy C. DeWitt
BY *Martin & Rendell*
ATTORNEYS.

UNITED STATES PATENT OFFICE

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PREFORMED STRIP FOR FORMING
EXPANSION JOINTS

Guy C. De Witt, Utica, N. Y.

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7 Claims. (Cl. 94—18)

This invention relates to expansion and contraction joints employed in concrete construction such as pavements, pavement foundations, walls, floors, curbs and similar work, and more particularly to such joints where means are provided for transferring load from one section to another or other adjacent sections.

The purpose of this invention is to provide a premoulded or previously constructed strip for use in forming expansion and contraction joints in such concrete work and more particularly to provide a strip for use in making such joints wherein the strip has parts or means thereon for forming a more or less interlocked joint and particularly for forming in the adjacent concrete sections or slabs means for transferring load from either section or strip of concrete to the other section or sections or strips of concrete.

A further purpose is to provide a strip for forming an expansion and contraction joint with load transferring means, which strip is of new and improved construction and operation, economical in manufacture, readily placed and held in position when the concreting is being done, and well capable of functioning over a long period of time in allowing the sections or slabs adjacent the joints to expand and contract, and well adapted to form effective and durable means for transferring load from either strip or section of concrete to the other strip, strips or sections.

It is an accepted fact that it is impossible to construct a continuous concrete slab without designed transverse joints, which slab will not eventually crack transversely due to the strain of expansion and contraction in the slab brought about principally by temperature and moisture. It has been recognized that the use of proper expansion and contraction joints would lessen or safely limit these stresses in large areas of concrete but the high cost of such proper expansion joints has heretofore precluded their full and proper use.

Furthermore the forming of expansion and contraction joints has been complicated by the necessity of providing means for transferring load across the joints between adjacent slabs.

It is the main purpose of this invention to provide a strip for forming expansion and contraction joints, which strip not only provides means for allowing the slabs of concrete to expand but also allows for contraction even where the slabs are interlocked to a considerable extent, and which joint-forming strip also provides means for forming in the concrete cast about its two sides and as an integral part of the concrete so cast

means for transferring load from one slab to another and providing mutual support between contiguous sections of concrete.

A further purpose is to provide a strip of the construction and character described, which is sufficiently economical in its material and manufacture, to be properly located in the concrete construction, and to be retained in the concrete structure without appreciably adding to the cost of the structure. At the same time, however, the joint-forming strip is of such character that where it is not desired or required that the said strip be permanently left in the joint to function as a member allowing the slabs of concrete to expand by compressing the strip, the strip may be temporarily used by being held in position along the joint to form in the concrete placed along one side of the strip the interlocking projections and the cooperating mortise and tenon portions in that edge of the joint and then by removing the said joint-forming strips other concrete may be cast against the first formed edge of the other strips of concrete, thus forming an interlocking construction or contraction joint with means for transferring the load from either strip of concrete to the other, and for providing mutual support between such contiguous sections of concrete.

In general the invention consists of a joint-forming strip described which is provided with open box-like portions projecting preferably some to one side of the strip and some to the other side of the strip, which box-like portions will form in the concrete cast on the opposite sides of the strip, modified mortises and tenons that will allow free movement of the sections in the plane of the structure, while prohibiting differential movement perpendicular to the plane of the structure, and further to provide a strip of the class described which has the opposite walls of such box-like portions slanting towards each other as they extend away from the body of the strip so that the sections of concrete may contract without breaking off the interlocking portions of the sections of concrete, and further to have in the more commonly used forms of my invention the upper walls of such box-like portions in the preformed strip slant only slightly downwardly as they extend from the strip so that the upper face of the tenon formed in one section of concrete will be almost horizontal and will cooperate with an equally almost horizontal upper face on its cooperating mortise, whereby a short strongly constructed tenon is formed in one section of the concrete with its upper nearly horizontal face

adapted to receive and transmit load from the complementally-formed recess or mortise of the adjacent concrete strip.

A further purpose is to provide a strip of the character above suggested which is of resilient or elastic structure or material so that the material of the strip may meet the general requirements for premoulded or preformed expansion joints.

Further purposes and advantages of my invention will appear from the specification and claims herein.

Fig. 1 is an isometric projection showing one form of my joint-forming strip in use between two slabs of concrete, which slabs are broken away from the near portion of the said strip. Fig. 2 is a top or plan view of a portion of the strip shown in Fig. 1. Fig. 3 is a vertical sectional view transversely across the joint and joint-forming strip of Fig. 1.

Fig. 4 is a vertical sectional view similar to Fig. 3 but with both slabs of concrete spaced away from the joint-forming strip in order to more clearly illustrate the complementary tenons and mortises and also to allow for more plainly numbering the parts of the said tenons and mortises and of the joint-forming strip.

Fig. 5 is a similar but horizontal sectional view through a joint such as shown in Figs. 1 and 3 but showing three pairs of mortises and tenons and with both slabs of concrete spaced away from the joint-forming strip to show the different parts more clearly and also to allow for applying the numerals with less confusion.

Fig. 6 is an isometric view of the upper part of a modified joint-forming strip used in the formation of curb sections, as commonly used with pavements. Fig. 7 is a cross-sectional view through the edge of a pavement and the edge of an adjacent sidewalk with an intervening curb portion, with the joint-forming strip of Fig. 6 shown in side elevation upon the intervening curb.

Fig. 8 is a transverse section through the edge portion of one strip of concrete and through the modified form of joint-forming strip used therewith, and through a plank or similar temporary holding member illustrating the use of my joint-forming strip when only one strip of concrete is to be formed at the time.

Fig. 9 is a cross-sectional view through a completed joint of concrete sections using a strip of this invention in the foundation of a pavement.

Fig. 10 is a transverse sectional view similar to Fig. 9, but illustrating the use of my joint-forming strip where the concrete is laid on a suitable foundation and forms the pavement proper.

Fig. 11 is an isometric projection of one modified form of my joint-forming strip 16 especially adapted for use where at the next step only one strip of concrete is to be formed, the face toward the observer showing the wedge-shaped projections in the side of the forming strip that is to be placed towards the concrete first to be laid.

Fig. 12 is a diagrammatic vertical sectional view similar to Fig. 4 of the strip 16 and spaced therefrom the adjacent edge portions of the two strips of concrete that will ultimately be laid with the aid of the special one-sided form of strip 16.

It will be seen that my invention contemplates the use of a joint-forming strip 1, which preferably is of a width, equalling the thickness of the

abutting concrete to be laid and with said strip of sufficient strength to be practically self-sustaining when placed in position and held by suitable stakes or other temporary holding means so that the strip will stay upright and straight without becoming bent or deformed by the weight or pressure of the concrete placed on both sides thereof.

A preferred and economical material for use in making the joint-forming strips when they are to be retained in the joints of ordinary concrete work is some form of cellulose or other material having numerous air cells or air pockets therein, such as loosely-formed cardboard, strawboard, cellular material or the like, or other cheap but relatively strong mixtures or compositions of material that will fill the requirement of being rigid enough for original use in making the joint and compressible and likewise somewhat resilient or elastic enough to allow the adjoining slabs of material to compress the said strip as the slabs of concrete expand, and yet elastic or resilient enough to spring back into place sufficiently to substantially again more or less fill the space between the adjoining slabs of concrete when such slabs again contract and relieve the pressure upon the said strip.

Referring to the drawings in a more particular description and first to the form of the invention shown in Figs. 1 to 5 inclusive, it will be seen that the joint-forming strip 1 has formed as a unit therewith either integrally therewith or by adding on parts to make a unitary construction, a plurality of offset portions or open-sided box-like portions 27 which have their open sides in the plane of the strip. In an ordinary strip 1, such as is shown in Figs. 1, 2, 3 and 5 these offset portions 27 alternately face in different directions from the main body of the strip, for instance in the portion of strip 1 of those visible in Fig. 1, the second offset portion counting from the left-hand end of the strip projects towards the observer, as does also the fourth such offset or box-like portions 27, while the remaining or alternate offset portions or box-like parts 27 project to the other or further side of the said strip. This alternate arrangement is preferable in the ordinary joint-forming strip as it provides a proper distribution of said parts, but it will be understood that I am not limited in my invention to this detail of literal alternation in the arrangement of the said boxes, since in some cases this arrangement may be varied and still accomplish the result desired.

These offset portions or box-like portions 27 in my preferred form consist of a top 2, opposite sides 3 and 3, and a relatively large and upwardly sloping bottom 4. Preferably the sides 3 are triangular in shape and converge slightly as they extend away from the body of the strip 1. The top 2 is four-sided in shape with its long edge adjacent the body of the strip and its outer edge substantially parallel with the strip 1 but slightly shorter at such outer edge. The end edges of said top 2 converge slightly towards each other as they extend away from the body of the strip 1. The bottom 4 of these boxlike portions slants sharply upwardly as it extends outwardly and becomes narrower as it extends up along the converging sides 3 and meets and unites with the outer edge of the top 2. It will be understood that I have thus in detail described the particular construction of the offset portions or open box-like portions 27 but that this detailed description is given primarily for purposes of definiteness and

only as illustrative of a form of my invention now found workable and practical, but that my invention is not limited to the precise form of these offset or box-like portions further than is required by the claims hereinafter set forth.

These open-sided box-like portions 27 may be conveniently fabricated integrally with the body of the strip 1 by pressing these portions out of a flat strip of fibrous material of proper cellulose structure, so as to form the said box-like portions without unduly weakening the strip or the connections of the parts of the box to each other or to the body of the strip 1. It is however within the scope of this invention to form said box-like portions of separate parts or from a single piece shaped to the form of the complete box and then attach the said box to the body of the strip of material opposite proper holes made therein.

When a joint-forming strip of the sort already described and more or less along the line illustrated in Figs. 1 to 5 is placed in a position where a joint is to be formed in concrete work, and temporarily supported in that place in upright position and left there when the concrete is placed on both sides of said strip 1, the said strip will operate to make the concrete placed on opposite sides thereof have in its faces adjacent said strip projections 28 occupying the cavity of each box-like portion 27 and recesses 29 formed by the outward extension of the projection 27 itself. The projections 28 occupying the cavities of the several box-like portions 27 will obviously correspond very closely in size and shape to the cavity of said box and the recesses 29 will correspond very closely to the exterior shape and size of said boxes 27. In other words the projections 28 are really short stubby tenons and the recesses 29 are correspondingly shaped relatively shallow strong mortises, and any one projection or tenon 23 will project into and interlock with the recess or mortise 29 formed by the outer or exterior face of the box 27 and only the material of the box 27 will separate the concrete of one slab having the tenon or projection 28 from the oppositely facing concrete having the recess or mortise 29. These interlocking tenons and mortises make the joint formed by the use of my strips 1 interlock to an effective degree and furthermore provide means for transferring the load from either strip of concrete to the other strip of concrete, as will be seen by inspecting the fourth box-like portion 27 furthest to the right in Fig. 1 or by noticing the arrangement of the concrete in the sectional view Fig. 3 or the sectional views Figs. 4 and 5. The top face 31 of the tenon 28 slants very slightly downwardly from the horizontal as it extends outwardly, (for instance see Fig. 3), while the bottom face 33 of said projection or tenon 28 slants sharply upwardly, thus forming a relatively short tenon which is strongly supported from below and really forms a wedge-shaped abutment for said top face 31, so that said top face 31 is well adapted to receive the downward strain from a load upon the top of the right-hand slab 6 without putting such a cross strain upon the concrete tenon as might tend to crack or weaken said tenon. It will be seen that incidental to the slight downward slant of the top face 2 of each box-like projection 27, the upper face 30 of each mortise 29, that is the face of the mortise that is directed downwardly, is nearly in a horizontal line and slants downwardly as it extends inwardly in the concrete only slightly, so that the downward pressure of the load on the right-hand slab of concrete 6 will be transferred directly from the

almost horizontal face 30 of the mortise to the correspondingly almost horizontal face 31 of the tenon 28 (such transfer of course taking place through the material of the top 2 of the strip 1).

This top 2 being the only part of the joint strip where compression is not desired such top 2 during manufacture is kept to a minimum thickness and as incompressible as possible.

It will be seen that such straight down transfer of the load will have no tendency to force the edges of the strips of concrete 5 and 6 away from each other as might be the result if these cooperating faces were on an appreciable slant. There is however just enough slant in the top face 31 of the tenon and the downwardly facing surface 30 of the mortise to allow these parts to move away from each other longitudinally of the concrete or at right angles to the joint between the slabs of concrete when the time comes for the joint to act as a contraction joint. Similarly it will be seen that the sharply inclined face 32 of the mortise 29 and the sharply inclined face 33 of the tenon slanting down from its upper face 31 will prevent any interlocking of these faces that would prevent the two edges of the concrete from separating when occasion requires these two faces to leave each other, as when the mass of adjacent concrete contracts.

In Figs. 6 and 7 there is shown a modification of my invention adapted especially for use in the forming of joints in the conventional curb sections used at the edge of a concrete pavement, 15. In Fig. 6 is shown an isometric view of the upper half of the specially formed and shaped joint-forming strip 9 and thus showing in perspective the triple box-like portion 10. In Fig. 7 there is shown in side elevation a complete joint-forming strip 9, with two of these triple box-like portions 10, one spaced appreciably above the other. In these curb sections, which are in vertical cross section the same relative shape as the special joint-forming strip shown in Fig. 7, the curb sections are of much greater height than width and thus the triple box-like sections 10 are placed one above another in order to get the proper extent of interlocking and expansion and contraction joint effect that is required. It will be noticed that my designation of the box-like portion 10 as being a triple box-like portion comes from the said box-like portion really having three box-like parts, the central one 36 of which projects toward the observer as seen in Figs. 6 and 7, while the two relatively smaller and narrower box-like portions 37—37 to either side thereof project to the further side of the joint-forming strip 9 shown in Figs. 6 and 7. The central box 36 projecting toward the observer as shown in Fig. 6 consists of a top portion 38 slanting downwardly slightly as it projects outwardly, and a bottom 39 slanting sharply upwardly and having its upper end attached to or formed integrally with the outer edge of the said top 38. The opposite sides of this central box 36 and the adjacent sides of the two side boxes 37 are formed by two triangular side portions 40, of which the nearer side shows in Fig. 6, but both said triangular members show in the representation of these three-part boxes in Fig. 7.

The side boxes 37 have thereon separate sharply upslanting bottoms 41 and thereon separate outer sides 42. The side and narrower box-like portions 37 have thereon separate top portions 43 which in the constructions shown in Figs. 6 and 7 slant downwardly slightly as they extend outwardly.

From the explanation already given as to the separate single projections, it will be seen that these triple box-like portions form correspondingly shaped mortises and tenons in the body of concrete on the opposite sides of the strip. Obviously the side walls and the sharply upslanting bottom walls 39 and 41 form correspondingly sloped walls in the mortises and tenons so that there will be no obstruction to the tenons re-
 treating from the mortises when the concrete of the two bodies of cement contracts and requires a disengagement in the horizontal direction. In this triple box-like portion also it will be seen that the wedge-shaped box-like portions of the strip provide correspondingly stubby wedge-shaped tenons well adapted to transmit strain to the corresponding nearly horizontal faces of the mortises formed by the thicker ends of the box-like portions.

Where only one strip of pavement is to be made the usual course is to support a strong plank 17 or other holder at a position that corresponds with the right-hand edge of the concrete strip 7, such plank being supported strongly in upright position by the use of metal rods 18 or other stakes driven into the ground or into the foundation 11 for the concrete pavement, as plainly illustrated in Fig. 8. The preformed joint-forming strips to be used in this situation are different in two respects from the joint-forming strip hereinbefore described. It will be seen in the first place that the special joint-forming strip 14 which should be placed directly to the left of the plank 17 should have all of its box-like projections extending from one side or face of the strip 14 in order to allow of the main body of said strip 14 being directly in contact with the supporting plank 17. This is necessary in order to ultimately let the concrete be formed in a mass as close up to the plank 17 as the main body of the strip 14 will allow excepting of course that the box-like projections on the strip will extend into the mass of the concrete for forming the recesses intended to be formed therein by the strip. Furthermore I make the box-like projections which may for convenience in description herein be called blunt wedge-like projections, with their blunt end pointing upward in some cases and with the blunt end directed downwardly in other instances. Commonly the wedge-shaped sections will have their blunt ends alternately at the top and at the bottom.

Fig. 11 is an isometric projection of the right-hand surface of the special modified forming strip 16 suitable for forming at first only one strip 22 of concrete after the manner shown in Fig. 12 and of the type just above described. Wedge-shaped projections 12 alternate or at least vary so that the blunt end 13 sometimes is directed upwardly as seen in the middle wedge-shaped projection of the strip shown in Fig. 11, while in other cases the said blunt end 21 is directed downwardly as shown in the first and third of said projections of the special forming strip 16 shown in Figs. 11 and 12.

Referring to the views 11 and 12 illustrating the special form of joint-forming strip 16 it will be seen that the second wedge-shaped projection 12 counting from the left in Fig. 11 is of precisely the same construction as the regular box-shaped projection 27 of my regular form as shown in Figs. 1 to 5, so that a detailed description thereof or a cataloging of its different sides is not necessary. On the other hand the first and third wedge-shaped projections are new forms of pro-

jections 19, that is in these wedge-shaped projections the thick end of the wedge faces downwardly instead of upwardly. This will be understood by examining the sectional view of the strip 16 that is shown in Fig. 12 with the first-formed concrete mass 22 at the right and the second-formed mass or slab 23 at the left, it being understood that the section line upon which Fig. 12 is taken is on section line 12—12 of Fig. 11 and so through wedge-shaped projection 19 which has its thick end 21 towards the bottom. It will now be seen that the special joint-forming strip 16 having all of its projections both 12 and 19 extending only in one direction and with some of the projections as 19 in reversed position with their thick ends at the bottom may be placed against a plank 17 as shown in Fig. 8 at the proper position to form the side edge of the slab of concrete 7 that is first to be made (as in Fig. 8). Then assuming that the joint-forming strips 16 are left in place, in due time a second slab of pavement 23 is laid at the other or left-hand side of this strip as seen in Fig. 12. Then, if a sectional view were taken as indicated in Fig. 12 with the two slabs of concrete shown spaced from the forming strip 16 the projections 19 shown in solid lines in Fig. 12 would make in the first-laid concrete 22 a complementary-shaped recess 24 having its almost horizontal lower face 25 directed upwardly, while the regular wedge-shaped projections 12 of which only one is shown beyond the projection 19 in Fig. 12, would make a complementary-shaped recess 26 in said first-formed concrete 22 and appearing in Fig. 12 only in dotted lines, and the upper end 44 of this recess would be almost horizontal and would face downwardly.

Assuming (as would be the usual practice) that the special joint-forming strip 16 were left in place in making the second or left-hand slab of concrete 23 of the structure indicated in Fig. 12, then it will be obvious to those versed in the making of concrete structures by the use of forms that the recess of each thick-bottomed wedge-shaped projection 19 will make in the second-laid slab 23 a downwardly facing wedge-shaped tenon 45 having its bottom end 46 slanting upwardly only slightly; that tenon would be adapted to transmit downward strain from the second-formed slab 23 of concrete to the face 25 of the recess 24 of slab 22 and in a similar way it will be seen that the recess of each wedge-shaped projection 12 of strip 16 will form in the second-formed slab of concrete 23 a tenon 47 projecting to the right with its upper end 48 widened like the blunt end of a wedge and slanting down very slightly and well adapted to receive the downward strain from the face 44 of the recess 26 of the first-formed slab 22.

It will now be seen that by making these specially modified forming strips with their wedge-shaped projections all on one side of the strip but with some of the wedge-shaped projections in reverse position, I am able to form concrete structures where the load can be transferred both from the first-laid mass of concrete to the second-laid mass of concrete and from the second to the first-laid mass of concrete.

In the special strip 16 illustrated in Figs. 11 and 12 and also in Fig. 7, not only do the wedge-shaped projections all project from one side of the strip with some of the said projections arranged in reversed position, but all of these wedge-shaped projections are in what might be called the same horizontal zone of the strip 16. On the other hand in the special forming strip 14

shown in Fig. 8 the wedge-shaped projections of the strip are all on one side, some of them being arranged in reversed position, but these two series of wedge-shaped projections are arranged in different horizontal zones of the strip 14. The thick ends of these wedge-shaped projections should be in line at about the vertical center of the mass of concrete or of the strip itself, in order to equalize the transferring of loads from one strip of concrete to the other. The thick ends of the wedge-shaped projections are to be at a point midway of the strip. As the said strip is illustrated in Fig. 8 the wedge-shaped portions of the regular form with their wide ends at the top are arranged in the lower zone and the wedge-shaped projections that are reversely arranged are in a higher or the upper zone of said strip 14.

In the construction shown in Fig. 8 a joint-forming strip 1 is illustrated, which is as high as the complete thickness of the pavement, because the strip 1 will not be in the way of the trowel or other tool because obviously only half or one side of the ultimate valley 8 will be made at this operation. This deviation from the regular rule is because the small upper zone of the joint-forming strip is more useful to cooperate with the proper tool in forming the rounded edge 20 of Fig. 8. After the left-hand body of concrete has set and cured and the plank 17 and stakes 13 are removed, the upper relatively narrow zone of the joint-forming strip will help the workman to put the proper rounded edge upon the right-hand strip of concrete. Even if this upper edge of the forming strip happens to be then bent over to the left, the two rounding edges will have been made.

In the construction shown in Fig. 7 a joint-forming strip 14 is illustrated which is of a height greater than the concrete pavement 15 which abuts against one side of such strip.

What I claim as new is:

1. A preformed, imperforate one-piece strip for forming an interlocking expansion and contraction joint in concrete, comprising a self-sustaining compressible and resilient strip of a width equalling the thickness of the abutting concrete in which the joint is to be made, said strip having formed wholly therewithin offset portions forming pockets open in the plane of the strip and with one side of certain of said offset portions almost horizontal so that separated interlocking and load-transferring mortise and tenon portions are formed in the concrete placed on the opposite sides of the strip and the material forming the strip and its offset portions can be compressed by the expansion of the concrete.

2. A preformed, imperforate one-piece strip for forming an interlocking expansion and contraction joint in concrete, comprising a self-sustaining compressible and resilient strip of a width equalling the thickness of the abutting concrete in which the joint is to be made, said strip having formed wholly therewithin box-like portions forming pockets open in the plane of the strip and with one side of certain of said box-like portions almost horizontal so that separated interlocking and load-transferring mortise and tenon portions are formed in the concrete placed on the opposite sides of the strip and the material forming the strip and its box-like portions can be compressed by the expansion of the concrete.

3. A preformed, imperforate one-piece strip for forming an interlocking expansion and contraction joint in concrete, comprising a self-sustaining compressible and resilient strip of a width

equalling the thickness of the abutting concrete in which the joint is to be made, said strip having formed wholly therewithin box-like portions forming pockets open in the plane of the strip and with one side of certain of said box-like portions almost horizontal so that separated interlocking and load-transferring mortise and tenon portions are formed in the concrete placed on the opposite sides of the strip and the material forming the strip and its box-like portions can be compressed by the expansion of the concrete, some of said box-like projections extending from one side of the strip and others extending from the other side of the strip.

4. A preformed, imperforate one-piece strip for forming an interlocking expansion and contraction joint in concrete, comprising a self-sustaining compressible and resilient strip of a width equalling the thickness of the abutting concrete in which the joint is to be made, said strip having formed wholly therewithin box-like portions forming pockets open in the plane of the strip and with the upper side of certain of said box-like portions almost horizontal so that separated interlocking and load-transferring mortise and tenon portions are formed in the concrete placed on the opposite sides of the strip and the material forming the strip and its box-like portions can be compressed by the expansion of the concrete.

5. A preformed, imperforate one-piece strip for forming an interlocking expansion and contraction joint in concrete, comprising a self-sustaining compressible and resilient strip of a width equalling the thickness of the abutting concrete in which the joint is to be made, said strip having formed wholly therewithin box-like portions forming pockets open in the plane of the strip and with wedge-shaped box-like portions with their thick ends almost horizontal and forming pockets open in the plane of the strip and with certain of said box-like portions having the thick end of the wedge located towards the top of the strip and certain of the other box-like portions having the thick end of the wedge located towards the bottom of the strip so that separated interlocking and load-transferring mortise and tenon portions are formed in the concrete placed on the opposite sides of the strip and the material forming the strip and its box-like portions can be compressed by the expansion of the concrete.

6. A preformed, imperforate one-piece strip for forming an interlocking expansion and contraction joint in concrete, comprising a self-sustaining compressible and resilient strip of a width equalling the thickness of the abutting concrete in which the joint is to be made, said strip having formed wholly therewithin box-like portions forming pockets open in the plane of the strip and with wedge-shaped box-like portions with their thick ends almost horizontal and forming pockets open in the plane of the strip and with certain of said box-like portions having the thick end of the wedge located towards one edge of the strip and certain of the other box-like portions having the thick end of the wedge located towards the opposite edge of the strip so that separated interlocking and load-transferring mortise and tenon portions are formed in the concrete placed on the opposite sides of the strip and the material forming the strip and its box-like portions can be compressed by the expansion of the concrete.

7. A preformed imperforate one-piece strip for

forming an interlocking expansion and contraction joint in concrete to be laid on its opposite side at different times comprising a self-sustaining compressible and resilient strip of a width equalling the thickness of the abutting concrete, said strip having formed wholly therewithin and only on the side to receive the first concrete, wedge-shaped box-like portions open in the plane of the strip and with certain of said box-like portions having the thick end of the wedge located towards the upper edge of the strip and almost horizontal and with certain of the other box-like portions having the thick end of the wedge located toward the bottom of the strip and almost

horizontal so that non-integral interlocking and load-transferring mortise and tenon portions will be formed in the concrete ultimately placed on the opposite sides of the strip but the first laid concrete will have all the mortises but some of them will have their almost horizontal faces located towards the upper edge of the strip and other mortises will have their almost horizontal faces located towards the lower edge of the strip so that the completed concrete structure will be adapted to transfer load from either strip to the other.

GUY C. DE WITT.