July 25, 1933. W. G. ANDERSON 1,919,354

EXPANSION JOINT FOR TILED BATHTUB RECESSES

Filed Oct. 6, 1932

Fig. 1

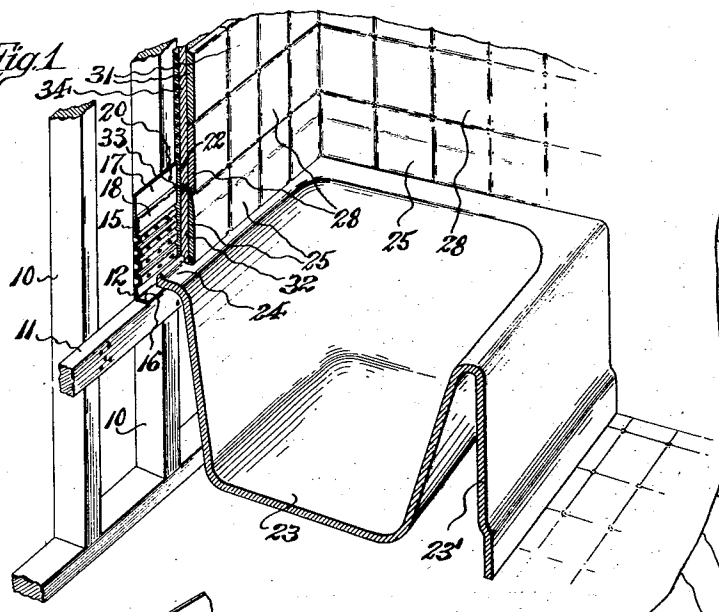


Fig. 3

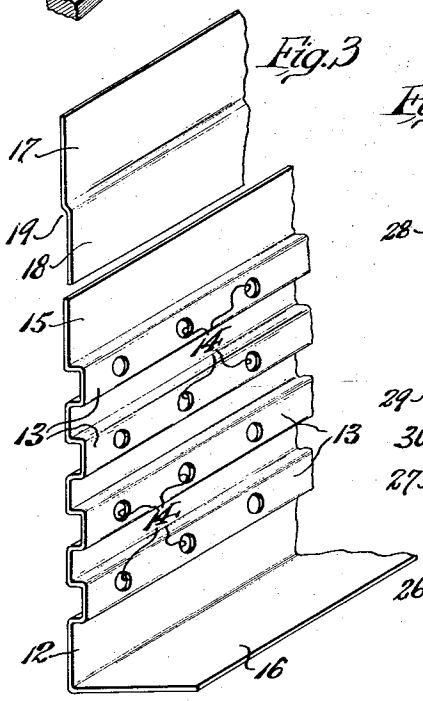


Fig. 4

Fig. 6

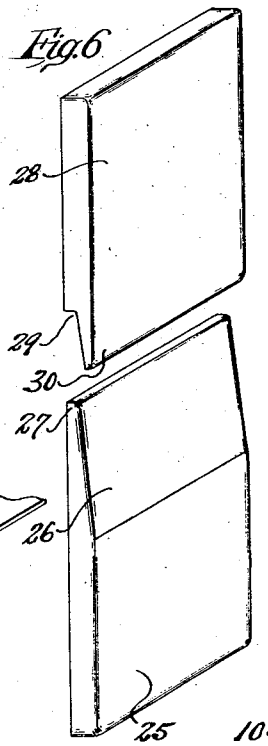
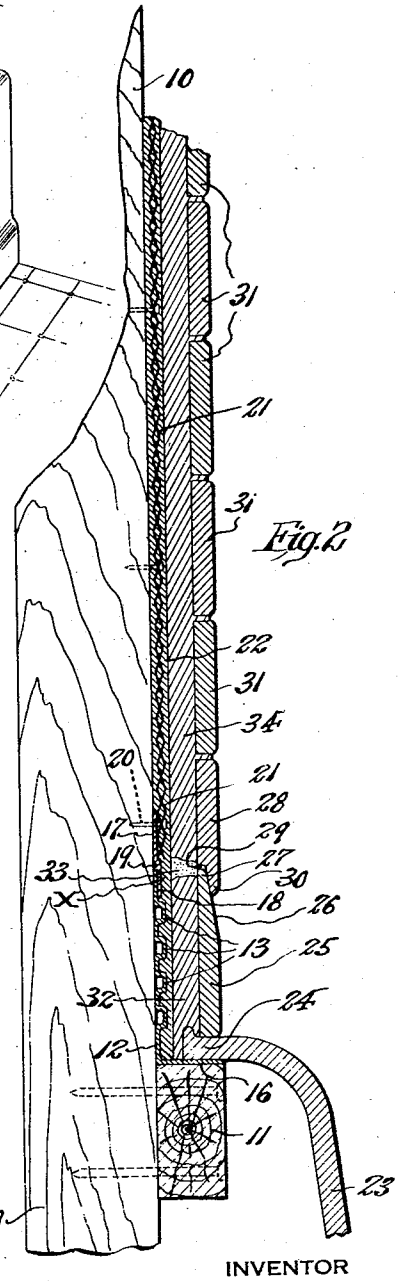


Fig. 5

Fig. 2



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EXPANSION JOINT FOR TILED BATHTUB RECESSES

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This invention relates to a novel construction of expansion joint for tiled walls around bathtubs and shower bath receptacles, and for tiled surfaces in other locations wherein it is desirable to provide for expansion and contraction with a view of eliminating the opening of cracks or crevices between the tile and adjacent structures.

Heretofore, in connection with installations of bathtubs, shower bath receptacles and other structures which are abutted by adjacent tile walls, settling of such structures, due to various causes, has resulted in opening of cracks and crevices between the structures and the tile courses, with the result that not only is the appearance of the installation greatly marred but leakage of water through such cracks and crevices occurs with risk of damage to other walls and parts of the building in which the installation is made. It is the principal object of this invention to provide a novel expansion joint between such structures and the surrounding tile walls, whereby the objectionable occurrences above mentioned are avoided, and leak-tight junctures between such structures and walls are established and maintained regardless of the effects of expansion and contraction to which the same may be subjected.

Another object of this invention is to provide a novel form and construction of cooperating tile elements adapted to permit of relative movement between adjoining courses thereof without separation under the effects of expansion and contraction.

Other objects of this invention, not at this time more particularly enumerated, will become apparent in the following detailed description of the same.

An illustrative embodiment of this invention is shown in the accompanying drawing, in which:—

Fig. 1 is a perspective view in part section showing the novel expansion joint structure according to this invention as established between a bathtub and the tile wall of the recess in which said tub is installed; Fig. 2 is a fragmentary vertical section of said joint structure drawn on an enlarged scale; Figs. 3 and 4 are respectively fragmentary perspective views of cooperating metallic expansion joint base plates employed in the joint structure; and Figs. 5 and 6 are respectively perspective views of cooperating tile elements employed in the joint structure.

Similar characters of reference are employed in the hereinabove described views, to indicate corresponding parts.

Referring to said drawing, the reference character 10 indicates the wall studding of a bathtub or like recess. Suitably secured to and across this studding 10 is a horizontal hanger 11. This hanger member 11 usually consists in lengths of two by four joist, but may be made of any other material adapted to provide a supporting ledge upon which the suspension flange of a bathtub or the like may be engaged, as will subsequently more fully appear. If the building wall construction comprises brick or masonry, then said hanger member 11 is suitably secured directly thereto.

The reference character 12 indicates a lower joint base plate which is preferably made of sheet metal of reasonably heavy gauge. The upstanding body of this base plate 12 is provided with a plurality of outwardly pressed, horizontal and longitudinally extending hollow ribs 13, which are vertically spaced one from another. A plurality of longitudinally spaced openings or perforations 14 are provided in the faces of said ribs 13. It will thus be obvious that the body of said base plate 12 is of corrugate form whereby it is strengthened or stiffened against distortion, while at the same time it is of such face contour as to firmly interlock with plaster, when the latter is applied over the face thereof. Along its upper marginal portion, said base plate 12 provides an expansion joint tongue 15. Along its lower marginal portion, said base plate 12 is provided with a longitudinally extending and laterally projecting foot piece or flange 16.

The reference character 17 indicates an upper joint base plate which is also preferably made of sheet metal of reasonably heavy gauge. Along its lower marginal portion, said base plate 17 is provided with an

outwardly off-set flange or skirt 18 to form behind the same a joint socket 19.

In the erection of the joint structure, said lower joint base plate 12 is applied against and across the studding 10, or other partition or wall construction, to project above the hanger member 11, with the foot piece or flange 16 overlying the ledge top provided by the latter. Said lower joint base plate 12 is not secured to the studding 10 or other partition or wall structure, and consequently is free for vertical movement thereupon and relative thereto. The upper joint base plate 17 is also applied against and across the studding 10, with its off-set flange or skirt 18 overlapping the joint tongue 15 of the lower base plate 12, whereby the latter is disposed within the joint socket 19 formed between said off-set flange or skirt 18 and the faces of the studding 10 or other partition or wall construction, and so as to be capable of vertical movement or play therein. Said upper base plate 17 is suitably secured to the studding 10 or other partition or wall construction by nailing the same thereto with nails 20 or by any other suitable form of fastening means. Applied and secured to and across the studding 10 or other partition or wall construction above the upper base plate 17 is any suitable form of lathing to provide a foundation for wall plaster. Preferably said lathing comprises metal lath sheets 21, arranged to overlap the upper marginal portion of the upper base plate 17, so as to be secured therewith to the studding 10 or other wall construction by the fastening nails 20 or the like.

After the base plates 12 and 17 and lathing 21 have been erected as above described, a scratch coat body or layer of cement or wall plaster 22 is exteriorly applied thereover to extend down to the foot piece or flange 16 of said lower base plate 12. This cement or plaster scratch coat 22 will securely bond itself to said lower base plate 12 both by the imbedment therein of the ribs 13 of the latter, as well as by the projection of portions of the cement or plaster through the openings or perforations 14 with which said ribs 13 are provided.

After the cement or plaster scratch coat 22 is furnished the bathtub or equivalent device or receptacle is set in place preparatory to facing the adjacent wall with tile. In the drawing, the reference character 23 indicates a bathtub of familiar type, having at its wall abutting margins a free horizontal lip or suspension flange 24 which is engaged upon the hanger member 11 for support at such wall abutting margins thereof. Said suspension flange 24, as thus mounted upon the hanger member 11, is also engaged upon the foot piece or flange 16 of said lower base plate 12 so as to bear thereon, whereby any downward movement of the bathtub 23, due to settling, expansion and contraction of adjacent floor or wall construction, sagging of hanger member, or to other causes, is transmitted to said lower base plate 12, whereby the latter will move with the tub. With the tub thus hung the apron 23′ at its outer or exposed side will rest upon the floor of the building in the customary manner.

After the tub 23 has been installed as above indicated, the adjacent walls are ready to be tiled. To form an essential part of the expansion joint structure according to this invention, I provide cooperating bottom courses of joint tile comprising tile elements of novel form and structure, adapted for relative movement without separation or the opening of cracks, crevices or seams therebetween. These tile elements comprise a bottom course tile 25 provided along its upper portion with an inwardly inclined face 26 to form a tapered or beveled upper marginal edge furnishing a male slip joint portion 27, and a second course tile 28 provided along its lower marginal portion at the back thereof with a female slip joint recess 29 defined by an overhang or depending flange or lip 30 along the front face of the tile body. The tiles 25 and 28, as well as the ordinary tile 31 employed in the tile courses above the same, may be of any desired size, color or face surface finish, and the same may have sharp peripheral edges or edges of rounded contour as provided in the so called "cushion-edge" tile, the latter being preferable.

Preparatory to the application of the tile to the wall a tile bed coat of cement is either buttered upon the back of the tile to adhere the same to the scratch coat 22, or such tile bed coat is floated upon the latter according to the preferred practice of the tile setter. The bottom course tiles 25 are set in and adhered to the wall by a section 32 of tile bed coat cement. Said bottom course tiles 25 are arranged with their lower margins abutting the suspension flange 24 of the tub 23, and with their tapered or beveled marginal edge portions, which form the slip joint portions 27, upwardly directed.

Before applying the second course tiles 28, the tile bed coat of cement, if already floated on the scratch coat 22, is chipped or cut away back to the latter and along and adjacent to the tapered or beveled upper marginal edges of the bottom tile course, and in the space thus opened is inserted or pointed up a line of lime putty 33 to separate the lower section 32 of said tile bed coat from the upper section 34 thereof upon and in which succeeding courses of tile are imbedded. This line or mass of lime putty 33 is of a frangible character, and, when disposed as above indicated, lies between the slip joint courses of tile and the expansion joint provided between said upper and lower joint base plates 17—12, whereby when relative

movement between these parts occurs, the intermediate scratch coat 22 will be caused to fracture along the line of the joint. Instead of employing said lime putty mass 33, the same end may be accomplished by interposing between the lower and upper sections 32—34 of the tile bed coat a strip or strips of paper or other suitable material adapted to prevent a bond between said tile bed coat sections.

After provision of the break-joint constituted by the mass of lime putty 33, paper, or other suitable material is made, the second course of joint tiles 28 is applied to the wall above the bottom course of joint tiles 25 in such manner that male slip joint portions 27 of the latter are engaged or received within the female slip joint recesses of the former. The joint tile courses having been applied to the wall, the remaining courses of ordinary tile 31 are thereupon put in place.

In the operation of the novel joint structure, in the event of settling of the tub 23 from any cause, such as ordinarily operates to separate the same from the tiles of the wall so as to open up a crack or crevice between the suspension flange 24 of the tub and the tile, the lower or first course of joint tiles 25 will move with the tub and relative to the second course of joint tiles 28, whereby the slip joint portions 27 of the former will move in slip joint recesses 29 of the latter, without the opening up or disclosure of any intervening crack or crevice. Upon such occurrence, owing to the provision of the frangible material, such as lime putty 33, or non-bonding material, such as paper, between the lower section 32 and upper section 34 of the tile bed coat, said lower section and the lower joint tiles 25 connected therewith, are free to move downward. In addition to this, since the lower joint base plate 12 is also free to move downward, under the downward pressure exerted by the suspension flange 24 of the tub upon its foot piece or flange 16, and since said base plate 12 is interlocked to the contiguous portion of the scratch coat 22 by the ribs 13, it follows that the stresses and strains of all these downwardly moving parts is concentrated on a point or line X of said scratch coat 22 which lies between the slip joint of the cooperating base plates 12—17 and the slip joint of the courses of joint tiles 25—28. By reason of this said scratch coat 22 will part or fracture at said point or line X, thus confining the break within the wall interior, so that the same is invisible and inaccessible to water with resultant leakage. It will be obvious that, upon parting of the scratch coat 22, the downward movement of the base plate 12, in company with the tub, will be also accompanied by like downward movement of the severed lower portion of the scratch coat which is interlocked thereto, which in turn will carry down the lower section of the tile bed coat 32 and the lower course of joint tiles 25 adhered to the latter, all whereby said lower course of joint tiles 25 partakes of the movement of the tub without any separation of their lower edges from tight abutting relation to the upper surface of the tub suspension flange 24, and consequently no external cracks or crevices are exposed around the tub, and no leakage of water into the interior of the wall can occur.

Once the scratch coat 22 is parted, as above set forth, the joint is free to function under either expansion or contraction or descent or ascent of the tub per se.

It will be well understood, that the novel joint structure may be carried around both the side and one or more end walls of a tub recess; and it will also be obvious that the joint structure may be utilized in connection with shower bath receptacles, or in any other connection wherein it is desired to prevent separation of installed structures of various kinds from adjacent or contiguous tiled surfaces.

I am aware that various changes may be made in the above described constructions and that many seemingly widely different embodiments of this invention could be made without departing from the scope thereof; it is therefore intended that all matter contained in the above description and shown in the accompanying drawing shall be interpreted as illustrative and not in a limiting sense.

I claim:—

1. In a joint structure for the purposes described, the combination with a hanger member affixed to a wall core and an installed structure to be supported by said hanger member, of a pair of cooperating joint plates overlying said wall core, one of which is contiguous to said hanger member and vertically movable with said installed structure relative to the other, a plaster scratch coat overlying said wall core and said joint plates and bonded to the movable joint plate, a tile bed coat bonded to said scratch coat, and cooperating courses of joint tiles, the lower course of which is contiguous to the installed structure and telescopically and vertically movable relative to the adjacent course upon parting of said scratch coat and tile bed coat at a point between said joint plates and said courses of joint tiles.

2. In a joint structure for the purposes described, the combination with a hanger member affixed to a wall core and an installed structure to be supported by said hanger member, of a lower joint plate movably overlying said wall core and having a foot piece engaged between said hanger member and said installed structure, an upper joint plate affixed to said wall core, said joint plates having cooperative male and female slip

joint elements, a plaster scratch coat overlying and affixed to said wall core and bonded to said lower joint plate, a tile bed coat bonded to said scratch coat, and cooperating courses of joint tiles adhered to said bed coat, the lower course of which is contiguous to the installed structure and telescopically and vertically movable relative to the adjacent course upon parting of said scratch coat and tile bed coat at a point between said joint plates and said courses of joint tiles.

3. In a joint structure for the purposes described, the combination with a hanger member affixed to a wall core and an installed structure to be supported by said hanger member, of a lower joint plate movably overlying said wall core and having a foot piece engaged between said hanger member and said installed structure, an upper joint plate affixed to said wall core, said joint plates having cooperative male and female slip joint elements, a plaster scratch coat overlying and affixed to said wall core and bonded to said lower joint plate, a tile bed coat bonded to said scratch coat, and cooperating courses of joint tiles adhered to said bed coat, contiguous to said intalled structure. said joint tiles having cooperative male and female slip joint elements.

4. In a joint structure for the purposes described, the combination with a hanger member affixed to a wall core and an installed structure to be supported by said hanger member, of a lower joint plate movably overlying said wall core and having a foot piece engaged between said hanger member and said installed structure, an upper joint plate affixed to said wall core, said joint plates having cooperative male and female slip joint elements, a plaster scratch coat affixed to said wall core and extending over said joint plates, said lower joint plate having longitudinal ribs with which the contiguous portion of said scratch coat interlocks, a tile bed coat bonded to said scratch coat, and cooperating courses of joint tiles adhered to said bed coat contiguous to said installed structure, said joint tiles having cooperative male and female slip joint elements.

5. In a joint structure for the purposes described, the combination with a hanger member affixed to a wall core and an installed structure to be supported by said hanger member, of a lower joint plate movably overlying said wall core and having a foot piece engaged between said hanger member and said installed structure, an upper joint plate affixed to said wall core, said joint plates having cooperative male and female slip joint elements, a plaster scratch coat affixed to said wall core and extending over said joint plates, said lower joint plate having longitudinal ribs with which the contiguous portion of said scratch coat interlocks, a tile bed coat bonded to said scratch coat, cooperating courses of joint tile adhered to said bed coat contiguous to said installed structure, said joint tiles having cooperative male and female slip joint elements, means intermediate the locations of said slip joint elements of said joint plates and said joint tiles to divide said bed coat to provide a section movable with said lower joint plate and lower course of joint tile and at the same time localize parting of said scratch coat at a point adjacent said slip joint elements of said joint plates.

6. In a joint structure for the purposes described and as defined in claim 4, wherein said lower joint plate is provided in its ribbed body with a multiplicity of perforations to further assure interlocking of said scratch coat thereto.

7. In a joint structure for the purposes described and as defined in claim 5, wherein said lower joint plate is provided in its ribbed body with a multiplicity of perforations to further assure interlocking of said scratch coat thereto.

8. In a joint structure for the purposes described, the combination with a hanger member affixed to a wall core and an installed structure to be supported by said hanger member, of a pair of cooperating joint plates overlying said wall core, one of which is contiguous to said hanger member and vertically movable with said installed structure relative to the other, a plaster scratch coat overlying said wall core and said joint plates and bonded to the movable joint plate, a tile bed coat bonded to said scratch coat, cooperating lower and upper courses of joint tiles adhered to said bed coat contiguous to said installed structure, said joint tiles having cooperative male and female slip joint elements whereby the lower of said courses is movable relative to the upper course thereof, and means to divide said bed coat to provide a section thereof movable with said movable joint plate and movable joint tile, thereby localizing the parting of said scratch coat above said parts under the stress of such movement.

9. In a joint structure for the purposes described, the combination with a hanger member affixed to a wall core and an installed structure to be supported by said hanger member, of a pair of cooperating joint plates overlying said wall core, one of which is contiguous to said hanger member and vertically movable with said installed structure relative to the other, a plaster scratch coat overlying said wall core and said joint plates and bonded to the movable joint plate, a tile bed coat bonded to said scratch coat, cooperating lower and upper courses of joint tiles adhered to said bed coat contiguous to said installed structure, the tiles of said lower course having inwardly beveled upper marginal portions to form male slip joint ele-

ments, and the tiles of said upper course having inwardly recessed portions at their lower rear side margins to receive said male slip joint elements, said recessed portions being bounded by depending flanges in the plane of the exterior faces of the tile to overhang said male slip joint elements.

10. In a joint structure for the purposes described, the combination with a hanger member affixed to a wall core and an installed structure to be supported by said hanger member, of a pair of cooperating joint plates overlying said wall core, one of which is contiguous to said hanger member and vertically movable with said installed structure relative to the other, a plaster scratch coat overlying said wall core and said joint plates and bonded to the movable joint plate, a tile bed coat bonded to said scratch coat, cooperating lower and upper courses of joint tiles adhered to said bed coat contiguous to said installed structure, the tiles of said lower course having inwardly beveled upper marginal portions to form male slip joint elements, the tiles of said upper course having inwardly recessed portions at their lower rear side margins to receive said male slip joint elements, said recessed portions being bounded by depending flanges in the plane of the exterior faces of the tile to overhang said male slip joint elements, and means to divide said bed coat to provide a section thereof movable with said movable joint plate and said lower course of joint tile, thereby localizing the parting of said scratch coat above said parts under the stress of such movement.

11. In a joint structure for the purposes described, the combination with a hanger member affixed to a wall core and an installed structure to be supported by said hanger member, of a lower joint plate movably overlying said wall core and having a foot piece engaged between said hanger member and said installed structure, an upper joint plate affixed to said wall core, said joint plates having cooperative male and female slip joint elements, a plaster scratch coat affixed to said wall core and extending over said joint plates, said lower joint plate having perforate longitudinal ribs with which the contiguous portion of said scratch coat interlocks, a tile bed coat bonded to said scratch coat, cooperating lower and upper courses of joint tiles adhered to said bed coat contiguous to the installed structure, the tiles of said lower course having inwardly beveled upper marginal portions to form maleslip joint elements, and the tiles of said upper course having recessed portions at their lower rear side margins to receive said male slip joint elements, said recessed portions being bounded by depending flanges in the plane of the exterior faces of the tile to overhang said male slip joint elements.

12. In a joint structure for the purposes described, the combination with a hanger member affixed to a wall core and an installed structure to be supported by said hanger member, of a lower joint plate movably overlying said wall core and having a foot piece engaged between said hanger member and said installed structure, an upper joint plate affixed to said wall core, said joint plates having cooperative male and female slip joint elements, a plaster scratch coat affixed to said wall core and extending over said joint plates, said lower joint plate having perforate longitudinal ribs with which the contiguous portion of said scratch coat interlocks, a tile bed coat bonded to said scratch coat, cooperating lower and upper courses of joint tiles adhered to said bed coat contiguous to the installed structure, the tiles of said lower course having inwardly beveled upper marginal portions to form male slip joint elements, the tiles of said upper course having recessed portions at their lower rear side margins to receive said male slip joint elements, said recessed portions being bounded by depending flanges in the plane of the exterior faces of the tile to overhang said male slip joint elements, and means to divide said bed coat to provide a section thereof movable with said movable joint plate and said lower course of joint tile, thereby localizing the parting of said scratch coat above said parts under the stress of such movement.

13. In a joint structure for the purposes described, the combination with a support on a wall for a structure to be installed, a pair of joint plates related to said wall, comprising a lower movable joint plate having at its lower margin means engageable with the installed structure whereby settling movement of the latter is imparted to said lower plate, an upper joint plate adapted to be fixed relative to said movable plate, said joint plates having cooperative slip-joint portions, and cooperating courses of joint tiles, the lower course of said tiles being contiguous to the installed structure and being bonded to said movable joint plate, the upper course of said tiles being bonded to said fixed joint plate, and said tiles of the lower and upper courses respectively having cooperating male and female slip-joint portions.

14. In an expansion joint structure of the kind described for a structure to be installed, a pair of sheet metal joint plates, comprising a lower movable joint plate having at its lower portion means engageable with the installed structure whereby settling movement of the latter is imparted to said plate, an upper joint plate adapted to be fixed relative to said movable plate, and said joint plates having cooperative slip joint portions.

15. In an expansion joint structure of the kind described for a structure to be installed, a pair of sheet metal joint plates, comprising a lower movable joint plate having at its lower portion a laterally projecting foot-piece engageable with the installed structure whereby settling movement of the latter is imparted to said plate, said lower joint plate having means projecting from a face thereof to interlock with plastic coating material applied over such face, an upper joint plate adapted to be fixed relative to said movable plate, and said joint plates having cooperative male and female slip joint portions.

16. In an expansion joint structure of the kind described for a structure to be installed, a pair of sheet metal joint plates, comprising a lower movable joint plate having at its lower portion a laterally projecting foot-piece engageable with the installed structure whereby settling movement of the latter is imparted to said plate, said lower joint plate having a plurality of vertically spaced outwardly pressed perforate hollow ribs between its upper and lower margins, an upper joint plate adapted to be fixed relative to said movable plate, the upper marginal portion of said lower joint plate having a male slip joint element, and the lower marginal portion of said upper joint plate having an outwardly off-set portion to provide a female slip joint element to receive said male slip joint element of said lower joint plate.

17. In an expansion joint structure of the kind described including fixed parts and movable parts, cooperating joint tiles, comprising a lower tile for connection with movable parts of the joint structure, an upper tile for connection with fixed parts of the joint structure, said tiles having cooperative slip joint elements at their meeting marginal portions.

18. In an expansion joint structure of the kind described including fixed parts and movable parts, cooperating joint tiles, comprising a lower tile for connection with movable parts of the joint structure, an upper tile for connection with fixed parts of the joint structure, said lower tile having an inwardly beveled upper marginal portion extending from its outer face to form a male slip joint element, and said upper tile having an inwardly recessed portion at its lower rear side margin, said recessed portion being bounded by a depending flange in the plane of its outer face and adapted to overhang said slip joint element of said lower tile when the latter is engaged in said recessed portion.

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