B. S. McCONNELL.

EXPANSION JOINT.

APPLICATION FILED FEB. 28, 1917.

1,252,913.

Patented Jan. 8, 1918.

Fig. 1

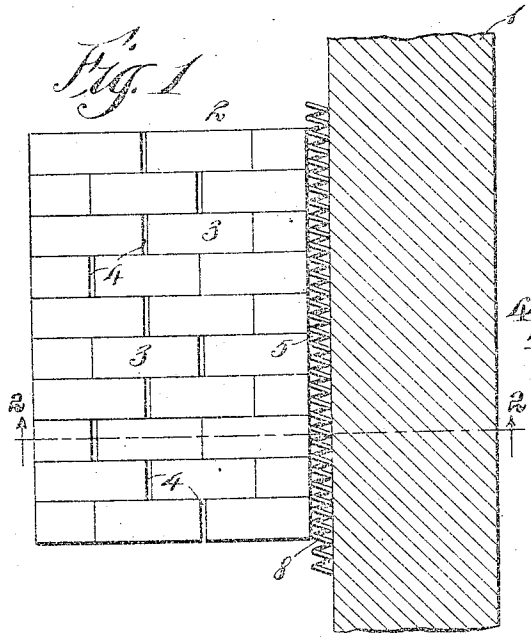


Fig. 3

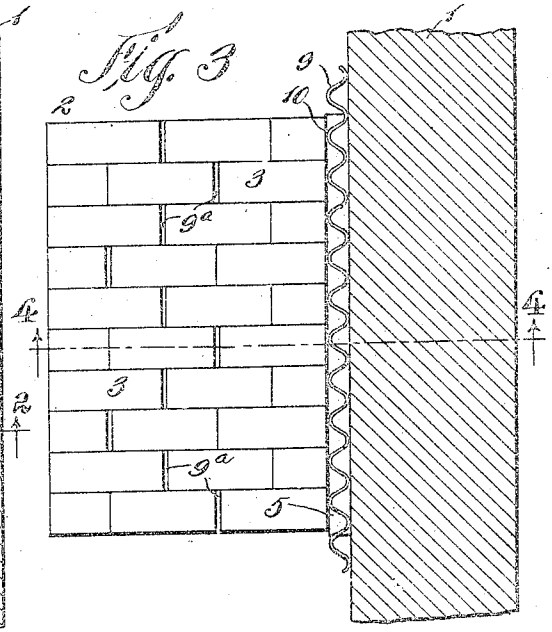


Fig. 2

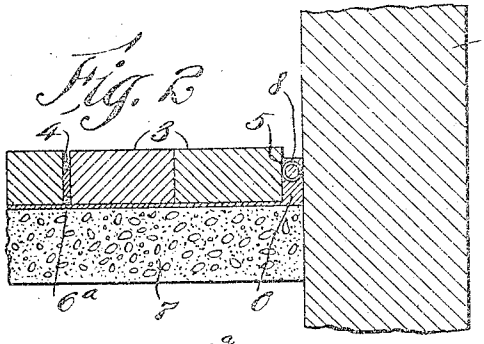
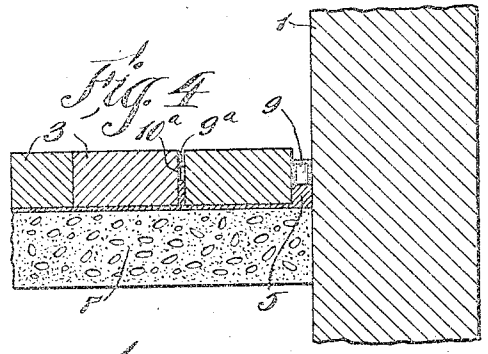


Fig. 4



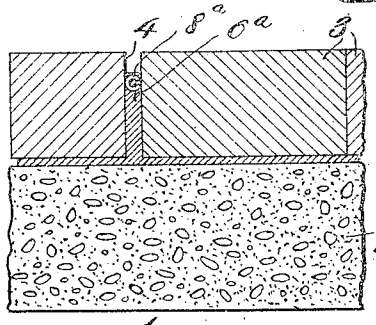
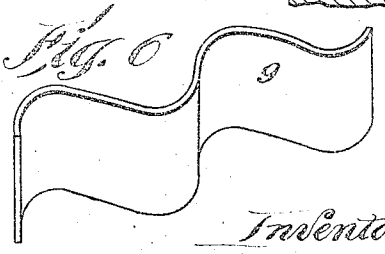


Fig. 5

Fig. 6



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UNITED STATES PATENT OFFICE.

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EXPANSION-JOINT.

1,252,913. Specification of Letters Patent. Patented Jan. 8, 1918.

Application filed February 28, 1917. Serial No. 151,458.

To all whom it may concern:

Be it known that I, BERTRAM S. McCONNELL, a citizen of the United States, residing at Lakewood, in the county of Cuyahoga and State of Ohio, have invented a certain new and useful Improvement in Expansion-Joints, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings.

This invention relates generally to the formation of joints between blocks of material such as are used in the production of pavements, floors, roofs, buildings, porches, etc. In the construction of articles of the character referred to, it has been necessary to provide expansion joints between individual blocks and sections as well as between the lateral edges of street paving and the curbs, and these joints have been filled with adhesive plastic material. It has been found impracticable, however, to maintain an unbroken adhesive filler for such joints, especialy where the joints are widened, as by the contraction of the blocks or the sections of material between which such joints are provided; also, in the case of block pavement, to maintain all the blocks in close contact and in alinement with a curb under the conditions specified. It is the general purpose and object of my invention to provide for joints of the character referred to a filling which will automatically accommodate itself to changes of width in such joints under the conditions referred to above, which will at all times maintain an adhesive contact with the sides of the joint and remain in an intact or unbroken condition, and which will secure the contact and alinement referred to hereinbefore. I accomplish this object in and through the embodiments of my invention illustrated in the drawings forming part hereof, wherein my joint filler is shown as employed between the blocks of pavements and between such pavement and a curb. In said drawings, Fig. 1 represents a plan view of a section of pavement, the curb being shown in section and the joints being provided with a filler embodying one form of my invention; Fig. 2 represents a sectional view corresponding to the line 2—2 of Fig. 1; Fig. 3 a view similar to Fig. 1 showing a modification of a joint filling construction illustrated in Figs. 1 and 2; Fig. 4 a sectional view corresponding to the line 4—4 of Fig. 3; Fig. 5 an enlarged sectional view taken through one of the joints between two of the individual blocks shown in Figs. 1 and 2; and Fig. 6 a perspective view of the form of spring employed in Figs. 3 and 4 in the production of my joint filler.

Describing by reference characters the various parts illustrated herein, 1 denotes the curb and 2 a section of pavement, the pavement being composed of a plurality of individual blocks 3, which may be of any desired material. At suitable intervals, joints 4 are provided between individual blocks while a wider joint 5 is provided between a lateral side of the pavement and the adjacent side of the curb 1. In each of the joints 4 and 5, I insert a plastic composition, indicated generally at 6 and 6ª, said composition preferably containing asphaltum, the purpose being to provide an adhesive filler extending across such joints and providing an adhesive bond between the opposite sides thereof. This composition may also be used as an adhesive bond between the blocks 3 and the concrete or other foundation 7. The composition, by reason of the asphaltum constituent, is plastic and yielding, as well as adhesive. However, should the joints be widened, as by the contraction of the blocks, or of the pavement as a whole, due to temperature or other natural changes, the joint filling material is liable to break, because of its inability to flow with sufficient rapidity, and thus to destroy the continuity of the filler and the adhesive bond between the opposite sides of the joint. Furthermore, the blocks will not remain in operative contact and the alinement between the blocks and the curb or between adjacent edges of block-paving sections will be destroyed. The breaking of the filler will also result in allowing dirt and other foreign material to enter the joint and will destroy the effectiveness of the filler. In order to overcome the objections noted, in the form of my invention shown in Figs. 1, 2 and 5 I embed in the filling composition a helical spring, or a sufficient number of helical springs placed end to end to provide in effect a continuous spring. This spring is indicated at 8; and, in applying the same to a joint, it will be elongated somewhat so that it will normally be held under compression between the sides of the joint. Then, in the case of the widening of the joint, the spring will naturally tend to expand transversely and maintain its contact with the sides thereof. Dur-

ing this expansion, it causes the filler composition 6 to spread, because of the inherent plasticity of the latter, with the result that the said composition will always be in adhesive contact with the sides of the joint and the filler will extend in an unbroken condition from side to side thereof; in addition, the blocks will be maintained in operative contact and the alinement of such blocks with the curb will be preserved. When the pavement or the blocks thereof expand, narrowing the joints, this action is permitted by reason of the plasticity of the compound and the yielding of the springs under transverse pressure.

As shown in Figs. 2 and 5, I accomplish the same result with reference to the narrower joints 4 between the adjacent sides of the individual blocks, the springs 8^a being of a diameter to enable them to be applied to the joints 4 and to be embedded in the material 6^a therein, where it will normally be held under lateral compression, as is the case with the spring or springs 8.

In Figs. 3, 4 and 6, there is shown a modification of my invention, wherein, instead of employing helical springs, I may employ a flat-plate spring 9, 9^a, the plate being reversely bent whereby the oppositely projecting convex portions 10, 10^a will engage the opposite sides of the joint. As is the case with the embodiment of my invention shown in Figs. 1, 2 and 5, the springs 9 and 9^a will be applied to their joints under lateral compression, as by elongation prior to or in connection with their insertion within their respective joints. The action of these springs in connection with the filling material 5 will be substantially the same as the action of the springs 8 and 8^a.

In applying the joint fillers in accordance with the embodiments of my invention disclosed herein, the spring or springs will first be inserted into a joint and the plastic material will be poured into the joint in the usual manner. However, I do not thereby propose to exclude from the scope of my invention a construction wherein the joint filler may be formed separately from the joint and inserted in its entirety therewithin.

Having thus described my invention, what I claim is:—

1. A filler for joints of the character described comprising a body of plastic material and a spring embedded in said body of plastic material whereby said plastic body is caused to contract and expand with the contraction and expansion of said spring.

2. A filler for a joint of the character described comprising plastic material inserted between the opposite sides of a joint, said material having embedded therewithin a spring extending from side to side of such joint and normally held under lateral compression between such sides.

3. A filler for a joint of the character described comprising plastic material inserted within such joint, said material having embedded therewithin a spring and said spring having portions extending in opposite directions from the longitudinal central portion of the joint and bearing against the opposite sides of such joint and being normally held under lateral compression between the sides of such joint.

4. A filler for a joint of the character described comprising adhesive plastic material inserted in such joint and having embedded therein a helical spring, the axis of said spring extending longitudinally of the joint and the said spring being normally held under lateral compression by and between the opposed sides of the joint.

In testimony whereof, I hereunto affix my signature.

BERTRAM S. McCONNELL.