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JOINT FOR CONCRETE PAVEMENTS.

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1,380,341.

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Fig. 1.

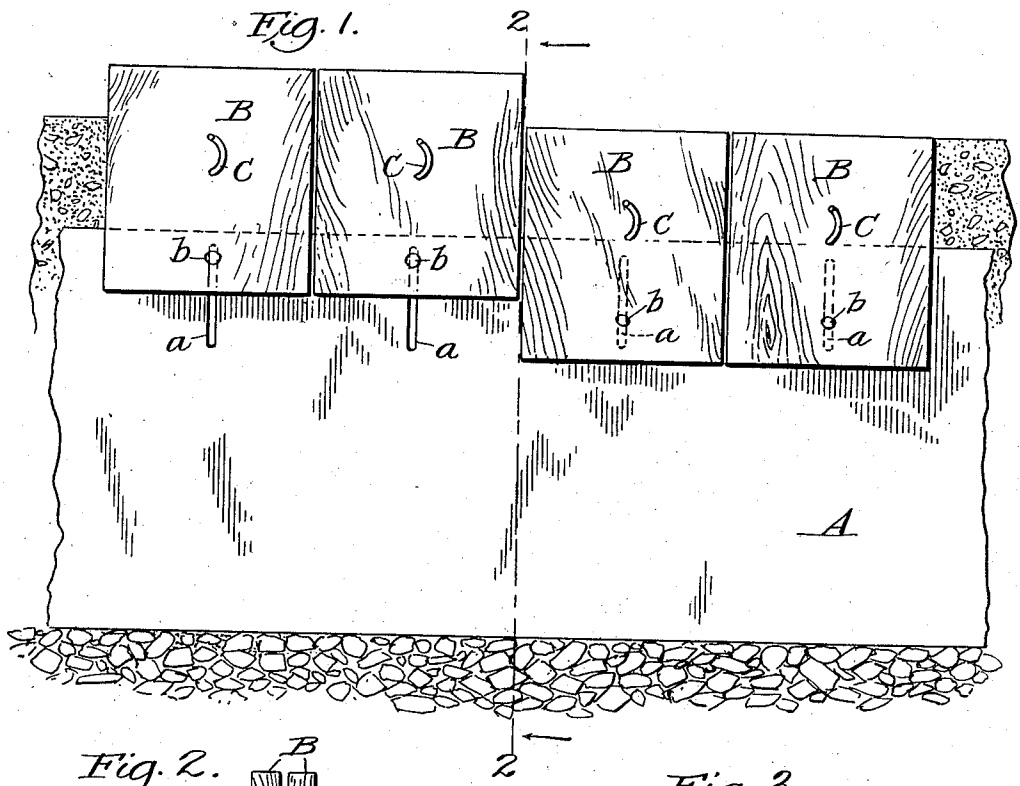


Fig. 2.

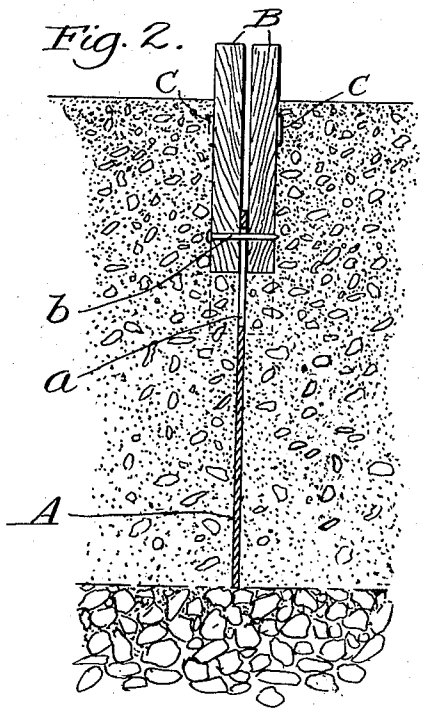
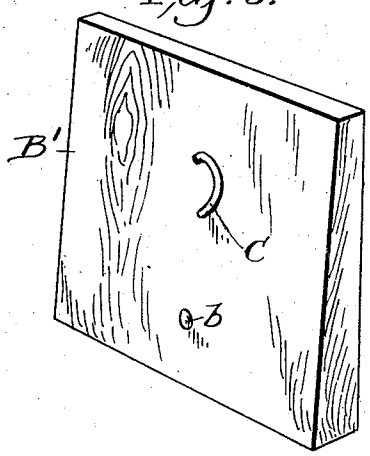


Fig. 3.



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Application filed October 16, 1920. Serial No. 417,282.

To all whom it may concern:

Be it known that I, WALTER L. ASHMORE, a citizen of the United States, residing at Macon, in the county of Bibb and State of Georgia, have invented certain new and useful Improvements in Joints for Concrete Pavements; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to joints used in the construction of concrete roads and pavements.

The primary object of the invention is to provide a compressible joint to be embedded at intervals in the paving material as it is laid and before hardening so as to divide the pavement or roadway into blocks or sections adapted to permit contraction and expansion and prevent buckling in the finished and hardened pavement or road.

The invention will first be hereinafter more particularly described with reference to the accompanying drawings, which form a part of this specification, and then pointed out in the claims at the end of the description.

In said drawings,

Figure 1 represents a vertical sectional elevation of a portion of a street pavement with a broken away portion of a joint or separating device embodying my invention embedded therein; the compressible blocks being shown partly in their initial position and partly depressed as they appear in the finished pavement;

Fig. 2 is a vertical section taken at right angles to the section shown in Fig. 1, on the line 2—2 of Fig. 1, looking inthe direction of the arrow; and

Fig. 3 is a perspective view of a compressible block of wedge-like or tapered form.

Referring to the drawings, in which the same reference letters are used to denote corresponding parts in different views, the letter A denotes a supporting plate, preferably of sheet metal and of such length as may be desired to divide the paving material into blocks or sections of suitable length and width, usually about four or five feet, and which is provided with a series of elongated slots *a* therein, near the upper edge thereof, which extend vertically when the plate is arranged in a vertical plane. A series of compressible blocks B are slidably mounted on the plate A so as to permit them to be pressed down into the plastic concrete in which the device is embedded. The blocks are preferably arranged in pairs, one upon each side of the plate, diametrically opposite an adjoining block, each pair being arranged in close proximity to an adjoining pair throughout the length of the plate. Each pair of blocks is secured together and supported on the base plate by means of a pin or rivet *b* which passes through one of the slots *a* so as to permit vertical or downward movement the full length of the slot. The blocks are preferably made of wood treated with creosote or other preservative substance and are set so that the grain of the wood is perpendicular to the road bed or line of the pavement.

In use the metal strips are arranged at suitable distances apart, with their lower edges resting on the sub base or foundation on which the concrete is laid, the blocks being raised above the surface of the paving material in which the device is embedded until the sliding pins or rivets reach the upper ends of the slots. The plates extend upwardly to a point near the surface of the finished pavement but slightly below the tops of the compressible blocks, when the latter are pressed downwardly into the plastic mass, and while the concrete is yet plastic the blocks are driven down until the tops thereof are substantially flush with the surface of the pavement, thus compressing the plastic concrete below the blocks and forming a solid foundation on which the blocks may rest, the surface of the finished pavement being even with the tops of the blocks. In this position there is left a small crevice or open space between the upper ends of the blocks and above the upper edge of the supporting plate, and this crevice is filled with asphalt or hot bitumen or other plastic substance so that when finished the surface of the road or pavement will be smooth and even.

In the construction of concrete pavements, it is a common practice to insert at intervals pieces or strips of paper which are impregnated or coated with bituminous material, in order to separate the pavement into separate blocks or sections, such separations being required to prevent the pavement from tearing apart while in the process of setting or hardening. That is to say, the wet, or as it is usually called, green con-

crete, while changing from a wet plastic condition to a hard solid state, loses in size by shrinking, and if not designedly separated will tear apart at irregular distances. Such thin material serves to separate the pavement into suitable sections or blocks, but the shrinkage caused by drying or hardening does not provide enough space for expansion due to heat or other causes after the pavement has hardened, and to provide for expansion as well as shrinkage a thicker joint of elastic or compressible material is desirable. This is particularly true of long continuous lengths of pavement like roadways, which are liable to buckle, or possibly one slab or section will break and mount up over an adjacent section. Thin metal sheets have also been used, to effect a separation, such sheets being usually withdrawn before the pavement hardens, and the crevice thus formed filled with hot bitumen, which is elastic but wears unevenly with the pavement. Iron and steel joints wear less and therefore soon protrude above the general surface, causing a hammer blow on each abutting side, and rapidly wears the softer material, while an elastic joint hammers down and the pavement edges spall and soon a hammer blow channels the joint out, thus necessitating repairs. The disadvantage common to all joints formed in the construction of pavements under existing methods resides in the fact that they do not offer equal resistance to wear the same as the pavement.

My improved joint provides for separation of the hardening pavement, expansion of the hardened pavement and a uniform wearing surface. It is seated in and anchored to the pavement and is adjustable to its freshly finished surface. It will not wash out, pull out, or drive or hammer below the surface of abutting edges of the pavement.

The size and shape of the supporting plates and blocks may be varied to suit the desires of the manufacturer or user, or to meet different requirements in practical use. The blocks are preferably square and tapered, as shown in Fig. 3, so as to provide a broad base and to increase their resistance against upward movement; the tapered form serving to effectually anchor the blocks and prevent them from being drawn out after they have been pressed down into the plastic mass and it has become hardened, but I preferably provide each block or each pair of blocks with an anchoring device, such as a hook C depending from and integral with or secured to a pin or rivet inserted through the block or pair of blocks near the upper end thereof, so that the hook may be firmly embedded in the plastic concrete and prevent upward movement of the block. The supporting plates may be constructed of any suitable material possessing sufficient strength and rigidity to provide a firm and rigid support for the compressible or elastic blocks, though sheet metal is preferred, but papier-mâché or other material may be employed, and the compressible blocks, while preferably made of soft wood, may also be made of other elastic material. The blocks are also preferably arranged in pairs, as shown, but it may be desirable in some cases to use a series of blocks spaced apart and arranged in staggered relation upon opposite sides of the supporting plate.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent is:

1. A joint for roadways and street pavements comprising a thin, comparatively long and wide supporting member adapted to be set on one edge upon a sub base, and a series of comparatively small compressible blocks mounted on and extending above the upper edge of said supporting member, said blocks being slidable vertically to adapt them to be raised and depressed when arranged in a vertical plane.

2. A joint for roadways and street pavements comprising a thin, comparatively long and wide lower member adapted to be set on one edge, and a compound upper member consisting of a series of compressible blocks secured together in pairs, side by side, on opposite sides of said lower member; said blocks projecting above the upper edge of said lower member when arranged in a vertical plane, and adapted to be moved downwardly so as to compress the plastic material on which they rest.

3. A joint for roadways and street pavements comprising a comparatively long and thin plate adapted to be set on edge upon a sub base, and a series of compressible blocks mounted on the upper edge of said plate and movable upwardly and downwardly thereon when arranged in a vertical plane.

4. A joint for roadways and street pavements comprising a sheet metal plate adapted to be set on edge upon a sub base, said plate having a series of oblong slots therein near its upper edge which extend transversely of its length, and a series of compressible blocks slidably mounted on the upper edge of said plate and secured thereto by pins passing through said slots.

5. A joint for roadways and street pavements comprising a flat metal plate adapted to be set on edge upon a sub base and having a series of oblong slots therein near its upper edge which extend transversely of its length, and a series of compressible blocks mounted on and projecting above the upper edge of said plate; said blocks being arranged in pairs which are joined together by a pin passing through each pair and through one of said slots, so as to permit in-

dependent adjustment of said pairs transversely of said plate.

6. A joint for roadways and street pavements comprising a rigid plate of comparatively thin material adapted to be set on edge, and having oblong slots therein near its upper edge and a series of compressible blocks mounted on said plate and arranged in pairs, each pair having a pin passed therethrough and through one of said slots.

7. A joint of the character described comprising an oblong sheet metal plate having a series of oblong slots therein near one edge extending transversely of its length and a double series of blocks of wood arranged on opposite sides of said plate, each block on one side of said plate being secured to a block on the other side thereof by a pin uniting the two blocks and passed through one of said slots so as to permit vertical adjustment of the blocks when arranged in a vertical plane.

8. A device of the character described comprising a comparatively thin plate of a width slightly less than the depth of a body of concrete in which the plate is set on edge; said plate having a series of blocks of compressible material mounted thereon and adjustable vertically when arranged in a vertical plane, said blocks having means thereon for anchoring them in the concrete mass so as to prevent upward movement.

9. A concrete roadway or pavement having a series of joints therein, said joints consisting of comparatively thin plates set on edge upon a sub base, and a series of compressible blocks mounted on and projecting above the upper edges of said plates, the upper ends of said blocks being substantially flush with the surface of the concrete.

10. A joint for a concrete roadway or pavement consisting of a comparatively thin plate adapted to be set on edge upon a sub base and embedded in the concrete, and a series of compressible blocks mounted on the upper edge of said plate and projecting above the same, said blocks having depending hooks thereon for anchoring them in the concrete.

In testimony whereof I affix my signature in the presence of two witnesses.

WALTER L. ASHMORE.

Witnesses:
L. D. MOORE,
ROY W. MOORE.