July 8, 1930. A. C. FISCHER 1,769,990

PAVING JOINT

Filed Jan. 27, 1927

Fig. 1.

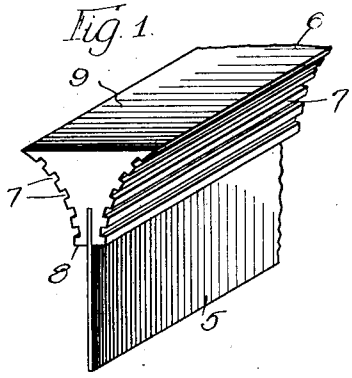



Fig. 2.

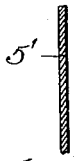



Fig. 3.




Fig. 4.




Fig. 5.

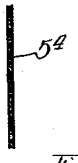



Fig. 6.

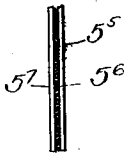



Fig. 7.

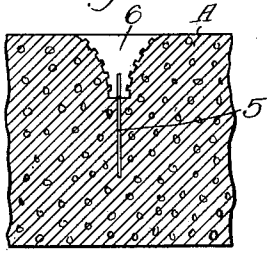



Fig. 8.

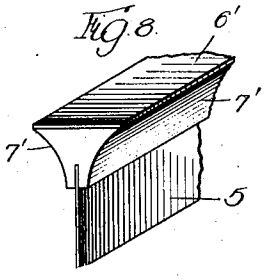



Fig. 9.

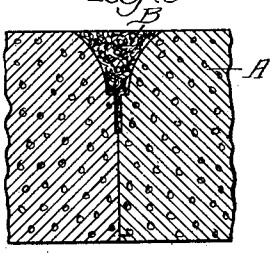



Fig. 10.

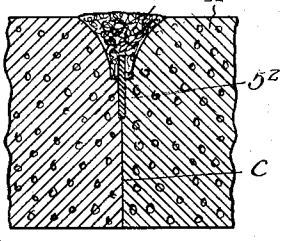



Fig. 11.

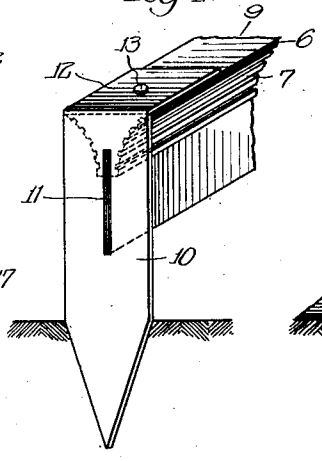



Fig. 12.

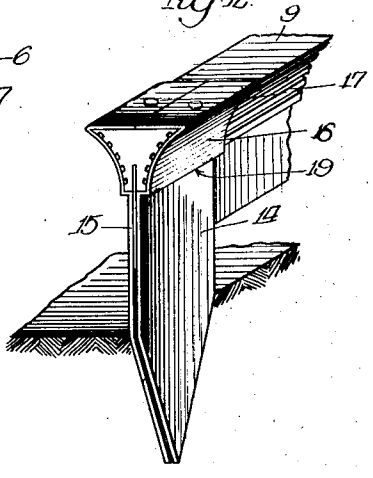



Fig. 13.

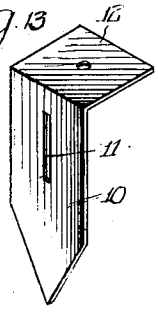
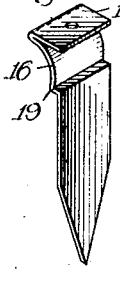



Fig. 14.




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By
Atty.

Patented July 8, 1930 1,769,990

# UNITED STATES PATENT OFFICE

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## PAVING JOINT

Application filed January 27, 1927. Serial No. 164,000.

My present invention relates in general to paving installation, especially for roadways, and has particular reference to a joint for the subdivisions of paving or a line of cleavage similarly located.

In the accompanying drawing I have shown various views illustrating the devices and materials for reducing the invention to practise and the results accomplished by the installation.

In said drawing Figure 1 is a perspective view of a cleavage strip with a permanently fixed compressible crowning block;

Figures 2 to 6 inclusive are detailed views in end elevation of various forms of cleavage strips which may be selectively used with various forms of crowning blocks;

Figure 7 is a view in cross section illustrating the installation of that form of the device shown in Figure 1;

Figure 8 is a view in perspective of a cleavage strip as illustrated in Figure 1 with a crowning block mounted thereto of a slightly different construction than that of the crowning block shown in Figure 1;

Figure 9 is a view in cross section showing an all poured form of installation, which may be accomplished by practising the present invention;

Figure 10 is a view similar to Figure 9, showing a partly poured installation, which may be practised with the present invention;

Figure 11 is a detailed view in perspective of that form of the invention shown in Figure 1, and in combination with one type of supporting stake;

Figure 12 is a similar view showing the application of a different type of supporting stake; and

Figures 13 and 14 are detailed views in perspective of the forms of supporting stakes shown in Figures 11 and 12 respectively.

Referring now to the drawing in detail. I will first describe that form of the device illustrated in Figure 1, and in which I provide a cleavage strip 5 and mount to the upper longitudinal edge thereof a crowning block 6. In this particular form I have in mind developing a device which is installed as a permanent part of the paving as best illustrated in Figure 7.

The cleavage strip 5 may comprise any one of the forms shown in Figures 2 to 6 inclusive, consisting of either the metal strip $5^1$ Figure 2, or a sheet of saturated felt or the like $5^2$ Figure 3; or else a strip $5^3$ Figure 4, which is produced by rolling out a plastic mass of fibrated, bituminous material, or a netted wire strip $5^4$ Figure 5, or even the strip $5^5$ made by enclosing the netted wire strip $5^4$ between sheets $5^6$ and $5^7$ of saturated felt.

The reason for referring to several forms of cleavage strips is primarily to explain how different results may be accomplished in the ultimate installation. For instance, by using a metallic strip $5^1$ I can develop a line of cleavage without any regard to compensating for expansion and contraction except thru the medium of the crowning block. On the other hand by using a strip of saturated felt $5^2$ or a strip made from rolled bituminous material $5^3$ I can install a strip which will have certain compressible qualities so that it will compensate for expansion of the concrete.

The mounting block 6, so far as concerns that form which is intended to be permanently installed in the concrete or paving will be for the most part made of some ductile or plastic material, such as, fibrated bituminous material properly mixed and rolled, extruded or otherwise formed into the desired shape, which preferably comprises slanting and slightly concave side walls 7, with a relatively narrow base 8 and a flat top 9. The side walls are fluted longitudinally of the block so as to develop elevations and depressions which will interlock with the concrete as it is poured around the joint.

In installing this form I preferably support the device perpendicular and pour the concrete around both sides of it. In order to support the device perpendicularly I may use a supporting stake 10 (see Figure 11) which is made with a vertical slot 11 and a bent over end 12, which is adapted to lie upon the flat top 9 of the block and secured thereto by a pin, nail or the like 13. The cleavage strip 5 for this particular type of supporting stake

should project slightly beyond the end of the crowning block and into the slot 11. I can use one of these stakes 10 at opposite ends of the device.

In lieu of the stake 10 I may use a pair of confronting stakes 14 and 15, which are adapted to engage opposite sides of the crowning block and cleavage strip and securely embrace the same. Each one of these stakes is made with a head portion 16 shaped to conform to the concave sides of the crowning block, and having a turned end 17 adapted to overlie the flat top 9 of the block, so that nails or the like 18 may be used for securing purposes. The opposite termination of the head portion of the stakes or metal is made with a shoulder 19 to fit the base of the block and lie flush against the sides of the cleavage strip 5.

The supporting stakes cannot be removed after the device has been installed in the concrete, but it would be possible, but not necessary in every instance, to lift up the heads 17 and 12 of either one of the stakes 10 or 14 and break the heads off so that there would be no danger of the same becoming loose from the block and sticking up above the surface of the concrete as an obstruction which might injure treads of automobile tires. The installation developed by this form of the device is illustrated in Figure 7, in which A represents the concrete.

It is noted that the cleavage strip 5 does not extend the entire depth of the concrete, and for this reason the installation need not necessarily be considered for all purposes as an expansion joint, although the compressible block 6 will function to a limited sense as an expansion joint, particularly after the weakened line of cleavage developed by the strip 5 has directed a crack in the base of the concrete directly under the strip. Such a crack would occur upon expansion and contraction of the concrete.

As a modified form of the device I may use a metal strip, such as shown in Figure 2, for the cleavage strip 5, and a crowning block $6^1$, which may be made from wood, metal or the like, and with perfectly plain concave sides $7^1$. In this way I can develop a tool, so to speak, which may be brought into use after the concrete has been poured but not completely set, and by forcing the device into the concrete I can mould a space corresponding to the shape and size of the device, and later remove the device and fill the space with asphalt or other bituminous materials suitable for the purpose. Such a device is illustrated in Figure 8, and the result accomplished by the use of the device is shown in Figure 9, in which A represents the concrete and B represents the poured material, the crack shown as at C would be the result of expansion and contraction.

Instead of using a metal cleavage strip I may select one of the other forms of such a strip and use it in combination with a crowning block $6^1$ to attach it to the crowning block in such a way that it is not a permanent part thereof, so that by removing the crowning block the cleavage strip will be left in place and the space made by the crowning block filled with asphalt, as just explained. This particular installation is illustrated in Figure 10, in which A represents the concrete and B the poured crown, $5^2$ the cleavage strip and C the crack as a result of expansion and contraction.

There would probably be some difficulty in forcing the cleavage strip $5^2$ in the concrete, in which event it would be more practical to set the device up and pour the concrete around it and then remove the crown. By using a cleavage strip, such as $5^2$, I am enabled to install a strip which will offer compressible qualities as compared to a non-compressible strip, such as a metal strip 5, which will function practically the same as the poured installation in Figure 9, except that it will provide a preformed strip as compared to a poured strip in this latter type.

I claim:

1. As an article of manufacture, a paving joint unit adapted to be permanently inserted in a paving structure comprising a relatively long cleavage strip having a ductile bituminous crowning strip attached to one edge.

2. A paving joint unit adapted to be permanently inserted in a paving structure comprising a relatively long cleavage strip, a ductile bituminous crowning strip attached to the upper edge of the cleavage strip, and projecting ribs on the crowning strip to lock the unit in the paving structure.

3. A paving joint unit comprising a relatively long cleavage strip, and a crowning strip fitted to one edge of the cleavage strip but terminating short of the ends of the cleavage strip to provide projecting ears for supporting the unit while being inserted in the paving structure.

4. A paving unit comprising a relatively long cleavage strip, a crowning strip fitted to one edge of the cleavage strip and terminating short of its ends, and a staking means attached to the ends of the cleavage strip.

5. A paving unit comprising a relatively long cleavage strip, a crowning strip fitted to one edge of the cleavage strip and terminating short of its end, and a staking means recessed to receive the end of the paving unit.

6. A paving construction composed of concrete sections, and a paving joint unit for separating the sections, said unit comprising a relatively long cleavage strip, a ductile bituminous crowning strip attached to the upper edge of the cleavage strip, and projecting ribs on the crowning strip to lock the unit to the concrete sections.

7. A paving construction composed of concrete sections, and a paving joint unit for separating the sections, said unit comprising a relatively long cleavage strip, and a crowning strip fitted to one edge of the cleavage strip but terminating short of the ends of the cleavage strip to provide projecting ears for supporting the unit for insertion between the concrete sections.

8. A paving construction composed of concrete sections, and a paving joint unit for separating the sections, said unit comprising a relatively long cleavage strip, a crowning strip fitted to one edge of the cleavage strip and terminating short of its ends, and a staking means attached to the ends of the cleavage strip.

Signed at Chicago, Illinois, this 25th day of January, 1927.

ALBERT C. FISCHER.