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METHOD OF MAKING EXPANSION JOINTS

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Fig. 1

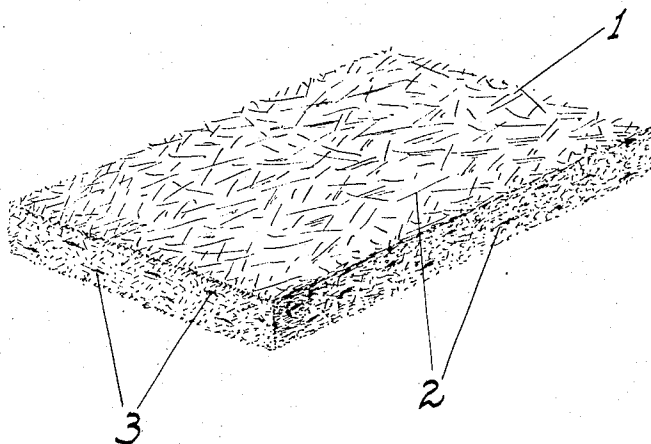
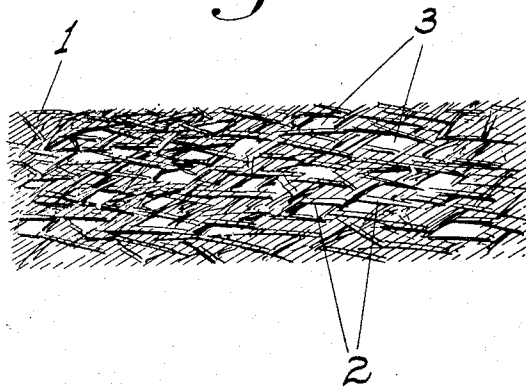


Fig. 2



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METHOD OF MAKING EXPANSION JOINTS

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This invention relates to improvements in the structural building art, and particularly relates to expansion joints used in connection with all kinds of structures, particularly concrete structures such as bridges, highways and the like.

Due to the fact that structures of this character have a tendency to expand and contract in use it is common practice to interpose expansion joints at certain fixed intervals in the structure. Such expansion joints must of necessity have certain resilient qualities and at the same time must be enduring and not readily affected by moisture or be subject to deterioration when exposed to the elements. A practical joint should also be one which is capable of being handled and put into place in an efficient and workmanlike style without an exceptional amount of skilled effort. Furthermore the joint must be one which can be produced at a fairly reasonable cost.

Heretofore expansion joints of this character have been produced and sold, but most of them have one or more objections in that some are subject to rapid deterioration, and are not essentially water-proof, and are also somewhat hard to install under the varying conditions encountered.

The object of my invention is to produce a highly efficient joint of standard building material so arranged and treated as to afford all the advantages desired in joints of that character and eliminating to a very great degree all the disadvantages.

In the accompanying drawings:

Fig. 1 is a perspective view of a small section of my improved expansion joint material.

Fig. 2 is an enlarged sectional view of the material.

In preparing my improved expansion joint I first form a vegetable fiber board composed of finely comminuted vegetable fibers suitably pressed together to form the board 1. This board may be either formed independently or I may use certain forms of fiber board already on the market, provided the same answer the requirements, as hereinafter set forth.

In the formation of this board when the fibers 2 are pressed and adhered together, there are formed or left between the several fibers small interstices or voids 3. The natural resiliency of the finely comminuted fiber itself in conjunction with these voids lends to the board a certain resiliency so that when compressed it will have an expansible action when the pressure is relieved therefrom. Thus the board so formed provides an admirable material in itself for use as an expansion joint in the respects above discussed. However the fiber board itself without being suitably treated would hardly be a suitable material for use in the respects noted for the reason that it might deteriorate when exposed to the elements, and also would be apt to readily absorb moisture, which would impair its resilient qualities and also cause deterioration. I found it therefore necessary in making use of this material to so treat it as to thoroughly impregnate the individual fibers as well as the mass with a preserving and water-proofing material. It became necessary however to so apply the preserving and water-proofing material that while it would encase and impregnate the individual fibers of the mass it must not fill the interstices or air pockets in the mass of the board itself, since if it did the resiliency of the board would be lost and its efficiency as an expansion joint destroyed.

I therefore gain the desired object by treatment of the board with the following materials and in the following manner:

I first establish a dipping bath composed preferably of asphaltum, a light petroleum oil, and gasoline or like volatile fluid. I preferably use these in the following proportions, to-wit: Asphaltum, 112 parts; oil, 64 parts; and gasoline, 192 parts, all by weight. I heat the asphaltum to a fluid state and then add the oil and gasoline. When the same are thoroughly mixed and in a perfect fluid state, and maintaining the same well heated, I immerse the fiber board therein and allow it to remain in the bath a sufficient length of time to become thoroughly impregnated with the fluid. The

board is then removed from the bath and preferably placed in a hot-air drying compartment, which may be of any desired type with suitable natural or induced ventilating currents. At this point the volatile fluids escape from the board in the form of gas, leaving only the heavier materials, such as the asphaltum and oil, in the board. This is impregnated into and around the individual fibers of the mass but the escape of the gases of the volatile fluids leaves the interstices or air voids in the boards substantially unimpaired, so that the resiliency of the board is still present, although the fiber material is thoroughly water-proofed and preserved against deterioration. The light oil remaining with the asphaltum tends to keep the asphaltum in the mass in a softened condition rather than allowing it to become dry and hard, which might cause it to become brittle and breakable in use.

The material thus formed may be readily handled and cut up into various sizes and shapes for use as expansion joint material, due to its being in board form and readily capable of being cut, and handled at will; and it has an inherent stability so that when placed in position it will remain intact without any tendency to slump or deform as is a common objection to certain other types of expansion joints.

From the foregoing description it will be readily seen that I have produced a material for use as an expansion joint which has all the advantages necessary and none of the disadvantages referred to.

While I have herein set forth the preferred materials used in the construction of the joint it is to be understood that I do not wish to limit myself to the use of any particular type of vegetable fiber or any particular water-proofing and preserving materials, the above being recited merely as the preferred materials desired to be used in this regard, although in actual practice I would of course reserve the right to use any and all equivalent materials capable of the same use.

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

1. The herein described method of treating vegetable fiber board having air spaces between the fibers thereof consisting in establishing a dipping bath comprising parts asphaltum, 64 parts light oil and 192 parts of gasoline, all by weight, and then immersing the board into the bath until impregnated therewith, and then drying the board until the gasoline has escaped therefrom, leaving the fibers of the board impregnated with the asphaltum and oil, and the air spaces substantially unimpaired.

2. The method of preparing an expansion joint which consists in filling a preformed

resilient porous mass of fibrous material in the form of fibre board with a mixture of asphaltum, oil and volatile material, wherein the volatile material predominates and the amount of asphaltum and oil introduced is merely sufficient to coat and adhere the fibre together and not sufficient to occlude the inter-fibre spaces, and then evaporating the volatile material prior to placing the joint in situation, whereby to leave the fibre board as a final product in the form of a porous and resilient mass of fibres each coated with the asphaltum and oil.

In testimony whereof I affix my signature.

GEORGE J. ULRICH.