Jan. 21, 1930. A. C. FISCHER 1,744,378

CONSTRUCTIONAL MATERIAL

Filed April 16, 1928

Fig. 1.

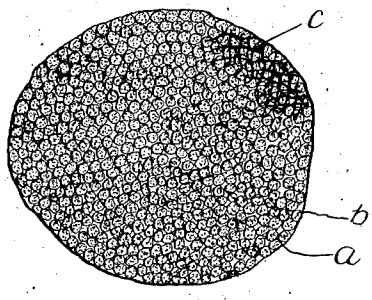


Fig. 3

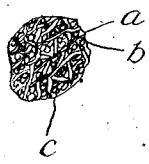


Fig. 2

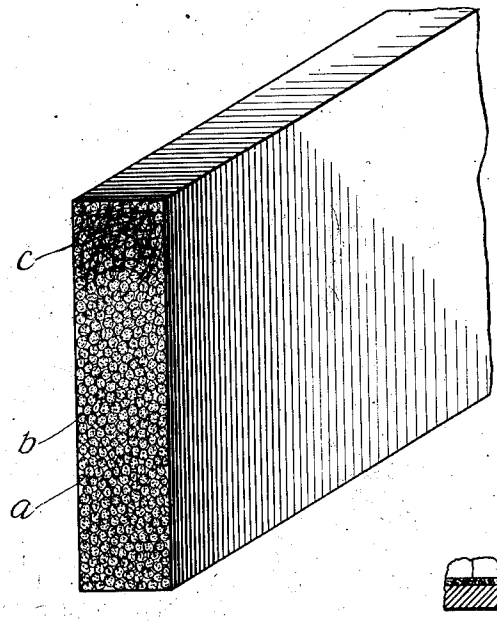


Fig. 4

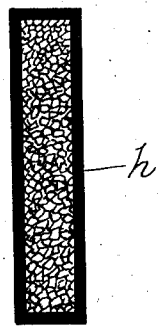
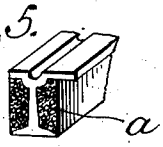


Fig. 6.



Fig. 5.



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Patented Jan. 21, 1930

1,744,378

UNITED STATES PATENT OFFICE

ALBERT C. FISCHER, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE PHILIP CAREY MANUFACTURING COMPANY, A CORPORATION OF OHIO

CONSTRUCTIONAL MATERIAL

Application filed April 16, 1928. Serial No. 270,517.

This application relates to subject-matter shown and described in my Patent No. 1,591,670, issued July 6, 1926, and particularly relates to an asphaltic slab suitable for expansion joints, flooring, paving, protection course for paving, rail crossings, rail fillers, and the like. These are formed under pressure and adapted to withstand the stress and strain of traffic without fracture. This may be accomplished by directing air thru the heated mass so the bubbles accumulate against a cold surface. By chemical action under pressure, wherein various chemicals are compounded, using bituminous material as the base or bulk, the same cellular structure can be obtained. Bicarbonate of soda, Glauber's salts, sulphur, lime and various chemicals may be used in varying proportions to accomplish the object desired.

A mass of bituminous matter may be mixed with a fibrous substance to strengthen it, suitably filled or charged with air cells, and while in this condition suddenly chilled or immersed in cold water.

Another method by which the air trapping conditions may be effected is to prepare a substance to increase its capillary action and then immerse the body in heated bituminous matter, and allowing the body to absorb and draw the heated bituminous matter thru its structure, thereby forming a bituminous wall about its numerous air pockets, and creating a spongy, cellular mass, readily compressed and of a resilient sponge-like character.

It is readily understood that the bituminous substance used may be chemically treated, air blown, fibrated and otherwise treated to secure toughness and rubbery consistency. This would naturally involve many chemicals used in the treatment of rubber, sponge rubber, and its preparation for vulcanization, so I do not wish to be limited to the nature, body structure or chemical contents of the asphalt or other bituminous material. Vegetable oils may also enter into such a structure if properly treated, especially for the manufacture of expansion joints. Earthy matter is sometimes used to secure greater stiffness and check the inherent flow tendency and adhesiveness, and prevent adhesion of the cell walls.

This invention relates further to incorporating fiber, in which case the bituminous cellular material herein described should preferably be of a very stiff and tough structure and contain considerable earthy matter to prevent adhesion of the cell walls. One good medium thru which the air can be trapped in pockets is by utilizing a matted, laminated, cellular flax structure, or one of hemp, flax and straw, which have been treated with caustic soda, thus removing the gummy matter in the straw, flax or other vegetable fiber, thus increasing its capillary action.

The purpose of incorporating fibers as a reinforcing means is to strengthen the mass and adapt it for various uses such as rail filler blocks of various formation, etc.

This invention relates to a bituminous material comprising a cellular construction formed by gas forming means, and having distributed therethru earthy material and fiber, said earthy material being jacketed by bituminous material, and said structure being reinforced by fibers.

In the accompanying drawing, Figure 1 illustrates the bituminous material *b*, with the earthy material *a* distributed therethru, and fiber *c*.

Figure 2 illustrates this material in block formation.

Figure 3 illustrates the bituminous material *b* having earthy material *a* distributed therethru, and fiber *c* for reinforcing the mass.

Figure 4 represents a cross section of the block.

Figure 5 is a perspective view of rail filler sections faced with strips of bituminous material embodying my invention.

Figure 6 is a section of a pavement in which a layer of the bituminous material is inserted between the substructure and surfacing blocks.

I claim:

1. Constructional material comprising bituminous material having a homogeneous mixture of earthy material coated with bituminous material, said mass being bonded to-

gether by fibers homogeneously distributed therethru.

2. Rail filler comprising a preformed blocklike structure consisting of bituminous material in cellular formation, earthy material to prevent adhesion of the cell walls and the mass bound together by fibers distributed therethru.

3. A blocklike structure comprising a homogeneous mixture of bituminous material in cellular form, earthy material to prevent adhesion of the cell walls, and fibers distributed throughout the structure.

4. A paving structure comprising a foundation layer, a waterproofing layer of preformed bituminous slabs over the foundation layer and surfacing blocks secured to the waterproofing layer.

5. A paving structure comprising a foundation layer, a waterproofing layer of preformed bituminous slabs composed of bituminous and earthy material, and surfacing blocks secured to the waterproofing layer.

6. A paving structure comprising a foundation layer, and an overlying layer of preformed bituminous strips, said strips being formed with a yieldable body and faced with a solid bituminous coating.

7. A paving structure comprising a foundation layer, and an overlying bituminous layer adhesively united to the foundation layer, said bituminous layer being formed with a yieldable body and faced with a solid bituminous coating.

8. A paving structure comprising a foundation layer, and an overlying bituminous layer adhesively united to the foundation layer, said bituminous layer being formed of saturated fibers and faced with a solid bituminous coating.

Signed at Chicago, Illinois, this 22nd day of March 1928.

ALBERT C. FISCHER.