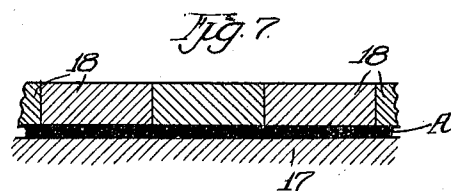
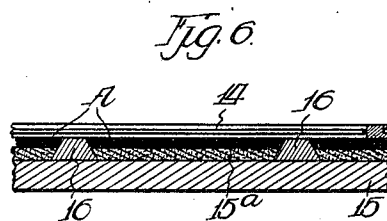
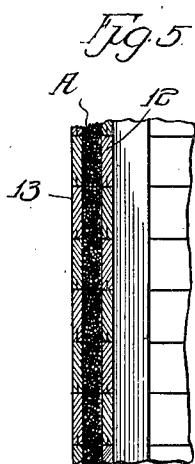
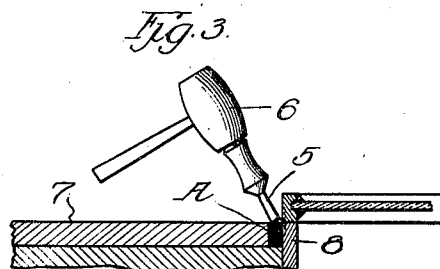
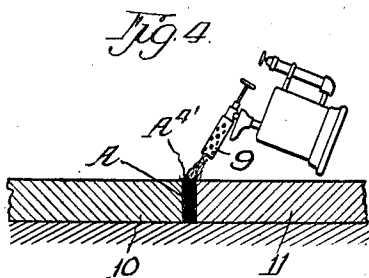
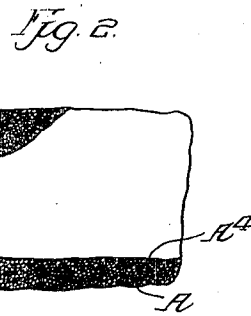
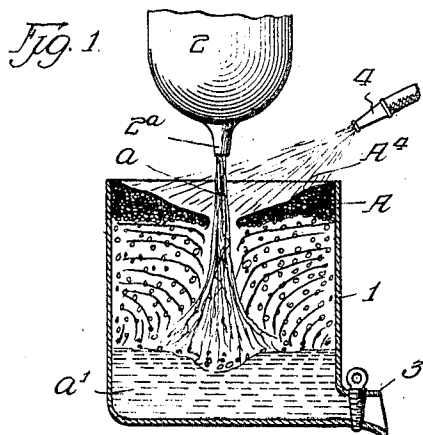


A. C. FISCHER.
 SPONGE ASPHALT, METHOD OF PRODUCING SAME, AND PACKINGS MADE THEREFROM.
 APPLICATION FILED NOV. 1, 1919.

1,401,974.

Patented Jan. 3, 1922.



Witness:
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Inventor:
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 By *Hervey Wright*
Att'y.

UNITED STATES PATENT OFFICE.

ALBERT CHARLES FISCHER, OF CHICAGO, ILLINOIS.

Sponge Asphalt, Method of Producing Same, and Packings Made Therefrom.

1,401,974.

Specification of Letters Patent.

Patented Jan. 3, 1922.

Application filed November 1, 1919. Serial No. 335,170.

To all whom it may concern:

Be it known that I, ALBERT C. FISCHER, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful
5 Sponge Asphalt, Method of Producing Same, and Packings Made Therefrom, of which the following is a specification.

This invention is based upon the discovery
10 that asphaltic material may be developed into spongy, cellular form, and when so developed makes a good insulator of sound, moisture, electricity, heat at relatively low temperatures, and other influences; also that
15 the material lends itself with peculiar advantage to application to spaces to be packed or objects to be covered; also to ready treatment as by a heat medium for the development thereon of an impervious sealing
20 skin and cementation to adjoining bodies.

In order that the several phases of the present invention may be understood, one method of producing the material, a sample of the material when produced, and several
25 suggestive uses to which it may be put are illustrated in the accompanying drawings, in which—

Figure 1 is a vertical section of a receptacle into which asphaltic material is being
30 delivered under conditions which develop it into spongy cellular structure.

Figure 2 is a perspective view of a sample of the goods produced.

Figure 3 is a sectional view suggesting a
35 method of tamping the material into a joint to be weatherproofed.

Figure 4 is a view suggesting a method of developing an impervious skin upon the exposed surface of the packing material.

Figure 5 suggests the use of the material
40 as a heat insulation in the wall of a building.

Figure 6 illustrates the use of the material as a sound deadener beneath wooden floors; and

Figure 7 suggests the use of the material
45 as a foundation upon which to lay paving bricks or blocks.

Referring to Figure 1, 1 represents a receptacle adapted to receive and hold asphaltic
50 material in the fused state, and 2 is a container having a nozzle 2^a from which the material is delivered to the receptacle under conditions which cause the material to trap air and develop an aerated condition that
55 causes it to rise to the top of the body of the asphalt contained in the receptacle and

accumulates on the top thereof. Gravity alone may be employed for delivering the asphaltic material into the receptacle 1, or any suitable pressure medium may be employed for that purpose.

3 represents a spout through which the unaerated portion a^1 , which accumulates in the receptacle 1, may be drawn off from time to time either for re-melting or in order to
65 keep the level of the accumulating sponge asphalt below the top of the receptacle.

Preferably some means, such as the air-blast 4, or a fine water spray or the like, is directed against the upper surface of the
70 accumulating sponge asphalt in order to develop an impervious outer skin or sheath that traps the air in the material behind the sheath until the material is sufficiently cooled to retain its sponge-like cellular
75 structure.

The texture of the cellular structure can be controlled, within limits, by the violence of delivery of the stream a regulated either by height of falling, or other means of acceleration; also by the temperature at which
80 it is delivered. It may also be influenced by the provision of special air disseminating means, and the temperature at which the air is introduced.

It is to be noted that the illustration in Figure 1 is intended to indicate at a' more or less dense unaerated though fused asphaltic material; at A the sponge-like cellular asphalt; and between A and a^1 frothy
90 or aerated asphaltic material of sufficient density to cause the globules to rise therein. For starting the process, the receptacle 1 may be largely filled with fused asphalt until a body of spongy texture begins to
95 accumulate upon its surface, and it can then be drawn off or its level gradually lowered so as to develop the desired violence of air-trapping effect.

The product of the process illustrated in
100 Figure 1 is a material substantially as shown in Figure 2, where the main body A is of sponge-like cellular structure with an outer impervious or continuous skin A⁴ integral therewith.

The material of Figure 2 may be used in many ways. Sufficiently large pieces of same may be applied around a pipe to be heat insulated. It lends itself with particular
110 advantage to being tamped into a space between two structural members 7 and 8, as illustrated at A in Figure 3, any suitable

ble tamping tool 5 with mallet 6, for instance, being employed for introducing it. After the joint is thus packed to the desired degree, or after any other joint is similarly packed, as, for instance, the joint between two cement or other paving blocks 10, 11, it is advantageous to seal the outer surface of the packing as suggested in Figure 4, as, for instance, by means of the blow torch 9, thereby developing on the packing an impervious outer skin like the skin A⁴, Figures 1 and 2, and which is suggested at A⁴ in Figure 4. This method of sealing the outer surface also has the effect of cementing the packing firmly to the adjacent surfaces of the objects to be packed. In packing such as shown in Figures 3 and 4, there is ample compressibility in the packing to compensate for expansion of the structure under heat, and sufficient resiliency in the material to compensate for enlargement of the packing space by contraction of the adjacent members as a result of cold.

Figure 5 shows the material used as a heat insulation for freight cars, refrigerators, and other building structures where it is introduced as at A between the inner sheathing 12 and the outer sheathing 13.

The material of the present invention will serve well for sound insulation in flooring, as, for instance, by introducing it as shown at A in Figure 6, where it lies between the floor boards 14 and the foundation 15 or the cement layer 15^a in which are set the battens 16 on which the boards are laid.

In this relation the material becomes an insulator against moisture as well as sound, and it will serve well as a safeguard against buckling of expensive wooden floors, which are sometimes injured by laying them over cement foundation before the cement has fully dried out.

Another use to which the material may be put is suggested at A in Figure 7, where it serves as a substitute for the sand in which bricks are laid in paving.

While I have illustrated the best method now known to me of developing cells in asphalt and setting it to create a spongy consistency in the material, this is not the only method of so doing. For instance, the condition may be created by aeration or causing air bubbles to rise in heated asphalt against an upper crust of chilled asphalt; or it may be done by chemical action causing expansion of gases in an asphalt body, followed by a cooling condition as above noted. Another method would be by evaporation or rather vaporization of water or chemicals causing cells to form under the conditions of either of the foregoing re-

citals. Still another method is that of blistering, according to which moisture and heated asphalt are sprayed on a surface alternately.

In any of the foregoing methods the asphalt body is caused to inherently expand into many small cells, thereby causing the spongy condition to develop.

I claim:

1. The herein-described sponge asphalt.
2. As an article of manufacture, an asphaltic material having a sponge-like cellular structure.
3. As a new article of manufacture, asphaltic material having a cellular structure with sluggishly sponge-like resistance to compression.
4. The herein-described sponge asphalt having an imperforate skin.
5. Packing material comprising in its structure sponge-like cellular asphaltic material.
6. Packing material comprising in its structure sponge-like cellular asphaltic material, and having an imperforate continuous skin.
7. In combination with spaced members of a structure, a packing therefor comprising a body of sponge-like cellular asphalt located in the space between the bodies.
8. In combination with spaced members of a structure, a packing therefor comprising a body of sponge-like cellular asphalt located in the space between the bodies, and having its exposed surface fused into a continuous impervious sealing skin.
9. The art of producing sponge-asphalt which consists in delivering fused asphaltic material under air-trapping conditions, developing aerated asphalt therefrom, and collecting the aerated asphalt.
10. The art of producing sponge-asphalt which consists in delivering fused asphaltic material under air-trapping conditions, developing aerated asphalt therefrom, and collecting the aerated asphalt against a sheath that traps the air therein.
11. The art of producing sponge-like cellular asphalt which consists in delivering fused asphaltic material under air-trapping conditions, developing aerated asphalt therefrom, treating an outer portion of the aerated asphalt to develop an impervious barrier to the escape of air, and accumulating the aerated asphalt behind such barrier.
12. An asphaltic body or material whose substance has been expanded or formed into many closely related cells.

Signed at Chicago, Illinois, this 29th day of October, 1919.

ALBERT CHARLES FISCHER.