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METHOD OF CAULKING LEAKS IN A NATURAL WATER RESERVOIR

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7 Claims

ABSTRACT OF THE DISCLOSURE

A method of caulking leaks in a natural water reservoir, characterised in that elements in the form of filaments having a density substantially the same as that of the water are suspended in the water in the reservoir, adjacent the zone where there is a leak, whereafter a mixture of a sealing product and the liquid is introduced into said zone.

The invention relates to a method of caulking leaks in a natural or artificial water reservoir. It has already been suggested to use solid elements having a density substantially the same as that of the water in the reservoir which are suspended therein, adjacent the zone where there is a leak. The elements are entrained by the leakage current and stop by the cracks in the reservoir.

It has been found that a particularly advantageous form for the solid elements is that of filaments, since even if they are shorter than the width of the crack to be stopped up, the filaments are arrested at the edges of the crack and lead to the formation of a plug covering the whole crack.

It is an object of the invention to use this property of filament-shaped elements to make the cracks completely sealing-tight.

According to the invention, elements in the form of filaments having a density substantially the same as that of the water are suspended in the water in the reservoir, adjacent the zone where there is a leak, whereafter a mixture of a sealing product and a liquid is introduced into said zone.

The mixture of the sealing product and a liquid follows the leakage current, comes into contact with the plug formed by the filaments, and the mixture is separated, depositing the sealing product on the filaments. The filament can be made, for instance, of a plastics material such as polyvinyl chloride, polyethylene, and polystyrene, on their own or mixed together, and their density must be close to that of the water, so that they do not remain on the surface. Preferably their density is slightly higher than that of the water so that they descend slowly thereinto and do not reach the bottom before being entrained by the leakage current. The filaments must therefore have a slight tendency to descend in the water, without going too fast. The density of the filaments can readily be regulated during their manufacture by introducing a filler into them.

The diameter of the filaments slightly affects their speed of fall, which is slower in proportion as the diameter is smaller. The length of the filaments has little importance, but advantageously longer filaments are used in proportion as the crack to be stopped up is larger. The filaments become entangled with one another at the entry to the crack and thus form a plug. The final plug is obtained by supplying a mixture of a sealing

product and a liquid, the mixture separating in contact with the filaments and depositing the sealing product thereon.

The mixture can be formed by a bitumen emulsion in water, the emulsion breaking down in contact with the filaments. To break down the emulsion, the pH of the emulsion differs from that of the surface of the filaments. With acid filaments the emulsion must be basic, and vice versa. If a basic emulsion is used, the actual material of which the filaments are made need not have an acid pH, it is enough for the pH to be acid on the surface. A pH of this kind can be obtained by coating the filaments with an acid wetting agent. The same method can be used with an acid sealing mixture, in which case the wetting agents for the filaments is basic. Alternatively, the mixture can be formed by a colloidal suspension, for example colloidal clay in water, the suspension being destroyed in contact with the filaments.

The method enables cavities and cracks in natural or artificial water reservoirs to be stopped up accurately and with satisfactory sealing tightness. The filaments are first placed in the water adjacent the zone to be made sealing tight, whereafter they descend slowly, are entrained by the leakage current, and become entangled with one another over the cracks, where they form a plug. The mixture of sealing product and liquid, for instance a bitumen emulsion or a colloidal suspension, is then poured into the same zone of the water in the reservoir, and is also entrained towards the cracks and is destroyed in contact with the filaments of the plug, completely stopping up any apertures therein and providing a hermetic seal.

Of course, the invention is not limited to the details of the embodiment thereof described hereinbefore, and such details could be modified without exceeding the scope of the invention. For instance, the filaments need not be made from plastics material, but can be formed by vegetable fibres treated to adjust their density to a value close to, but slightly higher than that of water.

What is claimed is:

1. A method of caulking leaks in a water reservoir, characterised in that elements in the form of filaments having a density substantially the same as but not less than that of the water are suspended in the water in the reservoir, adjacent the zone where there is a leak and drawn into and partially plug the leak, whereafter a mixture of a sealing product and a liquid is introduced into said zone and is drawn into the partially plugged leak, the contacting surfaces of one of said elements and of said mixture being basic and the other being acidic.

2. A method as set forth in claim 1, characterised in that the filament-shaped elements have a density slightly higher than that of the water.

3. A method as set forth in claim 1, characterised in that the mixture of a sealing product and a liquid is formed by a bitumen emulsion in water.

4. A method as set forth in claim 1, characterised in that the mixture of a sealing product and a liquid is formed by a colloidal suspension.

5. A method as set forth in claim 1, characterised in that filament-shaped elements are acid at least on their surface, and the mixture of a sealing product and a liquid is basic.

6. A method as set forth in claim 1, characterised in that the filament-shaped elements are basic at least on their surfaces, and the mixture of a sealing product and a liquid is acid.

7. A method as set forth in claim 1, characterised in that the filament-shaped elements are covered with a

wetting product determining the pH of the surface of
the elements.

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