pare the composite materials shown in FIGS. 2 and 3, the fibrous material is interposed between two hydroxy-apatite layers which have previously been cold compression-molded, and then the assembly is cold compressed, followed by sintering under heat.

Since the composite material in accordance with this invention has a surface of hydroxy-apatite, it has superior affinity for the living body unlike those medical and dental materials comprising, for example, alumina, which are not in use. In addition, since the composite material has an internal fibrous structure, it has high compression strength, e.g., about $4\times10^3$ Kg/cm$^2$ or higher, and high flexural strength, e.g., about $2.7\times10^3$ kg/cm$^2$ or higher, and can function suitably as prosthetic teeth and bones. For example, a prosthesis for a bone having an improved flexural strength can be prepared by mixing hydroxy-apatite having an average particle size of 1.1 μm (95% by weight) with a woven silicate glass fiber fabric (5% by weight) containing silicate glass fibers of a diameter of 10 μm and subjecting such to the steps set forth above.

While the invention has been described in detail and with reference to specific embodiments thereof, it will be apparent to one skilled in the art that various changes and modifications can be made therein without departing from the spirit and scope thereof.

What is claimed is:

**1**. Prosthetic teeth and bones having superior affinity for the living body and having a compression strength of about $4\times10^3$ kg/cm$^2$ or higher and a flexural strength of about $2.7\times10^3$ kg/cm$^2$ or higher, which comprise a composite material comprising

(a) a sufficiently fine powder having an average particle size of about 2 μm or less comprising at least 50% by weight of $Ca_{10}(PO)_4)_6(OH)_2$ and not more than about 50% by weight of at least one additive selected from the group consisting of $Ca_3(PO_4)_2$, $AlPO_4$, $Al_2O_3$, $AlF_3$, $SiO_2$, $Mg(PO_4)_2$, and the fluorides, chlorides and oxides of Li, Na, K, Mg and Ca, and

(b) at least one fibrous material having the coefficient of thermal expansion nearly equal to or slightly lower than that of the hydroxy-apatite selected from the group consisting of fibers, fine filaments and metal whiskers, ceramics or glass, said fibrous material being present at least 50 μm inside the surface of the prosthetic teeth and bones, and said composite material being a laminate of said fibrous material interposed between two layers of said fine powder and having been cold compression-molded and then sintered.

**2**. The prosthetic teeth and bones of claim **1**, wherein the amount of the weight proportion of $Ca_{10}(PO_4)_6(OH)_2$ to said additive is about 50 to 99.9% by weight of $Ca_{10}(PO_4)_6(OH)_2$ to about 0.1 to about 50% by weight.

**3**. The prosthetic teeth and bones of claim **1**, wherein the fibrous material is arranged both lengthwise and crosswise.

**4**. The prosthetic teeth and bones of claim **3**, wherein the fibrous material is in the form of a fabric.

**5**. The prosthetic teeth and bones of claim **4**, wherein the fibrous material is in the form of a woven fabric.

**6**. The prosthetic teeth and bones of claim **4**, wherein the fibrous material is in the form of a knitted fabric.

**7**. The prosthetic teeth and bones of claim **4**, wherein the fibrous material is woven silicate glass fiber fabric.

**8**. The prosthetic teeth and bones of claim **1**, wherein the sintering is performed at a temperature of about 800° to about 1500° C. for about 15 minutes to about 40 hours.

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