

**Reference Number: 025418/00108**

## **Title of the Invention**

USE OF MAGNESIUM ALLOYS COVERED WITH BIOCOMPATIBLE MATERIALS AS BIODEGRADABLE DENTAL IMPLANTS

## **Invention**

The invention relates to the use of magnesium alloys coated with biocompatible materials as biodegradable dental implants in developing jawbones. The purpose of the invention is to be a dental implant developed for use in patients with continuing skeletal development (children and adolescent patients) and thus adapting to the change of bone structure in the later stages of development. Another aim of the invention is to use Mg alloys, especially AZ91 alloy, as it provides to obtain biodegradable implants with high corrosion resistance. With this use, it is aimed to ensure that the biodegradable implant, which will safely mix with the body tissues in children and young people, protects the existing bone and functions until the required age.

The "Use of Magnesium Alloys Coated with Biocompatible Materials as Biodegradable Dental Implants" realized in order to achieve the purpose of this invention is shown in the attached figures; of these shapes:

**Figure 1** – Shows the condition of the titanium dental implant placed at the age of 10 in the patient's mouth when he was 13 years old (a) and 25 years old (b), who lost his permanent left incisor in a bicycle accident.

**Figure 2** – Illustration of the biocompatible material-coated magnesium alloys of the invention, the separate state of the biodegradable dental implant with the titanium alloy implant abutment.

**Figure 3** – The illustration of the inventive biocompatible material-coated magnesium alloys of the biodegradable dental implant mounted on the titanium alloy implant abutment on the A-A section in Figure 2.

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**Figure 4** – Top view of the biodegradable dental implant of magnesium alloys coated with biocompatible material, which is the subject of the invention.

**Figure 5** – Graphical representation of the growth rates of the global dental implant market by region. (Projected rates for the year 2020-2025)

## **Advantages**

It is aimed to use Mg alloys, especially AZ91 alloy, because it provides high corrosion resistance and biodegradable implants. With this use, it is ensured that the biodegradable implant, which will safely mix with the body tissues in children and young people, protects the existing bone and functions until the required age.

## **Current Status**

TURKEY: Pending

## **Keywords**

Biodegradable dental implant, jawbone, hydroxyapatite

## **TRL: 2**



**Figure 1 – (a)**

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Figure 1 – (b)

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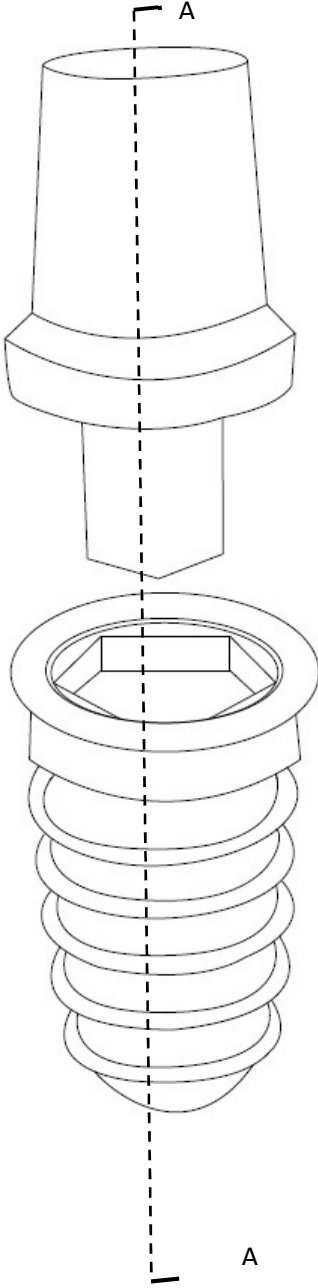
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**Figure 2**

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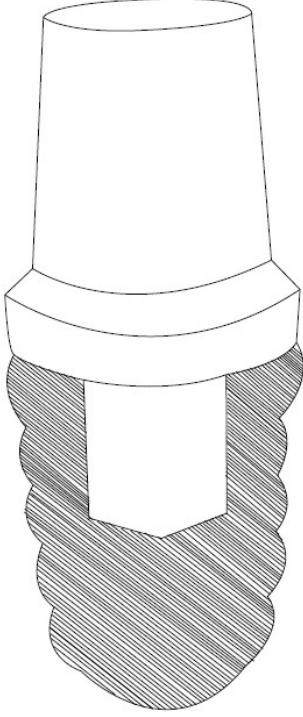


Figure 3

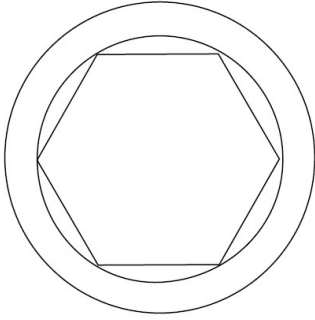


Figure 4

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Figure 5

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