METHOD AND DEVICE FOR DETECTING THE POWER TRANSMISSION FROM ORTHODONTIC APPLIANCES

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BACKGROUND

In addition to health reasons, aesthetic aspects plan an increasingly important role in the possible correction of tooth position, which is why adults, as well as children, make use of them. Such an intervention represents an active treatment and is realized with the aid of braces. These typically consist of plastic base with metal wires as well as spring and clip elements. Quantitative determination of occurring forces on the teeth has been established in medical technology in stress-optical measurements.

PROBLEM

At present the analysis of stresses is carried out with the help of extraoral model cavities, which must be produced by an unpleasant impression for the patient. Due to the use of such an in vitro duplicate, the real in vivo stresses can only be estimated and not determined with sufficient accuracy.

SOLUTION

The novelty of the present invention is a non-invasive method for determining information on forces and stresses involved in orthodontic appliances. This is realized by the combination of an intra-oral scanner with a polarization filter system in reflection. Since many amorphous polymers undergo double refraction under mechanical stress, an arrangement of isochromates and isoclines is formed when monochromatic light is used. The resulting conclusions about the force path and its magnitude are finally used to calculate the mechanical stresses across the cross-section.

ADVANTAGES

- Non-invasive determination of loads in orthodontic appliances
- Software solution for the quantitative representation of real acting forces

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DEVELOPMENT STATUS

Concept

PATENT SITUATION

DE 10 2014 112 598 pending

CATEGORIES

//Diagnostics //Dentistry //Sensor systems technology and measuring instruments
Patient-individualized and stress-tolerated dimensioning

SCOPE OF APPLICATION

- Dentistry
- Diagnostics
- Measuring technology

SERVICE

- Disposition
- Concession Agreement
- Development cooperation