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Engelhardt et al.

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(54) **CONFOCAL SURFACE-MEASURING  
DEVICE**

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559.4, 216

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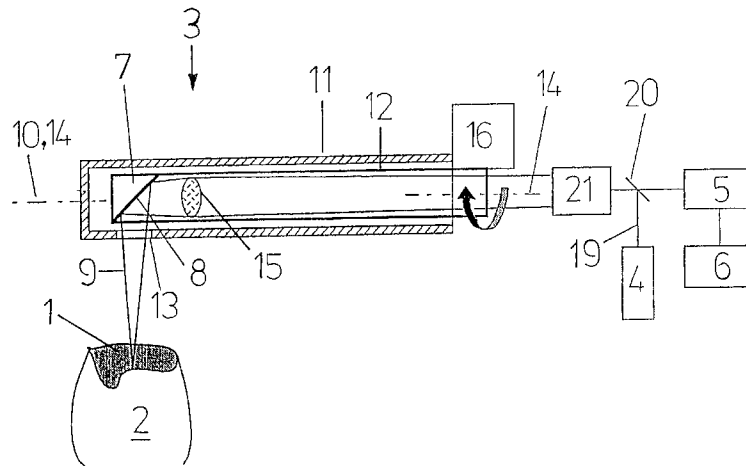
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(57) **ABSTRACT**

The invention concerns a device for the confocal measuring of surfaces inside cavities of the body, specially to measure the surface profile (1) of teeth (2) in the mouth cavity. Said device has a probe (3) that can be introduced into the cavity of the body, a light source feeding the probe (3), a detector picking up a light signal (5) and a processor (6) to digitalize the detected signal transforming it into a tridimensional representation. The device is designed using a simple construction and enabling an error free scanning of the surfaces. To this end, the probe (3) is designed as a rotary scanner having at least one deviating device (7) deflecting the light beam (9) in the direction of the surface that is to be measured (1), the deviating device (7) can be positioned in another scanning axis (10) to forward the rotating light beam (9), and the detector (5) comprises a device for sequential or simultaneous scanning of several focal planes, both with regards to specular reflection and to weak scattered light or fluorescent light of the focal plane concerned.

**44 Claims, 4 Drawing Sheets**



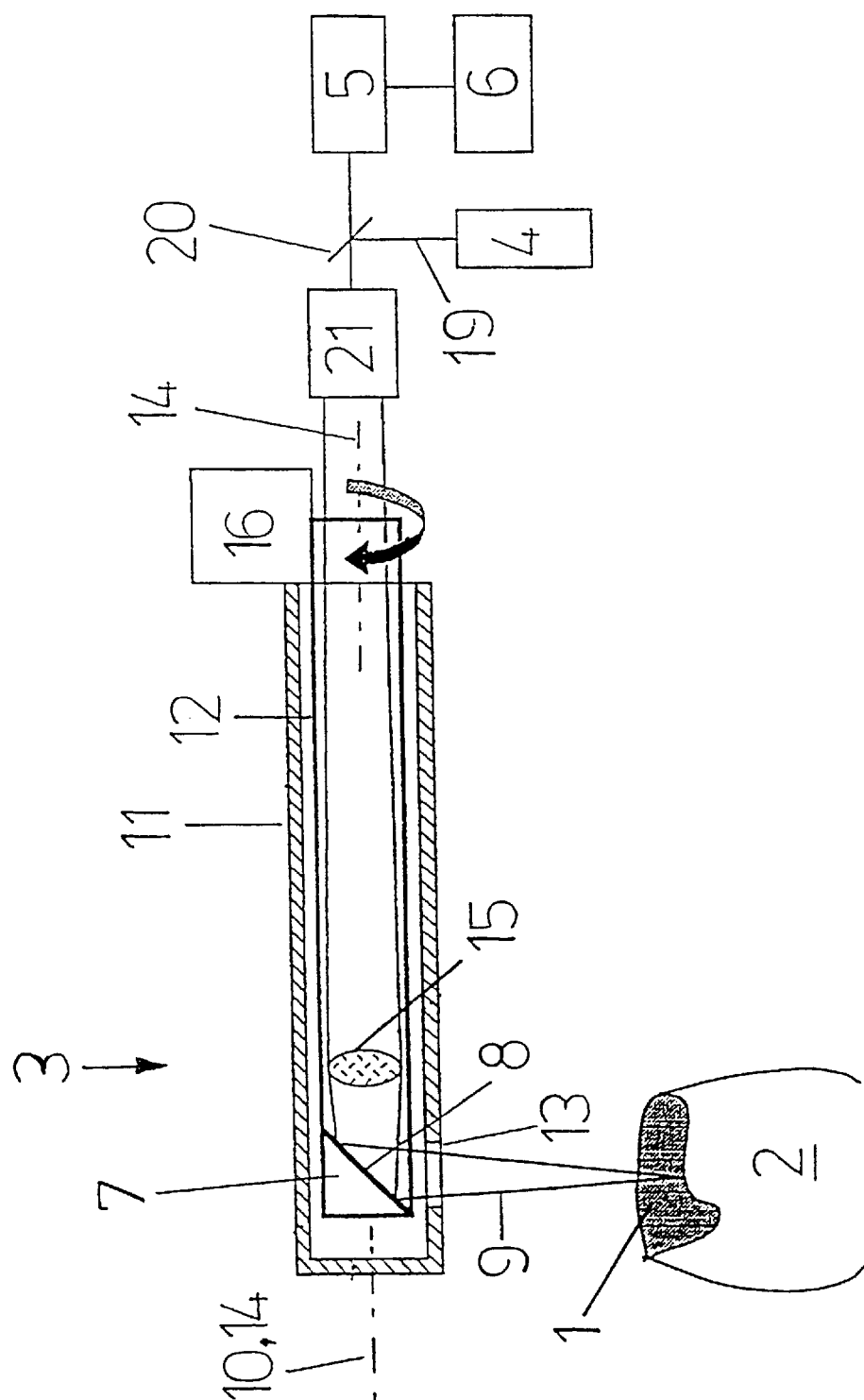
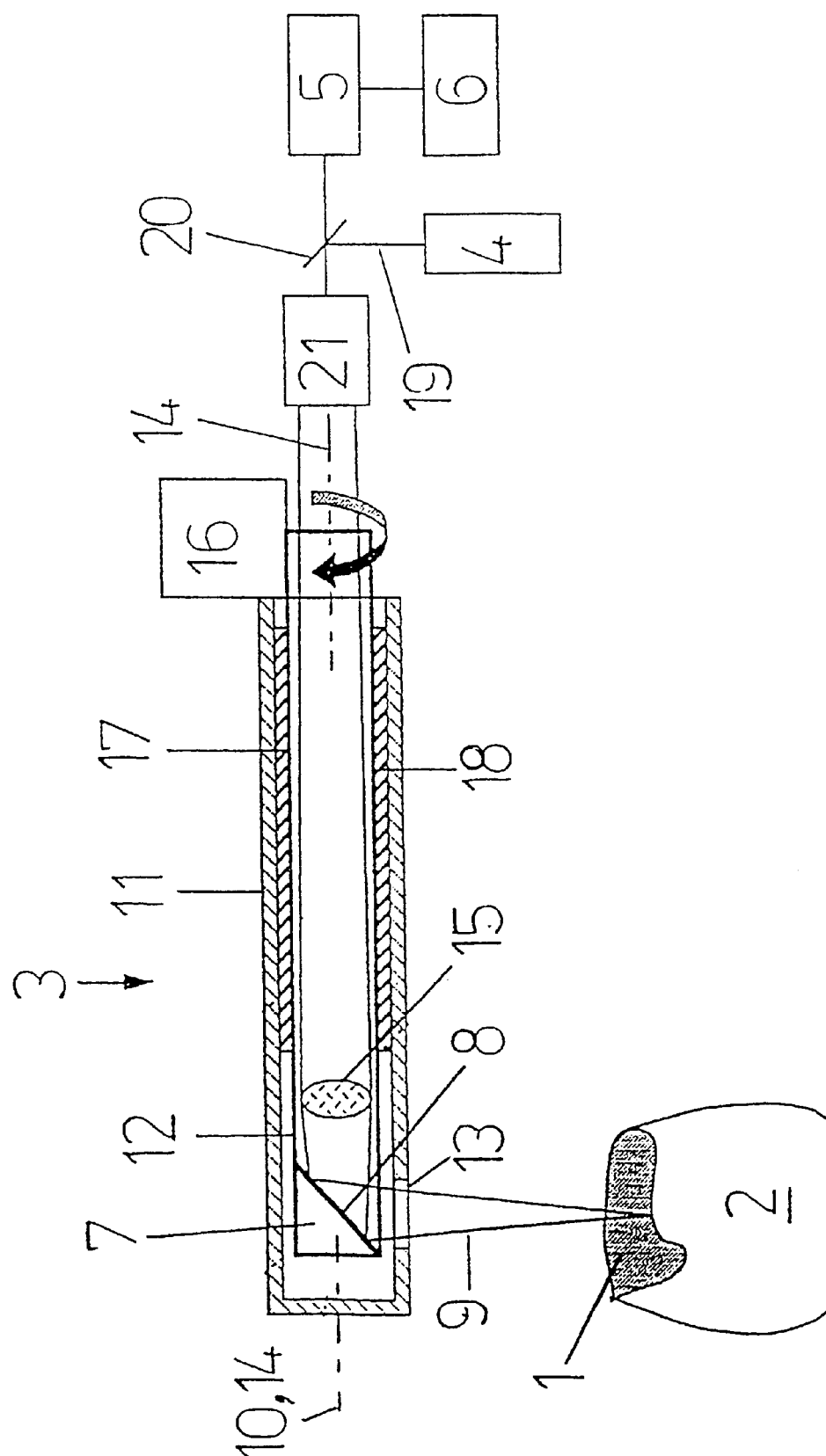


Fig. 1



**Fig. 2**

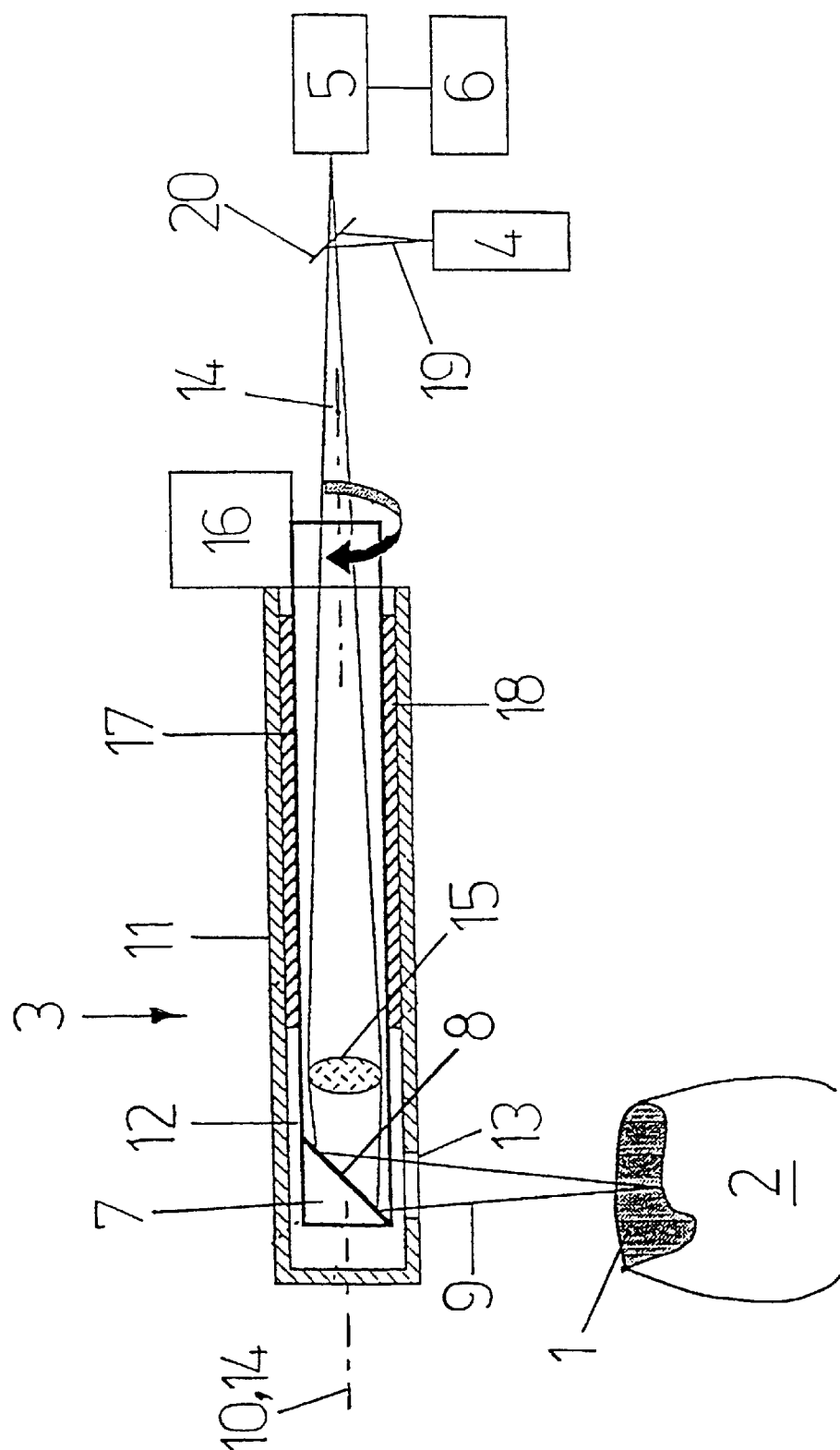
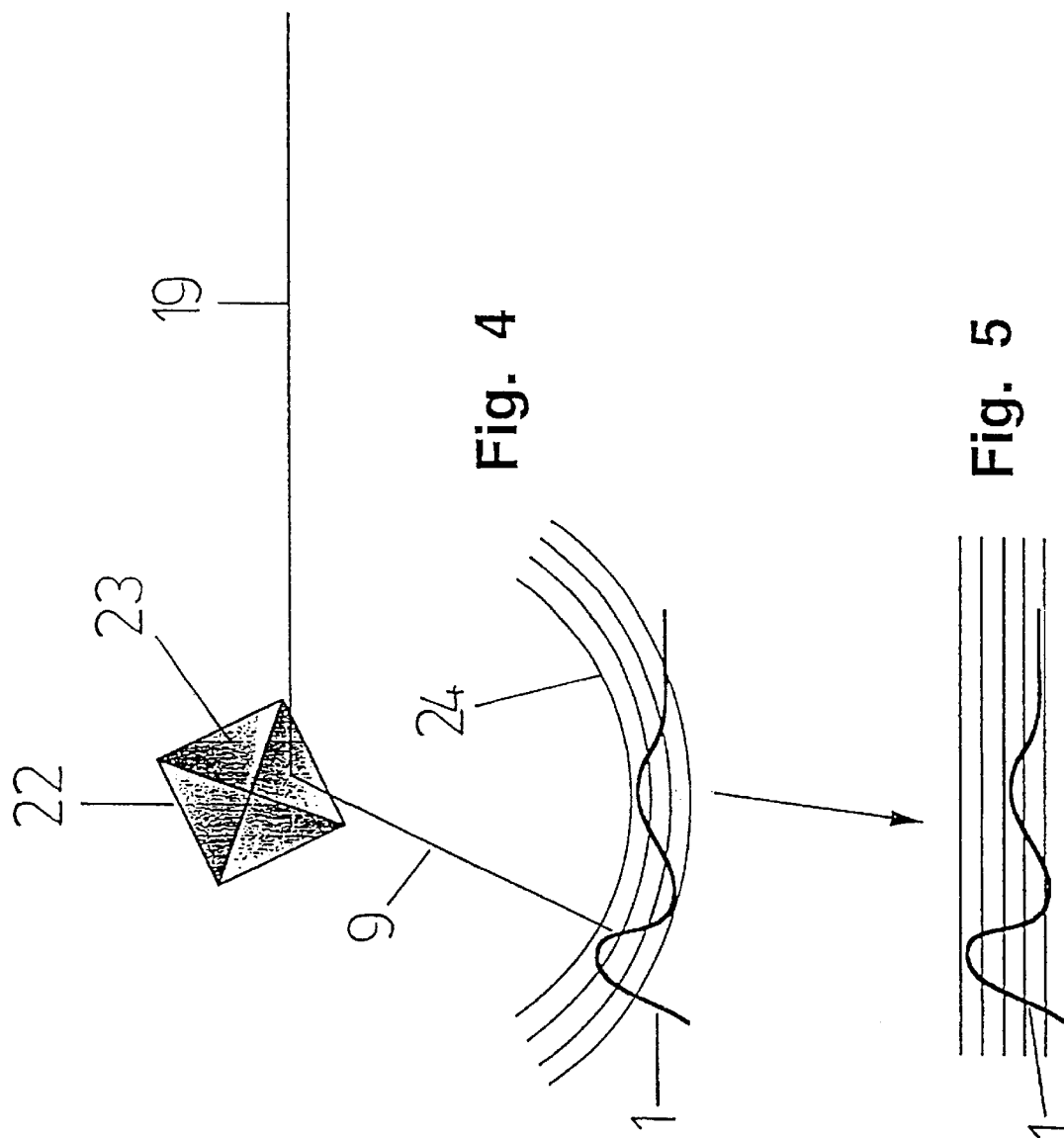


Fig. 3



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