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(54) Title: PAINT THICKNESS MEASURING DEVICE AND COMPUTER-IMPLEMENTED METHOD FOR MEASURING PAINT THICKNESS

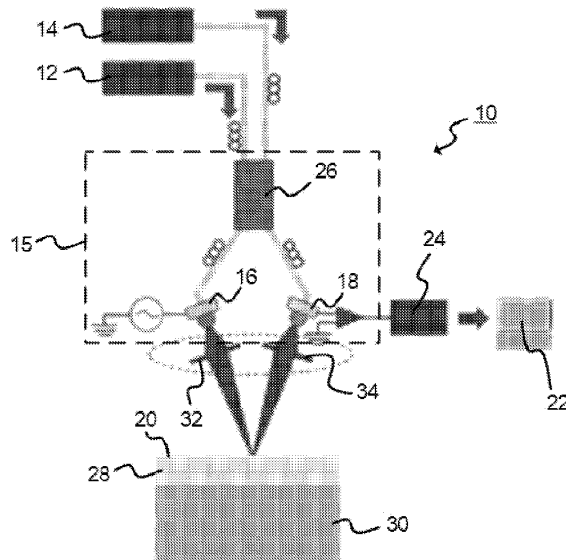


FIG. 1A

(57) Abstract: A paint thickness measuring device (10) and a computer-implemented method (50) for measuring paint thickness using the same are provided. The paint thickness measuring device (10) includes a first continuous-wave (cw) laser (12), a second continuous-wave laser (14), a photomixer (15), one or more computer processors (22), and a non-transitory computer-readable memory (24). The photomixer (15) includes an optical coupler (26) configured to mix laser lights emitted by the first and second continuous-wave lasers (12, 14) and generate a terahertz (THz) wave, a photomixer emitter (16) configured to emit the terahertz wave, and a photomixer receiver (18) configured to detect the terahertz wave reflected off a painted surface (20). The non-transitory computer-readable memory (24) stores computer program instructions executable by the one or more computer processors (22) to perform operations for paint thickness measurement. The operations include: comparing (52) the detected terahertz wave (54) to simulation results (56), identifying

[Continued on next page]

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(58) a minimum difference between the detected terahertz wave (54) and the simulation results (56), and determining (60) a paint thickness of the painted surface (20) from the simulation results (56) with the minimum difference.