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(54) Title: TOUCH SENSING

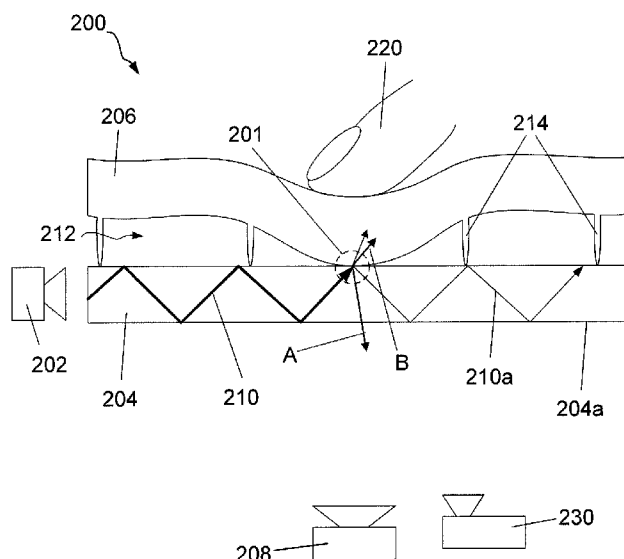


FIG. 2A

(57) **Abstract:** A touch-screen device includes a radiation source (202), a waveguide (204) configured to receive radiation (210) emitted by the source and to cause some of the radiation to undergo total internal reflection within the waveguide, a pliable frustrating layer (206) disposed relative to the waveguide to enable the frustrating layer to contact (201) the waveguide when the frustrating layer is physically deformed, the frustrating layer being configured to cause frustration of the total internal reflection of the received radiation within the waveguide when the frustrating layer is physically deformed to contact the waveguide such that some of the received radiation (A, B) escapes from the waveguide at the contact point, an imaging sensor (208) configured to detect some of the radiation that escapes from the waveguide, and a structure (309, 409, 509, 609, 709, 809, 909, 1009, 1109, 1209, 1309, 1409) disposed relative to the frustrating layer, the structure configured to steer at least a portion of the radiation that escapes from the waveguide toward the imaging sensor (208).



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