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(54) Title: COMPACT HEAD-MOUNTED DISPLAY SYSTEM HAVING SMALL INPUT APERTURE AND LARGE OUTPUT APERTURE

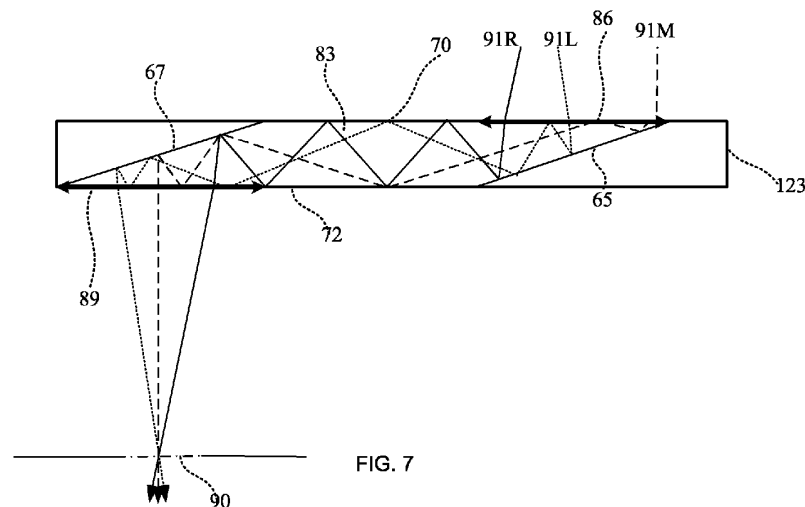


FIG. 7

(57) Abstract: An optical device includes a first light-transmitting substrate having at least two parallel major surfaces, a light wave input aperture, a light wave output aperture positioned next to one of the major surfaces of the substrate, a light wave output pupil, a light wave input element for coupling light waves, having a field-of view and a central light wave, into the substrate to effect total internal reflection from the major surfaces of the substrate, and at least one reflecting surface, having an active area, and being located between the two major surfaces of the light-transmitting substrate, for coupling light waves out of the substrate, wherein light waves trapped inside the substrate are reflected at least twice by the active area of the reflecting surface before being coupled out from the substrate, are substantially reflected from one of the major surfaces between the first and the second reflectance from the reflecting surface, are then reflected from the reflecting surface and pass through the output aperture towards the output pupil. An optical device for transferring light waves is also provided.

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