

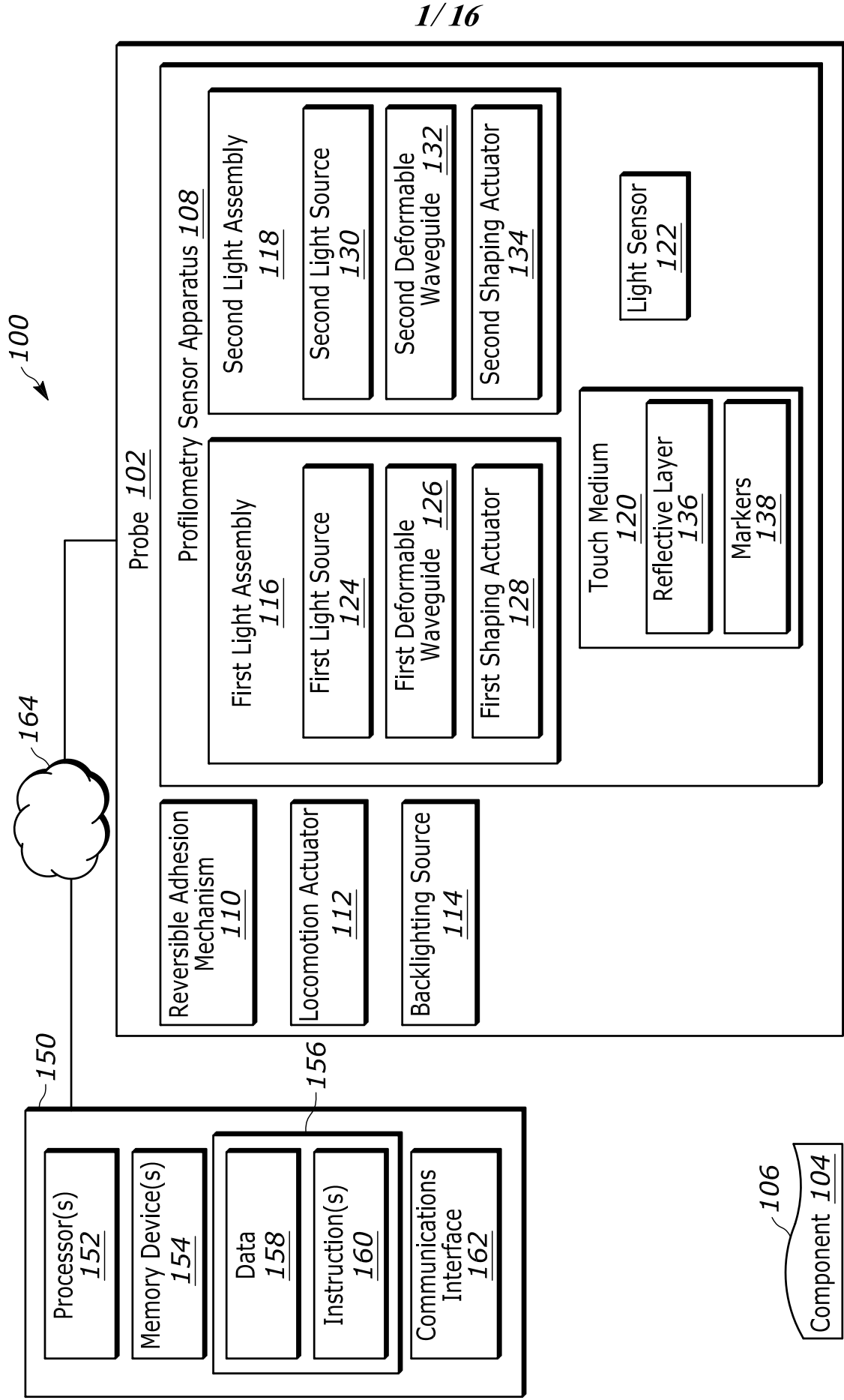


FIG. 1A

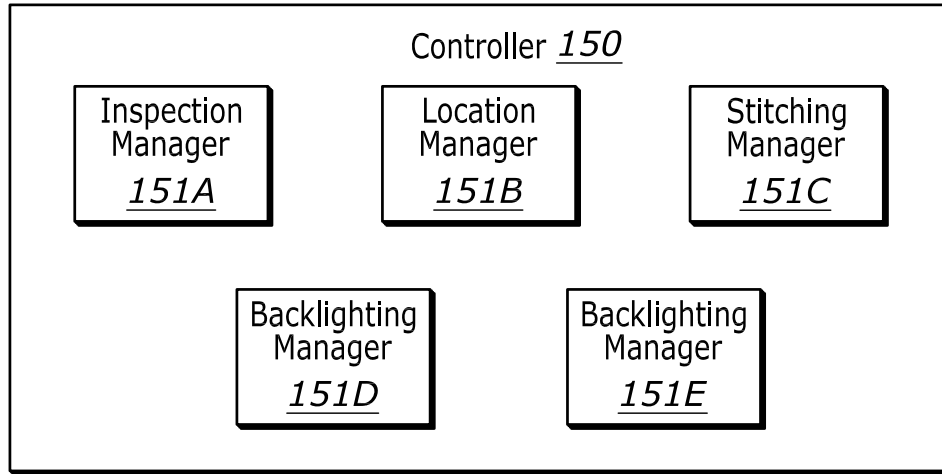


FIG. 1B

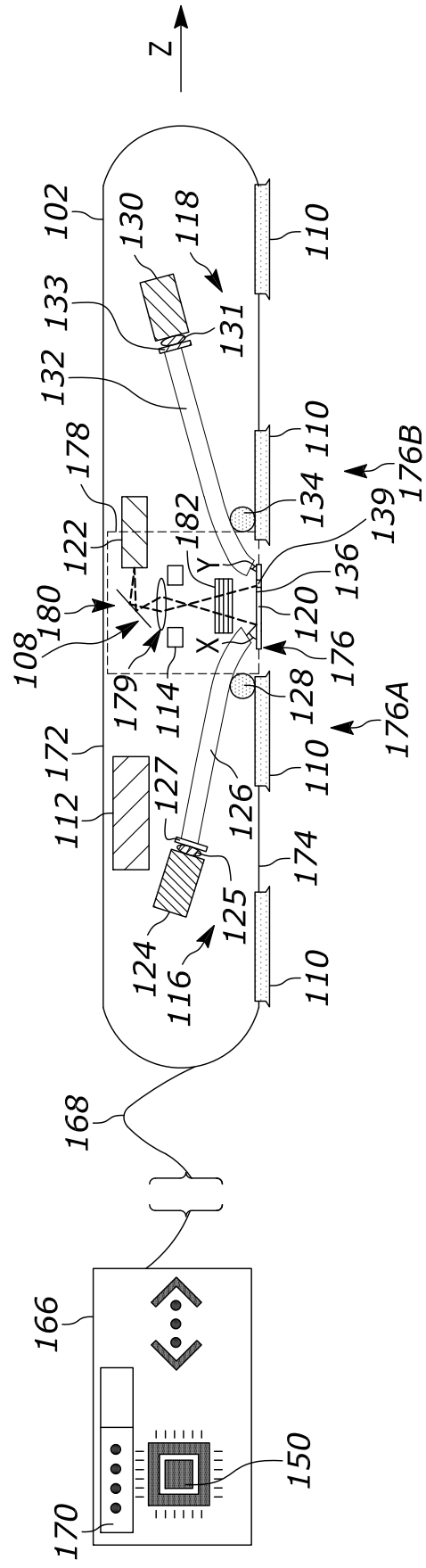


FIG. 2

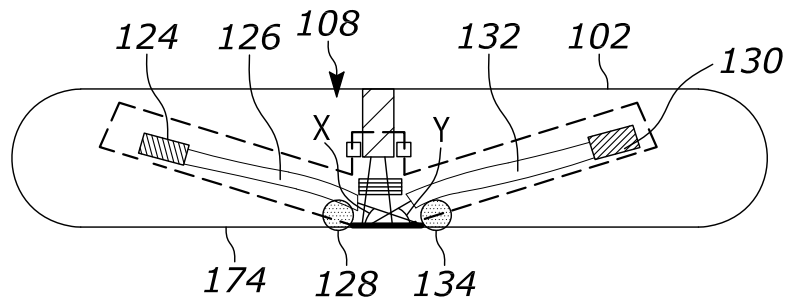


FIG. 3A

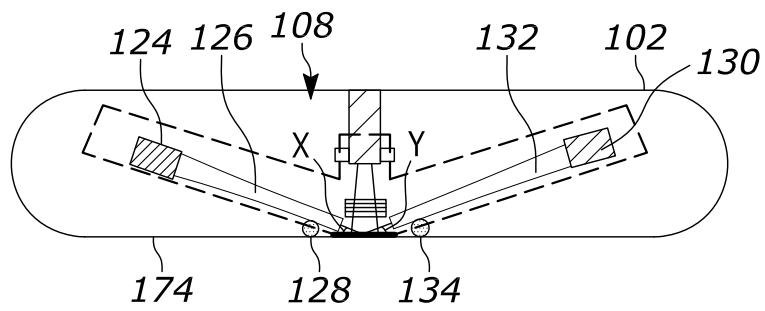


FIG. 3B

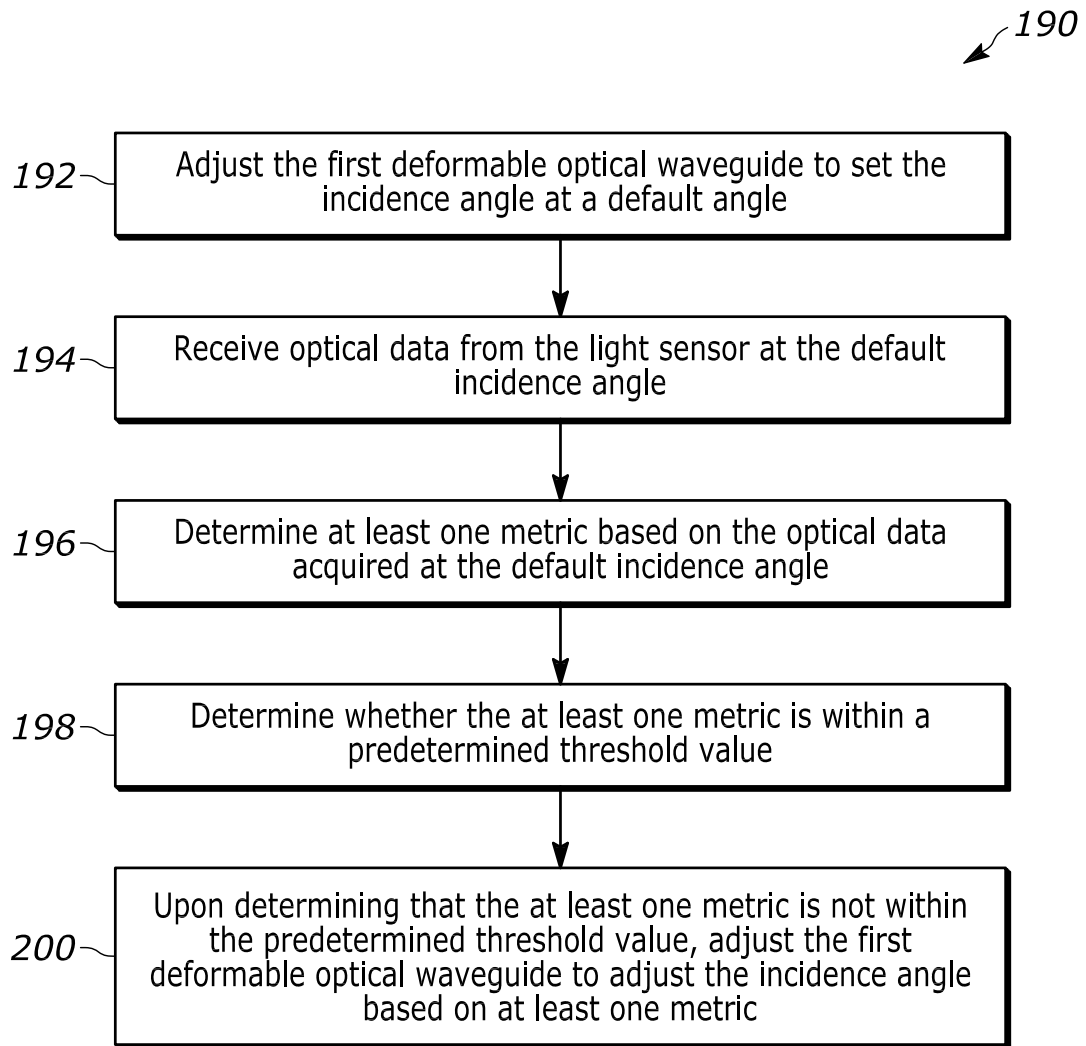


FIG. 4

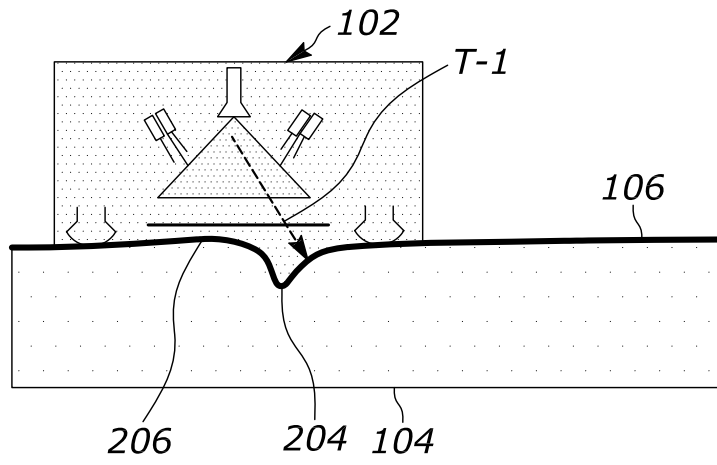


FIG. 5A

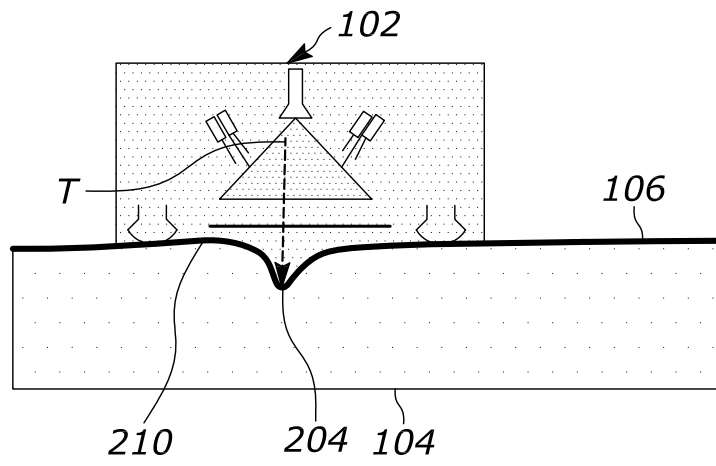


FIG. 5B

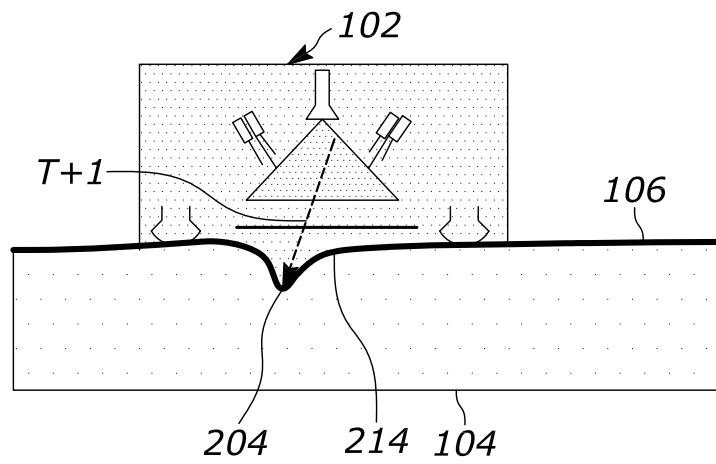


FIG. 5C

$$I_i = \rho(n \cdot L)$$

$i \in [1, N_0]$ Least squares solution

$$n = (L^T L)^{-1} L^T I$$

Expected error proportional to $\text{cond}(L^T L)$

ρ : The albedo or reflectivity of the surface.

I_i : The intensity of the light reflected from the surface under the (i)-th light source.

n : The surface normal vector at the point of interest.

L_i : The direction vector of the (i)-th light source.

FIG. 6

$$n = \underset{n}{\operatorname{argmin}} \sum_j (I_{i,j} - \rho(n \cdot L_{i,j}))^2 \quad i \in [1, N_1], j \in [1, M]$$

FIG. 7

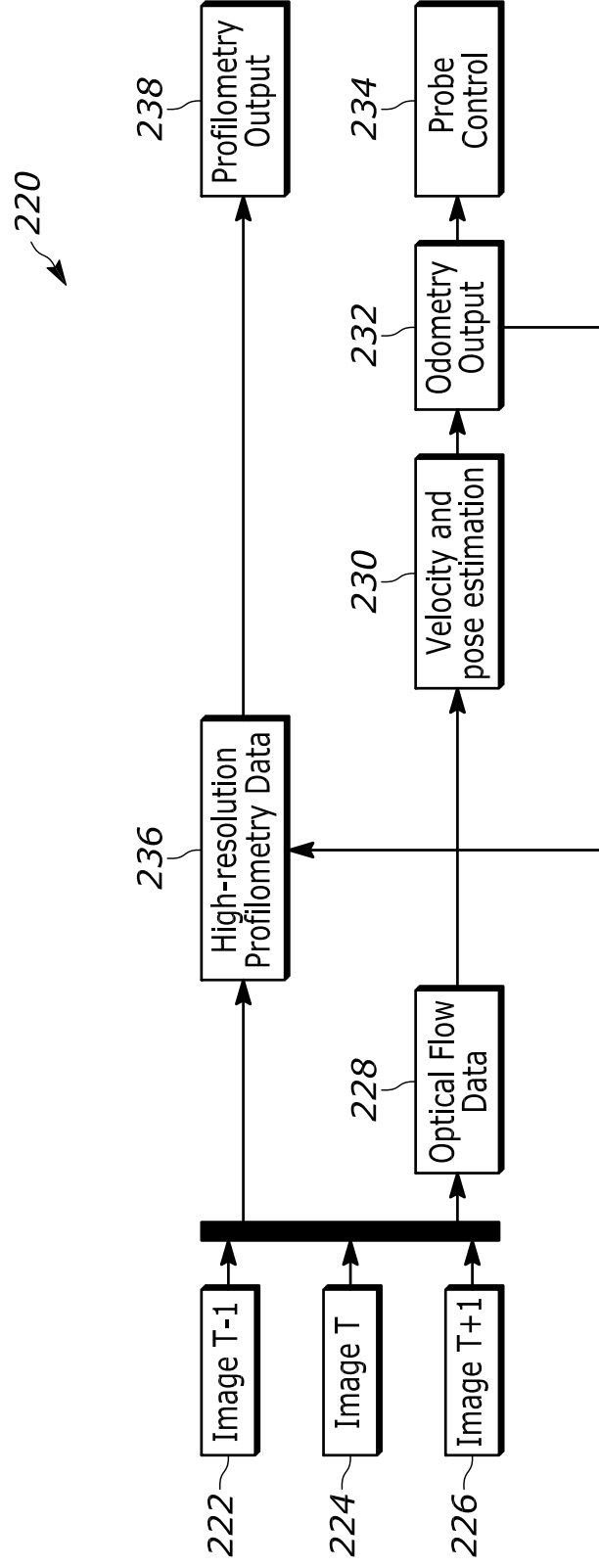


FIG. 8

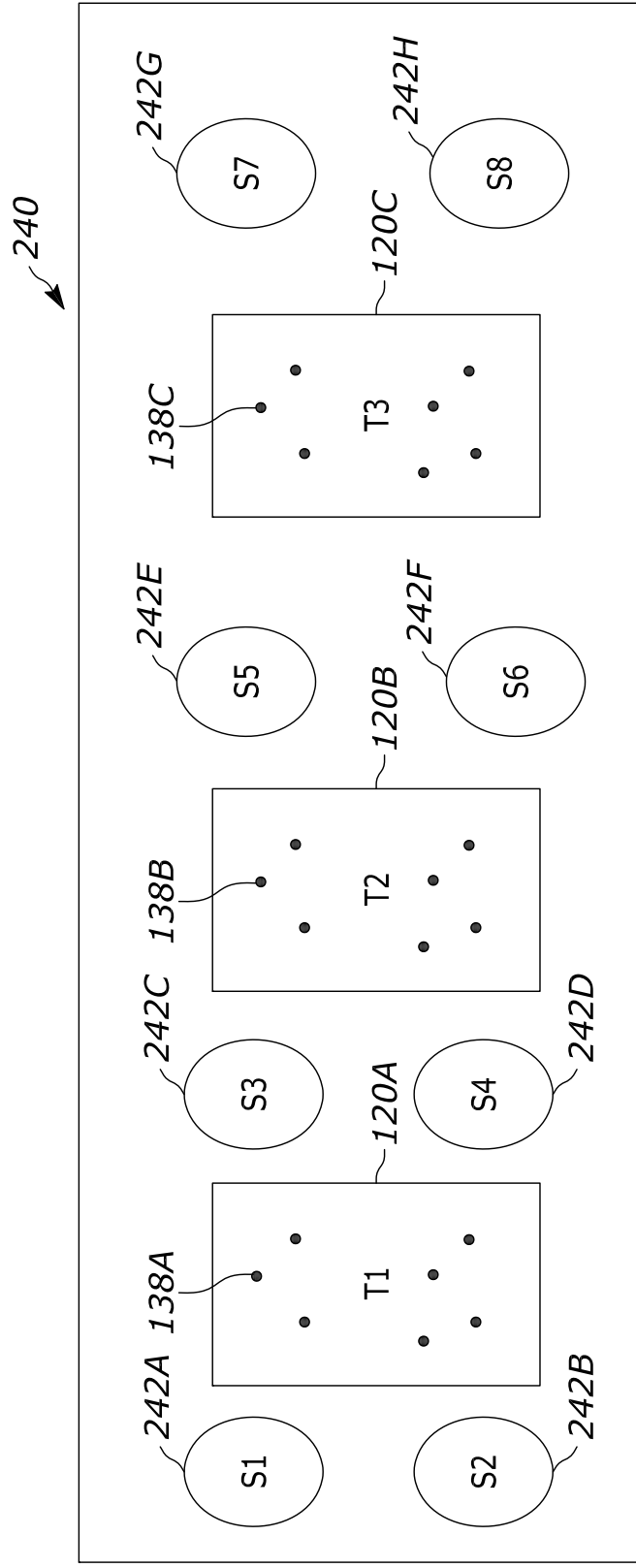


FIG. 9A

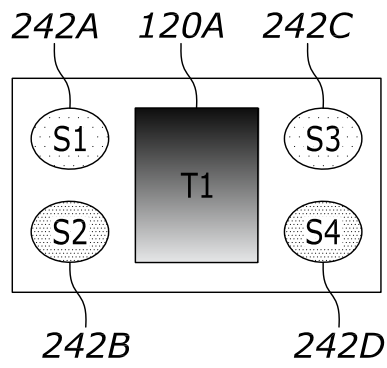


FIG. 9B

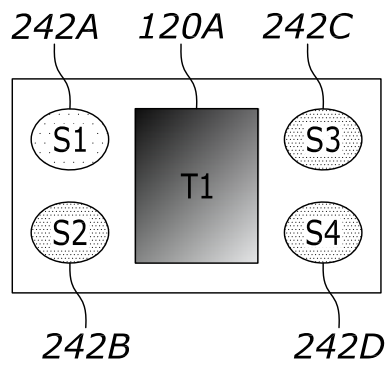


FIG. 9C

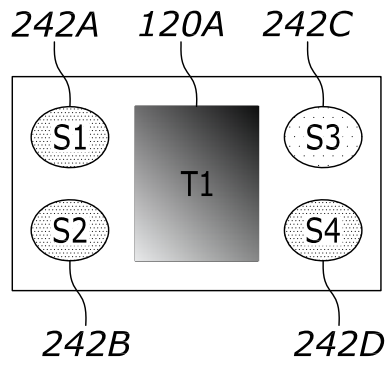


FIG. 9D

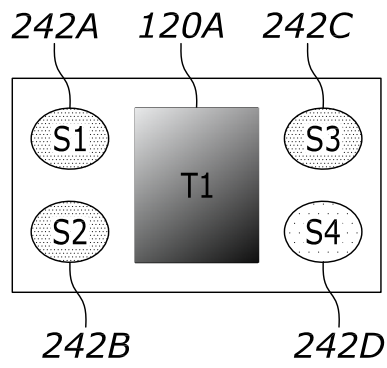


FIG. 9E

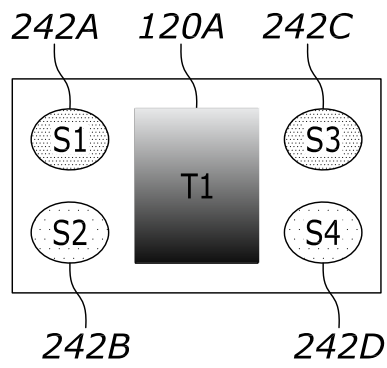


FIG. 9F

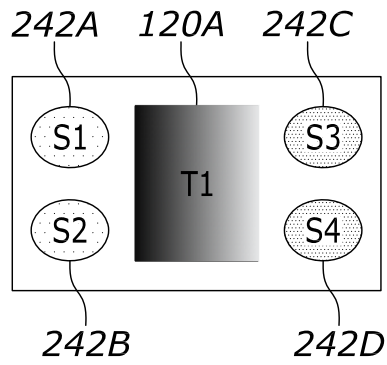


FIG. 9G

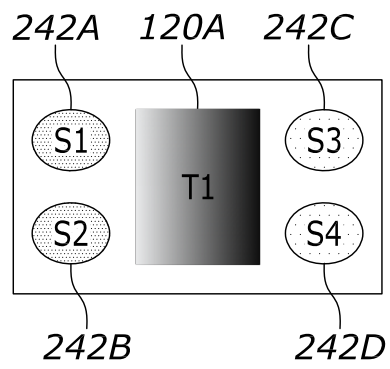


FIG. 9H

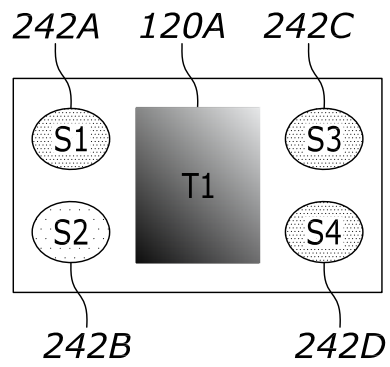


FIG. 9I

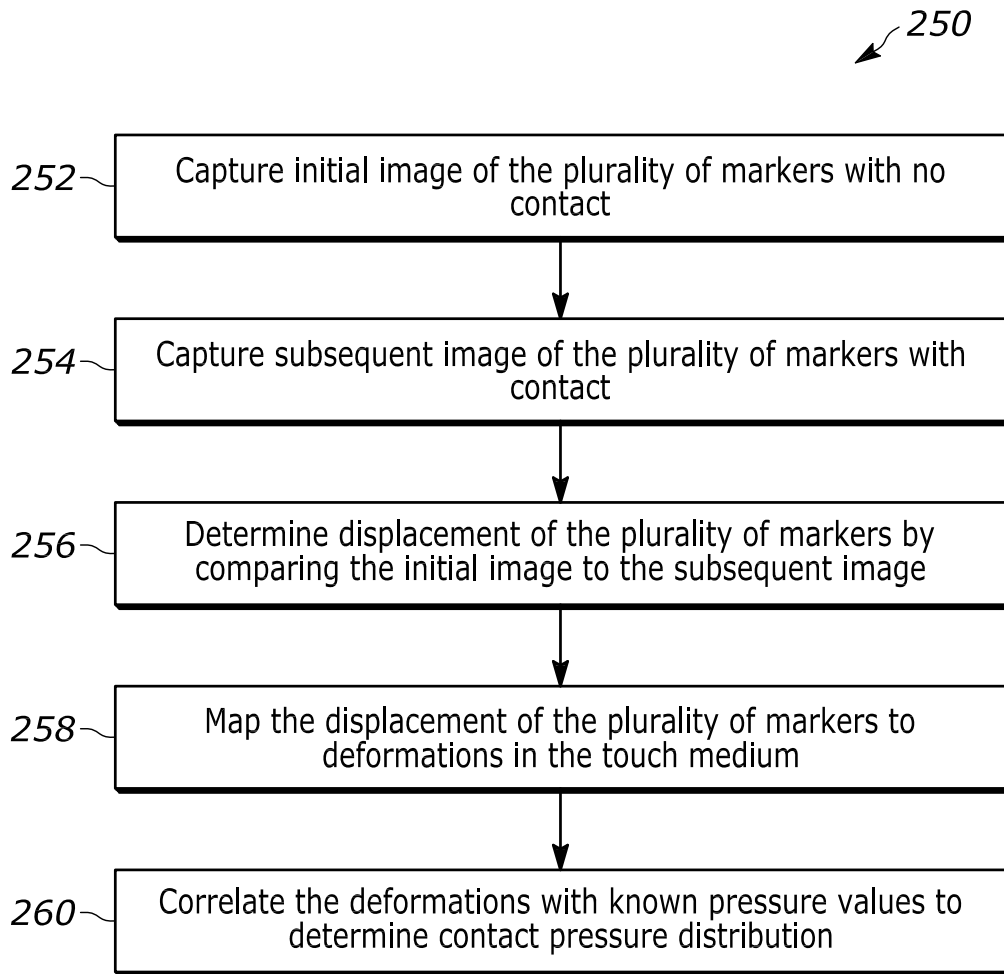


FIG. 10A

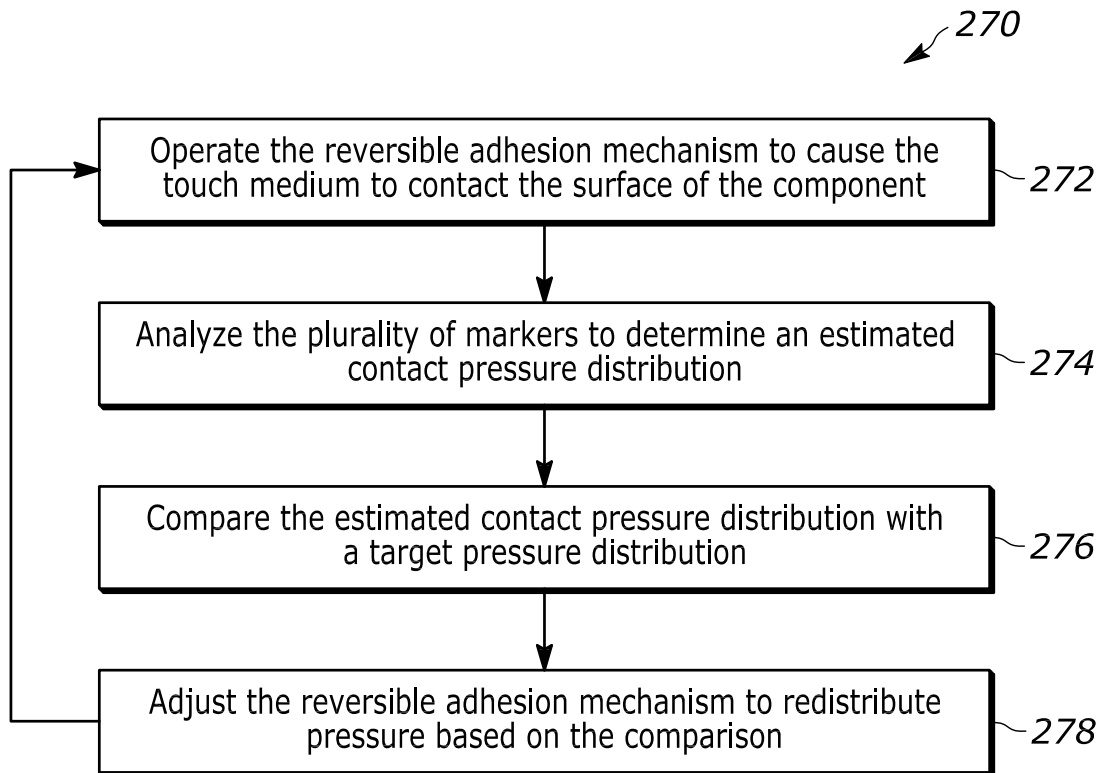


FIG. 10B

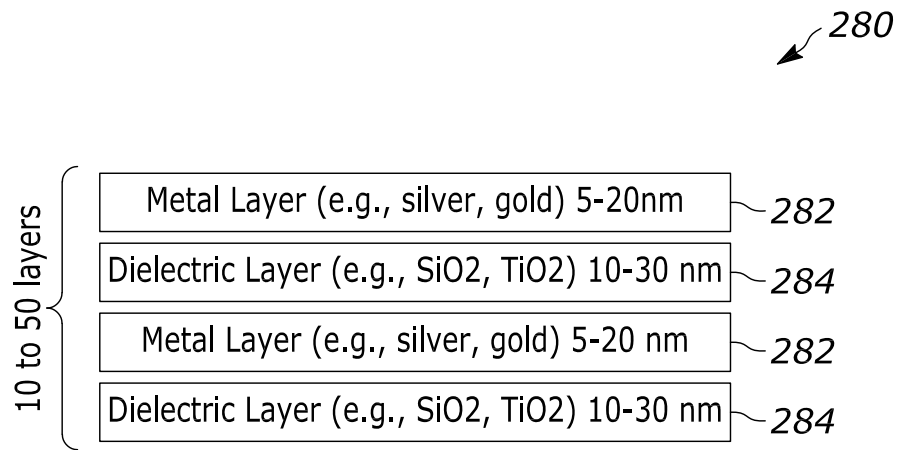


FIG. 11

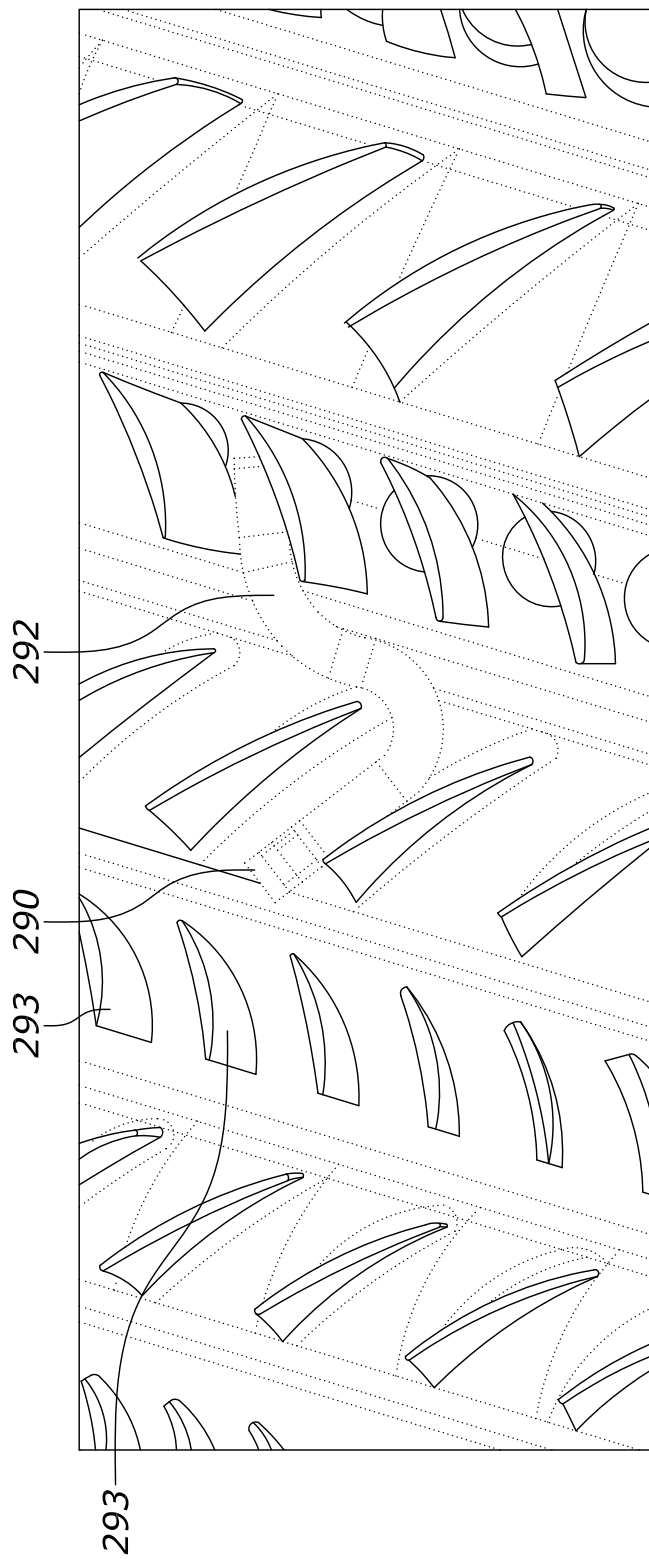


FIG. 12