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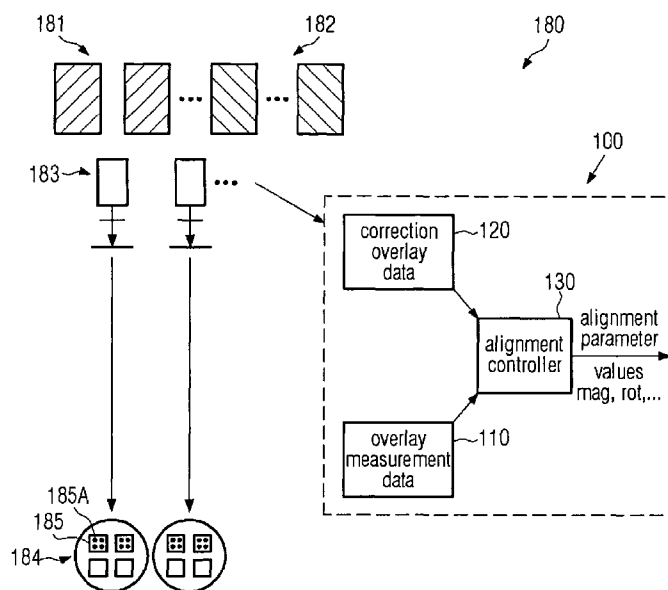
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(57) Abstract: By taking into consideration tool specific distortion signatures and reticle specific placement characteristics in an alignment control system the control quality of sophisticated APC strategies may significantly be enhanced. Respective correction data may be established on the basis of any combinations of tool/reticles and layers to be aligned to each other, which may modify the respective target values of alignment parameters used for controlling the alignment process on the basis of standard overlay measurement data obtained from dedicated overlay marks.