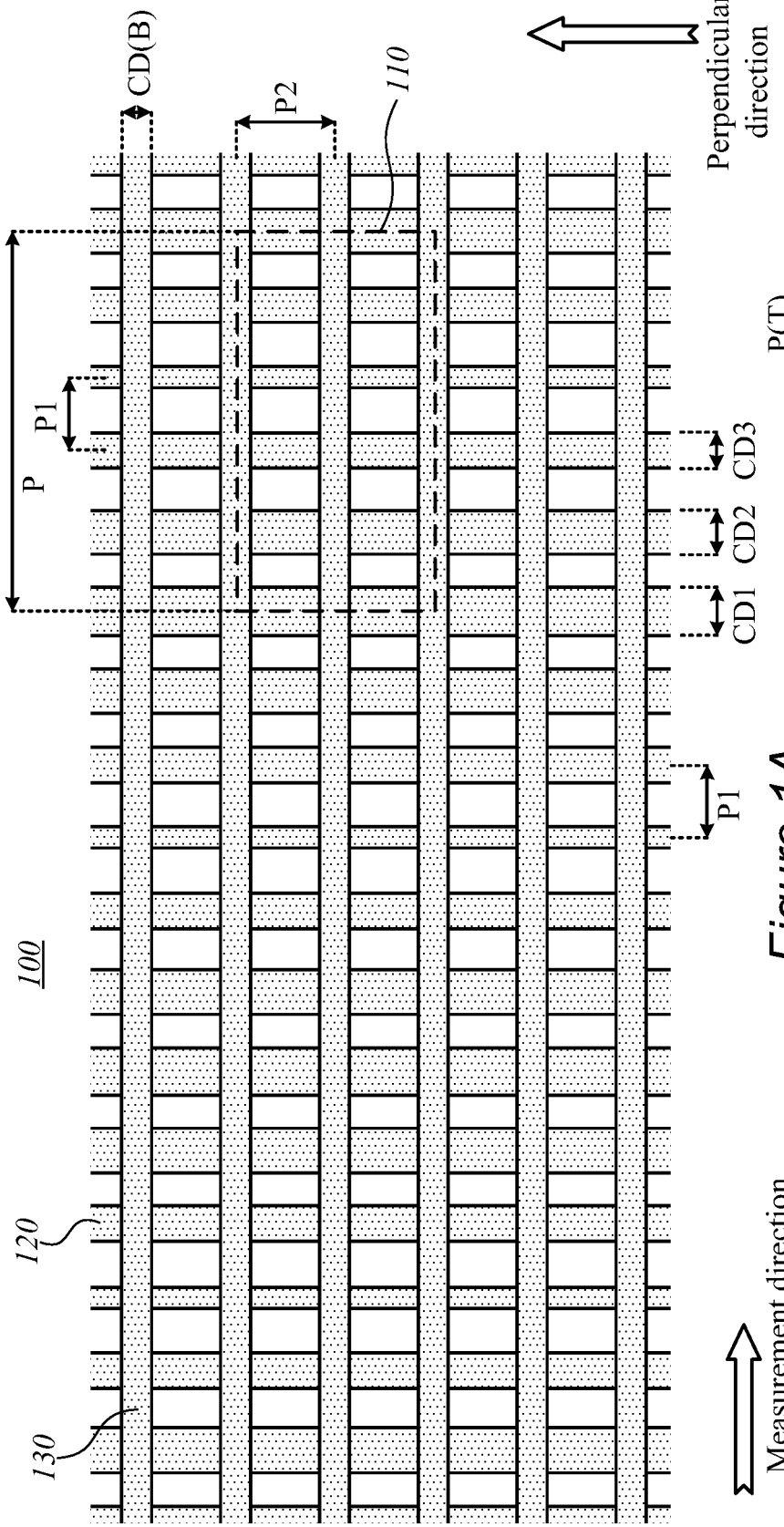
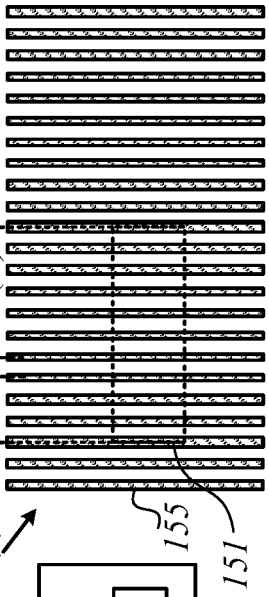


Figure 1A



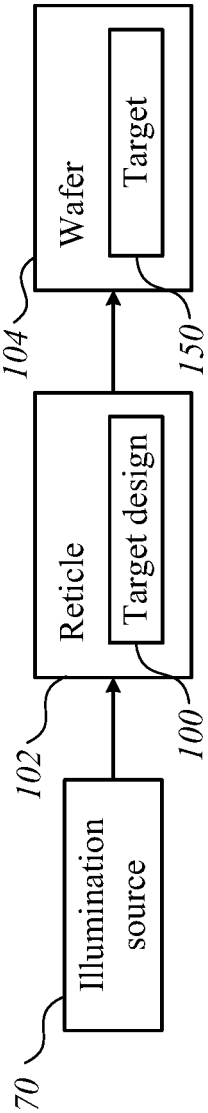


Figure 1B

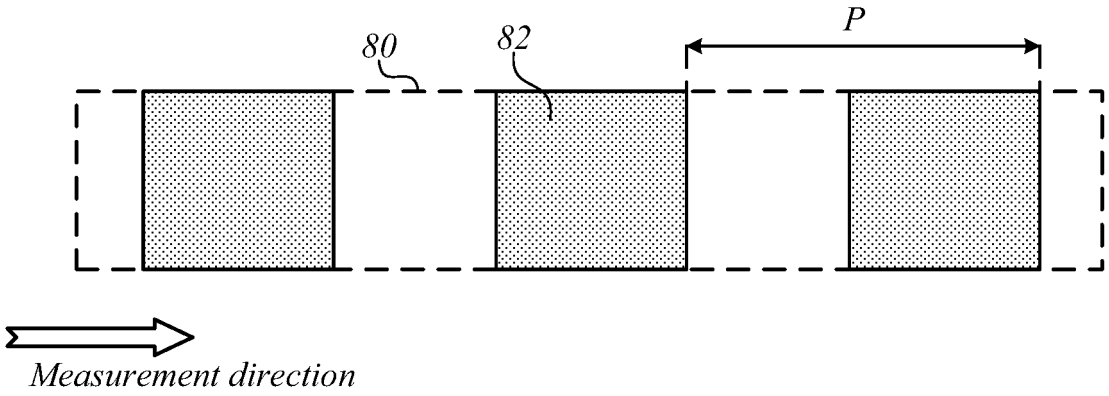


Figure 2A – Prior art

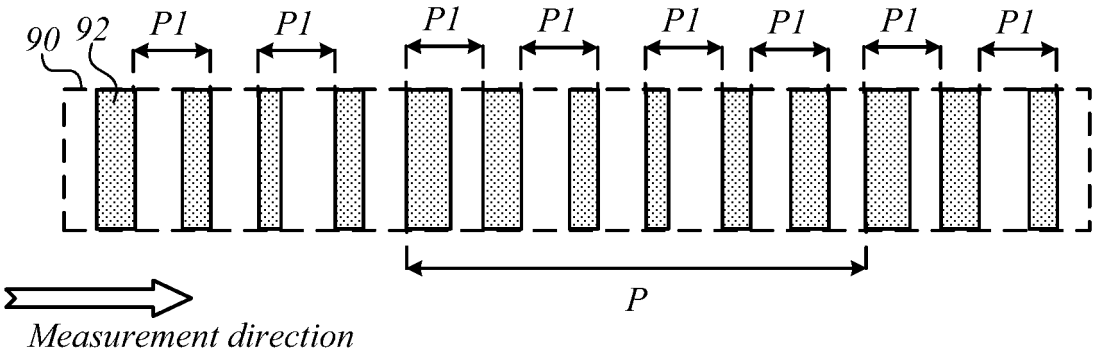


Figure 2B – Prior art

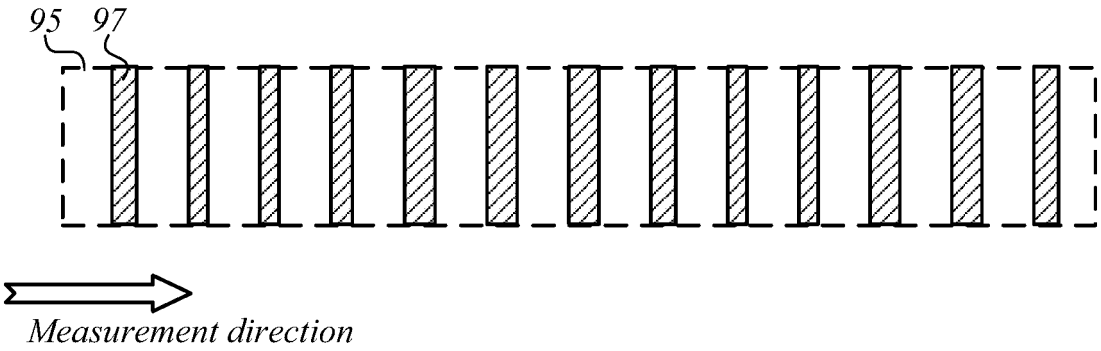


Figure 2C – Prior art

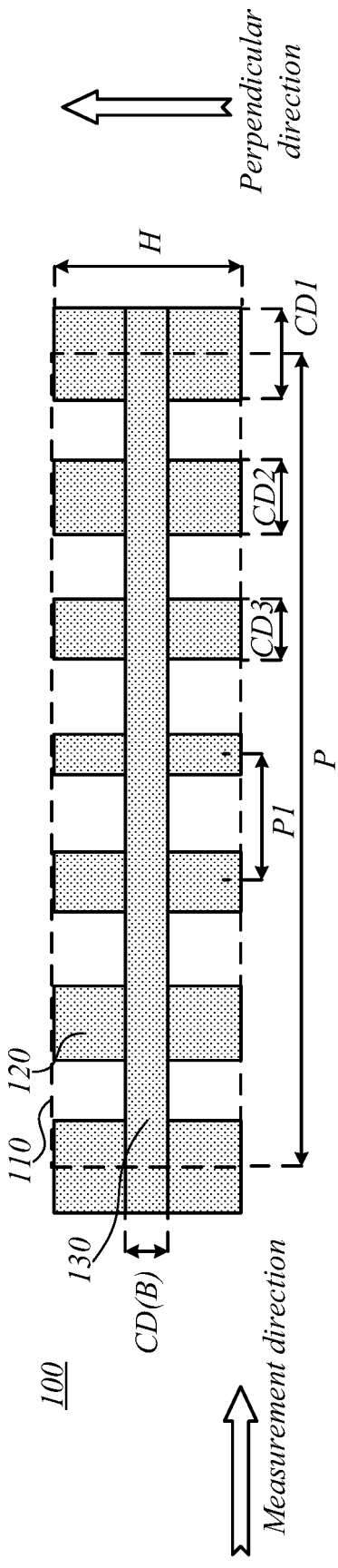


Figure 3

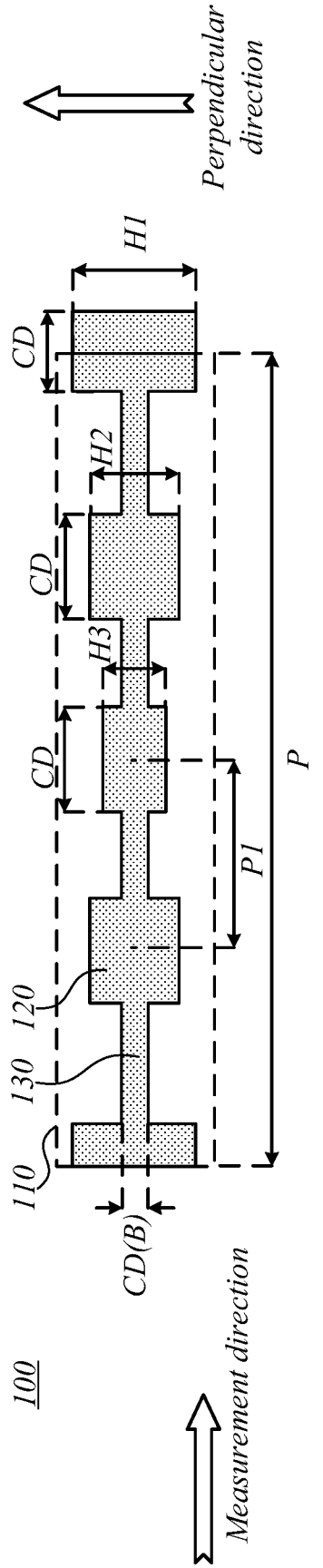


Figure 4

ar CD

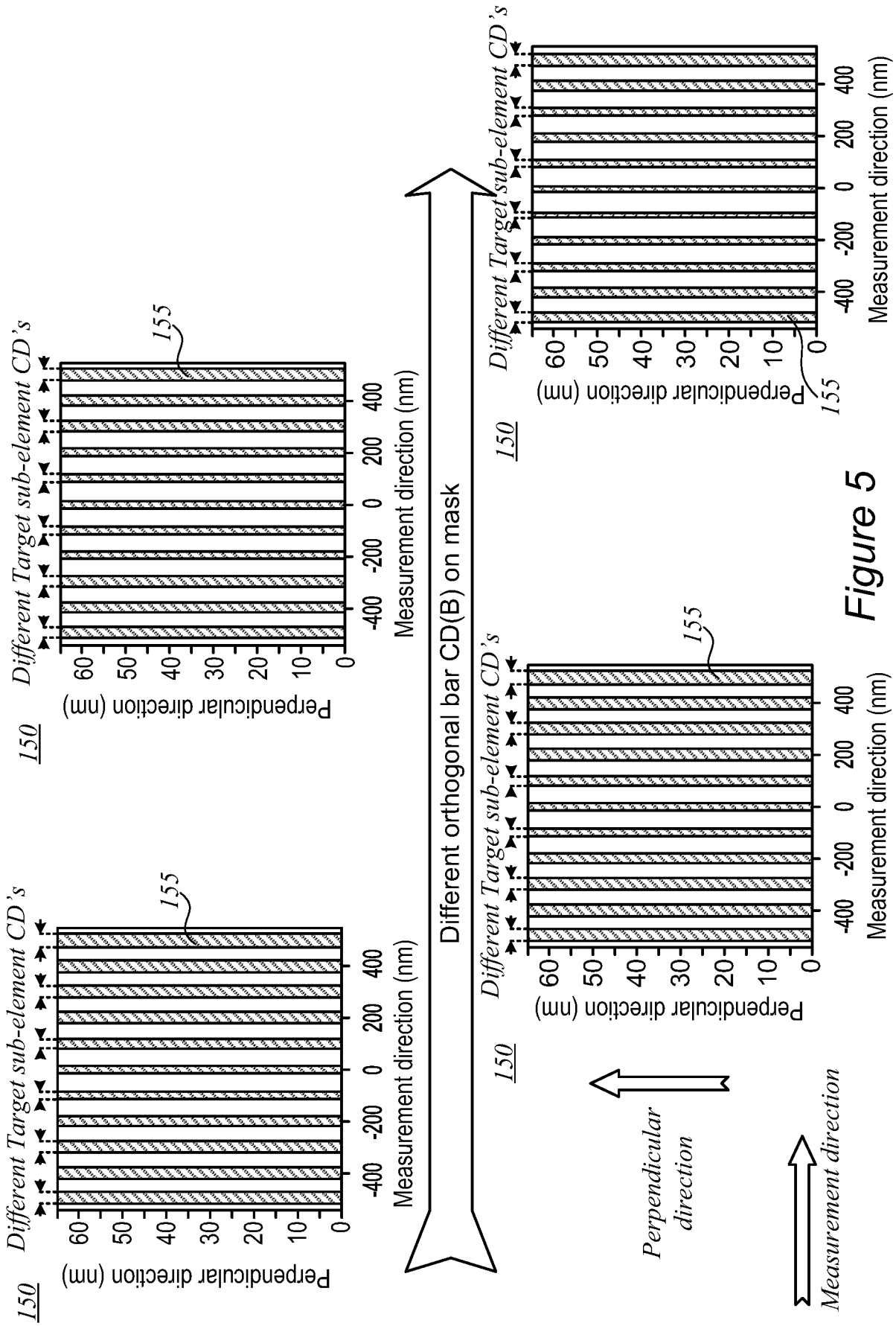

150
Different Target sub-element CD's
155
Perpendicular direction (nm)
Measurement direction (nm)
Different orthogonal bar CD(B) on mask
Perpendicular direction
Measurement direction

Figure 5

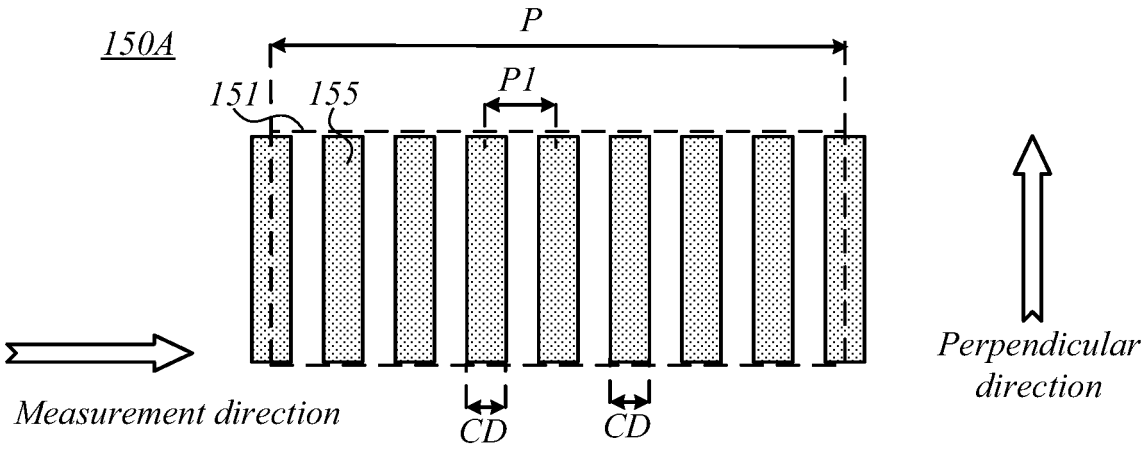


Figure 6A

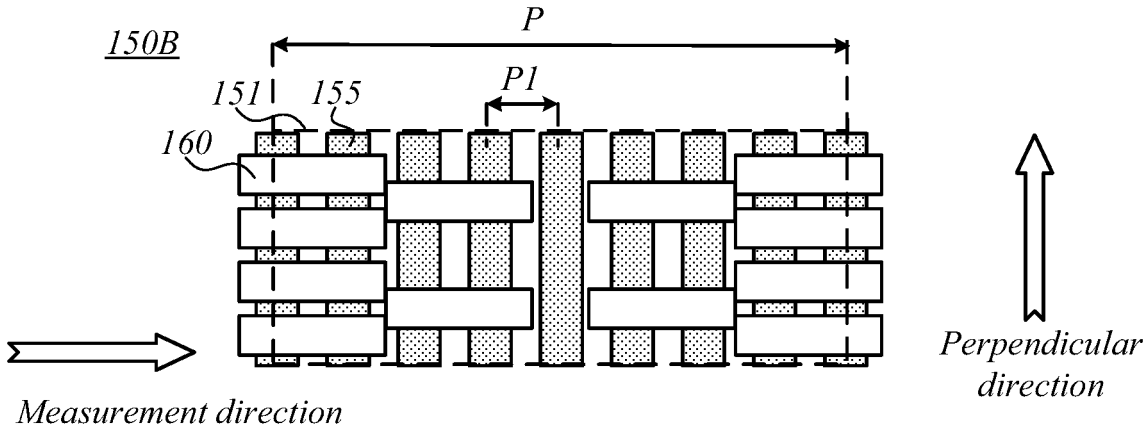


Figure 6B

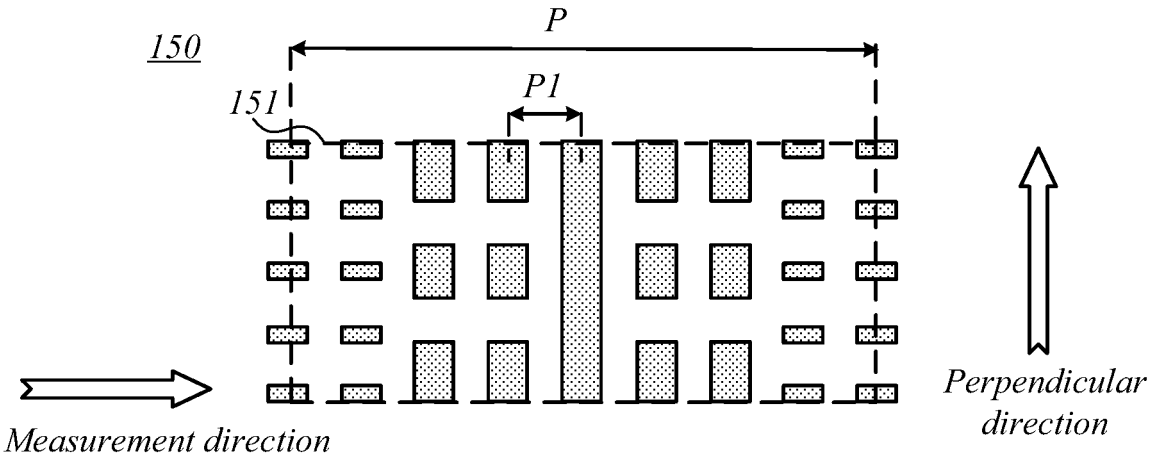


Figure 6C

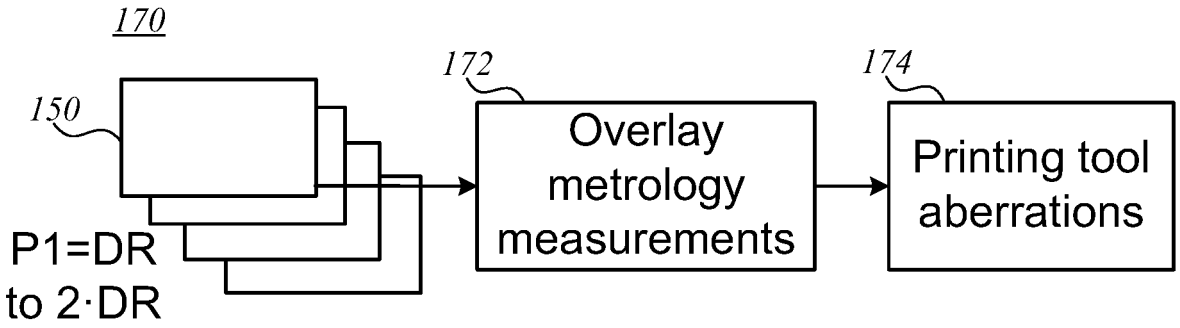


Figure 7A

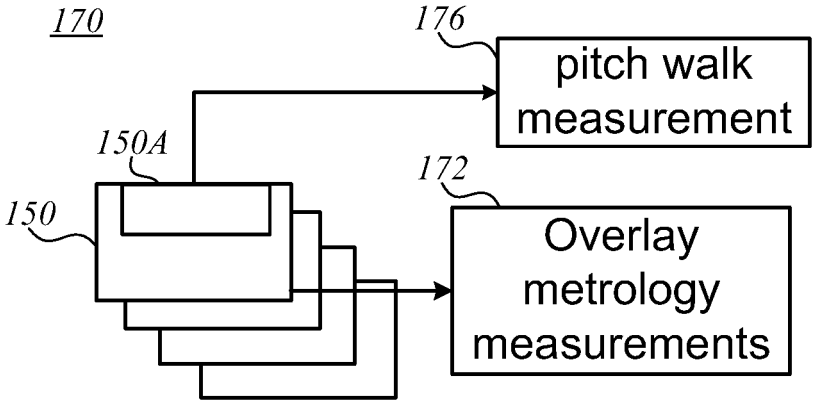


Figure 7B

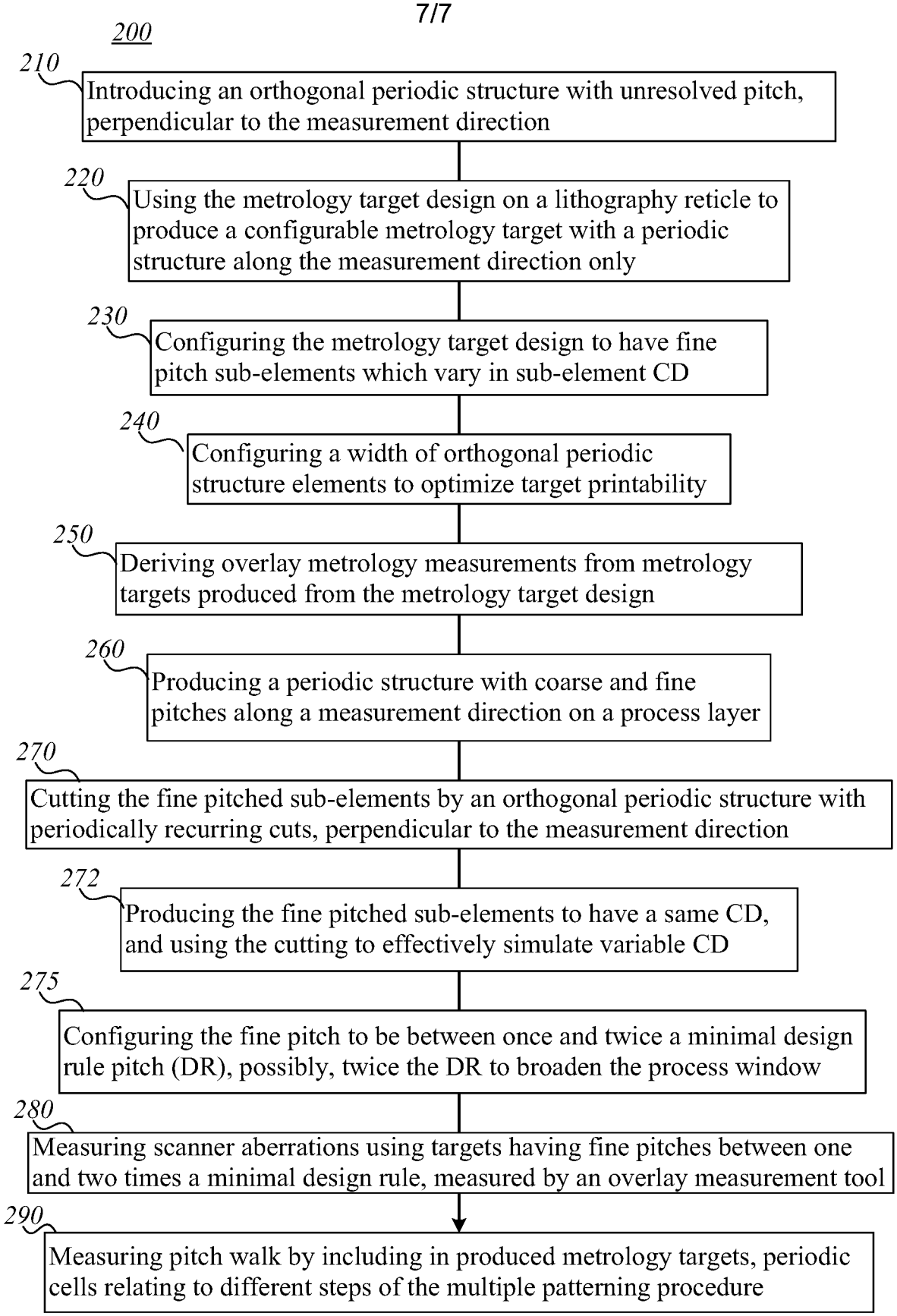

200
210
Introducing an orthogonal periodic structure with unresolved pitch, perpendicular to the measurement direction
220
Using the metrology target design on a lithography reticle to produce a configurable metrology target with a periodic structure along the measurement direction only
230
Configuring the metrology target design to have fine pitch sub-elements which vary in sub-element CD
240
Configuring a width of orthogonal periodic structure elements to optimize target printability
250
Deriving overlay metrology measurements from metrology targets produced from the metrology target design
260
Producing a periodic structure with coarse and fine pitches along a measurement direction on a process layer
270
Cutting the fine pitched sub-elements by an orthogonal periodic structure with periodically recurring cuts, perpendicular to the measurement direction
272
Producing the fine pitched sub-elements to have a same CD, and using the cutting to effectively simulate variable CD
275
Configuring the fine pitch to be between once and twice a minimal design rule pitch (DR), possibly, twice the DR to broaden the process window
280
Measuring scanner aberrations using targets having fine pitches between one and two times a minimal design rule, measured by an overlay measurement tool
290
Measuring pitch walk by including in produced metrology targets, periodic cells relating to different steps of the multiple patterning procedure

Figure 8