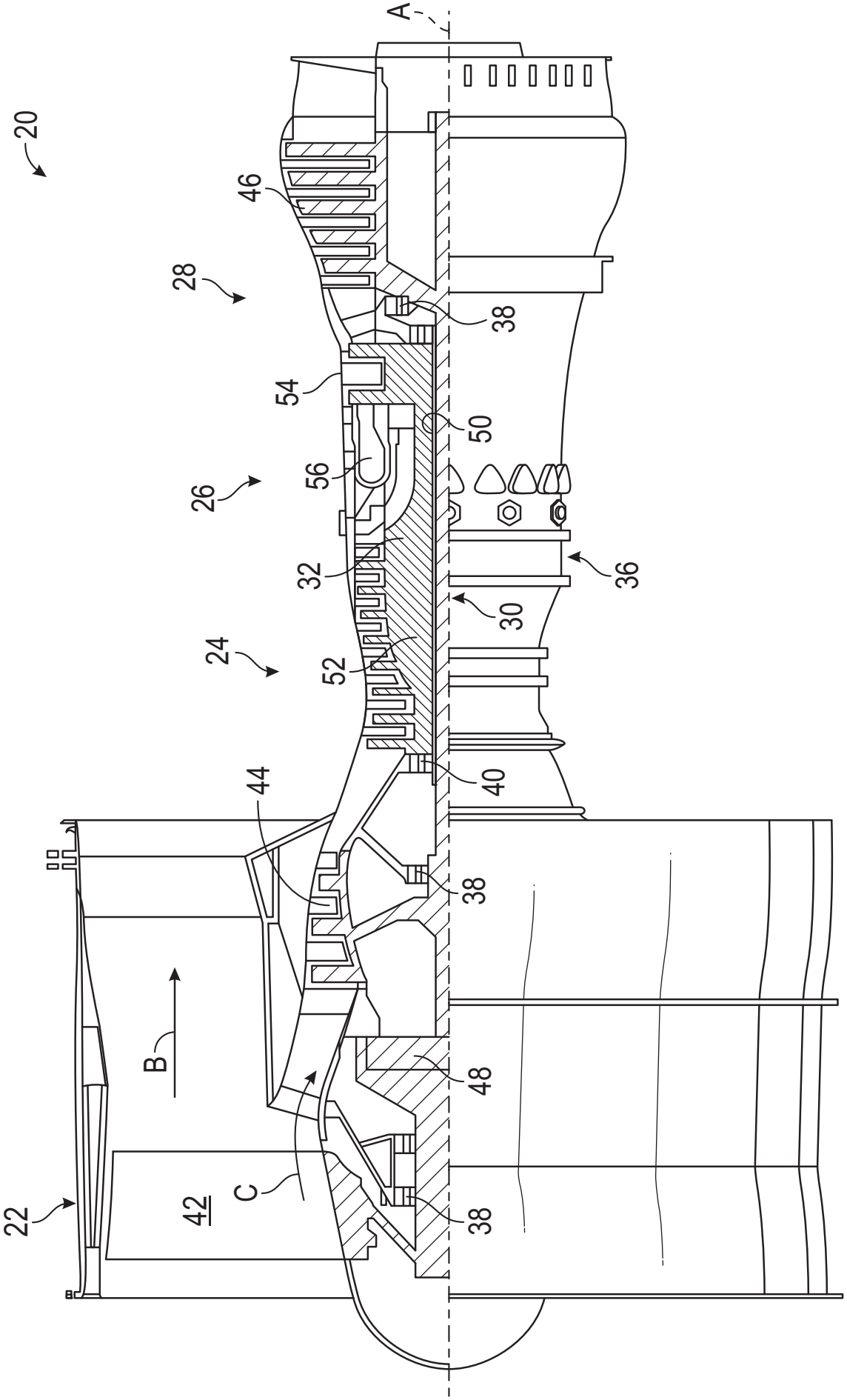

FIG. 1

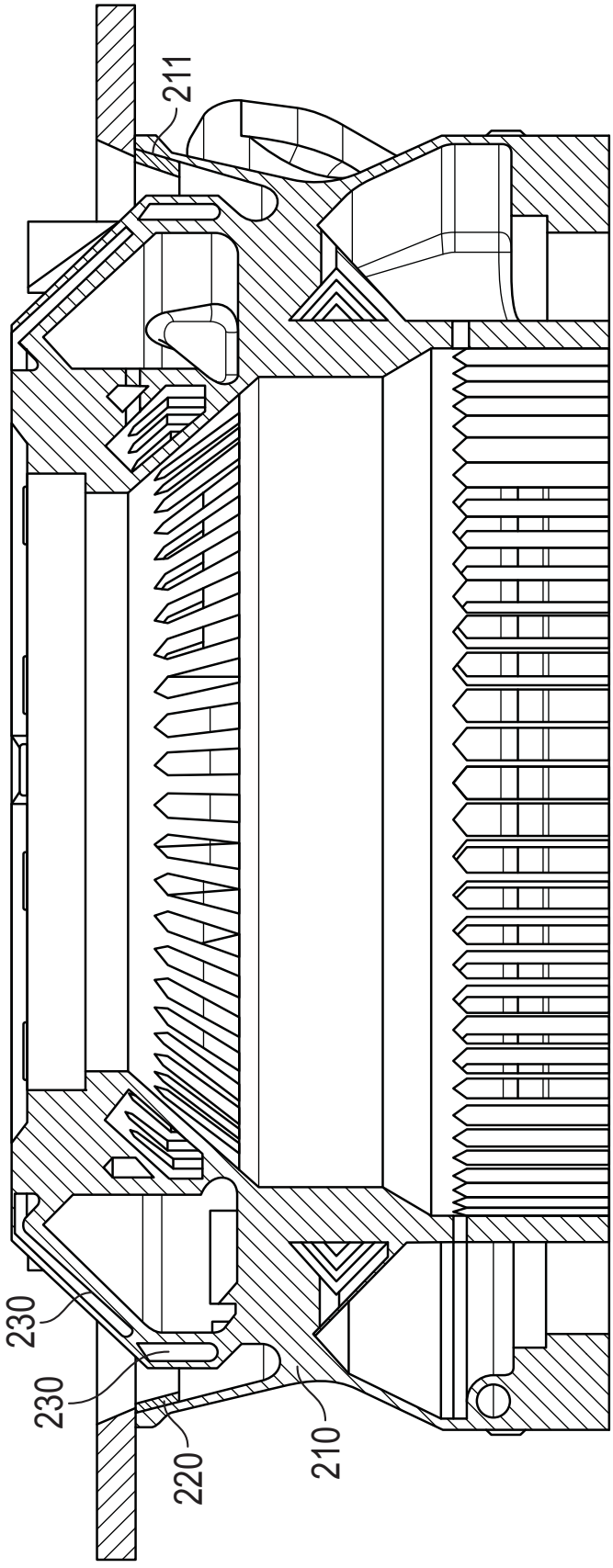

FIG. 2

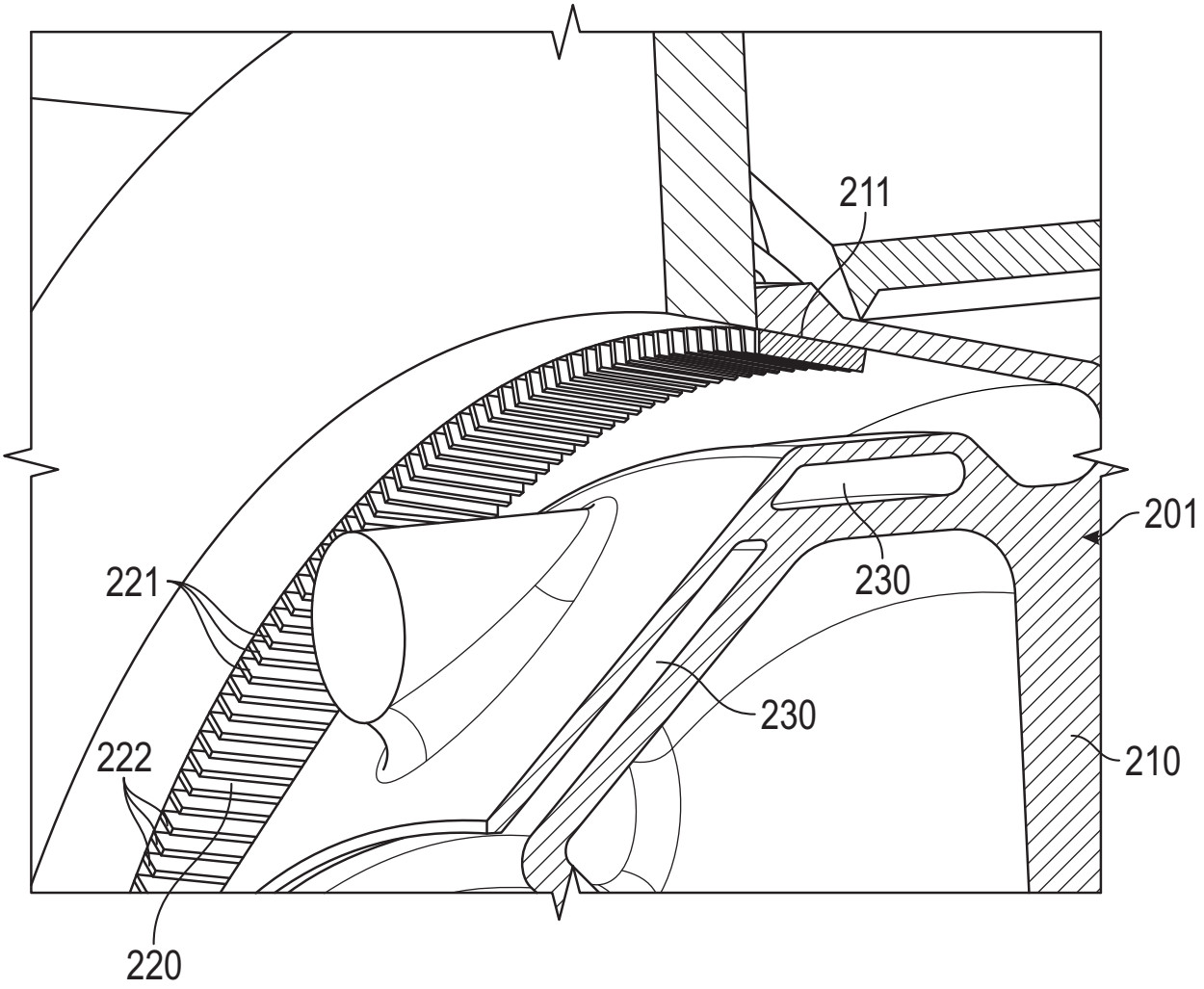

FIG. 3

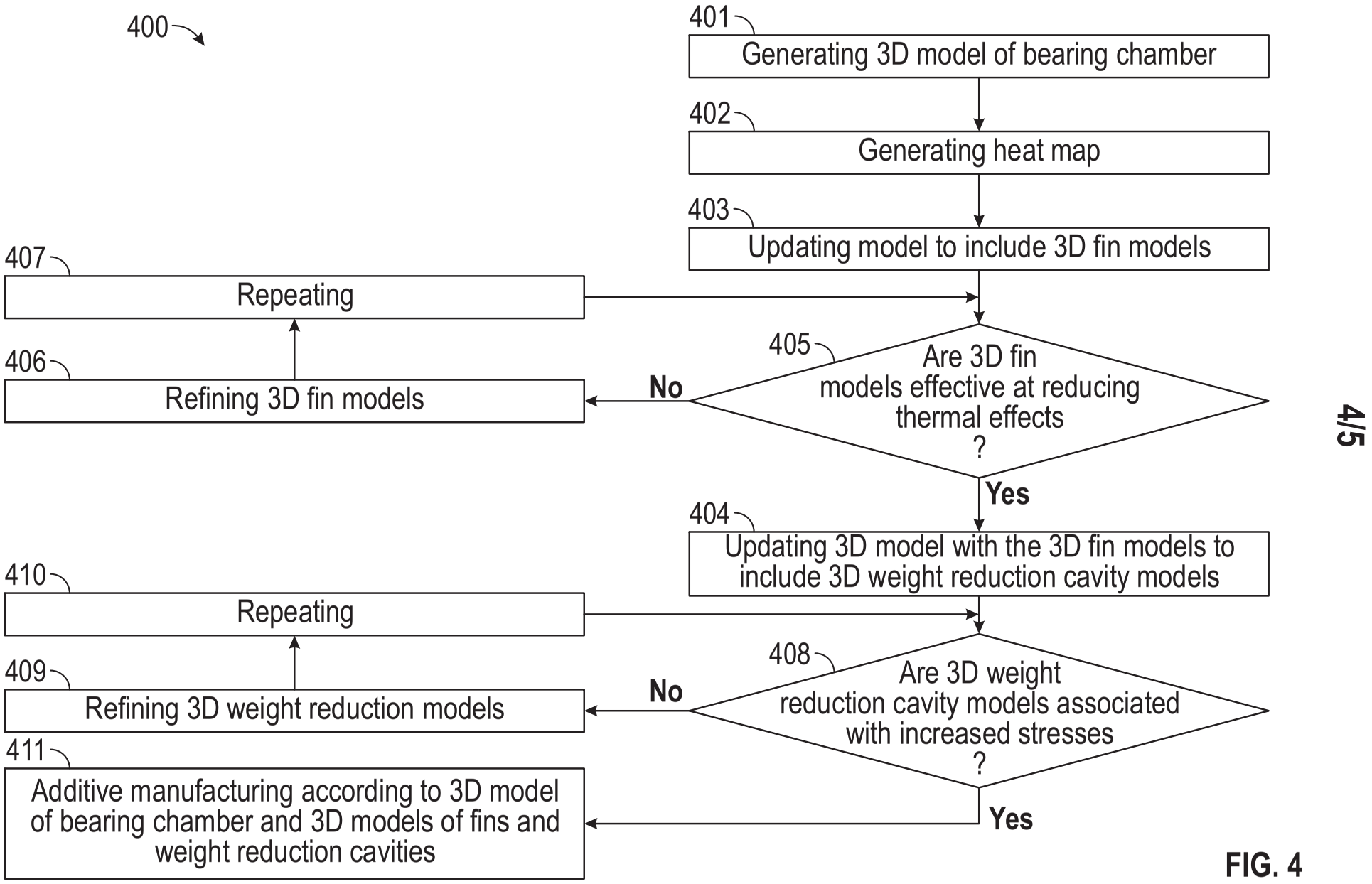
400
401
Generating 3D model of bearing chamber
402
Generating heat map
403
Updating model to include 3D fin models
405
Are 3D fin models effective at reducing thermal effects ?
No
Yes
406
Refining 3D fin models
407
Repeating
404
Updating 3D model with the 3D fin models to include 3D weight reduction cavity models
408
Are 3D weight reduction cavity models associated with increased stresses ?
No
Yes
409
Refining 3D weight reduction models
410
Repeating
411
Additive manufacturing according to 3D model of bearing chamber and 3D models of fins and weight reduction cavities

FIG. 4

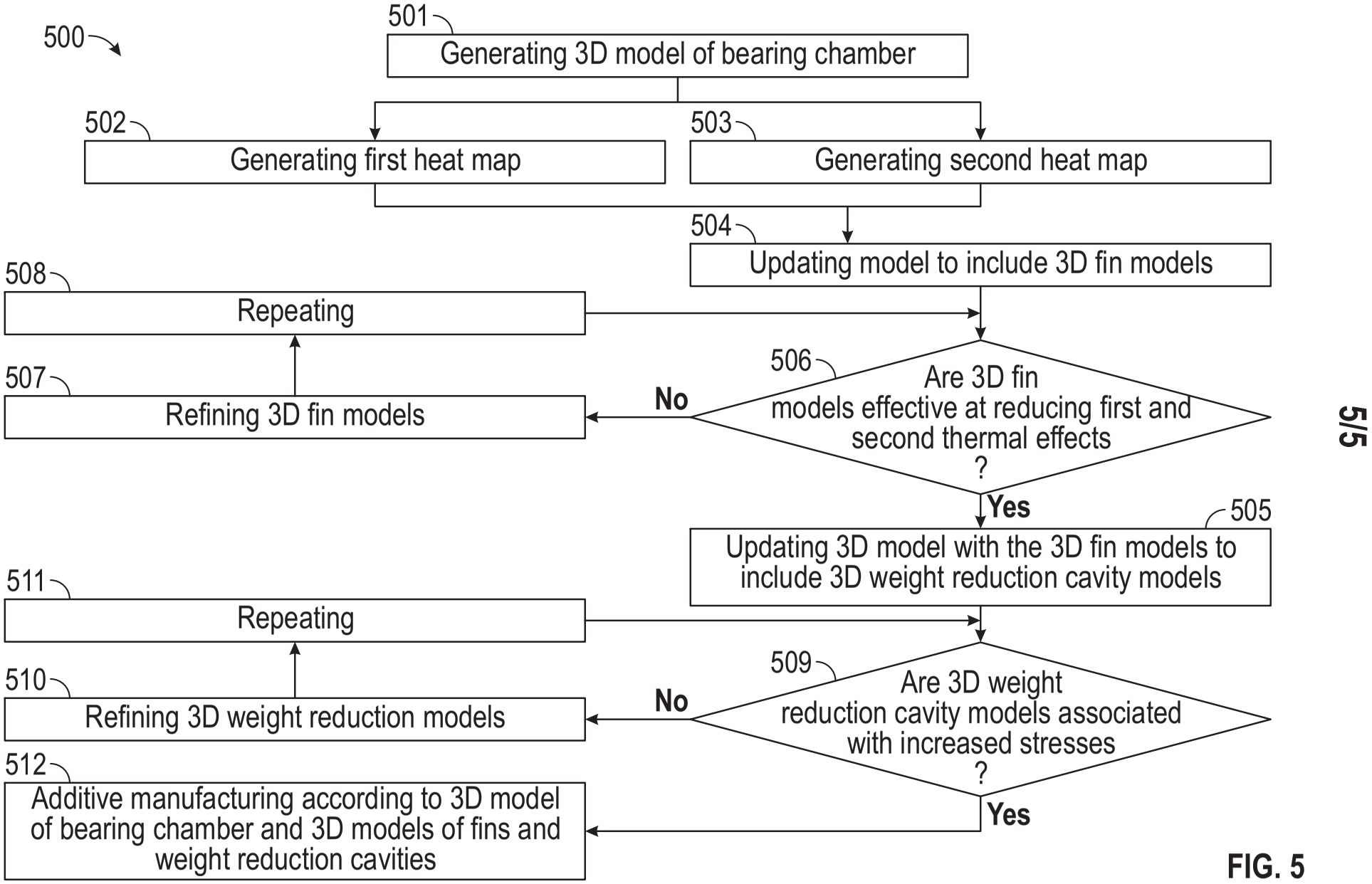
500
501
Generating 3D model of bearing chamber
502
Generating first heat map
503
Generating second heat map
504
Updating model to include 3D fin models
508
Repeating
507
Refining 3D fin models
506
Are 3D fin models effective at reducing first and second thermal effects ?
No
Yes
505
Updating 3D model with the 3D fin models to include 3D weight reduction cavity models
511
Repeating
510
Refining 3D weight reduction models
509
Are 3D weight reduction cavity models associated with increased stresses ?
No
Yes
512
Additive manufacturing according to 3D model of bearing chamber and 3D models of fins and weight reduction cavities

FIG. 5