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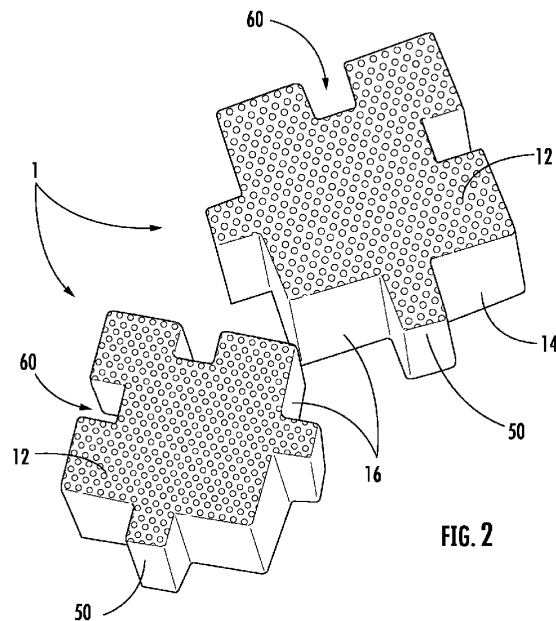


FIG. 2

(57) **Abstract:** Methods of growing of tissue cells ex vivo are provided, in which the methods include (i) interlocking together a plurality of interlocking porous hydrogel blocks (IPHB) including a first IPHB and a second IPHB, wherein each of the plurality of IPHBs include a respective network of microporous channels and/or chambers extending throughout a respective continuous polymeric matrix material; (ii) seeding the first IPHB with a first cell type of interest; (iii) seeding the second IPHB with a second cell type of interest; (iv) feeding the first cell type of interest with a first culture media, and allowing the first cell type of interest to propagate throughout a first network of microporous channels and/or chambers towards the second IPHB; (v) feeding the second cell type of interest with a second culture media, and allowing the second cell type of interest to propagate throughout a second network of microporous channels and/or chambers towards the first IPHB; and (vi) forming a first interface between the first cell type and the second cell type.

[Continued on next page]

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