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(54) Title: SYSTEMS, METHODS, KITS, AND APPARATUSES FOR DIGITAL PRODUCT NETWORK SYSTEMS AND BIOLOGY-BASED VALUE CHAIN NETWORKS

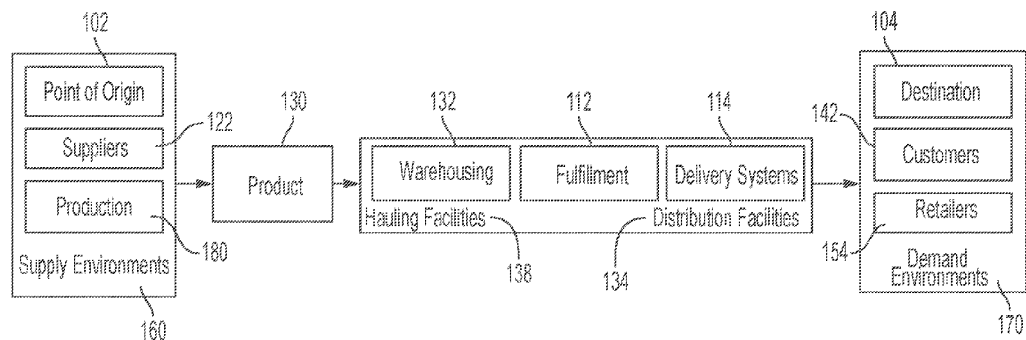


FIG. 1

(57) Abstract: A digital product network system generally includes a set of digital products each having a product memory, a product network interface, and a product processor programmed with product instructions; a product network control tower having a control tower memory, a control tower network interface, and a control tower processor programmed with control tower instructions; and a digital twin system defined at least in part by at least one of the product instructions or the control tower instructions to encode a set of digital twins representing the set of digital products.

[Continued on next page]

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