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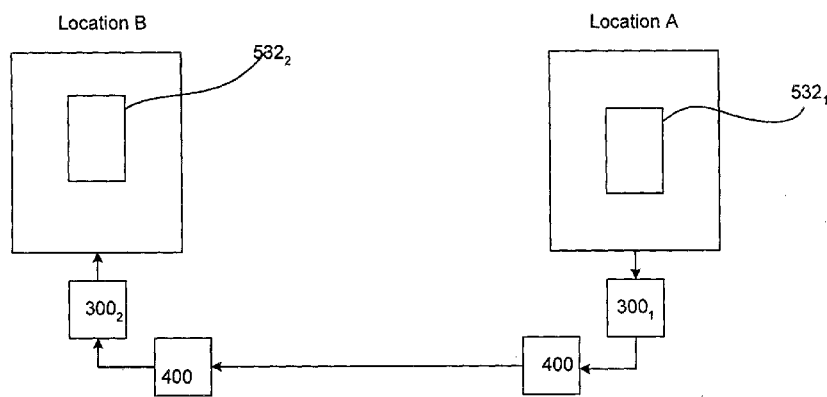
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(54) **Title:** EFFICIENT TRANSFER OF MATERIALS IN MANUFACTURING



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(57) **Abstract:** Methods for automated handling for forming a device and automated handling systems for forming a device are presented. One of the methods includes providing a production area with a plurality of destinations and a transport system which includes transport and load/unload (U/L) units in the production area. The transport units include automated guided vehicles (AGVs) with a storage compartment for holding at least one carrier containing production material for forming the device and U/L units include AGVs with a robotic system for handling carriers. A transfer of a selected carrier from a first destination to a second destination is determined. A request to the transport system is issued to effect the transfer of the selected carrier, which includes using a selected U/L unit, a selected transport unit, or a combination of selected U/L and transport units.