

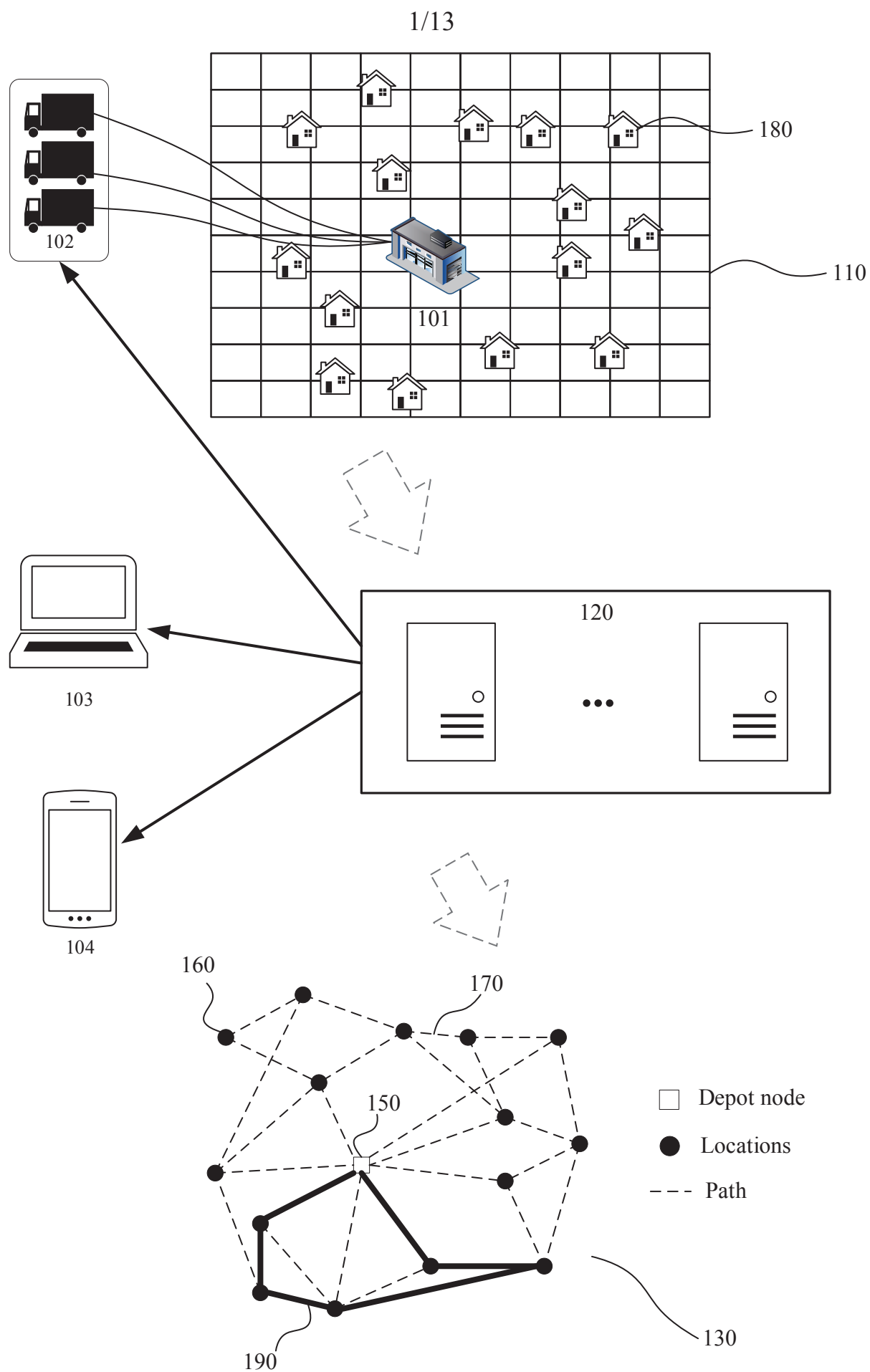
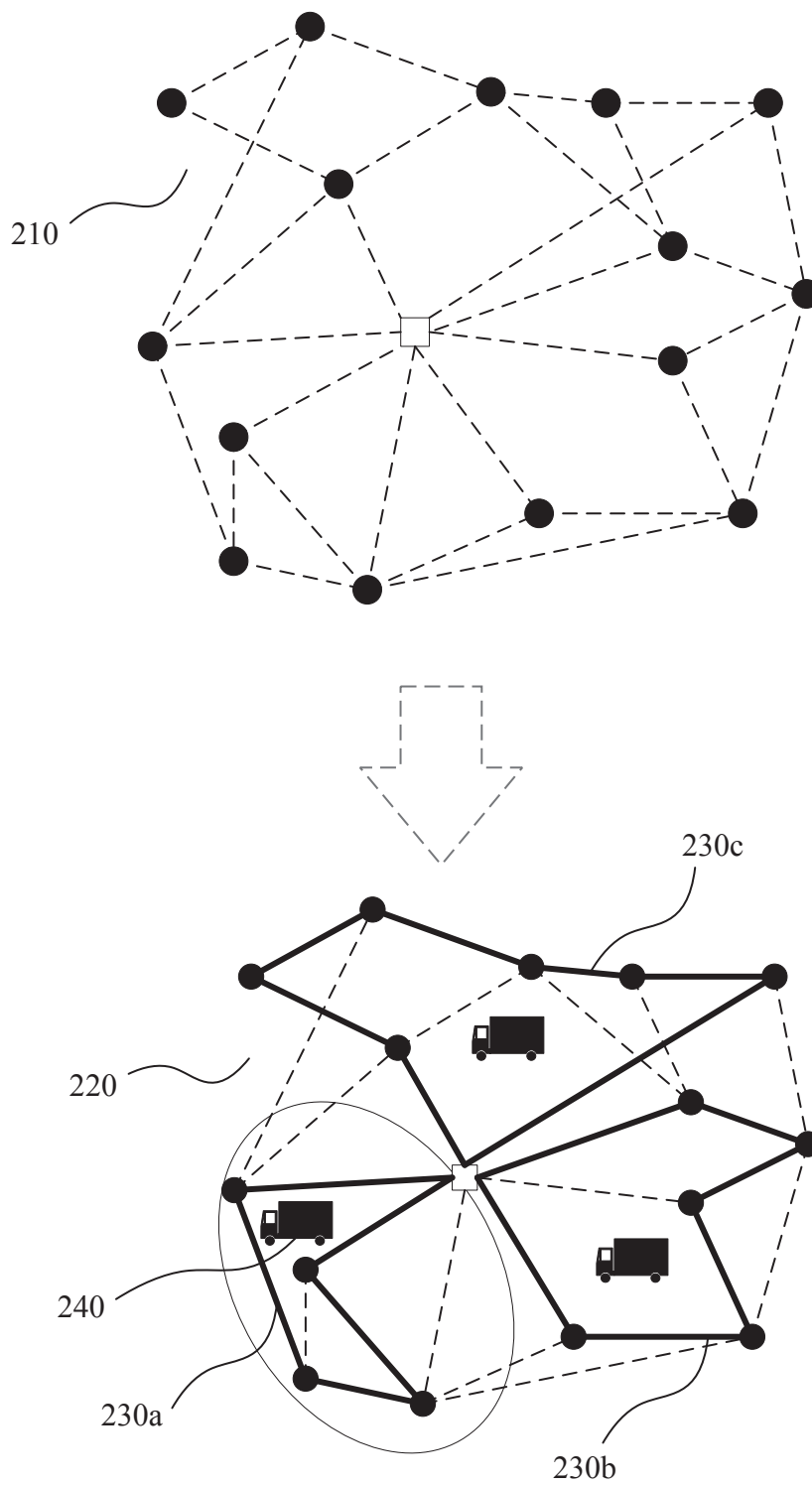


FIG. 1

**FIG. 2**

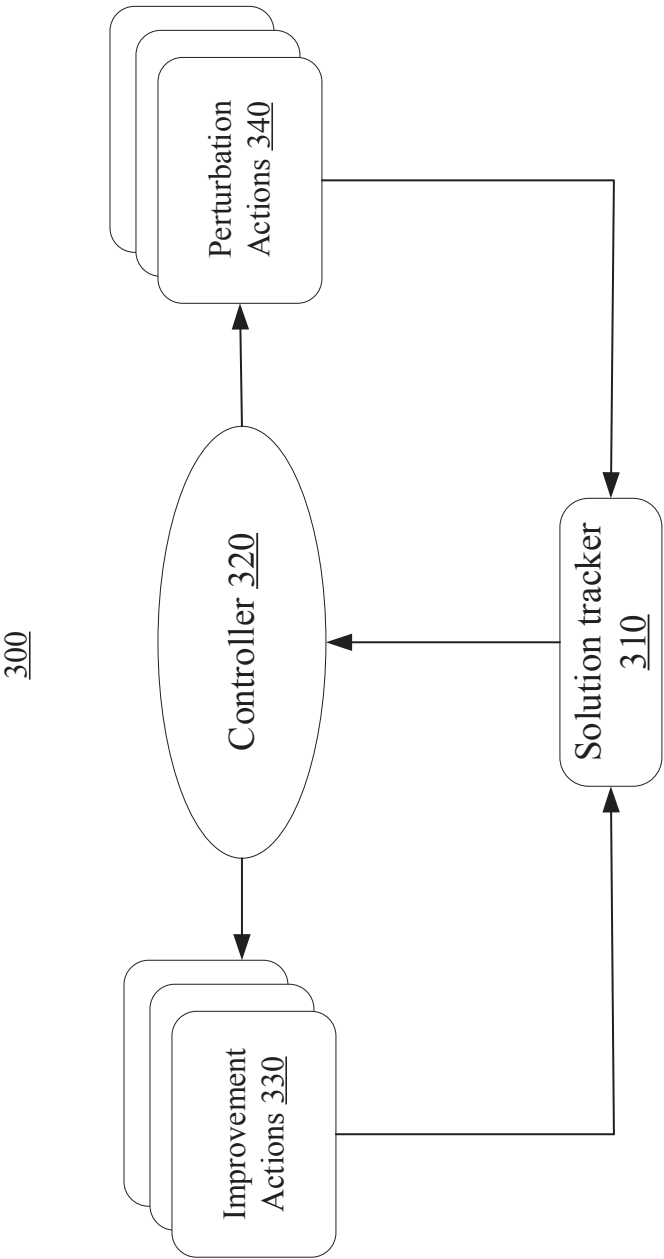


FIG. 3

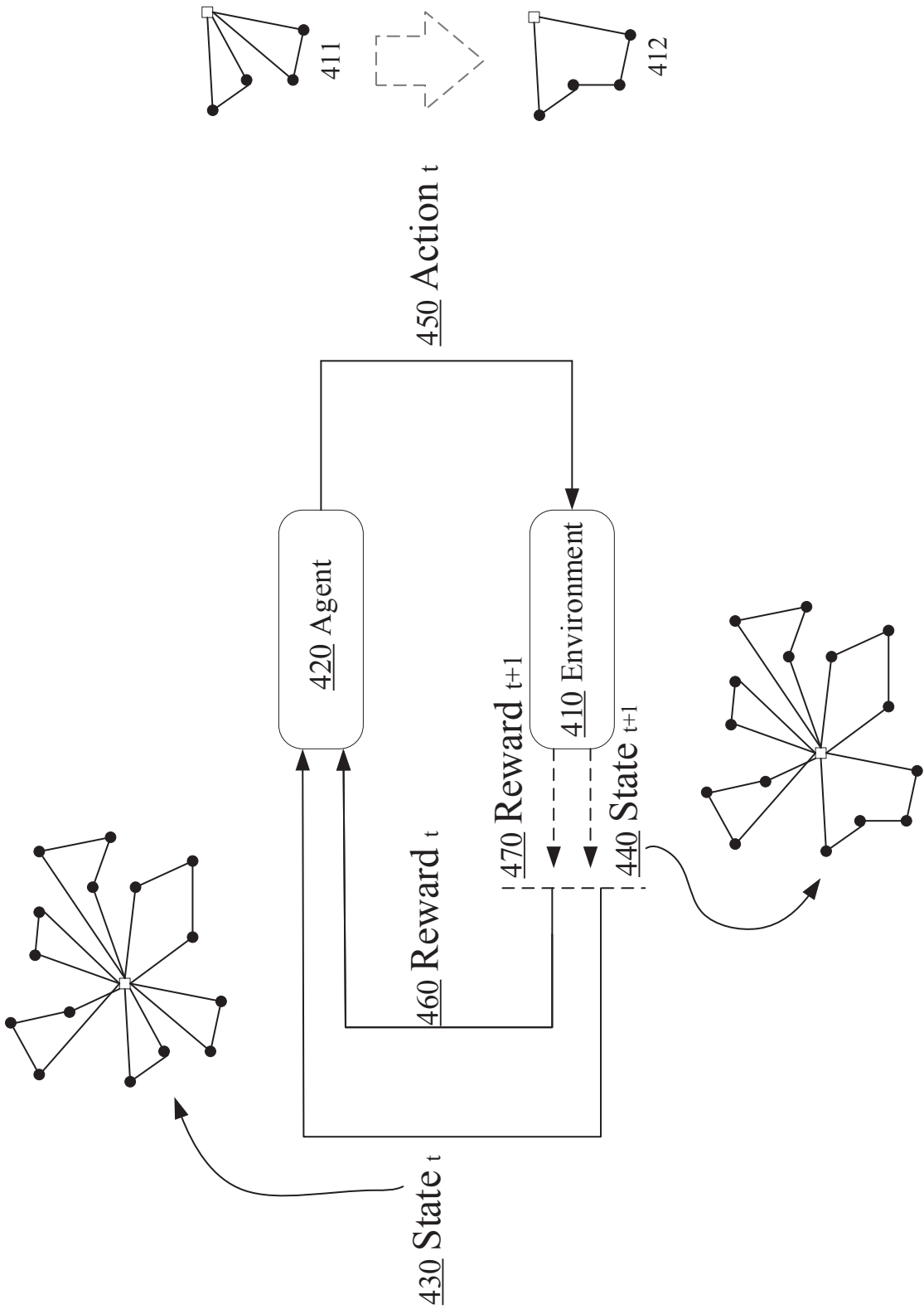


FIG. 4A

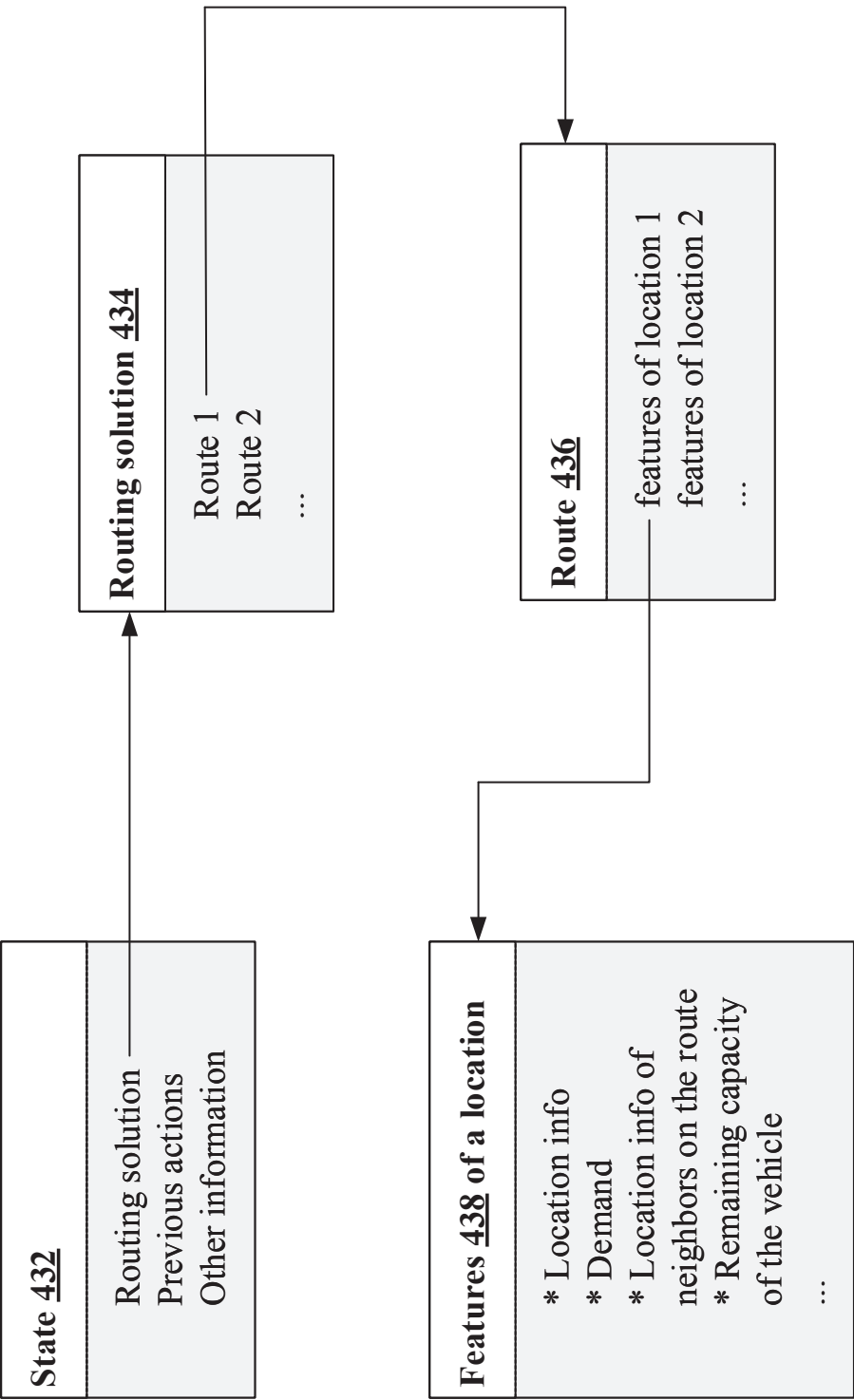


FIG. 4B

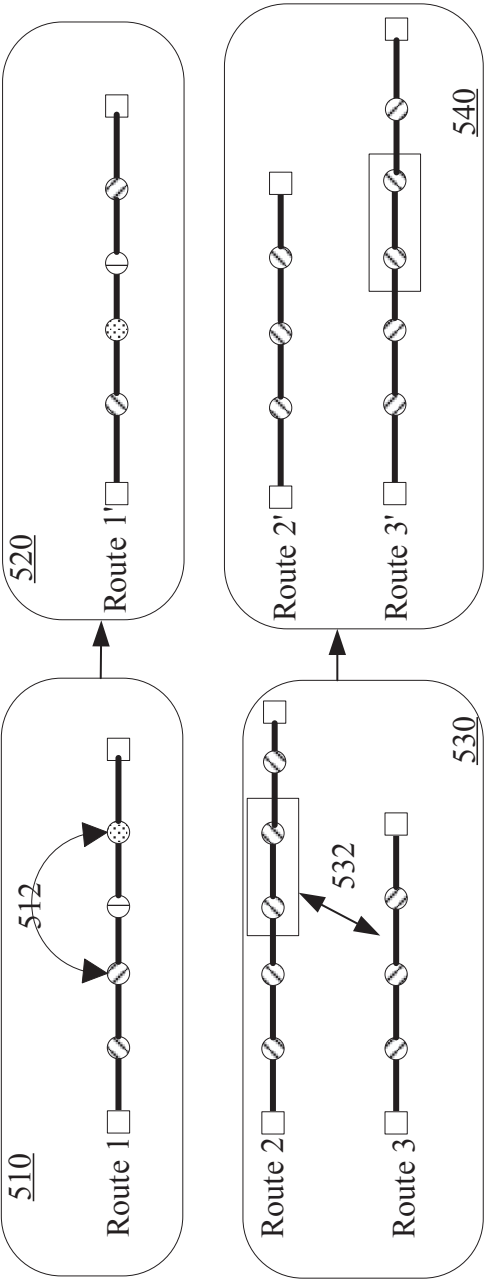


FIG. 5

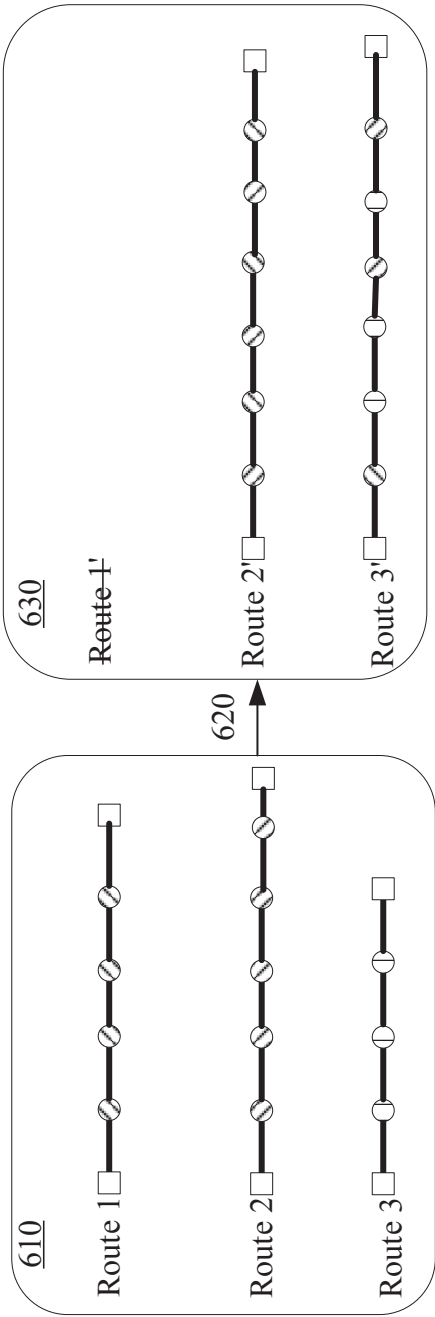
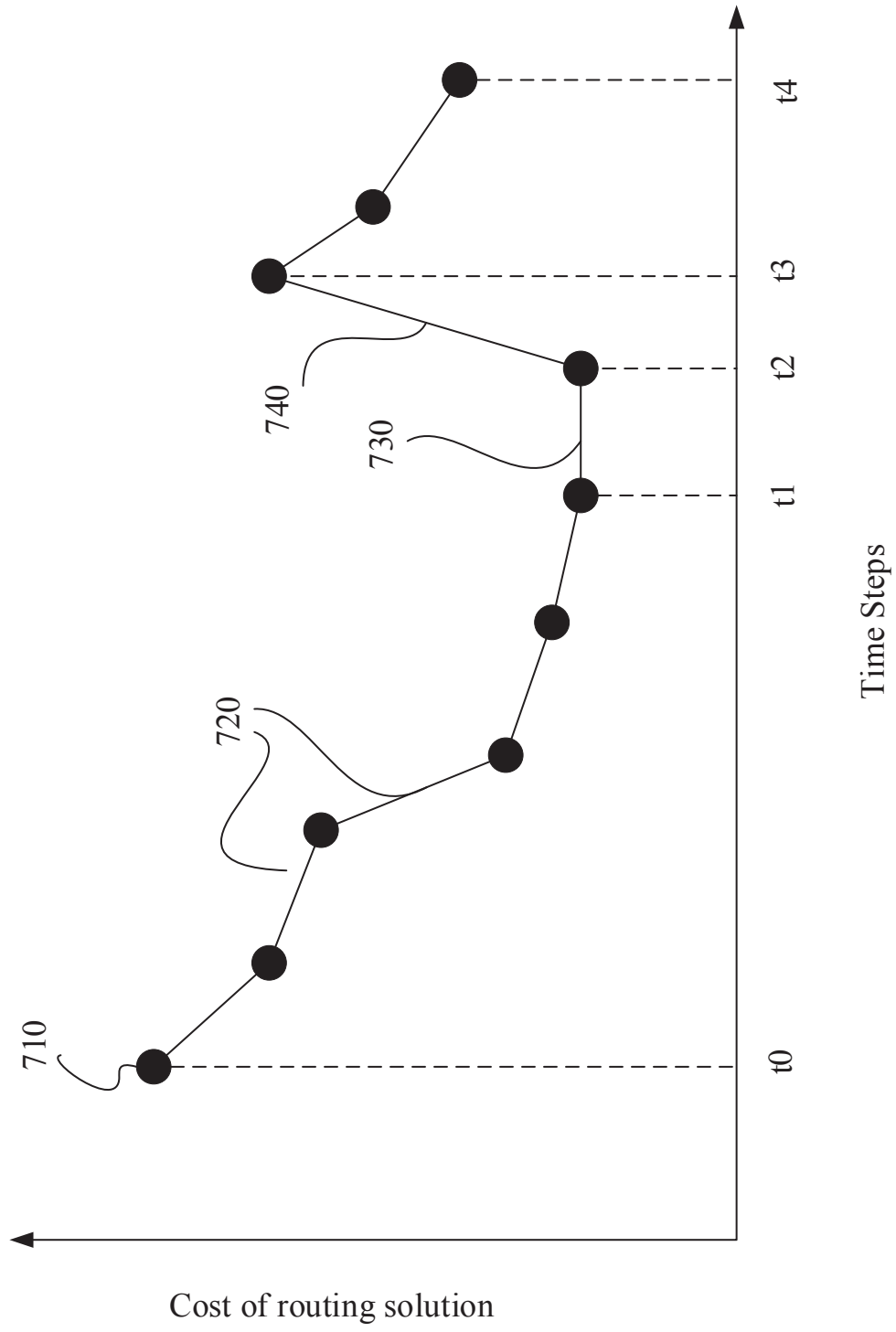


FIG. 6

**FIG. 7**

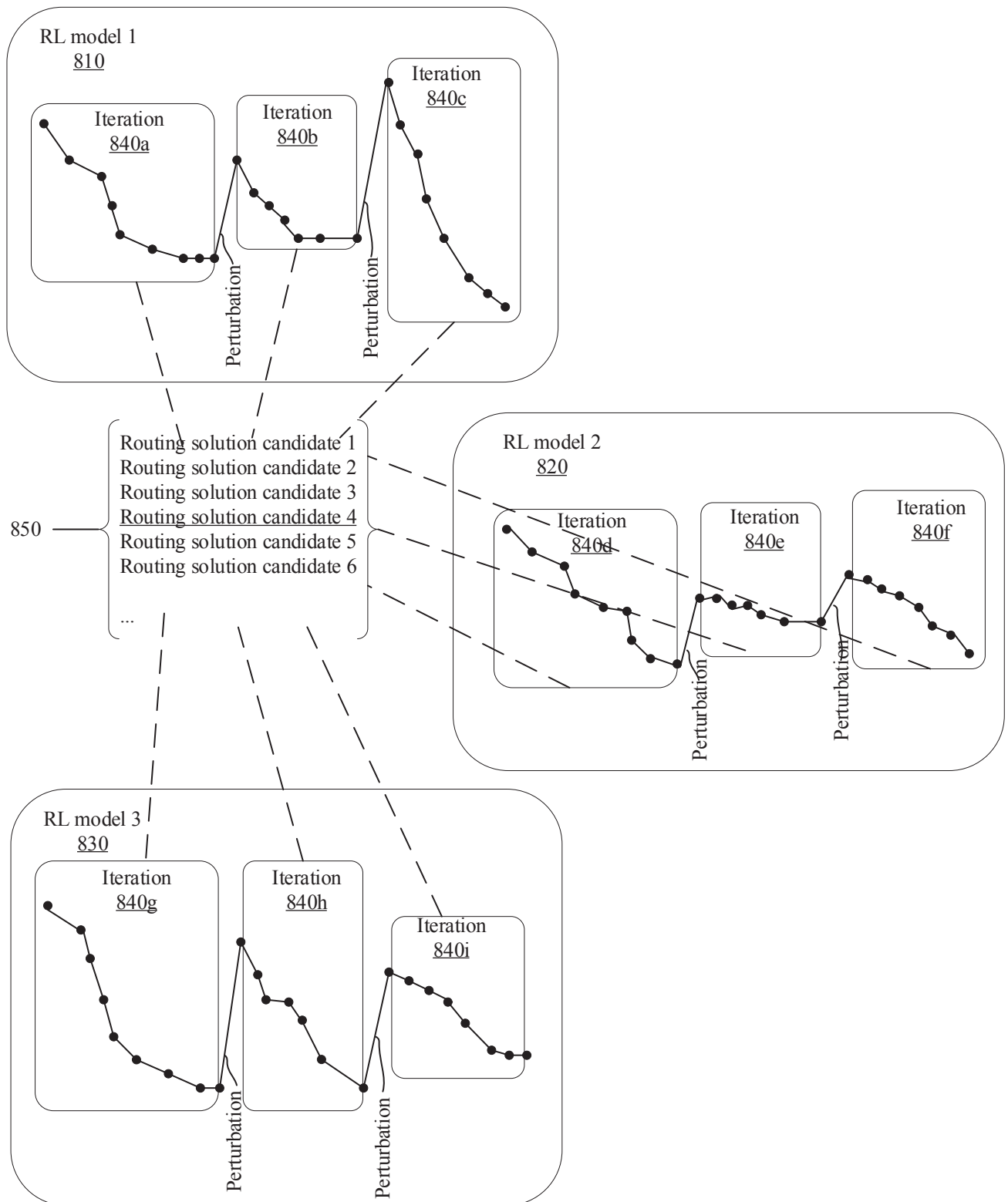


FIG. 8

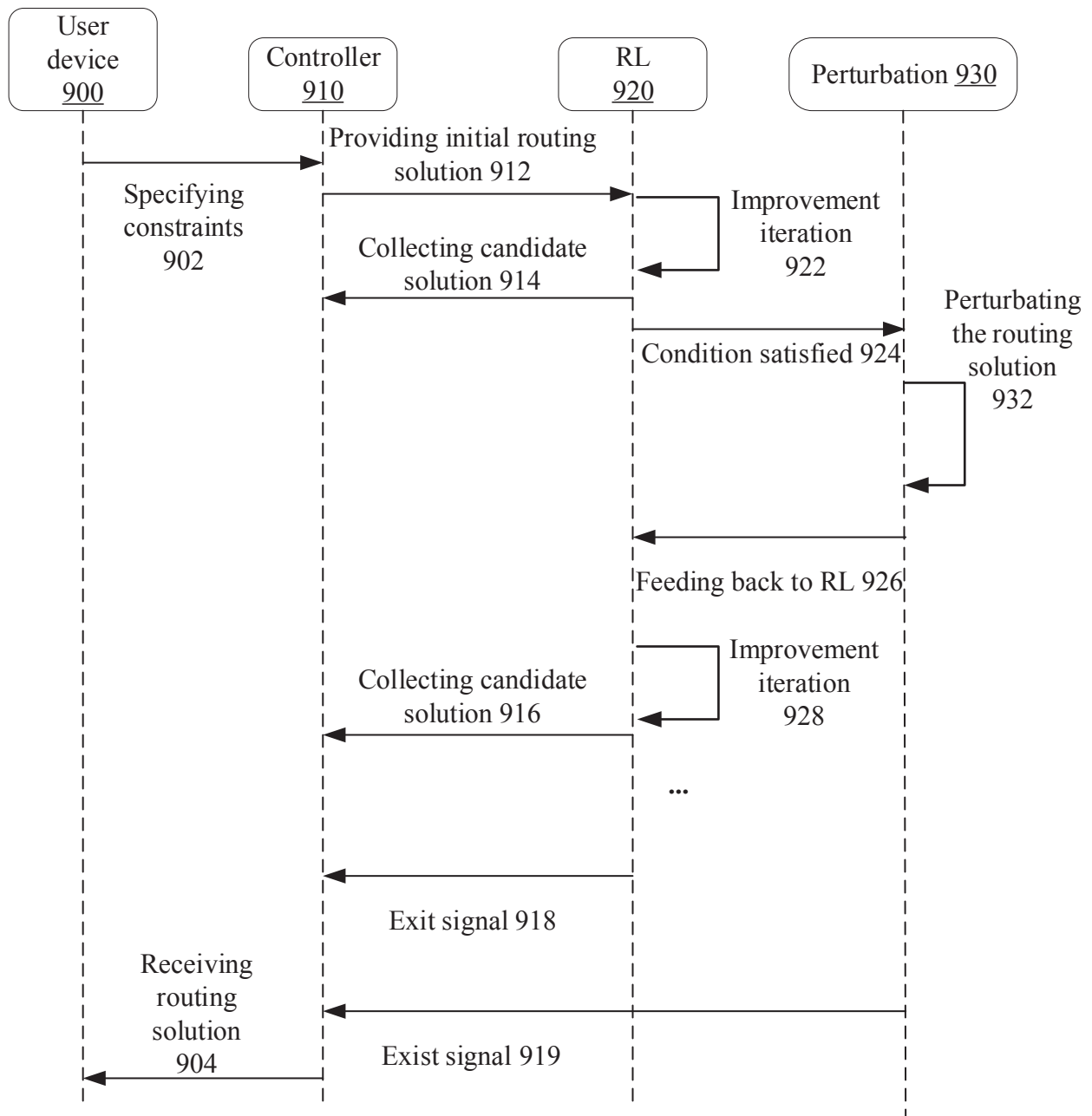


FIG. 9

1000

1010: initializing a state of an RL model based on a routing solution comprising one or more routes for routing one or more vehicles through a plurality of locations, wherein the RL model comprises a plurality of improvement actions for applying to the state according to a policy to reduce a cost of the routing solution



1020: applying one or more of the plurality of improvement actions to the state according to the policy to reduce the cost of the routing solution and to obtain updated routing solutions until a predetermined condition is satisfied



1030: in response to the predetermined condition being satisfied, applying a perturbation action to obtain a perturbed routing solution and feeding the perturbed routing solution back to the RL model for the RL model to apply one or more of the plurality of improvement actions according to the policy to further reduce the cost of the routing solution



1040: determining a second routing solution with a minimum cost from the updated routing solutions

FIG. 10

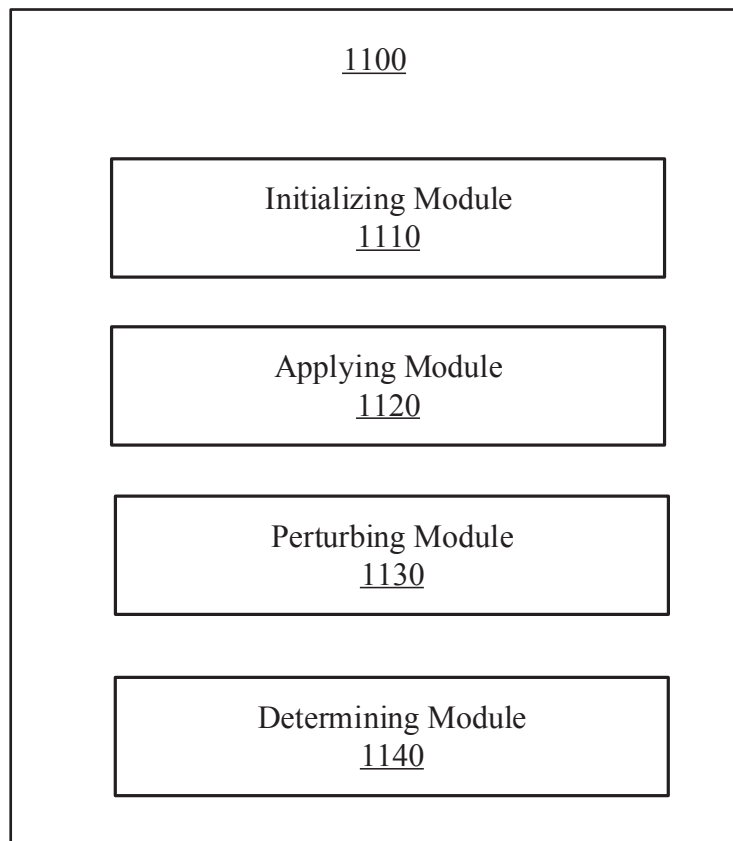
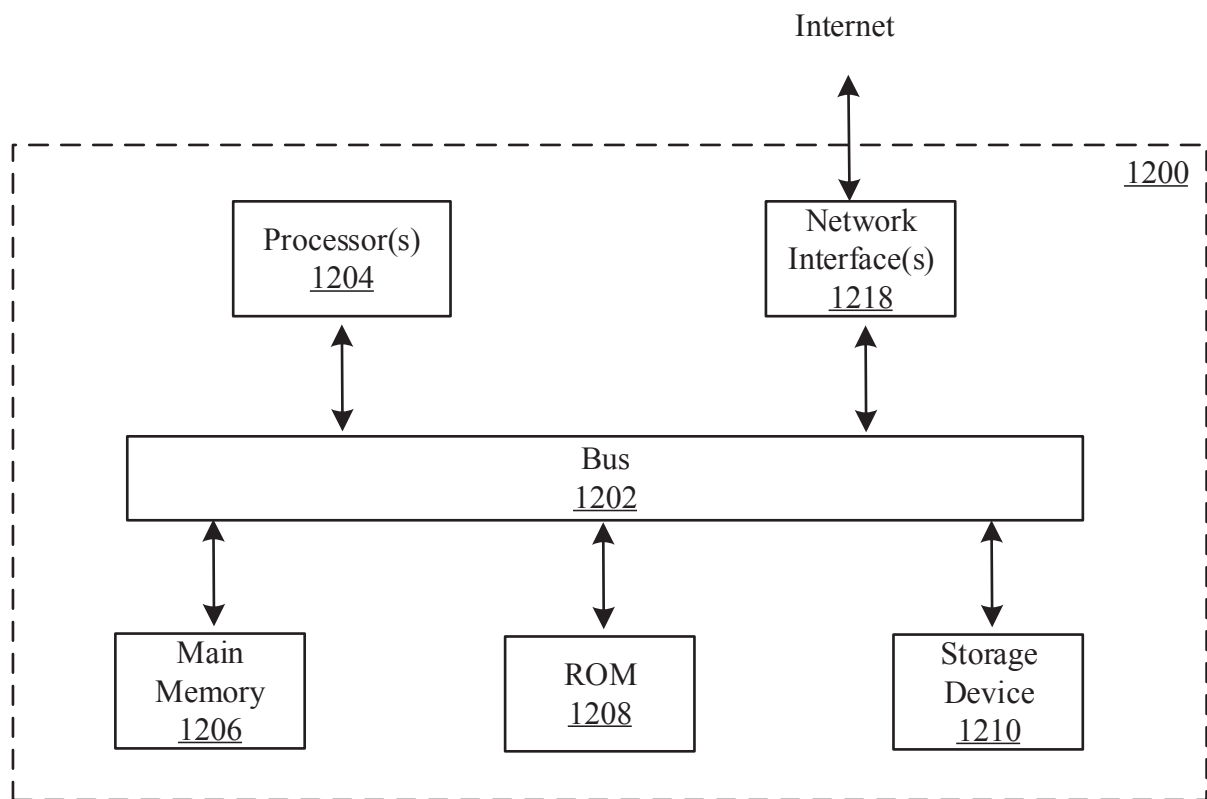


FIG. 11

**FIG. 12**