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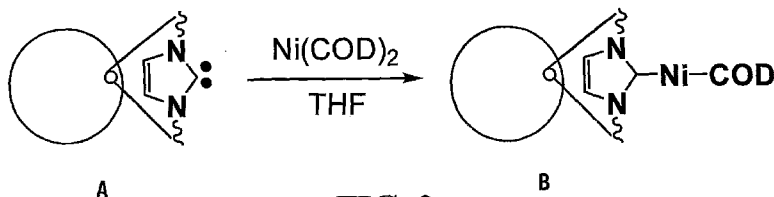


FIG. 2

(57) Abstract: Methods for carbon-sulfur (C-S) or carbon-oxygen (C-O) coupling reactions are provided. The methods involve the use of a transition metal complex comprising a heterocyclic carbene ligand complexed with a transition metal. Transition metal complexes comprising a heterocyclic carbene ligand complexed with nickel are also provided. The nickel heterocyclic carbene complexes may be used for C-S or C-O coupling reactions.

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