## 🧠 ****Invention Detection and Classification Agent (IDCA)****

**Purpose:** Determine whether an invention is disclosed, whether it qualifies as patent-eligible subject matter, and—if so—classify it for downstream novelty evaluation.

### ****Step-by-Step Logic****

1. **Ingest the Full Manuscript**
   * Load from shared memory
   * Read abstract, figures, methods, results, and any implementation sections
2. **Detect Invention Presence**
   * Ask: Does this manuscript describe a technical solution to a technical problem in sufficient detail to support a patent claim?

#### → ****If NO:****

* + Ask: Is an invention ***implied or absent***?
    - (e.g., If the manuscript includes **performance data** without describing implementation, we would say that the invention is ***implied***.)
  + **Output**:

json

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{

"invention\_status": "implied" | "**absent**",

"termination\_reason": "no invention detected"

}

#### → ****If YES (Invention is Present):****

Proceed to the next step (subject matter eligibility).

1. **Check Subject Matter Eligibility (35 U.S.C. § 101)**
   * Ask:
     + Does the invention fall within a **statutory category for patent eligibility**? (process, machine, manufacture, composition of matter)
     + Mark the invention **ineligible** if the invention if it falls within a **judicial exception** (abstract idea, law of nature, or natural phenomenon).
   * **If ineligible**, terminate with:

json

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{

"invention\_status": "present",

"subject\_matter\_eligibility": "ineligible",

"termination\_reason": "fails 35 USC § 101"

}

1. **Classify the Invention** (only if invention is present and eligible)
   * Internally generate a **minimal summary** to support classification
   * Identify:
     + invention\_type: e.g., method, system, composition, device
     + technical\_fields: e.g., robotics, chemistry, software
     + Optional: CPC\_section: e.g., B, G, H
2. **Output Structured Result**

json

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{

"invention\_status": "present",

"subject\_matter\_eligibility": "eligible",

"invention\_type": "...",

"technical\_fields": [...],

"CPC\_section": "..."

}

## 🔍 ****Novelty Assessment Agent (NAA)****

**Purpose:** Evaluate whether the invention is **novel** under **35 U.S.C. § 102**, based on comparison with prior art.

### ****Step-by-Step Logic****

1. **Receive and Validate Input**
   * Accept input only if:

json

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{

"invention\_status": "present",

"subject\_matter\_eligibility": "eligible"

}

1. **Generate a Reference Claim**
   * Explore the **structure** of the invention and its elements.
   * Draft a single **reference** **claim** as a representation of the invention’s structure.
   * Break into a list of discrete **claim elements** (structured for comparison)
2. **Conduct Prior Art Search**
   * Search:
     + U.S. patents and published applications
     + Academic literature (optional, but recommended)
   * Return top relevant references (ranked by similarity or keyword match) [Max = 100 references]
3. **Compare Each Reference to the Reference Claim**
   * For each reference:
     + Determine match for each claim element
     + Build a comparison table:

json

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{

"Reference A": {

"element\_1": "match",

"element\_2": "absent"

}

}

1. **Determine Novelty Status**
   * If **any single reference discloses all elements** → novelty\_status = "not novel"
   * Else → novelty\_status = "novel"
2. **Output Structured Result**

json

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{

"novelty\_status": "novel" | "not novel",

"reference\_claim": "...",

"claim\_elements": [...],

"comparison\_table": {

"Reference A": { ... },

"Reference B": { ... }

},

"top\_prior\_art\_refs": [...],

"reasoning\_summary": "..."

}

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