



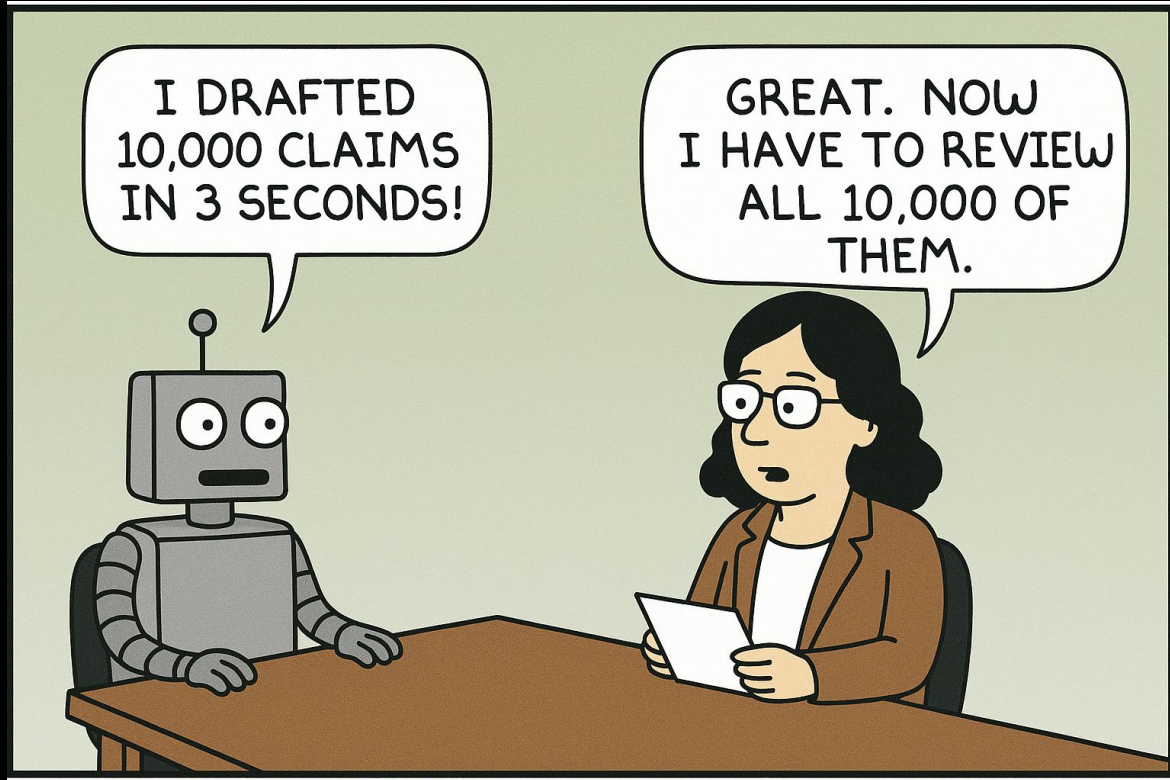
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Harnessing AI for Patent Application Drafting

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**For the IP Section of the
Oregon State Bar**







Agenda

01 Definitions & basics

02 Overview of tools

03 Pro-tips on using the tools

04 Use cases



Definitions & basics



Definitions

- LLM (Large Language Model)
 - An artificial intelligence model designed to understand and generate human language
- Chatbot
 - A program that is powered by an LLM and designed to simulate conversation with users
- Agent
 - A system that uses an LLM and that can autonomously perceive inputs, maintain internal state, make decisions, and taking actions—often iteratively—toward a defined goal



Definitions

- **Prompt**
 - The input (e.g., question or instruction) that a user provides to a chatbot to initiate or guide a conversation or request a particular action or response
- **Response**
 - The output (e.g., answer or other requested output) that the chatbot generates and returns to the user based on the prompt



Definitions

Example Prompt:

Write a funny joke for my presentation about AI. The audience will include attorneys.

+  Tools



ChatGPT can make mistakes. Check important info.



Example Response:

"Tried letting AI draft the spec. Now every paragraph starts with: 'In some embodiments... of world domination.'" 😄

Let me know if you want one about §101 rejections or claim amendments next!





Basics

Where do these tools excel?



- Summaries
- Comparisons
- Idea generation
- Helping with writer's block
- Rephrasing sentences



Basics

Ensure there is a “human in the loop”

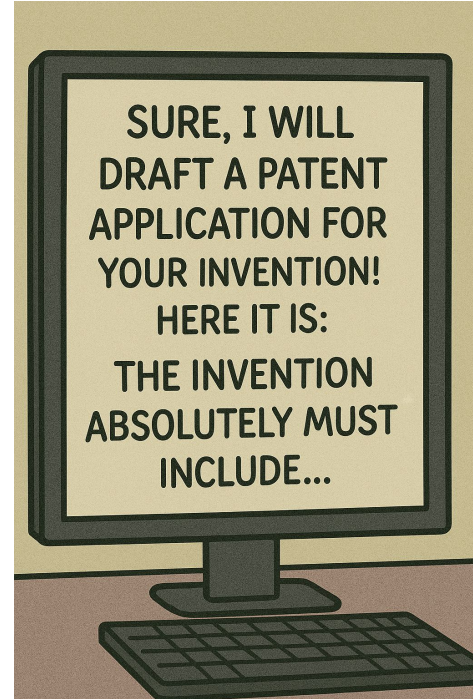




Basics

Watch out for...

- Accidentally copying text like, “regenerate response” or “AI generated content may be incorrect”
- Patent profanity
- Hallucinations
- Imprecise language, or prose-like style
- Garbage in, garbage out





Overview of tools



LLM Tools Cost Comparison

Tool	Cost Per User Per Month
Generic LLMs with Data Protection	
OpenAI Plus	\$20
OpenAI Team	\$25
OpenAI Pro	\$200
Claude.ai Pro	\$18
Claude.ai Team	\$25
Google Gemini Advanced	\$20
Microsoft Copilot Pro	\$20
Patent-Specific Tools	
PatentPal	\$50-200 (estimated)
Anaqua AI	\$400-4,200 (estimated)
AcclaimIP AI	\$200-500
IPRally	\$100-1,000
ClearstoneIP	\$500-5,000
Patent iNSIGHT Pro	\$800-8,300 (estimated)

This chart was generated by Claude, and there may be omissions and mistakes.





Source: DeepIP.ai

The screenshot shows a Microsoft Word document titled "Document 1" with a ribbon menu at the top. The document content is a patent template with the following sections:

- STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT
- BACKGROUND
- SUMMARY
- BRIEF DESCRIPTION OF DRAWINGS
- DETAILED DESCRIPTION
- CLAIMS

Under the CLAIMS section, the text reads: "What is claimed is:" followed by a list of four items:

1. A method comprising:
2. A system comprising:
3. A computer program product...
4. A service...

On the right side of the document, the DeepIP.ai AI assistant interface is visible. It features a "Library" section with the following prompts:

- Refine the invention disclosure
- What is the novelty of the invention?
- Brainstorm on claims
- Suggest an independent claim
- Suggest dependant claims
- Draft patent section
- Title
- Suggest 5 title variations
- Field of invention
- Background
- Brief description of drawings
- Summary
- Abstract
- Draft patent section
- Problem & solution statement
- Technical effects
- Term definition

At the bottom of the interface is a text input field labeled "Ask assistant" and a play button icon.



Features

What are these patent-specific tools, and how do they work?

Microsoft Word plug-in, or web interface, with chat and utilities.

They advertise features, such as:

- Pre-engineered prompts for patent-specific tasks = prompt library
- Workflow integration with patent databases
- User-friendly interfaces that don't require technical knowledge
- A place to upload context documents
- A place to upload templates to adapt to your writing style



Under the hood

The underlying large language models are usually pre-trained, open-source models. In some cases, the tools may be built on top of a model fine-tuned for technical writing or patent writing.

Because fine-tuning is expensive (cost is on the order of hundreds of thousands of dollars), **the models being used are not fine-tuned to individual user styles and preferences.**

The tools primarily rely on natural language processing algorithms and **prompt engineering** to generate content that is adapted to individual user styles and preferences.



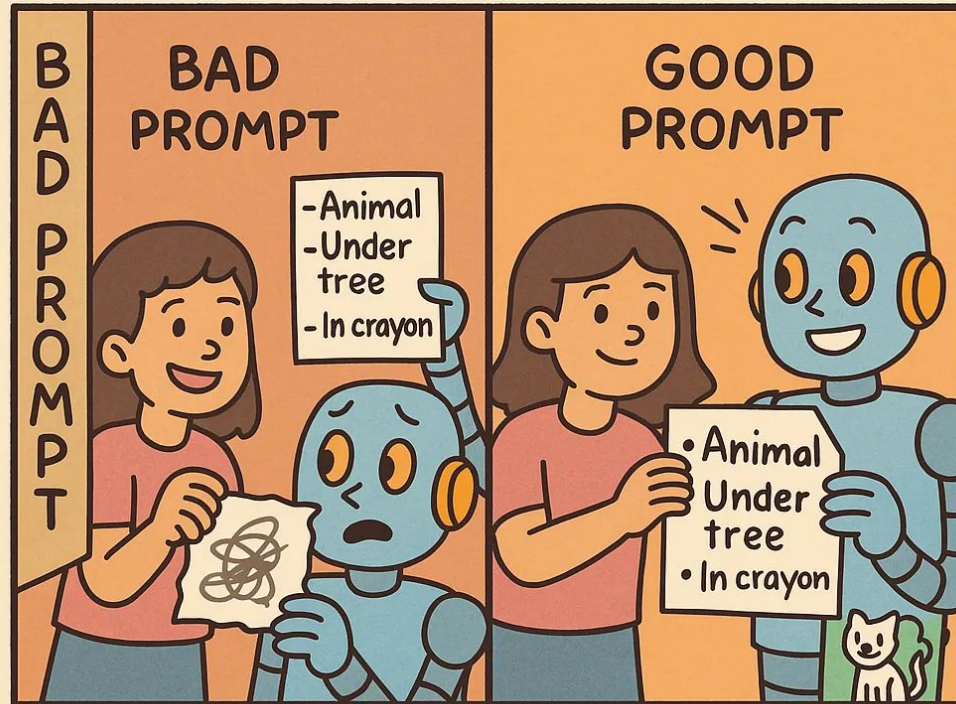
Pro-tips



Prompt engineering

Prompt engineering is the process of designing and refining prompts to guide AI models in generating specific, high-quality outputs.

PROMPT ENGINEERING: TALKING TO ROBOTS SO THEY ACTUALLY LISTEN



Source:

<https://ai.plainenglish.io/%EF%B8%8F-prompt-engineering-talking-to-robots-so-they-actually-listen-080e93951092>

“ Prompt Engineering: Talking to Robots So They Actually Listen”





1. Give it a role

Always start by establishing the AI's role and expertise level. This primes the model to respond with appropriate knowledge and tone.

You are an experienced patent attorney with 15 years of experience drafting utility patents in [technology field]. You specialize in translating complex technical concepts into precise patent language that satisfies USPTO requirements while maximizing claim scope.



2. Provide specific steps

Offer step-by-step instructions, like a recipe. Avoid vague prompts, e.g., “Write me some claims”.

Step 1: Review the invention disclosure I'll provide and identify: the core technical problem being solved, the novel technical solution, and key technical advantages over existing approaches.

Step 2: Draft independent claims by starting with broadest reasonable scope, including essential elements only, and using proper claim language format.

Step 3: Draft dependent claims by adding preferred embodiments, including alternative implementations, and covering potential design-arounds.



3. Include specific instructions

Specify what to do and what not to do.

Use traditional patent language with formal patent terminology. Ensure antecedent basis throughout. Avoid patent profanity. Refer to elements using the specified reference numerals throughout. Do not create new ideas that is not mentioned in the document. Fact check whenever possible.

Write in paragraph form.

Limit your response to five sentences.

Write an abstract that is less than 150 words in length.

Include [SUPPORT: <paragraph number> <excerpt>] after a claim to show where the support originated.



4. Prompt chaining

Breaking complex tasks into connected sequential prompts, where each prompt builds on the previous output.

First, read this invention disclosure: [INSERT DISCLOSURE] Identify and list: 1. The technical problem being addressed 2. The specific technical solution 3. Key technical advantages 4. Potential alternative embodiments. Format your response as a structured technical summary.

...

Now act as a patent drafter. Using your technical summary: Draft 3 independent claim options with different scopes: 1. Broadest reasonable scope 2. Medium scope with key preferred features 3. Narrow scope with specific implementation details For each independent claim, explain your strategic reasoning.



5. Feedback and correction

Style corrections, scope adjustment, technical corrections, format corrections, etc.

Revise the above claims using more traditional patent language. Replace casual terms with formal patent terminology and ensure proper antecedent basis throughout.

The claims above are too narrow. Broaden them by: 1. Removing implementation-specific details, 2. Using more generic terminology, 3. Focusing on functional rather than structural limitations

Ignore the software implementation details I mentioned earlier. Focus only on the core algorithmic innovation and draft claims that would cover any implementation of this algorithm.

Reformat the above using proper patent application structure: Use numbered paragraphs, Include proper cross-references, Follow USPTO formatting guidelines, Add appropriate section headings



Other tips

- Advanced feedback techniques, e.g., comparative analysis, changing perspectives, strategic refinement, etc.
- Use a prompt template: context, role, intent, instructions, and format
- Build a prompt library for reuse, track results
- Multiple takes with same or varied prompts for different, alternative results



Use cases



Use cases

AI tools may be able to help you with...

- Preparing for a disclosure meeting
- Coming up to speed in a technology (proceed with caution)
- Summarizing disclosure meeting transcripts
- Reviewing references provided by an inventor
- Overcoming writer's block
- Rephrasing paragraphs that don't flow well
- Using dictation to get the information down "on paper" and having a chatbot reorganize/rewrite it
- Drafting summaries and paragraphs about the field, background, and technical problem
- Generating descriptions/definitions of concepts that you are familiar with
- Generating ideas for claims/claim language
- Leveraging and changing descriptions from related applications
- Analyzing circuit diagrams



Example invention disclosure (generated by Claude)

Sap Spot Removal System

Here's an invention designed specifically for removing stubborn fir tree sap from decks and hard surfaces:

The SapZap Multi-Surface Cleaner

This comprehensive system would combine multiple sap-removal approaches in one convenient tool:

1. Dual-Action Applicator Wand

- o Features a heated tip (120-150°F) that softens hardened sap
- o Contains a reservoir of specialized bio-based solvent safe for both wood and synthetic decking
- o Precision applicator allows targeting only sap spots without affecting surrounding areas

2. Interchangeable Surface-Specific Attachments

- o Soft silicone scraper for synthetic decking
- o Natural fiber brush for wooden surfaces with grain
- o Micro-texture pad for deeply embedded sap

3. Two-Phase Cleaning Solution

- o Phase 1: Plant-based citrus/pine oil blend that dissolves resin bonds in sap
- o Phase 2: Neutralizing rinse that prevents deck staining and residue

4. Smart Temperature Control

- o Adjusts heat based on surface material (lower for synthetics, higher for hardwoods)
- o Automatically maintains optimal sap-softening temperature

The system would be battery-powered for portability, with an ergonomic design for comfortable use on large deck areas. It's environmentally friendly with biodegradable solutions that won't harm surrounding plants or pets once diluted.

The key innovation is the combination of targeted heat, surface-specific mechanical action, and specially formulated solutions all in one portable device, eliminating the current multi-step, multi-product approach to sap removal.

Here's a technical diagram of the SapZap Multi-Surface Cleaner invention. The diagram illustrates:

1. Main Device Components:

- o Ergonomic handle with trigger mechanism
- o Dual-phase solution chambers (separated for the citrus/pine solvent and neutralizing rinse)
- o Smart temperature control panel with digital display
- o Heated applicator tip (120-150°F)
- o Battery compartment for portability

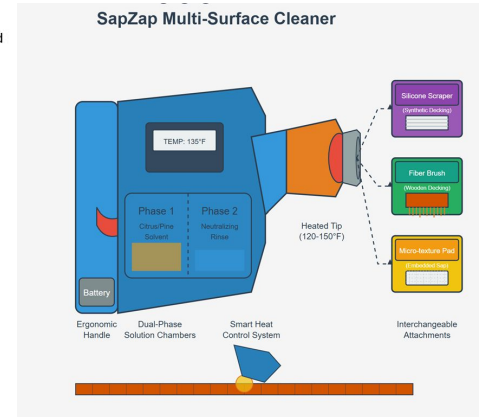
2. Interchangeable Attachments:

- o Silicone scraper designed for synthetic decking
- o Natural fiber brush optimized for wooden surfaces with grain
- o Micro-texture pad for deeply embedded sap spots

3. Key Features:

- o Precision applicator nozzle for targeted solution delivery
- o Temperature display showing current heat settings
- o Dual-chamber design that keeps solutions separate until application
- o Quick-connect system for attachment swapping

The diagram also shows how the device would be used on a deck surface to target a sap spot. The modular design allows users to adapt the tool to different surface materials and sap conditions, making it versatile for various outdoor cleaning scenarios.





Drafting a paragraph about the field, background, and technical problem

You are a patent agent. Use precise language that does not include patent profanity in your responses. Instead of using the term “comprising,” use the term “including.” Do not use absolute terms like “must,” instead use the term “may.” Do not use the term “invention.” Provide responses in paragraph form. Avoid prose-like language.

Provide a one to two paragraph summary of the technology area and the problem identified in this document. Do not refer to the solution, only describe the industry and the problem. Do not use patent profanity (e.g., do not say something is essential or necessary). Describe the technology area without saying, "the technology area is...." Describe the problem without referring to the "identified problem." Do not refer to "this document."



“The cleaning industry faces challenges in effectively removing fir tree sap from decks and hard surfaces. Fir tree sap is particularly difficult to clean due to its sticky and resilient nature, which often requires multiple steps and products to address. This issue is further complicated by the need to avoid damaging the surfaces being cleaned, whether they are wooden or synthetic decking materials. Current methods for sap removal are inefficient and inconvenient, as they can be time-consuming and may not always yield satisfactory results. Additionally, there is a demand for solutions that are environmentally friendly and safe for use around plants and pets.”



Generating descriptions/definitions of concepts that you are familiar with

You are a patent agent. Use precise language that does not include patent profanity in your responses. Provide responses in paragraph form. Provide a concise technical definition for sap.



“Sap is a fluid transported within the vascular system of plants, primarily composed of water, sugars, and various nutrients. It serves as a medium for the distribution of essential substances required for growth and development. Sap can be classified into two types: xylem sap, which carries water and minerals from the roots to the leaves, and phloem sap, which transports sugars and other metabolic products from the leaves to other parts of the plant. The sticky nature of sap is due to the presence of complex carbohydrates and other organic compounds, which can make it challenging to remove from surfaces.”

“Examples of sap that may be found on decks include fir tree sap and pine tree sap. Fir tree sap is particularly challenging to remove due to its sticky and resilient nature, which can adhere strongly to both wooden and synthetic decking materials. Pine tree sap, similarly, can create a sticky mess on deck surfaces, attracting dirt and debris, and potentially causing discoloration and weakening of the wood over time.”



You are a patent agent. Use precise language that does not include patent profanity in your responses. Provide responses in paragraph form. Provide examples of sap that may be found on decks.



Drafting claims

You are a patent agent. Use precise language that does not include patent profanity in your responses. Perform the following steps:

Step 1: Review the invention disclosure I'll provide and identify: the core technical problem being solved, the novel technical solution, and key technical advantages over existing approaches.

Step 2: Draft independent claims by starting with broadest reasonable scope, including essential elements only, and using proper claim language format. Do not use bullets or numbers/letters to identify different elements. Each element/clause should start on a new line and be separated by a semicolon. Add “and” after the semicolon of the second-to-last clause on the same line as the second-to-the-last clause. Only include features that would be detectable as the product would be sold. Do not include terms referring to the intended use or functionality. Use the term “coupled” instead of “connected.”



Drafting claims

Response from Claude:

1. A handheld surface treatment device comprising:
 - a housing having an ergonomic handle;
 - a heating element disposed at a distal end of said housing;
 - a first chamber disposed within said housing;
 - a second chamber disposed within said housing and separated from said first chamber;
 - a delivery system in fluid communication with said first chamber and said second chamber;
 - a temperature control system operatively coupled to said heating element;
 - a battery compartment disposed within said housing;and
 - an attachment interface configured to removably receive interchangeable attachments.

Response from Copilot:

- A sap removal system comprising:
- a dual-action applicator wand;
 - a heated tip coupled to the applicator wand, the heated tip configured to soften hardened sap;
 - a reservoir coupled to the applicator wand, the reservoir containing a bio-based solvent;
 - a precision applicator coupled to the applicator wand, the precision applicator configured to target sap spots;
 - interchangeable surface-specific attachments coupled to the applicator wand;
 - a two-phase cleaning solution comprising a plant-based citrus/pine oil blend and a neutralizing rinse;
 - a smart temperature control system coupled to the applicator wand, the smart temperature control system configured to adjust heat based on surface material and maintain an optimal sap-softening temperature; and
 - a battery compartment coupled to the applicator wand for portability.



Drafting claims

Generate an independent claim.



Response from DeepIP:

1. An apparatus for removing sap residues from surfaces, comprising:
 - an ergonomic handle with a trigger mechanism;
 - a battery-powered energy supply for portability;
 - a dual-phase cleaning solution chamber configured to separately store a plant-based citrus/pine oil blend and a neutralizing rinse;
 - a dual-action applicator wand with a heated tip operable at 120°F to 150°F for softening sap and a precision applicator nozzle for targeted solution delivery;
 - a smart temperature control system configured to adjust heat based on surface type; and
 - interchangeable surface-specific attachments including a silicone scraper, a natural fiber brush, and a micro-texture pad.



Is it worth it?

Generic LLMs with data protection:

- provide good value for the money
- require some up-front time investment (e.g., building a prompt library) to be useful
- can improve your final work product by providing different perspectives and ideas
- can make the drafting process more enjoyable by helping with writer's block and helping with the tedious aspects of drafting

Patent-specific tools:

- may provide more appropriate responses for patent applications but for a significantly higher price
- are easy to use & do not require prompt-engineering
- may provide better output for some technical subject matter than others (in our experience)
- may be able to simulate your drafting style (this feature is still a work in progress, in our experience)