



# PatentCAD: Computer Aided Drafting of Patent Applications

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# PatentCAD: Computer Aided Drafting of Patent Applications

(1) Natural Language Processing

(2) Claims

(3) PatentCAD: Using NLP to create patent applications

# NLP is:

- (1) Not a client-side application
- (2) Not plug and play
- (3) Not the understanding of the words themselves

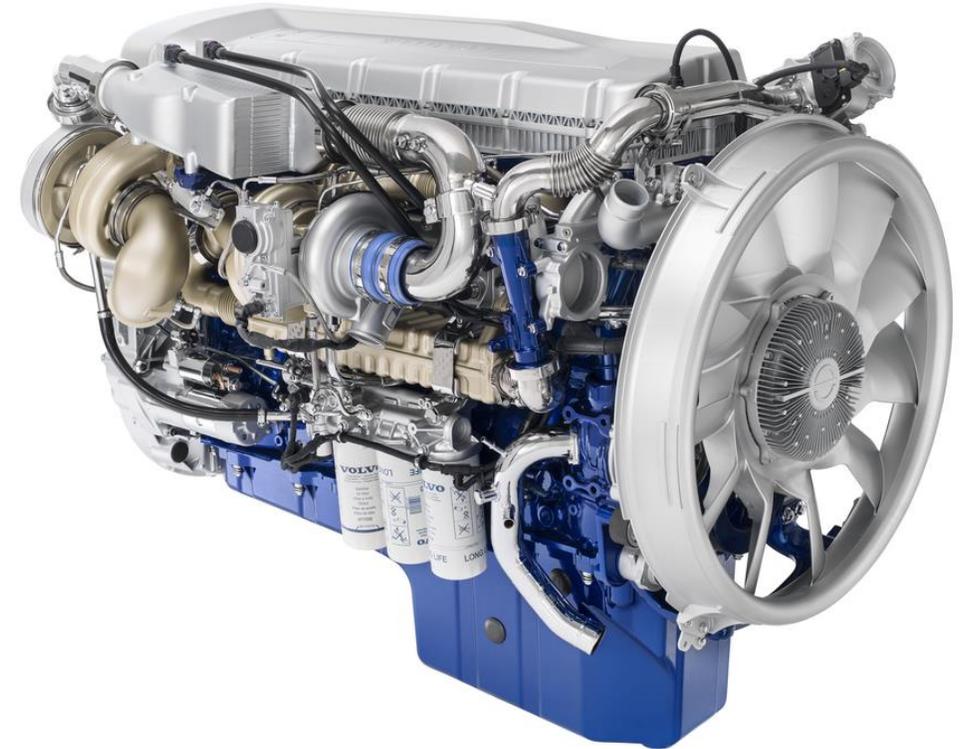
# NLP is an engine

Analysis and the relations of the words

NLP can be custom tuned

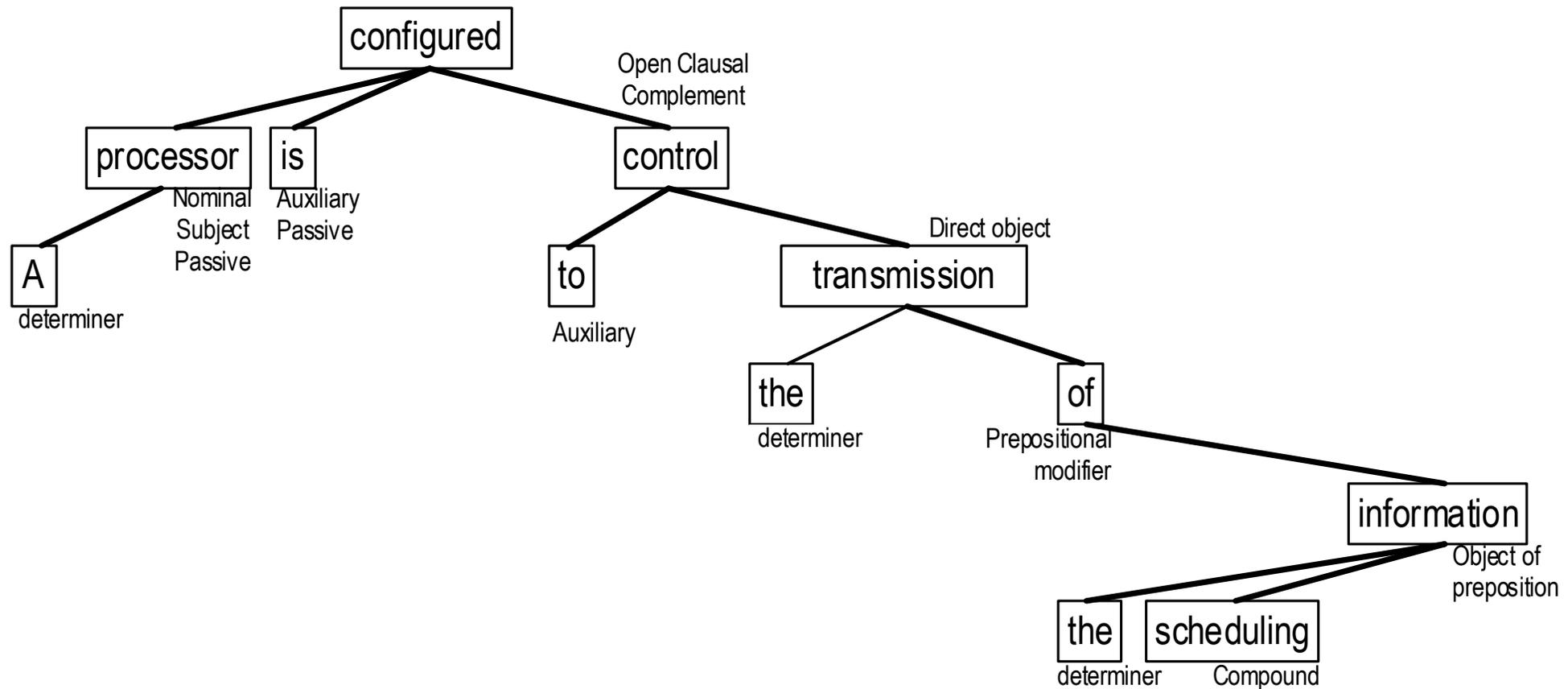
Identification of named entities

Best suited for deployment on a server



# NLP Tokenization

Tokens are the NLP output and identify relationships between the words.



# Further Applications of NLP

(1) Sentiment analysis

(2) Chatbots

(3) Text classification

(4) Text summarization

# What is a Patent?

- A U.S. patent is a property right that allows the patent owner *to exclude others* from making, using, and selling an invention or importing an invention into the U.S. for a limited period of time
- A patent is *not a right to practice* the technology
- Patents are enshrined in the U.S. Constitution
- Article I, Section 8, states “Congress shall have power . . . to promote the progress of science and useful arts, by securing for limited times to authors and inventors the exclusive right to their respective writings and discoveries”

# Utility Patents (U.S. and Foreign)

- **Utility patents** may be granted to anyone who invents or discovers any new and useful process, machine, article of manufacture, or composition of matter, or any new and useful improvement thereof
  - How a touch-screen works
  - The touch-screen material and how its manufactured
  - The global positioning system that allows your phone to detect where it is located
  - The chips in your phone that run it, allow it to send and receive data, interact through the touch-screen
  - The software that runs the phone

# Features of a Utility Patent

- A written description of the invention that enables one of ordinary skill in the art to make and use the invention
- Figures that coincide with the written description
- Claims – the heart of the patent define the inventive property right that the Examiner compares against the prior art to determine if you are entitled to a patent
- For inventive processes, the written description and an accompanying flowchart should describe each step of the process, describe what device or devices perform the step, and describe the interrelationships between steps

# Peloton Patent 9,174,085

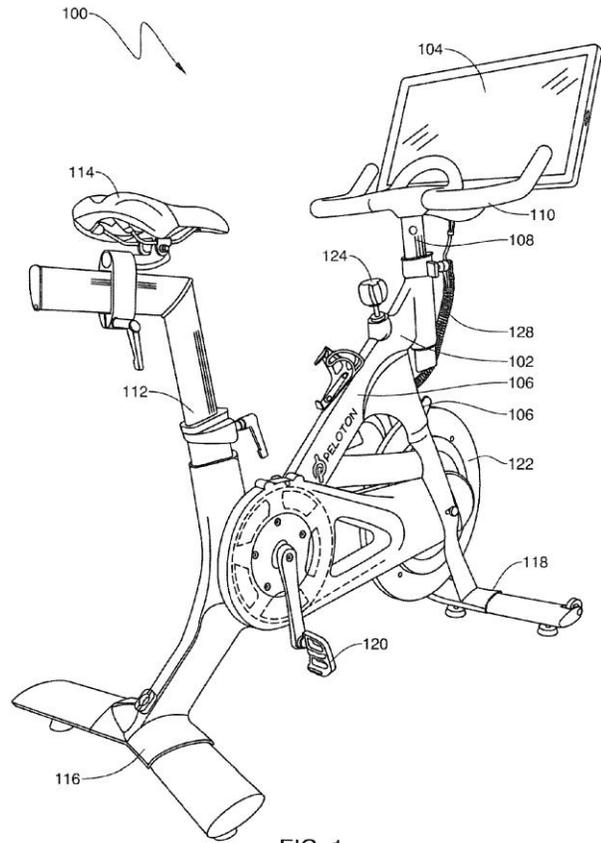


FIG. 1

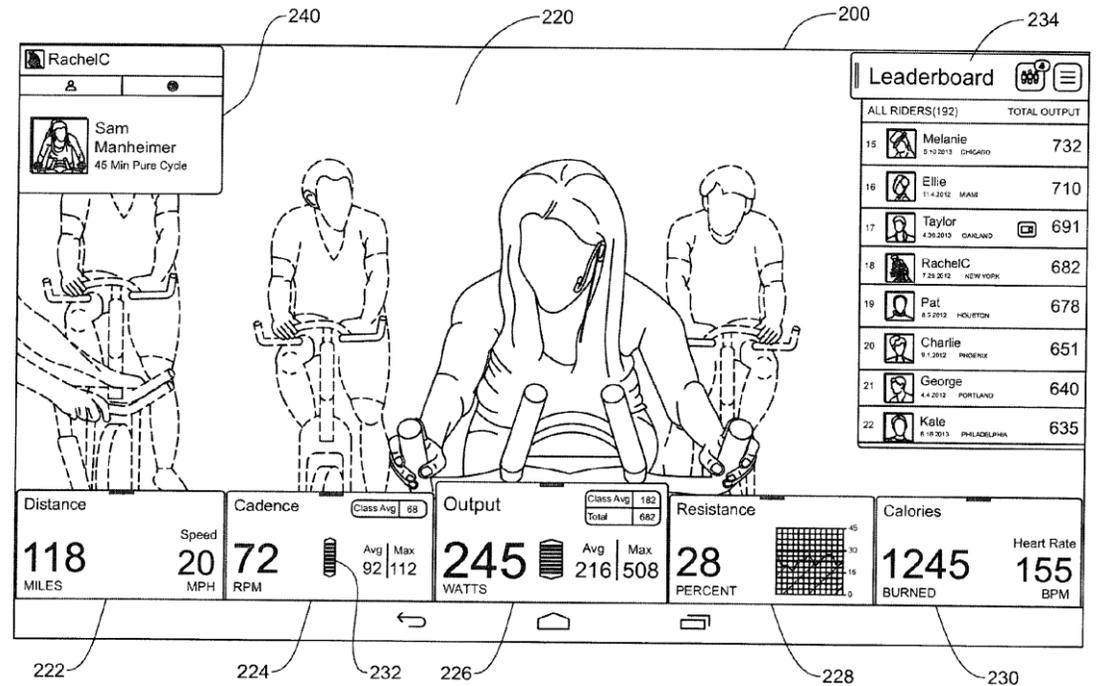


FIG. 8

# Example Claim

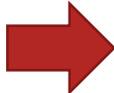
1. A method for providing live and archived cycling classes to remote users comprising:
  - providing information about available live and archived cycling classes that can be accessed via a digital communication network by a first user at a first remote location for display at the first remote location;
  - providing an interface that includes a display screen associated with a first stationary bike whereby the first user can select either a live cycling class or select among a plurality of archived cycling classes to be displayed on the display screen via the interface;
  - receiving from the first user a selection of one of the available live or archived cycling classes for display on the display screen associated with the first stationary bike at the first remote location;
  - sending digital video and audio content comprising the selected cycling class from a server to a computer associated with the first stationary bike at the first remote location for display to the first user on the display screen associated with the first stationary bike;
  - detecting a plurality of performance parameters from the first stationary bike at the first remote location at a particular point in the selected cycling class;
  - displaying at least one of the plurality of current performance parameters detected from the first stationary bike at the first remote location on the display screen associated with the first stationary bike;
  - detecting a plurality of performance parameters from a second user on a second stationary bike at a second remote location at the same point in the selected cycling class;
  - displaying at least one of the plurality of performance parameters detected from the second stationary bike on the display screen associated with the first stationary bike such that at least one of the performance parameters from the first stationary bike at the particular point in the selected cycling class and at least one of the performance parameters from the second stationary bike at the same point in the selected cycling class are presented for comparison on the display screen associated with the first stationary bike.

# PatentCAD

- (1) Uses NLP to help draft a patent application
- (2) Automate repetitive tasks
- (3) Improve quality by providing more predictable work product

# PatentCAD: an assembly line for patent drafting

**Station 1:**  
Prepare  
method  
Claims



**Station 2:** select  
boilerplate and other  
common content

**Station 3:** prepare a  
flowchart

**Station 4:** Create  
new claims from  
method claims

**Station 5:** Create  
summary and  
final options



**Result:**  
(1) Specification  
(2) Drawings

# Station 1: Input Method Claims and Data

Polsinelli IPA

1 Data      2 Figures      3 Final Claims      4 Preview

### Application Data

[View PatentCAD Documentation](#)

Polsinelli Docket #: 099999-045219

Client Docket #: PX1000

Title: Method and Apparatus for Creating a Specification with NLP

Base Document: Polsinelli Default

Username: sgboo

Claims: Marketing Claims (Simple).docx

Document Info:

- Independent Claims: 1 (Claim 1)
- Independent Method Claims: 1 (Claim 1)
- Total # of Claims: 5

[View Claim Summary](#)

→

Insert static information and claims

The “base document” is various document defaults (font, font size, styles, etc.)

# Station 2: Build an Outline using Templates

The screenshot shows the Polsinelli IPA software interface. At the top, there are five numbered steps: 1 Data, 2 Figures, 3 Claim 1 Flowchart, 4 Final Claims, and 5 Preview. The main area is divided into two panels: 'Description' on the left and 'Templates' on the right. The 'Description' panel shows a list of items for '099999-045219 (PX1000)'. The 'Templates' panel shows a list of templates, including 'Basic Figures', 'Polsinelli Generic (Electrical/Computer)', 'SBooth Templates', 'Autonomous Vehicles', 'Generic Computing System', 'SAustin Templates', 'Polsinelli Generic (Mechanical/Biomedical)', 'Polsinelli Generic (Chemical)', and 'Claim 1 Flowchart (Polsinelli Default)'. Red arrows point from the 'Templates' panel to the 'Description' panel, indicating the selection of templates for the description items.

**Description**

099999-045219 (PX1000)

- FIG. 1: SBooth Generic Computer (Client)
- FIG. 2: Claim 1 Flowchart (Polsinelli Default)
- Additional Flowchart Boilerplate
- FIG. 3: Blank diagram (8.5x11 Portrait)
- FIG. 4: SBooth Generic Mobile Phone OS

**Templates**

Please email [Simon](#) if you would like additional templates added to either your personal repository or a client-specific repository.

Filter:

- Basic Figures
  - Blank diagram (8.5x11 Portrait)
  - Blank diagram (8.5x11 Landscape)
  - Blank diagram (A4 Portrait)
  - Blank diagram (A4 Landscape)
- Polsinelli Generic (Electrical/Computer)
  - SBooth Templates
    - SBooth Generic Computer (Client)
    - SBooth Generic Mobile Phone Hardware Diagram
    - SBooth Generic Mobile Phone OS
    - SBooth Container System Boilerplate
  - Autonomous Vehicles
  - Generic Computing System
- SAustin Templates
  - Additional Flowchart Boilerplate
- Polsinelli Generic (Mechanical/Biomedical)
- Polsinelli Generic (Chemical)
- Claim 1 Flowchart (Polsinelli Default)

Use templates to create an outline of the specification

Templates are drawings & descriptions

All template content is dynamically updated

# Station 3: Flowchart



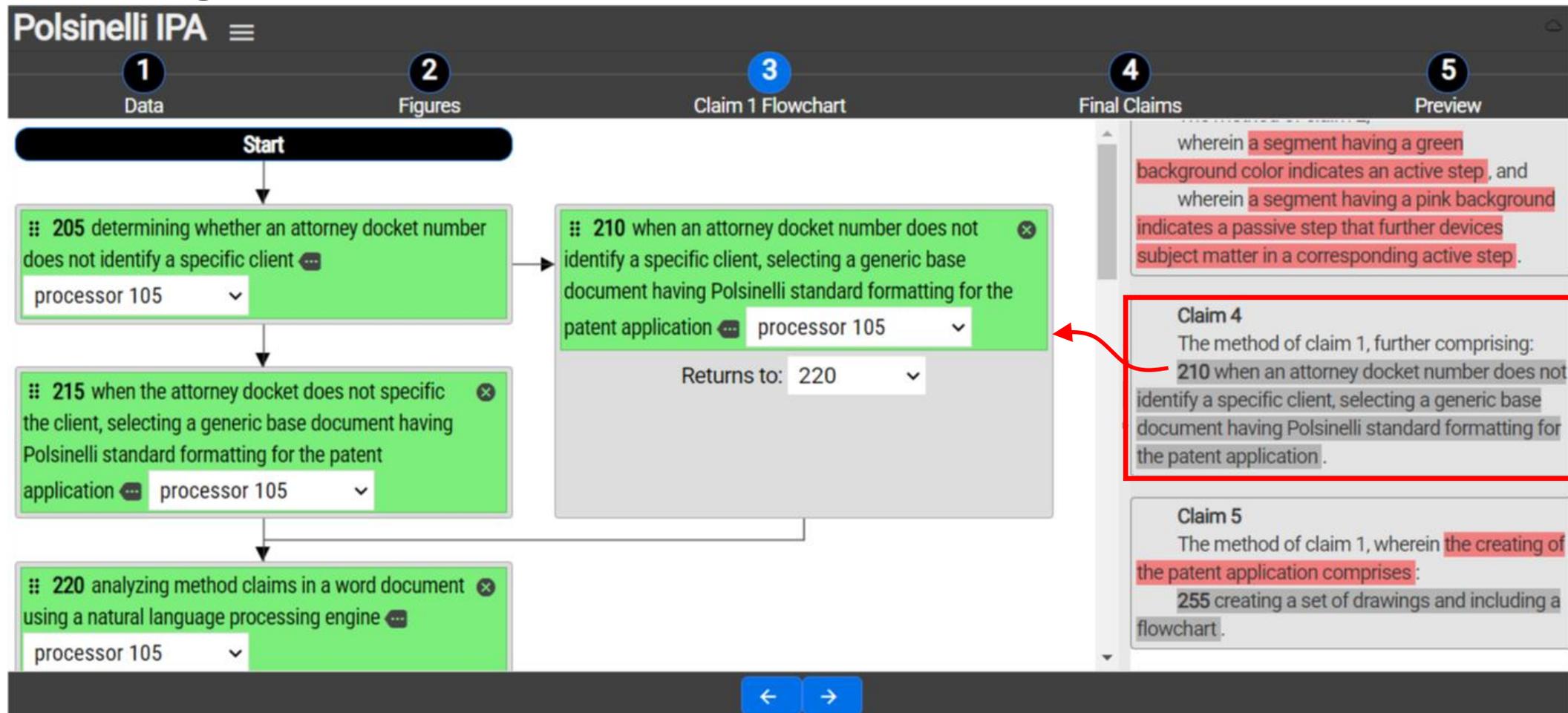
Initial flowchart automatically generated from the claims

Provides graphical feedback to guide the creation of the flowchart

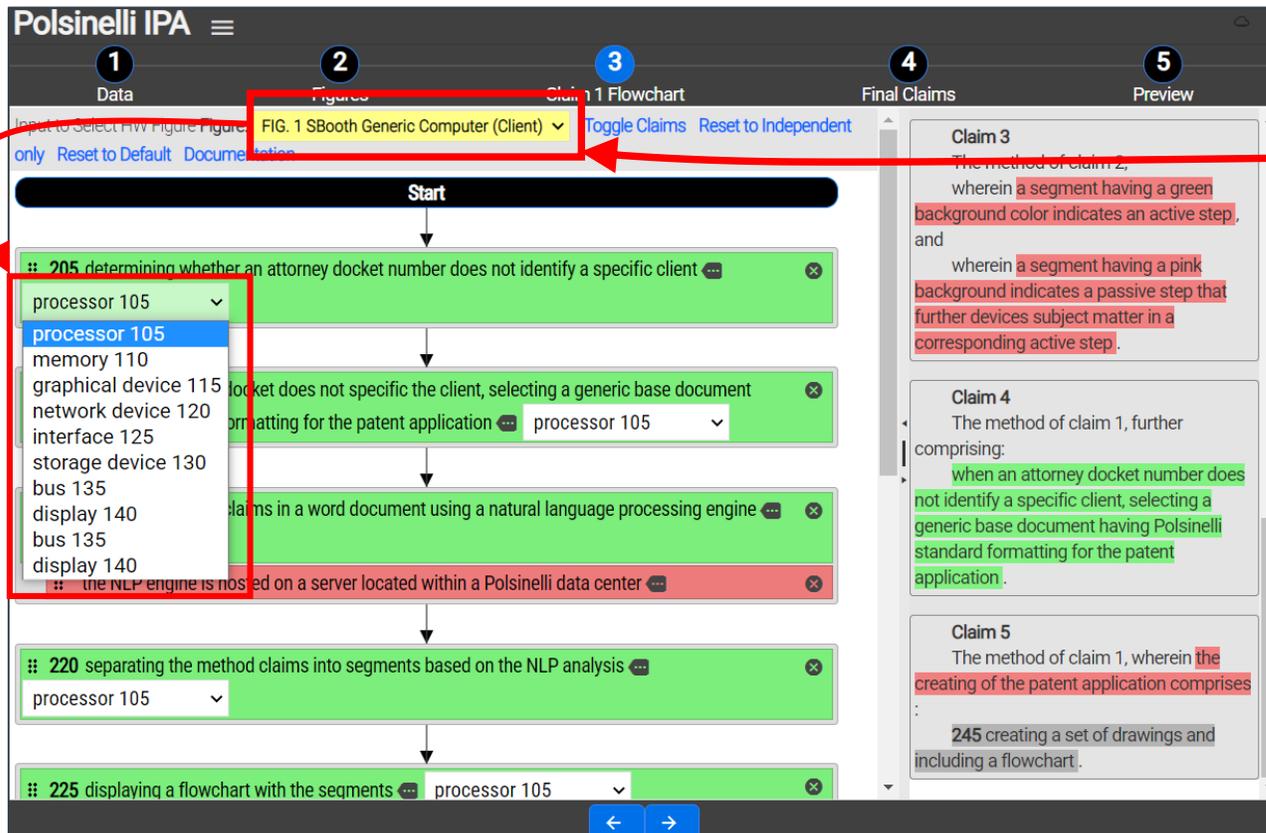
Flowchart controls the generated description

# Flowchart: Conditional Branches

User provides input to correctly sequence the flowchart together



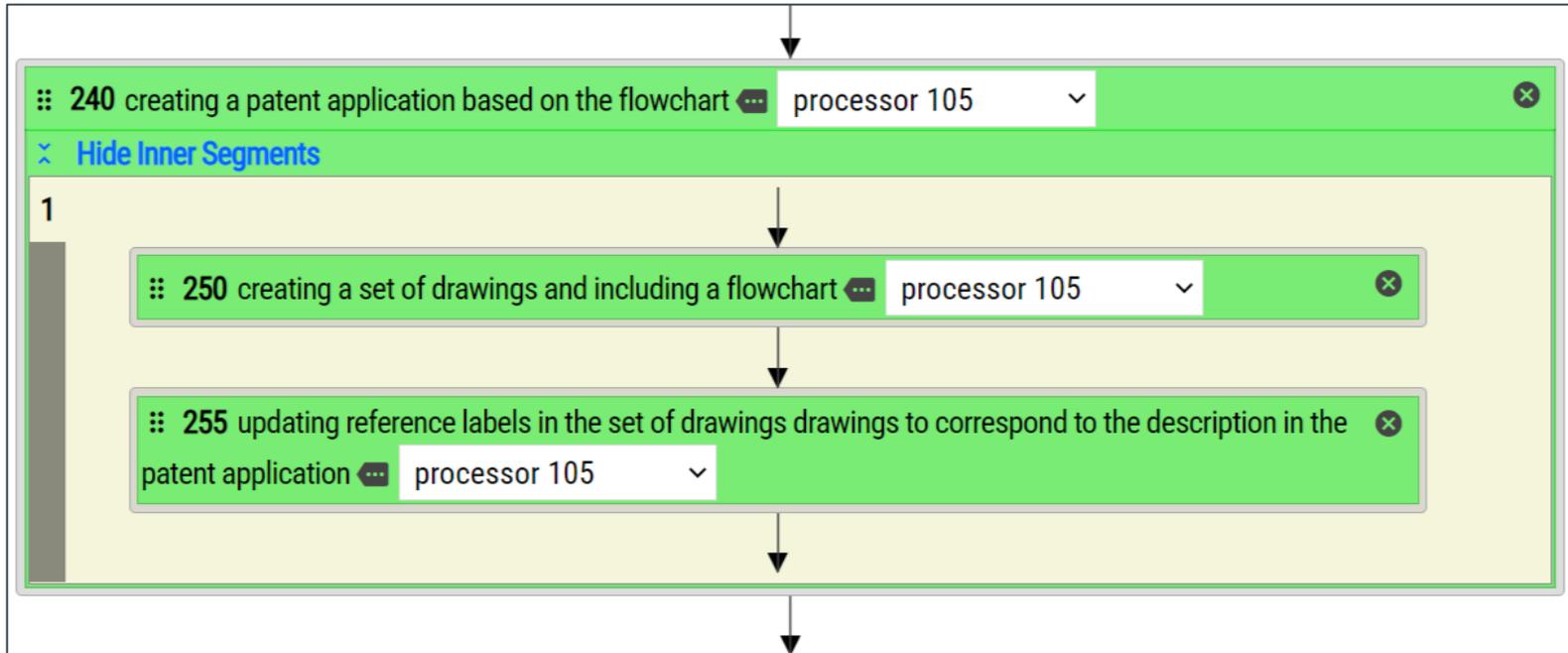
# Flowchart: Tie into hardware



Flowcharts can be linked to associated hardware figures

[0013] According to some examples, the method includes **determining whether an attorney docket number does not identify a specific client** at block 205. For example, the processor 105 illustrated in FIG. 1 may **determine whether an attorney docket number does not identify a specific client**.

# Station 3: Complex Nodes in Flowchart



- Steps can be further defined
- Flowchart can address mutually exclusive embodiments

# Station 4: Adding Claims

Polsinelli IPA

1 Data 2 Figures 3 Claim 1 Flowchart 4 Final Claims 5 Preview

Claim 1

Redline Claims Final Claims Claims Bank

**Add Claims**

Based on Claims 1-5

Style Polsinelli Computer System

Device Name computer system

Device Function drafting patent applications

Add Cancel

6. A computer system for drafting patent applications, comprising:  
a storage configured to store instructions;  
a processor configured to execute the instructions and cause the processor to:  
determine whether an attorney docket number does not identify a specific client,  
when the attorney docket does not specific the client, select a generic base document having  
Polsinelli standard format for the patent application,  
analyze method claims in a word document using a natural language processing engine, wherein  
the NLP engine is hosted on a server located within a Polsinelli data center,  
separate the method claims into segments based on the NLP analysis,  
display a flowchart with the segments,  
display a claim panel that illustrates the method claim and each segment provides visual feedback,  
rearrange the segments within the flowchart use an intuitive user input, and  
create a patent application based on the flowchart, wherein the patent application includes a  
description of the flowchart that corresponds to the rearranged segments.

7. The computer system of claim 6, wherein segments coded with background colors in the claim panel

Two steps:

- (1) Add claims for disclosure (Summary and ClaimsBank)
- (2) Remove claims to reduce total # of claims

Add claims that are composed from the method claims

- Apparatus, System, CRM claims

# Station 4: Removing Claims

The screenshot shows the Polsinelli IPA software interface. At the top, there are five numbered tabs: 1 Data, 2 Figures, 3 Claim 1 Flowchart, 4 Final Claims, and 5 Preview. The 'Final Claims' tab is active. On the left side, there is a tree view of claims with checkboxes. Claims 11-15 are highlighted in blue, and a button labeled 'Remove Claims 11-15' is visible. Below it is an 'Add Claims' button. The main area displays the text of several claims, including:

- 1. A method for generating a specification, the method comprising: determining whether an attorney docket number does not identify a specific client; when the attorney docket does not specific the client, selecting a generic base document having Polsinelli standard formatting for the patent application
- 2. The method of claim 1, wherein segments coded with background colors in the claim panel can be dragged into the flowchart to change the order of the flowchart.
- 3. The method of claim 2, wherein a segment having a green background color indicates an active step, and wherein a segment having a pink background indicates a passive step that further devices subject matter in a corresponding active step.
- 4. The method of claim 1, further comprising: when an attorney docket number does not identify a specific client, selecting a generic base document having Polsinelli standard formatting for the patent application.
- 5-2. The method of claim 1, wherein the creating of the patent application comprises: creating a set of drawings and including a flowchart.
- 6-3. A computer system for drafting patent applications, comprising: a storage configured to store instructions; a processor configured to execute the instructions and cause the processor to: determine whether an attorney docket number does not identify a specific client, when the attorney docket does not specific the client, select a generic base document having Polsinelli standard format for the patent application, analyze method claims in a word document using a natural language processing engine, wherein the NLP engine is hosted on a server located within a Polsinelli data center, generate the method claims into segments based on the NLP analysis.

Claim UI allows dynamic removal of claims

Encourages drafting additional claims to ensure support in the claims

# Station 4: Claims Bank

## ClaimsBanks

- multiple dependency section for literal support
- Based on all claims

The screenshot displays the Polsinelli IPA software interface. At the top, there are five numbered tabs: 1 Data, 2 Figures, 3 Claim 1 Flowchart, 4 Final Claims, and 5 Preview. The 'Final Claims' tab is currently selected. Below the tabs, there are three sub-tabs: 'Redline Claims', 'Final Claims', and 'Claims Bank', with 'Claims Bank' being the active view. On the left side, a tree view shows a hierarchy of claims: Claim 1 (checked), Claim-2 (unchecked), Claim-3 (checked), Claim-4 (unchecked), Claim-5\_2 (checked), Claim-6\_3 (checked), Claim-7\_4 (checked), Claim-8\_5 (checked), Claim-9\_6 (checked), Claim-10\_7 (checked), Claim-11\_8 (checked), Claim-12\_9 (checked), Claim-13\_10 (checked), Claim-14\_11 (checked), and Claim-15\_12 (checked). Below this tree are two buttons: 'Remove Claims 11-15' and 'Add Claims'. The main content area on the right shows a text document with a highlighted yellow section: 'Illustrative examples of the disclosure include: Please change the range of the aspects to ensure that the ranges do not cause mutually exclusive embodiments to overlap.' Below this, there are six numbered aspects (Aspect 1 to Aspect 6) describing various methods and systems related to patent drafting and NLP analysis. At the bottom of the interface, there are two navigation arrows: a left arrow and a right arrow.

# Summary/Final Options

The screenshot shows the Polsinelli IPA software interface. At the top, there are five numbered tabs: 1 Data, 2 Figures, 3 Claim 1 Flowchart, 4 Final Claims, and 5 Preview. The main content area is divided into two panes. The left pane, titled 'Method and Apparatus for Creating a Specification with NLP', contains a 'Background' section and a 'Summary' section. The 'Summary' section contains a paragraph of text starting with '[0002] Disclosed are systems, apparatuses, methods, computer readable medium, and circuits for drafting a specification. According to at least one example, a method includes: determining whether an attorney docket number does not identify a specific client; when the attorney docket does not specific the client, selecting a generic base document having Polsinelli standard formatting for the patent application; analyzing method claims in a word document using a natural language processing engine, wherein the NLP engine is hosted on a server located within a Polsinelli data center; separating the method claims into segments based on the NLP analysis; displaying a flowchart with the segments; displaying a claim panel that illustrates the method claim and each segment provides visual feedback; rearranging the segments within the flowchart using an intuitive user input; creating a patent application based on the flowchart, wherein the patent application includes a description of the flowchart that corresponds to the rearranged segments.. For example, the computer system determines whether an attorney docket number does not identify a specific client; when the attorney docket does not specific the client, selects a generic base document having Polsinelli standard formats for the patent application; analyzes method claims in a word document using a natural language processing engine, wherein the NLP engine is hosted on a server located within a Polsinelli data center; separates the method claims into segments based on the NLP analysis; displays a flowchart with'. The right pane, titled 'Final Claims', contains a 'Summaries' section with an 'Add a Summary' button and a list of summaries, including '1. Uploaded Claims 1-5 as a Polsinelli Computer System'. Below this is a 'Flowchart Options' section with a table of options:

| Descriptive Label    | Example                             |
|----------------------|-------------------------------------|
| Transition Type      | Generic (in some examples)          |
| Flowchart Node Label | Operation                           |
| Method Label         | Method (e.g., the method comprises) |

At the bottom of the interface, there is a 'Generate Specification' button.

Create summaries based on method claims

Options to control various formalities

# Resulting Specification

EX1000 (099999-045219)

the memory and configured to execute instructions and, in conjunction with various components (e.g., a network interface, a display, an output device, etc.), cause the computer system to: determine whether an attorney docket number does not identify a specific client; when the attorney docket does not specific the client, select a generic base document having Polsinelli standard format for the patent application; analyze method claims in a word document using a natural language processing engine, wherein the NLP engine is hosted on a server located within a Polsinelli data center; separate the method claims into segments based on the NLP analysis; display a flowchart with the segments; display a claim panel that illustrates the method claim and each segment provides visual feedback; rearrange the segments within the flowchart use an intuitive user input; create a patent application based on the flowchart, wherein the patent application includes a description of the flowchart that corresponds to the rearranged segments.

## BRIEF DESCRIPTION OF THE DRAWINGS

- [0004] FIG. 1 illustrates an example computer system for executing a client application.  
[0005] FIG. 2 is a flowchart of a method for **summary** according to an example of the instant disclosure.  
[0006] FIG. 3 illustrates **summary**.  
[0007] FIG. 4 is a block diagram of a programming module according to various embodiments of the present disclosure.

## DETAILED DESCRIPTION

- [0008] FIG. 1 illustrates an example computer system 100 for implementing a part of the instant disclosure. For example, the example computer system 100 may execute a client application for performing the instant disclosure.  
[0009] The example computer system 100 includes a processor 105, a memory 110, a graphical device 115, a network device 120, interface 125, and a storage device 130 that are connected to operate via a bus 135. The processor 105 reads causes machine instructions (e.g., reduced instruction set (RISC), complex instruction set (CISC), etc.) that are loaded into the memory 110 via a bootstrapping process and executes an operating system (OS) for executing application within frameworks provided by the OS. For example, the processor

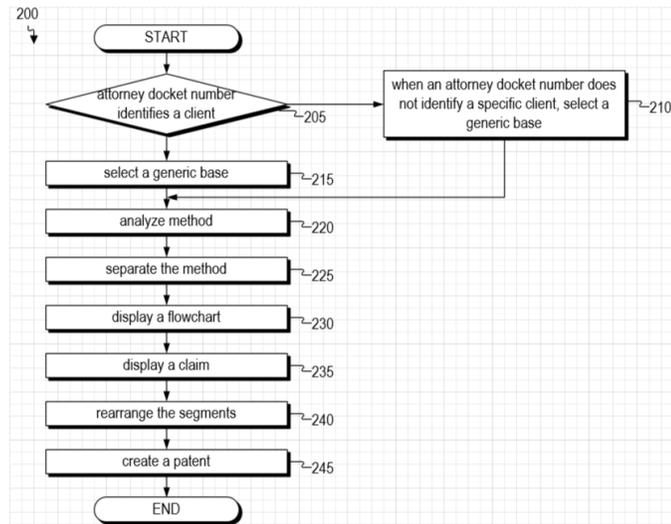


FIG. 2

Populate initial draft application with as much content as possible

All content is current and comports with latest requirements

# Remaining tasks for a complete application

## Background

- Boilerplate
- Specific

## Summary

- Boilerplate
- Claims in sentence form

## Drawing Descriptions

- Boilerplate
- Common drawings
- Specific drawings

## Drawing Descriptions

- Boilerplate
- Common descriptions
- Specific descriptions

## Claims

- Method Claims
- Apparatus Claims
- CRM Claims
- System claims

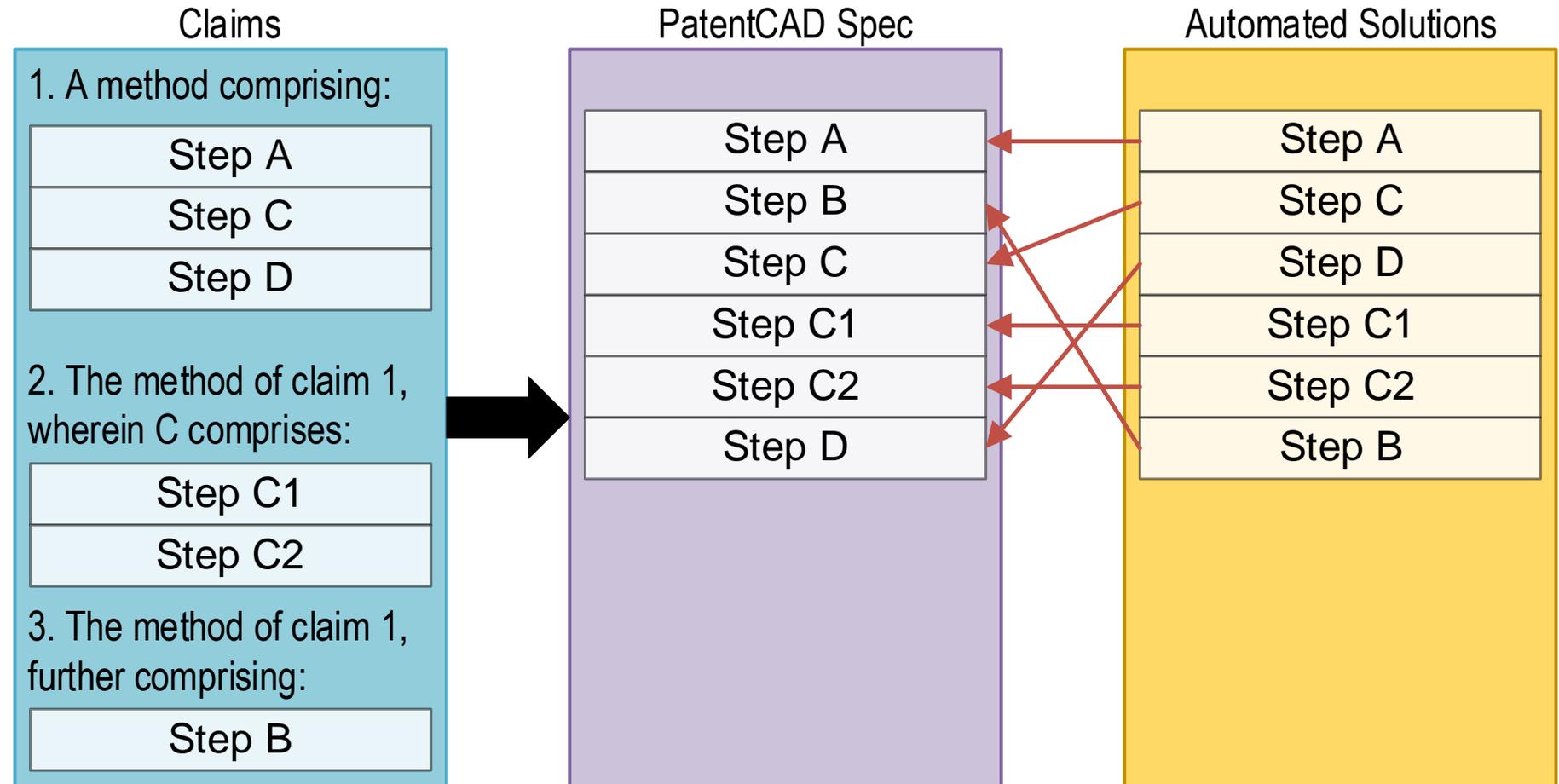
- Reduce repetitive tasks that do not enhance value
- Provide more consistency
- Add more disclosure by overdrafting claims
- Ensure EU support for all drafted claims

# PatentCAD Specifications vs Automated Solutions

Existing automated solutions generate specifications based on claim order.

PatentCAD creates based on user input

PatentCAD can address complex claims not possible with automated solutions



# Polsinelli PatentCAD advantages

Better quality by automating tasks and formalities

Handles complex method claims

Single source of truth ensures all content is current

Client data is secured within Polsinelli Data Centers

# Additional Tools

## Claim analysis & antecedent basis detection

- Most flexible and accurate antecedent basis analysis because user interface allows customization

## Document generation (templates for various responses)

- Simplify creation of various patent prosecution documents

## Utilities to automate other tasks

- Conversion of amendment format (including reissue)
- Word-by-word based comparison

## Prototyping modules for electrical, mechanical for PatentCAD