Claims

What is claimed is:

1. A computer-implemented method for automated generation and filing of a patent Office Action response, the method comprising: (a) securely receiving, by a communication module (101), an electronic notification of an Office Action from a patent office and downloading one or more Office Action documents; (b) parsing, by a parser module (102), the Office Action documents to extract structured data including identified rejections and cited references; (c) automatically computing, by a deadline calculator (109), at least one statutory deadline for responding to the Office Action and any extension periods available; (d) generating, by a trained language model engine (103), a draft Office Action response document that addresses each identified rejection using the structured data from the parser; (e) validating, by a compliance module (104), the draft Office Action response document for conformity with patent office rules and formats, and flagging any discrepancies or missing elements; (f) assembling, by a document assembly module (110), one or more ancillary documents required for the response based on the Office Action type and the content of the draft response, the ancillary documents including at least one of: an information disclosure statement (IDS) listing prior art references, an amendment to claims, a request for continued examination (RCE), or a petition or extension of time form; (g) presenting, via a graphical user interface (106), the draft Office Action response document and any assembled ancillary documents to a practitioner for review and editing, wherein the graphical user interface displays the Office Action content alongside the draft response for comparison; (h) receiving, through the graphical user interface (106), an approval input from the practitioner indicating that the Office Action response document and any ancillary documents are approved for filing, after any practitioner revisions; and (i) upon receiving the approval input, electronically submitting, by a submission adapter module (105), the approved response document and ancillary documents to the patent office by automatically logging into a patent office filing system and uploading the documents, wherein the submission adapter (105) retrieves stored authentication credentials for the practitioner from a secure credential vault (107) to perform the submitting.

2. The method of claim 1, wherein step (a) comprises retrieving an email from an official patent office electronic mail notification system and decrypting an attached Office Action PDF or XML file, and wherein step (b) includes using natural language processing to classify each rejection by its statutory basis and to identify affected claim numbers.

3. The method of claim 1, wherein step (d) further comprises generating suggested claim amendments in the draft response document when the parser module (102) indicates that at least one claim has a rejection requiring amendment, the suggested claim amendments being marked with underlining and strikethrough according to patent office amendment rules.

4. The method of claim 1, wherein step (e) comprises: checking the draft Office Action response document for compliance with 37 C.F.R. §1.121 amendment format requirements, 37 C.F.R. §11.18(b) certification requirements, and presence of required sections for each type of rejection; and automatically inserting any missing required statement or correcting any format deviation in response to the checking.

5. The method of claim 1, wherein step (f) comprises dynamically determining that an information disclosure statement (IDS) is required because the Office Action cites at least one prior art reference not previously disclosed by the applicant, and in response, generating the IDS as a PDF form populated with bibliographic data of the cited reference and a certification statement, and adding the IDS to the documents for submission.

6. The method of any one of claims 1–5, further comprising logging, in an audit log (108), each of steps (a) through (i) with timestamps and data describing actions taken by the system and the practitioner, thereby creating an electronic audit trail of the Office Action response preparation and filing process.

7. An automated system for preparing and filing a response to a patent Office Action, the system comprising: a secure communication module (101) configured to electronically receive Office Action notifications and retrieve associated Office Action documents from a patent office; a parser module (102) configured to analyze the Office Action documents to identify rejections, objections, and cited prior art, and to output parsed data representing contents of the Office Action; a response generation module comprising a processor executing a trained language model (103) configured to generate a draft response to the Office Action, including recommended arguments and claim amendments, based on the parsed data from the parser module; a validation module (104) configured to automatically check the draft response for compliance with official requirements and to detect any omitted responses or format errors; a user interface module (106) providing an interactive interface for a practitioner to review and edit the draft response and to approve the response for filing; and a submission adapter module (105) configured to automatically submit the approved response via an online patent office filing system by programmatically emulating user submission actions; wherein the system is configured such that the submission adapter module (105) will not submit the response until a practitioner approval input is received through the user interface module (106), thereby ensuring practitioner oversight, and wherein the system updates response requirements in real-time such that, if the practitioner or the system adds an ancillary document to the response package, the system recalculates any affected deadlines or fees before submission.

8. The system of claim 7, wherein the secure communication module (101) comprises an email integration sub-module configured to connect to an email server and automatically download Office Action notification emails and attachments, and wherein the secure communication module uses encryption (SSL/TLS) to protect Office Action data in

transit.

9. The system of claim 7, wherein the secure communication module (101) comprises an API integration sub-module configured to interface with a patent office electronic system to receive Office Action data via a web service or API endpoint, using authorized credentials.

10. The system of claim 8 or 9, wherein the secure communication module is further configured to verify the integrity and authenticity of Office Action documents using at least one of: cryptographic signature validation or checksum comparison, such that only authentic communications are processed by the system.

11. The system of claim 7, further comprising a secure credential vault (107) storing encrypted patent office login credentials for one or more practitioners, wherein the submission adapter module (105) accesses the credential vault to retrieve credentials and includes a multi-factor authentication process to authorize any use of the credentials for filing.

12. The system of claim 7, further comprising an audit logging module (108) configured to record events and data throughout operation of the system, including capturing the content of the draft response generated by the language model (103), any edits made by the practitioner via the user interface (106), and details of the submission transaction, thereby producing an audit trail for compliance verification.

13. A non-transitory computer-readable medium storing instructions that, when executed by one or more processors, cause the one or more processors to perform operations comprising the method of claim 1, including receiving an Office Action, parsing the Office Action, generating a draft response with an artificial intelligence engine, validating compliance, assembling required forms, obtaining practitioner approval via an interface, and electronically filing the approved response with a patent office.

14. The non-transitory computer-readable medium of claim 13, wherein the instructions for generating the draft response include instructions for invoking a neural network-based language model trained on patent prosecution documents to draft text addressing each Office Action rejection, and the instructions for validating compliance include instructions for applying a set of patent office rules and producing alerts for any violations or omissions in the draft response.

15. The non-transitory computer-readable medium of claim 13, wherein the instructions further cause the processors to perform operations comprising updating docketing data to reflect a filing of the response and sending a confirmation notification to the practitioner including a filing confirmation number and an updated deadline for a next action in the application.