

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Goodnotes Limited,

Petitioner,

v.

MyScript SAS,

Patent Owner.

IPR2026-00388

PETITION FOR *INTER PARTES* REVIEW

UNDER 35 U.S.C. §§ 311, 312 AND UNDER 37 C.F.R. § 42.104

OF U.S. PATENT NO. 10,410,316

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Patent Trial and Appeal Board
U.S. Patent and Trademark Office
PO Box 1450
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Petition for Inter Partes Review of U.S. Patent No. 10,410,316

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LIST OF EXHIBITS

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1001	U.S. Patent No. 10,410,316 (“’316 patent”)
1002	Declaration of Monty G. Myers, P.E. (“Myers Decl.”)
1003	Biography of Monty G. Myers
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I. INTRODUCTION

Pursuant to 35 U.S.C. §§ 311, 312, and 37 C.F.R. § 42.100, Goodnotes Limited (“Petitioner”) requests *Inter Partes* Review (“IPR”) of claims 1-9 (the “Challenged Claims”) of U.S. Patent No. 10,410,316 (the “’316 patent”), assigned to MyScript SAS. The Challenged Claims are anticipated and obvious over the prior art. Accordingly, the Patent Trial and Appeal Board should institute review of the Challenged Claims.

The ’316 patent was issued from U.S. Patent Application No. 14/978,081, filed December 22, 2015, claiming priority to European Application No. 15290303, filed on December 8, 2015. The ’316 patent issued on September 10, 2019.

REQUIREMENTS FOR IPR UNDER 37 C.F.R. § 42.104

A. Standing (37 C.F.R. § 42.104(a))

Petitioner certifies that the ’316 patent is available for IPR and that Petitioner is not barred or estopped from requesting IPR of the Challenged Claims.

B. Identification of Challenge (37 C.F.R. § 42.104(b))

In view of the prior art and evidence presented, the Challenged Claims are unpatentable and should be cancelled. 37 C.F.R. § 42.104(b)(1).

Based on the prior art U.S. Patent No. 9,478,055 issued to Jaewoo Kang, *et al.* (“Kang”) (Ex. 1006). Kang was filed on April 3, 2014 and published on Oct. 9, 2014 as US2014/0300609A1, and issued on Oct. 25, 2016; it is prior art to the ’316

patent under at least 35 U.S.C. § 102(a)(2). All elements of claims 1-9 of the '316 patent are anticipated by Kang.

Based on the prior art U.S. Patent No. 8,115,748 issued to Gregory J. Clary ("Clary") (Ex. 1007). Clary was filed on June 18, 2010, and issued on February 14, 2012; it is prior art to the '316 patent under at least 35 U.S.C. § 102(a)(2). All elements of claims 1-9 of the '316 patent are anticipated by Clary.

IPR of the Challenged Claims should also be instituted under 37 C.F.R. § 42.104(b)(2) under US2010/0066691A1 by Ai Long Li ("Li") (Ex. 1008), in view of Clary. Li was filed on May 20, 2009 and published on March 18, 2010 and is prior art to the '316 patent at least under 35 U.S.C. § 102(a)(2). As previously stated, Clary was filed on June 18, 2010, issued on February 14, 2012, and is prior art to the '316 patent at least under 35 U.S.C. § 102(a)(2). All elements of claims 1-9 of the '316 patent are rendered obvious over Li in view of Clary.

Proposed Grounds of Unpatentability	
Ground 1	Claims 1-9 are not novel under AIA § 102 over Kang
Ground 2	Claims 1-9 are obvious under AIA § 103 over Li in view of Clary
Ground 3	Claims 1-9 are not novel under AIA § 102 over Clary

Section VII identifies where each element of the Challenged Claims is found in the prior art. 37 C.F.R. § 42.104(b)(4). The exhibit numbers of the evidence relied on to support the challenges are provided above and the relevance of the evidence to

the challenges raised are provided in Section VII. 37 C.F.R. § 42.104(b)(5). A listing of the claims is attached at the end of this Petition.

C. Claim Construction (37 C.F.R. § 42.104(b)(3))

Claims are interpreted with their ordinary and customary meanings as understood from the perspective of a person of ordinary skill in the art (“POSITA”). *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005).

Petitioners propose the following claim constructions for certain claim terms. For the purpose of this petition, no other terms in the Challenged Claims require construction.

Petitioner proposes the following claim constructions for certain claim terms according to the Patent Rule 4-3 Joint Claim Construction Statement (Ex. 1012) in the companion district court case, *MyScript SAS v. Goodnotes Limited*, No. 2:25-cv-00532-JRG-RSP (E.D. Tex.). For the purpose of this petition, no other terms in the Challenged Claims require construction. *Wellman, Inc. v. Eastman Chem. Co.*, 642 F.3d 1355, 1361 (Fed. Cir. 2011) (“claim terms need only be construed to the extent necessary to resolve the controversy”) (internal quotations omitted).

1. Claim Term: “recognizing handwriting input” (claims 1, 4, 7)

Patent Owner proposed that this claim term should be construed by the Court to mean “recognition of the creation of digital content by users through use of their hands either directly onto a digital or digitally connected medium or via an input

tool.” Ex. 1012 at 6. Petitioner proposed that this claim term should be construed by the Court to mean, “detecting handwriting input to derive segmented units for subsequent display and editing operations.” *Id.* The invalidation arguments presented in this Petition remain unchanged regardless of which construction is applied, as the prior art satisfies both the broader creation-recognition standard and the narrower derivation of segmented units standard. Ex. 1002, ¶ 42.

2. Claim Term: “region of overlap of ranges of elements of the digital ink” (claims 1, 4, 7)

Patent Owner proposed that this claim term should be construed by the Court to mean “an area where the determined ranges of elements overlap.” Ex. 1012 at 7. Petitioner proposed that this claim term should be construed by the Court to mean “an area where adjacent segmented elements overlap.” *Id.* Both constructions are functionally consistent with the prior arts’ disclosures of geometric boundary resolution when spatial areas of adjacent handwritten units physically occupy the same coordinate space. Furthermore, the ’316 Patent specification confirms that positioning a cursor on the boundary or edge of one character’s range—when that boundary falls inside the overlapping space—constitutes displaying the cursor within a region of “overlap.” Ex. 1001 at FIG. 18B, 17:42. A POSITA would therefore understand that snapping an edit position to an edge that is geometrically engulfed by an adjacent overlapping range satisfies this limitation under either construction. Ex. 1002, ¶ 43.

Petitioner reserves the right to respond to any constructions offered by Patent Owner or adopted by the Board. Petitioner is not conceding that the Challenged Claims satisfy all statutory requirements, nor is Petitioner waiving any arguments concerning indefiniteness or claim scope that can only be raised in district court or otherwise outside the context of an IPR. The Board has regularly compared indefinite claims to the prior art for purposes of considering unpatentability. *See, e.g., Chicago Mercantile Exchange Inc. v. 5th Market, Inc.*, CBM2013-00027, Paper 33, 3 (PTAB 2014); *SAP America, Inc. v. Lakshmi Arunachalam*, CBM2013-00013, Paper 61, 29 (PTAB 2014). For this Petition, Petitioner applies prior art in a manner consistent with disclosure of the claimed features in the '316 patent itself and Patent Owner's allegations of infringement before the district court. Petitioner does not waive and expressly reserves its claim scope arguments, constructions, and evidence that it may raise in other proceedings.

II. PAYMENT OF FEES

The undersigned authorizes the Office to charge the fees specified by 37 C.F.R. § 42.15(a) to Account No. 607407. The undersigned further authorizes payment for any additional fees that might be due in connection with this Petition to be charged to the same.

III. OVERVIEW OF CHALLENGES AND RELIEF REQUESTED

Pursuant to 37 C.F.R. §§ 42.22(a)(1) and 42.104(b)(1)-(2), Petitioner requests cancellation of the Challenged Claims for the '316 pursuant to the grounds below. This Petition's showing that the cited art renders the Challenged Claims unpatentable is fully supported by the Declaration of Monty G. Myers (Ex. 1002), the founder and CEO of Eureka Software Solutions Inc. Ex. 1002, ¶¶ 5-10; Ex. 1003. Mr. Meyers is familiar with the state of the art before the '316 Patent was filed, and fully agrees with and supports the showing herein that the claims at issue are anticipated by, and obvious over, the cited art. *Id.* at ¶¶ 11-174. Petitioner asks that the Board institute IPR and cancel the Challenged Claims in view of the analysis below.

IV. SUMMARY OF THE '316 PATENT

A. Technical Background

The '316 patent relates to systems and methods for improving the rendering and editing of handwritten input—commonly referred to as “digital ink”—on computing devices. Digital ink allows users to input handwritten strokes onto a touchscreen or similar interface using a finger, stylus, or similar tool. While this method of input offers flexibility and preserves the natural style of handwriting, it often results in irregular and misaligned characters that are difficult to interpret, organize, or edit.

Existing systems attempt to address these issues by converting handwriting into typeset text or by applying normalization techniques to scale or align ink strokes. However, such systems typically fail to preserve the handwritten feel or offer limited editing capabilities. *See* Ex. 1001 at 2:10-24. The '316 patent addresses these shortcomings by introducing a system that applies structuring transformations based on recognized handwriting geometry and alignment structures and further enables intuitive editing by managing cursor placement with respect to character segmentation. *See* Ex. 1001 at 4:5-59; Ex. 1002, ¶¶ 45-48.

B. Brief Overview

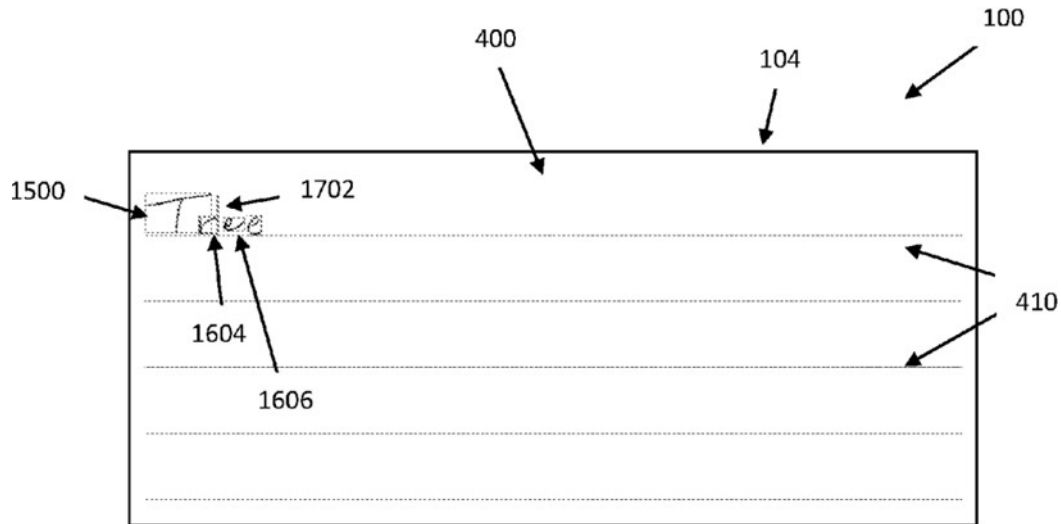
Priority Date

The '316 patent was issued from U.S. Patent Application No. 14/978,081, filed December 22, 2015, claiming priority to European Application No. 15290303, filed on December 8, 2015. It was issued on Sep. 10, 2019. Ex. 1001.

Patented Technology

The '316 patent discloses a system, method, and non-transitory computer-readable medium for beautifying and editing digital ink. The invention is about a method of editing digital ink on a computing device, where handwritten input is displayed as digital ink and segmentation information from handwriting recognition is used to determine the ranges of individual ink elements. Ex. 1002, ¶ 49. Once the ranges are determined, an editing cursor can be displayed on the screen in relation

to the segmented ink elements and, specifically, the cursor can be positioned within regions where the ranges of digital ink elements overlap. Ex. 1001 at FIG. 17B; Ex. 1002, ¶ 50.



Independent claim 1 recites a system for displaying handwritten digital ink on a computing device, determining segmentation ranges based on handwriting recognition, and displaying an input cursor within regions of overlap between the segmentation ranges of ink elements. *See* Ex. 1001 at 18:53-19:4.

Independent claim 4 sets forth a corresponding method that includes displaying digital ink, identifying segmentation ranges through recognition, and rendering an editing cursor aligned to the geometry of overlapping characters. *See* Ex. 1001 at 19:12-28.

Independent claim 7 covers the same method in the form of a computer-readable medium configured to execute the steps described. Ex. 1001 at 20:4-24.

A key feature of the invention lies in its ability to determine cursor position based on segmentation and overlapping range geometry. In essence, this invention's claims hinge on a very narrow element of displaying a cursor in an overlap region of digital ink elements produced by range determination / segmentation techniques for digital ink elements. Ex. 1002, ¶ 52.

Prosecution History

The '316 patent was issued from U.S. Patent Application No. 14/978,081, filed December 22, 2015, claiming priority to European Application No. 15290303, filed on December 8, 2015. During prosecution the Examiner issued multiple Office Actions — beginning with a non-final Office Action on October 5, 2017, followed by a final Office Action on April 18, 2018, and further actions in 2019 — and the application proceeded through amendments and a Request for Continued Examination.

Initially, the examiner rejected the claims under 35 U.S.C. § 102(a)(2) as anticipated by Lee (U.S. Patent Application Publication US 2016/0147723A1). In parallel, the Examiner asserted obviousness over Lee in view of Clary (U.S. Patent No. 8,115,748), for features concerning cursor placement and editing. Ex. 1004 at 108-117.

In response, Applicant amended the claim language to add the feature “cause said display of the input cursor within a region of overlap of ranges of elements of

the digital ink determined in the step of determining ranges of elements of the digital ink” into the independent claims.

However, the Examiner, Petitioner believes incorrectly, agreed that the Applicant’s arguments on the cursor-placement/editing limitations (as argued against the combination with Clary) were persuasive and withdrew the prior art rejection as to those aspects related to displaying a cursor within an overlapping region of segmentation ranges; those claim features were thus indicated as allowable at that stage. We will explain why we think the Examiner’s acquiescence, which ultimately led to the issuance of the Challenged Claims, was incorrect in the following Section.

The Applicant filed a Request for Continued Examination, and the Examiner responded by issuing a non-final rejection. *Id.* at 37-44. The Applicant responded by cancelling other claims to pursue allowance of claims related to the aspects of displaying a cursor within an overlapping region of segmentation ranges. *Id.* at 33. The Examiner then issued a Notice of Allowance dated May 1, 2019. *Id.* at 12.

C. Level of Ordinary Skill in the Art

A POSITA relating to the subject matter of the ’316 patent as of the Critical Date would have had at least a bachelor’s degree in computer science or engineering, or similar technical field, or equivalent work experience, and two or more years working on or with interactive computer graphical user interfaces utilizing freeform

input devices to make human-driven inputs using software programs such as digital drawing programs, computer aided drafting (CAD) programs, handwriting recognition programs, or other software programs that capture and process such freeform human-driven inputs. Ex. 1002, ¶¶ 37-39.

V. PRIOR ART OVERVIEW

Kang describes a system for editing digital ink data input by a user on a user device. The user device comprises storage unit and processing circuitries (units such as 110, 120, 140, 160). The method of editing the digital ink begins with a user inputting digital ink characters into the screen of the user device. The device starts with generating two-dimensional co-ordinates/rearrangement strokes (inferred as ranges) for each of the strokes input by the user. Further, stroke blocks are created for mutually overlapping rearrangement strokes if the overlap is above a predetermined threshold. If the overlap between two adjacent strokes is not up to a certain threshold (*i.e.*, overlap is < a threshold overlap value), the rearrangement strokes are treated independently while placing cursor. Here, the cursor placement is described with the help of Figure 10, where the separation of the front or end region is determined based on 50% of the width length of the specific stroke or rearrangement stroke. Ex. 1002, ¶¶ 68-69.

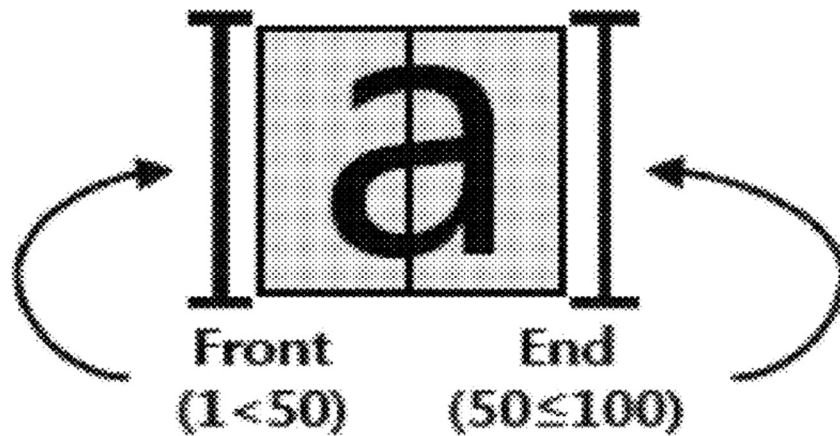


FIG. 10

With respect to the cursor placement upon a user selection, it can be observed that rearrangement strokes are projected to stroke segments along a virtual x-axis and may either (i) be merged into stroke blocks when the overlapped length of segments exceeds a predetermined first reference value (Ex. 1006 at ¶¶0095 - 0096, ¶ 0134) or (ii) remain as independent digital ink data when the overlap is less than the reference threshold. Ex. 1006 at ¶ 0134. The cursor position determination unit 160 (Ex. 1006 at 21-22, ¶¶ 0110 - 0116) operates not only at the level of stroke blocks but also with respect to individual rearrangement strokes when they are separately processed as digital ink data.

In such cases, the analysis unit 164 establishes a virtual axis at the location of a user touch and identifies all digital ink data (*i.e.*, rearrangement strokes) that cross the axis. Ex. 1006 at ¶ 0115. When multiple strokes cross the same axis, including

strokes that are only partially overlapped but not merged into a block, the system evaluates their ordering and determines the cursor position relative to them Ex. 1006 at ¶ 0115. As a result, the cursor may be positioned “immediately behind” one rearrangement stroke or “in front of” another, depending on whether the touch occurs in the front or rear region of the stroke Ex. 1006 at ¶ 0116; 11 (FIG. 10).

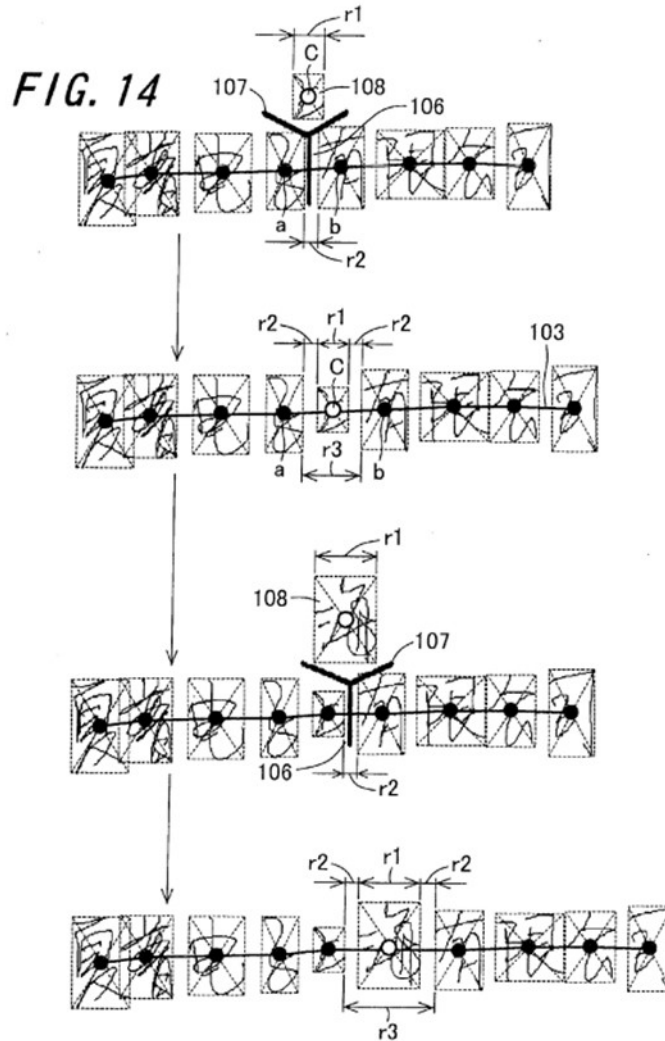
Accordingly, it may be inferred that when rearrangement strokes partially overlap but are not grouped into a stroke block, the cursor determination logic applies to each stroke individually, and the cursor can be placed at a location between such overlapping strokes — effectively within the overlapped region itself. This follows because in the absence of block grouping, each overlapped rearrangement stroke remains independently selectable digital ink data, and the cursor positioning method (virtual axis crossing + stroke-by-stroke evaluation) inherently supports placement in the overlapped region or character. Ex. 1002, ¶ 76.

Li discloses an editing apparatus which can be implemented as software running on a processor using memory. In particular, the editing functionality is described as software modules (*e.g.*, edit management module, handwriting input module) which may be stored as a program on a non-transitory computer-readable medium, loaded into memory, and executed by a microprocessor to perform the editing tasks. Ex. 1008 at ¶¶ 0075, 0081, 0181–0184. The disclosure further explains that program code (in executable, intermediate, or source form) may be distributed

via storage media or downloaded through a communication network, and once read into memory, the processor executes the code to carry out the image processing and editing functions. Ex. 1008 at ¶¶ 0182–0187. The reference further discloses the methods for editing handwritten digital ink data input by a user on a handwriting input device. A user inputs handwritten letters which are recognized and grouped into handwriting object groups. Ex. 1008 at ¶¶ 0086–0089. Each letter is enclosed by a circumscribing rectangle (considered as range), and a handwriting locus is defined by connecting geometric centers of these rectangles. Ex. 1008 at ¶¶ 0089–0091. Further, edit management is performed based on gestures (Ex. 1008 at ¶¶ 0093–0109), where a Y-shaped gesture is used to indicate insertion. Ex. 1008 at ¶ 0109; FIG. 10C.

Importantly, FIG. 14 also illustrates cases where circumscribing rectangles of adjacent handwritten characters overlap at their edges (*e.g.*, the first two letters/characters in the sequence). While the disclosure does not explicitly address cursor or insertion placement in overlapped regions, the gesture-based insertion mechanism inherently evaluates the locus between adjacent rectangles to define the insert position. Accordingly, it may be inferred that if a user provides an insert gesture (*e.g.*, Y-gesture 107) at a location between two partially overlapped characters, the system will still establish the insert position along the overlapped region of their circumscribing rectangles. The cursor or insertion marker (106)

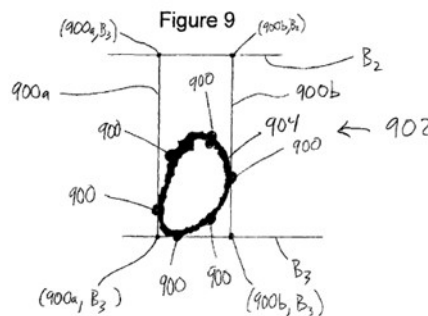
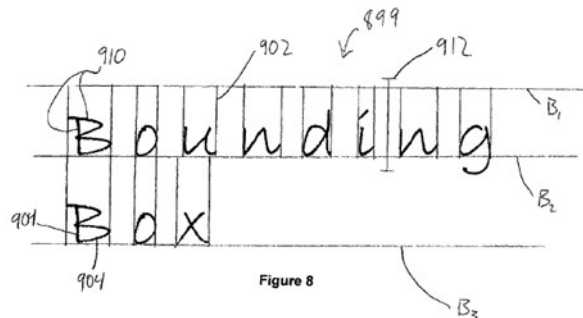
would thus effectively be placed within the overlapping portion of the adjacent objects. Ex. 1002, ¶¶ 87-94.



Clary discloses a pen-enabled computing device that captures handwritten input and defines bounding boxes (902) around strokes (904). The Clary patent discloses method and apparatus for electronically capturing handwritten data using a computing device having a handwriting capture interface. Ex. 1002, ¶¶ 78-79. The method includes detecting a position associated with an actuation of the handwriting

capture interface to define a handwritten input, and defining a bounding box encompassing at least a portion of individual strokes of the handwritten input. In addition, the method includes storing the handwritten input and the bounding box. Ex. 1007 at 1 (Abstract); Ex. 1002, ¶ 80.

As shown in FIGS. 8 and 9, each handwritten character is enclosed by a bounding box defined by left (900a) and right (900b) edges. When a user positions a cursor (912) relative to the handwritten input, the system automatically shifts the cursor to the left or right edge of the bounding box, depending on whether the cursor is detected to the left or right of the bounding box center. Ex. 1002, ¶¶ 81-86.



VI. DISCRETION UNDER § 325(D)

Under 35 U.S.C. § 325(d), the USPTO and the PTAB have the discretion to deny institution of an *inter partes* review if the same or substantially the same prior art or arguments were previously presented to the Office.

Under *Advanced Bionics, LLC v. MED-EL Elektromedizinische Geräte GmbH*, IPR2019-01469, Paper 6 at 8 (PTAB Feb. 13, 2020) (precedential) (“Advanced Bionics”), the inquiry involves two prongs: (1) whether the same or substantially the same art or arguments were previously presented to the Office, and, if so, (2) whether the Office erred in a manner material to patentability. A discretionary denial under § 325(d) is not warranted if Petitioner can make a persuasive showing of material examination error.

Three prior art references are used in this Petition to invalidate the ’316 patent. Two of the references, Li and Kang, are new references which were not presented before the Examiner during patent prosecution. However, Clary, one of the prior art references used in this Petition, was prior art previously presented to the Patent Examiner during prosecution. According to the file history, in an Office Action dated October 5, 2017, the Examiner rejected claims 1 through 30 over two prior art applications, now patents, Lee (US 2016/1047723) and Clary (US 2010/0309131). Ex. 1004 at 108-117. One of the particular elements that the Examiner considered in his Office Action rejection analysis was the ’316 patent’s required limitation of

“cause/causing said display of the input cursor within a region of overlap of ranges of elements of the digital ink” (’316 claims 1, 4, & 7). At the time of the Office Action the Examiner asserted that the prior art disclosed this element. Ex. 1002, ¶ 97.

Applicant responded to this Office Action; on page 12 of the Remarks of this Office Action response, the Applicant asserted and represented the following based on the Clary prior art:

Accordingly, the reference describes an adjustment of a position of a cursor based on its selected position relative to bounding boxes, and adjusting the cursor position (for example, the X-value) accordingly. However, the reference **does not describe or disclose any overlapping bounding boxes**. Further, the reference does not disclose or describe displaying a cursor “within a region of **overlap of ranges of elements** of the digital ink” as claimed. Emphasis added. Accordingly, Applicant respectfully submits that the cited references, taken alone or in combination, are silent regarding at least this feature.

Ex. 1004 at 95.

Based on this response, the Examiner ultimately reversed the claim rejections in this Office Action. *Id.* at 74.

However, the Applicant’s statement that Clary does not describe or disclose any overlapping bounding boxes is plainly not accurate. Ex. 1002, ¶¶ 100-101. Clary does describe overlapping bounding boxes in multiple locations. For example, Clary states that “if the cursor 912 position is located within one or more bounding boxes 902”. In this text, Clary is fundamentally describing the algorithm for handling the

situation of when the initial cursor location is placed on two overlapping bounding boxes. Clary discloses the overlapping bounding box condition and defines what should happen when they do overlap. *Id.*

Applicant's additional assertion that Clary "does not disclose or describe displaying a cursor 'within a region of overlap of ranges of elements of the digital ink'" is likewise inaccurate and a misrepresentation. *Id.* Any overlapping bounding boxes within Clary are—based on how bounding boxes are expressly defined—conditions where elements of the digital ink are overlapping. Again, a significant portion of the '316 patent is devoted to explaining how to adjust and reposition the cursor when this region of overlap condition occurs. *Id.*, ¶ 102.

In summary, particular statements made by the Applicant to the examiner regarding Clary's lack of disclosure and/or description of the display of a cursor with a region of overlap of digital ink were not accurate. *Id.*, ¶ 103. A POSITA reviewing the application at the time would have understood that this element was described and disclosed in Clary. Had the examiner not be misled by the Applicant's remarks and made a proper consideration of Clary and what it disclosed, it is more likely than not that the Examiner would not have withdrawn the rejection. In other words, the Office erred in a manner material with respect to the patentability of challenged claims.

Therefore, Petition believes discretionary denial under § 325(d) is not warranted because Petitioner made a persuasive showing of material examination error. Ex. 1002, ¶¶ 95-103.

Furthermore, denying discretionary denial in this case is aligned with the Director Squires' stated policy goal. In his Open Letter dated Oct. 17 2025 entitled "Bringing the USPTO Back to the Future: Return of Institution Authority under 35 USC § 314 and 324 to the Director," Director Squires explained that Congress expressly vested institution authority in the Director, and he intends to use this authority to correct skew results and public perception of unfairness. As applied to this case, the Director should grant institution of this Petition to correct a material error and restore public faith in the Office.

VII. THE CHALLENGED CLAIMS ARE UNPATENTABLE

A. Ground 1: Kang anticipates claims 1-9 of the '316 patent

Kang was filed on April 3, 2014 and published on Oct. 9, 2014 as US2014300609A1. It is prior art to the '316 patent under at least 35 U.S.C. § 102(a)(2). All elements of claims 1-9 of the '316 patent are anticipated by Kang. Ex. 1002, ¶¶ 108-128.

Claim 1

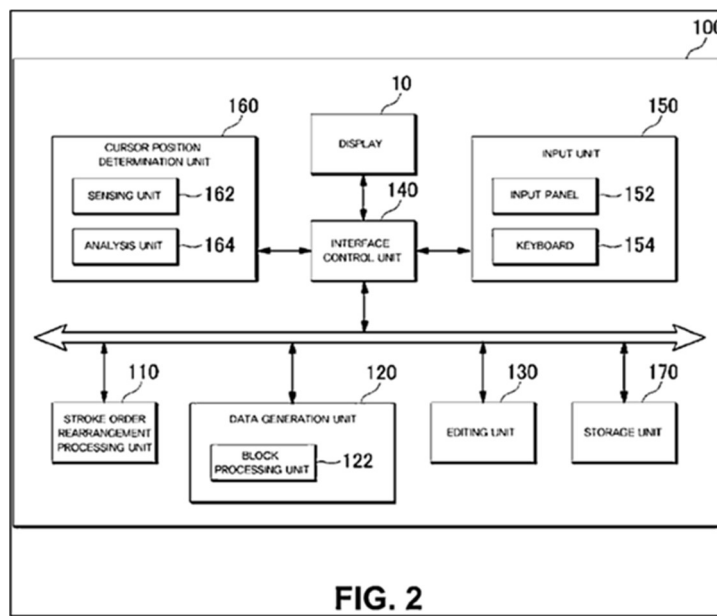
[PRE]

A system for providing editing of digital ink on computing devices, each computing device comprising a processor and at least one non-transitory computer readable medium for recognizing handwriting input under control of the processor, at least one non-transitory computer readable medium configured to:

Kang discloses invention related to a device and method for editing ink text data and, more particularly, to a device and method for editing ink text data including at least one of digital ink data and text data which are displayed on a screen of a display. Ex. 1006 at ¶ 0063; Ex. 1002, ¶ 108.

Kang shows in FIG. 2 a block diagram showing each component of a data editor according to an embodiment of the present invention. The data editor 100 may be implemented as a various type of a mobile terminal or computer. Here, the mobile terminal is, for example, a wireless communication device having portability and mobility, which may include all kinds of handheld wireless communication devices such as Personal Communication System (PCS), Global System for Mobile communications (GSM), Personal Digital Cellular (PDC), Personal Handyphone System (PHS), Personal Digital Assistant (PDA), International Mobile Telecommunication (IMT) 2000, Code Division Multiple Access (CDMA) 2000,

W-Code Division Multiple Access (W-CDMA), Wireless Broadband Internet (WiBro) terminals and smartphones. Also, the computer may include, for example, a notebook, desktop, laptop, tablet PC, slate PC, etc.



According to one of embodiments disclosed in Kang, the data editor 100 includes a display 10, a stroke order rearrangement processing unit 110, a data generation unit 120, an editing unit 130, an interface control unit 140, an input unit 150, a cursor position determination unit 160, and a storage unit 170. Ex. 1006 at ¶ 0049.

The storage unit 170 shown in FIG. 2 may store the digital ink data, the text data, and the ink space data generated by the data generation unit 120 to have the same data structure format. The storage unit 170 is a kind of memory, and may be implemented as at least one of a non-volatile memory device such as cache, read only memory (ROM), programmable ROM, erasable programmable ROM

(EPROM), electrically erasable programmable ROM (EEPROM), and flash memory, a volatile memory device such as random access memory (RAM), and a storage medium such as hard disk drive (HDD), CD-ROM, etc. However, the present invention is not limited thereto. Ex. 1006 at ¶ 0124; Ex. 1002, ¶¶ 109-111.

[Element 1]

Cause display of, on a display interface of the computing device, digital ink in accordance with first handwriting input;

Kang discloses that digital ink data is generated during a handwriting process using a stylus pen, where each stroke is composed of a set of points along the pen's movement path ("segmentation information"), representing recognized units of the handwritten input. Ex. 1002, ¶ 112.

Digital ink data is generated during a handwriting process, and is generated on the basis of the strokes input in a digital ink input mode such as a stylus pen. Ex. 1006 at ¶ 0050.

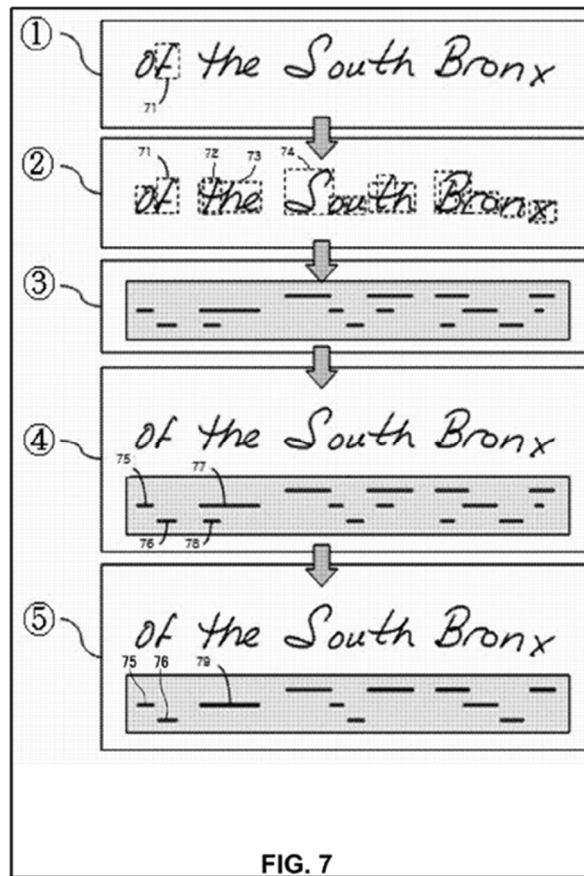
The display 10 displays a variety of data including digital ink data, ink space data, and text data on a screen. A user may confirm his/her input data through the display 10. Furthermore, the display 10 may vary in, but is not limited to, a size, shape, performance, or driving manner depending on the type of the data editor 100. Ex. 1006 at ¶ 0065; Ex. 1002, ¶ 113.

[Element 2]

determine, from segmentation information of the handwriting input determined through the recognition of the handwriting input, ranges of elements of the digital ink;

In Kang, digital ink data is generated during a handwriting process using a stylus pen, where each stroke is composed of a set of points along the pen's movement path ("segmentation information"), representing recognized units of the handwritten input. These strokes are further processed by the stroke order rearrangement processing unit to form rearrangement strokes, which are then projected onto a coordinate system to generate stroke segments ("ranges of elements of the digital ink"). Ex. 1002, ¶ 114.

As described in paragraphs 0093–0096 with reference to FIG. 7, the system calculates stroke regions corresponding to each rearrangement stroke, projects these regions onto a one-dimensional virtual x-axis, and merges overlapping stroke segments into stroke blocks. Each rearrangement stroke corresponds to one or more elements of the digital ink, such as characters, symbols, or other logical units, thereby defining the ranges of the elements. Ex. 1002, ¶¶ 115-117.



[Element 3]

cause display of, on the display interface, an input cursor in relation to the determined digital ink element ranges; and

Kang shows the cursor position determination unit 160 in FIG. 2 which determines the position of the cursor C displayed on the screen. The position of the cursor has a very close relation with the editing unit 130. The editing unit 130 may perform an editing operation on data on the basis of the position of the cursor at the time when the editing signal is generated. In this case, the data may include at least one of the digital ink data displayed on the screen in the digital ink input mode, the

text data displayed on the screen and corresponding to the input signal generated in the text input mode, and the ink space data. Ex. 1006 at ¶ 0110- 0111; Ex. 1002, ¶ 118.

Kang shows that cursor placement is determined based on user input in relation to the rearrangement strokes (ranges of elements). Specifically, as described in paragraphs 0110–0116 with reference to FIG. 10, the cursor position determination unit establishes a virtual axis at the location of a user touch and identifies the rearrangement strokes crossing that axis. When multiple strokes are identified, including partially overlapped ones, the system evaluates their order and positions the cursor either immediately in front of or behind a given stroke, depending on the touch location. Ex. 1002, ¶ 119.

Also, the cursor position determination unit 160 may determine the position of the cursor to be in the digital ink data displayed on the screen, between the digital ink data and the text data or ink space data, in the text data displayed on the screen, between the text data and the ink space data, in the ink space data displayed on the screen, or at the end of the most recently generated data. Ex. 1006 at ¶ 0111; Ex. 1002, ¶ 119.

[Element 4]

cause said display of the input cursor within a region of overlap of ranges of elements of the digital ink determined in the step of determining ranges of elements of the digital ink.

Kang teaches a method of cursor placement. Rearrangement strokes are projected to stroke segments along a virtual x-axis and may either be merged into stroke blocks when their overlap exceeds a threshold, Para No. 0095–0096, or remain as independent digital ink data when the overlap is below that threshold. Ex. 1006 at ¶ 0134; Ex. 1002, ¶¶ 120-124.

A rearrangement stroke is a stroke in which a result of the rearrangement operation for rearranging a stroke input order is reflected. Ex. 1006 at ¶ 0053.

A stroke segment is a segment having two ends, which are a maximum value and a minimum value among values on an x-axis, when points forming a certain stroke are projected onto a virtual x-axis (one-dimensional space). Ex. 1006 at ¶ 0054.

The stroke block is a set composed of two or more strokes. Ex. 1006 at ¶ 0055.

A predetermined first reference value denotes a reference length for determining how much the stroke segments (or stroke block segments) are overlapped or piled up, and the reference length may be variable with cases. Ex. 1006 at ¶ 0056.

A predetermined second reference value denotes a reference distance for determining how far the stroke segments (or stroke block segments) are spaced apart. Ex. 1006 at ¶ 0057.

The cursor position determination unit 160 operates at both levels — stroke blocks and individual rearrangement strokes. Ex. 1006 at ¶¶ 0110–0116. In such cases, the analysis unit 164 establishes a virtual axis at the touch location and identifies all rearrangement strokes crossing that axis. Ex. 1006 at ¶ 0115. If multiple strokes cross, including partially overlapped ones not merged into a block, the system evaluates their order and positions the cursor either in front of or behind a stroke depending on the touch position. Ex. 1006 at ¶ 0116; FIG. 10; Ex. 1002, ¶¶ 121-123.

Accordingly, when rearrangement strokes partially overlap but are not grouped into a stroke block, the cursor determination logic applies to each stroke individually, and the cursor can be placed at a location between such overlapping strokes — effectively within the overlapped region itself. In the absence of block grouping, each overlapped rearrangement stroke remains independently selectable digital ink data, and the cursor positioning method (virtual axis crossing + stroke-by-stroke evaluation) inherently supports placement in the overlapped region. Ex. 1006 at ¶ 0051; Ex. 1002, ¶¶ 123-124.

Claim 2

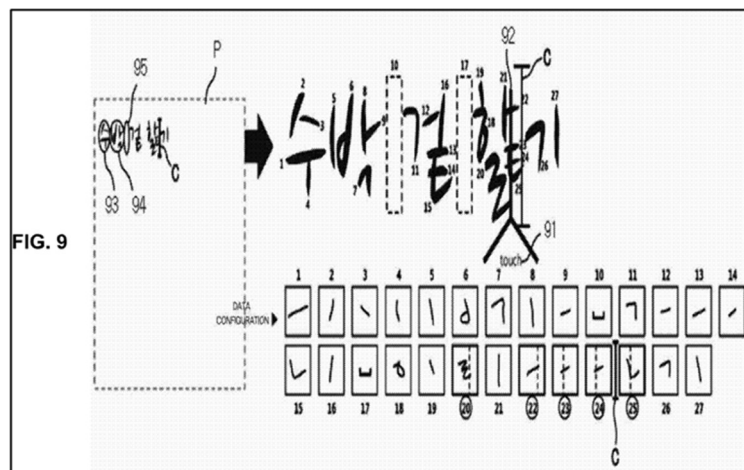
A system according to claim 1, wherein the elements of the digital ink include text characters, at least one non-transitory computer readable medium configured to display the input cursor at a position between first and second characters in relation to the determined ranges of the first and second characters.

Kang discloses that the cursor is placed either at the end of the rearrangement stroke or at the starting of the rearrangement stroke related to an element.

The cursor position determination unit 160 may determine the position of the cursor to be in the digital ink data displayed on the screen, between the digital ink data and the text data or ink space data, in the text data displayed on the screen, between the text data and the ink space data, in the ink space data displayed on the screen, or at the end of the most recently generated data. Ex. 1006 at ¶ 0111.

For example, the analysis unit 164 may search for the digital ink data corresponding to the rearrangement stroke having the greatest number on the basis of the rearrangement processing result from the digital ink data crossing the virtual axis 92 and then determine the position of the cursor C to be immediately behind the digital ink data corresponding to 25th rearrangement stroke. In this case, if the position of the touch signal is in a front region of the digital ink data corresponding to 25th rearrangement stroke, the position C of the cursor may be determined to be

immediately behind the digital ink data corresponding to the 24th rearrangement stroke, as shown in FIG. 9. The separation of the front or end region may be determined on the basis of 50% of the width length of the specific stroke or rearrangement stroke, as shown in FIG. 10 in the previous prior art description of Kang. Ex. 1002, ¶¶ 125-126.



Claim 3

A system according to claim 1, wherein the geometrical features include height and width of the determined ranges.

Kang discloses in that the data generation unit calculates stroke regions for rearrangement strokes in a two-dimensional coordinate system. Ex. 1006 at ¶ 0093. Defining a stroke region in two dimensions inherently requires determining its vertical extent (height) and horizontal extent (width). The initial calculation of the stroke regions of claim 3 discloses that the geometrical features include height and width of the determined ranges. Ex. 1006 at ¶¶ 0094–0096; Ex. 1002, ¶¶ 127-128.

The analysis corresponding to each of Claims 4-6 and 7-9 is identified in the table below and Ex. 1002 (Myers Dec.).

Claims	Corresponding Analysis
Claims 4 and 7 (Ex. 1002, ¶¶ 108-124)	of Claim 1
Claims 5 and 8 (Ex. 1002, ¶¶ 125-126)	of Claim 2
Claims 6 and 9 (Ex. 1002, ¶¶ 127-128)	of Claim 3

B. Ground 2: Claims 1-9 are obvious over Li in view of Clary

Li was filed on May 20, 2009 and published on March 18, 2010 and is prior art to the '316 patent at least under 35 U.S.C. § 102(a)(2). *See* Ex. 1008. Clary was filed on June 10, 2010, and issued on February 14, 2012 and is prior art to the '316 patent under at least 35 U.S.C. § 102(a)(2). *See* Ex. 1007. All elements of claims 1-9 of the '316 patent are rendered obvious over Li in view of Clary. Ex. 1002, ¶¶ 151-174.

Li discloses an editing apparatus which can be implemented as software running on a processor using memory. The reference further discloses the methods for editing handwritten digital ink data input by a user on a handwriting input device. A user inputs handwritten letters which are recognized and grouped into handwriting object groups. Ex. 1008 at ¶¶ 0086–0089. Each letter is enclosed by a circumscribing rectangle (considered as range), and a handwriting locus is defined by connecting geometric centers of these rectangles. Ex. 1008 at ¶¶ 0089–0091. Further, edit

management is performed based on gestures. Ex. 1008 at ¶¶. 0093–0109, where a Y-shaped gesture is used to indicate insertion. Ex. 1008 at ¶¶ 0109; FIG. 10C; Ex. 1002, ¶ 151.

While the disclosure does not explicitly address cursor or insertion placement in overlapped regions, this deficiency is made up by Clary. Clary discloses a pen-enabled computing device that captures handwritten input and defines bounding boxes (902) around strokes (904). As shown in FIGS. 8 and 9, each handwritten character is enclosed by a bounding box defined by left (900a) and right (900b) edges. When a user positions a cursor (912) relative to the handwritten input, the system automatically shifts the cursor to the left or right edge of the bounding box. Ex. 1002, ¶ 152.

Clary was a reference cited by the Examiner during prosecution as disclosing the cursor placement and editing. Ex. 1004 at 108-117. The applicant stated Clary does not describe or disclose any overlapping bounding boxes and displaying a cursor within a region of overlap of ranges of elements of the digital ink. However, as we will show in detail below, Clary discloses a case of the overlapping bounding boxes, the right side of the largest bounding box corresponding to a first character is the right side of the region of overlap and the left side of the smallest bounding box corresponding to a second character is the left side of the region of overlap. In other

words, the cursor will be displayed within the region of overlap. Ex. 1002, ¶¶ 152, 155.

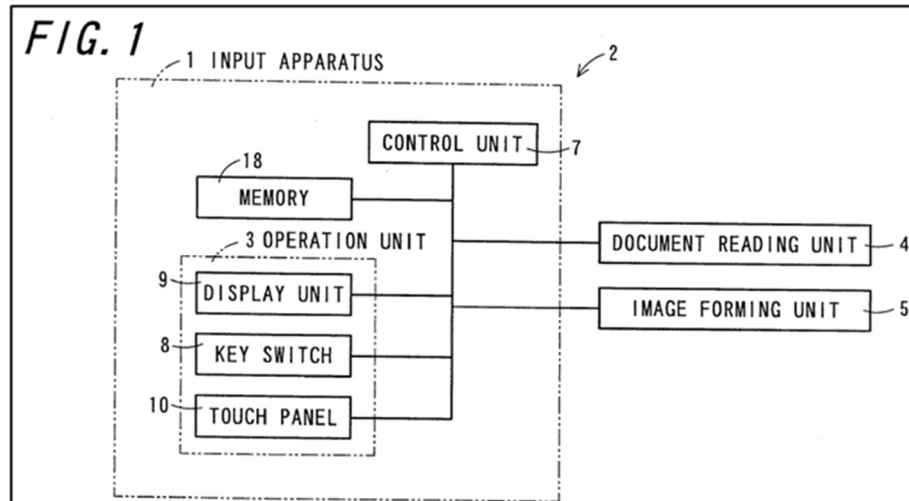
Claim 1

[PRE]

A system for providing editing of digital ink on computing devices, each computing device comprising a processor and at least one non-transitory computer readable medium for recognizing handwriting input under control of the processor, the at least one non-transitory computer readable medium configured to:

Li discloses an editing apparatus which can be implemented as software running on a processor using memory. In particular, the editing functionality is described as software modules (*e.g.*, edit management module, handwriting input module) which may be stored as a program on a non-transitory computer-readable medium, loaded into memory, and executed by a microprocessor to perform the editing tasks. Ex. 1008 at ¶ 0075; Ex. 1002, ¶¶ 158-159.

FIG. 1 shows an input apparatus with memory, display, and various processing units such as control unit, reading unit, image forming unit, etc.



Li describes an embodiment of the invention as having an image processing program for conducting process and be recorded on a computer readable recording medium on which a program for operating a computer has been recorded. Ex. 1008 at ¶ 0181. It further states that a recording medium, a memory, such as a read only memory (abbreviated as ROM) itself may serve as a program medium, or alternatively a program reading device may be provided as an external storage unit, into which a recording medium is inserted to read a program medium. Ex. 1008 at ¶ 0183; Ex. 1002, ¶¶ 158-159.

[Element 1]

Cause display of, on a display interface of the computing device, digital ink in accordance with first handwriting input;

Li discloses that the system includes a handwriting input module for receiving handwritten objects from a user on a touch panel and a display module for showing such input on a display unit. Ex. 1008 at 1, FIG. 1; Ex. 1002, ¶ 160.

The display module 22 functions as an interface for displaying on the display unit 9 and appropriately causes the display unit 9 to show a handwriting locus or text to be edited, for example. Ex. 1008 at ¶ 0078.

[Element 2]

determine, from segmentation information of the handwriting input determined through the recognition of the handwriting input, ranges of elements of the digital ink;

Li discloses that once a handwritten object is input, it is recognized and incorporated into a handwriting group. During this process, the system defines a circumscribing rectangle for each handwritten object in the group, which effectively represents the range of each element of the digital ink. This segmentation and bounding of objects into circumscribing rectangles constitutes determining ranges of elements of the handwriting input. Ex. 1008 at ¶¶ 0084-88; FIG. 3; Ex. 1002, ¶ 162.

In Step S4 of FIG. 3, a handwriting locus is defined. To be specific, the minimum rectangle (which will be hereinafter referred to as “circumscribing rectangle”) circumscribing each of handwritten objects in the defined handwritten object group is detected and a geometric center of each of circumscribing rectangle is also detected. The detected geometric centers are connected by a straight or curved

line which is then extracted to define a handwriting locus. Ex. 1008 at ¶ 0089; FIG. 11A, and FIG. 802.11b; Ex. 1002, ¶ 163.

[Element 3]

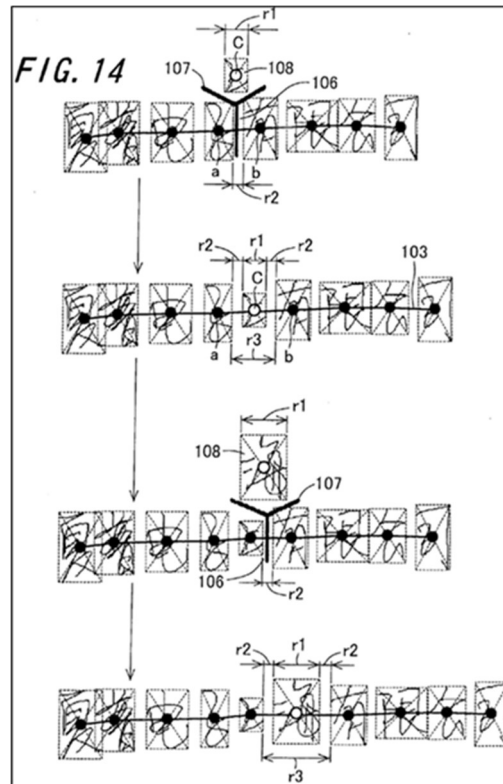
cause display of, on the display interface, an input cursor in relation to the determined digital ink element ranges; and

Li discloses that when a user inputs an insert gesture (Y-shaped), the system displays an insert position marker on the display. This marker is calculated and displayed with respect to the circumscribing rectangles (ranges) determined for adjacent handwritten objects. Specifically, the system uses the widths and spacing of the circumscribing rectangles (element ranges) to compute the insert distance (r_3) and positions the marker between the ranges. While termed an “insert position,” this marker inherently functions as a cursor displayed in relation to the determined digital ink element ranges. Ex. 1002, ¶ 164.

The handwritten gesture may have any graphic form and is preferably defined based on a human interface which makes it easy for a user to instinctively understand edit content. Ex. 1008 at ¶ 0108.

In the present embodiment, as shown in FIGS. 10A through 10C, a deletion gesture (FIG. 10A), a correction gesture (FIG. 10B), and an insert gesture (FIG. 10C) are defined. The deletion gesture is defined as an X-shaped object, the

correction gesture is defined as a double-lined object, and the insert gesture is defined as a Y-shaped object. Ex. 1008 ¶ 0109.



cause said display of the input cursor within a region of overlap of ranges of elements of the digital ink determined in the step of determining ranges of elements of the digital ink.

place edited content relative to adjacent recognized objects along a locus. Clary teaches how to present that edit position to the user as an explicit displayed cursor and how to resolve that cursor position when it falls within one or more bounded handwritten regions. A POSITA would have understood that applying Clary's cursor technique to Li's recognized-object editing framework would make Li's edit position more visible, more precise, and more intuitive without changing Li's underlying recognition or geometry. Ex. 1008 at ¶¶ 0085-0089, ¶¶ 0111-0128; Ex. 1007 at 18:40; Ex. 1002, ¶¶ 166-170. Clary discloses a user positioning a cursor between two handwritten characters, and thus there is good motivation for one of ordinary skill in the art at the time of the invention or at the time of the effective filing date of the '316 patent to modify Li's system to incorporate a cursor positioning featured in Clary. Ex. 1002, ¶¶ 154-157.

Clary states:

[0066] Regardless of the manner in which the baselines B_n are determined, the handwritten input 899 can be edited by initially displaying the handwritten input 899 to the user upon a display 400 associated with the pen-enabled computing device 100. The user then selects an actuation position 910 relative to the handwritten input 899, such as by positioning the a cursor 912 through the use of a mouse, stylus, a track ball or the like, relative to the display of the handwritten input 899. Depending upon the location of the cursor relative to the bounding boxes 902 that surround each stroke 904, the pen-enabled computing device 100 may shift the cursor 912 position somewhat. In this regard, the central processing unit 320, in cooperation with the computer program product 500, determines if the cursor 912 position is located within a bounding box 902. If the cursor 912 position is located within one or more bounding boxes 902, the pen-enabled computing device 100 determines the x coordinate of the center of the largest bounding box 902. If the cursor position is at an x position greater than the x position of the center of the largest bounding box, the central processing unit 320 shifts the cursor 912 position to correspond to or be slightly larger than the largest x value 900_b associated with the bounding box 902, i.e., shifts the cursor 912 to the right side of the largest bounding box. Alternatively, if the cursor 912 position has an x value that is less than the x position of the center of the largest bounding box 902, the central processing unit 320 shifts the cursor 912 position to an x position that is equal to the smallest x value 900_a associated with the bounding box 902, i.e., shifts the cursor 912 position to the left of the smallest bounding box 902. If, however, the cursor 912 position is not within a bounding box 902, the cursor 912 position need not be shifted whatsoever.

FIG. 8 of Clary “is a view of a handwritten input in accordance with one example embodiment,” and FIG. 9 “is another view of the handwritten input of FIG. 8.”

processing unit 320 shifts the cursor 912 position to an x position that is equal to the smallest x value 900 associated with the bounding box 902, *i.e.*, shifts the cursor 912 position to the left of the smallest bounding box 902.” In the case of the overlapping bounding boxes, the right side of the largest bounding box corresponding to a first character is the right side of the region of overlap and the left side of the smallest bounding box corresponding to a second character is the left side of the region of overlap. In other words, the cursor will be displayed within the region of overlap. Ex. 1002, ¶¶ 168-169.

Accordingly, this element of “cause said display of the input cursor within a region of overlap of ranges of elements of the digital ink determined in the step of determining ranges of elements of the digital ink” is fully disclosed in Clary. Ex. 1002, ¶¶ 168-170.

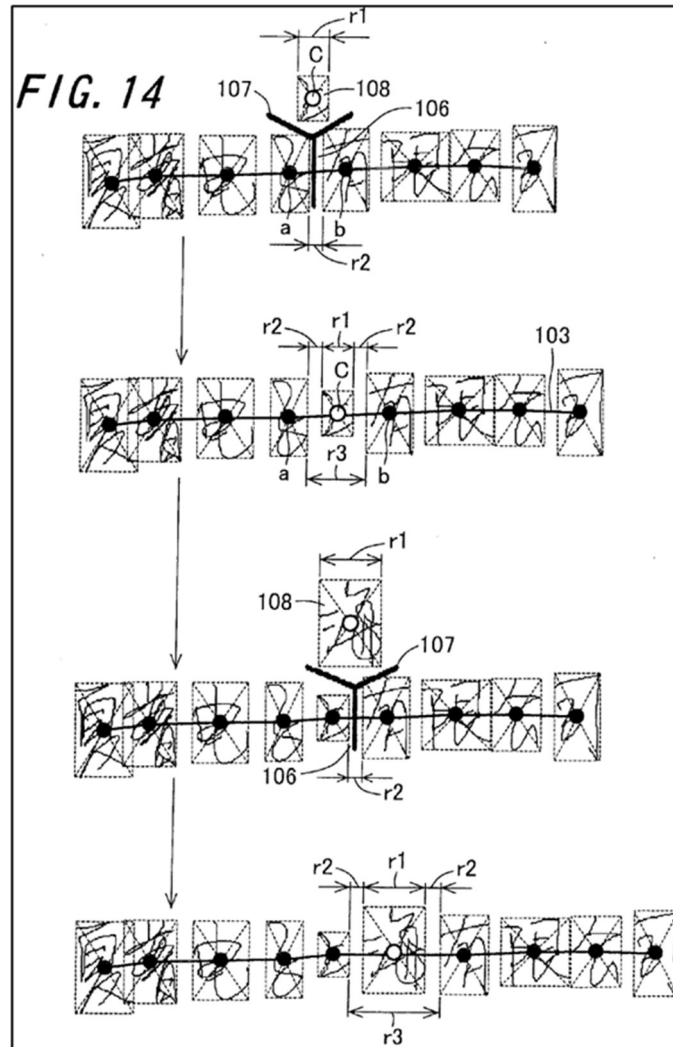
Claim 2

A system according to claim 1, wherein the elements of the digital ink include text characters, the at least one non-transitory computer readable medium configured to display the input cursor at a position between first and second characters in relation to the determined ranges of the first and second characters.

Li discloses figures 11A through 11C, which each demonstrate a process for defining a locus. The handwritten gesture is input to a handwriting input region 100

which is set on the touch panel 10, etc., and there is defined a handwriting group 101 of characters which are handwritten objects. Ex. 1008, FIG. 11A. And for each of groups 101, a circumscribing rectangle 102 of each of handwritten objects contained in the group 101 is detected and a geometric center C of the circumscribing rectangle 102 is also detected. Ex. 1008, FIG. 1B; Ex. 1002, ¶¶ 171-172.

FIG. 14 is a view showing an example where an insert command is input as edit content.

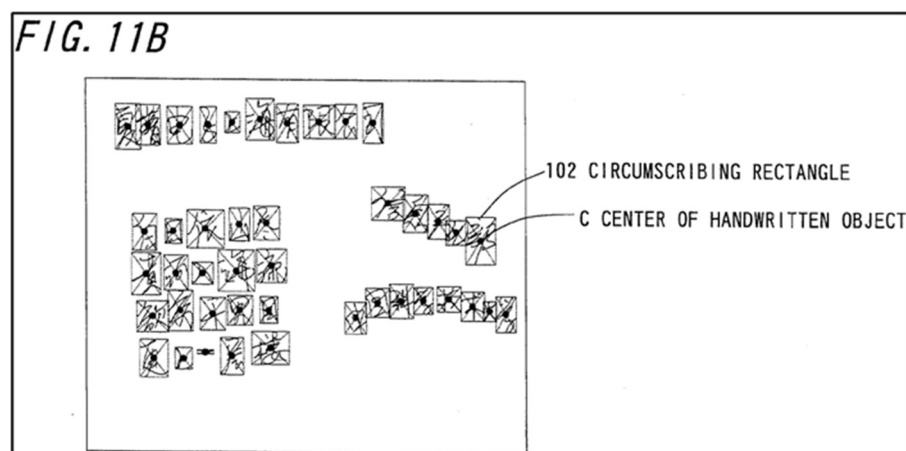


Claim 3

A system according to claim 1, wherein the geometrical features include height and width of the determined ranges.

Li discloses that the characters/strokes are circumscribed using rectangles comprising height and width. Ex. 1002, ¶¶ 173-174.

Figures 11A through 11C each demonstrate a process for defining a locus. The handwritten gesture is input to a handwriting input region 100 which is set on the touch panel 10, etc., and there is defined a handwriting group 101 of characters which are handwritten objects. Ex. 1008, FIG. 11A. And for each of groups 101, a circumscribing rectangle 102 of each of handwritten objects contained in the group 101 is detected and a geometric center C of the circumscribing rectangle 102 is also detected. Ex. 1008, FIG. 11B. Each circumscribing rectangle has a height and a width.



The analysis corresponding to each of Claims 4-6 and 7-9 is identified in the table below and Ex. 1002.

Claims	Corresponding Analysis
Claims 4 and 7 (Ex. 1002, ¶¶ 151-170)	of Claim 1
Claims 5 and 8 (Ex. 1002, ¶¶ 171-172)	of Claim 2
Claims 6 and 9 (Ex. 1002, ¶¶ 173-174)	of Claim 3

C. Ground 3: Clary anticipates claims 1-9 of the '316 patent

Clary was filed on June 18, 2010, and issued on February 14, 2012; it is prior art to the '316 patent under at least 35 U.S.C. § 102(a)(2). All elements of claims 1-9 of the '316 patent are anticipated by Clary. Ex. 1002, ¶¶ 129-150.

Claim 1

[PRE]

A system for providing editing of digital ink on computing devices, each computing device comprising a processor and at least one non-transitory computer readable medium for recognizing handwriting input under control of the processor, the at least one non-transitory computer readable medium configured to:

Clary discloses in FIG. 1 a schematic of a system for identifying a form and manipulating associated information with a pen-enabled computing device according to one embodiment of the present invention, the device being indicated

generally by the numeral 100. The device 100 generally comprises a handwriting capture interface 200, a central processing subsystem 300, a user interface 400, a computer program product 500, and an external device interface 600.” Ex. 1007 at 11:39-47; Ex. 1002, ¶¶ 129, 132.

Clary discloses all the above are typically used for storing and/or executing a computer program product 500 as well as storing useful data such as, for example, electronic ink. FIG. 1 shows a handheld computer component 110 such as, for example, a modified personal digital assistant (PDA) or a smart-phone provides most of the functionality of the device 100. Ex. 1002, ¶ 133.

Once the electronic copy of the data is entered into the pen-enabled computing system, the data may be stored as an “electronic ink” copy or as a “text” copy, wherein the handwriting input is captured, recognized, and translated into the corresponding text, typically by automatic online handwriting recognition or the like. In some instances, the pen-enabled computing system may be capable of producing both an electronic ink and a text copy of the handwriting input. Ex. 1007 at 1:27-47; Ex. 1002, ¶¶ 134-136.

[Element 1]

Cause display of, on a display interface of the computing device, digital ink in accordance with first handwriting input;

Clary discusses handwritten input 899 can be edited by initially displaying the handwritten input 899 to the user upon a display 400 associated with the pen-enabled computing device 100. Ex. 1007 at 18:40. Clary describes “electronic ink copy” and the displayed “handwritten input 899,” captured from the writing stylus, and represented by (x,y) coordinate pairs 900. Ex. 1002, ¶ 137.

In summary, the Clary patent describes/discloses the cause of display of, on a display interface of a computing device, digital ink in accordance with the handwriting input. Clary explains that the handwriting input is captured as an electronic ink copy and represented by (x,y) coordinate pairs, and that the handwritten input 899 is then displayed to the user upon display 400. Ex. 1007 at 17:45-55; Ex. 1002, ¶ 137.

[Element 2]

determine, from segmentation information of the handwriting input determined through the recognition of the handwriting input, ranges of elements of the digital ink;

Clary discloses in the Background a portion of the computer program product which detects, captures, and stores handwritten data input into a field with the writing stylus by spatially segmenting the handwritten data and correlating the spatial segments with the nature of the page. Ex. 1007 at 1:42-59; Ex. 1002, ¶ 138. Clary further discloses “[t]he central processing unit 320 of the pen-enabled

computing device 100 in conjunction with the computer program product 500 then define bounding boxes 902 around each stroke 904.” Ex. 1007 at 17: 58-61. The phrase “segmentation information of the handwriting input” of the ’316 claim is disclosed by Clary’s segmentation information which encompasses spatial grouping generated by a recognition process, by defining bounding boxes 902 to bundle one or more strokes 904 into a unit 910. Ex. 1007 at 17:58-18:10; Ex. 1002, ¶¶ 139-141.

[Element 3]

cause display of, on the display interface, an input cursor in relation to the determined digital ink element ranges; and

Clary discloses this claim element when it discusses user electing an “actuation position 910 relative to the handwritten input 899, such as by positioning ... a cursor 912 ... relative to the display of the handwritten input 899. Depending upon the location of the cursor relative to the bounding boxes 902 that surround each stroke 904, the pen-enabled computing device 100 may shift the cursor 912 position somewhat.” Ex. 1007 at 18:40-52; Ex. 1002, ¶ 142.

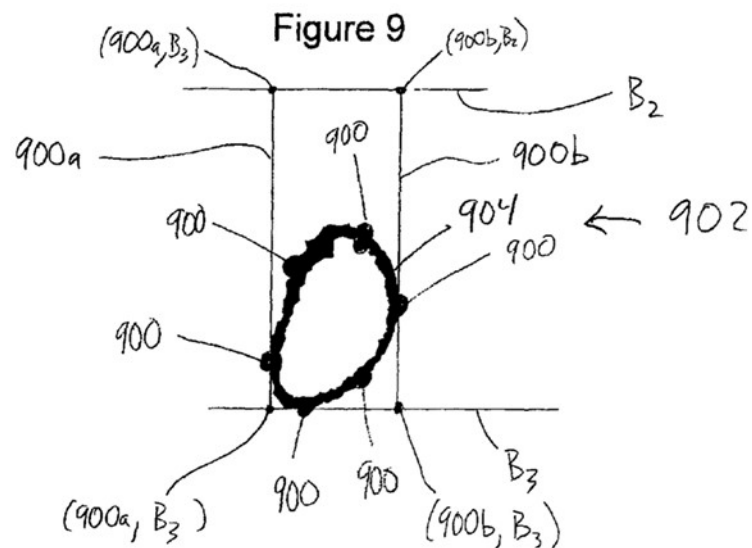
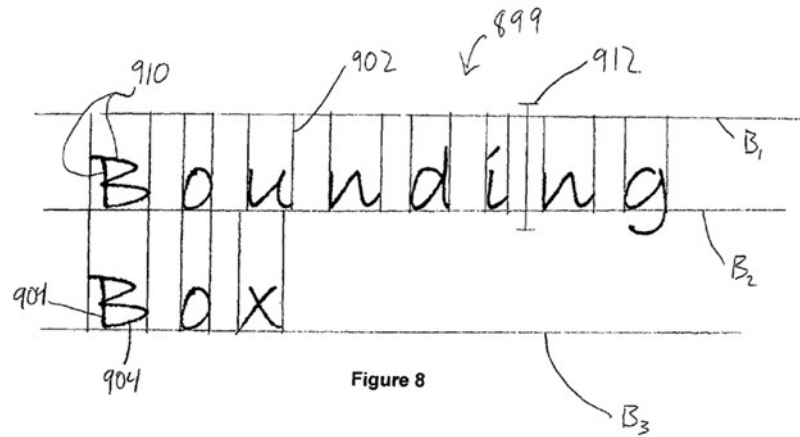
The “input cursor” is covered by Clary’s “cursor 912.”

The “display interface” is covered by Clary’s “display 400.”

The limitation “in relation to the determined digital ink element ranges” is covered by Clary’s disclosure that cursor 912 is positioned relative to the displayed

handwritten input and then evaluated relative to the bounding boxes 902 that surround each stroke or bundled editing unit 910.

FIG. 8 and FIG. 9 also provide pictorial representations:



[Element 4]

cause said display of the input cursor within a region of overlap of ranges of elements of the digital ink determined in the step of determining ranges of elements of the digital ink.

Clary disclosed “input cursor” as previously explained.

The step of determining “ranges of elements of the digital ink” is covered by Clary’s bounding boxes 902 surrounding each stroke 904 and any bundled editing unit 910, as previously explained. Ex. 1002, ¶ 143.

Clary disclosed “region of overlap” when it discusses that cursor 912 may be located within “one or more bounding boxes 902.” Ex. 1007 at 18:54-57; Ex. 1002, ¶¶ 144-145. A person of ordinary skill in the art would understand that if a single (x,y) cursor coordinate is simultaneously located within multiple distinct bounding boxes, those spatial ranges are physically overlapping. In this overlapping condition, the system determines the center of the largest bounding box 902 and shifts the cursor 912 either to the right side of the largest bounding box or to the left of the smallest bounding box. Ex. 1007 at 18:57-19:2. This disclosure maps perfectly to using the geometric features of overlapping ranges to resolve and snap the cursor placement. Ex. 1002, ¶¶ 145-146.

In summary, the Clary patent describes/discloses the cause of display of the input cursor within a region of overlap of ranges of elements of the digital ink. Clary

expressly states that cursor 912 may be located within “one or more bounding boxes 902” and then resolves that condition by reference to the center, left side, and right side of the relevant handwritten boxes. The bounding boxes of Clary are expressly defined such that any overlapping bounding box necessarily means that the underlying handwritten input (associated with the bounding boxes) is also overlapping. Applied to the FIG. 8 handwritten sequence, this is a disclosure of cursor placement within the overlap region of multiple competing bounding-box ranges of handwritten digital ink. FIG. 8 and FIG. 9 supply the operative box geometry, including smallest x 900a, largest x 900b, and the bounding-box structure used to position the cursor. Ex. 1002, ¶¶ 144-146.

Claim 2

A system according to claim 1, wherein the elements of the digital ink include text characters, the at least one non-transitory computer readable medium configured to display the input cursor at a position between first and second characters in relation to the determined ranges of the first and second characters.

As provided in Claim 2, Clary discloses that “the handwritten input 899 is arranged in multiple lines, the central processing unit 320 ... also determines the baseline B_n for each of the lines so as to provide a point of reference for the characters in the respective line.” Ex. 1007 at 18:11-16. Accordingly, editing the

handwritten input may further comprise altering the coordinate representation of at least some strokes of the handwritten input in order to alter spacing of at least one bounding box so as to insert the textual input between adjacent bounding boxes and/or replace a bounding box containing handwritten input with the textual input Ex. 1007 at 9:25-40; Ex. 1002, ¶¶ 147-148.

The “elements of the digital ink include text characters” limitation of Claim 2 is covered by Clary’s disclosure that baselines provide a point of reference for the characters in a respective handwritten line. On the broader read used in this chart, the handwritten character elements are represented in Clary by strokes 904 and the corresponding bounding boxes 902 that define the operative editable units of the handwritten input 899.

The requirement that the “input cursor” is displayed at a position “between first and second characters” is covered by Clary’s disclosure that textual input may be inserted between adjacent bounding boxes and that cursor 912 is positioned relative to the displayed handwritten input 899. Because Clary uses the adjacent bounding boxes as the editing units for the handwritten line, placing or shifting the cursor with respect to those adjacent boxes places the cursor at the insertion.

Clary uses bounding boxes 902 as the determined ranges for the adjacent handwritten units. Clary defines the cursor location by reference to the location of the cursor relative to the bounding boxes 902, and separately discloses inserting

textual input between adjacent bounding boxes, which ties the cursor/insertion position to the determined ranges of the neighboring character units.

In summary, Clary describes/discloses that the elements of the digital ink include text characters and that the input cursor 912 is displayed at a position between first and second characters in relation to their determined ranges. Clary expressly refers to characters in the respective handwritten line, uses bounding boxes 902 around handwritten strokes as the editable ranges of those handwritten units, and discloses insertion of textual input between adjacent bounding boxes. Thus, on the broader read used here, the first and second characters are the adjacent handwritten character units represented by neighboring bounding boxes 902, and the cursor/insertion position is determined in relation to those bounding-box ranges. In particular, FIG. 8, provided and discussed for Claim 1, visually depicts the adjacent handwritten boxes and the cursor position. Ex. 1002, ¶¶ 147-148.

Claim 3

A system according to claim 1, wherein the geometrical features include height and width of the determined ranges.

Clary discloses that “[t]ypically, each bounding box 902 is a rectangular box 902 ... with one x coordinate of the rectangular box 902 defined by the smallest x 900a ... and another x coordinate ... defined by the largest x 900b, with the y

coordinates extending between successive baselines B1, B2, . . . Bn.” Ex. 1007 at 17:58-18:1.

The “geometrical features” of Claim 3 is disclosed by Clary’s disclosure of smallest x 900a, largest x 900b, box centers, and successive baselines.

The “height” is disclosed by the y coordinates of each bounding box 902 extend between successive baselines.

The “width” of the determined ranges is covered by Clary’s disclosure of smallest x 900a, largest x 900b, and the width of the insert calculated from the leftmost and rightmost inserted boxes.

In summary, the Clary patent describes geometrical features include height and width of the determined ranges. FIG. 8 and FIG. 9, pasted in above under Claim 1, also visually depict these height- and width-related geometrical features. Ex. 1002, ¶¶ 149-150.

The analysis corresponding to each of Claims 4-6 and 7-9 is identified in the table below and Ex. 1002.

Claims	Corresponding Analysis
Claims 4 and 7 (Ex. 1002, ¶¶ 132-146)	of Claim 1
Claims 5 and 8 (Ex. 1002, ¶¶ 147-148)	of Claim 2
Claims 6 and 9 (Ex. 1002, ¶¶ 149-150)	of Claim 3

PTAB DISCRETION SHOULD NOT PRECLUDE INSTITUTION

Petitioner is a small entity challenging a patent asserted by a France-based entity with no manufacturing activities in the United States. Petitioner will substantively address the relevant issues during discretionary denial briefing. However, a brief overview is provided below.

The USPTO emphasizes that the PTAB will favorably consider the small business status of patent owners defending their patents against deep-pocketed challengers. The subject patent of this Petition is one of such asserted patents; the '316 patent is relatively new and of questionable validity as explained above.

Petitioner is also challenging the asserted patent with new prior art found by novel search methods documented in the Search Disclosure Declaration (Ex. 1005) and points out inaccurate interpretation by the Patent Owner with regard to a prior art used by the Examiner during the prosecution process of the '316 patent before the U.S. Patent and Trademark Office.

Furthermore, none of the factors enumerated in *Apple Inc. v. Fintiv Inc.*, IPR2020-00019, Paper 11 (PTAB Mar. 20, 2020), favors discretionary denial of institution. A trial date has not been set for the co-pending litigation (Factor 2). The proceedings have not progressed beyond the pleadings stage, and neither the parties nor the district court have invested substantial resources in the litigation to date (Factor 3). To date, there is no overlap between the issues raised in the petition and

the parallel proceeding (Factor 4). Petitioner is the sole defendant in the parallel proceeding (Factor 5). The grounds raised herein present a compelling unpatentability challenge that on its own prevents an unpatentability challenge under Fintiv (Factor 6).

For at least the foregoing reasons, Petitioner believes that discretionary denial is unwarranted. Petitioner respectfully requests cancellation of Claims 1-9 of the '316 patent.

VIII. CONCLUSION

This Petition is timely filed according to 35 U.S.C. § 315(b) within one year of service of a complaint alleging patent infringement. Ex. 1010. For the foregoing reasons, Petitioner respectfully requests cancellation of Claims 1-9 of the '316 patent.

IX. MANDATORY NOTICES UNDER 37 C.F.R. § 42.8

A. Real Party in Interest Under 37 C.F.R. § 42.8(b)(1)

Goodnotes Limited is the real party in interest for the Petitioner.

B. Related Matters Under 37 C.F.R. § 42.8(b)(2)

The '316 patent is presently the subject of a patent infringement lawsuit brought by the patent owner, MyScript SAS, against Goodnotes Limited and captioned *MyScript SAS v. Goodnotes Limited.*, No. 2:25-cv-00532-JRG-RSP (E.D. Tex.).

C. Designation of Counsel Under 37 C.F.R. § 42.8(b)(3)

Petitioner provides the following designation of counsel:

LEAD COUNSEL	BACK-UP COUNSEL
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Pursuant to 37 C.F.R. § 42.10(b), a Power of Attorney is being submitted with this Petition. Ex. 1009.

D. Service Information

Please address all correspondence and serve to the addresses listed above. Petitioner consents to electronic service directed to ech@appletonluff.com and bshelton@sheltoncoburn.com.

Dated: July 23, 2026

/s/ Elizabeth Chien-Hale

CLAIM APPENDIX

Claim Designation	Claim Language
Claim 1[Pre]	A system for providing editing of digital ink on computing devices, each computing device comprising a processor and at least one non-transitory computer readable medium for recognizing handwriting input under control of the processor, at least one non-transitory computer readable medium configured to:
Claim 1 [Element 1]	cause display of, on a display interface of a computing device, digital ink in accordance with the handwriting input;
Claim 1 [Element 2]	determine, from segmentation information of the handwriting input determined through the recognition of the handwriting input, ranges of elements of the digital ink;
Claim 1 [Element 3]	cause display of, on the display interface, an input cursor in relation to the determined digital ink element ranges; and
Claim 1 [Element 4]	cause said display of the input cursor within a region of overlap of ranges of elements of the digital ink determined in the step of determining ranges of elements of the digital ink.
Claim 2	A system according to claim 1, wherein the elements of the digital ink include text characters, at least one non-transitory computer readable medium configured to display the input cursor at a position between first and second characters in relation to the determined ranges of the first and second characters.
Claim 3	A system according to claim 1, wherein the geometrical features include height and width of the determined ranges.
Claim 4 [Pre]	A method for providing editing of digital ink on computing devices, each computing device comprising a processor and at least one non-transitory computer readable medium for recognizing handwriting input under control of the processor, the method comprising:

Claim 4 [Element 1]	displaying, on a display interface of a computing device, digital ink in accordance with the handwriting input;
Claim 4 [Element 2]	determining, from segmentation information of the handwriting input determined through the recognition of the handwriting input, ranges of elements of the digital ink;
Claim 4 [Element 3]	displaying, on the display interface, an editing cursor in relation to the determined digital ink element ranges; and
Claim 4 [Element 4]	causing said display of the editing cursor within a region of overlap of ranges of elements of the digital ink determined in the step of determining ranges of elements of the digital ink.
Claim 5	A method according to claim 4, wherein the elements of the digital ink include text characters, the input cursor being displayed at a position between first and second characters in relation to the determined ranges of the first and second characters.
Claim 6	A method according to claim 4, wherein the geometrical features include height and width of the determined ranges.
Claim 7 [Pre]	A non-transitory computer readable medium having a computer readable program code embodied therein, said computer readable program code adapted to be executed to implement a method for providing editing of digital ink on a computing device, the computing device comprising a processor and at least one system non-transitory computer readable medium for recognizing handwriting input under control of the processor, the method comprising:
Claim 7 [Element 1]	displaying, on a display interface of a computing device, digital ink in accordance with the handwriting input;
Claim 7 [Element 2]	determining, from segmentation information of the handwriting input determined through the recognition of the handwriting input, ranges of elements of the digital ink;
Claim 7 [Element 3]	displaying, on the display interface, an editing cursor in relation to the determined digital ink element ranges; and

Claim 7 [Element 4]	causing said display of the editing cursor within a region of overlap of ranges of elements of the digital ink determined in the step of determining ranges of elements of the digital ink.
Claim 8	A non-transitory computer readable medium according to claim 7, wherein the elements of the digital ink include text characters, the input cursor being displayed at a position between first and second characters in relation to the determined ranges of the first and second characters.
Claim 9	A non-transitory computer readable medium according to claim 7, wherein the geometrical features include height and width of the determined ranges.

**CERTIFICATE OF COMPLIANCE
WITH TYPE-VOLUME LIMITATION**

Under the provisions of 37 C.F.R. § 42.24(d), I certify that this petition complies with the type-volume limits of 37 C.F.R. § 42.24(a)(1)(i) because it contains 10,277 words, according to the word-processing system used to prepare this petition, excluding the parts of this petition that are exempted by 37 C.F.R. § 42.24(a) (including the table of contents, a table of authorities, mandatory notices, a certificate of service or this certificate word count, appendix of exhibits, and claim listings).

Dated: July 23, 2026

/s/ Elizabeth Chien-Hale

**CERTIFICATE OF SERVICE ON PATENT OWNER
UNDER 37 C.F.R. § 42.105**

I hereby certify, pursuant to 37 C.F.R. §§ 42.6(e), 42.105, that a complete copy of the above-captioned **PETITION FOR *INTER PARTES* REVIEW OF U.S. PATENT NO. 10,410,316** all associated exhibits, and Petitioner's Power of Attorney were served in their entirety via Federal Express, Priority Delivery, on July 23, 2026 upon Patent Owner by serving the correspondence address of record with the USPTO as follows:

AMOL A. PARIKH/MASAKO KOZAWA
227 WEST MONROE STREET
CHICAGO, IL 60606-5096

Service copies will also be sent to the Patent Owner at:

MYSCRIPT
3 RUE DE LA RAINIÈRE, PARC CLUB DU PERRAY
NANTES CEDEX 3, FRX 44339

Furthermore, service copies will be sent via electronic mail to litigation counsel of record, Amol Parkih, at amparikh@mcdermottlaw.com.

Dated: July 23, 2026

/s/ Elizabeth Chien-Hale