United States Court of Appeals for the Federal Circuit

TRADING TECHNOLOGIES INTERNATIONAL, INC.,
Appellant

v.

IBG LLC, INTERACTIVE BROKERS, LLC,
Appellees

UNITED STATES,
Intervenor

2017-2257

Appeal from the United States Patent and Trademark Office, Patent Trial and Appeal Board in No. CBM2015-00179.

TRADING TECHNOLOGIES INTERNATIONAL, INC.,
Appellant

v.

IBG LLC, INTERACTIVE BROKERS LLC,
Appellees

UNITED STATES,
Intervenor

2017-2621

Appeal from the United States Patent and Trademark Office, Patent Trial and Appeal Board in No. CBM2016-00051.

TRADING TECHNOLOGIES INTERNATIONAL, INC.,
Appellant

v.

IBG LLC, INTERACTIVE BROKERS LLC,
Appellees

UNITED STATES,
Intervenor

2018-1063

Appeal from the United States Patent and Trademark Office, Patent Trial and Appeal Board in No. CBM2016-00032.

Decided: April 18, 2019

MICHAEL DAVID GANNON, Baker & Hostetler LLP, Chicago, IL, argued for appellant. Also represented by LEIF R. SIGMOND, JR., JENNIFER KURCZ; ALAINA J. LAKAWICZ, Philadelphia, PA; COLE BRADLEY RICHTER, McDonnell, Boehnen, Hulbert & Berghoff, LLP, Chicago, IL; STEVEN BORSAND, JAY QUENTIN KNOBLOCH, Trading Technologies International, Inc., Chicago, IL.

BYRON LEROY PICKARD, Sterne Kessler Goldstein & Fox, PLLC, Washington, DC, argued for appellees. Also represented by ROBERT EVAN SOKOHL, RICHARD M. BEMBEN, JON WRIGHT; MICHAEL T. ROSATO, Wilson, Sonsini, Goodrich & Rosati, PC, Seattle, WA.

KATHERINE TWOMEY ALLEN, Appellate Staff, Civil Division, United States Department of Justice, Washington, DC, argued for intervenor. Also represented by MARK R. FREEMAN, SCOTT R. MCINTOSH, JOSEPH H. HUNT; THOMAS W. KRAUSE, JOSEPH MATAL, FARHEENA YASMEEN RASHEED, Office of the Solicitor, United States Patent and Trademark Office, Alexandria, VA.

Before MOORE, MAYER, and LINN, *Circuit Judges*.

MOORE, *Circuit Judge*.

Trading Technologies International, Inc., ("TT") is the owner of U.S. Patent Nos. 7,533,056, 7,212,999, and 7,904,374. Each patent relates generally to a graphical user interface ("GUI") for electronic trading. The '056 and '999 patents, which share a specification, disclose "a user interface for an electronic trading system that allows a remote trader to view trends in the orders for an item, and provides the trading information in an easy to see and interpret graphical format." '999 patent at 1:3–6. The '374 patent, which is from a different patent family, discloses "a display and trading method to ensure fast and accurate execution of trades by displaying market depth on a vertical

or horizontal plane, which fluctuates logically up or down, left or right across the plane as the market prices fluctuate[]." '374 patent at 3:54–58.

IBG LLC and Interactive Brokers LLC (collectively, "Petitioners") petitioned for review of claims 1–15 of the '056 patent, claims 1–35 of the '999 patent, and claims 1–36 of the '374 patent pursuant to the Transitional Program for Covered Business Method Patents ("CBM review"). Leahy-Smith Am. Invents Act, Pub. L. No. 112-29, § 18(a) 125 Stat. 284, 329–31 (2011) ("AIA"). In each case, the Patent Trial and Appeal Board instituted CBM review and issued final written decisions holding that the patents meet the criteria to be eligible for CBM review and the claims are ineligible under 35 U.S.C. § 101. The Board additionally held that the claims of the '056 patent would have been obvious.

TT appeals from each decision. We have jurisdiction under 28 U.S.C. § 1295(a)(4)(A). For the following reasons, we affirm.

DISCUSSION

I. CBM Eligibility

Pursuant to § 18(a)(1)(E) of the AIA, the Board may only institute CBM review for a patent that is a CBM patent. A CBM patent is "a patent that claims a method or corresponding apparatus for performing data processing or other operations used in the practice, administration, or management of a financial product or service, *except that the term does not include patents for technological inventions*." *Id.* § 18(d)(1) (emphasis added). Pursuant to its authority under § 18(d)(2), the Patent and Trademark Office ("PTO") promulgated 37 C.F.R. § 42.301(b), which requires the Board to consider the following on a case-by-case basis in determining whether a patent is for a technological invention: "whether the claimed subject matter as a whole recites a technological feature that is novel and unobvious

over the prior art" and whether it "solves a technical problem using a technical solution." We review the Board's reasoning "under the arbitrary and capricious standard and its factual determinations under the substantial evidence standard." *SightSound Techs., LLC v. Apple Inc.*, 809 F.3d 1307, 1315 (Fed. Cir. 2015).

The only issue of CBM eligibility that TT contests is whether its patents are for technological inventions.

A. The '999 and '056 Patents

The Board relied on claim 1 of the '999 patent and claim 1 of the '056 patent to determine that those patents are directed to a covered business method. Claim 1 of the '999 patent recites:

> 1. A computer based method for facilitating the placement of an order for an item and for displaying transactional information to a user regarding the buying and selling of items in a system where orders comprise a bid type or an offer type, and an order is generated for a quantity of the item at a specific value, the method comprising:
>
> > displaying a plurality of bid indicators, each corresponding to at least one bid for a quantity of the item, each bid indicator at a location along a first scaled axis of prices corresponding to a price associated with the at least one bid;
> >
> > displaying a plurality of offer indicators, each corresponding to at least one offer for a quantity of the item, each offer indicator at a location along the first scaled axis of prices corresponding to a price associated with the at least one offer;
> >
> > receiving market information representing a new order to buy a quantity of the item

> for a specified price, and in response to the received market information, generating a bid indicator that corresponds to the quantity of the item bid for and placing the bid indicator along the first scaled axis of prices corresponding to the specified price of the bid;
>
> receiving market information representing a new order to sell a quantity of the item for a specified price, and in response to the received market information, generating an offer indicator that corresponds to the Quantity of the item for which the offer is made and placing the offer indicator along the first scaled axis of prices corresponding to the specified price of the offer;
>
> displaying an order icon associated with an order by the user for a particular quantity of the item;
>
> selecting the order icon and moving the order icon with a pointer of a user input device to a location associated with a price along the first scaled axis of prices; and
>
> sending an order associated with the order icon to an electronic trading exchange, wherein the order is of a bid type or an offer type and the order has a plurality of order parameters comprising the particular quantity of the item and the price corresponding to the location at which the order icon was moved.

Claim 1 of the '056 patent is similar. It recites:

> 1. A method of operation used by a computer for displaying transactional information and

facilitating trading in a system where orders comprise a bid type or an offer type, the method comprising:

receiving bid and offer information for a product from an electronic exchange, the bid and offer information indicating a plurality of bid orders and a plurality of offer orders for the product;

displaying a plurality of bid indicators representing quantity associated with the plurality of bid orders, the plurality of bid indicators being displayed at locations corresponding to prices of the plurality of bid orders along a price axis;

displaying a plurality of offer indicators representing quantity associated with the plurality of offer orders, the plurality of offer indicators being displayed at locations corresponding to prices of the plurality offer orders along the price axis;

receiving a user input indicating a default quantity to be used to determine a quantity for each of a plurality of orders to be placed by the user at one or more price levels;

receiving a user input indicating a desired price for an order to be placed by the user, the desired price being specified by selection of one of a plurality of locations corresponding to price levels along the price axis; and

sending the order for the default quantity at the desired price to the electronic exchange.

We agree with the Board that these claims are directed to a covered business method and thus CBM review was appropriate. These claims are directed to a financial trading method used by a computer. We see no technological invention in this software method for trading. The claims require receiving bid and offer information from an electronic exchange, displaying such information ("bid indicators" and "offer indicators"), and sending an order to the electronic exchange based on a user input. The two claims differ mainly in the way the user places the order (clicking and dragging an "order icon" to a location on the price axis versus selecting a point on the price axis). In each case, the Board applied the considerations of § 42.301(b) and found that the claims do not recite a technological feature that is novel and unobvious over the prior art and do not solve a technical problem with a technical solution for essentially the same reasons.

TT argues the Board erred in applying the first consideration of § 42.301(b) based on our decision in *Versata Development Group Inc. v. SAP America, Inc.*, 793 F.3d 1306 (Fed. Cir. 2015). According to TT, *Versata* set aside the novelty and nonobviousness language of the regulation, leaving the definition of a technological invention as one having a technological feature that solves a technical problem using a technical solution. *E.g.*, Appellant Br. 24–25, No. 18-1063 (citing 793 F.3d at 1326). We need not decide this issue because we agree with the Board that the considered claims do not solve a technical problem using a technical solution. *See Apple, Inc. v. Ameranth, Inc.*, 842 F.3d 1229, 1240 (Fed. Cir. 2016) ("We need not address this argument regarding whether the first prong of 37 C.F.R. § 42.301(b) was met, as we affirm the Board's determination on the second prong of the regulation . . . .").

TT argues the inventions addressed technical problems in the way prior art GUI tools were constructed and operated. It claims the '999 patent addressed problems related to speed, efficiency, and usability, and the '056 patent

addressed problems related to intuitiveness, visualization, and efficiency. We agree with the Board that the patents relate to the practice of a financial product, not a technological invention. The specification states that a successful trader anticipates the market to gain an advantage, '999 patent at 1:20–26, but doing so is difficult because it requires assembling data from various sources and processing that data effectively, *id.* at 1:51–54. The invention solves this problem by displaying trading information "in an easy to see and interpret graphical format." *Id.* at 2:3–6. The specification makes clear that the invention simply displays information that allows a trader to process information more quickly. *Id.* at 1:59–62 ("[A] system is needed in which trend information of market demand for an individual item is provided to traders in an intuitive format which allows traders to quickly interpret how market demand is changing to an item."); *id.* at 2:39–41 ("The user interface of the present invention presents this information in an intuitive format, allowing the trader to make informed decisions quickly."); *id.* at 2:57–62 (noting that displaying the user's trades in a different color "allows the trader to quickly determine his or her relative position in the marketplace"); *id.* at 3:37–44 (noting that "the trader is able to make instantaneous decisions regarding an item while receiving critical information about other items or the past performance of the current item and other indices," which "is a major advantage over conventional methods of trading in which this information is not provided concurrently, and if presented at all, is difficult to process quickly"). This invention makes the *trader* faster and more efficient, not the computer. This is not a technical solution to a technical problem.

TT argues that the Board erred in the CBM review of the '999 patent when it declined to consider the testimony of its expert Mr. Christopher Thomas. Even if TT was correct, the error would be harmless as Mr. Thomas' declaration acknowledges that conventional GUIs for electronic

trading dynamically displayed trading information and permitted users to trade directly from the interface. J.A. 8610–12, No. 18-1063. Nothing in his declaration asserts that the claimed interface did anything other than present information in a new and more efficient way to traders. Even if the Board had considered this testimony, it could not have reached a different conclusion.

Accordingly, we agree that the '999 and '056 patents are not for a technological invention and thus are eligible for CBM review.

B. The '374 Patent

The Board relied on claim 1 of the '374 patent to determine that the patent is directed to a covered business method. Claim 1 of the '374 patent recites:

> 1. A method for facilitating trade order entry, the method comprising:
>
> > receiving, by a computing device, market data for a commodity, the market data comprising a current highest bid price and a current lowest ask price available for the commodity;
> >
> > identifying, by the computing device, a plurality of sequential price levels for the commodity based on the market data, where the plurality of sequential price levels includes the current highest bid price and the current lowest ask price;
> >
> > displaying, by the computing device, a plurality of graphical locations aligned along an axis, where each graphical location is configured to be selected by a single action of a user input device to send a trade order to the electronic exchange, where a price of

> the trade order is based on the selected graphical location;
>
> mapping, by the computing device, the plurality of sequential price levels to the plurality of graphical locations, where each graphical location corresponds to one of the plurality of sequential price levels, where each price level corresponds to at least one of the plurality of graphical locations, and where mapping of the plurality of sequential price levels does not change at a time when at least one of the current highest bid price and the current lowest ask price changes; and
>
> setting a price and sending the trade order to the electronic exchange in response to receiving by the computing device commands based on user actions consisting of: (1) placing a cursor associated with the user input device over a desired graphical location of the plurality of graphical locations and (2) selecting the desired graphical location through a single action of the user input device.

The Board determined that claim 1 of the '374 patent does not recite a novel and unobvious technical feature and does not solve a technical problem with a technical solution. For purposes of our technological invention analysis, we see no meaningful difference between the '374 claims and the '999 and '056 claims.

TT argues the '374 invention solves a technical problem with the design of conventional electronic trading GUIs. According to TT, this GUI solves a problem that might cause the trader to submit an order at a price he did not intend.

We agree with the Board that claim 1 does not solve the alleged technical problem of missing an intended price. Claim 1 recites "displaying . . . a plurality of graphical locations aligned along an axis" and "mapping, by the computing device, the plurality of sequential price levels to the plurality of graphical locations." The only information required to be displayed are the plurality of graphical locations. The Board explained that its institution decision set forth its understanding that claim 1 "provide[s] no indication to a user of market information, such as price, order quantity, or order type[,] and the graphical locations simply could be 'black boxes' with price values associated with them, and *no information provided to the user* indicating that price value, the order quantity, or the order type." J.A. 14–15, No. 17-2621 (internal quotation marks omitted). TT did not dispute this characterization of the claim. Even if the specification recites an embodiment that solves this problem, as TT alleges, claim 1 does not.

Claim 1 also recites that "mapping of the plurality of sequential price levels does not change at a time when at least one of the current highest bid price and the current lowest ask price changes." This limitation differs from what is stated in the specification when discussing Figures 3 and 4, where it explains that "[t]he values in the price column are static," i.e., "they do not normally change positions unless a re-centering command is received." '374 patent at 7:32–34. We are not convinced that maintaining the same mapping "at a time" when the price changes solves the purported problem, as it does not specify what happens immediately after the price changes.

TT also argues that the claimed invention improves speed, accuracy, and usability compared to prior art GUI tools, which are necessarily rooted in computer technology. As discussed, these purported improvements are not technological. The specification states that the invention "provide[s] the trader with improved efficiency and versatility in placing, and thus executing, trade orders for

commodities in an electronic exchange." '374 patent at 3:21–24. This is focused on improving the trader, not the functioning of the computer. Indeed, the specification acknowledges that the invention "can be implemented on any existing or future terminal with the processing capability to perform the functions described," *id.* at 4:4–6, and "is not limited by the method used to map the data to the screen display," which "can be done by any technique known to those skilled in the art," *id.* at 4:64–67.

We conclude that the Board's reasoning that claim 1 did not solve a technical problem with a technical solution was not arbitrary and capricious.

II. PATENT ELIGIBILITY

We review the Board's legal conclusions de novo and its factual findings for substantial evidence. *Ameranth*, 842 F.3d at 1236.

"Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof," may obtain a patent. 35 U.S.C. § 101. As a judicially created exception to this provision, "[l]aws of nature, natural phenomena, and abstract ideas are not patent eligible." *Alice Corp. Pty. Ltd. v. CLS Bank Int'l*, 573 U.S. 208, 216 (2014) (quoting *Assoc. for Molecular Pathology v. Myriad Genetics, Inc.*, 569 U.S. 576, 589 (2013)). All inventions at some level "embody, use, reflect, rest upon, or apply" these concepts, but if an invention applies these concepts to a new and useful end, it is patent eligible. *Id.* at 217. The Supreme Court has established a two-step framework for "distinguishing patents that claim laws of nature, natural phenomena, and abstract ideas from those that claim patent-eligible applications of those concepts. *Id.* "First, we determine whether the claims at issue are directed to" a patent-ineligible concept. *Id.* If so, "we consider the elements of each claim both individually and 'as an ordered combination' to determine whether the additional elements 'transform the nature of

the claim' into a patent-eligible application." *Id.* (quoting *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 566 U.S. 66, 78–79 (2012)).

A. The '999 Patent

At *Alice* step one, we must "determine whether the claims at issue are directed to a patent-ineligible concept." *Alice*, 573 U.S. at 218. Under this inquiry, we evaluate "the focus of the claimed advance over the prior art" to determine if the character of the claim as a whole, considered in light of the specification, is directed to excluded subject matter. *Intellectual Ventures I LLC v. Capital One Fin. Corp.*, 850 F.3d 1332, 1338 (Fed. Cir. 2017) (quoting *Affinity Labs of Tex., LLC v. DIRECTV, LLC*, 838 F.3d 1253, 1257 (Fed. Cir. 2016)).

The parties treat claim 1 of the '999 patent as representative. The Board determined claim 1 is directed to "the abstract idea of graphing (or displaying) bids and offers to assist a trader to make an order." J.A. 22, No. 18-1053. We agree. The claim's preamble states that it is a "computer based method for facilitating the placement of an order for an item and for displaying transactional information to a user regarding the buying and selling of items." The method steps require "displaying" a plurality of bid and offer indicators along a "scaled axis of prices," "receiving market information," displaying that information along the axis, and "displaying" information pertaining to a user's order. This essentially describes receiving information, which the specification admits was already available to "market makers," '999 patent at 1:35–41, and displaying that information. "[W]e have treated collecting information, including when limited to particular content (which does not change its character as information), as within the realm of abstract ideas." *Electric Power Grp., LLC v. Alstom S.A.*, 830 F.3d 1350, 1353 (Fed. Cir. 2016).

Claim 1 also recites sending an order by "selecting" and "moving" an order icon to a location along the price axis.

This does not change our determination that the claims are directed to an abstract idea. As the Board determined, placing an order based on displayed market information is a fundamental economic practice. J.A. 23–24, No. 18-1063 (citing J.A. 3379–80, No. 18-1063). The fact that the claims add a degree of particularity as to how an order is placed in this case does not impact our analysis at step one. *See Ultramercial, Inc. v. Hulu, LLC*, 772 F.3d 709, 715 (Fed. Cir. 2014) ("Although certain additional limitations, such as consulting an activity log, add a degree of particularity, the concept embodied by the majority of the limitations describes only the abstract idea of showing an advertisement before delivering free content.").

The fact that this is a "computer-based method" does not render the claims non-abstract. The specification indicates the claimed GUI is displayed on any computing device. '999 patent at 4:34–37, 6:6–8. As a general rule, "the collection, organization, and display of two sets of information on a generic display device is abstract." *Interval Licensing LLC v. AOL, Inc.*, 896 F.3d 1335, 1345 (Fed. Cir. 2018). Relying principally on *Core Wireless Licensing S.A.R.L. v. LG Electronics, Inc.*, 880 F.3d 1356 (Fed. Cir. 2018), TT argues the claimed invention provides an improvement in the way a computer operates. We do not agree. The claims of the '999 patent do not improve the functioning of the computer, make it operate more efficiently, or solve any technological problem. Instead, they recite a purportedly new arrangement of generic information that assists traders in processing information more quickly. *E.g.*, '999 patent at 2:39–41. We conclude that the claims are directed to the abstract idea of graphing bids and offers to assist a trader to make an order.

At step two, we "consider the elements of each claim both individually and 'as an ordered combination' to determine whether the additional elements 'transform the nature of the claim' into a patent eligible application." *Alice*, 573 U.S. at 218 (quoting *Mayo*, 566 U.S. at 78–79). Step

two "looks more precisely at what the claim elements add" to determine if "they identify an inventive concept in the application of the ineligible matter to which . . . the claim is directed." *SAP Am., Inc. v. InvestPic, LLC*, 898 F.3d 1161, 1167 (Fed. Cir. 2018) (internal quotation marks omitted). The abstract idea itself cannot supply the inventive concept, "no matter how groundbreaking the advance." *Id.* at 1171.

The Board held that the claims do not contain an inventive concept. It determined that receiving market information is simply routine data gathering, and displaying information as indicators along a scaled price axis is well-understood, routine, conventional activity that does not add something significantly more to the abstract idea. J.A. 28, No. 18-1063 (citing, *e.g.*, J.A. 2804, 3301, 3379–80, No. 18-1063). It likewise determined that selecting and moving an icon is well-understood, routine, conventional activity. J.A. 28–29, No. 18-1063 (citing J.A. 3871–73, No. 18-1063). It considered the elements both individually and as an ordered combination and concluded they did not transform the claim into a patent eligible application of the abstract idea. We agree.

B. The '056 Patent

The parties treat claim 1 of the '056 patent as representative except as to dependent claims 5–7. Like the '999 patent, the Board at step one determined claim 1 is directed to "the abstract idea of graphing (or displaying) bids and offers to assist a trader to make an order." J.A. 20–21, No. 17-2257. We agree. In claim 1 of the '056 patent, the preamble states the claim is a "method of operation used by a computer for displaying transactional information and facilitating trading." The method steps require "receiving bid and offer information," "displaying" bid and offer indicators associated with the information, "receiving a user input indicating a default quantity," "receiving" a selection of a price along the price axis, and "sending" the order.

We see no meaningful difference between these limitations and the similar limitations of claim 1 in the '999 patent and thus reach the conclusion that it too is directed to an abstract idea. While the claims disclose different ways of submitting orders and use slightly different terminology, these differences have no effect on our eligibility determination at step one.

At step two, the Board held the elements, both individually and as an ordered combination, do not recite an inventive concept. TT argues the claims improve computer functionality by improving on the intuitiveness and efficiency of prior GUI tools. The specification makes clear that this invention helps the trader process information more quickly. This is not an improvement to computer functionality, as alleged by TT. We see no merit to TT's argument and affirm the Board's conclusion that claims 1–4 and 8–15 are patent ineligible.

TT separately argues that the additional limitations of dependent claims 5–7 render the claims eligible. Claim 5 depends from claim 1 and further recites "displaying an order icon at a location that corresponds to the desired price level along the price axis, the order icon indicating the user's order at the electronic exchange." Claims 6 and 7 each depend from claim 5 and recite further details about the bid and offer indicators and the order icon. TT argues the "order icon" of claim 5 must be a distinct icon from the bid and offer indicators. These limitations do not change our analysis, as simply displaying all the bids and offers in the aggregate, including the user's bids and offers, is not enough.

We have considered TT's arguments and find them to be without merit.

C. The '374 Patent

At step one, the Board held that claim 1 of the '374 patent is directed to the abstract idea of receiving user input

to send a trade order. It explained that "claim 1 only minimally requires collecting and analyzing information and includes no requirement that any of that information is displayed. J.A. 16, No. 17-2621. This is because the claims require "displaying . . . graphical locations along an axis" but do not require the graphical locations to display the price levels that are mapped to them. Based on the Board's understanding, the graphical locations need not provide any information to the user. This understanding of claim 1 was laid out in the institution decision, and TT did not dispute it.

Much of TT's argument at step one is the same as its argument that the patent is for a technological invention. It argues claim 1 recites a specific, structured GUI that solves the price-flipping problem of prior art interfaces. It argues that such an improvement over prior art interfaces inherently improves the functioning of a computer. These arguments are unavailing.

TT had an opportunity to dispute the Board's characterization of the claims after institution but chose not to do so. We agree with the Board that claim 1 is directed to the abstract idea of receiving a user input to send a trade order.

At step two, the Board held the elements of claim 1, individually or as an ordered combination, do not add an inventive concept. It noted that the specification discloses that the invention can be implemented "on any existing or future terminal or device" and describes the programming as insignificant. J.A. 20, No. 17-2621 (citing '374 patent at 4:4–7, 4:60–67). It also noted that TT acknowledged that conventional GUIs for electronic trading permitted a trader to send an order electronically. J.A. 20, No. 17-2621 (citing J.A. 269, No. 17-2621).

TT repeats its argument that claim 1 improves computer functionality by solving technological problems with prior art electronic trading interfaces. But as previously explained, claim 1 does not solve any purported

technological problem. We have considered TT's remaining arguments with regard to claim 1 and the dependent claims and find them to be without merit.

III. Prior Decisions

TT argues that because non-precedential decisions of this court held that other TT patents were for technological inventions or claimed eligible subject matter, we should too. We are not bound by non-precedential decisions at all, much less ones to different patents, different specifications, or different claims. Each panel must evaluate the claims presented to it. Eligibility depends on what is claimed, not all that is disclosed in the specification. *See Data Engine Techs. LLC v. Google LLC*, 906 F.3d 999, 1011–12 (Fed. Cir. 2018) (holding a claim from one patent ineligible and claims from other patents that shared a specification eligible).

IV. Constitutionality of CBM Review

TT argues the decisions should all be vacated because CBM review is unconstitutional. In a total of four sentences in each of its opening briefs, TT raises challenges based on a right to a jury under the Seventh Amendment, separation of powers under Article III, the Due Process Clause, and the Taking Clause. Such a conclusory assertion with no analysis to the underlying challenge is insufficient to preserve the issue for appeal. *See United States v. Great Am. Ins. Co. of N.Y.*, 738 F.3d 1320, 1328 (Fed. Cir. 2013) ("It is well established that arguments that are not appropriately developed in a party's briefing may be deemed waived."); *SmithKline Beecham Corp. v. Apotex Corp.*, 439 F.3d 1312, 1320 (Fed. Cir. 2006) (holding that "mere statements of disagreement . . . do not amount to a developed argument" sufficient to preserve the issue). We decline to address TT's constitutional challenges.

CONCLUSION

We have considered TT's other arguments and find them unpersuasive. For the foregoing reasons, we conclude that the patents at issue are CBM eligible and that claims 1–15 of the '056 patent, claims 1–35 of the '999 patent, and claims 1–36 of the '374 patent are ineligible. In light of this conclusion, we need not address Petitioners' separate ground that the claims of the '056 patent would have been obvious.

AFFIRMED