United States Court of Appeals for the Federal Circuit

MCM PORTFOLIO LLC,
Appellant

v.

HEWLETT-PACKARD COMPANY,
Appellee

2015-1091

Appeal from the United States Patent and Trademark Office, Patent Trial and Appeal Board, in No. IPR2013-00217.

Decided: December 2, 2015

EDWARD PETER HELLER III, Alliacense Limited LLC, San Jose, CA, argued for appellant. Also represented by SUSAN ANHALT, Fountainhead IP, San Jose, CA.

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ton, DC, argued for intervenor Michelle K. Lee. Also represented by MARK R. FREEMAN, BENJAMIN C. MIZER; NATHAN K. KELLEY, SCOTT WEIDENFELLER, Office of the Solicitor, United States Patent and Trademark Office, Alexandria, VA.

ROBERT GREENSPOON, Flachsbart & Greenspoon, LLC, Chicago, IL, for amicus curiae J. Carl Cooper.

Before PROST, *Chief Judge,* DYK, and HUGHES, *Circuit Judges.*

DYK, *Circuit Judge.*

MCM Portfolio LLC ("MCM") owns U.S. Patent No. 7,162,549 ("the '549 patent"), which claims methods and systems for coupling a computer system with a flash memory storage system. Hewlett-Packard Co. ("HP") filed a petition with the Patent and Trademark Office ("PTO") requesting inter partes review of claims 7, 11, 19, and 21 of the '549 patent. The Patent Trial and Appeal Board ("Board") determined that HP's petition demonstrated a reasonable likelihood that the challenged claims of the '549 patent were invalid as obvious and instituted an inter partes review. Thereafter, the Board issued a final decision holding that the challenged claims would have been obvious. MCM appeals.

We hold that we lack jurisdiction to review the Board's decision that the institution of inter partes review was not barred by 35 U.S.C. § 315(b), but we conclude that we can review the question of whether the final decision violates Article III and the Seventh Amendment. On the merits, we reject MCM's argument that inter partes review violates Article III and the Seventh Amendment, and we affirm the Board's decision that claims 7, 11, 19, and 21 of the '549 patent would have been obvious over the prior art.

BACKGROUND

The '549 patent, entitled "Multimode Controller for Intelligent and 'Dumb' Flash Cards," issued on January 9, 2007, and claims a priority date of July 6, 2000. The patent claims methods and systems for coupling flash memory cards to a computer utilizing a "controller chip." '549 patent at Abstract. In general, a controller is a device that performs the physical transfer of data between a computer and a peripheral device, such as a monitor, keyboard, or, as here, a flash memory card. *See* Allan Freedman, *The Computer Glossary* 75–76 (9th ed. 2001).

The primary purpose of the controller here is to achieve error correction. *See* '549 patent col. 28, ll. 37–54. Error correction tests for accurate data transmission in order to "present a flawless medium to the system, in a specific format, so the computer [] sees an error-free storage medium [], rather than a flash [memory] that may have certain defects." *Id.* at col. 28, ll. 37–41; *see also* Freedman, *supra*, at 135. As described in the patent, removable flash memory cards are commonly used in digital cameras to store image or video files and enable the convenient transfer of those files to a computer using a card reader. '549 patent at col. 1, ll. 50–56. At the time the '549 patent was filed, flash memory cards were made by various companies and came in many shapes and formats, such as CompactFlash, Secure Digital, and Memory Stick. *Id.* at col. 2, ll. 28–55. The specification describes a need for a flash memory card reader that can be used with flash memory cards of several different formats, and, relevant here, a controller on the card reader "that can work with multiple types of flash memory cards that have controllers, and also with flash memory cards that do not have controllers." *Id.* at col. 3, l. 53 to col. 4, l. 22.

The patent claims improvements to flash memory card readers, including a controller chip that can deter-

mine whether the flash memory card has an onboard controller for error correction, and if it does not, using firmware to manage error correction for the flash memory card.

Claims 7 and 11 are illustrative:

7. A method comprising:

using a controller chip to interface a flash storage system with or without a controller to a computing device, the controller chip comprising a flash adapter, wherein the flash storage system comprises a flash section and at least a medium ID;

determining whether the flash storage system includes a controller for error correction; and

in an event where the flash storage system does not have a controller for error correction, using firmware in the flash adapter to perform operations to manage error correction of the flash section, including bad block mapping of the flash section in the flash storage system that is coupled to the flash adapter section.

11. A system comprising:

a computing device;

a flash storage system comprising a flash section and at least a portion of a medium ID; and

a controller chip coupled between the computing device and the flash storage system to interface the flash storage system to the computing device, the controller chip comprising an interface mechanism capable of receiving flash storage systems with controller and controllerless flash storage systems, a detector to determine whether the flash storage system

> includes a controller for error correction and a flash adapter which comprises firmware to perform, in an event where the flash storage system does not have a controller for error correction, operations to manage error correction of the flash section, including bad block mapping of the flash section in the flash storage system that is coupled to the flash adapter section.

Id. at col. 30, ll. 23–37, 48–65. Claims 19 and 21, which depend from claims 7 and 11, respectively, further require that the flash adapter comprise a plurality of interfaces capable of receiving a plurality of flash storage systems. *Id.* at col. 32, ll. 1–3, 7–9.

On March 27, 2013, HP petitioned for inter partes review of claims 7, 11, 19, and 21 of the '549 patent under 35 U.S.C. § 311, asserting that those claims were anticipated by, or obvious over, five prior art references. MCM filed a preliminary response on June 27, 2013. MCM argued, *inter alia*, that institution of inter partes review was barred under 35 U.S.C. § 315(b). MCM argued that HP was a privy of Pandigital, Inc. ("Pandigital"), because HP was reselling allegedly infringing digital picture frames manufactured by Pandigital. Because MCM had filed suit for infringement of the '549 patent against Pandigital more than one year before HP filed the petition for inter partes review, MCM argued that § 315(b) barred inter partes review.

On September 10, 2013, the Board instituted inter partes review with respect to claims 7, 11, 19, and 21 of the '549 patent. The Board found that there was a reasonable likelihood that HP would prevail with respect to at least one of the challenged claims based on obviousness over two prior art references: U.S. Patent No. 6,199,122 ("Kobayashi") and WO 98/03915 ("Kikuchi"). The Board rejected MCM's argument that it could not institute inter

partes review under 35 U.S.C. § 315(b), holding that the fact that Pandigital and HP were successive owners of the same allegedly infringing property was not sufficient to confer privity for the purposes of § 315(b).

MCM filed a patent owner response on December 9, 2013, and HP filed the petitioner's reply to the patent owner response on March 10, 2014. After conducting a trial hearing, the Board issued its final written decision on August 6, 2014. The Board rejected MCM's argument that inter partes review proceedings violate Article III and the Seventh Amendment. On the merits, the Board concluded that HP had shown by a preponderance of evidence that claims 7, 11, 19, and 21 would have been obvious over a combination of the Kobayashi and Kikuchi prior art references. MCM appealed. The PTO intervened. We have jurisdiction to review the Board's final decision under 28 U.S.C. § 1295(a)(4)(A). We review constitutional, statutory, and legal issues de novo, and the Board's factual findings for substantial evidence. *Giorgio Foods, Inc. v. United States*, 785 F.3d 595, 600 (Fed. Cir. 2015); *In re Morsa*, 713 F.3d 104, 109 (Fed. Cir. 2013).

DISCUSSION

I

We first address MCM's contention that the Board improperly instituted inter partes review. 35 U.S.C. § 315(b) provides that "[a]n inter partes review may not be instituted if the petition requesting the proceeding is filed more than 1 year after the date on which the petitioner . . . or privy of the petitioner is served with a complaint alleging infringement of the patent." MCM asserts that it filed a complaint alleging infringement of the '549 patent on Pandigital more than one year prior to HP's petition, and that, contrary to the Board's determination, Pandigital is a privy of HP. MCM argues on appeal that the Board therefore erred in instituting inter partes review.

The law is clear that there is "no appeal" from the decision to institute inter partes review. 35 U.S.C. § 314(d). Section 314(d) provides that "[t]he determination . . . whether to institute an inter partes review under this section shall be final and nonappealable." *Id.* We have held that a patent owner cannot appeal the Board's decision to institute inter partes review, even after a final decision is issued. *In re Cuozzo Speed Techs.*, 793 F.3d 1268, 1273–74 (Fed. Cir. 2015). Specifically, in *Achates Reference Publishing, Inc. v. Apple Inc.*, 803 F.3d 652, 658 (Fed. Cir. 2015), we held that "§ 314(d) prohibits this court from reviewing the Board's determination to initiate inter partes review proceedings based on its assessment of the time-bar of § 315(b)." *Achates* controls here. Review of whether the PTO properly instituted inter partes review is forbidden by § 314(d).

II

MCM next argues that inter partes review is unconstitutional because any action revoking a patent must be tried in an Article III court with the protections of the Seventh Amendment. Here there is no bar to review, under § 314(d), of MCM's claim that the Board lacked authority to issue a final decision. Jurisdiction exists because MCM challenges only the final decision of the Board, not its decision to institute proceedings.

In support of its constitutional argument, MCM urges that the Supreme Court's decision in *McCormick Harvesting Machine Co. v. Aultman* ("*McCormick II*"), 169 U.S. 606 (1898), bars the PTO from invalidating patents in inter partes review proceedings and that only an Article III court can exercise that authority.

In *McCormick II*, the owner of U.S. Patent No. 159,506, a patent on automatic twine binders for harvesting machines, brought suit for infringement of claims 3, 10, 11, 25, and 26 against two accused infringers. *See McCormick Harvesting Mach. Co. v. Aultman* ("*McCor-*

mick I"), 69 F. 371, 388 (6th Cir. 1895). The defendants pointed out that the patentee had submitted to the Patent Office an application for reissue including both claims in the original patent and newly added claims. *McCormick II*, 169 U.S. at 607. The examiner rejected five of the original claims (the same as those asserted in the infringement suit) as invalid, but allowed other claims, both old and new. *Id.* at 607–08. The patent owner subsequently withdrew the application for reissue, and the original patent was returned by the Patent Office. *Id.* The trial court held that there was no infringement liability because the amended claims had been found invalid by the Patent Office. *Id.* at 607. On appeal the Sixth Circuit certified the question as to the effect of the Patent Office action. *McCormick I*, 69 F. at 401.[1]

The Supreme Court held that the original patent claims were not invalid because the reissue statute provided that the "surrender [of the original patent] shall take effect upon the issue of the amended patent," Rev. Stat. § 4916 (1878), and that "until the amended patent shall have been issued the original stand[s] precisely as if a reissue had never been applied for . . . and must be returned to the owner upon demand. . . . If the patentee abandoned his application for reissue, he is entitled to a return of his original patent precisely as it stood when

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[1] The certified question asked: "If a patentee applies for a reissue of his patent, and includes among the claims under the new application the same claims as those which were included in the old patent, and the examiner of the patent office rejects some of such claims, and allows others, both old and new, does the patentee, by abandoning his application for a reissue, and by procuring a return of his original patent, hold his patent invalidated as to those claims which the examiner rejected?" *McCormick I*, 69 F. at 401.

such application was made." *McCormick II*, 169 U.S. at 610 (citation omitted). Because the patentee had never surrendered the original patent, the Patent Office's rejection of the original claims was a nullity. Only the patentee's decision to surrender the original patent and to accept the reissued patent without the rejected claims would have eliminated the claims found to be invalid. Because that did not occur, "[t]he only authority competent to set a patent aside, or to annul it, or to correct it for any reason whatever, is vested in the courts of the United States, and not in the department which issued the patent." *Id.* at 609. Without statutory authorization, an "attempt [by the Commissioner of Patents] to cancel a patent upon an application for reissue when the first patent is considered invalid by the examiner . . . would be to deprive the applicant of his property without due process of law, and would be in fact an invasion of the judicial branch of the government by the executive." *Id.* at 612; *see also United States v. Am. Bell Tel. Co.*, 128 U.S. 315, 364–65 (1888) (noting lack of statutory authority for the Patent Office to cancel patents).

McCormick II did not address Article III and certainly did not forbid Congress from granting the PTO the authority to correct or cancel an issued patent. Congress has since done so by creating the ex parte reexamination proceeding in 1980; the inter partes reexamination procedure in 1999; and inter partes review, post-grant review, and Covered Business Method patent review in 2011. *See* Bayh-Dole Act, Pub. L. No. 96-517, 94 Stat. 3015 (1980) (codified as amended at 35 U.S.C. §§ 302–07); Intellectual Property and Communications Omnibus Reform Act of 1999, Pub. L. No. 106-113, 113 Stat. 1501 (codified as amended at 35 U.S.C. § 311 *et seq.* (1999)); Leahy–Smith America Invents Act ("AIA"), Pub. L. No. 112-29, § 6(a), 125 Stat. 284, 299–304 (2011) (codified at 35 U.S.C. §§ 311 *et seq.* (2013)). Supreme Court precedent demon-

strates that these statutes, and particularly the inter partes review provisions, do not violate Article III.

As early as in *Murray's Lessee v. Hoboken Land & Improvement Co.*, 59 U.S. 272, 284 (1855), the Court recognized that "there are matters, involving public rights, which may be presented in such form that the judicial power is capable of acting on them . . . but which congress may or may not bring within the cognizance of the courts of the United States, as it may deem proper." *Id.* at 281; *see also Crowell v. Benson*, 285 U.S. 22, 50 (1932). That is, Congress has the power to delegate disputes over public rights to non-Article III courts. The public rights exception was first applied to disputes between the government and private parties, as in *Murray's Lessee*. More recently, the Court has extended the doctrine to disputes between private parties concerning public rights. In *Block v. Hirsh*, 256 U.S. 135, 158 (1921), the Court upheld the constitutionality of a District of Columbia statute authorizing an administrative agency to determine fair rents for holdover tenants as provided by the statute. In *Ex parte Bakelite Corp.*, 279 U.S. 438, 460–61 (1929), the Court held that an adversarial proceeding by a company against a competitor for unfair importation practices under federal law did not need to be heard in an Article III court.

In *Thomas v. Union Carbide Agricultural Products Co.*, 473 U.S. 568, 571 (1985), the Court upheld the binding arbitration scheme of the Federal Insecticide, Fungicide, and Rodenticide Act ("FIFRA"). Under FIFRA, pesticide manufacturers seeking to register a pesticide were required to submit health, safety, and environmental data to the EPA. *Id.* at 571–72. That data could be utilized by the EPA in approving registrations by other manufacturers, but compensation for its use was owed to the earlier registrant. *Id.* The amount could be determined by agency arbitration instead of in an Article III court. *Id.* at 573–74. *Thomas* held that this statutory

scheme does not violate Article III, noting that "[m]any matters that involve the application of legal standards to facts and affect private interests are routinely decided by agency action with limited or no review by Article III courts." *Id.* at 583. It followed that "Congress, acting for a valid legislative purpose to its constitutional powers under Article I, may create a seemingly 'private' right that is so closely integrated into a public regulatory scheme as to be a matter appropriate for agency resolution with limited involvement by the Article III judiciary." *Id.* at 593–94. So too the Court later upheld the constitutionality of adversary proceedings in the Commodity Futures Trading Commission ("CFTC"), for customers of commodity brokers to seek reparations from their brokers for violation of the Commodity Exchange Act ("CEA") or agency regulations. *Commodity Futures Trading Comm'n v. Schor*, 478 U.S. 833, 854 (1986).

More recently, the Court expounded on the public rights doctrine in *Stern v. Marshall*, 131 S. Ct. 2594 (2011). *Stern* explained that the Court continued to apply the public rights doctrine to disputes between private parties in "cases in which the claim at issue derives from a federal regulatory scheme, or in which resolution of the claim by an expert government agency is deemed essential to a limited regulatory objective within the agency's authority. . . . [W]hat makes a right 'public' rather than private is that the right is integrally related to particular federal government action." *Id.* at 2613.

In *Stern*, however, the Court held that, under Article III, a bankruptcy court could not enter judgment on a state law counterclaim sounding in tort, because state law counterclaims "[do] not flow from a federal statutory scheme," *id.* at 2614, "[are] not completely dependent upon adjudication of a claim created by federal law," *id.* (quotation marks omitted), and do not involve "a situation in which Congress devised an expert and inexpensive method for dealing with a class of questions of fact which

are particularly suited to examination and determination by an administrative agency specially assigned to that task," *id.* at 2615 (quotation marks omitted).

Patent reexamination and inter partes review are indistinguishable from the agency adjudications held permissable in *Thomas* and *Schor*, and wholly distinguishable from the review of state law claims at issue in *Stern*. Here, as in *Thomas* and *Schor*, the agency's sole authority is to decide issues of federal law. The patent right "derives from an extensive federal regulatory scheme," *Stern*, 131 S. Ct. at 2613, and is created by federal law. Congress created the PTO, "an executive agency with specific authority and expertise" in the patent law, *Kappos v. Hyatt*, 132 S. Ct. 1690, 1696 (2012), and saw powerful reasons to utilize the expertise of the PTO for an important public purpose—to correct the agency's own errors in issuing patents in the first place. Reacting to "a growing sense that questionable patents are too easily obtained and are too difficult to challenge," Congress sought to "provid[e] a more efficient system for challenging patents that should not have issued" and to "establish a more efficient and streamlined patent system that will improve patent quality and limit unnecessary and counterproductive litigation costs." H.R. Rep. No. 112–98, at 39–40. There is notably no suggestion that Congress lacked authority to delegate to the PTO the power to issue patents in the first instance. It would be odd indeed if Congress could not authorize the PTO to reconsider its own decisions.

The Board's involvement is thus a quintessential situation in which the agency is adjudicating issues under federal law, "Congress [having] devised an 'expert and inexpensive method for dealing with a class of questions of fact which are particularly suited to examination and determination by an administrative agency specially assigned to that task.'" *Stern*, 131 S. Ct. at 2615 (quoting *Crowell*, 285 U.S. at 46). The teachings of the Supreme

Court in *Thomas*, *Schor*, and *Stern* compel the conclusion that assigning review of patent validity to the PTO is consistent with Article III.

Our conclusion that the inter partes review provisions do not violate Article III also finds support in our own precedent. We had occasion to consider the constitutionality, under Article III, of the ex parte reexamination statute in *Patlex Corp. v. Mossinghoff*, 758 F.2d 594 (Fed. Cir. 1985), *modified on other grounds on reh'g*, 771 F.2d 480 (Fed. Cir. 1985), and upheld the statute. We followed Supreme Court precedent that affirmed "the constitutionality of legislative courts and administrative agencies created by Congress to adjudicate cases involving 'public rights.'" *Id.* at 604 (quotation marks omitted). We found that "the grant of a patent is primarily a public concern. Validity is often brought into question in disputes between private parties, but the threshold question usually is whether the PTO, under the authority assigned to it by Congress, properly granted the patent. At issue is a right that can only be conferred by the government." *Patlex*, 758 F.3d at 604 (citing *Crowell*, 285 U.S. at 50). *Patlex* also distinguished *McCormick II*. We held that *McCormick II* did not "forbid[] Congress [from] authoriz[ing] reexamination to correct governmental mistakes, even against the will of the patent owner. A defectively examined and therefore erroneously granted patent must yield to the reasonable Congressional purpose of facilitating the correction of governmental mistakes." *Id.* at 604.

We again considered an Article III challenge to ex parte reexamination in *Joy Technologies v. Manbeck*, 959 F.2d 226 (Fed. Cir. 1992). We concluded that "*Patlex* is controlling authority and has not been impaired by . . . subsequent Supreme Court cases," *id.* at 229, and again held that "the issuance of a valid patent is primarily a public concern and involves a 'right that can only be conferred by the government' even though validity often is brought into question in disputes between private par-

ties," *id.* at 228 (quoting and citing *Patlex*, 758 F.3d at 604).

We are bound by prior Federal Circuit precedent "unless relieved of that obligation by an en banc order of the court or a decision of the Supreme Court." *Deckers Corp. v. United States*, 752 F.3d 949, 959 (Fed. Cir. 2014). We see no basis to distinguish the reexamination proceeding in *Patlex* from inter partes review. Indeed, Congress viewed inter partes review as "amend[ing] ex parte and inter partes reexamination," and as a descendant of an experiment began "[n]early 30 years ago, [when] Congress created the administrative 'reexamination' process, through which the USPTO could review the validity of already-issued patents on the request of either the patent holder or a third party, in the expectation that it would serve as an effective and efficient alternative to often costly and protracted district court litigation." H.R. Rep. No. 112–98, at 45. Supreme Court authority after *Patlex* and *Joy Technologies* (discussed above) casts no doubt on those cases. Rather, it confirms their correctness. Governing Supreme Court and Federal Circuit authority require rejection of MCM's argument that inter partes review violates Article III.

III

MCM argues as well that it has a right to a trial by jury under the Seventh Amendment, which is not satisfied by the system of inter partes review. The Seventh Amendment provides that, "[i]n Suits at common law, where the value in controversy shall exceed twenty dollars, the right of trial by jury shall be preserved . . . ." U.S. Const. amend. VII. The Supreme Court has stated that "the Seventh Amendment is generally inapplicable in administrative proceedings, where jury trials would be incompatible with the whole concept of administrative adjudication and would substantially interfere with [the agency's] role in the statutory scheme." *Curtis v. Loether*,

415 U.S. 189, 194 (1974). *Curtis* upheld "congressional power to entrust enforcement of statutory rights to an administrative process or specialized court of equity free from the structures of the Seventh Amendment." *Id.* at 195. Similarly, the Court held in *Atlas Roofing Co., Inc. v. Occupational Safety & Health Review Commission*, 430 U.S. 442, 455 (1977), that "when Congress creates new statutory 'public rights,' it may assign their adjudication to an administrative agency with which a jury trial would be incompatible, without violating the Seventh Amendment's injunction that jury trial is to be 'preserved' in 'suits at common law.' Congress is not required by the Seventh Amendment to choke the already crowded federal courts with new types of litigation or prevented from committing some new types of litigation to administrative agencies with special competence in the relevant field." *See also Tull v. United States*, 481 U.S. 412, 418 n.4 (1987) ("[T]he Seventh Amendment is not applicable to administrative proceedings."). Here, when Congress created the new statutory right to inter partes review, it did not violate the Seventh Amendment by assigning its adjudication to an administrative agency.[2]

Under Supreme Court decisions such as *Curtis* and *Atlas Roofing*, there is no basis for MCM's contention that it has a right to a jury trial. Indeed, we have previously

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[2] *Markman v. Westview Instruments*, Inc., 517 U.S. 370, 377 (1996), in stating that patent infringement actions in district court are subject to the Seventh Amendment, does not suggest that there is a jury trial right in an administrative adjudication of patent validity. *See also Ex parte Wood & Brundage*, 22 U.S. 603 (1824). Nor does *In re Lockwood*, 50 F.3d 966 (Fed. Cir.), *vacated sub nom. Am. Airlines, Inc. v. Lockwood*, 515 U.S. 1182 (1995), imply that there is a right to a jury trial in an agency proceeding.

addressed the jury trial argument in the context of a challenge to ex parte reexamination proceedings in *Patlex* and *Joy Technologies*. In *Patlex*, in addition to rejecting the argument that ex parte reexamination violated Article III, we also held that ex parte reexamination does not violate the Seventh Amendment because "the Constitution does not require that we strike down statutes . . . that invest administrative agencies with regulatory functions previously filled by judge and jury." 758 F.2d at 604–05.

Seven years later, the patent owner in *Joy Technologies* argued that the intervening Supreme Court decision in *Granfinanciera v. Nordberg*, 492 U.S. 33 (1989), cast doubt on the validity of *Patlex*. *Joy Techs.*, 959 F.2d at 228. In *Granfinanciera*, the Court held that a bankruptcy trustee was constitutionally entitled to a jury trial in bankruptcy court on an action to recover a fraudulent conveyance, as such suits are matters of private rights. 492 U.S. at 55–56. The Court noted, however, that Congress "may assign [the] adjudication [of statutory public rights] to an administrative agency . . . without violating the Seventh Amendment[]." *Id.* at 51 (quotation marks omitted) (quoting and citing *Atlas Roofing*, 430 U.S. at 455). We determined that *Granfinanciera* "affirms the basic underpinning of *Patlex*, *viz.*, that cases involving 'public rights' may constitutionally be adjudicated by legislative courts and administrative agencies without implicating the Seventh Amendment right to a jury trial." *Joy Techs.*, 959 F.2d at 228.

Because patent rights are public rights, and their validity susceptible to review by an administrative agency, the Seventh Amendment poses no barrier to agency adjudication without a jury.

IV

We turn finally to the Board's holding on the question of obviousness. We review the Board's legal conclusions de

novo and its factual findings for substantial evidence. *Randall Mfg. v. Rea*, 733 F.3d 1355, 1362 (Fed. Cir. 2013).

HP contends that a combination of two prior art references renders the challenged claims of the '549 patent obvious. Those two references are Kobayashi and Kikuchi. The Board found that Kobayashi discloses "a memory device for a computer with a converter that converts serial commands of the computer to parallel commands that are then used to control a storage medium (which can be a flash-memory card)." J.A. 5. One embodiment of Kobayashi depicts a flash memory card reader that can be used to read flash memory cards both with and without controllers. A sensor determines whether the flash memory card inserted includes a controller. If a controller is detected, a selector routes the data from the flash memory card to the computer; but if no controller is detected, the selector connects the flash memory card with an ATA controller, a controller based on the ATA interface standard that can read and write data on the memory card. Kobayashi does not disclose a controller that performs error correction.

Kikuchi describes a flash memory card with a one-chip ATA controller. *See* J.A. 7–9; Kikuchi, fig. 1. The Kikuchi ATA controller includes an error controller that "performs error control for read and write operations." *See* J.A. 8; Kikuchi, fig. 2. Dr. Banerjee, HP's expert, testified that the Kikuchi ATA controller could be placed in an external adapter, similar to the Kobayashi flash memory card reader. Dr. Banerjee also testified that "it would have been obvious to one of ordinary skill in the art . . . to incorporate Kikuchi's error correction and bad block mapping in ATA controller techniques into the ATA controller 124 of Kobayashi . . . [and] would be motivated [to do so] in order to 'reliably retain stored data.'" J.A. 442.

MCM argues that Kobayashi does not disclose combining different functionalities into a single chip as required by the '549 patent claims. MCM asserts that it would not have been obvious, when combining the teachings of Kobayashi and Kikuchi, to integrate their functionality into a single chip. The Board found that the "evidence supports a determination that one of ordinary skill in the art would have had both the knowledge and the inclination to place the functionality taught by Kobayashi and Kikuchi on a single chip." J.A. 10. Notably, MCM conceded at the oral hearing before the Board that it was "common practice" to put multiple functions into a single chip. J.A. 10.

MCM now reframes its argument on appeal and argues that combining the two references cannot yield a single controller chip because Kobayashi requires that its controller be able to be placed on either the reader or the card.[3] However, we have consistently held, as the Board

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[3] MCM also argues on appeal that Kobayashi relies on a physical/optical detector to determine whether there is a controller on the flash card and that this form of detection cannot be incorporated into a single chip. However, MCM candidly admits that it only raised this argument in a few scattered sentences at the oral hearing below. We have found that "if a party fails to raise an argument before the trial court, or presents only a skeletal or undeveloped argument to the trial court, we may deem that argument waived on appeal." *Fresenius USA, Inc. v. Baxter Int'l, Inc.*, 582 F.3d 1288, 1296 (Fed. Cir. 2009). We deem MCM's argument waived.

MCM additionally argues that the ATA controllers in Kobayashi and Kikuchi only work with flash cards without their own ATA controllers, and not with flash cards that have ATA controllers. MCM provides no citation to

recognized, that "[t]he test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art." *In re Keller*, 642 F.2d 413, 425 (CCPA 1981); *see also In re Mouttet*, 686 F.3d 1322, 1333 (Fed. Cir. 2012).

Even if physical incorporation of the Kikuchi ATA controller into the Kobayashi ATA controller would have conflicted with Kobayashi's instruction that its ATA controller could be arranged on the memory card or on the reader, the Board did not err in determining that the claimed subject matter—a single controller chip with error correction functionality on a flash card reader—would have been obvious to a person of ordinary skill. MCM did not argue that there were any secondary considerations of nonobviousness that weighed against a finding of obviousness.

The Board determined that HP had shown "by a preponderance of the evidence[] that the challenged claims would have been obvious over the combination of Kobayashi and Kikuchi" and "a preponderance of the evidence demonstrates that a person of ordinary skill in the art would have combined the Kobayashi and Kikuchi references." J.A. 9, 12.

We find that the Board's factual findings are supported by substantial evidence. We affirm the Board's conclusions that it would have been obvious to combine Kobayashi and Kikuchi, and that the challenged claims of

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this proposition. This argument was not made below and was waived.

the '549 patent would have been obvious over a combination of the prior art references.

AFFIRMED

COSTS

Costs to appellee.