

NOTE: This disposition is nonprecedential.

**United States Court of Appeals
for the Federal Circuit**

**SOUTH-TEK SYSTEMS, LLC, POTTER ELECTRIC
CO, LLC,**
Appellants

v.

ENGINEERED CORROSION SOLUTIONS, LLC,
Appellee

2017-2297

Appeal from the United States Patent and Trademark
Office, Patent Trial and Appeal Board in No. IPR2016-
00136.

Decided: September 20, 2018

DAVID E. BENNETT, Coats & Bennett, PLLC, Cary,
NC, argued for appellants. Also represented by EDWARD
H. GREEN, III, BRANDEE NICOLE WOOLARD.

JASON E. STACH, Finnegan, Henderson, Farabow,
Garrett & Dunner, LLP, Atlanta, GA, argued for appellee.
Also represented by BENJAMIN AARON SAIDMAN.

Before DYK, O'MALLEY, and HUGHES, *Circuit Judges*.

HUGHES, *Circuit Judge*.

South-Tek Systems, LLC and Potter Electric Co, LLC filed a petition requesting inter partes review of the U.S. Patent No, 9,144,700 on four grounds for invalidity. The Patent Trial and Appeal Board instituted review of all claims in the '700 patent, but on only two of the grounds raised. The Board then determined that the petitioners failed to establish that the challenged claims are unpatentable. We affirm the Board's determination that the challenged claims are not unpatentable over the two grounds for invalidity that it considered. We remand, however, for the Board to consider whether those claims are unpatentable over the two non-instituted grounds.

I

Engineered Corrosion Solutions, LLC owns the '700 patent, which relates to a "dry pipe" fire protection sprinkler system. When not operating to suppress fires, sprinkler systems must prevent water from flowing through the system. "Dry pipe" systems accomplish this by filling the system's pipes with a compressed gas that creates enough pressure to hold back a water source. When heat causes a sprinkler head to open, the compressed gas flows out of the system, reducing the pressure and allowing water to flow out as well.

One difficulty associated with maintaining dry pipe sprinkler systems is preventing pipe corrosion. Many factors affect whether and how quickly pipes deteriorate. Relevant here, residual water left in the pipes after system use or testing can accelerate corrosion. That water may contain microbiological organisms that establish colonies in the pipes and create leaks through microbiological induced corrosion. The water, along with oxygen trapped in the pipes, can also cause oxidative corrosion in pipes made of certain metals.

To combat these corrosion risks, the '700 patent recites a sprinkler system that expels oxygen and water using compressed nitrogen. The Board found that it would have been obvious to use compressed nitrogen from a nitrogen generator in such a sprinkler system, but that the prior art did not disclose the claimed "vent" used to expel oxygen from the system. Thus, two limitations of the claimed sprinkler system are relevant for this appeal. First, the system requires a drum drip drain that enables water to exit the system. Second, the system requires a vent that allows gas, including oxygen, to exit. Claim 1 is representative:

A water-based fire protection system comprising:

a dry pipe sprinkler system comprising at least one fusible sprinkler, a source of pressurized water, a piping network connected to the at least one fusible sprinkler, one or more drains, and a dry pipe valve coupling the source of pressurized water to the piping network, the dry pipe valve having a clapper, the piping network pitched toward the one or more drains, and *the one or more drains including a drum drip*;

a nitrogen generator coupled to the piping network, the nitrogen generator operable to pressurize the piping network with nitrogen and maintain the clapper of the dry pipe valve in a closed position until the water-based fire protection system is actuated; and

at least one vent positioned within the piping network, the at least one vent operable to allow gas including oxygen displaced by the nitrogen to exit the piping network at a preset or adjustable limit while maintaining enough pressure within the system to prevent the clapper of the dry pipe valve from opening until the water-based fire protection system is actuated to thereby increase the

concentration of nitrogen and decrease the concentration of oxygen in the piping network to reduce or eliminate the rate of corrosion in the piping network.

'700 patent col. 18 ll. 14–37 (emphases added).

In November 2015, South-Tek Systems, LLC and Potter Electric Co, LLC (collectively, South-Tek) filed a petition requesting inter partes review of every '700 patent claim. South-Tek's petition raised four grounds for invalidity, all of which were obviousness challenges based on different combinations of four prior art references.

Each ground relied on U.S. Patent No. 6,540,028 (Wood). Wood discloses a “condensate drain for a dry pipe sprinkler system.” J.A. 836. The drain is a “normally closed control valve” that opens “at a predetermined air pressure between the system minimum and maximum pressures.” J.A. 837. When the drain opens, “condensed water, or air when water is not present, is discharged through the discharge nozzle until the air pressure drops to a predetermined level.” *Id.* This enables residual water to automatically exit the system as the air pressure cycles between its minimum and maximum levels.

The petition also relied on a document published by Viking Corporation titled “Dry Pipe Sprinkler System” (Viking), U.S. Patent No. 7,322,423 (Ringer), and U.S. Patent No. 7,717,776 (Wagner). Viking discloses the components, operation, and maintenance of a typical dry pipe sprinkler system. The system's components include a pipe system, a water source held back by compressed nitrogen, and a “two-valve drum drip” that functions as a drain. J.A. 828. Ringer similarly discloses a dry pipe sprinkler system. Wagner discloses the use of oxygen sensors to measure and control the oxygen level in a room to suppress fires.

The Board instituted review on Grounds 1 and 2 of South-Tek’s petition. Ground 1 alleged that claims 1–2 and 5–9 were invalid as obvious over a combination of Wood, Viking, and admitted prior art. Ground 2 alleged that claims 3–4 were invalid as obvious over a combination of Wood, Viking, admitted prior art, and Wagner.

The Board, however, declined to institute review on Grounds 3 and 4. Ground 3 alleged that claims 1–2 and 5–9 were invalid as obvious over a combination of Wood, Ringer, and admitted prior art. Ground 4 alleged that claims 3–4 were invalid as obvious over a combination of Wood, Ringer, admitted prior art, and Wagner.

In its final written decision, the Board upheld the validity of every challenged claim over Grounds 1 and 2. The Board also denied South-Tek’s post-trial motion to file supplemental information about the meaning of the claim term “drum drip.”

South-Tek now appeals. We have jurisdiction under 28 U.S.C. § 1295(a)(4)(A).

II

We review the Board’s ultimate obviousness conclusions de novo and its underlying factual findings for substantial evidence. *In re Giannelli*, 739 F.3d 1375, 1379 (Fed. Cir. 2014). The Board’s factual determinations include the scope and content of the prior art, differences between the prior art and the claimed invention, and whether a person having ordinary skill would have been motivated to combine the prior art. *Intercontinental Great Brands LLC v. Kellogg N. Am. Co.*, 869 F.3d 1336, 1343 (Fed. Cir. 2017).

The Board found that Viking’s sprinkler system discloses most of the limitations recited by the claims, but that it fails to disclose the claimed “vent.” Recognizing this deficiency, South-Tek argued that Wood’s condensate drain could have been added to Viking’s system to satisfy

the vent limitation. The Board, however, determined (1) that Wood's condensate drain could not function as a vent and (2) that a person of ordinary skill would not have been motivated to add Wood's condensate drain to Viking's system.

The Board lacked substantial evidence for its finding that Wood's condensate drain could not operate as a vent if added to Viking's system. Rather than construe "vent," the Board relied on the claims' functional description of a vent as "operable to allow gas including oxygen displaced by the nitrogen to exit the piping network at a preset or adjustable limit while maintaining enough pressure within the system to prevent the clapper of the dry pipe valve from opening until the water-based fire protection system is actuated . . ." '700 patent col. 18 ll. 29–34. The Board then determined that South-Tek "offer[ed] no persuasive evidence that Wood's condensate drain is operable to allow gas to exit the piping network at a present or adjustable limit while maintaining enough pressure" to hold back the water source. J.A. 29–30.

But Wood explicitly describes its condensate drain as operating in this way. It offers the following example:

An example of an application is a piping system which is normally pressurized with air. An air compressor is automatically set to cut in at 30 psi and cut out at 40 psi, thereby maintaining 30 to 40 psi of air pressure at all times. The automatic drain device might be set to open above 35 psi and close when the pressure drops below 35 psi. Each time the compressor completes a 10-psi cycle, one half of the cycle will be automatically discharging condensed water or air.

J.A. 837. In this application, the condensate drain allows gas, including oxygen, to exit the piping system. The drain opens at a preset limit of 35 psi and closes below 35 psi to maintain sufficient pressure to hold back a water

source until the sprinkler system activates. This suffices to satisfy the '700 patent claims' vent limitation.

The Board's observation that "Wood discloses that its fundamental objective is to drain condensed water," rather than "balance pressures," does not alter this analysis. J.A. 30. Regardless of its "fundamental objective," Wood's condensate drain operates just as the claimed vent. It is irrelevant that the prior art primarily used the drain for a different purpose. *See KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 420 (2007) ("[F]amiliar items may have obvious uses beyond their primary purposes . . ."). Thus, the Board lacked substantial evidence for its determination that Wood's condensate drain cannot operate as a vent.¹

Nonetheless, the Board had substantial evidence for its finding that a person of ordinary skill would not have been motivated to combine Wood's condensate drain with Viking's sprinkler system. South-Tek's petition argued that it would have been obvious "to add a vent operative to vent displaced oxygen while maintaining system pressure, as taught by Wood." J.A. 92. But South-Tek failed to present any evidence that a person of ordinary skill would have been motivated to use Wood's condensate drain as an air vent. Instead, South-Tek only argued that a person of ordinary skill would have been motivated to use Wood's drain to allow water to drain from Viking's system. Viking's system already includes a drum drip drain that serves this purpose. Given the redundant functions of Viking's drum drip and Wood's condensate drain, the Board found a person of ordinary skill would

¹ Because we determine that Wood's condensate drain satisfies the claims' "vent" limitation, we need not reach South-Tek's argument that the Board erred by implicitly adopting an improper construction of "vent."

not have been motivated to add a condensate drain to Viking in addition to the system's drum drip drain.

South-Tek does not challenge the Board's finding that there would not have been a motivation to *add* Wood's automatic drain to Viking's system. On appeal, South-Tek argues that a person of ordinary skill would have been motivated to *substitute* Wood's condensate drain for Viking's drain. Because Wood's condensate drain automatically discharges water as a sprinkler system cycles between its minimum and maximum air pressures, South-Tek contends that it would have been viewed as an improvement over the Viking drains that had to be manually opened and closed.

South-Tek, however, waived this substitution theory by failing to argue it in its petition. "[I]t is of the utmost importance that petitioners in the IPR proceedings adhere to the requirement that the initial petition identify 'with particularity' the 'evidence that supports the grounds for the challenge to each claim.'" *Intelligent Bio-Sys., Inc. v. Illumina Cambridge Ltd.*, 821 F.3d 1359, 1369 (Fed. Cir. 2016) (quoting 35 U.S.C. § 312(a)(3)). The Board does not err by refusing to consider arguments improperly raised in a petitioner's reply brief for the first time. *Id.* at 1369–70. Here, the Board recognized that South-Tek's petition only argued that Wood's condensate drain could be added to Viking, not that Wood's drain could replace Viking's drum drip drains. *See* J.A. 32. Thus, the Board did not err by declining to consider South-Tek's new theory that a person of ordinary skill would have been motivated to substitute Wood's drain for Viking's drains.

We are not persuaded by South-Tek's argument that the Board should have understood the petition's reference to "add[ing] a vent . . . as taught by Wood" to mean substituting Wood's drain for Viking's drains. Even setting aside the plain difference between addition and substitution, the claim chart in South-Tek's petition confirms the

Board's understanding of South-Tek's arguments. That chart identifies Viking's drum drip drain as satisfying the claims' "one or more drains including a drum drip" limitation. The chart never suggests that Wood's condensate drain, or any other element of Viking, could similarly satisfy that limitation. Thus, the claim chart makes clear that the obviousness theories in South-Tek's petition did not contemplate replacing Viking's drain.

In sum, the Board had substantial evidence for its finding that a person of ordinary skill would not have been motivated to combine Wood and Viking. South-Tek does not challenge the Board's rejection of the motivation to combine arguments made in its petition, instead relying exclusively on a new argument that the Board reasonably refused to consider. Thus, because South-Tek's obviousness theories relied on Wood to supply the claimed "vent" limitation, the Board did not err in determining that none of the challenged claims would have been obvious over Grounds 1 and 2 of South-Tek's petition.

III

South-Tek also argues that the Board erred by failing to construe the claim term "drum drip" and by denying South-Tek's motion to file supplemental information about the meaning of "drum drip." Neither argument has merit.

We review the Board's ultimate claim construction de novo and any underlying factual determinations involving extrinsic evidence for substantial evidence. *In re Cuozzo Speed Techs., LLC*, 793 F.3d 1268, 1279–80 (Fed. Cir. 2015). The Board, however, only needs to construe terms "that are in controversy, and only to the extent necessary to resolve the controversy." *Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999). We review the Board's denial of motions to file supplemental information after an IPR has been instituted for abuse of

discretion. *Ultratec, Inc. v. CaptionCall, LLC*, 872 F.3d 1267, 1271 (Fed. Cir. 2017).

The Board did not err by declining to construe “drum drip.” South-Tek argues that such a construction is necessary to resolve the parties’ dispute over whether Wood’s condensate drain satisfies the claims’ drum drip limitation. The Board, however, rejected South-Tek’s obviousness theories because there would not have been a motivation to combine Wood and Viking. Accordingly, it was unnecessary for the Board to determine whether Wood’s condensate drain satisfied the claims’ drum drip limitation.

For the same reason, the Board did not abuse its discretion by denying South-Tek’s motion to file supplemental information related to the meaning of drum drip. That information would have been irrelevant to the basis for the Board’s decision.

IV

In light of the Supreme Court’s decision in *SAS Institute, Inc. v. Iancu*, 138 S. Ct. 1348 (2018), South-Tek also challenges the Board’s decision to institute review of the ’700 patent claims on only two of the four grounds raised in South-Tek’s petition. We agree that remand is appropriate for the Board to address the non-instituted grounds.

The Supreme Court explained in *SAS* “that the petitioner’s petition, not the Director’s discretion, is supposed to guide the life of” an IPR. *Id.* at 1356. The Court thus held that the Board cannot institute review of fewer than all of the claims that a petitioner challenges. *Id.* at 1359–60. Since *SAS*, we have recognized that the Court’s reasoning also prohibits the Board from instituting review of fewer than all of the grounds that a petitioner raises. *See PGS Geophysical AS v. Iancu*, 891 F.3d 1354, 1359

(Fed. Cir. 2018) (“We will treat claims and grounds the same in considering the SAS issues currently before us.”).

Here, the Board instituted review on Grounds 1 and 2 of South-Tek’s petition, but declined to institute review on Grounds 3 and 4. SAS forecloses this type of partial institution. Although South-Tek did not challenge this partial institution before the Board, we find that waiver does not apply to South-Tek’s prompt remand request following the significant change in law brought about by SAS. See *Adidas AG v. Nike, Inc.*, 894 F.3d 1256, 1258 (Fed. Cir. 2018) (“In several cases since SAS, we have found . . . waiver inapplicable to a prompt remand request due to the significant change in the law.”); *Polaris Indus. Inc. v. Arctic Cat, Inc.*, 724 F. App’x 948, 950 (Fed. Cir. 2018) (“Polaris’s failure to challenge the Board’s partial institution before the Supreme Court’s issuance of SAS is therefore excused.”). Thus, remand is appropriate for the Board to address Grounds 3 and 4 of South-Tek’s petition.

V

Because the Board had substantial evidence to support its finding that a person of ordinary skill would not have been motivated to combine Wood and Viking, it did not err in determining that the ’700 patent claims would not have been obvious over the combinations of prior art identified in Grounds 1 and 2 of South-Tek’s petition. As a result, we affirm the Board’s determination that the ’700 patent claims are not unpatentable over Grounds 1 and 2. We remand, however, for the Board to consider whether those claims are unpatentable over the two non-instituted grounds.

AFFIRMED AND REMANDED