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UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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*Ex parte* MICHAEL BERTHON-JONES,  
MICHAEL KASSIPILLAI GUNARATNAM, RICHARD SOKOLOV,  
ROBIN GARTH HITCHCOCK, DAVID JOHN BASSIN,  
GORDON JOSEPH MALOUF, PETER EDWARD BATEMAN, and  
PHILIP RODNEY KWOK

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Appeal 2019-001714  
Application 14/471,525  
Technology Center 3700

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Before KEVIN F. TURNER, BRETT C. MARTIN, and JILL D. HILL,  
*Administrative Patent Judges.*

HILL, *Administrative Patent Judge.*

DECISION ON APPEAL

STATEMENT OF THE CASE

Pursuant to 35 U.S.C. § 134(a), Appellant<sup>1</sup> appeals from the Examiner's decision to reject claims 1–21. We have jurisdiction under 35 U.S.C. § 6(b).

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<sup>1</sup> We use the word Appellant to refer to “applicant” as defined in 37 C.F.R. § 1.42. Appellant identifies the real party in interest as ResMed Limited. Appeal Br. 3.

We AFFIRM IN PART.

### BACKGROUND

Claims 1, 9, and 15 are independent. Claim 1, reproduced below, illustrates the claimed subject matter:

1. A patient interface assembly for non-invasive positive pressure ventilation of a patient by application of breathable gas at positive pressure to the airway of the patient wearing the patient interface assembly, the patient interface assembly comprising:

- a patient interface frame;
- a patient interface body assembly coupled to the patient interface frame; and
- headgear constructed and arranged to be connected to the patient interface frame, the headgear including a controllable active tensioning element in force-transmitting relation therewith, the active tensioning element being configured to expand or contract when an electric current is applied to the active tensioning element to automatically adjust headgear tension while the patient interface assembly is engaged with the face of the patient.

### REFERENCES

The prior art relied upon by the Examiner is:

<b>Name</b>	<b>Reference</b>	<b>Date</b>
Bertheau	5,623,923	Apr. 29, 1997
Steckmann	US 2002/0061692 A1	May 23, 2002

### REJECTION

I. Claims 1–20 stand rejected under 35 U.S.C. § 112(a) or 35 U.S.C. § 112 (pre-AIA), first paragraph. Final Act. 2.

II. Claims 1–3 and 5–21 stand rejected under 35 U.S.C. § 103 as unpatentable over Bertheau and Steckmann. Final Act. 5.

## ANALYSIS

### *Rejection I – Written Description – Claims 1–20*

The Examiner determines that it is unclear from Appellant’s disclosure (1) how the claimed active tensioning element would be implemented in the current invention, (2) how the claimed active tensioning element would connect and interact with the other structure of the device when the only active tensioning element described in detail is an occipital pneumatic pillow that inflates and deflates by sensing mask pressure, and (3) where the electric current is supplied from and where it interacts or is connected with the active tensioning element or the rest of the mask structure. Final Act. 3–4.

Appellant argues that the Specification discloses headgear with multiple tension adjusters, for example a pneumatic active tensioning element, and a rigid threaded arm 450 with a movable nut 468 that adjusts tension in the headgear. Appeal Br. 8 (citing Spec. ¶¶ 81, 139, 140). Appellant further argues that the Specification discloses achieving “variations in strap tension/displacement . . . by other mechanisms, including electrical and mechanical systems,” that include shape memory allow wires that contract when electrical current is applied. *Id.* (citing Spec. ¶¶ 82, 145). Appellant contends that “it is well known that shape memory alloys extend from their contracted state when electric current is removed from the alloy.” *Id.* (citation omitted). Appellant thus appears to rely on the knowledge of a skilled artisan to “fill in the blanks” of how and where the other tensioning mechanisms are implemented.

According to Appellant, the written description requirement is not a requirement that a skilled artisan “be able to construct the patentee’s device

from the teachings of the disclosure.... Rather, it is a question of whether the application necessarily discloses that particular device.” Appeal Br. 9 (citing *PowerOasis, Inc. v. T-Mobile USA, Inc.*, 522 F.3d 1299 (Fed. Cir., 2008)). Appellant correctly asserts that the Examiner acknowledges that paragraphs 82 and 145 of the Specification disclose using memory alloy wire as an active tensioning element in a mask assembly. *Id.* (see Final Act. 3, 14). Appellant contends that the “how to implement” issues raised by the Examiner “relate to the manner and process of constructing and using the invention,” which is a question of enablement rather than written description. *Id.* Appellant concludes that sufficient written description exists within the Specification, and “the Examiner cannot show insufficient written description by arguing lack of enablement.” *Id.* Appellant further argues that the Examiner has not established lack of enablement, because the *Wands* factors have not been addressed. *Id.* at 10.

Appellant has the better argument. An objective standard for determining compliance with the written description requirement is whether “the description clearly allow persons of ordinary skill in the art to recognize that [the inventor(s)] invented what is claimed.” *In re Gosteli*, 872 F.2d 1008, 1012 (Fed. Cir. 1989). The Examiner acknowledges that paragraphs 82 and 145 of Appellant’s Specification disclose using electrical and mechanical systems, for example using shape memory alloy wire, as an active tensioning element in a mask assembly. *See* Final Act. 3, 14 (“Paragraph 82 recites that the raviolus 145 can be replaced by electrical and mechanical means and paragraph 145 recites that shape memory alloy wires that contract when electric current is applied may be used as active tensioning elements”). The Examiner does not appear to consider the

knowledge of a skilled artisan in setting forth the written description rejection, though such knowledge must be considered. Having considered Appellant's disclosure in its entirety, we agree with Appellant that a skilled artisan would understand that Appellant invented the claimed "active tensioning element being configured to expand or contract when an electric current is applied to the active tensioning element to automatically adjust headgear tension." Although Appellant's Specification does not set forth the particulars of implementing other tensioning mechanisms including the shape memory alloy wire, the Examiner's issue with the missing "how" and "where" of implementing electrical current tensioning is more apt for consideration under the enablement requirement.

Regarding enablement, the claimed invention must be enabled "so that any person skilled in the art can make and use the invention without undue experimentation." *See In re Wands*, 858 F.2d at 737, (Fed. Cir. 1988) (setting forth 8 factors for consideration of whether undue experimentation is required). Because the Examiner has not provided an analysis of whether undue experimentation is required, we do not consider whether the claims satisfy the enablement requirement.

For the reasons explained above, the written description rejection is not sustained.

*Rejection II – Obviousness – Claims 1–3 and 5–21*

Regarding claim 1, the Examiner finds that Bertheau discloses the claimed invention, except for the controllable active tensioning element being "configured to expand or contract when an electric current is applied to the active tensioning element." Final Act. 5–6. The Examiner finds that Steckmann, however, discloses a controllable active tensioning element in

its “compression sleeve including tubular areas 14-1 th[r]ough 14-4 and memory wires 6-i that are heated in order to contract by means of a control device 16 (Pages 3-4, para 47-48).” *Id.* at 6. The Examiner concludes that it would have been obvious to modify Bertheau’s active tensioning element valve with Steckmann’s “shape memory alloy wires and a control device” to provide “an alternate extendible mechanism having the predictable results of tension adjustment based on Bertheau’s sensor 84.” *Id.* The Examiner considers exchanging shape memory alloy wires for pneumatics to be a simple substitution of one known element for another to obtain predictable results. *Id.*; MPEP § 2143; *KSR Intern. Co. v. Teleflex Inc.*, 550 U.S. 398, 401 (2007).

Appellant argues claims 1–3 and 5–21 as a group. Appeal Br. 6–10. We select claim 1 as representative. Claims 2, 3, and 5–21 stand or fall with claim 1.

Appellant argues that the Examiner’s “simple substitution” reasoning lacks a rational basis, because the proposed modification of Bertheau “requires a substantial reconstruction and redesign” of Bertheau’s elements, that would “change the core of Bertheau’s invention.” Appeal Br. 14. According to Appellant, Bertheau is directed to breathing masks with inflatable harnesses driven by pneumatic systems, and more particularly to improving the pneumatic systems. *Id.* at 14–15. Appellant contends that replacing Bertheau’s entire pneumatic system “with a memory wire system . . . is not an alternate way of achieving the solution of Bertheau because the elimination of the pneumatic system and the removal of the inflatable element from the harness eliminates the very purpose of Bertheau’s invention.” *Id.* at 15. Appellant further argues that “the difference between

Bertheau and Appellants' claimed 'patient interface assembly' is fundamental and more than the mere substitution of some components with other components." *Id.*

The Examiner responds that both Bertheau and Steckmann use sensors to alter/adjust tension on a user's body, with Bertheau using pneumatics for tension adjustment and Steckmann using shape memory alloy wires for tension adjustment. Ans. 23. The Examiner contends that it would have been obvious to modify Bertheau's valve 86 to replace its pneumatic adjustment "with a memory wire incorporated into the tubular harness and electrical connections in communication with the memory wire, control and sensor," as disclose by Steckmann "to provide alternate tensioning structure." *Id.* The Examiner further contends that this replacement of pneumatics with shape memory alloy wires "is a simple substitution of the tensioning structure in which the valve and pneumatic connection of Bertheau is replaced with a memory wire and electrical connection" to provide "pressure on a user's body." *Id.* The Examiner does not propose removing Bertheau's entire pneumatic system – just the tensioning adjustment structure. *Id.*

The Examiner disagrees that this replacement would eliminate Bertheau's principle of operation, because Bertheau's principle of operation is defined by the Examiner as "altering the headgear tension based on sensor readings," which can be achieved with either pneumatic or shape memory alloy adjustment. *Id.*

Appellant replies that replacing Bertheau's tensioning system with Steckmann's tensioning system "would require removing all of the pneumatic elements included in the connection block 12 and modifying []



the source of gas so that it only supplies the respiratory mask.” Reply Br. 6–7. Further, Appellant argues, Bertheau’s straps 16 “with their inner tubes would also need to be modified or replaced,” and “the algorithm for increasing and decreasing tension would have to be modified since Bertheau teaches supplying the medium to reduce tension, while Steckmann teaches supplying the medium to increase tension.” *Id.* Appellant contends that this amounts to “a complete redesign” instead of a simple substitution. *Id.*

Appellant also argues that the Examiner’s proffered principle of operation ignores Bertheau’s explicitly-disclosed purpose and solution. *Id.* According to Appellant, when a reference explicitly discloses the purpose of the invention, the Board should limit the principle of operation of the invention to its contribution to the art. *Id.* (citing *Plas-Pak Industries, Inc. v. Sulzer Mixpac AG*, No. 2013007786, 2014 WL 203101 (P.T.A.B. Jan. 17, 2014) (upheld by the Federal Circuit, *see Plas-Pak Industries, Inc. v. Sulzer Mixpac AG*, No. 2014-1447 (Fed. Cir. Jan. 27, 2015) (non-precedential)).

We first note that Appellant’s own Specification does not explain, in detail, how other disclosed variations in strap tensioning systems, such as shape memory alloy wires, would be substituted for pneumatics. *See Spec.* ¶¶ 82, 145. Appellant thus relies, we presume, on the knowledge of a skilled artisan to supply implementation details. Therefore, it would seem that, at the time of filing, Appellant believed that a skilled artisan would understand how to implement the claimed “active tensioning element . . . configured to expand or contract when an electric current is applied.”

Further, a review of the entirety of Steckmann informs us that Steckmann considers its sleeve 14 with shape memory wires 6-I to be a suitable replacement for sleeves that have air chambers applying pressure

via pneumatics. *See* Steckmann ¶¶ 5–13. That shape memory alloy wires are disclosed as being less expensive and cumbersome than pneumatic systems does not negate Steckmann’s disclosure of the two as known substitutes that achieve predictable results (i.e., application of controlled desired pressure in the sleeve). *See id.*

Still further, the Supreme Court has opined that “[a] person of ordinary skill in the art is also a person of ordinary creativity, not an automaton.” *KSR*, 550 U.S. at 421. The court held that “in many cases a person of ordinary skill will be able to fit the teachings of multiple patents together like pieces of a puzzle.” *Id.* at 420. Appellant has not persuaded us that a person of ordinary skill could not fit the teachings of Bertheau and Steckmann together “like pieces of a puzzle” as proposed by the Examiner to replace Bertheau’s pneumatic tension adjustment with Steckmann’s shape memory allow tension adjustment system. It is unclear to us why a skilled artisan could not, likewise, modify the algorithm for increasing and decreasing tension to accommodate the different actuation requirements of the alternative systems.

Lastly, the *Plas-Pak* cases cited by Appellant are non-precedential, and are fact-specific, rather than dictating generally that an inventor’s objective should or must be added to the “principle of operation.” No evidence support’s Appellant’s contention that the Examiner’s determination regarding the principle of operation is overbroad, and we discern no overbreadth in the Examiner’s determination.

Appellant also argues that a skilled artisan would not have looked to Steckmann to modify Bertheau. Appeal Br. 15. According to Appellant, “Steckmann focuses on supplying sufficient compression to . . . treat

medical conditions such as swelling, lack of blood flow to the brain, and bed sores,” and none of these “medical conditions are experienced during the use of a breathing mask, nor are breathing masks used to treat the above medical conditions.” *Id.* (citing Steckmann ¶¶ 2–7). Appellant contends that breathing mask headgear is “designed to avoid or minimize compression,” and “compressing a user’s head as in Steckmann would create discomfort and “even cause harm to the user.” *Id.* (citing Bertheau 1:15–38). In fact, Appellant argues, Steckmann’s “intermittent compression” is “the antithesis of what is desired for a breathing mask harness.” *Id.* at 15–16.

Appellant acknowledges that “Steckmann discloses using memory wire to overcome deficiencies of a pneumatic system,” but argues that the pneumatic system deficiencies identified by Steckmann (e.g., expense of pneumatics (Steckmann ¶ 5) and being cumbersome) are not relevant to Bertheau’s breathing mask, because Bertheau would still need its compressor and pneumatics for oxygen delivered to the breathing mask. Appeal Br. 16. Thus, Appellant contends, using “Steckmann to modify Bertheau can only be the result of impermissible hindsight reasoning to reconstruct Appellants’ claimed invention after the fact.” *Id.*

The Examiner responds that “[b]oth Bertheau and Steckmann teach extendable tubular bodies that expand and contract around a user’s body based on pressure sensors” to achieve a desired pressure/tension, and that it would have been obvious to “look to Steckmann to teach an alternate tensioning structure.” Ans. 24. The Examiner notes that “the specific pressures applied to the user’s head in Bertheau are not altered by the teachings of Steckmann” in the proposed combination of Bertheau and Steckmann, such that Steckmann’s undesired pressure levels need not be

applied in Bertheau just because Steckmann's shape memory alloy wires are used. *Id.* Further, Appellant provides no evidence that Steckmann's device requires pressure above those desirable in Bertheau. *See id.* The Examiner further responds that Bertheau retaining some pneumatics and thus not achieving Steckmann's alluded-to cost saving or convenient sizing is not persuasive, because the proposed combination need not achieve the same objective of Steckmann. *See id.* at 25.

Regarding the use of impermissible hindsight, the Examiner responds that

any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper.

Ans. 26 (citing *In re McLaughlin*, 443 F.2d 1392 (CCPA 1971)).

In this case, the Examiner argues, both Bertheau and Steckmann teach extendable tubular bodies that expand and contract around a user's body based on pressure sensors and particular desired pressures/tension levels, and "therefore it would have been obvious to one of ordinary skill in the art to look to Steckmann to teach an alternate tensioning structure." *See id.* The Examiner further concludes that the proposed combination "would yield the predictable results of dynamically adjusting tension in an extendable tubular body on a user's body based on sensor readings." *Id.* at 27 (discussing analogous art).

Appellant replies that the alleged tubular members of Bertheau and Steckmann interact with the user in unrelated ways, because Bertheau's straps 16 expand and contract to support a respiratory mask on a user's face

with maximum comfort, whereas Steckmann's compression device is intended to compress the user's leg, knee, arm, etc. to provide medical treatment or a massage. Reply Br. 9 (citing Steckmann ¶¶ 42, 47). Appellant contends that the teachings of Bertheau and Steckmann are so different that one of ordinary skill would not have looked to Steckmann to modify Bertheau without impermissible hindsight reasoning. *Id.*

The Examiner has the better argument. It is Steckmann, not Appellant's own disclosure, that supports the Examiner's reasoning. Steckmann itself discloses that pneumatics are known for providing intermittent medical compression/tension on a patient (Steckmann ¶¶ 5–6), but that shape memory alloy wires can be substituted for pneumatics to provide a cheaper and less cumbersome device with predictable results (Steckmann ¶¶ 7–16). Given this disclosure in Steckmann, we disagree with Appellant's contention that impermissible hindsight must have been employed by the Examiner. Given Steckmann's teaching of pneumatics and shape memory alloy being substitutable intermittent compression/tension adjustment mechanisms for medical treatment of a patient, we further disagree that possible differences in desirable treatment timing and pressure levels mean that a skilled artisan would not have looked to Steckmann to modify Bertheau.

Appellant lastly argues that Steckmann is non-analogous art, because it is neither in the inventor's field of endeavor nor reasonably pertinent to the particular problem with which the inventor is involved. Appeal Br. 16. According to Appellant, the inventors' field of endeavor is “a ‘patient interface for noninvasive positive pressure ventilation of a patient,’” and

Steckmann's field of endeavor is "a fabric that intermittently compresses or massages a user's body part." *Id.* (citing Steckmann ¶ 47).

Further, Appellant contends that the inventors' "particular problem relates to dynamically adjusting headgear tension in a patient interface to compensate for varying gas pressure in the patient interface," whereas Steckmann's particular problem "relates to applying compression to a person's body part to treat medical conditions such as swelling, lack of blood flow to the brain, and bed sores." *Id.* at 17 (citing Spec. ¶ 9, Steckmann ¶¶ 2-7).

The Examiner responds that Appellant's and Steckmann's particular problem should be more broadly defined as "dynamically adjusting tension in an extendable tubular body on a user's body based on sensor readings." Ans. 27 (citing Steckmann ¶¶ 47-48).

Appellant replies that "Steckmann's particular problem is much narrower than just dynamically adjusting tension in an extendible tubular body based on sensor readings." Reply Br. 10. Appellant argues that "adjusting tension in a patient interface headgear (Appellants' goal) is very different from Steckmann's goal," because "the tension in [Appellant's] patient interface is adjusted to minimize or avoid compression," whereas Steckmann's device is design to provide compression. *Id.* Thus, Appellant argues, because "Appellants' goal and Steckmann's goal are antithetical to each other, the respective problems solved by Appellants and Steckmann cannot be the same," and "characterizing the two particular problems as being the same is an unreasonably broad redefinition of the particular problems." *Id.*

Appellant also argues that “the USPTO cannot redefine in an extremely broad manner the problems addressed by a particular patent application to simply reject the claims.” Reply Br. 10 (citing *In re Klein*, 647 F.3d 1343, 1350–1351 (Fed. Cir. 2011)).

While we agree with Appellant that it is improper for an Examiner to employ an unreasonably broad definition of the particular problem, Appellant has provided us with no evidence or persuasive reasoning that the Examiner’s defined problem is unreasonably broad. Initially, we disagree with Appellant’s contention that “Appellants’ goal and Steckmann’s goal are antithetical to each other” (Reply Br. 10). Both devices seek to use tensioning to press against a user’s body. That Steckmann presses for therapy and Appellant presses to maintain a seal are not antithetical. The difference, rather, seems to be one of degree that would be understood by a skilled artisan. Appellant provides no evidence to the contrary.

Under an analogous art analysis, “any need or problem known in the field of endeavor at the time of the invention and addressed by the patent [or application at issue] can provide a reason for combining the elements in the manner claimed.” *KSR*, 550 U.S. at 420. The Examiner is correct that a problem addressed by Appellant’s patent can be reasonably defined as “dynamically adjusting tension in an extendable tubular body on a user’s body based on sensor readings” (Ans. 27). That there may be additional, more specific, problems is not dispositive of Examiner error. Given this definition of the problem, we agree with the Examiner that Steckmann is pertinent to the problem and that Steckmann is therefore analogous art.

For the reasons explained above, we sustain the rejection of claim 1. Claims 2, 3, and 5–21 fall with claim 1.

*Conclusion*

Because we reverse the written description rejection, claim 4, which was not subject to the obviousness rejection, is no longer subject to any rejections.

DECISION SUMMARY

In summary:

<b>Claims Rejected</b>	<b>35 U.S.C. §</b>	<b>Basis</b>	<b>Affirmed</b>	<b>Reversed</b>
1-20	112	Written Description		1-20
1-3, 5-21	103	Bertheau, Steckmann	1-3, 5-21	
<b>Overall Outcome</b>			1-3, 5-21	4

TIME PERIOD FOR RESPONSE

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a). *See* 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED IN PART